Final
SUPPLEMENTAL
ENVIRONMENTAL IMPACT REPORT (EIR)

STATE CLEARINGHOUSE NO 2007072036

FOR THE

SAN FRANCISCO BAY AND DELTA SAND MINING PROJECT

PREPARED FOR

CALIFORNIA STATE LANDS COMMISSION

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PART I – PREFACE TO THE FINAL SUPPLEMENTAL EIR

PURPOSE

This document is the Final Supplemental Environmental Impact Report (SEIR) for the San Francisco Bay and Delta Sand Mining Project (Revised Project). The Final SEIR has been prepared for consideration by the California State Lands Commission (CSLC or Commission), as the lead agency for this project, pursuant to the California Environmental Quality Act (CEQA) and in accordance with the State CEQA Guidelines (Public Resources Code, § 21000 et seq. and Cal. Code Regs., tit. 14, § 15000 et seq., respectively).

The Commission will rely on the SEIR along with other information in the administrative record in deciding whether to approve, approve with modifications, or deny the lease applications for the Revised Project that require discretionary approval. The Commission will use this Final SEIR along with other information in the administrative record when considering whether to certify the Final SEIR. Other agencies with trustee responsibilities or permitting authority over the Revised Project (such as the San Francisco Bay Conservation and Development Commission [BCDC], the San Francisco Bay and Central Valley Regional Water Quality Control Board(s), and California Department of Fish and Wildlife [CDFW], among others) may rely on the information provided in the Final SEIR in deciding whether to approve permits or issue necessary approvals.

REVISED PROJECT OVERVIEW

Martin Marietta Marine Operations, LLC. (Martin Marietta) (formerly Hanson Marine Operations Inc., a Heidelberg Cement Group affiliate), Lind Marine Inc. (Lind), and Suisun Associates (collectively, the Applicants) hold leases issued by CSLC to harvest sand commercially (sand mining) within the San Francisco Bay-Delta estuary. The CSLC is considering issuing new leases of California sovereign lands (at the existing lease parcel sites) to the Applicants for an additional 10-year period. The leases, if approved, would allow the Applicants to continue mining sand within the lease area boundaries, subject to receiving all other necessary permits and approvals. The Applicants propose to mine a combined volume of 1,630,000 cubic yards per year from the CSLC parcels and 120,000 cubic yards per year from a private parcel in Suisun Bay. The existing leases overlay sovereign lands under the jurisdiction of the CSLC: PRC 709.1 (Presidio, Alcatraz North, and Point Knox North Shoals); PRC 2036.1 (Point Knox South); PRC 7779.1 (Point Knox Shoal); PRC 7780.1 (Alcatraz South Shoal); and PRC 7781.1

(Suisun Bay/Delta). The Applicants have applied to the CSLC to issue new leases to authorize commercial mining of sand for 10 additional years (evaluated by the CSLC as a revision to the previously approved Project). The SEIR supplements the environmental analysis in the San Francisco Bay and Delta Sand Mining Project Environmental Impact Report (certified on October 19, 2012, State Clearinghouse (SCH) #2007072036).

ORGANIZATION OF THE FINAL SEIR

The Final SEIR, reproduced for convenience in one document, replaces the August 15, 2025, Draft SEIR. The Draft SEIR detailed the Revised Project; evaluated and described the potential environmental impacts associated with the Revised Project; identified those impacts that could be significant; and presented mitigation measures that, if adopted, would avoid or minimize these impacts. The Draft SEIR also evaluated alternatives to the Project, including a No Project Alternative and a Reduced Project Alternative.

Consistent with the State CEQA Guidelines section 15132, the Final SEIR consists of the following elements:

- **Part I:** Preface describes the purpose and use of the Final SEIR and outlines the CEQA chronology.
- **Part II:** Contains comments and responses to comments received on the Draft SEIR during the 45-day public comment period, including a list of all persons, organizations, and public agencies that provided comments on the Draft SEIR.
- **Part III:** Revisions to the Draft SEIR and any other information added to the SEIR by CSLC as the lead agency. Part III includes the entire text of the Draft SEIR, as revised, including revisions to the text of the Draft SEIR in response to comments received or for reasons that include: to update information; to refine discussions and resolve internal inconsistencies; and to make minor format changes or otherwise resolve errors or omissions. Some changes may result in shifting of text from one page to another. Except for minor format changes, all revisions to the Draft SEIR are shown as follows:
    - Additions to the text of the Draft SEIR are <u>underlined</u>.
    - Deletions to the text of the Draft SEIR are shown as ~~strikeout~~.

The Final SEIR may be viewed electronically on the CSLC website: https://www.slc.ca.gov/ceqa/ and in printed form at the following locations:

- California State Lands Commission, 100 Howe Avenue, Suite 100-South, Sacramento, CA 95825
- San Francisco Main Library, 100 Larkin Street, San Francisco, CA 94102

PROJECT CEQA CHRONOLOGY

The following is a brief chronology of the CEQA review process associated with the Revised Project (see also Part III, Section 1.2, Overview of Environmental Review Process, of the Final SEIR).

- **May 25, 2023.** The Notice of Preparation (NOP) of a Supplemental Environmental Impact Report and Notice of Public Scoping Meeting was published. Nine written comment letters were received during the NOP scoping period that ended on June 26, 2023 (Appendix B).
- **June 8 and 20, 2023.** One in-person and one hybrid (in-person and virtual (Zoom)) public scoping meeting were held on June 8, 2023, to solicit comments on the scope of the SEIR. At the beginning of the hybrid meeting, staff learned that the Zoom link provided was incorrect, so on June 9, 2023, CSLC posted on its website and emailed to interested parties notice of an additional virtual meeting that was held on June 20, 2023. No oral comments were provided at any of the three scoping meetings.
- **August 15, 2025 – September 29, 2025.** The Draft SEIR was released for a 45-day public review with comments accepted by mail, email, and online (Zoom) at a public meeting (two sessions). One oral comment was received during the evening session of the public meeting and sixteen written comment letters were received during the public review period (see Part II of the Final SEIR).
- **September 11, 2025.** Two online (Zoom) public meeting sessions on the Draft SEIR were held at 2:00 p.m. and 6:00 p.m. At the meeting sessions, attendees had the opportunity to present oral or written testimony on the Draft SEIR. One speaker provided comments at the 6 p.m. meeting. A copy of responses to comments received is provided in Part II of the Final SEIR.

- **September 2025 - January 2026.** In preparing this Final SEIR, CSLC staff obtained additional information as needed to respond to comments, responded to all comments received, and revised the Draft SEIR (see Final SEIR Parts II and III). At its February 9, 2026 meeting, the Commission will consider certifying the Final SEIR and acting on the Revised Project (see www.slc.ca.gov for further information on meeting time and location when they become available).

PART II – RESPONSES TO COMMENTS

MASTER RESPONSES

Master Response A, Public Review Period

Six letters were received from organizations requesting an extension of the public review period for the Draft Supplemental Environmental Impact Report (Draft SEIR). For the reasons discussed below, the California State Lands Commission (CSLC), as CEQA Lead Agency, did not extend the public review period.

CEQA and the CEQA Guidelines establish the appropriate time periods for public review of draft EIRs (See Public Resources Code section 21091 and CEQA Guidelines sections 15087, 15105, and 15205). For example, CEQA Guidelines section 15105(a) provides this instruction: "The public review period for a draft EIR shall not be less than 30 days nor should it be longer than 60 days except under unusual circumstances. When a draft EIR is submitted to the State Clearinghouse for review by state agencies, the public review period shall not be less than 45 days, unless a shorter period, not less than 30 days, is approved by the State Clearinghouse." As a state agency, the CSLC circulated the Draft SEIR for the Revised Project for 45 days. No unusual circumstances warranted an extension.

Consistent with CEQA Guidelines section 15203(a), the duration of the review period was both clearly stated in public notices and adequate. See Final SEIR Appendix H, *Draft SEIR Public Notices*. The SEIR supplements the 2012 San Francisco Bay and Delta Sand Mining Project EIR and provides cross references to relevant sections of the 2012 EIR to assist with comparison and review. As explained in Draft SEIR Executive Summary Section ES.2.1 (p. ES-5) and in Section 1.2.4.1 (p. 17), only minor additions or changes were necessary to make the 2012 EIR adequate to analyze the Revised Project; 45 days is a sufficient period to review minor additions and changes. Project noticing was sent to state responsible and trustee agencies, potentially affected federal agencies, Tribes, individuals, organizations, and others who requested notification about the SEIR, as well as those who provided input during the scoping period. The Notice of Availability of a Draft SEIR (NOA) was provided to four County Clerks' offices (San Francisco, Solano, Contra Costa, and Sacramento counties) and published along with the Draft SEIR on the State Clearinghouse website (SCH # 2007072036) and on CSLC's public website. Notice to the general public also was provided via publication in the San Francisco Examiner on August 17, 2025. In addition to

inviting written comments, the NOA also advised interested parties of opportunities to provide oral input about the Draft SEIR. The CSLC held two virtual public meetings to receive comments on the Draft SEIR on September 11, 2025: one meeting at 2:00 p.m. and one at 6:00 p.m. to provide greater public participation and access. Because the public comment period was adequate, notification given, and the timing clear, the CSLC did not extend the public comment period.

Separate from these opportunities to provide comments specifically on the Draft SEIR, there will be an opportunity for the public to address the Commission on the adequacy of the SEIR as a whole, including these responses to comments, when the Commission considers certification of the SEIR and issuance of leases to the project applicants (anticipated to occur on February 9, 2026).

Master Response B, Reliance on the 2012 EIR

B1. The Commission's decision to prepare a Supplemental EIR in reliance on the 2012 EIR is supported by substantial evidence and is consistent with CEQA: CEQA does not require preparation of a Subsequent EIR for the Revised Project.

CEQA and the CEQA Guidelines limit the circumstances under which further environmental review is required after a project has already undergone full CEQA review. Once the CEQA process is completed for a project, Public Resources Code section 21166 and CEQA Guidelines section 15162 explain that an agency only needs to assess substantial changes to the previously approved project, substantial changes in circumstances, or new information of substantial importance. In this context, "substantial" means that the change would result in a new significant impact or a more severe significant impact than identified in the previous EIR. Where only "minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation," CEQA Guidelines section 15163(a) authorizes the lead agency to prepare a supplement to an EIR. The CSLC properly exercised that authority here, as discussed in Section 1.3 of the Draft SEIR.

The 2012 EIR is "complete" for purposes of Public Resources Code section 21166 and CEQA Guidelines section 15162. The Commission certified the 2012 EIR on October 12, 2012. The 2012 EIR describes and analyzes the impacts of the San Francisco Bay and Delta Sand Mining Project as proposed at that time (2012 Project). The 2012 EIR was litigated and thereafter upheld. See, *San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal.App.4th 202. Thus, the

2012 EIR underwent full CEQA review (i.e., was "complete"). The Commission's issuance of leases followed.

The applications for lease renewal requested as part of the Revised Project trigger additional CEQA review. Martin Marietta Marine Operations, LLC (Martin Marietta) and Lind Marine Inc. (Lind) applied to the CSLC for lease renewals that would change the previously approved project (2012 Project) with their new request to "authorize continued commercial mining of sand for 10 additional years from the date of lease issuance at reduced maximum annual and total sand mining volumes over the proposed lease term… relative to the maximum annual and total volumes previously evaluated under the 2012 EIR for the term of the prior Leases." (Draft SEIR, p. ES-1). In evaluating the applications, the CSLC determined that the Revised Project may involve new significant environmental effects or a substantial increase in the severity of previously identified significant impacts as a result of "the availability of new scientific information developed subsequent to the 2012 EIR" (Draft SEIR, p. 1-7) and minor changes from the 2012 Project (i.e., reduction in mining volumes). The CSLC therefore decided, pursuant to CEQA Guidelines section 15163, to prepare an SEIR to evaluate the potential significant impacts associated with the Revised Project.

The CSLC clearly signaled its intention to rely on the 2012 EIR in the Notice of Preparation of an SEIR for the Revised Project. This path forward reflects the CSLC's determination that the 2012 EIR retains relevance in light of the changes. Stated another way, the CSLC determined that the 2012 EIR continues to have "informational value" consistent with the California Supreme Court's ruling in *Friends of the College of San Mateo Gardens v. San Mateo Community College District* (2016) 1 Cal.5th 937. As explained in the *Friends* decision, "The subsequent review provisions ... are ... designed to ensure that an agency that proposes changes to a previously approved project 'explore[s] environmental impacts not considered in the original environmental document.'" (1 Cal.5th at p. 951). Further (with emphasis in the original), "This assumes that at least *some* of the environmental impacts of the modified project were considered in the original environmental document, such that the original document retains some relevance to the ongoing decision-making process. A decision to proceed under CEQA's subsequent review provisions must thus necessarily rest on a determination—whether implicit or explicit—that the original environmental document retains some informational value. If the proposed changes render the previous environmental document wholly irrelevant to the decision-making process, then it is only logical that the agency start from the beginning under [Public Resources Code] section 21151…." Here, the 2012 EIR analyzes more

than "some" of the impacts of the Revised Project – it analyzes all of them. Therefore, the analysis set forth in the 2012 EIR is entirely relevant to CSLC's current environmental document.

As further explained in *California Coastkeeper Alliance v. State Lands Commission* (2021) 64 Cal. App. 5th 36, 57, "The event of a change in a project is not an occasion to revisit environmental concerns laid to rest in the original analysis. Only changed circumstances ... are at issue." Therefore, the SEIR properly focuses on the effect of the changes (including minor changes to the 2012 Project and the new information that has since been developed), not the larger sand mining project as previously approved in 2012.

Some comments (such as Comment O8-6) question the characterization of changes needed to the 2012 EIR to adequately cover the Revised Project as "minor," suggesting that "major" changes are necessary and that, as a result, the CSLC should have prepared a subsequent EIR rather than a supplemental EIR. Because substantial evidence[1] supports the decision to prepare a supplemental EIR, the CSLC disagrees with comments that suggest otherwise. As the Court noted in *California Coastkeeper Alliance v. State Lands Commission* (2021) 64 Cal. App. 5th 36, 59, "CEQA Guidelines section 15163 applies when 'an EIR can be made adequate by additions or changes that respond to a limited set of issues' whereas a subsequent EIR is necessary '[w]hen the previous EIR must be rewritten from the ground up to make its environmental analysis adequate.'" SEIR Chapter 2 (p. 2-1 et seq.) explains the limited ways that the Revised Project would modify the 2012 Project, i.e., the Revised Project would continue the 2012 Project for an additional 10-year lease term at reduced total and annual permitted extraction volumes and would use fewer offloading sites than analyzed in the 2012 EIR. As stated in Section 3.1 of the SEIR, "a primary impetus for development of the SEIR are the 12 technical studies produced since the 2012 EIR." Those studies (see Draft SEIR Section 1.2.3) were evaluated for their potential to provide new information of substantial importance. Chapter 3 of the SEIR evaluates the effects of the new information and technical studies prepared since 2012 and the Revised Project components on the resource areas evaluated in the 2012 EIR concluding that the findings within the technical

[1] CEQA Guidelines section 15384 defines substantial evidence to include "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." Further, "Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence."

studies are consistent with the conclusions reached in the 2012 EIR. Ultimately, the SEIR finds that the Revised Project will create no new significant impacts nor an increase in the severity of any impacts relative to the conclusions reached in the 2012 EIR. Because only minor changes are necessary to address these limited issues, and thus to make the 2012 EIR apply to the Revised Project, the CSLC is correct to prepare a Supplemental EIR.

B2. Consistent with CEQA, the SEIR considered and evaluated more than a dozen new technical studies that have become available since the 2012 EIR was certified.

The Draft SEIR analyzes more than a dozen technical studies that have become available since certification of the 2012 EIR (see Section 1.2.3), as they meet the standard for "new information of substantial importance" as set forth in Public Resources Code section 21166[c] and CEQA Guidelines section 15162[a][3].[2] Comments (such as Comment O8-9) suggesting that the SEIR did not consider relevant scientific developments since the 2012 EIR was certified are incorrect.

The Draft SEIR considers whether the preparation of the 12 monitoring and technical studies identified in Draft SEIR Section 1.2.3 (p. 1-6) and in the additional post-2012 study identified in the hydrology and water quality analysis (i.e., Fregoso et al., 2024, which is identified on Draft EIR, p. 3.4-3) provides information that, if known at the time, would have supported a conclusion that the 2012 Project would have created a new significant impact or a more severe significant impact than was disclosed in the 2012 EIR. The SEIR concludes that none of the studies (which relate to benthic and sediment transport,

[2] CEQA and the CEQA Guidelines provide that a subsequent or supplemental EIR is required if new information of substantial importance becomes available that was not known (and could not have been known with the exercise of reasonable diligence) when the prior environmental review was certified as complete (Public Resources Code section 21166[c]; CEQA Guidelines section 15162[a][3]). New information meets this standard if it shows any of four things, i.e., that: 1) the project will have significant effects not evaluated in the prior EIR or negative declaration, 2) significant effects previously examined will be substantially more severe than shown in the prior EIR, 3) mitigation measures or alternatives found infeasible are in fact feasible and would substantially reduce significant effects of the project but the project proponents decline to adopt them, or 4) mitigation measures or alternatives considerably different from those analyzed in the EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt them.

geomorphology, and water quality, among other topics) would have changed the significance conclusions reached in the 2012 EIR if they had been available for consideration then. See, e.g., Draft EIR Section 3.4 (p. 3.4-1 et seq.) and Draft SEIR Appendix E, *Consideration of Post-2012 Technical Studies*, which provide substantial evidence supporting a conclusion that each of the later-prepared studies either is consistent with or otherwise does not affect the impact determinations reached in the 2012 EIR for any of the evaluated resource areas.

Some comments (such as Comment A4-6 and Comment O8-9) suggest that the CSLC also should have relied on the Independent Science Panel's 2024 synthesis of the technical studies identified in the SEIR. However, the Independent Science Panel's synthesis is a summation of the same studies that are identified and analyzed in the SEIR. Instead of relying on a summary of the studies, the SEIR relies on the facts and conclusions that are directly presented in the studies themselves, and the CSLC has utilized qualified experts (see Draft SEIR Chapter 7, Report Preparation, p 7-1 et seq.) to incorporate those facts and determinations into the environmental discussion, impact analysis, and relevant mitigation in the SEIR. Other experts may draw different conclusions based on the same data; however, any such disagreements do not support a conclusion that the SEIR's analysis is inadequate or inaccurate. See, e.g., *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376, 408 and *Save the Hill Group v. City of Livermore* (2022) 76 CA5th 1092, 1115, which hold that an agency may adopt the environmental conclusions supported by expert reports or otherwise by experts who prepared the EIR even though others may disagree with the underlying data, analysis, or conclusions.

CSLC has reviewed and considered the professional opinions provided in comments, such as Comment O8-9 and Comment I1-5, and acknowledges that different conclusions may be drawn about the studies completed since the 2012 EIR was certified. The main points of disagreement may be summarized as regarding the impacts of current mining on bathymetry, sediment transport and supply, and erosion at Ocean Beach. Nonetheless, and contrary to the suggestion in Comment A4-15, the apparent disagreement among experts about these issues does not support a conclusion that the SEIR is limited, incomplete, or incorrect. As explained in Master Response D, *Technical Studies*, the 12 studies outlined in Appendix E, *Consideration of Post-2012 Technical Studies*, and throughout the SEIR represent a thorough, reasonable, good faith effort at full disclosure and when considered alongside the additional studies referenced by several commenters, provide sufficient substantial evidence to support the SEIR's conclusions of the Revised Project's impacts. The SEIR,

including SEIR Section 3.4's evaluation of the Revised Project's impacts on hydrology and water quality, provides the Commission and other agency decisionmakers with information that enables them to thoroughly and intelligently take environmental consequences into account.

Master Response C, Reliance on the 2012 Baseline

CEQA requires an EIR to "include a description of the physical environmental conditions in the vicinity of the project" (CEQA Guidelines sections 15125[a] and 15126.2[a]). This environmental baseline provides the foundation for meaningful environmental analyses because "[i]t is only against this baseline that any significant environmental effects can be determined" *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal. App. 4th 931, 952.

Under CEQA, the environmental baseline usually is set as the date of the Notice of Preparation (NOP). Comment O6-12 suggests this approach as appropriate for an evaluation of sand transport considerations. However, when an SEIR is prepared, the context and the CEQA baseline date are different. When an SEIR is prepared, the lead agency's scope of environmental review is limited to whether the existing environmental analysis (i.e., the 2012 EIR in this situation) is sufficient to evaluate the impacts of the project as revised or whether further analysis is needed (CEQA Guidelines sections 15162 and 15163). Because the purpose of an SEIR is to analyze changes in the Revised Project as compared to the previously analyzed project, the most appropriate baseline is the approved project analyzed in the original EIR. Acknowledging receipt of comments asserting a different perspective (such as Comment O5-6 and Comment O9-9), CSLC elects to rely on the provisions of CEQA, the CEQA Guidelines, and case law interpreting CEQA that govern how to properly establish the baseline specifically in the context of an SEIR. Comment O5-6 correctly states that the description of the environmental setting for submerged vegetation habitat is the same in the 2012 EIR and in the SEIR; this is evidence that conditions occurring between approval of the 2012 Project and Revised Project remain similar and lends further support that reliance on the approved, fully disclosed project in the 2012 EIR as a baseline is appropriate.

Where a project under review merely modifies a previously analyzed project (and therefore requires only limited CEQA review in an SEIR per Public Resources Code section 21166 and CEQA Guidelines section 15162) and where a project merely continues operation of an existing facility without significant expansion of use (and therefore would be exempt from CEQA review under CEQA Guidelines section 15301), the CEQA baseline is adjusted such that the originally approved

project is assumed to exist. *Fairview Neighbors v. County of Ventura* (1999) 70 Cal.App.4th 238. Draft SEIR Executive Summary Section ES.1.1 (p. ES-1) defines the Revised Project as "continued commercial mining of sand for 10 additional years from the date of lease issuance at reduced maximum annual and total sand mining volumes over the proposed lease term (Revised Project) relative to the maximum annual and total volumes previously evaluated under the 2012 EIR for the term of the prior Leases." Based on the limited nature of the changes consisting primarily of an extension of ongoing activities, Draft SEIR Section 1.2.4.1, *Rationale for Supplemental EIR* (Draft SEIR, p. 1-7) explains that preparation of an SEIR is appropriate. In this context, and consistent with the Appellate Court's *Fairview Neighbors* decision, this SEIR analyzes the impacts of the Revised Project against the baseline of the 2012 Project as analyzed in the 2012 EIR and approved by the Commission at the time.

To the extent that comments (such as Comment O5-2) question the Commission's choice of baseline in the 2012 EIR, the statute of limitations has long since expired.

Master Response D, Technical Studies

Several comments address the technical studies used to assess and analyze the Revised Project's CEQA impacts. These comments generally requested the use of additional studies to support the analyses and conclusions in the SEIR. CSLC acknowledges those comments suggesting the use of technical studies other than those relied upon, has considered and weighed the information provided in the identified studies, and maintains that the technical studies evaluated in the SEIR provide thorough and adequate substantial evidence of the SEIR'S factual conclusions for the reasons presented below.

CEQA gives the lead agency that prepares an EIR the responsibility to decide the appropriate way to investigate and evaluate the project's significant environmental impacts and to identify mitigation measures and alternatives that might reasonably be available to reduce or avoid those impacts. The lead agency has broad discretion to consider how different studies and the information therein might be analyzed, and the information from those studies then used, to inform factual conclusions. To that end, "Disagreement among experts does not make an EIR inadequate … The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." (CEQA Guidelines section 15151.)

Courts have long held that although further investigation might be helpful to support an EIR's conclusions, that does not make it necessary. "CEQA does not

require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commentors" (CEQA Guidelines section 15204[a]). The Courts have upheld this principle numerous times. See, for example, *Bay Area Citizens v. Association of Bay Area Governments* (2016) 248 Cal.App.4th 966, 1017, citing *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App.4th 899, 937 ("An EIR is required to evaluate a particular environmental impact only to the extent it is 'reasonably feasible' to do so"). See also *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1115 ("CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project. The fact that additional studies might be helpful does not mean that they are required.").

CEQA also does not require an analysis to be exhaustive (CEQA Guidelines section 15151). It is "not necessary that the analysis be so exhaustively detailed as to include every conceivable study or permutation of the data" (*San Joaquin Raptor Rescue Center v. County of Merced* [2007] 149 Cal.App.4th 645, 666). Further, "[A]n EIR need not include all information available on a subject[;] ... [all that is required is] sufficient information and analysis to enable the public to discern the analytic[al] route the agency traveled from evidence to action" (*League to Save Lake Tahoe v. County of Placer* [2022] 75 Cal.App.5th 63, 139–140.).

As stated in Draft SEIR Appendix E, *Consideration of Post-2012 Technical Studies*, the 2012 EIR was prepared based on input from the community, regulatory agencies, technical analyses prepared by relevant experts, and independent review. It considered facts, reasonable assumptions based on facts, and expert opinion supported by facts regarding bathymetry and sediment dynamics relating to deposition and erosion. Technical study of these and related considerations has continued since the Commission's certification of the 2012 EIR. Appendix E describes in detail the suite of technical studies that have become available since publication of the 2012 EIR and which were considered when analyzing impacts of the Revised Project. Those studies were taken into consideration in order to identify data and conclusions as they may be relevant to development of the SEIR; identify relevant conclusions for consideration in the SEIR; inform an approach to considering the post-2012 technical studies in the SEIR; and, more generally, to identify similarities and differences among the post-2012 studies. Appendix E identifies the post-2012 technical studies that are the focus of this comparison and provides a summary of each of the studies and relevant conclusions. It also includes a table documenting key outcomes of this

comparison effort, principally including a summary of how the conclusions of each technical study compare with the impact conclusions in the 2012 EIR.

The 12 studies outlined in Appendix E, *Consideration of Post-2012 Technical Studies*, and throughout the SEIR represent a thorough, reasonable, good faith effort at full disclosure and, when considered alongside the additional studies referenced by several commenters, nevertheless still provide sufficient substantial evidence to support the SEIR's conclusions of the Revised Project's impacts. A lead agency "is not required to conduct every requested test in order to satisfactorily analyze a potential impact, and our courts have repeatedly emphasized that an EIR must demonstrate a good faith effort at full disclosure; it does not require perfection, nor exhaustive analysis" (*Tiburon Open Space Committee v. County of Marin* [2022] 78 Cal.App.5th 700, 754–755). Further, as stated by the California Supreme Court, "A project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR" (*Laurel Heights Improvement Association v. Regents of University of California* [1988] 47 Cal.3d 376, 415–416). Because the lead agency has discretion to determine the appropriate methodologies for analyzing an impact, a project opponent objecting to the analysis must show that further analysis would be necessary, not just helpful (see *County of Butte v. Department of Water Resources* [2023] 90 Cal.App.5th 147, 177; *League to Save Lake Tahoe Mountain Area Preservation Foundation v. County of Placer* [2022] 75 Cal.App.5th 63, 139–140). No such showing has been made by commenters on the draft SEIR.

For additional information about the technical studies relied upon in the draft SEIR, see Master Response B, Reliance on the 2012 EIR, as it relates to the SEIR's consideration and evaluation of more than a dozen new technical studies that have become available since the 2012 EIR was certified.

Master Response E, Alternatives

Several comments concerned the range of alternatives considered in the SEIR. Some of these comments suggested the SEIR consider additional alternatives, including alternatives that involve further reductions in mining volumes. CEQA Guidelines section 15126.6(a) states:

> An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative

> merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible…. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

Case law interpreting CEQA provides further guidance clarifying what constitutes a reasonable range of alternatives. For example, "An EIR must 'set forth only those alternatives necessary to permit a reasoned choice' and that 'could feasibly attain most of the basic objectives of the project'" (*Save Our Access etc. v. Watershed Conservation Authority* [2021] 68 Cal.App.5th 8, 31, citing *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* [2008] 43 Cal.4th 1143, 1163). Further, "Each case must be evaluated on its facts," recognizing that CEQA establishes "no categorical legal imperative as to the scope of alternatives to be analyzed in an EIR" (*Citizens of Goleta Valley v. Board of Supervisors* [1990] 52 Cal.3d 553, 566).

Case law also has established that "there is no rule specifying a particular number of alternatives that must be included" in an EIR (*San Franciscans for Livable Neighborhoods v. City and County of San Francisco* [2018] 26 Cal.App.5th 596, 633). "In determining the nature and scope of alternatives to be examined in an EIR, the Legislature has decreed that local agencies shall be guided by the doctrine of feasibility" (*In re Bay-Delta Programmatic Envtl. Impact Report Coordinated Proceedings* [2008] 43 Cal.4th 1143, citing *Citizens of Goleta Valley v. Board of Supervisors* [1990] 52 Cal.3d 553, 564). As the court pointed out in *Save Our Access etc. v. Watershed Conservation Authority* (2021) 68 Cal.App.5th 8, 31, several courts "have rejected the contention that an EIR must, as a matter of law, analyze more alternatives than the no project alternative."

The Draft SEIR describes the development of initially-considered alternatives and the screening criteria used to evaluate whether they meet the requirements of CEQA (Section 4.2, p. 4-1 et seq.); explains why some of the initially-considered alternatives failed to meet the screening criteria (Section 4.3, p. 4-5 et seq.); and describes and analyzes the remaining alternatives, including a No Project Alternative (Section 4.4, 4-9 et seq.). Based on the analysis, Draft SEIR Section 5.7, (p. 5-6) identifies the No Project Alternative as the environmentally superior alternative and then, consistent with CEQA Guidelines section 15126.6(e)(2), the Reduced Project Alternative. As further explained below, the Draft SEIR analyzed

a reasonable range of alternatives that could feasibly attain most of the basic objectives of the Revised Project (as described in Draft SEIR Section 2.2, p. 2-1) while avoiding or substantially lessening one or more of its significant environmental effects and otherwise meets the requirements of CEQA.

Some comments (such as Comments A4-4 and O8-1) suggest that the Draft SEIR should have provided a more detailed analysis of a reduced mining volumes alternative. The CSLC disagrees. As stated in the Draft SEIR on pp. 4-13–4-14, and shown in Final SEIR Section 4.4.2, alternatives with reduced mining volumes were analyzed but rejected from further consideration due to their potential to have the same or greater impacts as the Revised Project. With respect to biological resources, potentially significant impacts on delta and longfin smelt, white sturgeon, and Chinook salmon would remain under a reduced-volume alternative because as long as sand mining occurs, there remains some potential for take of a listed or candidate species to occur. Mitigation Measures BIO-8, BIO-9a, and BIO-9b would still be required for the Reduced Project Alternative. Under this alternative, impact conclusions reached in the Draft SEIR pertaining to other resource areas would remain the same as for the Revised Project because the same types of activities would occur in the same locations over the same 10-year period as for the Revised Project. The same mitigation measures would be necessary.

Furthermore, a reduced-volume alternative could have greater impacts than the Revised Project on air quality and greenhouse gas (GHG) emissions (see Section 3.6 for analysis of air quality and GHG emissions) as well as on noise (see noise analysis in SEIR Section 3.9.5). This is because it is assumed, as with the No Project Alternative, that under the Reduced Project Alternative, the construction industry's demand for sand beyond that supplied by the alternative would be met by land-based Bay Area quarries, aggregate recycling facilities, and via import of sand by vessels from Mexico or British Columbia. This is consistent with the conclusions of the 2012 EIR, which found that reduced-volume alternatives would continue to have impacts as significant as the proposed project (2012 EIR pp. 3-15–3-16).

Some comments (such as Comments A4-4 and O8-1) suggest that the Draft SEIR should have provided a comparative analysis of a broader range of alternatives. Consistent with CEQA and based on project-specific facts, the CSLC disagrees. Because none of the alternatives initially considered (as identified in Draft SEIR Section 4.3, p. 4-5 et seq.) passed the screening criteria (e.g., because they could not reduce or avoid significant impacts of the Revised Project while also

attaining most of its basic objectives), CSLC has determined that it is appropriate to analyze two alternatives in detail: the Reduced Project Alternative and the No Project Alternative.

Master Response F, Sand Transport

Multiple comments relate to sand transport, as this is a key process which may connect sand mining in the lease areas to other areas of the bay and open coast. The subsections in this Master Response F start at the mined sites and then expand further from the mined sites. This progression occurs in terms of expanding physical distance (e.g., from the mined areas to just outside the mined areas to regions within the bay to the open coast), expanding from local to regional analysis (e.g., from the local elevation changes in mined areas to watershed sand sources and to net sand fluxes in the bay sand budget), and finally to expanding time (e.g., possible future conditions with climate change). The subsections themselves and progression across subsections is intended to provide overall structure. However, since the through line connecting the subsections is the continuum of sand transport, some topics are addressed in multiple subsections. These intersections have been noted with cross-referencing between the subsections.

Local depressions in mined areas

Multiple comments noted that sand mining creates depressions in the sand bed, which are observable by side scan sonar bathymetry monitoring.

The presence of depressions caused by sand mining is described in detail in the 2012 EIR (p. 2-8 to 2-10, Figure 2-3) and summarized in the SEIR (p. 2-6). The variable rates of recovery by infill from ongoing sand transport are described in the 2012 EIR (p. 4.3-29 to 4-30) and the SEIR (p. 3.4-5 to 3.4-6; p. E-14 to E-15). The limited changes in erosion, sedimentation, and sand transport as a result of these depressions was modeled (2012 EIR Appendix G; SEIR Appendix D, *Bathymetric and Hydrodynamic Study*) and the findings from this modeling are summarized in the 2012 EIR (p. 4.31 to 4.34) and SEIR (p. 3.4-17 to p. 3-4.18).

The SEIR evaluates potential project impacts against significance criteria to determine if the Revised Project would alter "the topography of an area in a manner which would result in substantial erosion or sedimentation" (2012 EIR p. 4.3-23, SEIR p. 3.4-12).

The creation of the depressions is part of the Project as described (see Section 2 of the 2012 EIR and SEIR). To assess the potential for these local depressions to

cause substantial effects outside of the mined areas, the predicted erosion and sedimentation outside of the mined areas has been assessed with observations and with modeling (SEIR Appendix D, *Bathymetric and Hydrodynamic Study*). Observations indicate that in the areas immediately ringing the mining areas (within 1,000 meters of the mining area), changes in the bed elevation were minimal (Deltares 2023, as summarized in the SEIR p. 3.4-7). Numerical modeling conducted for both the 2012 EIR (Appendix G) and SEIR (Appendix D, *Bathymetric and Hydrodynamic Study*) similarly predict that bed elevation changes surrounding the mined areas, both negative erosion and positive sedimentation, would be limited to the immediate vicinity of the mined areas and small in magnitude (e.g., less than one foot) (see SEIR, Appendix D, *Bathymetric and Hydrodynamic Study*, Figure 4.3 and Figure 4.7). These observed and modeled erosion and sedimentation patterns due to the Revised Project are not considered to be substantial, and therefore Impact HYD-2 was determined to be less than significant.

Potential impacts of the bed depressions on benthic habitat were evaluated in the context of SEIR Impact BIO-3 (p. 3.2-22 to 3.2-24) and found to be less than significant.

Bed elevation changes outside of mined areas

See this Master Response's discussion under the heading "Local depressions in mined areas" regarding local depressions created where proposed sand mining would occur.

The potential for sand mining to cause bed lowering outside of the mined areas was evaluated on two scales: in the rings immediately surrounding the mined area (Deltares 2023c) and at the regional scale of the two subembayments[3], Suisun Bay and Central Bay (Fregoso et al. 2024; Fregoso et al. 2025), in which the sand lease areas are located.

As discussed in the Draft SEIR (p. 3.4-7), the ring analysis explored multiple bathymetric data sets collected over nearly three decades to assess the potential for substantial change in a series of ten rings, each 100 meters wide, extending up to 1,000 meters away from each of the six mined areas (Deltares

[3] As described in the Draft SEIR (p. 3.2-2), San Francisco Bay is divided into four subembayments, the Central Bay, South Bay, San Pablo Bay (North Bay), and Suisun Bay. Each of these regions of the bay have their own characteristics (e.g., depth, riverine inflow, sediment exchange, tidal influence) which are often described and analyzed as a subunit of the full bay.

2023c). While mining was ongoing throughout this period, "this analysis showed that mining effects were seen between 200 and 500 meters from the mining area during only one period 1997 – 2008 and for only one of the six rings, the one mined most extensively during this period. For the remaining time periods and rings, no such mining effects were observed beyond 100 meters from the mining areas (inner rings). Since the effects of mining were only apparent for one time period, when mining rates were higher than the proposed Revised Project, and only at one mined area, the effect of sand mining on bed elevations in the immediate vicinity (e.g. 1,000 meters or less) of mining is considered to be negligible (Draft SEIR, pp. 3.4-15 to 3.4-16). The Independent Science Panel (ISP) 2024 review made similar conclusions as the Draft SEIR, noting that "[a]t the scale of each of the lease areas, the ISP concluded that the studies do not show discernable evidence of geomorphic effects beyond local mining areas."

The Draft SEIR (pp. 3.4-4 to 3.4-5) also considered trends in subembayment-scale bed erosion observed across multiple decades of bathymetric surveys, including additional surveys conducted after the 2012 EIR. While long-term trends are generally net erosive, for some intervals between bathymetric surveys, Suisun Bay and Central Bay were observed to be net depositional, even while mining was continually ongoing. This alternation between erosional and depositional periods may be related to the relatively small changes in bed elevation being close to or exceeded by the vertical uncertainty of the bathymetric survey data. Additionally, the Bay is exposed to other long-term trends, such as decreasing sediment supply from the Sierra and Central Valley, as inputs from 19th century hydraulic mining in the Sierras decline (Schoellhamer et al. 2013), that may be contributing to regional erosion patterns.

According to the analysis by Fregoso et al. (2025), bed elevation changes outside of mined areas are relatively slight and not uniformly erosive. In erosional areas of Suisun Bay and Central Bay that are outside of regions with human activities, such as sand mining, there is an annual decrease in sand volume corresponding to an average bed elevation lowering of less than one inch per year. Conversely, there are also areas in the Central Bay outside of regions with human activities with a positive net change in sand volume, indicating an overall increase in sand. These observations underscore the lack of causation between sand mining and regional bed elevation changes within the subembayments where mining occurs.

As noted below under the heading "Relic sand, limited inputs, and disconnected embayments" and in the ISP studies, the sand transport connectivity between subembayments is quite limited. If there are not substantial bed elevation

changes in Suisun Bay and Central Bay, the subembayments which contain the sand mining lease areas, then the potential for sand mining to affect bed elevations in subembayments that do not include sand mining, such as San Pablo Bay between the lease area subembayments, is negligible.

Relic sand, limited inputs, and disconnected embayments

Multiple comments (O8-8, O8-13, O8-14, and O8-15) note that new scientific studies (Malkowski et al. 2023, ISP 2024) conducted since the 2012 EIR was certified indicate that mined sand is primarily "relic" sand (i.e., sand sourced from bay watersheds that reached either Suisun Bay or Central Bay more than about one thousand years ago). Furthermore, the studies also indicate that each of these embayments has only limited connectivity via sand transport to each other and the other embayments in the bay. This implies that sand mined from Suisun Bay and Central Bay is not rapidly replenished with inputs of sand from outside each of these embayments. The comments claim that the understanding of mining impacts on the environment has changed since the 2012 EIR based on this new scientific understanding of sand age, sources, and inter-embayment transport. As described in the paragraphs below, the above information was considered in the SEIR and resulted in similar impact conclusions as were reached in the 2012 EIR.

The 2012 Project described in the 2012 EIR and Revised Project described in the SEIR clearly state that sand mining removes sand from the bottom of the bay. As noted in the 2012 FEIR (p. II-26), mining is inherently not a sustainable activity because it extracts sand at a rate greater than natural resources can create and/or natural processes can replenish sand. Additionally, the 2012 Final EIR notes that "for most of the lease areas, very little replenishment occurred over the past 10 years of mining, and, for practical purposes, the mineral resource in these areas is limited to the material already in place. Therefore, as with other mining operations, the Project can be expected to deplete the resource" (p. II-26). The Revised Project described in the Draft SEIR continues the extractive mining activity. Nevertheless, the Draft SEIR finds that these Revised Project activities result in a less-than-significant impact to mineral resources (Draft SEIR, Section 3.3.5.2). This finding is based on the fact that the Revised Project proposes to decrease mining volumes for the new sand mining leases. See additional discussion regarding non-renewable resource extraction in Master Response H, Mineral Resources.

The finding that mined sand is predominantly relic sand is derived from the provenance analysis by Malkowski et al. (2023) and other studies reviewed by

the ISP (ISP 2024). This provenance study is summarized on p. 3.4-10 of the Draft SEIR. The new findings in these studies about the age and sources of the mined sand do not affect the findings in the sediment transport analysis of the Revised Project (SEIR, Section 3.4.5.2). The age or sources of sand are not relevant to and do not affect either the results of the analyses of bathymetry, geomorphology, hydrodynamics, and sand transport, or the analysis of benthic habitat.

The sand provenance study as well as numerical modeling of sand transport (Anchor QEA 2023; SEIR Appendix D, *Bathymetric and Hydrodynamic Study*) indicate that relatively small amounts of sand are transported through the subembayments along the north arm of the bay (including Suisun Bay) and into Central Bay. As such, the mined sand is largely relic sand derived from local watersheds in Suisun Bay and from exchange with the coast one thousand years ago or earlier, when sea level was lower in the Pacific Ocean and Bay. Contemporary sources of sand into these subembayments are negligible.

Comments raise concerns that bed lowering should be considered more significant than in the prior analysis because of this new information about the sand's age, source, and lack of replenishment. As noted in Comment O8-14, the ISP found that "[s]and mining effects in lease areas appear to be highly localized." As discussed elsewhere in this response, substantial bed lowering is constrained to the mined areas (see discussion under "Local depressions in mined areas") and is not substantial in rings around the mined areas or regionally in the subembayments which host mining (see discussion under "Bed elevation changes outside of mined areas"). The age and source of the sand mined from the bed is not relevant to the potential for impacts.

The supply of sand for mining is the sand in the bed in the lease areas. The analysis of the Revised Project does not pre-suppose that there are substantial sand fluxes from the Central Valley or through the bay's subembayments. While the new studies indicating negligible sand flux through the north bay are interesting from a scientific perspective of explaining the sources and age of sand, this finding is not relevant to the capacity to mine sand or to the analyses of bathymetry, geomorphology, hydrodynamics, and sand transport.

The sources and age of the relic sand is different in the two embayment with mining leases. This difference is not substantive with regard to the Draft SEIR's acknowledgement that the Revised Project depletes sand mineral resources. The embayments have different physical characteristics and lease amounts, which results in somewhat different characteristics relative to the sand budget, as discussed in the section below. Suisun Bay is separated from the ocean by

San Pablo Bay and Central Bay, and, because of the limited connectivity between embayments and its distance from the open coast, has negligible relationship to sand exchange between the Central Bay and the open coast. The relationship between the Central Bay and the open coast is discussed under the heading "Potential for impacts on open coast."

Sand budget

Multiple comments (O8-13, O8-15, O8-18, O8-19, O8-20, O8-37, O8-38) refer to the sand budget analysis conducted by McKee et al. (2024) and reviewed by the ISP (2024). These comments point out that the sand budget helps place sand mining in context with the other fluxes that add or remove sand from subembayments. Compared to other fluxes, the sand budget analysis (McKee et al. 2024) shows that sand mining is a relatively large fraction of sand removed from Suisun Bay and Central Bay, as well as the flux from Central Bay to the ocean. The comments then extrapolate from this finding that sand mining constitutes a significant impact.

As discussed under the heading "Relic sand, limited inputs, and disconnected embayments," both the 2012 EIR and the Draft SEIR describe and analyze sand mining as an extractive practice that does not assume replenishment to be a substantial source for mined sand. This description of the Revised Project is consistent with the findings of the sand budget analysis, which, as summarized by the ISP (2024), says "the net effect of sand mining over decades is a removal of sand from a finite sand budget, which results in less sand elsewhere in the Bay-ocean system." The Draft SEIR is generally in agreement with the comments that note that sand mining extracts sand from the bay, and that this sand mining extraction is the single largest outflux of sand for the whole bay, as well as for Suisun Bay and Central Bay individually. However, rather than extrapolating from this finding to infer that sand mining causes significant impacts, the analysis conducted for the Draft SEIR finds that the sand budget analysis does not show significant impacts due to the sand mining (see SEIR Section 3.4.5).

To estimate the sand budget, sand fluxes between embayments are inferred by totaling up other sand budget components (such as change in bed storage, riverine and tributary inputs, dredging, and wetland deposition) and then assuming the sand flux between embayments explains the difference. Therefore, the estimates of sand fluxes between embayments are based on the accuracy of those other components. The largest other component is the net change in bed storage, which is calculated as the difference between pairs of bathymetric surveys collected at different times. In the Suisun Bay sand budget, the estimated

net change in bed storage is larger than the mined volume; in Central Bay, the estimated net change in bed storage is about half the size of the mined volume.

The estimates of net bed change are subject to +/-50 percent uncertainty (McKee et al 2024, Section 4.1.3). When the possible range of flux is estimated by considering this uncertainty, as well as the uncertainty in the other components, the fluxes in Suisun Bay and Central Bay could, in fact, have the opposite direction of exchange. McKee et al (2024) write: "Given uncertainties associated with computing boundary fluxes by difference, fluxes through the [Golden Gate Bridge] cross-section may be as much as 0.66 Mt/y net flood and into the Bay or 1.1 Mt/y net ebb and out of the Bay to the Pacific Ocean, with a best estimate of 0.25 Mt/y out of the Bay … Based on the estimated uncertainties, sand flux direction could also switch between a slight inflow into Suisun Bay of 0.010 Mt/y to an outflow of 0.44 Mt/y with a best estimate of 0.22 Mt/y [outflow]"[emphasis added].

If the direction of the fluxes from these two embayments which host mining were to reverse direction from outflow to inflow, which is possible within McKee et al.'s uncertainty analysis, this could indicate that the effects of mining on sand exchange between subembayments is less substantial than extrapolated from the best estimate values. For instance, comments infer an impact of sand mining on the open coast (as discussed in more detail below under "Potential for impacts on open coast") because the sand budget's best estimate of 0.25 Mt/y out of the bay and assert that sand mining in Central Bay causes this outflow to be less. However, if, as indicated by the McKee et al. (2024) uncertainty analysis, the net direction of sand is instead 0.66 Mt/y from the open ocean to Central Bay, then the pathway for Central Bay mining to have downdrift effects on the open coast beaches is reversed and not applicable. Similarly, for Suisun Bay, the uncertainty analysis indicates that direction of net flux could actually be a net inflow to this bay, which would imply that mining here does not cause downdrift effects in other subembayments.

Also note that non-mined embayments are not sensitive to change of sand flux direction due to this uncertainty. From McKee et al (2024): "For the other four boundaries, no matter what assumptions were made, interpretation of sand flux direction did not change." So, while the sand flux estimates are robust for their direction in the other subembayments, for the mined embayments, the uncertainty about direction and the possibility of mining having downdrift effects remains.

Furthermore, when McKee et al. (2024) was presented to BCDC's Sand Studies Commissioner Working Group in 2025, an updated sand budget was introduced

for the whole bay. In this updated sand budget, the net change in bed storage is reduced, with a commensurate reduction in flux to the ocean. Instead of the estimated flux of 0.26 Mt/yr to the ocean presented in the 2024 report for the whole bay, the updated sand budget reports only 0.034 Mt/yr flux. The reasons for this change have not been documented with a publicly available revised report. This change is indicative of uncertainty in these types of calculations, where a report developed by experts and subject to independent review is still subject to change.

One missing aspect of the sand budget is that it does include an estimate of the total amount of sand in the bay. Its conceptual model focuses on the fluxes between subembayments without quantifying how large of a reservoir is contained in each subembayment. This is somewhat like tracking transactions between various bank accounts held by a person or business without providing the context of the balance in the accounts. For example, a transfer of a thousand dollars has a larger impact to a bank account with ten thousand dollars than it would to a bank account with a hundred thousand dollars. Using the tabulated values in Fregoso et al (2025), the sand reservoirs in Suisun Bay and Central Bay can be estimated for their order-of-magnitude volumes. Assuming that Suisun Bay has an average bed depth in mined areas of 30 ft and an average bed depth of 15 ft in unmined areas, then the annual mined volume under the Revised Project would be about 0.17 percent of the total sand volume in this subembayment. Over the 10-year lease, if the entire proposed lease volume was mined, it would be about 1.7 percent of the total sand volume in this embayment. Similarly, for Central Bay, if an average bed depth is assumed to be 60 ft in mined areas (to account for deeper sand bed stratigraphy in this embayment) and an average bed depth of 15 ft in unmined areas, then the annual mined volume under the Revised Project would also be about 0.15 percent of the total sand volume in this subembayment. Over the 10-year lease, if the entire Central Bay's proposed lease volume was mined, it would be about 1.5 percent of the total sand volume in this embayment. When considered in this context and as described in SEIR Section 3.4.6 (see Impact CE HYD-2), the amount of sand proposed for extraction under the Revised Project has a low potential to cause a cumulatively considerable contribution to cumulative effects on hydrology, sediment transport, and coastal morphology.

Potential for impacts on open coast

Multiple comments claimed that recent studies demonstrate that the Revised Project could result in impacts to beaches on the open coast, particularly Ocean Beach immediately to the south of the Golden Gate.

As discussed above under "Bed elevation changes outside of mined areas," the effects of sand mining are negligible in the regions immediately ringing the mined areas, with no substantial bed elevation changes detected around six mined areas over more than two decades. Without detectable change attributed to mining in the first 1,000 meters outside of the mined areas, there does not appear to be a physical process pathway for mining to be disrupting the sand transport that occurs at Ocean Beach, which is at least 8,000 meters away from the closest mined area. In fact, the part of the Ocean Beach where erosion rates are highest are further south, about 12,000 meters from the nearest sand mining area.

The large volume of mined sand relative to the other fluxes estimated in the sand budget is another reason cited as possible indicator that sand mining contributes to the erosion of Ocean Beach. However, as discussed above under "Sand budget," the flux between Central Bay and the ocean is being revised since the 2024 McKee et al. report and the presentation of this study to BCDC Commissioners in March 2025. In the updated version, the estimated magnitude has been decreased by 87 percent, suggesting less connectivity between Central Bay and the ocean than estimated in the 2024 report. The uncertainty analysis of the 2024 report also indicates that the direction of flux between Central Bay and the ocean is within the uncertainty bounds of the calculations, such that net inflow to the Central Bay instead of the best estimate of outflow from Central Bay is plausible, when potential errors in the bathymetric surveys are considered.

Finally, as summarized in the Draft SEIR (pp. 3.4-16 to 3.4-18), two hydrodynamic and sand transport modeling studies (Anchor QEA 2023 and Coast and Harbor Engineering [CHE] 2025) were conducted to quantify the potential change in annual sand flux from Central Bay to the ocean that could be attributed to sand mining. The first study (Anchor QEA 2023) noted that the change attributed to sand mining "only resulted in difference in sand thickness between the existing conditions and Without Mining scenarios of up to 1 centimeter immediately due west of the Golden Gate Strait and less than 0.1 centimeter along Ocean Beach to the south of the Golden Gate Strait (Anchor QEA 2023, Figure 6.2-5 and Figure 6.2-6)." In the second study, CHE (2025) noted that "predicted changes in areas outside the Golden Gate, such as the San Francisco Bar or Ocean Beach, are minimal (e.g., less than one millimeter)."

Given these lines of evidence (first, the lack of an observable sand transport pathway that lowers bed elevations; second, the relatively small and uncertain

sand flux between Central Bay and the ocean; and third, the modeling studies that show negligible annual bed elevation changes even just outside the Golden Gate), the Draft SEIR concluded that sand mining is not having a significant effect on sand transport to the open coast. This finding is consistent with the ISP (2024), who noted that "[s]and mining reduces this net outflux of sand (Anchor QEA 2023 and McKee et al. 2023), but the effect may be diffuse and locally negligible."

Climate change and sand transport

Sea level rise will increase inundation depth and duration above tidal marshes ringing the bay's periphery. As noted in Comment O8-39, this increased inundation would increase marsh drowning risk, potentially causing marsh loss. When sufficient sediment supply is available, marshes naturally experience mud sediment deposition, thereby filling the accommodation space created by sea level rise (as mentioned in Comment O8-10). Multiple comments assert that sand mining could negatively impact this process by decreasing sediment supply for marshes. However, as noted in McKee et al. (2024), marsh sediments are typically 95-100 percent mud and only 0-5 percent sand, and "sand mining likely had no direct influence on the mud budget." Because the percentage of sand in marsh sediments is so small, the additional demand for sediment around the bay periphery caused by sea level rise would not be adversely affected by sand mining, which occurs in the middle of the bay, far from shorelines, and extracts sand, which is only very minor component of marsh-building sediments. Sediments of smaller particle size (e.g., mud) remain available for shore and marsh replenishment independent from sand mining.

The assertion that climate change could reduce net sediment supply to the Bay is speculative and not supported by evidence. As noted in Comment O8-10, climate change may cause more intense precipitation, which, instead of reducing sediment inflows, could increase the erosion and delivery of sediment from local watersheds. Comment O8-10 speculates that future climate change may reduce Sierra Nevada snowpack, which would in turn decrease watershed sediment delivery. The first part of this comment's speculation about reduced snowpack is supported by the cited peer- reviewed reference, Dettinger (2011). However, the second part (about decreased sediment delivery) is not mentioned in the cited reference. In addition, several of the post-2012 sand transport studies (Anchor QEA 2024; McKee et al. 2024; Malkowski et al. 2024) support a finding of a current lack of connection between the Sierra Nevada watershed and sediment delivery to the bay. Since there is no evidence of a direct linkage

between these two regions, even if reduced Sierra Nevada snowpack reduces sediment delivery to the Central Valley, the impact to the Bay is likely to be negligible. Changes in future sediment supply projections due to altered rain patterns and continued upstream development (as noted in Comment O8-39, likely because upstream development can reduce watershed sediment delivery) and its potential to affect future sediment supply is speculative and outside the scope of CEQA analysis since it is an effect of the environment on the Revised Project, not an effect of the Revised Project on the environment. This distinction is consistent with the California Supreme Court's decision in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, which confirmed that CEQA requires analysis of a project's impact on the environment and not the reverse (i.e., analysis of the environment's impact on a project) unless the project exacerbates existing hazards. As discussed, there is no evidence that the Revised Project would exacerbate climate change.

Besides there being no clear linkage between the climate change factors mentioned in these comments, these are comments about the effect of climate on the Revised Project, not the effect of the Revised Project on climate. See response O8-28.

Master Response G, Public Trust Considerations

Draft SEIR Section 5.11 (pp. 5-25 and 5-26) summarizes the Commission's jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. All tidelands and submerged lands, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust. The State holds these lands, known as "sovereign lands," for the benefit of all the people of the State, subject to the Public Trust. Other than the private lease areas (Middle Ground shoal), each of the parcels where mining occurs as analyzed in 2012 EIR, and where it would continue to occur if the Revised Project is approved, consists of sovereign land, owned by the State of California subject to the Public Trust, and managed by the CSLC.

Public Trust purposes include, but are not limited to, waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. Pursuant to its Public Trust responsibilities, the Commission may grant leases on State lands for such purposes as, but not limited to, ports, marinas, docks and wharves, mining, and dredging. The Revised Project involves the

continued use of State sovereign lands under the CSLC's jurisdiction for purposes that do not impair Public Trust uses.

The court in *San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal. App. 4th 202 and confirmed in *San Francisco Baykeeper, Inc. v. State Lands Commission* (2018) 29 Cal. App. 5th 562, 568 (Baykeeper II), noted that the Commission has authority as public trustee of the submerged lands under the Bay to approve commercial sand mining subject to its affirmative duty to take the Public Trust into account. Although sand mining activities, as approved by the CSLC and analyzed in the 2012 EIR, are "not categorically permissible as a public trust use, the [CSLC] may authorize private uses of trust property that do not impair the trust." (Baykeeper II, 29 Cal. App. 5th at 580). The court, relying on the CSLC's statutory authority (Cal. Pub. Resources Code secs. 6301, 6895, and 6900, amended) and findings in its staff report reapproving the sand mining leases (Item 33, June 28, 2016), held that the CSLC had substantial evidence to conclude that "sand mining activities would not impair public trust uses by either substantially depleting the sand resource or substantially interfering with sand transport and coastal morphology at the San Francisco bar and Ocean Beach." (Id.) CSLC believes that the SEIR, including new information and studies conducted since 2012, presents substantial evidence supporting a similar finding for the Revised Project (see Draft SEIR Section 3.4.5 and discussion below). Draft SEIR Section 5.11 (pp. 5-25 and 5-26) documents the Commission's assessment of the potential effects of the Revised Project on Public Trust resources and values and references the staff report upheld by the court in Baykeeper II concluding that the CSLC performed its duty to take the Public Trust into account and that the CSLC's finding that sand mining, of the type described in the Revised Project, will not impair public trust uses or values. The holding of Baykeeper II and consistent findings in the SEIR that sand mining is not precluded by Public Trust principles resolve comments (such as Comment O6-5, Comment O6-13, Comment O8-56, and Comment O8-58) that question whether commercial sand mining is a sanctioned Public Trust use.

The holding in Baykeeper II and substantial evidence identified in the SEIR support a finding that the Revised Project will not impair Public Trust uses or values. Where otherwise not precluded by Public Trust principles or statute, the CSLC has broad discretion to approve uses of sovereign lands, including sand mining (Cal. Pub. Resources Code secs. 6301, 6895, and 6900, amended). Therefore, although some comments (such as Comment O6-9, Comment O6-10, Comment O8-46, Comment O8-47, Comment O8-50, Comment O8-53, Comment O8-54, Comment O8-55) would prefer that the Commission prioritize

beach-dependent recreational uses, commercial crab fishing, or the conditions that would occur if the No Project Alternative were selected (e.g., retention of the sand in place and decreased disruption of habitats) over the commercial mineral extraction that would be allowed by the Revised Project, venerable authority confirms the Commission's discretion to approve the Revised Project if it chooses to do so.

CSLC staff has considered input suggesting that the Revised Project could interfere with Public Trust interests in recreation, mineral interests, fisheries, and habitat preservation and has evaluated it relative to the data and analyses provided in the Draft SEIR, including Section 3.8, Land Use and Recreation (p. 3.8-1 et seq.), Section 3.3, Mineral Resources (p. 3.3-1 et seq.), and Section 3.2, Biological Resources (p. 3.2-1 et seq.). CSLC staff also reviewed and considered more than a dozen new studies that have been developed since the 2012 EIR was certified. See, Draft SEIR Section 3.4, Hydrology and Water Quality (p. 3.40-1 et seq); see also, Draft SEIR Appendix E, Consideration of Post-2012 Technical Studies. As documented in the Draft SEIR and as addressed in Master Response B - Reliance on the 2012 EIR, the technical reports findings are not inconsistent with the conclusions reached in the 2012 EIR and following consideration of the studies themselves and areas of disagreement about them amongst experts, CSLC staff has determined that approval of the Revised Project would not significantly interfere with the trusts upon which public lands are held or substantially impair the public rights to navigation, fisheries, or other Public Trust needs and values within the Lease Areas or other areas potentially affected by the Revised Project during the requested lease period.

In reaching this conclusion, the CSLC staff has weighed public benefits against environmental costs, including the SEIR's conclusion that the Revised Project, if approved, would cause no new significant impact and no more severe a significant impact than was disclosed in the 2012 EIR. CSLC staff acknowledges the difference of expert opinions about whether the Revised Project would affect Ocean Beach (as discussed in Comment O8-47, Comment O8-49, Comment O851, and Comment O852) and, therefore, whether the Revised Project could affect public wastewater and water infrastructure resiliency in light of coastal erosion (Comment O8-48). After considering varying points of view, staff is persuaded by the analysis presented in the Draft SEIR and the expert opinions based on facts presented by preparers of the EIR. That others might reach a different conclusion does not affect the adequacy or accuracy of the analysis or the substantial evidence supporting the conclusions reached.

The Commission and the San Francisco Bay Conservation and Development Commission (BCDC) both have Public Trust responsibilities to promote and enhance the Statewide public's enjoyment of lands and ensure appropriate uses of such lands. The San Francisco Bay Plan[4] guides planning and project reviews undertaken by BCDC, which enforces consistency with the Bay Plan (including the public trust policy it contains) in its decision-making processes. As indicated in Comment A4-13, the Bay Plan's Public Trust policy states: "When the [Bay Conservation and Development] Commission takes any action affecting lands subject to the public trust, it should assure that the action is consistent with the public trust needs for the area…." The analysis in DEIR Section 5.11 provides information that can inform BCDC's exercise of its Public Trust responsibilities. However, BCDC's evaluation of the Revised Project's consistency with the Public Trust is independent of the CSLC's exercise of its Public Trust duties.

In response to input received about the Draft SEIR's Public Trust analysis, Draft SEIR Section 5.11 has been revised to reflect the holdings of San Francisco Baykeeper and Baykeeper II. Revisions to the Draft SEIR are shown with ~~strikeout~~ to indicate text deletion and <u>underline</u> to indicate new text.

> **<u>5.11 PUBLIC TRUST</u>**
>
> The Commission is primarily a land and resource trust manager. The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. All tidelands and submerged lands, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust. The State holds these lands, known as "sovereign lands" for the benefit of all the people of the State, subject to the Public Trust. Public Trust purposes include, but are not limited to, waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. The Commission may grant leases on these State lands for such purposes as, but not limited to, ports, marinas, docks and wharves, mining,

[4] San Francisco Bay Conservation and Development Commission (BCDC), 2025. San Francisco Bay Plan. March 25, 2025. Available online: https://www.bcdc.ca.gov/wp-content/uploads/sites/354/2025/05/SanFranciscoBayPlan_ADA.pdf. Accessed October 29, 2025.

and dredging. The Revised Project involves the continued use of State sovereign lands under the CSLC's jurisdiction for Public Trust purposes.

Pursuant to its Public Trust responsibilities, the Commission is assessing the potential effects of the Revised Project on Public Trust resources and values. ~~The Commission analyzed the Project approved under the 2012 EIR and found sand mining to be a Public Trust use under the purposes of waterborne commerce and navigation (Item 33, June 18, 2016).~~ In a legal challenge to the 2012 EIR, the court in *San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal. App. 4th 202 and confirmed in *San Francisco Baykeeper, Inc. v. State Lands Commission* (2018) 29 Cal. App. 5th 562, 568 (Baykeeper II), noted that the Commission has authority as public trustee of the submerged lands under the Bay to approve commercial sand mining subject to its affirmative duty to take the Public Trust into account. Although sand mining approved by the CSLC in the 2012 EIR is "not categorically permissible as a public trust use, the [CSLC] may authorize private uses of trust property that do not impair the trust." (Baykeeper II, 29 Cal. App. 5th at 580). The court, relying on the CSLC's statutory authority (Cal. Pub. Resources Code secs. 6301, 6895, and 6900, amended) and findings in its staff report reapproving the sand mining leases (Item 33, June 28, 2016), held that the CSLC had substantial evidence to conclude that "sand mining activities would not impair public trust uses by either substantially depleting the sand resource or substantially interfering with sand transport and coastal morphology at the San Francisco bar and Ocean Beach." (*Id.*) CSLC believes that despite new information and studies conducted since 2012, this SEIR presents substantial evidence supporting a similar finding for the Revised Project (see Section 3.4.5) and documents the Commission's assessment of the potential effects of the Revised Project on Public Trust resources and values with analysis upheld by the court in Baykeeper II concluding that the CSLC performed its duty to take the Public Trust into account and that the CSLC's finding that sand mining, of the type described in the Revised Project, will not impair public trust uses or values.

That analysis and its conclusion applies to the Revised Project. In this SEIR, environmental resource specialists have worked with Commission staff to define the environmental setting as it pertains to the Public Trust, define impact criteria for each identified resource issue area, describe effects (whether adverse or beneficial), and develop avoidance and minimization measures to reduce adverse effects to ensure that continued mining

operations, if approved, would be conducted in an environmentally sound manner that minimizes interference with ~~other~~ Public Trust resources and values. The potential effects of the Revised Project on Public Trust resources and values are analyzed on a resource-by-resource basis in Section 3, Environmental Analysis.

Master Response H, Mineral Resources

Several comments focused on the mining of sand as a non-renewable resource. The Draft SEIR page 3.3-9, states: "Consistent with the assumptions relied upon and conclusions reached in the 2012 EIR, this SEIR acknowledges that mining of a non-renewable mineral resource can generally be expected to eventually deplete the resource. As discussed in Section 3.3.4 above, the significance criteria used for this section are based on the State's interest in ensuring that important mineral resource deposit areas be available for mineral resource extraction and not be lost to the development of incompatible land uses." The CSLC acknowledges the perspective that land use consistency can be regulated as part of the permitting process and notes that opinions may differ about determinations of use compatibility. See Master Response G, *Public Trust Considerations*, regarding the Commission's duties and responsibilities relating to management of Public Trust resources.

The Draft SEIR analyzes impacts on mineral resources relying on the significance criteria and thresholds of significance that were relied upon in the 2012 EIR and as suggested in Section XII of CEQA Guidelines Appendix G. Appendix G suggests that lead agencies assess whether a project's impacts on mineral resources would "a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?" or "b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?" The 2012 EIR determined that these threshold criteria "reflect State and local policy that recognizes the importance of mineral resources in meeting society's needs and [are] intended to ensure the disclosure of a proposed project's potential to preclude mineral extraction, for example by developing a land use over or adjacent to a deposit of mineral resources that was incompatible with or that would preclude future mining activities" (2012 FEIR, p. 4.2-9).

As determined by the First District Court of Appeals in 2015 (in a case challenging the adequacy of the 2012 EIR), the 2012 EIR's "use of the Appendix G standards to measure impacts on *accessibility* to a known mineral resource that would be valuable to the region or locality is consistent with state policies regarding the

regulation of land uses that are incompatible with mineral extraction" (*San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal.App.4th 202, 227–228, emphasis in original). The Court described the state policies listed in Public Resources Code section 2711 of the Surface Mining and Reclamation Act, which unequivocally state that "the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society" (Section 2711[a]) and that "the production and development of local mineral resources that help maintain a strong economy and that are necessary to build the state's infrastructure are vital to reducing transportation emissions that result from the distribution of hundreds of millions of tons of construction aggregates that are used annually in building and maintaining the state" (Section 2711[d]). The decision also cites Public Resources Code section 2790, which authorizes the state geologist to designate geographic areas as areas of statewide or regional significance in order to prevent premature development incompatible with the "advantages that might be achieved from extraction of the minerals of the area."

The Draft SEIR concludes, as did the 2012 EIR, that the mining activities that would be authorized if the Revised Project is approved would not have a significant adverse impact on mineral resources. The *Baykeeper* court in 2015 upheld this reasoning, finding that the 2012 EIR's conclusions were "supported by evidence that the project will not lead to the loss of the availability of a mineral resource, but instead will provide the citizens of this state with access to that very resource" (*San Francisco Baykeeper, Inc. v. State Lands Commission* [2015] 242 Cal.App.4th 202, 228).

Questions about a Commission plan to address the depletion of sand resources more generally are outside the scope of the CEQA process for the Revised Project.

Master Response I, Marine Mammals

Several commenters noted the regional decline (greater than 45 percent) in the gray whale (*Eschrichtius robustus*) population along the West Coast of the United States between 2018 and 2023 and apparent changes in calf production, food prey, and migrating behaviors. Comments suggest that these changes may be the result of global warming, including its effects on regional weather changes and ocean conditions as well as on forage composition and availability. As a result of these global conditions, comments further suggest that the potential direct and indirect effects of the Revised Project could be more extensive than indicated in the Draft SEIR for whale species frequenting San Francisco Bay.

The purpose of environmental review under CEQA is to evaluate the impacts of a proposed project on the environment rather than the impacts of the environment on the project. *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal. App. 4th 455, 474 (deciding that an EIR is not required to discuss the effect of sea level rise on project); *City of Long Beach v. Los Angeles Unified School District* (2009) 176 Cal.App.4th 889, 905 (cumulative effects of existing air pollution from nearby freeways on health of staff and students at proposed school was impact of environment on project, outside scope of EIR). As clarified by the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377 with emphasis in the original:

> In light of CEQA's text, statutory structure, and purpose, we conclude that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must evaluate the potential impact of such hazards on future residents or users. In those specific instances, it is the *project's* impact on the environment—and not the *environment's* impact on the project—that compels an evaluation of how those future residents or users could be affected by exacerbated conditions.

If global events result in a change of a species' occurrence within the study area, then discussion of its occurrence is an important aspect of the environmental setting, but unless the project causes or exacerbates those existing environmental conditions, then those conditions are outside the scope of the EIR. Global environmental concerns such as climate change are considered in a CEQA assessment when a proposed project could contribute to a cumulatively significant impact, or when existing environmental conditions (potentially influenced by global events) could be worsened by the project (i.e., generation of additional greenhouse gas emissions).

Here, however, there is no evidence that the environmental changes that could occur if the Revised Project is approved would cause a new significant impact or a more severe significant impact on whale species' calf production, food composition or availability, or migrating behaviors than was disclosed in the 2012 EIR. The potential effects of the Revised Project associated with temporary displacement of marine mammals that may be present in San Francisco Bay and within the Revised Project lease areas were considered in Section 3.2.5.2 of

the SEIR. The SEIR determined that a continuation of these activities including a reduction in annual mining extraction volumes (compared to those previously authorized) would not cause a new or significant impact or increase the severity of an impact on special status species from displacement. The special status species table included as part of Appendix G, *Biological Resources Supplemental Information*, lists all marine mammals that occur along the California Coast, with information on their protection status and occurrence within the Revised Project study areas. The SEIR references this table in Appendix G, *Biological Resources Supplemental Information*, when discussing the occurrence of special status marine mammals and the changes that may have occurred since the 2012 EIR.

Master Response J, Marine Birds

Several commenters expressed concerns about nesting sea birds on Alcatraz Island. These comments highlighted climate and oceanographic changes along the California Coast such as shifts in foraging near the Farallon Islands and the contribution of these factors to colonies located near aggregate sand mining leases in San Francisco Bay. The commenters shared how global climate change has resulted in the decline of Pacific herring (*Clupea pallasii)* which has impacted sea bird colonies on the Farallon Islands, causing them to migrate and establish colonies on Alcatraz Island. The commenters are concerned that declines in sea bird prey offshore may warrant additional protection and concern for the San Francisco Bay colonies.

The purpose of environmental review under CEQA is to evaluate the impacts of a proposed project on the environment rather than the impacts of the environment on the project. *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal. App. 4th 455, 474 (deciding that an EIR is not required to discuss the effect of sea level rise on project); *City of Long Beach v. Los Angeles Unified School District* (2009) 176 Cal.App.4th 889, 905 (cumulative effects of existing air pollution from nearby freeways on health of staff and students at proposed school was impact of environment on project, outside scope of EIR). As clarified by the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377 with emphasis in the original:

> In light of CEQA's text, statutory structure, and purpose, we conclude that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must

> evaluate the potential impact of such hazards on future residents or users. In those specific instances, it is the *project's* impact on the environment—and not the *environment's* impact on the project—that compels an evaluation of how those future residents or users could be affected by exacerbated conditions.

If global events result in the change of a species' occurrence within the project study area, then discussion of its occurrence is an important aspect of the environmental setting, but unless the project causes or exacerbates those existing environmental conditions, then those conditions are outside the scope of the EIR. Global environmental concerns such as climate change are considered in a CEQA assessment when a proposed project could contribute to a cumulatively significant impact, or when existing environmental conditions (potentially influenced by global events) could be worsened by the project (i.e., generation of additional greenhouse gas emissions).

Here, however, there is no evidence that the environmental changes that could occur if the Revised Project is approved would cause a new significant impact or a more severe significant impact than was disclosed in the 2012 EIR due to loss of foraging habitat or food relied upon by San Francisco Bay bird colonies.

One commenter noted that National Park Service data indicates that 4,825 nesting Brandt's cormorants (*Phalacrocorax penicillatus*) were present on Alcatraz Island in 2023. This is approximately a 25 percent increase over the 3,900 birds mentioned in the SEIR (Section 3.2, page 3.2-5). The commenter's statement further validates the information presented in Section 3.2.2.3 of the SEIR that sea bird colonies on Alcatraz Island have seen an upward trend likely due to prey availability and reproductive success. As the evidence suggests, these species do not appear to be lacking in prey or adequate foraging habitat nor does the Revised Project appear to pose any direct or indirect impacts on these colonies. Even with the acknowledgement that regional population changes have occurred, the evidence indicates that the Alcatraz colonies are healthy and growing, and as one commenter stated, "…Alcatraz numbers still exceeded those of the largest colony for this species (SE Farallon Island) despite restrictions at/around SEFI on fishing, light pollution, benthic disturbance, and human access/disturbance." The Revised Project would not displace cormorant populations or otherwise result in significant nesting impacts as the Revised Project would not occur onshore. As discussed in Section 3.2.5.2 of the SEIR, minor direct impacts to the free movement or foraging of birds, fish, and other marine species could occur during active sand extraction activities. As disclosed

in the SEIR, the temporary displacement of birds and other wildlife species from active mining areas would have a less-than-significant impact.

Master Response K, Underwater Noise

Comments (such as Comment O6-3, Comment O8-31, and Comment O8-35) note that noise from mining operations can interfere with the echolocation of prey, navigation, displacement, and communication amongst individuals of highly acoustic-reliant marine mammals, such as harbor porpoises, humpback whale, and gray whale. Comments (such as Comment O8-35) also question the adequacy of the Draft SEIR's analysis of potential impacts on marine mammal acoustic sensitivity, suggesting more is needed to adequately address the potential effects of Revised Project-generated underwater noise on marine mammals in San Francisco Bay and recommending recently updated underwater noise thresholds for the CSLC's consideration.

Since the drafting of the 2012 EIR, thresholds for the onset of auditory injury, including permanent threshold shifts (PTS) and temporary threshold shifts (TTS) from impulsive noise sources, such as pile driving, and non-impulsive noise sources, such as vessel propulsion or hydraulic suction dredging, have been established for marine mammals, fishes, and sea turtles by the National Marine Fisheries Service (NMFS) (NMFS 2024a; 2024b). In response to input received about the thresholds, the analysis of acoustic impacts has been revised to incorporate and consider them in the context of Impact BIO-2 in Draft SEIR Section 3.2.5.2. Revisions to the Draft SEIR are shown with ~~strikeout~~ to indicate text deletion and <u>underline</u> to indicate new text.

> **"Impact BIO-2: Potential impacts on fish and wildlife species from increased noise.**
>
> **Sand mining activities under the Revised Project would result in increased noise at the location of the suction drag-head on the seafloor that can result in increased disturbance to marine biota, especially fishes, including special status fish species (Less than Significant, Class III).**
>
> <u>Since the drafting of the 2012 EIR, thresholds for the onset of auditory injury, including permanent threshold shifts (PTS) and temporary threshold shifts (TTS) from impulsive noise sources, such as pile driving, and non-impulsive noise sources, such as hydraulic suction dredging, have been established for marine vertebrates. In fishes, exposure to elevated sound levels can lead to short-term hearing loss (TTS) or irreversible injury (PTS) (CalTrans 2020; Smith and Popper 2023). Loud noises can also cause other</u>

physiological damage such as swim bladder rupture or even death (CalTrans 2020; Pengson 2025). Many factors such as the duration of the sound, proximity to the source, as well as life history characteristics can determine the extent of the damage (Hastings and Popper 2005). Behavioral disturbance for fishes occurs around 150 decibels (dB) and established acute impact levels are 183 dB for fishes less than 2 grams, and 187 dB for fishes greater than 2 grams (CalTrans 2020). As noted in Section 4.1.4 of the 2012 EIR, hydraulic suction dredge operations can generate underwater noise levels as high as 130 to 140 dB which is lower than the threshold for behavioral disturbance (150 dB) and acute impacts in fishes (183 dB). This may even be lower than ambient sound levels in San Francisco Bay which can range from 120 to 155 dB (CalTrans 2015).

Peak sound levels also continue to drop as you move away from the sound source. The peak underwater noise levels for hydraulic suction dredge operations are below the levels of onset for TTS and auditory injury for the most sensitive marine mammals, porpoises (Table 3.2-1). Porpoises, such as harbor porpoises (*Phocoena phocoena*) may experience a TTS from non-impulsive sound sources at sound exposure levels of 161 dB, and auditory injury at sound exposure levels of 181 dB or greater. Baleen whales, such as gray (*Eschrichtius robustus*) and humpback whales (*Megaptera novaeangliae*) may experience a TTS from non-impulsive sound sources at sound exposure levels of 177 dB, and auditory injury at sound exposure levels of 197 dB or greater (NMFS 2024a; 2024b). Ambient noise in San Francisco Bay from non-project related vessels and other sources is likely more of a concern (Cope et al. 2021), and marine mammals and fishes are expected to avoid the area of active sand mining.

Less information is known about the effects of anthropogenic underwater noise on sea turtles. Díaz et al. (2024) found that swimming green sea turtles (*C. mydas*) increase vigilance with increasing vessel noise, but resting turtles did not increase vigilance with increasing noise levels. Garzon et al. (2024) noted that anthropogenic noise above 141 dB could have negative impacts on nesting leatherback sea turtles (*D. coriacea*). Sea turtles appear to be sensitive to low-frequency sounds with a functional hearing range of approximately 50 Hz to 1,600 Hz (Bartol 1994; Muirhead et al. 2025). Behavioral disturbance generally occurs around 175 dB. Onset of TTS occurs around 226 dB for impulsive sound sources such as impact pile driving and 200 dB for non-impulsive sound sources such as vessel noise. Onset of PTS occurs around 232 dB for impulsive noise

sources and 220 dB for non-impulsive noise sources (NMFS 2024b). These sound thresholds are above the expected peak noise levels for hydraulic suction dredge operations, and any sea turtle would also be expected to avoid the area of active sand mining. Therefore, as presented in Section 4.1.4 of the 2012 EIR and inclusive of the above analysis, impacts from Revised Project generated underwater noise are considered less than significant. No mitigation is required. Accordingly, the Revised Project, which proposes a continuation of existing sand mining activities with an approximately 14 percent reduction in annual mining extraction volumes and an associated reduced duration of mining activities, would not cause a new significant impact or a substantial increase in the severity of a significant impact due to noise.

Table 3.2-1. Cumulative Sound Exposure Levels for Marine Mammals

Hearing Group	Onset of Auditory Injury		Onset of Temporary Threshold Shift	
	Impulsive	Non-impulsive	Impulsive	Non-impulsive
Low-Frequency Cetaceans (e.g. Baleen whales)	$L_{p,0\text{-}pk,flat}$: 222 dB $L_{E,p,LF,24h}$: 183 dB	$L_{E,p,LF,24h}$: 197 dB	$L_{p,0\text{-}pk,flat}$: 216 dB $L_{E,p,LF,24h}$: 168 dB	$L_{E,p,LF,24h}$: 177 dB
High-Frequency Cetaceans (e.g. Dolphins)	$L_{p,0\text{-}pk,flat}$: 230 dB $L_{E,p,LF,24h}$: 193 dB	$L_{E,p,LF,24h}$: 201 dB	$L_{p,0\text{-}pk,flat}$: 224 dB $L_{E,p,LF,24h}$: 178 dB	$L_{E,p,LF,24h}$: 181 dB
Very High-Frequency Cetaceans (e.g. Porpoises)	$L_{p,0\text{-}pk,flat}$: 202 dB $L_{E,p,LF,24h}$: 159 dB	$L_{E,p,LF,24h}$: 181 dB	$L_{p,0\text{-}pk,flat}$: 296 dB $L_{E,p,LF,24h}$: 144 dB	$L_{E,p,LF,24h}$: 161 dB
Phocid Pinnipeds (e.g. Harbor seals)	$L_{p,0\text{-}pk,flat}$: 223 dB $L_{E,p,LF,24h}$: 183 dB	$L_{E,p,LF,24h}$: 195 dB	$L_{p,0\text{-}pk,flat}$: 217 dB $L_{E,p,LF,24h}$: 168 dB	$L_{E,p,LF,24h}$: 175 dB
Otariid Pinnipeds (e.g. Sea lions)	$L_{p,0\text{-}pk,flat}$: 230 dB $L_{E,p,LF,24h}$: 185 dB	$L_{E,p,LF,24h}$: 199 dB	$L_{p,0\text{-}pk,flat}$: 224 dB $L_{E,p,LF,24h}$: 170 dB	$L_{E,p,LF,24h}$: 179 dB

(Source NMFS 2024a; 2024b)

~~Sand mining operations under the Revised Project produce additional noise from the vessels and equipment used to extract sand. As described in Section 4.1.4 of the 2012 EIR, noise generated by sand mining is~~

~~marginally above ambient levels and only within the range detectable by fishes (and most likely marine mammals) over a very small area of the Bay-Delta located immediately around the sand mining operation. Noise levels generated by the hydraulic suction dredge are within the sound range that can elicit behavioral responses, such as altered swimming direction and speed, by fishes and marine mammals. However, these elevated sound levels are expected to only occur immediately adjacent to the drag head and below levels that are likely to cause physical damage to sensory receptors or other physiological effects (Hanson Environmental 2004). For these reasons as presented in Section 4.1.4 of the 2012 EIR, impacts from increased noise is considered less than significant. No mitigation is required. Accordingly, the Revised Project, which proposes a continuation of the less than significant project activities with an approximately 14 percent reduction in annual mining extraction volumes and an associated reduced duration of mining activities, would not cause a new significant impact or a substantial increase in the severity of a significant impact due to noise."~~

WRITTEN PUBLIC COMMENTS AND RESPONSES

SUBPART II.A. AGENCY COMMENTS

Docusign Envelope ID: 41F7F10E-92C7-40BC-88D2-92D55777A119

California
Department of Conservation
Geologic Energy Management Division

Gavin Newsom, Governor
Jennifer Lucchesi, Director
715 P Street, MS 1803
Sacramento, CA. 95814
T: (916) 445-5986

September 26, 2025

VIA EMAIL

California State Lands Commission
Mr. Christopher Huitt
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
Christopher.Huitt@slc.ca.gov

Assessor Parcel Number(s): N/A
Property Owner(s): N/A
Project Location Address: San Francisco Bay and Suisun Bay
San Francisco, Solano, Contra Costa and Sacramento Counties

PROJECT TITLE: *SAN FRANCISCO BAY AND DELTA SAND MINING PROJECT*

Public Resources Code (PRC) section 3208.1 establishes re-abandonment responsibility when previously plugged and abandoned oil, gas or geothermal wells will be impacted by planned property development or construction activities. Local permitting agencies, property owners, and/or developers should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near previously abandoned oil, gas, and geothermal wells.

The California Geologic Energy Management Division (CalGEM) has received the above-referenced project dated July 10, 2025. To assist local permitting agencies, property owners, and developers in making safe and practical land use decisions regarding potential development near oil, gas, or geothermal wells, CalGEM provides a table in the attached enclosure of the wells within the parcel boundary or in its vicinity, based on CalGEM's Well Finder database (https://maps.conservation.ca.gov/doggr/wellfinder/).

A1-1

CalGEM categorically advises against building over, or in any way impeding access to, oil, gas, or geothermal wells. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access including, but not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, roadways, and decking at the landowner's expense if there is a need to access a well. Maintaining sufficient access is considered the ability for a well servicing unit and associated necessary equipment (consisting of well servicing rig, pumping equipment, pipe trailer) to reach a well from a public street or access way, solely over the parcel on which the well is located. A well servicing unit, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure. Impermeable barriers such as asphalt, concrete, and plastic may trap hazardous gases and liquids underneath and could create a safety hazard if built over a well that later develops a leak.

CalGEM recommends that any well for which access is impeded or built over, against CalGEM's

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advice, should be evaluated by a qualified petroleum professional for compliance with the statutory objectives of isolating all hydrocarbon-bearing strata; protecting underground and surface waters; prevention of subsequent damage to life, health, property, and other resources; and prevention of loss of oil, gas, or reservoir energy. CalGEM recommends that wells that do not meet these standards are abandoned or re-abandoned prior to construction. The well information can be accessed through CalGEM's Well Finder database mentioned above. PRC section 3208, subdivision (a), provides the primary statutory authority for CalGEM to oversee adequate abandonment of wells. Additionally, CalGEM has developed the regulatory guidance for operators to be followed during well abandonment, which are listed within California Code of Regulation, title 14 (CCR) section 1723 and associated sub-sections (for onshore wells), and section 1745 and associated sub-sections (for offshore wells).

There is no guarantee that a well abandoned in compliance with current Division requirements as prescribed by law will not start leaking in the future. Due to the inability to predict all subsurface conditions or changes, it always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. CalGEM acknowledges wells plugged and abandoned to the most current Division requirements as prescribed by law have a lower probability of leaking in the future, however there is no guarantee that such abandoned wells will not leak.

CalGEM advises that all wells identified on the development parcel prior to, or during, development activities be tested for liquid and gas leakage. Surveyed locations in Latitude and Longitude, NAD 83 decimal format, and leak testing results should be provided to CalGEM. CalGEM expects any wells found leaking to be reported to CalGEM immediately.

PRC section 3208.1 gives CalGEM the authority to order or permit the re-abandonment of any well where it has reason to question the integrity of the previous abandonment. Responsibility for re-abandonment costs may be affected by the choices made by the local permitting agency, property owner, and/or developer in considering the general advice set forth in this letter. The PRC continues to define the person or entity responsible for re-abandonment as:

A1-1 cont.

1. The property owner - If the well was plugged and abandoned in conformance with Division requirements at the time of abandonment, and in its current condition does not pose an immediate danger to life, health, and property, but requires additional work solely because the owner of the property on which the well is located proposes construction on the property that would prevent or impede access to the well for purposes of remedying a currently perceived future problem, then the owner of the property on which the well is located shall obtain all rights necessary to re-abandon the well and be responsible for the re-abandonment.

2. The person or entity causing construction over or near the well - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and the property owner, developer, or local agency permitting the construction failed either to obtain an opinion from the supervisor or district deputy as to whether the previously abandoned well is required to be re-abandoned, or to follow the advice of the supervisor or district deputy not to undertake construction that impedes access, then the person or entity causing the construction over or near the well shall obtain all rights necessary to re-abandon the well and be responsible for the re-abandonment.

3. The party or parties responsible for disturbing the integrity of the abandonment - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and after that time someone other than the operator or an

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affiliate of the operator disturbed the integrity of the abandonment in the course of developing the property, then the party or parties responsible for disturbing the integrity of the abandonment shall be responsible for the re-abandonment.

Should any wells require abandonment or re-abandonment, the responsible party must submit a Notice of Intention (NOI) to CalGEM through WellSTAR. The NOI form can be accessed in the 'Plugging and Abandonment' section of the following link: https://www.conservation.ca.gov/calgem/for_operators.

No well work may be performed on any oil, gas, or geothermal well without written approval from CalGEM. Well work requiring approval includes, but is not limited to, mitigating leaking gas or other fluids from abandoned wells, modifications to well casings, and/or any other re-abandonment work. CalGEM also regulates the top of a plugged and abandoned well's minimum and maximum depth below final grade. CCR section1723.5 states well casings shall be cut off at least 5 feet but no more than 10 feet below the surface of the ground. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this regulation, a permit from CalGEM is required before work can start.

CalGEM makes the following additional recommendations to the local permitting agency, property owner, and developer:

1. To ensure that present and future property owners are aware of (a) the existence of all wells located on the property, and (b) potentially significant issues associated with any improvements near oil or gas wells, CalGEM recommends that information regarding the below identified well(s), and any other pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property.

2. CalGEM recommends that any soil containing hydrocarbons be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.

A1-1 cont.

As indicated in PRC section 3106, CalGEM has statutory authority over the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to CalGEM's authority to order work on wells pursuant to PRC sections 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC sections 3236, 3236.5, and 3359 for violations within CalGEM's jurisdictional authority. CalGEM does not regulate grading, excavations, or other land use issues.

Should you have any questions, or if any wells are encountered that were not part of this letter, contact CalGEM at *916.322.1110* or via email at *CalGEMNorthern@conservation.ca.gov*.

Sincerely,

May Soe

May Soe
Supervising Oil and Gas Engineer – Northern District

Docusign Envelope ID: 41F7F10E-92C7-40BC-88D2-92D55777A119

Enclosure
Cc: N/A

Docusign Envelope ID: 41F7F10E-92C7-40BC-88D2-92D55777A119

Enclosure: The wells listed below are reported to be located within and nearby the parcel boundary and may have future access impeded.

API No.	Well Name
No wells in the project area	

Responses to A1 Comments: California Department of Conservation, Geologic Energy Management Division

A1-1 The California State Lands Commission (CSLC) recognizes the California Department of Conservation Geologic Energy Management Division's authority to regulate wells independent of the CSLC's CEQA process for the Project. The letter identifies that there are no wells in the Project area. This input has been included in the record, but no change has been made to the Draft SEIR as a result of this comment.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Marine Region
1933 Cliff Drive, Suite 9
Santa Barbara, CA 93109
wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

September 26, 2025

California State Lands Commission
Attention: Christopher Huitt
100 Howe Ave., Suite 100-South
Sacramento, CA 95825
CEQA.comments@slc.ca.gov

Dear Mr. Huitt:

SAN FRANCISCO BAY AND DELTA SAND MINING PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT
SCH# 2007072036

The California Department of Fish and Wildlife (Department) received a Draft Supplemental Environmental Impact Report (DSEIR) from the California State Lands Commission (CSLC) for the San Francisco Bay and Delta Sand Mining Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that the Department, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

A2-1

DEPARTMENT ROLE

The Department is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state. (Fish & G. Code, § 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines §15386, subd. (a).) The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly for purposes of CEQA, the Department is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California, and ensuring fisheries are sustainably managed under the Marine Life Management Act.

[1] CEQA is codified in the California Public Resources Code in § 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with § 15000.

The Department is also submitting comments as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). The Department expects that it may need to exercise regulatory authority pursuant to the Fish and Game Code. To the extent implementation of the Project may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code may be necessary. A2-2

PROJECT DESCRIPTION SUMMARY

Proponent: Martin Marietta Marine Operations, LLC and Lind Marine, Inc.

Objective: The objective of the Project is to continue commercial mining of sand in Central San Francisco Bay and Suisun Bay within previously approved CSLC leases.

Location: The Project area is contained within CSLC lease areas in Central San Francisco Bay and Suisun Bay. The Central Bay leases constitute 2,601 acres between Angel Island in the north and the San Francisco waterfront in the south. The Suisun Bay leases total 938 acres from Chipps Island in the west to Broad River in the east. A2-3

Timeline: The SEIR will cover mining operations for the next 10-year period.

MARINE BIOLOGICAL SIGNIFICANCE

The San Francisco Bay-Delta is the second largest estuary in the United States and supports numerous aquatic habitats and biological communities. It encompasses 479 square miles, including shallow mudflats. This ecologically significant ecosystem supports both state and federally threatened and endangered species and sustains important commercial and recreational fisheries.

STATE AND FEDERALLY LISTED AND COMMERCIALLY/RECREATIONALLY IMPORTANT SPECIES

A2-4

Protected species under the State and Federal Endangered Species Acts that could potentially be present near Project activities include:

- Longfin smelt (*Spirinchus thaleichthys*), state threatened and federally endangered
- Delta smelt (*Hypomesus transpacificus*), state and federally endangered
- Chinook salmon (*Oncorhynchus tshawytscha*), state and federally threatened (Central Valley Spring-run), state and federally endangered (Sacramento River Winter-run), state species of special concern (Central Valley Late Fall Run, Central Valley Fall Run)

- Steelhead (*Oncorhynchus mykiss*), federally threatened (Central California Coast evolutionary significant units)
- Green sturgeon (*Acipenser medirostris)*, federal threatened (Southern Distinct Population Segment)
- White sturgeon (*Acipenser transmontanus)*, state candidate species
- Pacific lamprey (*Entosphenus tridentatus*), state species of special concern
- California Least tern (*Sternula antillarum browni),* state and federally endangered, state fully protected

A2-4 cont.

Several species with important commercial/recreational fisheries value and habitat value for spawning and rearing could potentially be present near Project activities including: Pacific herring (*Clupea pallasii*), eelgrass (*Zostera marina),* surfperches (*Embiotocidae spp.*), rockfish (*Sebastes spp*.), California halibut (*Paralichthys californicus),* and Dungeness crab *(Metacarcinus magister).*

COMMENTS AND RECOMMENDATIONS

The Department offers the following comments and recommendations to assist the CSLC in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

Mitigation Measure BIO-6

Comment: In Measure BIO-6, a buffer of a minimum of 100 feet would be established around all hard rock bottoms to prevent equipment from disturbing this sensitive habitat for fish at the Martin Marrietta lease. Though three specific areas are discussed (Harding, Shag, and Arch rocks), it is unclear what is defined as a hard rock bottom and how other areas would be identified prior to work. The DSEIR indicates when dredging equipment comes into physical contact with any hard bottom area during the term of the leases, it shall be immediately reported to the CSLC, who shall establish a new minimum buffer zone distance. The Department is concerned that relying on equipment to contact the habitat in order to establish buffers would likely cause additional, and avoidable, impacts to the hard bottom habitat areas and sensitive species using these areas.

A2-5

Recommendations: The Department recommends assessing and mapping all mined areas to identify GPS coordinates for the hard rock bottom habitats and then establishing 100-foot buffers around the zones. Measure BIO-6 in the final SEIR should include a clear definition of hard rock bottoms and all mapping protocols, to ensure rocky bottom habitats are identified and avoided ahead of sand mining.

Impact BIO-8 and BIO-9

Comment: As described in the DSEIR, Proposed Project activities are likely to result in impacts to special-status fish species within the Project area, especially delta smelt, longfin smelt, white sturgeon, and Chinook salmon. The inclusion of a work window based on the distance from the Golden Gate Bridge where bottom salinity is 2 ppt, also known as X2, from June 30th through November 30th is consistent with CDFW recommendations to protect listed smelt species from Project related impacts. The implementation of work window restrictions, for all other Project areas, from December 1 through March 15 is not discussed in the DSEIR and should also be considered.

Longfin smelt and white sturgeon can tolerate a wide range of salinity from completely fresh to marine with various life stages present year-round throughout the estuary. The middle of the rearing and migration of fall-run Chinook salmon and the spawning and incubation of winter-run Chinook salmon fall within the months of June and July. Although not a listed species, the state managed Pacific herring are entering San Francisco Bay to spawn in the winter and spring months. Larval and juvenile Pacific herring could be impacted by mining events following spawning in Central San Francisco Bay. These work windows relative to X2 and specific sensitive species life stages would reduce potential impacts to protected and managed species. This includes direct and indirect take from suction dredging and long-term decrease of water quality due to consistent Project related habitat disturbance over time. A2-6

Recommendation: The Department recommends that Mitigation Measure BIO-8 and BIO-9 be revised to include additional work window restrictions, from December 1 through March 15, for all lease areas regardless of salinity.

Comment: Mitigation measures BIO-8 and BIO 9 do not include a specific measure for compensatory mitigation to offset impacts to protected species. Both BIO-8 and BIO-9 should include a measure requiring shallow water habitat mitigation to offset Project related impacts. The measure, as currently written, does not identify specific Department approved mitigation banks from which habitat credits could be purchased or outline an additional enforceable mitigation strategy in the event appropriate credits are not available for purchase. A2-7

Recommendation: The Department recommends including specific compensatory mitigation requirements to both Mitigation Measure BIO-8 and BIO-9 to mitigate significant and potentially significant impacts to protected species from sand mining activities.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database that may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/SubmittingData#44524420-pdf-field-survey-form. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

A2-8

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by the Department. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

The Department appreciates the opportunity to comment on the DESIR to assist the CSLC in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed Arn Aarreberg, Environmental Scientist, at (707) 791-4195 or R7CEQA@wildlife.ca.gov and Mia Bianchi, Senior Environmental Scientist, at (707) 815-8722 or Mia.Bianchi@wildlife.ca.gov.

Sincerely,

Craig Shuman, D. Env
Marine Regional Manager

ec: Claire Waggoner, Environmental Program Manager
Department of Fish and Wildlife

Melissa Farinha, Environmental Program Manager
Department of Fish and Wildlife

Eric Wilkins, Senior Environmental Scientist
Department of Fish and Wildlife

Sara Kern, Senior Environmental Scientist Supervisor
Department of Fish and Wildlife

Arn Aarreberg, Environmental Scientist
Department of Fish and Wildlife

Mia Bianchi, Senior Environmental Scientist Specialist
Department of Fish and Wildlife

Jazzy Graham-Davis, Engineering Geologist
San Francisco District Regional Water Quality Control Board

Reyna Amezcua, Regulatory Secretary
San Francisco Bay Conservation and Development Commission

Habitat Conservation Program Branch CEQA Program Coordinator
California Department of Fish and Wildlife

State Clearinghouse (SCH # 2007072036)

Responses to A2 Comments: California Department of Fish and Wildlife

A2-1 This comment provides a brief description of the Department's role as a Trustee Agency and its jurisdiction. CSLC acknowledges the California Department of Fish and Wildlife's (CDFW) role as a Trustee Agency for this Project.

A2-2 CDFW's role in the CEQA process for this Project is consistent with the description provided in SEIR Section 1.4, Agency Use of Supplemental EIR, which in a list that describes Responsible Agencies (p. 1-16), states that "California Department of Fish and Wildlife (CDFW): Regulates operating sand mining vessels under its Office of Oil Spill Prevention and Response (OSPR) program and may issue permits for the incidental "take" of any proposed, threatened, or endangered species under the California Endangered Species Act (CESA)." CSLC recognizes CDFW as a Responsible Agency for this Project.

A2-3 The brief overview of the Project as provided by the comment is consistent with information provided in the Project Description and Introduction sections of the SEIR. No further response is necessary.

A2-4 This comment provides a description of the San Francisco Bay-Delta ecosystem, a list of the state and federally protected species potentially present within the Project vicinity, and species with commercial/recreational value that may be within the Project vicinity. This comment provides background for the comment letter, however, this is not a comment on the SEIR, and no response is necessary.

A2-5 CSLC acknowledges the recommendations from CDFW regarding mapping and identification of hard rock bottom habitats. As described in Appendix G of the 2012 EIR, many data sets exist identifying the bathymetry of San Francisco Bay. Table 3-1 lists the data sets used for sand mining analysis purposes. Additionally, the E-Trac data have been continuously collected during each sand mining episode as required by Mitigation Measure (MM) BIO-6 outlined in the 2012 EIR. The U.S. Geological Survey has also conducted extensive multi-beam bathymetric mapping of the area, including change analysis of the long-term data sets. The hard rock areas are extensively described. The substate areas are detectable

and avoidable using the same (or similar) vessel navigational equipment as that described in the 2012 EIR. The SEIR notes that natural subtidal hard substrate, such as Arch Rock, Harding Rock, Shag Rock, and Blossom Rock, and their associated biological communities are considered habitat areas of particular concern (under the Magnuson-Stevens Act). On this basis, mitigation is required consistent with the 2012 EIR. SEIR Impact BIO-6 evaluates the potential for the Revised Project to result in smothering or burial of, or mechanical damage to, infauna and epifauna and reduced fish foraging.

A2-6 As stated throughout the SEIR, and detailed in Section 2.3.2, the dredges used for sand mining under the Revised Project are substantially different from those used in ship channels, ports, harbors, and marinas throughout the San Francisco Bay-Delta. The aggregate sand mining dredge suction head water intakes operating under the Revised Project have been fitted with a positive barrier fish screen that was designed and built in collaboration with CDFW and complies with all requirements for the prevention of entrainment and impingement of larval and juvenile fishes.

The 2012 EIR included seasonal restrictions for aggregate mining within the Delta leases to reduce potential take of salmonids and smelts. The addition of the positive barrier fish screens made the potential for entrainment of salmonids negligible or non-existent, and abolished the need for seasonal restrictions for them. In the Incidental Take Permits (ITP) issued by CDFW on April 1, 2014, (No. 2081-2012-012-03 and No. 2081-2013-047-03 amended on 8/14/23, 10/14/24, and 8/26/25), only the Delta leases were required to have seasonal restrictions between December 1st and June 30th in which water volume and dredge depth limitations applied. The ITPs and subsequent amendments stated that "…. the impacts of the taking would be minimized and fully mitigated and that the Project would not jeopardize the continued existence of the Covered Species."

Similarly, no additional seasonal aggregate sand mining restrictions were required by either the National Oceanic and Atmospheric Administration (NOAA 2015) or U.S. Fish and Wildlife Service (USFWS 2015) in their Biological Opinions issued to the Applicants for the

current sand mining activities (SEIR p. 3.2-30). Despite NOAA, USFWS, and CDFW not imposing additional seasonal restrictions on sand mining activities, the impact analysis in the SEIR did consider whether the Revised Project would pose any additional potential for entrainment of special status species in both the Central Bay and West Delta mining leases. This assessment was based on the operational depths and locations of mining activities and the life histories of special status species that may be present within the leases when mining activities occur. The impact assessment concluded that the potential for entrainment of any special status species (Appendix G, Biological Resources Supplemental Information) had been reduced from what was identified in the 2012 EIR. This was primarily due to the addition of the positive barrier fish screen. Therefore, the implementation of additional seasonal restrictions or work windows in MMs BIO-8, BIO-9a, and BIO 9b would not result in any additional protection of identified species of concern.

A2-7 MM BIO-8 has been edited to include compensatory mitigation for minor incidental take of smelt. Deleted text is shown in ~~strikeout~~ and added text is shown in underline.

Mitigation Measure BIO-8: Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt.

- ~~Timing of dredging relative to the location of 2 parts per thousand (ppt) salinity (X2).~~ To protect delta and longfin smelt and potentially eggs and larvae from mortality related to entrainment, sand mining activities shall be restricted in both volumes and locations in all Delta mining leases ~~upstream of the X2 location~~ from December 1 through June 30 each year, and from December 1 to April 30 in 2026. ~~The degree and duration of mining restrictions, and the specific locations where mining should be restricted during this sensitive seasonal period will be based on factors including the specific location of X2 relative to mining activities, species presence and relative abundance in the Revised Project area based on sampling data from the nearest survey stations, and the overall status of the species (population trend).~~ Specific seasonal restrictions, conditions, and operational requirements have been established in the current amended ITP's issued by CDFW on April 1, 2014, (No. 2081-2012-012-03 and No. 2081-2013-047-03 amended on

8/14/23, 10/14/24, and 8/26/25), will continue to be set through consultation with CDFW, and would likely be a requirement of any ITP that may be issued for the Revised Project.

- Current ~~R~~restrictions imposed on sand mining operations, as specified in ~~any~~ the ITPs (CDFW 2014) and ~~its~~ their amendments required for the Revised Project are expected to have comparable effect as current restrictions on sand mining operations, which, as specified in the NMFS Biological Opinion and the USFWS Letter of Concurrence, serve to avoid and minimize take of delta and longfin smelt. These conditions include restrictions on pump priming, limiting the total mining volume, prohibiting mining in areas of shallow water depth and in proximity to shorelines, restricting mining to the designated lease areas which are away from sensitive habitat, and monitoring and reporting the location of each mining event.
- Applicants will consult with CDFW and obtain ITPs for their activities prior to the commencement of any new mining under any renewed lease issued by CSLC ~~or BCDC~~ for the Revised Project. To further minimize take, the Applicants shall keep the end of the pipe and drag head as close to the bottom as possible, and no more than three feet from the bottom, when priming the pump or clearing the pipe.
- As determined by CDFW in their issuance of an ITP for aggregate mining activities, Applicants will provide compensatory mitigation to a CDFW-approved mitigation or conservation bank covering smelt habitat.
- The Applicants shall provide a copy of any final ITP issued by CDFW and any amendment to a final ITP to the CSLC and the San Francisco Bay Conservation and Development Commission (BCDC) within five working days of receipt.

SEIR Section 3.2 for Impact BIO-9 states "the potential entrainment of Chinook Salmon under the Revised Project is expected to be substantially less than was described in the 2012 EIR due to the operation of the fish screen, and the Revised Project's 14 percent reduction in mining extraction volumes, and the associated reduction in mining activities." The SEIR also concludes, "The Revised Project includes the operation of a positive barrier fish screen… to prevent fish entrainment. The screens are also sized to provide an

approach velocity of 0.2 feet-per-second to allow early life stages of fish to swim past, further reducing the potential for entrainment of green sturgeon, white sturgeon, and steelhead trout." The 2012 EIR did not require the addition of a compensatory mitigation measure for potential impacts on Chinook salmon, sturgeon, or steelhead trout. The Revised Project would result in lower potential impacts on the aforementioned species than the 2012 Project. Therefore, the addition of compensatory mitigation for Impact BIO-9 is not warranted and would not provide a reduction in the severity of potential impacts.

A2-8 The California Natural Diversity Database reporting information provided by the comment is acknowledged and will be considered by CSLC outside the context of the environmental review required by CEQA. Information regarding the CDFW Notice of Determination filing fees for projects having an impact on fish and wildlife is acknowledged. Because impacts to fish and wildlife species have been identified in the SEIR, CSLC will submit the fee following project approval. CSLC respectfully acknowledges CDFW assistance in providing agency review and input on the SEIR. The contact information provided for CDFW staff is noted.

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

YANA GARCIA
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

29 September 2025

Christopher Huitt
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
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COMMENTS TO REQUEST FOR REVIEW FOR THE SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT, SAN FRANCISCO BAY AND DELTA SAND MINING PROJECT, SCH#2007072036, CONTRA COSTA, SACRAMENTO, SAN FRANCISCO, AND SOLANO COUNTIES

Pursuant to the State Clearinghouse's 15 August 2025 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Supplemental Environmental Impact Report* for the San Francisco Bay and Delta Sand Mining Project, located in Contra Costa, Sacramento, San Francisco, and Solano Counties.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

A3-1

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as

required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/ A3-1 cont.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality. A3-2

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit A3-3

requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

A3-3 cont.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

A3-4

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

A3-5

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

A3-6

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state

may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

A3-6 cont.

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

A3-7

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

A3-8

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the

A3-9

Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

A3-9 cont.

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter G. Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

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Responses to A3 Comments: Central Valley Regional Water Quality Control Board

A3-1 The CSLC acknowledges the Central Valley Regional Water Quality Control Board's obligation to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. References to the Basin Plan are found in several places throughout the SEIR, including on pages 3.1-7 and 3.4-11–12.

A3-2 The CSLC acknowledges the Antidegradation Policy contained in the Basin Plan and its requirement that an analysis of impacts from any discharge of waste to high quality waters must be undertaken in accordance with the policy. The environmental analysis of each resource-specific chapter includes a regulatory setting outlining the applicable rules and regulations that apply to the Project. As stated on pages 4.3-21–-22 of the 2012 EIR, the Applicants operate under existing Waste Discharge Requirements (WDR) that satisfy Clean Water Act (CWA) Section 401 requirements:

> The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) had authorized the Applicants' previous sand mining operations (i.e., the volumes currently permitted) under this general permit, which (1) regulates the discharge of overflow water resulting from sand mining operations; and (2) implements the water quality objectives of the Basin Plan (SFBRWQCB 2010). By means of stipulating specific discharge prohibitions, conditions, receiving water limitations, and provisions for operations governed by the permit, the SFBRWQCB implemented measures that would prevent the violation of water quality standards defined in the Basin Plan (SFBRWQCB 2010).

A3-3 The CSLC acknowledges the permitting requirements of the Construction Stormwater General Permit. These requirements are not applicable to the Project, as it does not involve any construction.

A3-4 The SEIR acknowledges and references on page 1-14 the requirements of the U.S. Army Corps of Engineers (USACE), which regulates the mining of construction-grade sand within the lease areas pursuant to permits issued under the Rivers and Harbors Act Section 10 and federal CWA Section 404.

A3-5 The CSLC acknowledges that the SFBRWQCB has primary responsibility for the coordination and control of water quality in the San Francisco Bay area. As stated on page 1-14 of the SEIR, "Under Section 401 of the federal Clean Water Act, RWQCB must provide a water quality certification for any federally permitted activity that may result in a discharge into federal waters (USACE permits, referenced above). Among other things, permit conditions regulate mining locations and depths and protect water quality."

A3-6 The CSLC acknowledges the WDRs for projects involving excavation or fill activities in waters of the state. Pages 2-6 and 3.4-12 of the SEIR reference these regulatory requirements.

A3-7 The Revised Project will not involve construction or groundwater dewatering and therefore will not require a dewatering permit.

A3-8 The requirements referenced in the comment apply for projects involving construction dewatering. The Revised Project (subject of the SEIR), however, will not involve construction or discharge of groundwater to waters of the U.S.

A3-9 CSLC acknowledges the requirement to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) permit for projects involving discharges of waste that could affect the quality of surface waters of the State. See page 1-14 of the SEIR for reference to this requirement.

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San Francisco Bay Conservation and Development Commission
375 Beale Street, Suite 510, San Francisco, California 94105 tel 415 352 3600
State of California | Gavin Newsom – Governor | info@bcdc.ca.gov | www.bcdc.ca.gov

September 29, 2025

California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
Via Email: <CEQA.Comments@slc.ca.gov>
ATTN: Mr. Christopher Huitt, Senior Environmental Scientist

SUBJECT: San Francisco Bay and Delta Sand Mining Project Draft Supplemental Environmental Impact Report; State Clearing House No. 2007072036

Dear Mr. Huitt:

Thank you for the opportunity to comment on the San Francisco Bay and Delta Sand Mining Draft Supplemental Environmental Impact Report (DSEIR) which evaluates proposed 17.5 million cubic yards (cy) of sand mining in Central San Francisco Bay and Suisun Bay over the next ten years in five state lands lease areas and one private lease area in Central San Francisco Bay and Suisun Bay per the California Environmental Quality Act (CEQA). San Francisco Bay Conservation and Development Commission appreciates the opportunity to review and comment on the document as a responsible agency.

The proposed project described in the DSEIR includes annual mining of up to 1.395 million cy of fine and coarse sand from Central San Francisco Bay (CB Leases), including nine parcels over 2,601 acres of subtidal habitat; 235,000 cy of fine sand from Suisun Bay and Western Delta (Suisun Lease) from two parcels over 938 acres of subtidal habitat; and 120,000 cy of fine sand from one parcel over 367 acres of subtidal habitat, known as Middle Ground Shoal (MG Lease), a private lease included in the DSEIR analysis. The total proposed mining over 10 years is 17.5 million cy from 3,906 acres of sandy subtidal habitat. While not SLC owned tidelands, the DSEIR includes an evaluation of the Middle Ground Shoal lease area (MG Lease), a privately held property, because mining in this area may contribute to the impacts of sand mining in the San Francisco Bay and Estuary (SFB&E).

