

STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT (Elizabeth Christian)  
MEETING DATE: January 21, 2015

ITEM: 7

SUBJECT: **Hanson Marine Operations, Sand Mining in Central San Francisco Bay and Suisun Bay** – Adoption of Waste Discharge Requirements and Water Quality Certification and Rescission of Order Nos. 95-177 and 00-048

CHRONOLOGY: August 1995 – General Waste Discharge Requirements (WDRs) adopted  
June 2000 – General WDRs amended

DISCUSSION: The Revised Tentative Order (Appendix A) would adopt WDRs for subtidal sand mining activities within portions of Central San Francisco Bay and Middle Ground Shoal in Suisun Bay, including the discharge of decant water from those activities. Sand mining occurs in lease areas, mainly from California sovereign lands, but also from a private lease. These lease areas are typically characterized by high river or high tidal velocities and sand deposits that contain a low percentage of finer sediments.

In the past, the Water Board has adopted general WDRs for all sand mining in the Bay. This agenda item is one of three tentative orders for the Board's consideration that represent the three different entities that have applied for separate permits: Hanson Marine Operations; Lind Marine; and Suisun Associates, a joint venture of Hanson and Lind.

There is a long history of sand mining in San Francisco Bay. Sand as aggregate is a main component of concrete, asphalt, and road base. Based on data compiled by the Bay Conservation and Development Commission (BCDC), approximately 37,000,000 cubic yards of sand have been mined in the Bay since the mid-1970s. The volumes of sand mined in the Bay fluctuate from year to year based on market demand. Sand mining volumes peaked in the late 1990s before the recession of 2001.

The State Lands Commission granted multiple mining leases to Hanson for an area of 2,601 acres in Central Bay in 2013. In addition, Hanson and Lind have the rights to mine sand on a 367-acre private lease in Middle Ground Shoal in Suisun Bay. Maps of the lease areas are included as Appendix A of the Revised Tentative Order.

Mitigation requirements from the California Department of Fish and Wildlife incidental take permit and the United States Fish and Wildlife Service biological opinion have been incorporated into the Revised Tentative Order. In addition, there have been ongoing discussions with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service on its anticipated requirements.

The initial tentative order was circulated for a 30-day public comment period on September 12, 2014. We received comments on the tentative order (Appendix B) from the applicant, San Francisco Baykeeper, BCDC, and Libby Lucas, a private

citizen. The applicant asked for minor corrections and clarifications, which were made to the tentative order, and for a process to revise the Self-Monitoring Program, which was determined to be unnecessary.

The main concerns expressed in the other comments were about the volume of sand the applicant proposes to mine and the potential impacts to beneficial uses due to sediment loss in the Bay attributed to mining, including potential erosion impacts to coastal beaches and impacts to benthic habitat. In response to these comments, and as a precautionary measure to avoid and minimize potential impacts to beneficial uses, we revised the tentative order by reducing the total volume of sand permitted to be extracted from the Bay over the ten year permit term. The applicant has agreed to the overall decreased volume in the Revised Tentative Order.

Other changes consisted of updating or adding to existing information, correcting typographical errors, and making minor editorial and formatting changes to the tentative order. All of the comments are addressed in the Response to Comments contained in Appendix C.

RECOMMEN-  
DATION: Adoption of the Revised Tentative Order

CIWQS Place: 809095

APPENDIX A. Revised Tentative Order  
B. Comments Received  
C. Response to Comments

# **APPENDIX A**

## **Tentative Order**

# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

## REVISED TENTATIVE ORDER

### WASTE DISCHARGE REQUIREMENTS and WATER QUALITY CERTIFICATION for:

#### HANSON MARINE OPERATIONS SAND MINING IN CENTRAL SAN FRANCISCO BAY AND SUISUN BAY

The California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), finds that:

- A. Purpose of Order:** This Order regulates Hanson Marine Operations' (Hanson's) marine sand mining activities (project) within Central San Francisco Bay and Suisun Bay, including the discharge of decant water from those operations.

This Order constitutes Waste Discharge Requirements (WDRs) and provides the Water Quality Certification (Certification) for the project described herein.

- B. Project Overview:** Hanson conducts sand mining operations in Central San Francisco Bay and Middle Ground Shoal within Suisun Bay. Sand mining is the intentional dredging of sand and fine to medium gravel (hereinafter referred to collectively as sand) to be later used and sold for commercial purposes. Sand is dredged from various areas in the San Francisco Bay Estuary (Estuary) and is transported to upland facilities (sand yards) for processing and storage.

Hanson currently uses one tugboat/barge pair for sand mining, the tug *San Joaquin River*, with the trailing suction hopper barge, the *Sand Merchant*, which is equipped with suction mining equipment. The *Sand Merchant* is 230 feet long by 55 feet wide, with an approximate cargo capacity of 2,400 cubic yards (cy). It is limited by draft and other practical operating constraints to mining in water with a minimum depth of -20 feet mean lower low water (MLLW) and can mine in water up to about -90 feet MLLW.

During mining operations, the drag head at the end of the suction pipe (drag arm) is buried about 6-18 inches into the sand substrate. The drag head consists of a mining face measuring 36x36 inches that is equipped with a 6-inch "grizzly," a square grid to prevent entrainment of material 6 inches or larger in diameter. Water and sand are drawn into the drag head by the suction of a centrifugal pump. Water drawn into the drag head through the substrate creates a sand-water slurry that allows the sand to be suspended and pumped into the hopper barge. Hanson's equipment has a maximum pumping capacity of 15,000 gallons per minute (gpm); sand to water proportions are normally approximately 17% sand and 83% water for finer fill sand and 12% sand and 88% water for coarser sand.

- C. Discharge Description:** During mining, sand-water slurry fills the cargo hopper via a flume chute that runs down the center of the hopper. The flume has 10 gates fitted with ½ x ½ inch mesh screens that distribute sand to different parts of the hopper. Accumulating sand displaces the water from the sand-water slurry. The water is discharged through overflow pipes on either side at the rear of the cargo hopper. The overflow pipes extend down below the waterline on the outside of the barge. The bottom of the cargo hopper is also fitted with a dewatering system. A pipe along the

centerline, at the bottom of the hopper, has five fine-mesh-screened openings where water that has filtered through the sand and gravel smaller than ½ inch is collected and pumped overboard.

The discharge, also known as return flow, decant water, or overflow, contains material that does not settle out in the hopper, such as fine-grain sediment (silt and clay particles), aeration bubbles, dissolved substances, detritus, and plankton. It may also contain larger-size aggregates. Due to these characteristics, a visible plume (turbidity) may occur around the barge while the discharge is taking place. Based on the equipment and methods used for sand mining within the Estuary, commercial sand characteristically ranges in size from approximately 1 mm to 12 mm (½ inch), with larger and smaller particles discharged overboard. No chemicals or other materials are added to the overflow plume during sand mining. Hanson has estimated that it discharges approximately 3,034,435 gallons (15,024 cy) of decant water containing about 1.2 cy of fine-grain suspended sediment per mining event.

Once mining is completed, the barge is taken to a site for offloading. Appendix A shows sand yard locations in the Bay Area. The *Sand Merchant* can either offload using a conveyor offloading system (dry offload) or hydraulically offload by re-slurrying the cargo and pumping the sand ashore (wet offload). Sand used in concrete and asphalt products must be washed using fresh water before delivery to the customer. This is necessary to produce a sand product with a chloride content appropriate for concrete, generally 0.006% chloride or less by weight of cement. Sand yards in the Bay Area are relatively small (typically 4-5 acres) and have limited capability to stockpile or store sand for an extended period. Therefore, sand mining in the Estuary is conducted in response to short-term demand. The wastewater discharges from Bay Area sand yards are currently regulated under the Water Board's General Permit for Aggregate Mining and Sand Washing/Offloading Facilities, Order No. R2-2008-0011. Stormwater discharges from Bay Area sand yards, which are not otherwise commingled with wastewater, are regulated under the statewide NPDES Industrial Stormwater General Permit (NPDES Permit No. CAS000001). As such, they are not addressed in this Order.

- D. Regulatory Status:** Sand mining decant or overflow water discharges are currently regulated under Water Board Order No. 95-177, as amended by Order No. 00-048, adopted on August 25, 1995, and June 21, 2000, respectively. Hanson has submitted an application to the Water Board to reissue WDRs and issue Certification to mine sand in Central San Francisco Bay and Middle Ground Shoal in Suisun Bay for 10 years (2015 - 2025).

In addition to obtaining WDRs/ Certification and a permit from the U.S Army Corps of Engineers (Corps) under section 10 of the Rivers and Harbors Act of 1899, Hanson must also obtain and comply with the following approvals/permits for the project:

- A lease with the State Lands Commission (SLC) for mineral extraction, where mining takes place on State sovereign lands. Hanson has entered into a lease with SLC, effective January 1, 2013 through December 31, 2022, to mine at the specified lease areas as indicated in Table 1 of this Order.
- An approved reclamation plan from the State Mining and Geology Board (SMGB). SMGB has approval authority over the reclamation plans prepared pursuant to Surface Mining and Reclamation Act for the sand mining sites. SMGB adopted resolution No. 2005-02 in February 2005, approving the reclamation plans for ten marine sand mining leases in the Central Bay, Suisun Bay, and the western Delta.

- An Incidental Take Permit from the California Department of Fish and Wildlife (CDFW). Hanson submitted its application on July 11, 2013, and CDFW issued the permit on April 1, 2014, and amended it on October 14, 2014.
- A permit from the San Francisco Bay Conservation and Development Commission (BCDC) pursuant to the McAteer-Petris Act. Hanson has submitted an application to BCDC.
- Biological opinions from the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts to federally-listed special status species and essential fish habitat. USFWS issued a biological opinion on October 22, 2014.

## E. Sand Mining Project Description

1. **Project Location:** Two marine aggregate companies, Hanson and Lind Marine Incorporated (previously Jerico Products, Inc.), and a joint venture, Suisun Associates, with Hanson and Lind Marine as the joint venture partners, currently harvest sand commercially from the Estuary. Hanson harvests sand from specified areas that are leased from the SLC and a private party, the Grossi Family.

The specific areas where Hanson proposes to continue mining sand are the SLC Central Bay and Middle Ground lease locations listed in Table 1 and shown in Appendix A. Hanson is currently the only sand mining company operating in the Central Bay. Hanson and Lind Marine currently both mine the Middle Ground parcel under separate leases with the Grossi family, which owns the rights to the Middle Ground area.

Sand mining does not occur uniformly within the lease areas but is typically clustered within specific areas where sand deposits have a low percentage of fine material (silts, clay, and mud). Material with a low percentage of fines is more suitable for use in construction materials. In addition, mining locations are limited by equipment constraints and permit requirements. The actual locations where sand mining occurs in the Central Bay are regulated and/or influenced by a number of factors, which include SLC-designated lease areas, navigation restrictions, areas having suitable water depths for mining, areas where sand is known from historical observations to accumulate, and areas having moderately high water velocities resulting in frequent sand movement, replenishment, and scour of fines from sand deposits.

2. **Project Purpose and History:** The purpose of marine sand mining in the Estuary is to obtain marine aggregate that is primarily used for construction activities within the greater San Francisco Bay Area, either as fill and base material or as an ingredient in ready-mix concrete and hot mix asphalt. Sand obtained from the Estuary is used in the construction and maintenance of highway and freeway systems, commercial and public buildings, and residential construction.

Sand has been mined commercially from the Estuary for more than seven decades, beginning in the 1930s. Hanson entered the construction sand mining business in 1999 when it acquired two companies that held the construction sand mining leases and permits that Hanson operates under today.

- Sand Mining Volume:** Hanson proposed in its application to mine up to 1,540,000 cy of sand annually for a ten-year period from the 2,601-acre area in the Central Bay consisting of nine parcels of submerged land that comprise four leases from the SLC, designated as Mineral Extraction Lease Nos. 709.1, 2036.1, 7779.1, and 7780.1 (Appendix A-2) and 50,000 cy from the 367-acre area of submerged lands known as Middle Ground Island Sand Shoals, adjacent to Middle Ground Island in Suisun Bay (Middle Ground, Appendix A-3).

Studies conducted by the United States Geological Service have indicated that the dominant sediment transport pathway in certain southern Central Bay lease areas is ebb-directed (seaward) and that sand removed from this transport pathway may be linked to reduced sediment supplies to the ebb-tidal delta at the mouth of San Francisco Bay. Also, NOAA Fisheries has stated during its in-progress consultation on impacts to Essential Fish Habitat that it needs additional data regarding impacts to benthic habitat. We have determined that, as a precautionary measure, it is appropriate to reduce the volume of sand that can be extracted from all lease areas to avoid and minimize any extraction-related potential effects to beneficial uses. (e.g., subtidal and intertidal benthic habitat and recreation-related uses). The permitted annual mining volume in lease area Presidio Shoals PRC 709.1, has been reduced from the proposed 340,000 cy to 232,000 cy, to reduce the volume of sand extracted from the South Parcel.

Table 1 provides the average and maximum volumes Hanson is authorized to mine within each lease area on an annual basis over the ten-year period that the WDRs are in effect. The ten-year maximum volume allows for multiple peak years when construction-related demand for sand is greater than the allowed annual volume.

**Table 1: 2015 - 2025 Permitted Annual, Peak Year and Ten-Year Total Sand Mining Volumes**

Location / Lease No.	Annual Volume Cubic Yards (cy)	Peak Year Volume Cubic Yards (cy)
<b>Central Bay</b>		
PRC 709.1: Presidio Shoals (709.1 South Parcel), Alcatraz Shoals (709.1 East Parcel), Point Knox Shoals (709.1 North Parcel)	232,000	290,000
PRC 2036.1: Point Knox South Shoal	360,000	450,000
PRC 7779.1: Point Knox Shoal (7779.1 North, West, & East Parcels)	484,000	550,000
PRC 7780.1: Alcatraz South Shoal	127,000	160,000
<b>Central Bay Total</b>	<b>1,203,000</b>	<b>1,450,000</b>
<b>Suisun Bay</b>		
Middle Ground (Grossi family lease)	40,000	50,000
<b>Total</b>	<b>1,243,000</b>	
<b>Total</b>		<b>1,500,000</b>
<b>Total 10-year Not-to-Exceed Maximum</b>	<b>12,430,000</b>	

4. **Sand Mining Methods:** Hanson uses two methods of hydraulic sand mining - stationary potholing and moving potholing:

- Stationary potholing involves an initial search for an appropriate sand source, followed by “stationary” mining by burying the drag head into the substrate and controlling the drag head from moving by either anchoring or engine thrust.
- Moving potholing may involve mining more than one specific location during a mining event, and may involve some movement within a general site. Moving potholing is similar to stationary potholing, in that it involves mining in a “stationary” position when an appropriate sand source is found, but also involves moving in search of another appropriate stationary source. This method is used when the sand at a particular location becomes unsuitable (i.e., too coarse or too fine) or is particularly challenging to remove (too consolidated or weather conditions make removal difficult). If the operator determines that the barge needs to move to a new location, they raise the drag head into the water column no higher than 3 feet off the bottom and clear the drag pipe by keeping the pump engaged for up to 30 seconds. The operator then turns off the pump and it remains off while the barge is en route to the next potential mining location.

5. **Mining Event Duration**

The duration and timing of individual mining events reflect differences in equipment, weather, conditions of the substrate, and type of sand (fine or coarse). Sand mining activity may occur at any time of day. The timing is influenced by tidal schedules. An individual mining event generally lasts from 3 to 5.5 hours. In the Central Bay, the mean duration of mining events is relatively consistent from month to month. For Hanson’s mining operations during the period March 2002 through February 2003, the monthly mean event duration ranged from 3.5 to 4.6 hours, with a maximum duration of 9 hours and a minimum duration of 1 hour. The mean single-event yields from Hanson’s mining operations were also quite consistent, with monthly means of from 1,931 cy per event to 2,149 cy per event.

Once the barge is loaded, it travels to an upland offloading location. Depending on the mining and offloading locations, a single event—including loading, unloading, and travel time—can take anywhere from 8 to 24 hours, but typically takes about 10 hours in the Central Bay. Under these circumstances, from an operational perspective, the greatest frequency with which the *Sand Merchant* could disturb any single area is twice in any 24-hour period.

6. **Sand Mining Impacts on Benthic Habitat**

Hanson has submitted Biological Assessments for consultation with NOAA Fisheries and USFWS regarding potential impacts to federally-listed special status species and essential fish habitat. The Biological Assessments concluded that the proposed sand mining is not expected to change the benthic habitat or community and will not substantially affect the availability or distribution of foraging habitat for protected fish species. These conclusions were primarily based on the findings of a 2009 benthic study by Applied Marine Sciences (AMS). However, NOAA Fisheries staff indicated that the AMS study design did not account for naturally variable short-term population fluctuations (e.g., diurnal and seasonal) in the benthos at or between sites, nor did it establish pre-mining benthic community baselines that could be compared to post-mining communities. Furthermore, it did not assess the epibenthic community, an important source of fish forage. NOAA Fisheries determined that an additional, supplemental benthic habitat evaluation study is necessary. Provision 6 requires Hanson to



coordinate with NOAA Fisheries, USFWS, and CDFW to develop a work plan and complete investigations as per the approved work plan to verify the results of the 2009 AMS study. Provision 5 requires Hanson to organize a technical advisory committee (TAC) to develop a work plan for the study, identify experienced contractors to conduct it, and review all data deliverables.

#### 7. **Potential Entrainment Impacts**

Suction head dredging has the capability to affect multiple vertebrate and invertebrate communities inhabiting the Estuary, including benthic infauna and epifauna, mobile invertebrates such as shrimp and crabs, demersal and pelagic fish, and the planktonic stages of both invertebrates and fish. The suction current created to pump the sand slurry off of the seafloor, up the dredge pipe, and onboard the barge could be too strong for some organisms and age classes to escape entrainment. Entrainment of estuarine organisms is expected to occur as described below:

- The entrainment of larval, juvenile, and adult fish and invertebrates from the water column during priming and clearing of the centrifugal pump when the drag head is positioned near the bottom of the water column, within 3 feet of the seafloor.

In addition, larval fish can be entrained through the vacuum-relief vent pipe mounted on the top of the drag head, which is designed to draw in water to thin the sand slurry if it becomes too dense to effectively pump. Hanson has installed a positive barrier fish screen at the intake end of the vent pipe. The screen is sized to exclude juvenile and adult fish, but it currently is not technologically possible to exclude larvae.

#### 8. **Avoidance, Minimization, and Mitigation Measures**

The following measures are intended to minimize adverse effects on special-status species and their habitats within the project area:

- A positive barrier fish screen that meets CDFW, USFWS, and NOAA Fisheries specifications has been installed on Hanson mining equipment (vacuum-relief vent pipe on top of the drag head) to prevent entrainment take of adult and juvenile special-status fish species when water is drawn in through the vent pipe to thin the sand slurry at times when it becomes too dense.
- To minimize fish entrainment, when priming the pump or clearing the drag arm, the drag head is held as close to the bottom as possible, no more than 3 feet off the bottom at its maximum height in the water column. In addition, Hanson has implemented new operating procedures to reduce entrainment. Specifically, the suction pump is not engaged until the drag head is on the substrate. The dredge operator continuously monitors for production of “clear water” and disengages the pump if “clear water” is observed (i.e., when the drag head is off the bottom, limited to 6 minutes per mining event). If it becomes necessary to move the barge, the operator raises the drag arm no higher than 3 feet off the bottom and clears the pipe for no more than 30 seconds. The operator then turns off the pump while the barge is en route to the next potential mining location. When the barge stops moving, the operator lowers the drag head into the substrate and turns on the pump for sample collection and further mining if the substrate meets grade specifications.

