

---

**From:** Christine Holmes

**Date:** Monday, March 30, 2015 3:33 PM

**To:** Estella Corona

**Subject:** Mining Sand in SF Bay

Dear BCDC,

I attended the public meeting a little over a week ago regarding approving new contracts with several dredging companies for mining sand in the Bay. I strongly urge you to use the parameters presented in the Coastal Commission's review and recommendations regarding these permits. As was indicated, there are several factors which should actually decrease the amount of sand being mined, instead of increasing the duration of the mining.

That it is recognized by everyone that this sand is a diminishing resource is one factor.

Most important to me is that no one can quantify the effects on the tiny invertebrates that exist in the bay and upon which many species of fish and other bay creatures feed. We have already decimated the bay smelt - a recent search for them in the bay found only six. Are we to continue to eliminate our naturally-occurring species by taking away their food source?

I have lived in SF for 15 years, and spend a lot of time along the Bay. 12 years ago sea birds, particularly pelicans, were so fat that I could hardly believe they could fly! Now, they are all very thin. This is due to loss of food sources. The small fish they would feed on in the Bay are no longer plentiful. Those small fish would feed on the invertebrates that live in the Bay's waters and sands.

The BCDC needs to be smart and cautious about protecting the ecosystem of the Bay. There is no excuse for making decisions without understanding the consequences. Please do not approve these mining permits as they are currently presented.

Thank you for your consideration,  
Christine Holmes  
Market St.  
San Francisco CA 94114

Sent from iCloud

SAN FRANCISCO  
**BAYKEEPER®**



COPY

CITIZENS COMMITTEE TO  
COMPLETE THE REFUGE

RECEIVED  
MAR 19 2015

March 19, 2015

Mr. Lawrence Goldzband, Executive Director  
San Francisco Bay Conservation and Development Commission  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102-7019

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

Via electronic mail to: [lgoldzband@bcdc.ca.gov](mailto:lgoldzband@bcdc.ca.gov), [steve.goldbeck@bcdc.ca.gov](mailto:steve.goldbeck@bcdc.ca.gov),  
[brenda.goeden@bcdc.ca.gov](mailto:brenda.goeden@bcdc.ca.gov), [grace.gomez@bcdc.ca.gov](mailto:grace.gomez@bcdc.ca.gov)

RE: Sand Mining Permit Applications Nos. 2013.004.00, 2013.005.00md, 2013.003.00,  
and 2013.006.00

Dear Mr. Goldzband and Commissioners:

On behalf of San Francisco Baykeeper and Citizens Committee to Complete the Refuge, and our thousands of 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 permit applications submitted by Hanson Marine Operations, Jerico Products, and Suisun Associates, for rights to increase commercial sand extraction from San Francisco Bay and Suisun Bay for at least ten more years.<sup>1</sup>

The best available science and good public policy counsel BCDC to effectively regulate sand mining in the Bay by significantly curtailing the unsustainable extraction rates that have been allowed for decades. As recent peer-reviewed research led by the United States Geological Survey has demonstrated, there is a direct connection between sand mining in the Bay and the significant coastal erosion problems now occurring at San Francisco's Ocean Beach and other nearby areas of shoreline. Unfortunately, the Final Environmental Impact Report ("EIR") prepared by the State Lands Commission for the projects dismisses this evidence and fails to provide any mitigation measures to address these significant coastal impacts.

---

<sup>1</sup> Hanson, Lind, and Suisun Associates are referred to collectively herein as the "applicants," and the permit applications referred to collectively as the "projects."

Y9103  
COPY

By contrast, the California Coastal Commission recently recommended in a January 23, 2015 letter to BCDC that sand mining rates be reduced to 15% of the historical average to account for this compelling research, a position that Baykeeper supports. We urge BCDC to act decisively to ensure the protection of our Bay and coastal resources by limiting the extraction of sand from the Bay to a sustainable rate and by ensuring that the projects are consistent with the Bay Plan policies. In addition, as also requested by the California Coastal Commission, we urge that additional study and monitoring be required as a condition of any approvals. We further request that any approved permits be limited to 5 years in duration. Such measures would give the public and BCDC ample opportunity to better understand and mitigate the adverse effects of sand mining as scientific understanding of sediment transport progresses and as sea levels continue to rise and coastal beaches erode.