As the California State Lands Commission (SLC) is aware, the proposed sand mining activities are within the Commission's Bay jurisdiction, with the exception of a portion of the eastern end of the Suisun Lease area. As a responsible agency, the staff, on behalf of the Commission, is providing comments on the DSEIR. However, the Commission itself has not reviewed the document. The Commission anticipates receiving applications for permits from the project proponents, Martin Marietta and Lind Marine, and will review the proposed project under the applicable provisions of the McAteer Petris Act, the Suisun Marsh Preservation Act (Preservation Act), the San Francisco Bay Plan (Bay Plan), and the Suisun Marsh Protection Plan (Protection Plan).

A4-1

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Specific Bay Plan policies that the Commission would likely apply, among others, include Fish, Other Aquatic Organisms, and Wildlife; Subtidal Areas; Water Quality; Dredging; and Mitigation. These policies seek to conserve, protect, and increase wildlife and habitat, including native and listed species of fish, invertebrates, and birds that rely on the Bay and its resources for all or parts of their life cycle. The Subtidal Areas policies along with the Dredging policies require that dredging and its impacts be avoided or minimized, specifically sandy deep water habitat. Please see the Bay Plan findings and policies for actual language and details that would be applicable to the proposed project.

According to the SLC, the environmental conditions and mining conditions have not changed sufficiently since 2012 to warrant a full review of the project per the California Environmental Quality Act (CEQA). Instead, the SLC has determined that a supplemental review of the 2012 Environmental Impact Report (EIR) is appropriate. The purpose of a supplemental EIR is to document the minor additions or changes necessary to make an original EIR adequate for a revised project, and it only needs to contain the information necessary to meet that purpose. It is important to note that because SLC previously authorized 2.2 million cy of sand mining, the currently proposed project, mining up to 1.7 million cy of sand is called the "revised project" in the DSEIR. However, in this comment letter, the "revised project" and the "proposed project" are one in the same.

A4-1 cont.

General Comments

1. **Basic Project Purpose**

   The SLC describes the proposed project objective, per the applicants, "is to assure the availability of marine sands for commercial and public purposes within the greater San Francisco Bay area" and "to continue to mine sand at an economically viable level over the next 10 years to make this mineral resource available for use in commercial and public construction, including but not limited to residential and commercial projects, public infrastructure (e.g., roads, bridges, and buildings), and shoreline protection and beach replenishment projects." It is important to note that many of the proposed uses of sand described here do not appear to require marine sand specifically, and that terrestrial sand, or sand with glacial origins can also be used for these purposes. The Commission recommends the document describe the rationale and need specifically for sand of marine origin for the proposed uses as well as for the proposed volume of sand to be mined in the proposed project.

A4-2

2. **Increased Mining Activity**

   The SLC previously authorized ten-year leases for approximately 20.4 million cy of sand mining from the same 3,906 acres of sandy subtidal habitat. These leases expired on December 31, 2022, but mining has continued since the expiration on a month-to-month basis, known as "hold over status," pending the completion of this environmental review and its associated leasing and permitting processes.

   While SLC has authorized 20.34 million cy of mining over ten years, permitting by other agencies limited mining activity to 14.26 million cy per year. By using the SLC authorized volume rather than the more limited volume, the SLC evaluates an "existing condition" that

A4-3

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does not exist. Further, from mining that has occurred since 2012, the maximum volume mined in any year was approximately 976,000 cy, and the average year mining was approximately 700,000 cy for all lease areas. Thus, description of the mining activities described overestimates the amount mined averaged annually by approximately 1.05 million cy. By not describing the actual mining, the analysis of the impacts that would occur based on the proposed project would be greater than those currently occurring or within the past 20 years. The Commission recommends the document be revised to analyze the impacts of increased mining activity as would occur if the proposed project were realized.

Thus, the DSEIR assumes the occurrence of the lease volumes fully authorized by SLC (approximately 2.04 million cy) as the baseline existing condition, in comparison to the proposed revised annual project volumes of 1.75 million cy, and also in comparison to the actual annual average mining volume over the past ten years of 700,000 cy. As a result, the DSEIR's describes a baseline that exceeds the actual annual mining volumes by approximately 1.34 million cy (the difference between 2.04 million cy and 700,000 cy), and a revised project that represents a proposed increase in annual average mining volume of approximately 1.05 million cy (the difference between 1.75 million cy and 700,000 cy), or an approximate increase in mining of 60%. If the DSEIR's analysis was based on the actual average annual mining volume of 700,000 cy, it would evaluate a proposed increase of 1.05 million cy of sand mining as proposed by the project proponents. While the SLC included a reduced project alternative, it does not analyze the effects of increased mining. The Commission recommends the document be revised to analyze the impacts of increased mining activity that would occur if the proposed project were realized.

A4-3 cont.

3. Analyzed Alternatives

a. **Reduced Project Alternative**
This alternative includes authorizing mining of the approximate volume mined annually on average over the past five years, 702,000 cy. This volume clearly is economically feasible as this is what is currently being done. However, the analysis provided seems to make some unsupported assumptions. For example, it states that authorizing this volume of marine mining would result in increase in air quality and noise impacts because additional sand would either be imported or provided by land-based quarries. While this could be true, there is no documentation nor analysis provided that describes the unmet market demand. As construction has been ongoing in the region, more sand has not been demanded, or more mining would have occurred. As a point in fact, these mining companies had the opportunity to mine more than 6 million cy of additional sand over the last ten years in the existing permits and did not, presumably because the construction industry did not require it.

In addition, the brief analysis of the resource impacts of this alternative are similarly unsupported and incomplete. The analysis states that mining of approximately 702,000 cy of sand annually would have the same impacts as mining 1.75 million cy of sand. While it is true that the same equipment would be used and the same type of impacts would likely occur, the magnitude and intensity of the impact would be significantly less

A4-4

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with sixty percent less volume of mining activity. The Commission recommends that SLC revise this section and others to properly describe the potential impacts of the reduced alternative, including significantly less entrainment and removal of water column and benthic habitat, as well either documentation of the unmet construction industry demand or an analysis that better describes the air quality and noise impacts of less mining when compared to more mining activity.

A4-4 cont.

4. **Biological Resources**

The DSEIR's premise is that environmental conditions are the same as were analyzed in 2012. In reviewing the 2012 FEIR, the basis for much of the biological setting, species, and impacts were based on data from 2007 or earlier. Marine and estuarine conditions have changed significantly during this time due to a number of factors such as climate change, ocean warming and acidification, and shifting ocean conditions which have caused significant stress on species and ecological systems. These changes and stressors have extended into the Bay with warming waters, marine heat waves, and more expansive and frequent algal blooms. In 2022, the Bay has experienced large fish die off due to these stressors.

Even though Bay conditions have been adversely affected by climate changes, the estuary continues to provide refuge for marine species. Researchers have documented poor ocean conditions which have resulted in seabird colonies moving into the Bay to roost and breed, due to lack of food resources in the outer coast. As an example, the DSEIR assumes that the increase in cormorants within the Bay is a result of good conditions, where the research concludes that the shift is due to poor conditions at the Farallon Islands located on the outer coast. (Bograd, et al., 2023, Columbano et al., 2025, and McCabe et al., 2016)

This context is important when evaluating the impacts of mining activities within the Bay. The Commission recommends that the environmental setting section of the document be revised to reflect recent changes in the marine and estuarine environment such that impacts from mining are framed in the most recent scientific information.

A4-5

5. **Sand Transport, Provenance, and Budget Studies**

Thank you for including the sand studies required by the Commission in its last permit. While we are appreciative of the inclusion, we are disappointed that the DSEIR does **NOT** reference or include relevant information from "*San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change Studies and Potential Physical Effects of Sand Mining Activities*." (Stantec 2024). This report integrates the results of the sand studies into one document and develops findings based on the combined knowledge and expertise of five of the foremost experts in the sediment and hydrology fields. This synthesis further informs the sand system and conditions within the Bay's sand shoals and bedforms. Specifically, the studies and findings that update the region's understanding of the Bay's sand system and thus changes to the environment since the review in 2012. The findings from page iv of the above cited report include:

A4-6

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"1. The volume of mined sand is significant relative to the Bay sand budget (it represents the largest outflow of sand from the Bay), including the net sand discharge to the ocean. Additionally, sand is mined faster than it is replenished; therefore, sand is a non-renewable resource over the long term."

"2. Suisun bay sand is not replenished; thus, it is a finite resource, and the bed is being lowered. The bathymetric, modeling, and budget studies all support this. Sand mining effects in lease areas appear to be highly localized, with effects diminishing with distance from the event location. The effect is pronounced in areas of negligible sand transport such as Suisun Bay, where the depressions caused by mining persist in the bed over time."

"3. Central Bay sand is relic (i.e., deposited between 20,000 and 6,000 years ago as sea levels rose and the river discharge point migrated through the Bay to its present location in the Delta) and is part of a large bay-ocean reservoir of sand. Sands derived from the watersheds of the Sacramento and San Joaquin rivers are no longer a significant source to the Bay and ocean, and large volumes of sand do not move through the system during times of high flows (e.g., wet winters), as was previously assumed. Effects of mining to beaches and ecologically important shoals remain unquantified."

"4. San Francisco Bay and the Pacific Ocean share a common pool of sand which sand mining reduces. In each tidal cycle, a huge amount of sand is transported between the Bay and the ocean effectively linking the two sand deposits into a shared pool. The size of this shared pool of sand, and thus the significance of the reduction due to mining, is unknown."

A4-6 cont.

In addition to these overarching findings, the DSEIR fails to reference or consider that the US Geological Survey's recent study by Fregoso, et.al., and the most recent study of bed changes observed from the 1850's through the 2010's found that the Bay floor is lowering, and that the bay floor lost about 34 million cubic meters of sediment since the 1980s. In addition, Fregoso, et. al. explicitly states that the greatest rate of bathymetric change, more than 1 meter per year, were associated with dredging and dredged sediment disposal. In further examining these findings, the Port of Oakland deepening project along with sand mining loss are the areas with the greatest loss.

The DSEIR also fails to acknowledge that the Sand Budget Study (SFEI 2023) found that sand mining activities are the largest term in reducing sand in the budget for both the whole Bay and Central Bay. However, the DSEIR dismisses this information asserting there has been no change based on the 2012 analysis and does not consider the cumulative impacts of these findings.

While the DSEIR notes that the sand being mined is largely sand that is in place, it does not describe the overall effect of continued removal of sand and finer sediments (navigation dredging – a cumulative impact) and how these activities may change the Bay fundamentally over time.

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The DSEIR does not adequately describe the Deltares (2023) studies that found some regions of mining sand is not being replenished, and therefore, there is localized deepening of the bay floor. Deltares also found in other areas, sand mining is capturing sand that is in transport. It is not yet known where the sand is being transported to, identifying an undefined impact. This information may be helpful when considering whether mining volumes in proposed lease areas should be modified.

The watershed and bay-wide modeling efforts, sand budget, and the provenance studies found that sand is not transporting through the Bay as previously thought, and it is not being replenished by the Delta or local tributaries. This information is an improvement upon previously understood scientific knowledge and the existing conditions within the Bay.

The Commission recommends that the DSEIR provide more detailed information regarding the understanding of the changes to the Bay bathymetry, both regionally and localized, the sand system, particularly as it pertains to specific lease areas and/or embayments, and the implications for cumulative impacts of continued mining at large volumes in comparison to supply.

A4-6 cont.

Specific Comments

1. **Descriptions of Agency Permits**
   In the Introduction, Section 1.4.1 the document provides information regarding the agencies that authorize sand mining via their various authorities. It describes some of the requirements of these permits but does not describe the amount of mining authorized. As noted above, while SLC has authorized 2.04 million cy per year, or approximately 20.4 million cy of mining over ten years, permitting by other agencies limited mining activity to 1,426,000 cy per year, or 14.26 million cy over ten years. This is a key point that is important context for transparency, clarity, and understanding of current mining activities. The Commission recommends that SLC specifically include the volume of sand mining authorized by each agency. This information is readily available to SLC and should be provided to the public as it considers the context of the proposed project.

A4-7

2. **Biological Resource Impacts and Evaluation**
   In the Biological Resources Section of the DSEIR, the document briefly discusses changes to the biological community inhabiting the Bay. This section should provide more details on the current conditions with San Francisco Bay, discuss some of the changes in the physical environment both with the Bay and the adjacent coastline that affect species using both parts of the estuary and Pacific Ocean, particularly in Central Bay. While it briefly touches on gray whales and their increased use of the Bay, it does not discuss potential impacts of sand mining on these benthic foragers. In addition, it does not include the endangered Humpback whale in its discussion. Humpback whales are frequent visitors to Central San Francisco Bay to feed on schooling fish (pers communication, the Marine Mammal Center). The Commission recommends adding this endangered whale and the potential impacts of mining to this species.

A4-8

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In the Dungeness crab discussion, it is updated to reflect that these crabs in their planktonic state are carried into the Bay where they mature, and then migrate through the deeper channels in Central Bay back to the ocean. It is not clear from the information presented whether the crabs are migrating through the lease areas and are therefore likely to be entrained on the way to the Pacific Ocean. Please provide further detail so that it is clear what the potential impact is to this ecologically and economically important species.

After briefly discussing the updates to the biological resources, the document concludes that nothing has changed in the biological resources, given the existing conclusions of 2012. The Commission recommends that the SLC revise this section to include important changes to existing conditions, how increasing mining 60% over existing mining would affect the availability of forage fish, especially those used by nesting seabirds on Alcatraz Island, gray and humpback whales that are foraging in the Bay, and Dungeness crabs that are using the Central BAy as a migratory pathway.

In BIO-3, Potential sand mining impacts on benthic habitat, infauna, epifauna, and foraging habitat, the DSEIR characterizes the impacts from mining as temporary, short term changes in habitat composition and associated wildlife, stating that they only appear to last for a few years. It relies on studies that have been unable to fully characterize the impacts due to difficulty in study area access, funding, and timing of repeat analysis. While it may be true that mining areas would recover if mining ceased, mining is ongoing in the same location and has been for decades. The Commission recommends that this be recharacterized and a permanent impact and mitigation be required.

A4-8 cont.

In the DSEIR, Bio-8 is the only impact described as a Class I impact, Significant. Presumably this is because the mining activity could take state and federally listed Delta and longfin smelt. The Draft SEIR categorizes Bio-9 as a Class II impact, Potentially Significant, rather than a Class I impact. It is important to note that the definition of take of a federally listed species includes: "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Incidental take is unintentional but still constitutes take.

It is unclear to the Commission why Bio-9 can be in a different impact class than Bio-8 as both describe potential take of state and federally listed species. The only difference that is apparent is use of the term would or could take listed species. The relevant significance criteria for both Bio-8 and Bio-9 include (1) impacts to listed or candidate species; (2) any take of a special species makes an impact significant and unavoidable; and (3) the DSEIR acknowledges that some take is unavoidable. In fact, Bio-9 describes the that “The Revised Project could cause the entrainment and mortality of green sturgeon, white sturgeon, Chinook salmon, and steelhead trout during sand mining.” The Commission recommends that the DSEIR be revised to include Bio-9 as a Class I impact, Significant.

Bio-8 Mitigation and Monitoring Program – please include the dates for the referenced biological opinions for NMFS and USFWS. It is likely that the USFWS would require re-initiation of the federal Endangered Species Act Section 7 consultation to update for Delta smelt and inclusion of longfin smelt.

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3. **Commission Responsibilities**
In Section 3.3.2.1 it states that BCDC has granted leases for mining activity. BCDC does not grant leases, please remove BCDC from this section. Alternately, if stated that BCDC issues permits for mining, please include the other agencies that issue permits, including CDFW, the Water Board, and the US Army Corps of Engineers. A4-9

4. **Hydrology and Water Quality**
In this section, it appears that the DSEIR is comparing the Etrac survey change analysis to the ring analysis completed by Deltares. The DSEIR states that the change analysis for multiple years was either insignificant accretion or erosion in the bed within the lease areas. While may be true, the finer information in the Etrac change analysis studies is the erosion found within the mined areas within the larger lease areas is substantial, as shown by the Deltares studies. The Deltares studies specifically examined mined areas (changes within the "rings" or polygons provided by the mining companies). While describing the changes to the larger lease areas or the complete Central Bay sand beds provides some context, it does not clearly describe areas of impact, the changes in bathymetry and geomorphology that are occurring from mining activities. Therefore, the way the information is presented is misleading. Further, it does not speak to the loss of specific grain size of sand which can have an impact on wildlife that inhabit the area as well as sand transport. Similarly, the Fregoso, et. al., study provides more definition of the findings per area, for example, change in bed elevation within the areas that are mined and the change in areas outside of the lease areas. These should be clearly explained and described. A4-10

5. **Mineral Resources**
Section 3.3.5.2, like other sections of the DSEIR state that the proposed project would not cause one or more new or significant impacts, or substantial increase in severity of impacts. As discussed elsewhere in the Commission's comment letter, the proposed project would result in a 60% increase in mining activities from the activities that have occurred over the past 10 years. The Commission recommends that the document include an analysis of a 60% increase in mining activities in the region.

Also in Section 3.3.5.2, the DSEIR reflects on the outcome of the modeling completed by Coast Harbor Engineering to determine if sufficient sand is available for mining at the proposed volume in the specific lease areas. In this analysis, modeling found that some areas do not have sufficient sand available above 90 feet to support the volume of mining proposed. The DSEIR then disputes these findings by stating that the analysis is conservative and does not reflect potential sand transport. The DSEIR analysis should include a comparison between these findings and those of the Deltares study to evaluate if there is agreement in the modeling that supports either conclusion, and that analysis should be provided in this report. A4-11

Section 3.3.6, Cumulative Impacts, described the proposed mining to have less than significant impacts (Class III), yet ignores the SLC's modeling report that finds some of the leases areas do not have enough sand currently to meet the need of the proposed project, assuming that sand will come from another location to fill the need. The SDEIR does not

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describe nor propose where this sand would come from, and therefore does not properly analyze the cumulative effects of the proposed project on the mineral resources of the mining activity. A4-11 cont.

6. **Geomorphology**

While in Section 3.4 of the DSEIR includes a general description of the findings of the three studies examining sources of sand, it does not provide clarity for the reader that the sand system from the Suisun Bay and Central Bay disconnected, there is a negatable amount of sand coming into the Bay from either local tributaries or the Delta. For example, looking at the sand budget for Central Bay, input from local tributaries is approximately 0.073 Mt/year compared to mining of approximately 0.88 Mt/year of sand mined annually. For Suisun Bay, the local tributaries input approximately 0.041 Mt/yr and mining removes 0.29 Mt/year in Suisun. Helping the reader to understand the scale of these differences is important when analyzing impacts to the system. The Commission recommends revising the Geomorphology section such that the reader can understand the scale and potential impacts of the information that is being presented in a highly generalized way currently. A4-12

7. **Public Trust**

Section 5.11 of the Draft SEIR should discuss the Commission's public trust responsibilities with respect to the Revised Project. The Bay Plan policy on Public Trust states, in part, that "[when the Commission takes any action affecting lands subject to the public trust, it should ensure that the action is consistent with the public trust needs for the area."

In completing its independent evaluation of the Revised Project, the Commission will determine if the Revised Project is consistent with public trust needs. Public trust needs generally encompass the same categories of considerations as public trust uses including navigation; commerce; fisheries; boating; recreation; natural habitat protection; and the preservation of public trust lands in their natural state for protection of scenic and wildlife habitat values. The potential effects of the Revised Project on public trust needs are analyzed on a resource-by-resource basis in Section 3, Environmental Analysis. A4-13

8. **Mitigation and Monitoring Program**

The mitigation and monitoring program included in the DSEIR does not discuss the reduced alternative. The Commission recommends that the reduced alternatives be included in this table for comparison between alternatives. A4-14

9. **Appendix E**

In reviewing Appendix E, we found the summary of the new technical studies conducted to be lacking in depth and understanding of the findings of the studies. Unfortunately, this potential lack of understanding has led to the discussions within the DSEIR being limited or incomplete, and thus has led to limited or incomplete analysis based on the best available science. The Commission recommends that the DSEIR and Appendix E include a more thorough and correct discussion of the studies described therein. A4-15

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The Commission appreciates the work that went into the DSEIR and the opportunity to review and comment on it. We look forward to the response to comments and the revised document. If you have any questions regarding our comments or information we present, please do not hesitate to contact me at 415-352-3623 or via email at brenda.goeden@bcdc.ca.gov. A4-16

Sincerely,

DocuSigned by:
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BRENDA GOEDEN
Sediment Program Manager

BG/kr

Responses to A4 Comments: San Francisco Bay Conservation and Development Commission

A4-1 The summary description of the project is consistent with information provided in Chapter 2 of the SEIR. CSLC staff acknowledges that the San Francisco Bay Conservation and Development Commission (BCDC) is a Responsible Agency and has permit jurisdiction for this project. The policies noted in this comment are described in Section 3.8.3 of the SEIR.

A4-2 The description of the project objective is consistent with the Project Objective presented in Section 2.2 of the SEIR. No revision to the project objective is necessary. Consideration of other sources of sand is described under the No Project Alternative in Section 4.4.1 of the SEIR. A discussion of the mining volumes proposed under the Revised Project are presented in Section 2.4.2 of the SEIR.

A4-3 Refer to Master Response C – Establishment of the Baseline.

A4-4 Section 1.3 of the SEIR, Purpose and Scope of Supplemental EIR, describes the scope of analysis required under this SEIR. Also, refer to Master Response C – Establishment of the Baseline and Master Response E – Alternatives for a discussion of alternatives.

A4-5 As part of the SEIR analysis performed on marine resources of the San Francisco Bay-Delta (Bay-Delta), all the marine communities inhabiting the Revised Project lease areas were updated and reviewed. In addition, the SEIR included additional or expanded discussions of pertinent marine resources or potential interactions with the Revised Project activities, supplementing those resources included in the 2012 EIR. For example, fish inhabiting the lease areas were reviewed for the period 2016-2023 and updated information tables were provided in Appendix G, Biological Resources Supplemental Information. The occurrence of special status species utilizing the lease areas was analyzed in a more in-depth manner as demonstrated by a 38-page table listing their status as special status species in the marine study area and the potential for occurrence (Appendix G, Biological Resources Supplemental Information).

Additionally, each section of the SEIR that presents information on a specific marine community briefly describes the habitat and

community, where the reader can find the original information on that community in the 2012 EIR, and then discusses any changes to that community that have occurred since the drafting of the 2012 EIR.

See also Master Response I – Marine Mammals and Master Response J – Marine Birds regarding the environmental setting context.

A4-6 Refer to Master Response D – Technical Studies, regarding the use of technical studies. Refer to Master Response F – Sand Transport regarding sand transport, bathymetry and sand budget. Refer to Master Response H – Mineral Resources regarding sand as a non-renewable resource.

A4-7 Refer to Master Response C – Establishment of Baseline for a discussion of the analysis baseline used in the SEIR. See also Master Response B regarding reliance on the 2012 EIR.

A4-8 Master Response I – Marine Mammals and Master Response J – Marine Birds provide additional discussion about changed environmental conditions. Additionally, the commenter is directed to Appendix G, Biological Resources Supplemental Information in the SEIR which discusses all marine mammals found offshore California and within the Bay-Delta as well as their potential to occur within the study area of the Revised Project. Potential effects of activities occurring under the Revised Project to marine mammals are discussed in Section 3.2.5 of the SEIR.

Regarding Dungeness crab, the SEIR (Section 3.2.2.4, page 3.2-10) describes that juvenile Dungeness crabs migrate into the Bay-Delta via tides and currents and may be present in Central Bay lease areas during in-migration periods and incoming tides. The use of the positive barrier fish screen would prevent entrainment of larval Dungeness crabs migrating into the Bay-Delta. Out-migrating crabs utilize the deeper channels of the Bay-Delta which are either deeper than the areas where Revised Project activities would occur in West Delta leases or are north of the Central Bay leases. Additionally, the physical presence and vibrations of the suction drag head should result in crab avoidance behavior during operation.

Refer to Master Response C – Reliance on the 2012 Baseline, for a discussion of the SEIR analysis baseline. As stated throughout the SEIR, harvested sand volumes for the Revised Project would decrease by 14 percent over volumes analyzed in the 2012 EIR and approved in prior leases authorized by the CSLC. This reduction in annual volumes should result in less disturbance to benthic fauna than that analyzed in the 2012 EIR and the Revised Project would have a reduced potential to impact marine taxa that utilize benthic fauna.

The comment mischaracterizes the studies cited in the SEIR. Applied Marine Sciences (AMS) (2009a) sampled and evaluated benthic communities at locations that had been recently mined, mined up to two years prior, and comparison sites that had never been mined. The study found no statistical differences in the benthic communities inhabiting those sites that could not be accounted for by microhabitat variations. The study also concluded that the physical oceanographic conditions of the Central Bay mining sites was a stronger predictor of benthic community structure than any anthropogenic activity. The NewFields (2018b; 2020) studies examined one mining lease area and evaluated locations pre- and post-dredging, as well as nearfield locations to assess potential effects of sand mining activities on recovery of benthic fauna. These studies both concluded that no statistically significant impacts could be detected.

The comment incorrectly asserts that the benthic community inhabiting a mining lease never fully recovers because mining occurs repeatedly over the same area of the seafloor. Mining leases are larger than the actual mined areas. Depth restrictions and limitations of the suction dredge equipment usually prevent the same area of seafloor from being mined repeatedly within close time periods. Dredge tracks may occasionally cross but are rarely followed to re-mine the same section of seafloor. Additionally, the Applicants move their dredging operations between various leases which allows for benthic community recovery, as documented by both AMS (2009a) and NewFields (2018b; 2020).

Consequently, no recharacterization of the potential impact of activities occurring under the Revised Project to benthic infaunal

communities is required, and no additional mitigation measures need be applied.

Refer to Response O7-3 for a discussion of changes to Impact BIO-8. The Final SEIR includes a change to the impact classification of BIO-8 from a Class I impact, Significant to a Class II impact, Potentially Significant.

Regarding Impact BIO-9, the analysis by AMS (2009b) and the 2012 EIR identified that entrainment of salmonids could occur through the drag head water intake pipe and not through the suction head itself. The addition of the positive barrier fish screen and other operational restrictions and mitigation requirements applied to the Revised Project were determined to prevent the potential entrainment of salmonids and sturgeon, and therefore a Class II impact was assessed. Additionally, since the adoption of the 2012 EIR, CDFW conducted an independent assessment of potential "take" of special status species, as part of the Applicant's application for an ITP at the Central Bay and West Delta mining leases. In their initial ITP (Nos. 2081-2012-012-03 and 2081-2013-047-03), dated 4/1/14 and all subsequent amendments (dated 10/14/24, 8/14/23, and 8/26/25), CDFW determined that only delta smelt (*H. transpacificus*) and longfin smelt (*S. thaleichthys*) were at risk of entrainment from aggregate sand mining activities. As a result, they assessed compensatory mitigation for the taking of delta and longfin smelt. CDFW determined that No "taking" of salmonids or sturgeon would occur due to the use of positive barrier fish screens and other mitigation and operational measures required by the CSLC in the 2012 EIR and Variance Request #5, which was adopted on February 18, 2015 (Appendix F). The application of any additional mitigation measures is not expected to further minimize potential impacts to salmonids and sturgeons. Consequently, potential impacts from the Revised Project remain characterized as Class II. The SEIR text has been revised to provide additional clarification regarding the impact of the Revised Project to salmonids and sturgeon. Deleted text is shown in ~~strikeout~~ and added text is shown in <u>underline</u>.

Impact BIO-9: The Revised Project could cause the entrainment and mortality of green sturgeon, white sturgeon, Chinook salmon and steelhead trout during sand mining. (Potentially Significant, Class II).

As presented in the 2012 EIR, Sections 4.1.4, sand mining operations under the Revised Project may have the potential to entrain green sturgeon, Chinook salmon, and steelhead trout through the water intake of the suction drag head or the drag head itself. As described above, in addition to the aforementioned sensitive species addressed in the 2012 EIR, the white sturgeon was listed for consideration for protection under the CESA in July 2024. On September 6, 2024, CFGC established emergency regulations for white sturgeon sport fishing (Cal. Code Regs., tit. 14, § 5.78) and, at its August 13-14, 2025, meeting, is scheduled to consider continuing the seasonal restrictions and the catch-and-release fishery. According to CFGC, the proposed regulation amendments are necessary to help ensure the species is protected during the CESA candidacy period. While the life history and movement patterns of white sturgeon in the San Francisco Bay-Delta are similar to those of green sturgeon (Appendix G, Biological Resources Supplemental Information), the white sturgeon's CESA listing as a candidate species is conservatively provided a separate consideration in this SEIR. CDFW has not yet determined what, if any, actions (e.g., the NMFS and USFWS operational procedures) would be needed to address non-sportfishing impacts to the species. As such, the SEIR considers the Revised Project's impact on white sturgeon to be potentially significant since the life history of white sturgeon is similar to green sturgeon, which was evaluated in the 2012 EIR, and assessed to be potentially significant (Class II) and pending any requirements and restrictions to minimize and avoid any identified take that would be set through consultation and permitting with CDFW for the Revised Project. To address the Revised Project's potential significant impact on white sturgeon, the Revised Project would be required to implement a new Mitigation Measure BIO-9a (as distinct from MM BIO-9a in the 2012 EIR) to reduce the potential impact to white sturgeon to less than significant.

As discussed in the 2012 EIR, implementation of NMFS and USFWS operational procedures would reduce ~~the~~ potential impacts on green sturgeon and salmonids (steelhead trout and Chinook salmon) ~~steelhead trout~~ to less than significant. The Revised Project, which proposes a continuation of mining activities including implementation of NMFS and USFWS operational procedures, with an approximately 14 percent reduction in annual mining extraction volumes compared to those previously authorized by the Commission, would not cause a new significant impact or a substantial increase in the severity of a significant impact to green sturgeon or steelhead trout. Additionally, the ITPs (Nos. 2081-2012-012-03 and 2081-2013-047-03) issued by CDFW for aggregate sand mining activities (4/1/14) and all subsequent amendments (10/14/24, 8/14/23, and 8/26/25), determined that aggregate mining activities of the Project, and now the Revised Project, did not result in any "taking" of salmonid species. Therefore, consistent with the conclusions of the 2012 EIR, no additional mitigation is required for impacts on green sturgeon, white sturgeon, Chinook salmon, or steelhead trout.

The Revised Project includes the operation of a positive barrier fish screen (fish screen) as discussed in Section 2.3.2 (Mining Techniques) of this SEIR. The fish screen has a mesh opening of 0.068 inches (1.7 millimeters) to prevent fish entrainment. The screens are also sized to provide an approach velocity of 0.2 feet-per-second to allow early life stages of fish to swim past, further reducing the potential for entrainment of green sturgeon, white sturgeon, and steelhead trout.

The operation of the fish screen under the Revised Project would similarly reduce the potential entrainment of Chinook salmon. In the 2012 EIR, which did not include operation of a fish screen, the implementation of NMFS and USFWS operational procedures was described as potentially less than adequate for preventing the entrainment of Chinook salmon, especially smolts. Consequently, in the 2012 EIR Mitigation Measures BIO-9a and BIO-9b were adopted to reduce the potential for a significant impact on Chinook salmon from sand mining in Central Bay and West Delta. Additionally, the 2012 EIR stated that additional measures may be imposed by CDFW as part of the issuance of an ITP to further ensure that potential

significant impacts to Chinook salmon from sand mining were mitigated under the CESA. As discussed in Impact BIO-8, above, a key requirement that CDFW imposed in the issued ITP to the Applicants was the design, construction and use of a fish barrier that met their specifications for intake flow and velocity. As a result of this requirement in the CDFW ITP, MMs BIO-9a and -9b were amended and the change was adopted by CSLC on February 18, 2015, through the variance process identified in Appendix F.

Like the impact conclusions presented in the 2012 EIR, the Revised Project is expected to result in the incidental take of Chinook salmon. However, the amount of potential entrainment of Chinook salmon under the Revised Project is expected to be substantially less than was described in the 2012 EIR due to the operation of the fish screen, and the Revised Project's 14 percent reduction in mining extraction volumes, and the associated reduction in mining activities. To further reduce any remaining potential for take of Chinook salmon to occur, the Revised project would be required to implement revised MM BIO-9b. With the implementation of this MM, the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

The Biological Opinion issued by NOAA is dated 1/26/15, and the Biological Opinion issued by USFWS is dated 10/22/14. These dates were inadvertently left out of the referenced text of the SEIR. The text for MM BIO-8 has been edited to reflect this omission. Revised text for MM BIO-8 is presented in response to comment A2-7.

A4-9 As suggested by the comment, BCDC has been removed from Section 3.3.2.1, to correct the information regarding which agencies have lease issuance authority. The following sentence (Draft SEIR page 3.3-2) has been revised in this Final SEIR as shown below. Text deletions are shown below in ~~strikeout.~~

> "Sand mining in recent decades has been conducted under mining leases granted by the CSLC ~~and BCDC~~."

As noted in SEIR Section 1.4.1 and in Table 1-2, BCDC is listed among the agencies with jurisdiction to consider issuance of permits or entitlements for the Revised Project to mine sand.

A4-10 In the SEIR, the results of several studies are presented, including eTrac (2018a, 2018b, 2023) and Deltares (2023a,b,c). The SEIR focuses on new analyses, conducted since the 2012 EIR, that cover two spatial scales—the scale of the mining activity ("mining area") and the scale of the entire region available for mining ("lease area"). The Deltares studies investigated bathymetric change at the scale of mining areas and in 100-meter rings surrounding the mining area, up to 1,000 meters away (ten rings). The eTrac studies investigated bathymetric change at the scale of lease areas. Both spatial scales are relevant in investigating the effect of sand mining on the broader environment. The eTrac studies analyzed changes across an entire lease area, which included mining area(s), and thus considers a broader area than the Deltares studies.

As presented in SEIR Section 3.4, no significant changes in bathymetry were measured at the scale of the lease areas for any of the time periods. The Deltares studies analyzed changes across a mining area and the surrounding 100 meters. As presented in SEIR Section 3.4, Deltares (2023b) results for individual rings surrounding the mining areas in west Central Bay showed the presence of both erosion and accretion, with the average of all rings showing net erosion. These results show varying degrees of erosion within the mining areas and decreased erosion in the surrounding 100 meters rings. The Deltares results are presented in SEIR Section 3.4 Table 3.4.1. Additionally, Deltares (2023c) conducted an analysis for extended rings out to 1,000 meters from the mining areas. As per the Draft SEIR, "[t]he results of this analysis showed that mining effects were seen between 200 and 500 meters from the mining area during only one period 1997 – 2008 and for only one of the six rings, the one surrounding the area mined most extensively during this period. For the remaining time periods and rings, no such mining effects were observed beyond 100 meters from the mining areas (inner rings)."

For information regarding biological impacts, refer to response A4-8 above.

The "additional findings per area" mentioned by the commenter in Fregoso et al. (2024) appears to refer to the longer period of the Fregoso et al. analysis. As presented in SEIR Section 3.4, from the 1980s to 2010s, only three of the four subembayments had a net loss

of sediment; Central Bay had net accretion of sediment and was estimated to have gained 18 million cubic meters (Mm3) of sediment. As a whole, the studies described here provide additional information that was not available in 2012; however, the information and conclusions they provide are consistent with information presented and conclusions reached in the 2012 EIR. Also see Master Response F – Sand Transport, Section 'Bed elevation changes outside of mined areas.'

A4-11 SEIR Section 2.4.2 states "proposed annual volumes are…equivalent to peak annual mining volumes currently permitted by other jurisdictional agencies (e.g., BCDC)." Refer to Master Response C – Reliance on the 2012 Baseline for a discussion of the environmental analysis baseline used in the SEIR.

The CHE (2025) analysis of sand resource availability was not conducted with dynamic sand transport modeling. Rather, this analysis consisted of geometric calculations which used the best available bathymetry data and the constraints of the proposed mining methodology and permit conditions to compare the sand available in each lease area with the proposed 10-year total mining volume. See below for the revised SEIR text to clarify the sand resource availability analysis.

The sand availability analysis found that if the entire 10-year lease volume was to be extracted at once, two Central Bay lease areas would not be able to immediately supply that volume within the assumed constraints. PRC 7779 West is predicted to have available 96 percent of the proposed mining volume without any recovery due to natural sand transport. Assuming an estimated annual recovery rate in this lease area of at least 20 percent (Deltares 2023b, Table 4-3), this 4 percent deficit would be restored within a year. The proposed 10-year mining volume could be extracted if mining was spread over just two years.

PRC 7780 North is predicted to have available 34 percent of the proposed mining volume without any recovery due to natural sand transport. Assuming an estimated annual recovery rate in this lease area of at least 14 percent (Deltares 2023b, Table 4-3), this 66 percent deficit would be reduced to a 24 percent deficit over the 10-year lease period. This corresponds to having to truncate the

proposed lease volume for this lease area by 386,000 cubic yards. As noted in the Draft SEIR (p. 3.3-8), "[i]f localized material replenishment does not occur quickly enough, it could result in a need to cease mining operations within a particular authorized lease area."

Since all other lease areas have sufficient sand and PRC 7779 West should easily recover to make up the deficient, the remaining deficit at PRC 7780 North would be only 2 percent of the total proposed mining volume. For context, the CHE (2025) sand availability analysis estimates that the total sand available in all lease areas is 142,700,000 cubic yards, of which the total proposed mining volume, 17,500,000 cubic yards, is only 12 percent.

Proposed revisions to SEIR p. 3.3-8, last paragraph. Deleted text is shown in ~~strikeout~~ and added text is shown in underline.

"~~It should be noted that t~~The Sand Mining Impact Analysis~~: Desktop morphology study; Sand transport modeling study~~, Appendix A: Sand Resource Availability Analysis (CHE 2025) ~~modeling output~~ used bathymetric analysis to estimate ~~shows a lack of~~ available sand in ~~two~~the proposed lease areas in the Central Bay and Suisun Bay compared with proposed mining volumes under the Revised Project (Table 3.3-1). ~~Specifically,~~ CHE (2025) ~~predicts~~ estimates that two lease areas, PRC 7779.1 West and PRC 7780.1 North, do not appear to contain enough available sand to support proposed mining volumes. However, this is due to ~~modeling~~ the assumed constraint of mining equipment only reaching to ~~of the depth of sand mining at~~ a maximum depth of 90 feet MLLW, which does not represent the total amount of sand available. It is also likely a result of the conservative ~~modeling approach~~ analysis used in CHE 2025 which considered the extraction~~ed~~ of the full 10-year cumulative proposed mining volume at one time, versus gradually over the 10-year lease period. This conservative approach does not account for sand transport which occurs within the Central Bay ~~with material in place and~~ that is expected to replenish the mined lease areas with sand from nearby in the Central Bay. As a result of this localized replenishment, it is expected that enough material will be available within the lease areas to support the proposed volumes under the Revised Project. If

localized material replenishment does not occur quickly enough, it could result in a need to cease mining operations within a particular authorized lease area until locally replenished."

SEIR p. 3.3-9, Table 3.3-1 source is revised as follows (Deleted text is shown in ~~strikeout~~ and added text is shown in underline.):

"Source: Sand ~~Mining Impact~~ Resource Availability Analysis (CHE 2025)."

A4-12 See Master Response F – Sand Transport, Section 'Relic sand, limited inputs, and disconnected embayments' and Section 'Sand budget.'

A4-13 Refer to Master Response G – Public Trust Considerations for a discussion of public trust issues.

A4-14 The last paragraph in SEIR Section 4.4.2.2 Comparison of Revised Project and Reduced Project Alternative states in the last sentence that under the Reduced Project Alternative "The same mitigation measures would be necessary." Because the mitigation measures would be the same under the Revised Project as under the Reduced Project Alternative, the addition of the Reduced Project Alternative to the mitigation monitoring program is not necessary as it would provide no new information.

A4-15 Refer to Master Response D – Technical Studies, regarding the use of technical studies. Appendix E, *Consideration of Post 2012 Technical Studies* presents a summary of the review of technical studies with detailed discussions included throughout Section 3 of the SEIR.

A4-16 CSLC staff acknowledges BCDC's review of the Draft SEIR. The contact information provided in the comment is noted.

SUBPART II.B. ORGANIZATION COMMENTS

Citizens Committee to Complete the Refuge

P.O. Box 23957, San Jose, CA 95153 Tel: 650-493-5540 Email: cccrrefuge@gmail.com www.bayrefuge.org

September 22, 2025

California State Lands Commission
Environmental Science, Planning, and Management Division
Attn: Christopher Huitt
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
Email: CEQA.comments@slc.ca.gov; Christopher.Huitt@slc.ca.gov

Subject: Request for a 15-day Extension of Public Comment Period – San Francisco Bay and Delta Sand Mining Project SEIR, SCH #2007072036; CSLC EIR #742, CSLC File Ref: A2932, A2935, A2937, A2938, & A2939

Dear Mr. Huitt,

On behalf of the Citizens Committee to Complete the Refuge (CCCR), I am writing to formally request an 15-day extension of the public comment period for the San Francisco Bay and Delta Sand Mining Project Subsequent Environmental Impact Report (SEIR).

Pursuant to the California Environmental Quality Act (CEQA), the public review period for a draft environmental impact report shall not be less than 30 days nor more than 60 days. Given the scope and complexity of this SEIR, we respectfully urge that for this SEIR a 60-day review period is absolutely necessary and warranted to ensure meaningful public participation.

Several factors support this request:

1. **Complexity of Review** – The SEIR is tiered from and incorporates by reference the 2012 EIR. As a result, commenters must review and cross-reference two lengthy environmental documents to adequately evaluate the project's impacts. This constitutes a "double review" requiring more time than a single EIR.
2. **Deficiencies in Notice** – The Notice of Availability states that the Public Comment period began August 15, 2025. Important stakeholders, such as the members of the Bay Conservation and Development Commission's Sand Studies Commissioner Working Group, did not receive notice of the SEIR release until September 2, 2025, a couple weeks after the official release date. This delay materially shortened the effective review period, undermining CEQA's requirement for adequate public review.
3. **Breadth of Potential Impacts** – The project has the potential to affect a wide range of biological resources and habitats within the San Francisco Bay-Delta estuary. Comprehensive evaluation requires coordination among multiple disciplines and subject-matter experts, which cannot be reasonably completed within the current 45-day comment period.

O1-1

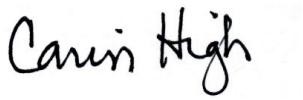
4. **Unforeseen Circumstances** – Many organizations, including ours, are currently constrained in capacity by reduced staffing and limited funding availability. In addition, August and September coincide with critical field work obligations that prevent the allocation of sufficient staff resources to a thorough review within the existing deadline.

Considering these circumstances, and consistent with CEQA's statutory framework, we respectfully request an extension of **15 additional days** for public comment. This extension would not exceed the 60-day review period authorized under CEQA and would ensure that the review process remains legally sufficient, transparent, and inclusive of all interested parties.

O1-1 cont.

We appreciate your consideration of this request and look forward to contributing substantive and informed comments once adequate time is provided. Please do not hesitate to contact me at email provided should you require any further information.

Respectfully submitted,



Carin High
Co-Chair
Citizens Committee to Complete the Refuge
cccrrefuge@gmail.com

Responses to O1 Comments: Citizens Committee to Complete the Refuge

O1-1 See Master Response A -Public Review Period, which explains why the CSLC, as CEQA Lead Agency, decided not to extend the 45-day public review period for the Draft SEIR.

September 23, 2025

California State Lands Commission
Environmental Science, Planning, and Management Division
Attn: Christopher Huitt
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Email: CEQA.comments@slc.ca.gov
Christopher.Huitt@slc.ca.gov

Subject: Request for Extension of Public Comment Period – San Francisco Bay and Delta Sand Mining Project SEIR. SCH #2007072036; CSLC EIR #742, CSLC File Ref: A2932, A2935, A2937, A2938, and A2939

Dear Mr. Huitt,

On behalf of Golden Gate Bird Alliance, I am writing to formally request an extension of the public comment period for the San Francisco Bay and Delta Sand Mining Project Subsequent Environmental Impact Report (SEIR).

Pursuant to the California Environmental Quality Act (CEQA), the public review period for a draft environmental impact report shall not be less than 30 days nor more than 60 days. Given the scope and complexity of this SEIR, we respectfully conclude that the 60-day review period is warranted to ensure meaningful public participation.

Several factors support this request:

1. Complexity of Review – The SEIR is tiered from and incorporates by reference the 2012 EIR. As a result, commenters must review and cross-reference two lengthy environmental documents to adequately evaluate the project's impacts. This constitutes a "double review" requiring more time than a single EIR.

2. Deficiencies in Notice – Certain stakeholders, including members of the Bay Conservation and Development Commission's Sand Studies Commissioner Working Group, did not receive notice of the SEIR release until September 2, 2025, a couple weeks after the official release date. This delay materially shortened the effective review period, undermining CEQA's requirement for adequate public review.

3. Breadth of Potential Impacts – The project has the potential to affect a wide range of biological resources and habitats within the San Francisco Bay-Delta estuary. Comprehensive evaluation requires coordination among multiple disciplines and subject-matter experts, which cannot be reasonably completed within the current 45-day comment period.

4. Unforeseen Circumstances – Many organizations, including ours, are currently constrained in capacity by reduced staffing and limited funding availability. In addition, August and September coincide with

O2-1

critical field work obligations that prevent the allocation of sufficient staff resources to a thorough review within the existing deadline.

Considering these circumstances, and consistent with CEQA's statutory framework, we respectfully request an extension of 15 additional days for public comment. This extension would not exceed the 60-day review period authorized under CEQA and would ensure that the review process remains legally sufficient, transparent, and inclusive of all interested parties.

We appreciate your consideration of this request and look forward to contributing substantive and informed comments once adequate time is provided. Please do not hesitate to contact us should you require any further information.

O2-1 cont.

Sincerely,

Glenn Phillips
Executive Director

GOLDEN GATE BIRD ALLIANCE
2150 Allston Way, Suite 210 Berkeley, California 94704
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Responses to O2 Comments: Golden Gate Bird Alliance

O2-1 See Master Response A -Public Review Period, which explains why the CSLC, as CEQA Lead Agency, decided not to extend the 45-day public review period for the Draft SEIR.

Audubon | CALIFORNIA

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September 22, 2025

California State Lands Commission
Environmental Science, Planning, and Management Division
Attn: Christopher Huitt
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
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Subject: Request for Extension of Public Comment Period – San Francisco Bay and Delta Sand Mining Project SEIR SCH #2007072036; CSLC EIR #742; CSLC File Ref: A2932, A2935, A2937, A2938, & A2939

Dear Mr. Huitt,

On behalf of Audubon California, I am writing to formally request an extension of the public comment period for the San Francisco Bay and Delta Sand Mining Project Subsequent Environmental Impact Report (SEIR). Pursuant to the California Environmental Quality Act (CEQA), the public review period for a draft environmental impact report shall not be less than 30 days nor more than 60 days. Given the scope and complexity of this SEIR, we respectfully conclude that the 60-day review period is warranted to ensure meaningful public participation.

Several factors support this request:

1. **Complexity of Review** – The SEIR is tiered from and incorporates by reference the 2012 EIR. As a result, commenters must review and cross-reference two lengthy environmental documents to adequately evaluate the project's impacts. This constitutes a "double review" requiring more time than a single EIR.
2. **Deficiencies in Notice** – Certain stakeholders, including members of the Bay Conservation and Development Commission's Sand Studies Commissioner Working Group, did not receive notice of the SEIR release until September 2, 2025, a couple weeks after the official release date. This delay materially shortened the effective review period, undermining CEQA's requirement for adequate public review.
3. **Breadth of Potential Impacts** – The project has the potential to affect a wide range of biological resources and habitats within the San Francisco Bay-Delta estuary. Comprehensive evaluation requires coordination among multiple disciplines and subject-matter experts, which cannot be reasonably completed within the current 45-day comment period.

O3-1

Considering these circumstances, and consistent with CEQA's statutory framework, we respectfully request an extension of 15 additional days for public comment. This extension would not exceed the 60-day review period authorized under CEQA and would ensure that the review process remains legally sufficient, transparent, and inclusive of all parties.

We appreciate your consideration of this request and look forward to contributing substantive and informed comments once adequate time is provided. Please do not hesitate to contact me at 510-423-1568 or casey.skinner@audubon.org should you require any further information.

Sincerely,

Casey Skinner

Casey Skinner, San Francisco Bay Program Director
Audubon California

Responses to O3 Comments: Audubon California

O3-1 See Master Response A -Public Review Period, which explains why the CSLC, as CEQA Lead Agency, decided not to extend the 45-day public review period for the Draft SEIR.

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September 23, 2025

California State Lands Commission
Environmental Science, Planning, and Management Division
Attn: Christopher Huitt
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Email: CEQA.comments@slc.ca.gov; Christopher.Huitt@slc.ca.gov

Subject: Request for Extension of Public Comment Period – San Francisco Bay and Delta Sand Mining Project SEIR
SCH #2007072036; CSLC EIR #742
CSLC File Ref: A2932, A2935, A2937, A2938, & A2939

Dear Mr. Huitt,
I am writing to formally request an extension of the public comment period for the San Francisco Bay and Delta Sand Mining Project Subsequent Environmental Impact Report (SEIR).

Pursuant to the California Environmental Quality Act (CEQA), the public review period for a draft environmental impact report shall not be less than 30 days nor more than 60 days. Given the scope and complexity of this SEIR, we respectfully conclude that the 60-day review period is warranted to ensure meaningful public participation.

Several factors support this request:

1. **Complexity of Review** – The SEIR is tiered from and incorporates by reference the 2012 EIR. As a result, commenters must review and cross-reference two lengthy environmental documents to adequately evaluate the project's impacts. This constitutes a "double review" requiring more time than a single EIR.
2. **Deficiencies in Notice** – As a participant in the Bay Conservation and Development Commission's Sand Studies Commissioner Working Group, we did not receive notice of the SEIR release until September 2, 2025, two weeks after the official release date. This delay materially shortened the effective review period, undermining CEQA's requirement for adequate public review.
3. **Breadth of Potential Impacts** – The project has the potential to affect a wide range of biological resources and habitats within the San Francisco Bay-Delta estuary. Comprehensive evaluation requires coordination among multiple disciplines and

O4-1

subject-matter experts, which cannot be reasonably completed within the current 45-day comment period.

4. **Unforeseen Circumstances** – Many organizations, including ours, are currently constrained in capacity by reduced staffing and limited funding availability. In addition, the timing coincides with critical field work obligations requiring long days out of the office that prevent the allocation of sufficient staff resources to a thorough review within the existing deadline.

O4-1 cont.

Considering these circumstances, and consistent with CEQA's statutory framework, we respectfully request an extension of **15 additional days** for public comment. This extension would not exceed the 60-day review period authorized under CEQA and would ensure that the review process remains legally sufficient, transparent, and inclusive of all interested parties.

We appreciate your consideration of this request and look forward to contributing substantive and informed comments once adequate time is provided. Please do not hesitate to contact me at the contact below should you require any further information.

Sincerely,

Julie Thayer, Ph.D.
Principal Scientist
Farallon Institute
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707-981-8033

Responses to O4 Comments: Farallon Institute

O4-1 See Master Response A -Public Review Period, which explains why the CSLC, as CEQA Lead Agency, decided not to extend the 45-day public review period for the Draft SEIR.

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September 29, 2025

Christopher Huitt, Senior Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Comments Submitted Electronically

Re: Draft Supplemental Environmental Impact Report for San Francisco Bay and Delta Sand Mining Project

Lead Agency: California State Lands Commission

Dear Mr. Huitt and Commissioners of the California State Lands Commission,

On behalf of Audubon California, I would like to thank the California State Lands Commission for the opportunity to comment on the Draft Supplemental Environmental Impact Report (SEIR) for San Francisco Bay and Delta Sand Mining Project. Audubon's mission is to protect birds and the places they need, today and tomorrow throughout using science, advocacy, education, and on-the-ground conservation. We have an unparalleled wingspan that reaches millions of people each year to inform, inspire, and unite diverse communities in conservation action. A nonprofit conservation organization since 1905, Audubon believes in a world in which people and wildlife thrive.

O5-1

Work within our state program – Audubon California – includes stewardship, conservation, and management of Richardson Bay, an Important Bird Area and 900-acre subtidal waterbird sanctuary. This critical habitat is part of the larger San Francisco Bay Estuary, supporting over 500 species of fish, mammals, and plants—many of which are threatened or endangered. It also provides critical habitat for shorebirds, waterfowl, and marsh birds and is a key stopover along the Pacific Flyway, with over one million birds migrating through at peak season.[1] We are also stewards of the second largest eelgrass bed in San Francisco Bay, which is also a foraging and wintering habitat for waterbirds as they make their journey along the flyway.

In reviewing the draft SEIR, one of the concerns we have noted is how baseline conditions were defined and then utilized. Per the Executive Summary of the San Francisco Bay and Delta Sand Mining Draft SEIR, two companies (Martin Marietta Marine Operations, LLC, and Lind Marine Inc.) or their predecessors have held leases to harvest sand commercially within San Francisco Bay and the Western Delta for more than 80 years. The draft SEIR also notes on p. 68, "*Impacts on biological resources are assumed to have occurred since sand mining in the Project areas first started, and the ongoing disturbance that occurred during this time is considered part of the baseline condition.*" Despite these admissions, the original EIR only examined the impacts of "*...any changes in mining practices or methods, locations, and level of intensity relative to the average level of operations occurring from 2002 to 2007...*" While it is impossible for us to assess or review baseline data of the proposed leases prior to sand mining impacts, understanding these impacts spatially and temporally is critical to our decisions for these habitats now. Understanding our cumulative impacts on

O5-2

[1] San Francisco Bay. National Audubon Society, updated 2025, https://www.audubon.org/california/projects/san-francisco-bay.

species' distributions and abundances as well as changes to this critical habitat from sand mining is a crucial step to a broader comprehension of ecosystem structure and function within the leased areas. Only examining the impacts of average levels of operations in a five-year window nearly 20 years ago is not sufficient.

O5-2 cont.

Also, in section **3.2.2.2 Physical Environmental Setting** of the draft SEIR, it's noted *"...any physical effects related to plume turbidity are spatially limited and ephemeral in nature."* We believe this does not adequately address ecological effects and impacts, as plumes from sand mining operations may be huge in relation to a stand of eelgrass or a seabird's foraging habitat. Furthermore, qualitative observations show generated plumes are visible throughout the operation period, which can be for a substantial portion of the day, over many different days, and in the center of foraging habitat for a variety of avian and marine mammal species.

O5-3

The following section **- 3.2.2.3 Open Water Pelagic Environment –** discusses declining fish species such as include northern anchovy (*E. Mordax*), Pacific sardine (*S. sagax*), steelhead (*O. mykiss*), Chinook salmon *(O. tshawytscha*), delta smelt (*Hypomesus transpacificus*), and longfin smelt (*S. thaleichthys*). However, there is a noticeable omission by excluding Pacific herring (*Clupea pallasii*), which have declined significantly in recent years.[2] We believe the SEIR does not adequately address the substantial herring declines within San Francisco Bay.

O5-4

Within the **Marine Bird Community** section, birds such as the Western Gull, Western/Clark's grebe (latter of which is listed), Common Murre, and loons are completely omitted from 2012 EIR, yet overlap regularly with sand mining lease areas. This section also states marine bird populations have remained at healthy levels, which is inaccurate. In fact, significant changes have occurred in the marine bird community throughout San Francisco Bay. Tipping point birds species have lost more than 50% of their populations within the past 50 years[3]. Within the sand mining leases, tipping point avian species utilizing the habitat include the Western Gull, Pelagic Cormorant, and Horned Grebe. The State of the Birds Report also notes American seabird populations – especially along the West Coast – are in steep decline throughout the ranges.

O5-5

The submerged aquatic vegetation (SAV) habitat discussion in the 2012 EIR, (Section 4.1.1 (pp. 4.1-12 to 4.1-13) remains unchanged in the current SEIR. However, we believe the impacts to SAV were not adequately addressed in the original EIR. For example, just northwest of the sand mining leases is Richardson Bay, home to the second largest eelgrass bed within the San Francisco Bay estuary.[4] Impacts to SAV stands occurring adjacent to sand mining sites – such as the one in Richardson Bay – are in swift current systems of the Central Bay. The effects of sand depletion (habitat reduction), sediment deposition (burying benthic habitat), and turbidity (reducing photosynthesis) were not discussed. It is important to note here that significant eelgrass declines have occurred since 2012, which were also not addressed in the SEIR.[5] It should also be noted that the National Marine Fisheries Service's California Eelgrass Mitigation Policy recommends there be no net loss of eelgrass function in California.[6]

O5-6

Finally, the **water quality technical study in Appendix E**, notes *"...physical effects related to plume turbidity are spatially limited and ephemeral in nature..."* and *"...only short term and spatially limited increases in turbidity that have no significant impact on marine biota."* As mentioned earlier, what constitutes spatial limitations to a foraging seabird is completely different than what an observer constitutes an ecological hinderance. Furthermore, given long mining hours on multiple days for many weeks/months throughout the year, these mining leases are more than likely to overlap significantly in space and time with available

O5-7

[2] Herring Fishery Season Summaries. California Department of Fish and Wildlife, updated 2025. https://wildlife.ca.gov/Fishing/Commercial/Herring/Season-Summaries#san-francisco

[3] North American Bird Conservation Initiative. The State of the Birds, United States of America, 2025. https://www.stateofthebirds.org

[4] Restoring Eelgrass in Richarson Bay. Audubon California, updated 20025. http://www.audubon.org/california/projects/restoring-eelgrass-richardson-bay

[5] Why we can't live without eelgrass. Audubon California, updated 2025. https://www.audubon.org/california/news/why-we-cant-live-without-eelgrass

[6] Fisheries, N. O. A. A. "California eelgrass mitigation policy and implementing guidelines." *West Coast Region* (2014).

foraging habitat. Studies have shown that visual clues are vital for seabirds to successfully forage and that increased turbidity hinders their ability to successfully detect prey.[7]

O5-7 cont.

Based on our comments above, Audubon California recommends that the California State Lands Commission reanalyze how baseline data is being utilized to make environmental decisions; reexamine individual and cumulative impacts to biological resources; and develop a new EIR that adequately incorporates this updated scientific information. We further ask that the CSLC:

- Reject this Draft SEIR and require revisions incorporating public concerns
- Consider alternatives that reduce environmental impacts
- Develop mitigation measures based on current scientific understanding on updated biological data

O5-8

In conclusion, the ecological overlaps with the sand mining leases require us to be responsibly stewards of these shared habitats. While permits have been issued in the past, we cannot ignore the growing concerns of sand mining impacts on the San Francisco Bay ecosystem. Audubon California believes the portions of the Draft Supplemental Environmental Impact Report for San Francisco Bay and Delta Sand Mining Project mentioned above are ecologically inadequate. Further scientific studies are necessary before it is possible to understand the long-term impacts of sand mining on this critical habitat.

If you have any questions about our comments or would like to discuss any of these points in more detail, please do not hesitate to reach out.

Sincerely,

Casey Skinner
San Fracisco Bay Program Director
Audubon California
casey.skinner@audubon.org

[7] Darby, J., et al. "Underwater visibility constrains the foraging behaviour of a diving pelagic seabird." *Proceedings of the Royal Society B* 289.1978 (2022): 20220862.

Responses to O5 Comments: Audubon California

O5-1 CSLC acknowledges the contribution that Audubon California has made to the protection of bird species through stewardship, conservation, and management of critical habitat in the San Francisco Bay Estuary.

O5-2 Refer to Master Response C – Establishment of Baseline for a discussion of the SEIR's baseline analysis conditions.

O5-3 As documented by NewFields 2019a, the discharge plumes generated by Revised Project mining activities typically average about 400 meters in length, before contacting the seafloor. They also flow in the direction of the flood or neap tides (i.e., east or west). The closest eelgrass beds to the northernmost lease (Lease PRC 7779.1 North) in the Central Bay lease area is over 1,000 meters to the north of the lease. There are no eelgrass beds near any of the Delta mining leases. Also as stated in NewFields 2019a, individual mining events only last 2-4 hours in duration, and the surface plumes only extend over a relatively small fraction of the waters within either Central Bay or the Delta that are used as forage area by both fish and marine birds. Additionally, Bay-Delta waters are naturally very turbid with near zero visibility conditions below the surface of the water, as stated in Section 3.2.5.2, Impact BIO-3 of the SEIR.

O5-4 As shown in Appendix G, Biological Resources Supplemental Information, Pacific herring stocks in Central Bay have dropped from composing 5.5% of the total fish occurring in Central Bay to 3.0% but remain at 3.5% in the Delta. A careful review of the most recent fish collection data for the Central Bay Interagency Ecological Program (IEP) monthly sampling (Appendix G, Biological Resources Supplemental Information, Tables G-1 and G-3), indicate that Pacific herring stocks routinely fluctuate by several orders of magnitude year to year. This is a natural occurrence. As such, that fluctuation is considered in the potential Revised Project activities and the potential effects they may have on the population utilizing the waters of the marine project area of the assessment.

The text of section 3.2.2.3 has been updated to include Pacific herring in the list of declining species. Deleted text is shown in ~~strikeout~~ and added text is shown in underline.

> "The 2012 EIR (Section 4.1.1, pp. 4.1-7 to 4.1-8) described declines as well as state and federal protections of some of the dominant fish taxa of the Bay-Delta. Declining species include northern anchovy (*E. Mordax*), Pacific sardine *(S. sagax*), Pacific herring *(C. pallasii),* steelhead (*O. mykiss*), Chinook salmon (*O. tshawytscha*), delta smelt (*Hypomesus transpacificus*), and longfin smelt (*S. thaleichthys*). When the 2012 EIR was drafted, longfin smelt (*S. thaleichthys)* was listed as threatened under the California Endangered Species Act (CESA). In July 2024, the Bay-Delta distinct population segment (DPS)of longfin smelt was also listed as endangered under the Federal Endangered Species Act (FESA) (CNDDB 2025)."

O5-5 Although the Western gull (*Larus occidentalis)* is mentioned in the 2012 EIR, the other species identified by the commenter were not specifically called out in the text of the SEIR. They, as all marine birds utilizing the Revised Project lease areas, were considered in the potential impacts analysis. It should also be noted that most of the bird species mentioned by the commenter that have been in decline, were in decline before the 2012 EIR baseline assessment. More recent declines in individual populations are attributed to declines in the breeding colonies of these birds in the Farallon Islands and possibly in response to global events affecting availability of prey, as noted by this and other commenters. As explained in Master Response J- Marine Birds, discussion of global events and their effects on Revised Project activities, as well as potential effects to biological resources in the Revised Project study areas, global or regional environmental events are part of the cumulative impact analysis of the 2012 EIR and the SEIR. The potential direct, indirect, and cumulative effects of the proposed activities on all biological resources utilizing the Revised Project study area, based on their current occurrence and utilization of the resources in the Project study area, are evaluated in Section 3.2 of the SEIR.

To address the comment regarding omission of several bird species also using Bay-Delta waters, the text of SEIR Section 3.2 (page 3.2-5) has been edited per text changes shown below. Deleted text is shown in ~~strikeout~~ and added text is shown in underline.

"Marine Bird Community

The marine bird community discussion in the 2012 EIR, Section 4.1.1 (pp. 4.1-8 to 4.1-9) remains relevant for the purpose of this SEIR analysis. Additional birds not mentioned in the 2012 EIR that are known to utilize the waters of the Central Bay and Delta lease areas include the Western grebe (*Aechmophorus occidentalis*), Clarke's grebe (*Aechmophorus clarkii*), the common murre (*Uria aalge*), assorted loons, pelagic cormorant (*Phalacrocorax pelagicus*), and horned grebe (*Podiceps auritus*)."

O5-6 As described above in response to comment O5-3, Revised Project discharge plumes average 400 meters in length and flow in either an east or west direction, depending on the tide. The closest eelgrass beds to the northernmost mining lease (Lease PRC 7779.1 North) are over 1,000 meters to the north and beyond the reach of any plumes originating from mining activities in this or any other Central Bay lease location. There are no eelgrass beds near any of the Delta leases.

O5-7 As described above in response to comment O5-3, the discharge plumes from Revised Project mining activities occur over a very small percentage of the foraging habitat for marine birds and fish species within Central Bay and the Delta and only occur for a maximum of 4 hours at a time.

O5-8 Refer to the above responses to comments O5-2 through O5-7 for specific responses to the comments referenced in this summary comment and a discussion of how current biological data were used in the analysis. See also Master Response E -Alternatives for a discussion of alternatives.

Marin Audubon Society

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September 29, 2025

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California State Lands Commission
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Email: CEQA.comments@slc.ca.gov

RE: Comments on *"Supplemental Environmental Impact Report (SEIR) for Sand Mining in San Francisco Bay and Delta*

Dear Mr. Huitt:

Marin Audubon Society appreciates the opportunity to submit comments on the State Lands Commission (SLC) *"Supplemental Environmental Impact Report (SEIR) for Sand Mining in San Francisco Bay and Delta,"* which analyzes applications from Martin Marietta Marine Operations and Lind Marine, to renew leases for harvesting sand from San Francisco Bay and Suisun Marsh over the next 10 years. We have a number of concerns about the analysis, particularly as the SEIR reports that the sand that is removed is not replenished.

The SEIR reports that mining companies have been harvesting sand in the estuary for more than 80 years. Many millions of cubic yards of sand and gravel have been mined from the Bay-Delta floor since 1915, including 20 million cubic yards to create Treasure Island, and millions since then. It's hard to believe that there have been no impacts to the bay habitats and wildlife from the extraction and permanent loss of so many millions of cubic yards of sand from the estuary. The SEIR addresses impacts to habitats and species by looking at the specific extraction areas and areas nearby and concludes that the impacts are less than significant because the extraction activity is short lived and the areas of impact are small. At the same time, the SEIR describes the dynamic nature of the estuary, particularly Central Bay. These factors, combined with the fact that the excavated sand is not replenished, make additional discussion essential.

O6-1

The SEIR explains it is limited to evaluating the current revised project against the project approved in the 2012 EIR. It concludes that only minor changes are needed to have the 2012 EIR apply to the current project. There are essential issues and changed circumstances that are not adequately addressed or not addressed at all in the environmental document. These must be addressed for the analysis to be adequate. These include the recent, regular use of San Francisco Bay by new endangered species, and the rapid decline of existing threatened and endangered species that has occurred since the 2016 review, i.e., humpback whales and gray whales and others discussed below.

O6-2

1.**Endangered Species/Change in Use or Listing:** Since the last SEIR there have been notable changes in large marine mammal activity in the estuary.

- Humpback whales: Establishment of New Feeding Grounds. Two Distinct Population Segments of humpback whales (Megaptera novaeangliae) from Mexico and Central America, federally listed as Threatened and Endangered respectively and protected by the Marine Mammal Protection Act) began feeding regularly around 2014 in San Francisco Bay (spring through fall). [1]

- Gray Whales: Establishment of New Feeding Grounds: Due to lack of food on their Arctic feeding grounds, migrating gray whales (Eschrictius robustus) now increasingly depend on foraging in San Francisco Bay;[2] it has become an established feeding ground, primarily in the spring. They feed by scooping up quantities of bottom sediments containing benthic invertebrates and silt, then filter out their prey through sieve-like baleen plates. The recent Unexplained Mortality Event (2019-2023) caused a sudden, catastrophic decline of grays (from 27,000 in 2016 to 12,950 in 2025, per NOAA), the bay estuary complex has become a feeding ground for some survivors. An expedited Petition to Re-List Eastern North Pacific Gray Whales under the federal ESA was filed in August, 2025. See https://www.fisheries.noaa.gov/s3/2025-09/ENP-gray-whale-petition.pdf

- Harbor porpoise presence has increased in the bay since approximately 2010. They now feed and breed in the areas where sand mining will occur. Like other highly acoustically-reliant marine mammals, the noise from mining operations can interfere with location of prey, communication among adults, and communication and bond cohesion between females and their calves.

O6-3

Sea Level Rise (SLR). Not evaluated in the SEIR is the possible impact of SLRise on sand resources. What part is SLR expected to have in relation to the movement of, and stability of, sand resources in the estuary? Will currents be stronger and move sand around even more or less? What impacts would sand mining have under anticipated SLR conditions?

O6-4

Public Benefit Use. It is not clear that the mining companies do or will use the extracted sand to benefit the people of the region and the state, which it is the SLC responsibility to ensure. What prevents Martin-Marietta and Lind from exporting these materials out of state or out of the country rather than to benefit the public of San Francisco Bay Area and State of California? Does SLC limit the sale of sand to the state and region? Are there reporting requirements?

O6-5

2. **Geographic Boundary.** The SEIR defines the geographic boundary of the project as extending outside the Golden Gate to and including Ocean Beach. However, the impact analysis is primarily limited to the specific area and the vicinity of the excavation areas. Considering the magnitude of sand loss to the estuary, the known importance of sand resources to coastal beach replenishment, the powerful currents, and that the sand resources are not being replaced, why does the SEIR impact analysis not include the full geographic area of the estuary,

O6-6

[1] "New Urban Habitat for Endangered Humpback Whales: San Francisco Bay." Markowitz, T.M., W. Keener, M.A. Webber, A.R. Payne, R.S. Lane, J.A. Fahlbusch, and J. Calambokidis. 2024. *Aquatic Conservation: Marine and Freshwater Ecosystems 34*(3):e4107. doi: 10.1002/aqc.4107

[2] Increased use of San Francisco Bay Habitat by Gray Whales Coincides with an Unusual Mortality Event Tim M. Markowitz Isidore D. Szczepaniak, William Keener, et al., "Beyond the Golden Gate Research Symposium || 19-21

or at least the areas reached by the strong currents, i.e. areas where impacts are likely occurring. Clearly, the impacts are not only local. The project boundary should be widened to include the Marin coast where bay sediments are also carried by currents.

O6-6 cont.

3. **Significance of Sand Loss.** The Evaluation Criteria for Significance of Permanent loss of Sand are inadequate and the evaluation criteria established by the SLC do not provide for evaluating the impacts of the loss of huge volumes of sand. That there is no new sand entering the estuarine ecosystem also highlights the need to identify and evaluate the impacts of the sand loss beyond the specific areas excavated. What, if any, efforts has the SLC made to identify locations where the sand is being diminished, and that could be causing environmental degradation away from the lease areas?

O6-7

4. **Sand Deposit Locations.** The SEIR reports that sand is being transported around the estuary by dynamic currents. It would seem logical to first identify the extraction/scour-transport-deposition patterns of sand. Where is it deposited in addition to the lease areas? Does the suspended sand create negative impacts to flora and fauna? What areas are losing or gaining sand, and what is the ecological importance of this loss?

O6-8

5. **Sandy Beach Impacts.** One example of the impacts of sand volume reduction concerns coastal beaches. The loss of huge quantities of sand to coastal beaches is a public trust concern. The SEIR should discuss the impact of the permanent loss of large volumes of sand on beach-dependent trust resources. The loss of sand to beaches negatively affects multiple public trust uses including impacts to beach-dependent recreational activities (fishing, sun bathing, swimming) as well as coastal ecosystems include invertebrates living in the sand, shorebirds such as Sanderlings that forage on beaches, and for some beaches, endangered species, e.g. Snowy Plover.

Not only outer coastal beaches would suffer. Sandy beaches occur within the estuary itself. During increasingly common heat waves, inland and Bay Area residents flock to beaches like Crissy Field Beach and Alameda Beach to find a reprieve from potentially deadly rising temperatures, according to the San Francisco Chronicle and KTVU. We understand that once there were many more beaches. What is the historic record of sandy beaches within the estuary and how many beaches exist now? Could the historic loss of sand and reduced beaches have anything to do with the loss of sand to mining?

O6-9

6. **Public Trust Priority.** The Minerals Resource section discusses how significant adverse impacts on mineral resources are evaluated. It concludes that the project would have a less-than-significant impact, based on the following criteria: that the loss of sand resources would not 1) result in the loss of availability of a known mineral resource of value to the region and residents of the State, and 2) cause the loss of availability of a locally important mineral resource recovery site identified in a local general plan or other use plan.

O6-10

The criterion that sand be identified in a local, general, regional plan is not reasonable. Considering the resource value of sand in the bay is just not something most cities and counties would ever address in their general plans. General plans focus on land uses, recreational uses, biological resources, etc. not what is in the bay. In our opinion, this is not a valid criterion. The

SLC should recommend that the value of the sand resource to the ecosystem be addressed in relevant regional plans including BCDC'S Bay Plan and the RWQCB's Basin Plan.

Regarding criterion, #1 the focus should be on the loss of the mineral itself, rather than the availability of the mineral, to determine the significance of the loss? This phrasing indicates that the accessibility of the resource for humans is the priority. This assessment is supported by the SEIR additional statement: "These criteria reflect State and local policy that recognize the importance of mineral resources in meeting society's needs and are intended to ensure the disclosure of a proposed project's potential to preclude mineral extraction...." This makes it clear that the SLC in its role of protecting the public interest considers extracting sand resources to meet society's construction needs to be a higher priority than protecting the natural resources of the estuary. Protecting natural resources should be the highest priority.

O6-10 cont.

7. **Depletion of Resource.** "...this EIR acknowledges that mining of a non-renewable mineral can generally be expected to eventually deplete the resource." "The significance criteria used for this section are based on the State's interest in ensuring that important mineral resource deposit areas be available for mineral resource extraction and not be lost to the development of incompatible land uses." Extraction for incompatible land uses can be prevented through permitting. What is the SLC's plan to address the depletion of sand resources?

O6-11

8. **Baseline Needed.** We strongly recommend that SLC initiate a study to identify locations where sand is being deposited and resuspended to begin to evaluate impacts of the ongoing loss of sand on the estuary. Baseline conditions must be established against which future extractions are evaluated to ensure the ability to conduct a comprehensive evaluation of the impact of the sand losses on the estuary resources.

O6-12

The SLC is responsible for overseeing the public interest on public trust tidelands, submerged lands, and the beds of navigable waters, and for ensuring that their uses "benefit all people of the state." To fulfill this charge, the SLC has a responsibility to understand and ensure the estuary is not permanently damaged by the extraction of sand. The SEIR recognizes that at some point the sand loss will adversely impact estuary resources; it is essential to determine whether the sand from mining operations do in fact "benefit all people of the state" as stated in the SLC's mandate. In our view, maintaining a healthy estuary without diminishing resources is the highest public trust priority.

O6-13

In conclusion, the San Francisco Bay Estuary has seen new use by endangered whales and the project impacts need further analysis, as do other issues and questions as raised above. Thank you for your attention.

Sincerely,

Barbara Salzman, President

Mary Jane Schramm, Conservation Committee

Responses to O6 Comments: Marin Audubon Society

O6-1 Regarding the SEIR's treatment of sand as a non-renewable resource, refer to Master Response I – Marine Mammals, and SEIR Section 3.3. As described in Section 3.2.5, the SEIR discloses impacts to fish and wildlife species and their habitats. The SEIR also proposes mitigation to minimize potential impacts.

O6-2 Section 3.2 and Appendix G of the SEIR consider the changed biological resources conditions. As part of the analysis performed on marine resources of the Bay-Delta, all the marine communities inhabiting the Revised Project lease areas were updated and reviewed during preparation of the SEIR. In addition, the SEIR included discussions of pertinent marine resources and potential interactions with Revised Project activities, expanding upon the analysis included in the 2012 EIR. For example, fish inhabiting the lease areas were reviewed for the period 2016-2023 and updated tables showing trawl data were provided in Appendix G, Biological Resources Supplemental Information. The occurrence of special status species utilizing the lease areas was analyzed in a more in-depth manner as demonstrated by a 38-page Special Status Species in Sand Francisco Bay and Delta table listing their status in the marine study area and the potential for occurrence (Appendix G, Biological Resources Supplemental Information).

Additionally, each section of the SEIR that presents information on a specific marine community briefly describes the habitat and community, where the reader can find the original information on that community in the 2012 EIR, and then discusses any changes to that community that have occurred since the drafting of the 2012 EIR.

See Master Response I– Marine Mammals and Master Response J – Marine Birds for further discussion pertaining to Bay-Delta marine mammal and bird communities.

O6-3 The potential occurrence and protected status of humpback whales, gray whales, and harbor porpoise is included in the discussion of the marine resources utilizing the Revised Project mining area in Section 3.2 of the SEIR, as well as the 2012 EIR. In addition, more detailed information about their current frequency of occurrence and status is provided in Appendix G, Biological

Resources Supplemental Information. The increased occurrence of both Humpback and Gray Whales in San Francisco Bay in 2024 and 2025 is also presented. The potential direct, indirect, and cumulative effects of Revised Project mining activities on these species was considered and evaluated (see Section 3.2.5). It should be noted that the harbor porpoise population within San Francisco Bay was increasing prior to 2012 and occurrence of the species was noted in the 2012 EIR.

Refer to Master Response I- Marine Mammals for a discussion of the effects of global events on these marine species and those occurrences relative to the SEIR analysis of the Revised Project.

Refer to Master Responses K – Underwater Noise and I - Marine Mammals for a discussion of the treatment of underwater noise effects on harbor porpoises in the SEIR.

O6-4 As established under CEQA case law (*California Bldg. Indus. Ass'n v Bay Area Air Quality Mgmt. Dist.* (2015) 62 C4th 369, 378), the purpose of an environmental review pursuant to CEQA is to identify the significant effects of a project on the environment, not the significant effects of the environment on a project. Therefore, an evaluation of effects of the environment on a project are not generally required as part of the CEQA review. Environmental considerations related to sea level rise are provided in Section 5.10 of the SEIR. As discussed in SEIR Section 5.10.1, sea level rise is expected to lead to the narrowing of beaches. As stated under SEIR Section 5.10.3, "Independently, a loss of coastal sediment could cause a loss of beach width. If these secondary impacts did occur, they would be considered effects of the environment on the project, not effects of the project on the environment." Moreover, beach replenishment is among the stated uses for sand mined as part of the Revised Project, as noted in Section 2.2. See also Response to Comment O6-5.

O6-5 As defined in Section 2.2 of the SEIR in the context of the project objective, "The purpose of the Revised Project, as stated by the Applicants is to assure the availability of marine sands for commercial and public purposes within the greater San Francisco Bay area." See also Master Response G, which discusses public trust issues as related to the Revised Project.

O6-6 The reasoning requested by the comment is provided in Section 3.1.5 of the SEIR, which discusses the geographic scope for cumulative effects analysis. As stated there, "the geographic scope of the cumulative effects analysis (i.e., the cumulative effects study area) may extend beyond the scope of the direct effects of the Revised Project, but not beyond the scope of its indirect effects. As defined in the 2012 EIR, the geographic boundary for the cumulative effects analysis generally encompasses the waters and shoreline of central and northern (excluding southern) San Francisco Bay, San Pablo Bay, and Suisun Bay, and within 5 miles upstream and downstream of the Suisun Bay/Delta lease area. For hydrology and water quality impacts related to sediment transport, the boundary extends beyond the Golden Gate Strait to include Ocean Beach and its offshore sand bar (2012 EIR Figure 3-4; p. 3-19). For the purposes of the SEIR, the geographic study area cumulative analysis of the Revised Project remains the same." Because the geographic boundary defined in the 2012 EIR and in the SEIR is sufficient to encompass potential direct and indirect effects, no change to the geographic boundary is warranted by this comment. For additional information related to sand transport and the outer coast, see also Master Response F – Sand Transport.

O6-7 As discussed extensively in the SEIR, it is acknowledged that sand extracted under the Revised Project is considered a non-renewable resource (See SEIR Section 3.3). For additional discussion on this topic, see Master Response H.

O6-8 Sand transport patterns are well studied, and evaluations of these patterns are described in various technical studies (as outlined in SEIR Appendix D, Bathymetric and Hydrodynamic Study, and SEIR Appendix E, Consideration of Post 2012 Technical Studies). As these studies adequately inform the analysis of the Revised Project's direct and indirect effects, no change to the SEIR is warranted by this comment. See also Master Response D, as related to the SEIR's use of technical studies.

O6-9 See response to Comment O6-8 pertaining to sand transport and the use of various technical studies. A discussion of the history of sandy beaches within the estuary is outside the scope of CEQA and this SEIR.

O6-10 The CEQA criteria used to analyze the effects on Mineral Resources in the SEIR are consistent with the 2012 EIR criteria, CEQA Appendix G, and case law (see Master Response H - Mineral Resources). In addition to the stated construction uses, sand extracted under the Revised Project is intended to become available for other types of projects such as beach replenishment and wetland restoration, as discussed in Section 2.2 (in the context of the Revised Project purpose and objectives). Included as a reference to the SEIR, the Application Supplemental Information Table K-1(CSLC 2020) lists these uses of mined sand, including beach replenishment and wetland restoration.

O6-11 This comment correctly quotes from Draft SEIR page 3.3-9, which states: "Consistent with the assumptions relied upon and conclusions reached in the 2012 EIR, this SEIR acknowledges that mining of a non-renewable mineral resource can generally be expected to eventually deplete the resource. As discussed in Section 3.3.4 above, the significance criteria used for this section are based on the State's interest in ensuring that important mineral resource deposit areas be available for mineral resource extraction and not be lost to the development of incompatible land uses." The CSLC acknowledges the perspective that land use consistency can be regulated as part of the permitting process and notes that opinions may differ about determinations of use compatibility. See Master Response G – Public Trust Considerations regarding the Commission's duties and responsibilities relating to management of Public Trust resources.

The Draft SEIR analyzes impacts on mineral resources in reliance on the significance criteria and thresholds of significance that were relied upon in the 2012 EIR and as suggested in Section XII of CEQA Guidelines Appendix G. Appendix G suggests that lead agencies assess whether a project's impacts on mineral resources would "a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?" and "b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?" The 2012 EIR determined that these threshold criteria "reflect State and local policy that recognizes the importance of mineral resources in meeting society's needs and

[are] intended to ensure the disclosure of a proposed project's potential to preclude mineral extraction, for example by developing a land use over or adjacent to a deposit of mineral resources that was incompatible with or that would preclude future mining activities" (2012 FEIR, p. 4.2-9).

As determined by the First District Court of Appeals in 2015 (in a case challenging the adequacy of the 2012 EIR), the 2012 EIR's "use of the Appendix G standards to measure impacts on accessibility to a known mineral resource that would be valuable to the region or locality is consistent with state policies regarding the regulation of land uses that are incompatible with mineral extraction" (*San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal.App.4th 202, 227–228, emphasis in original) (also see Master Response H - Mineral Resources). The Court described the state policies listed in Public Resources Code section 2711 of the Surface Mining and Reclamation Act, which unequivocally state that "the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society" (Section 2711[a]) and that "the production and development of local mineral resources that help maintain a strong economy and that are necessary to build the state's infrastructure are vital to reducing transportation emissions that result from the distribution of hundreds of millions of tons of construction aggregates that are used annually in building and maintaining the state" (Section 2711[d]). The decision also cites Public Resources Code section 2790, which authorizes the state geologist to designate geographic areas as areas of statewide or regional significance in order to prevent premature development incompatible with the "advantages that might be achieved from extraction of the minerals of the area."

The SEIR concludes, as did the 2012 EIR, that the mining activities that would be authorized if the Revised Project is approved would not have a significant adverse impact on mineral resources. The Court in 2015 upheld this reasoning, finding that the 2012 EIR's conclusions were "supported by evidence that the project will not lead to the loss of the availability of a mineral resource, but instead will provide the citizens of this state with access to that very resource" (San Francisco Baykeeper, Inc. v. State Lands Commission [2015] 242 Cal.App.4th 202, 228). Because this comment provides

no facts, reasonable assumptions based on facts, or expert opinion supported by facts that could support a conclusion that the analysis and conclusions in the Draft SEIR are inadequate or inaccurate, no change has been made in response to this comment. Questions about a CSLC plan to address the depletion of sand resources more generally are outside the scope of the CEQA process for the Revised Project.

O6-12 For a discussion about the establishment of the baseline used for the SEIR analysis, refer to Master Response C – Reliance on the 2012 Baseline. Section 3.4 of the SEIR extensively discusses sand transport as it relates to sand mining.

O6-13 Refer to Master Response G – Public Trust Considerations for a discussion of public trust issues. Section 3.2.2 and Appendix G of the SEIR acknowledge and discuss marine mammals' use of San Francisco Bay.

Stoel Rives LLP

September 23, 2025

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VIA E-MAIL

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Re: Comments on Draft Supplemental EIR for San Francisco Bay and Delta Sand Mining Project (SCH #2007072036)

Dear Mr. Huitt:

I am writing on behalf of Martin Marietta Marine Operations, LLC ("Martin Marietta") (successor to Hanson Marine Operations, Inc.), Lind Marine, Inc. ("Lind"), and their joint venture Suisun Associates (collectively, "Lessees") to offer our comments on the Draft Supplemental Environmental Impact Report ("SEIR") for the San Francisco Bay and Delta Sand Mining Project ("Project") currently pending before the California State Lands Commission ("CSLC"). As outlined in the SEIR, Lessees are seeking renewal of their respective leases for another ten-year period but at annual and total volumes below those volumes evaluated and approved with the original 2012 EIR.

We applaud CSLC and its consultants on the Draft SEIR, which is thorough and conservative in its evaluation of the Project under the subsequent review provisions of the California Environmental Quality Act ("CEQA"), Public Resources Code section 21166 and CEQA Guidelines sections 15162 and 15163. Our comments below address discrete technical clarifications or corrections and do not reflect any legal or evidentiary deficiency in the SEIR. After careful review, we and our expert consultants have concluded that the SEIR satisfies the requirements of CEQA and presents an appropriate basis for informed decision making. With those caveats in mind, the Lessees offer the following comments on the Draft SEIR.

O7-1

TECHNICAL COMMENTS

A. Proposed Revisions to Mitigation Measure BIO-8:

The 2012 Final EIR Mitigation Monitoring Plan ("MMRP") contained two mitigation measures, BIO-8a and BIO-8b, addressing impacts on Delta and longfin smelt. Mitigation Measure BIO-8a incorporated a series of operational measures to minimize the potential for entrainment and mortality of Delta and longfin smelt. Mitigation Measure BIO-8b required Lessees to compensate for impacts to smelt by purchasing off-site habitat mitigation credits.

O7-2

The SEIR's proposed Mitigation Measure BIO-8 revises Mitigation Measure BIO-8a (now simply "BIO-8") and eliminates Mitigation Measure BIO-8b. With these changes, Mitigation Measure BIO-8 warrants clarification and refinement in two important respects:

1) The first bullet under Mitigation Measure BIO-8 (Draft SEIR, page 3.2-32) does not accurately reflect the Incidental Take Permit Nos. 2081-2013-047-03 and 2081-2012-012-03 as adopted and amended by CDFW, nor does it track the variance authorized by CSLC in 2015.[1]

   As currently drafted, the SEIR's proposed Mitigation Measure BIO-8 imposes seasonal and geographic limits on sand mining tied to the location of X2, a point of measurement for salinity levels in the western Sacramento/San Joaquin Delta. The location of X2 moves upstream and downstream annually and seasonally based on Delta outflows and tidal influences. This measure from the 2012 EIR proved infeasible. Consequently, at the Lessees' request, CSLC and CDFW in 2015 adopted a substitute measure deemed equally effective at reducing the effects of sand mining on Delta and longfin smelt.

2) Citing the ITP Conditions imposed by CDFW, the Draft SEIR proposes to remove Mitigation Measure BIO-8b from the 2012 EIR related to compensatory mitigation, justifying the change as follows:

   "Mitigation Measure BIO-8b (identified in the 2012 EIR) has been removed from the SEIR because the ITP identified in Mitigation Measure BIO-8 will include compensatory mitigation, as required, to fully address all impacts to delta and longfin smelt."[2]

   While the currently proposed Mitigation Measure BIO-8 references compliance with the ITPs, this mitigation could be strengthened by restoring the compensatory mitigation component of Mitigation Measure BIO-8b.

Therefore, we respectfully request that the Final SEIR include a revised Mitigation Measure BIO-8 (First Bullet) to reflect the variance granted by CSLC and the conditions adopted by

O7-2 cont.

[1] Lessees previously provided CSLC with copies of the variances and ITPs, as well as recent amendments thereto. Additional copies are available upon request.
[2] Draft SEIR, p. 3.2-32.

CDFW related to X2 and the purchase of covered species credits:

PROPOSED REVISIONS TO MITIGATION MEASURE BIO-8[3]

Mitigation Measure BIO-8: Applicants shall implement operational and compensatory measures to minimize and mitigate the potential for entrainment and mortality of delta and longfin smelt.

- ~~Timing of dredging relative to the location of 2 parts per thousand (ppt) salinity (X2).~~ To protect delta and longfin smelt and potentially eggs and larvae from mortality related to entrainment, sand mining ~~activities~~ volumes shall be restricted ~~upstream of the X2 location~~ from December 1 through June 30 each year. ~~The degree and duration of mining restrictions, and the specific locations where mining should be restricted during this sensitive seasonal period will be based on factors including the specific location of X2 relative to mining activities, species presence and relative abundance in the Revised Project area based on sampling data from the nearest survey stations, and the overall status of the species (population trend).~~ Specific seasonal restrictions are included in the current ITPs for the Project and will be set by ~~through consultation with~~ CDFW in the ~~and would likely be a requirement of any~~ ITPs and any amendments that may be issued for the Revised Project. To compensate for any "take" of covered species that may occur (e.g., Delta smelt, longfin smelt, and salmonids), Applicants shall purchase credits from a CDFW-approved mitigation or conservation bank in an amount and under the terms adopted by CDFW for the Revised Project.

O7-2 cont.

With the above revisions to Mitigation Measure BIO-8 in Section 6 of the Draft SEIR, revisions are also proposed for the following sections of the Draft SEIR:

- Page 3.2-20: Add a reference in the bullet regarding Mitigation Measure BIO-8a as follows: "As noted in Appendix F, the conditions of the ITP were adopted and a variance was authorized on February 13, 2015, which replaced the conditions of Mitigation Measure BIO-8a entirely with the conditions of ITP Nos. 2081-2013-047-03 and 2081-2012-012-03."

- Page 3.2-32: Replace and conform the first bullet under Mitigation Measure BIO-8 referencing timing of dredging relative to the location of X2.

[3] Mitigation Measure BIO-8 appears at pages 3.2-32 and 6-5 of the Draft SEIR and Table 6-1.

- Page 6-5, Table 6-1 (Mitigation Monitoring Program): In the column referencing the timing of dredging relative to the location of X2, replace and conform the first bullet of Mitigation Measure BIO-8 to the language above. O7-2 cont.

B. Impact BIO-8 Qualifies as a Class II Impact:

Based on CDFW's finding that the "take" of Delta and longfin smelt has been "fully mitigated" (among other substantial evidence), Lessees respectfully request that CSLC revise the impact conclusion for Impact BIO-8 from "significant and unavoidable (Class I)" to "Potentially Significant (Class II)."

The Draft SEIR's analysis of Impact BIO-8 states:

> "Regular operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt – The Project would result in a significant impact to delta smelt and longfin smelt as a result of entrainment and mortality during sand mining operations impacting delta smelt and longfin smelt thereby exceeding the established significance level criteria thresholds."[4]

The Draft SEIR further concludes that there "remains a potential for take of listed delta or longfin smelt to occur, and therefore the impact remains a Significant Impact (Class I), consistent with the 2012 EIR."[5] In light of the evidence and the feasible mitigation already in place, this conclusion is unwarranted. O7-3

1) CDFW issued ITPs, finding the "take" of smelt "fully mitigated."

The sole basis cited in the 2012 EIR for characterizing Impact BIO-8 as a Class I Impact was timing—i.e., the fact that CDFW had yet to issue an ITP for the Project:

> "Because the Project's significant impacts on longfin and delta smelt will not be fully mitigated under CEQA at the time the EIR is considered for certification by the CSLC [November 2012], it would be necessary for the CSLC to adopt a Statement of Overriding Considerations to approve the Project. CSLC staff acknowledges that for CDFG[6] to issue an ITP, the impacts of the authorized take must be minimized and *fully mitigated*. However, the CSLC cannot control whether an ITP is actually issued in the future and therefore cannot rely on that future event to reach its significance determination in the EIR. . . . CSLC staff

[4] Draft SEIR, p. 3.2-19.
[5] Draft SEIR, p. 3.2-32; see also Draft SEIR, pp. 5-2, 6-5 [referencing Impact BIO-8 as a Class I impact]. As set forth in the Draft SEIR, "[i]f the impact of an action remains significant . . . it is deemed to be Class I (significant adverse impact that remains significant after mitigation)." Draft SEIR, p. 3.1-4.
[6] California Department of Fish & Game ("CDFG") has since changed its name to California Department of Fish & Wildlife ("CDFW").

> expects that CDFG would develop measures through the ITP process that *fully mitigate the impacts of the taking*, and *presumably reduce the CEQA impacts to a less-than-significant level*."[7]

Following CSLC's certification of the 2012 EIR, CDFW issued ITPs covering each of the lease areas, adopting specific conditions and compensatory mitigation to address all State-listed species. Indeed, in 2025, CDFW issued extensions of its ITPs, reaffirming its findings that:

- All required measures are "capable of successful implementation"—they are feasible;
- Adequate funding is in place to implement the required measures;
- Issuance of the ITP will not jeopardize the continued existence of the species; and
- The impacts of the authorized take are minimized and "fully mitigated."

Because CDFW has issued ITPs for sand mining, the 2012 EIR's justification for characterizing Impact BIO-8 as "significant and unavoidable" (Class 1) is no longer justified. Instead, Impact BIO-8 now qualifies as a Class 2 impact (less than significant with mitigation).

2) Substantial evidence supports the finding that the effects on Delta and longfin smelt have been mitigated to a less-than-significant level (Class 2).

O7-3 cont.

As evidenced by CDFW's findings and ITPs—as well the Biological Resources Assessments prepared by Hanson Environmental and Biological Opinions issued by the U.S. Fish & Wildlife Service—potential impacts to Delta and longfin smelt can and have been mitigated to a less-than-significant level. For example, the November 2024 Biological Assessment explains that to minimize and avoid the risk of entrainment, the sand mining equipment was modified by installing positive barrier fish screens on the vent pipes located on the drag head. The screens are designed and operated to meet an approach velocity of less than 0.2 fps in compliance with the design criteria for smelt. The fish screen is inspected between mining events when brought to the surface. The small screen mesh is effective in excluding juvenile and adult smelt greater than approximately 15 mm in length from entrainment into the drag head. Routine inspections of the fish screens over the past ten years demonstrate that the fish screens are reliable and have resulted in no observed entrainment.

Based on these and other field observations, the Biological Assessment concluded that there would be no take of either Delta or longfin smelt greater than 15 mm in length during sand mining in Middle Ground Shoal or Suisun Bay. However, since larval and early juvenile Delta and longfin smelt are known to occur in Suisun Bay and Middle Ground Shoal during the late winter and early spring, it has been estimated that operations may result in incidental take of five (5) early juvenile longfin smelt and less than one (1) early juvenile Delta smelt per year. Lessees fully mitigate such incidental take by purchasing habitat bank credits authorized by CDFW.

[7] State Lands Commission, *San Francisco Bay and Delta Sand Mining Final EIR* (September 2012), p. II-182 & -183 [emphasis added].

Based on these and other considerations, the Biological Assessment and Biological Opinions concluded that sand mining in Middle Ground and Suisun Bay may affect but *is not likely to adversely affect* Delta or longfin smelt.

Potential impacts on Delta and longfin smelt are even more tenuous in Central Bay based on the effectiveness of the fish screens, as well as the fact that larval and early juvenile smelt do not occur in Central Bay. Consequently, the most recent Biological Assessment concludes that sand mining in Central Bay is not expected to "take" either species. Despite the lack of "take" expected in Central Bay, Martin Marietta secured an ITP from CDFW and a Biological Opinion from USFWS which likewise find, respectively, that the taking is "fully mitigated" and not likely to adversely affect Delta or longfin smelt.

Under these circumstances, there is more than sufficient evidence that any impacts to smelt are and can be mitigated to a level of less than significant.

O7-3 cont.

3) A finding of Class 2 impact is well supported in the case law.

The EIR and ITPs impose mitigation as necessary to reduce the impact on Delta and longfin smelt to an insignificant level, consistent with an unbroken line of legal principles under CEQA:

- First, it is well settled that mitigation measures need only "minimize" or "substantially lessen" significant impacts, and not necessarily eliminate them, to qualify as effective mitigation under CEQA.[8]

- Second, offsite preservation of habitat is a common and accepted means of mitigating a project's impacts on protected species.[9]

- Third, CSLC has discretion to determine which measures are effective at mitigating the impact without having to defer to later permitting decisions or opinions of the relevant wildlife agencies.[10]

[8] Pub. Resources Code, § 21100(b)(3); Guidelines, §§ 15091(a)(1), 15126.4(a)(1); *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 526–529 [measures may reduce but need not avoid impacts altogether]; *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1233 ["mitigation need not account for every square foot of impacted habitat to be adequate"]; *National Parks & Conserv. Assn. v. County of Riverside* (1999) 71 Cal.App.4th 1341, 1366 [impacts on desert tortoise mitigated to an insignificant level].)
[9] See *California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 610–611, 614–627; *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th 1018, 1041 [city properly evaluated effectiveness of mitigation for loss of Swainson's hawk habitat]; *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 794 [mitigation by "off-site preservation of similar habitat"].)
[10] See *Center for Biological Diversity v. Department of Forestry & Fire Protection* (2014) 232 Cal.App.4th 931, 947–948 [upholding lead agency's opinion on murrelet habitat over opinion of CDFW]; *Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1396–1397 [despite conflicting opinion from federal wildlife agency, upheld county determination that mitigation for kit fox would be effective].)

Given the series of ITPs and accompanying Biological Assessments and Opinions since CSLC's certification of the 2012 EIR, the evidence overwhelmingly supports treating the Revised Project's potential impacts on smelt as Class II (Less Than Significant with Mitigation).[11]

O7-3 cont.

C. Additional References (Section 7.4):

We reviewed the citations and references throughout the Draft SEIR and request that CSLC include the following studies in the administrative record of proceedings and list of SEIR references where appropriate:

1) *San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change Studies and Potential Physical Effects of Sand Mining Activities: Independent Science Panel Findings Report*, Independent Science Panel, June 3, 2024; and

2) *Special Issue: A Multi-Discipline Approach for Understanding Sediment Transport and Geomorphic Evolution in an Estuarine-Coastal System: San Francisco Bay*, P.L. Barnard, B.E. Jaffee, D.H. Schoellhamer, Marine Geology, International Journal of Marine Geology, Geochemistry, and Geophysics, Nov. 1, 2013.

O7-4

CSLC previously received copies of the above-referenced studies. Should you have any difficulty in locating them, please alert us so that supplemental copies can be provided.

CONCLUSION

Thank you for the opportunity to comment on the Draft SEIR. The Lessees are available should you have any questions or concerns about their respective operations or permit conditions.

Very truly yours,

Christian L. Marsh

cc: Erika Guerra, Environmental Resources Director, Pacific Region, Martin Marietta
John Gillan, Associate General Counsel & Head of Sustainability, Martin Marietta
Bill Butler, Vice President for Operations Planning & ESG Programs, Lind Marine

[11] For additional information on effects related to smelt and other sensitive species, see previously provided reports: (a) *Reinitiation of Formal Consultation for the Marine Sand Mining 10-year Leases within the San Francisco Bay, Suisun Bay, and Sacramento San Joaquin Confluence* (USFWS, May 30, 2025); (b) *Biological Assessment for Sand Mining in the San Francisco Bay-Delta Estuary* (Hanson Env'l, Nov. 2024); (b) *Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fisheries Conservation & Management Act Essential Fish Habitat Consultation* (NFMS, Jan. 26, 2015); *Marine Sand Mining 10-year Leases within San Francisco Bay, Suisun Bay, and Sacramento San Joaquin Confluence Project Biological Opinion* (USFWS, Oct. 22, 2014).

Responses to O7 Comments: Stoel Rives LLP; Applicants

O7-1 CSLC acknowledges the commenters, Lessees Martin Marietta Marine Operations, LLC ("Martin Marietta") (successor to Hanson Marine Operations, Inc.), Lind Marine, Inc. ("Lind"), and their joint venture Suisun Associates, who are seeking renewal of their respective leases for another ten-year period but at annual and total volumes below those volumes evaluated and approved based on analysis in the 2012 EIR.

O7-2 Consistent with the request in this comment and based on further analysis of available information, MM BIO-8 has been revised. See Response A2-7 for details. The commenter's concern about referencing CDFW Incidental Take Permit (ITP) requirements in the MM BIO-8 bullet point on pages 3.2-33 to 3.2-34 of the SEIR is moot because the current ITP for existing mining activities occurring under the 2012 Project will expire in 2026 and a new ITP will be required for the Revised Project, should leases be approved by the Commission.

O7-3 Regarding the BIO-8 impact determination presented in the Draft SEIR, the Draft SEIR Appendix F contained an outdated (superseded) description of the approved mitigation variance related to Impact BIO-8 and the amendments to the associated ITPs. The Final SEIR Appendix F has been updated to accurately reflect the current ITPs and Mitigation Measures associated with Impact BIO-8. The Final SEIR has been revised to consider the current ITPs and approved Mitigation Measure (as of February 13, 2015) in combination with the Revised Project operational changes. As a result, the Impact BIO-8 determination has been changed from a Significant, Class I impact to Potentially Significant, Class II.

The Final SEIR analysis of Impact BIO-8 has been revised as shown below:

> **Impact BIO-8: The Revised Project operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt.**
> **~~The Revised Project would result in a significant impact to delta smelt and longfin smelt as a result of entrainment and mortality during sand mining operations impacting delta smelt and longfin~~**

~~smelt thereby exceeding established significance level criteria thresholds~~ (Potentially Significant, Class II).

As presented in the 2012 EIR, sand mining operations as assessed for the 2012 Project were expected to have a significant impact on delta and longfin smelt, as a result of entrainment, either through the water intake for the suction drag head or the suction drag head itself. Entrainment of delta and longfin smelt occurs primarily through the suction drag head water intake. Minimal entrainment, if any, occurs through the drag head itself. However, delta and longfin smelt are expected to exhibit some avoidance behavior of the drag head (AMS 2011). Increased turbidity and suspended sediment from disturbance of the bottom as well as the sound and vibrations produced by the dredge vessel when lowering the intake pipe through the water column should cause individuals to avoid the area (Wildish and Power 1985; Collin and Hart 2015). Additionally, delta smelt inhabit and visually search for food near the surface during daylight hours, while mining occurs in the benthos, further reducing the potential for entrainment (Hobbs et al. 2006; Bennett and Burau 2015). By comparison, longfin smelt are known to migrate throughout the entire water column potentially increasing their susceptibility to entrainment by sand mining activities relative to delta smelt (Bennett et al. 2002; Hobbs et al. 2006).

The water intake for the suction drag head is located several meters above the drag head itself. The conclusion in the 2012 EIR, Section 4.1.4, was based on an entrainment analysis conducted as part of the 2012 EIR (AMS 2009b). The basis of this conclusion was that the water intake for the suction drag head had minimal screening and the intake flow volume and velocity were unconstrained. As a result, the 2012 EIR imposed two mitigation measures to partially mitigate and then provide compensation for estimated delta and longfin smelt mortality due to aggregate sand mining in Central Bay and West Delta. Mitigation Measure BIO-8a from the 2012 EIR imposed timing, location, and other requirements on sand mining in West Delta and Central Bay (MM BIO-8a). Mitigation Measure BIO-8b required Applicants to provide compensation for the incidental

take of delta and longfin smelt that could still be entrained even with the implementation of MM BIO-8a.

In October 2014, as part of the CDFW ITP process, the Applicants agreed to design, construct, and install a positive barrier fish screen (fish screen) as discussed in Section 2.3.2 (Mining Techniques) of this SEIR. The fish screen has a mesh opening of 0.068 inches (1.7 millimeters) to prevent fish entrainment. The screens are also sized to provide an approach velocity of 0.2 feet-per-second to allow early life stages of fish to swim past. The use of this fish screen has substantially reduced the potential for entrainment of longfin and delta smelt during aggregate sand mining in Central Bay and West Delta. The fish screens have been in place since 2015 and are incorporated into the design features of the Revised Project. The fish screen, and other requirements imposed by CDFW's ITP, resulted in CSLC amendments to MMs BIO-8a, -8b, -9a and -9b that occurred after the 2012 EIR certification[5] (see Appendix F).

As a result, the potential for entrainment of delta and longfin smelt by the Revised Project through the water intake for the suction drag head and the drag head itself has been significantly reduced but not eliminated. Longfin smelt could still be entrained through the drag head, as they swim throughout the water column. By comparison, delta smelt remain closer to

[5] After project approval, an agency has discretion in interpreting how mitigation measures are complied with, within reasonable bounds. As the court explained in Stone v. Board of Supervisors (1988) 205 Cal. App. 3d 927, 935, an agency must interpret the conditions it imposes in "a reasonable manner, consistent with its intent at the time the condition was enacted." The interpretation is "reasonable in the CEQA context only if it imposes no significant new or adverse environmental impacts" (Id.). Here, it was reasonable for the CSLC to interpret that the combination of the Applicants' installing the fish screen and obtaining Incidental Take Permit (ITP) approval as consistent with its intent in imposing MMs BIO-8a and -8b because, to obtain an ITP, an applicant must demonstrate that the proposed taking of a listed species is incidental to an otherwise lawful activity, that the applicant will minimize and mitigate the impacts of the taking, and that the taking will not appreciably reduce the likelihood of the species' survival and recovery for purposes of federal law or, for purposes of state law, that it will not jeopardize the continued existence of the species.

the surface during daylight hours to feed (Bennett et al. 2002; Hobbs et al. 2006; Bennett and Burau 2015). This distinction between the species makes the potential for delta smelt to become entrained extremely unlikely because, as discussed above, delta smelt typically remain closer to the surface, which is substantially shallower than the location of the suction drag head water intake and the suction drag head itself. Additionally, the pressure wave created by lowering the suction pipe into the water column, prior to startup, would likely cause temporary dispersion of any longfin or delta smelt in the immediate vicinity of the drag head and drag head intake pipe, with the attached fish screen.

However, since longfin smelt inhabit the entire water column of the Bay-Delta, the potential of some individuals being entrained through the suction drag head itself remains. As explained on p. 3.1-3 of this SEIR, "To guide the Commission…in determining whether the Revised Project or an alternative may cause a significant impact on the environment, the preparers of this SEIR have considered the same series of questions that the Commission considered in the 2012 EIR to provide a basis for comparison for determining whether implementation of the Revised Project could result in one or more new significant impacts or a substantial increase in the severity of any significant impacts previously identified in the 2012 EIR." Consistent with the significance criteria identified in Section 4.1.3 of the 2012 EIR, a significant impact on biological resources would result if there is a potential for "take" of any part of the population of a special status species (such as State or federally endangered species) to occur through direct effects or indirect harm through the disturbance or loss of its habitat. ~~Even with the fish screen in place~~ Because the Revised Project operations include use of the fish screen, the potential ~~there remains low potential~~ for take of listed delta or longfin smelt ~~to occur~~is substantially reduced when compared to the 2012 Project. ~~Take of any individual delta smelt or longfin smelt, if it occurs, would be a significant impact.~~

The implementation of Mitigation Measure BIO-8 would require Applicants to implement operational measures to minimize the potential for entrainment and mortality of delta and longfin

smelt, including a requirement to obtain incidental take authorization from CDFW. CDFW could not (consistent with CESA) issue an ITP unless the impacts of the authorized take are minimized and fully mitigated, the minimization and mitigation measures are roughly proportional to the impact, adequate funding is provided for implementation and monitoring, and issuance of the permit will not jeopardize the continued existence of the species (Fish and Game Code Section 1081[b], [c]). Examples of the kinds of conditions that CDFW could include in an ITP for the Revised Project are reflected in the ITP for the 2012 Project, which is included in Appendix F.

An ITP for the Revised Project, in combination with other operational measures and the Revised Project design feature to install, operate, and maintain a positive barrier fish screen designed in accordance with NMFS and CDFW intake screen design criteria, would greatly reduce the impact, ~~but not to~~resulting in a less than significant impact~~level~~. The 2012 EIR Mitigation Measure BIO-8a will continue to be implemented and has been renumbered for the Revised Project in this SEIR to Mitigation Measure BIO-8 and edited appropriately for the Revised Project. Mitigation Measure BIO-8b (identified in the 2012 EIR) has been removed from the SEIR because the ITP identified in Mitigation Measure BIO-8 will include compensatory mitigation, as required, to fully address all impacts to delta and longfin smelt. While the Revised Project's 14 percent reduction in mining extraction volumes and associated reduction of mining activities would further reduce the impact~~., t~~There still remains a potential for take of listed delta or longfin smelt to occur, but because the potential is substantially reduced through use of the fish screens, conditions of an ITP, and implementation of Mitigation Measure BIO-8 ~~and therefore~~ the impact ~~remains a~~ is Less than Significant ~~Impact~~ (Class II)~~, consistent with the 2012 EIR~~. For these reasons, the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact on delta and longfin smelt entrainment than was disclosed in the 2012 EIR.

O7-4 As requested by the comment and consistent with the CEQA Guidelines, these studies are included in the administrative record of proceedings.

SAN FRANCISCO BAYKEEPER®

September 29, 2025

Transmitted via Electronic Mail

California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, California 95825-8202
CEQA.comments@slc.ca.gov

Re: Comments on Draft Supplemental Environmental Impact Report for San Francisco Bay and Delta Sand Mining Project (State Clearinghouse No. 2007072036)

Dear Mr. Huitt and Commissioners of the California State Lands Commission:

San Francisco Baykeeper (Baykeeper) respectfully submits these comments on behalf of our more than 5,000 members and supporters regarding the Draft Supplemental Environmental Impact Report (SEIR) for the San Francisco Bay and Delta Sand Mining Project. As detailed below, the SEIR fundamentally fails to comply with the California Environmental Quality Act (CEQA) and the California State Lands Commission's (CSLC's) public trust obligations by inadequately analyzing environmental impacts, dismissing substantial new scientific evidence, and failing to consider reasonable alternatives that would reduce harm to San Francisco Bay's ecosystem. O8-1

Critical SEIR Deficiencies Include:

Erosion and Sediment Transport Impacts: The SEIR dismisses substantial new scientific evidence documenting measurable erosion trends and fails to analyze cumulative impacts on the Bay's finite sand resources.

Finite Resource Sustainability: New provenance studies demonstrate that Central Bay sand represents irreplaceable relic deposits accumulated over millennia; yet, the SEIR fails to analyze the long-term sustainability of continued extraction from these non-renewable geological resources.

Alternative Analysis: Failure to adequately consider reduced extraction alternatives despite scientific evidence supporting more conservative approaches to finite resource management.

Mitigation Adequacy: The proposed monitoring and adaptive management measures lack sufficient detail, temporal resolution, and trigger mechanisms to effectively address the demonstrated environmental impacts.

Cumulative Impact Analysis: The document inadequately considers system-wide effects on sediment connectivity between the Bay and coastal regions, despite evidence that mining measurably alters natural sediment transport patterns and reduces sand availability for coastal protection.

Climate Change Integration: Despite mounting evidence that atmospheric rivers are intensifying under climate change—with extreme events potentially increasing by nearly an order of magnitude— O8-2

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the SEIR provides inadequate analysis of how enhanced storm intensity will affect mining operations, sediment transport, and flood risks.