- To avoid impacts to sensitive shallow water habitat, mining is not allowed within 200 feet of any shoreline or within 250 feet of areas with water depths less than or equal to -30 feet MLLW in Central Bay or -9 feet MLLW in the Middle Ground area of Suisun Bay.
- Based on consultation with CDFW and USFWS, during longfin and delta smelt spawning season (December 1 through June 30), Hanson will implement mining volume reductions in the Middle Ground lease area to avoid and minimize potential entrainment of larval smelt.
- To minimize entrainment take of larval longfin smelt and delta smelt, Hanson will observe seasonal mining depth restrictions in the Middle Ground area. No mining will be allowed December through June in water depths less than or equal to -25 feet MLLW and no mining will be allowed July through November in water depths less than or equal to -15 feet MLLW.
- Hanson will establish a 100-foot buffer zone around all hard bottom habitat within and adjacent to Central Bay mining leases, especially Harding, Shag, and Arch Rocks.
- To fully mitigate incidental take of species protected under the State and federal Endangered Species Acts that fish screens cannot avoid or minimize, Hanson is required by CDFW and USFWS to purchase credits from a CDFW and USFWS-approved mitigation bank to provide permanent protection and perpetual management of compensatory habitat.

9. **Discharge Characterization and Receiving Water Quality Evaluation Study**

Provision 4 of this Order requires Hanson to complete a study characterizing the quality of its effluent (i.e., hopper barge decant/overflow discharge) and the impacts of this discharge and mining on receiving water quality.

In November 1993, MEC Analytical Systems, Inc. completed a study, *Special Studies for Sand Mining Discharges of the Tidewater Sand and Gravel Company*, to evaluate Central Bay sand mining effluent quality and its potential impacts on receiving water quality. The study found, generally, that the effluent met water quality objectives under typical sand mining conditions.

However, the 1993 study did not include Suisun Bay mining locations and equipment and environmental conditions may have changed in the ensuing 21 years; therefore, Hanson needs to perform a new study to update the results of the 1993 study. This Order may be reopened to require additional water quality monitoring and implementation of corrective measures if the new study indicates potentially unacceptable water quality impacts from sand mining discharges.

**F. Compliance with Applicable Plans, Policies, and Regulations**

The requirements in this Order are based on the requirements and authorities described below:

1. **California Environmental Quality Act (CEQA) Statement of Findings and Overriding Considerations**

On October 19, 2012, the SLC, as lead agency, certified a Final Environmental Impact Report (FEIR) (State Clearinghouse No. 2007072036) for the San Francisco Bay and Delta Sand Mining Project in accordance with CEQA. The SLC also adopted a Statement of Findings and Statement of Overriding Considerations (SOC) (October 19, 2012).

As directed by CEQA and the State CEQA Guidelines (PRC sections 211002.1(d), 21080.1, 21167.2; 15 CCR sections 15096(e),(f), 15231), the Water Board, as a responsible agency under CEQA, has considered the FEIR and SOC and finds that the Project has the following significant environmental effects that are within the Water Board's purview and jurisdiction:

**Bio-6 (Sand mining could result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging.)**

The SLC determined that impacts will be less than significant with mitigation. The Water Board concurs and hereby finds that changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR and for the reasons described in the SLC's Findings on pages D-7 through D-9.

**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.)**

The SLC determined that impacts to delta and longfin smelt will remain significant and unavoidable even with implementation of the recommended mitigation measures. The Water Board concurs and hereby finds that (1) Changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR; (2) Such changes or alterations are within the responsibility and jurisdiction of the CDFW and not the SLC or Water Board. Such changes have been adopted by such other agency or can and should be adopted by such other agency; and (3) Specific economic, legal, social, technological or other considerations, including provision or employment opportunities for highly trained workers make infeasible the mitigation measures identified in the EIR. These findings are supported by the reasons described in the SLC's Findings on pages D-9 through D-14. In particular, Hanson will implement measures required by CDFW to avoid and minimize effects to these and other state- and federally-listed species and their habitat within project areas. As compensatory mitigation for the incidental take impact during the proposed 10-year mining period, CDFW has required Hanson to purchase 0.421 acres of shallow water habitat credits from a CDFW-approved mitigation or conservation bank.

**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.)**

The SLC determined that implementation of mitigation measure MM Bio-8a will reduce effects of the Approved Project due to entrainment of Chinook salmon, steelhead trout, and green sturgeon to less than significant. The Water Board concurs and hereby finds that changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR for the reasons

described in the SLC's Findings on pages D-14 through D-16. In addition, these changes or alterations are within the responsibility and jurisdiction of CDFW and not the SLC or Water Board. CDFW has required implementation of mitigation measure MM Bio-8a in the Incidental Take Permit for the Project.

In addition to the original Approved Project, the Water Board has ordered Hanson to abide by certain conditions, discharge prohibitions and receiving water limitations in order to meet beneficial uses and water quality objectives. These conditions, discharge prohibitions and receiving water limitations do not create any new significant impacts or increase the severity of impacts requiring any additional CEQA analysis as provided by PRC section 21166 and CEQA Guidelines sections 15162, 15163.

2. **San Francisco Bay Basin Water Quality Control Plan (Basin Plan)**

California Water Code section 13240 authorizes the Water Board to develop a Water Quality Control Plan for the San Francisco Bay Basin, which is the Water Board's master water quality control planning document (the Basin Plan). The Basin Plan designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board (State Water Board), U.S. EPA, and the Office of Administrative Law where required. The latest version can be found on the Water Board's website at [http://www.waterboards.ca.gov/sanfranciscobay/basin\\_planning.shtml](http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml). Requirements in this Order implement the Basin Plan.

The existing beneficial uses of Central San Francisco Bay and Suisun Bay include:

- Industrial service supply (IND)
- Industrial process supply (PROC)
- Commercial and sport fishing (COMM)
- Shellfish harvesting (SHELL) (Central Bay only)
- Estuarine Habitat (EST)
- Fish migration (MIGR)
- Preservation of rare and endangered species (RARE)
- Fish Spawning (SPWN)
- Wildlife habitat (WILD)
- Water contact recreation (REC-1)
- Noncontact water recreation (REC-2)
- Navigation (NAV)

3. **Anti-Degradation Policy**

State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California") requires that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Resolution 68-16 only allows change in the existing high quality if it has been demonstrated to the Water Board that the change is consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies. Resolution 68-16 further requires that discharges meet

WDRs which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained. Resolution 68-16 incorporates the federal “antidegradation” policy (Cal. Code Regs., tit. 40, § 131.12).

Sand mining, as proposed, is not expected to result in water quality less than that prescribed in the policies. No pollution or nuisance is expected to occur and the highest water quality consistent with the maximum benefit of the people of the State will be maintained. This Order proposes to allow sand mining at a reduced level as compared with the prior permit or the project application. Therefore, it is anticipated that the effects of sand mining, as authorized by this Order, will have even less of an impact than those discussed in the EIR and will not degrade water quality.

**4. Public Notice**

The Water Board notified Hanson and interested agencies and persons of its intent to issue WDRs and Certification for the project and provided a 30-day public comment period during which they could submit their written views and recommendations.

**5. Public Hearing**

The Water Board, in a public meeting, heard and considered all comments pertaining to the WDRs and Certification for the project.

IT IS HEREBY ORDERED that Hanson, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

**A. DISCHARGE PROHIBITIONS**

1. The discharge of water, material, or wastes that is not otherwise authorized by the Order is prohibited.
2. The Basin Plan prohibits discharge of waste water which has “particular characteristics of concern to beneficial uses” (a) at any point in San Francisco Bay and (b) “at any point where the waste water does not receive a minimum initial dilution of at least 10:1 or into any non-tidal water, dead end slough, similar confined water, or any immediate tributary thereof.” All shoals presently mined for sand, as listed under Table 1, are expected to have a dilution ratio of at least 10:1. The determination was made based on the depth of the receiving water bodies where sand mining typically occurs (-30 to -90 feet MLLW in Central Bay), the depth restrictions imposed by mining equipment draft limits or other operating constraints (-20 to -45 feet MLLW in Suisun Bay), and potential maximum overflow or decant discharge rate of 15,000 gpm.
3. The discharge shall not cause a condition of pollution or nuisance as defined in Water Code sections 13050(l) and (m), respectively.
4. The discharge of effluent which meets the definition of a hazardous or designated waste as defined in Title 23, Division 3, Chapter 15 of the California Administrative Code is prohibited. Only dredged material that has been demonstrated to be non-hazardous may be mined.

## **B. RECEIVING WATER LIMITATIONS**

1. The discharge of decant/overflow effluent from Hanson's hopper barge shall not cause the following conditions to exist in waters of the State:
  - a. Floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
  - b. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
  - c. Oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.
  - d. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses.
  - e. Alteration of temperature beyond present natural background levels.
  - f. Changes in turbidity that cause nuisance or adversely affect beneficial uses, or increases from normal background light penetration or turbidity greater than 10 percent in areas where natural turbidity is greater than 50 nephelometric turbidity units.
  - g. Coloration that causes nuisance or adversely affects beneficial uses.
  - h. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge shall not cause waters of the State to exceed the following quality limits:
  - a. Dissolved Oxygen 5.0 mg/L minimum in Central Bay and 7.0 mg/L minimum in Suisun Bay (if natural factors cause lower dissolved oxygen concentrations, this discharge shall not cause further reductions).
  - b. Dissolved Sulfide Natural background level.
  - c. pH The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.

## **C. PROVISIONS**

### **1. Reporting Requirements**

All technical and monitoring reports required by this Order are required pursuant to section 13267 of the Water Code. Failure to submit reports in accordance with schedules established by this Order or attachments or appendices to this Order, or failure to submit a report of sufficient technical quality acceptable to the Executive Officer, may subject Hanson to enforcement action pursuant to section 13268 of the Water Code.

**2. Monitoring and Reporting**

Hanson shall comply with the Self-Monitoring and Reporting Program (SMP) attached to this Order and as may be amended by the Executive Officer. The Executive Officer may amend the SMP in response to a written request by Hanson or as necessary to assure collection of information to demonstrate compliance with this Order.

**3. Reopener Provisions**

The Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances or as otherwise allowed by law:

- a. If present or future investigations demonstrate that the discharges governed by this Order have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.
- b. If a water quality study (or studies) provides a basis for determining that a permit condition should be modified.
- c. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted.
- d. If conditions in federal permits and state permits, which are referenced by this permit, are modified.

**4. Special Study to Evaluate Effluent and Receiving Water Quality**

Hanson shall submit a Sampling and Analysis Plan (SAP), acceptable to the Executive Officer, within 30 days of Order adoption, for a study to characterize effluent and receiving water quality. In particular, the study shall characterize overflow effluent toxicity and composition (suspended sediment, conventional pollutant, and toxic pollutant concentrations), the spatial and temporal extent of the overflow plume in the receiving water based on the magnitude of suspended sediment concentrations within the plume, and shall compare overflow plume suspended sediment concentrations to background (ambient) conditions. The selection of sampling locations and number of sampling events shall be representative of all of Hanson's mining areas and mining methods, adequate to capture seasonal variations, and be conducted under both flood and ebb tide cycles.

The SAP shall include, at a minimum, sampling locations, a sampling schedule, laboratory information, analytical methods, QA/QC information, and a reporting schedule.

Hanson shall start implementing the SAP within 45 days of the Executive Officer's approval. Hanson shall submit a final study report within 60 days of data collection completion. Hanson may collaborate with other sand miners to fund and perform the required study.

**5. Benthic Study Technical Advisory Committee (TAC)**

Hanson shall organize and convene a TAC that includes representatives from SLC, the Corps, the Water Board, NOAA Fisheries, USFWS, CDFW, BCDC, Hanson, Lind Marine, and at least one scientist with expertise in Estuary benthic ecology, preferably from USGS or affiliated with a local university. Hanson shall coordinate with the TAC to develop a work plan for the benthic study, identify experienced contractors to conduct it, and review all data deliverables.

## 6. **Benthic Habitat Impact Evaluation Study**

Based on the final work plan developed through the TAC, Hanson shall complete a benthic habitat evaluation study that includes, but is not limited to, the following objectives:

- Characterize the benthic community and habitat within areas where sand mining is permitted to occur and adjacent areas having similar habitat characteristics where sand mining is not permitted. Characteristics of the benthic community include species composition, biomass of the dominant taxa, density (abundance), and species diversity. Benthic habitat characteristics include consideration of substrate particle size, bed form, evidence of natural and anthropogenic disturbance, and other physical conditions;
- Identify differences between communities inhabiting mining leases and control sites; and
- Obtain a better understanding of the effects of sand mining on benthic communities and their rates of recovery following sand mining events.

Hanson may collaborate with other sand miners to fund and perform the required study. Hanson shall submit copies of its progress reports and the final report to Water Board staff according to the TAC-approved study and reporting plan.

## 7. **Lease Area Boundaries**

Hanson shall limit sand mining and effluent (overflow) discharges to specific SLC-designated lease areas. Mining is not permitted outside of the lease areas. These limitations reduce and avoid the risk of mining in sensitive subtidal habitat that is located outside the designated lease areas. Specifically, Hanson shall operate sand mining dredges only within the areas detailed in Table 1 in Finding E.3 and as shown in Appendices A-2 and A-3.

## 8. **Annual and Seasonal Volume Limits**

Hanson shall limit the volume of sand mined annually as shown in Table 1 in Finding E.3. To reduce the potential for entrainment of larval longfin smelt and delta smelt in the Middle Ground lease area, Hanson shall limit the volume of sand mined between December 1 and June 30 each year as required by CDFW Incidental Take Permit 2081-2013-047-03, Amendment No. 1, dated October 14, 2014<sup>1</sup>. Hanson shall also adhere to seasonal volume limits required by USFWS in its Biological Opinion dated October 22, 2014.

## 9. **Location and Depth Restrictions**

Hanson shall comply with the mining location and depth restrictions shown in the following table:

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<sup>1</sup> Middle Ground and Suisun Channel lease areas are limited to a combined mining volume of 54,000 cy between December 1 and June 30.



<b>Mining Location &amp; Depth Restrictions</b>	
<i>Central Bay</i>	No mining within 200 feet of any shoreline No mining within 250 feet of depths <-30 feet MLLW
<i>Middle Ground</i>	No mining within 200 feet of any shoreline No mining within 250 feet of depths < -9 feet MLLW No mining within depths <-25 feet MLLW from December 1 through June 30 No mining within depths < -15 feet MLLW from July 1 through November 30

**10. Buffer Zone Around Hard Bottom Habitat**

Hanson shall establish a buffer zone at a minimum of 100 feet from the outward edge of any hard bottom feature within and adjacent to Central Bay mining leases such that dredging equipment does not come into physical contact with these sensitive areas, including Harding, Shag, and Arch Rocks. SLC has required that any physical contact between dredging equipment and hard bottom areas be immediately reported to SLC, which will establish a new minimum buffer zone distance sufficient to avoid subsequent contacts. Hanson shall notify Water Board staff via email if hard bottom contact occurs, concurrent with reporting to SLC.

**11. Spill Prevention Plan**

Hanson shall maintain and implement a plan, reviewed and approved by the CDFW 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 other hazardous materials.

**12. Spill Notification and Response**

Hanson shall notify Water Board staff immediately by telephone and e-mail whenever a release of petroleum products or toxic chemicals to waters of the State occurs as a result of sand mining activity. Pursuant to Water Code section 13267, a written notification of spill response shall be submitted to the Water Board within 30 days of spill occurrence. The written notification shall identify the nature of the spill, describe the action necessary to remedy the condition, and specify a timetable, subject to the modifications of the Water Board, for remedial actions.

**13. Monitoring and Reporting**

- a. Hanson shall measure and record dredging locations and areal extent of benthic disturbance per lease area, water depth at time of dredging, volumes dredged, and off-loading locations for dredging on a daily basis during operations. Monitoring and reporting shall be conducted in accordance with the Self-Monitoring Program (SMP, Appendix B).

- b. Hanson shall file with the Water Board a report of any material change or proposed change in the character, location, or quantity of the effluent discharge.
- c. Dredging operations shall cease immediately whenever violations of requirements are detected through implementation of the SMP. Hanson shall notify Water Board staff immediately by telephone and email whenever violations are detected. Operations shall not resume until Hanson submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

### **Protection of Special Status Species**

- 14. This Certification does not allow for the take, or incidental take except as described below, of any special status species. Hanson shall use the appropriate protocols, as approved by State and federal resource agencies in their consultations on the project, to ensure that sand mining activities do not adversely impact Preservation of Rare and Endangered Species, a beneficial use of San Francisco Bay and its tributaries as set forth in the Basin Plan.
- 15. Hanson shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the *Biological Opinion* dated October 22, 2014, issued for the project by USFWS.
- 16. Hanson shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the most current *Endangered Species Consultation* issued for the project by NOAA Fisheries, and, to the extent imposed as permit conditions by the Corps, the Conservation Recommendations in the Essential Fish Habitat Consultation also issued for the project by NOAA Fisheries.
- 17. Hanson shall adhere to the conditions of Incidental Take Permit No. 2081-2013-047-03 dated April 1, 2014, Amendment No. 1 dated October 14, 2014, and any subsequent amendments, issued for the project by CDFW for entrainment of special status fish species (Chinook Salmon, Delta Smelt, and Longfin Smelt).

### **Standard Provisions**

- 18. Hanson shall maintain a copy of this Order on the vessel so as to be available at all times to all vessel personnel.
- 19. For the purposes of this Order, disposal of dredged material is defined as any ultimate use or disposition other than the resale of the sand for construction and other beneficial uses. For dredged material that is not of market grade and is not sold, the ultimate offsite disposal of the material is subject to the approval of the Executive Officer. This approval shall be based upon a demonstration that the ultimate disposal will occur at a site that has WDRs or another appropriate approval from the Water Board.

Hanson shall permit the Water Board or its authorized representative, upon presentation of identification:

- a. Entry onto the premises on-board any and all vessels and into offices where records are kept.
- b. Access to copy any records required to be kept under the terms and conditions of this Order.

- c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order.
- d. Sampling of any discharge or surface water covered by this Order.

20. **Certification**

The Water Board hereby certifies that any discharge from the referenced project will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), and with other applicable requirements of State law. Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law. Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. The conditions of this certification must be met to ensure that the project will comply with water quality standards, any applicable effluent limitation, standard of performance, prohibition, effluent standard, or pretreatment standard required pursuant to the Clean Water Act sections listed above and to ensure that the project will comply with any other appropriate requirements.