I. **The Bay Plan's Subtidal Policy 1 Requires Sand Mining Impacts to be Minimized or Avoided.**

Pursuant to the Bay Plan Subtidal Policy 1:

*Any proposed . . . dredging project in a subtidal area should be thoroughly evaluated to determine the local and Bay-wide effects of the project on: . . . (b) tidal hydrology and sediment movement; (c) fish, other aquatic organisms and wildlife; (d) aquatic plants; and (e) the Bay's bathymetry. Projects in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects.*

Hence, all such effects must at least be minimized, and, if feasible, should be avoided altogether. The dictionary definition of "minimize" means "to make (something bad or not wanted) as small as possible."<sup>2</sup> "Feasible," in this context, borrows from CEQA to require consideration of "physical, technological, economic or legal impossibility, [and] public policy consistency." (Staff Report at 33.)<sup>3</sup> The applicants' request to extract an average of 1,570,000 cy/yr neither minimizes nor feasibly avoids harmful impacts of the projects.

Historically, "[s]ediment transport does not appear to be keeping up with the rate of mining that has occurred in Central Bay." (Staff Report at 13.) Staff estimates that annual inflow of sand to the Bay could range from 375,000 cy/yr to 800,000 cy/yr. (Staff Report at 12.) In contrast, the proposed mining by Hanson alone of up to 1.203 million cy of sand annually is "approximately 800,000 cy more than all of the sand estimated

---

<sup>2</sup> <http://www.merriam-webster.com/dictionary/minimize>

<sup>3</sup> Note that each citation to the "Staff Report" herein cites to the "Application Summary" for BCDC Permit Application No. 2013.004.000.

to enter the system from the Delta annually.” (Staff Report at 14 [emphasis added].) This sediment depletion has obvious implications for the health of the Bay. As the Bay Plan itself highlights, “hydraulic mining . . . and dredging . . . have significantly altered the Bay’s historic sedimentary processes.” (Subtidal Finding G.) Removal of sand above the natural replenishment rate, the Staff Report notes, “would either be relic sand” that forms habitat thousands of years old, “or sand already in transit in the Bay system and to the coast.” (Staff Report at 14.) In turn:

With less sand in the Bay system, there is the potential for increased coastal erosion, as less sand will be supplied to beaches and underwater shoals. Smaller sand bars along the shore, and at the mouth of the Bay, are less effective at buffering the coast from wave energy. This has already been observed for the San Francisco Bar with respect to Ocean Beach.

(Staff Report at 10.) These effects are further borne out by the fact that “[b]etween 2008 and 2014, when mining rates averaged less than half of the volume per year than currently proposed, a USGS multibeam survey showed a net sand gain.” (Staff Report at 18.)

This most recent data provides a window in how the project effects may be minimized or feasibly avoided. In the 5 years between 2010 and 2014, overall average annual sand mining rates stood at 404,623 cy/yr. In the 10 years between 2005 and 2014, the average stood at 806,490 cy/yr Bay-wide. Against this backdrop, it is evident that the applicants’ proposal to extract an average of 1,570,000 cy/yr over the next 10 years does not minimize the projects’ sediment-related impacts. Both the 5 and 10 year historic averages are demonstrably possible, and more consistent with the Subtidal Policy 1 requirement to minimize project impacts.

Finally, the applicants’ proposal to donate \$100,000 to CalRecycle’s estuary cleanup of derelict vessels and piers does not minimize the loss of sandy beaches and habitat caused by the projects. First, it is unclear whether the CalRecycle estuary project is currently in operation, as the most recent efforts concluded in 2013.<sup>4</sup> Even if put to use – which is not a binding and certain requirement as proposed by applicants<sup>5</sup> – it is questionable what \$100,000 would accomplish.<sup>6</sup> In short, this contribution appears to be too little, too late, and has no apparent connection to conservation of sandy beaches,

---

<sup>4</sup> <http://www.calrecycle.ca.gov/SWFacilities/Cleanup/Projects/Estuary2013/Updates.htm>

<sup>5</sup> “CalRecycle will be responsible for the distribution of funds and the performance and completion of these projects.” (Staff Report at 35 [emphasis added].)