Biological Resource Contradictions: Internal inconsistencies between impact classifications and conclusions, with acknowledgment of significant unavoidable impacts while simultaneously claiming no new significant impacts.

Based on review of the SEIR, its technical appendices, and the extensive body of scientific research conducted since the 2012 EIR, we conclude that the proposed continuation of sand mining operations at current levels would result in significant environmental impacts that are not adequately disclosed, analyzed, or mitigated in the Draft SEIR. These deficiencies necessitate the recirculation of the document with enhanced analysis, strengthened mitigation measures, and meaningful consideration of alternatives that prioritize the protection of San Francisco Bay's irreplaceable natural resources.

O8-2 cont.

1. Background

a. Baykeeper's Mission and Experience

San Francisco Baykeeper was founded in 1989 to defend San Francisco Bay from pollution and environmental degradation. Our scientists and attorneys investigate pollution through aerial and water patrols, strengthen environmental regulations through science and policy advocacy, and enforce environmental laws on behalf of the public. We have devoted significant resources over more than three decades to protecting the Bay's sediment resources, which are a critical component of ecosystem health, water quality, and climate resilience.

b. Legal and Regulatory History

Baykeeper has a long history of engagement with sand mining issues in San Francisco Bay. We previously challenged the CSLC's approval of sand mining operations under both CEQA and the public trust doctrine. On November 18, 2015, the First Appellate District, Division Four, ruled in *San Francisco Baykeeper v. California State Lands Commission* that the CSLC failed to fulfill its public trust obligations and directed the agency to conduct proper public trust analysis before reapproving leases.[1] Following this decision, the CSLC rescinded the sand mining leases, conducted a public trust analysis, and then reissued the leases unchanged. Baykeeper again challenged the CSLC's public trust analysis.

O8-3

The Court held that although CLSC had performed the public trust analysis, it "erred by finding that the Hanson mining leases constitute a public trust use of the sovereign land under the Bay because a private commercial use of trust property that does not facilitate public access to or public enjoyment of trust lands is not a public trust use of those lands."[2] Despite finding this deficiency, the Court agreed with the CLSC's balancing analysis that the project would not impair public trust uses.[3]

[1] San Francisco Baykeeper v. California State Lands Commission, 242 Cal. App. 4th 202 (2015).

[2] San Francisco Baykeeper v. California State Lands Commission, 29 Cal. App. 5th 562 (2018).

[3] Id.

This SEIR represents the CSLC's latest attempt to authorize continued sand mining operations following those judicial mandates, making our review particularly critical to ensuring compliance with both CEQA and public trust requirements.

c. Scientific Engagement

Baykeeper has actively participated in the scientific studies mandated under the San Francisco Bay Conservation and Development Commission's (BCDC) 2015 permits, including serving on the Sand Studies Technical Advisory Committee (STAC) that developed management questions to guide the Independent Science Panel research.[4] Our scientists have reviewed and analyzed the extensive body of research generated through this process, including bathymetric analysis, sand budget studies, sediment transport modeling, and biological assessments that form the scientific foundation for evaluating the impacts of sand mining.

O8-3 cont.

2. The Draft SEIR Fails to Meet CEQA Requirements

a. Inadequate Baseline Conditions Analysis

Improper Baseline Selection

CEQA requires environmental analysis against existing physical environmental conditions at the time environmental review is commenced.[5] The SEIR improperly establishes baseline conditions as "the level of activity associated with the authorized sand mining lease volumes and the ongoing obligations such as mitigation measures and conditions of approval resulting from the Commission's 2012 EIR and lease authorizations."[6] This approach conflates regulatory permissions with actual environmental conditions, masking the true environmental consequences of continued mining operations.

Under CEQA, the physical conditions existing at the time of analysis should be used as the baseline, not the maximum permitted capacity or some other methodology that artificially minimizes the determination of whether a proposed project would result in a significant effect on the environment. Pub. Resources Code, §§ 21068, 21100(a), 21151(a). “Prior operating permits do not in themselves establish a baseline for CEQA review of a new project.” (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 320.) “An EIR must include a description of the physical environmental conditions in the vicinity of the project. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. [...] [T]he lead agency should describe the physical environmental conditions as they exist at the time the notice of preparation is published, or if no notice of

O8-4

[4] Battalio, Robert T., Craig A. Jones, John L. Largier, David H. Schoellhamer, Paul A. Work, "San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change studies and potential physical effects of sand mining activities: Independent Science Panel Findings Report – Best Available Science," Prepared for the California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission, June 3, 2024, Section 2.0.

[5] CEQA Guidelines § 15125(a).

[6] California State Lands Commission, Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project, State Clearinghouse No. 2007072036, Section 3.2.1, p. 3.2-1 (Aug. 2025).

preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective." (Cal. Code Regs., tit. 14, § 15125(a).)

O8-4 cont.

CEQA Requirements for New Environmental Review: CEQA Guidelines section 15162 establishes that when substantial changes are proposed in the project or substantial changes occur with respect to the circumstances under which the project is undertaken, or when new information of substantial importance that was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified becomes available, a subsequent EIR is required.[7] The substantial new scientific evidence documented since 2012, including comprehensive Independent Science Panel studies, bathymetric analysis, and changed marine mammal habitat use patterns, constitutes "new information of substantial importance" that triggers the requirement for a subsequent EIR rather than merely a supplemental EIR.

O8-5

Inadequacy of Supplemental EIR Approach: The CEQA Guidelines, Section 15163, permit supplemental EIRs only when "[o]nly minor additions or changes would be necessary to make the previous EIR adequately apply to the project."[8] The substantial new evidence of persistent morphological impacts, marine mammal habitat changes, and sediment budget effects documented since 2012 represents major new information that cannot be addressed through minor additions or changes. As stated in *Laurel Heights Improvement Association v. Regents of the University of California* (1993) 6 Cal.4th 1112, 1129, "recirculation is required, for example, when the new information added to an EIR discloses: (1) a substantial environmental impact resulting from the project or from a new mitigation measure proposed to be implemented [...]; (2) a substantial increase in the severity of an environmental impact unless mitigation measures area adopted that reduce the impact to a level of significance...."[9] Both types of new information are at play here.

O8-6

The proper baseline should reflect actual physical conditions in the lease areas, including:

- Current bathymetric conditions showing cumulative effects of decades of mining
- Existing sediment transport patterns as modified by past mining activities
- Present biological community structure and abundance in mining areas
- Actual sediment supply and demand conditions in the Bay system

Failure to Account for Changed Environmental Conditions

Since the 2012 EIR, substantial changes have occurred in San Francisco Bay's environmental conditions that the SEIR inadequately addresses:

O8-7

Marine Mammal Population Changes: The SEIR acknowledges but fails to adequately analyze dramatic changes in marine mammal use of San Francisco Bay, including:

[7] CEQA Guidelines § 15162(a).

[8] CEQA Guidelines § 15163(a)(2).

[9] Laurel Heights Improvement Association v. Regents of the University of California (1993) 6 Cal.4th 1112, 1129.

- **Gray whales:** San Francisco Bay has become a feeding ground for gray whales, a federally protected species, that bottom-feed in those waters, beginning around 2018.[10]
- **Humpback whales:** An "unprecedented influx of humpback whales into highly urbanized San Francisco Bay began in 2016," following environmental changes starting around 2014. These whales belong to distinct population segments listed as endangered and threatened under the U.S. Endangered Species Act.[11]
- **Harbor porpoise:** These marine mammals returned to San Francisco Bay "after an absence of approximately 65 years" with documented presence increasing since about 2008-2010.[12]

O8-7 cont.

Critical New Finding - Mining of Ancient Sand Deposits: Comprehensive provenance analysis and Optically Stimulated Luminescence (OSL) dating documented in Appendix G reveal that sand mining operations are extracting relic, irreplaceable sand deposits rather than contemporary sediment inputs:

- **Central Bay Sand Age:** OSL dating shows Central Bay mined sand is 820-1,520 years old, representing "relic sand deposited during lower sea levels"[13]
- **Suisun Bay Sand Age:** Suisun Bay sand is even older at 3,920-4,570 years old, confirming these are finite, ancient deposits[14]
- **No Contemporary Input:** The provenance studies concluded that "the relative input of new river sand is minimal to that already in the Bay" and that "Sierran-derived sand on the modern bayfloor in Central Bay and on beaches on the outer coast is very likely relic sand deposited during lower sea levels"[15]

O8-8

[10] CBS News. "Scientists work to identify San Francisco Bay's enigmatic gray whales," July 1, 2024, available at https://www.marinemammalcenter.org/news/cbs-news-scientists-work-to-identify-san-francisco-bays-enigmatic-gray-whales; LA Times. "Why are Gray Whales and Other Marine Life Visiting San Francisco Bay?," July 14, 2024, available at https://www.latimes.com/environment/story/2024-07-14/gray-whales-san-francisco-bay (noting behavioral changes beginning in late 2000s with feeding behavior documented around 2018-2019).

[11] Markowitz, T., et al., "New urban habitat for endangered humpback whales: San Francisco Bay," Aquatic Conservation: Marine and Freshwater Ecosystems, March 7, 2024, doi:10.1002/aqc.4107.

[12] Marine Mammal Center, "Harbor Porpoise," available at https://www.marinemammalcenter.org/animal-care/learn-about-marine-mammals/cetaceans/harbor-porpoise (last visited September 23, 2025) (Harbor porpoises returned after 65-year absence with increasing presence since 2008-2010); Federal Register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Mission Bay Ferry and Water Taxi Landing Project in San Francisco Bay, California," 83 Fed. Reg. 53,217, 53231 (Oct. 22, 2018), available at: https://www.govinfo.gov/content/pkg/FR-2018-10-22/pdf/2018-22923.pdf (documenting harbor porpoise sightings beginning in 2008).

[13] Malkowski, M.A., Sickmann, Z.T., Jaffe, B., Fregoso, T., and Mohrig, D., "Fingerprinting Sand and Its Transport History through San Francisco Bay: Implications for Sand Mining and Its Environmental Effects," Prepared for California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission, 2023 (documenting OSL ages of 1.52 ± 0.24 ka and 0.82 ± 0.11 ka for Central Bay samples Martin Marrietta 1 and Martin Marietta 2, respectively).

[14] Id. (documenting OSL ages of 3.92 ± 0.47 ka and 4.57 ± 0.49 ka for Suisun Bay samples Lind Marine 1 and Lind Marine 2, respectively).

[15] Id. (concluding that "the relative input of new river sand is minimal to that already in the Bay" and that "Sierran-derived sand on the modern bayfloor in Central Bay and on beaches on the outer coast is very likely relic sand deposited during lower sea levels").

These findings fundamentally change the environmental significance of sand mining from extraction of renewable sediment resources to mining of finite, ancient sand deposits that took millennia to accumulate and cannot be replaced under current conditions.

O8-8 cont.

Bathymetric Changes: Ongoing bathymetric surveys document continuing changes in Bay floor morphology in and around mining areas, as documented in eTrac Inc. studies from 2018, 2019, and 2023.[16] These changes represent altered baseline conditions that should inform impact analysis.

b. Failure to Address Substantial New Evidence

Recent Scientific Developments (2012-2024)

CEQA requires recirculation of environmental documents when substantial new evidence shows more severe impacts than previously disclosed.[17] The scientific understanding of the impacts of San Francisco Bay sand mining has advanced substantially since the 2012 Environmental Impact Report that supported the current mining permits. The 2015 BCDC permit conditions required comprehensive scientific studies to address data gaps and knowledge uncertainties identified during the original environmental review process.[18] This $1.2 million research program has generated new scientific evidence that significantly expands the understanding of mining impacts beyond what was available during the original permitting decisions.[19]

O8-9

The Independent Science Panel's 2024 synthesis of these studies, combined with parallel research by U.S. Geological Survey ("USGS"), Deltares, and academic institutions, provides the most comprehensive assessment of Bay sand mining impacts ever conducted.[20] This new body of research includes advanced bathymetric analysis using high-resolution multibeam sonar, sophisticated numerical modeling with the UnTRIM Bay-Delta system, geochemical fingerprinting using X-ray diffraction mineralogy, and comprehensive sediment budget quantification spanning

[16] eTrac Inc., "Change Analysis Report, Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys" (2018); eTrac Inc., "Additional Analysis Report 2008 – 2014 – 2018 Bathymetric Survey Comparison Central San Francisco Bay Lease Area Surveys" (2018); and eTrac Inc., "Change Analysis Report Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys" (2023).

[17] CEQA Guidelines § 15088.5.

[18] Bay Conservation and Development Commission (BCDC). (2015). *Permit No. 2013.009.00, Sand Mining Permit for Hanson Marine Operations*. San Francisco Bay Conservation and Development Commission.

[19] San Francisco Estuary Institute (SFEI). (2023). *Research to Understand Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and the Outer Coast*, available at: https://www.sfei.org/projects/research-understand-impacts-bay-sand-mining-sand-supply-and-transport-san-francisco-bay

[20] Independent Science Panel (ISP). (2024). San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change Studies and Potential Physical Effects of Sand Mining Activities. Report prepared for the Bay Conservation and Development Commission and State Coastal Conservancy.

multiple decades.[21,22,23] These methodological advances have revealed impacts and system connections that were not detectable or quantifiable using the scientific tools available in 2012.

Critically, this new research has documented measurable, system-wide impacts occurring at current permitted mining levels—findings that contrast with the 2012 EIR and 2025 SEIR conclusion of "less than significant" impacts.[24] The weight of evidence from post-2012 studies now demonstrates that sand mining at existing lease areas is having demonstrable impacts on sediment transport and supply, fundamentally altering the previous scientific basis for regulatory decision-making.

O8-9 cont.

Current Regulatory Framework and Cumulative Extraction History

The current regulatory framework permits approximately 1.4 million cubic yards of annual extraction from three main areas: Central Bay (Hanson operations, 1.14 million cy), Suisun Bay (Suisun Associates, 185,000 cy), and Middle Ground Shoal (Lind Marine, 100,000 cy).[25, 26] These operations have continued since the 1930s creating a cumulative extraction volume exceeding 100 million cubic yards.[27, 28]

The cumulative impacts of this century-long extraction program are now becoming apparent through multiple lines of scientific evidence developed since 2012. The USGS' comprehensive bathymetric analysis, utilizing advanced differencing techniques not available during the original EIR process, documented that San Francisco Bay lost 17 million cubic meters of sand between the 1980s and 2010s, with 11 million cubic meters (65%) of this loss occurring directly in permitted mining areas.[29] This represents an average annual sand loss rate of 0.36 million cubic meters per year from mining

O8-10

[21] Anchor QEA. (2023). Modeling Sand Transport and the Effect of Sand Mining in San Francisco Bay. Report prepared for the California State Coastal Conservancy and the San Francisco Bay Conservation and Development Commission.

[22] Malkowski, M. A., Sickmann, Z. T., Jaffe, B., Fregoso, T., & Mohrig, D. (2023). Fingerprinting sand and its transport history through San Francisco Bay: Implications for sand mining and its environmental effects. Report prepared by University of Texas, Austin, UT Dallas, and the United States Geological Survey for the California State Coastal Conservancy and the San Francisco Bay Conservation and Development Commission.

[23] McKee, L., Zi, T., Pearce, S., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., & Lowe, J. (2023). Research to Understand Impacts of Bay Sand Mining on Sand Transport in San Francisco Bay and the Outer Coast: Sand Budget and Transport in San Francisco Bay. SFEI Contribution No. 1125. San Francisco Estuary Institute.

[24] State Lands Commission. (2012). Final Environmental Impact Report for the San Francisco Bay and Delta Sand Mining Project. California State Lands Commission.

[25] Bay Conservation and Development Commission (BCDC). (2024). *Sand Mining Workshop Report*. San Francisco Bay Conservation & Development Commission, available at: https://www.bcdc.ca.gov/programs/sediment-management/commission-workshop-on-sand/sand-mining-workshop-report/

[26] Dredging Today. (2015, April 23). Hanson Marine to Get Sand from San Francisco Bay, available at: https://www.dredgingtoday.com/2015/04/23/hanson-marine-to-get-sand-from-san-francisco-bay/

[27] Bay Conservation and Development Commission (BCDC). (2024). *Sand Mining Workshop Report*. San Francisco Bay Conservation & Development Commission, available at: https://www.bcdc.ca.gov/programs/sediment-management/commission-workshop-on-sand/sand-mining-workshop-report/

[28] San Francisco Natural History Series (SFNHS). (2015, August 24). Dredging for Sand in the San Francisco Bay, available at: https://sfnhs.com/2015/08/29/dredging-for-sand-in-the-san-francisco-bay/

[29] Fregoso, T., Jaffe, B. E., & Foxgrover, A. C. (2025). Contributions of erosion, deposition, and human activities to a change in sand storage in the bed of San Francisco Bay, California, 1980s to 2010s. U.S. Geological Survey Open-File Report 2025-1022.

areas alone, occurring at extraction rates approximately four times greater than natural replenishment.[30]

The cumulative morphological impacts extend far beyond the immediate mining sites. The ebb-tidal delta at the Golden Gate has lost 100+/-52 million cubic meters of sediment volume since 1873, with a corresponding 1 kilometer landward migration.[31] This massive sediment deficit has fundamentally altered the coastal dynamics of the outer San Francisco coast, contributing to Ocean Beach experiencing some of California's highest erosion rates, with retreat of up to 184 feet during severe El Niño winters.[32, 33]

Post-2012 mineralogical tracer studies using advanced X-ray diffraction analysis have confirmed direct sediment connectivity between Bay mining areas and outer coast beaches, demonstrating that sand extracted from Central Bay shoals would naturally transport through the Golden Gate to nourish chronically eroding coastal areas.[34,35,36] The disruption of these established transport pathways represents a critical cumulative impact that compounds over decades of continuous extraction—a connection that was not definitively established in the 2012 analysis.

The scale of cumulative extraction becomes particularly significant when compared to contemporary sediment supply rates documented through the comprehensive San Francisco Bay sediment budget analysis. The most recent comprehensive assessment found that sand supply to the Bay from the Sacramento-San Joaquin Delta is zero, fundamentally contradicting earlier assumptions about Central Valley contributions.[1] Local Bay Area tributaries provide the dominant sand supply at 0.36 million metric tons per year (Mt/y), supplemented by Pacific Ocean littoral transport contributing 0.084 Mt/y, for a total natural sand supply of 0.45 Mt/y. However, sand mining alone removes 1.2 Mt/y—nearly three times the total natural sand inflows.[37] When combined with navigational dredging,

O8-10 cont.

[30] McKee, L., Zi, T., Pearce, S., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., & Lowe, J. (2023). Research to Understand Impacts of Bay Sand Mining on Sand Transport in San Francisco Bay and the Outer Coast: Sand Budget and Transport in San Francisco Bay. SFEI Contribution No. 1125. San Francisco Estuary Institute.

[31] Dallas, K. L., & Barnard, P. L. (2011). Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system. *Estuarine, Coastal and Shelf Science*, 92(1), 195-204.

[32] Barnard, P. L., Hansen, J. E., & Erikson, L. H. (2012). Synthesis study of an erosion hot spot, Ocean Beach, California. *Journal of Coastal Research*, 28(4), 903-922.

[33] U.S. Geological Survey (USGS). (2013). *Synthesis study of an erosion hot spot, Ocean Beach, California*. U.S. Geological Survey Open-File Report 2012-1226.

[34] Barnard, P. L., Foxgrover, A. C., Elias, E. P., Erikson, L. H., Hein, J. R., McGann, M., Mizell, K., Rosenbauer, R. J., Swarzenski, P. W., Takesue, R. K., Wong, F. L., & Woodrow, D. L. (2013). Integration of bed characteristics, geochemical tracers, current measurements, and numerical modeling for assessing the provenance of beach sand in the San Francisco Bay Coastal System. *Marine Geology*, 336, 120-145.

[35] Hein, J. R., Mizell, K., Koschinsky, A., & Conrad, T. A. (2013). Deep-ocean mineral deposits as a source of critical metals for high-technology and renewable energy technologies: Current knowledge and future research needs for informed policy decisions. *Oceanography*, 26(4), 209-229.

[36] Malkowski, M. A., Sickmann, Z. T., Jaffe, B., Fregoso, T., & Mohrig, D. (2023). Fingerprinting sand and its transport history through San Francisco Bay: Implications for sand mining and its environmental effects. Report prepared by University of Texas, Austin, UT Dallas, and the United States Geological Survey for the California State Coastal Conservancy and the San Francisco Bay Conservation and Development Commission.

[37] McKee, L., Zi, T., Pearce, S., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., & Lowe, J. (2023). Research to Understand Impacts of Bay Sand Mining on Sand Transport in San Francisco Bay and the Outer Coast: Sand Budget and Transport in San Francisco Bay. SFEI Contribution No. 1125. San Francisco Estuary Institute.

anthropogenic sand extraction (1.51 Mt/y) creates a sediment deficit that exceeds natural supply by more than 3:1, with the balance compensated by net erosion of 1.33 Mt/y from the Bay floor.[38] This represents an unsustainable extraction regime where human activities remove sand at rates that fundamentally exceed the system's natural replenishment capacity, creating cumulative sediment deficits that persist and compound over multi-decadal timescales.

The cumulative regional impacts extend throughout the San Francisco Bay coastal system, as revealed through advanced bedform analysis techniques developed since 2012. Bedform asymmetry analysis indicates net seaward transport of 5% system-wide, increasing to 11% at the Golden Gate mouth, confirming that mining occurs along critical seaward transport corridors.[39] The progressive depletion of the San Francisco Bar—the massive underwater sand deposit seaward of the Golden Gate—has reduced wave attenuation capacity and altered longshore sediment transport patterns along the entire outer coast from Pacifica to the Marin Headlands.[40]

O8-10 cont.

Climate change amplifies these cumulative impacts through multiple feedback mechanisms now better understood through post-2012 climate modeling. Projected increases in storm intensity will accelerate coastal erosion precisely when sediment supply remains constrained by continued mining.[41, 42] Sea level rise of 0.5-2.0 meters by 2100 will create additional accommodation space requiring massive sediment volumes for ecosystem maintenance, while reduced Sierra Nevada snowpack may further decrease watershed sediment delivery.[43] The intersection of these climate stressors with century-long sediment mining creates a cumulative impact scenario that far exceeds the sum of individual stressors.

Economic Risks and Coastal Protection Values in the San Francisco Bay Area

The San Francisco Bay Area faces unprecedented economic risks from sea level rise and coastal erosion, with regional studies projecting $110 billion in adaptation costs through 2050 and a $105 billion funding gap.[44] Current assessments identify $85 billion in assessed property value at risk, with 75,000 households, 200,000 jobs, and 15,000 businesses facing potential flooding impacts.[45] Ocean Beach represents a critical component of this vulnerable infrastructure, with the recent approval of a $175 million climate adaptation project including a 3,200-foot buried seawall to

O8-11

[38] Id.

[39] Barnard, P. L., Hansen, J. E., & Erikson, L. H. (2012). Synthesis study of an erosion hot spot, Ocean Beach, California. *Journal of Coastal Research*, 28(4), 903-922.

[40] Erikson, L. H., Elias, E., Hanes, D. M., Schoellhamer, D. H., & Largier, J. (2013). The use of modeling and suspended sediment concentration measurements for quantifying net suspended sediment transport through a large tidally dominated inlet. *Marine Geology*, 345, 96-112.

[41] U.S. Global Change Research Program (USGCRP). (2023). *Fifth National Climate Assessment*. U.S. Global Change Research Program, Washington, DC. https://nca2023.globalchange.gov/

[42] California Energy Commission. (2018). *California's Fourth Climate Change Assessment Statewide Summary Report*. California Energy Commission Publication CEC-500-2018-013.

[43] Dettinger, M.D. (2011). Climate change, atmospheric rivers, and floods in California—A multimodel analysis of storm frequency and magnitude changes. *Journal of the American Water Resources Association*, 47(3), 514-523.

[44] Metropolitan Transportation Commission (MTC), Association of Bay Area Governments (ABAG), and San Francisco Bay Conservation and Development Commission (BCDC). (2023). *Sea Level Rise Adaptation Funding and Investment Framework*, available at: https://mtc.ca.gov/sites/default/files/documents/2023-07/SLR_Framework_Final_Report.pdf

[45] Id.

protect essential sewer infrastructure.[46] In 2021, San Francisco spent $7 million to dump sand dredged from the ocean floor on Ocean Beach, demonstrating the ongoing financial burden of maintaining coastal protection without adequate sediment supply.[47]

San Francisco Bay's tidal marshes provide essential flood protection services with quantified economic values ranging from $21 million currently to over $500 million under moderate sea level rise scenarios.[48] Research demonstrates that marshes near critical infrastructure like San Francisco Airport provide $900,000 per hectare in present value flood reduction benefits, with these benefits increasing 23-fold under one meter of sea level rise.[49] However, these natural protective systems depend critically on adequate sediment supply for their continued effectiveness and ability to keep pace with rising seas. The documented sediment deficit in San Francisco Bay, where sand mining removes 1.2 million metric tons annually against natural sand inflows of only 0.45 million metric tons, directly threatens the long-term viability of these multi-billion-dollar natural flood protection systems, potentially forcing reliance on far more expensive engineered alternatives that lack the adaptive capacity and co-benefits of healthy marsh ecosystems.[50]

O8-11 cont.

Independent Science Panel Findings (2024)

The Independent Science Panel's comprehensive analysis, completed in June 2024, represents the most authoritative scientific assessment of sand mining impacts to date. The Panel's four key observations fundamentally redefine the understanding of sand mining impacts and contradict the SEIR's impact conclusions:

O8-12

Key Observation 1 - Sand Mining as Non-Renewable Resource Extraction: "The volume of mined sand is significant relative to the Bay sand budget (it represents the largest outflow of sand from the Bay), including the net sand discharge to the ocean. Additionally, sand is mined faster than it is replenished; therefore, sand is a non-renewable resource over the long term."[51] This finding establishes that sand mining represents the single largest sand loss from the Bay system and operates at extraction rates that exceed natural replenishment, fundamentally altering the significance of continued operations.

O8-13

Key Observation 2 - Suisun Bay Finite Resource and Persistent Impacts: "Suisun Bay sand is not replenished; thus, it is a finite resource, and the bed is being lowered. The bathymetric, modeling, and budget studies all support this. Sand mining effects in lease areas appear to be highly localized,

O8-14

[46] San Francisco Chronicle. (2024). "California regulators approve huge Ocean Beach seawall to avert prospect of 'major emergency' for S.F.," available at: https://www.sfchronicle.com/climate/article/ocean-beach-seawall-19895231.php

[47] Id.

[48] Taylor-Burns, R., Lowrie, C., Tehranirad, B. *et al.* The value of marsh restoration for flood risk reduction in an urban estuary. *Sci Rep* 14, 6856 (2024), available at: https://doi.org/10.1038/s41598-024-57474-4

[49] Id.

[50] McKee, L., Zi, T., Pearce, S., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., & Lowe, J. (2023). *Research to Understand Impacts of Bay Sand Mining on Sand Transport in San Francisco Bay and the Outer Coast: Sand Budget and Transport in San Francisco Bay*. SFEI Contribution No. 1125. San Francisco Estuary Institute.

[51] Independent Science Panel (Bob Battalio, PE; Craig Jones, PhD; John Largier, PhD; David Schoellhamer, PhD; and Paul Work, PhD, PE), San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change Studies and Potential Physical Effects of Sand Mining Activities, Independent Science Panel Findings Report – Best Available Science, June 3, 2024, Executive Summary, Key Observation 1.

with effects diminishing with distance from the event location. The effect is pronounced in areas of negligible sand transport such as Suisun Bay, where the depressions caused by mining persist in the bed over time."[52] This documentation of persistent, unreversible bed lowering in Suisun Bay directly contradicts the SEIR's conclusion of less than significant morphological impacts.

O8-14 cont.

Key Observation 3 - Central Bay Relic Sand and Disconnected System: "Central Bay sand is relic (i.e., deposited between 20,000 and 6,000 years ago as sea levels rose and the river discharge point migrated through the Bay to its present location in the Delta) and is part of a large bay-ocean reservoir of sand. Sands derived from the watersheds of the Sacramento and San Joaquin Rivers are no longer a significant source to the Bay and ocean, and large volumes of sand do not move through the system during times of high flows (e.g., wet winters), as was previously assumed. Effects of mining to beaches and ecologically important shoals remain unquantified."[53] This finding contradicts previous assumptions about sand replenishment from tributaries and acknowledges unquantified impacts to critical coastal resources.

O8-15

Key Observation 4 - Bay-Ocean Shared Sand Pool: "San Francisco Bay and the Pacific Ocean share a common pool of sand which sand mining reduces. In each tidal cycle, a huge amount of sand is transported between the Bay and the ocean effectively linking the two sand deposits into a shared pool. The size of this shared pool of sand, and thus the significance of the reduction due to mining, is unknown."[54] This finding establishes that Bay sand mining directly affects ocean sand resources, with unknown but potentially significant consequences for coastal systems.

O8-16

Additional findings from the science studies initiated by BCDC, which SLC staff participated in and should be aware of, include:

Local Scale Impacts: "Each sand mining extraction creates a pothole or depression in the bed and… bathymetric changes dissipate quickly with distance from the mined area. The depression created by mining in a specific area does not fill in much by slumping or localized transport of sand adjacent to the mined area and over time these depressions merge and will result in a broader lowering of the elevation of the bed in the mined portion of the lease area."[55]

O8-17

Mining Volume Significance: The authorized mining volume is 1.426 million cubic yards per year, which converts to approximately 1.75 million metric tons annually. Recent USGS studies (2025) found that sand mining contributed approximately 11 million cubic meters (about two-thirds) of the total 17 million cubic meters of net sand loss from the Bay floor documented between the 1980s and 2010s.[56]

O8-18

[52] Id., Key Observation 2.

[53] Id., Key Observation 3.

[54] Id., Key Observation 4.

[55] Battalio, Robert T., Craig A. Jones, John L. Largier, David H. Schoellhamer, Paul A. Work, "San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change studies and potential physical effects of sand mining activities: Independent Science Panel Findings Report – Best Available Science," Prepared for the California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission, June 3, 2024, Section 3.1 (Synthesis of Findings).

[56] Fregoso, T.A., Jaffe, B.E., Foxgrover, A.C., Woodrow, D., Kharrazi, B., and Orzech, K., 2023, "Contributions of erosion, deposition, and human activities to a change in sand storage in the bed of San Francisco Bay, California," U.S. Geological

Scientific Evidence of Sand Depletion in San Francisco Bay: Recent comprehensive analysis provides quantitative evidence of significant sand depletion in San Francisco Bay. Sand budget analysis for the period 2001-2020 demonstrates that sand extraction through mining operations exceeded natural sand inputs by a factor of 2.6, with mining accounting for 66% of all sand outflows from the system.[57] This analysis represents the first comprehensive quantification of sand balance in the Bay system using integrated sediment budget methods.

O8-19

Quantified Dominance of Sand Mining in Regional Sand Budget: The data demonstrate that sand mining activities constitute the dominant factor in observed sand loss. Mining operations removed 1.17 million metric tons per year of sand, representing the largest single outflow of sand from the Bay system during the study period.[58] For comparison, natural sand inflows from Central Valley rivers totaled only 0.004 million metric tons per year, while local tributary inputs contributed 0.36 million metric tons per year.

O8-20

Sand budget analysis indicates that the sum of sand outflows from the Bay (1.77 Mt/y) exceeded the sum of sand inflows (0.45 Mt/y) by 25%, with the balance being net bed losses of sand accounting for 75% of the deficit (1.33 Mt/y).[59] This quantitative analysis reveals that current extraction rates substantially exceed natural replenishment processes and are depleting finite sediment reserves.

Limited Natural Recovery in Mining Areas: Field measurements document inadequate natural sediment recovery in mining lease areas. Recovery rates vary significantly across lease areas, ranging from 1% in Suisun Bay lease 7781.1 to 14-55% in Central Bay leases, with only one area (Central Bay lease 709S) showing recovery rates of 91-141%.[60,] The majority of mining areas show recovery rates below 55%, indicating systematic depletion of sediment resources that exceeds natural replenishment capacity.

O8-21

Regional Sediment Transport Implications: Modeling analysis suggests that expansion of mining operations to maximum permitted levels could fundamentally alter regional sediment dynamics. Under maximum extraction scenarios, the Bay system could transition from a net sand exporter (0.26 Mt/y to the Pacific Ocean) to a net sand importer (0.42 Mt/y from the Pacific Ocean.[61] Such a transition would represent a significant alteration of natural sediment transport patterns with potential consequences for coastal morphodynamics and beach nourishment processes.

O8-22

Historical data analysis indicates that mining activities have already significantly altered sediment transport pathways. Research shows that mining operations occur along well-defined sand transport

Survey Open-File Report 2023-1031 (referenced in Independent Science Panel findings as documenting that sand mining contributed approximately two-thirds of total documented sand loss from the Bay floor between the 1980s and 2010s).

[57] McKee, L.J., Zi, T., Pearce, S.A., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., Lowe, J., Elias, E., & Roelvink, F. (2023). Sand budget and sand transport in San Francisco Bay. San Francisco Estuary Institute Contribution #1125.

[58] Id.

[59] Id.

[60] McKee, L.J., Zi, T., Pearce, S.A., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., Lowe, J., Elias, E., & Roelvink, F. (2023). Sand budget and sand transport in San Francisco Bay. San Francisco Estuary Institute Contribution #1125.

[61] McKee, L.J., Zi, T., Pearce, S.A., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., Lowe, J., Elias, E., & Roelvink, F. (2023). Sand budget and sand transport in San Francisco Bay. San Francisco Estuary Institute Contribution #1125.

pathways that carry sediment toward outer coast beaches, with removal rates that exceed present-day sediment supply rates from all San Francisco Bay watersheds.[62]

The SEIR acknowledges these findings but dismisses their significance without adequate justification, stating only that they are "consistent with information presented and conclusions reached in the 2012 EIR." This conclusion is scientifically indefensible, as the 2012 EIR lacked access to the sophisticated analytical methodologies and comprehensive datasets developed through the Independent Science Panel's post-2021 studies, including: high-resolution bathymetric analysis using hill shading techniques; detailed "Ring Analysis" methodology with multi-scale spatial assessment; quantitative replenishment rate calculations showing recovery factors ranging from 11-351%; comprehensive sand budget studies revealing that mining accounts for 66% of Bay sand outflows; advanced bedform dynamics analysis; and petrographic fingerprinting studies.

The Panel's paradigm-shifting findings—that mining creates persistent depressions fundamentally altering sand transport patterns, and that the Bay operates as a net sediment source (via mining of relic sand) rather than depositional system—represent fundamental scientific insights derived from methodologies and datasets that did not exist in 2012, making any claim of consistency with the outdated analysis an arbitrary dismissal of the best available science.

O8-22 cont.

California Coastal Commission Regulatory Concerns (2024)

The California Coastal Commission, which has regulatory authority over Ocean Beach and the San Francisco Littoral Cell, submitted comments in May 2024 on the Independent Science Panel's findings report expressing significant concerns about sand mining impacts.[63] The Commission noted that sand is "a protected coastal resource under the Coastal Act" and that "sands in the Central Bay have been identified as a potential backup source of sand for beach nourishment and dune creation for San Francisco's South Ocean Beach Climate Adaptation project."[64]

The Commission expressed concern that the Independent Science Panel studies "did not determine to what extent the transport pathways linked mining areas to outer coast beaches" and emphasized the need to consider "the value of the beach-quality sands…to the San Francisco Bay Area's regional adaptation needs in the face of sea level rise."[65] These concerns from a sister state agency constitute substantial new evidence that the SEIR inadequately addresses. The Commission's regulatory concerns demonstrate that:

- Sand resources are legally protected under state coastal law
- Bay sand has identified value for critical climate adaptation projects
- Transport pathway connections between mining areas and coastal beaches remain scientifically unresolved

O8-23

[62] Barnard, P.L., & Kvitek, R.G. (2010). Anthropogenic influence on recent bathymetric change in west-central San Francisco Bay. San Francisco Estuary and Watershed Science, 8(3).

[63] Jeremy Smith, P.E., California Coastal Commission, Comment Letter to BCDC on San Francisco Bay Sand Mining Studies, May 31, 2024.

[64] Id. at 1-2.

[65] Id. at 2.

- The SEIR fails to account for broader regulatory context affecting coastal resource management

O8-23 cont.

This regulatory agency input represents substantial new information that was not available for the 2012 EIR and directly challenges the SEIR's conclusion of less than significant impacts on coastal resources.

Bathymetric and Morphodynamic Evidence

Detailed bathymetric analysis conducted for the Independent Science Panel provides unprecedented documentation of mining impacts:

Scale 1 Analysis - Individual Mining Events: "The studies found that each sand mining extraction creates a pothole or depression in the bed."[66] Detailed analysis using 2D cross-correlation of bathymetric surveys documented sand wave migration patterns and found that "migration rates and directions were determined through a 2D cross-correlation analysis" showing measurable changes in seafloor morphology.[67]

O8-24

Scale 2 Analysis - Lease Area Changes: Analysis of bathymetric changes within Ring Polygons around mining areas documented "volumetric changes within the Ring Polygons were compared to volumetric changes for polygons that are representative of a distinct morphological zone."[68] This analysis provided quantitative evidence of differential morphological changes associated with mining activity.

O8-25

Scale 3 Analysis - Regional Bay Changes: "At Scale 3 of the scale cascade, bathymetric changes on the scale of West-Central Bay and Suisun Bay were analyzed."[69] This regional analysis documented broader-scale changes in Bay morphology that may be influenced by cumulative mining effects.

O8-26

Climate Change and Atmospheric River Impacts

Recent research demonstrates that atmospheric rivers are intensifying under climate change, with significant implications for flood risks and sediment transport that the SEIR fails to adequately address. The mounting scientific evidence reveals that extreme atmospheric river frequency can increase by almost one order of magnitude under mild warming scenarios, with disproportionately large increases in weather regimes historically associated with high atmospheric river frequencies.[70] This intensification creates compound effects, as back-to-back atmospheric rivers cause 3-4 times

O8-27

[66] Independent Science Panel (Bob Battalio, PE; Craig Jones, PhD; John Largier, PhD; David Schoellhamer, PhD; and Paul Work, PhD, PE), San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change Studies and Potential Physical Effects of Sand Mining Activities, Independent Science Panel Findings Report – Best Available Science, June 3, 2024, Section 3.1 (Synthesis of Findings).

[67] Elias, E. and Roelvink, F., "Understanding Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and Outer Coast, Part 1: Morphodynamic change and bedform dynamics," Deltares Report No. 11206299-000-ZKS-0006, March 31, 2023, Section 2.3.1.

[68] Id., Section 2.3.2.

[69] Id., Section 2.3.3.

[70] Higgins, T.B., Elsbury, D., Braun, C., et al. (2025). Changes to atmospheric river related extremes over the United States west coast under anthropogenic warming. *Geophysical Research Letters*, 52(4), e2024GL112237.

more economic damage than individual storms due to soil saturation effects, with Category 4 and 5 atmospheric rivers almost always occurring in damaging sequences.[71]

The significance of atmospheric rivers to California's flood risks has been well-established since Dettinger (2011) demonstrated that atmospheric rivers cause essentially all major historical floods in California rivers, with climate change projected to increase atmospheric river frequencies and intensities.[72] Recent California-focused studies build on this foundation with more comprehensive assessments that the SEIR should have incorporated. Michaelis et al. (2022) provided direct evidence of climate change enhancement of atmospheric river precipitation in California using the February 2017 Oroville Dam crisis as a case study, demonstrating that climate change contributed to the extreme precipitation that nearly caused catastrophic dam failure.[73] This finding is particularly relevant given that Luna-Niño et al. (2025) analyzed California precipitation patterns and found that atmospheric rivers can overwhelm traditional El Niño/La Niña influences on annual precipitation in the Southwest US, making seasonal forecasting more challenging and increasing variability.[74] The theoretical foundation for these changes is provided by Payne et al. (2020), who explain that California's atmospheric rivers are intensifying due to enhanced precipitation intensity governed by Clausius-Clapeyron scaling as warmer air holds approximately 7% more moisture per degree of warming.[75]

O8-27 cont.

Climate-related Implications for Sand Mining Operations

Intensified atmospheric rivers will fundamentally alter the risk profile for sand mining operations through enhanced erosion potential. Higher peak precipitation rates will likely exceed current design standards for mining operations, while the increased frequency of back-to-back storm sequences will create compound impacts that far exceed the effects of individual storms. Additionally, warming temperatures are causing a greater proportion of precipitation to fall as rain rather than snow, increasing immediate runoff and erosion potential in Bay watersheds.

O8-28

The SEIR's failure to analyze infrastructure vulnerability under climate change-enhanced storms represents a critical analytical gap. Mining equipment and vessel operations will face more frequent and severe weather interruptions, while shoreline stability and erosion acceleration will be exacerbated. The interconnected nature of the Bay-coast sediment system means that Ocean Beach erosion intensification will directly affect sand availability for the broader coastal system. San Francisco's Ocean Beach has already experienced significant erosion during the past 15 years, with South Ocean Beach particularly vulnerable to storm-driven wave erosion that threatens critical

[71] Bowers, C., Baker, D.B., et al. (2024). When atmospheric rivers make landfall in rapid succession, they cause more economic damage than expected. *Science Advances*, 10(3).

[72] Dettinger, M.D. (2011). Climate change, atmospheric rivers, and floods in California—A multimodel analysis of storm frequency and magnitude changes. *Journal of the American Water Resources Association*, 47(3), 514-523.

[73] Michaelis, A.C., Gershunov, A., Weyant, A., et al. (2022). Atmospheric river precipitation enhanced by climate change: A case study of the storm that contributed to California's Oroville Dam crisis. *Earth's Future,* 10(3), e2021EF002537.

[74] Luna-Niño, R., Gershunov, A., Shulgina, T., et al. (2025). Heresy in ENSO teleconnections: atmospheric rivers as disruptors of canonical seasonal precipitation anomalies in the Southwestern US. *Climate Dynamics*.

[75] Payne, A.E., Demory, M.E., Leung, L.R., et al. (2020). Responses and impacts of atmospheric rivers to climate change. *Nature Reviews Earth & Environment*, 1, 143–157.

wastewater infrastructure.[76] Enhanced atmospheric rivers will exacerbate these impacts, as precipitation associated with atmospheric rivers accompanied by extratropical cyclones is projected to increase by up to 26-37% by 2100 in the San Francisco Bay Area, exceeding Clausius-Clapeyron scaling rates.[77] These changes will also challenge flood control infrastructure performance under intensified conditions, potentially affecting both mining operations and the broader regional response to extreme weather events.

The SEIR's analytical deficiencies in addressing climate change impacts are substantial and render the document inadequate under CEQA. The analysis relies on an outdated scientific basis that fails to incorporate the substantial body of research published since 2020 demonstrating enhanced atmospheric river risks. The document provides no quantitative analysis of how intensified atmospheric rivers will affect mining operations, sediment transport, or ecological conditions. Most critically, the SEIR fails to analyze how climate effects will compound the direct impacts of sand mining operations, representing a fundamental failure to address cumulative impacts as required under CEQA.

O8-28 cont.

c. Inadequate Significance Analysis

The SEIR's significance determinations are fundamentally flawed and unsupported by substantial evidence. Under CEQA, Cal. Code Regs. Tit. 14, § 15064.7(a), "[a] threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." Any such threshold must be supported by substantial evidence. "When using a threshold, the lead agency should briefly explain how compliance with the threshold means that the project's impacts are less than significant. Compliance with the threshold does not relieve a lead agency of the obligation to consider substantial evidence indicating that the project's environmental effects may still be significant." Cal. Code Regs. Tit. 14, § 15064(b)(2).

O8-29

Internal Contradictions in Impact Classification

The SEIR contains fundamental internal contradictions regarding impact significance that violate CEQA's requirement for clear, consistent analysis:

Contradictory Significance Determinations: Table ES-1 identifies multiple significant biological resource impacts that directly contradict the SEIR's conclusions:

- **BIO-8 (Class I):** "Significant unavoidable impact" - delta and longfin smelt entrainment and mortality[78] (These are ESA-listed species where any additional mortality is highly significant)

O8-30

[76] San Francisco Public Utilities Commission. (2024). Ocean Beach Climate Change Adaptation Project Update November 2024, available at: https://www.sfpuc.gov/about-us/news/ocean-beach-climate-change-adaptation-project-update-november-2024

[77] Huang, X., Swain, D.L., Walton, D.B., et al. (2022). Future changes in extreme precipitation over the San Francisco Bay Area: Dependence on atmospheric river and extratropical cyclone events. *Weather and Climate Extremes*, 36, 100651.

[78] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Table ES-1, Impact BIO-8.

- **BIO-6 (Class II):** "Potentially significant" - smothering/burial of infauna and epifauna[79] (Direct physical destruction of benthic habitat and organisms)
- **BIO-9 (Class II):** "Potentially significant" - entrainment of green sturgeon, Chinook salmon, and steelhead[80] (ESA-listed anadromous species critical to ecosystem function)

Simultaneous Denial of New Impacts: Despite these classifications, the SEIR states that "the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact identified in the 2012 EIR" for biological resources.[81]

Mitigation for "Non-Significant" Impacts: The SEIR requires extensive mitigation measures (MM BIO-6, MM BIO-8a, MM BIO-8b, MM BIO-9a, MM BIO-9b) for impacts it simultaneously claims are not new or more severe.[82]

These contradictions demonstrate that the SEIR's impact analysis is fundamentally flawed and fails to provide the clear, consistent analysis required by CEQA.

O8-30 cont.

3. Biological Resources Analysis is Fundamentally Flawed

a. Failure to Adequately Analyze Changed Circumstances

CEQA requires analysis of environmental conditions as they exist at the time of environmental review. Since the 2012 EIR, fundamental changes have occurred in biological resource use of San Francisco Bay that the SEIR inadequately addresses.

Marine Mammal Population and Habitat Use Changes

Gray Whales - Critical Feeding Habitat: The SEIR acknowledges that San Francisco Bay has become a feeding ground for gray whales, a federally protected species, that bottom-feed in those waters, beginning around 2018-2019.[83] However, the analysis fails to adequately consider that:

- Gray whales were delisted from ESA protection in 1994 due to successful population recovery, but remain protected under the Marine Mammal Protection Act.[84]

O8-31

[79] Id., Impact BIO-6.

[80] Id., Impact BIO-9.

[81] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Executive Summary, Section ES.3.

[82] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Section 3.2.5.1.

[83] CBS News. "Scientists work to identify San Francisco Bay's enigmatic gray whales," July 1, 2024, available at https://www.marinemammalcenter.org/news/cbs-news-scientists-work-to-identify-san-francisco-bays-enigmatic-gray-whales; LA Times. “Why are Gray Whales and Other Marine Life Visiting San Francisco Bay?" available at: https://www.latimes.com/environment/story/2024-07-14/gray-whales-san-francisco-bay (noting behavioral changes beginning in late 2000s with feeding behavior documented around 2018-2019).

[84] Marine Mammal Protection Act, 16 U.S.C. §1361 et seq.; Eastern North Pacific gray whale delisting, 59 Fed. Reg. 31094 (June 16, 1994), available at: https://archives.federalregister.gov/issue_slice/1994/6/16/31053-31098.pdf#page=42.

- NOAA declared a gray whale Unusual Mortality Event from December 2018 through November 2023 due to malnutrition and ecosystem changes in Arctic feeding areas.[85]
- The timing of increased gray whale feeding behavior (around 2018-2019) coincides with continued mining operations, suggesting potential habituation that could be disrupted by mining activities.

Humpback Whales - ESA Listed Species: Research documents an "unprecedented influx of humpback whales into highly urbanized San Francisco Bay began in 2016." These whales belong to distinct population segments listed as endangered and threatened under the U.S. Endangered Species Act.[86] The SEIR's conclusion that impacts to these federally listed species are less than significant lacks substantial evidence support because:

- The analysis fails to adequately consider underwater noise impacts from mining operations on echolocation and communication.[87]
- No analysis is provided of potential impacts to humpback whale prey species that may utilize areas affected by mining.
- The conclusion ignores the significance criteria for impacts to federally listed species under both CEQA and federal law.

Harbor Porpoise - Increased Populations: Harbor porpoises returned to San Francisco Bay "after an absence of approximately 65 years" with documented presence increasing since 2008-2010.[88] While not listed under the ESA, they remain protected under the Marine Mammal Protection Act. The SEIR fails to analyze:

- Acoustic impacts to harbor porpoise echolocation and communication abilities.
- Impacts to harbor porpoise prey species in mining areas.
- Potential displacement effects during critical feeding and breeding periods.

O8-31 cont.

Fish Species and Aquatic Habitat Changes

Special Status Fish Species: The SEIR acknowledges potential impacts to delta smelt, longfin smelt, green sturgeon, Chinook salmon, steelhead trout, and Pacific herring but fails to adequately analyze changed conditions since 2012:

O8-32

[85] NOAA Fisheries, "2019-2023 Eastern North Pacific Gray Whale UME (CLOSED)," Last updated Jan. 31, 2025, available at: https://www.fisheries.noaa.gov/national/marine-life-distress/2019-2023-eastern-north-pacific-gray-whale-ume-closed

[86] Markowitz, T., et al., "New urban habitat for endangered humpback whales: San Francisco Bay," Aquatic Conservation: Marine and Freshwater Ecosystems, March 7, 2024, doi:10.1002/aqc.4107.

[87] Id.

[88] Federal Register, "Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Mission Bay Ferry and Water Taxi Landing Project in San Francisco Bay, California," 83 Fed. Reg. 53,217, 53,231 (Oct. 22, 2018), available at: https://www.govinfo.gov/content/pkg/FR-2018-10-22/pdf/2018-22923.pdf; Marine Mammal Center, "Harbor Porpoise," available at https://www.marinemammalcenter.org/animal-care/learn-about-marine-mammals/cetaceans/harbor-porpoise (last visited September 23, 2025).

- Population status and trends for these species have continued to decline, making any additional impacts more significant.[89]
- Critical habitat designations and recovery plan requirements have been updated since 2012.
- New scientific understanding of climate change impacts on these species increases the significance of any additional stressors.

Dungeness Crab - Commercial and Ecological Importance: The SEIR inadequately analyzes impacts to Dungeness crab despite acknowledging it as the most commercially important species, representing over 50% of total commercial catch by weight (6,106,800 pounds in 2024).[90] The analysis is deficient because it:

- **Dismisses entrainment impacts as "less than significant"** under Impact BIO-7 despite Dungeness crab juveniles utilizing San Francisco Bay as critical nursery habitat.[91]
- **Fails to analyze habitat disruption effects** on crab migration patterns when juveniles "follow the deeper channels of the Central Bay back out to the ocean" in areas directly affected by mining operations.[92]
- **Provides no quantitative assessment** of entrainment mortality rates despite using suction dredging equipment that directly removes benthic organisms
- **Ignores cumulative stress factors** including documented population fluctuations since 2012 due to climate change, ocean acidification, and other stressors affecting this commercially and ecologically critical species.

O8-32 cont.

Failure to Analyze Southern Resident Killer Whale Critical Habitat

The SEIR completely fails to address the designation of waters outside the Golden Gate as Critical Habitat for the endangered Southern Resident killer whale Distinct Population Segment (DPS) in September 2021.[93] This omission is particularly significant because:

- The Southern Resident killer whale population has declined to only 37 individuals and is at risk of imminent extinction.[94]

O8-33

[89] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Appendix G (Biological Resources Supplemental Information).

[90] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Appendix G (Biological Resources Supplemental Information), Table G-19 (documenting Dungeness crab as 50.89% of total commercial catch, totaling 6,106,800 pounds in 2024).

[91] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Section 3.2.2.3 (acknowledging that "juveniles utilize San Francisco Bay for nursery habitat" and "migrate to San Pablo Bay where they reside through the summer").

[92] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Section 3.2.2.3 (noting that "in the fall, the young crabs follow the deeper channels of the Central Bay back out to the ocean").

[93] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Appendix B (Scoping Materials).

[94] Id.

- These whales now travel hundreds of miles to forage just outside the Golden Gate due to salmon depletion in Pacific Northwest waters.[95]
- Sand mining impacts to out-migrating anadromous San Francisco Bay salmonids (steelhead, coho, Chinook salmon) could affect this critically endangered population.[96]
- CEQA requires analysis of impacts to critical habitat for federally listed species.

O8-33 cont.

b. Benthic Community Impact Analysis is Inadequate and Contradictory

The benthic studies documented in Appendix C of the SEIR reveal fundamental limitations in the ability to assess sand mining impacts, contradicting the SEIR's conclusions about benthic community effects:

No Detectable Mining Effects: The AMS (2024) analysis explicitly found that "Treatment type (mined vs. unmined) was not a significant driver of the non-metric multidimensional scaling or multivariate generalized linear models. Throughout the time series average abundance and diversity declined and was consistent between mined and unmined control areas." [97] This finding demonstrates that current study methodologies cannot detect mining-specific impacts against the background variability in Bay benthic communities.

Study Design Inadequacy: The AMS (2024) study concluded "there remains a need for information on current habitat conditions in polyhaline sand mining areas of San Francisco Bay to better understand long-term changes in benthic responses."[98] The acknowledgment of information gaps indicates that the studies are insufficient to support conclusions about the absence of mining impacts.

O8-34

Temporal and Natural Variation Masking Effects: The study found that "Time had an effect on total abundance and benthic diversity metrics" and that "natural perturbations of benthic habitat outweigh the potential short term effects following sand mining events."[99] However, this finding does not demonstrate absence of mining impacts, but rather that the study design and duration were inadequate to detect impacts that may occur at different temporal or spatial scales than natural variation.

Assemblage-Specific Study Limitations: The 2016 and 2017 studies "focused on sampling in the low diversity estuarine sand assemblage of Central Bay,"[100] while the 2008 study sampled both estuarine sand and polyhaline assemblages. This methodological inconsistency fundamentally compromises the ability to assess mining impacts over time. The AMS study acknowledges that "the spatio-temporal evaluations conducted for our study lack detailed investigation of the impacts of

[95] Id.

[96] Id.

[97] Melwani, A.R., Venello, T.A., Hardin, D., and Johnson, J.A., Applied Marine Sciences, Inc., "Changes in Benthic Communities at Commercial Aggregate Mining Leases in Central San Francisco Bay," Draft for external review, January 13, 2025, Abstract, p. 1.

[98] Id.

[99] Id.

[100] Applied Marine Sciences, Inc., "Changes in Benthic Communities at Commercial Aggregate Mining Leases in Central San Francisco Bay," Draft for external review, January 13, 2025, p. 1.

sand mining on the polyhaline benthic assemblage over time."[101] This limitation is particularly significant because polyhaline assemblages typically support higher species diversity and abundance than estuarine sand assemblages. The change in sampling approach means that apparent declines in abundance and diversity between study periods may reflect differences in habitat types sampled rather than environmental changes, making it impossible to distinguish between natural habitat variation and potential mining impacts. This methodological inconsistency undermines the SEIR's conclusion that mining impacts are less than significant.

O8-34 cont.

Statistical Analysis Limitations: While the studies employed sophisticated statistical analysis including PERMANOVA (Permutational Multivariate Analysis of Variance), the failure to detect mining-specific effects ($p = 0.476$ for treatment effects) indicates either that impacts do not exist at detectable levels or that the study design is inadequate to identify impacts that may occur at different scales or timeframes than measured.

c. Inadequate Analysis of Noise Impacts

The SEIR's analysis of noise impacts from sand mining operations is inadequate and fails to consider best available science regarding marine mammal acoustic sensitivity:

Underwater Noise Impact Analysis

Marine Mammal Communication and Echolocation: The SEIR concludes that "[s]and mining activities under the Revised Project result in increased noise at the location of the suction drag head on the seafloor that can result in increased disturbance to marine biota, especially fish, including special status fish species" but classifies this as a less than significant impact.[102] This conclusion fails to adequately consider:

O8-35

- Harbor porpoise rely on echolocation for feeding and navigation and are particularly sensitive to underwater noise.[103]
- Humpback whale communication can be masked by industrial noise, affecting feeding coordination and social behavior.[104]
- Gray whale feeding behavior may be disrupted by mining noise in critical feeding areas.[105]

[101] Id., Conclusions, p. 12.

[102] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Table ES-1, Impact BIO-2.

[103] Kastelein, R.A., Hoek, L., de Jong, C.A.F., Wensveen, P.J., 2010. The effect of signal duration on the underwater detection thresholds of a harbor porpoise (Phocoena phocoena) for single frequency-modulated tonal signals between 0.25 and 160 kHz. Journal of the Acoustical Society of America 128(5), 3211-3222, available at: https://pubmed.ncbi.nlm.nih.gov/21110616/; Southall, B.L., et al., 2008. Marine mammal noise exposure criteria: initial scientific recommendations. Aquatic Mammals 33(4), 273-275, available at: https://tethys.pnnl.gov/publications/marine-mammal-noise-exposure-criteria-initial-scientific-recommendations.

[104] Clark, C.W., Ellison, W.T., Southall, B.L., Hatch, L., Van Parijs, S.M., Frankel, A., Ponirakis, D., 2009. Acoustic masking in marine ecosystems: intuitions, analysis, and implication. Marine Ecology Progress Series 395:201-222, available at: https://www.int-res.com/abstracts/meps/v395/meps08402.

[105] Southall, B.L., et al., 2019. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. Aquatic Mammals 45(2), 125-232, available at: https://www.aquaticmammalsjournal.org/wp-content/uploads/2019/03/45_2_southall.pdf.

Acoustic Masking Effects: The SEIR fails to analyze acoustic masking effects where mining noise interferes with marine mammal communication and echolocation abilities, potentially affecting:

- Prey detection capabilities for harbor porpoise, which rely on high-frequency echolocation for feeding and navigation and are particularly sensitive to anthropogenic noise.[106]
- Parent-offspring communication and feeding coordination for humpback whales, whose communication can be masked by industrial noise.[107]
- Feeding behavior disruption for gray whales in critical feeding areas, where mining noise may interfere with prey detection.[108]
- Social coordination during feeding among marine mammal groups.[109]

O8-35 cont.

4. The SEIR Fails to Address Critical Management Questions

The management questions developed for the Independent Science Panel specifically addressed whether sand mining has "measurable or demonstrable impact on sediment transport and supply within San Francisco Bay or the outer Coast."[110] The Panel's findings provide substantial evidence of measurable impacts that the SEIR inadequately addresses.

a. Local Scale Sediment Transport Effects

Mining-Induced Morphological Changes: The Independent Science Panel found that "each sand mining extraction creates a pothole or depression in the bed" and "over time these depressions merge and will result in a broader lowering of the elevation of the bed in the mined portion of the lease area."[111] These morphological changes directly affect local sediment transport patterns by:

- Altering flow patterns around mining areas

O8-36

[106] Kastelein, R.A., Hoek, L., de Jong, C.A.F., Wensveen, P.J., 2010. The effect of signal duration on the underwater detection thresholds of a harbor porpoise (Phocoena phocoena) for single frequency-modulated tonal signals between 0.25 and 160 kHz. Journal of the Acoustical Society of America 128(5), 3211-3222, available at: https://pubmed.ncbi.nlm.nih.gov/21110616/;; Southall, B.L., et al., 2008. Marine mammal noise exposure criteria: initial scientific recommendations. Aquatic Mammals 33(4), 273-275, available at: https://tethys.pnnl.gov/publications/marine-mammal-noise-exposure-criteria-initial-scientific-recommendations.

[107] Clark, C.W., Ellison, W.T., Southall, B.L., Hatch, L., Van Parijs, S.M., Frankel, A., Ponirakis, D., 2009. Acoustic masking in marine ecosystems: intuitions, analysis, and implication. Marine Ecology Progress Series 395:201-222, available at: https://www.int-res.com/abstracts/meps/v395/meps08402.

[108] Southall, B.L., et al., 2019. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. Aquatic Mammals 45(2), 125-232, available at: https://www.aquaticmammalsjournal.org/wp-content/uploads/2019/03/45_2_southall.pdf.

[109] Kastelein, R.A., Hoek, L., de Jong, C.A.F., Wensveen, P.J., 2010. The effect of signal duration on the underwater detection thresholds of a harbor porpoise (Phocoena phocoena) for single frequency-modulated tonal signals between 0.25 and 160 kHz. Journal of the Acoustical Society of America 128(5), 3211-3222, available at: https://pubmed.ncbi.nlm.nih.gov/21110616/; Southall, B.L., et al., 2008. Marine mammal noise exposure criteria: initial scientific recommendations. Aquatic Mammals 33(4), 273-275, available at: https://tethys.pnnl.gov/publications/marine-mammal-noise-exposure-criteria-initial-scientific-recommendations.

[110] Management Questions from the Sand Mining TAC, July 17, 2018.

[111] Battalio, Robert T., Craig A. Jones, John L. Largier, David H. Schoellhamer, Paul A. Work, "San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change studies and potential physical effects of sand mining activities: Independent Science Panel Findings Report – Best Available Science," Prepared for the California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission, June 3, 2024, Section 3.1 (Synthesis of Findings).

- Creating sediment traps that interrupt natural transport processes
- Changing bottom shear stress distribution affecting erosion and deposition patterns

Sand Transport Pathway Disruption: The Panel found that "where there is significant sand transport through a mined area, that area may fill in quickly, resulting in a sand loss that is not spatially confined."[112] This finding demonstrates that mining effects extend beyond immediate mining areas to affect regional sand transport patterns.

Replenishment Rate Variability: The documented variation in replenishment rates across different mining areas and time periods ranges dramatically from 1% to 141%, demonstrating significant spatial and temporal variation in recovery potential.[113] Specific documented rates include:

- Suisun Bay: 1% to 10% recovery rates (extremely low replenishment)
- Area 3 (West-Central Bay): 11%, 15%, and 28% across different periods
- Area 4: 15% recovery rate during peak mining (2018-2019)
- Area 1: Highly variable from 26% to 105% depending on mining intensity
- Areas 5 and 6: 91% to 141% recovery rates (high replenishment areas)

This extreme variability indicates that mining effects vary significantly depending on local transport conditions, requiring site-specific impact analysis that the SEIR does not provide.

O8-36 cont.

b. Regional Scale Effects on Bay Sediment Budget

Mining Volume and System Impact: The SEIR analyzes continued mining at 1.426 million cubic yards annually (approximately 1.75 million metric tons), while SFEI studies demonstrate that "mining was the largest loss of sand from the Bay (1.17 Mt/y; 66% of the outflows)" - representing approximately two-thirds of total sand outflows from the Bay system.[114]

Sand Budget Context: USGS research demonstrates that sand in the Bay is mined faster than the watershed can naturally replenish it, making it effectively a non-renewable resource at current extraction rates.[115]

O8-37

[112] Id.

[113] Deltares, "Understanding Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and Outer Coast," Report No. 11206299-000-ZKS-0003, March 31, 2023, pp. 14-15 (documenting recovery rates as low as 15% across multiple lease areas during different time periods from analysis of bathymetric data from 1997-2008 and subsequent years).

[114] McKee, L.J., Zi, T., Pearce, S.A., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., Lowe, J., Elias, E., Roelvink, F., 2023. "Sand budget and sand transport in San Francisco Bay." San Francisco Estuary Institute, SFEI Contribution #1125, Richmond, CA, p. 4 (finding that "mining was the largest loss of sand from the Bay (1.17 Mt/y; 66% of the outflows)").

[115] Battalio, Robert T., Craig A. Jones, John L. Largier, David H. Schoellhamer, Paul A. Work, "San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change studies and potential physical effects of sand mining activities: Independent Science Panel Findings Report – Best Available Science," Prepared for the California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission, June 3, 2024 (finding that sand mining extracts material faster than natural replenishment processes can replace it).

Non-Renewable Resource Impact: The established finding that sand mining extracts material faster than natural replenishment processes can replace it fundamentally alters the context for evaluating the sustainability and significance of continued operations.[116]

O8-37 cont.

c. Uncertainty in Outer Coast Beach Impacts

The Independent Science Panel's sediment transport modeling findings acknowledge significant uncertainties regarding impacts to outer coast beaches:

Key Uncertainties Identified: The modeling study concluded that "Key uncertainties in evaluating a relationship between sand mining in San Francisco Bay and erosion of outer coast beaches are the magnitude (rates) of sand transport and time lags between changes to sand transport or supply and any associated responses."[117]

Study Limitations: The Panel found that "The studies designed to answer the management questions do not directly reduce these uncertainties."[118] This finding indicates that current studies are inadequate to support conclusions of no significant impact on coastal erosion.

O8-38

Need for Enhanced Monitoring: The Panel recommended that "Studies estimating sand transport rates based on observed data would help reduce data-based and modeled uncertainties" and suggested specific monitoring locations including "near Bulls Head Shoal, Mallard Island, Central Bay between Alcatraz Island and Angel Island and near the mining areas, and near Point San Pablo."[119]

Despite these documented uncertainties and acknowledged limitations in current understanding, the SEIR concludes that impacts to sediment transport are less than significant without providing adequate justification for this determination.

5. Climate Change and Sea Level Rise Considerations

a. Sea Level Rise and Sediment Demand

San Francisco Bay faces unprecedented challenges from sea level rise that fundamentally alter the significance of removing sand from the system:

Increased Sediment Demand: Sea level rise increases the demand for sediment to maintain the elevation of Bay marshes and mudflats relative to rising water levels. The San Francisco Bay Restoration Authority and other agencies have identified sediment supply as a critical limiting factor for ecosystem adaptation.[120]

O8-39

[116] Id.

[117] Anchor QEA, "Modeling Sand Transport and the Effect of Sand Mining in San Francisco Bay," Prepared for California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission, May 2023, p. 162.

[118] Id.

[119] Id.

[120] Dusterhoff, S., L. McKee, S. Pearce, P. Kauhanen, M. Salomon, D. Schoellhamer, L. Grenier, M. Marineau, and P. Trowbridge, "Sediment for Survival: A Strategy for the Health of San Francisco Bay," San Francisco Estuary Institute, SFEI Contribution No. 867, Richmond, CA, March 2018 (documenting sediment supply as critical limiting factor for Bay ecosystem adaptation to sea level rise).

Marsh Drowning Risk: Scientific research demonstrates that with sea level rise accelerating and sediment inputs declining, there is concern that tidal wetlands will drown if they cannot maintain elevation relative to rising water levels.[121] Recent modeling has demonstrated that sediment supply is one of the primary environmental variables that will determine the sustainability of San Francisco Estuary tidal marshes over the next century as sea level rises.[122] However, the SEIR fails to consider how continued sand mining exacerbates this risk by further reducing available sediment.

Ecosystem Service Value Changes: Under climate change conditions, the ecosystem service value of retaining sediment in the Bay for marsh maintenance and coastal protection increases significantly, altering the significance of mining impacts.

Future Supply Projections: Climate change is expected to further reduce sediment supply from tributaries due to altered precipitation patterns and continued upstream development. The SEIR fails to analyze how these projected changes affect the significance of continued mining.

O8-39 cont.

6. Alternatives Analysis is Inadequate

CEQA requires analysis of a reasonable range of alternatives that could reduce environmental impacts.[123] The SEIR's alternatives analysis is inadequate and fails to consider reasonable alternatives that would meaningfully reduce the environmental impacts identified in the available scientific evidence.

a. Inadequate Range of Alternatives Analyzed

Failure to Consider Regional and International Sand Mining Cessation Precedents

O8-40

The SEIR fails to analyze alternatives informed by recent regional trends toward ending coastal and estuarine sand mining operations, as well as established international precedents for protecting estuarine systems from extraction impacts. As documented in the SEIR itself, significant coastal sand mining operations have recently ceased throughout California:

Monterey Region Coastal Mining Ban: The CEMEX Lapis sand plant near Marina "closed in 2023 as the last coastal sand mine operating in the contiguous United States."[124] This closure represents a complete regional transition away from coastal sand extraction, providing a clear precedent for alternatives that phase out estuarine mining operations.

[121] Hopkinson, C.S., J.T. Morris, S. Fagherazzi, W.M. Wollheim, and P.A. Raymond, "Lateral Marsh Edge Erosion as a Source of Sediments for Vertical Marsh Accretion," Journal of Geophysical Research: Biogeosciences 123(8):2444–2465 (2018) (documenting that "with sea level rise accelerating and sediment inputs to the coast declining worldwide, there is concern that tidal wetlands will drown").

[122] Livsey, D.N., M.A. Downing-Kunz, D.H. Schoellhamer, and A. Manning, "Suspended-sediment Flux in the San Francisco Estuary; Part II: the Impact of the 2013–2016 California Drought and Controls on Sediment Flux," Estuaries and Coasts 44(4):972–990 (2021) (finding that "recent modeling has demonstrated that sediment supply is one of the primary environmental variables that will determine the sustainability of San Francisco Estuary tidal marshes over the next century as sea level rises").

[123] CEQA Guidelines § 15126.6.

[124] California State Lands Commission, Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project, State Clearinghouse No. 2007072036, Section 4.4.1.1, p. 4-9 (Aug. 2025).

Santa Cruz County Closure: Graniterock's Santa Cruz sand plant "closed in January 2025,"[125] representing another major regional operation that ceased sand extraction operations.

Peninsula Mining Cessation: The Lehigh Permanente Quarry "ceased quarrying [and] related operations, including sand extraction, in 2023."[126]

International Precedents - European Estuarine Protection: International experience demonstrates that advanced coastal management jurisdictions have implemented comprehensive restrictions on estuarine sand extraction to protect ecosystem integrity:

Netherlands Wadden Sea Estuarine Ban: The Netherlands has transferred commercial sand extraction from the Wadden Sea estuary to the North Sea beyond the 20-meter depth contour,[127] with the explicit policy goal to "reduce sand extraction activities in the Dutch Wadden Sea gradually to zero over the coming years as near coast extraction of sand contradicts the current coastal defense policy."[128] Dutch authorities recognized that estuarine extraction threatens ecosystem resilience needed for sea level rise adaptation.

German Wadden Sea National Park Commercial Extraction Prohibition: Within German Wadden Sea National Parks, commercial sediment extraction is not permitted. Sediment extraction still occurs in Lower Saxony and Schleswig-Holstein, but only "for coastal defence or related construction purposes."[129] In Schleswig-Holstein's Wadden Sea, extraction at multiple sites is limited to "quantities less than 15,000 m^3 per year" and is permitted "solely for the purpose of coastal defence or related measures on the Halligen and Wadden Sea islands".[130]

EU Environmental Regulatory Framework: The European Union subjects all sand mining to numerous environmental regulations and impact assessments, including directives concerning nature, industrial emissions, waste and water,[131] providing a comprehensive regulatory model that prioritizes ecosystem protection over extraction convenience.

These regional closures and international precedents demonstrate that feasible alternatives exist for meeting sand demand without continued estuarine extraction. The SEIR should analyze how these regional and international transitions were accomplished and whether similar approaches could be applied to San Francisco Bay operations.

O8-40 cont.

[125] Id.

[126] Id.

[127] Dutch Ministry of Infrastructure and Water Management and Dutch Ministry of Economic Affairs, *Policy Document on the North Sea 2016-2021* (December 15, 2015), available at: https://maritime-spatial-planning.ec.europa.eu/media/12313.

[128] Schultze, M., & Nehls, G. (2017). Extraction and dredging. In S. Kloepper et al. (Eds.), *Wadden Sea Quality Status Report*. Common Wadden Sea Secretariat, Wilhelmshaven, Germany. https://qsr.waddensea-worldheritage.org/reports/extraction-and-dredging.

[129] Id.

[130] Id.

[131] European Union, "Environmental Impact Assessment Directive 2011/92/EU as amended by Directive 2014/52/EU," Official Journal of the European Union, 2014; EU Sand and Gravel Mining Environmental Regulations, Consolidated Version, 2023, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02011L0092-20140515.

Failure to Analyze Significantly Reduced Mining Alternative

Given the evidence that sand mining contributed approximately two-thirds of total documented sand loss from the Bay floor, the SEIR should analyze alternatives with substantial volume reductions:

25% Reduction Alternative: The SEIR should analyze reducing mining volumes by 25% (to approximately 1.07 million cubic yards annually) to better align with sustainable sediment budget principles.

50% Reduction Alternative: Given the Bay's sediment deficit and climate change adaptation needs, the SEIR should analyze a 50% reduction alternative (to approximately 700,000 cubic yards annually).

O8-41

Phased Reduction Alternative: The SEIR should analyze a phased reduction approach that gradually decreases mining volumes over the 10-year lease period to allow for market adaptation while reducing environmental impacts.

The SEIR's failure to analyze alternatives with meaningful volume reductions despite substantial evidence of significant environmental impacts violates CEQA's requirement to consider alternatives that would reduce impacts.[132]

Failure to Analyze Temporal Restriction Alternatives

The scientific evidence documents significant seasonal variation in biological resource use and sediment transport processes, yet the SEIR fails to analyze alternatives with enhanced temporal restrictions:

Marine Mammal Feeding Season Restrictions: Given evidence that humpback whales feed in the Bay "from spring through fall" and gray whales use the Bay for feeding during migration periods,[133] the SEIR should analyze alternatives that restrict mining during peak feeding seasons.

O8-42

Fish Migration Period Restrictions: While the SEIR references existing restrictions during "peak Chinook salmon migration,"[134] it fails to analyze expanded restrictions for other special status fish species including delta smelt, longfin smelt, and green sturgeon.

Benthic Community Reproduction Restrictions: The benthic studies indicate seasonal variation in community structure and reproduction, yet the SEIR fails to analyze temporal restrictions that would minimize impacts during critical reproduction periods.

[132] CEQA Guidelines § 15126.6(a).

[133] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Appendix B (Scoping Materials); Notice of Preparation of a Supplemental Environmental Impact Report and Notice of Public Scoping Meeting, May 25, 2023.

[134] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Section 3.8.5.2.

7. Mitigation Measures Are Inadequate and Unenforceable

a. Failure to Develop New Mitigation Measures Based on Current Science

The SEIR relies primarily on mitigation measures developed for the 2012 EIR without developing additional measures to address impacts identified in subsequent scientific studies:

No Mitigation for Documented Morphological Impacts

Persistent Depression Formation: The Independent Science Panel found that "each sand mining extraction creates a pothole or depression in the bed" and documented replenishment rates as low as 15% based on detailed bathymetric analysis conducted by Deltares from 1997-2008 across multiple lease areas.[135] Despite substantial evidence of persistent morphological changes, the SEIR proposes no mitigation measures to address these impacts. Potential mitigation measures that should be considered include:

- **Enhanced Morphological Monitoring:** Real-time bathymetric monitoring using advanced survey techniques to track morphological changes and adjust operations accordingly.
- **Adaptive Mining Techniques:** Modified mining techniques that minimize creation of deep depressions, such as distributed extraction or shallower mining depths.
- **Habitat Restoration Requirements:** Requirements for restoration of mining areas that fail to naturally recover within specified timeframes.

O8-43

Inadequate Mitigation for Marine Mammal Impacts

The SEIR's mitigation measures fail to address the documented changes in marine mammal use of the Bay:

- **No Gray Whale Protection Measures:** Despite evidence that the Bay has become critical feeding habitat for gray whales,[136] the SEIR proposes no specific protection measures during critical feeding periods.
- **Inadequate Acoustic Impact Mitigation:** The SEIR fails to propose mitigation measures for underwater noise impacts to harbor porpoise echolocation and humpback whale communication.
- **No Critical Habitat Protection:** The SEIR fails to propose measures to protect Southern Resident killer whale critical habitat outside the Golden Gate from indirect impacts through effects on prey species.

O8-44

[135] San Francisco Bay Sand Budget Studies, Synthesis of Findings, Section 3.1; Deltares, "Understanding Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and Outer Coast," Report No. 11206299-000-ZKS-0003, March 31, 2023, pp. 14-15 (documenting recovery rates of 11%, 28%, and 15% for Area 3 across different time periods, and stating "For this period, the volume loss approaches the mining volume (0.07 Mcy), resulting in a recovery rate of only 15%" for Area 4 during 2018-2019).

[136] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Appendix B (Scoping Materials); Marine Mammal Protection Act, 16 U.S.C. § 1361 et seq.

No Ecosystem-Scale Mitigation

The SEIR fails to propose mitigation measures that address ecosystem-scale impacts:

- **System-Scale Impact Evidence:** USGS studies demonstrate that mining contributed approximately two-thirds of total documented sand loss from the Bay floor, indicating system-scale rather than merely local impacts.[137]
- **No Climate Adaptation Mitigation:** The SEIR fails to propose measures that would enhance Bay ecosystem resilience to climate change and sea level rise.
- **No Cumulative Impact Mitigation:** The SEIR proposes no measures to address the cumulative effects of mining combined with other stressors affecting Bay sediment budgets.

O8-45

8. Public Trust Analysis is Insufficient and Unsupported

a. Failure to Conduct Adequate Public Trust Balancing

The First Appellate District, Division Four's decision in *San Francisco Baykeeper v. California State Lands Commission* requires the CSLC to conduct a proper public trust analysis before approving sand mining leases.[138] The Court has held twice that commercial sand mining in San Francisco Bay is not a per se public trust use, requiring the CSLC to conduct a public trust review for sand mining leases.[139] Although the Court ultimately agreed with the CSLC that the leases would not impair other public trust uses,[140] new information post-2012 confirms this is no longer the case. The SEIR fails to provide an adequate public trust analysis that weighs public benefits against environmental costs, particularly in light of San Francisco's Ocean Beach Climate Adaptation Project and documented connections between Bay sand mining and coastal erosion.

O8-46

Critical Public Trust Resource Conflicts

Ocean Beach Climate Adaptation Project Demonstrates Sand Value for Public Trust Uses: San Francisco's Ocean Beach Climate Adaptation Project, estimated at $175 million and approved by the California Coastal Commission in November 2024,[141] represents a major public investment to address coastal erosion, providing compelling evidence that Bay sand represents a critical public trust resource with quantifiable value for public protection and recreation. The project demonstrates the public trust value of retaining sand within the Bay-coast system for essential climate adaptation purposes.

O8-47

[137] Fregoso, T.A., Jaffe, B.E., Foxgrover, A.C., Woodrow, D., Kharrazi, B., and Orzech, K., 2023, "Contributions of erosion, deposition, and human activities to a change in sand storage in the bed of San Francisco Bay, California," U.S. Geological Survey Open-File Report 2023-1031 (referenced in Independent Science Panel findings as documenting that sand mining contributed approximately two-thirds of total documented sand loss from the Bay floor between the 1980s and 2010s).

[138] *San Francisco Baykeeper v. California State Lands Commission*, 242 Cal. App. 4th 202 (2015).

[139] Id. at 238; see San Francisco Baykeeper v. California State Lands Commission, 29 Cal. App. 5th 562 (2018).

[140] San Francisco Baykeeper v. California State Lands Commission, 29 Cal. App. 5th 562, 573-75 (2018)

[141] San Francisco Chronicle. (2024). "California regulators approve huge Ocean Beach seawall to avert prospect of 'major emergency' for S.F." November 14, 2024, available at: https://www.sfchronicle.com/climate/article/ocean-beach-seawall-19895231.php

Critical Infrastructure Protection: The project addresses threats to vital public wastewater and water infrastructure from coastal erosion. According to SFPUC project manager Anna Roche, "If this tunnel were to fail, it would result in a major emergency for this side of San Francisco. [...] Failure would mean hundreds of thousands of gallons of combined stormwater and sewage spilling onto Ocean Beach and hundreds of thousands of San Franciscans unable to flush their toilets."[142] The protection of infrastructure serving hundreds of thousands of San Francisco residents represents a clear public trust benefit that conflicts with continued extraction of sand resources from the Bay system.

O8-48

Beach Nourishment as Core Strategy: The project includes "continued beach nourishment activities" as essential protection measures, with regular sand replenishment planned "at a cost of $1 million per application."[143] The city has already implemented moving sand from northern Ocean Beach to south Ocean Beach since 2015, and "in 2021 spent $7 million to dump sand dredged from the ocean floor, courtesy of the Army Corps of Engineers" on the same area.[144] This demonstrates direct reliance on Bay sand resources for public protection.

O8-49

Public Access and Recreation Enhancement: The project aims to preserve public recreational access threatened by erosion for Ocean Beach which draws over two million visitors annually.[145] This demonstrates that coastal erosion compromises regional recreational connectivity protected by the public trust doctrine.

O8-50

Documented Connection Between Bay Sand Mining and Ocean Beach Erosion

Scientific evidence establishes connections between Bay sand mining and coastal erosion that raise public trust concerns:

Transport Pathway Documentation: Scientific studies have documented sediment transport pathways connecting Bay sand deposits to coastal areas. The disruption of these natural transport processes through mining operations affects the natural sand supply to coastal environments.

Quantified Mining Impact on Sand Budget: The Independent Science Panel found that sand mining constitutes "the largest outflow of sand from the Bay" at 1.17 million metric tons per year, representing 66% of all sand outflows from the system (McKee et al., 2023). This extraction rate creates an unsustainable deficit that directly impacts coastal sand availability, as sand outflows exceed inflows by a factor of approximately 4:1.

Ocean Beach Erosion Crisis: Ocean Beach experiences significant erosion that threatens critical public infrastructure and recreational access. The removal of sand from the Bay system through mining operations compounds coastal erosion challenges by reducing the natural sediment supply available for coastal protection.

O8-51

[142] Id.

[143] Id.

[144] Id.

[145] California State Coastal Conservancy. (2011, January 19). Ocean Beach Master Plan Staff Recommendation. File No. 08-163-01, available at: https://scc.ca.gov/webmaster/ftp/pdf/sccbb/2012/1201/20120119Board09_Ocean_Beach_Master_Plan.pdf

b. Public Trust Values Compromised by Continued Mining

Navigation and Commerce vs. Ecosystem Integrity

While sand mining may provide short-term economic benefits to private companies, the documented morphological changes and sediment transport disruptions compromise long-term public trust values:

Bay Navigation Impacts: The creation of persistent depressions in mining areas and alteration of sediment transport patterns may affect navigation channels and require increased maintenance dredging, ultimately shifting costs to public agencies and port authorities.

Regional Economic Impacts: The California Coastal Commission noted that Central Bay sand has been "identified as a potential backup source of sand for beach nourishment and dune creation for San Francisco's South Ocean Beach Climate Adaptation project",[146] indicating that mining operations directly conflict with essential climate adaptation projects protecting billions of dollars in public infrastructure.

O8-52

Fisheries and Marine Resources

Dungeness Crab Fishery: The SEIR inadequately analyzes impacts to Dungeness crab, the most commercially important species representing over 50% of total commercial catch by weight (6,106,800 pounds in 2024). Despite juveniles using San Francisco Bay as critical nursery habitat and following "the deeper channels of the Central Bay back out to the ocean" through areas directly affected by mining operations, the SEIR categorizes entrainment and mortality as "Less than Significant" (Impact BIO-7, Class III) with no required mitigation measures. This dismissive treatment fails to provide a quantitative analysis of the effects of nursery habitat disruption on juvenile survival and growth, lacks species-specific protective measures despite the crab's critical commercial importance, and overlooks how mining disrupts benthic invertebrate communities that juveniles depend on for food. The analysis also fails to assess cumulative population effects from repeated annual entrainment and habitat disruption over the proposed 10-year lease period, representing a fundamental inadequacy in protecting the Bay's most valuable commercial fishery resource.

Protected Species Habitat: The Bay has become critical feeding habitat for federally protected humpback whales, gray whales, and harbor porpoise since 2016-2019, representing "unprecedented" changes in marine mammal use that the SEIR fails to adequately protect.[147]

O8-53

Recreation and Public Access

Ocean Beach Recreation: Ocean Beach serves as a major recreational resource drawing significant numbers of visitors annually. The erosion exacerbated by sand mining directly threatens this recreational access, requiring massive public expenditures for protection and restoration.

O8-54

[146] California Coastal Commission. (2024). Comment Letter to BCDC on San Francisco Bay Sand Mining Studies. May 31, 2024.

[147] Markowitz, T., et al. (2024). "New Urban Habitat for Endangered Humpback Whales: San Francisco Bay." *Aquatic Conservation: Marine and Freshwater Ecosystems*, doi:10.1002/aqc.4107, available at: https://onlinelibrary.wiley.com/doi/10.1002/aqc.4107.

Coastal Trail Connectivity: Coastal protection projects include provisions for maintaining recreational access and trail connectivity. Coastal erosion compromises regional recreational connectivity protected by the public trust doctrine.

O8-54 cont.

c. Environmental Protection and Climate Adaptation

Sea Level Rise and Ecosystem Resilience

The public trust doctrine has evolved to encompass environmental protection, particularly for resources essential to climate adaptation. Continued sand mining directly conflicts with this expanded understanding:

Marsh Preservation: Bay marshes require continuous sediment supply to maintain elevation relative to sea level rise. Research demonstrates that "sediment supply is one of the primary environmental variables that will determine the sustainability of San Francisco Estuary tidal marshes over the next century as sea level rises."[148] Mining operations that remove large volumes of sand annually directly compromise the sediment supply needed for marsh survival.

Coastal Protection Services: Ocean Beach and Bay marshes provide substantial storm surge protection with quantifiable economic value. Studies estimate that Bay Area sea level rise protection "is going to cost an estimated $110 billion by 2050" to protect communities and infrastructure,[149] while coastal wetlands globally prevent billions in damages annually, with research showing that "coastal wetlands prevent $447 billion/yr of damages and save 4,620 lives/yr" globally.[150] The progressive degradation of these natural protective systems due to sediment mining creates cumulative economic costs that compound over multi-decadal timeframes as coastal vulnerability increases.

O8-55

Finite Resource Depletion

Ancient Sand Resource: OSL dating reveals that mined sand is 820-4,570 years old, representing "relic sand deposited during lower sea levels" that cannot be replaced under current conditions.[151] Continuing to extract these finite geological resources for private profit violates the public trust obligation to preserve resources for future generations.

O8-56

[148] Livsey, D. N., M. A. Downing-Kunz, D. H. Schoellhamer, and A. Manning. 2021. Suspended-sediment Flux in the San Francisco Estuary; Part II: the Impact of the 2013–2016 California Drought and Controls on Sediment Flux. Estuaries and Coasts 44(4), 972–990.

[149] California Natural Resources Agency. (2024). "San Francisco Bay Sea Level Rise Study Included in Water Resources Development Act of 2024." January 2025, available at: https://resources.ca.gov/Newsroom/Page-Content/News-List/San-Francisco-Bay-Sea-Level-Rise-Study-Included-in-Water-Resources-Development-Act-of-2024.

[150] Losada, I.J., Beck, M.W., Menéndez, P., Espejo, A., Torres, S., Díaz-Simal, P., Fernández, F., Abad, S., Ripoll, N., Martínez, R., and Flor, J. (2021). "The global value of coastal wetlands for storm protection." *Global Environmental Change* 70:102328.

[151] Malkowski, M.A., Sickmann, Z.T., Jaffe, B., Fregoso, T., and Mohrig, D. (2023). "Fingerprinting Sand and Its Transport History through San Francisco Bay: Implications for Sand Mining and Its Environmental Effects." Report prepared for California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission.

Non-Renewable Extraction Context: The science clearly demonstrates that current mining rates exceed natural replenishment capacity by a factor of 4:1, making continued extraction unsustainable from a public trust perspective and fundamentally contrary to intergenerational equity principles.

O8-56 cont.

d. Legal Standard Application: Public Trust Balancing Analysis

Under *National Audubon Society v. Superior Court*, 33 Cal.3d 419 (1983), as well as the Baykeeper cases cited above, the state must consider whether or not a non-public trust use impairs public trust values in any decision affecting trust resources. The proper balancing analysis must weigh:

Public Benefits of Mining:

- Private economic benefits to sand mining companies.
- Local construction material supply (though alternative sources are available).
- Limited direct public benefit as sand is sold for private profit.

Public Costs and Trust Impacts:

- $175 million Ocean Beach Climate Adaptation Project[152] necessitated partly by sand mining impacts.
- Loss of irreplaceable ancient sand resources (820-4,570 years old).
- Threat to critical wastewater infrastructure serving hundreds of thousands of residents.
- Degradation of recreational access for over two million annual Ocean Beach visitors.[153]
- Impacts to commercially valuable fisheries (50% of Bay commercial catch).
- Compromise of climate adaptation capabilities for sea level rise.
- Violation of federal species protection laws for endangered marine mammals.

O8-57

e. Inadequate Consideration of Public Trust Values

The SEIR's public trust analysis fails fundamental legal standards by:

Ignoring Direct Conflicts: Failing to analyze how sand mining directly conflicts with San Francisco's Ocean Beach Climate Adaptation Project, a major public investment specifically designed to address erosion partly caused by sand mining.

Undervaluing Public Resources: Treating ancient sand deposits as renewable resources rather than finite public assets with irreplaceable geological and ecological value.

Dismissing Ecosystem Services: Failing to quantify the economic value of coastal protection, habitat preservation, and climate adaptation services provided by retaining sand within the Bay system.

O8-58

[152] San Francisco Chronicle. "California regulators approve huge Ocean Beach seawall to avert prospect of 'major emergency' for S.F." November 14, 2024, available at: https://www.sfchronicle.com/climate/article/ocean-beach-seawall-19895231.php

[153] California State Coastal Conservancy. (2011, January 19). Ocean Beach Master Plan Staff Recommendation. File No. 08-163-01, available at: https://scc.ca.gov/webmaster/ftp/pdf/sccbb/2012/1201/20120119Board09_Ocean_Beach_Master_Plan.pdf

Prioritizing Private Profit: Allowing private companies to extract and sell public trust resources without adequate consideration of public benefit or long-term resource sustainability.

O8-58 cont.

f. Recommendations for Compliance

To satisfy public trust obligations, the CSLC must:

- **Quantify Public Trust Values:** Commission independent economic analysis of the full public value of Bay sand for coastal protection, ecosystem services, and climate adaptation compared to private mining profits.
- **Analyze Ocean Beach Project Connections:** Explicitly consider how continued sand mining undermines the $250 million public investment in Ocean Beach Climate Adaptation Project and similar coastal protection efforts.
- **Apply Precautionary Principle:** Given documented connections between mining and coastal erosion, apply precautionary approaches that prioritize long-term public resource protection over short-term private extraction.
- **Consider Intergenerational Equity:** Evaluate whether extracting irreplaceable ancient sand resources for current private profit serves the long-term public interest and trust obligations to future generations.
- **Assess Alternative Sources:** Analyze whether adequate alternative sand sources exist that would not compromise public trust resources and climate adaptation capabilities.

O8-59

The weight of scientific evidence, combined with San Francisco's massive public investment to address mining-related coastal erosion, demonstrates that continued sand mining at current levels fundamentally violates the state's public trust obligations to protect Bay resources for current and future public benefit.

9. Cumulative Impacts Analysis Violates CEQA

a. The SEIR Treats Century-Long System Depletion as Isolated Projects

The SEIR's cumulative analysis fundamentally violates CEQA's requirements by treating what amounts to a century-long, systematic depletion of San Francisco Bay's sand resources as a series of isolated, disconnected projects. CEQA requires analysis of cumulative impacts that considers the project in combination with "past, present, and probable future projects producing related or cumulative impacts."[154] The SEIR's analysis not only falls short of this standard—it actively obscures the true scale and significance of the cumulative assault on the Bay's sediment system.

O8-60

Failure to Address System-Wide Connectivity

The Independent Science Panel's breakthrough findings reveal that mining operations are systematically depleting what the Panel describes as a shared system where "San Francisco Bay and the Pacific Ocean share a common pool of sand which sand mining reduces" and where "in each

O8-61

[154] CEQA Guidelines § 15130(b)(1)(A).

tidal cycle, a huge amount of sand is transported between the Bay and the ocean effectively linking the two sand deposits into a shared pool."[155]

This transforms the significance of every cubic yard extracted. Mining operations do not merely create local disturbances—they permanently deplete a shared resource pool extending from the Sacramento-San Joaquin Delta to the Marin Headlands. Yet the SEIR continues to treat these extractions as compartmentalized activities with merely local effects.

The mathematical impossibility becomes clear when examining system inputs versus extractions. Current sand supply totals only 0.45 million metric tons annually from all sources, while mining operations extract 1.17 million metric tons per year—approximately 2.6 times greater than all natural inputs combined.[156] This systematic resource depletion creates cumulative deficits compounding year after year across the entire Bay-Delta-Coast corridor.

Suisun Bay represents an extreme case of cumulative resource depletion. With sand ages of 3,920-4,570 years old and virtually no connectivity to contemporary Delta inputs,[157] each extraction event permanently reduces a finite ancient resource that took millennia to accumulate. The SEIR treats these extractions as routine activities with temporary, recoverable impacts.

O8-61 cont.

Inadequate Analysis of Century-Long Extraction History

The SEIR's refusal to confront the cumulative impacts of over 100 million cubic yards extracted since the 1930s[158] represents fundamental analytical failure. This extraction program has created a progressively degraded system baseline that masks the true significance of continued operations.

Recent USGS documentation indicates that the Bay has lost 17 million cubic meters of sand since the 1980s alone, with 65% of this loss occurring directly in mining areas.[159] The Independent Science Panel found that mining-created depressions "merge and will result in a broader lowering of the elevation of the bed in the mined portion of the lease area."[160] Over decades, these impacts accumulate into system-wide bathymetric changes, altering flow patterns and ecosystem function.

O8-62

[155] Battalio, R.T., Jones, C.A., Largier, J.L., Schoellhamer, D.H., Work, P.A. (2024). "San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change Studies and Potential Physical Effects of Sand Mining Activities: Independent Science Panel Findings Report." California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission.

[156] McKee, L.J., Zi, T., Pearce, S.A., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., Lowe, J., Elias, E., & Roelvink, F. (2023). "Research to Understand Impacts of Bay Sand Mining on Sand Transport in San Francisco Bay and the Outer Coast: Sand Budget and Transport in San Francisco Bay." SFEI Contribution #1125. San Francisco Estuary Institute.

[157] Malkowski, M.A., Sickmann, Z.T., Jaffe, B., Fregoso, T., and Mohrig, D. (2023). "Fingerprinting Sand and Its Transport History through San Francisco Bay: Implications for Sand Mining and Its Environmental Effects." Report prepared for California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission.

[158] Bay Conservation and Development Commission (BCDC). (2024). "Sand Mining Workshop Report." San Francisco Bay Conservation & Development Commission.

[159] Fregoso, T.A., Jaffe, B.E., Foxgrover, A.C., et al. (2023). "Contributions of Erosion, Deposition, and Human Activities to a Change in Sand Storage in the Bed of San Francisco Bay, California." U.S. Geological Survey Open-File Report 2023-1031.

[160] Battalio, R.T., Jones, C.A., Largier, J.L., Schoellhamer, D.H., Work, P.A. (2024). "San Francisco Bay Sand Budget, Transport, Provenance, and Bathymetric Change Studies and Potential Physical Effects of Sand Mining Activities: Independent Science Panel Findings Report." California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission.

The San Francisco Bar has lost approximately 100 +/- 52 million cubic meters of sediment volume since 1873, resulting in a landward migration of roughly 1 kilometer.[161] This staggering deficit represents cumulative system modification that has fundamentally altered wave attenuation and longshore transport along the entire outer coast.

Recovery rates reveal the permanent nature of cumulative impacts, varying from 1% in Suisun Bay to a maximum of 141% in Central Bay, with most areas below 55% recovery.[162] Areas with minimal recovery represent permanent sediment loss accumulating over multiple lease cycles.

O8-62 cont.

b. Failure to Address Climate Change Cumulative Effects

The SEIR's critical failure lies in its treatment of climate change interactions. Under sea level rise scenarios, sediment demand for marsh accretion will increase dramatically as tidal marshes require additional sediment to maintain elevation. Research by SFEI highlights the critical importance of sediment supply for the survival of Bay wetlands under accelerating sea level rise.[163] This exponentially increasing sediment demand occurs precisely when mining operations continue to deplete the needed adaptation resources.

Recent climate research documents atmospheric river frequency increasing "by almost one order of magnitude under mild warming scenarios."[164] Mining-induced sediment deficits create an exponentially greater vulnerability, with back-to-back atmospheric rivers causing "3-4 times more economic damage than individual storms."[165]

San Francisco's Ocean Beach provides $2.4 billion in annual storm surge protection, while Bay marshes provide $4.8 billion in flood protection services.[166] Progressive degradation from mining-related sediment deficits creates cumulative economic vulnerabilities compounding over decades.

O8-63

c. Biological Resources Face Compounding Stressors

Rather than analyzing how mining compounds multiple stressors pushing Bay species toward extinction, the SEIR treats mining as occurring in an undisturbed ecosystem. Gray whales began

O8-64

[161] Barnard, P.L., Hansen, J.E., & Erikson, L.H. (2012). Synthesis study of an erosion hot spot, Ocean Beach, California. *Journal of Coastal Research*, 28(4), 903-922.

[162] McKee, L.J., Zi, T., Pearce, S.A., Grosso, C., Wong, A., Weaver, M., Dusterhoff, S., Lowe, J., Elias, E., & Roelvink, F. (2023). "Research to Understand Impacts of Bay Sand Mining on Sand Transport in San Francisco Bay and the Outer Coast: Sand Budget and Transport in San Francisco Bay." SFEI Contribution #1125. San Francisco Estuary Institute.

[163] Dusterhoff, S., McKnight, K., Grenier, L., and Kauffman, N. (2021). "Sediment for Survival: A Strategy for the Resilience of Bay Wetlands in the Lower San Francisco Estuary." SFEI Resilient Landscape Program. San Francisco Estuary Institute, Richmond, CA.

[164] Higgins, T.B., Elsbury, D., Braun, C., et al. (2025). "Changes to Atmospheric River Related Extremes over the United States West Coast under Anthropogenic Warming." *Geophysical Research Letters*, 52(4), e2024GL112237.

[165] Bowers, C., Baker, D.B., et al. (2024). "When atmospheric rivers make landfall in rapid succession, they cause more economic damage than expected." *Science Advances*, 10(3).

[166] Environmental Science Associates (ESA). (2019). *San Francisco Bay Area Sea Level Rise Analysis and Mapping Project*. Report prepared for the California State Coastal Conservancy.

using the Bay as feeding habitat during the 2019-2023 Unusual Mortality Event,[167] creating cumulative impacts during critical recovery periods.

The "unprecedented influx" of endangered humpback whales since 2016 represents adaptive behavior to changing ocean conditions.[168] These federally protected whales are being forced into urban waters by traditional habitat collapse, while mining noise and disruption compound existing stressors.

Most critically, the SEIR ignores impacts to Southern Resident killer whales despite 2021 Critical Habitat designation outside the Golden Gate. With only 37 individuals remaining, the effects of mining on out-migrating Bay salmonids affect a population balanced on the edge of extinction.

O8-64 cont.

d. Economic Costs Systematically Externalized to Public Agencies

The SEIR systematically obscures massive cost-shifting from private extraction companies to taxpayers. San Francisco's $250 million Ocean Beach Climate Adaptation Project exemplifies this dynamic, requiring "continued beach nourishment activities" while the State permits extraction of sand that would naturally flow to Ocean Beach.

Regional patterns compound these costs as municipalities invest billions in coastal protection partly necessitated by mining-related sediment deficits. The closure of all major California coastal sand mining operations has increased Bay extraction reliance precisely when climate adaptation requires maximum in-Bay sediment retention.

O8-65

e. Failure to Consider System-Scale Alternatives

International precedents demonstrate feasible alternatives. The Netherlands eliminated Wadden Sea estuarine extraction, transferring operations to protect ecosystem integrity for climate adaptation. California's coastal sand mining operation closures provide regional precedent for transitions away from environmentally damaging extraction.

Alternative approaches retaining Bay sand for coastal nourishment and marsh accretion could address both sediment deficits and development needs. The Bay-Ocean sand pool connectivity means retained sand naturally contributes to coastal resilience through established transport pathways.

O8-66

10. Specific Comments on Technical Studies

a. Appendix C of the SEIR - Benthic Study Critical Deficiencies

Study Design Limitations

The benthic studies suffer from fundamental design limitations that undermine their conclusions:

O8-67

[167] NOAA Fisheries. (2023). "2019-2023 Eastern North Pacific Gray Whale UME (CLOSED)." Available at: https://www.fisheries.noaa.gov/national/marine-life-distress/2019-2023-eastern-north-pacific-gray-whale-ume-closed

[168] Markowitz, T., et al. (2024). "New Urban Habitat for Endangered Humpback Whales: San Francisco Bay." *Aquatic Conservation: Marine and Freshwater Ecosystems*, doi:10.1002/aqc.4107.

Temporal Coverage Limitations: The study states that "The 2D correlation analysis only included bathymetric datasets from 2018 and 2019 because the time interval between surveys for other datasets was too long to detect consistent patterns in the bedform fields."[169] This temporal limitation prevents analysis of longer-term trends and recovery patterns.

Spatial Scale Limitations: The study acknowledges that "It is necessary to sample sufficient spatial variation to quantify the rate of benthic macroinvertebrate recolonization of subtidal habitat disturbed by sand mining activity."[170] This statement indicates that current spatial sampling is inadequate to support conclusions about recovery rates.

O8-67 cont.

b. Appendix D - Bathymetric and Hydrodynamic Study Limitations

Model Validation Concerns

The hydrodynamic modeling studies acknowledge significant limitations that undermine confidence in their conclusions:

Sediment Transport Model Uncertainty: The study states that "Significant uncertainty exists in the prediction of sediment transport. This uncertainty results from the complexity of representing sediment physics, the limited data available to characterize heterogeneous bed sediment and inflow sediment properties in a dynamic environment."[171]

Model Skill Assessment: The study acknowledges that "the accuracy of sediment transport predictions based on numeric skill metrics [...] being lower for comparisons of SSCs than is typical for modeling of salinity or water level."[172]

O8-68

Model Assumption Limitations

Sediment Class Simplification: The model uses "a single sand class for sand representative of mined sand"[173] which oversimplifies the complex grain size distributions and transport behaviors of actual Bay sediments.

c. Appendix G - Biological Resources Information Contradictions

Internal Document Contradictions

Appendix G contains information that directly contradicts the SEIR's impact conclusions:

O8-69

[169] Elias, Edwin and Floortje Roelvink, "Understanding Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and Outer Coast, Part 1: Morphodynamic change and bedform dynamics," Deltares Report No. 11206299-000-ZKS-0006, March 31, 2023, Section 2.3.2.

[170] Melwani, A.R., Venello, T.A., Hardin, D., and Johnson, J.A., Applied Marine Sciences, Inc., "Changes in Benthic Communities at Commercial Aggregate Mining Leases in Central San Francisco Bay," Draft for external review, January 13, 2025, p. 13 (stating "It is necessary to sample sufficient spatial variation to quantify the rate of benthic macroinvertebrate recolonization of subtidal habitat disturbed by sand mining activity").

[171] Anchor QEA, "Modeling Sand Transport and the Effect of Sand Mining in San Francisco Bay," Prepared for California State Coastal Conservancy and San Francisco Bay Conservation and Development Commission, May 2023, Appendix B: Assumptions and Limitations of the Coupled Modeling System, Section B.4 (SediMorph Numerical Model Uncertainty).

[172] Id., Section B.5.

[173] Id.

Marine Mammal Importance: The appendix documents the critical importance of Bay habitats for multiple protected marine mammal species,[174] yet the SEIR concludes impacts are less than significant.

Species Status Changes: The appendix documents significant changes in species status and habitat use since 2012,[175] but these changes are inadequately reflected in impact analysis.

O8-69 cont.

11. Legal and Procedural Deficiencies

a. CEQA Procedural Requirements

Inadequate Public Notice and Review Period

Given the complexity and length of the SEIR and its technical appendices, the standard public review period is inadequate for meaningful public participation. Despite several requests from the public, SLC staff denied the extension of the public comment period:

Document Complexity: The SEIR and appendices total hundreds of pages of technical analysis requiring expert review.

Scientific Study Integration: The SEIR references multiple complex scientific studies that require time for thorough analysis and comment preparation.

Public Trust Analysis Requirements: The mandated public trust analysis requires additional time for adequate public review and comment.

O8-70

12. Recommendations for SEIR Revision

Based on the comprehensive deficiencies identified above, Baykeeper recommends that the CSLC revise the SEIR in the following ways:

a. Fundamental Document Revision Requirements

Prepare a Subsequent EIR as Required by Law

Substantial New Evidence Requires a Subsequent EIR: The substantial new scientific evidence developed through the Independent Science Panel studies, bathymetric analysis, and changed marine mammal habitat use patterns constitutes "new information of substantial importance" under CEQA Guidelines section 15162(a) that triggers the requirement for a subsequent EIR rather than merely a supplemental EIR.

Inadequacy of Supplemental EIR Approach: CEQA Guidelines section 15163 permits supplemental EIRs only when "[o]nly minor additions or changes would be necessary to make the previous EIR adequately apply to the project." The substantial new evidence of persistent morphological impacts,

O8-71

[174] California State Lands Commission, "Draft Supplemental Environmental Impact Report San Francisco Bay and Delta Sand Mining Project," State Clearinghouse No. 2007072036, August 2025, Appendix G (Biological Resources Supplemental Information).

[175] Id.

marine mammal habitat changes, and sediment budget effects represents major new information that cannot be addressed through minor additions or changes.

Comprehensive Environmental Analysis: Prepare a subsequent EIR that properly analyzes the environmental baseline as it exists today, integrates all new scientific evidence, and provides the comprehensive impact analysis required by CEQA.

Enhanced Alternatives Analysis

Meaningful Volume Reduction Alternatives: Analyze alternatives with substantial volume reductions (25%, 50%, and phased reduction scenarios) based on evidence of significant environmental impacts.

Comprehensive Temporal Restriction Alternatives: Analyze seasonal restrictions aligned with critical biological periods for marine mammals, fish migration, and benthic community reproduction.

Area-Specific Protection Alternatives: Analyze alternatives that restrict mining in areas with documented high biological importance or low recovery potential.

Adequate Mitigation Measure Development

Ecosystem-Scale Mitigation: Develop mitigation measures that address system-scale impacts including sediment budget effects and climate adaptation needs.

Adaptive Management Framework: Establish comprehensive adaptive management with specific trigger criteria, response protocols, and regular review requirements.

Enhanced Monitoring Requirements: Require monitoring adequate to detect the impacts documented in scientific studies, including morphological, biological, and sediment transport monitoring.

O8-71 cont.

13. Conclusion

The substantial scientific evidence developed since 2012 demonstrates that continued sand mining at current levels conflicts with ecosystem health and public trust values. The Draft SEIR fails to adequately address this evidence or comply with CEQA requirements.

a. Key Findings

The Independent Science Panel studies document significant impacts from sand mining operations, including persistent morphological changes and sediment budget effects. Climate change and sea level rise increase the value of retaining sediment in the Bay system. The Court of Appeal's decisions in the Baykeeper cases require proper public trust analysis weighing ecosystem health against economic benefits.

O8-72

b. Recommendations

Baykeeper recommends that the CSLC:

O8-73

1. Acknowledge the scientific evidence documenting environmental impacts from sand mining operations
2. Reject the inadequate Draft SEIR and require revision that meets CEQA standards
3. Conduct proper public trust analysis as mandated by the Court of Appeal
4. Consider alternatives that reduce environmental impacts, including volume reductions and enhanced temporal restrictions
5. Develop adequate mitigation measures based on current scientific understanding

O8-73 cont.

c. Request for Action

San Francisco Bay requires protection as a public trust resource. The CSLC has the authority to ensure that sand mining operations are consistent with ecosystem health and legal requirements. We request that the Commission address the deficiencies identified in these comments and conduct the thorough environmental analysis required by law.

Baykeeper stands ready to work with the Commission and stakeholders to develop approaches that meet both economic needs and environmental protection requirements.

O8-74

Respectfully submitted,

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Responses to O8 Comments: San Francisco Baykeeper

O8-1 The CSLC has received and considered San Francisco Baykeeper's September 29, 2025, comments. Please see individual responses below, as well as Master Responses D -Technical Studies, G -Public Trust Considerations, and E – Alternatives for additional information regarding uses of technical studies, consideration of alternatives, and the Public Trust.

O8-2 The CSLC has reviewed this summary list of topics. More detailed responses are provided below.

The CSLC acknowledges this statement of disagreement regarding the adequacy of the Draft SEIR and the request for recirculation. However, because the opinion expressed in the comment is not supported by facts, reasonable assumptions based on facts, or expert opinion supported by facts, the CSLC does not have enough information to provide a more detailed response to the recirculation request and declines to recirculate the SEIR in response to this comment.

O8-3 The CSLC acknowledges the information about Baykeeper's mission, experience, history, and engagement in scientific research on issues affecting the San Francisco Bay and Delta.

Regarding Public Trust considerations, the Court's decisions in *San Francisco Baykeeper v. California State Lands Commission* (2015) 242 Cal. App. 4th 202 and *San Francisco Baykeeper v. California State Lands Commission* (2018) 29 Cal. App. 5th 562 speak for themselves. Both predate the analysis presented in Draft SEIR Section 5.11, Public Trust (p. 5-25 et seq.). See Master Response G - Public Trust Considerations for additional information about the Commission's Public Trust considerations. Baykeeper's role in serving on the Sand Studies Technical Advisory Committee is acknowledged. See also Master Response D – Technical Studies related to the use of technical studies in the SEIR.

O8-4 Regarding the adequacy of the analytical baseline relied upon in the SEIR, see Master Response C -Reliance on the 2012 Baseline.

O8-5 Regarding the Commission's reliance on the analysis in the 2012 EIR, including the rationale for its decision to prepare a supplemental EIR, see Master Response B -Reliance on the 2012 EIR.

O8-6 Regarding the CSLC's decision to prepare a supplemental EIR rather than a subsequent EIR, see Master Response B -Reliance on the 2012 EIR. Regarding the baseline relied on in the SEIR's analysis of environmental impacts, see Master Response C -Reliance on the 2012 Baseline.

O8-7 Regarding the Commission's reliance on analysis in the 2012 EIR, see Master Response B -Reliance on the 2012 EIR. Regarding the CSLC's decision to prepare a supplemental EIR rather than a subsequent EIR, see Master Response B – Reliance on the 2012 EIR.

The comment correctly notes that the Draft SEIR acknowledges changes in marine mammal use of the San Francisco Bay based on data gathered since the 2012 EIR was certified. For example, the Draft SEIR describes gray whale population increases in Section 3.2.2.3 (p. 3.2-6 et seq.) based on references to multiple sources of 2025 data. Regarding humpback whales, Draft SEIR Appendix G (p. G-32), which is dated August 2025, states: "Recently, humpback whales have been observed more frequently feeding in the Central Bay. Occasionally humpback whales will swim into the Delta." Regarding harbor porpoise, Draft SEIR Appendix G (p. G-31) reports that the species "has recently reoccupied SF Bay after a 60-year absence… and can be found foraging for prey in the Central Bay. Harbor porpoises are one of the most common marine mammal species and the San Francisco Russian River population is estimated between 7,000 and 8,000 individuals..." (citations to reference material from 2017 and 2020 omitted).