- 21. This Certification applies to the project as proposed in the application materials. Failure to implement the project as proposed is a violation of this Certification. Violation or threatened violation of the conditions of this Certification is subject to any remedies, penalties, process, or sanctions as provided for under applicable State or federal law, including administrative civil liability pursuant to Water Code section 13350. Failure to meet any condition of a certification may subject Hanson to civil liability imposed by the Water Board to a maximum of \$5,000 per day of violation or \$10 for each gallon of waste discharged in violation of the certification.
- 22. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23 (23 CCR), section 3867. The Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted and approve pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act, or in response to new information concerning the conditions of the project.
- 23. This Certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
- 24. This Order does not remove liability under federal, State, or local laws, regulations or rules of other programs and agencies, nor does this Order authorize the discharge of wastes without appropriate permits from other agencies or organizations.

25. Water Board Order Nos. 95-177 and 00-048 are hereby rescinded.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 21, 2015.

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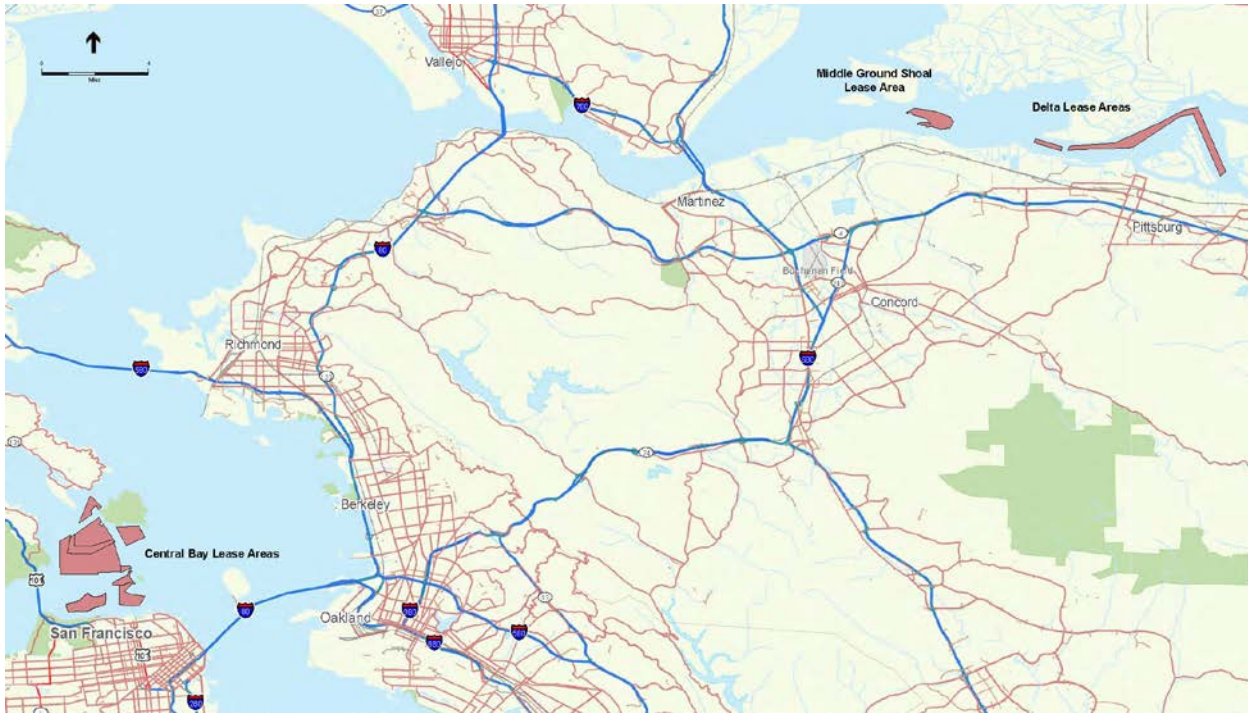
Bruce H. Wolfe  
Executive Officer

Appendices: Appendix A: Site Maps - Central and Suisun Bays  
Appendix B: Self-Monitoring Program (SMP)

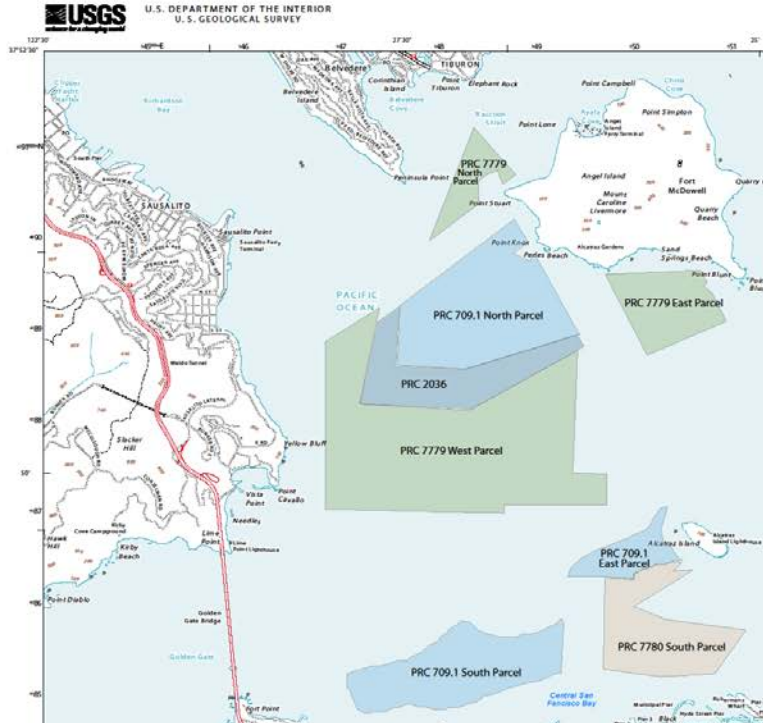
## APPENDIX A

### Sand Mining Lease Location Maps and Upland Sand Processing Facility (Sand Yard) Location Map

## Appendix A-1 Regional Map of General Sand Mining Lease Locations

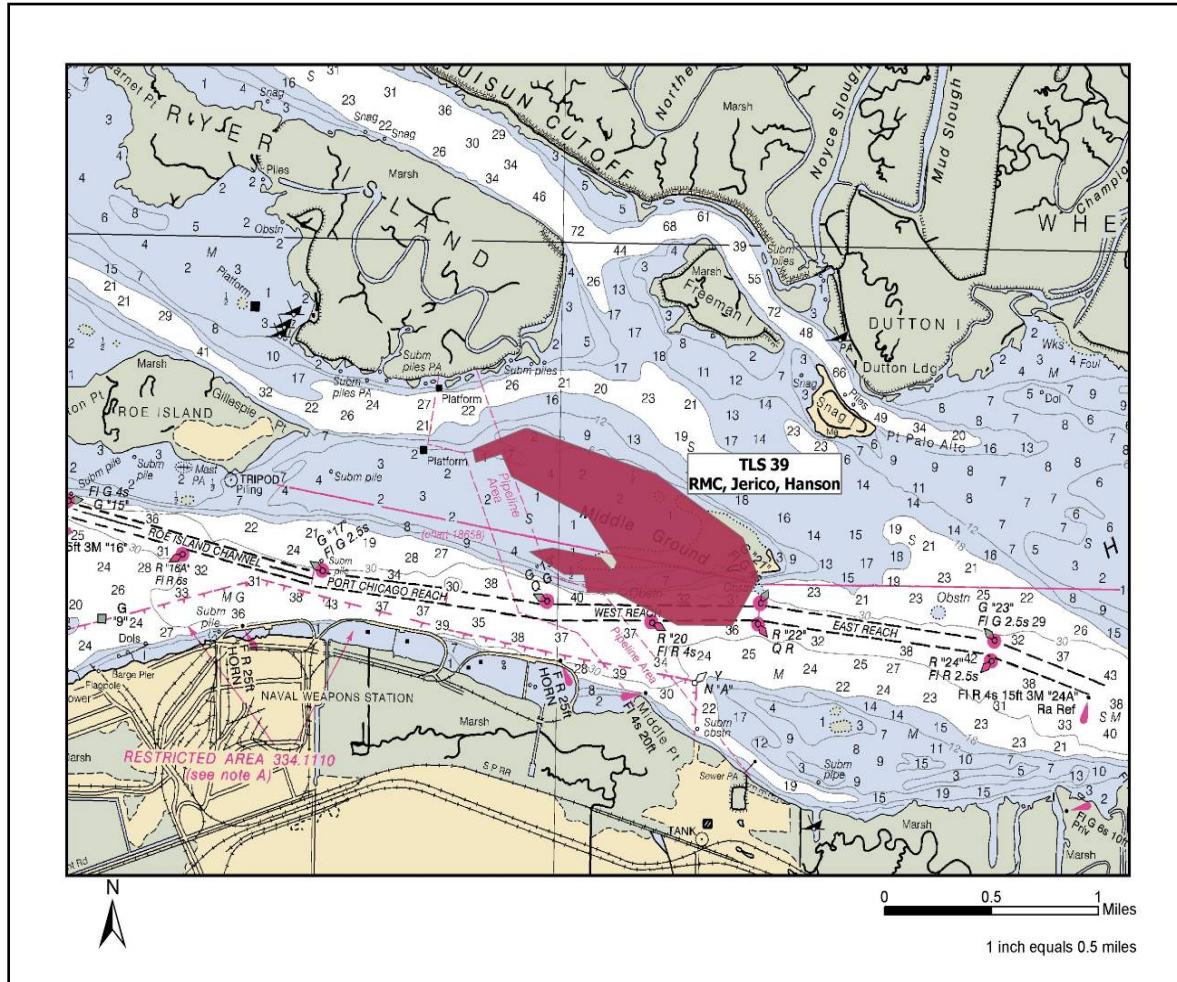


## Appendix A-2 Hanson Marine Operations' Central Bay Sand Mining Lease Locations



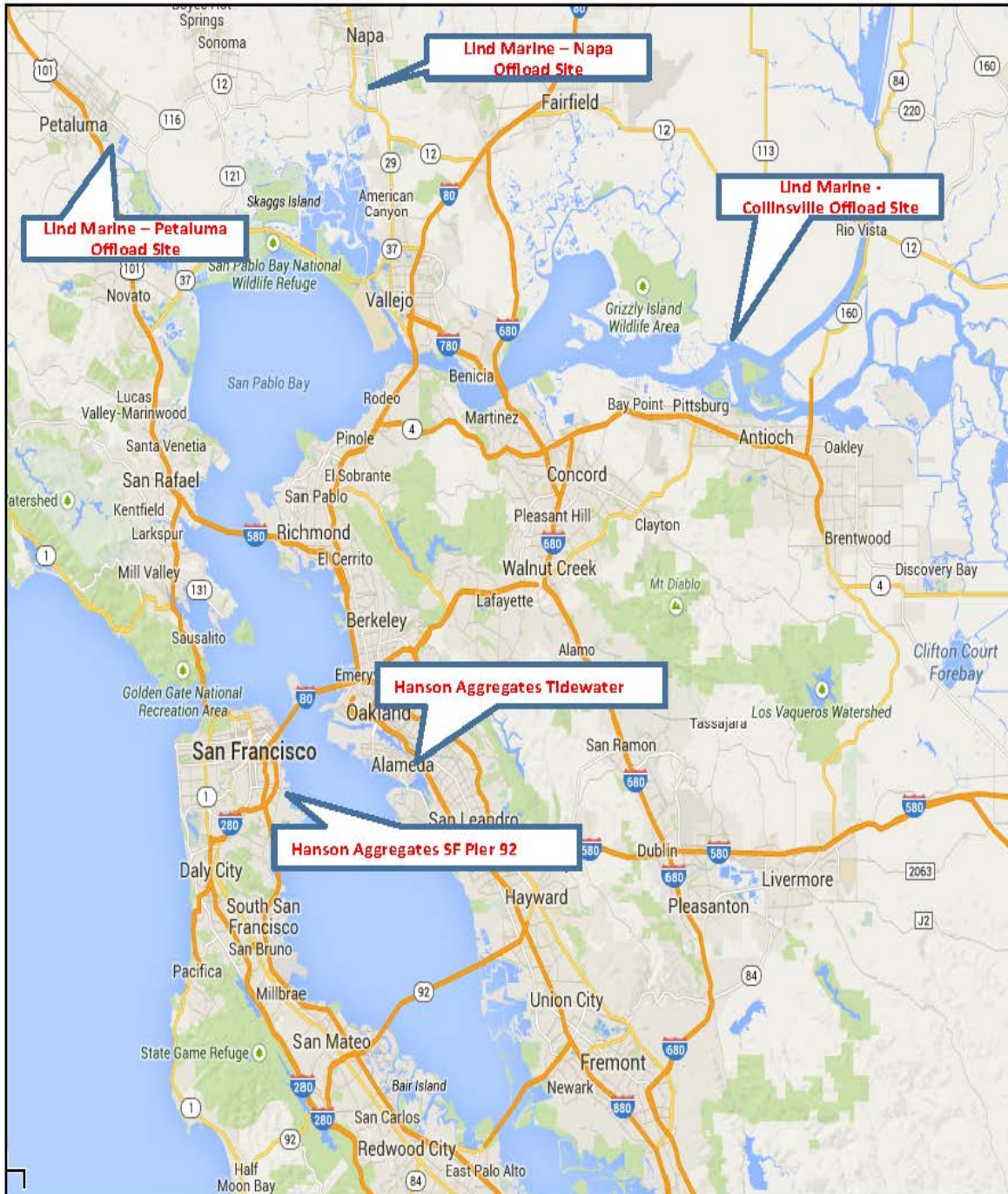


### Appendix A-3 Hanson Marine Operations' Middle Ground Sand Mining Lease Locations





## Appendix A-4 Upland Sand Processing Facility (Sand Yard) Locations



## APPENDIX B

### Self-Monitoring and Reporting Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR:

**HANSON MARINE OPERATIONS**

**I. GENERAL**

**A. Basis**

Reporting responsibilities of waste discharges are specified in sections 13225(a), 13267(b), 13260 *et seq.*, 13268, 13383, 13387(b) of the California Water Code and this Water Board's Resolution No. 73-16.

**B. Purpose**

The principle purposes of a monitoring program, also referred to as a Self-Monitoring Program, are to 1) document compliance with Waste Discharge Requirements and prohibitions established by the Water Board, 2) to facilitate self-policing by Hanson Marine Operations (Hanson) in the prevention and abatement of pollution arising from waste discharge, 3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and 4) to prepare water and wastewater quality inventories.

**C. Sampling and Analytical Methods**

Sample collection, storage and analyses shall be performed according to Title 40 of the Code of Federal Regulations, section 136, or other methods approved by the Executive Officer.

Water and wastewater analyses shall be performed by a laboratory approved by the California Department of Public Health or a laboratory approved by the Executive Officer.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

Routine sampling shall follow Quality Assurance/Quality Control procedures including the use of field (trip), equipment and laboratory blanks and laboratory surrogate samples.

All Quality Assurance/Quality Control measures and results shall be reported along with the data.

## **II. REPORTS TO BE FILED WITH THE REGIONAL BOARD**

### **A. Report of Permit Violation**

In the event that violations of permit requirements are detected, operations shall cease and Hanson shall immediately notify the Water Board staff by telephone and email (current case manager: Elizabeth Christian, email: EChristian@Waterboards.ca.gov, telephone number: 510-622-2335). Operations shall not resume until Hanson submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

### **B. Quarterly Self-Monitoring Reports**

Written reports shall be submitted to the current Water Board case manager in electronic format (e.g., via email, CD, or via uploading to the Water Board's FTP site) for each quarter (unless specified otherwise) within 30 days after the end of the quarter. The reports shall be comprised of the following information:

1. **Transmittal letter** that discusses any violations found during the reporting period in terms of dates of occurrence, magnitude, cause (if known), corrective actions taken or planned, and the time schedule for completion.
2. **Identification**
  - a. Name and address of dredging company.
  - b. Name and registration number of dredging vessel.
3. **Standard Observations**
  - a. Receiving Water
    - i. Geographical location of vessel during dredging.
    - ii. Location of the dredge, reported as longitude and latitude.
    - iii. Depth of water at time of dredging (can be a range if location moves during the single mining event).
    - iv. Time of day and duration of dredge operation.
    - v. Volume of material offloaded per month.
    - vi. Location where sand was off-loaded.
  - b. Sand Quantity
    - i. Volume of sand in cubic yards dredged per quarter.
    - ii. Approximate amount of available sand remaining at dredged location.
  - c. Graphical portrayal (maps showing track lines) and calculations of the areal extent of mining/benthic disturbance per lease area (number of acres and percent of total lease area mined).
4. **Non-standard Observations**
  - a. Any collisions, near collisions, or other navigation problems or conflicts encountered during the year's dredging operations.

### **C. Annual Report**

By January 30 of each year, Hanson shall submit an annual report to the Water Board covering the activities of the previous year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the report shall contain a comprehensive discussion of the compliance record and the corrective actions taken place or planned which may be needed to bring Hanson into full compliance with this permit.

Monitoring reports and the letter transmitting reports shall be assigned by a principal executive officer or ranking elected official of Hanson, or by a duly authorized representative of that person. The transmittal letter shall contain the following certification: "I certify under penalty of law that this document and all attachments are prepared under my direction or supervision and that the information submitted is, to the best of my knowledge, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program has been developed in accordance with the procedures set forth in the Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Water Board Order No. R2-2015-XXXX, adopted by the Board on January 21, 2015.

This Self-Monitoring Program may be reviewed at any time subsequent to its adoption date upon written notice from the Executive Officer or a request from Hanson, and revisions may be ordered by the Executive Officer or Water Board.

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Bruce H. Wolfe  
Executive Officer

# **APPENDIX B**

## **Comments**

October 13, 2014

Elizabeth Christian  
San Francisco Bay Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612  
*Sent via electronic mail: [echristian@waterboards.ca.gov](mailto:echristian@waterboards.ca.gov)*

Re: Tentative Orders for Waste Discharge Requirements and Water Quality Certifications for Suisun Associates, Lind Marine, Inc., and Hanson Aggregates.

Dear Ms. Christian:

On behalf of San Francisco Baykeeper and our over 3,000 members who use and enjoy the environmental, recreational, and aesthetic qualities of San Francisco Bay and its surrounding tributaries and ecosystems, we submit these comments in opposition to the proposed Tentative Orders (“TOs”) for Waste Discharge Requirements and Water Quality Certifications for Suisun Associates, Lind Marine, Inc., and Hanson Aggregates to conduct sand mining operations in Suisun Bay and San Francisco Bay.

A. The TOs Defer All Analysis of Impacts to Water Quality Objectives and Beneficial Uses.

Neither the TOs nor the applications provide the requisite data to determine whether or not the projects could cause or contribute to any exceedance of an applicable water quality standard or to any impairment of a beneficial use. California regulations provide that the Regional Board may issue a water quality certification “if it is clear that all proposed activity(ies) will comply with water quality standards and other appropriate requirements . . . .” 23 Cal. Code Reg. § 3859(b). Furthermore, the Regional Board must leave an administrative record that is sufficient to apprise “interested parties and the courts of the bases for the administrative action” by “set[ting] forth findings to bridge the analytic gap between the raw evidence and ultimate decision or order.” (*San Francisco Ecology Center v. City and County of San Francisco* (1975) 48 Cal.App.3d 584, 596, citing *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515-517.)