<sup>6</sup> The 2013 cleanup effort expended \$4,375,000 to target approximately 40 vessels and a handful of derelict piers, meaning the contribution of \$100,000 might result in the removal of one additional, moderately sized, vessel. See <http://www.calrecycle.ca.gov/SWFacilities/Cleanup/Projects/Estuary2013/FactSheet.htm>

sandy habitat, or shoreline resilience to sea level rise. In contrast, for the protection and restoration of Ocean Beach:

City of San Francisco and federal government agencies spent roughly \$750,000 in 2012 and \$580,000 in 2014, on short-term erosion solutions (email communications, National Park Service, 1/12/15). San Francisco Planning & Urban Research Association (SPUR) planning documents projects hundreds of millions of dollars of public funds will be needed to implement a long-term management plan to address the erosion issues. These projections include approximately \$50 million to relocate the Great Highway, and approximately \$150 million for a combination of measures to restore the beaches in the area (with just over \$24 million alone for continued sand relocation from north Ocean Beach to south Ocean Beach).

(Letter from California Coastal Commission to BCDC, January 23, 2015, p. 3, fn. 1.)

In sum, the only minimization measures before BCDC to limit the proposed projects' harmful impacts to Bay sediment resource are reduced extraction rates. To this end, the California Coastal Commission has rightly requested that any extraction rate approved be roughly equal to the average annual replenishment of sand measured in the mining areas, approximately 15% of the volumes proposed by applicants. We urge BCDC to follow this approach.

**II. Subtidal Policy 2 Requires That Sand Resources be Conserved, and the Projects do not Convey the "Substantial Public Benefits" Required to Completely Extinguish this Resource.**

The Bay Plan's Subtidal Policy 2 requires that:

*Subtidal areas that are scarce in the Bay or have an abundance and diversity of fish, other aquatic organisms and wildlife (e.g., eelgrass beds, sandy deep water or underwater pinacles) should be conserved. Filling, changes in use, and dredging projects in these areas should therefore be allowed only if: (a) there is no feasible alternative; and (b) the project provides substantial public benefits.*

First, there is no question that sandy resources are scarce in the Bay. A mere 8% of the Bay floor is comprised of sandy deposits, and this amount is decreasing. "System-wide, the sediment supply to the Bay, and sand supply in particular, has decreased in recent years." (Staff Report at 9.) As a result, relic sand, thousands of years old, "makes up the majority of deep deposits in Central Bay." (Staff Report at 12.)

For these reasons, there can be no serious question that sand resources throughout the Bay are scarce.

Therefore, Subtidal Policy 2 requires two layers of protection. First, the resource must be conserved. To "conserve" means to protect, or to maintain. The complete depletion of a resource would be the opposite of conserve. Yet that is precisely what the applicants propose, by extracting sand from the Bay at a rate two to four times that of natural replenishment. Indeed, the Staff Report quotes the FEIR to state that "mining of a non-renewable mineral resource can generally be expected to eventually deplete the resource." (Staff Report at 18.) A reduced extraction rate down to some sustainable level is therefore necessary to conserve these resources.