The Draft SEIR concludes that the Revised Project would cause a less than significant (Class III) impact on gray whale, humpback whales, and harbor porpoise in the context of Impact BIO-1 regarding potential displacement (p. 3.2-21) and in the context of Impact BIO-3 regarding impacts on benthic habitat, infauna, epifauna, and foraging habitat (p. 3.2-22 et seq.). Because it is not clear from the comment what additional analysis is desired regarding these species, the CSLC does not have enough information to provide a more detailed response.

O8-8 See Master Response F -Sand Transport, Section 'Relic sand, limited inputs, and disconnected embayments,' which addresses this comment.

O8-9 See Master Response B -Reliance on the 2012 EIR, including the CSLC's consideration of new information developed since the 2012 EIR was certified and rationale for deciding to prepare a supplemental EIR.

O8-10 See Master Response F Sand Transport, Section 'Potential for impacts to open coast' and Section 'Climate change and sand transport.'

O8-11 The sand mined for Revised Project purposes is not the sediment the commenter refers to in the context of tidal marshes, which provide flood protection.

Questions about whether the Revised Project could contribute to economic risks from sea level rise, coastal erosion, or otherwise are outside the scope of CEQA. "Economic… effects of a project shall not be treated as significant effects on the environment" (CEQA Guidelines section 15131). Though economic changes must be addressed under CEQA if they will cause changes in the physical environment, "an economic… change by itself is not considered a significant effect on the environment" (*Chico Advocates for a Responsible Economy v. City of Chico* (2019) 40 Cal.App.5th 839, 847-848; *Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th 1004, 1019). Nonetheless, the comment has been included in the public record, where it may be considered by decision-makers and others outside the CEQA context. Such consideration may be informed by Master Response F – Sand Transport, which explains in part that scientific studies do not demonstrate or quantify a physical process connection between sand mining in the bay and sand depletion on the open coast along Ocean Beach. Since analysis of the Revised Project has not been shown to substantially affect the sand supply to Ocean Beach, the Revised Project would not influence the economic costs associated with managing Ocean Beach erosion.

As noted in McKee et al. (2024), marsh sediments are typically only 0-5 percent sand. The mining proposed in the Revised Project would remove sediment comprised entirely of sand (Fregoso et al. 2025),

and therefore does not affect the availability of mud, marsh sediments' primary component. Even if a small fraction of marshes are comprised of sand, hydrodynamic modeling (Anchor QEA 2023; CHE 2025) demonstrates negligible active transport pathways from the relatively deep areas of sand mining, where transport is primarily caused by tidal currents, to mudflats, the predominant source for marsh mud, where transport is primarily caused by wind-driven waves (Brand et al 2010; Lacy et al 2020).

O8-12 See Master Responses B – Reliance on the 2012 EIR and D – Technical Studies, which explain why the CSLC did not rely on the Independent Science Panel's 2024 synthesis of the technical studies identified in the SEIR.

O8-13 See Master Response H – Mineral Resources regarding non-renewable resource depletion. See also Master Response F -Sand Transport, Section Relic Sand, limited inputs, and disconnected embayments, Sand budget, Potential for impacts to open coast, and Climate change and sand transport.

O8-14 See Master Response H -Mineral Resources regarding non-renewable resource depletion. See also Master Response F -Sand Transport under the headings "Local depressions in mined areas," "Bed elevation changes outside of mined areas," and "Relic sand, limited inputs, and disconnected embayments."

O8-15 See Master Response F - Sand Transport under the headings "Bed elevation changes outside of mined areas," "Relic sand, limited inputs, and disconnected embayments," and "Sand budget."

O8-16 See Master Response F -Sand Transport under the heading "Potential for impacts to open coast."

O8-17 See Master Response F -Sand Transport under the heading "Local depressions in mined areas."

O8-18 See Master Response F -Sand Transport under the heading "Sand budget."

O8-19 See Master Response F -Sand Transport under the heading "Sand budget."

O8-20 See Master Response F -Sand Transport under the headings "Bed elevation changes outside of mined areas" and "Sand budget."

O8-21 See Master Response H -Mineral Resources regarding non-renewable resource depletion. See also Master Response F under the heading "Local depressions in mined areas."

O8-22 See Master Responses B -Reliance on the 2012 EIR and D – Technical Studies, which explain why the CSLC is relying on the 2012 EIR and considering studies in the SEIR that have been completed since the 2012 EIR was certified. See also, Master Response F -Sand Transport under the heading "Bed elevation changes outside of mined areas."

O8-23 The California Coastal Commission's May 2024 comments to the San Francisco Bay Conservation and Development Commission (BCDC) regarding the Independent Science Panel's sand mining findings report predates the issuance of the Draft SEIR and so cannot be a comment on the adequacy or accuracy of the Draft SEIR.

Nonetheless, the CSLC acknowledges the statements attributed to the Coastal Commission indicating that sand is "a protected coastal resource under the Coastal Act," that "sands in the Central Bay have been identified as a potential backup source of sand for beach nourishment and dune creation for San Francisco's South Ocean Beach Climate Adaptation project," and that transport pathways linking mining areas to outer coast beaches should be considered and resolved. It is unclear if the commenter is asserting that sand is protected or if it should remain in place for later extraction for use in beach restoration.[6] That multiple potential alternative beneficial uses of sand may exist is undisputed, but

[6] Notably, sand mined from the lease areas has also been used in various restoration projects, including the Crown Beach Restoration Project, Alameda Beach restoration and sea level rise defense, the Alameda Point-Least Tern habitat restoration, the Pier 94 Wetlands Restoration Project San Francisco, Port of San Francisco Restoration of natural wetlands, the San Francisco Water Emergency Transportation Agency's Alameda Naval Air Station Restoration of bird habitat nesting area, and the City and County of San Francisco Pier 70 Crane Cove Park beach replenishment, among others.

nonetheless outside the scope of CEQA's consideration of the potential effects of the Revised Project on the physical environment.

See also Master Response F -Sand Transport under the heading "Potential for impacts to open coast," which addresses transport of sand to the outer coast.

O8-24 See Master Response F -Sand Transport under the heading "Local depressions in mined areas."

O8-25 See Master Response F -Sand Transport under the heading "Bed elevation changes outside of mined areas."

O8-26 See Master Response F -Sand Transport under the heading "Bed elevation changes outside of mined areas."

O8-27 Precipitation falling directly on the open bay does not play a significant role in bay water levels during storm events. Extreme water levels associated with bay flood hazards are caused by a combination of high astronomical tides, regional ocean anomalies (e.g., El Niño), lower barometric pressure due to weather events, and wind patterns. In addition, the sand mining lease areas are in the middle of the bay and do not play any role in water levels at the shoreline, where bay waters can flood coastal development. Since there is no direct relationship between sand mining and coastal flooding, there is no need for the SEIR to consider changes to precipitation and atmospheric rivers that may occur due to climate change and that could exacerbate coastal flood risk. See also Master Response F -Sand Transport under the heading "Climate change and sand transport." See also Response O8-28.

O8-28 The expressed concerns regarding the impacts of intensified atmospheric rivers, which the commenter asserts will fundamentally alter the risk profile for sand mining operations through enhanced erosion potential, are outside the scope of CEQA. CEQA does not require analysis of the impact of existing environmental conditions, including future environmental conditions brought about by climate change, on the future users of a project (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 391). The Revised Project, if approved, would not intensify atmospheric rivers, and CEQA does not require the SEIR to

analyze the effects of atmospheric rivers or climate change upon the Project.

O8-29 CEQA Guidelines sections 15064.7 and 15064 speak for themselves. The opinion expressed in this comment about the SEIR's significance determinations is unsubstantiated by facts, reasonable assumptions based on facts, or expert opinion supported by facts. Without any details about the basis for the commenter's opinion, the CSLC does not have enough information to provide a more detailed response.

O8-30 The comment correctly notes that Table ES-1 in the Executive Summary identifies the significance conclusions for BIO-6 and BIO-9 each as a Class II impact (pp. ES-14, ES-15). This is consistent with the conclusions described and supported in Draft SEIR Section 3.2.5 in the context of Impact BIO-6 (p. 3.2-27 et seq.) and Impact BIO-9 (p. 3.2-33 et seq.). The comment also correctly notes that Table ES-1 notes the significance conclusion for Impact BIO-8 as a Class I impact (p. ES-14). However, based on consideration of updated ITPs and approved mitigation measure variances (described in Appendix F – Existing 2012 Project Mitigation (as Amended) and Incidental Take Permits), the impact conclusion for BIO-8 has been downgraded to Class II (Potentially Significant). See response O7-3 for details and updated SEIR text. No contradiction is indicated between the Executive Summary and the analysis of direct and indirect effects of the Revised Project.

The comment correctly observes the SEIR's conclusion that the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact identified in the 2012 EIR for Impacts BIO-1, BIO-6, and BIO-9. Compare Draft SEIR Section 3.2.5.1, 2012 Project (p. 3.2-18 et seq.) with Table ES-1 and Section 3.2.5's analysis of direct and indirect effects. Each reports that Impacts BIO-6 and BIO-9 would be a Class II impact. As described in the previous paragraph, the impact conclusion for BIO-8 has been changed as described in response O7-3. No contradiction is indicated amongst the Executive Summary, the analysis of direct and indirect effects of the Revised Project, and the impacts of the 2012 Project.

Because it is not clear what "new impacts" the commenter believes would occur, the CSLC does not have enough information to provide a more detailed response.

The comment correctly observes that the Draft SEIR identifies MM BIO-6, MM BIO-8a, MM BIO-8b, and MM BIO-9a for the 2012 Project (p. 3.2-20) and for the Revised Project in Table 6-1. Mitigation Monitoring Program (p. 3.6-5). As explained on Draft SEIR page 3.2-20, "As noted in Appendix F, *Existing 2012 Project Mitigation (As Amended) and Existing Incidental Take Permit Documents*, although the name of MM BIO-9a remains, the conditions of the ITP were adopted, and a variance was authorized February 18, 2015, which replaced the conditions of MM BIO-9a, and MM BIO-9b entirely with the conditions of the ITP." Also, see the revisions to Appendix F of the SEIR for corrections regarding the adopted ITP and approved variance dates related to the 2012 EIR Mitigation Measure BIO-8a.

O8-31 See Master Response C – Reliance on the 2012 Baseline, which explains why the Draft SEIR relies on the 2012 baseline, and Master Response B – Reliance on the 2012 EIR about the CSLC's appropriate reliance on the 2012 EIR in the SEIR and consideration of studies that have become available since the 2012 EIR was certified. Regarding the Draft SEIR's analysis of impacts on gray whale, humpback whale, and harbor porpoise, see Response O8-7. Regarding impacts of Revised Project-induced underwater noise, see Master Response K – Underwater Noise.

The comment states that San Francisco Bay has become a "feeding ground" for gray whales (*Eschrichtius robustus*) and cites an article that discusses gray whale occurrence within Central San Francisco Bay and global events effecting the East Pacific Ocean population. Gray whales have been entering San Francisco Bay for decades, for a variety of reasons, of which feeding may be one, although the commenter's citation does not discuss what gray whales are doing once in San Francisco Bay as suggested in the comment. The 2012 EIR and the SEIR identify the presence of gray whales in San Francisco Bay-Estuary as well as recent population fluctuations, mentioned by the commenter. See, for example, SEIR Section 3.2 (page 3.2-6). Potential use of Bay-Delta forage by these animals was one of the criteria considered in the SEIR's analysis of potential effects. Input provided about the "unusual Mortality Event" for gray whales is consistent with information presented in the Draft SEIR (see Section 3.2, page 3.2-6). The CSLC has considered

the suggestion presented that continuing sand mining operations might disrupt gray whale utilization of Bay-Delta habitat; however, aggregate sand mining activities have been ongoing in this area for more than 75 years without reports or other documentation of negative interactions between sand mining equipment or activities and marine mammals.

Further, the SEIR conducted an extensive review of current fisheries stocks within the Revised Project Study Areas (Appendix G, Biological Resources Supplemental Information), including those species potentially used by humpback whales, and determined that the Revised Project would not result in any significant changes to either the abundances of these fish and invertebrate stocks or to their availability to foraging humpback whales. Regarding global event effects on humpback whales, see Master Response I - Marine Mammals. The citation (Markowitz. T. et al. 2024) offered as evidence of the suggestion that underwater noise generated by Revised Project activities may be affecting humpback whale foraging does not support the commenters assertions; the citation only documents the recent increase in humpback whale occurrence in San Francisco Bay and suggests that the potential for ship strikes could increase.

Regarding potential effects of the Revised Project on critical feeding and breeding periods for harbor porpoises, the 2012 EIR, Draft SEIR, and the commenter agree that aggregate sand mining has been ongoing in the Bay-Delta for over 75 years. The 2012 EIR and Draft SEIR Appendix G recognize that the harbor porpoise population inhabiting the Bay-Delta has been steadily increasing in numbers since near extinction during the 1940s. During this same period, the San Francisco-Russian River harbor porpoise stock, of which the Bay-Delta population is a component, has steadily increased in numbers to a population reported at 7,000-8,000 in 2017 (SEIR Section 3.2, page 3.2-6). No known ship strikes or other forms of harassment of harbor porpoises have been documented in connection with sand mining equipment or activities. The steadily increasing population would indicate that ongoing sand mining activities do not have a significant adverse effect on harbor porpoise feeding or reproduction.

O8-32 See Master Response C -Reliance on the 2012 Baseline, which explains why the Draft SEIR relies on the 2012 baseline, and Master Response B -Reliance on the 2012 EIR about the CSLC's appropriate reliance on the 2012 EIR in the SEIR and consideration of studies that have become available since the 2012 EIR was certified. Regarding climate change impacts on fish species, see Master Response I - Marine Mammals, for a better understanding of a CEQA lead agency's responsibilities in assessing global events relative to a specific project.

All fish species occurring within the proposed Lease Areas (including delta smelt, longfin smelt, green sturgeon, Chinook salmon, steelhead trout, and Pacific herring) were assessed for the 7-year period between 2016 and 2023 (Appendix G, Biological Resources Supplemental Information). These updated fisheries stocks were compared to those used in the 2012 EIR and any significant differences were discussed in Draft SEIR Section 3.2 (pages 3.2-4 to 5, 3.2-10-12, 3.2-14-16). Potential changes in resident and migratory fish stocks were evaluated as part of the analysis of potential impacts on marine biological resources.

The Draft SEIR analyzes potential effects on Dungeness crab (*Metacarcinus magister*), including juveniles inhabiting the Bay-Delta, in the context of Impact BIO-7 (Draft SEIR, p. 3.2-28 et seq.) and in Draft SEIR Appendix G (p. G-19). Although Dungeness crab represents a significant commercial species, no commercial or recreational fishing for the species is allowed within the Bay-Delta. Juvenile Dungeness crabs typically utilize eel grass beds and sand and mud seafloor habitats before migrating back to the ocean to further mature. Potential entrainment of Dungeness crabs was extensively discussed in the 2012 EIR and documented in AMS 2009b. The 2012 EIR estimated that between 1 and 79 Dungeness crabs would potentially be entrained by aggregate sand mining activities representing between 0.01-0.08 percent of the commercial landings at San Francisco Ports (2012 EIR, p. 4.1-27; see also, 2012 EIR Appendix E). This effect was determined to be less than significant (2012 EIR, p. 4.1-49; see also, Draft SEIR, p. 3.2- summarizing impacts of the 2012 EIR). Based on continued historic yearly fluctuating crab populations, the same conclusion was reached for the Revised Project (Draft SEIR, p. 3.2-28 et seq.).

O8-33 The Draft SEIR considers the Southern resident killer whale (*Orcinus orca*) in the special status species table contained in Appendix G (p. G-33). However, as noted there and by the commenter, this marine mammal is found in deeper waters outside the Golden Gate, i.e., outside the study area for the SEIR. For this reason, consistent with CEQA, the Draft SEIR does not address the designation of waters outside the Golden Gate as critical habitat.

Regarding the Revised Project's potential impacts on migrating salmonids, see Impact BIO-9 (Draft SEIR, p. 3.2-33 et seq.). Consistent with the conclusion reached in the 2012 EIR, the Draft SEIR concludes that the Revised Project could have a potential significant impact on salmonids due to entrainment and mortality during sand mining. Accordingly, the Draft SEIR recommends implementation of Mitigation Measure BIO-9b, which would require operational restrictions as well as the avoidance and minimization of entrainment of Chinook salmon.[7]

O8-34 The commenter's concern deals with their perceived "fundamental limitations" of the cited benthic infauna studies in the SEIR to detect potential changes in benthic infaunal community composition due to potential impacts from aggregate sand mining. Unfortunately, the commenter inaccurately characterizes the multiple studies since 2008 conducted to characterize benthic infauna community composition and potential impact from aggregate sand mining by citing text from AMS (2025) out of its original context. The commenter specifically references statements made in AMS (2025) to support their assertions that past studies conducted to assess potential effects of aggregate sand mining on benthic infaunal community composition and temporal changes have been poorly designed or executed and therefore are incapable of detecting potential effects. This assertion is contradictory to the findings of the

[7] More generally, see also Impact BIO-1, regarding physical displacement of special status fish species (Draft SEIR, p. 3.2-21); Impact BIO-4, regarding the potential to discharge suspended sediments and thereby affect fish populations (Draft SEIR, p. 3.2-24 et seq.); and Impact BIO-5 regarding turbidity and related effects on fish species (Draft SEIR, p. 3.2-26 et seq.). Consistent with conclusions reached in the 2012 EIR, each of these impacts was determined to be less than significant.

site-specific studies themselves, as cited in the SEIR (AMS 2009; NewFields 2018a, 2020; AMS 2025).

The intent of the AMS (2025) analysis of AMS (2009) and NewFields (2018a) was to assess whether any statistically significant temporal differences could be detected in benthic infaunal community composition in aggregate sand mining leases over the time period between the two studies. Unfortunately, critical differences in study design, as required by the responsible regulatory agencies mandating the NewFields (2018a) study, and data collection methods and analysis of NewFields (2018b; 2020) prevented AMS (2025) from effectively evaluating potential temporal changes. The statements quoted by the commenter refer specifically to this attempt at assessing temporal changes in mining lease areas and identifies how any future studies to evaluate temporal changes in mining leases, especially Central Bay locations must be included to effectively assess longer term temporal changes that might be attributed to aggregate sand mining activities.

Additionally, the findings of AMS (2025) do not negate the individual findings of AMS (2009a) or NewFields (2018b; 2020). These studies, which assessed infaunal communities in recently mined, never mined, and areas mined approximately 2-years earlier (AMS 2009a), including a very intensive assessment of recent mining activities in one specific mining lease area and natural recovery at that location (NewFields 2018b; 2020), clearly determined that no statistically significant effect from sand mining activities could be detected on benthic infaunal community composition at any of the locations in Central Bay and the Delta. In the case of the AMS (2009a) study, no statistically significant differences in community composition could be identified between comparison sites, sampled mining locations, and any of the previously mined sites. In the case of the NewFields (2018b; 2020) studies, nearfield comparison sites were used to compare both recent impact and timed recovery samples for potential changes in benthic infaunal community composition. They again concluded that no statistically significant effects of sand mining activities could be detected. These independent study findings validate the SEIR impact assessment that no significant impact occurs from Revised Project

mining activities on benthic infaunal communities in the Revised Project study areas.

O8-35 This comment refers to the SEIR's analysis of potential underwater noise generated by Revised Project mining activities and its potential effect on marine mammals. See Master Response K-Underwater Noise for clarification on this concern.

O8-36 See Master Response F -Sand Transport, under the heading "Local depressions in mined areas."

O8-37 See Master Response F -Sand Transport, under the heading "Sand budget."

O8-38 See Master Response F - Sand Transport, under the headings "Sand budget" and "Potential for impacts to open coast."

O8-39 See Master Response F - Sand Transport, under the heading "Climate change and sand transport."

O8-40 See Master Response E – Alternatives regarding the range of alternatives analyzed in the SEIR. Consistent with input received in this comment, the SEIR does describe and analyze an alternative that would involve cessation of mining: see Section 4.4.1, No Project Alternative.

O8-41 See Master Response E – Alternatives regarding the range of alternatives analyzed in the SEIR. Consistent with the recommendation in this comment, the SEIR analyzes a full range in extraction volumes between the Revised Project as proposed and a 100-percent reduction (i.e., the No Project Alternative). Between these extremes, the SEIR analyzes a Reduced Project Alternative. See SEIR Section 4.4, Alternatives Evaluated in the SEIR (p. 4-9 et seq).

O8-42 The potential effects of the Revised Project associated with temporary displacement of marine mammals that may be present in San Francisco Bay and within the Revised Project lease areas were considered in Section 3.2.5.2 of the SEIR. The SEIR determined that a continuation of mining activities, including a reduction in annual mining extraction volumes (compared to those previously authorized), would not cause a new or significant impact or

increase the severity of an impact on special status species from displacement.

Regarding fish populations utilizing Revised Project lease areas, SEIR Section 3.2.5 explains that the primary source of entrainment of special status fish species is through the suction head water intake pipe, which is now (since 2013) equipped with a positive barrier fish screen, the purpose of which is to prevent entrainment of these species through the water intake line. The only potential source of entrainment under the Revised Project is directly through the suction head itself; however, for the reasons presented in the SEIR in the context of Impact BIO 8, "[m]inimal entrainment, if any, occurs through the drag head itself" (p. 3.2-29) and "the potential for entrainment… by the Revised Project through the water intake for the suction drag head and the drag head itself has been significantly reduced but not eliminated." Based on the very limited potential entrainment of fish, as determined by CDFW in October 2014 as part of its ITP process, seasonal limitations are not required to address the potential for entrainment of special status fish species. Potential impacts on special status fish species would be mitigated through the implementation of Mitigation Measures BIO-8 and BIO-9 as described in the SEIR.

As discussed in Response O8-34, the Revised Project would result in no significant impacts to benthic infaunal communities. As a result, no temporal mitigation measures are warranted for such communities.

O8-43 See Master Response F -Sand Transport, under the heading "Local depressions in mined areas."

O8-44 See Responses O8-31 and O8-32, as well as Master Response I, Marine Mammals, and Master Response K - Underwater Noise.

O8-45 See Master Response F– Sand Transport, under the heading "Bed elevation changes outside of mined areas."

O8-46 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-47 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-48 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR. The success or failure of San Francisco's Ocean Beach Climate Adaptation Project are beyond the scope of the CEQA process for the Revised Project.

O8-49 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR. Separate from the SEIR's analysis of impacts of the Revised Project, CSLC observes that the beach nourishment activities described in the comment are similar to projects identified by the Applicants in their lease application, Table K-1 supplemental information (Hanson 2020).

O8-50 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR. See also Master Response F for information about sand transport between San Francisco Bay and the outer coast.

O8-51 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR. Regarding the CSLC's consideration of technical studies that have become available since the 2012 EIR was certified, including why CSLC chose to rely on the studies themselves rather than the Independent Science Panel's summary of those studies, see Master Responses B – Reliance on the 2012 EIR and D – Technical Studies.

O8-52 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-53 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR. Regarding Dungeness crab, see Response O8-32. See also, Draft SEIR page 3.2-10, which discloses that "Dungeness crabs… are the most commercially important true crab in the Pacific Northwest and California" and that "juveniles [of the species] utilize San Francisco Bay for nursery habitat" and page 3.2-16 regarding the commercial fishing of Dungeness crab. The comment correctly notes that the

Draft SEIR concludes that impacts of the Revised Project on the species would be less than significant (Impact BIO-7, p. 3.2-28).

Regarding the Draft SEIR's analysis of impacts on gray whale, humpback whale, and harbor porpoise, see Response O8-7 and Master Response I - Marine Mammals. Specifically, regarding gray whale feeding habitat, see Response O8-31.

O8-54 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-55 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-56 See Response O6-11 and Master Response F- Sand Transport regarding the sand that would be mined if the Revised Project is approved. See Master Response G, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-57 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-58 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-59 See Master Response G – Public Trust Considerations regarding the Commission's evaluation of Public Trust considerations in the SEIR.

O8-60 CEQA Guidelines section 15130(b) identifies elements that are "necessary to an adequate discussion of significant cumulative impacts: Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." Consistent with the CEQA Guidelines, the SEIR for the Revised Project relied on the list of projects approach. See, for example, Draft EIR section 3.1.5.1, p. 3.1-5 (SEIR "provides a list and map identifying other projects near the Lease Areas that would cause incremental impacts that could combine with those of the Revised Project to cause or contribute to cumulative effects…. the

Commission… has prepared a list of past, present, and reasonably foreseeable probable future projects that could result in related or cumulative impacts."

Contrary to the suggestion in the comment, the CSLC affirmatively considered the ongoing impacts of past actions. See Draft SEIR p. 3.1-5, which states: "Existing conditions within the cumulative impacts area of effect reflect a combination of the natural condition and the effects of past actions in the affected area."

O8-61 The Independent Science Panel (ISP) findings report (Battalio et al. 2024) referenced in the comment acknowledges the limitations of its own conclusions regarding the shared pool of sand between the Bay and ocean. The comment takes the findings out of context. As stated in Section 3.1 of the ISP findings report, "…beaches were not specifically included in the study, and the studies did not determine to what extent the transport pathways linked mining areas to beaches."

O8-62 See Master Response C -Reliance on the 2012 Baseline, which explains why the Draft SEIR relies on the 2012 baseline, and Master Responses B and D regarding the agency's consideration of and reliance on technical studies that were completed after the certification of the 2012 EIR. As explained therein, the CSLC elects to rely on the studies themselves rather than on the ISP's summary of them. Further, contrary to the suggestion in this comment and as explained in Response O8-60, the CSLC affirmatively considered the ongoing impacts of past actions.

O8-63 See Master Response F -Sand Transport, under the heading "Climate change and sand transport."

O8-64 See Responses O8-31, O8-32, O8-33, and O8-42, and Master Response I -Marine Mammals, which address the input provided in this comment.

O8-65 Economic considerations such as the suggested "cost shifting" are outside the scope of CEQA, which focuses on the significance of project-induced changes on the physical environment. Nonetheless, this comment has been included in the record where

it may be considered by decision-makers and others outside the CEQA process.

Separately and to clarify, the Revised Project would not increase Bay-Delta extraction above the existing volumes authorized by CSLC. To the contrary, as stated in Draft SEIR Section ES.1.1, "The Applicants applied to the CSLC to authorize continued commercial mining of sand… at reduced maximum annual and total sand mining volumes over the proposed lease term (Revised Project) relative to the maximum annual and total volumes previously evaluated under the 2012 EIR for the term of the prior Leases. More specifically, the Revised Project proposes a reduction in the authorized annual materials extraction volume in four out of the six existing lease areas (inclusive of the private Middle Ground lease): the authorized lease volume would be reduced by 289,866 cubic yards per year [cy] from 2,039,866 cy to 1,750,000 cy. The proposed authorized volumes in two Central Bay leases would remain unchanged." See also Draft SEIR Section 2.1, Project Summary, which provides a similar disclosure. In addition, the analysis and determinations by the Commission do not prejudice the authority inherent in responsible agencies such as BCDC from placing further limits based on permitting considerations, similar to those currently established.

O8-66 See Response O8-40, which addresses a substantially similar comment.

O8-67 See Response O8-34.

O8-68 The comment correctly notes the Anchor report's (Anchor QEA 2023) acknowledgement that some uncertainty exists. Nonetheless, the report provides, and itself is supported by, substantial evidence. The modeling is at or above the standard of practice; the model has extensively been compared to data (as discussed in Section 2.3 of the report) and includes a long list of citations of prior model development and application.

The first part of comment about sediment transport model uncertainty is true of all sediment transport models.

Regarding model skill assessment, this is also a standard technical acknowledgement by Anchor – the acknowledgement recognizes that the exact physics of sediment moving between suspension and the bed is not perfectly understood. However, the model has been calibrated and validated to data and is top of its class for sediment transport modeling. The following quote from the report provided in the comment provides useful context for the acknowledged uncertainty. It says this: "However, when the comparisons between observed and predicted SSCs indicate that the model is predicting a similar magnitude of concentration as the observations, captures the seasonal and spatial trends, and captures the observed tidal timescale variations and along-estuary spatial structure, this suggests that the model is capturing the primary physical processes responsible for sediment transport in the system."

To a degree the decision to use a single size class as a simplifying assumption is validated by the quality of the model predictions relative to data. Further, other modeling done for this study by CHE used multiple size classes and had similar results to the Anchor model. For a discussion comparing the CHE and Anchor models, see Master Response F – Sand Transport. As observed there, both models predict very small change in sediment on the open coast. This general agreement between two models performed by different firms, which arrive at similar results overall (besides just the open coast predictions) indicate that both models are good quality and their conclusions about potential sand mining impacts are reliable. CHE also has a sensitivity analysis run in their appendix that looks at the effect of single grain size compared to multiple grain size – the comparison in this CHE appendix shows that electing to use a single size or multiple sizes does not have a meaningful effect on results.

O8-69 See Responses O8-31, O8-32, O8-33, O8-34, and O8-34, as well as Master Response I -Marine Mammals, which address input received regarding Bay habitats, protected marine mammal species, and other special status species.

O8-70 See Master Response A – Public Review Period, which discusses the public review and noticing that occurred along with the reasoning used by CSLC, as the CEQA lead agency, for not extending the public review period.

O8-71 See Master Response B -Reliance on the 2012 EIR, regarding the Commission's decision to prepare a Supplemental EIR. For the reasons explained in these responses to comments, no substantial new evidence has been provided regarding morphological impacts, marine mammal habitat, or the sediment budget.

See Master Response C -Reliance on the 2012 Baseline, regarding the analytical baseline. See Response O8-41 regarding the SEIR's alternatives analysis, including the SEIR's consideration of alternatives that would meaningfully reduce extraction volumes. See Response O8-42 regarding the CSLC's decision not to require seasonal restrictions. The mitigation measures identified in the Draft SEIR, as further considered in these responses to comments, are adequate for purposes of CEQA. This comment's unsubstantiated suggestions otherwise do not provide enough information for the CSLC to reconsider earlier evidence supporting the conclusions reached; therefore, no more detailed response is possible.

O8-72 See Master Response B – Reliance on the 2012 EIR, regarding the technical studies that have been completed since the 2012 EIR was certified and the CSLC's decision to review and consider the studies themselves rather than the ISP's summary of them in the SEIR. See also Master Response D – Technical Studies. Otherwise, the general unsubstantiated opinions expressed in this comment do not provide enough information for the CSLC to provide a more detailed response.

O8-73 Consistent with the suggestion in this comment, Chapter 3 of the Draft SEIR discloses and considers scientific evidence of environmental impacts from sand mining operations. Master Response G – Public Trust Considerations explains how the SEIR properly evaluates Public Trust considerations. Master Response E describes how the SEIR considers alternatives that reduce environmental impacts, including a full range of reductions in extraction volume; and identifies applicable mitigation measures to minimize impacts and meet the requirements of CEQA. Because the Draft SEIR, as clarified and modified in this Final SEIR, meets the requirements of CEQA, the Commission finds it to be adequate.

O8-74 See Master Response G – Public Trust Considerations, regarding the Commission's evaluation of Public Trust considerations in the SEIR.

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September 29, 2025

Dear Commissioners,

Thank you for the opportunity to comment on the Draft Supplemental Environmental Impact Report (SEIR) for the San Francisco Bay and Delta Sand Mining Project. Farallon Institute scientists have been monitoring upper trophic predators and their prey in the Central San Francisco Bay since 1996 (with Point Reyes Bird Observatory prior to 2011). O9-1

There have been many substantial changes in circumstances since the 2012 EIR, which have not been adequately characterized by the Draft SEIR. Once these changes have been characterized and the ecology of relevant organisms considered, adaptive management strategies could be examined. But given the current Draft SEIR, Farallon Institute supports the No Project Alternative based on the evidence/citations and rationale provided in this letter. O9-2

Climate change has been increasing rapidly since 2012, from changes in basic ocean physics (e.g., upwelling along the California coast[1]) to increasing frequency and intensity of marine heat waves[2], and cumulative impacts of El Niño events, Pacific Decadal Oscillation extremes and global warming[3]. Scientists are now viewing a 1.5°C temperature increase as inevitable, with severe effects on marine ecosystems[4]. O9-3

The Central San Francisco Bay (SFB) is an important transition zone from the ocean to estuary. Such areas have exceptionally high biodiversity and trophic transfer (the transfer of energy and nutrients from the physical system up to top predators), supporting a richer community than either adjacent marine or estuarine waters separately[5]. Despite this richness, the Central SFB lacks appropriate O9-4

[1] Bograd et al. 2023 https://doi.org/10.1146/annurev-marine-032122-021945
[2] Oliver et al. 2018 https://www.nature.com/articles/s41467-018-03732-9
[3] Sen Gupta et al. 2020 https://www.nature.com/articles/s41598-020-75445-3
[4] Santana-Falcón et al. 2023 https://doi.org/10.1038/s43247-023-01002-1,
Reisinger et al. 2025 https://doi.org/10.1146/annurev-environ-111523-102029
[5] Cloern et al. 2007 www.pnas.org_cgi_doi_10.1073_pnas.0706151104;
Raimonet & Cloern 2017 https://doi.org/10.1111/gcb.13546,
Intergovernmental Panel on Climate Change 2019 https://www.ipcc.ch/srocc/chapter/chapter-5/,
Preston et al. 2025 https://doi.org/10.1038/s44183-025-00128-3

protections against anthropogenic threats, largely due to the complex nature of the system and challenges translating science to management and policy[6].

The Central SFB is being utilized by increasing numbers of marine organisms, serving as a climate refuge when ocean conditions are poor, including endangered species and benthic foraging species[7]. Sand mining effects have been inadequately considered on the myriad species which overlap with the mining lease areas in the Central SFB. The SEIR has not adequately considered:

- Central SFB and especially West-Central SFB concentrations of certain species
- Central SFB species' demographic changes since 2012
- Regional context, especially important since the Central SFB is a migration corridor through which all species moving in/out of the bay have to pass, and it is a transition zone with high use by marine as well as bay species
- Metapopulation changes, particularly important for endemic species, and/or those species which are declining in other portions of their range (making the Central SFB relatively more important)
- Proportion of overlap of mining lease areas, and cumulative duration of mining activities, with respect to organisms which are increasingly using the Central SFB and especially regarding limited-range organisms
- Appropriate analyses or summaries of rare, seasonal, or intermittently-pulsed species, conducted in a manner by which to be able to detect signals of change

O9-4 cont.

Additionally, the SEIR contains unreferenced citations and instances of unreliable/unscientific citation sources (e.g., SF Gate). We have encountered inaccurate information in the SEIR, and instances where important data was omitted.

O9-5

The Central SFB is a dynamic habitat and organisms are specifically adapted and attracted to this. Some studies exist - studies since 2012 investigated physical movement of sand, and limited (and flawed) studies on low-taxa biology (benthic infauna). Changes to ecology of demersal fishes, crabs, and benthic-pelagic webs have not been evaluated, yet studies on biological effects on these higher taxa are possible. Direct studies of use of similar highly-dynamic sand wave habitats in other bays/estuaries have yielded surprising results, including the extreme importance of these habitats for many species, including groundfish and salmon[8].

O9-6

[6] Columbano et al. 2025 https://doi.org/10.15447/ sfews.2025v23iss3art1

[7] Saenz et al. 2006, https://doi.org/10.5038/2074-1235.34.1.681,
Stern et al. 2017 https://doi.org/ 10.1578/AM.43.6.2017.691,
Seher et al. 2022, https://doi.org/10.3354/meps14028,
Markowitz et al. 2024, https://doi.org/10.1002/aqc.4107

[8] Greene et al. 2017, https://doi.org/10.3390/geosciences7040107
Greene et al. 2020, https://doi.org/10.1016/B978-0-12-814960-7.00014-2
Greene et al. 2021, https://doi.org/10.1016/oceano.2121.06.002
Baker et al. 2021, https://doi.org/10.1016/j.fishres.2021.106067

In summary, inadequate characterization of the above species, population demographics, food web interactions and spatio-temporal considerations makes it impossible to adequately consider biological or ecosystem effects of sand mining. O9-7

Unfortunately we have not had sufficient time to review the entire SEIR plus the 2012 EIR documents, and requests for an extension were not granted. The sections that we were able to review, either entirely or partially, are listed here. O9-8

3.2 BIOLOGICAL RESOURCES

3.2.1 Baseline Conditions

The baseline definition is inadequate. Since ongoing mining disturbance is already defined as part of the baseline condition, negative effects of mining disturbance are not considered. O9-9

3.2.2.2 Physical Environmental Setting - Turbidity and Nutrients

This section does not adequately address ecological effects. Ecologically, turbidity plumes are spatially large in relation to a stand of eelgrass, the territory of many benthic organisms, limited-range predators (especially those provisioning offspring), and migratory species operating at their physiological maximum for which Central SFB is a migratory stopover point. Field observations of sand mining note that a plume is generated the entire time mining is occurring, which can be a large portion of the day, for many different days, in the center of prime predator foraging habitat[9]. Cumulative spatio-temporal extent of turbidity plumes should be quantified from records of mining tracks on various spatial scales, from seasonally to annually, such that effects on the above-mentioned biological categories can be assessed, especially in years with poor ocean climate conditions. O9-10

3.2.2.3 Open Water Pelagic Environment - Plankton Community & Zooplankton

This section appears to largely rely on data from the upper estuary and not the Central SFB. For example, a statement that the Bay-Delta is classified as a high nutrient, low chlorophyll zone (Cloern 2001) may be true for the upper estuary, but not the Central SFB with high chlorophyll content connected to the adjacent coastal waters[10]. Additionally, the changes to plankton and zooplankton in the Central Bay (as connected to the adjacent coastal waters[11]) have not adequately been acknowledged or addressed here, particularly with regards to the now rapidly changing marine climate. The Central SFB is where most of the sand removal occurs, so characterization of this area should be accurate and predominant. O9-11

3.2.2.3 Open Water Pelagic Environment - Pelagic Fish Community O9-12

Baker et al. 2024, https://doi.org/10.2139/ssrn.4896945

[9] J. Thayer/Farallon Institute unpubl. data

[10] Cloern & Jassby 2012 https://doi.org/10.1029/2012RG000397

[11] Raimonet & Cloern 2017 https://doi.org/10.1111/gcb.13546

This section states "To accurately assess the potential effects of the Revised Project on the pelagic fish community, data from the Interagency Ecological Program (IEP) was reassessed at the same locations as in the 2012 EIR (Appendix G, Biological Resources Supplemental Information) for the years 2016-2023." Appendix G is fraught with errors (specific comments provided in Appendix G section, below), does not provide measurement units nor methodology for its summaries, and neglects to examine available data on invertebrates which are available from IEP trawls, particularly for Dungeness crab. Therefore, no accurate assessments of the potential project effects can currently be conducted.

This section also conspicuously omits declines in the SFB Pacific herring population, truncation in herring age structure (fewer age classes in the population and shorter life span), and increased population variability since 2012[12].

O9-12 cont.

3.2.2.3 Open Water Pelagic Environment - Marine Bird Community

This section contains many unreferenced citations as well as unreliable/unscientific sources (e.g., SF Gate). This is a problem because this section contains inaccurate information and sometimes important information has been omitted. The SEIR needs to be based on actual data.

For example, the SEIR states "In 2023, there were 3,900 Brandt's cormorant (*Phalacrocorax penicillatus*) nests on Alcatraz Island alone." This is incorrect as there were 4,825 nests in 2023[13], almost 25% more than stated, a significant difference. The SEIR states that "This upward trend is likely due to changes in prey availability and reproductive success" but neglects to put this into context spatially or environmentally. The SEIR goes on to state that the population since 2023 has "remained at healthy levels" which is also incorrect. Significant population changes have occurred with numbers plummeting in 2024 to 1,245 nests[14], a level similar to that observed during the Northern anchovy population crash (~2011-2016[15]). However, 2024 Alcatraz numbers still exceeded those of the largest colony for this species (SE Farallon Island), despite restrictions at/around SEFI on fishing, light pollution, benthic disturbance, and human access/disturbance.

O9-13

The outer coast exhibits higher ocean climate variability and less prey diversity than inside the Central SFB, and SFB seabird populations have demonstrated more stability and higher productivity, demonstrating the importance of the Central SFB as a climate refuge[16]. There has been a coastward

[12] Thompson et al. 2017 https://calcofi.org/downloads/publications/calcofireports/v58/Vol58-Thompson_pages_77-94.pdf
Sydeman et al. 2018 https://doi.org/10.1016/j.fishres.2018.04.020
CDFW 2019 https://www.wildlife.ca.gov/Fishing/Commercial/Herring/FMP
CDFW 2024 https://marinespecies.wildlife.ca.gov/pacific-herring/true/
Thayer et al. 2021 https://doi.org/10.1016/j.marpol.2020.103884

[13] Post et al. 2023 Report to the National Park Service

[14] Post et al. 2024 Report to the National Park Service

[15] MacCall et al. 2015 http://dx.doi.org/10.1016/j.fishres.2015.11.013, Thayer et al. 2017

[16] Saenz et al. 2006 http://www.marineornithology.org/PDF/34_1/34_1_43-49.pdf
Seher et al. 2022, https://doi.org/10.3354/meps14028
J. Thayer/Farallon Institute updated unpubl. analysis

meta-population redistribution of Brandt's cormorants, including into SFB[17], yet this urban setting presents many challenges for seabirds, including high levels of fishing, boating, noise/light/chemical pollution, benthic disturbance, and human disturbance. For example, entire cormorant sub-colonies on Alcatraz Island were abandoned in 1998 and again in 2007 due to disturbance[18]. Risk of cumulative effects is very high, which should be seriously considered in relation to this redistribution of the metapopulation of Brandt's cormorants (a species endemic only to the CA Current ecosystem) as well as other seabirds.

O9-13 cont.

There are multiple uses of Audubon 2018 as a citation, yet this citation is not referenced and thus the reader has no way to assess that citation or its accuracy, as it is not a scientific document.

Birds such as Western Gull, Western/Clark's grebe, Forster's and Caspian tern, common murre, scoters and loons are omitted from 2012 EIR, yet overlap regularly (some seasonally) with sand mining lease areas, and there is documented interaction with mining barges and resulting turbidity plumes[19].

3.2.2.3 Open Water Pelagic Environment - Marine Mammal and Sea Turtle Communities
This section also contains many unreferenced citations as well as unreliable/unscientific sources (e.g., SF Gate).
Regarding bottlenose dolphin, the SEIR states, "..In warm years, bottlenose dolphins (*Tursiops truncatus*) have been sighted near the Central Bay dredge leases between the Golden Gate and Alcatraz Island." Additional data are available, as these dolphins have also been sighted along the southern edge of Central SF Bay and foraging off Crissy Field[20], in the area of the sand mining leases.

Regarding gray whale, the SEIR states "...Between 2018 and 2023 there was an unusual mortality event that decreased the population by nearly 45 percent." Additional data underscore the severity of the population decreases. There are significant demographic changes in the gray whale population since the 2012 EIR. Population estimates for 2025 are even lower than those from 2023, significantly lower than any other estimate since before the 1990s, coupled with record low calf production[20]. Gray whales have begun engaging in previously rare or unobserved behaviors - a normally benthic forager, they have been observed foraging on anchovies and utilizing central California as a summer foraging ground rather than a migratory stop-over, likely strategies in response to stress from a changing environment[21]. Thus, the Central SFB needs heightened examination of both individual and cumulative risks with regards to resource use by gray whales.

O9-14

Humpback whale populations have changed substantially since the 2012 EIR (see NMFS stock assessment). Humpback whale presence in the Central SFB is conspicuously omitted from this section, yet has increased exponentially[22], with humpbacks being sighted daily by 2025[20]. Notably, many of the humpbacks in the Central SFB are from one of the endangered Distinct Population Segments[22].

[17] Ainley et al. 2018 https://doi.org/10.1016/j.biocon.2017.11.021
[18] Thayer et al. 1998, Acosta et al. 2007
[19] Saenz et al. 2003 Report to the National Park Service, J. Thayer/Farallon Institute unpubl. data)
[20] W. Keener/Marine Mammal Center, pers. comm.
[21] Webber et al. 2024 https://doi.org/10.1578/AM.50.2.2024.132
[22] Markowitz et al. 2024, https://doi.org/10.1002/aqc.4107

3.2.2.4 Benthic and Demersal Environment - Soft Substrate
This section mentions several studies, AMS 2009 and 2024 and Newfields 2018 and 2020. The assessments of the benthic infauna contained flaws in study design/execution, and insufficient field studies. AMS 2024 was not a new field study; just a review of two previous benthic studies and some research papers resulting in a short 12 page document with a lot of references and inadequate treatment of problems with previous studies. For example, there were no real baseline conditions because mining had already been occurring for decades. AMS 2009 concluded high turnover for benthic organisms due to highly dynamic conditions, currents, etc., but was actually inconclusive due to poor overlap of sampling with mined areas and small sample size which would not stand up to peer review. AMS 2018 utilized sediment profile imaging (SPI) to observe contents of the sediment, with methodology to initially sample, then conduct mining, then re-sample again in 6, 12, 18mo. However the first re-sampling only occurred at 12mo so it was difficult to conduct temporal comparisons, and not all sample points were mined, also resulting in a very low sample size, inadequate from which to draw robust biological conclusions.

On page 3.2-7, the results of the benthic infauna assessments categorize the community as comprised of 100 taxa being "low diversity". This sounds like high rather than low diversity, but if 100 taxa is low relative to what is expected given other Central Bay sites, the SEIR needs to provide density quantifications here, to be able to compare with the study presented on page 3.2-8 (MEC and Cheney 1990).

O9-15

3.2.2.4 Benthic and Demersal Environment - Megabenthic Invertebrates and Dungeness Crabs
This section also contains citations which are unreferenced, and unscientific references as well as inappropriate (or inaccurate?) references. For example, ODFW 2022 is used as a citation for SFB dynamics of Dungeness crab, which is incorrect as this Oregon source is not a suitable reference for SFB dynamics.

This section acknowledges data from the IEP San Francisco Bay Study which conducted monthly crab surveys between 1980 and 2018. However, this data conspicuously omitted from Appendix G.

O9-16

3.2.2.4 Benthic and Demersal Environment - Demersal Fish Community
This section refers to the 2012 EIR, yet California halibut were inadequately characterized in 2012 EIR, and significant changes in halibut populations have occurred since that time which are not noted here[23]., California halibut are a species that exhibits intermittent pulses of spawning activity, and thus juveniles residing in the SFB. For such an intermittently-pulsed species (as with rare and/or seasonal species), community significance, abundance, and trends are overlooked if not analyzed properly. Huge spawning pulses occur in SFB intermittently (IEP data show peaks in 1992-3, 1998-9, 2005-6, 2015-17, with peaks increasing through time) and these are extremely important for recruitment into the fishery. This is even more important with regards to climate change, and in a meta-population context, with pollution and other human-caused habitat declines in southern California bays and estuaries upon which halibut are dependent. The fishery in the south is declining, while increasing in central California and thus relatively more important (see CDFW CA Halibut FMP).

O9-17

[23] IEP trawl data, unpublished analyses

If each species is not characterized correctly in the SEIR, it is impossible to make relevant determinations of project effects on each species. O9-17 cont.

3.2.2.4 Benthic and Demersal Environment - Submerged Aquatic Vegetation
Submerged aquatic vegetation, which is critical habitat for spawning herring and many other species, can be negatively affected due to altered sand dynamics. Effects to submerged aquatic vegetation (eelgrass, gracilaria, etc.) were not adequately addressed in the 2012 EIR. While turbidity effects were assumed not to have an effect on submerged vegetation in Richardson Bay adjacent to the Central SFB, effects of sand depletion (habitat reduction) were not adequately considered. Significant eelgrass declines have occurred since 2012, which have not been addressed (see CDFW and Merkel & Associates sidescan sonar data, satellite data). O9-18

Appendix E – Studies
Studies were limited to focus on physical characteristics and small invertebrates. No studies were conducted on mid or upper-trophic species.

Water quality (turbidity) – not considered is overlap of visual predator foraging with mining areas (seabirds including Brandt's cormorant, pigeon guillemot, common murre, Forster's and Caspian tern, Western gull, Western grebe, brown pelican, loons, scoters; marine mammals including humpback whale, gray whale, harbor porpoise, bottlenose dolphin, harbor seal, California sea lion; also fishes and invertebrates such as California halibut, Dungeness crab, Northern anchovy, Pacific herring, etc.)[24], increase in use of the Central SFB by such species[25], direct negative impacts of turbidity on foraging[26], and proportion of spatio-temporal overlap of mining activities with foraging (especially for range-limited organisms including territorial fishes and invertebrates, breeding seabirds and pinnipeds, seasonally migratory species utilizing Central SFB as a stopover point). O9-19

Benthic infauna – flaws in study design/execution; insufficient field studies

- No new field study; just a review of two 2 previous benthic studies and some research papers resulting in a short 12 page document with a lot of references and inadequate treatment of problems with previous studies
- No real baseline because mining had already been occurring for decades
- Study from 2009 concluded high turnover for benthic organisms due to highly dynamic conditions, currents, etc., but actually inconclusive due to poor overlap of sampling with mined areas and small sample size which would not stand up to peer review
- Study from 2015-2018 utilized a spy camera to drop into a slice of the sediment to observe contents. Methodology was to sample, conduct mining, then sample again in 6, 12, 18mo.

[24] Saenz et al. 2004 report to the National Park Service, Green et al. 2002 Report for CalTrans to the National Marine Fisheries Service, Grigg et al. 2009 https://spo.nmfs.noaa.gov/sites/default/files/pdf-content/2009/1073/grigg.pdf, Grigg et al. 2011 https://doi.org/10.1644/11-MAMM-A-128.1, Markowitz et al. 2024 https://doi.org/10.1002/aqc.4107, J. Thayer/Farallon Institute unpubl. data, W. Keener et al./Marine Mammal Center unpubl. data
[25] Stern et al. 2017, Post et al. 2024; Markowitz et al. 2024
[26] Strod et al. 2008 doi:10.1242/jeb.014324

However first re-sampling only occurred at 12mo, and not all sample points were mined.

Fish entrainment – analysis of existing data, not field study so lacking empirical data for changed conditions since 2012

- No updated entrainment analysis or field study for fish, therefore no data on real-world results of fish screen deployment, or real-world results of drag head going across the surface of the sandy substrate in the Central SFB.

O9-19 cont.

Appendix G – Biological Resources Supplementary Material

- Data presented has no units nor accompanying methodology so no way to assess analyses nor relevance to SEIR
- IEP trawl data 1980-present on Dungeness crab and other invertebrates omitted/ignored
- Assessment of IEP temporally (long-term data) and spatially (station 213 in/adjacent to the mining lease areas, compared to other central Bay stations) are extremely important; Appendix G does not utilize either approach
- Additionally, analysis by season is necessary to detect signals from seasonal species (e.g. Pacific herring)
- Analysis of rare/vulnerable/intermittent species should be undertaken separately to be able to detect signals (e.g., sturgeon, halibut, etc.)
- Obvious and sometimes extreme errors throughout the document
- Why is fisheries information presented? The link to the main text of the SEIR is not clear. It is well-established in fisheries science that landings (catch) may be unrelated to abundance, due to different population, fisher and economic dynamics.

O9-20

Other

Regarding sand sources, a renewal source for the preferred aggregate sizes being mined no longer exists up-river[27]. Deepening pits are bathymetrically visible in certain areas within the Central SFB lease areas where mining has been occurring[27,28]. Thus, this is already an irreversible loss of substrate and habitat. If sand mining continues as it has been under past permits, these pits will continue deepening, and as preferred aggregate is exhausted in those areas, pits will expand as surrounding areas are mined and become exhausted. Different types of habitat not typically found in the Central SFB are also being formed as mining activities discard heavier unwanted aggregate sizes disproportionately[29]. Thus, this is an unintended change in benthic substrate and habitat. Neither of these topics have been addressed, nor have resulting ecosystem effects been adequately considered.

O9-21

[27] Greene et al. 2007. Impacts of bay floor disturbances on benthic habitats in San Francisco Bay. In Todd, B.J. and Greene H.G., eds., Mapping the Seafloor for Habitat Characterization: Geological Association of Canada, Special Paper 47, p. 401-419. Greene et al. 2009. Marine Benthic Habitat Mapping in the Golden Gate National Recreational Area. Report to the National Park Service, 64pp. plus supplements.

[28] USGS unpublished data

[29] G. Greene, pers. comm. 2025

In conclusion, there are many parts of the Draft SEIR which need attention. Thank you again for the opportunity to comment, and I look forward to seeing the Final SEIR. O9-22

Sincerely,

Julie Thayer
Principal Scientist
jthayer@faralloninstitute.org
707-981-8033

Responses to O9 Comments: Farallon Institute

O9-1 CSLC staff acknowledges Farallon Institute's scientific engagement in San Francisco Bay and appreciates their participation in the public review of the SEIR.

O9-2 No specific evidence of changes in circumstances or characterization of ecology is provided by the comment; however, commenter's support for a No Project Alternative is noted.

O9-3 This is not a comment on the SEIR, no response is required.

O9-4 CSLC staff acknowledge the statements regarding the importance of Central San Francisco Bay as a transition zone. Regarding anthropogenic activities, the SEIR analyzes the potential effects of the anthropogenic action of continuing to allow aggregate sand mining to occur at select locations within the Bay-Delta, as required by CEQA.

The commenter expresses concern about the failure of the SEIR to adequately address occurrences of certain species in the Bay-Delta, demographic changes in Central San Francisco Bay, and metapopulation changes in the Eastern Pacific Ocean region; provide regional context for some marine associated taxa; and conduct appropriate analysis of rare and seasonally occurring taxa that might be frequenting the Revised Project study areas. As discussed in Master Response I -Marine Mammals and Master Response J -Marine Birds, analysis of regional environmental events that are ongoing and independent of the proposed project are outside the scope of CEQA; only the potential contribution of the proposed project to that regional environmental event (i.e., the generation of greenhouse gases by the project) is applicable as part of the CEQA analysis.

Both the 2012 EIR (Section 4.1) and the SEIR (Section 3.2) extensively present information on the marine species that are known to inhabit or unitize the marine waters and habitats of the Revised Project's study area and proposed activities. The two CEQA documents cover the periods of 2000-2007 and 2016-2023, respectively. That period covers 16 of the past 24 years including the 8-year periods preceding each CEQA analysis. The occurrence and habitat use of

relevant marine taxa are included in each respective document and an analysis of the potential for documentable, not theoretical, effects of the 2012 Project and the Revised Project on those marine taxa and communities was performed. In addition, because of concerns for special status species being potentially affected by the Revised Project, the SEIR significantly expanded its assessment of these species in the analysis of the SEIR (Appendix G, Special Status Species Table).

O9-5 The comment does not provide any specific evidence to support the assertion of the inadequacy of the SEIR. However, CSLC staff acknowledges that a clerical error occurred during the preparation of the Draft SEIR involving an inadvertent omission of several references cited in the biological resources section. Despite the clerical error that resulted in missing references, all cited documents were available upon request. In response to this comment, the list of references provided in Chapter 7 has been revised in the Final SEIR to accurately reflect all reference citations in the document.

O9-6 The comment that changes to the ecology of demersal fishes, crabs, and benthic-pelagic webs in Central Bay have not been evaluated is incorrect. Section 4.1 of the 2012 EIR and Section 3.2 of the SEIR, and the studies cited within those documents, present a detailed understanding of the marine biological resources occurring in the 2012 Project and Revised Project study areas, respectively. These include demersal fishes (SEIR pages 3.2-10 to 3.2-12), Dungeness crab (SEIR pages 3.2-10), and benthic/demersal environment (SEIR pages 3.2-7 to 3.2-10).

O9-7 The commenter's concern that inadequate characterization of assorted marine species, population demographics, food web interactions, and spatial-temporal considerations were considered in the SEIR is inaccurate as illustrated by the Responses to Comments O9-4 through O9-6, above.

O9-8 See Master Response A -Public Review Period, for information pertaining to the adequacy of public review period.

O9-9 See Master Response C – Reliance on the 2012 Baseline, for information pertaining to the establishment of the baseline.

O9-10 The commenter expresses concern that the "spatially large" turbidity plumes from Revised Project mining activities could have an effect on eelgrass beds and their associated marine communities. As stated in the 2012 EIR and the SEIR (Section 3.2, page 3.2-11), there are no eelgrass beds within any of the 2012 Project and Revised Project's mining lease areas. The potential for turbidity plumes reaching eelgrass beds in Richardson Bay, north of the Central Bay mining lease areas is discussed extensively in Response to Comment O5-3.

O9-11 The comment expresses concerns about the SEIR's discussion of baseline conditions for the planktonic communities inhabiting the Bay-Delta. Information about planktonic communities inhabiting both Central Bay and Delta Revised Project study areas was extensively presented in the 2012 EIR (Section 4.2, page 4.1-4) and updated in the SEIR (Section 3.2, pages 3.2-3-3.2-4). The commenter is correct that the Central Bay lease areas of the Revised Project are strongly influenced by the inflow of adjacent coastal waters, which is discussed in the 2012 EIR. Concern about global events and their role in a CEQA analysis are discussed in Master Response I-Marine Mammals and Master Response J-Marine Birds.

O9-12 Please see the Response to Comment O8-32 for a discussion of Dungeness crab (*M. magister*) analysis in the SEIR.

The commenter expressed concerns that there appeared to be a less than sufficient assessment of temporal and spatial IEP data in the SEIR for the Revised Project. The IEP data was presented in Appendix G, Biological Resources Supplemental Information, to show which species may be present at the lease sites over a multi-year period in the West Delta and Central Bay. It also provides an update of the taxa that have been identified at those locations since the drafting of the 2012 EIR. The life history of all key and special status species was reviewed as part of the assessment of activities occurring under the Revised Project. This includes seasonal fluctuations and occurrence of species inhabiting the proposed mining lease areas.

The commenter states that "analysis of rare/vulnerable/intermittent species should be undertaken separately to be able to detect signals." Rare or intermittent species are difficult to study in that they

do not occur regularly, which makes statistical analysis challenging. That being said, the commenter specifically mentions sturgeon and halibut which were captured in trawls by the IEP in West Delta and Central Bay and by commercial and recreational fishers (Appendix G, Biological Resources Supplemental Information). Green (*A. mediostris*) and white sturgeon (*A. transmontanus*) are also listed in the Special Status Species table in Appendix G, Biological Resources Supplemental Information. Additionally, there is a discussion of green (*A. mediostris*) and white sturgeon (*A. transmontanus*) in Section 3.2.2.5 of the Revised Project.

Commercial and recreational fisheries data were presented in the SEIR (Section 3.2.2.7) to show species that are present in and around the area of the Revised Project. Additionally, these data were provided in Appendix G, Biological Resources Supplemental Information to serve as an update to the same fisheries information provided in the 2012 EIR and to assess whether the activities occurring under the Revised Project would have any detectable effect on commercial and recreational fishing activities.

The commenter further expressed concerns about normal fluctuations in Pacific herring populations which was a comment made by another commenter and is responded to in Response O5-4.

O9-13 The commenter's concern about missing references is addressed in Response O9-5. The commenter's concern about various species of marine birds and impacts from regional environmental events are addressed in Master Response J - Marine Birds.

O9-14 The commenter expressed multiple concerns about the SEIR's discussion of marine mammals and sea turtles. These comments are similar to comments expressed by other commenters and are addressed in Response O6-3, O8-31, and Master Response I- Marine Mammals. The commenter's concern about missing references is addressed in Response O9-5.

O9-15 The CSLC acknowledges the commenter's opinions about the cited benthic infauna studies assessing community composition and the potential effects of Revised Project mining activities and notes that CEQA allows for disagreements among experts. Such disagreements do not indicate an inadequacy in the EIR as long as the lead

agency has substantial evidence to support its findings. Here, the CSLC does. Regarding baseline sampling, see Responses A4-8 and O8-34. Regarding other cited benthic infauna studies cited (AMS 2009a, NewFields 2019b, NewFields 2020), see Response O8-34.

Finally, the commenter questioned the SEIR statement that the benthic communities inhabiting the Central Bay study area were characterized as low diversity and low abundance. Relative to other locations in the Bay, this characterization is accurate, and the numeric levels are consistent with other studies. For example, a study done offshore Treasure Island in a highly tidally effected channel (AMS 2009) reported similar findings of 31-52 taxa per meter square of seafloor but with taxonomic abundances ranging between 2,600-8,800 individuals per meter square of seafloor sediment. Likewise, Thompson et al. (2012)[8] reported total infaunal abundances ranging from 720 individuals per meter square for a sandy estuarine habitat to 33,880 individuals for a brackish environment. More information is available in AMS (2009a) and NewFields (2018b).

O9-16 Commenter's concern about missing references is addressed in Response O9-5. The commenter's concern about using a citation referencing work performed by the Oregon Department of Fish and Wildlife on the life history of Dungeness crabs (*Metacarcinus magister*) is misinformed since the document cited supports the statements for which its citation was included in the SEIR. CSLC does not entirely understand the commenter's concern about the lack of Dungeness crab data presented in the midwater and otter trawl tables presented in Appendix G. The data presented in the fisheries tables in Appendix G represent updates to fish taxa abundances in the Revised Project lease areas that were originally provided in the 2012 EIR. These tables did not omit any taxa collected by the Interagency Ecological Program (IEP) at those sample sites. If Dungeness crab were collected in those trawls, then those data would be included in the tables. As noted in Section 4.1 of the 2012 EIR and Section 3.2 of the SEIR, Dungeness crab, while in the Bay-

[8] Thompson B, Ranasinghe JA, Lowe S, Melwani A, Weisberg SB. Benthic macrofaunal assemblages of the San Francisco Estuary and Delta, USA. Environ Monit Assess. 2013 Mar;185(3):2281-95. doi: 10.1007/s10661-012-2708-8. Epub 2012 Jun 12. PMID: 22684808.

Delta frequently inhabit submerged aquatic vegetation beds (e.g., eelgrass) and shallow water habitats, neither of which occur in any of the proposed mining lease areas.

O9-17 The concern expressed in this comment appears to focus on potential climate change effects to the California halibut (*Paralichthys californicus*) and the perceived inadequate characterization of this species in the 2012 EIR and the SEIR. In both documents, California halibut were included in the characterization of fish taxa inhabiting the mining lease area of the Bay-Delta; the cyclical nature of the abundance of this species in recent years in the Bay-Delta is illustrated in the fish abundance tables in Appendix G of the SEIR. The natural cyclical nature of abundance for several fish taxa (i.e., Pacific herring) is the reason that the SEIR presents abundance data for fish species occurring in the Revised Project study areas for each year over the most recent 8-year period. A discussion of how CEQA addresses potential effects of environmental events on marine taxa is discussed in Master Response I- Marine Mammals and Master Response J- Marine Birds.

O9-18 Concerns expressed by the commenter about the potential impacts of turbidity plumes generated by the Revised Project on eelgrass beds are addressed in Response to Comment O5-3.

O9-19 The comment questions the number and focus of Revised Project-related studies conducted with respect to turbidity, benthic infauna, and fish entrainment. See Master Response B - Reliance on the 2012 EIR, Master Response C - Reliance on the 2012 Baseline, and Master Response D - Technical Studies, each of which addresses technical work relied upon in the SEIR. Specifically about mid or upper trophic level marine community components in the Bay-Delta, see Section 4.1 of the 2012 EIR and Section 3.1 of the SEIR, which discuss the composition of the identified communities and potential effects from Revised Project activities such as turbidity plumes. Responses A4-8, O5-3, O5-4, O6-2, O6-3, O8-31, O8-32, O9-4, O9-6, O9-7, O9-10, O9-11, O9-15, and O9-17 contain additional relevant information on these topics.

This comment also questions why no new fish entrainment analysis was done for the SEIR. As part of the 2012 EIR, a substantial entrainment study was done to determine potential entrainment of

fish from aggregate sand mining activities in the Bay-Delta mining leases (AMS 2009b). This study utilized Interagency Ecological Program (IEP) data and conservative estimates of annual dredging distances to calculate the potential number of benthic and demersal fish, as well as important invertebrates like shrimp and crabs, that aggregate sand mining activities might entrain. That study noted that the majority of entrainment occurred through the suction dredge water intake, although some demersal and pelagic fish and invertebrates were being entrained through the suction head itself. The 2012 EIR concluded that for some fish species the potential for entrainment was significant. Since then, a fish screen has been installed on the drag head to prevent entrainment. Section 2.3.2 of the SEIR explains it this way: "The existing drag head… contains a suction vent fitted with a positive barrier fish screen ([shown in SEIR] Figures 2-1 and 2-2). The fish screen is designed based on guidance from [CDFW, NMFS, and the USFWS]… to minimize potential entrainment and mortality of fish during sand mining events. The fish screens were added to the sand mining equipment in 2013 as a project design feature to ensure compliance with the Biological Opinion issued by the USFWS and NMFS as well as permit conditions/ take minimization measures included in the CDFW Incidental Take Permits. BCDC, as a condition of its permit, also required the fish screens on intake vents…." With the fish screen in place; in light of ongoing oversight by CDFW, NMFS, USFWS, and BCDC; and considering the 2012 baseline, no new fish entrainment studies are warranted.

O9-20 See Response O9-12 for a discussion on the IEP data tables in Appendix G, Biological Resources Supplemental Information.

See the Response to Comment O8-32 for a discussion of Dungeness crab (*M. magister*) analysis in the SEIR.

The commenter expressed concerns that there appeared to be a less than sufficient assessment of temporal and spatial IEP data in the Revised Project analysis. The IEP data was presented in Appendix G, Biological Resources Supplemental Information, to show which species may be present at the lease sites over a multi-year period in the West Delta and Central Bay. It also provides an update of the taxa that have been identified at those locations

since the drafting of the 2012 EIR. The life histories of all key and special status species were reviewed as part of the assessment of activities that would occur under the Revised Project. This analysis included assessment of seasonal fluctuations and occurrences of species inhabiting the mining lease areas.

The commenter states that "analysis of rare/vulnerable/intermittent species should be undertaken separately to be able to detect signals." Rare or intermittent species are difficult to study in that they do not occur regularly, which makes statistical analysis challenging. That being said, sturgeon and halibut were captured in trawls by the IEP in West Delta and Central Bay and by commercial and recreational fishers (Appendix G, Biological Resources Supplemental Information). Green (*A. mediostris*) and white sturgeon (*A. transmontanus*) are also listed in the Special Status Species table in Appendix G, Biological Resources Supplemental Information. Additionally, there is a discussion of green (*A. mediostris*) and white sturgeon (*A. transmontanus*) in Section 3.2.2.5 of the Revised Project.

The comment does not specify where the Draft SEIR contains "obvious and sometimes extreme errors throughout the document." No further response is warranted.

O9-21 The commenter's concern that habitat changes occur as a result of aggregate sand mining and that any resulting ecosystem effects were not adequately considered in the SEIR is incorrect. The mining leases in both Central Bay and West Delta contain many microhabitats, as presented by AMS (2009) and NewFields (2018a; 2020). Natural and potential sand mining induced changes to benthic microhabitats were evaluated in the examination of lease areas that were unmined, recently mined, and past mined. As stated in other responses to the commenter's concerns, these studies were unable to detect any statistically significant changes to benthic infaunal community composition as a result of aggregate sand mining activities.

O9-22 The comment does not specify which parts of the Draft SEIR need attention. No further response is warranted.

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SUBPART II.C. INDIVIDUAL COMMENTS

Huitt, Christopher@SLC

From:	aeboken <aeboken@gmail.com>
Sent:	Sunday, September 28, 2025 3:04 PM
To:	Comments, CEQA@SLC; Huitt, Christopher@SLC; Dobroski, Nicole@SLC; Dumlao, Matthew@SLC; Regina Evans; Goeden, Brenda@BCDC; Crowfoot, Wade@CNRA; Eckerle, Jenn@CNRA; Huckelbridge, Kate@Coastal; Carl, Dan@Coastal; Rexing, Stephanie@Coastal; Henningsen, Luke@Coastal; Danielle Lipski; David A Smith; Alison Forrestel
Subject:	San Francisco Bay and Delta Sand Mining Project SEIR Comments [State Lands Commission Supplemental EIR Public Comment Submission]

Attention: This email originated from outside of SLC and should be treated with extra caution.

TO: California State Lands Commission Environmental Review

cc: Christopher Huitt, Senior Environmental Scientist, Division of Environmental Science, Planning and Management;Climate Adaptation and Special Initiatives

cc: Nicole Dobroski, Chief of Environmental Science, Planning and Management Division

cc: Matthew Dumlao, Executive Director

cc: California State Controller's Office

Regina Evans, Chief-of-Staff

cc: San Francisco Bay Conservation and Development Commission (BCDC)

Brenda Goeden, Sediment Project Manager

cc: California Ocean Protection Council

Wade Crowfoot, Secretary Natural Resources Agency and Chair Ocean Protection Council

Jenn Eckerle, Executive director of Ocean Protection Council and Deputy Secretary for Oceans and Coastal Policy for California Natural Resources Agency

cc: California Coastal Commission

Kate Huckelbridge, Executive Director

Dan Carl, North Central Coast District Director

Stephanie Rexing, North Central Coast District Manager

Luke Henningsen, North Central Coast District Planner

cc: Greater Farallones National Marine Sanctuary

Danielle Lipski, Acting Superintendent

cc: National Park Service/Golden Gate National Recreation Area

David Smith, Superintendent

Alison Forrestel, Supervisory Vegetation Ecologist

FR: Eileen Boken,
State and Federal Legislative Liaison

Coalition for San Francisco Neighborhoods*

*For identification purposes only.

RE: San Francisco Bay and Delta Sand Mining Project SEIR Comments [State Lands Commission Supplemental EIR Public Comment Submission]

The California State Lands Commission is proposing to renew the current sandmining leases in San Francisco Bay and Delta for an additional ten years. I1-1

Due to a rapidly changing climate and sea level rise, I would strongly urge the California State Lands Commission (CSLC) to revise the proposal to be a five year contract with a five year renewal option to increase the contract's flexibility. I1-2

During the Bay Conservation and Development Commission (BCDC) Sand Studies Commissioner Working Group, the perception was that the Central Bay contains legacy sand such that sandmining as it's currently conducted is unsustainable. I1-3

I would strongly urge the CSLC to gradually reduce the maximum amount of sand harvested over the duration of the proposed contracts to be greater than the proposed 14.2% reduction which reduces the overall harvest from 2,039,866 cubic yards per year to 1,750,000 cubic yards per year in four of the six lease areas. I1-4

The Executive Summary page eight paragraph one states: "Cumulative impacts could result from individually minor but collectively significant activities from projects that take place over time."

In 2013, the US Geological Survey (USGS) released the study: Sediment transport in the San Francisco Bay Coastal System by principal author Dr Patrick Barnard. (A subsequent USGS study in 2023 has challenged these findings.)

The 2013 USGS study concluded that sandmining in San Francisco Bay was contributing to erosion on south SF Ocean Beach and accretion on north SF Ocean Beach.

However, this report was not included in the San Francisco Ocean Beach Master Plan (OBMP) text or footnotes but only listed in the bibliography.

The rationale by the SF Ocean Beach Task Force was that it was impossible to determine which sand from which sandmining tract ended up in the erosion and accretion areas on SF Ocean Beach.

I would challenge this rationale for the following reasons:

- The majority of the sandmining is in the Central Bay lease areas.

- The Central Bay lease areas are clustered around Alcatraz and Angel Islands.

- All Central Bay area leases are held by a single company which is currently Martin Marietta Marine Operations LLC.

I would posit that these three factors together could be seen as cumulative impacts.

I1-5

Also, it has been verified anecdotally by boots on the ground that there is, in fact, erosion on south Ocean Beach and accretion on north Ocean Beach.

This is even alluded to in SEIR 3.1-11 on mitigation for sandmining under the title [San Francisco] Ocean Beach [Sand] Replenishment Project.

And yet, there is no substantive analysis of this in the SEIR despite the fact that the SFPUC will also spend $175 million to build a one mile long seawall to protect the Oceanside (Wastewater) Treatment Facility adjacent to south Ocean Beach.

And yet, the Ocean Beach Replenishment Project and the construction of a $175 million seawall adjacent to the Oceanside Treatment Facility seem to be inconsistent with SEIR Appendix F1 - Environmental Impacts HYD-2 and LU-3 as both state that no mitigation measures or monitoring/reporting is required & that mitigation and justification are not applicable.

To resolve these inconsistencies, I would strongly urge the State Lands Commission reach out to the Ocean Protection Council regarding its Coastal Mapping (LiDar) data as detailed on the website:

https://opc.ca.gov/2012/03/coastal-mapping-lidar-data-available/

I1-6

###

Sent from my Verizon, Samsung Galaxy smartphone

Responses to I1 Comments: AE Boken Individual

I1-1 The summary information provided by the comment is consistent with that provided in Draft SEIR Section 2.1 (p. 2-1), which describes the lease term and the application for its renewal.

I1-2 The CSLC acknowledges receipt of this suggestion to consider a five-year authorization coupled with a five-year renewal option. As drafted, the SEIR considers a 10-year term (the proposed Revised Project) and the No Project Alternative described in Draft SEIR Section 4.4.1, p. 4-9 et seq. (no term at all). While the Commission could approve a lease term suggested in the comment, it must consider the applications which are submitted to it, which in this case is for 10 years and would allow the Project's objectives to be met. The Commission has issued 10-year leases previously for sand mining and found it a timeframe that provides certainty to Lessees and generally allows adequate time for CEQA analysis and permitting prior to the expiration and consideration of any new potential lease. Within this range, the Commission retains authority to seek termination of a lease at any time after its issuance if, for example, it finds that material lease conditions are not being met. Lease termination would require a public hearing as part of an enforcement action. Given these circumstances, there is no need to restrict flexibility to five-year tranches as suggested in the comment. Therefore, no change has been made in response to this comment.

I1-3 See Master Response H- Mineral Resources, which discusses sand (including Central San Francisco Bay sand) as a non-renewable resource.

I1-4 The CSLC acknowledges this statement of preference that the requested permits include limits that gradually reduce the volume of sand approved for harvest. However, the comment neither states nor suggests any inadequacy or inaccuracy of the Draft SEIR. Although the comment is outside the scope of the CEQA process, it has been included in the formal record for the Revised Project where it may be considered by decision-makers.

I1-5 Draft SEIR Section 3.4, Hydrology and Water Quality (p. 3.4-1 et seq.) analyzes hydrodynamics, sand transport, and related issues based on "with mining" and "without mining" scenarios. See, for example, page 3.4-18, which summarizes and concludes based on cited

studies, that "[r]esults showed that relative to No Proposed Mining, the Proposed Mining is not likely to cause a significant impact on sediment transport and sand budgets in areas outside the immediate vicinity of the lease areas. For example, predicted changes in areas outside the Golden Gate, such as the San Francisco Bar or Ocean Beach, are minimal."

Draft SEIR Section 3.4.6 (p. 3.4-18 et seq.) analyzes cumulative effects of the Revised Project in combination with the contributing impacts of the projects listed in Draft SEIR Table 3.1-2, *Cumulative Projects List* (p. 3.1-9 et seq,). Table 3.2-1 expressly includes the Ocean Beach Replenishment Project (p. 3.1-11). Draft SEIR page 3.4-20 states that "changes along the San Francsico Waterfront and at Ocean Beach could further contribute to cumulative conditions." The analysis concludes that the "Revised Project's incremental impact combined with the incremental impacts of the cumulative projects would likely reduce the volume of sediment transported from Central Bay through the Golden Gate annually," and that this reduction in sediment transport, and any secondary effects on coastal morphology, would be a less-than-significant impact, and a less-than-cumulatively considerable contribution to a cumulative impact. See Master Response F – Sand Transport for further discussion of sediment transport.

CEQA Guidelines section 15151 is clear that differences of opinion do not make an EIR inadequate. The CSLC acknowledges the stated disagreement regarding cumulative erosion at Ocean Beach and has considered the opinions expressed. However, having weighed this input relative to other information in the record, the CSLC elects to rely on the technical studies cited in the Draft SEIR and the expertise of those who prepared the Draft SEIR (see Draft SEIR Chapter 7, Report Preparation [p. 7-1 et seq.]). As lead agency, the Commission's authority to adopt environmental conclusions supported by expert reports or otherwise by experts who prepared the EIR even though others may disagree is supported by the California Supreme Court's decision in *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376, 408. See Master Response D – Technical Studies for further discussion of the technical studies relied upon in the SEIR.

I1-6 See Response I1-5 regarding the Draft SEIR's cumulative analysis of hydrological impacts and consideration of conditions at Ocean Beach. The CSLC acknowledges the suggestion in this comment about the Ocean Protection Council's Coastal Mapping (LiDar) data and has included it in the record where it may be considered by decision-makers and others. However, since the comment provides no substantial evidence of any inadequacy or inaccuracy in the Draft SEIR, no change has been made in response to this comment. See also Master Response F – Sand Transport, Section 'Potential for impacts to open coast.'

ORAL PUBLIC COMMENTS AND RESPONSES

SUBPART II.D. PUBLIC MEETING COMMENTS

WEBVTT

1
00:00:03.720 --> 00:00:05.290
Christopher Huitt: Hello, everybody.

2
00:00:06.060 --> 00:00:12.500
Christopher Huitt: Welcome to the meeting. We're gonna wait a few minutes, probably about till 6.05.

3
00:00:12.620 --> 00:00:19.279
Christopher Huitt: We will go ahead and start the presentation and the comment… public comment meeting at that time.

4
00:00:19.390 --> 00:00:24.770
Christopher Huitt: So, stand by for about 5 minutes while other people join the meeting. Thank you very much.

5
00:02:48.870 --> 00:02:53.359
Mike Manka: Hi all, I think we're gonna get started about 6.05, for those of you who just joined.

6
00:04:32.110 --> 00:04:32.990
Christopher Huitt: Okay.

7
00:04:33.500 --> 00:04:35.910
Christopher Huitt: 6.05, everybody, good evening.

8
00:04:36.140 --> 00:04:44.819
Christopher Huitt: At this time, we're going to start the public meeting for the San Francisco Bay and Delta Sand Mining Project Draft Supplemental Environmental Impact Report.

9
00:04:45.230 --> 00:04:55.220
Christopher Huitt: It's September 11th, 2025, at 6 p.m. Welcome, and thank you all for attending. We appreciate your interest in the environmental review of this project.

10
00:04:55.430 --> 00:04:56.799
Christopher Huitt: Next slide, please.

11
00:05:00.440 --> 00:05:15.730
Mike Manka: Hi, I'm Mike Manka with ESA. Just, want to give some, information regarding the Zoom platform we're using for today's meeting. We suggest, if you're joining the meeting via a computer, to put the Zoom window in full screen mode.

12
00:05:15.810 --> 00:05:31.020
Mike Manka: or adjust the presentation to fit to window. That'll give you a bigger picture to look at, make it a little easier, for you to read. All attendees will be muted during the presentation.

13
00:05:31.020 --> 00:05:41.849
Mike Manka: Until the public comment portion of the meeting. During the public comment portion of the meeting, we'll give some additional instructions, but ba…

14
00:05:41.990 --> 00:05:56.749
Mike Manka: But if you would like an opportunity to provide comments, during that portion of the meeting, we ask that you use the raise hand feature, which should be at the bottom of your screen. Sometimes that's, you have to click on the react

15
00:05:58.570 --> 00:06:10.849
Mike Manka: button on the bottom of the screen in order to get to the raise hand, but just be aware that that's how we'll, identify who would like to provide comments today. And last but not least.

16
00:06:11.290 --> 00:06:14.249
Mike Manka: Want to let everyone know this meeting is being recorded.

17
00:06:17.240 --> 00:06:18.510
Christopher Huitt: Next slide, please.

18
00:06:19.620 --> 00:06:21.919
Christopher Huitt: The meeting agenda consists of…

19
00:06:22.140 --> 00:06:32.829
Christopher Huitt: Introductions and discussion of the meeting purpose, background information and description of the proposed project, an overview of the CEQA process and how to participate.

20
00:06:33.020 --> 00:06:37.880
Christopher Huitt: Opportunity for public comment, followed by closing remarks.

21
00:06:38.210 --> 00:06:39.630
Christopher Huitt: Next slide, please.

22
00:06:42.410 --> 00:07:01.090
Christopher Huitt: My name is Christopher Hewitt. I am a Senior Environmental Scientist with the California State Lands Commission Division of Environmental Science, Planning and Management, and I'm overseeing the preparation of the Supplemental Environmental Impact Report, or SEIR, for the San Francisco Bay and Delta Sand Mining Project.

23
00:07:01.180 --> 00:07:05.679
Christopher Huitt: in compliance with the California Environmental Quality Act, or CEQA.

24
00:07:06.000 --> 00:07:15.420
Christopher Huitt: With me today is Nicole Dabrowski, Chief of the Division, and Michael Manka with Environmental Science Associates, the consultant retained for this project.

25
00:07:15.610 --> 00:07:17.019
Christopher Huitt: Next slide, please.

26
00:07:18.710 --> 00:07:36.210
Christopher Huitt: The purpose of this meeting is to provide access, project information, and an opportunity to participate in the CEQA process, as well as obtain agency, tribal, and public input, and comment on the draft Supplemental Environmental Impact Report, the DSEIR.

27
00:07:36.300 --> 00:07:51.489
Christopher Huitt: All oral comments provided today will be recorded and transcribed and, along with submitted written comments, will be used to inform the Commission's final analysis of the project and included in the final SEIR.

28
00:07:51.730 --> 00:07:53.170
Christopher Huitt: Next slide, please.

29
00:07:55.350 --> 00:08:01.199
Christopher Huitt: To participate in the public review of the San Francisco Bay and Delta Sand Mining Project, you can.

30
00:08:01.230 --> 00:08:20.009
Christopher Huitt: Attend this meeting and provide oral comments when directed. Submit written comments on the draft SEIR by mail or email during the public review period, which runs from August 15th until 5 p.m. on September 29th, 2025.

31
00:08:20.580 --> 00:08:30.690
Christopher Huitt: You can also participate in the public hearing at the time of the Commission considers certification of the SCIR and issuance of a lease for the project.

32
00:08:30.800 --> 00:08:35.029
Christopher Huitt: Tentatively scheduled for December 16th of 2025.

33
00:08:35.299 --> 00:08:44.849
Christopher Huitt: If you are not on the mailing list for the project and would like to be, please submit a request using the email address provided at the end of the presentation.

34
00:08:45.140 --> 00:08:59.429
Christopher Huitt: A link to the Notice of Availability, or NOA, is being provided in the chat, and the email mailing addresses are provided in the NOA, identifying where to submit comments. Next slide, please.

35
00:09:01.840 --> 00:09:08.579
Christopher Huitt: Two marine aggregate companies, Martin Marietta and Lynn Marine, or their predecessors in interest

36
00:09:08.630 --> 00:09:15.579
Christopher Huitt: have held leases to harvest sand commercially in the San Francisco Bay and Western Delta for more than 80 years.

37
00:09:15.600 --> 00:09:33.600
Christopher Huitt: The applicants applied to the State Lands Commission to authorize new leases for the continued commercial mining of sand for 10 additional years at reduced maximum annual sand mining volumes over the proposed lease periods compared to the prior 10-year leases.

38
00:09:33.710 --> 00:09:39.990
Christopher Huitt: This revised project would include sand mining on state lands under the jurisdiction of the Commission.

39
00:09:40.210 --> 00:09:42.630
Christopher Huitt: And on privately owned lands.

40
00:09:42.750 --> 00:09:44.160
Christopher Huitt: Next slide, please.

41
00:09:47.690 --> 00:10:00.110
Christopher Huitt: The commercial extraction of sand involves use of a tug and barge to suction sand from the floor of the leased area, as shown in the top image. Sand mining equipment is fitted with

42
00:10:00.700 --> 00:10:06.710
Christopher Huitt: A screen to prevent the entrainment or the capture of fish shown in the lower image.

43
00:10:06.780 --> 00:10:23.359
Christopher Huitt: Sand mining activity tends to peak in the summer months. After sand is collected onto the barge, it is transported to various shore-based sites throughout the Bay Area, and sold as aggregate for use in roads, buildings, and other infrastructure throughout the state.

44
00:10:23.520 --> 00:10:24.910
Christopher Huitt: Next slide, please.

45
00:10:27.140 --> 00:10:32.030
Christopher Huitt: There are two main regions where sand mining would occur under the revised project.

46
00:10:32.140 --> 00:10:35.199
Christopher Huitt: Central San Francisco Bay, and Sassoon Bay.

47
00:10:35.660 --> 00:10:41.269
Christopher Huitt: This figure shows the lease areas proposed for use in Central San Francisco Bay.

48
00:10:41.490 --> 00:10:42.900
Christopher Huitt: Next slide, please.

49
00:10:45.860 --> 00:10:53.010

Christopher Huitt: As shown in the map on the left of the screen, there are two lease areas in Sassoon Bay under the Commission's jurisdiction.

50
00:10:53.080 --> 00:11:06.699
Christopher Huitt: and a private lease area, the middle ground shoal, also evaluated in the SEIR. The private leases are considered in the SEIR as part of the whole of the action to be evaluated.

51
00:11:06.820 --> 00:11:08.220
Christopher Huitt: Next slide, please.

52
00:11:10.830 --> 00:11:20.079
Christopher Huitt: The CEQA process requires the disclosure of information to the public and decision makers about potential physical impacts of a project on the environment.

53
00:11:20.370 --> 00:11:28.599
Christopher Huitt: Pursuant to CEQA, where feasible, mitigation measures are included to address any significant environmental impacts identified.

54
00:11:28.780 --> 00:11:42.730
Christopher Huitt: The CEQA document, in this case the SEIR, does not make a recommendation to decision makers, but includes an objective review of potential environmental impacts. Next slide, please.

55
00:11:44.780 --> 00:12:04.089
Christopher Huitt: This chart shows the CEQA process and how the revised project fits in with the lead agency's consideration of a decision. The CEQA process for the revised project was initiated with the release of the Notice of Preparation in the fall of 2023, and has progressed since then.

56
00:12:04.180 --> 00:12:07.979
Christopher Huitt: to the preparation and release of the draft SEIR.

57
00:12:08.080 --> 00:12:11.689
Christopher Huitt: And public review period, shown in the central red box.

58
00:12:11.940 --> 00:12:31.649
Christopher Huitt: This meeting is a central part of the CEQA process. Following the public review, a final SEIR will be prepared, incorporating public, tribal, and agency input on the draft SEIR and providing a basis for a decision likely to occur

this winter at a publicly noticed commission meeting.

59
00:12:32.030 --> 00:12:33.420
Christopher Huitt: Next slide, please.

60
00:12:35.710 --> 00:12:45.600
Christopher Huitt: The draft SEIR supplements the information provided in the San Francisco Bay and Delta Sand Mining EIR, certified in 2012.

61
00:12:45.770 --> 00:13:00.560
Christopher Huitt: The supplemental EIR has been prepared, one, to account for minor changes to the project, notably a continuation of mining at reduced volumes, then was analyzed in the 2012 EIR, and two.

62
00:13:00.560 --> 00:13:08.680
Christopher Huitt: due to availability of new scientific information and technical studies developed subsequent to the 2012 EIR.

63
00:13:09.000 --> 00:13:18.839
Christopher Huitt: The SEIR documents the minor additions and changes necessary to make the 2012 EIR adequate for the revised project.

64
00:13:19.150 --> 00:13:20.560
Christopher Huitt: Next slide, please.

65
00:13:22.660 --> 00:13:34.029
Christopher Huitt: 12 monitoring and technical studies have been prepared since the 2012 EIR that are applicable to the revised project and included in the SEIR.

66
00:13:34.190 --> 00:13:44.429
Christopher Huitt: These studies examine changes to the bathymetry, or changes to the seafloor, of San Francisco Bay, model sand, and sediment transport in the Bay.

67
00:13:44.710 --> 00:13:50.409
Christopher Huitt: Analyze benthic infauna or sediment organisms and water quality data.

68
00:13:50.910 --> 00:13:52.320
Christopher Huitt: Next slide, please.

69
00:13:54.230 --> 00:14:14.219
Christopher Huitt: The environmental resource areas evaluated in the SCIR include air quality and greenhouse gas emissions, biological resources, cultural and tribal cultural resources, hazards and hazardous materials, hydrology and water quality, including bathymetry and sediment transport.

70
00:14:14.410 --> 00:14:17.979
Christopher Huitt: Land use and recreation, and mineral resources.

71
00:14:18.100 --> 00:14:33.720
Christopher Huitt: The draft SEIR identifies significant and unavoidable impacts to biological resources from the revised project due to potential entrainment and mortality of Delta and longfin smelt, both special status species.

72
00:14:33.850 --> 00:14:35.290
Christopher Huitt: Next slide, please.

73
00:14:38.670 --> 00:14:50.119
Christopher Huitt: In addition to the resource areas described previously, the SEIR includes a discussion of other CEQA considerations, an evaluation of regional socioeconomics.

74
00:14:50.260 --> 00:15:00.990
Christopher Huitt: Project energy use, impacts to environmental justice communities, impacts from climate change and sea level rise, and a discussion of public trust considerations.

75
00:15:01.280 --> 00:15:02.710
Christopher Huitt: Next slide, please.

76
00:15:05.040 --> 00:15:12.860
Christopher Huitt: Two alternatives are evaluated in the SEIR, including the no project alternative and the reduced project alternative.

77
00:15:12.860 --> 00:15:27.040
Christopher Huitt: The reduced project alternative would reduce the allowable annual volumes under the leases to a level equivalent to the average volume mined in the preceding 5 years, 2018 to 2022.

78
00:15:27.160 --> 00:15:33.159

Christopher Huitt: Mining methods and offloading would be the same under this alternative as the revised project.

79
00:15:33.620 --> 00:15:35.000
Christopher Huitt: Next slide, please

80
00:15:37.170 --> 00:15:45.680
Christopher Huitt: The Supplemental Environmental Impact Report is available in digital form on the Commission's website at the address provided here.

81
00:15:46.280 --> 00:15:57.259
Christopher Huitt: Printed copies are available for review at the State Lands Commission's office in Sacramento and in the Government Documents section of the San Francisco Main Library.

82
00:15:57.410 --> 00:15:58.780
Christopher Huitt: Next slide, please.

83
00:16:01.640 --> 00:16:07.750
Christopher Huitt: The draft SEIR was released for public review on August 15th, 2025.

84
00:16:07.880 --> 00:16:12.879
Christopher Huitt: This public meeting is intended to receive comments on the draft SEIR.

85
00:16:13.040 --> 00:16:16.840
Christopher Huitt: The Commission is not taking any action on the project today.

86
00:16:17.370 --> 00:16:23.700
Christopher Huitt: Staff will not be responding to comments unless there is a question regarding process and next steps.

87
00:16:23.870 --> 00:16:39.220
Christopher Huitt: Comments should address specific components of the analysis regarding significant environmental impacts or proposed mitigation by providing substantive comments that point out errors, inconsistencies, or data omissions.

88
00:16:39.340 --> 00:16:45.640
Christopher Huitt: We encourage commenters to provide references, evidence, or

other factual support for their comments.

89
00:16:45.760 --> 00:17:01.249
Christopher Huitt: And comments should be objective instead of a personal opinion. While submitting personal views on the proposed project is not prohibited, these types of non-substantiative comments may not receive a specific response in the final EIR.

90
00:17:01.490 --> 00:17:14.710
Christopher Huitt: The comments will be recorded, so please speak as clearly as possible. Your comments will become part of the administrative record. We will now open up for comments on the draft SEIR.

91
00:17:15.109 --> 00:17:16.500
Christopher Huitt: Next slide, please.

92
00:17:19.540 --> 00:17:30.790
Christopher Huitt: Please raise your digital hand by clicking on the button at the bottom of the participants list, or on newer Zoom functions in the Reactions button at the bottom of your screen.

93
00:17:31.170 --> 00:17:35.570
Christopher Huitt: If you're calling in by phone, press star 9 to raise your hand.

94
00:17:35.940 --> 00:17:40.510
Christopher Huitt: Staff will send you a request to unmute when it is your turn to speak.

95
00:17:40.880 --> 00:17:45.119
Christopher Huitt: Commenters will be called in order of who raised their hands first.

96
00:17:45.350 --> 00:17:48.970
Christopher Huitt: Do not lower your hand, as you will lose your place in the queue.

97
00:17:49.330 --> 00:17:53.690
Christopher Huitt: Please focus your comments on potential environmental impacts.

98
00:17:56.090 --> 00:17:57.490

Christopher Huitt: Next slide, please.

99
00:18:01.020 --> 00:18:04.009
Christopher Huitt: So this is the point where we will…

100
00:18:04.330 --> 00:18:11.840
Christopher Huitt: open it up for public comment. So, if you have a public comment, Please,

101
00:18:12.240 --> 00:18:16.899
Christopher Huitt: Raise your hand, and we can call on you to record those.

102
00:18:17.030 --> 00:18:21.830
Christopher Huitt: The session's comments, will be,

103
00:18:22.400 --> 00:18:25.690
Christopher Huitt: Recorded, and will also be used later on.

104
00:18:26.630 --> 00:18:35.630
Christopher Huitt: You may comment by email or mail, as well, at the addresses listed On the next slide.

105
00:18:36.500 --> 00:18:37.520
Christopher Huitt: Right here.

106
00:18:38.750 --> 00:18:45.830
Christopher Huitt: Please… Comments that are mailed to the State Lands Commission, please have them attention to myself.

107
00:18:45.980 --> 00:18:53.360
Christopher Huitt: at 100 Howe Avenue, Suite 100 South, Sacramento, California, 95825.

108
00:18:53.570 --> 00:19:04.400
Christopher Huitt: Or, please email your comments, with or without attachments, to sequa.comments at slc.ca.gov.

109
00:19:06.410 --> 00:19:15.879
Christopher Huitt: So… Just a reminder that all written comments must be received

or postmarked by Monday, September 29th, 2025.

110
00:19:20.990 --> 00:19:23.590
Christopher Huitt: We will wait for your comments.

111
00:19:25.210 --> 00:19:26.060
Christopher Huitt: Thank you.

112
00:20:47.870 --> 00:20:49.280
Mike Manka: Chris, I see a hand up.

113
00:20:49.870 --> 00:20:50.870
Christopher Huitt: Alright.

114
00:20:51.710 --> 00:20:53.150
Christopher Huitt: Barbara Saltzman.

115
00:20:54.030 --> 00:20:55.200
Christopher Huitt: Please be ready.

116
00:20:57.690 --> 00:21:16.590
Barbara Salzman: Yes, I finally made it on. My name is Barbara Salzman. I can't believe nobody else is raising their hand, but anyway, I'm with Marin Audubon Society. I have a couple of questions. I have begun to read the document. I would like to know, because I haven't found it in the document yet,

P1-1

117
00:21:16.590 --> 00:21:24.070
Barbara Salzman: The, the amount, generally, of sand that has been removed cumulative in the last 80 years.

118
00:21:26.940 --> 00:21:36.699
Barbara Salzman: I didn't… I didn't actually see that you've been withdrawing sand for 80 years either, but now that you've presented that, it's probably quite a bit.

P1-2

119
00:21:36.820 --> 00:21:43.850
Barbara Salzman: And also, with regard to that, if you've done any analysis of

120
00:21:44.060 --> 00:21:50.080
Barbara Salzman: where in the Bay, I mean, the, the, the, EIOR seems to…

P1-3

121
00:21:50.110 --> 00:22:00.060
Barbara Salzman: In my opinion, kind of excuse what's happening by the fact that it's, the bay currents are dynamic and the sand moves around.

122
00:22:00.090 --> 00:22:14.969
Barbara Salzman: But it must be coming from somewhere, and I didn't see any, mention or concern about where it's coming from. So, I would like an answer to that in, in your written comments, and

123
00:22:15.430 --> 00:22:18.950
Barbara Salzman: In your comments, you know, your final document.

124
00:22:19.190 --> 00:22:19.880
Barbara Salzman: Thanks.

125
00:22:20.970 --> 00:22:25.620
Christopher Huitt: Thank you very much, Ms. Saltzman. We will respond to your comments in the final EIR.

126
00:23:17.130 --> 00:23:18.260
Christopher Huitt: Okay.

127
00:23:18.650 --> 00:23:22.929
Christopher Huitt: since… We do not have any more hands right now.

128
00:23:23.780 --> 00:23:26.810
Christopher Huitt: We are going to go ahead and proceed.

129
00:23:31.190 --> 00:23:41.190
Christopher Huitt: This concludes the comment period, for this session. This slide provides…

130
00:23:41.560 --> 00:23:49.039
Christopher Huitt: The mailing address, this slide here up on the web now, is for email comments.

131
00:23:49.110 --> 00:24:03.160
Christopher Huitt: CEQA.comments at slc.ca. Please include sand mining SCIR

P1-3 cont.

comments in the email subject line, or mail your comments to the California State Lands Commission.

132
00:24:03.480 --> 00:24:07.599
Christopher Huitt: Attention to me, Christopher Hewitt, at 100 Howe Avenue.

133
00:24:09.020 --> 00:24:14.220
Christopher Huitt: Suite 100 South, Sacramento, California, 95825.

134
00:24:15.150 --> 00:24:18.500
Christopher Huitt: The link to the NOA is provided in the chat as well.

135
00:24:18.610 --> 00:24:24.369
Christopher Huitt: And that can be used as a reference, At the beginning. So…

136
00:24:25.950 --> 00:24:36.190
Christopher Huitt: Again, on behalf of the State Lands Commission, we sincerely appreciate your interest and participation today, and look forward to your input on the draft SEIR.

137
00:24:36.950 --> 00:24:39.520
Christopher Huitt: Thanks again, everyone. Have a pleasant evening.

138
00:24:39.700 --> 00:24:40.600
Christopher Huitt: Take care.

Responses to P1 Comments

P1-1 This introductory comment from Barbara Salzman of the Marin Audubon Society does not contain any specific questions or comments on the SEIR; therefore, no response is warranted.

P1-2 The topic of sand extraction and associated cumulative effects is discussed in Section 3.3.6 of the SEIR.

P1-3 Refer to Master Response F– Sand Transport for a discussion of sand transport. See also Master Response H- Mineral Resources for a discussion of sand as a nonrenewable resource.

PART III – REVISIONS TO THE DRAFT SEIR

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EXECUTIVE SUMMARY

The California State Lands Commission (CSLC or Commission) has prepared this Supplemental Environmental Impact Report (SEIR) in accordance with the California Environmental Quality Act (CEQA; Pub. Res. Code §21000 et seq.) and its implementing regulations, the CEQA Guidelines (14 Cal. Code Regs. §15000 et seq.). The Commission holds title to and manages tidelands and submerged lands and beds of navigable waterways for the benefit of all people of the State for statewide Public Trust purposes, which include waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. The Commission may grant leases on these State lands for such purposes as, but not limited to, ports, marinas, docks and wharves, and dredging.

Two marine aggregate companies, Martin Marietta Marine Operations, LLC (Martin Marietta) and Lind Marine Inc. (Lind), or their predecessors in interest, have held leases issued by the Commission to harvest sand commercially (sand mining) within San Francisco Bay and the western Delta for more than 80 years. Martin Marietta and Lind are referred to collectively in this SEIR as the Lessees or Applicants. Following the Commission's certification of the San Francisco Bay and Delta Sand Mining Project Environmental Impact Report (State Clearinghouse No. 2007072036) on October 12, 2012 (2012 EIR), the CSLC authorized two leases for the Applicants to conduct sand mining in the Central San Francisco Bay and Suisun Bay in 2012 and 2013, respectively. The leases are provided in Appendix A. The Central Bay leases were reapproved by the Commission in 2016 based on analysis documented in the 2012 EIR.

ES.1 PROJECT OVERVIEW AND LOCATIONS

ES.1.1 Overview of the Revised Project

The Applicants applied to the CSLC to authorize continued commercial mining of sand for 10 additional years from the date of lease issuance at reduced maximum annual and total sand mining volumes over the proposed lease term (Revised Project) relative to the maximum annual and total volumes previously evaluated under the 2012 EIR for the term of the prior Leases. More specifically, the Revised Project proposes a reduction in the authorized annual materials extraction volume in four out of the six existing lease areas (inclusive of the private Middle Ground lease): the authorized lease volume would be reduced by 289,866 cubic yards per year [cy] from 2,039,866 cy to 1,750,000 cy. The proposed authorized volumes in two Central Bay leases would remain unchanged. Further, the Applicants currently use five of the nine offloading

facilities described and examined in the 2012 EIR.[1] For purposes of analysis, this SEIR for the Revised Project addresses continued use of the Petaluma, Mare Island, Collinsville, Pier 92, and Tidewater offloading facilities. The issuance of new Leases for the Revised Project would require discretionary action by the Commission and compliance with CEQA.

ES.1.2 Locations

The 2012 EIR describes the sand mining lease area boundaries and the parcel numbers that comprise the existing Leases in Part III, Section 2.2.2 (2012 EIR, p. 2-2) and Part III, Section 2.3.1 (2012 EIR, p. 2-7 et seq.). No change is proposed to the existing lease area boundaries, which are shown in Figures ES-1 and ES-2.

Briefly, the Applicants currently are conducting sand mining in six lease areas in the Central San Francisco Bay (Central Bay) and in the Suisun Bay[2] area of the western Sacramento-San Joaquin Delta (Delta). The Central Bay leases constitute 2,601-acres and consist of nine parcels of submerged lands within four leases currently issued by the Commission (Figure ES-1). The Suisun Bay lease area totals 938 acres and consists of two parcels of submerged lands within a single Commission-issued lease (Figure ES-2). In addition to the Commission-issued Leases, a third, privately-owned lease area (not under the jurisdiction of the Commission) authorizes sand mining in the Middle Ground Shoal of Suisun Bay (Figure ES-2). Although outside of Commission jurisdiction, the 2012 EIR and this SEIR also consider the potential impacts of sand mining within the private Middle Ground Shoal lease area.

[1] The use of particular offloading sites does not require Commission authorization, but are included in the scope of the SEIR analysis consistent with the 2012 EIR.

[2] Suisun Bay is the easternmost of the four main basins that make up San Francisco Bay.

Figure ES-1. Central SF Bay Lease Areas

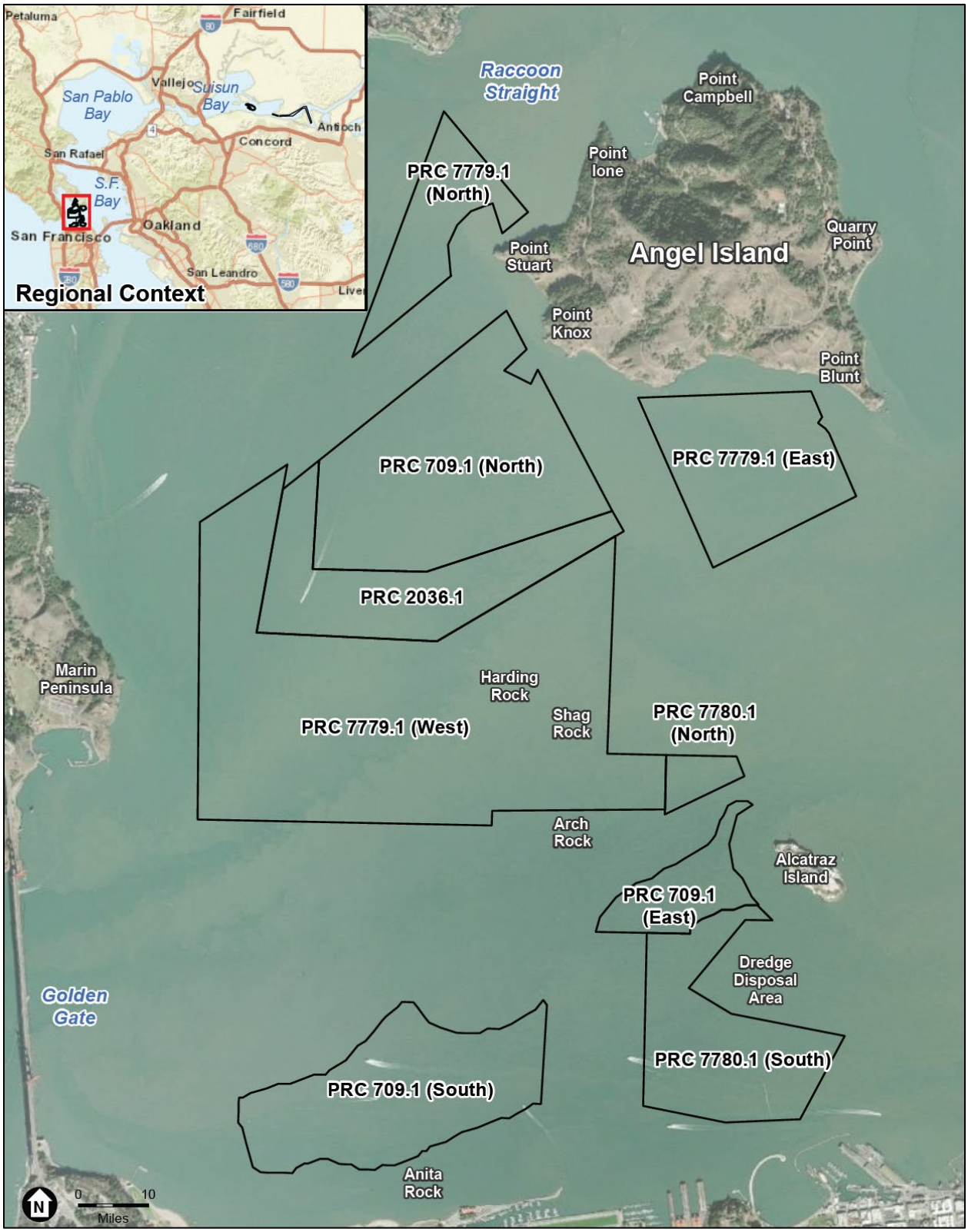
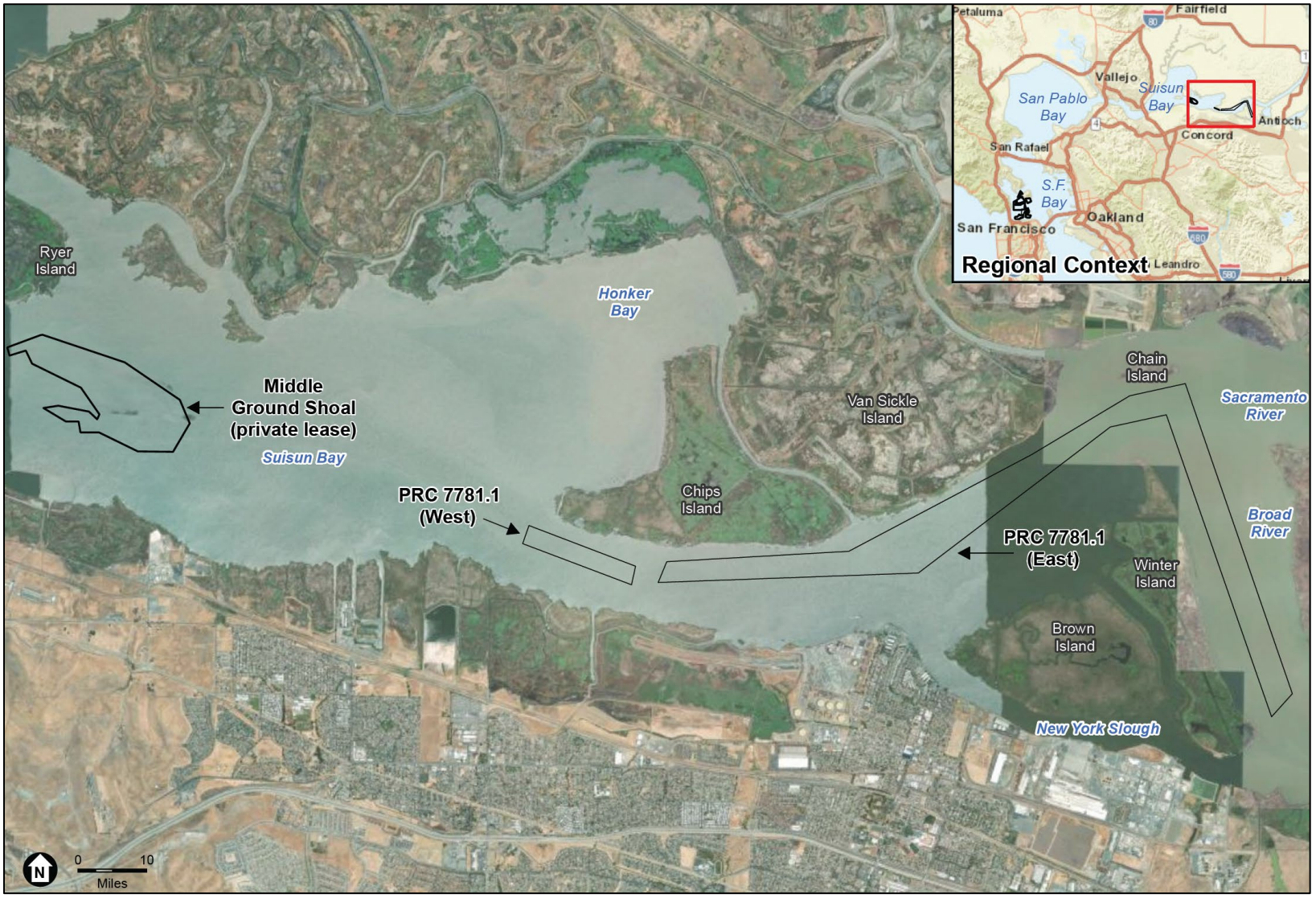


Figure ES-2. Suisun Bay Lease Areas



Source: ESA, 2022

ES.2 PURPOSE, FOCUS, AND USE OF THIS SEIR

ES.2.1 Purpose of this SEIR

An EIR (like the 2012 EIR) is an informational document intended to inform public agency decision makers and members of the public of the potential significant environmental effects of a project, identify possible ways to minimize those effects, and describe reasonable alternatives to the project (14 Cal. Code Regs. §15121). The purpose of a supplemental EIR (like this SEIR) is to document the minor additions or changes necessary to make an original EIR adequate for a revised project, and it only needs to contain the information necessary to meet that purpose. A supplemental EIR augments the previous EIR to address a limited set of issues, and the two must be considered together when the lead agency determines whether to issue a further approval for the project (14 Cal. Code Regs. §15163).

The Revised Project, as proposed, is a modification of the project analyzed in the 2012 EIR (2012 Project), namely the continuation of the San Francisco Bay and Delta Sand Mining Project for an additional 10-year lease term at reduced total and annual permitted extraction volumes with the delivery of mined sand to fewer offloading sites than analyzed in the 2012 EIR. Because new scientific information (i.e., the technical studies identified in Section 1.2.3 of this SEIR), was developed subsequent to the 2012 EIR and could affect the previous analysis, the Revised Project is analyzed in light of that new information. Because only minor changes are necessary to make the 2012 EIR apply to the Revised Project, the Commission is preparing an SEIR.