The TOs do not make clear what evidence they rely on in reaching their conclusion that the projects may not cause or contribute to any exceedance of water quality standard, or impairment of any beneficial use. Instead, the TOs entirely defer this analysis to a future study and report that will be submitted and reviewed by the Executive Officer with no opportunity for public comment. The TOs state that:

In November 1993, MEC Analytical Systems, Inc. completed a study, *Special Studies for Sand Mining Discharges of the Tidewater Sand and Gravel Company*, to evaluate Central Bay sand mining effluent quality and its potential impacts on

receiving water quality. The study found, generally, that the effluent met water quality objectives under typical sand mining conditions

...  
However, the 1993 study did not include Suisun Bay mining locations and equipment and environmental conditions may have changed in the ensuing 21 years, therefore, Suisun Associates needs to perform a new study to update the results of the 1993 study.

(TOs at 7.) Thus, the TOs expressly state that this 21 year-old study is insufficient to determine whether or not the projects would adversely affect water quality. Indeed, the mining extraction rates, techniques, and locations have all changed in the ensuing 21 years, as has the background receiving water quality. Moreover, the TOs state that the 1993 study found that water quality standards were “generally” met, under “typical” conditions, giving rise to the inference that sometimes, water quality standards were *not* maintained; but the TOs offer no further discussion of these exceedances.

The TOs expressly state that the information provided in the application is insufficient to determine whether or not water quality standards and beneficial uses will be maintained at all times through all project activities. Therefore, the proposed water quality certifications should be denied, and any subsequent studies rendered for the purpose of determining compliance with applicable state and federal standards must be subject to public review and comment. (See 23 Cal. Code Reg. § 3858(a); cf. *Waterkeeper Alliance, Inc. v. U.S. EPA*, 399 F.3d 486, 503 [an order “deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees [if it] effectively shields the [plans] from public scrutiny and comment.”])

Other statements in the application raise questions as to whether receiving water standards and beneficial uses will always be maintained and impacts from the project minimized. For example, the applications note that:

The *Sand Merchant* has been modified to utilize subsurface discharge pipes to release the overflow below the water line (Figure 3-6). These modifications are intended to reduce any developing discharge plumes by increasing the rate of turbulent mixing, dispersion, and decrease the duration of the overflow plume.

(Application at 3-10.) The TOs do not evaluate whether this is an effective mitigation technique, what the resulting water quality results may be, and what impacts occur from other barges not modified with the same technology as the *Sand Merchant*.

The applications describe the “dry offload process” by which:

[T]he hopper barge is equipped with two drag buckets which are pulled across the top of the sand in the cargo hopper pulling the sand to the front of the barge. There is one bucket on either side of the loading chute. The drag buckets feed



sand to a transfer conveyer running below the cargo hopper across the barge. From the transfer conveyer, the sand is transferred onto the boom conveyer, which extends overboard to the shore side conveyer system, which stockpiles sand within the yard (Figures 3-8 and 3-9).

(Application at 3-10.) Neither the TOs nor the applications evaluate the extent of spillage and discharge directly to waters from this process, nor the existing environmental conditions beneath each offload site to determine whether beneficial uses are impacted.

B. The TOs Defer All Analysis of Potential Sediment Quality Impacts.

Directly related to the application's incomplete characterization of water quality impacts, neither the applications nor the TOs characterize the sediment quality of the Bay floor where mining will occur or the resulting quality of the sediment waste discharge from the mining operation. Again, this analysis is deferred to a future study and report, with no opportunity for public comment. The TOs require that Suisun Associates, Lind, and Hanson:

shall submit a Sampling and Analysis Plan (SAP), acceptable to the Executive Officer, within 30 days of Order adoption, to characterize effluent and receiving water quality. In particular, the study shall characterize overflow effluent toxicity and composition (suspended sediment, conventional pollutant, and toxic pollutant concentrations), the spatial and temporal extent of the overflow plume in the receiving water based on the magnitude of suspended sediment concentrations within the plume, and compare overflow plume suspended sediment concentrations to background (ambient) conditions. The selection of sampling locations and number of sampling events shall be representative of all of Suisun Associates' mining areas and mining methods, adequate to capture seasonal variations, and be conducted under both flood and ebb tide cycles.

. . . shall include, at a minimum, sampling locations, a sampling schedule, laboratory information, analytical methods, QA/QC information, and a reporting schedule.

. . . shall start implementing the SAP within 45 days of the Executive Officer's approval. [Suisun Associates, Hanson, and Lind] shall submit a final study report within 60 days of data collection completion.

(TOs at 12-13.) As with the deferred water quality study, this sediment quality and discharge study constitutes essentially the entire evaluation required to determine whether the project may cause or contribute to exceedances of water quality standards or impair beneficial uses. Conducting these studies after certification is complete, and outside of any public review, fails to comply with the regulations and established case law. (*E.g.*, 23 Cal. Code Regs. § 3856, et seq.; *Topanga, supra*, 11 Cal.3d at 515-517; *Waterkeeper Alliance, supra*, 399 F.3d at 503.)

The TOs do include a requirement that “[o]nly dredged material that has been demonstrated to be non-hazardous may be mined.” (TOs at 10.) However, the TOs do not provide specific procedures and standards to ensure that this requirement is met. In addition to requiring a complete characterization of the sediment quality within the areas proposed to be mined now, the TOs should require regular submission of samples to be tested in the same manner as dredged materials are tested pursuant to the Long-Term Management Strategy.<sup>1</sup>

Moreover, the TOs make no mention of the State Water Board’s Water Quality Control Plan for Enclosed Bays and Estuaries – Part I Sediment Quality. (State Board Resolution 2011-17.)<sup>2</sup> These sediment quality objectives include numerous requirements that should be evaluated prior to any certification for these projects.

One particularly troubling mining method is “moving potholing,” whereby:

The operator leaves the drag head on the sediment surface, with the pump running and drags forward across the sand shoal until suitable substrate is found; then, the barges forward movement is stopped and the current pushes the barge into reverse, pushing the drag head 6”-18” into the substrate again and potholing mining resumes.

(Application at 3-9.) Dragging the suction dredge along any stretch of Bay floor clearly results in a higher disturbance rate to Bay sediment, creating larger plumes, potentially exposing more toxic sediments, and further scarring benthic habitat. However, neither the applications nor the TOs specifically evaluate the impacts of this technique vis-à-vis water quality objectives and beneficial uses. Nor do the applications provide any rationale as to why this more destructive method should be permitted when less destructive measures may be feasible.

C. The TOs Fail to Evaluate Consistency with the San Francisco Bay Mercury and PCB TMDLs.

The TOs should ensure that, at a minimum, the projects are consistent and comply with the following Basin Plan provisions implementing the San Francisco Bay Mercury TMDL:

**Suspended Sediment Target**

“The suspended sediment target (0.2 mg mercury per kg dry sediment) shall be compared to the annual median Bay suspended sediment mercury concentration found through RMP monitoring. The suspended sediment mercury concentration shall be computed as the difference between total and dissolved mercury concentration in a water sample (at each location) divided by the suspended sediment concentration for that same sample.” (Basin Plan at 7-21.)

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<sup>1</sup> See, <http://www.sfei.org/content/dmno-ambient-sediment-conditions>

<sup>2</sup> See, [http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/resolutions/2011/rs2011\\_0017.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2011/rs2011_0017.pdf)

**Mercury Load and Wasteload Allocations By Source Category**  
“Sediment Dredging and Disposal . . .  $0 \leq$  ambient concentration”  
(Basin Plan 7-23.)

**Sediment Dredging and Disposal**

“The allocation for sediment dredging and disposal is both mass-based and concentration-based. The mercury concentration in dredged material disposed of in the Bay shall not exceed the 99<sup>th</sup> percentile mercury concentration of the previous 10 years of Bay sediment samples collected through the Regional Monitoring Program (excluding stations outside the Bay like the Sacramento River, San Joaquin River, Guadalupe River and Standish Dam stations). Prior to disposal, the material shall be sampled and analyzed according to the procedures outlined in the 2001 U.S. Army Corps of Engineers document Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Region. All in-Bay disposal of dredged material shall comply with the Dredging and Disposal of Dredged Sediment program described in Chapter 4 and the Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region.

The process of dredging and disposing of dredged material in the Bay may enhance biological uptake and methylmercury exposure. To address this concern, permitted dredging and disposal operations shall demonstrate that their activities are accomplished in a manner that does not increase bioavailability of mercury. As part of this demonstration, the Waste Discharge Requirements for such operations shall include requirements to conduct or cause to be conducted studies to better understand how their operations affect mercury fate, transport, and biological uptake.” (Basin Plan 7-34 to 7-35.)

There is no dispute that the project proposals here seek to actively dredge the Bay floor, and to thereafter redeposit unwanted sediment sizes and materials back in to Bay waters, ultimately settling back to the Bay floor. The fact that Hanson Aggregates’ on-shore processing facilities independently have waste load allocations specified in the Basin Plan provides compelling evidence that the sediment disturbances and discharges from the subject mining activities themselves contribute additional mercury to suspended sediment levels, and expose mercury for bioavailability and methylmercury production. (Basin Plan 7-27.) Moreover, as discussed further in Section K, below, discharges from each shore-side facility must be evaluated as part of this certification request. (23 Cal. Code Regs. § 3856(h)(8).) In this vein, the TO should analyze whether (1) waste load allocations from each shore-side facility not presently listed in Basin Plan Table 7.2.2-5 should be required, and (2) whether the projects’ proposal to increase sediment extraction rates over the next 10 years will increase mercury discharges from these shore-side facilities. The TOs fail to evaluate these impacts.

The Basin Plan’s PCB TMDL similarly provides:

“Sources of PCBs to fish and the water column of San Francisco Bay fall into two categories: (1) external sources including atmospheric deposition, Central Valley inflow, municipal and industrial wastewater discharges, and urban and non-urban stormwater runoff; and (2) internal sources, including movement or release of PCBs already in San Francisco Bay sediments, specifically, dredging and in-Bay disposal of dredged sediment, erosion of bay bottom sediment containing PCBs (bed erosion), and in-Bay contaminated sediment sites.” (Basin Plan at 7-40 to 7-41.)

“The PCBs concentration in dredged material disposed of in the Bay shall not exceed the 99th percentile PCBs concentration of the previous 10 years of Bay sediment samples collected through the RMP (excluding stations outside the Bay like the Sacramento River, San Joaquin River, Guadalupe River and Standish Dam stations). Prior to disposal, the material shall be sampled and analyzed according to the procedures outlined in the 2001 U.S. Army Corps of Engineers document “Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Region.” All in-Bay disposal of dredged material shall comply with Section 4.20, entitled Dredging and Disposal of Dredged Sediment, including the Long Term Management Strategy. Additionally, dredged material dischargers will be required to conduct or cause to be conducted studies to fill critical data needs identified in the Adaptive Implementation section.” (Basin Plan 7-49.)

Unlike the Mercury TMDL, the PCB TMDL does not categorize such dredging as “navigational” dredging. However, as with the Mercury TMDL, Hanson’s on-shore facilities have been issued PCB waste load allocations. Whereas the Basin Plan recognizes that sediment disturbance from dredging is a contributing cause of PCB impairment to the Bay, as are Hanson’s sand and gravel processing facilities, the TOs must evaluate whether the proposed projects would increase PCB impairment in San Francisco Bay.

D. The TOs Inadequately Consider Beneficial Uses Relating to Habitat, Recreation, and the Pacific Coast.

As with its water quality and sediment quality evaluations, the TOs similarly defer analysis of biological impacts to a future study, which will receive no public review, following the proposed grant of certification:

NMFS staff stated that the 2009 study was not conducted over a large enough area and was too short-term to make sound conclusions. Therefore, NMFS determined that a new benthic habitat evaluation study is necessary. Provision 6 requires [Suisun Associates, Lind, and Hanson] to coordinate with NMFS, USFWS, and CDFW to develop a work plan and complete a new study. Provision 5 requires Suisun Associates to organize a Technical Advisory Committee (TAC) to develop

a work plan for the study, identify experienced contractors to conduct it, and review all data deliverables.

(TO at 5.)

[Suisun Associates, Lind, and Hanson] shall organize and convene a TAC . . . to develop a work plan for the benthic study, identify experienced contractors to conduct it, and review all data deliverables.

. . .

Based on the final work plan developed through the TAC, [Suisun Associates, Lind, and Hanson] shall complete a benthic habitat evaluation study that includes, but is not limited to, the following objectives:

- Characterize the benthic community and habitat within areas where sand mining is permitted to occur and adjacent areas having similar habitat characteristics where sand mining is not permitted. Characteristics of the benthic community include species composition, biomass of the dominant taxa, density (abundance), and species diversity. Benthic habitat characteristics include consideration of substrate particle size, bed form, evidence of natural and anthropogenic disturbance, and other physical conditions,
- Identify differences between communities inhabiting mining leases and control sites, and
- Obtain a better understanding of the effects of sand mining on benthic communities in Central San Francisco Bay and Suisun Bay and their rates of recovery following sand mining events.

(TOs at 13.) But these are precisely the factors the TOs must consider now in order to support their certification. Conducting these studies after certification is complete, and outside of any public review, fails to comply with the regulations and established case law. (*E.g.*, 23 Cal. Code Regs. § 3856, et seq.; *Topanga, supra*, 11 Cal.3d at 515-517; *Waterkeeper Alliance, supra*, 399 F.3d at 503.)

Moreover, owing to the nature of the projects, the TOs should include evaluation of numerous biological and coastal objectives currently missing from discussion in the TOs. The projects' impacts range far more broadly than the immediate impacts resulting from suction dredging and the subsequent discharge of waste back into the Bay. Sand mining in San Francisco Bay has already contributed to permanent sediment loss, which these projects will accelerate.<sup>3</sup> Recent peer-reviewed research published by the USGS and others indicates that sand mining has

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<sup>3</sup> Barnard et. al, 2012. Synthesis Study of an Erosion Hot Spot, Ocean Beach, California, USGS and University of California.

reduced the available sand supply to open coast beaches along the San Francisco coast.<sup>4</sup> These studies draw a clear connection between sand mining in the Bay, and the observed shrinking of the San Francisco Bar and erosion at Ocean Beach.<sup>5</sup>

These impacts have consequences for numerous goals and objectives relating to San Francisco Bay, including but not limited to, the Baylands Ecosystem Habitat Goals, the California Ocean Plan, and existing and planned Basin Plan objectives for biological resources, and recreation:

- The Baylands Ecosystem Habitat Goals (1999) provides: “The overall goal for the Central Bay subregion is to protect and restore tidal marsh, seasonal wetlands, *beach dunes*, and islands.” (S-5, emphasis added.)
- The California Ocean Plan provides:
  - “The beneficial uses of the ocean waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including *aesthetic enjoyment; navigation; commercial and sport fishing*; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); *rare and endangered species; marine habitat*; fish migration; fish spawning and shellfish harvesting.” (Ocean Plan at 3, emphasis added.)
  - “Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.” (Ocean Plan at 10.)
- San Francisco Bay Basin Plan provides:
  - 2.1.16 NONCONTACT WATER RECREATION (REC2) Uses of water for recreational activities involving *proximity* to water, but not normally involving contact with water where water ingestion is reasonably possible. These uses include, but are not limited to, *picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities*. (Basin Plan at 2-5, emphasis added.)
  - “Water quality considerations relevant to noncontact water recreation, such as hiking, camping, or boating, and those activities related to tide pool or other nature studies require protection of habitats and aesthetic features. In some cases, preservation of a natural wilderness condition is justified, particularly when nature study is a major dedicated use.” (Basin Plan at 2-6, emphasis added.)
  - “Coastal waters’ beneficial uses include water contact recreation (REC1); noncontact water recreation (REC2); industrial service supply (IND); navigation (NAV); marine habitat (MAR); shellfish harvesting (SHELL); commercial and sport fishing (COMM); wildlife habitat (WILD), fish migration (MIGR), fish

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<sup>4</sup> Barnard P L, Kvittek, RG. 2010. Anthropogenic influence on recent bathymetric change in west-central San Francisco Bay. San Francisco Estuary and Watershed Science, 8(3).

<sup>5</sup> Barnard, et. al, 2012, Analyzing Bedforms Mapped Using Multibeam Sonar to Determine Sediment Transport Patterns in SF Bay, USGS.

spawning (SPWN), and preservation of rare and endangered species (RARE). In addition, the California coastline within the Region is endowed with exceptional scenic beauty.” (Basin Plan at 2-7, emphasis added.)

Unfortunately, none of these plans, goals, or objectives are mentioned in the TOs. However, the loss of coastal beaches and in-Bay erosion as a result of the project’s unsustainable rate of mineral extraction from the Bay floor must be evaluated for consistency with these policies, prior to issuance of any certification that the project will not conflict with or exceed any applicable beneficial use.

Several peer-reviewed papers are available to support the finding that sediment loss in the entire San Francisco Bay Coastal System during the last half-century is 240 million cubic meters, and most of this is believed to be coarse sediment (i.e., sand and gravel) from Central Bay and the San Francisco Bar, which is likely to limit the sand supply to adjacent, open-coast beaches.<sup>6</sup> Significant erosion of the Bay floor is temporally correlated with high rates of aggregate mining and similarly high volumes of erosion of the ebb-tidal delta at the mouth of San Francisco Bay, as well as widespread erosion of adjacent, open-coast beaches.<sup>7,8,9,10,11</sup>

Moreover, recent USGS analysis, based upon multibeam bathymetry surveys conducted in 2008 and 2014 found a marked decrease in erosion, compared with data from between 1997 and 2008, when extraction rates more closely approximated currently proposed mineral extraction rates.<sup>12</sup> Results of analysis from the West-central Bay included:

This recent trend of accretion for the entire survey area (2008 to 2014, +0.8 million m<sup>3</sup>/yr) and the lease areas (+0.1 million m<sup>3</sup>/yr) stands in contrast to the change detected from 1997 to 2008, which showed a mean vertical change of -0.35 m (erosion) for the total common survey area (-1.3 million m<sup>3</sup>/yr) and -0.80 m for the lease areas (-0.8 million m<sup>3</sup>/yr) (Barnard and Kvitek, 2010).

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6 Barnard P L, Kvitek, RG. 2010. Anthropogenic influence on recent bathymetric change in west-central San Francisco Bay. *San Francisco Estuary and Watershed Science*, 8(3).

7 Hanes DM, Barnard PL. 2007. Morphological evolution in the San Francisco Bight. *Journal of Coastal Research Special Issue*, Issue 50, pp. 469-473.

8 Dallas KL, Barnard PL. 2009. Linking human impacts within an estuary to ebb-tidal delta evolution. *Journal of Coastal Research*, Volume 56, pp. 713-716.

9 Hapke CJ et al. 2006. National assessment of shoreline change: part 3: historical shoreline changes and associated coastal land loss along the sandy shorelines of the California coast, s.l.: U.S. Geological Survey Open File Report 2006-1219.

10 Dallas KL, Barnard PL. 2011. Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system. *Estuarine, Coastal and Shelf Science*, Volume 92, pp. 195-204.

11 Barnard PL, Hansen JE, Erikson LH. 2012. Case study of an erosion hot spot, Ocean Beach, CA (USA). *Journal of Coastal Research*, 28(4), pp. 903-922.