Next, where efforts are made to conserve this scarce resource, but some impact would nevertheless remain, Subtidal Policy 2 requires both that feasible avoidance alternatives be implemented, and that the projects convey a substantial public benefit. The proposed projects cannot meet this substantial public benefit requirement. The Bay Plan does provide a few examples of projects that convey a "substantial public benefit":

- a. Developing adequate port terminals, on a regional basis, to keep San Francisco Bay in the forefront of the world's great harbors during a period of rapid change in shipping technology.
- b. Developing adequate land for industries that require access to shipping channels for transportation of raw materials or manufactured products.
- c. Developing new recreational opportunities-shoreline parks, marinas, fishing piers, beaches, hiking and bicycling paths, and scenic drives.
- d. Developing expanded airport terminals and runways if regional studies demonstrate that there are no feasible sites for major airport development away from the Bay.
- e. Developing new freeway routes (with construction on pilings, not solid fill) if thorough study determines that no feasible alternatives are available.
- f. Developing new public access to the Bay and enhancing shoreline appearance over and above that provided by other Bay Plan policies-through filling limited to Bay-related commercial recreation and public assembly.

(Bay Plan, Major Conclusions and Policies.) The singular theme through these examples is that the development, *i.e.*, the project causing the adverse impacts to the Bay, would itself directly provide opportunities for public use. More is required than simply providing a link in the greater chain of commerce. The mining applications before BCDC at present are exclusively for private profit, providing the public with no access to the sand in question, except at point of sale.

**III. Subtidal Policy 5 Requires That Further Scientific Study be Part of Any Sand Mining Approval.**

The Bay Plan Subtidal Policy 5 counsels the Commission to obtain further expansion of scientific information on the Bay's subtidal areas, including:

*(a) inventory and description of the Bay's subtidal areas; (b) the relationship between the Bay's physical regime and biological populations; (c) sediment dynamics, including sand transport, and wind and wave effects on sediment movement; (d) areas of the Bay used for spawning, birthing, nesting, resting, feeding, migration, among others, by fish, other aquatic organisms and wildlife; and (e) where and how restoration should occur.*

Both the Staff Report, and the Coastal Commission in its January 23, 2015 letter, have identified numerous shortcomings of the State Lands Commission's EIR, requiring further study, which we strongly support. In addition, we urge the Commission to further minimize the projects' impacts by reducing any approved permit duration from 10 years to 5 years. Given the rate of evolving science, and the need to condition any approval on future study, the Commission and the public should be afforded the opportunity to reconsider any permitted mining rates more frequently than once per decade.

**IV. The Sand Mining Permit Applications Run Counter to the Bay Plan's Climate Change Policies.**

The Bay Plan sets forth numerous relevant findings critical to the protection of regional resources as sea levels rise:

*Natural systems and human communities are considered to be resilient when they can absorb and rebound from the impacts of weather extremes or climate change and continue functioning without substantial outside assistance. Systems that are currently under stress often have lower adaptive capacity and may be more vulnerable or susceptible to harm from climate change impacts. . . . (Finding F.)*

*Adaptation actions that protect existing development and infrastructure can include protecting shorelines . . . (Finding G.)*

*[B]eaches . . . are particularly vulnerable to flooding from sea level rise and storm activity . . . Flooding of, or damage to these areas would adversely affect the region's quality of life, if important public spaces and recreational opportunities are lost. (Finding I.)*

*The principle of sustainability embodies values of equity, environmental and public health protection, economic vitality and safety. The goal of sustainability is to conduct human endeavors in a manner that will avoid depleting natural resources for future generations and producing no more than can be assimilated through natural processes, while providing for improvement of the human condition for all the people of the world. Efforts to improve the sustainability of natural systems and human communities can improve their resilience to climate change by increasing their adaptive capacity. (Finding J.)<sup>7</sup>*

The proposed projects run counter to each of these concerns. Rates of coastal erosion along the outer coast south of the Golden Gate are the highest for the entire coast of California and have accelerated by 50% between Ocean Beach and Pt. San Pedro since the 1980s, coinciding with intense sand mining activities in the Bay.<sup>8,9,10</sup> As a result, critical infrastructure, including San Francisco's Great Highway and the Oceanside Wastewater Control Plant, face dire threats from coastal erosion, at significant cost to San Franciscans and other stakeholders.<sup>11</sup> Further loss of coarse-grained sediment at Ocean Beach demonstrably reduces San Francisco's resiliency and capacity for adaptation to sea level rise. As the Staff Report recognizes, "[w]ith sea level rise, increasing amounts of sand will likely be needed to prevent coastal erosion and to allow the landward migration of Bay beaches, as well as supplying the outer coast beaches that protect infrastructure and development." (Staff Report at 14.)