The information in this SEIR supplements, and incorporates by reference, information from the following documents:

- The 2012 EIR certified by the Commission on October 19, 2012
- Findings of the Commission as a CEQA lead agency pursuant to CEQA Guidelines section 15091 (Item 101, October 19, 2012)
- Leases PRC 709.1, PRC 2036.1, PRC 7779.1, and PRC 7780.1, approved by the Commission on October 19, 2012
- Lease PRC 7781.1, approved by the Commission February 22, 2013 (Item C42, February 22, 2013)

- The 2016 re-approval of the 2012 EIR, certified by the Commission on June 28, 2016 (Item C33, June 28, 2016)[3]

ES.2.2 Focus of this SEIR

This SEIR documents and analyzes the changes between the San Francisco Bay and Delta Sand Mining Project analyzed in the 2012 EIR and the proposed Revised Project. While, arguably, the Commission may rely on the 2012 EIR in considering whether to approve the Revised Project, the development of new technical studies (listed in Section 1.2.3) of potentially substantial importance has been identified by CSLC as rendering an SEIR appropriate under Sections 15162 and 15163 of the CEQA Guidelines.

This SEIR focuses on two areas:

1) Proposed changes to the project described and analyzed in the 2012 EIR, consisting of:
   i) the proposed issuance of new Leases for a 10-year period;
   ii) the proposed reduction in the authorized annual materials extraction volume in four of the six lease areas from 2,039,866 cy to 1,750,000 cy; and
   iii) continued use of current material offloading facilities, which are a subset of sites identified in the 2012 EIR.
2) A consideration of monitoring and technical studies conducted since certification of the 2012 EIR to assess whether they contain new information of substantial importance for purposes of CEQA.

The SEIR assesses the Revised Project as modified from the project described in the 2012 EIR and informed by the new technical studies. Because the Revised Project is substantially a continuation of the activities described in the 2012 EIR, the impact analysis of many of the resource areas addressed in the 2012 EIR is

[3] In November 2015, the First District Court of Appeal upheld the 2012 EIR pursuant to CEQA, finding that the Commission's analyses of Project impacts were supported by substantial evidence. The Court held that the Commission had not adequately considered its obligations under the common law Public Trust Doctrine and remanded the case to the trial court. In June 2016, the Commission prepared a public trust analysis and reapproved the Central Bay leases in compliance with the Court's ruling, which was upheld by the Court on October 31, 2018. The information and impacts analyses presented in the 2012 EIR for purposes of complying with CEQA remain relevant to the current analysis.

unchanged. As analyzed in SEIR Section 3, Project Impacts and Mitigation Measures, the SEIR focuses on the following resource areas: Air Quality and Greenhouse Gas Emissions, Biological Resources, Cultural and Tribal Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Recreation, and Mineral Resources. The consistency analysis documented in SEIR Section 3.9 determined that the Revised Project would otherwise not affect the conclusions reached in the 2012 EIR.

ES.2.3 Use of this SEIR

As described in the 2012 EIR, Part III, Section 1.3, sand mining in the Bay and Delta is a highly regulated activity. This SEIR is intended to provide the Commission and each responsible and trustee agency with the information required to exercise its jurisdictional responsibilities with respect to the Revised Project, which would be considered at a noticed public meeting of the Commission. The SEIR will be used by the Commission to determine whether to approve the application and grant new 10-year leases of California sovereign lands to the Applicants for the purpose of mining sand.

The SEIR is also intended to provide information needed by other State and local agencies with jurisdiction to exercise their responsibilities in issuing discretionary permits associated with the Revised Project. To continue mining sand from the lease parcels and privately owned Middle Ground shoals site, the Applicants require discretionary approvals from the responsible agencies listed in SEIR Section 1.4, Project Permits and Approvals.

ES.3 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

In this SEIR, the terms "effect" and "impact" are synonymous and can refer to effects that are either adverse or beneficial.

- **Direct effects** are caused by the Revised Project and occur at the same time and in the same place as the Revised Project.
- **Indirect effects** are caused by the Revised Project but occur later in time or further in distance, though still reasonably foreseeable.
- **Residual impacts** are impacts that still meet or exceed significance criteria after application of mitigation and therefore remain significant.
- **Cumulative impacts** are the changes in the environment resulting from the incremental impact of the Revised Project when added to other past,

present, and reasonably foreseeable probable future projects. To the extent that the effects of past projects are reflected in baseline conditions, this analysis does not double-count them. Future projects are "reasonably foreseeable" if they were either proposed or approved at the time development of this SEIR was initiated (see Table 3.1-2, Cumulative Projects List in Section 3.1.5 of this SEIR). Cumulative impacts could result from individually minor but collectively significant activities from projects that take place over time.

- **Short-term impacts** are those expected to occur during mining activities related to the Revised Project that do not have lingering effects for an extended period once active mining is complete.
- **Long-term impacts** are those that persist for an extended period after mining activities are completed.

As described in this ~~Draft~~ SEIR, Chapter 3, the Revised Project would rely on continued implementation of the project design features, best management practices, and mitigation measures to minimize environmental impacts. For the following resource areas, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact identified in the 2012 EIR:

- Biological Resources
- Hazards and Hazardous Materials
- Air Quality and Greenhouse Gas Emissions
- Cultural and Tribal Cultural Resources
- Land Use and Recreation

~~Consistent with the analysis in the 2012 EIR, t~~The Revised Project would not result in ~~one~~any significant unavoidable impacts~~ (Impact BIO-8) for purposes of CEQA~~.

ES.4 SUMMARY OF ALTERNATIVES

ES.4.1 Project Purpose and Objectives

CEQA and the CEQA Guidelines require a lead agency to analyze a reasonable range of alternatives to a proposed project that could feasibly attain most of the basic objectives of the project while substantially reducing or eliminating its

significant environmental effects. A project's statement of objectives describes the purpose of the project and the reasons for undertaking it. As explained in Section 2.2 of this SEIR, the purpose of the Revised Project, as stated by the Applicants, is to assure the availability of marine sands for commercial and public purposes within the greater San Francisco Bay area. The basic objective of the Revised Project is to continue to mine sand at an economically viable level over the next 10 years to make this mineral resource available for commercial and public use.

ES.4.2 Alternatives Considered

The following alternatives were evaluated in this SEIR:

- Revised Project
- No Project Alternative

See SEIR Section 4, Alternatives.

ES.4.3 Environmentally Superior Alternative

As explained in Section 6.6 of the 2012 EIR, CEQA Guidelines section 15126.6(d) requires an EIR to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Section 15126.6(e)(2) further states, in part, that "*If the environmentally superior alternative is the "No Project" alternative*, the EIR shall also identify an environmentally superior alternative among the other alternatives."

SEIR Section 5.7 explains that the No Project Alternative would be the environmentally superior alternative because it would avoid all of the potential significant impacts of the Revised Project. Thereafter, consistent with the direction in CEQA Guidelines section 15126.6(e)(2) and based on the comparison of alternatives provided in Section 4 of this SEIR, Section 5.7 explains that the Commission preliminarily has identified the Revised Project as the environmentally superior alternative.

ES.5 KNOWN AREAS OF CONTROVERSY

CEQA Guidelines section 15123(b) requires an EIR to include a brief summary of areas of known controversy. Any of the environmental issues considered during public scoping or in this Draft SEIR could become an issue of controversy. Preliminarily, the Commission has identified areas of controversy as including the

issues and questions raised in comments received during the scoping process summarized in Section 1.2.5 of this SEIR. Scoping input received is provided in Appendix B and relates to: baseline conditions in the lease areas, potential impacts on cultural resources or tribal cultural resources; consistency with the San Francisco Bay Plan; hydrology and water quality, including sediment, bathymetry, morphology, and sand loss; biological resources, including aquatic and terrestrial species and habitat; and the Public Trust. Each of these areas of known controversy is being evaluated by the Commission as part of its consideration of potential significant impacts, mitigation measures, and alternatives and in the context of any decision whether to approve the Revised Project.

ES.6 ISSUES TO BE RESOLVED

CEQA Guidelines section 15123(b) also requires an EIR to identify issues to be resolved, which include the choice among alternatives and whether or how to mitigate significant impacts. The following major issues are to be resolved:

- Determine whether the SEIR adequately describes the environmental impacts of the Revised Project.
- Choose among alternatives.
- Determine whether the recommended mitigation measures should be adopted or modified.
- Determine whether additional mitigation measures need to be applied to the Revised Project.

ES.7 ORGANIZATION OF THIS SEIR

This SEIR presents information, including information required by CEQA (14 Cal. Code Regs. §15122-15131) and pursuant to the Commission's non-CEQA considerations, as shown below.

- Executive Summary: Consistent with CEQA Guidelines section 15123, this SEIR contains a brief summary that describes the Revised Project and its environmental consequences (including potential significant impacts and mitigation measures and alternatives that could avoid or reduce potential significant impacts), areas of controversy known to the Commission, and issues to be resolved.

- Table of Contents: Consistent with CEQA Guidelines section 15122, this SEIR contains a table of contents to assist readers in navigating the document.

- Section 1, Introduction: Contains a brief introduction to the application for new Leases to conduct sand mining activities within the lease areas over another 10-year period, including the Revised Project location and background and an overview of the environmental review process.

- Section 2, Project Description: Consistent with CEQA Guidelines section 15124, Section 2 discloses and shows on a detailed map the precise location and boundaries of the Revised Project, provides a statement of Applicants' objectives for the Revised Project, and generally describes the Revised Project's characteristics. Section 2 also identifies the agencies that are expected to use the SEIR in their decision making, and lists permits and other approvals that may be required to implement the Revised Project.

- Section 3, Project Impacts and Mitigation Measures: Consistent with CEQA Guidelines section 15125, Section 3 of this SEIR describes the environmental setting. Consistent with CEQA Guidelines sections 15126, 15126.2, 15126.4, and 15130, Section 3 also considers and discusses the direct, indirect, and cumulative environmental impacts of the Revised Project as well as mitigation measures that could, if implemented, avoid or reduce potential significant effects. Consistent with CEQA Guidelines section 15128, Section 3 identifies effects found not to be significant.

- Section 4, Alternatives: Consistent with CEQA Guidelines sections 15126(f) and 15126.6, Section 4 of this SEIR discusses alternatives, including a "no project" alternative.

- Section 5, Other Considerations: Consistent with CEQA Guidelines sections 15126 and 15126 subsections (c), (d), and (e), Section 5 addresses potential significant environmental effects that cannot be avoided if the Revised Project is implemented and considers significant irreversible environmental changes, and growth-inducing impacts. Economic and social effects are considered consistent with CEQA Guidelines section 15131. Other Commission considerations, such as CSLC's Public Trust responsibilities, also are discussed in SEIR Section 5.

- Section 6, Mitigation Monitoring Program.

- Section 7, Report Preparation and References. Consistent with CEQA Guidelines section 15129, SEIR Section 7 identifies the entities, organizations, and persons consulted as well as the people involved in the preparation of the SEIR.

This SEIR also contains the appendices listed below:

- Appendix A Existing Sand Mining Leases
- Appendix B Scoping Materials
- Appendix C Benthic Study
- Appendix D Bathymetric and Hydrodynamic Study
- Appendix E Consideration of Post-2012 Technical Studies
- Appendix F Existing 2012 Project Mitigation (as Amended) and Incidental Take Permits
- Appendix G Biological Resources Supplemental Information
- Appendix H Draft SEIR Public Notices

Table ES-1. Summary of Environmental Impacts for the Revised Project

Impact No.	Potential Impact (brief title)	Impact Class	Mitigation Measures
Section 3.2 Biological Resources			
BIO-1	Potential displacement of special status species. Commercial sand mining in the San Francisco Bay-Delta may result in the direct and indirect physical displacement of special status fish species, including delta smelt, longfin smelt, green sturgeon, Chinook salmon, steelhead trout, and Pacific herring, Fishery Management Plan-managed pelagic fish and groundfish, marine bird species such as California brown pelican, and protected marine mammals, including California gray whale, humpback whale, California sea lion, harbor seal, and harbor porpoise.	III	LTS Impact; no mitigation necessary.
BIO-2	Potential impacts on fish and wildlife species from increased noise. Sand mining activities under the Revised Project result in increased noise at the location of the suction drag head on the seafloor that can result in increased disturbance to marine biota, especially fish, including special status fish species.	III	LTS Impact; no mitigation necessary.

Table ES-1. Summary of Environmental Impacts for the Revised Project

Impact No.	Potential Impact (brief title)	Impact Class	Mitigation Measures
BIO-3	Potential sand mining impacts on benthic habitat, infauna, epifauna, and foraging habitat.	III	LTS Impact; no mitigation necessary.
BIO-4	Discharge of suspended sediments under the Revised Project may potentially release contaminants into waters that affect plankton and wildlife species.	III	LTS Impact; no mitigation necessary.
BIO-5	Disturbance of sediments at the seafloor under the Revised Project could result in increased turbidity, SSC, and release of contaminants that potentially impact plankton and wildlife species.	III	LTS Impact; no mitigation necessary.
BIO-6	The Revised Project could result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging.	II	Implement MM BIO-6: Establish a 100-foot buffer around hard bottom areas within and adjacent to Central Bay mining leases.
BIO-7	The Revised Project will cause entrainment and mortality of common and managed aquatic species.	III	LTS Impact; no mitigation necessary.
BIO-8	The Revised Project operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt.	II	Implement MM BIO-8: Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt.

Table ES-1. Summary of Environmental Impacts for the Revised Project

Impact No.	Potential Impact (brief title)	Impact Class	Mitigation Measures
BIO-9	The Revised Project could cause the entrainment and mortality of green sturgeon, white sturgeon, Chinook salmon and steelhead trout during sand mining.	II	Implement MM BIO-9a: Applicants shall minimize the potential for entrainment and mortality of white sturgeon. Implement MM BIO-9b: Applicants shall implement operational restrictions and requirements for the avoidance and minimization of entrainment of Chinook salmon.
BIO-10	Potential effects on fish movement and migration.	III	LTS Impact; No mitigation necessary.
CE BIO-1	Contribution to cumulative effects on biological resources.	III	LTS Impact; No mitigation necessary.
Section 3.3 Mineral Resources			
MIN-1	Loss of availability of a known mineral resource of value to the region or residents of the State.	III	LTS Impact; No mitigation necessary.
MIN-2	Loss of availability of a locally important mineral resource recovery site.	III	LTS Impact; No mitigation necessary.
CE MIN-1	Contribute to cumulative loss of availability of mineral resources.	III	LTS Impact; No mitigation necessary.
Section 3.4 Hydrology and Water Quality			
HYD-1	The Revised Project would have potentially adverse effects on water quality.	III	LTS Impact; No mitigation necessary.

Table ES-1. Summary of Environmental Impacts for the Revised Project

Impact No.	Potential Impact (brief title)	Impact Class	Mitigation Measures
HYD-2	The Revised Project would result in potentially adverse effects on the hydrology and geomorphology of the Bay and Delta.	III	LTS Impact; No mitigation necessary.
CE HYD-1	Contribution to cumulative effects on water quality.	III	LTS Impact; No mitigation necessary.
CE HYD-2	Contribution to cumulative effects on hydrology (sediment transport and coastal morphology).	III	LTS Impact; No mitigation necessary.
Section 3.5 Hazards and Hazardous Materials			
HAZ-1	Potential for accidental leak or spill of hazardous materials.	II	Implement MM. HAZ-1: Provide a California Non-tank Vessel Contingency Plan/ Certificate of Financial Responsibility.
HAZ-2	Hazard to the public or environment.	III	LTS Impact; No mitigation necessary.
CE HAZ-1	Contribution to cumulative effects on hazards and hazardous materials.	III	LTS Impact; No mitigation necessary.
Section 3.6 Air Quality and GHG Emissions			
AIR-1	Conflict with or obstruct implementation of an applicable air quality plan.	III	LTS Impact; no mitigation necessary.
AIR-2	Violate air quality standard or contribute substantially to air quality violation.	III	LTS Impact; no mitigation necessary.
AIR-3	Contribute to cumulative emissions of criteria pollutants for which the region is in non-attainment under an ambient air quality standard.	III	LTS Impact; no mitigation necessary.

Table ES-1. Summary of Environmental Impacts for the Revised Project

Impact No.	Potential Impact (brief title)	Impact Class	Mitigation Measures
AIR-4	Expose sensitive receptors to substantial pollutant concentrations.	III	LTS Impact; no mitigation necessary.
AIR-5	Generate objectionable odors.	III	LTS Impact; no mitigation necessary.
AIR-6	Expose people to increased risk of cancer.	III	LTS Impact; no mitigation necessary.
AIR-7	Result in acute or chronic non-cancer health risk.	III	LTS Impact; no mitigation necessary.
AIR-8	Result in emissions of GHGs that may have an impact on climate change.	II	Implement MM AIR-1 Greenhouse Gas (GHG) Reduction Plan.
AIR-9	Result in GHG emissions that may conflict with any applicable plan, policy, or program.	II	Implement MM AIR-1 Greenhouse Gas (GHG) Reduction Plan.
CE AIR-1	The Revised Project has a low potential to cause a cumulatively considerable contribution to potential significant cumulative effects on air quality.	III	LTS Impact; no mitigation necessary.
Section 3.7 Cultural and Tribal Cultural Resources			
CUL-1	Inadvertent discovery of archaeological historic resources, prehistoric Native American sites, or tribal cultural resources.	II	Implement MM CUL-1a: Cease operations and notify CSLC and USACE. Implement MM CUL-1b and MM CUL-3 Cease operations and notify consulting Native American tribes if the find is Native American in origin

Table ES-1. Summary of Environmental Impacts for the Revised Project

Impact No.	Potential Impact (brief title)	Impact Class	Mitigation Measures
CUL-2	Disturbance of a paleontological resource or unique geological feature.	III	LTS Impact; No mitigation necessary.
CUL-3	Inadvertent discovery of human remains.	II	Implement MM CUL-3: Cease operations and notify County Coroner.
CE CUL-1	Contribute to cumulative impacts resulting from inadvertent discovery of cultural or tribal cultural resources.	II	Implement MM CUL-1a, MM CUL-1b, MM CUL-3, and MM CUL-4: Cease operations and notify consulting Native American tribe if find is Native American in origin.
Section 3.8 Land Use and Recreation			
LU-1	Incompatible land uses.	III	LTS Impact; No mitigation necessary.
LU-2	Incompatible recreational uses.	III	LTS Impact; No mitigation necessary.
LU-3	Residual impacts on recreational resources; interference with sand replenishment at down-current beaches.	III	LTS Impact; No mitigation necessary.
LU-4	Conflicts with adopted land use policies.	II	Implement MM AIR-1, MM BIO-6, MM BIO-8, MM BIO-9a, MM BIO-9b, MM HAZ-1, MM CUL-1, MM CUL-3, MM CUL-4.
CE LU-1	Contribution to cumulative effects on land use and recreation.	II	Implement MM AIR-1, MM BIO-6, MM BIO-8, MM BIO-9a, MM BIO-9b, MM HAZ-1, MM CUL-1, MM CUL-3, MM CUL-4.

1.0 INTRODUCTION

Two marine aggregate companies, Martin Marietta Marine Operations, LLC (Martin Marietta) and Lind Marine Inc. (Lind), or their predecessors in interest, have held leases issued by the California State Lands Commission (CSLC or Commission) to harvest sand commercially (sand mining) within subtidal areas of San Francisco Bay and the western Delta for more than 80 years. Martin Marietta and Lind are referred to collectively in this Supplemental Environmental Impact Report (SEIR) as the Lessees or Applicants. The Commission last authorized leases for the Applicants to conduct sand mining in the Central San Francisco Bay and Suisun Bay in 2012[4] and 2013,[5] respectively. Copies of the 2012 leases, and the 2013 lease (collectively, Leases) are provided in Appendix A, *Existing Leases*. The Applicants have applied to the CSLC for new Leases to conduct sand mining activities within the lease areas over another 10-year period. An additional private lease area in the Middle Ground Shoal of Suisun Bay (not under Commission jurisdiction) is also evaluated in this SEIR.

1.1 PROJECT LOCATION AND BACKGROUND

Issuance of the 2012 and 2013 Leases followed the Commission's certification of the San Francisco Bay and Delta Sand Mining Project Environmental Impact Report (EIR)(State Clearinghouse No. 2007072036) on October 19, 2012 (2012 EIR). The 2012 EIR describes the sand mining lease area boundaries and the parcel numbers that comprise the existing Leases in Part III, Section 2.2.2 (2012 EIR, p. 2-2) and Part III, Section 2.3.1 (2012 EIR, p. 2-7 et seq.). No change is proposed to the existing, approved boundaries of the lease areas.

The Applicants currently are conducting sand mining in four lease areas in the Central San Francisco Bay (Central Bay) and two in the Suisun Bay[6] area of the western Sacramento-San Joaquin Delta (Delta). The Central Bay leases constitute 2,601-acres and consist of nine parcels of submerged lands within four leases currently issued by the Commission (Figure 1-1). The Suisun Bay lease area totals 938 acres and consists of two parcels of submerged lands within a single

[4] The Central Bay leases approved by the Commission October 19, 2012 (Item 101) include PRC 709.1, PRC 2036.1, PRC 7779.1, and PRC 7780.1. These leases were re-approved by the Commission June 28, 2016 (Item 33).

[5] Lease PRC 7781.1 was approved by the Commission February 22, 2013 (Item 42).

[6] Suisun Bay is the easternmost of the four main basins that make up San Francisco Bay. One lease, PRC 7781, is on State lands and another, Middle Ground Shoal, is on private lands.

Commission-issued lease (Figure 1-2). In addition to the Commission-issued Leases, a third, privately-owned lease area, totaling 367 acres (not under the jurisdiction of the Commission), authorizes sand mining in the Middle Ground Shoal of Suisun Bay (Figure 1-2). Although outside of Commission jurisdiction, the 2012 EIR and this SEIR also consider the potential impacts of sand mining within the private Middle Ground Shoal lease area.

1.2 OVERVIEW OF ENVIRONMENTAL REVIEW PROCESS

1.2.1 Project Context with Respect to CEQA

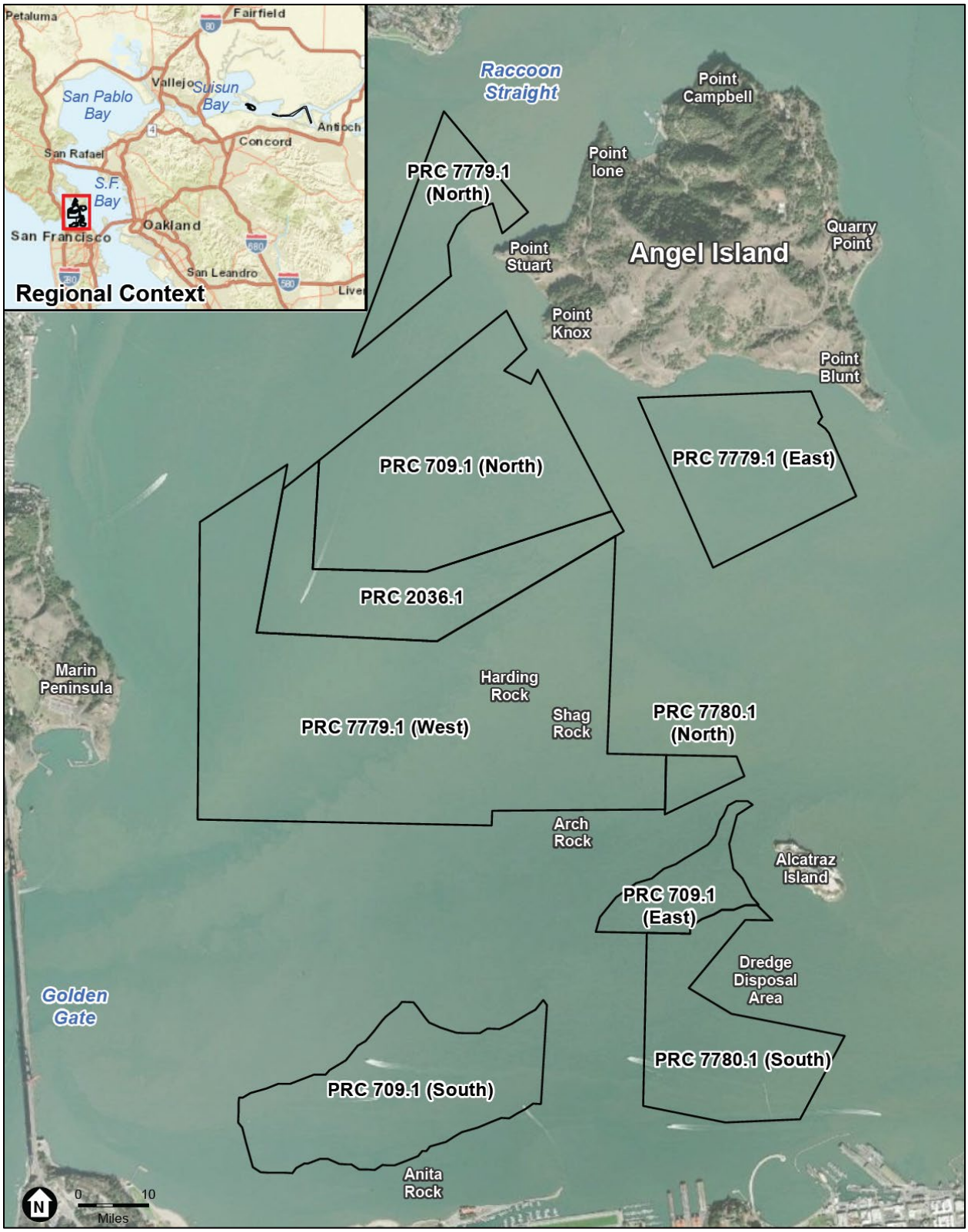
The Applicants applied to the Commission to authorize leases for the commercial mining of sand for 10 additional years at reduced maximum annual and total sand mining volumes over the proposed lease term (Revised Project) relative to the maximum annual and total volumes previously evaluated under the 2012 EIR for the prior lease term. No change is proposed to the existing lease area boundaries (Figures 1-1 and 1-2). The issuance of new leases is a discretionary action by the Commission requiring compliance with the California Environmental Quality Act (CEQA).

1.2.2 Previous CEQA Document

The Commission prepared the San Francisco Bay and Delta Sand Mining Project Environmental Impact Report (State Clearinghouse No. 2007072036) to assess the potential environmental effects of issuing the current Leases. The Commission certified the EIR on October 12, 2012 (2012 EIR).

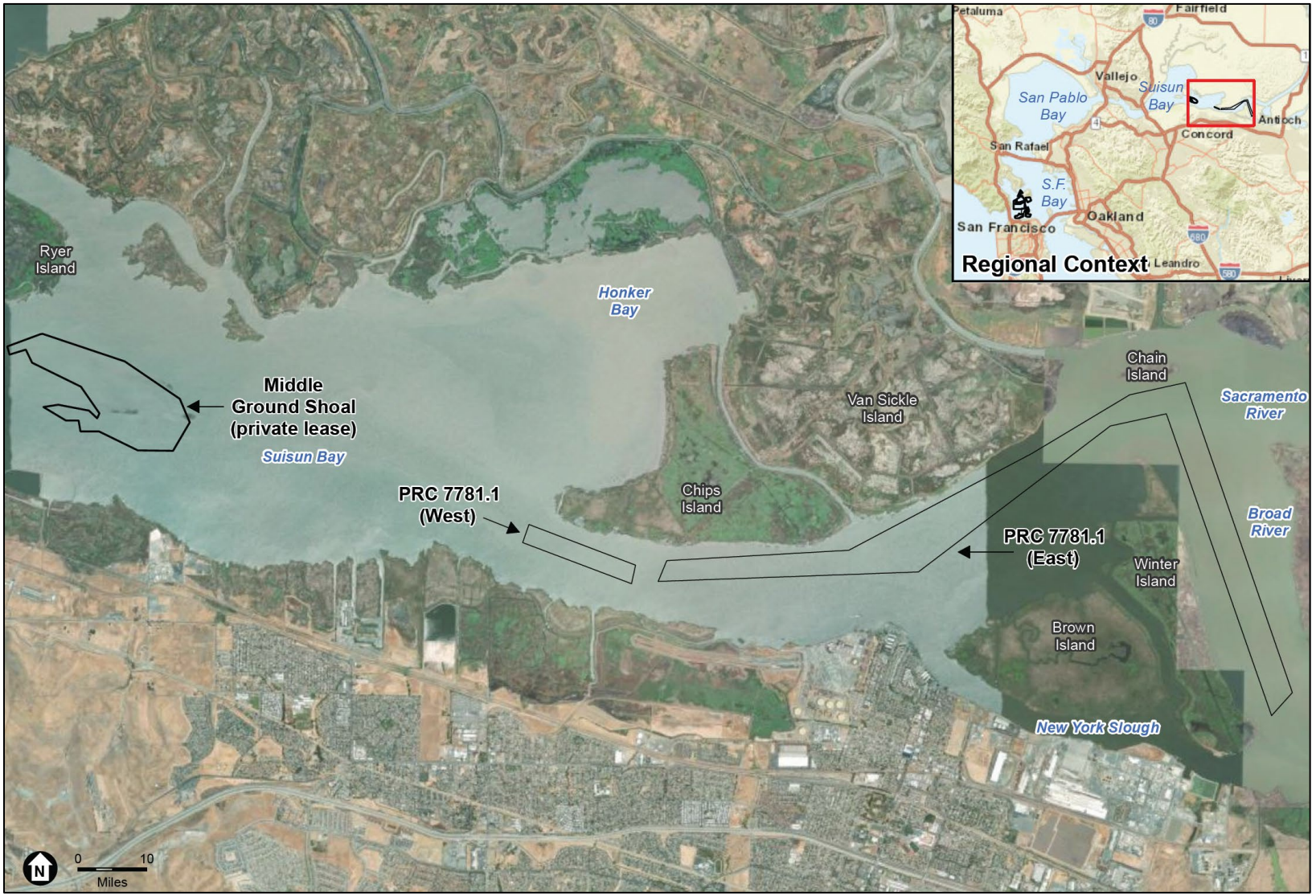
Following approval of the Leases, San Francisco Baykeeper, Inc. (Baykeeper) sued, challenging the Commission's approvals pursuant to CEQA and the Public Trust Doctrine. The San Francisco County Superior Court denied Baykeeper's claims, upholding both the EIR and the Commission's implementation of its public trust responsibilities. Baykeeper appealed, resulting in two opinions by the Court of Appeal. The first, issued November 18, 2015, resolved the CEQA claims in the Commission's favor, upholding the EIR and its analysis of project-level and cumulative impacts, including the EIR's discussion and analysis of potential impacts on sediment transport and coastal geomorphology. However, the Court found that the Commission had not adequately considered its obligations under the common law Public Trust Doctrine as part of its 2012 Project approval.

Figure 1-1. Lease Areas – Central Bay



Source: ESA, 2022

Figure 1-2. Lease Areas – Suisun Bay



Source: ESA, 2022

See *San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal.App.4th 202. In June 2016, the Commission prepared a public trust analysis and reapproved the Central Bay leases in compliance with the Court's ruling (Item 33, June 28, 2016). Baykeeper again challenged the Commission's public trust findings, which resulted in a second published decision by the Court of Appeal. The second decision, filed October 31, 2018, upheld the Commission's public trust analysis, ruling that the Commission performed its duty to take the public trust into account before it reapproved the Central Bay leases and that substantial evidence supported the Commission's findings that the Project would not impair public trust uses or values. See *San Francisco Baykeeper, Inc. v. State Lands Commission* (2018) 29 Cal.App.5th 562.

The Revised Project would consist of a continuation of the ongoing operations described and analyzed in the 2012 EIR for 10 additional years at reduced annual and total volumes of sand extraction over the renewed lease term relative to those previously evaluated in the 2012 EIR for the prior lease term. Part III, Section 2.2 of the 2012 EIR (p. 2-2 et seq.) provides background information, including history and context for the sand mining operations that continue to be in effect. The information presented in the 2012 EIR remains relevant to the current analysis and is not repeated in this SEIR.

1.2.3 Preparation of Technical Studies Since 2012 EIR

The 2012 EIR was prepared based on input from the community, regulatory agencies, and technical analyses by relevant experts. It considered facts, reasonable assumptions based on facts, and expert opinion regarding bathymetry and sediment dynamics relating to deposition and erosion (among many other potential impact areas). Technical study of these and related considerations has continued since certification of the 2012 EIR. For example, as a condition of the permits approved in 2015 by the San Francisco Bay Conservation and Development Commission (BCDC) and the San Francisco Bay Regional Water Quality Control Board (RWQCB), the permittees (Lessees/Applicants) were required to fund certain scientific studies to increase the understanding of physical and biological systems in the San Francisco Bay and Delta (Bay-Delta), and the potential impacts of sand mining on those systems. To facilitate such permit conditions, BCDC and two Technical Advisory Committees (TACs) of sediment experts commissioned several studies to provide review and interpretation of benthic and sediment transport, geomorphology, and water quality, among other topics.

The following monitoring and technical studies, in chronological order, have been prepared since certification of the 2012 EIR. The studies (7-10) listed below were commissioned by BCDC and the California State Coastal Conservancy (SCC):

1) Hanson Marine Operations and Lind Marine, Inc. Sand Mining Water Quality Monitoring Program Results Report (NewFields, 2018a)

2) *Benthic Assessment of Sand Mining in Central San Francisco and Suisun Bays Data Report (*NewFields, 2018b)

3) *Change Analysis Report Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys* (eTrac Inc., 2018a)

4) *Additional Analysis Report 2008 – 2014 – 2018 Bathymetric Survey Comparison Central San Francisco Bay Lease Area Surveys* (eTrac Inc., 2018b)

5) *Technical Memorandum Benthic Assessment of Sand Mining Supplemental Data Evaluation* (NewFields, 2020)

6) *Change Analysis Report Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys* (eTrac Inc., 2023)

7) *Modeling Sand Transport and the Effect of Sand Mining in San Francisco Bay* (Anchor QEA, 2023)

8) *Sand Budget and Sand Transport in San Francisco Bay* (McKee et al. 2023)

9) *Understanding Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and Outer Coast* (Deltares 2023a, 2023b, 2023c)

    - *Part 1: Morphodynamic change and bedform dynamics*
    - *Part 2: Mining volume and area analysis*
    - *Part 3: Synthesis*

10) *Fingerprinting Sand and Its Transport History through San Francisco Bay: Implications for Sand Mining and Its Environmental Effects* (Malkowski et al. 2023)

11) Benthic Infauna Data Analysis (AMS, 2025)

12) *Sand Mining Impact Analysis: Desktop morphology study; Sediment transport modeling study* (Fenical/Coast and Harbor Engineering, 2025)

1.2.4 Draft Supplemental EIR

1.2.4.1 Rationale for Supplemental EIR

Once a project has been subject to environmental review and approved by a decision-making body, Public Resources Code section 21166 and CEQA Guidelines[7] section 15162 limit the circumstances under which further environmental review under CEQA must occur. A subsequent or supplemental EIR must be prepared when:

1) substantial changes are proposed in the project that will require major revisions of the EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2) substantial changes occur with respect to the circumstances under which the project is being undertaken that will require major revisions in the EIR due to the involvement of new significant, environmental effects or a substantial increase in the severity of previously identified significant effects; or

3) new information of substantial importance, which was not known and could not have been known at the time the EIR was certified, becomes available and shows any of the following: 1) new significant effects, 2) substantially more severe significant effects, or 3) that mitigation measures or alternatives exist that would substantially reduce one or more significant effects, but the Applicants decline to adopt the mitigation measures or alternatives.

As discussed in more detail in section 1.3.1, below, based on a preliminary assessment of application materials submitted for the Revised Project, CSLC staff determined that one or more of the triggering conditions merited further inquiry, specifically the availability of new scientific information developed subsequent to the 2012 EIR, but that only minor additions or changes would be necessary to make the 2012 EIR adequate, under CEQA, to analyze the Revised Project. Therefore, pursuant to Public Resources Code section 21166 and CEQA Guidelines sections 15162 and 15163, CSLC staff determined that an SEIR is appropriate.

[7] The State CEQA Guidelines are found at California Code of Regulations, title 14, section 15000 et seq.

1.2.4.2 Limits of SEIR Content

The CEQA Guidelines are clear that a supplement to an EIR need only contain the information necessary to make the previous EIR adequate for the project as revised (14 Cal. Code Regs. § 15163, subd. (b)).

The SEIR augments the 2012 EIR, and the two must be considered together when the Commission determines whether to issue new Leases (14 Cal. Code Regs. §15163(e)).

1.2.5 Public Scoping (2023)

CEQA Guidelines section 15083 provides that a "Lead Agency may … consult directly with any person … it believes will be concerned with the environmental effects of the project." Scoping is the process of early consultation with affected agencies and the public before completion of a draft EIR. CEQA Guidelines section 15083(a) states that scoping can be "helpful to agencies in identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important." Scoping is an effective way to bring together and consider the concerns of affected state, regional, and local agencies, the project proponent, and other interested persons (14 Cal. Code Regs. § 15083, subd. (b)). The purpose of scoping is to determine the scope of information and analysis to be included in an EIR, and thereby to ensure that an appropriately comprehensive and focused EIR will be prepared that provides a firm basis for informed decision-making.

On May 25, 2023, pursuant to Public Resources Code section 21080.4 and State CEQA Guidelines section 15082, subdivision (a), CSLC issued the Notice of Preparation (NOP) of a Supplemental EIR (SEIR) and Notice of Public Scoping Meeting for the Revised Project to responsible and trustee agencies, Tribes, and other interested parties. Through the NOP, CSLC staff solicited written and verbal comments on the SEIR's scope during a 30-day comment period and held one in-person and one hybrid (in-person and virtual (Zoom)) public scoping meeting on June 8, 2023, to solicit verbal comments on the scope of the SEIR. At the beginning of the hybrid meeting, staff learned that the Zoom link provided was incorrect, so on June 9, 2023, CSLC posted on its website and emailed to interested parties notice of an additional virtual meeting that was held on June 20, 2023. No oral comments were provided at any of the three scoping meetings. The NOP and Notice of Additional Scoping Meeting are provided in Appendix B.

Written comments received on the NOP during the scoping period are listed in Table 1-1, which lists the agencies, organizations, and individuals who submitted comments during the scoping period.

Table 1-1. Scoping Commenters

Date	Commenter
Agencies	
6/2/23	Native American Heritage Commission
6/16/23	California Water Board, San Francisco Bay Regional Water Quality Control Board
6/26/23	California Water Board, San Francisco Bay Regional Water Quality Control Board
6/26/23	Delta Stewardship Council, A California State Agency
6/26/23	State of California – Natural Resources Agency, Department of Fish and Wildlife
Organizations	
6/26/23	San Francisco Baykeeper and Citizens Committee to Complete the Refuge (CCCR)
6/26/23	Marin Audubon Society
Individuals	
6/26/23	Libby Lucas
6/27/23	Mary Jane Schramm

1.3 PURPOSE AND SCOPE OF SUPPLEMENTAL EIR

1.3.1 Purpose of Supplemental EIR

The purpose of a supplemental EIR is to document the minor additions or changes necessary to make an original EIR adequate for a revised project, and it only needs to contain the information necessary to meet that purpose. A supplemental EIR augments the previous EIR to address a limited set of issues, and the two must be considered together when the lead agency determines whether to issue a further approval for the project (14 Cal. Code Regs. § 15163). As described below in Section 2.1, *Project Summary*, the Revised Project, as proposed, is a modification of the project analyzed in the 2012 EIR (2012 Project), namely the continuation of the San Francisco Bay and Delta Sand

Mining Project for an additional 10-year lease term at reduced total and annual permitted extraction volumes and the use of fewer offloading sites. Also, new scientific information (the technical studies identified in Section 1.2.3) was developed subsequent to the 2012 EIR and the Revised Project is analyzed in light of that new information. Because only minor changes are necessary to make the 2012 EIR apply to the Revised Project, CSLC is preparing an SEIR.

As described in the 2012 EIR, Part III, Section 1.3, sand mining in the Bay and Delta is a highly regulated activity. This SEIR is intended to provide the Commission and all responsible and trustee agencies with the information required to exercise its jurisdictional responsibilities with respect to the Revised Project, which would be considered at a noticed public meeting of the Commission. The SEIR will be used by the Commission to determine whether to approve the application and grant new 10-year leases of California sovereign lands to the Applicants for the purpose of mining sand.

The SEIR is also intended to provide information needed by other State and local agencies with jurisdiction to exercise their responsibilities in issuing discretionary permits associated with the Revised Project. To continue mining sand from the lease parcels and privately owned Middle Ground shoals site, the Applicants require discretionary approvals from responsible agencies; these agencies are listed in Section 1.4 Project Permits and Approvals. As discussed in Section 1.2.3, since certification of the 2012 EIR, numerous technical studies have been developed that assess sediment transport within and near the Revised Project area and serve to inform agencies in the decision-making process.

1.3.2 Scope of Supplemental EIR

The SEIR documents and analyzes the changes between the San Francisco Bay and Delta Sand Mining Project analyzed in the 2012 EIR and the proposed Revised Project. While, arguably, the Commission may rely on the 2012 EIR in considering whether to approve the Revised Project, the development of new technical studies (listed in Section 1.2.3) of potentially substantial importance has been identified by CSLC as rendering an SEIR appropriate under Sections 15162 and 15163 of the CEQA Guidelines.

This SEIR focuses on two areas:

1) Proposed changes to the project described and analyzed in the 2012 EIR, consisting of:
   i) the proposed issuance of Leases for an additional 10-year period;

ii) the proposed reduction in the authorized annual materials extraction volume in four (PRC-709.1, -7780.1, -7781.1, and Grossi Middle Ground: BCDC Permit 16-78 [Lind]) out of the six lease areas (the authorized lease volume would be reduced by 289,866 cubic yards per year [cy] from 2,039,866 cy to 1,750,000 cy). The proposed authorized volumes in two Central Bay leases (PRC-2036.1 and -7779.1) would remain unchanged; and

iii) continued use of current material offloading facilities, which are a subset of sites identified in the 2012 EIR.[8]

2) A consideration of monitoring and technical studies conducted since certification of the 2012 EIR (listed in Section 1.2.3) to assess whether they contain new information of substantial importance for purposes of CEQA.

The primary analysis within the SEIR, discussed in Section 3, consists of assessing the Revised Project as modified from the project described in the 2012 EIR and informed by the new technical studies. Because the Revised Project is substantially a continuation of the activities described in the 2012 EIR, the impact analysis of many of the resource areas addressed in the 2012 EIR is unchanged. Therefore, the scope of this SEIR is limited to the resource areas listed in Section 1.3.4. The project consistency analysis documented in Section 3.9 determined that the Revised Project would otherwise not affect the conclusions reached in the 2012 EIR.

1.3.3 Baseline Conditions

The California Environmental Quality Act requires that a new project's baseline reflect the actual physical environmental conditions at the time EIR preparation starts; however, where a project has already undergone full CEQA review, the agency need only assess changes to the previously approved project, substantial changes in circumstances, or new information of substantial importance if such changes and new information meet the criteria under Public Resources Code section 21166 and Guidelines section 15162. A supplemental EIR is not meant to re-analyze everything from the original EIR. It specifically focuses on the new or changed aspects of the project or its environment, ensuring that the original EIR is still adequate in light of those changes. In short, this SEIR compares the Revised Project against that approved in the 2012 EIR, it does not conduct a renewed

[8] The use of particular offloading sites does not require Commission authorization, but are included in the scope of the SEIR analysis consistent with the 2012 EIR.

comparison against existing environmental conditions. When an agency is evaluating a proposed change to a project that has previously been reviewed under CEQA, the agency *must* apply CEQA's standards limiting the scope of subsequent environmental review. 14 Cal. Code Regs. § 15162; *Abbatti v Imperial Irrig. Dist.* (2012) 205 Cal.App.4th 650; *Sierra Club v City of Orange* (2008) 163 Cal.App.4th 523, 542. Consistent with this principle, the project impacts reviewed in the prior EIR are properly treated as part of the environmental baseline in a subsequent or supplemental EIR. *Communities for a Better Environment v. South Coast Air Quality Management Dist.,*(2010) 48 Cal. 4th 310, 326 note 11, *Fairview Neighbors v. County of Ventura,* (1999) 70 Cal.App.4th 238, 242. In effect, "the baseline for purposes of CEQA is adjusted such that the originally approved project is assumed to exist." Remy, Thomas, Moose & Manley, Guide to CEQA (11th ed 2007). On this basis, the baseline and existing conditions for purposes of this SEIR assumes the occurrence of the fully authorized sand mining lease volumes, as analyzed and disclosed in the 2012 EIR and as further described in Section 2.3.1 and shown in Table 2-2, *Permitted Sand Mining Volumes, Current and Proposed*.[9]

1.3.4 Potential Impacts

Consistent with CEQA Guidelines section 15163, subdivision (b), this supplement to the 2012 EIR contains "only the information necessary to make the previous EIR adequate for the project as revised." Consequently, this Supplemental EIR identifies potential significant impacts of the proposed Revised Project on the environment and indicates if and how the impacts can be avoided or reduced by mitigation measures or alternatives. The following resource areas would not be impacted by the Revised Project, and are therefore eliminated from consideration in this Supplemental EIR: aesthetics and visual resources; agriculture and forestry resources; geology and soils; noise; population and housing; public services; transportation and traffic; and utilities.

As described in Section 3.0, *Environmental Analysis*, the following sections provide information on potentially significant environmental effects associated with the Revised Project: biological resources (Section 3.2); mineral resources (Section 3.3); hydrology and water quality (Section 3.4); hazards and hazardous materials (Section 3.5); air quality and greenhouse gases (Section 3.6); cultural

[9] The baseline conditions analyzed in the 2012 EIR which used the 5-year average annual mining volumes was found to be an appropriate measure as required under 14 C.C.R. §15125(a), *S.F. Baykeeper v. SLC* (2015), 242 Cal. App. 4th 202, 217-18.

and tribal cultural resources (Section 3.7); and land use and recreation (Section 3.8).

1.3.5 Cumulative Impacts Analysis

An EIR must discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (14 Cal. Code Regs. §15130). "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (14 Cal. Code Regs. §15355). An individual project's incremental effects are cumulatively considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (Pub. Res. Code §21083(b)(2)). Section 3.1.5, Cumulative Effects Scenario, identifies relevant considerations including the applicable geographic scope of the cumulative analysis ("Cumulative Scenario Study Area") and other projects to be considered in the cumulative effects analysis for the Revised Project.

1.4 AGENCY USE OF SUPPLEMENTAL EIR

As of December 31, 2022, the Leases are in holdover status allowing for mining on a month-to-month basis until the Commission considers certification of this SEIR and issuance of new leases. The Leases required the Applicants to submit new lease applications two years prior to the expiration of the leases, which was done. This SEIR will serve as the CEQA environmental compliance document for the Commission in considering issuance of the new leases.

In addition, the SEIR will be relied on by several other agencies with jurisdiction over the project that will consider issuance of permits or entitlements in their responsible agency capacity under CEQA. These agencies and their roles are described briefly below. The Revised Project may also be of interest to Native American tribes and Trustee Agencies, the latter of which are agencies without permitting jurisdiction but nonetheless possessing jurisdiction over natural resources affected by the Revised Project.

1.4.1 Current and Anticipated Approvals/Permits

In addition to the Leases issued by the Commission, sand mining activities also are regulated by permits and other authorizations from the agencies listed below. Each existing approval or other authorization contains obligations in the form of conditions, limitations, and restrictions, as well as various impact minimization measures and monitoring and reporting requirements, that are

enforceable independent of the CSLC Leases. The Applicants' ongoing sand mining activities are governed by the following agencies (specific entitlements are described in Table 1-2):

- U.S. Army Corps of Engineers (USACE): USACE regulates the mining of construction-grade sand within the lease areas pursuant to permits issued under the Rivers and Harbors Act Section 10 and federal Clean Water Act Section 404. These permits must be consistent with the San Francisco Bay Coastal Zone Management Program and require compliance with the Operating Procedure for the Vessel Traffic Safety System (VTSS) of San Francisco, as monitored by the U.S. Coast Guard (USCG) Captain of the Port, to avoid hazards to commercial or military navigation.
- San Francisco Bay Conservation and Development Commission (BCDC): BCDC regulates commercial sand extraction within BCDC's jurisdiction, including Bay tidal areas, pursuant to the McAteer-Petris Act. Among other things, permit conditions govern the methods and depths of mining and contain conditions to protect water quality and biological resources (among other environmental resources).
- The San Francisco Bay Regional Water Quality Control Board (RWQCB): As authorized under the Porter-Cologne Water Quality Control Act, the RWQCB has primary responsibility for the coordination and control of water quality in the San Francisco Bay area. The RWQCB also oversees the National Pollutant Discharge Elimination System (NPDES) General Permit, which regulates wastewater discharges from aggregate mining, sand washing operations, and sand offloading facilities to surface waters, such as the San Francisco Bay. Under Section 401 of the federal Clean Water Act, RWQCB must provide a water quality certification for any federally permitted activity that may result in a discharge into federal waters (USACE permits, referenced above). Among other things, permit conditions regulate mining locations and depths and protect water quality.
- The Surface Mining and Geology Board (SMGB): SMGB has approval authority over reclamation plans prepared pursuant to the Surface Mining and Reclamation Act (SMARA, Public Resources Code § 2710 et seq.) and its implementing regulations (14 Cal. Code Regs. § 3500 et seq.) for the lease areas.

Table 1-2. Entitlements Associated with Lease Areas
(note: Permit extensions have been granted by relevant agencies during the CEQA environmental review process)

	Central Bay Entitlements			
	Presidio Shoals	**Point Knox South**	**Point Knox Shoals**	**Alcatraz South Shoal**
CSLC	PRC 709.1	PRC 2036.1	PRC 7779.1	PRC 7780.1
	All CSLC leases in holdover status since December 31, 2022			
USACE	24305S	2441N	24997N	23573S
	All USACE permits expired June 1, 2025			
BCDC	2013.004.00 expired April 29, 2025			
SMGB	See Note 1	See Note 1	See Note 1	See Note 1
RWQCB	Order No. R2-2015-0008 (applies to Hanson/Martin Marietta's mining leases)			
CDFW	ITP #2081-2013-047-03 extended through December 31, 2025, for all Hanson/Martin Marietta sand mining leases			
Middle Ground Entitlements				
CSLC	N/A			
USACE	24996N and 25653N expired June 1, 2025			
BCDC	2013.003.00md expired April 29, 2025; extended to June 2026.			
SMGB	See Note 1			
RWQCB	Order No. R2-2015-0009 (applies to Lind's mining lease)			
CDFW	ITP #2081-2012-012-03 extended through April 30, 2025, for all Lind sand mining leases			
Suisun Channel Entitlements				
CSLC	7781.1 in holdover status since December 31, 2022			
USACE	2013-00130S expires June 1, 2025			
BCDC	2013.005.00md expires April 29, 2025			
SMGB	See Note 1			
RWQCB	Order No. R2-2015-0010 (applies to Suisun Associates' mining lease)			
CDFW	ITP #2081-2012-012-03 extended through April 30, 2025, for all Lind sand mining leases			

Notes:

1. The SMGB has approval authority over the reclamation plans prepared pursuant to SMARA for the sand mining sites. The SMGB considers the reclamation plans valid and current.

Source: Hanson Marine Operations, Inc. Application to Commission for New Leases (CSLC, 2020).

- California Department of Fish and Wildlife (CDFW): Regulates operating sand mining vessels under its Office of Oil Spill Prevention and Response (OSPR) program and may issue permits for the incidental "take" of any proposed, threatened, or endangered species under the California Endangered Species Act (CESA). Among other conditions, any authorized "take" of state-listed species must be fully mitigated. As indicated in Responses to Comments D-9 in the 2012 EIR, mining activities in the Central Bay are exempt from CDFW jurisdiction under Fish and Game Code Section 1600 et seq. which does not extend over tidal waters. The need for a Lake and Streambed Alteration Agreement (LSAA) for non-tidal waters east of Carquinez Strait (Suisun Bay and the Western Delta) would be determined by CDFW based on its jurisdictional limit.
- Delta Stewardship Council (DSC): The DSC must ensure that covered actions occurring within the Sacramento-San Joaquin Delta are consistent with the Delta Plan prepared and adopted pursuant to the Delta Reform Act of 2009.

Table 1-2 summarizes the entitlements authorizing sand mining within the Revised Project lease areas or applicable current permits.

1.5 ORGANIZATION OF SUPPLEMENTAL EIR

Preparation of the ~~Draft~~ SEIR has followed and been informed by the scoping process. Article 9 of the CEQA Guidelines (14 Cal. Code Regs. §§15120–15132) establishes the required contents of an EIR. These contents, as they apply to the environmental analysis of the Revised Project, are summarized below.

- **Table of contents or an index**
- **Executive Summary**
- **Project description:** A description of the Revised Project is provided in ~~Draft~~ SEIR Chapter 2. Project Objectives and Permits and other Approvals are provided in Chapter 1.

- **Environmental setting:** The environmental setting for the Revised Project is described on a resource-by-resource basis in the 2012 EIR and, for the areas of focus in this SEIR, in ~~Draft~~ SEIR Chapter 3.
- **Analysis of direct, indirect, and cumulative impacts of the proposed project:** Potential impacts of the Revised Project are described in ~~Draft~~ SEIR Chapter 3 to determine whether the conclusions about potential effects of the proposed Revised Project differ from the analysis documented in the 2012 EIR.
- **Consideration and discussion of mitigation measures proposed to minimize potential significant impacts:** As described in ~~Draft~~ SEIR Chapter 3, the Revised Project will not result in any new significant impacts or substantial increases in the severity of impacts previously identified in the 2012 EIR. One new mitigation measure, CUL-4, has been identified, which relates to the inadvertent discovery of tribal cultural resources. Because tribal cultural resources was not finalized and approved as a category in the CEQA Guidelines Appendix G environmental checklist until September 2016, the 2012 EIR did not separately analyze potential impacts to these resources. Therefore, MM CUL-4 has been added to the SEIR to address any inadvertent discovery of tribal cultural resources during mining activity. It is not anticipated, however, that the Revised Project will result in any new significant impacts. All other impacts, which remain unchanged in significance and severity, are summarized in Chapter 3, *Environmental Analysis*.
- **Organizations and persons consulted:** Federal, state, and local agencies; tribal entities and members; and organizations and individuals consulted pursuant to the preparation of this ~~Draft~~ SEIR are identified in Section 7.3, Entities Consulted and Recipients of the Draft SEIR.

1.6 PUBLIC ENGAGEMENT

1.6.1 Draft SEIR Repository Sites and Information Sources

As required by CEQA, ~~this~~ the Draft SEIR, along with the 2012 EIR, was ~~is being~~ made available for agency and public review and comment for at least 45 days. Copies were provided to the State Clearinghouse for circulation to interested state agencies. Printed copies of the Draft SEIR and electronic copies of all appendices and all documents referenced in the Draft SEIR ~~are~~were available for public review during normal business hours at the California State Lands Commission office at 100 Howe Ave., Suite 100 South, Sacramento, CA 95825 during the public review period. An electronic copy of the Draft SEIR is available on the CSLC's website: www.slc.ca.gov/ceqa/sf-delta-sand-mining-2023.

Notifications of the availability of the Draft SEIR and information about how to access it were sent directly to responsible, trustee, and local agencies; the State Clearinghouse of the Governor's Office of Land Use and Climate Innovation; County Clerk's offices of San Francisco, Contra Costa, Solano, and Sacramento counties; and the tribal entities and members, organizations, and individuals identified in Section 7.3, Entities Consulted and Recipients of the Draft SEIR. Notice of the availability of the Draft SEIR was also published in the San Francisco Examiner. Copies of public notices issued for the Draft SEIR for the Revised Project are included in Appendix H, Draft SEIR Public Notices.

1.6.2 ~~Submitting~~ Public Comments on the Draft SEIR

~~Please submit any w~~Written comments on the Draft SEIR were invited to be sent to the following address and email:

Mr. Christopher Huitt
Senior Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
Email: CEQA.comments@slc.ca.gov (Subject Line – SF Bay and Delta Sand Mining Project Draft SEIR Comments)

CSLC ~~will~~ reviewed all comments received during the public review period and provided written responses in ~~a~~ the Final SEIR. The Final SEIR ~~will be made~~is available to agencies and the public and provides a basis for agency decision-making.

2.0 PROJECT DESCRIPTION

2.1 PROJECT SUMMARY

Two marine aggregate companies, Martin Marietta and Lind, hold Leases issued by the Commission to harvest sand commercially (sand mining) within San Francisco Bay and the western Delta. Martin Marietta and Lind are referred to collectively in this Draft Supplemental Environmental Impact Report (SEIR) as the Applicants. The Applicants have applied to the Commission to authorize leases for commercial sand mining for 10 additional years at reduced maximum annual and total volumes of sand extraction over the new lease term (the Revised Project) relative to the maximum annual and total volumes evaluated in the San Francisco Bay and Delta Sand Mining Project Environmental Impact Report (State Clearinghouse No. 2007072036) on October 12, 2012 (2012 EIR) for the prior lease term (see Table 2-2 below for comparison of current and proposed lease volumes). The boundaries of the leases are shown in Figures 1-1 and 1-2. No change is proposed to the existing lease area boundaries. The Revised Project (encompassing the CSLC leases and the private Middle Ground Shoal lease) is a continuation of the ongoing operations described and analyzed in the 2012 EIR. Part III, Section 2.2 of the 2012 EIR (p. 2-2 et seq.) provides background information, including history and context for the sand mining operations that continue in effect. The description of mining activities, as presented in detail in the 2012 EIR (and summarized below in Section 2.3) remains relevant to the current analysis.

2.2 PROJECT OBJECTIVE

The purpose of the Revised Project, as stated by the Applicants, is to assure the availability of marine sands for commercial and public purposes within the greater San Francisco Bay area. Per the Applicants, the objective is to continue to mine sand at an economically viable level over the next 10 years to make this mineral resource available for use in commercial and public construction, including but not limited to residential and commercial projects, public infrastructure (e.g., roads, bridges, and buildings), and shoreline protection and beach replenishment projects.

2.3 CURRENTLY AUTHORIZED MINING VOLUMES AND ACTIVITIES

The following section describes the fully authorized sand mining lease volumes, as analyzed and disclosed in the 2012 EIR.

2.3.1 Summary of Leases

Table 2-1 summarizes the currently authorized sand mining leases in the Bay-Delta.

Table 2-1. Currently Authorized Leases

Lease Area	Location/Lease No.	Lease terms[1]	Authorized Annual Lease Volumes (cy)[2]
California State Lands Commission Central Bay	PRC 709.1: Presidio, Alcatraz (Martin Marietta)	Jan.1, 2013 – Dec. 31, 2022	340,000
	PRC 2036.1: Point Knox South (Martin Marietta)	Jan.1, 2013 – Dec. 31, 2022	450,000
	PRC 7779.1: Point Knox Shoal (Martin Marietta)	Jan.1, 2013 – Dec. 31, 2022	550,000
	PRC 7780.1: Alcatraz South Shoal (Martin Marietta)	Jan.1, 2013 – Dec. 31, 2022	200,000
	Total CSLC Central Bay Leases		**1,540,000**
California State Lands Commission Suisun Bay/ Delta	PRC 7781.1: Suisun Bay/Western Delta (Lind)	Jan.1, 2013 – Dec. 31, 2022	300,000
Total California State Lands Commission Leases (All Areas)			**1,840,000**
Private Suisun Bay	Grossi Middle Ground: San Francisco Bay Conservation and Development Commission (BCDC) Permit 16-78 (Lind)[4]	CSLC leases not applicable to this parcel.	199,866[3]
Total Annual Authorized Volume[5] (California State Lands Commission and Private Leases)			**2,039,866**

Notes:

1. All CSLC leases have been in holdover status since December 31, 2022.
2. The current authorized lease volumes are consistent with those proposed in the 2012 EIR.
3. The 2012 EIR evaluated a sand extraction volume limit of 200,000 cy.
4. The SEIR considers the whole of the Revised Project; thus, the private lease is included in this table for informational purposes.
5. Mining activities are further limited by agency permits; this table does not represent fully authorized mining activities per jurisdictional permits.

2.3.2 Mining Techniques

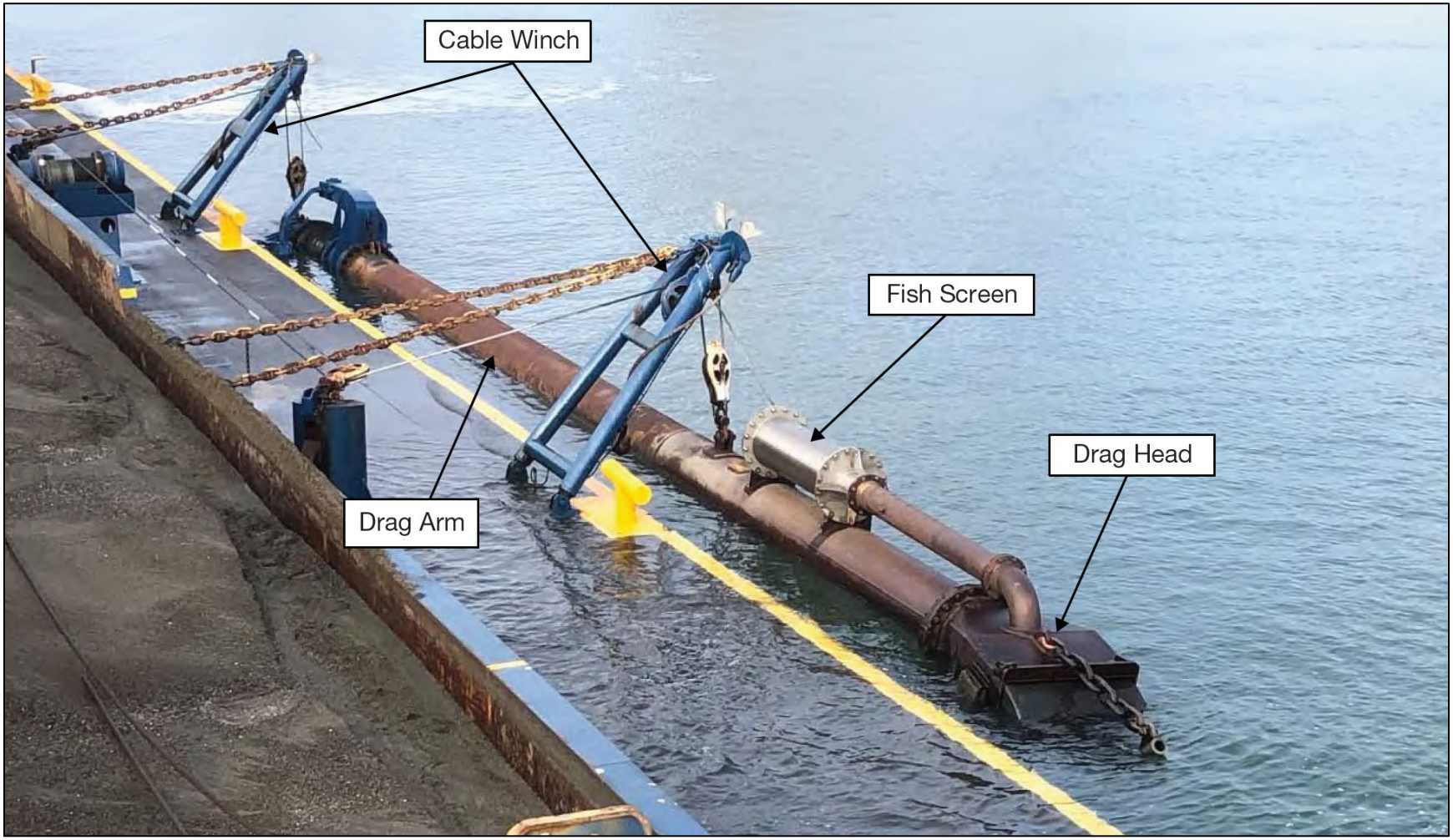
Part III, Section 2.3.2 (p. 2-10 et seq.) of the 2012 EIR describes the general methods and process of sand mining. The general methods of sand mining remain as described in the 2012 EIR. To summarize, the process of sand mining begins by using a tugboat to move a specialized suction dredge barge from its dock to a position within one of the lease areas. To begin mining in the Central Bay leases, a drag arm, which looks like a large pipe with a metal drag head, is lowered to the sandy bottom. The drag head contains a screen to prevent large rocks or materials from being entrained (Figures 2-1 and 2-2). To begin mining in the Delta leases, a dredge arm, without a drag head is lowered to the sandy bottom. For both areas, water from the Bay or Delta is entrained in the suction head, generating a water and sand slurry to mobilize sand from the Bay or Delta bottom and pumps it into a hopper on the barge.

The existing drag head also contains a suction vent fitted with a positive barrier fish screen (Figures 2-1 and 2-2). The fish screen is designed [based on guidance from the California Department of Fish and Wildlife (CDFW), the National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS)] to meet a flow rate of 3.8 cubic feet per second (cfs), approach velocity of 0.2 feet-per-second, and slot velocity of 0.5 feet-per-second or less to minimize potential entrainment and mortality of fish during sand mining events. The fish screens were added to the sand mining equipment in 2013 as a project design feature to ensure compliance with the Biological Opinion issued by the USFWS and NMFS as well as permit conditions/take minimization measures included in the CDFW Incidental Take Permits.[10] BCDC, as a condition of its permit, also required the fish screens on intake vents as impact Minimization Measure 1b; the fish screens are part of existing mining operations.

As described and analyzed in Part III of the 2012 EIR Section 4.5.4 (p. 4.5-17), several motors and pumps used for sand mining were replaced with "cleaner" equipment (with respect to air quality and greenhouse gas emissions); this cleaner equipment also is part of existing mining operations. The California Air Resources Board (CARB), Harbor Craft program, issued a Compliance Plan and Demonstration of Compliance in December 2017. No new equipment or replacement of existing equipment is proposed as part of the Revised Project.

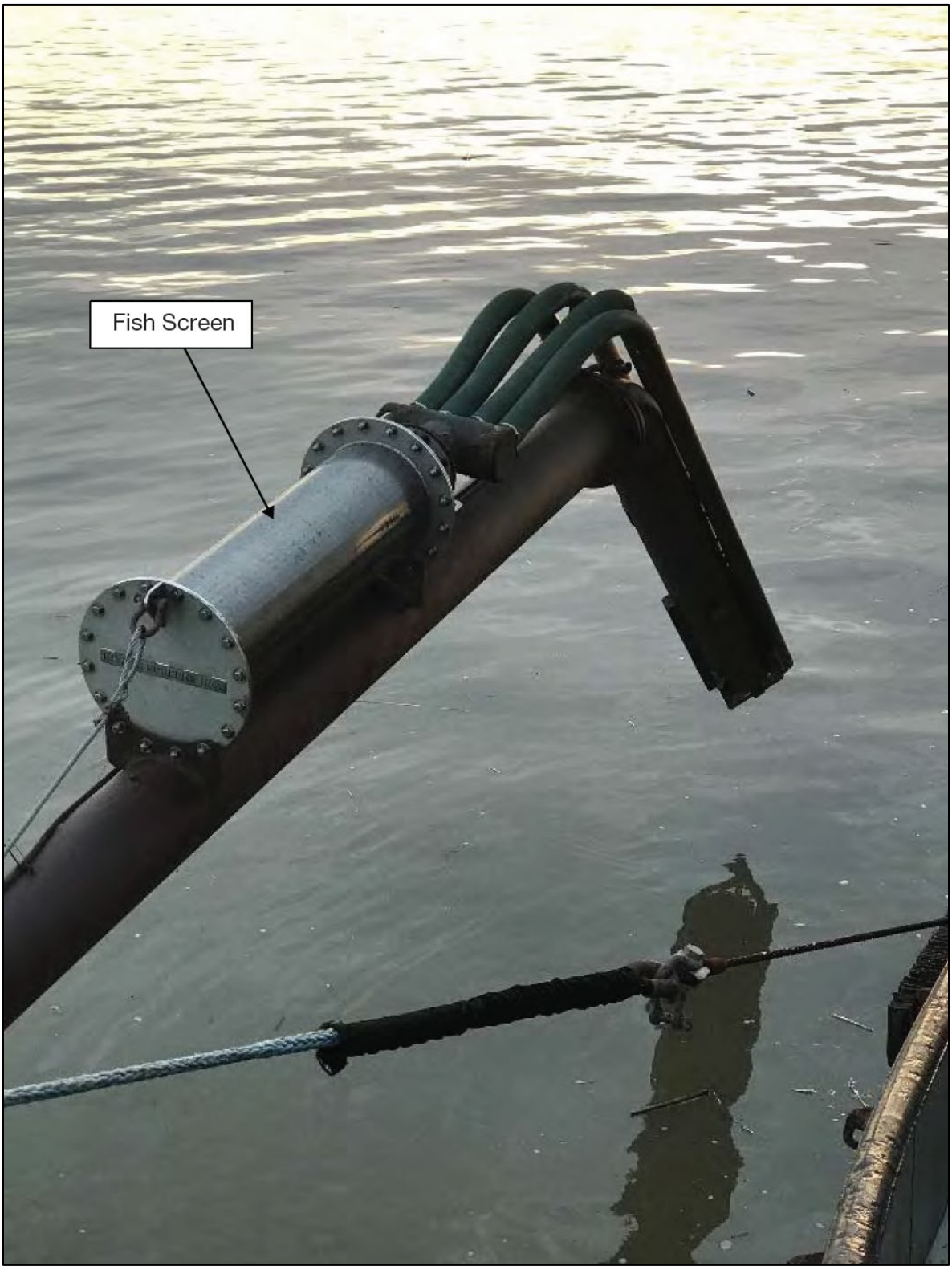
[10] The ITP was issued pursuant to California Fish and Game Code section 2081 for the incidental take of listed fish species (Central Valley spring-run Chinook salmon, Sacramento River winter-run Chinook salmon, delta smelt, and longfin smelt).

Figure 2-1. Martin Marietta Hydraulic Suction Drag Arm Assembly with Fish Screen



Source: Lehigh Hanson (Martin Marietta), 2020

Figure 2-2. Lind Marine Drag Arm (without Drag Head)



Source: Lehigh Hanson (Martin Marietta), 2020

2.3.3 Mining Events

Part III, Section 2.3.3 of the 2012 EIR (p. 2-20 et seq.) describes the characteristics of typical mining events. For example, the duration of sand mining events in the Central Bay Leases generally last from 3 to 5.5 hours, with a range of 1.0 hour to over 11.0 hours (2012 EIR, p. 2-23). A mining event is complete when the barge is full (to capacity) with sand. In the Central Bay, sand mining typically occurs in relatively deep water (from 30 to 90 feet deep).

Sand mining In the Middle Ground Shoal and in Suisun Bay leases typically occurs in waters 15 to 45 feet deep and currently is subject to seasonal restrictions and permit conditions[11] (2012 EIR, p. 2-23), and lasts 5 to 7.5 hours per event. Sand mining activity typically occurs throughout the year and may occur up to 24 hours per day during peak periods of mining (2012 EIR, p. 2-25). The Revised Project proposes no change to the timing or permitted water depths for mining operations.

Part III, Section 2.3.3 of the 2012 EIR (p. 2-21 et seq., including Figures 2-14a through 2-14d, 2-15, and 2-16) presented the sand mining locations recorded for the six quarters preceding issuance of the Notice of Preparation (NOP) (April 2007 through June 2008) for the 2012 EIR. This information showed that sand mining locations were not uniformly distributed across the lease areas, but rather were clustered within areas where suitable sand deposits were known to occur.

Part III, Section 2.3.2 of the 2012 EIR (p. 2-17, including Figure 2-10) described material offloading including the transportation of sand by the Applicants to offloading facilities and the sand mining offloading process using barges. The 2012 EIR did not consider operations at offloading facilities, as the offloading facilities are covered by separate entitlements at existing port facilities and will not result in any changes to existing operations. The Revised Project proposes no changes to the methods of transportation of sand to the offloading facilities or the offloading process. The Revised Project would continue to use five of the nine offloading facilities previously described in the 2012 EIR (Figure 2-3, below).

[11] Existing USACE and Regional Water Quality Control Board permits contain conditions to minimize entrainment take of larval longfin smelt: no mining is permitted in depths less than minus 25 feet mean lower low water (MLLW), December -June. No mining is permitted in depths less than minus 15 feet MLLW from July-November, per USACE Permit No. 2013-00129S; Waste Discharge Requirements and Water Quality Certification Order No. R2-2015-0008; BCDC Permit No. 2013.003.003md.

Mining events currently include the following project design features and restrictions which would be carried forward under the Revised Project (CSLC 2020):

- No mining can occur within 200 ft of any shoreline. Within Central Bay, mining cannot occur within 250 ft of depths less than -30 ft Mean Lower Low Water (MLLW). For lease areas in Suisun Bay, mining cannot occur within 250 ft of depths less than -9 ft MLLW, within depths less than -25 ft MLLW between December and June, and within depths less than -15 ft MLLW between July and November.
- Hanson (Martin Marietta) must establish 100-foot buffers from the outward edge of hard bottom features within and adjacent to the Central Bay mining leases.
- Fish screens have been installed on Hanson (Martin Marietta) and Lind mining equipment to minimize or avoid risks associated with entrainment of fish. The screens have a mesh opening of 0.068 inch, which is sized to prevent salmonids and sturgeon from being entrained into the suction pipes.
- To avoid or minimize disturbance of sandy deep-water habitat, Hanson (Martin Marietta) and Lind must keep the end of the pipe and/or drag head as close to the bottom as possible, and no more than three feet from the bottom whenever feasible when clearing the pipe. When priming the pump, the drag head is put on the bottom.
- Sand mining is restricted to specific lease areas and is not permitted outside of these areas. In addition, Hanson (Martin Marietta) and Lind are restricted to specific volumes per year in each of these lease areas.
- To minimize or avoid potential impacts on larval Delta smelt in Suisun Bay, Hanson (Martin Marietta) and Lind agreed in October of 2014 with the fisheries agencies (USFWS, NMFS, and CDFW) to restrict mining volumes during the more sensitive months (December through June).
- The total unscreened water diversions from sand mining are limited to 261acre-feet annually. This restriction also helps reduce entrainment and water quality impacts.

2.3.4 Mining Volumes

Annual and total sand mining volumes authorized in the Leases were approved by the Commission following certification of the 2012 EIR and are listed in Table 2-2. As stated previously in Section 2.3, the baseline for this SEIR encompasses the fully authorized sand mining lease volumes, as analyzed and disclosed in the 2012 EIR.

2.4 DESCRIPTION OF PROPOSED CHANGES

The Revised Project proposes to use equipment and methods that are substantially similar to those described and analyzed in the 2012 EIR and existing Leases for another 10-year period. Proposed changes to existing, ongoing operations are described below.

2.4.1 Issuance of New Leases

The Applicants propose to extend the activities described and analyzed in the 2012 EIR for 10 additional years from the date of lease issuance. This analysis assumes that if the Revised Project were approved, the Commission would authorize leases for continued mining operations for a period of 10 years, and the private Grossi Middle Ground lease would also be permitted by BCDC for a period of 10 years.

2.4.2 Decrease in Mining Volumes

The Revised Project proposes a reduction in the maximum allowable annual volume of sand harvested for three of the five CSLC leases and the private lease (from the volumes approved under the 2012 EIR). Authorized volumes for the other two CSLC leases are proposed to remain the same. Impacts of the current annual Commission-authorized lease volumes were analyzed in the 2012 EIR. Table 2-2 provides the current allowable annual volume and the proposed annual revised volumes for each lease. The proposed annual volumes are reductions from those previously authorized by the Commission but are equivalent to peak annual mining volumes currently permitted by other jurisdictional agencies (e.g., BCDC).

Table 2-2. Permitted Sand Mining Volumes, Current and Proposed

	Location/Lease No.	Current Annual Authorized Lease Volumes (cy)	Proposed Annual Revised Project Volumes (cy)
Central Bay	PRC 709.1: Presidio, Alcatraz (Martin Marietta)	340,000	235,000
	PRC 2036.1: Point Knox South (Martin Marietta)	450,000	450,000
	PRC 7779.1: Point Knox Shoal (Martin Marietta)	550,000	550,000
	PRC 7780.1: Alcatraz South Shoal (Martin Marietta)	200,000	160,000
	Total CSLC Central Bay Leases	**1,540,000**	**1,395,000**
Suisun Bay/Delta	PRC 7781.1: Suisun Bay/Western Delta (Lind)	300,000	235,000
Total CSLC Leases (All Areas)		**1,840,000**	**1,630,000**
Private/ Suisun Bay	Grossi Middle Ground: BCDC Permit 16-78 (Lind)[1]	199,866[2]	120,000
Total Volume (CSLC and Private Leases)		**2,039,866**	**1,750,000**

Notes: Units are shown in cubic yards per year

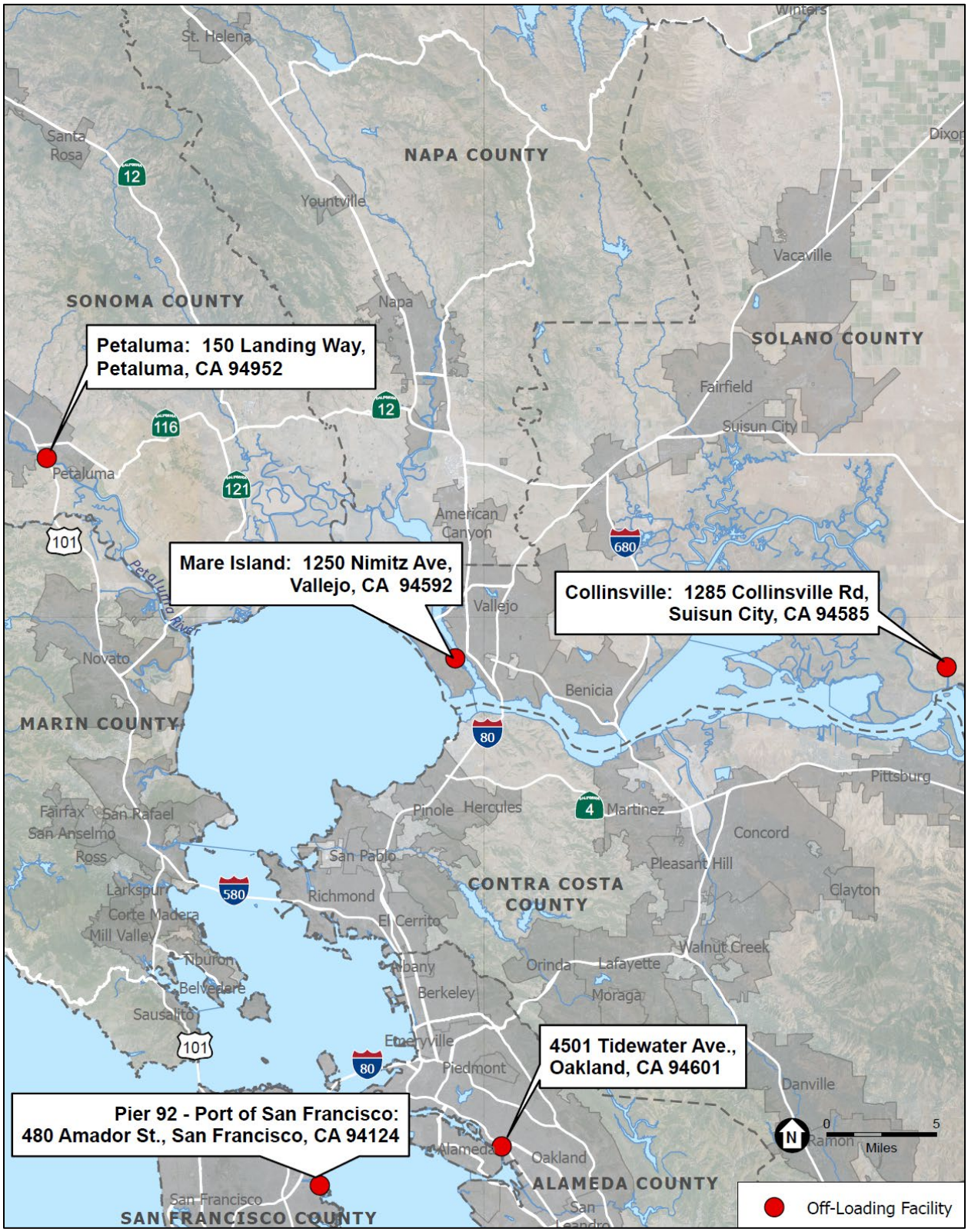
1. The private Grossi Middle Ground lease does not require Commission authorization, but mining volumes are presented for information and are included in the scope of the SEIR analysis. This approach is consistent with the 2012 EIR.
2. The 2012 EIR evaluated a volume limit of 200,000 cy.

Source: Hanson Marine Operations, Inc. Application to the Commission for New Leases (CSLC, 2020)

2.4.3 Offloading Facilities

The Applicants currently use five out of the nine offloading facilities described and examined in the 2012 EIR (see Figure 2-10, p. 2-18 of 2012 EIR). For purposes of analysis, this SEIR for the Revised Project addresses continued use of the Petaluma, Mare Island, Collinsville, Pier 92, and Tidewater offloading facilities as shown in Figure 2-3.

Figure 2-3. Location of Off-Loading Facilities



Sources: ESRI, 2022; ESA, 2022; Martin Marietta, 2023

3.0 ENVIRONMENTAL ANALYSIS

3.1 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

This chapter describes the relevant environmental and regulatory setting; identifies the significance criteria and thresholds relied upon in the analysis; and evaluates the direct, indirect, and cumulative environmental impacts of the Revised Project to determine whether its implementation could result in one or more new significant impacts or a substantial increase in the severity of any significant impacts previously identified in the San Francisco Bay and Delta Sand Mining Project Environmental Impact Report (State Clearinghouse No. 2007072036) on October 12, 2012 (2012 EIR). The analysis of Revised Project impacts in this chapter focuses on the environmental issue areas listed below:

- Biological Resources
- Mineral Resources
- Hydrology and Water Quality
- Hazards and Hazardous Materials
- Air Quality and Greenhouse Gas Emissions
- Cultural and Tribal Cultural Resources
- Land Use and Recreation

As discussed in Section 1.2.3, above, a primary impetus for development of this SEIR are the 12 technical studies produced since the 2012 EIR. This SEIR evaluates whether those technical reports contain new information of substantial importance for purposes of CEQA. The studies, which topically include analyses of water quality, benthic habitats, bathymetry, and sand transport, are discussed below in Biological Resources (Section 3.2), Mineral Resources (Section 3.3), Hydrology and Water Quality (Section 3.4), and Hazards and Hazardous Materials (Section 3.5). To conclude briefly, none of the studies provided new information that shows, as compared to the 2012 EIR, any of the following: 1) new significant effects, 2) substantially more severe significant effects, or 3) that mitigation measures or alternatives exist that would substantially reduce one or more significant effects.

Section 3.9 provides an assessment of the Revised Project's consistency for the remaining eight resource areas discussed in the 2012 EIR: aesthetics, agricultural resources, geology and soils, noise, population and housing, public services, transportation, and utilities and service systems. This initial section of Chapter 3

introduces key concepts and the framework for the analysis of potential resource impacts in this chapter.

3.1.1 Environmental Baseline

As stated in Section 1.3.3 of this SEIR, CEQA requires that a new project's baseline reflect the actual physical environmental conditions at the time EIR preparation starts; however, where, as here, a project has already undergone full CEQA review, the agency need only assess changes to the previously approved project, substantial changes in circumstances, or new information of substantial importance if such changes and new information meet the criteria under Public Resources Code section 21166 and Guidelines section 15162. The 2012 EIR fully disclosed the impacts of the approved Project based on maximum mining volumes. In order to more appropriately compare the Revised Project to that analyzed under the 2012 EIR, the baseline for this SEIR is the level of activity associated with the authorized sand mining lease volumes, as analyzed and disclosed in the 2012 EIR and further described in Section 2.3.

3.1.2 Types of Impacts

The terms "effect" and "impact" are synonymous and can refer to effects that are either adverse or beneficial.

- **Direct effects** are caused by the Revised Project and occur at the same time and in the same place as the Revised Project.
- **Indirect effects** are caused by the Revised Project but occur later in time or further in distance, though still reasonably foreseeable.
- **Residual impacts** are impacts that still meet or exceed significance criteria after application of mitigation and therefore remain significant.
- **Cumulative impacts** are the changes in the environment resulting from the incremental impact of the Revised Project when added to other past, present, and reasonably foreseeable probable future projects. To the extent that the effects of past projects are reflected in baseline conditions, this analysis does not double-count them. Future projects are "reasonably foreseeable" if they were either proposed or approved at the time development of this SEIR was initiated (see Table 3.1-2, Cumulative Projects List in Section 3.1.5 of this SEIR). Cumulative impacts could result from individually minor but collectively significant activities from projects that take place over time.

- **Short-term impacts** are those expected to occur during mining activities for the Revised Project that do not have lingering effects for an extended period once active mining is complete.
- **Long-term impacts** are those that persist for an extended period after mining activities are completed.

3.1.3 CEQA Significance Criteria and Determinations

CEQA lead agencies rely on impact significance criteria as benchmarks to determine whether changes to the existing environment caused by a project or an alternative would cause a significant adverse effect. CEQA defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in the environment" (Public Resources Code section 21068), and the CEQA Guidelines further clarify that a significant impact is a substantial adverse change "in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (14 Cal. Code Regs. section 15382).

Public agencies have broad discretion to devise questions for use as significance criteria. The significance criteria relied on in the 2012 EIR reflect the CSLC's exercise of that discretion. To guide the Commission (as the lead agency for the Revised Project) in determining whether the Revised Project or an alternative may cause a significant impact on the environment, the preparers of this SEIR have considered the same series of questions that the Commission considered in the 2012 EIR to provide a basis for comparison for determining whether implementation of the Revised Project could result in one or more new significant impacts or a substantial increase in the severity of any significant impacts previously identified in the 2012 EIR. This SEIR supplements the scope of resources analyzed in the 2012 EIR to consider potential impacts on tribal cultural resources as defined in Public Resources Code section 21074 and consistent with direction provided in Assembly Bill 52 (Gatto, 2014). The analysis of the Revised Project's impacts on tribal cultural resources relies on the significance criteria suggested in Section XVIII of the CEQA Guidelines Appendix G environmental checklist.

Consistent with the 2012 EIR, the same classes of impact types are used in this SEIR to assess the impacts of the Revised Project. The impact classifications are:

- If the impact of an action remains significant, i.e., at or above the significance criteria, it is deemed to be **Class I** (*significant adverse impact that remains significant after mitigation*).
- If an action creates a significant, adverse impact, which can be reduced based on compliance with mitigation to a level below the pertinent significance criteria, it is determined to be **Class II** (*significant adverse impact that can be eliminated or reduced below an issue's significance criteria*).
- If an action creates an adverse impact above the baseline condition, but such impact does not meet or exceed the pertinent significance criteria, it is determined to be adverse, but less than significant or **Class III** (*adverse impact that does not meet or exceed an issue's significance criteria*).
- An action that provides an improvement to an environmental issue area in comparison to the baseline information is defined as **Class IV** (*beneficial impact*).

3.1.4 Mitigation Measures

As described in Section 1.0, the Commission authorized four leases for the Applicants to conduct sand mining in the Central San Francisco Bay in 2012 and one in Suisun Bay in 2013. The Central Bay leases were reapproved by the Commission in 2016, and the private Grossi Middle Ground lease, which is located on privately owned land and not subject to authorization by the Commission, was reapproved by BCDC in 2015. The Commission adopted all of the mitigation measures presented in the 2012 Final EIR as applicable to each of the leases. This SEIR evaluates whether the Revised Project could result in any new significant impacts or a substantial increase in the severity of significant impacts than were disclosed in the 2012 EIR and, if so, also considers whether modification or supplementation of the 2012 mitigation measures is appropriate. When new or substantially increased significant impacts are identified, one or more feasible mitigation measures are identified to avoid or reduce the impact below the established threshold. The effectiveness of a mitigation measure is determined by evaluating the impact remaining after its application. Those impacts meeting or exceeding the impact significance criteria after mitigation are considered residual impacts that remain significant (Class I). Implementation of more than one mitigation measure may be needed to reduce an impact below a level of significance.

3.1.5 Cumulative Effects Scenario

3.1.5.1 Cumulative Considerations in this SEIR

This section provides a list and map identifying other projects near the Lease Areas that would cause incremental impacts that could combine with those of the Revised Project to cause or contribute to cumulative effects. CEQA Guidelines section 15130 requires a discussion of the cumulative impacts of a project when the project's incremental contribution to a significant cumulative effect is "cumulatively considerable." A project's incremental effects are considerable when viewed in combination with the effects of past, present, and reasonably foreseeable probable future projects. An EIR, however, should not discuss impacts which do not result in part from the project evaluated in the EIR. Where a CEQA agency is examining a project with an incremental effect that is not "cumulatively considerable," the agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. An incremental, project-specific contribution to a cumulative impact is less than cumulatively considerable and is not significant if, for example, the project is required to implement or fund its fair share of a mitigation measure(s) designed to alleviate the cumulative impact.

Consistent with CEQA, the analysis of potential cumulative impacts is "guided by the standards of practicality and reasonableness" (CEQA Guidelines §15130(b)). The purpose of the cumulative analysis is to allow decision-makers to better understand the impacts that might result from approval of past, present, and reasonably foreseeable future projects, in combination with the Revised Project addressed in this SEIR. The CEQA Guidelines advise that a discussion of cumulative impacts should reflect both their severity and the likelihood of their occurrence (CEQA Guidelines §15130(b)).

Consistent with CEQA Guidelines section 15130(b), the Commission, as CEQA lead agency, has prepared a list of past, present, and reasonably foreseeable probable future projects that could result in related or cumulative impacts. This list includes projects outside the control of the lead agency. Existing conditions within the cumulative impacts area of effect reflect a combination of the natural condition and the effects of past actions in the affected area. The following factors also were used to determine an appropriate list of projects to be considered in this cumulative analysis:

- Similar Environmental Impacts – The analysis considers past, present, and reasonably foreseeable projects that would contribute to effects on

resources also affected by the Revised Project (i.e., air quality and greenhouse gas emissions, biological resources, cultural resources, tribal cultural resources, hazards and hazardous materials, hydrology and water quality, land use and recreation, and mineral resources).

- Geographic Scope – The appropriate geographic area of cumulative analysis is identified for the resource areas of focus in this SEIR as dictated by relevant physical and/or environmental boundaries. The geographic scope of the cumulative effects analysis (i.e., the cumulative effects study area) may extend beyond the scope of the direct effects of the Revised Project, but not beyond the scope of its indirect effects. As defined in the 2012 EIR, the geographic boundary for the cumulative analysis generally encompasses the waters and shoreline of central and northern (excluding southern) San Francisco Bay, San Pablo Bay, and Suisun Bay, and within 5 miles upstream and downstream of the Suisun Bay/Delta lease area. For hydrology and water quality impacts related to sediment transport, the boundary extends beyond the Golden Gate Strait to include Ocean Beach and its offshore sand bar (2012 EIR Figure 3-4; p. 3-19). For the purposes of the SEIR, the geographic study area cumulative analysis of the Revised Project remains the same. See Table 3.1-1, which summarizes the different geographic areas used to evaluate cumulative impacts for each of the primary resource areas analyzed in this SEIR.
- Timing and Temporal Scope – Incremental impacts of the Revised Project (whether of limited duration or longer term) could combine with the incremental impacts of other projects to cause or contribute to cumulative effects if the Revised Project's periods of activity or ongoing impacts would occur at the same time as the effects of the other projects considered in the cumulative effects analysis.

3.1.5.2 Characterization of Cumulative Effects Conclusions in this SEIR

The analysis documented in the 2012 EIR determined whether the Leases would cause or contribute to any cumulatively significant impact and, if so, whether the contribution would be "cumulatively considerable" as defined by CEQA Guidelines section 15065(a)(3). The analysis in this SEIR focuses on whether changes to the previously-described 2012 Project (i.e., the Revised Project) would cause any new significant impact or any substantial increase in the severity of a significant impact already disclosed and evaluated in the 2012 EIR.

Table 3.1-1. Geographic Considerations in Cumulative Analysis

Resource Area	Geographic Area
Air Quality and Greenhouse Gas Emissions	Revised Project site and vicinity (i.e., the San Francisco Bay Estuary region), including central San Francisco Bay, San Pablo Bay, Carquinez Strait, and Suisun Bay and channels.
Biological Resources	Revised Project site and vicinity, including the floor of the Bay and western Delta.
Cultural Resources and Tribal Cultural Resources	Revised Project site and vicinity, including Bay and Delta waters.
Hazards and Hazardous Materials	Revised Project site and vicinity (i.e., waters of the Bay and Delta) primarily within the context of the area regulated by the San Francisco Bay Regional Water Quality Control Board's Basin Plan but also the potential for sediment transport to affect habitat and geomorphology in the Bay, the Delta, and the San Francisco Littoral Cell.[12]
Hydrology and Water Quality	Revised Project site and vicinity, including areas of the Bay and Delta that are regulated by broad land use plans such as BCDC's San Francisco Bay Plan.
Land Use and Recreation	Revised Project site and vicinity, (i.e., the San Francisco Bay Estuary region), including central San Francisco Bay, San Pablo Bay, Carquinez Strait, and Suisun Bay and channels.
Mineral Resources	Revised Project site and vicinity including known mineral reserves from the floor of the Bay and western Delta.

[12] A littoral cell is an individual coastal segment within which littoral sediment transport is bounded or contained. The San Francisco Littoral Cell typically includes coastal stretches between Point Lobos in the north and Fort Funston in the south and is characterized by sediment movement alongshore due to prevailing oceanographic and meteorological conditions influencing beach erosion, accretion, and overall shoreline stability.

3.1.5.3 Cumulative Scenario Projects

Section 3.5.3 of the 2012 EIR (p. 3-18 et seq.) described the cumulative projects considered in that analysis. For this SEIR, Table 3.1-2 identifies a current list of projects that have potential to be part of the cumulative scenario; their locations are shown on Figure 3.1-1. To identify them, the Commission solicited input from agencies and others during the scoping process about past, present, and reasonably foreseeable probable future projects that would cause impacts that could combine with those of the Revised Project. Table 3.1-2 also describes the approximate geographic location and timing of effects of each of the potentially cumulative projects. These projects include a range of project types. They primarily consist of management plans, infrastructure and capital improvement projects, as well as private site development projects. These projects would or reasonably could be constructed and/or operated in a similar timeframe as implementation of the Revised Project and so could contribute incremental impacts that could combine with those of the Revised Project to cause or contribute to cumulative effects. Because a number of the projects identified as cumulative projects are market-driven and/or have yet to be fully funded, the status and construction dates are not certain. Therefore, for the purposes of this cumulative analysis, the Commission assumes they would cause impacts concurrently (in the next ten years) with the Revised Project.

Table 3.1-2. Cumulative Projects List

Project	Description	Location	Project Status and Documentation
San Francisco Bay Regional Dredged Material Management Plan (RDMMP) 2025-2044	The RDMMP is a 20-year plan for the dredging and placement of sediment from the 10 federal navigation projects in San Francisco Bay maintained by the U.S. Army Corps of Engineers (USACE). The RDMMP establishes a regional Federal Standard Base Plan, i.e., the least cost, environmentally acceptable, and technically feasible dredge material conveyance and placement option.	Federal navigation channels within and surrounding San Francisco Bay and San Pablo Bay, Carquinez Strait and Suisun Bay.	Draft RDMMP Environmental Assessment (EA)/EIR released in 2024. NOP released March 14, 2024. https://ceqanet.opr.ca.gov/2024020498/2
USACE Long Term Management Strategy	The goals for the Long-Term Management Strategy (LTMS) are to maintain, in an economically and environmentally sound manner, navigation channels in San Francisco Bay; conduct dredged material disposal in the most environmentally sound manner; maximize the use of dredged material as a resource; and maintain the cooperative permitting framework for dredging/disposal. Recent updates to the LTMS include strategic placement of in-bay sediment for beneficial reuse for	Federal navigation channels within and surrounding lands of San Francisco Bay and San Pablo Bay, Carquinez Strait and Suisun Bay.	Plan formulation relies on the Regional Draft Materials Management Plan over a 20-year timeframe. https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/LTMS/

Project	Description	Location	Project Status and Documentation
	wetlands restoration in SF and Suisun Bays.		
Port of San Francisco Pier 39-43.5 Remediation Project	The Pier 39-43.5 Remediation Project is a multi-phase initiative focused on the removal and management of contaminated sediments along the northern waterfront of San Francisco, maintained through coordinated oversight by the Port of SF and Pacific Gas & Electric. The project establishes a site-specific remediation strategy that integrates dredging, capping, pile driving, and slope stabilization for managing historical polycyclic aromatic hydrocarbon (PAH) contamination in intertidal and subtidal zones.	Encompasses approximately 47 acres of sediment between the East Basin Marina (Pier 39) and Pier 43.5, extending up to 1,000 feet offshore into San Francisco Bay.	Draft Mitigated Negative Declaration (MND) released in 2021. NOAA Fisheries Acoustic Monitoring Plan finalized in 2025. Water Board Tentative Cleanup Order issued January 2022.
Port of San Francisco Waterfront Project	The project involves a multi-phase shoreline resilience initiative led by the Port of SF and USACE to address seismic vulnerability, coastal flooding, and long-term sea level rise. The program establishes a regional base plan integrating flood defenses, seismic upgrades, and nature-based solutions as the least-cost, environmentally acceptable, and	Spanning 7.5 miles of shoreline under Port of SF jurisdiction, from Aquatic Park in the north to Heron's Head Park in the south. Key segments include the Embarcadero Seawall, Fisherman's Wharf,	Draft Integrated Feasibility Report and Environmental Impact Statement released in early 2024. https://www.sfport.com/media/9476/download?inline=

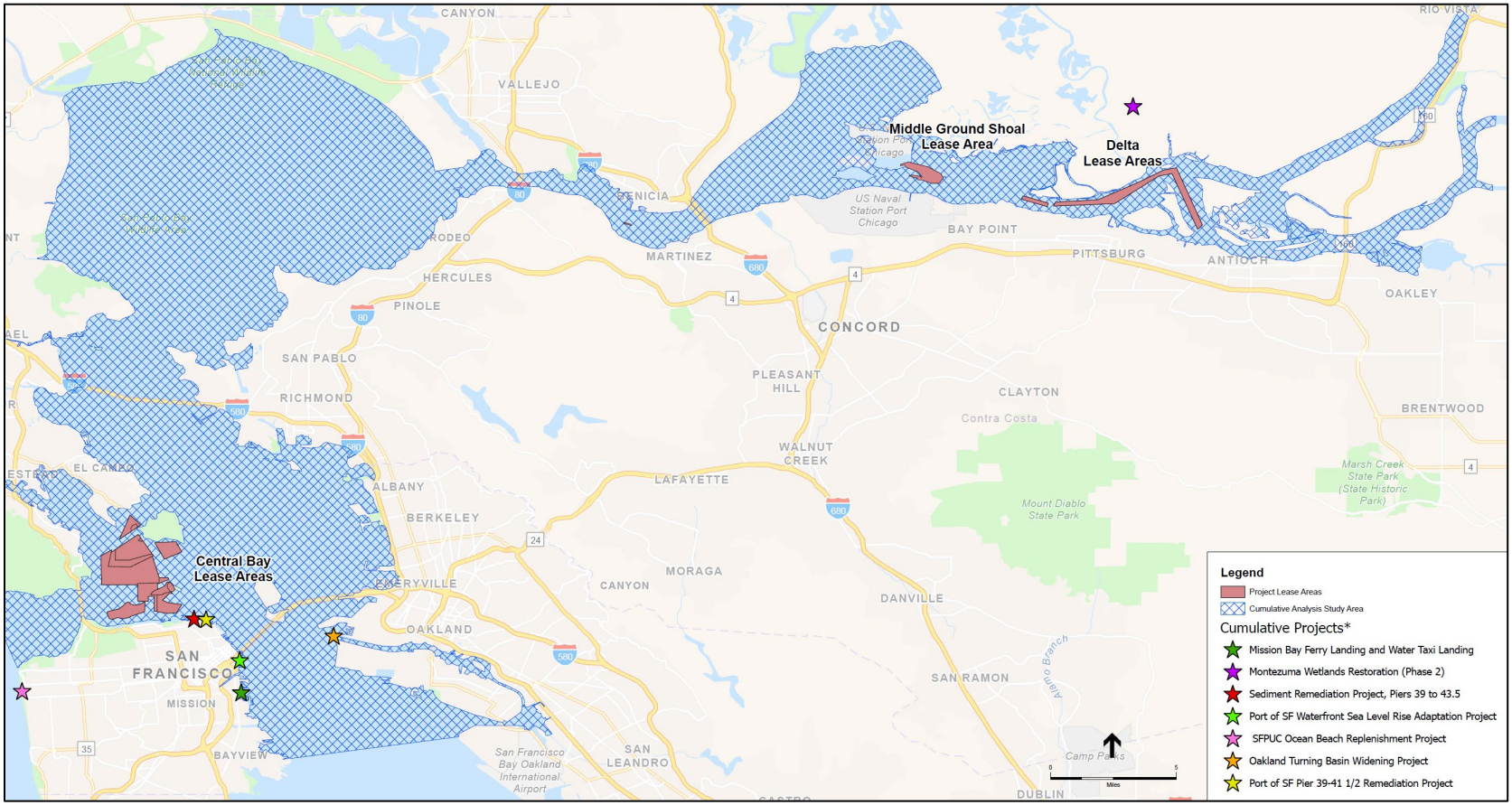
Project	Description	Location	Project Status and Documentation
	technically feasible approach to protect critical infrastructure and communities.	Mission Bay, and Islais Creek/Bayview.	
Oakland Turning Basin Widening Project	The Oakland Turning Basin Widening Project is a navigation improvement effort led by the USACE and the Port of Oakland. The project aims to expand the inner and outer harbor turning basins and involves dredging, pile driving, and shoreline modifications to reduce emissions and improve navigational safety.	Located in the Oakland Inner Harbor and adjacent to Alameda's shoreline, with improvements spanning Market Street, Embarcadero West, and Mitchell Avenue.	Final EIR certified by Port of Oakland in March 2025. https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/Oakland-Harbor-Turning-Basins-Widening/.
Ocean Beach Replenishment Project	The purpose of the Ocean Beach Replenishment Project is to implement a long-term coastal management strategy for South Ocean Beach that addresses shoreline erosion and climate change-related sea level rise. The project entails construction of a multi-use trail, beach access stairway, removal of structures, and sand replenishment, among other components.	San Francisco at Ocean Beach along the Great Highway between Sloat and Skyline boulevards.	Phase 1 was constructed in 2021; Relocation and import of 40,000 cubic yards of sand from north to south Ocean Beach occurred in the Spring of 2025.
San Francisco Bay Strategic Shallow-Water	The Project is led by the U.S Army Corps of Engineers (USACE) and proposes to place approximately 100,000 cubic yards of dredged	In San Francisco Bay, 2 miles offshore of the CDFW Eden Landing Ecological Reserve.	EA/Initial Study/ND (#2022100155) approved February 3, 2023.

Project	Description	Location	Project Status and Documentation
Placement Pilot Project	sediment from the Port of Redwood City Operations and Maintenance Project in shallow tidal waters offshore of the California Department of Fish and Wildlife's (CDFW) Eden Landing Ecological Reserve (Eden Landing).		https://ceqanet.opr.ca.gov/2022100155
Montezuma Wetlands Restoration (Phase 2)	The project (a private joint venture of Levine Fricke, Inc. and San Francisco Bay Restoration Authority) consists of pumping dredged sediment into the Phase 2 placement cells over three years in Suisun Marsh, Solano County. The dredged sediment will come from various dredging projects around San Francisco Bay that would otherwise dispose of their sediment in the ocean to be beneficially used for salt marsh restoration or at in-bay disposal sites, including Alcatraz.	The project site is located in Suisun Marsh, bordered to the west by Montezuma Slough and to the east by the Montezuma Hills.	San Francisco Bay Restoration Authority provided recommendations and funding in March 2023 for Phase 2. Construction is currently in process (as of July 2025).
Suisun Marsh fish screen rehabilitation	The project, led by CDFW and Suisun Resource Conservation district, involves replacement exterior water control structures and installation of essential fish screen devices. Phase 2 involves design and reconstruction of essential fish screens to protect fish	Montezuma Slough in Suisun Marsh.	NOD filed in August 2020. San Francisco Bay Restoration Authority approved funding for Phase 1 and Phase 2 in 2020 and 2022, respectively; additional funding approved in

Project	Description	Location	Project Status and Documentation
	and 382 acres of managed wetlands of Suisun Marsh.		2024. Fish screens have been installed on intakes along Montezuma Slough as of 2025. https://ceqanet.opr.ca.gov/2003112039/13

Source: (CEQAnet, 2025)

Figure 3.1-1. Location of Cumulative Projects



*Notes: The following cumulative projects were not depicted on this figure

- The Long Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay encompasses the waters of San Francisco, San Pablo, and Suisun Bays.
- San Francisco Bay Regional Dredged Material Management Plan (RDMMP) 2025-2044 includes Federal navigation channels within and surrounding SF Bay and San Pablo Bay, Carquinez Strait and Suisun Bay.

Source: ESA, 2025; ESRI, 2024; California State Lands Commission, 2009

3.2 BIOLOGICAL RESOURCES

This section identifies and evaluates potential impacts on biological resources, principally fishes, marine mammals, and marine invertebrates, to determine whether the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts than was disclosed in the 2012 EIR. This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR.

3.2.1 Baseline Conditions

The 2012 EIR (p. 1-12) states the following regarding baseline conditions for Biological Resources:

> Impacts on biological resources are assumed to have occurred since sand mining in the Project areas first started, and the ongoing disturbance that occurred during this time is considered part of the baseline condition. The EIR examines the effects of any changes in mining practices or methods, locations, and level of intensity relative to the average level of operations occurring from 2002 to 2007 and also examines the potential for cumulative effects of future sand mining in combination with past sand mining.

As described in Section 1.3.3 of this SEIR, the baseline condition for purposes of this analysis is the level of activity associated with the authorized sand mining lease volumes and the ongoing obligations such as mitigation measures and conditions of approval resulting from the Commission's 2012 EIR and lease authorizations. See Appendices A and F for details.

3.2.2 Environmental Setting

Section 4.1.1 of the 2012 EIR (pp. 4.1-1, et seq.) describes the environmental setting for the Project including biological resources, aquatic habitats, and associated biota for San Francisco Bay, the North Bay/San Pablo Bay, and Suisun Bay, and provides a summary of existing biological resource conditions. Those descriptions remain accurate for the purposes of the SEIR analysis, and have been considered alongside the supplemental information (see Section 1.2.3) found in the following reports, each of which has become available since publication of the 2012 EIR:

1) Hanson Marine Operations and Lind Marine, Inc. Sand Mining Water Quality Monitoring Program Results Report (NewFields, 2018a)
2) *Benthic Assessment of Sand Mining in Central San Francisco and Suisun Bays Data Report (*NewFields, 2018b)
3) *Technical Memorandum Benthic Assessment of Sand Mining Supplemental Data Evaluation* (NewFields, 2020)
4) Benthic Infauna Data Analysis (AMS, 2024)

3.2.2.1 Biological Communities

The biological communities environmental setting in this SEIR relies primarily on Section 4.1.1 of the 2012 EIR. Where appropriate to the assessment of potential effects from the Revised Project, new data and research has been added in this SEIR to update the information originally presented in the 2012 EIR.

3.2.2.2 Physical Environmental Setting

The San Francisco Bay and Delta (Bay-Delta) is the largest estuary on the West Coast of the United States covering roughly 550 square miles (Conomos et al. 1985; BCDC 2023). As described in the 2012 EIR (pp. 4.1-1 to 4.1-2), San Francisco Bay is divided into four sub-embayments, the Central Bay, South Bay, San Pablo Bay (North Bay), and Suisun Bay. The sand mining leases evaluated in the 2012 EIR and in this SEIR are held in west Central Bay and Suisun Bay (West Delta). The descriptions of the Central Bay and West Delta in Section 4.1.1 of the 2012 EIR remain accurate for the purposes of the SEIR.

<u>Turbidity and Nutrients</u>

Turbidity and sedimentation affect habitat suitability within the Bay-Delta. High turbidity limits light penetration in the water column, which can define habitat for critical species (Brown et al. 2013). Historically, 80-90 percent of the sediment that entered San Francisco Bay came from the eroded drainage basins of the Sacramento and San Joaquin Rivers (Krone 1979). However, water diversions, upstream dams, and flood control barriers in a post-mining era have led to the depletion of the downstream sediment pool (Schoellhamer et al. 2013; Achete et al. 2017). This sediment input is the main factor affecting turbidity throughout the Bay-Delta region and decreased sediment loads may have system-wide effects which could reduce ambient turbidity levels (Achete et al. 2017).

A water quality monitoring study of aggregate sand mining discharge plumes at the Central and West Delta mining lease sites between 2015 and 2016 reported

that "Overall, the monitoring results from both surveys demonstrate that discharges from sand mining operations do not adversely impact the water column with regards to chemical concentrations or toxicity, and that any physical effects related to plume turbidity are spatially limited and ephemeral in nature" (NewFields 2018a). These findings are consistent with the findings in the 2012 EIR Section 4.1.4 (pp. 4.1-44 to 4.1-46).

3.2.2.3 Open Water Pelagic Environment

As discussed in the 2012 EIR Section 4.1.1 (p. 4.1-3), the predominant habitat of the Bay-Delta region is pelagic[13], and the physical, chemical, and biological properties change with time and space. Each embayment is tidally influenced by Pacific Ocean waters flowing into Central Bay through the Golden Gate and by the freshwater flow from the Sacramento-San Joaquin River Delta.

Plankton Community

The pelagic environment is largely inhabited by planktonic[14] organisms but is also home to fishes and marine mammals moving through the deep-water channels of the Bay-Delta. The plankton community of the Bay-Delta was described in greater detail in the 2012 EIR Section 4.1.1 (p. 4.1-4) and remains applicable to this SEIR.

Phytoplankton

Phytoplankton are microscopic algae that produce chlorophyll[15] and form the foundation of the marine food web. Common taxa, as well as the distribution and salinity tolerance of phytoplankton in the Bay-Delta are described in the 2012 EIR, Section 4.1.1 (pp. 4.1-4), but nutrients also play a key role. The Bay-Delta has long been considered a low productivity estuary relative to its nutrient concentrations (Dugdale et al. 2007), as the Sacramento and San Joaquin rivers contribute large nitrogen loads from agricultural sources (Saleh and Domagaski 2021). Therefore, the Bay-Delta is classified as a high nutrient, low chlorophyll zone (Cloern 2001). Phytoplankton growth is largely controlled by light limitation (which is influenced by turbidity and sedimentation), grazing by microzooplankton,

[13] Pelagic refers to the open water portion of an aquatic habitat.

[14] Plankton are generally small, passively or weakly moving organisms, including algae, larval invertebrates and protozoans that float or drift in great numbers in salt water, especially at or near the surface.

[15] Chlorophyll is the name of the green pigment that plants use to make food during a process called photosynthesis.

and filter feeding by the invasive clam, *Potamocorbula amurensis* (Cloern and Dufford 2005). Otherwise, no substantive changes have occurred to the phytoplankton community inhabiting the Bay-Delta, and the information in the 2012 EIR remains applicable.