<sup>12</sup> Barnard P, Kvitek R, Iampietro P. 2014. Bathymetric Change Analysis for West-central Bay and Suisun Bay 2008-2014. Report by California State University, Monterey Bay, Sea Floor Mapping Lab, Seaside, CA and United States Geological Survey, Pacific Coastal and Marine Science Center, Santa Cruz, CA.

These recent findings indicate a slight rate of accretion has taken place within the survey area in recent years, including West-central Bay lease areas, although non-lease areas accreted at a rate 79% greater than lease areas. In comparison, significant erosion took place between 1997 and 2008, coinciding with a greater than 600% increase in aggregate mining rates in West-central Bay, compared to 2008-2014. From 1997-2007, 10.4 million m<sup>3</sup> (0.95 million m<sup>3</sup>/yr) of sediment was extracted from West-central Bay lease sites, whereas from 2008-2013 a total of 1.7 million m<sup>3</sup> (0.28 million m<sup>3</sup>/yr) was removed. Should mining activity increase significantly, consistent with currently proposed extraction rates, it is reasonable to presume erosion of the Bay floor would progress. And since most sand found on Ocean Beach and other portions of the Golden Gate National Recreation Area (GGNRA) originates from the Sierras and passes through the Bay, erosion of the outer coast would follow, consistent with recent studies.<sup>13</sup>

Lastly, the applications state that “[f]ish screens have been installed on Hanson Mining Equipment as of September 16, 2013. Fish screens will reduce and minimize the risk of take of protected fish.” (Application at 4-1.) The applications are unclear as to whether these screens have been implemented on Lind Marine, Inc. or Suisun Associates equipment, and whether there will still be some level of resulting impacts.

E. The Applicants Should be Required to Obtain an NPDES Permit and/or 404 Permit.

The TOs and applications seek only to approve a “Waste Discharge Requirement” pursuant to state law, and a “Rivers and Harbors Act, Section 10” federal approval. Neither of these approvals satisfies the requirements of the Clean Water Act (“CWA”). CWA section 301 provides that “the discharge of any pollutant by any person shall be unlawful” except for discharges permitted under CWA section 402 or 404. (33 U.S.C. 1311(a).) Congress further defined “pollutant” to include “dredged spoil, rock, [and] sand” (33 U.S.C. § 1362(6)), and the discharge of material from mining of submerged lands has been determined by the courts to constitute a discharge that may be regulated with permits issued pursuant to Section 402 of the CWA. (See *Rybachek v. USEPA* (9th Cir. 1990) 904 F.2d 1276, 1285-1286 [“even if the material discharged originally comes from the streambed itself, such re-suspension may be interpreted to be an addition of a pollutant under the Act.”]) There is no dispute that the applicants propose to discharge pollutants from a point source into waters of the United States. A CWA 402 permit is required for this activity.

In addition, or, at a minimum, in the alternative, the project applicants should be required to obtain CWA section 404 authorization for the placement of dredge or fill materials into waters of the U.S. The application for water quality certification contradicts itself on this point, at once answering that any questions related to dredge or fill are “not applicable” to the project (Applications at 6), while later describing in express terms how the project will dredge the Bay floor and redeposit dredged materials to the Bay. The U.S. Code of Federal Regulations states

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13 Barnard PL, Foxgrover AC, Elias EPL, Erikson LH, Hein JR, McGann M, Mizell K, Rosenbauer RJ, Swarzenski PW, Takesue RK, Wong FL, Woodrow, DL. 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, Special Issue San Francisco Bay*, 345, 181-206.



that, “[e]xcept as provided in § 323.4 of this part, [U.S. Army Corps of Engineers] permits will be required for the discharge of dredged or fill material into waters of the United States,” and a review of the exceptions listed in section 323.4 shows that none apply. (33 C.F.R. 323.3(a).) As there is no dispute that the projects constitute dredging of the Bay floor, and that the discharge of dredged materials back into San Francisco Bay may adversely impact benthic habitat, the projects should be limited to discharging dredge and fill materials to designated disposal sites in order to minimize such impacts.

Without including evaluation of CWA 402 and 404 requirements, the permittees’ applications for water quality certification are incomplete. (See 23 Cal. Code Regulations § 3856(c).)

F. The Sand Mining Applications Fail to Adequately Describe the Projects.

The California Code of Regulations requires that any application for a water quality certification contain a “full, technically accurate description, including the purpose and final goal, of the entire activity.” (23 Cal. Code Regs. § 3856(b).) This includes, among other things:

[T]he total estimated quantity of waters of the United States that may be adversely impacted temporarily or permanently by a discharge or by dredging. The estimated quantity of waters to be adversely impacted by any discharge shall be reported in acres and (for channels, shorelines, riparian corridors, and other linear habitat) linear feet, except that dredging estimates shall be reported in cubic yards.

(23 Cal. Code Regs. § 3856(h)(4).) The applications fail to include this information. The applications admit that “[t]he volume of sediment discharged overboard during a typical mining event within the estuary has not been quantified” (Applications at 3-10), and nowhere attempt to provide an estimate of the quantity of waters adversely impacted.

A complete application must also include:

The total estimated quantity (in acres and, where appropriate, linear feet) of waters of the United States, by type (see Subsection (h)(2) of this Section) proposed to be created, restored, enhanced, purchased from a mitigation or conservation bank, set aside for protection, or otherwise identified as compensatory mitigation for any anticipated adverse impacts. If compensatory mitigation is to be provided in some other form, that shall be explained.

(23 Cal. Code Regs. § 3856(h)(5).) Here, the applications do reference compensatory offsets as required per the incidental take permits, but reference no compensatory offset for impacts resulting from dredge activity, or from the discharge of dredge and fill materials to the Bay and Bay floor. With no estimate of the quantity and area of waters impacted, as required by 23 Cal. Code Regs. § 3856(h)(4), the calculation of any sufficient compensatory offset is not possible and is not included in the applications.

G. Impacts from Related Projects are Inadequately Described.

California regulations require a water quality certification application to include:

A brief list/description, including estimated adverse impacts of any projects implemented by the applicant within the last five years or planned for implementation by the applicant within the next five years that are in any way related to the proposed activity or that may impact the same receiving water body(ies) as the proposed activity. For purposes of this item, the water body extends to a named source or stream segment identified in the relevant basin plan.

(23 Cal. Code Regs. § 3856(h)(8).) While the applications do list the on-shore sand and gravel facilities that will receive and process the mined product, the application and the TOs fail to consider the “adverse impacts” flowing from those sites.

Finally, a search of Regional Board adopted orders over the last five years reveals a number of projects that could be “in any way related to the proposed activity or that may impact the same receiving water body(ies) as the proposed activity.” (23 Cal. Code Regs. § 3856(h)(8).)

- R2-2011-0097, Lehigh Hanson West Region, Enforcement
- R2-2013-1030, Lehigh Hanson West Region Facility, Enforcement
- R2-2014-0010, Lehigh Southwest Cement Company and Hanson Permanente Cement Inc., Permit
- R2-2014-0011, Lehigh Southwest Cement Company and Hanson Permanente Cement Inc., Permit
- R2-2014-1014, Lehigh Hanson West Region, Enforcement

The TOs should address the extent to which any activities at any of the above-referenced facilities are in any way connected with the proposed projects, including a discussion of the whole of the impact to San Francisco Bay from these multiple projects cumulatively.

H. The TOs Fail to Include Monitoring Requirements Sufficient to Determine Compliance With all Applicable Water and Sediment Quality Standards.

The Clean Water Act requires that any water quality certification “shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations . . . .” further noting that such limitations and monitoring requirements “shall become a condition on any Federal license or permit . . . .” (33 U.S.C. § 1341(d).) The monitoring proposed by the TOs does not appear to be sufficient to determine whether compliance will all applicable standards and objectives will be maintained.

The TOs require the following monitoring conditions:

[Suisun Associates, Jerico, and Hanson] shall measure and record dredging locations and areal extent of benthic disturbance per lease area, water depth at time of dredging, volumes dredged, and off-loading locations for dredging on a daily basis during operations.

(TOs at 14.)

### **3. Standard Observations**

#### **a. Receiving Water**

- i. Geographical location of vessel during dredging.
- ii. Location of the dredge, reported as longitude and latitude.
- iii. Depth of water at time of dredging (can be a range if location moves during the single mining event).
- iv. Time of day and duration of dredge operation.
- v. Volume of material offloaded per month.
- vi. Location where sand was off-loaded.

#### **b. Sand Quantity**

- i. Volume of sand in cubic yards dredged per quarter.
  - ii. Approximate amount of available sand remaining at dredged location.
- c. Graphical portrayal (maps showing track lines) and calculations of the areal extent of mining/benthic disturbance per lease area (number of acres and percent of total lease area mined).

### **4. Non-standard Observations**

- a. Any collisions, near collisions or other navigation problems or conflicts encountered during the year's dredging operations.

(TOs at Appendix B.) None of these monitoring provisions requires any testing of water or sediment quality, before, during, or after mining operations. Nor do the TOs provide any explanation of how these monitoring provisions could be translated to determine whether the applicable standards and objectives are maintained.

#### **I. Some TO Limitations and Avoidance Measures are Unduly Vague, Unenforceable, and Do Not Ensure Consistency with Water Quality Standards and Beneficial Uses.**

The TOs contain some provisions intended to reduce or avoid adverse sediment, water quality, and biological impacts, yet many are not sufficiently specific to understand the level to which these impacts will be avoided, or to determine whether the permittees are in compliance.

For example, the TOs require that:

[Suisun Associates, Lind, and Hanson] shall operate its dredge and/or barge in such a way as to minimize dredging of non-marketable sediments and the discharge of floating, suspended, or deposited macroscopic particulate matter or foam fine-grained material, detritus, and any foreign matter.

(TOs at 14.) The TOs do not explain exactly how operations will be modified to meet this requirement, nor what the incremental benefits such modifications should achieve. This provision is too vague for implementation or enforcement.

The TOs also require and allow that:

Dredging operations shall cease immediately whenever violations of requirements are detected through implementation of the SMP and operations shall not resume until alternative methods of compliance are provided. . . . Operations shall not resume until [permittee] submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

(TOs at 15.) First, this provision requires the permittees to self-police itself, implementing and evaluating the already vague provisions in the TOs. Moreover, any such alternative compliance measures effectively constitute a new project application, waste discharge requirements, and 401 certification, and must be circulated for public review prior to approval

J. The Basin Plan's Policies Governing Mine Sites are Not Analyzed.

The TOs do not include the Basin Plan's special requirements for mining sites:

A Report of Waste Discharge shall consist of a "Site Closure Plan" and an "Operation and Management Plan" for active sites, as described below:

- Each plan shall be designed to ensure short- and long-term protection of beneficial uses of receiving waters.
- The "Closure Plan" shall address site restoration and long-term maintenance and monitoring, which may include a financial guarantee to ensure that adequate funds are available for proper site closure.
- The "Operation and Management Plan" shall address . . . erosion control measures and practices. Each plan will be evaluated in regard to potential impacts to beneficial uses of receiving waters. WDRs will be issued or conditionally waived at the discretion of the Water Board based on the threat to water quality and the effectiveness of identified and implemented control measures and the effectiveness of local agency oversight.

(Basin Plan at 4-65.) While these policies may have been historically applied only to land-based mining sites, as opposed to the submerged mining locations at issue here, the impacts from the mining operations on the Bay floor have similar if not greater implications for the Bay ecosystems, and post-mining closure and remediation plans are therefore equally applicable. Already, the Bay floor is pock-marked with historic mine pits, and the project applications propose to increase the rate of extraction over the next 10 years. The TOs should be revised to apply these Basin Plan provisions to the proposed projects.

K. The TOs Fail to Include Any Anti-Degradation Analysis.

The State Water Board has established the goal to maintain high quality waters where they exist in the State. State Board Resolution No. 68-16 states, in part:

Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.”

Here, the miners propose to increase extraction rates above and beyond what was permitted by the State Lands Commission under their prior 10 year leases. The resulting effect will be greater erosion and less re-nourishment of Bay Area beaches, additional disturbances to benthic habitat, additional waste discharges, and less sediment availability system-wide. Each of these increases in the severity of projects’ impacts will result in the degradation of water quality beyond that previously permitted for the projects.

L. The Applications Seek Approval for Future Years Not Subject to CEQA Review or State Lands Commission Approval.

The applications and TOs propose to approve Hanson and Lind’s sand mining activities from 2014-2024. (TOs at 3.) However, the lease approvals granted by the State Lands Commission extend for a period of 10 years from January 1, 2013. The Regional Board should not permit any extraction for future years that have not undergone CEQA review and State Lands Commission review.

M. Conclusion.

For each of the reasons stated above, we strongly urge that the proposed Waste Discharge Requirements and 401 Certifications for Suisun Associate, Jerico, and Hanson’s sand mining projects be denied. Approval would be in conflict with recognized experts in sediment science, who established a definitive causal link between dredging/aggregate mining and coastal

erosion,<sup>14,15,16,17,18,19</sup> with the hope that "...the planning community can now more skillfully address the challenges of managing sediment in SF Bay in a manner that promotes the sustainability of open-coast beaches and submarine habitats."<sup>20</sup>

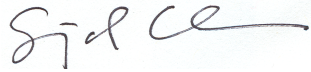
Sincerely,



Ian Wren  
Staff Scientist, San Francisco Baykeeper



Jason R. Flanders  
Aqua Terra Aeris Law Group



Sejal Choksi-Chugh  
Program Director, San Francisco Baykeeper

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<sup>14</sup> Barnard PL, Foxgrover AC, Elias EPL, Erikson LH, Hein JR, McGann M, Mizell K, Rosenbauer RJ, Swarzenski PW, Takesue RK, Wong FL, Woodrow, DL. 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, Special Issue San Francisco Bay 345*, 181-206.

<sup>15</sup> Barnard PL, Erikson LH, Elias EPL, Dartnell P. 2013. Sediment transport patterns in the San Francisco Bay Coastal System from cross-validation of bedform asymmetry and modeled residual flux. *Marine Geology, Special Issue San Francisco Bay 345*, 74-97.

<sup>16</sup> Erikson LH, Wright SA, Elias E, Hanes DH, Schoellhamer DH, 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, Special Issue San Francisco Bay 345*, 98-114.

<sup>17</sup> McGann M, Erikson L, Wan E, Powell II C, Maddocks RF. 2013. Distribution of biologic, anthropogenic and volcanic constituents as a proxy for sediment transport in the San Francisco Bay Coastal System. *Marine Geology, Special Issue San Francisco Bay 345*, 115-144.

<sup>18</sup> Bosenbauer RJ, Foxgrover AC, Hein JR, Swarzenski PW. 2013. A Sr-Nd isotopic study of sand-sized sediment provenance and transport for the San Francisco Bay Coastal System. . *Marine Geology, Special Issue San Francisco Bay 345*, 145-155.

<sup>19</sup> Wong FL, Woodrow DL, McGann M. 2013. Heavy mineral analysis for assessing the provenance of sandy sediment in the San Francisco Bay Coastal System. . *Marine Geology, Special Issue San Francisco Bay 345*, 172-182.

<sup>20</sup> Hein JR, Mizell K, Barnard PL. 2013. Sand sources and transport pathways for the San Francisco Bay coastal system, based on X-ray diffraction mineralogy. *Marine Geology*, 345, 154-169.

**From:** [JLucas1099@aol.com](mailto:JLucas1099@aol.com)  
**To:** [Christian.Elizabeth@Waterboards](mailto:Christian.Elizabeth@Waterboards)  
**Subject:** Hanson Marine Oper./Lind Marine Incorp./Suisun Assoc. 10 yr sandmining RWQCB WDR  
**Date:** Monday, October 13, 2014 3:23:52 PM

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Elizabeth Christian  
San Francisco Bay Region Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

October 13, 2014

RE: Hanson Marine Operations, Lind Marine Incorporated, & Suisun Associates 10 Year Sand Mining Permit Waste Discharge Requirements and Clean Water Act Section 401 Certification

Dear Elizabeth Christian,

In consideration of the Clean Water Act's federal mandate to restore and maintain the chemical, physical and biological integrity of the nation's waters, I urge the Regional Water Quality Control Board not to permit the Hanson Marine, Lind Marine and Suisun Associates ten year sand mining proposals as they would be cumulatively and irreversibly detrimental to beneficial uses of the estuary.

The sand mining permit request does not appear to be supported by current data on either flows or sediment loads coming out of delta and traveling through the Bay to the Pacific Ocean. A Sediment Budget Study for San Francisco Bay report by San Francisco District Corps of Engineers, February, 1992, correlates seventy years of flow and sediment transfer data into San Francisco Bay and shows a diminishing sediment supply.

1955 -1990 7.88 million cu. yds. sediment per year -average - passed through Delta to San Francisco Bay  
by 1992 5,93 million cu. yds. of sediment per year was average (of this sediment load COE estimated 1/3 to south bay and 1/2 out Golden Gate to coast/ ocean, 1/6 or 1 m. cu.yds. of sediment to central bay  
1992 - 2014 COE Sediment Budget Report should be brought up to present to properly evaluate resource

A subsequent bathymetric study notes that between 1997 and 2008 there has been a volume change of bay sands in the west-central quadrant of San Francisco Bay of up to 14.1 million cu. yds.(9.2 million cu. yds. in lease areas, and 4.9 million cu. yds. in non-lease areas). While most deep holes in bay floor are where sand mining leases are located, there is a depth change of over 2 meters loss just inboard of Golden Gate Bridge.

Sand mining activity has been criticized as excavating historic floor of Bay, and its 'finite geologic deposits'.

Historic beneficial uses of the estuary that appear to be in jeopardy are:

- ~ sediment laden pulse flows under cover of which anadromous runs of salmon and steelhead migrate from Pacific Ocean to rivers and streams of the Delta - (night dredging liable to impact prime migration times)
- ~ tidal marsh replenishment, from Suisun Marsh to marshes of South Bay (element of salt pond restoration)
- ~ sand recruitment for coastal beaches and bluffs outside Golden Gate (loss of sand supply is eroding cliffs)
- ~ diminished sediment load in flows from Delta may accelerate levee erosion
- ~ recreation boating safety and shipping clearance through Carquinez channel
- ~ benthic habitat, vertebrate and invertebrate communities and Delta fisheries
- ~ fresh water/salt water interface (sand mining, in Carquinez channel, may increase salt water intrusion)

~ integrity of native fisheries (sand mining tugs, barges and equipment may exacerbate invasive species)

Alternative sources of sand do exist outside of San Francisco Bay while the natural dispersal of sediment throughout the estuary for these multiple beneficial uses is impossible to duplicate logistically and would be fiscally prohibitive. Global warming and bay rise will prove challenging enough to estuary marsh environment.

Cumulative impacts on Sacramento River flows and sediment loads by diversion twin tunnel design of State Department of Water Resources Bay Delta Plan were not addressed in the Sand Mining EIR and estimates of an 8 % diversion of sediment load may deplete sand resources to more critical levels. CEQA Law and Guidelines would direct that degree of diversion of flows and sediment be included in this permit application as an anticipated and cumulative impact. To not do so will create a deficient permit document and process.