Indeed, the EIR for the proposed projects fully admits that historic sand mining extraction rates have been unsustainable, and that proposed future sand extraction rates are increased from those of the past. This approach simply flies in the face of the Bay Plan's Climate Change Findings F through J. Coastal resilience is already under severe stress, a condition the proposed permits would only worsen.

Applicants turn this fact on its head, and argue that provision of sand will support local construction projects to help defend the region from the impacts of rising seas.<sup>12</sup> Moreover, applicants argue that their project constitutes the lesser of two evils:

---

<sup>7</sup> In addition, Climate Change Policy 1a applies, stating that the Bay Plan's Climate Change section applies to any project within San Francisco Bay.

<sup>8</sup> Hapke, C. J., Reid, D. & Richmond, B., 2009. Rates and trends of coastal change in California and the regional behavior of the beach and cliff system. *Journal of Coastal Research*, 25(3), pp. 603-615.

<sup>9</sup> Hapke, C. J. *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, U.S. Geological Survey Open File Report 2006-1219.

<sup>10</sup> Dallas, K. L. & Barnard, P. L., 2011. Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system. *Estuarine, Coastal and Shelf Science*, Volume 92, pp. 195-204.

<sup>11</sup> Ocean Beach Master Plan, available at: [www.spur.org](http://www.spur.org).

<sup>12</sup> Memorandum from Christine Bordreau, *et al.* to Brenda Goeden, *et al.*, July 14, 2014, p. 3.

without an increase in Bay sand, they argue, importation of sand from British Columbia will increase, increasing greenhouse gas emissions. This is a red herring sliding down a slippery slope. Reducing the permitting volume of sand to be extracted would not appreciably increase international imports.

According to the Staff Report, and based off the applicants' data, "[t]he Bay Area is the largest market for British Columbia (BC) sand, which is preferred for major construction projects requiring high-strength concrete due to its high quality." (Staff Report at 3.) Hence, Bay sand and British Columbia sand serve different needs, and are not directly interchangeable. In fact, Hanson alone proposes to extract annually approximately 1.7 million tons of sand, which is nearly identical to the 1.7 million tons of sand imported from BC in 2012. (Staff Report at 3.) Given that this project will not entirely displace British Columbia imports, the additional regional production will only serve to fuel building industry development, most likely increasing the very GHG emissions the applicant assert will be avoided by the projects. Indeed, as a result of greater availability of sand, prices will surely drop, resulting in greater consumption and building rates region-wide.

Lastly, it is important to note that development projects throughout California, and the Bay Area, are required to evaluate their potential GHG outputs, and maintain compliance with thresholds established by the California Air Resources Board and/or the Bay Area Air Quality Management District. In other words, the outcome of this project will not alter greenhouse gas regulation in California.

#### V. The Projects Conflict with the Public Trust Doctrine.

The Public Trust Doctrine was created to protect the public's right to use and enjoy the benefits of submerged and tidelands when threatened by privatization of public resources. (See Joseph L. Sax, *The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention* (1970) 68 Mich. L. Rev. 471, 537 [describing the doctrine as a "device for ensuring that valuable governmentally controlled resources [were] *not diverted to the benefit of private profit seekers*" (emphasis added)].) Indeed, perhaps no clearer case can be made for the purpose of public trust protections than the case at hand, where, for exclusively private profit, the applicants will "generally be expected to eventually deplete the resource." (Staff Report at 18 [quoting EIR at 4.2-10].)

Under the public trust doctrine, a trustee agency may permit the use of public trust resources only in two limited circumstances: (1) when the use is an accepted "public trust use" that will result "in the improvement of the [public] interest thus held," or (2) when the permitted use will occur "without detriment to the public interest

in the lands and water remaining.” (*Illinois Central R. Co. v. Illinois* (1892) 146 U.S. 387, 455-56 (*Illinois Central*).)