Zooplankton

Zooplankton are microscopic animals that spend all or part of their lifecycle within the water column. These organisms feed predominantly on phytoplankton, small suspended organic particles, or other zooplankton. Zooplankton community composition varies seasonally within the Bay-Delta and is a function of salinity gradients, residence time/flow, temperature, and phytoplankton abundance (Hartman et al. 2021).

The common zooplankton taxa observed between Carquinez Strait and South Bay as described in Section 4.1.1 (p. 4.1-4) of the 2012 EIR remains applicable and relatively unchanged with a few exceptions as follows. Areas of Suisun Bay and the Delta were historically dominated by freshwater copepods, cladocerans, rotifers, and bivalve veligers (Ambler et al. 1985), but following the introduction of *P. amurensis* (Kimmerer et al. 1994), this area is now dominated by copepods like *Limnoithona tetraspina* and *Pseudodiaptomus forbesi* (Winder and Jassby 2011; Gearty et al. 2021; Bashekin et al. 2023).

Pelagic Fish Community

The 2012 EIR (pp. 4.1-4 to 4.1-8) described the pelagic fish community inhabiting the sand mining lease areas of the Central Bay and West Delta from 2000-2007. Fish populations regularly shift in dominance and abundance over time. This may be due to factors such as changes in water flow, invasive species, and anthropogenic stressors (Moyle et al. 2016). To accurately assess the potential effects of the Revised Project on the pelagic fish community, data from the Interagency Ecological Program (IEP) was reassessed at the same locations as in the 2012 EIR (Appendix G, Biological Resources Supplemental Information) for the years 2016-2023. During this time, 35 pelagic fish taxa were collected in the Central Bay of which four species, northern anchovy (*Engraulis mordax*), Pacific herring (*Clupea pallasii*), jacksmelt (*Atherinops californiensis*), and Pacific sardine (*Sadinops sagax*) represented over 98 percent of the species caught (Appendix G, Table G-1, Biological Resources Supplemental Information). These were the same four dominant species reported and assessed in the 2012 EIR.

Between 2016 and 2023, 20 species were collected in the IEP midwater trawls in the West Delta. The seven most commonly captured species were the same as those reported from 2000-2007, and discussed in the 2012 EIR, Section 4.1.1 (Table 4.1-2, p. 4.1-7). These taxa continue to account for over 90 percent of total fish abundance in the area. These dominant species include northern anchovy (*E. mordax*), American shad (*Alosa sapidissima),* striped bass (*Morone saxatilis),* Pacific herring (*C. pallasii*), longfin smelt (*Spirinchus thaleichthys),* threadfin shad (*Dorosoma petenense*), and Chinook salmon (*Oncorhynchus tshawytscha*) (Appendix G, Table G-3, Biological Resources Supplemental Information).

The 2012 EIR (Section 4.1.1, pp. 4.1-7 to 4.1-8) described declines as well as state and federal protections of some of the dominant fish taxa of the Bay-Delta. Declining species include northern anchovy (*E. Mordax*), Pacific sardine *(S. sagax),* Pacific herring (*C. pallasii),* steelhead (*O. mykiss*), Chinook salmon (*O. tshawytscha*), delta smelt (*Hypomesus transpacificus*), and longfin smelt (*S. thaleichthys*). When the 2012 EIR was drafted, longfin smelt (*S. thaleichthys)* was listed as threatened under the California Endangered Species Act (CESA). In July 2024, the San Francisco Bay-Delta distinct population segment (DPS)of longfin smelt was also listed as endangered under the Federal Endangered Species Act (FESA) (CNDDB 2025).

Marine Bird Community

The marine bird community discussion in the 2012 EIR, Section 4.1.1 (pp. 4.1-8 to 4.1-9) remains relevant for the purpose of this SEIR analysis. Additional birds not mentioned in the 2012 EIR that are known to utilize the waters of the Central Bay and Delta leases include the Western grebe (*Aechmophorus occidentalis*), Clarke's grebe (*Aechmophorus clarkii*), the common murre (*Uria aalge*), assorted loons, pelagic cormorant (*Phalacrocorax pelagicus*), and horned grebe (*Podiceps auritus*). ~~However, t~~The populations of some marine bird species in Central San Francisco Bay have actually increased in recent years (Audubon 2018; NPS 2021). In 2023, there were 3,900 Brandt's cormorant (*Phalacrocorax penicillatus*) nests on Alcatraz Island alone, almost double their historic numbers in the area. This upward trend is likely due to changes in prey availability and reproductive success. Since then, nest totals have not matched the 2023 peak, but have remained at healthy levels (GGBA 2024). Other marine birds that have been increasing in number in Central San Francisco Bay include double-crested cormorants (*Phalacrocorax auritus*), western gulls (*Larus occidentalis*), and pigeon guillemots (*Cepphus columba*) (Audubon 2018; Rauzon et al. 2019).

Marine Mammal and Sea Turtle Communities

The discussion of marine mammals and sea turtles presented in the 2012 EIR (pp. 4.1-8 to 4.1-9) remains relevant for the Revised Project, with a few updates on population densities and occurrences. Several species of marine mammals inhabit the Bay-Delta, using the area for foraging, migration, haul-out or resting areas, and breeding (USACE 2011; Carretta et al. 2022). As presented in the 2012 EIR, the most common species within the Revised Project area include the harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*), and harbor porpoise (*Phoecoena phoecoena*). Harbor porpoises (*P. phoecoena*) can be found foraging year-round in Central Bay, reoccupying the area after more than a 60-year absence (NMFS 2015; Stern et al. 2017). In 2017, estimates of the San Francisco-Russian River harbor porpoise (*P. phoecoena*) stock were between 7,000 and 8,000 individuals (Forney et al. 2020). The northern elephant seal (*Mirounga angustirostris*) has also become a more frequent visitor to the Central and North Bay, with annual numbers increasing and young of the year observed hauling out or stranding on San Francisco Bay beaches (NMFS 2015; Hernández 2019). More recently in warm years, bottlenose dolphins (*Tursiops truncatus*) have been sighted near the Central Bay dredge leases between the Golden Gate and Alcatraz Island. New research suggests that their northern range has expanded into San Francisco Bay (Keener et al. 2023). Southern (California) sea otters (*Enhydra lutris nereis*) and Stellar sea lions (*Eumetopias jubatus*) have also been observed in San Francisco Bay.

The population of gray whales (E*schrichtius robustus*) had increased along the West Coast, peaking at approximately 27,000 individuals in 2016 (NOAA 2025). However, between 2018 and 2023 there was an unusual mortality event that decreased the population by nearly 45 percent (NOAA 2025; SFGATE 2025). This mortality event has been attributed to arctic ecosystem changes and a potential reduction in food (NOAA 2025). In 2024, the West Coast gray whale population appeared to begin recovering (NOAA 2025). During the 2025 northward migration, there has been an unusual increase in gray whale observations within San Francisco Bay compared to 2024, with more than 30 gray whale sightings. In 2024, only six sightings occurred (SFGATE 2025; California Academy of Sciences 2025). It is unknown whether the increase in sightings has been of separate individuals or multiple sightings of the same individual. However, it was reported that up to nine individuals were observed within San Francisco Bay at one time and that some individuals have remained within San Francisco Bay for up to 20 days (SFGATE 2025). These individuals likely entered San Francisco Bay to forage (California Academy of Sciences 2025; SFGATE 2025).

There are seven species of sea turtles globally, six of which are found within U.S. waters (Smithsonian Institution 2023). These six species include, hawksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*), green (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempii*), and olive ridley (*Lepidochelys olivacea*). No sea turtles are expected to occur in the Revised Project area, but leatherback sea turtles (*D. coriacea*) have occasionally been observed in Central San Francisco Bay (Appendix G, Biological Resources Supplemental Information).

3.2.2.4 Benthic and Demersal Environment[16]

Soft Substrate

The benthic invertebrate community can be classified into infauna that live within the substrate and epifauna that live on the substrate. At any given site, these communities appear as a patchwork of different species groups that are experiencing and recovering from local disturbances such as sand or current movement. Different invertebrate taxa respond differently to environmental conditions and disturbance; thus, the makeup of the invertebrate community reflects the quality and character of the environment where the groups reside (Chapman et al. 1987; Thompson et al. 2012).

The discussion in the 2012 EIR (pp.4.1-10 to 4.1-12) on soft substrate habitat and taxa remains relevant for the Revised Project. However, since the 2012 EIR was certified, three additional assessments of the benthic infaunal communities in Central Bay and West Delta have been conducted (NewFields 2018b, 2020; AMS 2024). The following discussion compares the findings of those studies with infaunal studies presented in the 2012 EIR. In total, five assessments have been made of the infaunal and epifaunal communities inhabiting Central Bay and West Delta aggregate sand mining leases.

The first study was conducted in 1990 by MEC and Cheney (1990) and provided a high-level evaluation of the infaunal community in the Alcatraz shoal region of Central Bay. In 2009, a broader and more comprehensive evaluation of the benthic communities inhabiting the Central Bay and West Delta sand mining leases was conducted by Applied Marine Sciences (AMS 2009a) to inform the 2012 EIR. The third and fourth assessments were performed by NewFields (2018b,

[16] The benthic zone is the ecological region that includes the sediment surface and subsurface. The demersal zone is the lowest portion of the water column that is near to and influenced by the seafloor.

2020), and the fifth was conducted by AMS (2024), which only focused on the Central Bay. The assessments of the benthic infauna inhabiting the Central Bay mining leases reported a low diversity, low abundance community composed of roughly 100 taxa. These taxa appeared to be heavily influenced by currents, resuspension of clays, silts, and organic matter, and movement of surface sands (AMS 2009a; NewFields 2018b, 2020). AMS (2009a) examined the regionwide benthic infaunal community which was dominated by worms and amphipods and included nematodes, polychaetes, oligochaetes, and nemerteans. Total animal density was estimated at about 2,000 individuals per square meter, which is similar to other findings in the Alcatraz Shoal region of Central Bay (MEC and Cheney 1990). Other dominant taxa reported by AMS included several native and introduced bivalves (clams) and sea cucumbers (*Leptosynapta* spp.). Central Bay samples identified that dominant taxa could be separated into five sub-groups. One sub-group was characterized by high species diversity with equally abundant amphipod, bivalve, and polychaete species; this community was associated with the coarsest sand and gravel. A second sub-group, with slightly higher species diversity, was dominated by the bivalve, *Nutricola* spp., followed by polychaetes, amphipods, bivalves, and nematodes. The three remaining sub-groups showed extremely low species diversity. Of these three subgroups, two were overwhelmingly dominated by nematodes with a lesser abundance of polychaetes (AMS 2009a). NewFields (2018b) surveyed one Central Bay sand mining lease (Point Knox Shoal) and one control site, and taxonomically identified the animals retained on a 1.0 millimeters (0.04 inches) sorting screen. The AMS (2009a) study analyzed all benthic infaunal organisms collected in each grab. NewFields (2018b) reported that the infaunal community in the Point Knox Shoal lease area in Central Bay and associated control site were similar to the community reported by AMS (2009a), in that it was dominated by worms, amphipods, nemerteans, and the bivalve, *Tellina carpente*r.

In West Delta, the invertebrate benthic community is dominated in abundance and biomass by two invasive clams: *P. amurensis* and *Corbicula fluminea* (NOAA 2007; AMS 2009a; NewFields 2018b). Other key taxa include polychaetes and the small marine crustacean*, Nippoleucon hinumensis* (NOAA 2007). In the studies supporting the 2012 EIR, AMS (2009a) observed an overwhelming dominance by *P. amurensis* in Middle Ground Shoal and West Delta mining leases. NewFields (2018b) reported that *P. amurensis* was the dominant benthic infaunal organism in West Delta Lease 7781. They also reported the occurrence of the polychaete *Marenzelleria viridis*, the amphipod *Gammarus daiberi*, and the marine isopod *Synidotea laticauda*.

As part of the NewFields (2018b) infaunal study, sediment profile imaging (SPI) data was collected to evaluate the infaunal community successional stage. Benthic infaunal communities generally occur as one of three successional stages (Pearson and Rosenberg 1978; Rhoads and Germano 1986). Stage I infaunal organisms are typically opportunistic, tubicolous, surface-dwelling polychaetes that quickly colonize the seafloor following disturbance. Stage II organisms are typically shallow-dwelling bivalves or tube-dwelling amphipods. Stage II communities are considered transitional communities before reaching Stage III. Stage III communities are the highest successional stage consisting of long-lived, infaunal, deposit-feeding organisms, such as tubeworms and bivalves. NewFields (2018b) characterized both the Central Bay and West Delta sand mining leases as comprising predominantly Stage I infaunal communities, similar to that seen in the 2012 EIR. They attributed this to the high current velocities and unstable sediments. Similar findings were reported by AMS (2009a; 2024) and NewFields (2020).

Hard Substrate

Hard substrate in the Bay-Delta consists of both natural and artificial surfaces. Natural substrates include boulders, rock outcroppings, and low relief rock. Artificial hard substrate includes submerged concrete breakwalls, bulkheads, vessels, pilings, riprap, and pipelines. Pilings, riprap, and pipelines can be found in every region of the Bay-Delta, and are a dominant feature along all Bay-Delta waterfronts. The Central Bay has the largest concentration of natural hard substrate in the Bay-Delta (Greene et al. 2007; NOAA 2007). The western portion of Central Bay between Alcatraz Island and the Golden Gate, contains four submerged rocks or pinnacles: Arch Rock, Harding Rock, Shag Rock, and Blossom Rock. Several of which rise to within 12 meters (40 feet) of the sea surface. However, most of these rock features were flattened to minimize navigation hazards. As a result, each feature is surrounded by rubble and boulder fields. The West Delta mining leases have no known natural or artificial hard benthic substrate in or adjacent to them (NOAA 2007).

As presented in the 2012 EIR p. 4.1-48, the hard substrate areas in Central Bay provide habitat for an assemblage of marine algae and invertebrates. Submerged hard bottom substrate is typically covered by a mixture of turf organisms such as hydroids, bryozoans, tunicates, encrusting sponges, encrusting diatoms, and anemones. At least six species of sponges, seven species of bryozoans, and the hydrozoans, *Ectopleura crocea* and *Garveia franciscana*, are found inhabiting both natural and man-made hard substrates. Commonly observed isopods and amphipods include the surface deposit

feeders *Gnorimosphaeroma* sp. and *Synidotea laevidorsalis*, the algae grazers *Ampithoe valida*, *Sphaeroma quoianum*, and *Eogammarus confervicolus*, the carnivores *Hopkinsia plana*, and *Incisocalliope derzhavini*, as well as *Jassa marmorata* and *Stenocthoe laevidorsalis.* Barnacles are also found in subtidal areas on pier pilings, exposed rock outcropping, and debris (NOAA 2007).

Megabenthic Invertebrates and Dungeness Crabs

The discussion of megabenthic invertebrates in the 2012 EIR (pp.4.1-12 to 4.1-13) remains applicable to the Revised Project. Due to the importance of the Bay-Delta to the life history of Dungeness crabs (*Metacarcinus magister*), the discussion of this commercially important species has been updated for the Revised Project.

Dungeness crabs (*M. magister*) are the most commercially important true crab in the Pacific Northwest and California and provide food to numerous other species (Mooi *et al*. 2007). The IEP San Francisco Bay Study conducted monthly crab surveys between 1980 and 2018. More Dungeness crabs (*M. magister*) were found in Central Bay compared to West Delta (IEP 2019). Dungeness crabs (*M. magister*) spawn in the Pacific Ocean in December and January and juveniles utilize San Francisco Bay for nursery habitat (Wild and Tasto 1983). Larvae are carried by currents or ride under the bells of jellyfish into San Francisco Bay and migrate to San Pablo Bay where they reside through the summer (Wickham 1979; Mooi et al. 2007; Baykeeper 2013; ODFW 2022). In the fall, the young crabs follow the deeper channels of the Central Bay back out to the ocean (Baykeeper 2013). Traditionally, adult males (15.9 centimeters [6.3 inches] carapace width) have been harvested off the coast between November and June (Mooi *et al*. 2007).

Demersal Fish Community

The 2012 EIR (pp. 4.1-13 to 4.1-15) described the demersal fish community inhabiting the sand mining lease areas in Central Bay and West Delta from 2000-2007. This analysis remains applicable to the Revised Project. The demersal zone encompasses the area of the water column near the seafloor. The IEP fish data was reassessed for the years 2016-2023 for the same locations described in the 2012 EIR (Appendix G, Biological Resources Supplemental Information). Between 2016 and 2023, over 55 demersal fish taxa were recorded in the Central Bay (Appendix G, Biological Resources Supplemental Information, Table G-4). This community was dominated by the same five species as the 2000-2007 time period described in the 2012 EIR (p. 4.1-13). These taxa continue to account for

over 88 percent of total fish abundance. These species include English sole (*Parophrys vetulus*), speckled sanddab (*Citharichthys stigmaeus*), bay goby (*Lepidogobius lepidus*), plainfin midshipman (*P. notatus*), and Pacific staghorn sculpin (*Leptocottus armatus*) (Appendix G, Biological Resources Supplemental Information).

Between 2016 and 2023 the demersal fish community in West Delta exhibited lower species richness than Central Bay (Appendix G, Biological Resources Supplemental Information, Table G-5). Thirty taxa were identified, and the seven most common species were the same as those recorded in the 2000-2007 otter trawls and described in the 2012 EIR (p. 4.1-15). These taxa continue to account for over 90 percent of the total recorded fish abundance. These dominant species include Shokihaze goby (*Tridentiger barbatus*), striped bass (*M. saxatilis*), yellowfin goby (*A. flavimanus*), starry flounder (*P. stellatus*), Pacific staghorn sculpin (*L. armatus*), longfin smelt (*S. thaleichthys*), plainfin midshipman (*P. notatus*), Shimofuri goby (*Tridentiger bifasciatus*), and English sole (*P. vetulus*) (Appendix G, Biological Resources Supplemental Information).

Submerged Aquatic Vegetation

The submerged aquatic vegetation (SAV) habitat discussion in the 2012 EIR, Section 4.1.1 (pp. 4.1-12 to 4.1-13) remains unchanged for the purpose of this SEIR analysis. Revised Project activities will be constrained to areas of the Bay-Delta that are too deep for SAV beds to occur.

3.2.2.5 Special Status Species

Several species that occur in the vicinity of the Revised Project are protected under federal and/or state endangered species laws, under federal and state marine mammal protection regulations, or have been designated as Species of Special Concern by the CDFW. The categorization of special status species presented in Section 4.1.1 (pp. 4.116 to 4.1-24) of the 2012 EIR remains the same for the Revised Project, and the special status species discussed in the 2012 EIR remain largely unchanged. However, since the drafting of the 2012 EIR, several taxa have become special status species that must be considered in the evaluation of the Revised Project (Appendix G, Biological Resources Supplemental Information). Additionally, the populations of most marine mammals inhabiting the Bay-Delta and California Coastal waters have increased in population abundance and occurrence (Appendix G, Biological Resources Supplemental Information). Since 2012, the red abalone (*Haliotis rufescens*) has been listed as a California species of concern but is not expected

in the Revised Project area as it is primarily found north of the San Francisco Bay-Delta. Additionally, the sunflower sea star (*Pycnopodia helianthoides*) was FESA proposed -threatened. Longfin smelt (*S. thaleichthys*) have also been listed as ~~threatened~~ endangered under the FESA and white sturgeon (*Acipenser transmontanus*) were listed for consideration of protection under the CESA. Longfin smelt (*S. thaleichthys*) had previously been protected under the CESA and were included in the 2012 EIR assessment. Changes to special status species listings and populations since the drafting of the 2012 EIR are discussed in the subsections below.

Marine Mammals

All marine mammals within U.S. waters are protected under the Marine Mammal Protection Act, and some species are also protected under the FESA. The special status marine mammals that reside or are commonly observed in the Bay-Delta and have the potential to occur within the Project area were discussed in the 2012 EIR (pp. 4.1-22 to 4.1-23) and in Section 3.2.2.3 (Marine Mammal and Sea Turtle Communities) above.

Fishes

Protected or special status fish species with the greatest potential to occur within the Revised Project area, either seasonally or year-round, and those for which the Revised Project area could provide suitable habitat were discussed in the 2012 EIR, Section 4.1.1 (pp. 4.1-16 to 4.1-20). Since the adoption of the 2012 EIR, longfin smelt (*S. thaleichthys*) was listed as endangered under the FESA. It was previously listed only as threatened under the CESA when evaluated in the 2012 EIR. White sturgeon (*A. transmontanus*) was also listed for consideration of protection under the CESA in July 2024. On September 6, 2024, the California Fish and Game Commission (CFGC) established emergency regulations for white sturgeon sport fishing (Cal. Code Regs. Tit. 14 § 5.78) indicating the agency is concerned about over harvest. On March 25, 2025, CFGC issued a Notice of Proposed Changes in Regulations for white sturgeon sport fishing to make the emergency regulations permanent. While the CFGC regulations are limited to sports fishing and do not implicate the Revised Project, it reflects the attention and concerns CFGC holds for the species. White sturgeon (*Acipenser medirostris*), is an anadromous fish that ranges from the Gulf of Alaska to Baja California, Mexico, but primarily inhabits large coastal rivers and associated estuaries. The white sturgeon in the San Francisco Bay-Delta represent the southernmost spawning population. Between February and June, white sturgeon migrate from the San Francisco Bay-Delta into the Sacramento-San Joaquin

rivers and watersheds to spawn and then return to the estuary. Newly hatched juveniles swim for several days within the water column before settling near the bottom in the freshwater regions of the Bay-Delta. Larger juveniles and some adults then migrate back to the Bay-Delta while other adults migrate to the ocean. Juvenile and adult white and green sturgeon inhabit the benthic habitat of the Bay-Delta, and are known to forage and travel through the Revised Project Area (Appendix G, Biological Resources Supplemental Information).

Marine Birds

Protected or special status bird species that have the greatest potential to occur within the Revised Project area, either seasonally or year-round, and those for which the Revised Project area could provide suitable habitat were discussed in the 2012 EIR, Section 4.1.1(p. 4.1-21). There have been no changes to the status of these taxa since the drafting of the 2012 EIR (Appendix G, Biological Resources Supplemental Information). As mentioned above in Section 3.2.2.3 (Marine Bird Community), some protected and special status marine bird populations in Central Bay have increased.

Sea Turtles

All sea turtles are classified as endangered or threatened (Appendix G, Biological Resources Supplemental Information) under the FESA in all or part of their ranges (Carretta et al. 2022; NOAA 2023b; NOAA 2023c; Sea Turtle Conservancy 2023). Since 2012, loggerhead sea turtles (*C. caretta*) have been divided into nine DPS with four segments listed as threatened and five listed as endangered. Green sea turtles (*C. mydas*) have been divided into 11 DPS, three of which are listed as endangered and eight are listed as threatened (USFWS 2021; NOAA 2023f).

No sea turtles are expected to occur in the Revised Project area, except as presented in Section 3.3.2.3 (Marine Mammal Community and Sea Turtles), above. Leatherback sea turtles (*D. coriacea*) have occasionally been observed in Central San Francisco Bay (Appendix G, Biological Resources Supplemental Information).

Invertebrates

Invertebrates of special concern include abalones (*Haliotis* spp.) and the sunflower sea star (*P. helianthoides*) (Appendix G, Biological Resources Supplemental Information). No abalone species are expected to occur within the Revised Project area. In 2023, NOAA proposed listing the sunflower sea star

(*P. helianthoides*) as threatened under the FESA due to sharp declines from outbreaks of Sea Star Wasting Syndrome (NOAA 2023d; NOAA 2023e). Sunflower sea stars (*P. helianthoides*) are not expected at the sand mining sites within the West Delta, but there is a low chance that they could be present at the hard substrate pinnacles located within some of the Central Bay mining leases (NPS 2020; NOAA 2023d).

3.2.2.6 Critical Habitat

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) designate critical habitat for species that have been listed as threatened or endangered. The discussion of Critical Habitat in the 2012 EIR (p. 4.1-23) remains current for the Revised Project.

Magnuson-Stevens Act Managed Fish Species

The 2012 EIR Section 4.1.1 (pp. 4.1-30, to 4.1-31) described the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requirements for EFH, and the species protected under the MSA in Northern and Central California. These requirements have all been updated since the drafting of the 2012 EIR (PFMC 2024c; PFMC 2024a; PFMC 2024d; PFMC 2024b). Information on MSA managed fish species occurring within the Bay-Delta was presented in the 2012 EIR in Section 4.1.1 (pp. 4.1-4 to 4.1-8, 4.1-13 to 4.1-20 and 4.1-23 to 4.1-28) in conjunction with the discussions on pelagic and demersal fish communities and special status species. Similarly, critical species managed under MSA are discussed in the pelagic and demersal fish community and special status species sections above.

Appendix G (Biological Resources Supplemental Information) presents a detailed list of all fish and invertebrate species managed under MSA and the life stages that may occur in the Bay-Delta. Of key importance to these species is the protection of EFH and Habitat Areas of Particular Concern (HAPC). For the Pacific Coast Groundfish FMP, estuaries, seagrass beds, canopy kelp, rocky reefs, and other "areas of interest" such as seamounts, offshore banks, and canyons are designated as HAPC (PFMC 2024c).

For coastal pelagic fishes, the estuarine and coastal waters from the surface to 1,000 meters (3,281 feet) depth are critical habitat (NOAA 2022). All taxa managed under the Coastal Pelagic Species FMP are found in the coastal waters of the Bay-Delta (Appendix G, Biological Resources Supplemental Information).

The Pacific Coast Salmon FMP (2024d) outlines spatially explicit EFH for Chinook (*O. tshawytscha*), Coho (*Oncorhynchus kisutch*), and Puget Sound pink (*Oncorhynchus gorbuscha*) salmon. The inland spawning habitat is the most essential to these species (all areas designated as HAPC for salmon are inland), and all three remain present in marine coastal waters. The marine EFH for each species extends from the inland extreme high tide line out to the 200 nautical mile (370 kilometers) Exclusive Economic Zone offshore Washington, Oregon, and California north of Point Conception (PFMC 2024d). The Revised Project area is therefore included within the EFH for these species (Appendix G, Biological Resources Supplemental Information).

Essential fish habitat for highly migratory species includes all marine waters and substrate necessary for spawning, breeding, feeding, or growth to maturity of several shark, tuna, marlin, swordfish, and dorado (mahi-mahi) species (PFMC 2024b, Appendix G, Biological Resources Supplemental Information). These species are rarely reported in the Bay-Delta (Appendix G, Biological Resources Supplemental Information).

Marine and Estuarine Non-Native/Invasive Species

Non-native marine animals and algae inhabiting the Bay-Delta are those that have been inadvertently or intentionally removed from their native region and introduced into California waters. Non-native species can also be referred to as introduced, nonindigenous, alien, or exotic species. Once a non-native species is established in a new geographic location and causes impacts, it is considered an invasive species. The introduction of these species displaces native organisms, restructures ecosystems, disrupts local economies (i.e., fisheries, agriculture, and recreation), and may even pose health threats to humans (CDFW 2022). The Bay-Delta has the highest number of non-native marine and estuarine species globally, with nearly 300 as of 2024. There are 74 non-native crustacean species, 40 non-native mollusk species, 35 non-native fishes, and 32 non-native annelids (Fofonoff et al. 2018; CDFW 2022). The discussion of non-native/invasive species in the 2012 EIR (pp. 4.1-28 to 4.1-29) remains relevant to the evaluation of the Revised Project's effects on marine habitat and species. However, NewFields (2018b) did confirm observations made by AMS (2009a) that the Asian clam (C. fluminea) and overbite clam (P. amurensis) dominated the benthic infaunal community of the West Delta. NewFields (2018b) also reported the presence of the non-native arthropod, G. daiberi, the invasive marine isopod, S. laticauda, and the invasive mysid shrimp, Hyperacanthomysis spp. in the West Delta mining lease.

3.2.2.7 Commercial and Recreational Fishing

The 2012 EIR (pp. 4.1-4 to 4.1-8 and 4.1-13 to 4.1-15) discussed the fish taxa in Central San Francisco Bay and West Delta. Since the drafting of the 2012 EIR, concerns about potential anthropogenic effects on commercial and recreational fishing have increased. Therefore, for the Revised Project potential effects on species that are either commercially or recreationally fished have also been considered.

Commercial Fishing

The Bay-Delta and waters immediately offshore of San Francisco are utilized for both commercial and recreational fishing. Commercial fishing methods include trolling, trawling, and trapping. Although over 150 species or groups were commercially landed in San Francisco Bay between 2020 and 2024 (CDFW 2025), 25 of these species accounted for 99 percent of the landings by tonnage (Appendix G, Biological Resources Supplemental Information). Those taxa that account for the majority of the total landings between 2020 and 2024 include, Dungeness crab (*M. magister*), market squid (*Doryteuthis opalescens)*, California halibut (*Paralichthys californicus*), Chinook salmon (*O. tshawytscha*), sablefish (*Anoplopoma fimbria*), cabezon (*Scorpaenichthys marmoratus*), Petrale sole (*Eopsetta jordani*), northern anchovy (*E. mordax*), and bocaccio (*Sebastes paucispinis*).

Recreational Fishing

Recreational fishing conducted from rocky shores, sandy beaches, docks, private boats, and commercial party boats, landed over 90 species or groups between 2020 and 2024 in San Francisco Bay (RecFIN 2025; Appendix G, Biological Resources Supplemental Information). However, only 16 of these species accounted for 90 percent of the landings in tonnage. The dominant fish taxa caught by recreational fishers include, California halibut (*P. californicus*), lingcod (*O. elongatus*), striped bass (*M. saxatilis*), jacksmelt (*A. californiensis*), Pacific sanddab (*Citarichthys sordidus*), leopard shark (*Triakis semisfasciata*), bat ray (*Myliobatis californica*), and assorted rockfishes (*Sebastes* spp.) including: brown, blue, yellowtail, canary, vermillion, black, copper, bocaccio, and gopher, (*S. auriculatus, S. mystinus, S. flavidus, S. pinniger, S. miniatus, S. melanops, S. caurinus, S. paucispinis,* and *S. carnatus,* respectively).

3.2.3 Regulatory Setting

Section 4.1.2 of the 2012 EIR (pp. 4.1-29, et seq.) describes the regulatory setting for the analysis of biological resources, including federal, state, and local regulations. The section provided summary information about pertinent federal, state and local regulations as they apply to marine resources. In addition, updates to the CEQA Guidelines in 2018 clarified the mitigation value of governmental regulations, namely that "[c]ompliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards." (Tit. 14, Cal. Code of Regs. Section 15126.4(b)). The descriptions provided in the regulatory setting remain otherwise unchanged for the purposes of this SEIR analysis.

3.2.4 Significance Criteria

Consistent with CEQA Guidelines Appendix G in effect at the time of the 2012 EIR publication, Section 4.1.3 of the 2012 EIR (p. 4.1-37) determined that the Project would have a significant impact on biological resources if:

- There is a potential for the Project to "take" any part of the population of a special status species (such as a state or federally endangered species) through direct effects or indirect harm through the disturbance or loss of habitat.
- A net loss occurs in the functional habitat value of a sensitive biological habitat, or any Area of Special Biological Significance.
- There is a potential for the movement or fish migration to be impeded.
- A substantial loss occurs in the population or habitat of any native fishes or vegetation or if there is an overall loss of biological diversity, with substantial defined as any change that could be detected over natural variability.

The 2018 update to the CEQA Guidelines Appendix G environmental checklist clarified that a substantial adverse effect on state as well as federal wetlands would constitute a significant adverse effect. However, the Revised Project is not anticipated to occur within or create an effect upon delineated wetlands. Therefore, the 2018 CEQA Guidelines Appendix G updates do not affect the significance criteria being evaluated in this SEIR. Accordingly, for the purpose of analyzing whether the Revised Project, as substantively similar to the project that

was analyzed in the 2012 EIR, would cause any new significant impact or any substantial increase in the severity of a significant impact relative to the impacts disclosed in the 2012 EIR with respect to biological resources, the significance criteria considered in the 2012 EIR remain current.

3.2.5 Direct and Indirect Effects

3.2.5.1 2012 Project

The 2012 Final EIR, Section 4.1.4, presented the following impact determinations for Biological Resources:

> **Impact BIO-1**: Potential displacement of special status species - Commercial sand mining in the San Francisco Bay-Delta may result in the direct and indirect physical displacement of special status fish species, including delta smelt, longfin smelt, green sturgeon, Chinook salmon, steelhead trout, and Pacific herring, Fishery Management Plan-managed pelagic fish and groundfish, marine bird species such as California brown pelican, and protected marine mammals, including California gray whale, humpback whale, California sea lion, harbor seal, and harbor porpoise (Less than Significant, Class III).
>
> **Impact BIO-2**: Potential impacts to fish and wildlife species from increased noise - Sand mining activities result in increased noise at the location of the suction drag head on the seafloor that can result in increased disturbance to marine biota, especially fish, including special status fish species (Less than Significant, Class III).
>
> **Impact BIO-3**: Potential sand mining impacts on benthic habitat, infauna, epifauna, and foraging habitat - San Francisco Bay-Delta sand mining results in the temporary disturbance, alteration and loss of soft substrate benthic habitat and associated benthic infauna and epifauna, which could affect foraging habitat for special status fish, marine bird species, such as California brown pelican, and protected marine mammals including California gray whale, humpback whale, California sea lion, harbor seal, and harbor porpoise and affect Bay-Delta food web dynamics (Less than Significant, Class III).
>
> **Impact BIO-4**: Discharge of suspended sediments may potentially release contaminants into waters that affect plankton and wildlife species - The discharge of suspended sediments in the overflow plume during sand mining will increase suspended sediment concentrations (SSC) and

potentially release organic and inorganic contaminants into Bay-Delta waters affecting plankton and fish populations including delta smelt, longfin smelt, green sturgeon, Chinook salmon, steelhead trout, Pacific herring, and Fishery Management Plan-managed pelagic fish and groundfish (Less than Significant, Class III).

Impact BIO-5: Disturbance of sediments at the seafloor could result in increased turbidity, SSC, and release of contaminants that potentially impact plankton and wildlife species - Disturbance of sediments at the seafloor during sand mining could result in increased turbidity and suspended sediment concentrations at the seafloor and the potential release of organic and inorganic contaminants to Bay-Delta waters affecting plankton and fish populations including special status fish species such as delta smelt, longfin smelt, green sturgeon, Chinook salmon, steelhead trout, Pacific herring, and Fishery Management Plan-managed pelagic fish and groundfish (Less than Significant, Class III).

Impact BIO-6: Sand mining could result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging - Resettlement of discharged sediments from the barge overflow plume and disturbed sediments at the seafloor during sand mining could potentially result in the smothering, burial, or loss of soft substrate benthic infauna and epifauna, and hard substrate epifauna, and could indirectly reduce fish foraging (Potentially Significant, Class II).

Impact BIO-7: Sand mining will cause entrainment and mortality of common and managed aquatic species - The Project will cause the entrainment and mortality of common and managed juvenile and adult fish, invertebrates, and plankton, including Dungeness crab, Pacific herring, and Fishery Management Plan-managed pelagic fish and groundfish during sand mining (Less than Significant, Class III).

Impact BIO-8: Regular operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt - The Project would result in a significant impact to delta smelt and longfin smelt as a result of entrainment and mortality during sand mining operations impacting delta smelt and longfin smelt thereby exceeding the established significance level criteria thresholds (Significant, Class I).

Impact BIO-9: Green sturgeon, Chinook salmon, and steelhead trout will be impacted during sand mining - The Project will cause the entrainment

and mortality of green sturgeon, Chinook salmon and steelhead trout during sand mining (Potentially Significant, Class II).

Impact BIO-10: Potential effects on fish movement and migration - Physical modification of bottom habitat through the removal of sediment has the potential to affect fish movement or migration (Less than Significant, Class III).

The CSLC adopted a Mitigation Monitoring Program (MMP) as part of its discretionary action. Five mitigation measures related to biological resources were adopted (Appendix F, Table 1):

- **MM BIO-6**. Establish a 100-foot buffer around hard bottom areas within and adjacent to Central Bay mining leases.
- **MM BIO-8a**. Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt.
- **MM BIO-8b**. Applicants shall provide off-site mitigation to compensate for the impacts of the taking that may be unavoidable.
- **MM BIO-9a**. Sand mining halted during peak Chinook salmon migration. *(As noted in Appendix F, although the name of MM BIO 9a remains, the conditions of the ITP were adopted, and a variance was authorized February 18, 2025, which replaced the conditions of MM BIO-9a, and MM BIO 9b entirely with the conditions of the ITP.)*

3.2.5.2 Revised Project

This analysis evaluates any potential significant changes to the physical environment that would result due to implementation of the Revised Project relative to the baseline condition. It compares the impact conclusion to the impact conclusion in the 2012 EIR regarding the same consideration and then determines whether the implementation of the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of significant impacts. For the reasons discussed below, implementation of the Revised Project would not cause any new significant impacts or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

The studies identified in Section 1.2.3 as having been completed since certification of the 2012 EIR provide additional information about physical environmental conditions in the lease areas; however, the information and conclusions they provide are consistent with information presented and conclusions reached in

the 2012 EIR. The water quality and benthic infauna studies listed in Section 3.2.2 have been considered in the following analysis but do not change the impact determinations reached in the 2012 EIR regarding biological resources.

Would the Revised Project result in potential displacement of special status species?

Impact BIO-1: Potential displacement of special status species.

Commercial sand mining in the San Francisco Bay-Delta may result in the direct and indirect physical displacement of special status fish species, including delta smelt, longfin smelt, green sturgeon, white sturgeon, Chinook salmon, steelhead trout, and Pacific herring, Fishery Management Plan-managed pelagic fish and groundfish, marine bird species such as California brown pelican, and protected marine mammals, including California gray whale, humpback whale, California sea lion, harbor seal, and harbor porpoise (Less than Significant, Class III).

The Revised Project may have minor direct impacts to the free movement or foraging of special status fish, birds, and marine mammals during active sand extraction activities in the Central Bay and West Delta. However, as described in Section 4.1.4 of the 2012 EIR, the potential effects are expected to be minimal since sand mining in these locations occurs for only a few hours during each sand mining event, physically occupies a small area of the region they are mining in, and during mining, the equipment remains predominantly stationary. For these reasons, the temporary displacement of fishes, marine mammals, and marine birds from active mining areas is considered less than significant. No mitigation is required. Accordingly, the Revised Project, which proposes a continuation of less than significant project activities, with an approximately 14 percent reduction in annual mining extraction volumes compared to those previously authorized by the Commission, would not cause a new significant impact or a substantial increase in the severity of a significant impact on special status species from displacement.

Would the Revised Project result in potential impacts on fish and wildlife from increased noise?

Impact BIO-2: Potential impacts on fish and wildlife species from increased noise.

Sand mining activities under the Revised Project would result in increased noise at the location of the suction drag-head on the seafloor that can result in increased disturbance to marine biota, especially fishes, including special status fish species (Less than Significant, Class III).

Since the drafting of the 2012 EIR, thresholds for the onset of auditory injury, including permanent threshold shifts (PTS) and temporary threshold shifts (TTS) from impulsive noise sources, such as pile driving, and non-impulsive noise sources, such as hydraulic suction dredging, have been established for marine vertebrates. In fishes, exposure to elevated sound levels can lead to short-term hearing loss (TTS) or irreversible injury (PTS) (CalTrans 2020; Smith and Popper 2023). Loud noises can also cause other physiological damage such as swim bladder rupture or even death (CalTrans 2020; Pengson 2025). Many factors such as the duration of the sound, proximity to the source, as well as life history characteristics can determine the extent of the damage (Hastings and Popper 2005). Behavioral disturbance for fishes occurs around 150 decibels (dB) and established acute impact levels are 183 dB for fishes less than 2 grams, and 187 dB for fishes greater than 2 grams (CalTrans 2020). As noted in Section 4.1.4 of the 2012 EIR, hydraulic suction dredge operations can generate underwater noise levels as high as 130 to 140 dB which is lower than the threshold for behavioral disturbance (150 dB) and acute impacts in fishes (183 dB). This may even be lower than ambient sound levels in San Francisco Bay which can range from 120 to 155 dB (CalTrans 2015).

Peak sound levels also continue to drop as you move away from the sound source. The peak underwater noise levels for hydraulic suction dredge operations are below the levels of onset for TTS and auditory injury for the most sensitive marine mammals, porpoises (Table 3.2-1). Porpoises, such as harbor porpoises (*Phocoena phocoena*) may experience a TTS from non-impulsive sound sources at sound exposure levels of 161 dB, and auditory injury at sound exposure levels of 181 dB or greater. Baleen whales, such as gray (*Eschrichtius robustus*) and humpback whales (*Megaptera novaeangliae*) may experience a TTS from non-impulsive sound sources at sound exposure levels of 177 dB, and auditory injury at sound exposure levels of 197 dB or greater (NMFS 2024a; 2024b). Ambient noise in San Francisco Bay from non-project related vessels and other sources is likely more of a concern (Cope et al. 2021), and marine mammals and fishes are expected to avoid the area of active sand mining.

Less information is known about the effects of anthropogenic underwater noise on sea turtles. Díaz et al. (2024) found that swimming green sea turtles (*C. mydas*) increase vigilance with increasing vessel noise, but resting turtles did not increase vigilance with increasing noise levels. Garzon et al. (2024) noted that anthropogenic noise above 141 dB could have negative impacts on nesting leatherback sea turtles (*D. coriacea*). Sea turtles appear to be sensitive to low-frequency sounds with a functional hearing range of approximately 50 Hz to

1,600 Hz (Bartol 1994; Muirhead et al. 2025). Behavioral disturbance generally occurs around 175 dB. Onset of TTS occurs around 226 dB for impulsive sound sources such as impact pile driving and 200 dB for non-impulsive sound sources such as vessel noise. Onset of PTS occurs around 232 dB for impulsive noise sources and 220 dB for non-impulsive noise sources (NMFS 2024b). These sound thresholds are above the expected peak noise levels for hydraulic suction dredge operations, and any sea turtle would also be expected to avoid the area of active sand mining. Therefore, as presented in Section 4.1.4 of the 2012 EIR and inclusive of the above analysis, impacts from Revised Project generated underwater noise are considered less than significant. No mitigation is required. Accordingly, the Revised Project, which proposes a continuation of existing sand mining activities with an approximately 14 percent reduction in annual mining extraction volumes and an associated reduced duration of mining activities, would not cause a new significant impact or a substantial increase in the severity of a significant impact due to noise.

Table 3.2-1. Cumulative Sound Exposure Levels for Marine Mammals

Hearing Group	Onset of Auditory Injury		Onset of Temporary Threshold Shift	
	Impulsive	Non-impulsive	Impulsive	Non-impulsive
Low-Frequency Cetaceans (e.g. Baleen whales)	$L_{p,0\text{-}pk,flat}$: 222 dB $L_{E,p,\ LF,24h}$: 183 dB	$L_{E,p,\ LF,24h}$: 197 dB	$L_{p,0\text{-}pk,flat}$: 216 dB $L_{E,p,\ LF,24h}$: 168 dB	$L_{E,p,\ LF,24h}$: 177 dB
High-Frequency Cetaceans (e.g. Dolphins)	$L_{p,0\text{-}pk,flat}$: 230 dB $L_{E,p,\ LF,24h}$: 193 dB	$L_{E,p,\ LF,24h}$: 201 dB	$L_{p,0\text{-}pk,flat}$: 224 dB $L_{E,p,\ LF,24h}$: 178 dB	$L_{E,p,\ LF,24h}$: 181 dB
Very High-Frequency Cetaceans (e.g. Porpoises)	$L_{p,0\text{-}pk,flat}$: 202 dB $L_{E,p,\ LF,24h}$: 159 dB	$L_{E,p,\ LF,24h}$: 181 dB	$L_{p,0\text{-}pk,flat}$: 296 dB $L_{E,p,\ LF,24h}$: 144 dB	$L_{E,p,\ LF,24h}$: 161 dB
Phocid Pinnipeds (e.g. Harbor seals)	$L_{p,0\text{-}pk,flat}$: 223 dB $L_{E,p,\ LF,24h}$: 183 dB	$L_{E,p,\ LF,24h}$: 195 dB	$L_{p,0\text{-}pk,flat}$: 217 dB $L_{E,p,\ LF,24h}$: 168 dB	$L_{E,p,\ LF,24h}$: 175 dB
Otariid Pinnipeds (e.g. Sea lions)	$L_{p,0\text{-}pk,flat}$: 230 dB $L_{E,p,\ LF,24h}$: 185 dB	$L_{E,p,\ LF,24h}$: 199 dB	$L_{p,0\text{-}pk,flat}$: 224 dB $L_{E,p,\ LF,24h}$: 170 dB	$L_{E,p,\ LF,24h}$: 179 dB

(Source NMFS 2024a; 2024b)

~~Sand mining operations under the Revised Project produce additional noise from the vessels and equipment used to extract sand. As described in Section 4.1.4 of the 2012 EIR, noise generated by sand mining is marginally above ambient levels and only within the range detectable by fishes (and most likely marine mammals) over a very small area of the Bay-Delta located immediately around the sand mining operation. Noise levels generated by the hydraulic suction dredge are within the sound range that can elicit behavioral responses, such as altered swimming direction and speed, by fishes and marine mammals. However, these elevated sound levels are expected to only occur immediately adjacent to the drag head and below levels that are likely to cause physical damage to sensory receptors or other physiological effects (Hanson Environmental 2004). For these reasons as presented in Section 4.1.4 of the 2012 EIR, impacts from increased noise is considered less than significant. No mitigation is required. Accordingly, the Revised Project, which proposes a continuation of the less than significant project activities with an approximately 14 percent reduction in annual mining extraction volumes and an associated reduced duration of mining activities, would not cause a new significant impact or a substantial increase in the severity of a significant impact due to noise.~~

Would the Revised Project result in potential impacts on benthic habitat?

Impact BIO-3: Potential sand mining impacts on benthic habitat, infauna, epifauna, and foraging habitat.

Sand mining under the Revised Project results in the temporary disturbance, alteration and loss of soft substrate benthic habitat and associated benthic infauna and epifauna, which could affect foraging habitat for special status fish, marine bird species, such as California brown pelican, and protected marine mammals including California gray whale, humpback whale, California sea lion, harbor seal, and harbor porpoise and affect Bay-Delta food web dynamics (Less than Significant, Class III).

As described in the 2012 EIR, Section 4.1.4, sand mining results in short-term changes in habitat composition and associated marine infauna and epifauna in areas of the Bay-Delta mining leases where sand extraction has just occurred; however, these changes do not appear to last more than a few years and do not appear to result in any detectable changes in infaunal composition or habitat function.

Since 2012, several additional special studies (Appendix E) were conducted assessing potential changes to benthic infaunal communities from aggregate dredging activities (NewFields 2018b, 2020; AMS 2024), and to water quality from

dredging operations (NewFields 2018a). The NewFields (2018a) study on potential impairment to water quality from aggregate sand mining concluded that, "… discharges from sand mining operations do not adversely impact the water column with regards to chemical concentrations or toxicity, and that any physical effects related to plume turbidity are spatially limited and ephemeral in nature." This finding supports the 2012 EIR determination that no impairment of the receiving water's beneficial uses as defined by the California Water Board for the Bay-Delta occurs because of aggregate sand mining as proposed in the Revised Project. The three studies assessing benthic infaunal community changes from aggregate sand mining determined that the lease sites in Central Bay and West Delta that had been recently mined showed no statistically significant impact to the benthic community from sand mining. In both Central Bay and West Delta, sediment grain size was a strong predictor of infaunal abundance, and in the West Delta, salinity also played a role in organism density. An examination of individual sites suggests that any damage to benthic communities would be highly localized, of short duration, or not visible due to the physical nature of the area. Both AMS (2009a) and NewFields (2018b, 2020) indicated that the infaunal communities inhabiting the lease sites were characterized as Type I successional communities and therefore are quick to recover and recolonize following physical disturbance. Benthic recovery of infaunal communities appeared to occur within two years of mining (AMS 2009a). The dynamic nature of the study sites, particularly in Central Bay, due to the strong, tidal currents, have likely led benthic species to recover quickly, but may also naturally prevent the benthic infaunal community from ever reaching a more complex state (NewFields 2018b). A reanalysis of the NewFields (2018b) field data determined that any long-term adverse impacts to the benthic habitat or benthic community, in either composition, metrics, or indices used in the reevaluation, could not be detected. Study sand mining sites in Central Bay and West Delta are located in high energy environments (i.e. strong bottom currents) which lead to the observed primarily sandy sediments, gradation of sediment particle size, low carbon composition, and community composed of predominantly successional Stage 1 benthic taxa. The study further concluded that the studied dredging sites are in a constant state of natural disturbance and benthic recolonization (NewFields 2020). The AMS (2024) study compared data and results from the AMS (2009a) and NewFields (2018b) datasets to assess whether any long-term changes in benthic community composition could be detected in the dredging leases. AMS (2024) concluded that sand mining was not a significant driver of differences in benthic macroinvertebrate community composition or abundance. Finally, aggregate sand mining does not typically occur in the same exact location. Once mining occurs along a designated

track, referred to as a "worm track," extraction of sand along that same worm track does not occur again for some time, since the drag head pipe is pre-set for a specific depth. New worm tracks may transit across an existing worm track but typically do not reenter the same worm track or piece of seafloor recently mined (AMS 2009a).

The findings from all three studies support the findings of the original AMS (2009a) study and the 2012 EIR impact analysis. Substrate and habitat variability, including natural variability, outweigh potential short-term or long-term effects of sand mining on benthic macroinvertebrate communities. The impact of aggregate sand mining on benthic habitat, community and functionality were Less than Significant. The new technical studies reflect data and trends consistent with the findings of the 2012 EIR, but do not provide new information of substantial importance for the purposes of CEQA.

Any increase in turbidity from sand mining is not expected to affect foraging habitat of marine birds, including special status species, in the Bay-Delta. The San Francisco Bay-Delta experiences naturally elevated turbidity levels, and as stated in NewFields (2018a) and in Section 4.2.2.2 (Turbidity and Nutrients), turbidity plumes associated with sand mining are small and of short duration and, as presented above (Section 3.2.2.2), Bay-Delta waters are highly turbid naturally. Additionally, during the current sand mining lease period, populations of special status species, including Brandt's and double crested cormorants, as well as other marine birds have been steadily increasing in Central Bay (Audubon 2018; Rauzon et al. 2019; GGBA 2024).

In summary, the Revised Project activities remain less than significant and propose a 14 percent reduction in annual mining extraction volumes and therefore a reduction of mining activities. Therefore, there would not be any new significant impact or substantial increase in the severity of a significant impact related to mining on benthic habitat, infauna, epifauna, and foraging habitat.

Would the Revised Project result in discharge of suspended sediments that may potentially release contaminants?

Impact BIO-4: Discharge of suspended sediments under the Revised Project may potentially release contaminants into waters that affect plankton and wildlife species.

The discharge of suspended sediments in the overflow plume during sand mining will increase suspended sediment concentrations (SSC) and potentially release organic and inorganic contaminants into Bay-Delta waters affecting

plankton and fish populations including delta smelt, longfin smelt, green sturgeon, white sturgeon, Chinook salmon, steelhead trout, Pacific herring, and Fishery Management Plan-managed pelagic fish and groundfish (Less than Significant, Class III).

As described in the 2012 EIR, Section 4.1.4, sand mining operations under the Revised Project are expected to continue to discharge fine sediment fractions, consisting of clays, silts, and organic material by means of an overflow plume (Hanson 2004). This plume causes increases in the suspended sediment concentration (SSC) of Bay-Delta waters, which typically disperse after three to four hours following the completion of a mining event (Hanson 2004; NewFields 2018a). In addition to increases in SSC from the overflow plume, the release of sediment fines could also result in increased organic and inorganic contaminant loading of Bay-Delta waters, posing increased risk of toxicity exposure to Bay-Delta biota, including plankton, fishes, invertebrates, marine mammals, and marine birds.

As discussed in Impact BIO-3, above, since the 2012 EIR, a water quality monitoring study was conducted of aggregate sand mining discharge plumes at both the Central and West Delta mining lease sites between 2015 and 2016 (NewFields 2018a). Study findings concluded that "Overall, the monitoring results from both [water quality] monitoring surveys demonstrate that discharges from sand mining operations do not adversely impact the water column with regards to chemical concentrations or toxicity, and that any physical effects related to plume turbidity are spatially limited and ephemeral in nature" (NewFields 2018a).

The findings from NewFields (2018a) confirm the original 2012 EIR impact analysis which determined that sand mining operational discharges resulted in minimal, short-term effects on SSC concentrations and potential contaminant levels and that their potential impact on marine biota was Less than Significant (Level III). The new technical studies reflect data and trends consistent with the findings of the 2012 EIR, but do not provide new information of substantial importance for the purposes of CEQA. Accordingly, the Revised Project, which proposes a reduction in mining extraction volumes and therefore a 14 percent reduction of mining activities, would not cause a new significant impact or substantial increase in the severity of a significant impact related to increased contaminant concentrations in Bay-Delta waters such that they would impair marine biota, including special status species.

Would the Revised Project result in sediment disturbance that could result in increased turbidity, SSC, and release of contaminants?

Impact BIO-5: Disturbance of sediments at the seafloor under the Revised Project could result in increased turbidity, SSC, and release of contaminants that potentially impact plankton and wildlife species.

Disturbance of sediments at the seafloor during sand mining could result in increased turbidity and suspended sediment concentrations at the seafloor and the potential release of organic and inorganic contaminants to Bay-Delta waters affecting plankton and fish populations including special status fish species such as delta smelt, longfin smelt, green sturgeon, white sturgeon, Chinook salmon, steelhead trout, Pacific herring, and Fishery Management Plan-managed pelagic fish and groundfish (Less than Significant, Class III).

Sand mining operations under the Revised Project are expected to continue to disturb and resuspend seafloor sediments, consisting of clays, silts, and organic material that are intermixed with the extracted sand in the immediate vicinity of the drag head (Hanson 2004). As discussed in the 2012 EIR, Section 4.1.4, similar levels of SSC and contaminant exposure to marine biota, including special status species, can be expected in the near vicinity of the suction drag head as are experienced in the discharge plume. The findings of NewFields (2018a), discussed in Impact Bio-3 and Bio-4, above, remain equally applicable to the small turbidity plume surrounding the suction drag head with no adverse effect on Bay-Delta water quality and concurrent effects on marine biota, including special status species.

Additionally, as presented in the 2012 EIR, Section 4.1.4, the amount of time demersal fish and other benthic taxa are exposed to increased SSC and potential contaminant concentrations is less than the required exposure times that result in physiological effects to marine taxa. The high energy regime present in the areas of the sand mining leases in the Bay-Delta that cause the natural grading of seafloor sediments will also quickly dissipate any seafloor sediment plumes caused by the suction drag head. Consequently, the potential effect of resuspended sediments around the suction drag head from the Revised Project remains Less Than Significant (Class III). Additionally, the Revised Project, which proposes a continuation of less than significant project activities albeit with a 14 percent reduction in annual mining extraction volumes and therefore a reduction of mining activities, would not cause a new significant impact or substantial increase in the severity of a significant impact related to increased turbidity and contaminant concentrations in Bay-Delta waters near

the suction drag head such that they would impair marine biota, including special status species.

Would the Revised Project result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging?

Impact BIO-6: The Revised Project could result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging.

Resettlement of discharged sediments from the barge overflow plume and disturbed sediments at the seafloor during sand mining could potentially result in the smothering, burial, or loss of soft substrate benthic infauna and epifauna, and hard substrate epifauna, and could indirectly reduce fish foraging (Potentially Significant, Class II).

As presented in the 2012 EIR, Section 4.1.4, the Revised Project has the potential to resuspend fine fraction bottom sediments that naturally resettle on the seafloor by means of the discharge plume. These resettled sediments then have the potential to bury benthic infauna and epifauna down current of the sand mining operation. The resettlement of these fine sediments will occur over a broad region of the seafloor (Hammer et al. 1993; Newell et al. 1998; Nairn et al. 2004). The higher the energy in the water column, the larger the area over which these sediments will be resettled. As noted in the 2012 EIR, the Bay-Delta aggregate sand mining leases are considered very high energy environments. Therefore, the Revised Project, which proposes a 14 percent reduction in mining extraction volumes and therefore a reduction of mining activities, would not cause a new significant impact or substantial increase in the severity of a significant impact related to the smothering or burial of soft substrate infauna and epifauna, as determined in the 2012 EIR and would remain Less than Significant (Class III).

As further discussed in the 2012 EIR, Section 4.1-4, within and adjacent to the Central Bay mining leases are the Bay-Delta's largest amount of natural sub-tidal hard substrate, such as Arch Rock, Harding Rock, Shag Rock, and Blossom Rock (NOAA 2007). Hard substrate and their associated biological communities are considered HAPC by NOAA and important habitat for special status species managed under the MSA. Although smothering of marine biota at hard bottom habitats is not expected, as discussed in the 2012 EIR, the potential for mechanical collision of Project equipment (which also applies to the Revised Project) could result in a potentially significant impact to both the habitat and its associated marine community. Implementation of Mitigation Measure BIO-6 as set forth in

the 2012 EIR and as repeated (unchanged) below would continue to reduce potential impacts to a Potentially Significant level Class II) and not result in any substantial increase in the severity of a significant impact on soft or hard substrate habitats or biota than was disclosed in the 2012 EIR.

> **Mitigation Measure BIO-6: Establish a 100-foot buffer around hard bottom areas within and adjacent to Central Bay mining leases.** Sand mining dredging operations must maintain a sufficient buffer zone around all hard bottom areas, especially Harding, Shag, and Arch rocks, such that dredging equipment does not come into physical contact with these sensitive hard bottom areas. This buffer zone will, at a minimum, be 100 feet from the outward edge of any hard bottom feature. In the event dredging equipment comes into physical contact with any hard bottom area during the term of the leases, it shall be immediately reported to the CSLC, who shall establish a new minimum buffer zone distance.

Would the Revised Project result in entrainment and mortality of common and managed aquatic species?

Impact BIO-7: The Revised Project will cause entrainment and mortality of common and managed aquatic species.

The Revised Project will cause the entrainment and mortality of common and managed juvenile and adult fish, invertebrates, and plankton, including Dungeness crab, Pacific herring, and Fishery Management Plan-managed pelagic fish and groundfish during sand mining (Less than Significant, Class III).

As discussed in the 2012 EIR, Section 4.1.4, sand mining operations under the Revised Project may have minor direct impacts on invertebrate, managed pelagic fish, groundfish, and other taxa that occur in aggregate sand mining leases due to entrainment (AMS 2009b). As assessed in the 2012 EIR, this impact is Less than Significant (Class III). Accordingly, the Revised Project, which proposes a continuation of less than significant project activities albeit with a 14 percent reduction in annual mining extraction volumes and therefore a reduction of mining activities, would not cause a new significant impact or substantial increase in the severity of a significant impact related to entrainment of invertebrate fauna, common fish, and managed pelagic fish and groundfish.

Would the Revised Project result in entrainment and mortality of delta and longfin smelt?

Impact BIO-8: The Revised Project operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt.

~~The Revised Project would result in a significant impact to delta smelt and longfin smelt as a result of entrainment and mortality during sand mining operations impacting delta smelt and longfin smelt thereby exceeding established significance level criteria thresholds~~ (Potentially Significant, Class II).

As presented in the 2012 EIR, sand mining operations as assessed for the 2012 Project were expected to have a significant impact on delta and longfin smelt, as a result of entrainment, either through the water intake for the suction drag head or the suction drag head itself. Entrainment of delta and longfin smelt occurs primarily through the suction drag head water intake. Minimal entrainment, if any, occurs through the drag head itself. However, delta and longfin smelt are expected to exhibit some avoidance behavior of the drag head (AMS 2011). Increased turbidity and suspended sediment from disturbance of the bottom as well as the sound and vibrations produced by the dredge vessel when lowering the intake pipe through the water column should cause individuals to avoid the area (Wildish and Power 1985; Collin and Hart 2015). Additionally, delta smelt inhabit and visually search for food near the surface during daylight hours, while mining occurs in the benthos, further reducing the potential for entrainment (Hobbs et al. 2006; Bennett and Burau 2015). By comparison, longfin smelt are known to migrate throughout the entire water column potentially increasing their susceptibility to entrainment by sand mining activities relative to delta smelt (Bennett et al. 2002; Hobbs et al. 2006).

The water intake for the suction drag head is located several meters above the drag head itself. The conclusion in the 2012 EIR, Section 4.1.4, was based on an entrainment analysis conducted as part of the 2012 EIR (AMS 2009b). The basis of this conclusion was that the water intake for the suction drag head had minimal screening and the intake flow volume and velocity were unconstrained. As a result, the 2012 EIR imposed two mitigation measures to partially mitigate and then provide compensation for estimated delta and longfin smelt mortality due to aggregate sand mining in Central Bay and West Delta. Mitigation Measure BIO-8a from the 2012 EIR imposed timing, location, and other requirements on sand mining in West Delta and Central Bay (MM BIO-8a). Mitigation Measure BIO-8b required Applicants to provide compensation for the

incidental take of delta and longfin smelt that could still be entrained even with the implementation of MM BIO-8a.

In October 2014, as part of the CDFW ITP process, the Applicants agreed to design, construct, and install a positive barrier fish screen (fish screen) as discussed in Section 2.3.2 (Mining Techniques) of this SEIR. The fish screen has a mesh opening of 0.068 inches (1.7 millimeters) to prevent fish entrainment. The screens are also sized to provide an approach velocity of 0.2 feet-per-second to allow early life stages of fish to swim past. The use of this fish screen has substantially reduced the potential for entrainment of longfin and delta smelt during aggregate sand mining in Central Bay and West Delta. The fish screens have been in place since 2015 and are incorporated into the design features of the Revised Project. The fish screen, and other requirements imposed by CDFW's ITP, resulted in CSLC amendments to MMs BIO-8a, -8b, -9a and -9b that occurred after the 2012 EIR certification[17] (see Appendix F).

As a result, the potential for entrainment of delta and longfin smelt by the Revised Project through the water intake for the suction drag head and the drag head itself has been significantly reduced but not eliminated. Longfin smelt could still be entrained through the drag head, as they swim throughout the water column. By comparison, delta smelt remain closer to the surface during daylight hours to feed (Bennett et al. 2002; Hobbs et al. 2006; Bennett and Burau 2015). This distinction between the species makes the potential for delta smelt to become entrained extremely unlikely because, as discussed above, delta smelt typically remain closer to the surface, which is substantially shallower than the

[17] After project approval, an agency has discretion in interpreting how mitigation measures are complied with, within reasonable bounds. As the court explained in Stone v. Board of Supervisors (1988) 205 Cal. App. 3d 927, 935, an agency must interpret the conditions it imposes in "a reasonable manner, consistent with its intent at the time the condition was enacted." The interpretation is "reasonable in the CEQA context only if it imposes no significant new or adverse environmental impacts" (Id.). Here, it was reasonable for the CSLC to interpret that the combination of the Applicants' installing the fish screen and obtaining Incidental Take Permit (ITP) approval as consistent with its intent in imposing MMs BIO-8a and -8b because, to obtain an ITP, an applicant must demonstrate that the proposed taking of a listed species is incidental to an otherwise lawful activity, that the applicant will minimize and mitigate the impacts of the taking, and that the taking will not appreciably reduce the likelihood of the species' survival and recovery for purposes of federal law or, for purposes of state law, that it will not jeopardize the continued existence of the species.

location of the suction drag head water intake and the suction drag head itself. Additionally, the pressure wave created by lowering the suction pipe into the water column, prior to startup, would likely cause temporary dispersion of any longfin or delta smelt in the immediate vicinity of the drag head and drag head intake pipe, with attached fish screen.

However, since longfin smelt inhabit the entire water column of the Bay-Delta, the potential of some individuals being entrained through the suction drag head itself remains. As explained on p. 3.1-3 of this SEIR, "To guide the Commission…in determining whether the Revised Project or an alternative may cause a significant impact on the environment, the preparers of this SEIR have considered the same series of questions that the Commission considered in the 2012 EIR to provide a basis for comparison for determining whether implementation of the Revised Project could result in one or more new significant impacts or a substantial increase in the severity of any significant impacts previously identified in the 2012 EIR." Consistent with the significance criteria identified in Section 4.1.3 of the 2012 EIR, a significant impact on biological resources would result if there is a potential for "take" of any part of the population of a special status species (such as State or federally endangered species) to occur through direct effects or indirect harm through the disturbance or loss of its habitat. ~~Even with the fish screen in place,~~ Because the Revised Project operations include use of the fish screen, the potential ~~there remains low potential~~ for take of listed delta or longfin smelt is substantially reduced when compared to the 2012 Project. ~~Take of any individual delta smelt or longfin smelt, if it occurs, would be a significant impact.~~

The implementation of Mitigation Measure BIO-8 would require Applicants to implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt, including a requirement to obtain incidental take authorization from CDFW. CDFW could not (consistent with CESA) issue an ITP unless the impacts of the authorized take are minimized and fully mitigated, the minimization and mitigation measures are roughly proportional to the impact, adequate funding is provided for implementation and monitoring, and issuance of the permit will not jeopardize the continued existence of the species (Fish and Game Code Section 1081[b], [c]). Examples of the kinds of conditions that CDFW could include in an ITP for the Revised Project are reflected in the ITP for the 2012 Project, which is included in Appendix F.

An ITP for the Revised Project, in combination with other operational measures and the Revised Project design feature to install, operate, and maintain a

positive barrier fish screen designed in accordance with NMFS and CDFW intake screen design criteria, would greatly reduce the impact, ~~but not to~~ resulting in a less than significant impact ~~level~~. The 2012 EIR Mitigation Measure BIO-8a will continue to be implemented and has been renumbered for the Revised Project in this SEIR to Mitigation Measure BIO-8 and edited appropriately for the Revised Project. Mitigation Measure BIO-8b (identified in the 2012 EIR) has been removed from the SEIR because the ITP identified in Mitigation Measure BIO-8 will include compensatory mitigation, as required, to fully address all impacts to delta and longfin smelt. While the Revised Project's 14 percent reduction in mining extraction volumes and associated reduction of mining activities would further reduce the impact. ~~, t~~There still remains a potential for take of listed delta or longfin smelt to occur, but because the potential is substantially reduced through use of the fish screens, conditions of an ITP, and implementation of Mitigation Measure BIO-8~~and therefore the impact remains a~~ the impact is Less than Significant Impact (Class II)~~, consistent with the 2012 EIR~~. For these reasons, the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact on delta and longfin smelt entrainment than was disclosed in the 2012 EIR.

Mitigation Measure BIO-8: Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt.

- ~~Timing of dredging relative to the location of 2 parts per thousand (ppt) salinity (X2).~~ To protect delta and longfin smelt and potentially eggs and larvae from mortality related to entrainment, sand mining activities shall be restricted in both volumes and locations in all Delta mining leases ~~upstream of the X2 location~~ from December 1 through June 30 each year, and from December 1 to April 30 in 2026. ~~The degree and duration of mining restrictions, and the specific locations where mining should be restricted during this sensitive seasonal period will be based on factors including the specific location of X2 relative to mining activities, species presence and relative abundance in the Revised Project area based on sampling data from the nearest survey stations, and the overall status of the species (population trend).~~ Specific seasonal restrictions, conditions, and operational requirements have been established in the current amended ITPs issued by CDFW on April 1, 2014, (No. 2081-2012-012-03 and No. 2081-2013-047-03 amended on 8/14/23, 10/14/24, and 8/26/25), will continue to be set

through consultation with CDFW, and would likely be a requirement of any ITP that may be issued for the Revised Project.

- Current ~~R~~restrictions imposed on sand mining operations, as specified in ~~any~~ the ITPs (CDFW 2014) and their amendments required for the Revised Project are expected to have comparable effect as current restrictions on sand mining operations, which, as specified in the NMFS Biological Opinion and the USFWS Letter of Concurrence, serve to avoid and minimize take of delta and longfin smelt. These conditions include restrictions on pump priming, limiting the total mining volume, prohibiting mining in areas of shallow water depth and in proximity to shorelines, restricting mining to the designated lease areas which are away from sensitive habitat, and monitoring and reporting the location of each mining event.
- Applicants will consult with CDFW and obtain ITPs for their activities prior to the commencement of any new mining under any renewed lease issued by CSLC or BCDC for the Revised Project. To further minimize take, the Applicants shall keep the end of the pipe and drag head as close to the bottom as possible, and no more than three feet from the bottom, when priming the pump or clearing the pipe.
- As determined by CDFW in their issuance of an ITP for aggregate mining activities, Applicants will provide compensatory mitigation to a CDFW-approved mitigation or conservation bank covering smelt habitat.
- The Applicants shall provide a copy of any final ITP issued by CDFW and any amendment to a final ITP to the CSLC and the San Francisco Bay Conservation and Development Commission (BCDC) within five working days of receipt.

Would the Revised Project impact green sturgeon, white sturgeon, Chinook salmon, and steelhead trout?

Impact BIO-9: The Revised Project could cause the entrainment and mortality of green sturgeon, white sturgeon, Chinook salmon and steelhead trout during sand mining. (Potentially Significant, Class II).

As presented in the 2012 EIR, Sections 4.1.4, sand mining operations under the Revised Project may have the potential to entrain green sturgeon, Chinook salmon, and steelhead trout through the water intake of the suction drag head

or the drag head itself. As described above, in addition to the aforementioned sensitive species addressed in the 2012 EIR, the white sturgeon was listed for consideration for protection under the CESA in July 2024. On September 6, 2024, CFGC established emergency regulations for white sturgeon sport fishing (Cal. Code Regs., tit. 14, § 5.78) and, at its August 13-14, 2025 meeting, is scheduled to consider continuing the seasonal restrictions and the catch-and-release fishery. According to CFGC, the proposed regulation amendments are necessary to help ensure the species is protected during the CESA candidacy period. While the life history and movement patterns of white sturgeon in the San Francisco Bay-Delta are similar to those of green sturgeon (Appendix G, Biological Resources Supplemental Information), the white sturgeon's CESA listing as a candidate species is conservatively provided a separate consideration in this SEIR. CDFW has not yet determined what, if any, actions (e.g., the NMFS and USFWS operational procedures) would be needed to address non-sportfishing impacts to the species. As such, the SEIR considers the Revised Project's impact on white sturgeon to be potentially significant, since the life history of white sturgeon is similar to green sturgeon, which was evaluated in the 2012 EIR, and assessed to be potentially significant (Class II) and pending any requirements and restrictions to minimize and avoid any identified take that would be set through consultation and permitting with CDFW for the Revised Project. To address the Revised Project's potential significant impact on white sturgeon, the Revised Project would be required to implement a new Mitigation Measure BIO-9a (as distinct from MM BIO-9a in the 2012 EIR) to reduce the potential impact to white sturgeon to less than significant.

As discussed in the 2012 EIR, implementation of NMFS and USFWS operational procedures would reduce ~~the~~ potential impacts on green sturgeon and salmonids (steelhead trout and Chinook salmon) ~~steelhead trout~~ to less than significant. The Revised Project, which proposes a continuation of mining activities including implementation of NMFS and USFWS operational procedures, with an approximately 14 percent reduction in annual mining extraction volumes compared to those previously authorized by the Commission, would not cause a new significant impact or a substantial increase in the severity of a significant impact to green sturgeon or steelhead trout. Additionally, the ITPs (Nos. 2018-2012-012-03 and 2081-2013-047-03) issued by CDFW for aggregate sand mining activities (4/1/14) and all subsequent amendments (10/14/24, 8/14/23, and 8/26/25), determined that aggregate mining activities of the Project, and now the Revised Project, did not result in any "taking" of salmonid species. Therefore, ~~C~~consistent with the conclusions in the 2012 EIR, no

additional mitigation is required for impacts on green sturgeon, white sturgeon, Chinook salmon, or steelhead trout.

The Revised Project includes the operation of a positive barrier fish screen (fish screen) as discussed in Section 2.3.2 (Mining Techniques) of this SEIR. The fish screen has a mesh opening of 0.068 inches (1.7 millimeters) to prevent fish entrainment. The screens are also sized to provide an approach velocity of 0.2 feet-per-second to allow early life stages of fish to swim past, further reducing the potential for entrainment of green sturgeon, white sturgeon, and steelhead trout.

The operation of the fish screen under the Revised Project would similarly reduce the potential entrainment of Chinook salmon. In the 2012 EIR, which did not include operation of a fish screen, the implementation NMFS and USFWS operational procedures was described as potentially less than adequate for preventing the entrainment of Chinook salmon, especially smolts. Consequently, in the 2012 EIR Mitigation Measures BIO-9a and BIO-9b were adopted to reduce the potential for a significant impact on Chinook salmon from sand mining in Central Bay and West Delta. Additionally, the 2012 EIR stated that additional measures may be imposed by CDFW as part of the issuance of an ITP to further ensure that potential significant impacts to Chinook salmon from sand mining were mitigated under the CESA. As discussed in Impact BIO-8, above, a key requirement that CDFW imposed in the issued ITP to the Applicants was the design, construction and use of a fish barrier that met their specifications for intake flow and velocity. As a result of this requirement in the CDFW ITP, MMs BIO-9a and -9b were amended and the change was adopted by CSLC on February 18, 2015 through the variance process identified in Appendix F.

Similar to the impact conclusions presented in the 2012 EIR, the Revised Project is expected to result in the incidental take of Chinook salmon. However, the amount of potential entrainment of Chinook salmon under the Revised Project is expected to be substantially less than was described in the 2012 EIR due to the operation of the fish screen, and the Revised Project's 14 percent reduction in mining extraction volumes, and the associated reduction in mining activities. To further reduce any remaining potential for take of Chinook salmon to occur, the Revised project would be required to implement revised MM BIO-9b. With the implementation of this MM, the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

Mitigation Measure BIO-9a: Applicants shall minimize the potential for entrainment and mortality of white sturgeon.

- Applicants will consult with CDFW as to whether an ITP is required for their activities prior to the commencement of any new mining under any renewed lease issued by CSLC or BCDC for the Revised Project. If an ITP is required by CDFW, it must be obtained before initiating any new mining under the Revised Project. The Applicants shall provide a copy of the final ITP issued by CDFW and any amendments to that permit to the CSLC and BCDC within five working days of receipt.

Mitigation Measure BIO-9b: Applicants shall implement operational restrictions and requirements for the avoidance and minimization of entrainment of Chinook salmon.

- Current restrictions on sand mining operations, as specified in the NMFS Biological Opinion and the USFWS Letter of Concurrence serve to avoid and minimize take of Chinook salmon. These conditions include restrictions on pump priming, limiting the total mining volume, prohibiting mining in areas of shallow water depth and in proximity to shorelines, restricting mining to the designated lease areas which are away from sensitive habitat, and monitoring and reporting the location of each mining event. Restrictions imposed in the final ITP for the Revised Project are expected to have comparable effect.
- Applicants will consult with CDFW and obtain ITPs for their activities prior to the commencement of any new mining under any renewed lease issued by CSLC or BCDC for the Revised Project. To further minimize take, the Applicants shall keep the end of the pipe and drag head as close to the bottom as possible, and no more than three feet from the bottom, when priming the pump or clearing the pipe.
- The Applicants shall provide a copy of the final ITP issued by CDFW for the Revised Project and any amendments to this permit to the CSLC and BCDC within five working days of receipt.

In addition to the conditions of the final ITP, the following avoidance and minimization measures (developed in consultation with federal and state fish and wildlife agencies) to fully protect and mitigate impacts to juvenile Chinook salmon shall be implemented:

- Operation and maintenance of the positive barrier fish screen on sand mining equipment;
- Implementation of NMFS and USFWS operational restrictions on pump priming and clearing;
- Review and approval by state and federal resource agencies of the mining operations of entrainment and impingement of juvenile salmonids avoidance measures within each agency's authority; and
- Compliance monitoring and reporting to CDFW and other state and federal agencies.

Would the Revised Project effect fish movement and migration?

Impact BIO-10: Potential effects on fish movement and migration.

Physical modification of bottom habitat through the removal of sediment under the Revised Project has the potential to affect fish movement or migration. (Less than Significant, Class III).

As discussed in Section 4.1.4 of the 2012 EIR, the Revised Project may have minor direct effects on the bottom topography of Central Bay and West Delta sand mining leases. These modifications to seafloor topography are expected to have only a minor effect on benthic fish movements and little to no effect on special status fish species movements and migration since these species migrate through mid-depth and surface waters of the Bay-Delta and not along the seafloor. Accordingly, the Revised Project, which proposes a 14 percent reduction in mining extraction volumes and therefore a reduction of mining activities, would not cause a new significant impact or substantial increase in the severity of a significant impact related to the movements or migratory movements of Bay-Delta fish, as determined in the 2012 EIR.

3.2.6 Cumulative Effects

Impact CE BIO-1: The Revised Project has a low potential to cause a cumulatively considerable contribution to potential significant cumulative effects on biological resources (Less than Significant, Class III).

The 2012 EIR analyzed potential cumulative effects on biological resources in Section 4.1.6 (pp. 4.1-60 and 4.1-61), concluding that the 2012 Project would not result in a considerable contribution to any significant cumulative effect. For the reasons discussed below, the Revised Project would cause no new significant

impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

As analyzed in Section 3.3.5 of this SEIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact (either directly or indirectly) on biological resources and so would result in the same incremental contribution to potential cumulative effects as was disclosed in the 2012 EIR. The incremental impacts of implementing activities consistent with the San Francisco Bay Regional Dredged Material Management Plan (RDMMP) 2025-2044 would be substantially similar to the incremental impacts of the RDMMP's predecessor, which was evaluated as part of the cumulative scenario for the 2012 EIR (see 2012 EIR, p. 3-24). As described in Section 3.1.5, recent updates to the USACE Long Term Management Strategy include conducting dredged material disposal in the most environmentally sound manner to include strategic placement of in-bay sediment for beneficial reuse for wetlands restoration in SF and Suisun Bays. The Port of San Francisco remediation and waterfront projects also involve shoreline resilience and wetland restoration. These cumulative projects would not combine with the effects of the Revised Project to result in effects that would be cumulatively considerable. The incremental biological resources impacts of the Revised Project (in combination with the less than significant incremental impacts of the San Francisco Bay Strategic Shallow-Water Placement Pilot Project and the incremental impacts of the Montezuma Wetlands Restoration project and Suisun Marsh fish screen rehabilitation project – each of which would be beneficial over the long-term) would not be cumulatively considerable, and so would be less than significant. For these reasons, the Revised Project would cause no new significant cumulative impact and no substantial increase in the severity of a significant cumulative impact on biological resources than was disclosed in the 2012 EIR.

3.3 MINERAL RESOURCES

This section identifies and evaluates issues related to mineral resources to determine whether the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts than was disclosed in the 2012 EIR. This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR.

3.3.1 Baseline Conditions

The 2012 Final EIR (p. 1-12) states the following regarding baseline conditions for Mineral Resources:

> The effects of past sand mining on the availability of sand resources are considered part of the baseline condition. The EIR examines the potential for continued sand mining to result in loss of access to other mineral resources, as well as long-term or permanent depletion of sand resources.

As described in Section 1.3.3 of this SEIR, the baseline condition for purposes of this analysis is the level of activity associated with the authorized sand mining lease volumes and the ongoing obligations such as mitigation measures and conditions of approval resulting from the Commission's 2012 EIR and lease authorizations. See Appendices A and F for details.

3.3.2 Environmental Setting

Section 4.2.1 of the 2012 EIR describes the environmental setting and includes a discussion of mineral resources within the 2012 Project area, including sand and construction aggregate. It covers such topics as aggregate availability and replenishment, non-fuel minerals, oyster shell mining, and the overall regional context for the sand mining resources evaluation. Those descriptions remain accurate for the purposes of the SEIR, and have been considered alongside the supplemental information found in the following reports, each of which has become available since publication of the 2012 EIR:

1) *Change Analysis Report Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys* (eTrac Inc., 2018a)
2) *Additional Analysis Report 2008 – 2014 – 2018 Bathymetric Survey Comparison Central San Francisco Bay Lease Area Surveys* (eTrac Inc., 2018b)

3) *Change Analysis Report Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys* (eTrac Inc., 2023)

4) *Sand Mining Impact Analysis: Desktop morphology study; Sediment transport modeling study* (Fenical/Coast and Harbor Engineering, 2025)

5) *Modeling Sand Transport and the Effect of Sand Mining in San Francisco Bay* (Anchor QEA, 2023)

6) *Sand Budget and Sand Transport in San Francisco Bay* (McKee et al., 2023)

7) *Understanding Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and Outer Coast* (Deltares, 2023a, 2023b, 2023c)

   a) *Part 1: Morphodynamic change and bedform dynamics*

   b) *Part 2: Mining volume and area analysis*

   c) *Part 3: Synthesis*

8) *Fingerprinting Sand and Its Transport History through San Francisco Bay: Implications for Sand Mining and Its Environmental Effects* (Malkowski et al. 2023)

3.3.2.1 Regional Context

Section 4.2, Mineral Resources, of the 2012 EIR discussed the historical context of sand mining in San Francisco Bay, describing the millions of cubic yards of sand and gravel that have been mined from Bay-Delta floor shoals since 1915, including approximately 20 million cubic yards of sediment extracted during 1936 through 1938 from the Point Knox Shoal area near Angel Island that was used as fill material to create Treasure Island for the 1939 Golden Gate International Exposition. Sand mining in recent decades has been conducted under mining leases granted by the CSLC ~~and BCDC~~. Under the latest CSLC mining leases, for the years 2013 through 2022, 1,540,000 cubic yards of sand per year was permitted by CSLC for mining from the Central Bay lease areas and 300,000 cubic yards per year were permitted from the Suisun Bay/Western Delta lease areas (see Table 2-1 in SEIR Section 2.0, Project Description). Up to 199,866 cy annually was permitted for mining from the Middle Ground Shoal lease area.

As discussed in Section 2.0 of this SEIR, the Revised Project proposes a reduction in the maximum allowable annual volume of sand harvested for three of the five CSLC leases and the private Grossi Middle Ground lease. Sand mining volumes for the other two CSLC leases are proposed to remain the same. Impacts of the current annual Commission-authorized lease volumes were analyzed in the 2012

EIR. Total annual volumes of sand mined through all leases, including the private Middle Ground lease, is proposed to be reduced from 2,039,866 cubic yards (cy) to 1,750,000 cy.

Sand Sources and Availability

Regarding the sources of sand available for harvesting and replenishment of the resource in Central Bay, Section 4.2.1 of the 2012 EIR described the sand resource as not being replenished through natural processes. According to the 2012 EIR, the available resource is largely limited to material already in place.

Regarding the sources of sand available for harvesting and replenishment of the resource in Suisun Bay and Western Delta, Section 4.2.1 of the 2012 EIR described the sand resource as not having a clear trend regarding sediment depletion in the sand mining lease areas. The exception was within the deeper areas of the Middle Ground lease, where measurable depletion was described as indicating that the available resource is largely limited to material already in place.

The 2012 EIR's assertion that the available sand resources in Central Bay and Suisun Bay and Western Delta are limited to material already in place is largely supported by the post 2012 studies listed above (described further in Appendix E, Consideration of Post-2012 Technical Studies).

- Both the eTrac Inc. 2018a and eTrac Inc. 2018b reports determined net erosion (more sand left the Bay-Delta than was deposited) between 2014 and 2018, indicating that replenishment of sand resources is not occurring.
- The eTrac Inc. 2023 Change Analysis Report showed a minor average sediment accretion (more sand was deposited in the Bay-Delta than left) between 2019 and 2023. However, the amounts are within the vertical uncertainty[18] of the analysis. Therefore, the data showed no significant change in bathymetry during the study period.
- There is consensus among the remaining post 2012 studies including: Anchor QEA 2023; McKee et al. 2023; Deltares 2023; Malkowski et al. 2023; and CHE 2025. These studies generally identified sand materials available for

[18] Vertical uncertainty is the result of inherent errors and uncertainties in the equipment used to collect the depth values in the bathymetry data. "Vertical" refers to the vertical dimension (as opposed to horizontal dimension) which is the depth of the Bay bed. If the bathymetric change reported was less than the vertical uncertainty, the change was not significantly different from zero.

harvesting within Central Bay as limited to material in place. Among the studies, there was some disagreement as to whether limited sand input was being received from local tributaries. All studies also assumed or determined that no substantial sand transport was occurring between the Central Bay and Suisun Bay. Finally, none of the studies suggested that Central Valley streams were providing substantial input of sand resources.

3.3.3 Regulatory Setting

Section 4.2.2 of the 2012 EIR (p. 4.2-5 et seq.) describes the regulatory setting for the analysis of mineral resources. Laws and regulations summarized include: Section 10 of the Rivers and Harbors Act (33 U.S.C. §401 et seq.) with respect to navigable waters and the U.S. Army Corps of Engineers' jurisdiction over sand mining in the San Francisco Bay and the Bay-Delta System; the California Department of Conservation mineral resources division's authority pursuant to Public Resources Code sections 600-690; the California Surface Mining and Reclamation Act (SMARA) and the regulations adopted by the Surface Mining and Geology Board (SMGB) to implement SMARA for marine sand mining operations in the San Francisco Bay-Delta area (14 Cal. Code Regs. § 3500 et seq.). Relevant plans and policies summarized in Section 4.2.2 of the 2012 EIR include: the San Francisco Bay Plan, the Suisun Marsh Local Protection Program, the Solano County Component of the Suisun Marsh Local Protection Program, and the Solano County General Plan. The 2012 EIR's description of the regulatory setting remains accurate for the purposes of this analysis, with additional consideration of the extraction, development, and permitting authority granted under the McAteer-Petris Act and the Suisun Marsh Preservation Act, as well as certification of federal permits under the Coastal Zone Management Act. Key details are summarized below for ease in reference.

As described in the 2012 EIR, SMGB regulations govern the reclamation of mined lands and conduct of surface mining in accord with SMARA (14 Cal. Code Regs. §3500 et seq.). The SMGB approved reclamation plans and financial assurances for Bay and Delta sand mining operations most recently in its 2023-2024 Annual Report (SMGB, 2024). Upon completion and certification of the SEIR, and issuance of new leases for the subject lease parcels, if approved, the SMGB would require the current reclamation plans and financial assurances to be amended and re-approved, as necessary. See SEIR Section 1.4, Project Permits and Approvals, which lists these approvals as among other discretionary authorizations that may be required for the Revised Project to proceed as proposed.

The 2012 EIR also discussed the San Francisco Bay Plan, which is administered by BCDC. BCDC has permit approval authority over mineral extraction and dredging operations in the waters of San Francisco Bay (including Suisun, San Pablo, Honker, Richardson, San Rafael, San Leandro and Grizzly bays, and the Carquinez Strait). See SEIR Section 1.4, Project Permits and Approvals, which identifies permit approval from BCDC as among the authorizations needed before the Revised Project could be implemented in the lease areas. Under Government Code section 66632(a), a permit is required from BCDC to extract materials exceeding $20 in value from areas within BCDC's jurisdiction. Under Public Resources Code section 66664.4, dredging is defined as "the extraction of sand, mud, or other materials from San Francisco Bay, its tributaries, the delta, or coastal state waters." Other than policies pertaining to dredging and mining of shell deposits, the Bay Plan does not explicitly address mining or mineral resources. The Bay Plan's policies related to projects involving dredging activities in subtidal areas include the following:

1. Any proposed filling or dredging project in a subtidal area should be thoroughly evaluated to determine the local and Bay-wide effects of the project on: (a) the possible introduction or spread of invasive species; (b) tidal hydrology and sediment movement; (c) fish, other aquatic organisms and wildlife; (d) aquatic plants; and (e) the Bay's bathymetry. Projects in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects.

2. Subtidal areas that are scarce in the Bay or have an abundance and diversity of fish, other aquatic organisms and wildlife (e.g., eelgrass beds, sandy deep water or underwater pinnacles) should be conserved. Filling, changes in use; and dredging projects in these areas should therefore be allowed only if: (a) there is no feasible alternative; and (b) the project provides substantial public benefits.

3.3.4 Significance Criteria

Consistent with Section 4.2.3 of the 2012 EIR (pp. 4.2-8 and 4.2-9), an adverse impact on mineral resources is considered significant and would require mitigation if the Revised Project would result in:

- The loss of availability of a known mineral resource that would be of value to the region and the residents of the State; or
- The loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other use plan.

These criteria reflect State and local policy that recognizes the importance of mineral resources in meeting society's needs and are intended to ensure the disclosure of a proposed project's potential to preclude mineral extraction, for example by developing a land use over or adjacent to a deposit of mineral resources that was incompatible with or that would preclude mining activities. As such, these criteria are understood and interpreted as primarily concerning the potential loss of access to known mineral resources.

Neither the 2018 updates to the CEQA Guidelines Appendix G environmental checklist nor the Court of Appeal's decision in *San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal.App.4th 202 merits revision of the significance criteria considered in the 2012 EIR. Accordingly, for the purpose of analyzing whether changes in the project that was analyzed in the 2012 EIR would cause any new significant impact or any substantial increase in the severity of a significant impact relative to the impacts disclosed in the 2012 EIR with respect to mineral resources, the significance criteria considered in the 2012 EIR remain current.

3.3.5 Direct and Indirect Effects

3.3.5.1 2012 Project

The 2012 Final EIR, Section 4.2.4, presented the following impact determinations for Mineral Resources:

- Impact MIN-1: Loss of availability of a known mineral resource - Renewal of sand mining leases for an additional 10-year period would not result in the loss of availability of a known mineral resource of regional or statewide value (Less than Significant, Class III).
- Impact MIN-2: Loss of availability of a locally important mineral resource recovery site - Renewal of sand mining leases for an additional 10-year period would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other use plan (Less than Significant, Class III).

The CSLC adopted a Mitigation Monitoring Program (MMP) as part of its discretionary action. No mitigation measures related to mineral resources were adopted (Appendix F, Existing Mitigation).

3.3.5.2 Revised Project

This analysis evaluates the potential significance of the change in the physical environment that would be caused by implementation of the Revised Project relative to the baseline condition, compares that impact conclusion with the impact conclusion reached in the 2012 EIR regarding the same consideration, and then makes a determination as to whether the implementation of the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of significant impacts than was disclosed in the 2012 EIR. For the reasons discussed below, implementation of the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact that was disclosed in the 2012 EIR.

Would the Revised Project result in a loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

Impact MIN-1: Renewal of sand mining leases for an additional 10-year period would not result in the loss of availability of a known mineral resource of regional or statewide value (Less than Significant, Class III).

The lease parcels on which the Applicants propose to mine sand are not designated on State or local maps as areas having minerals of State, regional, or local importance; however, the parcels contain construction-grade sand, an important component of construction aggregate needed to meet local development needs. The Revised Project consists of the continued mining of sand, the only known mineral resource within the lease parcels, and therefore would not preclude or cause the loss of access to the sand as a mineral resource.

Oyster shells, which are mined for their mineral content, are the only known mineral resource in the Bay-Delta other than sand and gravel. As disclosed in the 2012 EIR, Section 4.2.4, oyster shell deposits are not located within the sand mining lease areas. Given that the Revised Project lease areas are identical to that in the 2012 EIR, sand mining under the Revised Project would not interfere with mining (and resultant loss of availability) of known oyster shell beds and neither would they preclude the future development of mineral resources other than sand, should such resources be identified within any of the lease areas in the future.

The Applicants propose to continue to conduct the activities within the lease areas described and analyzed in the 2012 EIR. Proposed equipment and methods for the Revised Project will be substantially similar to that analyzed in the 2012 EIR. New 10-year terms from the date of lease issuance are proposed.

This analysis assumes that if the Revised Project were approved, the Commission would authorize continued mining for a period of 10 years. As described in SEIR Section 3.3.2.1, Regional Context, the Revised Project proposes a reduction in the maximum allowable annual volume of sand harvested for three of the five CSLC leases and the Grossi Middle Ground private lease. Authorized volumes for the other two CSLC lease areas are proposed to remain the same. Impacts of the current annual Commission-authorized lease volumes and the annual volumes for the private Grossi Middle Ground lease area were analyzed in the 2012 EIR.

As concluded in the 2012 EIR, 10 years of mining sand from the lease areas in the Central Bay and Delta is expected to reduce the amount of sand that would be available for future mining in most of the lease areas. As disclosed in the 2012 EIR, sand in the Central Bay is not considered a "renewable" resource because sand is not thought to be replenished by sand carried by river and tidal currents to the mining lease areas (2012 EIR, p. 4.2-10; citing CHE 2009). Therefore, sand mined in the Central Bay and Suisun Bay and Western Delta is limited to the material in place. This conclusion was supported by multiple studies conducted post 2012 as described above in Section 3.3.2.1 (see also Appendix E).

~~It should be noted that t~~The Sand Mining Impact Analysis ~~Desktop morphology study; Sand transport modeling study~~Appendix A, Sand Resource Availability Analysis (CHE 2025) ~~modeling output shows a lack of~~used bathymetric analysis to estimate available sand in ~~two~~the proposed lease areas in the Central Bay compared with proposed mining volumes under the Revised Project (Table 3.3-1). ~~Specifically,~~ CHE (2025) ~~predicts~~ estimates that two lease areas, PRC 7779.1 West and PRC 7780.1 North, do not appear to contain enough available sand to support proposed mining volumes. However, this is due to ~~modeling~~ the assumed constraint of mining equipment only reaching to ~~of the depth of sand mining at~~ a maximum depth of 90 feet MLLW, which does not represent the total amount of sand available. It is also likely a result of the conservative ~~modeling approach~~ analysis used in CHE 2025 which considered the extraction~~ed~~ of the full 10-year cumulative proposed mining volume at one time, versus gradually over the 10-year lease period. This conservative approach does not account for sand transport which occurs within the Central Bay ~~with material in place and~~ that is expected to replenish the mined lease areas with sand from nearby in the Central Bay. As a result of this localized replenishment, it is expected that enough material will be available within the lease areas to support the proposed volumes under the Revised Project. If localized material replenishment

does not occur quickly enough, it could result in a need to cease mining operations within a particular authorized lease area until locally replenished.

Table 3.3-1. Approximate Volumes of Material Available in Zones Feasible for Mining[19]

Lease Area	Approximate Volume Available for Mining (CY)	Proposed Mining Volume (CY)
PRC 2036.1	5,392,500	4,500,000
PRC 709.1 East	3,819,800	------
PRC 709.1 North	21,900,600	------
PRC 709.1 South	12,755,200	2,350,000
PRC 7779.1 East	7,297,500	------
PRC 7779.1 North	2,574,700	------
PRC 7779.1 West	5,272,300	5,500,000
PRC 7780.1 North	537,000	1,600,000
PRC 7780.1 South	7,567,700	------
PRC 5871.1	6,706,900	------
Middle Ground	3,948,700	1,200,000
7781.1 Lease Area West	5,471,600	------
7781.1 Lease Area East	59,522,600	2,350,000

Source: Sand ~~Mining Impact~~ Resource Availability Analysis (CHE 2025).

Consistent with the assumptions relied upon and conclusions reached in the 2012 EIR, this SEIR acknowledges that mining of a non-renewable mineral resource can generally be expected to eventually deplete the resource. As discussed in Section 3.3.4 above, the significance criteria used for this section are based on the State's interest in ensuring that important mineral resource deposit areas be available for mineral resource extraction and not be lost to the

[19] As stated above, the available sand volume for Leases PRC 779.1 West and 7780.1 North appears to be less than the total volume to be mined as a result of the conservative modeling approach described previously. The available volumes in the table do not account for replenishment from adjacent sand sources.

development of incompatible land uses. The Revised Project, with its purpose being the extraction of mineral resources, is consistent with this goal, and therefore the Revised Project's impact on known mineral resources is less than significant.

Would the Revised Project result in a loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other use plan?

Impact MIN-2: Renewal of sand mining leases for an additional 10-year period would not result in the loss of availability of a locally important mineral resource recovery site delineated in a local general plan, specific plan, or other use plan (Less than Significant, Class III).

As noted in SEIR Section 3.7.3, the discussion of the regulatory setting in the context of the analysis of impacts on land use and recreation, the applicable land use plans in the Project area consist of the Bay Plan, the Suisun Marsh Protection Program, the Solano County Component of the Local Protection Program, the McAteer-Petris Act, the Suisun Marsh Preservation Act, the Coastal Zone Management Act, and the Solano County General Plan. Sand mining activity pursuant to the leases would be in compliance with all regulations imposed by the applicable statutes and regulations. Only the Solano County General Plan directly addresses mineral resources in the context of natural gas located below the tidal marshes, managed wetlands, sloughs and bays of the Suisun Marsh; none of the plans identify mineral resources within the water areas where sand mining would be conducted. Sand mining proposed by the Revised Project in the Central Bay and Delta, conducted at or near the surface of the Bay floor, would not affect the availability of natural gas. Therefore, impacts associated with the loss of availability of a locally important mineral recovery site as delineated in local plans are less than significant.

3.3.6 Cumulative Effects

Impact CE MIN-1: The Revised Project would not cause a cumulatively considerable contribution to any significant cumulative effect regarding mineral resources (Less than Significant, Class III).

The Final 2012 EIR evaluated potential cumulative effects on mineral resources in Section 4.2.6 (p. 4.2-12), concluding that the 2012 Project would not result in a cumulatively considerable contribution to any significant cumulative effect on mineral resources. For the reasons discussed below, the Revised Project would

cause no new significant impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

The Revised Project would have a less-than-significant impact regarding a loss of availability of a known mineral resource, because the Revised Project would not preclude or prevent developing a mineral resource, or cause a loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other use plan. None of the other projects identified in Table 3.1-2, Cumulative Projects List, in SEIR Section 3.1.5, Cumulative Effects Analysis, would hinder or restrict access to the known mineral deposits in the Bay-Delta. Therefore, any incremental impacts of the other projects on mineral resources could not combine with those of the Revised Project to contribute to any significant cumulative impact on mineral resources. The Revised Project's cumulative effect would be less than significant.

3.4 HYDROLOGY AND WATER QUALITY

This section identifies and evaluates issues related to hydrology and water quality to determine whether the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts than was disclosed in the 2012 EIR. This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR.

3.4.1 Baseline Conditions

The 2012 Final EIR (at pp. 1-12) states the following regarding baseline conditions for Hydrology and Water Quality:

> The effects of past sand mining on Bay and Delta water quality, bathymetry, geomorphology, and hydrodynamics are considered part of the baseline condition. The impact analysis is limited to the consideration of future effects of this kind relative to the level of mining operations that occurred, on average, from 2002 to 2007, as well as the cumulative effects of proposed future mining in combination with past mining.

As described in Section 1.3.3, for purposes of this SEIR, the analytical baseline condition is the fully authorized sand mining lease volumes as approved in leases for the Central San Francisco Bay and Suisun Bay in 2012 and 2013, and reapproved for the Central Bay leases in 2016 (collectively, the *Leases*), and the ongoing obligations imposed by mitigation measures identified in the 2012 EIR as well as conditions of approval of the Leases. See Appendices A and F for details.

3.4.2 Environmental Setting

Section 4.3.1 of the 2012 EIR describes the environmental setting for the Project's consideration of hydrology and water quality including topics such as regional setting and climate, surface water hydrology and drainage (including in the Delta – Sacramento and San Joaquin River Watershed, other major Bay Area watersheds, and regarding ocean water input and tides), estuarine circulation, sediment dynamics (including sediment distribution and transport and the supply of sediment to the Bay-Delta Estuary), bathymetry and morphology of the San Francisco Bay (including the Central Bay, Suisun Bay, and changes in bathymetry), water and sediment quality including pollutant concentrations, salinity, suspended sediments, and sediment contamination. Those descriptions

remain accurate for the purposes of the SEIR analysis, except as supplemented or emphasized below.

3.4.2.1 Sediment Dynamics and Bathymetry

In the period since the 2012 EIR, several additional studies have been conducted to investigate various aspects of sediment transport, including bathymetry, geomorphology, and hydrodynamics. These studies were focused on assessing potential effects of sand mining.

The following monitoring and technical studies have been prepared since certification of the 2012 EIR. In its capacity as lead agency for purposes of CEQA, Commission staff identified the studies listed below as those most likely to inform the Commission's analysis of the Revised Project. The last four studies (numbered 9-12) listed below were commissioned by BCDC and the California State Coastal Conservancy (SCC):

1) Hanson Marine Operations and Lind Marine, Inc. Sand Mining Water Quality Monitoring Program Results Report (Newfields 2018a)
2) *Benthic Assessment of Sand Mining in Central San Francisco and Suisun Bays Data Report (*Newfields 2018b)
3) *Change Analysis Report Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys* (eTrac Inc. 2018a)
4) *Additional Analysis Report 2008 – 2014 – 2018 Bathymetric Survey Comparison Central San Francisco Bay Lease Area Surveys* (eTrac Inc. 2018b)
5) *Technical Memorandum Benthic Assessment of Sand Mining Supplemental Data Evaluation* (Newfields 2020)
6) *Change Analysis Report Central San Francisco Bay and Suisun Bay Sandmining Lease Area Surveys* (eTrac Inc. 2023)
7) *Sand Mining Impact Analysis: Desktop morphology study; Sediment transport modeling study* (Coast and Harbor Engineering 2025)
8) *Benthic Infauna Data Analysis* (AMS 2025)
9) *Modeling Sand Transport and the Effect of Sand Mining in San Francisco Bay* (Anchor QEA 2023)
10) *Sand Budget and Sand Transport in San Francisco Bay* (SFEI and Deltares 2023)

11) *Understanding Impacts of Bay Sand Mining on Sand Supply and Transport in San Francisco Bay and Outer Coast* (Deltares 2023a, 2023b, 2023c)

    a) *Part 1: Morphodynamic change and bedform dynamics*

    b) *Part 2: Mining volume and area analysis*

    c) *Part 3: Synthesis*

12) *Fingerprinting sand and its transport history through San Francisco Bay: Implications for sand mining and its environmental effects (Malkowski et al. 2023)*

One additional study not part of the list above, Fregoso et al. (2024), conducted additional bathymetry analysis that is described in the text of this section.

Bathymetry

In the 2012 EIR, Appendix G, bathymetry analyses based on available bathymetric data were used to compare bed topography of the Bay-Delta estuary from different times and to assess the relative trends and changes in volume. This assessment was based upon hydrographic survey data from multiple sources; the data were compiled, processed, filtered, and gridded to produce realistic bottom surfaces from which volume changes could be calculated. In the 2012 EIR, these bathymetric analyses showed that San Francisco Bay bed was net erosional over the period 1942 – 2008 based on these studies: Fregoso et al. (2008); Capiella et al. (1999); Jaffe et al. (1998); and McKee et al. (2002).

Fregoso et al. (2024) conducted similar analyses of bathymetric data over longer time periods than previous studies (e.g., Fregoso et al. 2008). The authors used bathymetric data to create digital elevation models and calculate bathymetric change and sediment volume change over time. The analysis considered four subembayments of San Francisco Bay: Suisun Bay; San Pablo Bay; Central Bay; and South Bay. The authors found that from the 1950s to 1980s, there was a Bay-wide net loss of sediment, i.e., all four subembayments had net loss of sediment. In contrast, from the 1980s to 2010s, only three of the four subembayments had a net loss of sediment; Central Bay had net accretion of sediment and was estimated to have gained 18 million cubic meters ($Mm^{3)}$)of sediment.

Six bathymetry studies conducted after 2012 (eTrac, Inc. 2018a; eTrac, Inc. 2018b; eTrac, Inc. 2023; Deltares 2023a; Deltares 2023b; and Deltares 2023c) are considered in this SEIR (items 3, 4, 6, and 11 in list above and further described in Appendix E). These studies either (1) analyze bathymetric data to calculate

change in San Francisco Bay bed volume over time (eTrac, Inc. 2018a; eTrac, Inc. 2018b; eTrac, Inc. 2023; Deltares 2023b; and Deltares 2023c) or (2) summarize and analyze sand mining volumes over time (Deltares 2023a and Deltares 2023c). Fregoso et al. (2024), conducted additional bathymetry analysis that is included here.

For the first type of analysis (analysis of bathymetric data), additional bathymetry data was collected and analyzed for lease areas within San Francisco Bay (west Central Bay, Suisun Bay, and Middle Ground) to assess changes in bed elevation that would indicate erosion (loss) or accretion (gain) of sediment. These analyses were conducted over various time periods depending on the study and are converted to vertical change per year for comparison purposes. For the bed in lease areas in west Central Bay, analyses by eTrac, Inc. found insignificant net accretion of 0.06 meters (insignificant because less than stated vertical uncertainty of 0.15 meters) over the period 2008 – 2014, or 0.010 meters per year accretion (eTrac, Inc. 2018b) followed by insignificant net erosion of 0.11 meters (insignificant because less than stated vertical uncertainty of 0.15 meters) over the period 2014 – 2018, or 0.028 meters per year erosion (eTrac, Inc. 2018a) and insignificant net accretion of 0.08 meters (insignificant because less than stated vertical uncertainty of 0.13 meters) over the period 2019 – 2023, or 0.020 meters per year accretion (eTrac, Inc. 2023). Over the entire period (2008 – 2023), the net change of the bed in lease areas in west Central Bay was insignificant from zero because the differences in bathymetry between surveys are within the stated vertical uncertainty of the methods and analysis.

For the bed in lease areas of Suisun Bay, analyses by eTrac, Inc. found net erosion of 0.18 meters over the period 2014 – 2018, or 0.045 meters per year erosion (eTrac, Inc. 2018a) and insignificant net accretion of 0.03 meters (insignificant because less than stated vertical uncertainty of 0.15 meters) over the period 2019 – 2023, or 0.008 meters per year accretion (eTrac, Inc. 2023). Over the entire period (2014 – 2023), the net change of the bed in lease areas in Suisun Bay was erosional because the differences in bathymetry between the 2018 and 2014 surveys showed measurable net erosion and the subsequent surveys (2023 compared to 2019) showed an insignificant change in bathymetry (i.e., within the stated vertical uncertainty of the methods and analysis).

For the bed in lease areas of Middle Ground analyses by eTrac, Inc. found net accretion of 0.28 meters over the period 2014 – 2018, or 0.070 meters per year accretion (eTrac, Inc. 2018a) and insignificant net accretion of 0.03 meters (insignificant because less than stated vertical uncertainty of 0.15 meters) over

the period 2019 – 2023, or 0.013 meters per year accretion (eTrac, Inc. 2023). Over the entire period (2014 – 2023), the net change of the bed in lease areas in Middle Ground was accretional.

Detailed bathymetric studies of mining effects were conducted by Deltares (2023b and 2023c). In these studies, a 'ring analysis' was conducted to evaluate changes to the bathymetry in response to mining activity at two spatial scales ranging from the extent of the mining area (an "inner ring") to a ring 100 meters wide immediately surrounding the mining area (an "outer ring"). The analysis was conducted over several time periods that spanned various intensities of sand mining. In west Central Bay, six distinct rings were investigated with the ring analysis method, while in Suisun Bay, one ring was investigated. The location of all seven rings were determined by an independent science panel.

The results of Deltares (2023b) are not directly comparable to the studies described above because the vertical change values presented in Tables 2-4 through 2-9 are for different intervals between bed elevation data sets and for different spatial extents, as discussed below (Deltares 2023b). For the rings in the lease areas in west Central Bay, results from Deltares (2023b) averaged over all six lease areas of interest show net erosion over all time periods, for both inner and outer rings. The results were averaged over all rings to provide comparison to the eTrac results presented above which show bathymetry results averaged over the lease areas; while not identical, the eTrac results for all lease areas are similar to Deltares' results for all inner rings, noting that the Deltares' inner rings cover less of the mining lease area than the eTrac lease area results. Over the period 1997 – 2008, the average of the six inner rings was 0.98 meters erosion (Deltares 2023b). Over the period 2008 – 2014, the average of the six inner rings was 0.18 meters erosion (Deltares 2023b) or 0.03 meters per year erosion (Deltares 2023c). Over the period 2014 – 2018, the average of the six inner rings was 0.57 meters erosion (Deltares 2023b) or 0.16 meters per year erosion (Deltares 2023c). Over the period 2018 – 2019, the average of the six inner rings was 0.41 meters erosion (Deltares 2023b) or 0.25 meters per year erosion (Deltares 2023c). Comparing the average of all inner and outer rings (Table 3.4-1, bottom row), the magnitude of the average mean change was always greater for the inner ring than the outer ring. These studies indicated the presence of local depressions in the bed after mining that, in some cases, infilled over time, indicating transport of sediment into that area of the bed (Deltares 2023c). In other cases, the depression in the lease areas remained over time, indicating lower rate of recovery to the prior bed elevation due to sand transport and net

deposition (Deltares 2023c). Over the period from 2008 to 2019, recovery rates ranged from 14 percent to 141 percent.

Deltares (2023a, 2023b, and 2023c) do not explicitly discuss vertical uncertainty in underlying bathymetry data, but the data sources were the same as for eTrac, Inc. (2018a, 2018b, and 2023). eTrac, Inc. studies (2018a, 2018b, and 2023) state uncertainties of 0.15 meters for 2008 – 2014 and 2014 - 2018 periods and 0.13 meters for 2018 – 2019. Assuming these vertical uncertainties apply to the Deltares analyses, change over the 2008 – 2014 period is insignificant from zero and change during the other two periods exceeds the vertical uncertainty. Thus, the Deltares studies show the change in the mined ring areas studied in west Central Bay was net erosive over the entire period. This is in contrast to the eTrac studies which showed the change across the entirety of each lease areas studied in west Central Bay was not significantly different from zero over the entire period (2014 – 2019).

For the one ring area in Suisun Bay, results of the ring analysis (Deltares 2023b) show net erosion over the entire time period (2014 – 2019). Over the period 2014 – 2018, the inner ring had -1.62 meters erosion (Deltares 2023b) or 0.46 meters per year erosion (Deltares 2023c). Over the period 2018 – 2019, the inner ring had 0.86 meters erosion (Deltares 2023b) or 0.53 meters per year erosion (Deltares 2023c). Comparing inner and outer rings (Table 3-2, Deltares 2023b), the magnitude of the mean vertical change was greater for the inner ring than the outer ring (Table 3.4-1). Relating the Deltares and eTrac, Inc. studies presented above for Suisun Bay, both sets of studies show that Suisun Bay was net erosive over the entire period (2014 – 2019).