Also, believe benthic studies required of applicant by this permit need be done in advance of permitting of ten year sand mining permit. This might give time to accommodate Bay Delta Plan design flow data in permits

Thank you for consideration of my concerns in regards these sand mining permits.

Libby Lucas  
174 Yerba Santa Ave., Los Altos, CA 94022



# San Francisco Bay Conservation and Development Commission

455 Golden Gate Avenue, Suite 10600, San Francisco, California 94102 tel 415 352 3600 fax 415 352 3606

October 13, 2014

Ms. Elizabeth Christian  
San Francisco Bay Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

**SUBJECT:** California Regional Water Quality Control Board, San Francisco Bay Region,  
Tentative Orders to adopt Waste Discharge Requirements and Clean Water Act  
Section 401 Certification for Sand Mining in San Francisco Bay

Dear Ms. Christian,

Thank you for the opportunity to review and comment on the Tentative Orders for Waste Discharge Requirements and Clean Water Act Section 401 Certification for sand mining in Suisun and San Francisco Bay by Lind Marine (formerly Jerico Products) (Lind), Suisun Associates, and Hanson Marine Operations (Hanson). We have reviewed the documents provided via your website and offer the following comments for your consideration.

As you know the San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction over dredging and mining activities in San Francisco Bay and Suisun Bay, as well as activities within a 100-foot shoreline band. The mining activities under review by the San Francisco Bay Regional Water Quality Control Board (Water Board) are also under review by BCDC and will be before the BCDC's Commission in early 2015. The Commission's main concerns related to this project include, but are not limited to: impacts to wildlife and habitat; sand transport; water quality and Bay bathymetry. The following comments are respectfully provided for each of the Tentative Orders, and where noted, to a specific Tentative Order.

## **Comments Related to Tentative Orders for Hanson Marine Operations, Lind Marine and Suisun Associates:**

On Page 2, Section C. Discharge Description, the last sentence of the second paragraph states that the "water and sediment discharged during a typical mining episode has not been quantified." We believe the applicants have quantified the discharge. Is this statement due to the uncertainty of the quantification, or was the information not provided?

On Page 3, Section D. Regulatory Status, the fourth bullet describes BCDC's pending action as pursuant to the Coastal Zone Management Act. While BCDC does exercise its federal authority when issuing consistency determinations to the federal government, it acts under its state authority described in the McAteer Petris Act for non-federal entities.



In the Provisions Section, Item 6, Benthic Habitat Impact Evaluation Study, Commission staff recommends that more than one scientist with appropriate expertise be involved in the Technical Advisory Committee (TAC). This would provide sound study development and ensure the appropriate statistical power to answer proposed questions regarding the impacts of sand mining to benthic habitat. In addition, there may be some confusion regarding the scope of the proposed study. It is staff's understanding that the proposed study is currently limited to Central San Francisco Bay. If, as the Order states, the benthic study will include Suisun Bay then our recommendation would be that it includes sufficient samples to provide the necessary statistical power for both embayments. If, the study in fact only includes Central Bay, staff recommends the Water Board include both areas (Suisun and Central Bay) as part of the required study.

In the Provisions Section, Item 8, Volume Limits states that the volume limits proposed serve to "reduce the potential risk of adverse effects of sand mining on subtidal habitat." Please explain how the proposed volumes for each lease area and company reduces impacts to habitat or species. As Commission staff understands the applications, the proposed project volumes are based on industry projections of construction material needs, not an impact or risk analysis. It would also be helpful in this section to include seasonal volume reductions designed to reduce entrainment of larval smelt for mining in Suisun Bay and Channel.

Provisions Section 9: Depth Restrictions, please more clearly identify the limitation on the depth restrictions in the table provided. All the depth limitation provided in the table refer to areas/times when no mining is allowed. Please more clearly indicate that there is "no mining," so that it is not confused with any areas/times of "limited mining". Examples include: no mining within 200 feet of any shoreline; no mining within 250 feet of depths less than minus 9 feet MLLW; etc.

**Comments Specific to Hanson Marine Operations:**

On Page 5, Section E-4, Sand Mining Methods describes Hanson as using two methods of mining, stationary and moving potholing. It is the Commission staff's understanding that Hanson only uses the moving potholing method of mining.

**Comments Specific to Lind Marine:**

Page 5, Section E-1 regarding the Project Location, it states that, "both Hanson and Lind currently mine the Middle Ground parcel under separate leases with the Grossi Family..." As you may know, Hanson does have a lease at Middle Ground, but has not actually mined at this location for a number of years. Therefore, while the current overall proposed mining is much reduced from volumes previously authorized on the Grossi Lease area, it does not appear to actually reduce mining activity.

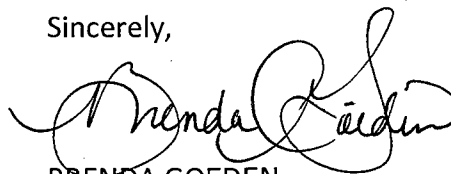
Also on page 5, Section E-6, regarding benthic habitat impacts from sand mining, your order states that the National Marine Fisheries Service (NMFS) determined the 2009 Applied Marine Sciences Benthic Study to be limited in scope and difficult to draw conclusions from. NMFS is requesting a new benthic study in the Central Bay region of San Francisco Bay to determine the impacts of sand mining on benthic habitat and recovery. This section discusses the responsibilities that Hanson has been tasked with, but does not discuss the role that Lind Marine will have in the process of the benthic study especially considering that Lind Marine does not operate in the Central Bay SLC lease areas. Please clarify Lind's role in the benthic study and how the study will be used to inform the sand mining impacts of Lind's operations on the benthic environment in Suisun Bay and Channel.

#### **Comments Specific to Suisun Associates and Lind Marine**

In addition, in the Provisions Section 9, as it is noted in both Lind Marine and Suisun Associates Tentative Orders, it is unclear to staff whether the reduced mining volume during the months of December through June are the result of depth limitations or if Lind Marine and Suisun Associates have agreed to reduce the overall amount of material mined each month during this sensitive time of year for larval smelt. Are there restrictions on both volume and depth during the months of December through June? Will the impacts in the deeper parts of the lease area also be reduced during this time through volume limitations? Please clarify this information.

This concludes BCDC's comments for the proposed sand mining activities under consideration by the Water Board. We appreciate the opportunity to review and comment on the Water Board's Tentative Order. We appreciate your efforts, consideration of these projects and their potential impact on the San Francisco Bay. If you have any questions about our comments, please feel free to contact me at 415.352.3623 or via email at [brenda.goeden@bcdc.ca.gov](mailto:brenda.goeden@bcdc.ca.gov).

Sincerely,



BRENDA GOEDEN  
Sediment Program Manager

BG/go



October 13, 2014

Elizabeth Christian  
San Francisco Bay Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

**SUBJECT: Comments on the Tentative Orders for Waste Discharge Requirements and Water Quality Certification orders for Hanson Marine Operations (Hanson) and Suisun Associates for Sand Mining in San Francisco Bay**

Dear Ms. Christian:

Thank you for the opportunity to comment on the Tentative Orders for Sand Mining. In particular we would like to clarify language set forth in the Tentative Orders as follows:

- 1) In **Section A. DISCHARGE PROHIBITIONS Subsection 2.**, the RWQCB has based their dilution ratios on the depth of the receiving waters where mining occurs. While there are indeed *minimum* depth restrictions where mining occurs, the text of this section in each of the Tentative Orders infers that mining is also restricted to a *maximum* depth. In particular for Hanson mining occurs in depths greater than -45ft MLLW within Central Bay. In addition, Environmental analysis and consultations to date have not restricted maximum depths for mining.

We would suggest the following language revisions to each Tentative Order as follows:

- **Hanson Sand Mining Tentative Order Page 10 Section A. DISCHARGE PROHIBITIONS Subsection 2:** “...*The determination was made based on the depth of the receiving water bodies where sand mining is ~~allowed to~~ typically occurs (-30 to -90 feet MLLW) in Central Bay and (-20 to -45 feet MLLW) Suisun Bay, and potential maximum overflow or decant discharge rate of 15,000 gpm.* “
- **Suisun Associates Order Page 10 Section A. DISCHARGE PROHIBITIONS Subsection 2:** “...*The determination was made based on the depth of the receiving water bodies where sand mining is ~~allowed to~~ typically occurs (-20 to -45 feet MLLW Suisun Bay) and potential maximum overflow or decant discharge rate of 15,000 gpm.*”

- 2) Appendix B Self Monitoring Plan - Currently Hanson and Lind Marine are coordinating with multiple agencies to develop timelines and reporting frequency to ensure consistency between agencies, reduce redundancies and increase efficiencies in reporting. We propose that the following language be added to the SMP reporting to allow for revisions in reporting frequency:

B.3.d. Upon final completion of permitting for USACE, BCDC, NMFS, USFWS, and CDFW, the Executive Officer may consider and approve minor changes in reporting frequency and format for the above items to ensure consistency among the reporting requirements of the various permitting agencies, whether on a quarterly or annual basis, at the request of the applicant.

- 3) Within the Suisun Associates Tentative Order, the entity "Lind" should be deleted and the entity "Suisun Associates" should be inserted in the following locations:

- Page 15, section 13-c: "Operations shall not resume until *Lind Suisun Associates* submits...."
- Page 15, section 14: "*Lind Suisun Associates* shall use the appropriate protocols..."
- Page 16, section 21: "...may subject *Lind Suisun Associates* to civil liability..."
- Appendix B, Section II-C, Annual Report: "By January 31 of each year *Lind Suisun Associates* shall submit..."
- Appendix B, Section II-C, Annual Report: "...which may be needed to bring *Lind Suisun Associates* into full compliance..."

Thank you for considering our proposed modifications to the Tentative Order for Sand Mining. If you have any questions please contact Mike Roth at (925) 244-6561 or Bill Butler at (925) 785-0057.

Sincerely,



Mike Roth, Vice President  
Lehigh Hanson, Inc.

# Lind Marine

Incorporated

100 East D Street  
Petaluma, CA 94952

October 13, 2014

Ms. Elizabeth Christian  
San Francisco Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, California 94612

SUBJECT: **Comments on the Tentative Orders for Waste Discharge Requirements and Water Quality Certification orders for Lind Marine Incorporated (Lind), and Suisun Associates (a joint venture of Hanson Marine Operations (Hanson) and Lind) for Sand Mining in Suisun Bay**

Dear Ms. Christian:

Thank you for the opportunity to comment on the subject Tentative Orders for Sand Mining. In particular we would like to clarify language set forth in the Tentative Orders as follows:

- 1) In **Section A. DISCHARGE PROHIBITIONS Subsection 2.**, the RWQCB has based their dilution ratios on the depth of the receiving waters where mining occurs. While there are indeed *minimum* depth restrictions where mining occurs, the text of this section in each of the Tentative Orders infers that mining is also restricted to a *maximum* depth. Environmental analysis and consultations to date have not restricted *maximum* depths for mining.

We would suggest the following language revisions to each Tentative Order as follows:

- **Lind Marine Incorporated Tentative Order Page 9 Section A. DISCHARGE PROHIBITIONS Subsection 2:** "...The determination was made based on the depth of the receiving water bodies where sand mining ~~is allowed to~~ **typically occurs** (-20 to -45 feet MLLW Suisun Bay) and potential maximum overflow or decant discharge rate of 5,000 gpm."
  - **Suisun Associates Order Page 10 Section A. DISCHARGE PROHIBITIONS Subsection 2:** "...The determination was made based on the depth of the receiving water bodies where sand mining ~~is allowed to~~ **typically occurs** (-20 to -45 feet MLLW Suisun Bay) and potential maximum overflow or decant discharge rate of 15,000 gpm."
- 2) Appendix B Self Monitoring Plan Part B. 3. B. ii : Currently Hanson and Lind Marine are coordinating with multiple agencies to develop timelines and reporting frequency to ensure



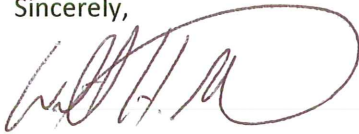
consistency between agencies, reduce redundancies and increase efficiencies in reporting. We propose that the following language be added to the SMP reporting to allow for revisions in reporting frequency:

***B.3.d. Upon final completion of permitting for USACE, BCDC, NMFS, USFWS, and CDFW, the Executive Officer may consider and approve minor changes in reporting frequency and format for the above items to ensure consistency among the reporting requirements of the various permitting agencies, whether on a quarterly or annual basis, at the request of the applicant.***

- 3) Within the Suisun Associates Tentative Order, the entity "Lind" should be deleted and the entity "Suisun Associates" should be inserted in the following locations:
- Page 15, section 13-c: "Operations shall not resume until ~~Lind~~ **Suisun Associates** submits...."
  - Page 15, section 14: "~~Lind~~ **Suisun Associates** shall use the appropriate protocols..."
  - Page 16, section 21: "...may subject ~~Lind~~ **Suisun Associates** to civil liability..."
  - Appendix B, Section II-C, Annual Report: "By January 31 of each year ~~Lind~~ **Suisun Associates** shall submit..."
  - Appendix B, Section II-C, Annual Report: "...which may be needed to bring ~~Lind~~ **Suisun Associates** into full compliance..."

Thank you for considering our proposed modifications to the Tentative Orders for Sand Mining. If you have any questions please me at (925) 785-0057.

Sincerely,



William H. Butler, Vice President of Regulatory Affairs  
Lind Marine Incorporated

CC: Ms. Christine Boudreau, Boudreau and Associates  
Mr. Mike Roth, Lehigh Hanson  
Mr. Mike Bishop, Hanson Marine Operations



# **APPENDIX C**

## **Response to Comments**

# RESPONSE TO COMMENTS ON TENTATIVE ORDERS FOR SAND MINING IN SAN FRANCISCO BAY

We received five comment letters during the public comment period, which closed on October 13, 2014, and we have reviewed and considered the comments contained in those letters. The comments and our responses are presented here. Except where noted, each letter and comment addresses all of the three sand mining tentative orders (TOs) under consideration. That is, the TOs are substantially similar. Thus, except where noted, an issue being commented on will appear in each of the three TOs.

Comment letters received:

1. San Francisco Baykeeper (Ian Wren, Jason Flanders, and Sejal Choksi-Chugh)
2. Libby Lucas (private citizen)
3. Bay Conservation and Development Commission (Brenda Goeden)
4. Lehigh Hanson, Inc. (Mike Roth)
5. Lind Marine Incorporated (William Butler)

## Comment Letter No. 1: San Francisco Baykeeper

**Comment 1.1 (A): “The TOs defer all analysis of impacts to water quality objectives and beneficial uses”**

**See specific comments and responses below:**

**Comment 1.1a: “The TOs do not make clear what evidence they rely on in reaching their conclusion that the projects may not cause or contribute to any exceedance of water quality standard, or impairment of beneficial use.”**

### Response

As stated in the TOs, we reviewed data from the November 1993, MEC Analytical Systems, Inc., report, *Special Studies for Sand Mining Discharges of the Tidewater Sand and Gravel Company*, (1993 study) showing that receiving water in the Central Bay downstream of sand mining effluent discharges did not exceed water quality objectives and was similar to ambient Bay water samples for the constituents measured (total suspended solids, dissolved oxygen, pH, temperature, salinity, ammonia, and total metals). The water quality data in this study provided the technical basis for the Water Board to issue a general permit for sand mining operations in 1995.

Additionally, the EIR prepared and certified by the State Lands Commission on October 19, 2012, for the proposed project fully analyzed the project’s potential to adversely affect water quality and found, based on substantial evidence, that the project will not result in adverse impacts on water quality. The EIR was considered during preparation of the TOs.

In addition, since issuance of the EIR, the California Department of Fish and Wildlife (CDFW) has issued an incidental take permit and are requiring additional mitigation for impacts to protected fish species, the United States Fish and Wildlife Service (USFWS) has issued its biological opinion, and there have been ongoing discussions with the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). As a response to comments received and in consideration of concerns raised by NOAA Fisheries regarding impacts to benthic habitat, and

comments received about potential erosion impacts to coastal beaches (see response to comments 1.2 c and 1.4b below), we have revised the TOs, including the volumes of sand to be mined.

**Comment 1.1b: “Instead the TOs entirely defer this analysis to a future study and report that will be submitted and reviewed by the Executive Officer with no opportunity for public comment.”**

**Response**

We do not agree that analysis of water quality impacts has been “entirely deferred” to a future study. The TOs would update and reissue WDRs for an existing and ongoing operation for which the applicants have already undertaken monitoring and prepared studies regarding water quality standards. While there is some year-to-year variation in sand mining activities (e.g., changes in the volume or exact locations mined within lease areas), the sand mining that would be permitted is substantially the same as previously permitted and monitored. To date, there has been no data or analysis showing that in-Bay sand mining has or will result in an exceedance of water quality standards.

We are cognizant that there may have been changes over time in sand mining activities and/or environmental conditions that may result in changes to potential impacts associated with those activities. Thus, the TOs require a water quality verification monitoring study to verify that the previous conclusions reached in 1993 and in the EIR remain valid. The TOs ensure that water quality standards will be maintained by allowing the orders to be “reopened” to require additional water quality monitoring and implementation of corrective measures if the new study indicates potentially unacceptable water quality impacts from sand mining discharges.

**Comment 1.1c: The 1993 study is an insufficient basis for determining whether or not the projects would adversely affect water quality.**

**Response**

We agree that the 1993 study, alone, does not evaluate current conditions. The TOs require that the dischargers perform an updated evaluation because we want to confirm the conclusions of the 1993 study.

**Comment 1.1d: The commenter raises a concern about modification to barges to utilize subsurface discharge pipes to release the discharge plumes and questioned whether this is an effective mitigation technique.**

**Response**

See response to comment 1.2c. The modifications are intended to increase the rate of mixing and dispersion and to decrease the duration of the plume and are being conducted voluntarily by the dischargers. The main objective of the verification monitoring study is to characterize the overflow plume (composition, toxicity, spatial and temporal extent) in a way that’s representative of each mining method and verify that these modifications make a difference to the discharge plume magnitude.

**Comment 1.1e: The commenter expresses concern about the “dry offload” method, which uses a conveyor belt to transfer sand from the sand barge to onshore sand yards. “Neither the TOs nor the applications evaluate the extent of spillage and discharge directly to waters from this process, nor the existing environmental conditions beneath each offload site to determine whether beneficial uses are impacted.”**

**Response**

The TOs regulate subtidal sand mining in the Bay and discharge of decant water during mining operations. Operations at onshore sand processing facilities (sand yards) are beyond the scope of the TOs. As stated in the TOs, process wastewater and stormwater discharges from sand yards are regulated under the General Permit for Aggregate Mining and Sand Washing/Offloading Facilities, Order No. R2-2008-0011, and the statewide Industrial Stormwater General Permit (ISGP). All other discharges are prohibited. Under the ISGP, sand yards are required to implement best management practices (BMPs) to prevent discharges of any substances other than clean stormwater. Water Board staff perform periodic inspections of facilities covered under the ISGP to verify that BMPs are in place to prevent non-stormwater discharges.