Unfortunately, the Staff Report egregiously errs by stating that “[m]ineral extraction from trust property is an accepted trust use in aid of commerce, much like fishing, which removes natural material from the environment.” (Staff Report at 38.) On the contrary, without exception, every court to consider the issue has found mining and resource extraction to be a non-public trust use. (*People v. Gold Run Ditch & Mining Co.* (1884) 66 Cal. 138, 151-152 [hydraulic gold mining analyzed as non-trust use]; *Nat’l Audubon Soc’y v. Superior Court* (1983) 33 Cal.3d 419, 445-48 (*National Audubon*) [water diversions held to be non-trust use]; *Boone v. Kingsbury* (1928) 206 Cal. 148, 183 (*Boone*) [offshore oil production analyzed as non-trust use]; *Mallon v. City of Long Beach* (1955) 44 Cal.2d 199, 206-07 [private mining analyzed as a non-trust use]; *Hayes v. A.J. Associates, Inc.* (1993) 846 P.2d 131, 133 (*Hayes*) [tideland mining held to be non-trust use].) As the Alaska Supreme Court stated in *Hayes*, relying directly on California public trust jurisprudence:

[W]e reject [the] contention that mining is a public trust purpose . . . . We believe that even the most expansive interpretation of the scope of public trust easements would not include private mining enterprises.

(*Hayes, supra*, 846 P.2d at 133 [citing *Marks v. Whitney*, 491 P.2d 374 (Cal. 1971)].)

The applicants’ and the State Lands Commission’s contention that sand mining constitutes a public trust use is primarily based on outdated dicta from the 1928 decision in *Boone*. Yet the *Boone* case, which involved offshore oil drilling, did not render such a holding. Perhaps the clearest articulation of this principle was made by Professor Joseph Sax, a leading authority on the public trust doctrine. In a 2012 affidavit filed in a North Dakota mining case, Professor Sax discussed the decision in *Boone* and stated unequivocally that:

The Supreme Court of California recognized that mineral exploitation was not itself a public trust use, even though the public benefited from it both as lessor and in obtaining needed petroleum products. The court held that so long as the drilling did not impair actual public trust uses such as navigation and fishing it could go forward; and that if at any time in the future it did interfere with public trust uses, it could and would be restricted to the extent necessary to protect the public trust.

(Affidavit of Joseph L. Sax in Support of Plaintiffs’ Motion for Summary Judgment Regarding Ownership of Mineral Interest in the Shore Zone (Sept. 19, 2012), *Stanford A.*

*Reep, et al. v. State of North Dakota*, Case No. 53-2012-CV-00213 (N.D. Dist. Ct.) And in *National Audubon*, the California Supreme Court clearly identified the singular holding of *Boone*:

*Boone* . . . presents another aspect of this matter. The Legislature authorized the Surveyor-General to lease trust lands for oil drilling. Applying the principles of *Illinois Central*, the court upheld that statute on the ground that the derricks would not substantially interfere with the trust.

(*National Audubon, supra*, 33 Cal.3d at 439 [citing *Boone, supra*, 206 Cal. at 192-93].)

The applicants' argument that any indirect, public commercial benefit from a project may constitute a public trust use is so broad that it would render such a classification meaningless. In fact, this argument has already been rejected by the *National Audubon* court, which found no public trust consistency where a project simply "served some public purpose, such as increasing tax revenues, or because the grantee might put the property to a commercial use." (*National Audubon, supra*, 33 Cal.3d at 440.) As the Court noted, "in practical effect the doctrine would impose no restrictions on the state's ability to allocate trust property." (*Id.*)