Table 3.4-1. Average Vertical Change for Inner and Outer Rings

Ring	Lease ID	Mean vertical change (m) from Deltares (2023b)									
		1997-2008		2008-2014		2014-2018		2018-2019		2008-2019	
		Inner	Outer	Inner	Outer	Inner	Outer	Inner	Outer	Inner	Outer
1	2036	-3.16	-2.29	0.03	0.02	-1.08	0.10	-0.41	-0.32	-1.45	-0.19
2	7779 W	-0.66	-0.49	0.18	0.18	-0.60	-0.10	-0.14	-0.29	-0.56	-0.21
3	7779 W	-0.95	-1.31	-0.63	-0.40	-1.15	-0.14	-0.99	-0.39	-2.77	-0.93
4	7780 N	-0.85	-0.87	-0.23	-0.19	-0.62	-0.29	-1.45	-0.67	-2.30	-1.14
5	709 S	0.18	0.92	-0.26	-0.30	-0.35	0.23	0.30	0.08	-0.31	0.00
6	709 S	-0.45	-0.61	-0.17	0.07	0.38	0.16	0.25	0.19	0.46	0.42
Average		**-0.98**	**-0.78**	**-0.18**	**-0.10**	**-0.57**	**-0.01**	**-0.41**	**-0.23**	**-1.16**	**-0.34**

~~Relating the Deltares and eTrac, Inc. studies presented above for Suisun Bay, both sets of studies show that Suisun Bay was net erosive over the entire period (2014 – 2019).~~

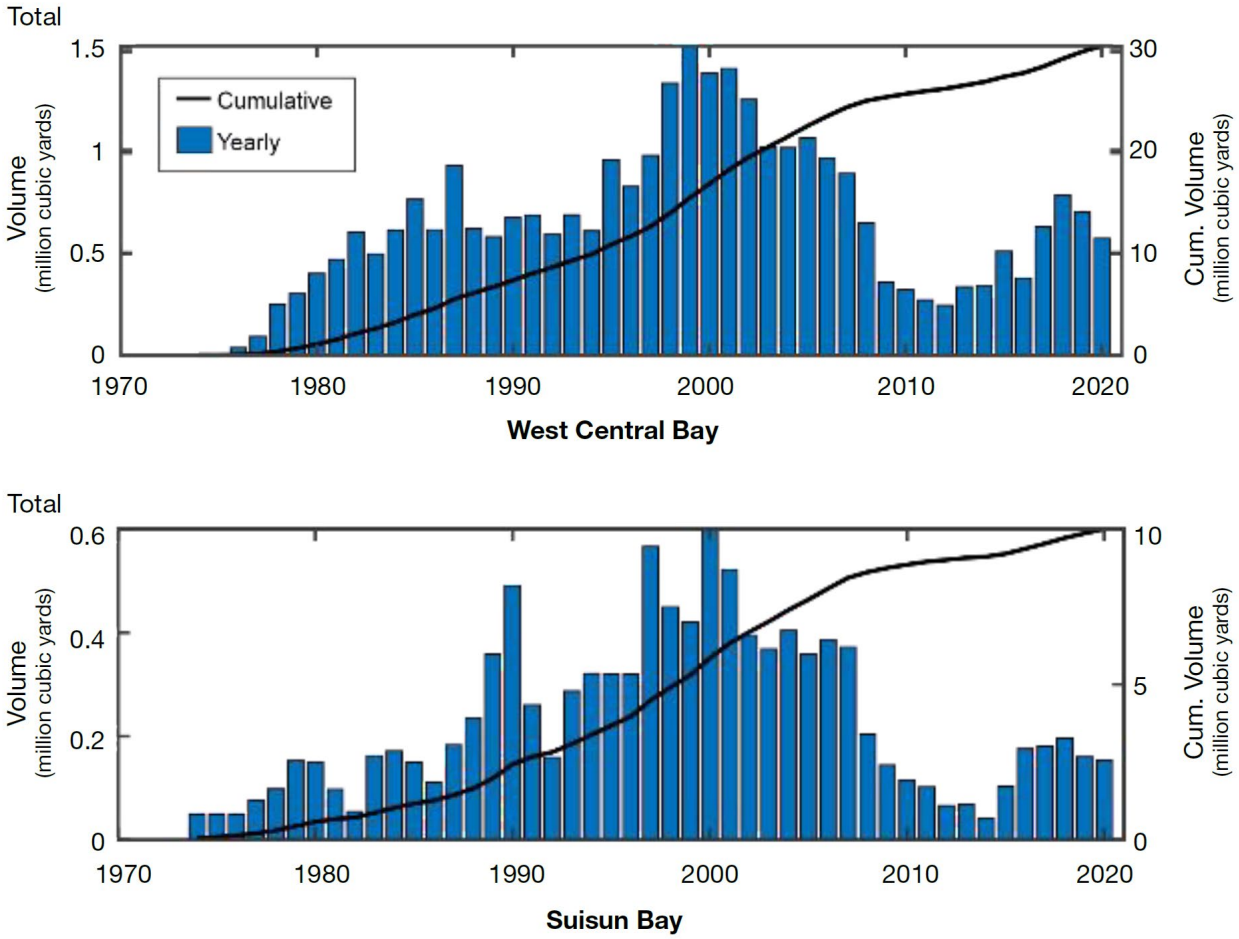
Table 3.4-1. Results from Deltares (2023b) Tables 2-4 through 2-9 for west Central Bay showing average vertical change for each area of interest (Ring) for Inner (extent of mining area) and Outer (100-meter buffer surrounding Inner ring) rings by time period. In this report, it is assumed that the average over all Inner and Outer rings allows for comparison to other studies considered.

In Deltares (2023 b; 2023c), the ring analysis was carried further in west Central Bay by developing "extended buffer rings" around the inner rings described above. The extended buffer rings consisted of ten concentric 100-meter-wide buffer rings surrounding the inner rings, extending a total of 1,000 meters in all directions outward from the mining area. The purpose of this analysis was to investigate the effects of mining further away from the mining areas (Inner rings) than just the 100-meter-wide outer ring immediately adjacent to the inner rings. The results of this analysis showed that mining effects were seen between 200 and 500 meters from the mining area during only one period 1997 – 2008 and for only one of the six rings, the one mined most extensively during this period. For the remaining time periods and rings, no such mining effects were observed beyond 100 meters from the mining areas (inner rings).

For the second type of analysis, Deltares (2023a) summarized sand mining volumes over time for specific lease areas in west Central Bay and Suisun Bay. Table 2-2 and Figure 2-7 in Deltares (2023a) show total annual mining volumes in west Central Bay peak around the year 2000 (shown in Figure 3.4-1, top panel). Table 2-4 and Figure 2-11 in Deltares (2023a) show total annual mining volumes in Suisun Bay peak also around the year 2000 (shown in Figure 3.4-1, bottom panel).

Analysis of the relationship between bed bathymetry and mining volume was conducted in Deltares (2023c). This analysis entailed comparing net change to the bed determined from the ring analysis of bathymetry surveys to mining volumes over time. The study found that during a period of lower mining volume (2008-2014), the bed in west Central Bay was "mostly accretive", while during periods of higher mining volume (1997-2008, 2014-2018, and 2018-2019), the bed was "mostly erosive" (Deltares 2023c). For Suisun Bay, the study found that greater magnitude of mean vertical change with the ring occurred during the period having the largest mining volume extracted, whether considering the total amounts or the annually averaged amounts (Deltares 2023c).

Figure 3.4-1. Yearly and Cumulative Mining Volumes from Mining Lease Areas in West Central Bay and Suisun Bay between 1970 and 2021.



The studies described in this section relate only to physical changes to the bed of San Francisco Bay; for information on potential biological impacts due to these physical changes, see Section 3.2. As a whole, the studies described in this section provide additional information that was not available in 2012; however, the information and conclusions they provide are consistent with information presented and conclusions reached in the 2012 EIR. None of the new studies affects the impact determinations reached in the 2012 EIR for any of the resource areas.

Geomorphology

In addition to the observed changes in the bathymetry discussed above, several studies have also considered the geomorphic processes which may explain the observed bathymetric changes. These geomorphic processes include bay-wide

sand transport, sediment fluxes of sand into the bay, bedform dynamics, and geochemical analysis to identify sand sources.

In the 2012 EIR, the state of the science related to sand transport through San Francisco Bay viewed the system as having sediment connectivity, or the net sediment transport is downstream from the Delta, through one subembayment to the next, somewhat like a "conveyor belt" that transported sand from Central Valley rivers through San Francisco Bay sub-embayments towards the Pacific Ocean. For example, a bedform analysis coupled with numerical modeling suggested net seaward-directed bedload sediment transport from the Bay-Delta estuary (Barnard et al. 2010; Dallas and Barnard 2011).

Three geomorphology studies conducted after 2012 (SFEI, USGS, Deltares 2023; Deltares 2023a; and Malkowski et al. 2023) are considered in this SEIR (items 10, 11, and 12 in list above). These studies either (1) analyze sediment fluxes (SFEI, USGS, Deltares 2023), (2) analyze bedforms (Deltares 2023a), or (3) conduct geochemical analyses (Malkowski et al. 2023).

The first type of analysis based on calculation of sediment fluxes showed that sand inflows to San Francisco Bay are predominantly from the local tributaries adjacent to the estuary (81 percent of total inflow) with the remainder sources from the Pacific Ocean (19 percent). Sand inflow from the Central Valley is estimated to be zero. McKee et al. (2023) state that the bed of the entire Bay appeared to decrease in median grain size over study period (i.e., finer-grained sediments increasing). In terms of Bay-scale outflows, the authors state that San Francisco Bay supplied the Pacific Ocean with 1.7 million tons/year (Mt/y) of total (mud and sand) sediment of which 0.26 Mt/y (15 percent) was sand-size sediments. The authors state that sand mining was the largest loss of sand from Bay (1.17 Mt/y or 66 percent of the total sand outflow) and navigational dredging for navigation at 19 percent. The authors also state that sand mining and navigational dredging accounted for 30 percent and 24 percent, respectively, of the outflows in the total sediment budget. At the sub-embayment scale, the authors found that sand mining accounted for 56 percent of total sand outflow for Suisun Bay and 61 percent of that for Central Bay. The authors found that net sand transport was directed towards the ocean in all sub-embayments except Lower South Bay (which experienced landward net sediment transport) and from the Delta into Suisun Bay, which was estimated as zero net sand flux.

For the second type of analysis based on bedform analysis, bedform dynamics were investigated to infer the relative rates and directions of sand transport at different locations across west Central Bay, Middle Ground, and Suisun Bay

(Deltares 2023a). For these three regions, results showed generally variable sand transport directions over time and space. While sand mining does not appear to affect bedform dynamics, the relative recovery rates of bed elevations in mining depressions does correlate with the level of bedform activity.

The third type of analysis based on geochemical analyses investigates the source of sand deposits in and around San Francisco Bay (Malkowski et al. 2023). The analysis uses detrital zircon geochronology and sand petrography on samples obtained from mining operations and from shallow core samples of the bay's bed. Analysis of 27 samples shows that sand is transported primarily from supply from local watersheds and far exceeds supply from the Central Valley rivers. For Central Bay, results show that sand is likely sourced from the outer coast and was not transported from the Central Valley rivers in the modern period (i.e., previous 200 years). Overall, these results are counter to the prior assumption of sediment connectivity thought to apply for the 2012 EIR. This connectivity hypothesis supposed that sand is currently being continually routed from Central Valley rivers through Suisun Bay, Central Bay and the outer coast. These recent results suggest instead that Suisun Bay and Central Bay have distinct sources from each other and minimal transport from the Central Valley and between them. Sand in the Suisun Bay lease block appears to be sourced from local Coast Range drainages or to perhaps be relic sand input into San Francisco Bay from hydraulic gold mining. Sand in the Central Bay lease blocks is interpreted as a combination of sand eroded from outer coast sources that was transported through the Golden Gate and perhaps relic sand from the Sacramento-San Joaquin Delta that deposited during a period of lower sea level several thousand years ago. Results suggest mining in the lease areas is extracting relic sand from Suisun and Central Bays and that sand transport is localized and not connected throughout the sub-embayments. The authors propose a sand transport model with disconnected (and locally sourced) deposition centers in Suisun, San Pablo, and Central Bays. The revised hypothesis suggests that Suisun and San Pablo Bays receive limited sand supply from the Sacramento-San Joaquin Delta and instead are largely fed from local Coast Range sources. The authors interpret that sand in Central Bay is largely supplied by flood tides and wave-driven littoral transport that convey sand through the Golden Gate and into the Central Bay from the outer coast.

3.4.2.2 Water Quality

Section 4.3.1 of the 2012 EIR (pp. 4.3-2 – 4.3-5, and 4.3-10 – 4.3-15) describes the environmental setting for the Project's consideration water quality (including

pollutant concentrations, salinity, suspended sediments, and sediment contamination). Those descriptions remain accurate for the purposes of the SEIR analysis, except as supplemented or emphasized below.

A water quality monitoring study conducted by Newfields (2018a) of aggregate sand mining discharge plumes at both the Central and Suisun Bay mining lease sites between 2015 and 2016 reported that "Overall, the monitoring results from both surveys demonstrate that discharges from sand mining operations do not adversely impact the water column with regards to chemical concentrations or toxicity, and that any physical effects related to plume turbidity are spatially limited and ephemeral in nature" (Newfields 2018a). These findings are consistent with the findings in the 2012 EIR Section 4.1.4, pp. 4.1-44 to 4.1-46.

3.4.3 Regulatory Setting

Section 4.3.2 of the 2012 EIR (p. 4.3-16 et seq.) describes the regulatory setting for the analysis of impacts on hydrology and water quality, including:

- Federal Rivers and Harbors Act and Clean Water Act provisions authorizing regulatory oversight by U.S. Army Corps of Engineers (USACE); and the National Toxics Rule and the California Toxics Rule (CTR), including related authority of U.S. Environmental Protection Agency (U.S. EPA). For example, as explained in the 2012 EIR (p. 4.3-17), the CTR establishes ambient aquatic life criteria for 23 priority toxics, ambient human health criteria for 57 priority toxics, and a compliance schedule provision which authorizes the State to issue schedules of compliance for new or revised National Pollutant Discharge Elimination System (NPDES) permit limits based on the Federal criteria when certain conditions are met. The Coastal Zone Management Act administered by BCDC for San Francisco Bay.

- State laws and regulations including the Porter-Cologne Water Quality Control Act and related oversight by the State Water Resources Control Board (State Board) and regional water quality control board (RWQCBs).

- Regional plans and policies including the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan), which designates beneficial uses and water quality objectives; the Bay-Delta Plan; and the State Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (also known as the State Implementation Policy, SIP). These regional plans and their policies are implemented by the State Board and the San Francisco Bay RWQCB. Regional plans and policies summarized in 2012 EIR Section 4.3.2 also include the San Francisco Bay Plan

and related oversight by the Bay Conservation and Development Commission (BCDC) and the CALFED Bay-Delta Program, which was established the California Bay-Delta Authority (CBDA).

- Waste discharge requirements (as issued and in effect for the Project).

These agencies continue to oversee compliance with laws and regulations, plans and policies governing hydrology and water quality that continue in effect. The description of the Regulatory Setting in Section 4.3.2 of the 2012 EIR remains accurate for the purposes of the SEIR's analysis of potential impacts of the Revised Project on hydrology and water quality.

3.4.4 Significance Criteria

Consistent with section 4.3.3 of the 2012 EIR (p. 4.3-23), the Revised Project would have a significant impact on water quality if:

- The water quality objectives promulgated by the SFBRWQCB are exceeded;
- The water quality criteria contained in the California Toxics Rule are exceeded;
- Project operations or discharges change background levels of chemical and physical constituents or elevate turbidity levels such that long-term changes in the receiving environment of the site, area or region occur, or such that beneficial uses of the receiving water are impaired or degraded; or
- Contaminant levels in the water column, sediment, or biota are increased to levels shown to have the potential to cause harm to marine organisms even if the levels do not exceed formal objectives.

Consistent with section 4.3.3 of the 2012 EIR (p. 4.3-23), the Revised Project would have a significant impact on hydrology and geomorphology if:

- It altered the topography of an area in a manner which would result in substantial erosion or sedimentation.

The 2018 updates to the CEQA Guidelines Appendix G environmental checklist made only non-substantive revisions to the hydrology- and water quality-related significance criteria that were in effect when the 2012 EIR was prepared. Therefore, the 2018 CEQA Guidelines Appendix G updates do not affect the significance criteria being evaluated in this SEIR. Accordingly, for the purpose of analyzing whether changes in the project that was analyzed in the 2012 EIR

would cause any new significant impact or any substantial increase in the severity of a significant impact relative to the impacts disclosed in the 2012 EIR with respect to hydrology or water quality, the significance criteria evaluated in the 2012 remain current.

3.4.5 Direct and Indirect Effects

3.4.5.1 2012 Project

The 2012 Final EIR, Section 4.3.4 presented the following impact determinations for Hydrology and Water Quality:

> Impact HYD-1: Potentially adverse effects on water quality - The overflow plume generated during sand mining operations may impact water quality through localized increases in turbidity and suspended solids, through possible increases in associated nutrients, metals, and organic matter, and localized decreases in dissolved oxygen from oxidation of suspended organic material (Less than Significant, Class III).
>
> Impact HYD-2: Potentially adverse effects on the hydrology and geomorphology of the Bay and Delta - Sand mining could result in pronounced changes to the hydrodynamics (e.g., current speeds), salinity, sediment transport, and/or bottom morphology of the Bay-Delta estuary. Such changes could impact water quality and/or lead to substantial erosion or sedimentation within or beyond the Bay-Delta estuary (Less than Significant, Class III).

The CSLC adopted a Mitigation Monitoring Program (MMP) as part of its discretionary action. No mitigation measures related to hydrology and water quality were adopted (Appendix F).

3.4.5.2 Revised Project

This analysis evaluates the potential significance of the change in the physical environment that would be caused by implementation of the Revised Project relative to the baseline condition, compares that impact conclusion with the impact conclusion reached in the 2012 EIR regarding the same consideration, and then makes a determination as to whether the implementation of the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of significant impacts than was disclosed in the 2012 EIR. For the reasons discussed below, implementation of the Revised

Project would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

As discussed in Section 2.0 of this SEIR, the Revised Project proposes a reduction in the total annual volumes of sand mined through all leases, including the Middle Ground lease, from 2,039,866 cubic yards (cy) to 1,750,000 cy (14 percent decrease).

Water Quality

Would the Revised Project have a significant impact on water quality?

Impact HYD-1: The Revised Project would have potentially adverse effects on water quality.

The overflow plume generated during sand mining operations may impact water quality through localized increases in turbidity and suspended solids, through possible increases in associated nutrients, metals and organic matter, and localized decreases in dissolved oxygen from oxidation of suspended organic material (Less than Significant, Class III).

The 2012 EIR, Section 4.3.4 determined that the impact would be less than significant. Sand mining operations under the Revised Project would be substantially similar to those implemented under the 2012 Project. However, under the Revised Project the total amount of sand permitted for extraction would be reduced compared to the 2012 Project, resulting in a reduction of the total number of overflow plumes. As described above in Section 3.4.2.2 a water quality monitoring study conducted by Newfields (2018a) of aggregate sand mining discharge plumes at both the Central and Suisun Bay mining lease sites between 2015 and 2016 reported that "Overall, the monitoring results from both surveys demonstrate that discharges from sand mining operations do not adversely impact the water column with regards to chemical concentrations or toxicity, and that any physical effects related to plume turbidity are spatially limited and ephemeral in nature" (Newfields 2018a). Because these new technical studies reflect data and trends consistent with the findings of the 2012 EIR, they do not provide new information of substantial importance for purposes of CEQA. For these reasons, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact discussed in the 2012 EIR for water quality.

Additional Mitigation: None required.

Sediment Transport

Would the Revised Project have a significant impact on the hydrology and geomorphology of the Bay and Delta?

Impact HYD-2: The Revised Project would result in potentially adverse effects on the hydrology and geomorphology of the Bay and Delta.

Sand mining could result in pronounced changes to the hydrodynamics (e.g., current speeds), salinity, sediment transport, and/or bottom morphology of the Bay-Delta estuary. Such changes could impact water quality and/or lead to substantial erosion or sedimentation within or beyond the Bay-Delta estuary (Less than Significant, Class III).

The 2012 EIR, Section 4.3.4 determined that the impact would be less than significant. Sand mining operations under the Revised Project would be substantially similar to those implemented under the 2012 Project. However, under the Revised Project the total amount of sand permitted for extraction would be reduced compared to the 2012 Project. For the reasons described in the following narrative, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact discussed in the 2012 EIR for the hydrology and geomorphology of the Bay and Delta.

Bathymetry and Geomorphology

As described in Section 3.4.2.1, studies of bathymetric change and geomorphic processes were conducted prior to and during the mining lease considered in the 2012 EIR. Bathymetric changes were evident in the mined areas, less discernable in 100-meter rings surrounding seven of the mined areas and not directly discernable more than 100 meters from any of the mined areas. In addition based on multiple studies conducted after the 2012 EIR (Deltares 2023c, Appendix E), no changes were detected further from the mined areas, where decreased sediment supply attributable to mining could deplete sand resources used to support beach conditions or shoreline tidal wetlands.

As described in Section 2.4.2 the Revised Project proposes a reduction in the maximum allowable annual volume of sand harvested for three of the five CSLC leases and the private lease as compared to the 2012 Project. The 2012 Project CSLC leases authorize a total annual extraction volume of 1,540,000 cy in the Central Bay leases, whereas the Revised Project if approved would authorize a smaller total annual extraction volume in the Central Bay leases of 1,395,000 cy (Table 2-2). Vertical changes in the bed of lease areas were shown to be

positively related to the volume of sand mined, where periods of lower mining volumes were associated with smaller vertical changes to the bed. If the Revised Project is removing less sand than during other periods in the past, this will result in smaller vertical changes to the bed in lease areas. More than 100 meters from the lease areas, i.e. beyond the outer ring around each lease areas, the smaller mined volumes for the Revised Project are anticipated to have less than discernable effects, like the 2012 Project was observed to cause.

Since the changes to bathymetry are limited to the mined areas for the 2012 Project, and not significant outside of the mined areas, then bathymetric changes would be less than significant for the Revised Project.

Hydrodynamics and Sediment Transport

Two hydrodynamic modeling studies conducted after 2012 (Anchor QEA 2023 and Coast Harbor Engineering 2025) are considered in this SEIR (items 7 and 9 in list above). These studies conducted modeling of San Francisco Bay tidal hydrodynamics, wind waves, and sediment transport to study the potential effect of sand mining on predicted sediment transport pathways and rates.

In the first modeling study (Anchor QEA 2023), scenarios were developed to replicate two hydrologic conditions: high Delta outflow (June 15, 2018 through November 20, 2019) and low Delta outflow (June 15, 2014 through June 14, 2015. The modeling also considered two starting bathymetric conditions. Modeling scenarios used observed bathymetry representative of existing conditions, including depressions in the bed due to sand mining. For Without Mining scenarios, the model scenarios were modified by adding sand to the bed in the mining areas approximating mined sand volumes for the period from June 15, 2018 to November 20, 2019. This Without Mining bathymetry is meant to represent hypothetical conditions under which mining had not recently occurred. By comparing sand transport sources, pathways, and rates between the model runs, the study assessed the potential effects of sand mining on sand transport for both high-flow and low-flow conditions. Sand sourced from local tributaries remained near creek mouths and was a negligible contribution to sand transport and dispersal throughout the Bay.

Over the annual time scale of the model scenarios, results show that sand transport is not linked between the two areas with mining leases, Suisun Bay and Central Bay. In Suisun Bay, regional sand transport was sensitive to Delta outflow, with transport downstream (toward the ocean) during high outflow and upstream (away from the ocean) during low outflow. The predicted effects of

mining in Suisun Bay were limited to decreased downstream sand transport in the vicinity of the mining areas and did not extend outside of Suisun Bay. Central Bay sand transport was more variable across the sand mining lease areas. The predicted transport and deposition mostly occurred in the western portion of Central Bay, in the vicinity of the lease areas. Total sand transport to the Pacific Ocean was predicted to decrease for the Without Mining scenarios as compared to the existing conditions scenarios. However, this decrease only resulted in difference in sand thickness between the existing conditions and Without Mining scenarios of up to 1 centimeter immediately due west of the Golden Gate Strait and less than 0.1 centimeter along Ocean Beach to the south of the Golden Gate Strait (Anchor QEA, Figure 6.2-5 and Figure 6.2-6). The changes attributed to mining were similar in magnitude to the difference between the high-flow and low-flow scenarios.

In the second modeling study (Coast and Harbor Engineering 2025), sediment transport modeling was conducted to evaluate potential impacts of proposed sand mining in the Central Bay and Suisun Bay areas of San Francisco Bay. Impacts of Proposed Mining were evaluated relative to No Proposed Mining. Proposed Mining is defined by the total sand volume proposed to be mined over the next ten years, approximately 17.5 million cubic yards (CY). No Proposed Mining is the existing bed conditions, typically as observed in 2019 bathymetric surveying. Authors assumed instantaneous removal of 10 years of proposed mining as an initial condition to simplify computations, provide a conservative upper bound of the impacts, and show evolution over time. This assumption is considered conservative because the entire ten years of mining was assumed to occur prior to the beginning of the simulations, which in the numerical modeling caused larger changes in hydrodynamics and transport than would occur under the actual proposed mining schedule, which would distribute this mined volume over ten years. In addition, full dynamic coupling between hydrodynamics and bed change was excluded in the modeling, which prolongs the stronger hydrodynamic changes in the modeling that are generated immediately following the deepening of the seabed (ten-year volume all at once). Compared to previous modeling (Anchor QEA 2023), study authors used identical simulation periods but with more grain-size classes and an updated sand transport formulation. The analysis also included an assessment of the sand volumes available for mining based on bed elevations in the 2019 multibeam hydrographic survey data (eTrac 2019) and constraints imposed by equipment and permit conditions.

Results showed that relative to No Proposed Mining, the Proposed Mining is not likely to cause a significant impact on sediment transport and sand budgets in areas outside the immediate vicinity of the lease areas. For example, predicted changes in areas outside the Golden Gate, such as the San Francisco Bar or Ocean Beach, are minimal (e.g., less than one millimeter, similar to the finding of relative difference in sand thickness outside the Golden Gate Strait in the Anchor QEA (2023) study). These minimal changes are also consistent with the modeling study completed for the 2012 EIR, which predicted the reduction in volume of sand transported through the Golden Gate that may be attributed to mining to be only about 0.2-0.3 percent of the long-term erosion rate of the Bar. Changes in bed elevation caused by the Proposed Mining relative to No Proposed Mining are likely to be limited to the vicinities of the lease areas. Neither of the two modeling studies show any substantial change attributable to sand mining in the Bay just north of the San Francisco shoreline, which is consistent with lack of observed bed elevation changes in the extended buffer ring analysis (Deltares, 2023c).

Based on these modeling results, which predict limited sediment connectivity within San Francisco Bay and from the Bay through the Golden Gate, the Revised Project would not cause significant effects outside of the immediate mining areas.

Additional Mitigation: None required.

3.4.6 Cumulative Effects

CE HYD-1: The Revised Project has a low potential to cause a cumulatively considerable contribution to cumulative effects on water quality (Less than Significant, Class III).

The Final 2012 EIR analyzed potential cumulative effects in Section 4.3.6, [*Cumulative Projects Impact Analysis*] (p. 4.3-36 et. seq.), concluding that the project would not result in a cumulatively considerable contribution to any significant cumulative effect. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

As analyzed in Section 3.4.5 of this SEIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact (either directly or indirectly) and so would result in the same incremental contribution to potential cumulative effects as was disclosed in the 2012 EIR. All of the projects summarized in Table 3.1-2 in Section 3.1.5.3 initially were considered for inclusion in this cumulative analysis; however, some were eliminated because, upon further investigation, they appear not to be associated with impacts that could combine with those of the Revised Project. Examples include the Suisun Marsh fish screen rehabilitation project, which involves attaching a replacement exterior water control structure to an existing fish screen facility. This project would be expected to cause only localized effects and so would be unlikely to cause impacts that could combine with the effects of the Revised Project, and thus is not considered further in this cumulative analysis.

By contrast, other projects summarized in SEIR Section 3.1.5.3 do have potential to cause impacts that could combine with those of the Revised Project involve dredging and potential impacts similar to the Revised Project. They include: the San Francisco Bay Regional Dredged Material Management Plan (RDMMP) 2025-2044, San Francisco Bay Strategic Shallow-Water Placement Pilot Project, and Montezuma Wetlands Restoration (Phase 2). The incremental impacts of implementing activities consistent with the RDMMP would be substantially similar to the incremental impacts of the RDMMP's predecessor, which was evaluated as part of the cumulative scenario for the 2012 EIR (see 2012 EIR, p. 3-24). The incremental water quality impacts of the Revised Project (in combination with the incremental impacts of the cumulative projects) would not be cumulatively considerable, and so would be less than significant. For these reasons, the Revised Project would cause no new significant cumulative impact and no substantial increase in the severity of a significant cumulative impact on water quality than was disclosed in the 2012 EIR.

CE HYD-2: The Revised Project has a low potential to cause a cumulatively considerable contribution to cumulative effects on hydrology (Less than Significant, Class III).

The Final 2012 EIR analyzed potential cumulative effects on hydrology (specifically sediment transport and coastal morphology) in Section 4.3.6, [Cumulative Projects Impact Analysis] (p. 4.3-38 et. seq.), concluding that the 2012 Project would not result in a cumulatively considerable contribution to any significant cumulative effect. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in

the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

As analyzed in Section 3.4.5 of this SEIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact (either directly or indirectly) on hydrology and so would result in the same incremental contribution to potential cumulative effects as was disclosed in the 2012 EIR. Like the 2012 Project, the Revised Project is expected to further alter the morphology of the seabed in the Lease Areas, with concomitant, though minor and less-than-significant effects on circulation, sediment transport, and water quality. The Revised Project's incremental impacts could combine with the impacts of some of the projects on the cumulative projects list (Table 3.1-2, in Section 3.1.5.3) to cause or contribute to cumulative effects.

Other projects that involve dredging or the placement of dredged materials could cause impacts that combine with those of the Revised Project to cause or contribute to a cumulative impact on hydrology. Such projects include: the San Francisco Bay Strategic Shallow-Water Placement Pilot Project, the Montezuma Wetlands Restoration (Phase 2) project, dredging for navigation, and the Oakland turning basin widening project. Other changes along the San Francsico Waterfront and at Ocean Beach could further contribute to cumulative conditions. Of these, the incremental impacts of implementing activities consistent with the RDMMP would be substantially similar to the incremental impacts of the RDMMP's predecessor, which was evaluated as part of the cumulative scenario for the 2012 EIR (see 2012 EIR, p. 3-24). The 2012 EIR also considered Oakland turning basin widening and various project involving dredging as part of the cumulative impacts analysis, such as the Hamilton Wetlands Restoration Project Dredged Material Aquatic Transfer Facility, San Francisco Water Emergency Transit Authority (WETA) Ferry System Expansion, Trans Bay Cable installation, the long term management strategy (LTMS) for Delta Sediments, and the deepening of existing ship channels as part of the Sacramento River Deep Water Ship Channel and San Francisco Bay to Stockton Navigation Improvement projects (see Table 3-3, p. 3-24 et seq. in the 2012 EIR).

The Revised Project's incremental impact combined with the incremental impacts of the cumulative projects would likely reduce the volume of sediment transported from Central Bay through the Golden Gate annually within a range representing approximately 0.2 – 0.3 percent of the long-term rate of erosion of the Bar. Consistent with the conclusions presented in the 2012 EIR, the CSLC considers this reduction in sediment transport, and any secondary effects on

coastal morphology, to be a less-than-significant impact, and a less-than-cumulatively considerable contribution to a cumulative impact. Accordingly, the Revised Project would cause no new significant cumulative impact and no substantial increase in the severity of a significant cumulative impact on hydrology than was disclosed in the 2012 EIR.

3.5 HAZARDS AND HAZARDOUS MATERIALS

This section identifies and evaluates issues related to hazards and hazardous materials to determine whether the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts disclosed in the 2012 EIR. This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR.

3.5.1 Baseline Conditions

The 2012 Final EIR (p. 1-12) states the following regarding baseline conditions for Hazards and Hazardous Materials:

> Past sand mining effects that are considered part of the Project baseline condition include any past accidents or upsets associated with mining operations that resulted in the release of, or exposure to, hazardous substances. The EIR considers the potential for new impacts of this kind (see also the discussion of human health risks in Section 4.5, Air Quality).

As described in Section 1.3.3 of this SEIR, the baseline condition for purposes of this analysis is the level of activity associated with the authorized sand mining lease volumes and the ongoing obligations such as mitigation measures and conditions of approval resulting from the Commission's 2012 EIR and lease authorizations. See Appendices A and F for details.

3.5.2 Environmental Setting

Section 4.4.1 of the 2012 EIR describes the environmental setting for the EIR's consideration of hazards and hazardous materials, including topics such as vessel traffic, spill response capability, vessel incidents inside and outside San Francisco Bay, and Bay Area vessel traffic control systems. Vessel transit into, within, and out of the SF Bay, spill response planning and implementation, and occasional incidents and accidents continue generally as described in 2012 EIR Section 4.4.1. Very few major vessel incidents have occurred in San Francisco Bay since 2012. For example, on January 7, 2013, the double-hulled oil tanker *Overseas Reymar* allided with the San Francisco Bay Bridge, resulting in damage to the tanker but no oil spill. Since 2012, no hazards or hazardous materials-related vessel incidents have involved sandmining vessels. The U.S. Coast Guard (USCG) continues to implement a Traffic Separation Scheme, including regulated

navigation areas (RNAs), and manage vessel traffic in San Francisco Bay as described in the 2012 EIR. The description of the Environmental Setting in Section 4.4.1 of the 2012 EIR remains accurate for the purposes of the SEIR's analysis of potential impacts of the Revised Project on hazards and hazardous materials.

3.5.3 Regulatory Setting

Section 4.4.2 of the 2012 EIR (p. 4.4-3 et seq.) describes the regulatory setting for the analysis of hazards and hazardous materials. It describes federal and state laws and regulations as well as regional plans and policies that govern marine vessels and spills, hazardous materials and hazardous waste transportation and clean up, hazardous materials management plans, and worker safety. It also describes jurisdiction exercised by a variety of federal, state, and regional regulatory agencies, such as the USCG, U.S. Environmental Protection Agency (U.S. EPA), National Oceanic and Atmospheric Administration (NOAA), U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), San Francisco Bay Conservation and Development Commission (BCDC), Department of Toxic Substances Control (DTSC), and California Division of Occupational Safety and Health (Cal/OSHA). These agencies continue to oversee compliance with laws and regulations, plans and policies governing hazards and hazardous materials-related considerations, which continue in effect. The description of the regulatory setting in Section 4.4.2 of the 2012 EIR remains accurate for purposes of the SEIR's analysis of potential impacts of the Revised Project on hazards and hazardous materials. Consistent with the 2012 EIR (p. 4.4-3), This analysis relies on the same definition of "hazardous material" that was relied upon in the 2012 EIR, i.e., a material that "because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment" (Health and Safety Code §25501(n)).

3.5.4 Significance Criteria

Consistent with the significance criteria identified in Section 4.4.3 of the 2012 EIR (pp. 4.4-9 and 4.4-10), the Revised Project would have a significant adverse impact on hazards and hazardous materials if:

- Current or future operations are not consistent with Federal, State, or local regulations
- Any facility or operation, existing or proposed, does not conform to its contingency plans or other hazard or risk-related plans that are in effect

Also as indicted in Section 4.4.3 of the 2012 EIR, the Revised Project would have a significant adverse impact on hazards and hazardous materials relating to the adequacy of emergency response capabilities or resulting in potential injury or death if:

- The potential exists for fires, explosions, releases of flammable or toxic materials, or any other accidents that could cause injury or death to members of the public
- Existing and proposed emergency response capabilities are not adequate to mitigate emergency conditions the project has the potential to cause
- The 2018 updates to the CEQA Guidelines Appendix G environmental checklist did not materially revise the significance criteria for hazards and hazardous materials that were in effect at the time the 2012 EIR was prepared. Therefore, the 2018 CEQA Guidelines Appendix G updates do not affect the significance criteria being evaluated in this SEIR. Accordingly, for the purpose of analyzing whether changes in the project that was analyzed in the 2012 EIR would cause any new significant impact or any substantial increase in the severity of a significant impact relative to the impacts disclosed in the 2012 EIR with respect to hazards and hazardous materials, the significance criteria considered in the 2012 EIR remain current.

3.5.5 Direct and Indirect Effects

3.5.5.1 2012 Project

The 2012 Final EIR, Section 4.4.4 presented the following impact determinations for Hazards and Hazardous Materials:

- Impact HAZ-1: Potential for accidental leak or spill of hazardous materials - The proposed Project includes the routine use of hazardous materials that could create a significant hazard to the public or environment if accidentally spilled or released (Potentially Significant, Class II).

The CSLC adopted a Mitigation Monitoring Program (MMP) as part of its discretionary action. One mitigation measure related to hazards and hazardous materials was adopted (Appendix F, Existing 2012 Project Mitigation as Amended):

- MM HAZ-1– Provide a California Non-tank Vessel Contingency Plan (CANTVCP) to the CSLC.

On May 21, 2014, the Commission approved a variance to MM HAZ-1 to allow the Applicant to maintain a current certificate of financial responsibility (COFR) in lieu of a CANTVCP for Lease PRC 7781.1 in Suisun Bay/Western Delta. MM HAZ-1, as amended by the approved variance, remains in effect.

3.5.5.2 Revised Project

This analysis evaluates the potential significance of the change in the physical environment that would be caused by implementation of the Revised Project relative to the baseline condition, compares that impact conclusion with the impact conclusion reached in the 2012 EIR regarding the same consideration, and then makes a determination as to whether the implementation of the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of significant impacts than was disclosed in the 2012 EIR. For the reasons discussed below, implementation of the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

The studies identified in Section 1.2.3 as having been completed since certification of the 2012 EIR provide additional information about physical environmental conditions in the lease areas; however, the information and conclusions they provide are consistent with information presented and conclusions reached in the 2012 EIR and none of the new studies affects the impact determinations reached in the 2012 EIR regarding hazards and hazardous materials.

Would the Revised Project result in potential for accidental leaks or spills of hazardous materials?

Impact HAZ-1: The Revised Project includes the routine use of hazardous materials that could create a significant hazard to the public or environment if accidentally spilled or released. (Potentially Significant, Class II).

The same sand mining barges and tugboats currently used by the Applicants would be used to conduct sand mining operations under the Revised Project. Similar to the 2012 Project analyzed in Section 4.4.4 of the 2012 EIR, the Revised Project includes the routine use of hazardous materials that could result in a hazard to the public or the environment if accidentally spilled or released. The operation of barges with dredging equipment and tugboats involves the routine use of fuel, oil, coolants, lubricants, and other hazardous materials. The inventories of potentially hazardous materials included in the 2012 EIR (2012 EIR Table 4.4-2) are substantially similar to the types and quantities that would be in use under the Revised Project.

Implementation of MM HAZ-1 as set forth in the 2012 EIR and as repeated below (and amended by the previously authorized variance) would reduce potential impacts to a less-than-significant level. Accordingly, the Revised Project, as substantially a continuation of the Project described in the 2012 EIR, would not cause a new significant impact or a substantial increase in the severity of a significant impact resulting from the potential spill or release of hazardous materials than was disclosed in the 2012 EIR.

> **MM. HAZ-1. Provide a California Non-tank Vessel Contingency Plan/ Certificate of Financial Responsibility**. ~~Jerico~~ The Applicant shall, within three (3) months of certification of this Supplemental Environmental Impact Report, provide to the CSLC a California Non-tank Vessel Contingency Plan (CANTVCP), reviewed and approved by the California Department of Fish and ~~Game~~ Wildlife Office of Oil Spill Prevention and Response, demonstrating that adequate measures are in place to prevent and respond to accidental releases of hydraulic fluids, solvents, oils, and residual fluids. Documentation and maintenance of a current Certificate of Financial Responsibility (COFR) and Spill Contingency Plan shall be provided to CSLC for vessels deemed exempt from submitting a CANTVCP~~/oil spill contingency plan~~.

Rationale for Mitigation

The CANTVCP or COFR with spill contingency plan requirement is designed to mitigate the risk of accidental spills and control discharge of hazardous materials under normal operating conditions. Complying with this regulatory requirement and implementing the best management practices specified in the CANTVCP and Vessel General Permit (or comparable COFR with spill contingency plan) would ensure that oils and other hazardous materials are properly managed and would minimize the potential for accidental releases to occur, which reduced the impact to less-than-significant levels.[20]

[20] The U.S. EPA requires all commercial vessels of 79 feet or more in length to secure a Vessel General Permit (VGP) for oil and other pollutant discharges incidental to normal operation, under the CWA's National Pollution Discharge Elimination System (NPDES). The VGP is a set of requirements including Best Management Practices (BMPs) that addresses 28 types of vessel discharges for the purpose of minimizing their impact on surrounding waters. Compliance with the VGP includes requirements for material storage, environmental controls, routine vessel inspections, corrective actions, and recordkeeping.

Would the Revised Project result in a significant adverse impact on hazards and hazardous materials relating to the adequacy of emergency response capabilities or resulting in potential injury or death?

Impact HAZ-2: Potential for hazard-related injury or death. The Revised Project could create a significant hazard to the public or environment resulting in injury or death due to risk of fire, explosion, release of flammable or toxic materials, or other accidents and if emergency response capabilities were inadequate. (Less than Significant, Class III).

As disclosed in Section 1.1.5 of the 2012 EIR (p. 1-9) and in Section 4.0 of the 2012 EIR (p. 4-2), the 2012 Project would not cause a significant adverse impact directly or indirectly due to an increased demand on emergency response providers including fire or police. The Revised Project would use the same sand mining barges and tugboats currently used by the Applicants to extract less material each year over the new lease term relative to the maximum annual and total volumes evaluated under the 2012 EIR for the prior lease term and would mine smaller volumes within the lease areas originally analyzed. For these reasons, the Revised Project would not cause any increase in the baseline level of risk of fire, explosion, release of flammable or toxic materials, or any other accident that could cause injury or death to members of the public. For the same reasons, the Revised Project also would not increase the baseline demand on emergency response capabilities. The Revised Project, like the 2012 Project, would not cause a significant adverse impact on hazards or hazardous materials. Accordingly, the Revised Project, as substantially a continuation of the Project described in the 2012 EIR, would not cause a new significant impact or a substantial increase in the severity of previously identified significant impact on hazards or hazardous materials disclosed in the 2012 EIR.

3.5.6 Cumulative Effects

Impact CE HAZ-1: The Revised Project has potential to cause a cumulatively considerable contribution to potential significant cumulative effects on hazards and hazardous materials (Potential Significant, Class II).

The 2012 EIR analyzed potential cumulative effects on hazards and hazardous materials in Section 4.4.6 (p. 4.4-12), concluding that the 2012 Project could result in a potentially significant cumulative impact related to the improper use or spill of hazardous materials, but that the impact would not be cumulatively considerable if identified mitigation (2012 EIR MM HAZ-1) was implemented. The same is true of the Revised Project: For the reasons discussed below, the Revised

Project would cause no new significant impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

As discussed in Section 3.5.5 of this SEIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact (either directly or indirectly) and so would result in the same incremental contribution to potential cumulative effects on hazards and hazardous materials as was disclosed in the 2012 EIR. The incremental impacts of implementing activities consistent with the San Francisco Bay Regional Dredged Material Management Plan (RDMMP) 2025-2044 would be substantially similar to the incremental impacts of the RDMMP's predecessor, which was evaluated as part of the cumulative scenario for the 2012 EIR (see 2012 EIR, p. 3-24). The incremental hazards and hazardous materials-related impacts of the Revised Project (in combination with the less than significant incremental impact of the San Francisco Bay Strategic Shallow-Water Placement Pilot Project and the incremental impacts of the Montezuma Wetlands Restoration and Suisun Marsh fish screen rehabilitation project) could be cumulatively considerable; however, the Revised Project's incremental contribution would be reduced sufficiently by the implementation of MM HAZ-1 to ensure that it would not be cumulatively considerable. Accordingly, consistent with the conclusions reached in the 2012 EIR, the Revised Project would have a less than significant cumulative effect, and so would cause no new significant cumulative impact and no substantial increase in the severity of a significant cumulative impact than was disclosed in the 2012 EIR.

3.6 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

This section identifies and evaluates issues related to air quality and greenhouse gas (GHG) emissions to determine whether the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts than were disclosed in the 2012 EIR. This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR.

3.6.1 Baseline Conditions

The 2012 Final EIR (p. 1-12) states the following regarding baseline conditions for air quality:

> The annual level of emissions of criteria air pollutants and toxic air contaminants from mining operations occurring, on average, between 2002 and 2007 is considered the baseline for the air quality analysis… the potential for increased human health risk associated with 10 additional years of exposure to toxic air contaminants and increased global warming effects associated with 10 more years of greenhouse gas (GHG) emissions.

As described in Section 1.3.3 of this SEIR, the baseline condition for purposes of this analysis is the level of activity associated with the authorized sand mining lease volumes and the ongoing obligations such as mitigation measures and conditions of approval resulting from the Commission's 2012 EIR and lease authorizations. See Appendices A and F for details.

3.6.2 Environmental Setting

Section 4.5.1 of the 2012 EIR describes the environmental setting for the 2012 Project's consideration of air quality and GHG emissions, including the topics of climate and meteorology, existing air quality, and sensitive receptors. Those descriptions remain accurate for the purposes of this SEIR analysis, except as supplemented below to provide updated existing air quality data for the San Francisco Bay Area Air Basin (Basin).

3.6.2.1 Existing Air Quality

The Bay Area Air Quality Management District (BAAQMD) operates a regional air quality monitoring network that regularly measures the concentrations of criteria air pollutants. The 2012 EIR presented air quality measurement data for the years 2006 through 2008. Since the preparation of the 2012 EIR, the BAAQMD has released new air quality measurement data. Table 3.6-1 presents recent air quality data for ozone, nitrogen dioxide (NO_2), and particulate matter 10 microns and 2.5 microns or less in diameter (PM_{10} and $PM_{2.5}$, respectively) for the Basin. BAAQMD no longer posts carbon monoxide data because carbon monoxide emissions are no longer a concern in the Basin with respect to achieving the ambient air quality standards.

The measured concentrations presented in Table 3.6-1 are compared to California Ambient Air Quality Standards (CAAQS) and/or National Ambient Air Quality Standards (NAAQS). The data are similar to those presented in the 2012 EIR for years 2006 through 2008. The ozone, PM_{10}, and $PM_{2.5}$ standards were exceeded multiple times during the period from 2021 through 2023 whereas the NO_2 standards were not exceeded.

3.6.3 Regulatory Setting

Section 4.5.2 of the 2012 EIR (p. 4.5-5 et seq.) describes the regulatory setting for the analysis of air quality and GHG emissions. It includes summary information about criteria air pollutants, toxic air contaminants (TACs), GHG emissions and climate change, federal regulations, state regulations, and the local regulatory setting. The descriptions provided in the regulatory setting remain accurate for the purposes of this analysis, except as supplemented below to provide updated information about NAAQS, California's GHG emissions inventory, State regulations, and local regulations.

3.6.3.1 Criteria Air Pollutants

Since the preparation of the 2012 EIR, the emissions concentrations of two NAAQS have been reduced. Table 3.6-2 presents the updated NAAQS for 8-hour ozone and annual $PM_{2.5}$.

Table 3.6-1. San Francisco Bay Area Ambient Air Quality Summary (2021 – 2023)

Pollutant	Standard	Monitoring Data by Year		
		2021	2022	2023
Ozone				
Highest 1-Hour Average (ppm)		0.113	0.122	0.091
Days over State Standard	0.09	5	4	0
Highest 8-Hour Average (ppm)[a]		0.086	0.080	0.079
Days over National Standard	0.070	10	5	4
Days over State Standard	0.070	10	6	4
Nitrogen Dioxide (NO_2)				
Highest 1-Hour Average (ppm)		0.050	0.051	0.119
Days over State Standard	0.18	0	0	0
Days over National Standard	0.10	0	0	9
Annual Average (ppm)	0.030[b]	0.012	0.013	0.012
Particulate Matter (PM_{10})				
Highest 24-Hour Average ($\mu g/m^3$)[a]		45.1	44.5	54.8
Estimated Days over State Standard[c]	50	0	n0	7
Estimated Days over National Standard[c]	150	0	0	0
State Annual Average ($\mu g/m^3$)[a]	20	20.1	21.3	18.4
Particulate Matter ($PM_{2.5}$)				
Highest 24-Hour Average ($\mu g/m^3$) [a]		45.0	37.3	49.0
Estimated Days over National Standard	35	2	3	3
Annual Average ($\mu g/m^3$) [a]	12 [b]	13	13	11

Notes: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

a. Averages represent State statistics, which are compiled differently than national statistics and, as a result, may differ slightly.

b. State standard.

c. Measurements of PM_{10} are usually collected every 6 days; "estimated days" mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

Source: CARB 2025a

Table 3.6-2. National Criteria Air Pollutant Standards

Pollutant	Averaging Time	National Standard
Ozone	8 Hour	0.070 ppm
Fine Particulate Matter ($PM_{2.5}$)	Annual	9.0 µg/m^3

Notes: ppm = parts per million; µg/m3 = micrograms per cubic meter
Source: CARB 2024a

3.6.3.2 Greenhouse Gas Emissions and Climate Change

The California Air Resources Board (CARB) estimated that in 2022, California produced 371 million metric tons of carbon dioxide equivalent (CO_2e) emissions (CARB 2024b). This amount is approximately 2 percent less than the amount reported for 2021 (the previous year), and 22 percent less than the amount reported for 2008 (the year of emissions that were reported in the 2012 EIR). CARB found that the transportation sector was the primary source responsible for generating 38 percent of the State's GHG emissions in 2022, followed by industrial sources at 20 percent, electricity generation at 16 percent, and commercial and residential at 11 percent. Harbor craft and port activities are identified as among the transportation sector sources included in GHG emissions inventory for 2022 (CARB 2024c).

3.6.3.3 State Regulations

Ocean-Going Vessels at Berth Regulation

The purpose of the *2020 At-Berth Regulation* is to increase reductions in emissions from ocean-going vessels while they are docked at California ports. The original Ocean-Going Vessel At-Berth Regulation was approved in December 2007 with compliance requirements that began in 2014. The 2007 At-Berth Regulation affects the following three vessel categories: container ships, passenger ships, and refrigerated-cargo ships at six California ports, including Oakland and San Francisco. Compliance requirements for vessels include visit requirements and emission or power reduction requirements, both of which were phased in over time to the current 80 percent reduction requirement.

CARB's State Implementation Plan, Assembly Bill 617 (Garcia, 2017), California Climate Change Scoping Plan, Mobile Source Strategy, and California Sustainable Freight Action Plan (Executive Order B-32-15) include commitments to evaluate the existing 2007 At-Berth Regulation for opportunities to further reduce emissions from vessels. These actions included the development of the

new 2020 At-Berth Regulation to achieve further emission reductions by including smaller fleets, additional vessel types (such as roll-on/roll-off vehicle carriers and tankers), and additional operations. The new regulatory efforts were designed to achieve public health improvements near port communities, reduce exposure to toxic air emissions in disadvantaged communities, and meet emission reduction goals for oxides of nitrogen (NOx).

The U.S. Environmental Protection Agency (USEPA) granted CARB's authorization request for the 2020 At-Berth Regulation with its authorization published in the Federal Register on October 20, 2023. Each vessel visit to a regulated California port or marine terminal must use a CARB Approved Emission Control Strategy to control emissions for the duration of the visit, unless the visit qualifies for an exception or an alternative compliance option is used (CARB 2025b).

Commercial Harbor Craft

Since the original adoption of the Commercial Harbor Craft Regulation in 2008, and its amendment in 2010, commercial harbor craft vessel owners have replaced older engines with newer and cleaner engines, which reduced the emissions of air pollutants including diesel particulate matter (DPM), $PM_{2.5}$, NOx, sulfur oxides (SOx), reactive organic gases (ROG), and GHG emissions. In 2022, a new set of amendments were adopted to expand the applicability of the regulation to more vessel types and require cleaner upgrades and newer technology. The 2022 Amendments were designed to provide significant health benefits, avoid premature death and mortality, and protect workers and on-vessel passengers from exposure to diesel and other combustion-generated air pollutants. The 2022 Amendments went into effect on January 1, 2023.

On January 6, 2025, USEPA granted California Clean Air Authorization of most elements of its Commercial Harbor Craft Regulation.

Executive Order B-30-15

In April 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Reaching this emission reduction target will make it possible for California to reach its ultimate goal of reducing emissions 80 percent under 1990 levels by 2050, as identified in Executive Order S-3-05 (see 2012 EIR p. 4.5-10). Executive Order B-30-15 also specifically addresses the need for climate adaptation and directs the state government to do the following (Office of the Governor 2015):

- Incorporate climate change impacts into the state's 5-Year Infrastructure Plan.

- Update the Safeguarding California Plan, the state climate adaption strategy to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change.
- Factor climate change into state agencies' planning and investment decisions.
- Implement measures under existing agency and departmental authority to reduce GHG emissions.

Executive Order B-30-15 required CARB to update the AB 32 Climate Change Scoping Plan discussed in the 2012 EIR (see p.4.5-12) to incorporate the 2030 target. On September 8, 2016, Governor Brown signed Senate Bill 32 (SB 32), which codified the 2030 reduction target (i.e., 40 percent below 1990 levels) called for in Executive Order B-30-15. CARB's 2017 Scoping Plan update (discussed below) addresses the 2030 target (Office of the Governor 2015).

2017 Scoping Plan Update

CARB approved the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update) in December 2017. The 2017 Scoping Plan Update outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels. Through a combination of data synthesis and modeling, CARB determined that the target statewide 2030 emissions limit is 260 million metric tons CO_2e, and that further commitments will need to be made to achieve an additional reduction of 50 million metric tons CO_2e beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an expansion of the cap-and-trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2030 limit and 2050 goal set forth by Executive Order B-30-15 (CARB 2017).

Assembly Bill 1279 (California Climate Crisis Act)

Signed into law in September of 2022, Assembly Bill 1279 (Muratsuchi) requires the state to achieve two things by 2045 or sooner: 1) net zero GHG emissions; and 2) a reduction in statewide anthropogenic GHG emissions of 85 percent below 1990 levels. Assembly Bill 1279 requires CARB to ensure that the 2022 Scoping Plan, described further below, identifies and recommends measures to achieve carbon neutrality, and to identify and implement policies and strategies for CO_2 removal and carbon capture, utilization, and storage technologies.

2022 Scoping Plan for Achieving Carbon Neutrality

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), adopted by CARB in December 2022, expands on prior Scoping Plans and responds to Assembly Bill 1279 by outlining a technologically feasible, cost-effective, and equity-focused path to achieve the state's climate target of reducing anthropogenic emissions to 85 percent below 1990 levels and achieving carbon neutrality by 2045 or earlier. The actions and outcomes in the plan are designed to achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon (CARB 2022).

3.6.3.4 Local Regulations

The Revised Project lease areas are located within the jurisdiction of the BAAQMD, the local agency responsible for preparing, adopting, and implementing stationary and area air emissions control measures and standards. Specifically, BAAQMD conducts monitoring, evaluation, and education programs; implements control measures to reduce emissions from stationary sources; issues permits to operate for stationary sources and inspects emissions sources; and enforces air quality regulations. Updates to BAAQMD's clean air plan and CEQA guidelines and thresholds of significance that have occurred since the 2012 EIR are described below.

BAAQMD 2017 Clean Air Plan

The 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 Clean Air Plan) was adopted on April 19, 2017, by the BAAQMD in cooperation with the Metropolitan Transportation Commission, the San Francisco Bay Conservation and Development Commission (BCDC), and the Association of Bay Area Governments to provide a regional strategy to improve air quality within the Basin and meet public health goals. The control strategy described in the 2017 Clean Air Plan includes a wide range of control measures designed to reduce emissions and lower ambient concentrations of harmful pollutants, safeguard public health by reducing exposure to air pollutants that pose the greatest health risk and reduce GHG emissions to protect the climate.

The 2017 Clean Air Plan addresses four categories of pollutants including ground-level ozone and its key precursors: ROG and NO_X; PM, primarily $PM_{2.5}$

and precursors to secondary $PM_{2.5}$; air toxics; and GHG emissions. The control measures are categorized based on the economic sector framework including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water (BAAQMD 2017). The following transportation sector control measures are applicable to ocean-going vessels or commercial harbor craft:

- TR20: Ocean Going Vessels. Replicate the Green Ship Program that has been implemented at the ports of Los Angeles and Long Beach. Financial incentives for cleaner Tier 2 and Tier 3 oceangoing vessels to call at the ports serve as the basis of the Green Ship Program. Measure TR20 also recognizes the need to monitor progress under such programs and augment them as necessary to ensure sufficient results.
- TR21: Commercial Harbor Craft. Focus on assisting fleets to achieve early compliance with the CARB harbor craft air toxic control measure and supporting research efforts to develop and deploy more efficient engines and cleaner, renewable fuels for harbor craft.

BAAQMD CEQA Guidelines and Thresholds of Significance

The BAAQMD updated and adopted its CEQA Guidelines in April 2023 (BAAQMD 2023). The update, referred to as the 2022 CEQA Guidelines, was adopted to provide recommended quantitative significance thresholds along with directions on recommended analysis methods. BAAQMD states that the quantitative significance thresholds are "advisory and should be followed by local governments at their own discretion," and that lead agencies are fully within their authority to develop their own thresholds of significance. However, BAAQMD offers the thresholds for lead agencies' use in evaluating CEQA impacts of projects in the Basin.

The annual air quality operational significance thresholds included in the BAAQMD's 2022 CEQA Guidelines for ROG, NOx, and $PM_{2.5}$ are 10 tons per year and are less than the annual significance thresholds of 15 tons per year included in the BAAQMD's 1999 CEQA Guidelines for ROG and NOx, which were used in the evaluation of air quality impacts in the 2012 EIR (the BAAQMD 1999 CEQA Guidelines do not include significance thresholds for $PM_{2.5}$). The BAAQMD significance threshold for PM_{10} has not changed since the 1999 guidelines.

If using the BAAQMD 2022 CEQA Guidelines, the Revised Project would have a significant air quality impact if it would expose persons to substantial levels of TACs, such that the probability of contracting cancer exceeds 10 in one million,

or if it would expose persons to pollutants such that a chronic Hazard Index of 1.0 would be exceeded. In addition, a significant impact would occur under the BAAQMD 2022 CEQA Guidelines if the Revised Project would result in an incremental increase in annual average concentrations of $PM_{2.5}$ of more than 0.3 microgram per cubic meter ($\mu g/m^3$) at a sensitive receptor location (BAAQMD 2023).

For all relevant purposes, the air quality significance thresholds identified in the 2022 CEQA Guidelines are the same as the significance thresholds adopted by BAAQMD in 2010 and discussed in the 2012 EIR.[21] Therefore, for purposes of providing a comparative analysis that allows the Commission to determine whether the Revised Project would cause a new significant impact or a more substantial significant impact than was disclosed in the 2012 EIR, the analysis in this SEIR relies on BAAQMD's 1999 CEQA Guidelines; BAAQMD's 2022 thresholds are discussed in Section 3.6.5 relative to the direct and indirect effects analysis for informational purposes only.

In response to SB 32 and 2017 Scoping Plan Update targets for 2030 and Assembly Bill 1279 targets for carbon neutrality no later than 2045, the 2023 update to the BAAQMD 2022 CEQA Guidelines include CEQA significance thresholds for GHGs emissions; however, the updated thresholds address land use projects such as residential and commercial developments and are therefore not applicable to the Revised Project.

3.6.4 Significance Criteria

Consistent with Section 4.5.3 of the 2012 EIR (p. 4.5-15), the Revised Project could have a significant adverse impact on air quality if it would:

- Conflict with or obstruct implementation of an applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds of ozone precursors); or

[21] The main difference between the significance thresholds is that the BAAQMD 2022 CEQA Guidelines includes clarifications for assessment of proposed sensitive receptors, which is not applicable to the Revised Project.

- Create objectionable odors affecting a substantial number of people.

Consistent with Section 4.5.3 of the 2012 EIR (p. 4.5-15), an adverse impact on human health from exposure to toxic air contaminants is considered significant and would require mitigation if the Revised Project would:

- Expose sensitive receptors to substantial pollutant concentrations;
- Expose people to an increase risk of cancer of 10 new cases per million exposed individuals; or
- Result in an acute or chronic non-cancer Hazard Index greater than 1.0.

Consistent with Section 4.5.3 of the 2012 EIR (pp. 4.5-15 and 4.5-16), the Revised Project would be considered to have a significant impact on climate change if it were to:

- Result in any GHG emissions above the baseline level, where the baseline level is included in the State's inventory of GHG emissions; or
- Result in any GHG emissions not included in the State's inventory of GHG emissions; or
- Conflict with any applicable plan, policy or program intended to reduce GHG emissions adopted by the State pursuant to AB 32.

The 2018 update to the CEQA guidelines Appendix G environmental checklist for air quality included only non-substantive revisions to air quality and GHG emissions-related significance criteria. Therefore, the 2018 CEQA Guidelines Appendix G updates do not affect the significance criteria being evaluated in this SEIR. Accordingly, for the purpose of analyzing whether changes in the project that was analyzed in the 2012 EIR would cause any new significant impact or any substantial increase in the severity of a significant impact relative to the impacts disclosed in the 2012 EIR with respect to air quality and GHG emissions, the significance criteria considered in the 2012 EIR remain current.

3.6.5 Direct and Indirect Effects

3.6.5.1 2012 Project

The 2012 EIR, Section 4.5.4, presented the following impact determinations for air quality and GHG emissions:

- Impact AIR-1: Emissions of criteria pollutants – Sand mining activities would result in emissions of criteria air pollutants that may conflict with or obstruct implementation of an applicable air quality plan or may violate an air quality standard or contribute significantly to an existing violation (Less than Significant, Class III).
- Impact AIR-2: Potential impacts on climate change – Sand mining activities would result in emissions of GHGs that may have a significant impact on climate change, or would conflict with an applicable plan, policy or program adopted by the State for the purpose of reducing GHGs (Potentially Significant, Class II).
- Impact AIR-3: Potential health risk from diesel particulate matter – Sand mining activities would result in emissions of diesel particulate matter (DPM), a toxic air contaminant (TAC), associated with use of diesel equipment potentially exposing nearby sensitive receptors to health risks (Less than Significant, Class III).
- Impact AIR-4: Potential odor impacts – Sand mining activities could generate objectionable odors (Less than Significant, Class III).

The Commission adopted a Mitigation Monitoring Program (MMP) as part of its discretionary action in 2012. One mitigation measure (MM) for Impact AIR-2 presented in 2012 EIR Section 4.5.4 related to GHG emissions was adopted (Appendix F):

- MM AIR-2 – Prepare and implement a Greenhouse Gas (GHG) Reduction Plan

3.6.5.2 Revised Project

This analysis evaluates the potential significance of the change in the physical environment that would be caused by implementation of the Revised Project relative to the baseline condition, compares that impact conclusion with the impact conclusion reached in the 2012 EIR regarding the same consideration, and then makes a determination as to whether the implementation of the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of significant impacts than were disclosed in the 2012 EIR. For the reasons discussed below, implementation of the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

The studies identified in Section 1.2.3 as having been completed since certification of the 2012 EIR provide additional information about physical environmental conditions in the lease areas; however, the information and conclusions they provide are consistent with information presented and conclusions reached in the 2012 EIR and none of the new studies affects the impact determinations reached in the 2012 EIR regarding air quality and greenhouse gas emissions.

Would the Revised Project have a significant adverse impact on air quality?

Impact AIR-1: The Revised Project would result in emissions of criteria air pollutants that may conflict with or obstruct implementation of an applicable air quality plan (Less than Significant, Class III).

The 2012 EIR concluded in the context of Impact AIR-1 (p. 4.5-16 et seq.) that sand mining activities would result in a less-than-significant impact related to a potential conflict with or obstruct implementation of an applicable air quality plan because the project emissions would not exceed the BAAQMD annual thresholds of significance. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR associated with this criterion.

The BAAQMD-recommended measure for determining if a project would support the goals of applicable air quality plans is consistent with CEQA thresholds of significance. If CEQA thresholds of significance are exceeded, then the Revised Project would not be considered to support the applicable air quality plan goals, and the associated impact would be significant. Alternatively, if the CEQA thresholds of significance are not exceeded, then the Revised Project would be considered to support the applicable air quality plan goals, and the associated impact would be less than significant.

The emissions analysis presented in the 2012 EIR assumes the mining levels would reach maximum levels beginning in 2014, when the mining volume was projected to increase to the full amount proposed by the Applicants, that is, 2,040,000 cubic yards per year (cy/yr). For the Revised Project, the Applicants are proposing a reduction in the maximum allowable annual volume of sand harvested to 1,750,000 cy/yr. This would amount to a net reduction of 290,000 cy/yr of sand allowed to be harvested, which is 14 percent less than was evaluated in the 2012 EIR (p. 4.5-16 et seq.). While it can be reasoned that the net reduction in sand harvested would correspond with a similar reduction in

mining activities and engine emissions, this SEIR conservatively assumes that no emission reductions would result.

Criteria pollutant emissions for the Revised Project would result in no net change in emissions compared to 2012 Project disclosed in the 2012 EIR and would continue to be below the BAAQMD 1999 significance thresholds (see Table 3.6-3).

Therefore, consistent with the determination for the 2012 Project, the Revised Project would cause a less than significant (Class III) impact from emissions potentially conflicting with or obstructing implementation of an applicable air quality plan. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR relating to applicable air quality plans.

Table 3.6-3. Estimated Annual Project Criteria Pollutant Emissions

Scenario	Annual Emissions (tons per year)			
	NO_x	PM*	ROG	CO
Annual Average (2002 – 2007) Baseline Disclosed in 2012 EIR				
Total Emissions	84.8	3.1	8.0	25.3
Fully Approved (2014) Project Disclosed in the 2012 EIR				
Total Emissions	96.7	4.9	12.6	39.9
Change from 2012 EIR Baseline	12.0	1.8	4.6	14.5
BAAQMD 1999 Significance Threshold (exceeded if change >15)	15	15	15	N.A.
Does the change from baseline exceed the significance threshold?	No	No	No	No

Notes: *Emissions of particulate matter (PM) represent both PM_{10} and $PM_{2.5}$ emissions.

Source: Based on 2012 EIR Table 4.5-7.

Impact AIR-2: The Revised Project would result in emissions of criteria air pollutants that may violate an air quality standard or contribute significantly to an existing violation (Less than Significant, Class III).

The 2012 EIR concluded in the context of Impact AIR-1(p. 4.5-16 et seq.) that sand mining activities would result in a less-than-significant impact related to

potentially violating an air quality standard or contributing significantly to an existing violation because the net change in project emissions would not exceed the BAAQMD annual thresholds of significance. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR associated with this significance criterion.

As discussed above, the net emission estimates for the Revised Project relative to the baseline evaluated in the 2012 EIR would continue to be below the BAAQMD significance thresholds designed to evaluate whether a project may violate an air quality standard or contribute significantly to an existing violation.

Therefore, consistent with the determination for the 2012 Project, the potential for the Revised Project's emissions to violate an air quality standard or contribute to an existing violation of an air quality standard would result in a less-than-significant impact. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR relating to a potential violation of an air quality standard or contribution to an existing violation of an air quality standard.

Impact AIR-3: The Revised Project would contribute to cumulative emissions of criteria pollutants for which the Project region is non-attainment under an applicable ambient air quality standard (Less than Significant, Class III).

The 2012 EIR concluded in the context of Impact AIR-1(p. 4.5-16 et seq.) that sand mining activities would result in less-than-significant cumulative impacts on air quality because the net change in 2012 Project emissions would not exceed the BAAQMD annual thresholds of significance. For the reasons discussed below, the same is true for the Revised Project. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR associated with this significance criterion.

According to the BAAQMD 2022 CEQA Guidelines, if a project would exceed the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in significant adverse air quality impacts on the region's existing air quality conditions (BAAQMD 2023). Alternatively, if a project would not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less-than-significant air quality impacts. As noted in the local regulatory setting, for all

relevant purposes, the air quality significance thresholds identified in the (BAAQMD) 2022 CEQA Guidelines are the same as the significance thresholds adopted by BAAQMD in 2010 and discussed in the 2012 EIR. As discussed above for Impact AIR-1 in this SEIR, the net emission estimates for the Revised Project relative to the baseline evaluated in the 2012 EIR would continue to be below the 1999 thresholds and current (2022) BAAQMD significance thresholds.

Therefore, consistent with the determination for the 2012 Project, the impact of the Revised Project emissions being potentially cumulatively considerable would be less than significant. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR relating to cumulative effects on air quality.

Impact AIR-4: The Revised Project could generate objectionable odors (Less than Significant, Class III).

The 2012 EIR concluded in the context of Impact AIR-4 (pp. 4.5-23 and 4.5-24) that the only notable source of odors from sand mining operations is from the combustion of diesel fuel to operate the vessels and that a less-than-significant impact would result from the 2012 Project. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR regarding the generation of objectionable odors.

The Revised Project proposes to reduce permitted mining volumes (and subsequent emissions) and would not require the creation of new offloading facilities, and therefore the odor impacts would remain less than significant. Therefore, consistent with the determination and rationale documented in the 2012 Project, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR relating to the generation of odors.

Would the Revised Project cause an adverse impact on human health?

Impact AIR-5: The Revised Project would result in emissions of diesel particulate matter (DPM), a toxic air contaminant (TAC), associated with use of diesel equipment, potentially exposing nearby sensitive receptors to health risks (Less than Significant, Class III).

The 2012 EIR concluded in the context of Impact AIR-3 (p. 4.5-22 et seq.) that public exposure to TACs that would be generated by diesel equipment used to

conduct sand mining activities could lead to an increase in the risk of cancer. The 2012 EIR further concluded that sand mining activities would not increase the probability of contracting cancer by greater than 10 in one million and, therefore, that the impact would be less than significant. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact related to exposing nearby sensitive receptors to health risks that were disclosed in the 2012 EIR.

Health risks at offsite receptors identified in the 2012 EIR were determined by conducting dispersion modeling of the DPM emissions associated with mining activities (see 2012 EIR Appendix C for details on modeling methodology and assumptions). The 2012 EIR found that proposed mining activities at the PRC 709.1 South parcel would result in the highest cancer risk of 4.4 chanced per one million for all project sites evaluated, and the greatest DPM (a surrogate for $PM_{2.5}$) annual average concentrations would be 0.21 µg/m^3 due to worker exposure (see 2012 EIR, p. 4.5-23). The BAAQMD's current (2022) significance threshold for $PM_{2.5}$ concentrations is 0.3 µg/m^3. As discussed under Impact AIR-1 in this SEIR, the Revised Project would result in a total net reduction of 290,000 cy/yr of sand allowed to be harvested, which is 14 percent less than was evaluated in the 2012 EIR; and the Revised Project would reduce the amount of sand specifically harvested at the PRC 709.1 lease location by 105,000 cy/yr, which is 31 percent less than was evaluated in the 2012 EIR.

Since the emissions used in the health risk assessment presented in the 2012 EIR are directly proportional to the maximum allowable annual volume of sand harvested, the Revised Project would result in exposure levels to DPM and $PM_{2.5}$ emissions that would be less than those disclosed in the 2012 EIR for the approved project and would result in a less-than-significant impact. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR relating to cancer risk or exposure to $PM_{2.5}$ concentrations.

Impact AIR-6: The Revised Project would expose people to increased risk of cancer (Less than Significant, Class III).

The 2012 EIR concluded in the context of Impact AIR-3 (p. 4.5-23) that proposed mining activities at the PRC 709.1 South parcel would result in the project's highest cancer risk of up to 4.4 chances per one million, which is less than the significance threshold of 10 chances per one million. Accordingly, the 2012 EIR concluded that a less-than-significant impact would result. For the reasons

discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact related to exposing people to increased risk of cancer than was disclosed in the 2012 EIR.

The Revised Project would reduce the maximum amount of sand harvested at the PRC 709.1 lease location by 105,000 cy/yr, which is 31 percent less than was evaluated in the 2012 EIR. Since the emissions used in the health risk assessment presented in the 2012 EIR are directly proportional to the maximum allowable annual volume of sand harvested, the Revised Project would result in exposure levels to TAC DPM emissions that would be less than those disclosed in the 2012 EIR for the approved project and would result in a less-than-significant impact. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR relating to cancer risk.

Impact AIR-7: The Revised Project could result in acute or chronic non-cancer health risks (Less than Significant, Class III).

As described above, the 2012 EIR found that mining activities would result in a health risk to nearby sensitive receptors from emissions of DPM that would be less than significant. Since the Revised Project would reduce the maximum amount of sand harvested compared to the amount of sand harvested that was evaluated in the 2012 EIR health risk assessment, the Revised Project reasonably could be expected to result in less health risks to nearby sensitive receptors than was disclosed for the 2012 Project. Therefore, consistent with the determination for the 2012 Project, the impact of the Revised Project's health risks, including acute and chronic non-cancer health risks, would be less than significant. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR relating to health risk.

Would the Revised Project have a significant impact on climate change?

Impact AIR-8: The Revised Project would result in emissions of GHGs that may have a significant impact on climate change (Potentially Significant, Class II).

The 2012 EIR concluded in the context of Impact AIR-2 (p. 4.5-20 et seq.) that sand mining activities would result in a potentially significant impact related to the generation of GHG emissions, and that implementation of Mitigation Measure AIR-2 would reduce the impact to a less-than-significant level. For the reasons discussed below, the Revised Project would cause no new significant

impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR associated with climate change.

Based on a review of the Statewide GHG inventory for 2008, the 2012 EIR found that it included a survey of commercial harbor vessels, and so it was assumed to have taken into account GHG emissions associated with sand mining. A review of the most current version of the State's inventory of GHG emissions for 2022 came to the same conclusion because harbor craft and port activities are identified as transportation sector sources included in the inventory. Therefore, if the Revised Project would cause GHG emissions above the baseline level, it would be considered to have a significant effect on climate change. For the reasons discussed below, the Revised Project would not increase GHG emissions above the baseline level, and so would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR associated with GHG emissions and climate change.

Tugboat engines, barge engines, and auxiliary engines/generators used during mining and offloading events that would be associated with the Revised Project would emit GHG emissions. However, implementation of the Revised Project would result in a reduction in the maximum allowable annual volume of sand harvested to 1,750,000 cy/yr, which would amount to a net reduction of 290,000 cy/yr of sand allowed to be harvested, equal to 14 percent less than evaluated in the 2012 EIR. While it can be reasoned that the net reduction in sand harvested would correspond with a similar reduction in mining activities and engine emissions, this SEIR conservatively assumes that no GHG emission reductions would result. Because sand mining emissions are directly proportional to the maximum allowable annual volume of sand harvested, it is assumed that the Revised Project emissions associated with tugboat engines, barge engines, and auxiliary engines/generators that would be used during mining and offloading events would emit 14 percent less GHG emissions than the total approved project emissions disclosed in the 2012 EIR.

GHG emission estimates for the Revised Project relative to the baseline as disclosed in the 2012 EIR are presented in Table 3.6-4. As shown in the table, the net change in emissions due to the Revised Project compared to the baseline is 1,675 metric tons CO_2e per year, which is an emissions reduction of more than 1,000 metric tons compared to the approved project. However, since the Revised Project GHG emissions would continue to exceed the significance threshold, the impact would be significant and, consistent with the determination for the 2012 Project, also would be subject to mitigation.

Table 3.6-4. Revised Project Estimated Annual Project GHG Emissions

Activity	GHG Emissions (metric Tons CO_2e per Year)
Annual Average (2002 – 2007) Baseline Disclosed in 2012 EIR	5,400
Project Emissions Disclosed in 2012 EIR	8,247
Net Change Disclosed in 2012 EIR	2,847
Revised Project	*7,075*
Net Change from 2012 Baseline	*1,675*
Revised Project – 10 Year Lifecycle of Revised Project	70,746

Source: Based on 2012 EIR Table 4.5-8

Implementation of Mitigation Measure AIR-1 is carried forward (substantially unchanged) from 2012 EIR (as shown below in underline/strikethrough text), where it was identified as Mitigation Measure AIR-2. See SEIR Appendix F, Existing Mitigation. The implementation of this mitigation measure would reduce the Revised Project's impact on climate change to a less-than-significant level through the preparation and implementation of a GHG Reduction Plan to ensure that Revised Project GHG emissions do not exceed the significance threshold. Consistent with the significance conclusion reached for the 2012 Project, the Revised Project's impact on climate change would be less than significant with mitigation incorporated. Because the impact conclusion is the same as was reached in the 2012 EIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR related to GHG emissions.

> **Mitigation Measure MM AIR-1 – ~~Prepare and~~ Implement a Greenhouse Gas (GHG) Reduction Plan.** Prior to startup of any new sand mining operations, the Revised Project Applicants shall prepare and submit to the California State Lands Commission (CSLC) staff for approval a GHG Reduction Plan that demonstrates how the Applicants will lower and/or offset Revised Project-related GHG emissions, such that GHG emissions will not exceed 5,400 metric tons of CO_2e in any calendar year during the 10-year lease period, or a total of 54,000 metric tons for the 10-year life of the Project. The GHG Reduction Plan shall include:

- A detailed baseline inventory that identifies and calculates all sources of GHG emissions during the last full calendar year of mining operations. This inventory shall be verified by an accredited third-party verification body and reported to The Climate Registry.
- A description of the strategies that the Applicants will employ to reduce and/or offset GHG emissions. Examples of such strategies include:
    - "Cold ironing" of vessels, where power from the electrical grid is substituted for diesel power during off-loading and while vessels are docked.
    - Use of biofuels or biofuel blends as a substitute or partial substitute for fossil fuels used to power tugs and barges.
    - Purchase of carbon offset credits verified by the Climate Action Registry.
- Detailed calculations showing the expected reduction in GHG emissions that will result from the implementation of each strategy.

Each year during the 10-year lease period, the Applicants shall conduct another inventory of GHG emissions that shall be verified and reported. In lieu of submitting the project level inventory of GHG emissions to the Climate Registry on an annual basis, the miners shall, as indicated in their Greenhouse Gas Reduction Plan, submit annual inventories to CSLC and the Mitigation Monitoring Team and will provide annual inventory verification performed by a qualified third party such as TRC Solutions. The Applicants shall provide the verified results of this inventory to the CSLC along with a description of how the GHG Reduction Plan is being implemented and documentation showing GHG offsets or reductions.

Rationale for Mitigation

Mitigation Measure AIR-1 would lower or offset GHG emissions from the Revised Project to 2012 EIR baseline levels, thereby mitigating the Project's significant contribution to global warming to a less-than-significant level.

The Revised Project would not result in any GHG emissions that were not included in the State's inventory of GHG emissions. Consistent with the determination for the 2012 Project, the Revised Project would have no impact regarding this consideration. Harbor craft and port activities are identified as transportation sector sources included in the State's GHG emissions inventory for 2022 (CARB

2024c). Therefore, the GHG emissions that would be associated with the Revised Project are included in the State's inventory of GHG emissions (see Impact AIR-8). The Revised Project would cause no change, and no impact, associated with any GHG emissions not included in the State's inventory of GHG emissions.

Impact AIR-9: The Revised Project would result in emissions of GHGs that may conflict with an applicable plan, policy, or program intended to reduce GHG emissions adopted by the State pursuant to AB 32 (Potentially Significant, Class II).

In the context of Impact AIR-2 (p. 4.5-20 et seq.), the 2012 EIR concluded that sand mining activities would result in a potentially significant impact related to a conflict with an applicable plan, policy, or program, and that implementation of 2012 EIR Mitigation Measure AIR-2 would reduce the impact to a less-than-significant level. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR associated with this significance criterion.

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), adopted by CARB in December 2022, expands on prior Scoping Plans and set the goal for achieving carbon neutrality by 2045 or earlier. As this SEIR discusses in the context of Impact AIR-8, the net change in emissions due to the Revised Project would continue to exceed the baseline emissions disclosed in the 2012 EIR, which could result in a conflict with the State's carbon neutrality goal. Therefore, the Revised Project's impact is considered potentially significant and, consistent with the determination for the 2012 Project, also would be subject to mitigation.

Implementation of Mitigation Measure MM AIR-1 (set forth above) would reduce the impact to a less-than-significant level through the preparation and implementation of a GHG Reduction Plan to ensure that Revised Project GHG emissions do not exceed the threshold of significance. Consistent with the significance conclusion reached for the 2012 Project, the Revised Project's impact on climate change would be less than significant with mitigation incorporated. Because the impact conclusion is the same as was reached in the 2012 EIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR related to GHG emissions.

> **Mitigation Measure AIR-1.** Implement a Greenhouse Gas (GHG) Reduction Plan.

Rationale for Mitigation

Mitigation Measure MM AIR-8 would lower or offset GHG emissions from the Revised Project to 2012 EIR baseline levels, thereby mitigating the Project's significant contribution to global warming to a less-than-significant level.

3.6.6 Cumulative Effects

Because GHG emissions related impacts are inherently cumulative, see the analysis presented in the context of Impacts AIR-8 and AIR-9, above, which conclude that the Revised Project would have a potentially significant (Class II) cumulative effect on GHG emissions.

Impact CE AIR-1: The Revised Project has a low potential to cause a cumulatively considerable contribution to potential significant cumulative effects on air quality (Less than Significant, Class III).

The 2012 EIR analyzed potential cumulative effects in Section 4.5.6 (pp. 4.5-31 and 4.5-31), concluding that the 2012 Project would not result in a cumulatively considerable contribution to any significant cumulative effect. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

As analyzed in Section 3.6.5 of this SEIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact (either directly or indirectly) and so would result in the same incremental contribution to potential cumulative effects as was disclosed in the 2012 EIR. The incremental impacts of implementing activities consistent with the San Francisco Bay Regional Dredged Material Management Plan (RDMMP) 2025-2044 would be substantially similar to the incremental impacts of the RDMMP's predecessor which was evaluated as part of the cumulative scenario for the 2012 EIR (see 2012 EIR, p. 3-24). The incremental air quality and GHG emissions impacts of the Revised Project (in combination with the less than significant incremental impact of the San Francisco Bay Strategic Shallow-Water Placement Pilot Project and the incremental impacts of the Montezuma Wetlands Restoration and Suisun Marsh fish screen rehabilitation project) would not be cumulatively considerable, and so would be less than significant. For these reasons, the Revised Project would cause no new significant cumulative impact and no substantial increase in the severity of a significant cumulative impact than was disclosed in the 2012 EIR.

3.7 CULTURAL RESOURCES AND TRIBAL CULTURAL RESOURCES

This section identifies and evaluates issues related to cultural resources and tribal cultural resources to determine whether the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts than was disclosed in the 2012 EIR. This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR.

3.7.1 Baseline Conditions

The 2012 Final EIR (p. 1-12) states the following regarding baseline conditions for cultural resources:

> Impacts on submerged cultural resources could have occurred during past sand mining events. Such past disturbance is considered part of the baseline condition. This EIR considers the potential for future disturbance of submerged cultural resources.

Impacts on tribal cultural resources are assessed in consultation with culturally affiliated California Native American tribes listed with the Native American Heritage Commission in accordance with Public Resources Code Section 21080.3. Impacts on submerged tribal cultural resources, including archaeological resources and human remains, could have occurred during past sand mining events. Impacts on tribal cultural resources as a result of past sand mining events are considered part of the baseline condition. This SEIR considers the potential for future disturbance of submerged tribal cultural resources.

As described in Section 1.3.3 of this SEIR, the baseline condition for purposes of this analysis is the level of activity associated with the fully authorized sand mining lease volumes and the ongoing obligations such as mitigation measures and conditions of approval resulting from the Commission's 2012 EIR and lease authorizations. See Appendices A and F for details.

3.7.2 Environmental Setting

Section 4.6.1 of the 2012 EIR describes the environmental setting for the Project's consideration of cultural resources, including prehistoric resources, historic-period resources, and paleontological resources, and provides a summary of existing conditions in the Project area. Those descriptions remain accurate for

the purposes of the SEIR analysis, except as supplemented below regarding the potential for tribal cultural resources to occur in the Revised Project area.

Section 4.6.1 of the 2012 EIR describes tribal outreach completed for the Project. This included a sacred lands search request and a request for Native American contacts list from the Native American Heritage Commission (NAHC) on April 3, 2009. The NAHC's response was received on July 8, 2009, and stated that the sacred lands survey did not have records of specific cultural resources in the Project area. Letters were sent to the individuals and organizations provided by the NAHC on August 3, 2009. No responses were received.

For purposes of developing this SEIR, the CSLC contacted the NAHC, which maintains two databases, the Sacred Lands File and Native American Contacts, to assist cultural resources specialists in identifying cultural resources of concern to California Native American tribes. CSLC staff contacted the NAHC in November 2022 to obtain information about known cultural and tribal cultural resources in the Project Area and request a list of Native American Tribal representatives who may have geographic or cultural affiliation in the Project Area. The NAHC responded on December 12, 2022, stating that the Sacred Lands File database did include previously identified sacred sites in the Project Area and directed staff to contact the Federated Indians of Graton Rancheria (FIGR). The NAHC also forwarded a list of 25 additional tribal contacts for 17 Native American tribes, which the CSLC used for outreach and coordination. Three California Native American tribes have geographic or cultural affiliation in the San Francisco Bay/Delta and had submitted a written request to the CSLC for notification of CEQA projects pursuant to AB 52 (see generally, Pub. Resources Code, § 21080.3.1).

On May 30, 2023, the CSLC sent Project notification letters and an invitation to consult under AB 52 to the United Auburn Indian Community of the Auburn Rancheria, the Wilton Rancheria, and the Chicken Ranch Rancheria Me-Wuk Indians of California. The CSLC also notified the 18 tribes on the NAHC contact list, including the FIGR, to ensure those tribes would have an opportunity to provide meaningful input on the potential for tribal cultural resources to be found in the project area and recommend steps to be taken to ensure adverse impacts to tribal cultural resources are avoided. The outreach letters sent in May 2023 included chairpersons and representatives of the following:

- Amah Mutsun Tribal Band of Mission San Juan Bautista
- Costanoan Rumsen Carmel Tribe

- Indian Canyon Mutsun Band of Costanoan
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- North Valley Yokuts Tribe
- The Ohlone Indian Tribe
- Wuksache Indian Tribe/Eshom Valley Band
- The Confederated Villages of Lisjan
- Kletsel Dehe Band of Wintun Indians
- Buena Vista Rancheria of Me-Wuk Indians
- Cachil Dehe Band of Wintun Indians of the Colusa Indian Community
- Federated Indians of Graton Rancheria
- Guidiville Indian Rancheria
- Ione Band of Miwok Indians
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe
- Tsi Akim Maidu
- Tule River Indian Tribe
- Yocha Dehe Wintun Nation

CSLC staff held consultation meetings with two tribes listed with the NAHC: Confederated Villages of Lisjan on August 16, 2023, and Wilton Rancheria on September 6, 2023. Neither tribe identified any specific tribal cultural resources in the Revised Project area. Wilton Rancheria requested additional information about the offloading sites which CSLC staff provided. No additional requests were made by the tribes.

3.7.3 Regulatory Setting

Section 4.6.2 of the 2012 EIR (p. 4.6-7 et seq.) describes the regulatory setting for the analysis of cultural resources. Topics include federal regulations (National Historic Preservation Act and Abandoned Shipwreck Act) and State regulations (California Environmental Quality Act and San Francisco Bay Plan). Those descriptions provided in the regulatory setting remain accurate for the purposes of this analysis, except as supplemented below with respect to tribal cultural resources.

3.7.3.1 Federal

There are no federal laws or regulations specifically related to tribal cultural resources. Section 106 of the National Historic Preservation Act considers historic properties, which also includes traditional cultural properties. Refer to Section 4.6.2 of the 2012 EIR for a summary of Section 106 of the National Historic Preservation Act.

3.7.3.2 State

In September 2014, the California Legislature enacted Assembly Bill (AB) 52 (Gatto), which added provisions to the Public Resources Code regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, AB 52 requires lead agencies to analyze project impacts on tribal cultural resources separately from impacts on archaeological resources (Public Resources Code §§21074, 21083.09). The law defines tribal cultural resources in a new Section, Public Resources Code Section 21074. AB 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (Public Resources Code §§21080.3.1, 21080.3.2, 21082.3).

Specifically, Public Resources Code Section 21084.3 states:

a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

    1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

    2) Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

A) Protecting the cultural character and integrity of the resource.

B) Protecting the traditional use of the resource.

C) Protecting the confidentiality of the resource.

3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

4) Protecting the resource.

In addition, the Governor's Office of Land Use and Climate Innovation (formerly the Governor's Office of Planning and Research) updated Appendix G of the CEQA Guidelines to provide sample questions regarding impacts on tribal cultural resources (see California Code of Regulations, Title 14, Division 6, Section 15000-15387, Appendix G).

3.7.4 Significance Criteria

Consistent with Section 4.6.3 of the 2012 EIR (p. 4.6-11) an adverse impact on cultural resources is considered significant and would require mitigation if it would result in any of the following:

- A substantial adverse change in the significance of a historical resource as defined in the State CEQA Guidelines section 15064.5;
- A substantial adverse change in the significance of a unique archaeological resource;

Consistent with Section 4.6.3 of the 2012 EIR (p. 4.6-11) an adverse impact on paleontological resources is considered significant and would require mitigation if it would result in:

- Disturbance or destruction of a unique paleontological resource or site or unique geologic feature; or

Consistent with Section 4.6.3 of the 2012 EIR (p. 4.6-11) an adverse impact on human remains is considered significant and would require mitigation if it would result in:

- Disturbance of any human remains, including those interred outside of formal cemeteries.

For the purpose of analyzing whether the Revised Project would cause any new significant impact or any substantial increase in the severity of a significant impact relative to the impacts on cultural resources that were disclosed in the 2012 EIR, the significance criteria evaluated in 2012 remain current.

The 2012 EIR did not separately analyze potential impacts to tribal cultural resources, which was not finalized and approved as a category in the CEQA Guidelines Appendix G environmental checklist until September 2016. For the Revised Project, impacts to tribal cultural resources are considered and discussed under Impact CUL-1. An adverse impact on tribal cultural resources is considered significant and would require mitigation if it would result in the following:

- A substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    - Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or
    - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c). In applying the criteria, the State Lands Commission shall consider the significance of the resource to a California Native American tribe.

3.7.5 Direct and Indirect Effects

3.7.5.1 2012 Project

The 2012 Final EIR, Section 4.6.4 presented the following impact determinations for cultural resources:

- Impact CUL-1: Inadvertent discovery of historical resources or "unique archaeological resources" - Sand mining activities could potentially result in the inadvertent discovery of archaeological historic-period resources (e.g., shipwrecks) or prehistoric Native American sites (Potentially Significant, Class II).

- Impact CUL-2: Inadvertent discovery of paleontological resources - Sand mining activities would not disturb or destroy a unique paleontological resource or site or unique geologic feature (Less than Significant, Class III).
- Impact CUL-3: Inadvertent discovery of human remains - Sand mining activities could potentially result in the discovery of human remains (Potentially Significant, Class II).

The Commission adopted a Mitigation Monitoring Program (MMP) as part of its discretionary action. Two mitigation measures related to Impacts CUL-1 and CUL-3 were adopted (Appendix F):

- MM CUL-1: Cease operations and notify the California State Lands Commission (CSLC) and U.S. Army Corps of Engineers (USACE)
- MM CUL-3: Cease operations and notify County Coroner.

3.7.5.2 Revised Project

This analysis evaluates the potential significance of the change in the physical environment that would be caused by implementation of the Revised Project relative to the baseline condition, compares that impact conclusion with the impact conclusion reached in the 2012 EIR regarding the same consideration, and then makes a determination as to whether the implementation of the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of significant impacts than was disclosed in the 2012 EIR. For the reasons discussed below, implementation of the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

The studies identified in Section 1.2.3 as having been completed since certification of the 2012 EIR provide additional information about physical environmental conditions in the lease areas; however, the information and conclusions they provide are consistent with information presented and conclusions reached in the 2012 EIR and none of the new studies affects the impact determinations reached in the 2012 EIR regarding cultural resources and tribal cultural resources.

Would the Revised Project result in the inadvertent discovery of historical resources or unique archaeological resources, or tribal cultural resources?

Impact CUL-1: Sand mining activities could potentially result in the inadvertent discovery of archaeological historic-period resources (e.g., shipwrecks) or prehistoric Native American sites, or tribal cultural resources (Potentially Significant, Class II).

No historical resources or unique archaeological resources have been recorded in the Revised Project area. The Revised Project area has a low potential to contain buried or submerged cultural resources. However, the possibility cannot be entirely discounted. Project personnel should, therefore, be alerted to the possibility of encountering cultural materials during Project implementation, and apprised of the proper procedures to follow in the event that such materials are found. Implementation of Mitigation Measure (MM) CUL-1 as set forth in the 2012 EIR and as repeated (unchanged) below would reduce potential impacts to a less-than-significant level. Accordingly, the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact on historical resources or unique archaeological resources than was disclosed in the 2012 EIR.

Impacts on tribal cultural resources are assessed in consultation with the affiliated California Native American tribes in accordance with Public Resources Code Section 21080.3. This analysis considers whether the Project would cause damaging effects to any tribal cultural resource, including archaeological resources and human remains.

CSLC staff sent letters to the culturally affiliated Native American tribes and individuals that may have interest in the Revised Project. Meetings were held with two Native American tribes, and no tribal cultural resources listed or eligible for listing in the California Register or in a local register of historical resources were identified in the vicinity of the Revised Project. In addition, the CSLC, in its discretion and supported by substantial evidence, did not identify any tribal cultural resources in the Revised Project area.

As described in Section 4.6.2 of the 2012 EIR, there are no known sacred, ceremonial, or gathering places in the Project area. However, the potential exists for archaeological resources or human remains to be uncovered during ground-disturbing activities, and an impact on tribal cultural resources would be significant. MMs CUL-1 and CUL-3 (as set forth in the 2012 EIR and repeated below as MM CUL-1a and MM CUL-3, respectively) would apply to

archaeological resources and human remains that are also considered tribal cultural resources. In addition, if cultural materials or potential human remains are identified that could be California Native American in origin, CSLC staff would contact the consulting California Native American tribes as described in MM CUL-1b. Implementation of the two 2012 EIR MMs CUL-1 and CUL-3 as supplemented by newly-identified MM CUL-1b would reduce potential impacts on tribal cultural resources to a less-than-significant level.

MM CUL-1a: Cease operations and notify the California State Lands Commission (CSLC) and U.S. Army Corps of Engineers (USACE). If an inadvertent discovery is made of items of historic or prehistoric archaeological potential, all work activities shall immediately cease in the area of discovery. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include shipwreck remains, including wood, iron, and steel-hulled ships as well as smaller ferrous materials such as anchors, iron ballast, chain, iron hull fasteners, rigging, and fittings of various types. The Applicants shall take the following actions:

1. After cessation of activity, the Applicants shall immediately contact the CSLC and USACE. The Applicants shall not resume work in the area of the discovery until authorization is received from the CSLC and the USACE.

2. If CSLC staff determines that a historical or archaeological resource may be present within the Revised Project site, the Applicants shall retain the services of a qualified archaeologist who meets the Professional Qualifications Standards contained in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. In the case of a shipwreck or other maritime resources, a qualified maritime archaeologist shall be retained. The archaeologist will make an immediate evaluation of the discovery and will advise CSLC staff whether it is a resource of potential scientific/historical/cultural significance. The archaeologist will make a recommendation as to what action, if any, is warranted. Based on this information, CSLC staff may require, if warranted, specific additional measures to be implemented by the Applicants no more than 48 hours from receipt of the recommendation.

3. Measures might include: Preservation in situ of the archaeological resource (avoidance); archaeological data recovery; salvage and conservation of all or part of the resource if reasonably feasible (i.e., shipwreck); or further evaluation. CSLC staff may also require that the Applicants immediately implement a site security program if the resource is at risk from vandalism, looting, or other damaging actions.
4. Artifacts found on lands under the jurisdiction of the CSLC are considered the property of the State of California. Any disposition of these artifacts requires the approval of the CSLC.
5. The archaeologist shall submit an archaeological resources report to CSLC staff. This report shall include an evaluation of the historical significance of any discovered archeological resource, as well as a description of the archaeological and historical research methods employed.

Mitigation Measure CUL-1b: Cease operations and notify consulting Native American tribes if the find is Native American in origin. If potential tribal cultural resources are identified, procedures outlined in MM CUL-1a shall be followed. Work stoppages shall remain in place until a qualified archeologist and Tribal Monitor/Representative from the consulting Tribes have jointly determined the nature and significance of the discovery. The Tribal Monitor/Representative shall be asked to continue to monitor for tribal cultural resources. Tribal cultural resources shall neither be photographed nor be subjected to any studies beyond such inspection as may be necessary to determine the nature and significance of the discovery. The exact location of the resources shall be kept confidential and measures shall be taken to avoid future disturbance and potential vandalism. If feasible, impacts to previously unknown tribal cultural resources shall be avoided through preservation in place. If the on site archeologist and Tribal Monitor/Representative determine that damaging effects on the tribal cultural resource can be avoided in place, then work in the area may resume provided the area of the discovery remains clearly marked for no further disturbance. If the on site archeologist and Tribal Monitor/Representative determine that the find may be significant and if avoidance of the find is determined to be infeasible, CSLC shall be notified. CSLC staff shall work with the consulting Tribes on treatment/mitigation of the discoveries. Measures shall include documentation of the resource or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the resource. The Applicants shall be

responsible for the resultant mitigation costs as well as associated curation costs. All significant findings will be documented in a summary report that will be provided to pertinent consulting parties within a year of the finding.

Would the Revised Project result in the inadvertent discovery of paleontological resources?

Impact CUL-2: Sand mining activities would not disturb or destroy a unique paleontological resource or site or unique geologic feature (Less than Significant, Class III).

Any ground-disturbing activity has the potential to expose previously unknown paleontological resources. However, as described in Section 4.6.2 of the 2012 EIR, the sand shoals that would be targeted for sand mining are too young geologically and too unstable to produce fossils. For these reasons, potential disturbance or damage to paleontological resources or unique geologic features is considered to be a less-than-significant impact. No mitigation is required. Accordingly, the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact on paleontological resources than was disclosed in the 2012 EIR.

Would the Revised Project result in the inadvertent discovery of human remains?

Impact CUL-3: Sand mining activities could potentially result in the discovery of human remains (Potentially Significant, Class II).

The discovery of human remains is an extremely remote possibility within the Revised Project area. However, since the nature of the Project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. Project personnel should be alerted to the possibility of encountering human remains during Project implementation, and apprised of the proper procedures to follow in the event they are found as described in MM CUL-3, as set forth in the 2012 EIR and repeated (unchanged) below. Implementation of this mitigation measure would reduce potential impacts to a less-than-significant level. For these reasons, the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact on human remains than was disclosed in the 2012 EIR.

> **MM CUL-3: Cease operations and notify County Coroner.** If human remains are discovered during sand mining activities, State Health and Safety Code section 7050.5 requires that no further disturbance shall occur

until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code section 5097.98. If the remains are determined to be those of a Native American, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC will then identify the person(s) thought to be the Most Likely Descendent (MLD) of the deceased Native American, who, within 48 hours, will recommend what course of action should be taken in dealing with the remains. The Applicants, MLD, and CSLC staff will make all reasonable efforts to develop an agreement for the treatment, with all appropriate dignity, of any human remains and items associated with the remains (State CEQA Guidelines section 15064.5(d)). The agreement would take into consideration the appropriate removal, analysis, custodianship, and final disposition of the human remains and items associated with the remains. If an agreement cannot be reached, then the landowner or authorized representative shall reinter the human remains and associated items with appropriate dignity on the property in a location not subject to further and future subsurface disturbance. (Pub. Resources Code Section 5097.98(e)).

3.7.6 Cumulative Effects

Impact CE CUL-1: The Revised Project has a potential to cause a cumulatively considerable contribution to potential significant cumulative effects on cultural resources and tribal cultural resources (Potentially Significant, Class II).

The Final 2012 EIR analyzed potential cumulative effects on cultural resources in Section 4.6.6 (p. 4.6-15), concluding that the 2012 Project would not result in a cumulatively considerable contribution to any significant cumulative effect on cultural resources. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

As discussed in Section 3.6.5 of this SEIR, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact (either directly or indirectly) and so would result in the same incremental contribution to potential cumulative effects as was disclosed in the 2012 EIR. Similar to the 2012 Project, cumulative projects in the vicinity of the Revised Project could have a significant impact on previously undiscovered cultural resources and tribal cultural resources during ground-disturbing activities. The potential impacts of the Revised Project when considered in combination with similar impacts from other projects in the cumulative effects study area (such as

the San Francisco Bay Strategic Shallow-Water Placement Pilot Project and the Montezuma Wetlands Restoration and Suisun Marsh fish screen rehabilitation project) could result in a significant cumulative impact on cultural resources and tribal cultural resources. However, implementation of MMs CUL-1a, CUL-1b, and CUL-3 for the Revised Project would require that work halt in the vicinity of a find until it is evaluated, and, in the case of human remains, reviewed by the County Coroner. In addition, consulting California Native American tribes would be notified if the find was Native American in origin. These measures would limit the severity of the Revised Project's incremental contribution sufficiently to ensure that the Revised Project's contribution to cumulative impacts would not be considerable, and the impact would be less than significant with mitigation incorporated.

Mitigation for Impact CE CUL-1: Implement Mitigation Measures CUL-1a, CUL 1b, and CUL-3.

3.8 LAND USE AND RECREATION

This section identifies and evaluates issues related to land use and recreation to determine whether the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of previously identified significant impacts than was disclosed in the 2012 EIR. This section describes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment relative to the 2012 EIR.

3.8.1 Baseline Conditions

The 2012 Final EIR (at p. 1-12) states the following regarding baseline conditions for Land Use and Recreation:

> The EIR examines whether the proposed sand mining operations would conflict with current plans and policies of the various agencies with land use and similar authority over Bay and Delta resources and evaluates potential Project conflicts with recreational uses in the Central Bay and Delta. This section also considers the potential for residual impacts at down current beaches resulting from Project impacts on sediment supply and transport within the Bay-Delta system. (Potential changes to sediment supply and transport are examined in more detail in Section 4.3, Hydrology and Water Quality.)

As described in Section 1.3.3 of this SEIR, the baseline condition for purposes of this analysis is the level of activity associated with the authorized sand mining lease volumes and the ongoing obligations such as mitigation measures and conditions of approval resulting from the Commission's 2012 EIR and lease authorizations. See Appendices A and F for details.

3.8.2 Environmental Setting

Section 4.7.1 of the 2012 EIR describes the environmental setting for the Project's consideration of land use and recreational resources including topics such as surrounding land uses, offloading sites, and the lease areas, including the Central San Francisco Bay, Suisun Bay, and the western Sacramento-San Joaquin River Delta. Consistent with the 2012 EIR, the Revised Project is located within water areas of the San Francisco and Suisun Bays and would not affect onshore land uses. The 2012 EIR summarized uses of these waters and submerged lands, including shipping, commercial and recreational fishing, recreational boating, other water-oriented recreational activities, and estuarine

and wildlife habitat. Those descriptions remain accurate for the purposes of the SEIR analysis.

3.8.3 Regulatory Setting

Section 4.7.2 of the 2012 EIR (p. 4.7-2 et seq.) describes the regulatory setting for the analysis of land use and recreational resources, including federal and state laws and regulations, regional plans and policies, and state and local protection plans. The section provides summary information about public open spaces and park lands, use of San Francisco and Suisun Bays, and land use designations. It also outlines jurisdiction exercised by the Army Corps of Engineers, U.S. Fish and Wildlife Service, California State Lands Commission, San Francisco Bay Conservation and Development Commission (BCDC), California Department of Fish and Game[22], and other federal, state, and regional regulatory agencies. The descriptions of the regulatory setting provided in Section 4.7.2 of the 2012 EIR remain accurate for the purposes of this analysis of the Revised Project's potential impacts on land use and recreation except as supplemented below.

The 2012 EIR summarizes land use and recreation plans and policies of BCDC in Section 4.7.2. BCDC has since revised the San Francisco Bay Plan (Bay Plan). In October 2019, BCDC amended the Bay Plan to incorporate tidal marsh and tidal flats, subtidal areas, and environmental justice and social equity policies to address sea level rise, environmental justice, and social equity issues (BCDC 2020). The Bay Plan was reprinted in May 2024 to incorporate these amendments and reflect ongoing regional needs and updates.

Consistent with the 2012 EIR, the land use designations and related policies of the general plans of the counties within which the lease areas are located do not extend to the lease sites, with the exception of Solano County. Both the Solano County General Plan (General Plan) and the Solano County Component of the Suisun Marsh Local Protection Program (LPP)and the Suisun Marsh Habitat Management, Preservation, and Restoration Plan have undergone updates since publication of the 2012 EIR, primarily pertaining to land-based wetland restoration projects. The 2018 Amendment to the LPP included updates to land use descriptions for water bodies and courses, parks and recreation, and marsh, as well as changes in land use designations (Solano County 2018). The Suisun Marsh Habitat Management, Preservation, and Restoration Plan was initiated in 2011, implemented in 2014, and updated in 2021 to align with state climate resilience goals to restore Baylands and wetlands near Suisun Bay. The land use

[22] now the California Department of Fish and Wildlife.

designations pertaining to the Revised Project area remain consistent with the 2012 EIR designations. Thus, no amendments or changes that would considerably inform the analysis of the Revised Project's impact on land use and recreational resources have been implemented.

3.8.4 Significance Criteria

Consistent with Section 4.7.3 of the 2012 EIR (p. 4.7-16 et seq.), an adverse impact on land use or recreation is considered significant and would require mitigation if Revised Project construction or operation would result in:

- Incompatible adjacent land uses as defined by planning documentation;
- Conflicts with planning efforts to protect recreational resources;
- Residual impacts on sensitive water-oriented recreation due to interference with the sand replenishment at beaches down-current from mining operations;
- Conflicts with adopted land use plans or policies; or
- Conflicts with any applicable habitat conservation plan or natural community conservation plan.

In 2017, the Habitat Conservation Plan for Pacific Gas and Electric Company's (PG&E) San Francisco Bay Area Operations and Maintenance was published. This habitat conservation plan pertains to PG&E operations and maintenance and, thus, does not impact the Revised Project Area. Because there are no applicable habitat conservation plans or natural community conservation plans in the Revised Project vicinity, this last criterion is not considered further in this analysis. The 2018 updates to the CEQA Guidelines Appendix G environmental checklist moved the analysis of natural community conservation plans and habitat conservation plans from the Land Use and Recreation analysis to the Biological Resources analysis and made other minor revisions. Therefore, the 2018 CEQA Guidelines Appendix G updates do not affect the significance criteria being evaluated in this SEIR. Accordingly, for the purpose of analyzing whether changes in the project that was analyzed in the 2012 EIR would cause any new significant impact or any substantial increase in the severity of a significant impact relative to the impacts disclosed in the 2012 EIR with respect to land use and recreation, the significance criteria considered in the 2012 EIR remain current.

3.8.5 Direct and Indirect Effects

3.8.5.1 2012 Project

The 2012 Final EIR, Section 4.7.4 presented the following impact determinations for Land Use and Recreation Resources:

- Impact LU-1: Incompatible land uses - Sand mining operations, which are industrial in nature, could be incompatible with and therefore disruptive to adjacent or nearby non-industrial land uses (such as residences, schools, hospitals, and other sensitive land uses) (Less than Significant, Class III).
- Impact LU-2: Incompatible recreational uses - Sand mining operations would be located within the Bay and Delta waterways and therefore could interfere with water based recreational activities in those water areas, such as recreational fishing (from watercraft) and boating (Less than Significant, Class III).
- Impact LU-3. Residual impacts on recreation resources due to interference with sand replenishment at down-current beaches - The extraction of sand from the mining sites could result in depletion of down-current beaches if it interfered with sediment transport mechanisms by which sand is supplied to such down-current areas and replaces material that is continually eroded through ongoing physical processes (Less than Significant, Class III).
- Impact LU-4: Conflicts with regional or local land use plans or policies - Project inconsistency or conflict with adopted land use plans or policies could result in environmental impacts that the plans and policies were adopted to prevent (Potentially Significant, Class II).

The CSLC adopted a Mitigation Monitoring Program (MMP) as part of its discretionary action (Appendix F). To address potential conflicts with the San Francisco Bay Plan, the Suisun Marsh Protection Program, the Solano County Component of the Suisun Marsh Local Protection Program, and the Solano County General Plan, measures pertaining to Sections 4.1, Biological Resources, 4.4, Hazards and Hazardous Materials, 4.5, Air Quality, and 4.6, Cultural Resources, were applied as mitigation for Impact LU-4. This includes the following:

- MM AIR-2 – Prepare and implement a Greenhouse Gas Reduction Plan
- MM BIO-6. Establish a 100-foot buffer around hard bottom areas within and adjacent to Central Bay mining leases

- MM BIO-8a. Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt
- MM BIO-8b. Applicants shall provide off-site mitigation to compensate for the impacts of the taking that may be unavoidable
- MM BIO-9a. Sand mining halted during peak Chinook salmon migration[23]
- MM HAZ-1 – Provide a California Nontank Vessel Contingency Plan (CANTVCP) or Certificate of Financial Responsibility (COFR) to CSLC
- MM CUL-1 – Cease operations and notify California State Lands Commission and Army Corps of Engineers
- MM CUL-3 – Cease operations and notify County Coroner

3.8.5.2 Revised Project

This analysis evaluates the potential significance of the change in the physical environment that would be caused by implementation of the Revised Project relative to the baseline condition, compares that impact conclusion with the impact conclusion reached in the 2012 EIR regarding the same consideration, and then makes a determination as to whether the implementation of the Revised Project would cause one or more new significant impacts or a substantial increase in the severity of significant impacts than was disclosed in the 2012 EIR. For the reasons discussed below, implementation of the Revised Project would not cause a new significant impact or a substantial increase in the severity of a significant impact than was disclosed in the 2012 EIR.

The studies identified in Section 1.2.3 as having been completed since certification of the 2012 EIR provide additional information about physical environmental conditions in the lease areas; however, the information and conclusions they provide are consistent with information presented and conclusions reached in the 2012 EIR and although none of the new studies affects the impact determinations reached in the 2012 EIR, the two studies below are relevant to the land use and recreation impact analysis.

1) *Sand Mining Impact Analysis: Desktop morphology study; Sediment transport modeling study* (Fenical/Coast and Harbor Engineering, 2025)

[23] Note: CSLC approved a variance (February 18, 2015) from Mitigation Measure BIO-9a requirements to implement replacement measures in lieu of MM BIO-9a and MM BIO-9b (Appendix F).

2) *Modeling Sand Transport and the Effect of Sand Mining in San Francisco Bay* (Anchor QEA, 2023)

Would the Revised Project involve incompatible land uses as defined by planning documentation?

Impact LU-1: Incompatible land uses. Sand mining operations, which are industrial in nature, could be incompatible with and therefore disruptive to adjacent or nearby non-industrial land uses (such as residences, schools, hospitals, and other sensitive land uses) (Less than Significant, Class III).