**Comment 1.2 (B): “The TOs Defer All Analysis of Potential Sediment Quality Impacts.”**

**See specific comments and responses below:**

**Comment 1.2a: The commenter states that requiring a sampling and analysis plan to characterize the effluent and receiving water quality is the entire evaluation of sediment quality required by the TO and in addition they express concern that this is conducted after certification is complete. They also state “The TOs should require regular submission of samples to be tested in the same manner as dredged materials are tested pursuant to the Long-Term Management Strategy (LTMS).”**

**Response**

We disagree. The TOs’ approach to sand-dominated dredged sediment (i.e., the kind of sediment dredged during sand mining) testing is based on previous analyses of Bay sand deposits. Based on historical bulk sediment chemistry testing conducted for navigational dredging in areas of the Bay bottom that are predominantly sand (e.g., the Suisun Bay federal channel, the Oakland Harbor channel Merritt Sand formation, and the sand shoal at the entrance to the San Francisco Marina West Harbor) and the physical properties of sand, sediment quality is of limited concern. Since sand mining within Central Bay and Suisun Bay is conducted in areas characterized by relatively high water velocity and dynamic substrate movement, the sand deposits characteristically have a very low percentage of fine-grained sediment. The sand miners actively seek material with fines content of less than 10 percent. Pollutants are much more prevalent in fine-grained sediment consisting of silts and clays and organic material, collectively known as “Bay mud,” than they are in sand. Pollutants that form positively charged particles or ions, like heavy metals, bind with (adsorb to) the surface of negatively charged clay particles, while organic pollutants (e.g., petroleum compounds, organochlorine pesticides, PCBs) adsorb to organic carbon. The sand deposits mined in the Bay do not contain enough clay or organic material to bind with pollutants at concentrations likely to cause a threat to beneficial uses.

The TOs' requirements for testing of sand-dominated dredged sediment are consistent with LTMS testing guidelines. The federal testing guidance known as the "Inland Testing Manual" (ITM), which State and federal regulatory agencies comprising the Dredged Material Management Office (DMMO) follow when determining the suitability of dredged material for various disposal and beneficial reuse sites, allows an exclusion from testing if the dredged material is not a "carrier of contaminants." According to the ITM, this situation is likely when the dredged material is composed primarily of sand, gravel, and/or inert materials. This guidance is based on federal regulations (40 CFR 230.60 and 40 CFR 227.13(b)), which allow testing exclusions if the dredged material is composed predominantly of sand, gravel, rock, or any other naturally occurring bottom material with particle sizes larger than silt, and the material is found in areas of high current or wave energy. For most navigation dredging projects that have historically had a sand content of 80 percent or greater, the DMMO has required only periodic grain size analysis to confirm that the material is at least 80 percent sand. Since the sand content of the material mined during sand mining is typically 90 percent or greater, and the material is mined from areas of high current or wave energy, it would be granted a testing exclusion under the LTMS program.

**Comment 1.2b: The "TOs make no mention of the State Water Board's Water Quality Control Plan for Enclosed Bays and Estuaries – Part I Sediment Quality. (State Board Resolution 2011-17.) These sediment quality objectives include numerous requirements that should be evaluated prior to any certification for these projects."**

#### **Response**

We disagree. The purpose of the Water Quality Control Plan for Enclosed Bays and Estuaries – Part I Sediment Quality (Plan) is to assess ambient sediment quality by integrating chemical and biological measures to determine the threat to sediment-dependent biota and human health posed by toxic pollutants. For the reasons stated in the response to comment 1.2a, toxic pollutants are not expected to be present in sand formations in the mining lease areas at concentrations of concern. In addition, the Plan states that sediment quality objectives do not apply to dredge material suitability determinations. The intent behind this exclusion is that the ITM testing guidance is a more appropriate decision-making tool for evaluating disposal or beneficial reuse suitability for dredge material from multiple depths than the Plan's sediment quality objective assessment methodology, which is intended to apply to surficial sediment only.

**Comment 1.2c: The commenter expresses concern about the "moving potholing" method of sand mining, in which the operator leaves the suction drag head on the bottom surface with the pump running and drags it across the sand surface until suitable substrate is found. The commenters argue that this method causes greater disturbance to Bay sediment and associated impacts to benthic habitat, larger plumes, and potentially greater exposure of toxic sediments. They maintain that the TOs are deficient because they do not evaluate the impacts of this mining method or provide a rationale for permitting it when less destructive methods may be feasible.**

#### **Response**

This comment applies to sand mining conducted by Hanson Marine Operations (Hanson) in its Central Bay and Middle Ground leases and in the Suisun Channel as one half of the Suisun Associates joint

venture partnership with Lind Marine Incorporated (Lind). Lind has different equipment and exclusively uses the stationary potholing method.

*Correction to description of “moving potholing” method of sand mining:* Subsequent to release of the TOs for public comment, we discovered that Hanson recently changed its standard operating procedure for hydraulic suction pump operation when moving from one mining site to another. We asked Hanson to provide an updated description of its mining methods specifying when the pump is running and when it is turned off during moving potholing. The current procedure is to raise the drag head no higher than 3 feet off the bottom to minimize fish entrainment, clear the pipe with the pump engaged for no more than 30 seconds, turn the pump off immediately after clearing, and keep it off while the barge is en route to the next potential mining location. We have updated the description of the moving potholing mining method in Finding E.4 in the Hanson and Suisun Associates TOs.

*Regarding Disturbance of Bay sediment and impacts to benthic habitat:* We considered this issue in the preparation of the TOs. As part of the ongoing coordination with NOAA Fisheries to finalize its Biological Opinion, Hanson estimated the area actually disturbed by mining using the moving pothole method in the Central Bay and Suisun Channel in comparison to the lease areas and the available sand habitat. Hanson reviewed mining track logs, accounting for the width of the drag head as well as the length of track line and including an average side slope factor, for all mining events in 2005 (a high production year prior to the slowing of construction and decrease in demand for sand starting in late 2008) and in years 2011-2013.

Based on the 2005 and 2011-2013 track line data and area of disturbance calculations, 0.4 acres of benthic habitat was disturbed, on average, per mining event. The total area disturbed annually from mining events ranged from 0 to 92.5 acres within an individual lease area. The annual percentage of disturbance within each lease site ranged between 0 and 31%. The maximum total area disturbed (273 acres in Central Bay plus 10 acres in Suisun Bay in high production year 2005) was estimated to be 2% to 3% of the total sand habitat within the Bay (estimated to be 8,960 to 12,800 acres, or 8% to 12% of the Bay floor).

We conclude that mining using both the stationary and moving pothole methods disturbs benthic habitat. The conclusions from the 2009 AMS study, conducted as part of the State’s environmental review, found that disturbance from sand mining is limited to a small portion of the sand bottom Bay floor benthic habitat.

The resource trustee, NOAA Fisheries, has expressed concern about the overall impacts to benthic habitat from sand mining. In coordination with NOAA Fisheries, the TOs require completion of a supplemental benthic habitat study to further evaluate the potential benthic impacts of sand mining. We met with the dischargers in response to this comment and revised the TOs to reduce the volume of sand that can be extracted to avoid or minimize any impacts to benthic habitat. Based on the results of these additional studies, the permit volume limits could be revisited and the permit reopened. See also response to comment 1.4b.

*Regarding larger plumes and greater exposure of toxic sediment:* The TOs appropriately evaluate the potential for impacts from the generation of plumes associated with sand mining. As discussed below, existing information regarding plumes was considered in preparing the TOs. In addition, Provision

C.4 of the TOs requires a verification monitoring study that “shall characterize ... the spatial and temporal extent of the overflow plume in the receiving water based on the magnitude of suspended sediment concentrations within the plume, and shall compare overflow plume suspended sediment concentrations to background (ambient) conditions.” To ensure that water quality standards are maintained, the orders once adopted may be “reopened” to require additional water quality monitoring and implementation of corrective measures if the new study indicates potentially unacceptable water quality impacts from sand mining discharges, but we this is unlikely based on past monitoring.

We assume that by “larger plumes” the commenter is referring to the visible plumes of suspended sediment in the decant overflow discharged from the sand barges, and that the commenter believes the plumes generated during mining via moving potholing are larger than plumes generated during mining via stationary potholing. Both of these methods are forms of hydraulic suction dredging. The discharge of decant effluent is the same process for each of these suction dredge mining methods, thus it is the particular hydrodynamics at each site and the time of the mining event that dictate the overflow plume, not the method of suction dredge mining. This is because the predominant plume signature comes from the discharge from the barge, not at the sediment surface where the drag head is. The concentration and grain size of the sediment particles discharged and current velocity and direction play major roles in determining plume characteristics. For example, on ebb and flood tides, the plumes are typically narrow in width and long in length. During slack tides, the plumes extend over a wider area and are less drawn out. Generally, overflow plumes have been observed to be approximately 300 feet or less in width and to trail away from the sand mining barge with the prevailing water currents (MEC Analytical Systems, Inc. and M. Cheney. 1990. *Report on Sand Mining in San Francisco Bay*. MEC Analytical Systems, Inc. 1993. *Special Studies for Sand Mining Discharges of the Tidewater Sand and Gravel Company*.) Plumes are temporary and generally dissipate within approximately 3000 feet of a sand mining operation.

For concerns regarding exposure to toxic sediment, see response to comment 1.2a.

*Regarding the feasibility of other mining methods:* We asked Hanson to explain why the moving pothole method is the only feasible method of sand mining for certain lease areas. Hanson stated that it prefers to use the stationary potholing method and will keep a barge stationary as long as possible, but there are several factors that make this method impractical including inconsistent substrate, weather conditions, and variable current flow conditions. It is especially difficult to keep the barge stationary in most of the Central Bay lease areas where water depths are greater than 50 feet and currents are strong. Also, the sand substrate is highly variable in terms of grain size and degree of consolidation and is itself moving across the seafloor, which causes the barge operator to move in search of the right grade of sand for a particular job. Once the target grade of sand is located based on slurry color and grab sample analysis, the operator will resume stationary pothole mining until the grade of sand no longer meets specifications or currents force the barge to move off station.

The State Land Commission EIR evaluated a clamshell dredge mining alternative and concluded that Central Bay currents would make this method difficult to implement. Mining could occur only in areas of minimal current or with the assistance of a tug to keep the crane barge stable and on station.

**Comment 1.3 (C): “The TOs Fail to Evaluate Consistency with the San Francisco Bay Mercury and PCB TMDLs.”**

**See specific comments and responses below:**

**Comment 1.3a: The commenter states that because sand mining involves dredging of the Bay floor and discharge of unwanted sediment sizes back to the Bay, the TOs should ensure that projects comply with the Basin Plan Implementation Plans for the Bay mercury and PCBs TMDLs.**

**Response**

The TOs appropriately consider the Bay Mercury and PCBs TMDLs. The projects are consistent with the TMDLs, and mercury and PCBs are not expected to be a concern for sand mining (See response to comment 1.2a). Fine sediment suspended in the overflow plume will be tested as part of the water quality monitoring study to verify that suspension of fine-grained sediment is less than or equal to ambient concentrations and will not exceed TMDL in-bay disposal limits.

In addition, the Mercury TMDL does not cite dredging in the Bay as a source of mercury, but rather as an activity that results in a net loss of mercury (Basin Plan section 7.2.2.3, page 7-22). For this reason, the mercury load and wasteload allocations in Basin Plan Table 7.2.2.-1 include a “net loss” mercury load estimate for “sediment dredging and disposal,” and the allocation devoted to this category is “less than or equal to ambient concentration,” meaning as long as the material replaced in the water column is less than or equal to the ambient concentration of the material originally dredged, compliance is achieved (Basin Plan Table 7.2.2.-1, page 7-23). The same is true for the PCBs TMDL and its similar implementation provisions (i.e., Basin Plan Table 7.2.3-1, page 7-41, citing the internal source category of “sediment dredging and disposal” as a “net loss” of PCBs, with no resulting wasteload allocation).

We do not expect sand mining to result in discharges of mercury or PCBs.

**Comment 1.3b: The TOs must evaluate discharges from shore-side facilities (sand yards) in relation to waste load allocations for mercury and PCBs per California regulations for certification.**

**Response**

We disagree. The TOs would permit in-Bay sand mining, not discharges from onshore (i.e., upland) sand yards. As noted in our response to Comment 1.1e, sand yard discharges are permitted separately. Thus, the TOs are not the appropriate place to evaluate waste load allocations from process water discharged from sand yards. Hanson’s two facilities that currently wash salt from Bay-mined sand (San Francisco Pier 92 and Oakland Tidewater yards) are regulated under the General Permit for Aggregate Mining and Sand Washing/Offloading Facilities, Order No. R2-2008-0011. Waste load allocations are not applicable to Lind Marine, which does not wash sand at its three yards and therefore does not have sand washing discharges into the Bay. Suisun Associates, a joint venture of Hanson and Lind, does not operate separate sand yards in addition to the ones mentioned above.



**Comment 1.4 (D): “The TOs Inadequately Consider Beneficial Uses Relating to Habitat, Recreation, and the Pacific Coast.”**

See specific comments and responses below:

**Comment 1.4a: The TOs defer analysis of biological impacts related to benthic habitat quality to a future study to be conducted outside of public review, which is contrary to regulations and Applications state that fish screens have been installed on Hanson equipment. There is no similar statement regarding Lind and Suisun Associates or any discussion of resulting impacts.**

**Response**

We disagree that impacts to benthic habitat are deferred for consideration later. The State Lands Commission evaluated the project’s possible effects on benthic habitat in its EIR. As part of the EIR evaluation, Applied Marine Sciences (AMS) performed a study to characterize and identify differences between benthic communities in sand mining lease areas and unmined control sites, including an evaluation of the effects of sand mining on benthic communities and their rates of recovery following sand mining events. AMS conducted sampling during August 19-22 and 25-26, 2008, at 25 sites (i.e., 20 in mining leases and 5 controls) in the Central Bay and 15 sites (i.e., 10 in mining leases and 5 controls) in Suisun Bay. No substantial effects of mining on the benthic communities in either the Central Bay or Suisun Bay mining leases, at locations that had been mined within three years of sampling, were suggested by the study results.

NOAA Fisheries has indicated in its in-progress consultation on impacts to Essential Fish Habitat that a supplemental benthic survey will be requested to provide additional data for assessing the long-term potential impacts to benthic habitat. The TOs support NOAA Fisheries’ consultation by requiring the dischargers to perform a benthic habitat evaluation study, which will be approved by a Technical Advisory Committee comprised of State and federal resource and regulatory agencies (NOAA Fisheries, USFWS, CDFW, SLC, BCDC, Corps, Water Board), the dischargers (Hanson and Lind), and scientists with expertise in Bay benthic ecology. As previously stated, the TOs have been revised to reduce the volume of sand that can be extracted to avoid or minimize any impacts to benthic habitat.

**Comment 1.4b: An analysis of beneficial uses impacted by sediment loss due to sand mining is missing from the TOs. The commenter cites several peer-reviewed papers by USGS that document sediment transport pathways connecting portions of Central Bay where sand mining occurs, the ebb-tidal delta at the mouth of San Francisco Bay (San Francisco Bar), and outer coast beaches. The concern is that in-Bay sand mining reduces the available sand supply to open coast beaches, including southern Ocean Beach which is severely erosional, which in turn threatens beneficial uses related to recreation and habitat quality.**

**Response**

We agree that sediment loss to the Bay system is a concern given the need to protect shorelines and infrastructure as sea level rises in the coming decades and that we need to efficiently manage existing sediment resources. USGS research shows that the dominant sand transport pathway runs from the Central Bay out the Golden Gate to the San Francisco Bar and open ocean and that the sharp reduction

in sediment supply to this system due to historic damming in the Sacramento River and San Joaquin River watersheds is linked to erosion of the Bay floor, the Bar, and outer coast beaches. Unfortunately, none of the USGS peer-reviewed studies quantified volumes of sediment transported to the Bar from the Central Bay, including the mining lease areas, nor the effects that additional mining may have on sediment transport and coastal geomorphological processes.

Studies by USGS and others and the EIR indicate that contraction of the Bar and related coastal erosion (including erosion along some areas of Ocean Beach) are governed by large and long-term physical processes (natural and anthropogenic). While recognizing that more research is needed to better understand these processes, we also must acknowledge that it is the Water Board's mission to protect beneficial uses that may be impacted by sand mining, including benthic habitat at mining sites and intertidal habitat and recreation at outer coast beaches. According to the USGS' analysis of bedform morphology coupled with hydrodynamically-calibrated numerical modeling, the dominant sediment transport pathway in certain southern Central Bay lease areas is ebb-directed (seaward). USGS made the following observation regarding sand mining in Central Bay:

*To minimize the impacts of aggregate mining in west-central San Francisco Bay on the coastal sediment supply, lease sites could be targeted in areas of net sediment transport convergence, such as the area of accretion in Pt. Knox Shoal (northern section of PRC709 North) and the three zones of convergence in the lease site to the south (PRC7779 West). At the very least, mining should be focused along bayward-directed sediment transport pathways, such as PRC2036 in Point Knox Shoal, where ongoing heavy mining has resulted in significant local erosion (mean depth increase of >2 m during the survey interval) but does not appear to directly impact sediment supply to the mouth of San Francisco Bay. Conversely, mining along distinct seaward-directed pathways, such as the southern section of west-central San Francisco Bay (PRC709 South and PRC7780 South), would directly limit the supply of sediment to the open coast<sup>1</sup>.*

Based on USGS' research, we have determined that reducing the mining volume in Central Bay lease areas PRC 709 South and PRC 7780 is appropriate as a precautionary measure to avoid and minimize any potential effects of sand mining on sediment supplies to the Bar. We have therefore revised the Hanson TO to reduce the permitted mining volume by 108,000 cy/year (32%) within PRC 709.1 South at Presidio Shoal and by 12% to 20% at the remaining Central Bay lease areas (see Hanson TO for individual lease area annual volume limits).

**Comment 1.4c: Commenter raises a concern that about whether fish screens will be used by Lind and Suisun Associates as proposed by Hanson and whether is still some level of resulting impacts.**

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<sup>1</sup>Barnard PL, Erikson LH, Elias EPL, Dartnell P. 2013. Sediment transport patterns in the San Francisco Bay Coastal System from cross-validation of bedform asymmetry and modeled residual flux. Marine Geology, Special Issue San Francisco Bay 345, 74-97.

## Response

Positive barrier fish screens that meet CDFW specifications have been installed on Lind's mining equipment as well as Hanson's. In addition, to fully mitigate the incidental take of species protected under the California Endangered Species Act, i.e., larval delta smelt and longfin smelt, that fish screens cannot avoid or minimize, Hanson and Lind are required by CDFW through its incidental take permits to purchase credits from a CDFW-approved mitigation bank to provide permanent protection and perpetual management of compensatory habitat. Suisun Associates, a joint venture of Hanson and Lind, uses Hanson and Lind mining equipment with fish screens installed.

**Comment 1.5 (E): “The Applicants Should be Required to Obtain an NPDES Permit and/or 404 Permit.”** The commenter states that the discharge of decant effluent from sand mining barges is unlawful except as permitted under CWA section 402 or 404 and argues that because discharge of material from mining of submerged lands has been determined by the courts to constitute a discharge that may be regulated with permits issued pursuant to section 402, a CWA 402 permit is required for this activity. The commenter also maintains that in addition, or as an alternative, the project applicants should be required to obtain a CWA section 404 permit for placement of dredge or fill material into waters of the U.S.