Moreover, the fact that the mining takes place from a tug and barge does not transform it into a trust consistent use as "navigation" or "waterborne commerce." This too would render meaningless any boundaries placed on public trust uses of submerged lands, as some type of water-related vehicle or infrastructure is necessarily required to access *any* submerged lands, for *any* purpose. The extraction of sand itself is the narrow activity to be approved by the projects. It is undisputed that the extraction of sand does not facilitate public navigation of waters, and the ancillary use of a tug and barge to transport the sand does not promote the public's interest in navigation of waters or improve public access to the water. As the Alaska Supreme Court held in *Hayes*, waterborne commerce "implies commerce in the sense of trade, traffic or transportation of goods over navigable waters, a meaning which does not include mining." (*Hayes, supra*, 846 P.2d at 133.) Similarly, California's First District Court of Appeal has recognized that trust-consistent "commerce" is limited to "wharves or docks and other structures in aid of commerce." (*Citizens for East Shore Parks v. State Lands Comm'n* (2011) 202 Cal.App.4th 549, 571.)

The Legislature has also treated the mining of submerged lands as a non-trust use. Public Resources Code section 6895, which governs agency approvals of mining leases on tide or submerged lands, specifically states that an agency may only approve mining leases that do not "substantially impair the public rights to navigation and

fishing or interfere with the trust upon which the lands are held.” (Pub. Res. Code § 6895; *see also id.* § 6890.) Section 6900 similarly states that the leases may “not interfere with the trust upon which such lands are held or substantially impair the right to navigation and fishing.” (*Id.* § 6900.) These limitations make clear the Legislature’s intent to classify sand mining as a non-trust use, since only non-trust uses are prohibited from impairing trust uses. (*National Audubon, supra*, 33 Cal.3d at 440.)

Lastly, it is important to note that the State Lands Commission’s EIR expressly provided that BCDC would render its own public trust determination. The State Lands Commission *did not* make any public trust determination at all, much less any determination on which BCDC should rely. As the EIR states:

*When BCDC takes any action affecting lands subject to the public trust, it should assure that the action is consistent with the public trust . . . .*

(FEIR at 4.7-29.)

Pursuant to the Bay Plan, “[w]hen the Commission takes any action affecting lands subject to the public trust, it should assure that the action is consistent with the public trust needs for the area and, in case of lands subject to legislative grants, should also assure that the terms of the grant are satisfied and the project is in furtherance of statewide purposes.” While the Staff Report raises this issue, it does not provide a public trust analysis and ultimately urges the Commission to “evaluate the public trust needs and determine whether the project is consistent with its Public Trust Policy.” (Staff Report at 38.) We urge the Commission to undertake this crucial analysis before any approvals are given for the projects.

Because sand mining does not constitute a public trust use, the Commission may only approve it as a use of public trust resources where such resources will not be impaired. Here, in the wake of 70 years of unsustainable sand mining in the Bay, the applicants’ proposal to continue at these unsustainable rates until the resource is exhausted, is flatly inconsistent with the public trust purpose of protecting public resources for public use. Again, and at a minimum, to ensure no impairment of trust resources occurs, nothing short of a sustainable extraction rate should be allowed. However, where coastal and submerged sandy resources have already been lost due to over-mining, these resources too must be repaired before any notion of sustainable sand management can be achieved.

## VI. Conclusion

For each of the foregoing reasons, we urge the Commission to significantly curtail the decades of degradation caused by sand mining in the Bay by meaningfully reducing any approved sand mining volumes to a level consistent with sustainable resource management of sand for the region as a whole. In addition, significant additional monitoring and research should occur, with opportunity to revisit any approved permit in 5 years.

Sincerely,

George Torgun  
Managing Attorney  
San Francisco Baykeeper

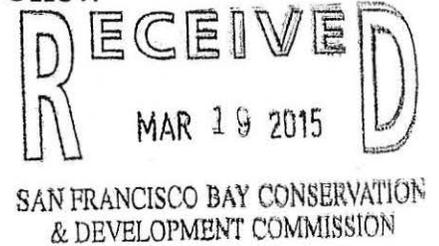
Jason R. Flanders  
ATA Law Group

Carin High  
Vice Chair  
Citizens Committee to Complete the Refuge

**From:** "<GOGA Superintendent>", NPS <[goga\\_superintendent@nps.gov](mailto:goga_superintendent@nps.gov)>  
**Date:** Thursday, March 19, 2015 11:57 AM  
**To:** Brenda Goeden <[brenda.goeden@bcdc.ca.gov](mailto:brenda.goeden@bcdc.ca.gov)>  
**Cc:** "[kristen\\_ward@nps.gov](mailto:kristen_ward@nps.gov)" <[kristen\\_ward@nps.gov](mailto:kristen_ward@nps.gov)>  
**Subject:** NPS Comments: Hanson Marine Operations Sand Mining Permit Application, BCDC Permit Application No. 2013.004.00