As discussed above, applicable land use plans in the Revised Project area consist of the Bay Plan developed by BCDC, the Suisun Marsh Local Protection Program and associated restoration developed by BCDC and CDFW, the Solano County Component of the Suisun Marsh Local Protection Program and the Solano County General Plan, consistent with the 2012 EIR. The Applicants propose to extend the activities analyzed in the 2012 EIR for 10 additional years from the date of lease issuance, using equipment and methods substantially similar to those proposed in the 2012 EIR, as stated in Section 2.4, Description of Proposed Changes. The Revised Project proposes a reduction in the maximum allowable annual volume of sand harvested for three of the five CSLC leases and the Grossi Middle Ground private lease. Impacts on adjacent land uses as defined by planning documentation were analyzed in Section 4.7.4 in the 2012 EIR and found to be less than significant.

The Revised Project mining lease parcels are located within the waters of the San Francisco Bay, Suisun Bay, and the Sacramento-San Joaquin River Delta, approximately 1,000 to 2,800 feet from the nearest developed land areas. No changes are proposed to the location of the Applicants' currently permitted mining operations or the manner in which mining operations would be conducted. The 2012 EIR did not consider operations at offloading sites, as they are not within the purview of the existing or proposed leases. Transportation of the mined sand to the offloading facilities and offloading of barges was considered as part of the Project in the 2012 EIR. According to Section 2.3.3, Mining Events, the Revised Project proposes no changes to the methods of transportation of sand to the offloading facilities and would continue to use five of the nine offloading facilities previously described in the 2012 EIR (see Figure 2-3). Therefore, the Revised Project would cause no new significant impact and no substantial increase in the severity of the impact discussed in the 2012 EIR for this criterion.

Additional Mitigation: None required.

Would the Revised Project conflict with planning efforts to protect recreational resources?

Impact LU-2: Incompatible recreational uses. Sand mining operations would be located within the Bay and Delta waterways and therefore could interfere with water-based recreational activities in those water areas, such as recreational fishing (from watercraft) and boating (Less than Significant, Class III).

Section 4.7.4 of the 2012 EIR determined that the impact would be less than significant. Recreational activities, such as fishing and boating, continue to occur in the San Francisco Bay, Suisun Marsh, and Suisun Bay, with heightened activity expected on weekends and holidays. Thus, consistent with the 2012 EIR, sand mining operations could interfere with recreational activities in the Revised Project area and its vicinity. However, the activities in this area are similar or substantially the same as those discussed in the 2012 EIR, and the Revised Project proposes using equipment and methods that are substantially similar to those currently used and permitted under the existing leases and permits, as described in Section 2.3.2 of the 2012 EIR. The presence of mining barges and equipment in lease areas could temporarily create navigational obstacles for recreational fishing boats or vessels in the San Francisco and Suisun Bays. However, given the ongoing absence of conflicts between sand mining operations, any associated equipment, and water-contact and non-contact recreational activities, it can be reasonably assumed that conflicts would continue to be minimal. For these reasons, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact discussed in the 2012 EIR for this criterion.

Additional Mitigation: None required.

Would the Revised Project result in residual impacts on sensitive water-oriented recreation due to interference with the sand replenishment at beaches down-current from mining operations?

Impact LU-3: Residual impacts on recreation resources due to interference with sand replenishment at down-current beaches. The extraction of sand from the mining sites could result in depletion of down-current beaches if it interfered with sediment transport mechanisms by which sand is supplied to such down-current areas and replaces material that is continually eroded through ongoing physical processes (Less than Significant, Class III).

As discussed in Section 3.4, Hydrology and Water Quality, two hydrodynamic modeling studies were conducted after 2012 that conducted modeling of San Francisco Bay tidal hydrodynamics, wind waves, and sediment transport to

study the potential effect of sand mining on predicted sediment transport pathways and rates (Anchor QEA 2023 and Coast Harbor Engineering 2025). As discussed in Section 3.4, relative to No Proposed Mining, the studies found that Proposed Mining is not likely to cause a significant impact on sediment transport and sand budgets in areas outside the vicinity of the lease areas, such as the San Francisco Bar or Ocean Beach. In addition, no morphological impacts are likely outside of the immediate vicinity of the sand mining areas. Because the Revised Project would not substantially affect sediment transport outside the lease areas, the residual impacts of sand mining on down-current beach depletion or erosion would be less than significant.

Additional Mitigation: None required.

Would the Revised Project conflict with adopted land use plans or policies?

Impact LU-4: Conflicts with regional or local land use plans or policies. Project inconsistency or conflict with adopted land use plans or policies could result in environmental impacts that the plans and policies were adopted to prevent (Potentially Significant, Class II).

Applicable land use plans in the Revised Project area include the San Francisco Bay Plan, the Suisun Marsh Protection Plan, the Solano County Local Protection Plan, and the Solano County General Plan. The Project's consistency with these plans was analyzed in the 2012 EIR in Table 4.7-3. That analysis remains accurate for the Revised Project because, as discussed in Section 1.2.2, the Revised Project would consist of a continuation of the ongoing operations described and analyzed in the 2012 EIR for an additional 10 years, albeit at reduced annual and total volume of extraction, using substantially similar methods and equipment. In addition, the amendments to the plans do not pertain to the Revised Project's potential impacts under this criterion, as discussed in Section 3.8.3, Regulatory Setting.

Implementation of the mitigation measures below would ensure the Revised Project's consistency with land use plans and policies specifying that mining operations be conducted in an environmentally sound manner that minimizes interference with critical wildlife activities and maintains public trust responsibilities and needs. Implementation would also ensure consistency with applicable land use plans and policies concerning the protection of aquatic organisms, sensitive fish species, wildlife and their respective habitats, and other Bay and Delta natural resources. No mitigation measures other than those identified below for other resource-specific impacts would be necessary. For the reasons discussed

above, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact discussed in section 4.7.4 in the 2012 EIR for this criterion.

Mitigation Measure AIR-1. Implement a Greenhouse Gas (GHG) Reduction Plan.

Mitigation Measure MM BIO-6. Establish a 100-foot buffer around hard bottom areas within and adjacent to Central Bay mining leases.

Mitigation Measure MM BIO-8. Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt.

Mitigation Measure MM BIO-9a. Applicants shall minimize the potential for entrainment and mortality of white sturgeon.

Mitigation Measure MM BIO-9b. Applicants shall implement operational restrictions and requirements for the avoidance and minimization of entrainment of Chinook salmon.

Mitigation Measure MM HAZ-1. Provide a California Non-tank Vessel Contingency Plan/Certificate of Financial Responsibility.

Mitigation Measure MM CUL-1a. Cease operations and notify California State Lands Commission and Army Corps of Engineers.

Mitigation Measure MM CUL-1b. Cease operations and notify consulting Native American tribes if the find is Native American in origin.

Mitigation Measure MM CUL-3. Cease operations and notify County Coroner.

3.8.6 Cumulative Effects

Impact CE LU-1: The Revised Project has potential to cause a cumulatively considerable contribution to potential significant cumulative effects on land use and recreation (Potential Significant, Class II).

As recognized in Section 4.7 in the 2012 EIR (p. 4.7-18), "Water-contact and non-contact recreational activities, including fishing and boating, are recognized as important uses of the San Francisco Bay, the Suisun Marsh and Suisun Bay, and vicinity. As such, the potential exists for sand mining operations to interfere with

recreational activities in the Project area," including (as described on p. 4.7-19 of the 2012 EIR) if it causes or contributes to down-current beach depletion or erosion or (as described on p. 4.7-20 of the 2012 EIR) if it conflicts with plans and policies specifying that mining operations are to be conducted in an environmentally sound manner, that agencies protect public trust resources, and that mining operations be carried out in a manner that minimizes interference with critical wildlife activities.

Section 4.7.6 in the 2012 EIR analyzed potential cumulative effects on land use and recreation in Section 4.7.6 (p. 4.7-24), concluding that, with the implementation of the recommended mitigation measures at the project level, the 2012 Project would not result in a cumulatively considerable contribution to any significant cumulative effect on land use or recreation. For the reasons discussed below, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR.

As discussed in Section 3.8.5, above, sand mining operations would have a less-than-significant impact on the planning efforts designed to protect recreational resources at or surrounding the Revised Project area. The Revised Project would not conflict with nearby land uses and would, thus, not contribute to cumulative impacts on these areas. As discussed in Impact LU-4, the Revised Project could conflict with adopted land use plans or policies particularly pertaining to wildlife, wildlife habitat, tidal marshes and flats, and public trust responsibilities. However, implementation of the Mitigation Measures identified in Impact LU-4 (i.e., Mitigation Measures AIR-1, BIO-6, BIO-8, BIO-9a, BIO-9b, HAZ-1, CUL-1a, CUL-1b, and CUL-3) would reduce the Revised Project's contribution to cumulative conflicts with plans and policies to less than significant.

The Revised Project's less than significant incremental impact on land use planning and recreation could combine with the incremental impacts of the projects identified in Section 3.1.5 of this SEIR to cause a significant cumulative effect on water-contact and non-contact recreational activities, including fishing and boating, beach use, or other public trust resources. The incremental impacts of implementing activities consistent with the San Francisco Bay Regional Dredged Material Management Plan (RDMMP) 2025-2044 would be substantially similar to the incremental impacts of the RDMMP's predecessor, which was evaluated as part of the cumulative scenario for the 2012 EIR (see 2012 EIR, p. 3-24). The incremental impacts of the San Francisco Bay Strategic Shallow-Water Placement Pilot Project, Montezuma Wetlands Restoration, and

Suisun Marsh fish screen rehabilitation project, while not individually significant, could, once combined with the incremental contributory impact of the Revised Project, result in a significant cumulative effect on consistency with land use planning for recreational resources or pertaining to wildlife, wildlife habitat, tidal marshes and flats, and public trust responsibilities. The Revised Project's incremental contribution could be reduced to less than cumulatively considerable (i.e., less than significant) with the implementation of Mitigation Measures AIR-1, BIO-6, BIO-8, BIO-9a, BIO-9b, HAZ-1, CUL-1a, CUL-1b, and CUL-3 because they would sufficiently enhance consistency with adopted land use plans or policies including the San Francisco Bay Plan, the Suisun Marsh Protection Plan, the Solano County Local Protection Plan, and the Solano County General Plan. For these reasons, the Revised Project would cause no new significant cumulative impact and no substantial increase in the severity of a cumulative significant impact than was disclosed in the 2012 EIR.

3.9 PROJECT CONSISTENCY

A supplemental EIR augments the previous EIR to address a limited set of issues. Because the Revised Project is essentially a continuation of the activities described in the 2012 EIR and because none of the studies listed in Section 1.2.3 as having been completed following certification of the 2012 EIR affects the impact significance conclusions reached in the 2012 EIR, the impact analysis of many of the resource areas addressed in the 2012 EIR is unchanged. Therefore, the scope of this SEIR is limited to the resource areas listed in Section 1.3.4; the project consistency analysis discussed in this section concludes that the Revised Project would otherwise not alter the conclusions reached in the 2012 EIR.

3.9.1 Introduction

The SEIR documents and analyzes the changes between the San Francisco Bay and Delta Sand Mining Project analyzed in the 2012 EIR and the proposed Revised Project. The highly regulated activities associated with the Revised Project would occur in substantially the same manner as those analyzed in the 2012 EIR. The Revised Project would continue the use of current material offloading facilities, which are a subset of sites identified in the 2012 EIR and proposes a reduction in the authorized annual materials extraction volume in four out of the six lease areas. No new information of substantial importance to the Revised Project that was not known and could not have been known at the time the 2012 EIR was certified as complete has become available. Based on an initial review and analysis, the Revised Project would have no impact or a less-than-significant impact on eight environmental issue areas: aesthetics, agricultural resources, geology and soils, noise, population and housing, public services, transportation, and utilities and service systems. The primary reasons for these determinations are set forth below.

3.9.2 Aesthetics

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no impact on aesthetics. The same is true for the Revised Project. The proposed Revised Project would not involve any changes to current operations that could have an adverse effect on a scenic vista, substantially damage scenic resources, degrade the existing visual character or quality of the area, or create new sources of light and glare. Therefore, no impact on the visual quality of the Project area would occur. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the

severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to aesthetics.

3.9.3 Agricultural Resources

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no impact on agricultural resources. The same is true for the Revised Project. There are no agricultural resources within the area of potential effect of the proposed Revised Project; therefore, no impact on agricultural resources would occur. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to agricultural resources.

3.9.4 Geology and Soils

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no significant impact on geology and soils. The same is true for the Revised Project. The proposed Revised Project would continue to remove and disturb the Bay substrate within the proposed lease areas; there are no anticipated changes to current operations. Current operations have no significant impact on geology or soils, such as the loss of topsoil or the exposure of people and structures to seismic hazards, landslides, or other geologic hazards. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to geology and soils.

Effects on the geomorphology of the Bay floor, on sediment supply and transport, and on the hydrodynamics of Bay waters are considered in this SEIR in Section 3.4, Hydrology and Water Quality.

3.9.5 Noise

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no impact on noise. The same is true for the Revised Project. The proposed Revised Project is not anticipated to generate operational noise greater than that presently resulting from current operations under baseline conditions. Therefore, the Revised Project would not expose people to higher levels of noise than are currently experienced, or to cause new sources of noise or vibration. Therefore, no noise impact would occur. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to noise.

Potential impacts of noise and vibration on aquatic wildlife are considered in this SEIR in Section 3.2, Biological Resources.

3.9.6 Population and Housing

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no impact on population and housing. The same is true for the Revised Project. The Revised Project would not result in the direct construction of new housing or infrastructure and would not displace people from existing housing. Thus, the Revised Project would not have an impact on population and housing. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to population and housing.

3.9.7 Public Services

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no impact on public services. The same is true for the Revised Project. The Revised Project would not directly increase demands on or require the construction of additional fire or police facilities, school facilities, parks, or any other public service. Therefore, no impact on public services would occur. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to public services.

3.9.8 Transportation

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no impact on transportation. The same is true for the Revised Project. The Revised Project is not anticipated to involve any changes to current operations that would affect land or water transportation, including possible effects on roadways, parking, and navigational channels. Therefore, no new impact on transportation would occur. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to transportation.

3.9.9 Utilities and Service Systems

Section 1.1.5 of the 2012 EIR concludes that the then-proposed sand mining would have no impact on utilities and service systems. The same is true for the Revised Project. The Revised Project would not require the expansion of existing

utilities, including water supply, wastewater treatment, and power. Thus, no impact on utilities and service systems would occur. Accordingly, the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact relative to the impact disclosed in the 2012 EIR with respect to utilities and service systems.

4.0 ALTERNATIVES

4.1 INTRODUCTION TO ALTERNATIVES

The California Environmental Quality Act (CEQA) and the CEQA Guidelines require a lead agency to analyze a reasonable range of alternatives to a proposed project that could feasibly attain most of the basic objectives of the project while substantially reducing or eliminating its significant environmental effects. CEQA also requires an EIR to evaluate a "no project" alternative to allow decision-makers to compare the impacts of approving a project with the impacts of not approving it. Other than the requirement to analyze a "no project alternative," no ironclad rule governs the nature or scope of the alternatives to be discussed other than the rule of reason, which demands that an EIR set forth only those alternatives necessary to permit a reasoned choice and examine in detail only the alternatives that the lead agency determines could feasibly attain most of the project's basic objectives. The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision making (14 Cal. Code Regs. §15126.6).

Consistent with these tenets of CEQA, this Section describes the key considerations used to identify and screen potential alternatives for the Revised Project, explains why potential alternatives were eliminated from further consideration, and describes the alternatives that were carried forward for more detailed analysis.

4.2 ALTERNATIVES DEVELOPMENT AND SCREENING

4.2.1 Alternatives Development and Screening Methodology

The Commission screened and thereafter selected alternatives to be analyzed in greater detail based on the considerations listed in CEQA Guidelines section 15126.6, chiefly:

> *An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which*

> *are infeasible…. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.*

In implementing this guidance, the Commission identified alternatives to the Revised Project, screened them using the four screening criteria described below, and then either retained them for further analysis or eliminated them as described below.

4.2.2 Alternatives Identification

Alternatives typically involve changes to the location, scope, design, extent, intensity, or methods of construction or operation of a proposed project. The Commission identified and developed alternatives to the Revised Project based on input received from comments on the Notice of Preparation (NOP), information presented or developed by the Commission, comments received during consultation with responsible and trustee agencies, and information provided by the Applicants.

The Commission screened alternatives based on the four screening criteria enumerated below to foster meaningful public participation and informed decision making. The results of the screening process are presented in the sections that follow.

4.2.3 Screening Criteria

4.2.3.1 Screening Criterion 1: Project Objectives

Screening criterion one is whether a potential alternative would meet most of the basic project objectives. A project's statement of objectives describes the purpose of the project and the reasons for undertaking it. Alternatives that fail to meet the fundamental project purpose need not be addressed in detail in the EIR (*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* [2008] 43 Cal.4th 1143).

As explained in Section 2.2 of this SEIR, the purpose of the Revised Project, as stated by the Applicants, is to assure the availability of marine sands for commercial and public purposes within the greater San Francisco Bay area. The basic objective of the Revised Project is to continue to mine sand at an economically viable level over the next 10 years to make this mineral resource available for commercial and public use.

4.2.3.2 Screening Criterion 2: Potential Feasibility

Screening criterion two is whether the potential alternative would be "potentially feasible." In this context, feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (Pub. Res. Code §21061.1; CEQA Guidelines §§15126.6, 15364). According to CEQA Guidelines section 15126.6(f)(1), "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives." Although EIRs must contain a discussion of potentially feasible alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-makers who may consider evidence beyond that found in this EIR (Pub. Res. Code §21081(a)(3)).

4.2.3.3 Screening Criterion 3: Avoidance or Substantial Reduction of Significant Impacts of the Revised Project

Screening criterion three is whether a potential alternative would be able to avoid or substantially lessen any of the potentially significant impacts of the Revised Project. Existing mitigation measures identified in the 2012 EIR have been revised or supplemented as follows in Chapter 3, Project Impacts and Mitigation Measures:

To address the Revised Project's potential significant unavoidable impact on delta and longfin smelt as described in Impact BIO-8, mitigation measures from the 2012 EIR have been updated to require the following:

- **Mitigation Measure MM BIO-8**: Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt.

To address the Revised Project's potential to cause a significant impact relating to the entrainment and mortality of white sturgeon and Chinook salmon during sand mining as described in Impact BIO-9, mitigation measures from the 2012 EIR have been updated to require the following

- **Mitigation Measure BIO-9a**. Applicants shall minimize the potential for entrainment and mortality of white sturgeon.

- **Mitigation Measure BIO-9b**. Applicants shall implement operational restrictions and requirements for the avoidance and minimization of entrainment of Chinook salmon.

New Revised Project Mitigation Measure added for tribal cultural resources which was not specifically analyzed in the 2012 EIR.

- **Mitigation Measure MM CUL-1b.** Cease operations and notify consulting Native American tribes if the find is Native American in origin.

4.2.3.4 Screening Criterion 4: Remote or Speculative

Screening criterion four is whether the implementation of a potential alternative is remote or speculative (CEQA Guidelines §15126.6(f)(2)). A lead agency may conclude that an alternative is remote or speculative if significant changes in governmental policy or legislation would be needed to carry it out or if it is unlikely as a practical matter to be carried out within the reasonable future or is contingent on the occurrence of uncertain future events. In *Bowman v. City of Petaluma* (1986) 185 Cal.App.3d 1065, for example, the Court upheld a lead agency's conclusion that an alternative was made infeasible on the basis of its resulting in "years of additional delay while [it] was designed, designs were approved, rights of way were secured by purchase or eminent domain, an independent environmental review was pursued to completion, and [it] was finally built." Eliminating unrealistic or conjectural alternatives from detailed analysis in the EIR allows decision makers and members of the public to focus on alternatives capable of being approved and carried out in lieu of the project as proposed.

4.2.4 Results of the Screening Process

Potential alternatives were reviewed against the above criteria. Four alternatives were eliminated (see Section 4.3 below) based on the infeasibility of mining methods, the potential of the alternative to cause additional or more severe impacts, or the inability of the alternative to meet the "underlying fundamental purpose" of the Revised Project. Those alternatives that were found to be technically feasible and consistent with the Revised Project's basic objective were reviewed to determine if the alternative had the potential to reduce the environmental impacts of the Revised Project.

In light of the facts of the Revised Project and CEQA's direction that an EIR consider "only those alternatives necessary to permit a reasoned choice," the Commission, as lead agency, has determined that there are no suitable alternatives to the Revised Project that would meet the fundamental purpose of the Revised Project or most of the basic project objectives. Accordingly, the agency has determined that it is appropriate to analyze two alternatives in detail: the Revised Project and a No Project Alternative.

4.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FULL EVALUATION

Consistent with CEQA Guidelines Section 15126.6(c), an EIR should identify "any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination." The 2012 Project and the Revised Project are substantially similar to one another in that they share a common purpose and would result in substantially similar impact conclusions (a single new mitigation measure (MM CUL-1b) --for tribal cultural resources-- has been identified in the context of the Revised Project relative to the 2012 Project). In addition, a new mitigation measure (MM BIO-9a) – for impacts on white sturgeon has been identified to reflect the species new consideration as a sensitive species by CDFW. Based on the observation of these similarities, the CSLC elected to revisit the potential alternatives initially considered in the 2012 EIR in the current context. The 2012 EIR initially considered four potential alternatives that ultimately were rejected from more detailed consideration: Mining of Shipping Channels Alternative, Import of Sand Alternative, Central Bay Only Alternative, and Suisun Bay and Delta Only Alternative (2012 EIR Section 3.2, pages 3-4 through 3-7). Each is discussed below (see Sections 4.2.3.1 through 4.2.3.4). Further, based on the observation of similarities between the 2012 Project and the Revised Project, the CSLC revisited the suite of alternatives that the 2012 EIR carried forward for more detailed analysis and determined that, among them, the Clamshell Dredge Mining Alternative (2012 EIR Section 3.3.3, pp. 3-13 through 3-15) does not pass screening criteria in the context of the Revised Project (see Section 4.3.5, below).

In addition, CSLC requested input about potential alternatives from agencies and members of the public during the scoping period, but no potential alternatives were suggested in response. The NOP expressly invited input to assist CSLC in identifying and evaluating potential alternatives. One entity, the Native American Heritage Commission (NAHC), provided responsive input. A copy of the NAHC's letter is provided in Appendix B to this SEIR. In it, the NAHC

suggested that if a project may have a significant impact on a tribal cultural resource, then the lead agency's CEQA document must discuss whether feasible alternatives or mitigation measures exist to avoid or substantially lessen the impact on the identified tribal cultural resources. As described in Section 3.4, Cultural and Tribal Cultural Resources, the Revised Project would not cause a significant impact on a tribal cultural resource. Therefore, facts and evidence regarding the Revised Project's potential effects on tribal cultural resources do not support the development of an alternative focused on avoidance or reduction of impacts on tribal cultural resource-related considerations.

4.3.1 Mining of Shipping Channels Alternative

As described in 2012 EIR Section 3.2.1 (page 3-4), "[t]his alternative would restrict sand mining to areas that are maintained through periodic dredging of shipping channels." The CSLC rejected this alternative as infeasible in the 2012 EIR: "This alternative is considered technically infeasible, because, for the most part, sand of the grain size and quality sought by the sand miners (i.e., sand having a low percentage of fine material – silts, clay, and mud) is not deposited in the shipping channels." Because this continues to be true for the Revised Project, the CSLC has rejected the Mining of Shipping Channels Alternative as infeasible in this SEIR.

4.3.2 Import of Sand Alternative

As described in 2012 EIR Section 3.2.2 (page 3-4), "[t]his alternative would involve importation of sand from outside the Bay Area region, most likely from British Columbia or Mexico. Material would be imported by ocean barge or ship." The CSLC rejected this alternative in the 2012 EIR "because it does not meet the Project objective and because it would likely result in substantial new GHG emissions that would conflict with California climate change policy" (2012 EIR Section 3.2.2, pages 3-4 and 3-5).

The 2012 Project and the Revised Project share a common purpose, which is to renew necessary permits and approvals to continue mining sand at an economically viable level in San Francisco Bay for the next 10 years (see 2012 EIR Section 3.1.1, page 3-1; see also, Section 2.2 of this SEIR). Accordingly, the CSLC's rationale for rejecting the Import of Sand Alternative in the 2012 EIR remains valid for the Revised Project, the CSLC has rejected this alternative also in this SEIR: the alternative does not meet the objective of the Revised Project and so has been eliminated from more detailed consideration on the basis of Screening Criterion 1: Project Objectives.

Separately, the CSLC also has rejected the Import of Sand Alternative in this SEIR because (as was concluded in the 2012 EIR), it would likely result in substantial new GHG emissions that would conflict with California climate change policy. As explained in SEIR Section 3.6.3, Regulatory Setting, GHG emission reduction targets have gotten increasingly more strict since the 2012 EIR was certified: Assembly Bill 1279 (California Climate Crisis Act) requires the state to achieve net zero GHG emissions by 2045 or sooner as well as a reduction in statewide anthropogenic GHG emissions of 85 percent below 1990 levels. For these separate and independent reasons, the CSLC has rejected the Import of Sand Alternative from more detailed consideration in this SEIR.

4.3.3 Central Bay Only Alternative

As described in 2012 EIR Section 3.2.3 (page 3-5), "[t]he Central Bay Only Alternative would restrict sand mining to the Central Bay lease sites," which would reduce the total volume of sand proposed to be mined to 1,540,000 cubic yards. This volume is approximately 75 percent of the total volume of cubic yards per year for the Central Bay, Suisun Bay/Delta, and private lease areas as reported in Table I-1 of the 2012 EIR (page 1-3). The CSLC initially considered this potential alternative in the 2012 EIR because it would "avoid impacts on State and federally listed species in Suisun Bay and the western Delta" (2012 EIR, page 3-5). However, the CSLC then rejected it from more detailed consideration in the 2012 EIR "because it would foreclose all sand mining opportunities for one of the Applicants" and so would not achieve the objective of the 2012 Project.

Based on the proposed annual Revised Project volumes identified in Table 2-2 of this SEIR, the Central Bay Only Alternative would reduce the total volume of sand proposed to be mined to 1,395,000 cubic yards. This volume is approximately 80 percent of the proposed total volume of cubic yards per year for all lease areas. The CSLC's rationale for rejecting the Central Bay Only Alternative in the 2012 EIR continues to be true for the Revised Project, the CSLC has rejected the Central Bay Only Alternative in this SEIR based on Screening Criterion 1: Project Objectives.

4.3.4 Suisun Bay and Delta Only Alternative

As described in 2012 EIR Section 3.2.3 (page 3-5), "[t]his alternative would restrict mining to the Suisun Bay and western Delta mining leases only; no mining would occur in the Central Bay." Assuming that responsible agencies would authorize sand mining in the private lease area, this alternative would reduce the total

volume of sand proposed to be mined to 300,000 cubic yards, which is approximately 25 percent of the total volume of cubic yards per year for the Central Bay, Suisun Bay/Delta, and private lease areas as reported in Table I-1 of the 2012 EIR (page 1-3). The CSLC initially considered this potential alternative in the 2012 EIR because it would "would avoid impacts associated with mining in the Central Bay, particularly entrainment of the longfin smelt (Impact BIO-8)" (2012 EIR, page 3-5). However, the CSLC then rejected it from more detailed consideration "because the limited mining volumes would substantially limit the ability of this alternative to achieve the Project objective."

Based on the proposed annual Revised Project volumes identified in Table 2-2 of this SEIR, the Suisun Bay and Delta Only Alternative would reduce the total volume of sand proposed to be mined to 355,000 cubic yards. This volume is approximately 20 percent of the proposed total volume of cubic yards per year for all lease areas. Because the limited mining volumes would substantially limit the ability of the alternative to achieve the Revised Project objective of continuing to mine sand at an economically viable level over the next 10 years, the CSLC has rejected the Suisun Bay and Delta Only Alternative in this SEIR based on Screening Criterion 1: Project Objectives.

4.3.5 Clamshell Dredge Mining Alternative

As described in 2012 EIR Section 3.3.3 (page 3-13), the Clamshell Dredge Mining Alternative would mine sand using a clamshell bucket and crane rather than a suction dredge. The CSLC initially considered this alternative because the clamshell dredge method would substantially reduce the suction dredge's potential for entrainment of fish, but noted that the alternative could "mobilize more sediment into the water column, create a more extensive or severe turbidity plume, and take about five times longer to mine the same amount of material, thus resulting in greater amounts of air emissions" (2012 EIR, page 3-13). Further, "Central Bay currents would make clamshell dredge mining difficult to complete as an alternative" (2012 EIR, page 3-15).

As analyzed in SEIR Section 3.2, Biological Resources, the Revised Project would have a significant impact due to the potential entrainment and mortality of delta and longfin smelt even with the fish screen in place because the established significance threshold would be exceeded if the Revised Project has a potential to "take" any part of the population of a special status species (such as a state or federally endangered species) through direct effects or indirect harm through the disturbance or loss of habitat. Because the Clamshell Dredge Mining Alternative would reduce, but not avoid, the potential to take an

individual of a special status fish species, the Clamshell Dredge Mining Alternative would have the same impact in this regard as the Revised Project. Therefore, the CSLC has rejected the Clamshell Dredge Mining Alternative in this SEIR based on Screening Criterion 3: Avoidance or Substantial Reduction of Significant Impacts of the Revised Project.

4.4 ALTERNATIVES EVALUATED IN THE SEIR

4.4.1 No Project Alternative

4.4.1.1 Description

If the Revised Project is not approved, then none of the proposed changes identified in Section 2.4 of this SEIR would occur: new leases would not be issued in the Central Bay or the Suisun Bay/Delta, and the Commission would not authorize continued mining for a period of 10 years. The Petaluma, Mare Island, Collinsville, Pier 92, and Tidewater offloading facilities would be made available for use by others.

Under this alternative, this SEIR analysis assumes that the demand for sand currently served by the Project would be met either by other local sources, (such as local quarries and aggregate materials recycling facilities), or that sand would be imported in greater volumes than it currently is from more distant sources, such as British Columbia (Vancouver Island) or Mexico (Baja California), or would be provided by some combination of these sources. Section 4.5.5 of the 2012 EIR (p. 4.5-24 et seq.) identified aggregate quarries in the greater Bay Area that produce, or appear to produce, sand and showed the location of those quarries in Figure 4.5-1 (2012 EIR, p. 4.5-25). Although some Bay Area sand producers have ceased operations since the 2012 EIR was certified,[24] multiple sources of Bay Area sand continue to be available. Other potential local construction sand sources include, among others: in Marin County, Dutra's San Rafael Rock Quarry (Dutra Group 2021); in Conta Costa County, Martin Murietta's Clayton Aggregates (Martin Murietta 2025a, 2025b), the DeSilva Gates' Sunol Plant (DeSilva Gates 2025) and Brooks Island Sandstone Quarry (Perazzo and Perazzo 2025); in Alameda County, DeSilva Group's Sunol Valley

[24] Three examples include CEMEX Lapis sand plant (near Marina), which closed in 2023 as the last coastal sand mine operating in the contiguous United States; the Lehigh Permanente Quarry, which ceased quarrying are related operations, including sand extraction, in 2023 (San Jose Spotlight 2022); and Graniterock's Santa Cruz sand plant, which closed in January 2025 (Graniterock Supply 2025b).

Aggregate Quarry (Lamphier Gregory 2019), and Cemex's Pleasanton Eliot Aggregates Quarry (Cemex 2025); in San Mateo County, West Coast Aggregates' Pilarcitos Quarry (Coastside News 2024); in Santa Clara County, Stevens Creek Quarry (Stevens Creek Quarry, Inc. 2024); and in Monterey County, Graniterock's Quail Hollow Quarry (Graniterock Supply 2025a).

4.4.1.2 Comparison of Revised Project and The No Project Alternative

If the No Project Alternative were selected, then this SEIR assumes that air quality impacts associated with the supply of sand from other mining operations or sources would increase. 2012 EIR Table 4.5-12 (p. 4.5-28) summarized the comparison of the air quality impacts of the Project with the No Project Alternative and related discussion disclosed that increased health risk effects caused by increased operations of land-based quarries could be significant and unavoidable, since toxic air contaminants emitted by land-based quarries may impact residential developments and other sensitive receptors than offshore mining activities and water transportation. In the context of the Revised Project, this continues to be true.

The 2012 EIR determined that if demand could not be met by local sources, then sand would be imported from more distant sources such as British Columbia or Mexico. As analyzed in the 2012 EIR (p. 4.5-27 et seq.), transport of materials from British Columbia or Mexico would involve greater consumption of fossil fuels than sand mined locally. Most of the resulting emissions would occur off the coast and would therefore result in a lesser impact regarding criteria pollutant emissions generated within the Bay Area Air Basin.

If the No Project Alternative is selected, then none of the impacts of the Revised Project would occur with respect to remaining resources, such as biological resources, cultural and tribal cultural resources, hazards or the potential for incidents or accidents resulting in release of hazardous materials, hydrology and water quality, land use and recreation, and mineral resources. Specifically regarding cultural resources, the 2012 EIR disclosed (p. 4.6-14) that the high degree of sand movement on the bay floor due to natural forces would continue to degrade unrecorded cultural resources if they are present. In the context of the Revised Project, this continues to be true for cultural resources, including cultural resources that are also tribal cultural resources. Specifically regarding mineral resources, the No Project Alternative would not preclude future mining of the lease areas, and therefore would not have a significant adverse effect on the availability of known mineral resources.

4.4.2 Reduced Project Alternative

4.4.2.1 Description

This alternative would reduce permitted annual mining volumes to a level equivalent to the 2018-2022 average mined within the lease area (the five years immediately preceding issuance of the NOP). The total amount of material mined would be 701,612 cy per year, which is approximately 1,048,388 cubic yards per year less than is proposed under the Revised Project. It also is less than the baseline volume assumed for the Revised Project. The specific mining volumes for each lease parcel are shown in Table ~~4-2~~4-1. Mining methods and off-loading would be the same as proposed for the Revised Project.

Table 4-1. Reduced Project Alternative Sand Mining Volumes

	Location/Lease No.	Reduced Project Alternative (Average 2018-2022) Lease Volumes (cy)
Central Bay	PRC 709.1: Presidio, Alcatraz (Martin Marietta)	79,125
	PRC 2036.1: Point Knox South (Martin Marietta)	113,478
	PRC 7779.1: Point Knox Shoal (Martin Marietta)	322,060
	PRC 7780.1: Alcatraz South Shoal (Martin Marietta)	35,041
	Total CSLC Central Bay Leases	**549,705**
Suisun Bay/Delta	PRC 7781.1: Suisun Bay/Western Delta (Lind)	130,877
Total CSLC Leases (All Areas)		**680,582**
Private/Suisun Bay	Grossi Middle Ground: BCDC Permit 16-78 (Lind)	21,030
Total Volume (CSLC and Private Leases)		**701,612**

Notes: Units are shown in cubic yards per year, rounded to the nearest cubic yard.

Although this alternative would permit less sand mining than is proposed under the Revised Project, it is feasible and would attain most of the Revised Project's objective because it reflects the Applicants' current mining levels averaged over a five-year period. Although total mining revenues would be reduced compared to the Revised Project because less sand would be mined under this

alternative, variable costs associated with mining operations (such as CSLC royalty payments, labor, fuel, and vessel and equipment maintenance costs) also would be reduced. Because fixed costs associated with mining operations, which may include the cost of leasing offloading sites and vessel and equipment capital costs, would be distributed over less total revenue, net revenues from the mining operations would be somewhat reduced compared to those of the Revised Project. Table 4-2 provides a comparison of the total volume of sand mined under the Reduced Project Alternative as compared to the Revised Project.

Table 4-2. Sand Mining Volumes Comparison Revised Project and Reduced Project Alternative

	Location/Lease No.	Proposed Annual Revised Project Volumes (cy)	Reduced Project Alternative (Average 2018-2022) Lease Volumes (cy)	Difference Revised Project and Reduced Project Volumes (cy)
Central Bay	PRC 709.1: Presidio, Alcatraz (Martin Marietta)	235,000	79,125	(155,875)
	PRC 2036.1: Point Knox South (Martin Marietta)	450,000	113,478	(336,552)
	PRC 7779.1: Point Knox Shoal (Martin Marietta)	550,000	322,060	(227,940)
	PRC 7780.1: Alcatraz South Shoal (Martin Marietta)	160,000	35,041	(124,959)
	Total CSLC Central Bay Leases	**1,395,000**	**549,705**	**(845,295)**
Suisun Bay/ Delta	PRC 7781.1: Suisun Bay/Western Delta (Lind)	235,000	130,877	(104,123)
Total CSLC Leases (All Areas)		**1,630,000**	**680,582**	**(949,418)**
Private/ Suisun Bay	Grossi Middle Ground: BCDC Permit 16-78 (Lind)	120,000	21,030	(98,970)
Total Volume (CSLC and Private Leases)		**1,750,000**	**701,612**	**(1,048,388)**

Notes: Units are shown in cubic yards per year, rounded to the nearest cubic yard.

4.4.2.2 Comparison of Revised Project and the Reduced Project Alternative

The Reduced Project Alternative could have grater impacts than the Revised Project on air quality and GHG emissions (the Revised Project's impacts on air quality and GHG emissions are analyzed in Section 3.6) as well as on noise (the Revised Project's impacts on noise are analyzed in Section 3.9.5). This is because it is assumed, as with the No Project Alternative, that under the Reduced Project Alternative, the construction industry's demand for sand beyond that supplied by the alternative would be met by land-based Bay Area quarries, aggregate recycling facilities, and greater volumes of sand imported from Mexico or British Columbia. 2012 EIR Table 4.5-13 (page 4.5-30) demonstrated that with each increment of reduced sand mining from the Bay and Delta (assuming that the demand for sand would be met from other sources) emissions of NOx, PM10, and CO2e rise substantially. This conclusion remains valid. Also, as with the No Project Alternative, it would be speculative to assume that, under the Reduced Project Alternative, any particular quarry or facility would supply all of the material currently supplied from the Applicants' sand mining operations. In general; however, increased production at land-based quarries may lead to higher health risks, since toxic air contaminant emissions from land-based quarries may be more likely to impact residential developments and other sensitive receptors than offshore mining activities and transportation. For example, as disclosed in the EIR for the San Rafael Rock Quarry's 2009 Reclamation Plan Amendment (Marin County Community Development Agency 2009, page 4.2-26), existing residences are located as close as 150 feet from the fence line and 1,200 feet from the main quarry pit. The air quality and public health impacts that could result from increased sand production from existing sources that are located closer to sensitive receptors than the Revised Project could be significant and unavoidable.

The Reduced Project Alternative would have the same impact as the Revised Project on biological resources (delta and longfin smelt, white sturgeon, and Chinook salmon) because as long as sand mining occurs, there remains some potential for take of a listed or candidate species to occur. Mitigation Measures MM BIO-8, MM BIO-9a, and MM BIO-9b would be required for the Reduced Project Alternative. Otherwise, because this alternative would reduce sand mining in the Bay and Delta to a greater extent relative to baseline levels than the Revised Project, it otherwise could result in further reductions in the significance of identified impacts. Nonetheless, the impact conclusions would remain the same as for the Revised Project because the same types of activities would occur in the same locations over the same 10-year period as for the Revised Project. The same mitigation measures would be necessary.

5.0 OTHER CONSIDERATIONS

As noted in Section 1, Introduction, the State Lands Commission (CSLC or Commission), in its capacity as lead agency under the California Environmental Quality Act (CEQA), certified the San Francisco Bay and Delta Sand Mining Project Environmental Impact Report (EIR) (State Clearinghouse No. 2007072036) (2012 EIR) on October 19, 2012. The Commission then authorized leases to two marine aggregate companies, Martin Marietta Marine Operations, LLC (Martin Marietta) and Lind Marine Inc. (Lind), or their predecessors in interest, to harvest sand commercially (sand mining) within the Central San Francisco Bay and Suisun Bay in 2012 and 2013, respectively. The Central Bay leases were reapproved by the Commission in 2016. The leases are referred to collectively as the *Leases*, and Martin Marietta and Lind are referred to collectively as the *Lessees* or *Applicants*.

The Applicants applied to the CSLC for new Leases to authorize commercial mining of sand for 10 additional years at reduced maximum annual and total sand mining volumes over the proposed lease term (Revised Project) relative to the maximum annual and total volumes previously evaluated under the 2012 EIR including the private Grossi Middle Ground lease. The Commission has prepared this Supplemental Environmental Impact Report (SEIR) to evaluate the potential significant environmental effects of the Revised Project.

In this Chapter 5, other considerations required by CEQA are addressed in Sections 5.1 through 5.7, socioeconomic effects are addressed in Section 5.8, environmental justice is addressed in Section 5.9 climate change and sea level rise considerations are addressed in Section 5.10, potential effects on Public Trust resources and values are considered in Section 5.11.

5.1 OVERVIEW OF OTHER CEQA CONSIDERATIONS

CEQA (Pub. Res. Code §21000 et seq.) and its implementing regulations, the CEQA Guidelines (14 Cal. Code Regs. §15000 et seq.), require an EIR to:

- Identify and focus on the significant environmental effects of a proposed project (§15126.2(a)) and describe any significant impacts that can be mitigated but not reduced to a level of insignificance (§15126.2(c))
- Mitigate a project's energy use if analysis reveals that the project may result in significant environmental effects due to wasteful, inefficient, or

unnecessary consumption or use of energy, or wasteful use of energy resources (Pub. Res. Code §21100(b)(3); 14 Cal. Code Regs. §15126.2(b))

- Identify significant irreversible environmental changes that would be caused by a proposed project should it be implemented (§15126.2(d))
- Identify any growth-inducing impacts of a project such as the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment (§15126.2(e))
- Identify any known areas of controversy or issues to be resolved (§15123(b))
- Identify the environmentally superior alternative (§15126.6(e)(2))

These elements are discussed in Sections 5.2 through 5.7 below.

5.2 SIGNIFICANT, AND SIGNIFICANT UNAVOIDABLE IMPACTS

CEQA Guidelines section 15126.2(a) requires an EIR to identify and focus on the significant environmental effects of a proposed project. Section 3, Project Impacts and Mitigation Measures, of this SEIR does so on a resource-by-resource basis and identifies mitigation measures to reduce potential significant adverse impacts.

CEQA Guidelines section 15126.2(c), requires an EIR to describe any significant impacts that cannot be reduced to a level of insignificance. Consistent with the conclusions of the 2012 EIR, Section 3 of this SEIR identified one significant unavoidable (Class I) impact on delta and longfin smelt (Impact BIO-8). All other identified impacts would be less than significant after mitigation.

5.3 ENERGY USE

CEQA requires an EIR to include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (Pub. Res. Code §21100(b)(3); 14 Cal. Code Regs. §15126.2(b)). CEQA Guidelines Appendix F, Energy Conservation explains that the goal of conserving energy implies the wise and efficient use of energy. Appendix F further guides that "Potentially significant energy implications of a project shall be considered in an EIR to the extent relevant and applicable to the project."

Considerations relevant to an analysis of energy efficiency as identified in CEQA Guidelines Appendix F include the following:

- Energy consuming equipment and processes that will be used during project implementation including, if appropriate, the energy intensiveness of materials and equipment required for the project.
- Total energy requirements of the project by fuel type and end use.
- Energy conservation equipment and design features.
- Identification of energy supplies that would serve the project.

The Revised Project would continue to use the same equipment and implement the same processes as the Lessees currently do. The equipment employed; fuel volumes, sources, and demands; and other energy requirements of the Revised Project also would be the same as under current (baseline) conditions. The Revised Project would have no effect on local and regional energy supplies or on peak or base period energy demands, and would not require or provide additional energy capacity because there would be no net change on energy resources relative to baseline conditions. For these reasons, the revised Project would have no impact on the type of environmental factors contemplated by CEQA Guidelines Appendix F.

Section VI of CEQA Guidelines Appendix G suggests that lead agencies consider whether a proposed project could either result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources; or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The Revised Project would do neither. For the reasons discussed above, the Revised Project would cause no change to baseline conditions (and so no CEQA impact) on the consumption of energy resources locally or regionally. It also would not conflict with or obstruct any state or local plan for renewable energy, such as California's 100 percent zero-carbon energy planning goal by 2045 or the Commission's leadership in geothermal energy permitting and leasing on State-owned lands and participation in planning and management initiatives to sustainably develop floating offshore wind in federal waters off the California coast.

Consistent with CEQA (Pub. Res. Code §21100(b)(3)), the CEQA Guidelines (14 Cal. Code Regs. §15126.2(b), Appendix F, and Appendix G), the Commission has evaluated the potential energy impacts of the Revised Project and determined that it would have no impact on energy efficiency considerations.

5.4 IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines section 15126.2(d) requires an EIR to identify significant irreversible environmental changes that would be caused by a proposed project should it be implemented. However, CEQA (Pub. Res. Code §21100.1) and the CEQA Guidelines (14 Cal Code Regs. §15127) limit the application of this requirement exclusively to EIRs that are prepared in one of the following actions: (a) The adoption, amendment, or enactment of a plan, policy, or ordinance of a public agency; (b) The adoption by a local agency formation commission of a resolution making determinations; and (c) A project which will be subject to the requirement for preparing an environmental impact statement (EIS) pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA). Because the Revised Project consists of lease extensions and is not a plan, policy or ordinance, because the CSLC is not a local agency formation commission,[25] and because the Revised Project does not require the preparation of an EIS under NEPA, the provisions of CEQA Guidelines section 15126.2(d) do not require this SEIR to identify significant irreversible environmental changes of the Revised Project.

5.5 GROWTH INDUCEMENT

CEQA Guidelines section 15126.2(e) requires an EIR to identify any growth-inducing impacts of a project. In general terms, a project may induce spatial, economic, or population growth in a geographic area if it meets any one of the four criteria identified below:

- Removal of an impediment to growth (e.g., establishment of an essential public service or the provisions of new access to an area);
- Economic expansion or growth (e.g., changes in revenue base or employment expansion);
- Establishment of a precedent-setting action (e.g., an innovation, a change in zoning, or general plan amendment approval); or

[25] A Local Agency Formation Commission (LAFCO) is a California state-mandated, independent agency created that oversees and regulates the boundaries of local government agencies, including cities and special districts. LAFCOs were created by the State Legislature in 1963 and are governed by the Cortese-Knox-Hertzberg Act. By comparison, the CSLC was formed in 1938 by the State Lands Act and manages state-owned lands, including tide and submerged lands. See Section 4.9 for additional details.

- Development or encroachment in an isolated area or one adjacent to open space (i.e., being different from an "infill" type of project).

Section 6.3 of the 2012 EIR explains that the "environmental effects of induced growth are secondary or indirect impacts of a project. Growth can result in significant increased demand on community services and public service infrastructure; increased traffic, noise, degradation of air and water quality; and conversion of agricultural land to urban uses". Based on the considerations above, assessing the growth-inducement potential of a project such as the San Francisco Bay and Delta Sand Mining Project involves answering the question: Would the proposed sand mining operation remove an obstacle to growth and thus directly or indirectly support more economic or population growth or residential construction in the surrounding environment? The analysis in the 2012 EIR considered a variety of factors, such as economic conditions of the region, adopted growth management policies in the affected communities, and the availability of adequate infrastructure before concluding that the project would not be considered growth-inducing.

As described in Section 2.4 of this SEIR, the Revised Project would extend the activities described and analyzed in the 2012 EIR for 10 additional years, decrease the maximum allowable mining volumes, and continue the use of the Petaluma, Mare Island, Collinsville, Pier 92, and Tidewater offloading facilities. These proposed changes to existing, ongoing operations would not affect consideration of the factors that supported the Commission's 2012 determination and in and of themselves also would not be considered growth-inducing.

5.6 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

CEQA Guidelines section 15123(b) requires an EIR to include a brief summary of areas of known controversy. Any of the environmental issues considered during public scoping or in this Draft SEIR could become an issue of controversy. Preliminarily, the Commission has identified areas of controversy as including the issues and questions raised in comments received during the scoping process summarized in Section 1.2.5 of this SEIR. Scoping input received is provided in Appendix B and relates to: baseline conditions in the lease areas, potential impacts on cultural resources or tribal cultural resources; consistency with the Delta Plan; hydrology and water quality, including sediment, bathymetry, morphology, and sand loss; biological resources, including aquatic and terrestrial species and habitat; and the Public Trust. Each of these areas of known controversy is being evaluated by the Commission as part of its consideration of potential significant impacts, mitigation measures, and

alternatives and in the context of any decision whether to approve the Revised Project.

CEQA Guidelines section 15123(b) also requires an EIR to identify issues to be resolved, which include the choice among alternatives and whether or how to mitigate significant impacts. The following major issues are to be resolved:

- Determine whether the SEIR adequately describes the environmental impacts of the Revised Project.
- Choose among alternatives.
- Determine whether the recommended mitigation measures should be adopted or modified.
- Determine whether additional mitigation measures need to be applied to the Revised Project.

5.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As explained in Section 6.6 of the 2012 EIR, CEQA Guidelines section 15126.6(d) requires an EIR to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Section 15126.6(e)(2) further states, in part, that "*If the environmentally superior alternative is the "No Project" alternative*, the EIR shall also identify an environmentally superior alternative among the other alternatives."

As analyzed in Section 4 of this SEIR, the No Project Alternative would be the environmentally superior alternative because it would avoid all of the potential significant impacts of the Revised Project. Therefore, consistent with the direction in CEQA Guidelines section 15126.6(e)(2) and based on the comparison of alternatives provided in Section 4 of this SEIR, among the other alternatives, the Commission preliminarily has identified the Reduced Project Alternative as the environmentally superior alternative. Additional information received in or developed during the agency and public review period for the Draft SEIR or during the Project approval process that could affect the Lead Agency's decision in balancing the respective benefits and consequences of the alternatives. Therefore, this preliminary determination as to which alternative is the Environmentally Superior Alternative will be confirmed or corrected in the Final SEIR.

5.8 SOCIOECONOMIC EFFECTS

5.8.1 Background

CEQA Guidelines section 15064(e) and section 15131 advise lead agencies that economic and social changes resulting from a project "shall not be treated as significant effects on the environment." However, such effects "may be used to determine the significance of physical changes caused by the project" (CEQA Guidelines §15131(b)). Evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment does not constitute substantial evidence of a potential significant CEQA impact (Pub. Res. Code §21080(e)(2); see also, *V Lions Farming, LLC v. County of Kern* (2024) 100 Cal.App.5th 412).

Section 5 of the 2012 EIR concluded that the San Francisco Bay and Delta Sand Mining Project analyzed in the 2012 EIR would result in no adverse socioeconomic effect. For the reasons discussed below, Commission staff has reached the same conclusion for the Revised Project.

5.8.2 Setting

To determine whether the Revised Project could cause a new significant impact or a substantial increase in the severity of previously identified significant impact relating to socioeconomics than was disclosed in the 2012 EIR, CSLC staff relied on the same 7-county study area relied on for this purpose in the 2012 EIR: San Francisco, Marin, Sonoma, Napa, Solano, Contra Costa, and Alameda counties. This study area takes into account the lands surrounding the sand mining lease areas and offloading facilities.

Table 5.8-1, *Socioeconomic Statistics, Population and Employment Sectors,* summarizes the estimated 2020 population of the State and seven Bay Area counties proximal to sand mining extraction or offloading operations (i.e., Alameda, Contra Costa, Marin, Napa, San Francisco, Solano, and Sonoma) as well as employment sectors by overall percentage of employment. (U.S. Census Bureau 2021a, 2021b).

5.8.3 Analysis and Conditions

A socioeconomic effect could occur if the Revised Project led to a substantial increase or reduction in sand mining operations in San Francisco Bay (e.g., if the number of operating sand mining tugs and barges were to meaningfully change); if the volume of extracted sand substantially increased; or if the

Table 5.8-1. Socioeconomic Statistics, Population and Employment Sectors

Subject	California	San Francisco County	Alameda County	Marin County	Napa County	Sonoma County	Solano County	Contra Costa County
Total population	39,538,223	873,965	1,682,353	262,321	138,019	488,863	453,491	1,165,927
Agriculture, forestry, fishing and hunting, mining	2.0%	0.4%	0.3%	0.3%	4.2%	2.9%	0.8%	0.7%
Construction	6.6%	3.3%	5.9%	1.2%	6.0%	8.7%	10.5%	8.1%
Manufacturing	8.9%	5.7%	11%	1.1%	13.3%	9.6%	9.3%	6.3%
Wholesale trade	2.1%	1.1%	1.8%	0.6%	2.2%	2.6%	1.7%	1.5%
Retail trade	9.9%	8.2%	7.9%	1.6%	8.9%	10.9%	11.7%	10.3%
Transportation and warehousing, and utilities	6.2%	4.5%	5.9%	1.0%	3.6%	3.9%	6.2%	5.6%
Information	2.9%	6.3%	3.8%	1.0%	1.1%	2.0%	1.7%	2.0%
Finance and insurance, and real estate and rental and leasing	5.3%	8.4%	5.0%	1.3%	4.2%	4.5%	4.7%	7.1%

Subject	California	San Francisco County	Alameda County	Marin County	Napa County	Sonoma County	Solano County	Contra Costa County
Professional, scientific, and management, and administrative and waste management services	14.6%	26.6%	21.7%	2.8%	12.7%	14.0%	9.9%	19.2%
Educational services and health care and social assistance	22.3%	19.5%	21.2%	2.4%	21.9%	22.1%	22.1%	22.2%
Arts, entertainment, and recreation, and accommodation and food services	9.7%	8.1%	7.4%	1.3%	12.3%	9.3.%	9.5%	8.4%
Other services, except public administration	4.8%	4.0%	4.3%	1.3%	4.3%	5.0%	5.0%	4.6%
Public administration	4.6%	4.0%	3.7%	0.9%	5.3%	4.4%	6.8%	3.9%

Sources: U.S. Census Bureau 2021a, 2021b.

Revised Project resulted in the displacement of specific industry sectors, small businesses, or communities that rely on the land and its resources for their livelihood (e.g., if community of subsistence fishermen were displaced by the Revised Project).

An increased number of operating tugs and barges would require the employment of additional operators, deck hands, and shoreside personnel. Conversely, a decrease in number would lead to a reduction in these jobs. The number of jobs involved is not large; approximately 20 full-time equivalent (FTE) employee positions are directly involved as crew members on sand extraction tugs and barges. This is a minuscule fraction of the number of employed persons in the San Francisco Bay Area. Given that no change in the number of tugs and barges has been included in the proposed Project, no socioeconomic effect relating to a change in the marine industry sector associated with tug and barge use would occur.

A second, separate socioeconomic effect could result if the Revised Project increased the volume of extracted sand compared to the baseline volume. Such an increase would increase the availability of local sand to some construction projects, potentially replacing sand procured from other sources at a higher price. This would cause a marginal decrease in the cost of new construction where that sand is used. However, sand is one of the lowest-cost construction commodities, so the change in cost would likely be a very minor component of the overall cost of a construction project and unlikely to have substantial ripple effects as a consequence (such as increased demand). As the volume expected to be extracted is lower than was extracted under previous permits, the Revised Project would have no socioeconomic effect relating to construction industry sectors or building materials suppliers.

A third type of socioeconomic effect could result if the Revised Project displaced specific industry sectors, small businesses, or communities that rely on the land and its resources for their livelihood. This could occur if, for example, the Revised Project caused the level of activity at any of the offloading sites to change substantially, requiring the reduction of shoreside mobile equipment, operators, and management personnel; or if community of subsistence fishermen were displaced by the Revised Project. The Revised Project would reduce the maximum allowable annual volume of sand harvested by a total of 289,866 cubic yards per year. The Applicants currently use five out of the nine offloading facilities described and examined in the 2012 EIR (i.e., Petaluma, Mare Island, Collinsville, Pier 92, and Tidewater offloading facilities) and, as described in Section 2.4.3 of

this SEIR, the Revised Project would continue to do so. The change in annual harvested volume suggests that activity levels could be affected at offloading sites; however, the use of any particular offloading site may be influenced by a number of factors, including proximity to the mining sites, regional demand for mined sand, and site ownership or use agreements between the sand miners and the site operators. Because the Revised Project would continue existing, ongoing operations within the same lease areas using the same techniques and the same subset of offloading facilities, no socioeconomic effect relating to displacement of people or businesses would occur.

For these reasons, the Revised Project would cause no new significant impact and no substantial increase in the severity of previously identified significant impact on socioeconomics than was disclosed in the 2012 EIR.

5.8.4 Relationship to Alternatives

The 2012 EIR found that under the No Project Alternative, the local need for sand would be met using existing quarries and facilities. This could result in some displacement of employment at the offloading sites, as they become less active and more sand is mined, processed, and transported from sources on land. To the extent that the need for sand is met by imported sand transported to the Bay Area by ship, the offloading facilities would continue to be active. There would be a loss of direct employment of those workers who operate and maintain the tug and barge fleet.

5.8.5 Cumulative Effects

Because the Revised Project would have no direct or indirect socioeconomic effect, it could not cause or contribute to any cumulative socioeconomic impact.

5.9 ENVIRONMENTAL JUSTICE

Environmental justice is defined by California law as "the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code §65040.12). This definition is consistent with the Public Trust Doctrine's principle that management of trust lands is for the benefit of all people.

The CSLC adopted an updated Environmental Justice Policy and Implementation Blueprint in December 2018 to ensure that environmental justice is an essential

consideration in the agency's processes, decisions, and programs (CLSC 2018). The twelve goals outlined in the Policy reflect an urgent need to address the inequities of the past, so they do not continue. Through its policy, the CSLC reaffirms its commitment to an informed and open process in which all people are treated equitably and with dignity, and in which its decisions are tempered by environmental justice considerations. Among other goals, the policy commits CSLC to "Strive to minimize additional burdens on and increase benefits to marginalized and disadvantaged communities resulting from a proposed project or lease" (CLSC 2018).

Consistent with California law and the CSLC's Public Trust responsibilities, the CSLC discussed the distributional patterns of high-minority and low-income populations on a regional basis, characterized the distribution of such populations adjacent to the sand mining lease areas and the barge offloading facilities, and analyzed potential impacts in Section 5.2 of the 2012 EIR. The CSLC concluded that the San Francisco Bay and Delta Sand Mining Project analyzed in the 2012 EIR would result in no significant adverse effect on environmental justice considerations. For the reasons discussed below, CSLC staff have determined that the Revised Project would cause no new significant impact and no substantial increase in the severity of previously identified significant impacts relating to environmental justice considerations than was disclosed in the 2012 EIR.

5.9.1 Background

The U.S. Council on Environmental Quality (CEQ 1997) Environmental Justice Guidance defines "minorities" as individuals who are members of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black not of Hispanic origin, or Hispanic. The total minority population is calculated by subtracting the white alone, not Hispanic or Latino population from the total population. According to the CEQ Environmental Justice Guidance, minority populations should be identified if:

- A minority population percentage exceeds 50 percent of the population of the affected area.
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (for example, a governing body's jurisdiction, neighborhood census tract, or other similar unit).

In addition, the CEQ Environmental Justice Guidance defines "low-income populations" as populations with mean annual incomes below the annual

statistical poverty level (CEQ 1997). The CEQ does not provide a discrete threshold for determining when a low-income population should be identified for environmental justice. However, for consistency with the 2012 EIR, this analysis defines "low-income populations" in terms of household income. For 2025, the federal poverty guideline was defined as a household income less than $14,580 for a one-person household, and $24,860 for a family of three (U.S. Department of Health and Human Services 2025). Considering household income at the census block level (a census block presents a more granular resolution than a census tract; typically a census tract is made up of several census blocks), this analysis considers a population to be an environmental justice population if the low-income percentage (i.e., the percentage below the federal poverty guideline) of a census block is equal to or greater than 1.2 times that of the Community of Comparison.[26]

Census block groups with potentially significant minority populations are those having a percentage minority population more than 1.2 times that of the Community of Comparison.

The CSLC's Environmental Justice Policy and Implementation Blueprint (CLSC 2018) uses the terms "disadvantaged," "marginalized," and "vulnerable" interchangeably, intending to encompass a broader group of people than included in the definitions contemplated by SB 1000,[27] such as other low-income

[26] The concept of a Community of Comparison provides a basis for determining how disadvantaged a region might be, in relation to the community that surrounds it. Typically, the Community of Comparison is the smallest political entity that encompasses an impacted area. Generally it is a city, but other Communities of Comparison can occur. For example, the offloading site on the Petaluma River is on unincorporated land but is within the Sphere of Influence of the city of Petaluma. If it became necessary to examine environmental justice issues for an impacted region adjacent to that offloading site, the city of Petaluma's Sphere of Influence would be the most appropriate Community of Comparison.

[27] Footnote 1 of the Commission's policy (CSLC 2018) provides this explanation: "'*Disadvantaged communities*' is defined in… Health and Safety Code section 39711 as including those communities identified by CalEPA to be disadvantaged, taking into consideration environmental pollution and other hazards and concentrations of low income, high unemployment, and other socioeconomic factors. To identify these communities, CalEPA developed CalEnviroScreen and designated the highest scoring 25 percent of census tracts as disadvantaged communities. SB 1000 (Government Code §65302) defines *disadvantaged communities* as including those identified by CalEPA's

and minority populations that are disproportionately burdened by or less able to prevent, respond, and recover from adverse environmental impacts. It also uses the term *Native Nations* to encompass the federally and non-federally recognized California Native American tribes and tribal entities included on the list maintained by the Native American Heritage Commission.

5.9.2 Setting

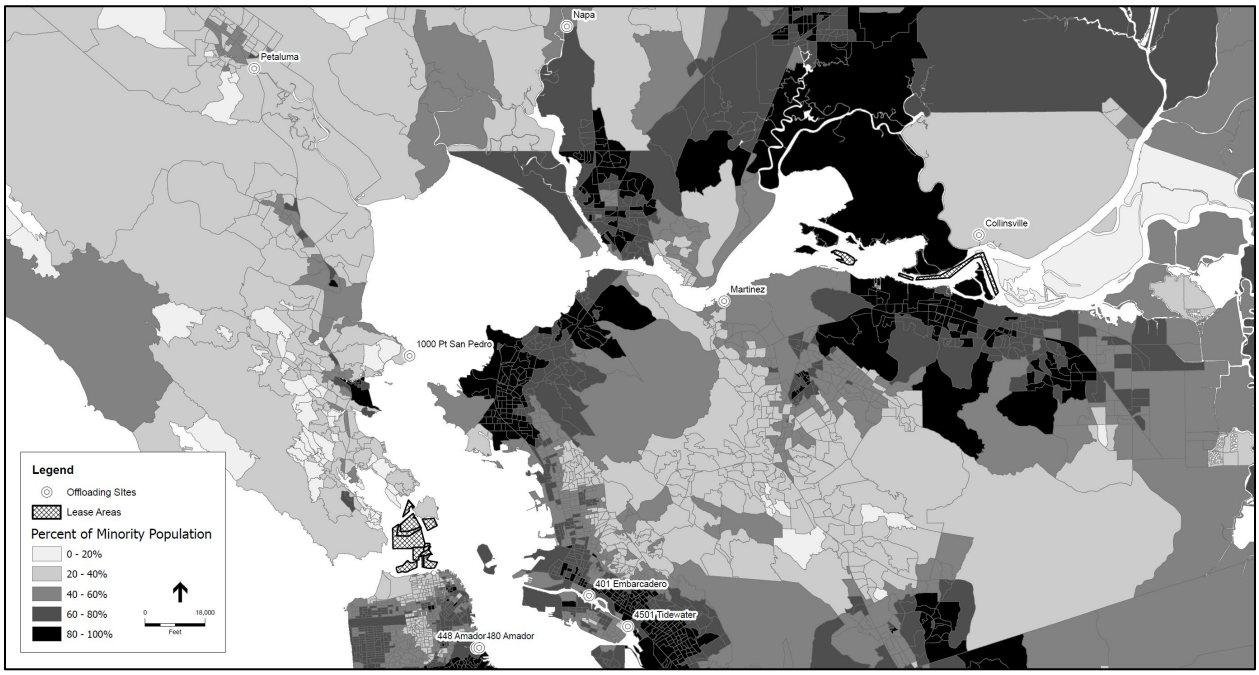
To determine whether the environmental justice aspects of the Revised Project could cause a new significant impact or a substantial increase in the severity of previously identified significant impact on environmental justice considerations than was disclosed in the 2012 EIR, CSLC staff relied on the same 7-county study area relied on for this purpose in the 2012 EIR: San Francisco, Marin, Sonoma, Napa, Solano, Contra Costa, and Alameda counties. This 7-county study area takes into account the lands surrounding the sand mining lease areas and offloading facilities.

Table 5.9-1 presents demographic data in the 7-county study area based on the most recently available information from U.S. Census 2021 American Community Survey 5-Year Estimates (U.S. Census Bureau 2021a, 2021b).[28] Using the definitions provided above, and the 2025 Demographic Update data, each census block group was evaluated for its percentage of minority populations. Separately, the average household income and household size for each census block group was used to evaluate the block group's relationship to the Federal poverty guideline. Figure 5-1 illustrates the percentage of minority populations in each block group. Figure 5-2 illustrates the ratio of household income level to poverty guideline, by block group. These maps also show the lease area boundaries and offloading sites. Several, but not all, of the offloading sites are in or very near areas that have high minority populations, low incomes, or both.

methodology, as well as 'an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.'"

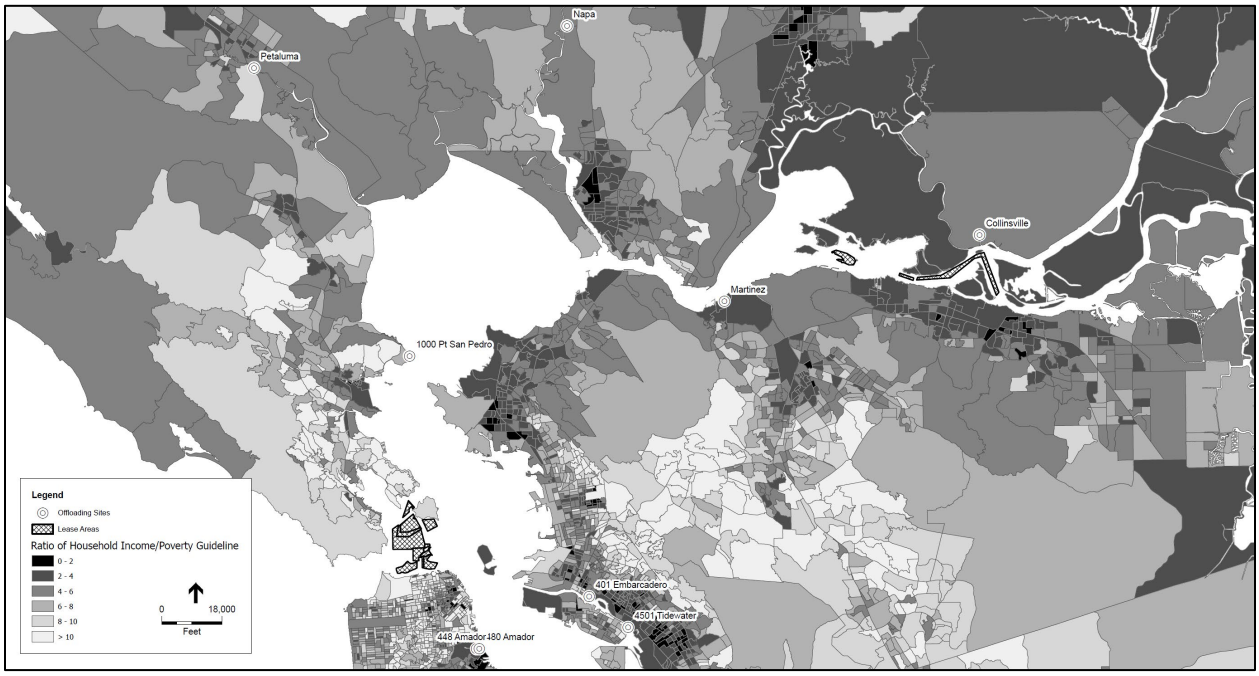
[28] American Community Survey estimates come from a sample population but collect more information and may be available sooner than data forms from the most recent full census of 2020. Because they are based on a sample of population, a certain level of variability is associated with the estimates. Supporting documentation on the American Community Survey's data accuracy and statistical testing can be found on the American Community Survey website in the Data and Documentation section available here: census.gov/programs-surveys/acs.

Figure 5-1. Percentage of Minority Population by Block Group



Source: Census, 2020; California State Lands Commission 2008, 2011; Hanson Marine Operations 2008; Hanson and Jerico 2007

Figure 5-2. Ratio of Mean Household Income to Federal Poverty Guideline by Block Group



Source: Census, 2023; California State Lands Commission 2008, 2011; Hanson Marine Operations 2008; Hanson and Jerico 2007

Table 5.9-1. Environmental Justice Statistics, Demographic Data

	Subject			
	Total population	**Median household income**	**Percent Minority**	**Percent below the poverty level***
California	39,538,223	$95,521	60.60%	12.00%
San Francisco County	873,965	$126,730	60.20%	12.00%
Alameda County	1,682,353	$119,931	69.40%	9.50%
Marin County	262,321	$139,644	28.20%	9%
Napa County	138,019	$104,686	49.50%	9%
Sonoma County	488,863	$100,707	38.80%	8.90%
Solano County	453,491	$100,027	61.00%	10.40%
Contra Costa County	1,165,927	$122,794	58.40%	8.30%

Notes:

* Poverty threshold as defined in the American Community Survey is not a singular threshold but varies by family size. Census data provides the total number of persons for whom the poverty status is determined and the number of people below the threshold. The percentage is derived from this data.

Sources: U.S. Census Bureau 2021a, 2021b.

5.9.3 Analysis and Conditions

5.9.3.1 Population and Economic Characteristics

Section 5.2.2 of the 2012 EIR explains that extraction activities on the leases do not present typical environmental justice concerns because the leases are so far removed from residential areas that the activities on the leases have no material effect on any residential area. For this reason, the 2012 EIR focused its environmental justice analysis on two considerations: (1) the possibility that the proposed sand mining could affect the health of low-income or minority populations who rely on fishing in the Bay to supplement their diet; and (2) impacts on low-income or minority populations near offloading areas. Because the Revised Project would use the same lease areas and fewer offloading sites as analyzed in the 2012 EIR and because proposed activities

would occur no closer to any residential area, the focus for this SEIR remains directed at the two considerations identified in the 2012 EIR.

In regard to the first issue, the 2012 EIR reached the conclusion that the likelihood of the Project causing an increased risk of disease in minority or low-income populations, or any person catching Bay fish for food, is negligible.

Regarding impacts on low-income or minority populations near offloading areas, the only impact that has the potential to affect populations in residential areas near offloading areas is toxic air emissions. As noted in Section 4.5 of the 2012 EIR regarding Air Quality, during offloading, toxic air emissions from diesel-powered equipment occur close to residential areas at (and only at) the Oakland Tidewater offloading site. For that location, the air emissions modeling results described in Section 4.5 and depicted in Figure C-4 in Appendix C of the 2012 EIR, showed a dispersion plume of diesel particulate matter in the immediate vicinity of the offloading site.

As described in the 2012 EIR, the innermost area shown in Figure C-4 represents an increased risk of additional cancer cases at a rate of 10 additional cancer deaths per million, but that area covers industrial land uses only. However, the outermost area, representing an increased risk at a rate of one to two cancer deaths per million, covers some residences. Other areas between the innermost and outermost areas do not cover any residences. At the time the 2012 EIR Notice of Preparation was issued, these impacts were below the CEQA threshold of significance for toxic air emissions established by the Bay Area Air Quality Management District (BAAQMD) (BAAQMD 1999). However, because BAAQMD had recently adopted new CEQA Guidelines which reduced the significance threshold for health risk to one additional cancer death per million in areas that are most heavily impacted by toxic air emissions (BAAQMD 2010), the 2012 EIR examined the vicinity of the Oakland Tidewater offloading site in accordance with the then-updated BAAQMD guidelines to determine if the population was either low-income or high-minority relative to its Community of Comparison, which is the city of Oakland.

BAAQMD has since updated its guidelines again in 2022, but did not reduce the significance threshold for cancer deaths due to toxic air emissions any further. As discussed in the context of air quality in Section 3.6, the Revised Project would result in toxic air contaminant exposure levels that would be less than those disclosed in the 2012 EIR for the approved project and would continue to result in less-than-significant impacts relative to the 1999 BAAQMD significance thresholds as well as relative to the current (2022) BAAQMD significance

thresholds. Therefore, the conclusions reached in the 2012 EIR regarding these health impacts on a high-minority or low-income community are unchanged.

Consistent with the CSLC's Environmental Justice Policy, which includes a commitment to work with Federal, State, regional, and local agencies to ensure consideration of disproportionate impacts on relevant populations, by instant or cumulative environmental pollution or degradation, the 2012 EIR examined the vicinity of the Oakland Tidewater offloading site, referred to as the Oakland Offloading Vicinity, which covers portions of two Census block groups. Table 5.9-2 compares these two Census block groups to the city of Oakland as a whole, in terms of minority population. Table 5.9-3 makes the same type of comparison, in terms of household income as it relates to the 2025 Federal poverty guideline. The Federal poverty guideline amount varies with the number of persons per household, so the amount can vary from block group to block group. Therefore, for this comparison, in each block group, the average number of persons per household was used to determine a poverty guideline income level applicable to that block group.

In sum, the minority population levels in the Oakland Tidewater Offloading Vicinity do not present an environmental justice issue, because the proportion of minority residents in each of the two block groups is not significantly more than in Oakland as a whole. However, with regard to income level, block group 4073.001 has a significantly higher percentage of households below the Federal Poverty Guideline (as it applies to that block group) than does the city of Oakland. Therefore, the CSLC Environmental Justice Policy would apply to this block group and will be considered by CSLC staff during review of the lease application.

5.9.2.2 California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen 4.0 Results

Developed by CalEPA's Office of Environmental Health Hazard Assessment (OEHHA), CalEnviroScreen identifies California communities with the highest pollution burdens and vulnerabilities and considers environmental, health, and socioeconomic information to produce scores and rank every census tract in the state. A census tract with a high score is one that experiences a much higher pollution burden than a census tract with a low score. State and local agencies use CalEnviroScreen to better understand and address environmental concerns in California communities. The latest version of the tool, CalEnviroScreen 4.0, analyzes the latest data from 21 indicators of environmental, public health and socioeconomic conditions in California's 8,000 census tracts to help policymakers prioritize activities and funding to assist communities that are disproportionately

Table 5.9-2. Minority Populations in Oakland Offloading Vicinity

	Population	
	Total	**Percent Minority**
City of Oakland	**436,504**	**71.3%**
Census Block Group 4073.001	1,366	91.1%
Census Block Group 4073.002	2,577	79.3%

Notes:

a. Counts are based on aerial photos taken in early 2025.

b. Block groups with potentially significant minority populations are those having a percentage minority population more than 1.2 times that of the Community of Comparison, and residential buildings within the Area of Concern.

Source: ESRI 2025

Table 5.9-3. Low-Income Households in Oakland Offloading Vicinity

	Households		
	Total	**Percent Below Federal Poverty Guideline**	
City of Oakland	**167,909**	**13%**	---
Census Block Group 4073.001	427	29.6%	15
Census Block Group 4073.002	451	21.4%	40

Notes:

a. Counts are based on aerial photos taken in early 2025

b. Block groups with potentially significant low-income populations are those having a percentage of low-income households more than 1.2 times that of the Community of Comparison, and residential buildings within the Area of Concern.

Source: ESRI 2025

burdened by multiple sources of pollution by promoting compliance with environmental laws, prioritizing site-cleanup activities and identifying opportunities for sustainable development. These indicators range from air and drinking water contaminants to pesticide use, toxic releases, cleanup sites, low birth weight infants, poverty and unemployment. A supplemental analysis accompanying the latest version of CalEnviroScreen showed the dramatic differences in the racial composition of the state's census tracts depending on their pollution burdens and vulnerabilities. The analysis found that the population of the top 10 percent of neighborhoods with the highest pollution burdens and vulnerabilities consist of 91 percent people of color, while the population of the 10 percent of neighborhoods with the lowest pollution burdens and vulnerabilities is 67 percent white.

CalEnviroScreen was not available as a tool during the preparation of the 2012 EIR, so the Commission is considering the results reported below for the first time in the context of the Revised Project. For purposes of the SEIR, the Census Tracts in which are located the five sites that will continue to be used for offloading activities were examined for the level of environmental and socioeconomic burden they carry, as compared to other communities in the state.

The Census Tract which encompasses the Petaluma offloading site has a CalEnviroScreen 4.0 percentile score of 60.6, placing it in the 61st to 70th percentile statewide. This indicates a moderate level of cumulative environmental and socioeconomic burdens compared to other communities in the state. The Census Tract in which the Mare Island offloading site is located falls within the 81st to 85th CalEnviroScreen 4.0 percentile statewide, suggesting it experiences higher cumulative environmental burdens than many other communities in the state. The offloading site located in Suisun City has a CalEnviroScreen 4.0 percentile score of 65-70 percent, representing a moderate-to-high environmental burden. Both the Tidewater offloading site in Oakland and the San Francisco offloading site, located in the Bayview-Hunter's Point neighborhood, fall within the 91st to 95th percentile according to CalEnviroScreen 4.0 data, placing them in some of the most highly burdened communities with respect to environmental and socioeconomic concerns, marking both of these as communities disproportionately burdened by environmental pollution.

Primary sources of pollutant exposures in these areas are traffic (i.e., exhaust from vehicles containing a large number of toxic chemicals, including oxides of nitrogen, carbon monoxide, and benzene), air quality (ozone and particulate matter), drinking water contamination, and hazardous waste facilities. Although these communities are undeniably environmental justice communities burdened by multiple sources of pollution, the analyses contained in the SEIR show that the

Revised Project would not cause an adverse change to existing conditions and so would not cause a significant environmental justice impact.

5.9.4 Relationship to Alternatives

The only environmental justice issue that would be affected under the No Project Alternative is the health risk from toxic air contaminants to populations in the vicinity of the Oakland offloading site. The No Project Alternative could potentially have lower impacts to air quality at the Oakland offloading site, and thus potentially fewer environmental justice impacts.

5.9.5 Cumulative Effects

As described, the Revised Project is essentially a continuation of existing sand mining operations, with some modification of the quantities that are permitted to be extracted. Although the cumulative effects scenario has been updated relative to the 2012 EIR (see SEIR Section 3.1.5), the analysis provided on a resource-by-resource basis in Section 3 of this SEIR shows that the Revised Project would cause no new significant impact and no substantial increase in the severity of a significant impact in the cumulative context than was disclosed in the 2012 EIR, including on any of the environmental factors that could disproportionately affect high-minority or low-income populations.

5.10 CLIMATE CHANGE AND SEA LEVEL RISE

5.10.1 Environmental Setting

Climate change, including sea level rise, impacts geophysical conditions of coastal zones in California, including in and around San Francisco Bay and in areas overlying the Revised Project site. Climate change and sea level rise will accelerate and exacerbate natural coastal processes, such as erosion and sediment transport; the intensity and frequency of storms, and wave action, currents; and ocean chemistry. Sea level rise is primarily driven by the thermal expansion of sea water as well as the melting of polar ice caps and land ice. Accelerating rates of sea level rise are attributed to increasing global temperatures due to human-induced greenhouse gas emissions.

According to the Intergovernmental Panel on Climate Change (IPCC)'s Sixth Assessment Report (AR6), global mean sea level increased by 0.7 feet between 1901 and 2018 (IPCC 2023). The average rate of sea level rise was 0.05 inches per year between 1901 and 1971, increasing to 0.07 inches per year between 1971 and 2006, and further increasing to 0.1 inches per year between 2006 and

2018. AR6 attributes the global retreat of glaciers since the 1990s and the decrease in Arctic Sea ice area between 1979 and 1988 as well as 2010 and 2019 to human-induced climate change via greenhouse gas emissions.

In addition to higher sea levels, climate change will cause higher intensity and more frequent precipitation that will further impact coastal areas (Sweet et al. 2022). The combination of these conditions will likely result in increased storm surge, wave run up, and flooding in and near coastal areas as well as in rivers and tidally-influenced waterways. Climate change and sea level rise will cause changing erosion and sedimentation rates, therefore impacting beaches, coastal landscape, and riverine areas. These areas will likely experience quicker rates of erosion due to increased run-up, wave force, and total water levels. Nonetheless, sediment deposition and accretion could accelerate along some shorelines, estuaries, and coasts, as rivers and creeks are expected to experience more intense sedimentation pulse events as a result of strong winter storms (intensifying sediment-bearing runoff) and periods of drought (intensifying the erodibility of watershed soils). Erosion, loss of shoreline, storm surge, and increased wetland inundation are all potential effects of accelerated sea level rise that could displace coastal human, vegetation, and wildlife populations, intensify coastal flooding, damage infrastructure, and lead to the loss of recreation areas, access to beaches, and public and private property.

5.10.2 Regulatory Setting

Executive Order B-30-15 instructed all State agencies to take climate change into account when making planning and investment decisions and to prioritize actions that enhance climate preparedness. More recent legislation has built on Executive Order B-30-15, ensuring its GHG emissions targets are legally binding and setting even more vigorous climate goals for California, including Senate Bill 32 in 2016, Executive Order B-55-18 in 2018, and Assembly Bill 1279 in 2022. The following discussion of climate change and sea level rise is intended to provide the regional overview and context considered by Commission staff pursuant to this Executive Order as well as facilitate the Commission's consideration of the Revised Project.

Because sea level rise could have substantial effects on coastal environments, federal and state agencies have developed guidance for incorporating sea level rise into project design and planning. The San Francisco Bay Conservation and Development Commission (BCDC) adopted its revised San Francisco Bay Plan Climate Change Policy Guidance in 2021. As revised, BCDC's policy

provides non-regulatory information to assist in the development of prospective projects regarding the requirements of climate change policies with permit applicants, local jurisdictions, and the public (BCDC 2021). It outlines State guidance on sea level rise, addresses the need to plan and prepare for sea level rise, and provides guidance on Bay Plan climate change policies and permitting. Its sea level rise projections reflect those outlined in the 2024 State Sea Level Rise Guidance document, discussed below.

The IPCC adopted a set of emission scenarios referred to as representative concentration pathways (RCPs), which represent a set of four future pathways named for the associated radiative forcing level[29] in 2100 relative to pre-industrial values: RCP 8.5, RCP 6.0, RCP 4.5, and RCP 2.6. In 2018, the Ocean Protection Council (OPC) published its State of California Sea-Level Rise Guidance document, which was updated and replaced in 2024. The 2018 document used three of the above RCPs to predict sea level rise, while the 2024 version provides sea level scenarios spanning a range of emissions pathways rather than several sets of probabilistic projections each linked to a different RCP (OPC 2024). The 2024 version reflects the more recent scientific research on sea level rise projections, incorporating the IPCC's 2023 AR6 report and NOAA's 2022 Federal Sea Level Rise Technical Report, titled Global and Regional Sea Level Rise Scenarios for the United States. These updates were incorporated into the report through a set of five California Sea Level Scenarios from 2020 to 2150 (OPC 2024). These scenarios are summarized for 2030, 2050, 2100, and 2150 in Table 5.10-1, San Francisco Sea Level Projections, by Scenario, below.

5.10.3 Environmental Considerations

Although the BCDC climate change and sea level rise policy guidance is advisory, the BCDC encourages projects to maintain consistency with it. The guidance directs projects to consider sea level rise in their planning, design, and engineering throughout the project life cycle and that, when necessary, projects pursue alternatives that minimize risks to the project and nearby coastal resources.

[29] The radiative forcing level refers to the globally averaged heat-trapping capacity of the atmosphere measured in watts/ square meter.

Table 5.10-1. San Francisco Sea Level Projections, by Scenario (in feet)[a]

	Low	Int-Low	Interm-ediate	Int-High	High
Year					
2030	0.3	0.4	0.4	0.4	0.4
2050	0.5	0.6	0.8	1.0	1.3
2100	1.0	1.6	3.1	4.8	6.5
2150	1.3	2.6	6.0	8.1	11.7
Exceedance Probabilities [b]					
Low Confidence Processes, Low Warming	90%	49%	7%	1%	<0.1%
Low Confidence Processes, High Warming	99.5%	96%	49%	20%	8%

Notes:

a. These projections represent the median values (50th percentile) for Sea Level Scenarios for California, relative to a 2000 baseline. Each scenario is defined and labeled according to the target value of global mean sea level rise in 2100: low (1.0 ft by 2100); Intermediate-Low (1.6 ft by 2100); Intermediate (3.3 ft by 2100); Intermediate-High (4.9 ft by 2100); High (6.6 ft by 2100).
b. The exceedance probabilities for the Sea Level Rise Scenarios are based on IPCC warming level-based global mean sea level projections.

Source: OPC 2024.

The inundation or flooding risk presented by sea level rise would not affect the Revised Project, as it is primarily located within submerged lands already overlain by water depths of 35-50 feet or more. While it is not expected that sea level rise would have direct impacts on sand mining operations, secondary impacts are more difficult to predict. As discussed in Section 5.10.1, sea level rise is expected to lead to the narrowing of beaches. Independently, a loss of coastal sediment could cause a loss of beach width. If these secondary impacts did occur, they would be considered effects of the environment on the project, not effects of the project on the environment.

As discussed in Section 3.4, Hydrology and Water Quality, changes to bathymetry and geomorphology are limited to the mined areas and, relative to No Proposed Mining, the Revised Project is not likely to cause a significant impact

on sediment transport and sand budgets in areas outside the vicinity of the lease areas, such as the San Francisco Bar or Ocean Beach. Section 3.4 also states that linkages between sub-embayment's sediment supply and exports are limited in the San Francisco Bay and sand transport between Central Bay and Suisun Bay is not observed. Thus, no substantial change in volume of sediment in the littoral system, and therefore a potential loss of beach area, is not expected to occur as a result of the Revised Project, as it is not expected to affect sediment transport outside of the immediate vicinity of the lease areas. Therefore, any changes to coastal sediment properties or beach widths pertaining to sea level rise would not be connected to the Revised Project and there would be **no impact.**

5.11 PUBLIC TRUST

The Commission is primarily a land and resource trust manager. The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. All tidelands and submerged lands, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust. The State holds these lands, known as "sovereign lands" for the benefit of all the people of the State, subject to the Public Trust. Public Trust purposes include, but are not limited to, waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. The Commission may grant leases on these State lands for such purposes as, but not limited to, ports, marinas, docks and wharves, mining, and dredging. The Revised Project involves the continued use of State sovereign lands under the CSLC's jurisdiction for Public Trust purposes.

Pursuant to its Public Trust responsibilities, the Commission is assessing the potential effects of the Revised Project on Public Trust resources and values. ~~The Commission analyzed the Project approved under the 2012 EIR and found sand mining to be a Public Trust use under the purposes of waterborne commerce and navigation (Item 33, June 18, 2016)~~. In a legal challenge to the 2012 EIR, the court in *San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal. App. 4th 202 and confirmed in *San Francisco Baykeeper, Inc. v. State Lands Commission* (2018) 29 Cal. App. 5th 562, 568 (Baykeeper II), noted that the Commission has authority as public trustee of the submerged lands under the Bay to approve commercial sand mining subject to its affirmative duty to take

the Public Trust into account. Although sand mining approved by the CSLC in the 2012 EIR is "not categorically permissible as a public trust use, the [CSLC] may authorize private uses of trust property that do not impair the trust." (Baykeeper II, 29 Cal. App. 5th at 580). The court, relying on the CSLC's statutory authority (Cal. Pub. Resources Code secs. 6301, 6895, and 6900, amended) and findings in its staff report reapproving the sand mining leases (Item 33, June 28, 2016), held that the CSLC had substantial evidence to conclude that "sand mining activities would not impair public trust uses by either substantially depleting the sand resource or substantially interfering with sand transport and coastal morphology at the San Francisco bar and Ocean Beach." (*Id.*) CSLC believes that despite new information and studies conducted since 2012, this SEIR presents substantial evidence supporting a similar finding for the Revised Project (see Section 3.4.5) and documents the Commission's assessment of the potential effects of the Revised Project on Public Trust resources and values with analysis upheld by the court in Baykeeper II concluding that the CSLC performed its duty to take the Public Trust into account and that the CSLC's finding that sand mining, of the type described in the Revised Project, will not impair public trust uses or values.

That analysis and its conclusion applies to the Revised Project. In this SEIR, environmental resource specialists have worked with Commission staff to define the environmental setting as it pertains to the Public Trust, define impact criteria for each identified resource issue area, describe effects (whether adverse or beneficial), and develop avoidance and minimization measures to reduce adverse effects to ensure that continued mining operations, if approved, would be conducted in an environmentally sound manner that minimizes interference with other Public Trust values. The potential effects of the Revised Project on Public Trust resources and values are analyzed on a resource-by-resource basis in Section 3, Environmental Analysis.

6.0 MITIGATION MONITORING PROGRAM

As the Lead Agency under the California Environmental Quality Act (CEQA), the California State Lands Commission (CSLC) is required to adopt a program for reporting or monitoring regarding the implementation of mitigation measures (MMs) for the proposed San Francisco Bay and Delta Sand Mining Project (Revised Project), if it is approved, to ensure that the adopted MMs are implemented as defined in this Supplemental Environmental Impact Report (SEIR). This Lead Agency responsibility originates in Public Resources Code section 21081.6(a) (Findings, Mitigation Monitoring and Reporting), and the State CEQA Guidelines sections 15091(d) (reporting on or monitoring mitigation) and 15097 (Mitigation Monitoring or Reporting).

6.1 MONITORING AUTHORITY

The purpose of a Mitigation Monitoring Program (MMP) is to ensure that measures adopted to mitigate or avoid significant impacts are implemented. A MMP can be a working guide to facilitate not only the implementation of mitigation measures by Project proponents, but also the monitoring, compliance, and reporting activities of the CSLC and any monitors it may designate.

As Lead Agency, CSLC may delegate duties and responsibilities for monitoring to other qualified environmental monitors or consultants as deemed necessary, and such monitoring responsibilities may be assumed by responsible agencies, such as the California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service, National Marine Fisheries Service (NMFS), San Francisco Regional Water Quality Control Board (RWQCB), BCDC, USACE and the affected jurisdictions. The number of monitors assigned to the Revised Project will depend on the number of concurrent mining activities and their locations. The CSLC or its designee(s), however, will ensure that each person delegated any duty or responsibility is qualified to monitor compliance.

Any mitigation measure (MM) that requires the approval of the CSLC must allow at least 60 days for adequate review time. When an MM requires that a mitigation program be developed during the design phase of the project, the applicant must submit the final program to CSLC for review and approval at least 60 days before mining begins. Other agencies and jurisdictions may require additional review time. It is the responsibility of the environmental monitor assigned to each measure to ensure that appropriate agency reviews and approvals are obtained.

CSLC or its designee will also ensure that any deviation from the procedures identified under the monitoring program is approved by CSLC. Any deviation and its correction shall be reported immediately to the CSLC or its designee by the environmental monitor assigned to the mining event.

6.2 ENFORCEMENT RESPONSIBILITY

The CSLC is responsible for enforcing the procedures adopted for monitoring through the environmental monitor assigned to each mining event. Any assigned environmental monitor shall note problems with monitoring, notify the appropriate agencies or individuals about any problems, and report the problems to the CSLC or its designee.

6.3 MITIGATION COMPLIANCE RESPONSIBLITY

The Applicants are responsible for successfully implementing all the mitigation measures in the MMP and is responsible for assuring that these requirements are met by all of its mining contractors and field personnel. Standards for successful mitigation also are implicit in many MMs that include such requirements as obtaining permits or avoiding a specific impact entirely. Other mitigation measures include detailed success criteria. Additional mitigation success thresholds will be established by the applicable agencies with jurisdiction through the permit process and through the review and approval of specific plans for the implementation of the MMs.

6.4 GENERAL MONITORING PROCEDURES

6.4.1 Environmental Monitors

Monitoring procedures will be conducted during the mining events. The CSLC and the environmental monitor(s) are responsible for integrating the mitigation monitoring procedures into the mining events in coordination with the Applicants. To oversee monitoring procedures and to ensure success, the environmental monitor assigned to each mining event must be on site during that portion of an event that has the potential to create a significant environmental impact or other impact for which mitigation is required. The environmental monitor is responsible for ensuring that all procedures specified in the monitoring program are followed.

6.4.2 General Reporting Procedures

Site visits and specified monitoring procedures performed by other individuals will be reported to the environmental monitor assigned to the relevant mining events. A monitoring record form will be submitted to the environmental monitor by the individual conducting the visit or procedure so that details of the visit can be recorded and progress tracked by the environmental monitor. A checklist will be developed and maintained by the environmental monitor to track all procedures required for each MM and to ensure that the timing specified for the procedure is adhered to. The environmental monitor will note any problems that may occur, and any appropriate actions taken to rectify the problem.

6.4.3 Public Access to Records

The public is allowed access to records and reports used to track the monitoring program. Monitoring records and reports will be made available for public inspection by the CSLC or its designee on request.

6.5 TABLE OF MITIGATION

This section presents the mitigation monitoring table (Table 6-1) for each resource area that requires mitigation measures. Table 6-1 includes those MMs required to avoid, minimize, or mitigate the potential impacts of the Revised Project. The CSLC is responsible for ensuring the implementation of the measures. For MMs from the 2012 EIR that are unchanged and also applicable to the Revised Project, CSLC would coordinate with responsible agencies to ensure their implementation. Impacts that do not require mitigation are not included (see Executive Summary for a summary description of all impacts associated with the Revised Project).

For each significant impact, the following information is listed.

- Impact (number, title, and classification);
- Mitigation Measure (summary text of the measure);
- Location (where the impact occurs and where the mitigation measure should be applied);
- Monitoring reporting action (the action to be taken by the monitor or Lead Agency);
- Effectiveness criteria (how the agency can know if the measure is effective);

- Responsible agency; and
- Timing (during operation, etc.).

Table 6-1. Mitigation Monitoring Program

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
BIO-6: The Revised Project could result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging (Potentially significant, Class II).	BIO-6: Establish a 100-foot buffer around hard-bottom areas within and adjacent to Central Bay mining leases. Sand mining dredging operations must maintain a sufficient buffer zone around all hard bottom areas, especially Harding, Shag, and Arch rocks, such that dredging equipment does not come into physical contact with these sensitive hard bottom areas. This buffer zone will, at a minimum, be 100 feet from the outward edge of any hard bottom feature. In the event dredging equipment comes into physical contact with any hard bottom area during the term of the leases, it shall be immediately reported to the CSLC, who shall establish a new minimum buffer zone distance.	Hard bottom areas within and adjacent to Central Bay mining leases	Applicants to submit quarterly E-Trac data of Central Bay mining events.	Evidence that sand mining has taken place only outside the 100-foot buffer and hard bottom areas in the vicinity of the Central Bay leases.	CSLC	Quarterly E-Trac data to be submitted.
BIO-8: The Revised Project operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt (Potentially Significant, Class II).	BIO-8: Applicants shall implement operational measures to minimize the potential for entrainment and mortality of delta and longfin smelt. • ~~Timing of dredging relative to the location of 2 parts per thousand (ppt) salinity (X2).~~ To protect delta and longfin smelt and potentially eggs and larvae from mortality related to entrainment, sand mining activities shall be restricted in both volumes and locations in all Delta mining leases~~upstream of the X2 location~~ from December 1 through June 30 each year, and from December 1 to April 30 in 2026. ~~The degree and duration of mining restrictions, and the specific locations where mining should be restricted during this sensitive seasonal period will be based on factors including the specific location of X2 relative to mining activities, species presence and relative abundance in the Revised Project area based on sampling data from the nearest survey stations, and the overall status of the species (population trend).~~ Specific seasonal restrictions, conditions, and operational requirements have been established in	Applicable to all mining locations.	Applicants shall submit to CSLC written documentation that they have obtained an Incidental Take Permit (ITP) and have complied with the conditions contained in the ITP.	Evidence of a CDFW-approved Incidental Take Permit	CSLC/CDFW	Within 12 months of issuance of new leases approval, permits shall be obtained. Provide evidence of ITP issuance and any amendments to these permits within 5 days of permit issuance.

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	the current amended ITPs issued by CDFW on April 1, 2014, (No. 2081-2012-012-03 and No. 2081-2013-047-03 amended on 8/14/23, 10/14/24, ad 8/26/25), will continue to be set through consultation with CDFW, and would likely be a requirement of any ITP that may be issued for the Revised Project. • Current r~~R~~estrictions imposed on sand mining operations, as specified in ~~any~~ ITPs (CDFW 2014) and their amendments required for the Revised Project are expected to have comparable effect as current restrictions on sand mining operations, which, as specified in the NMFS Biological Opinion and the USFWS Letter of Concurrence, serve to avoid and minimize take of delta and longfin smelt. These conditions include restrictions on pump priming, limiting the total mining volume, prohibiting mining in areas of shallow water depth and in proximity to shorelines, restricting mining to the designated lease areas which are away from sensitive habitat, and monitoring and reporting the location of each mining event. • Applicants will consult with CDFW and obtain ITPs for their activities prior to the commencement of any new mining under any renewed lease issued by CSLC or BCDC for the Revised Project. To further minimize take, the Applicants shall keep the end of the pipe and drag head as close to the bottom as possible, and no more than three feet from the bottom, when priming the pump or clearing the pipe. • As determined by CDFW in their issuance of an ITP for aggregate mining activities, Applicants will provide compensatory mitigation to a CDFW-approved mitigation or conservation bank covering smelt habitat. • The Applicants shall provide a copy of any final ITP issued by CDFW and any amendment to a final ITP to the CSLC and the San Francisco Bay Conservation					

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	and Development Commission (BCDC) within five working days of receipt.					
BIO-9: The Revised Project could cause the entrainment and mortality of green sturgeon, white sturgeon, Chinook salmon and steelhead trout during sand mining. (Potentially Significant, Class II).	BIO-9a: Applicants shall minimize the potential for entrainment and mortality of white sturgeon. • Applicants will consult with CDFW as to whether an ITP is required for their activities prior to the commencement of any new mining under any renewed lease issued by CSLC or BCDC for the Revised Project. If an ITP is required by CDFW, it must be obtained before initiating any new mining under the Revised Project. The Applicants shall provide a copy of the final ITP issued by CDFW and any amendments to that permit to the CSLC and BCDC within five working days of receipt.	Applicable to all mining locations.	Applicants shall submit to CSLC written documentation that they have obtained an Incidental Take Permit (ITP) and have complied with the conditions contained in the ITP.	Evidence of a CDFW-approved Incidental Take Permit and compliance with its conditions.	CSLC/CDFW	Within 12 months of issuance of new leases approval, permits shall be obtained. Provide evidence of ITP issuance and any amendments to these permits within 5 days of permit issuance.
BIO-9: The Revised Project could cause the entrainment and mortality of green sturgeon, white sturgeon, Chinook salmon and steelhead trout during sand mining. (Potentially Significant, Class II).	BIO-9b: Applicants shall implement operational restrictions and requirements for the avoidance and minimization of entrainment of Chinook salmon • Current restrictions on sand mining operations, as specified in the NMFS Biological Opinion and the USFWS Letter of Concurrence serve to avoid and minimize take of Chinook salmon. These conditions include restrictions on pump priming, limiting the total mining volume, prohibiting mining in areas of shallow water depth and in proximity to shorelines, restricting mining to the designated lease areas which are away from sensitive habitat, and monitoring and reporting the location of each mining event. Restrictions imposed in the final ITP for the Revised Project are expected to have comparable effect. • Applicants will consult with CDFW and obtain ITPs for their activities prior to the commencement of any new mining under any renewed lease issued by CSLC or BCDC for the Revised Project. To further minimize take, the Applicants shall keep the end of the pipe and drag head as close to the bottom as possible,	Applicable to all mining locations.	Applicants shall submit to CSLC written documentation that they have obtained an Incidental Take Permit (ITP) and have complied with the conditions contained in the ITP.	Evidence of a CDFW-approved Incidental Take Permit and compliance with its conditions.	CSLC/CDFW	Within 12 months of issuance of new leases approval, permits shall be obtained. Provide evidence of ITP issuance and any amendments to these permits within 5 days of permit issuance.

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	and no more than three feet from the bottom, when priming the pump or clearing the pipe. • The Applicants shall provide a copy of the final ITP issued by CDFW for the Revised Project and any amendments to this permit to the CSLC and BCDC within five working days of receipt. In addition to the conditions of the final ITP, the following avoidance and minimization measures (developed in consultation with federal and state fish and wildlife agencies) to fully protect and mitigate impacts to juvenile Chinook salmon shall be implemented: • Operation and maintenance of the positive barrier fish screen on sand mining equipment; • Implementation of NMFS and USFWS operational restrictions on pump priming and clearing; • Review and approval by state and federal resource agencies of the mining operations of entrainment and impingement of juvenile salmonids avoidance measures within each agency's authority; and • Compliance monitoring and reporting to CDFW and other state and federal agencies.					
HAZ-1: Potential for accidental leak or spill of hazardous materials (Potentially Significant, Class II)	HAZ-1: Provide a current California non-tank Vessel Contingency Plan (CANTVCP)/ Certificate of Financial Responsibility (COFR) and spill response plan to the CSLC.	As applicable.	Provide evidence of CDFW approval of CANTVCP/ COFR and spill response plan to CSLC.	Evidence of approved CANTVCP or equivalent COFR and spill response plan.	CDFW Office of Spill Prevention and Response/ CSLC.	Within three months of certification of the EIR.
AIR-8: The Revised Project would result in emissions of GHGs that may have a significant impact on climate change (Potentially Significant, Class II).	AIR-1 Implement a Greenhouse Gas Reduction Plan Prior to startup of any new sand mining operations, the Project Applicants shall prepare and submit to the California State Lands Commission (CSLC) staff for approval a GHG Reduction Plan that demonstrates how the Applicants will lower and/or offset Project-related GHG emissions, such that GHG emissions will not exceed 5,400 metric tons of CO_2e in any calendar year during	Applicable to all mining locations.	Applicants shall provide the verified results of this inventory to the CSLC along with a description of how the GHG Reduction Plan is	Verified annual GHG inventories must demonstrate reduction or offset of GHG emissions to target level.	CSLC or designated monitor.	Annual reports to be submitted to CSLC by March 31 each year.

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	the 10-year lease period, or a total of 54,000 metric tons for the 10-year life of the Project. The GHG Reduction Plan shall include: • A detailed baseline inventory that identifies and calculates all sources of GHG emissions during the last full calendar year of mining operations. This inventory shall be verified by an accredited third-party verification body and reported to The Climate Registry. • A description of the strategies that the Applicants will employ to reduce and/or offset GHG emissions. Examples of such strategies include: o "Cold ironing" of vessels, where power from the electrical grid is substituted for diesel power during off-loading and while vessels are docked. o Use of biofuels or biofuel blends as a substitute or partial substitute for fossil fuels used to power tugs and barges. o Purchase of carbon offset credits verified by the Climate Action Registry. • Detailed calculations showing the expected reduction in GHG emissions that will result from the implementation of each strategy. Each year during the 10-year lease period, the Applicants shall conduct another inventory of GHG emissions that shall be verified and reported. In lieu of submitting the project level inventory of GHG emissions to the Climate Registry on an annual basis, the miners shall, as indicated in their Greenhouse Gas Reduction Plan, submit annual inventories to CSLC and the Mitigation Monitoring Team and will provide annual inventory verification performed by a qualified third party such as TRC Solutions. The Applicants shall provide the verified results of this inventory to the CSLC along with a description of how the GHG Reduction Plan is		being implemented and documentation showing GHG offsets or reductions.			

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	being implemented and documentation showing GHG offsets or reductions.					
AIR-9: The Revised Project would result in emissions of GHGs that may conflict with an applicable plan, policy, or program intended to reduce GHG emissions adopted by the State pursuant to AB 32 (Potentially Significant, Class II).	AIR-1 (as described for Impact AIR-8)	Applicable to all mining locations.	Applicants shall provide the verified results of this inventory to the CSLC along with a description of how the GHG Reduction Plan is being implemented and documentation showing GHG offsets or reductions.	Verified annual GHG inventories must demonstrate reduction or offset of GHG emissions to target level.	CSLC or designated monitor.	Annual reports to be submitted to CSLC by March 31 each year.
CUL-1: Sand mining activities could potentially result in the inadvertent discovery of archaeological historic-period resources (e.g., shipwrecks) or prehistoric Native American sites, or tribal cultural resources (Potentially Significant, Class II).	CUL-1a: Cease operations and notify CSLC and U.S. Army Corps of Engineers (USACE). If an inadvertent discovery is made of items of historic or prehistoric archaeological potential, all work activities shall immediately cease in the area of discovery. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include shipwreck remains, including wood, iron, and steel-hulled ships as well as smaller ferrous materials such as anchors, iron ballast, chain, iron hull fasteners, rigging, and fittings of various types. The Applicants shall take the following actions: 1. After cessation of activity, the contractor shall immediately contact the CSLC and USACE. The	Applicable to all mining locations.	Applicants to provide immediate notification of any inadvertent discovery and evidence that operations have ceased in the immediate area of the discovery. Applicants to provide annual report of all inadvertent discoveries and responses.	Evidence of appropriate response to inadvertent discovery including reporting and ceasing operations in the vicinity of the discovery.	CSLC	Ongoing during the lease period; annual reports to be submitted by March 31 each year.

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	contractor shall not resume work in the area of the discovery until authorization is received from the CSLC and the USACE. 2. If CSLC staff determines that a historical or archaeological resource may be present within the Revised Project site, the Applicants shall retain the services of a qualified archaeologist who meets the Professional Qualifications Standards contained in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. In the case of a shipwreck or other maritime resources, a qualified maritime archaeologist shall be retained. The archaeologist will make an immediate evaluation of the discovery and will advise CSLC staff whether it is a resource of potential scientific/historical/cultural significance. The archaeologist will make a recommendation as to what action, if any, is warranted. Based on this information, CSLC staff may require, if warranted, specific additional measures to be implemented by the Applicants no more than 48 hours from receipt of the recommendation. 3. Measures might include: Preservation in situ of the archaeological resource (avoidance); archaeological data recovery; salvage and conservation of all or part of the resource if reasonably feasible (i.e., shipwreck); or further evaluation. CSLC staff may also require that the Applicants immediately implement a site security program if the resource is at risk from vandalism, looting, or other damaging actions. 4. Artifacts found on lands under the jurisdiction of the CSLC are considered the property of the State of California. Any disposition of these artifacts requires the approval of the CSLC. 5. The archaeologist shall submit an archaeological resources report to CSLC staff. This report shall include					

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	an evaluation of the historical significance of any discovered archeological resource, as well as a description of the archaeological and historical research methods employed.					
CUL-1: Sand mining activities could potentially result in the inadvertent discovery of archaeological historic-period resources (e.g., shipwrecks) or prehistoric Native American sites, or tribal cultural resources (Potentially Significant, Class II).	CUL-1b: Cease operations and notify consulting Native American tribes if the find is Native American in origin. If potential tribal cultural resources are identified, procedures outlined in MM CUL-1 shall be followed. Work stoppage shall remain in place until a qualified archeologist and Tribal Monitor/Representative from the consulting Tribes have jointly determined the nature and significance of the discovery. The Tribal Monitor/ Representative shall be asked to continue to monitor for tribal cultural resources. Tribal cultural resources shall neither be photographed nor be subjected to any studies beyond such inspection as may be necessary to determine the nature and significance of the discovery. The exact location of the resources shall be kept confidential and measures shall be taken to avoid future disturbance and potential vandalism. If feasible, impacts to previously unknown tribal cultural resources shall be avoided through preservation in place. If the on-site archeologist and Tribal Monitor/Representative determine that damaging effects on the tribal cultural resource can be avoided in place, then work in the area may resume provided the area of the discovery remains clearly marked for no further disturbance. If the on-site archeologist and Tribal Monitor/Representative determine that the find may be significant and if avoidance of the find is determined to be infeasible, CSLC shall be notified. CSLC staff shall work with the consulting Tribes on treatment/mitigation of the discoveries. Measures shall include documentation of the resource or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the	Applicable to all mining locations.	Applicants to provide immediate notification of discovery (as described for CUL-1) and if CSLC staff determined a potential tribal cultural resource may be present CSLC shall notify the consulting Native American tribes.	Same as CUL-1.	CSLC and consulting Native American tribes.	Ongoing during the lease period; annual summary report to be submitted by March 31 of each year.

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	resource. The Applicants shall be responsible for the resultant mitigation costs as well as associated curation costs. All significant findings will be documented in a summary report that will be provided to pertinent consulting parties within a year of the finding.					
CUL-1: Sand mining activities could potentially result in the inadvertent discovery of archaeological historic-period resources (e.g., shipwrecks) or prehistoric Native American sites, or tribal cultural resources or (Native American) human remains (Potentially Significant, Class II).	Implement CUL-3 (as listed under Impact CUL-3).	Applicable to all mining locations.	Same as CUL-1.	Same as CUL-1.	County Coroner/ CSLC.	Same as CUL-1.
CUL-3: Inadvertent discovery of human remains (Potentially Significant, Class II)	CUL-3: Cease operations and notify County Coroner. If human remains are discovered during sand mining activities, State Health and Safety Code section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code section 5097.98. If the remains are determined to be those of a Native American, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC will then identify the person(s) thought to be the Most Likely Descendent (MLD) of the deceased Native American, who, within 48 hours, will recommend what course of action should be taken in dealing with the remains. The Applicants, MLD, and CSLC staff will make all reasonable efforts to develop an agreement for the treatment, with all appropriate dignity, of any human remains and items associated with	Applicable to all mining locations.	Same as CUL-1.	Same as CUL-1.	County Coroner/ CSLC.	Same as CUL-1.

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	the remains (State CEQA Guidelines section 15064.5.d). The agreement would take into consideration the appropriate removal, analysis, custodianship, and final disposition of the human remains and items associated with the remains. If an agreement cannot be reached, then the landowner or authorized representative shall reinter the human remains and associated items with appropriate dignity on the property in a location not subject to further and future subsurface disturbance. (Pub. Resources Code Section 5097.98.e).					
LU-4	Implement MM AIR-1, MM BIO-6, MM BIO-8, MM BIO-9a, MM BIO-9b, MM CUL-1a, CUL-1b, MM CUL-3, and MM HAZ-1.	Applicable to all mining locations.	As stated above. See MMs (BIO-6, BIO-8, BIO-9a, BIO-9b, CUL-1a, CUL-1b, CUL-3, and HAZ-1).	As stated above. See MMs (BIO-6, BIO-8, BIO-9a, BIO-9b, CUL-1a, CUL-1b, CUL-3, and HAZ-1).	As stated above. See MMs (BIO-6, BIO-8, BIO-9a, BIO-9b, CUL-1a, CUL-1b, CUL-3 and, HAZ-1).	Ongoing during the lease period; annual reports (applicable for MM AIR-1, MM CUL-1a, CUL-1b, and MM CUL-3) to be submitted by March 31 each year.

7.0 REPORT PREPARATION

This section presents the preparers and technical reviewers of this document. A consultant team headed by Environmental Science Associates prepared this document under the direction of the California State Lands Commission (CSLC).

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Native American Heritage Commission

California Water Board, San Francisco Bay Regional Water Quality Control Board

Delta Stewardship Council

California Natural Resources Agency

California Department of Fish and Wildlife

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