## Response

We disagree that the discharge should be regulated under CWA section 402 and agree that the discharge should be regulated under CWA section 404. Under 40 CFR § 122.3(b), discharges of dredged or fill material into waters of the United States that are regulated by the Army Corps of Engineers (Corps) under Section 404 of CWA do not require NPDES permits. The Corps' and U.S. EPA's final rule issued on August 25, 1993, which amends the regulations defining discharges of dredged material to include “the runoff or overflow, associated with a dredging operation, from a contained land or water disposal area,” makes it clear that discharges from sand mining operations are discharges of dredged material and are therefore regulated under CWA section 404 as opposed to section 402. (33 CFR 323.2(d), 40 CFR 232.2(e), 58 Fed. Regs. § 45008). The Corps, not the Water Board, has the authority to decide whether to issue a 404 permit for discharges of dredged material. The TOs simply reflect the Corps' proposal to issue a permit for the sand mining under section 10 of the Rivers and Harbors Act.

**Comment 1.6(F): “The Sand Mining Applications Fail to Adequately Describe the Projects.”** The commenter asserts that the applications for water quality certification are incomplete because they fail to provide the total estimated quantity of: a) waters of the U.S. that may be adversely impacted by mining operations and b) waters of the U.S. impacted, which serves as the basis for calculating compensatory mitigation for any anticipated adverse impacts.

## Response

We disagree that the projects are not adequately described. The applications provide, and the TOs state, the total areal extent of the sand mining leases in San Francisco Bay (Central Bay: 2,601 acres, Middle Ground: 367 acres, and Suisun Channel: 938 acres).

As the commenter notes, compensatory mitigation via purchase of shallow water habitat credits from a CDFW-approved mitigation bank fully mitigates the impacts (i.e., the entrainment of delta smelt and

longfin smelt larvae in dredge equipment) identified by CDFW in its incidental take permits. In addition to requiring further study of impacts to benthic habitat caused by sand mining, the TOs require adherence to the Terms and Conditions of the biological opinions issued by NOAA Fisheries and USFWS.

**Comment 1.7 (G): “Impacts from Related Projects are Inadequately Described.” The commenter argues that the TOs should address impacts from sand and gravel facilities that receive and process sand mined from the Bay, including the cumulative impacts from these multiple projects. The commenter references three mandatory minimum penalty enforcement orders issued to onshore facilities within the last five years as evidence that adverse impacts have been inadequately considered.**

### **Response**

We disagree. See responses to comments 1.1e and 1.3b. Onshore sand and gravel facilities that process Bay sand are already separately regulated activities, subject to the terms of the General Permit for Aggregate Mining and Sand Washing/Offloading Facilities Order No. R2-2008-0011, and the statewide Industrial Stormwater General Permit. In addition, the commenter references Regional Water Board Order Nos. R2-2014-0010 and R2-2014-0011 (which are NPDES permits) and an associated Cease and Desist Order issued to Lehigh Southwest Cement Company for the limestone quarry and cement plant located at 24001 Stevens Creek Boulevard in Cupertino for discrete discharges into upstream portions of Permanente Creek. This activity and the associated permitting have no relation to the sand mining activity to which water quality certification is being sought. The types of impacts that are associated with sand mining are distinct from the activities covered under these other permits and therefore there are no cumulative impacts to evaluate.

**Comment 1.8 (H): “The TOs Fail to Include Monitoring Requirements Sufficient to Determine Compliance with all Applicable Water and Sediment Quality Standards.” The commenter argues that the monitoring provisions in the TOs (Appendix B, Self-Monitoring Program) do not include testing of water or sediment quality and therefore are not sufficient to determine compliance with water quality standards, as required under the CWA for water quality certification.**

### **Response**

We disagree. As stated in the response to Comment 1.1, the TOs require a separate verification monitoring study to confirm that water and sediment quality are what we expect to see based on the 1993 study, which indicated that pollutant discharges are not a significant issue and provided the technical basis for the Water Board to issue a general permit for sand mining operations in 1995. The verification monitoring study provides adequate compliance with CWA requirements for water quality certification because, as stated in response to Comment 1.2, historical bulk sediment chemistry data for deep water Bay sand deposits has shown that they do not contain pollutants at concentrations likely to cause a threat to beneficial uses. In addition, if the new study were to indicate unexpected potential water quality impacts, the orders as adopted can be reopened to require additional water quality monitoring and, if necessary, implementation of corrective measures.

**Comment 1.9 (I): “Some TO Limitations and Avoidance Measures are Unduly Vague, Unenforceable, and Do Not Ensure Consistency with Water Quality Standards and Beneficial Uses.”**

**See specific comments and responses below:**

**Comment 1.9a: The commenter is concerned that requiring dischargers to minimize dredging of non-marketable sediments and discharge of floating or other particulate matter or detritus is vague and cannot be enforced.**

**Response**

We agree that the provision cited by the commenter is too vague for implementation and enforcement. It was erroneously carried over from the 1995 WDRs. It has been deleted from the revised TOs.

**Comment 1.9b: The commenter also expresses concern with a provision that requires the permittees to self-report violations of permit requirements and to submit a corrective plan providing alternative methods of compliance subject to approval by the Executive Officer. The commenter argues that such a plan constitutes a new project application and must be circulated for public review prior to approval.**

**Response**

We disagree. Self-reporting violations of permit requirements is a common provision in permits issued by the Water Board. The current model of State environmental regulation relies on permittees to conduct self-monitoring programs and report the results, with checks from regulatory agencies and the interested public. The TOs are consistent with this approach. A corrective action plan that proposes modifications to equipment, timing, or other operational details does not necessarily constitute a new project application if the discharger can still meet the prohibitions, conditions, or other requirements of the Order.

**Comment 1.10 (J): “The Basin Plan’s Policies Governing Mine Sites are Not Analyzed.” The commenter states that the TOs should be revised to apply Basin Plan provisions (in Basin Plan at 4.21.4) that have historically applied only to land-based mining sites. The commenter argues that impacts from the mining operations on the Bay floor have similar if not greater implications for the Bay ecosystems, and post-mining closure and remediation plans are therefore equally applicable.**

**Response**

We disagree. This section is not applicable to the proposed activity, subtidal Bay sand mining using suction dredges. Basin Plan Section 4.21 is generally addressed to and has been historically applied to upland, or generally upland, mining sites (e.g., the New Almaden mercury mining district, which includes creeks and wetlands, but is largely upland), not to mining of subtidal sand deposits in the Bay. This is reflected in the requirements of section 4.21.4, such as a requirement for a permit for the discharge of polluted stormwater runoff, and creation of a mine site Operation and Management Plan to address potentially polluted stormwater runoff and erosion control issues (because sand mining sites are subtidal, they do not have runoff).

**Comment 1.11(K): “The TOs Fail to Include Any Anti-Degradation Analysis.” The commenter states that the proposed project increases the sand extraction rate and the severity of impacts associated with extraction (e.g., benthic habitat disturbance, waste discharges, loss of sand available for nourishment of Bay Area beaches and less sediment availability system-wide) beyond what was *permitted* under prior 10-year leases.**

**Response**

It appears that the commenter has conflated the historic SLC lease, WDR, BCDC, and Corps’ annual **permitted** volume (2.24 million cy/year) with the EIR baseline volume (1.43 million cy/year) or some other average of **actual** mining volumes. There is no increase in extraction rates beyond what was **permitted** under the prior 10-yr lease and permits. The proposed project is 200,000 cy/year less than what was previously leased and still currently permitted. In addition, the revised TOs allow sand mining at a reduced level as compared with the project application. Therefore, it is anticipated that the effects of sand mining, as authorized by the revised TOs, will have even less of an impact than those discussed in the EIR and will not degrade water quality.

We disagree that degradation will occur and have added a specific finding to the TOs to clarify. Please see responses to comments 1.1a-e, 1.2a-c and 1.3a-b regarding pollutant discharges associated with sand mining. No pollution or nuisance is expected to occur, and the highest water quality consistent with the maximum benefit of the people of the State will be maintained.

**Comment 1.12 (L): “The Applications Seek Approval for Future Years Not Subject to CEQA Review or State Lands Commission Approval.” The commenter asserts that TOs should not permit sand mining beyond the time period subject to CEQA review and State Lands Commission (SLC) lease approvals (10 years from January 1, 2013). The TOs currently propose approving sand mining for a 10-year period from the date of Board adoption.**

**Response**

We disagree. The WDRs and certification are based on the annual sand mining volumes, sand mining equipment, and duration of sand mining events that were fully analyzed in the SLC’s EIR, and the dischargers will not be authorized to exceed these annual or ten-year maximum volumes without further discretionary review by the authorizing agencies. Consequently, any marginal differences in the specific lease or permit term are irrelevant to the reasonably foreseeable physical environmental impacts of the permitted activity.

## **Comment Letter No. 2: Libby Lucas**

**Comment 2.1: “In consideration of the Clean Water Act's federal mandate to restore and maintain the chemical, physical and biological integrity of the nation's waters, I urge the Regional Water Quality Control Board not to permit the Hanson Marine, Lind Marine and Suisun Associates ten-year sand mining proposals as they would be cumulatively and irreversibly detrimental to beneficial uses of the estuary.”** The commenter goes on to describe three main concerns. See specific comments and responses below:

**Comment 2.1a: Impacts to historical beneficial uses resulting from the loss of sand from the Bay and outer coastal sediment transport systems.**

### **Response**

See response to comment 1.4b

**Comment 2.1b: Cumulative impacts of Bay sand mining and possible future diversions of Sacramento River flows and associated sediment loads under the Bay Delta Plan.**

### **Response**

The Bay Delta Plan “twin tunnel” project proposes a 10-year construction window, which cannot begin until final CEQA approvals occur and the Department of Water Resources obtains a water right change of diversion approval from the State Water Resources Control Board. It is not anticipated that the Bay Delta Plan will be completed or operational during the term of these permits. There are no cumulative impacts to consider.

**Comment 2.1c: Deferral of analysis of impacts to benthic habitat (i.e., study required by TOs should be done in advance of issuing 10-year permits).**

### **Response**

See response to comments 1.2c and 1.4a

## **Comment Letter No. 3: Bay Conservation & Development Commission**

**Comment 3.1: “On Page 2, Section C. Discharge Description, the last sentence of the second paragraph states that the ‘water and sediment discharged during a typical mining episode has not been quantified.’ We believe the applicants have quantified the discharge. Is this statement due to the uncertainty of the quantification, or was the information not provided?”**

### **Response**

The dischargers have estimated but not directly measured (quantified) these discharges. Finding C in the TO has been updated to include the estimated sediment and water discharges per mining event.

**Comment 3.2: “On Page 3, Section D. Regulatory Status, the fourth bullet describes BCDC's pending action as pursuant to the Coastal Zone Management Act. While BCDC does exercise its federal authority when issuing consistency determinations to the federal government, it acts under its state authority described in the McAteer Petris Act for non-federal entities.”**

### **Response**

The text in the TOs has been corrected per the comment.

**Comment 3.3: “In the Provisions Section, Item 6, Benthic Habitat Impact Evaluation Study, Commission staff recommends that more than one scientist with appropriate expertise be involved in the Technical Advisory Committee (TAC). This would provide sound study development and ensure the appropriate statistical power to answer proposed questions regarding the impacts of sand mining to benthic habitat. In addition, there may be some confusion regarding the scope of the proposed study. It is staff's understanding that the proposed study is currently limited to Central San Francisco Bay. If, as the Order states, the benthic study will include Suisun Bay then our recommendation would be that it includes sufficient samples to provide the necessary statistical power for both embayments. If, the study in fact only includes Central Bay, staff recommends the Water Board include both areas (Suisun and Central Bay) as part of the required study.”**

### **Response**

We agree that more than one scientist with expertise in benthic ecology would be beneficial to the TAC. The TOs do not preclude participation by more than one scientist. We contacted NOAA Fisheries and confirmed that details of the study design, including sampling locations and number of samples, have not yet been specified and will be decided by the TAC. The text in Provision 6 naming specific embayments has therefore been deleted.

**Comment 3.4: “In the Provisions Section, Item 8, Volume Limits states that the volume limits proposed serve to ‘reduce the potential risk of adverse effects of sand mining on subtidal habitat.’ Please explain how the proposed volumes for each lease area and company reduces impacts to habitat or species. As Commission staff understands the applications, the proposed project volumes are based on industry projections of construction material needs, not an impact or risk analysis. It would also be helpful in this section to include seasonal volume reductions designed to reduce entrainment of larval smelt for mining in Suisun Bay and Channel.”**



## **Response**

We agree that the proposed total and annual project volumes in themselves do not reduce potential impacts to habitat or species. The text referenced by the commenter has been deleted from the Tentative Orders.

As recommended by the commenter, we have added a requirement to Provision 8 to adhere to seasonal volume restrictions to reduce the potential for entrainment of larval longfin smelt and delta smelt in the Middle Ground and Suisun Channel lease areas according to CDFW's Incidental Take Permits, as amended October 14, 2014, and the USFWS Biological Opinion dated October 22, 2014.

**Comment 3.5: "Provisions Section 9: Depth Restrictions, please more clearly identify the limitation on the depth restrictions in the table provided. All the depth limitations provided in the table refer to areas/times when no mining is allowed. Please more clearly indicate that there is 'no mining,' so that it is not confused with any areas/times of 'limited mining'. Examples include: no mining within 200 feet of any shoreline; no mining within 250 feet of depths less than minus 9 feet MLLW; etc."**

## **Response**

We have added additional text to the table in Provision 9 to clarify when no mining is allowed as suggested in the examples provided by the commenter.

**Comment 3.6: "On Page 5, Section E-4, Sand Mining Methods describes Hanson as using two methods of mining, stationary and moving potholing. It is the Commission staff's understanding that Hanson only uses the moving potholing method of mining."**

## **Response**

We asked Hanson to provide a more detailed description of its mining methods. Hanson stated that it predominantly uses the moving pothole method but also uses the stationary method depending on site conditions. Hanson also stated that its current standard operating procedure during moving potholing is to turn the suction pump off when moving from one mining location to another. We added text to Finding E-4 to clarify the technical and logistical conditions that favor the use of one method over the other.

**Comment 3.7: "Page 5, Section E-1 regarding the Project Location, it states that, 'both Hanson and Lind currently mine the Middle Ground parcel under separate leases with the Grossi Family ...' As you may know, Hanson does have a lease at Middle Ground, but has not actually mined at this location for a number of years. Therefore, while the current overall proposed mining is much reduced from volumes previously authorized on the Grossi Lease area, it does not appear to actually reduce mining activity."**

## **Response**

Comment noted.

**Comment 3.8: "Also on page 5, Section E-6, regarding benthic habitat impacts from sand mining, your order states that the National Marine Fisheries Service (NMFS) determined the 2009 Applied Marine Sciences Benthic Study to be limited in scope and difficult to draw**

**conclusions from. NMFS is requesting a new benthic study in the Central Bay region of San Francisco Bay to determine the impacts of sand mining on benthic habitat and recovery. This section discusses the responsibilities that Hanson has been tasked with, but does not discuss the role that Lind Marine will have in the process of the benthic study especially considering that Lind Marine does not operate in the Central Bay SLC lease areas. Please clarify Lind's role in the benthic study and how the study will be used to inform the sand mining impacts of Lind's operations on the benthic environment in Suisun Bay and Channel.”**

**Response**

In our conversations with NOAA Fisheries, they confirmed that it has not excluded Suisun Bay from consideration for inclusion in the study. They also confirmed that the TAC will determine the most appropriate geographic focus of the study during development of the study plan. We have therefore deleted specific references to Central Bay and Suisun Bay in Provision 6, requiring completion of a benthic habitat evaluation study.

Regardless of the geographic scope of the study, Lind Marine has confirmed that it will participate in the TAC and that it will collaborate with Hanson to fund and perform the study. At this time, we cannot provide a detailed explanation of how the study will be used to evaluate impacts of Lind's mining operations. This level of detail will be available once the TAC has approved a study plan.

**Comment 3.9: “In addition, in the Provisions Section 9, as it is noted in both Lind Marine and Suisun Associates Tentative Orders, it is unclear to staff whether the reduced mining volume during the months of December through June are the result of depth limitations or if Lind Marine and Suisun Associates have agreed to reduce the overall amount of material mined each month during this sensitive time of year for larval smelt. Are there restrictions on both volume and depth during the months of December through June? Will the impacts in the deeper parts of the lease area also be reduced during this time through volume limitations? Please clarify this information.”**

**Response**

See responses to comments 3.4 and 3.5.

## **Comment Letter No. 4: Lehigh Hanson, Inc.**

**Comment 4.1: The commenter clarifies that environmental analysis and consultations with state and federal resource agencies have not resulted in a maximum depth restriction on sand mining. The commenter requests the following minor word change to Discharge Prohibition A.2. in the Hanson Tentative Order:**

“...The determination was made based on the depth of the receiving water bodies where sand mining typically occurs (-30 to -90 feet MLLW) in Central Bay...”

**The commenter also requests a similar word change to Discharge Prohibition A.2. in the Suisun Associates Tentative Order:**

“...The determination was made based on the depth of the receiving water bodies where sand mining typically occurs (-20 to -45 feet MLLW) in Suisun Bay...”

### **Response**

Changes made as requested.

**Comment 4.2: The commenter requests that language be added to the Self-Monitoring Program (SMP) to allow for revisions in reporting frequency based on coordination with other state and federal permitting agencies and to ensure consistency between agencies, reduce redundancies and increase efficiencies in reporting.**

### **Response**

No changes made. The SMPs currently allow for Executive Officer approval of revisions requested by Hanson (text in certification statement immediately preceding Executive Officer signature line).

**Comment 4.3: The commenter lists several typographical errors in the Suisun Associates Tentative Order where the entity “Lind” should be deleted and replaced with “Suisun Associates.”**

### **Response**

Changes made as requested.

## **Comment Letter No. 5: Lind Marine Incorporated**

**Comment 5.1: Same as Comment 4.1, but applied to Lind Marine and Suisun Associates instead of Hanson and Suisun Associates.**

### **Response**

Changes made as requested.

**Comment 5.2: Same as Comment 4.2.**

### **Response**

See response to Comment 4.2.

**Comment 5.3: Same as Comment 4.3.**

### **Response**

Changes made as requested.

## **Staff-Initiated Changes**

We corrected typographical errors and made other minor editorial and formatting changes to all three TOs. In addition, we made the following changes to update and correct the TOs:

1. Revised Hanson and Suisun Associates TOs, Finding E.7 (Potential Entrainment Impacts) and Finding E.8 (Avoidance, Minimization, and Mitigation Measures): Revised text based on email correspondence from Mike Bishop of Hanson stating that the standard operating procedure when moving the barge from one mining location to another is to turn off the pump immediately after the drag arm is lifted off the bottom and cleared.
2. Added the date the USFWS Biological Opinion was issued to Lind and Suisun Associates TOs, Provision 14 and Hanson TO, Provision 15.
3. Updated the map (Appendix A-4) of upland sand processing facilities (sand yards) by deleting sand yards that are closed or that are not currently used to process sand mined from San Francisco Bay.