ELECTRONIC CORRESPONDENCE - NO HARD COPY TO FOLLOW

Brenda Goeden  
Bay Conservation and Development Commission  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102



Re: Hanson Marine Operations Sand Mining Permit Application, BCDC Permit Application No. 2013.004.00

Dear Ms. Goeden:

Golden Gate National Recreation Area (GGNRA) has reviewed BCDC Permit Application No. 2013.004.00 regarding the Hanson Marine Operations Sand Mining Permit Application. We have an interest in the project because the park manages adjacent areas of San Francisco Bay, as well as 90 miles of shoreline including sandy beaches inside the bay and on the outer coast. We are particularly concerned about the potential impacts to Ocean Beach from sand mining in the Central Bay.

Ocean Beach is one of the most rapidly retreating coastlines in California and has been the subject of extensive study by Patrick Barnard and his colleagues at USGS; lack of sand supply appears to be a key contributing factor to the severe erosion at the south end of Ocean Beach. Recent research on sand provenance showed that the sand-sized material at Ocean Beach is consistent with the material moving through San Francisco Bay toward the ocean, including major lease sites, demonstrating a sediment transport pathway between the Bay and the outer coast (See Notes 1, 2 and 3). Collectively, the research conducted by Barnard and others has clearly demonstrated that sand mining in the Bay is having a negative impact on the sediment supply to the open coast.

Ocean Beach is GGNRA's most important resource for wintering and migrating shorebirds and supports two threatened bird species. Additionally, it supports recreational activities including birdwatching, hiking, and surfing. Persistent erosion along the southern reach of Ocean Beach threatens its habitat and recreation values. Climate change and projected sea level rise increases the urgency of maintaining sediment supply to our beaches which provide an important line of defense against storms and erosion.

Although we are supportive of the recent reductions in mining volumes proposed within lease areas along sediment transport pathways in the Central Bay (PRC 709, PRC 5871), we remain concerned about the potential volume of sediment that could be removed under the permit application. If the maximum volume of permitted material were to be removed, this would be a considerable increase over volumes removed during the last lease period.

We urge BCDC to consider reducing the volume of sand that is permitted for removal to a level that is closer to the average annual amounts removed during the last lease period, including further reductions in the amount permitted for removal from the Presidio Shoals (PRC 709) and the Alcatraz South Shoal (PRC 5871). We also recommend the inclusion of additional mitigation requirements in the form of research and monitoring to better analyze the potential impacts of sand mining to the San Francisco Bar and Ocean Beach.

=====  
Office of the Superintendent  
Golden Gate National Recreation Area  
201 Fort Mason  
San Francisco, CA 94123  
(415) 561-4720

Note 1: Barnard, P.L., L.H. Erikson, E.P.L. Elias and P. Dartnell. 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 345* (2013):72-95.

Note 2: Barnard P.L., A.C. Foxgrover, E.P.L. Elias, L.H. Erikson, J.R. Hein, M. McGann, K. Mizell, R.J. Rosenbauer, P.W. Swarzenski, R.K. Takesue, F.L. Wong and D.L. Woodrow. 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 345*(2013): 181-206.

Note 3: Hein, J.R., K. Mizell and P.L. Barnard. 2013. Sand sources and transport pathways for the San Francisco Bay coastal system, based on X-ray diffraction mineralogy. *Marine Geology Special Issue 345*(2013): 154-169.

OFFICIAL CORRESPONDENCE VIA ELECTRONIC MAIL  
NO HARD COPY TO FOLLOW



## United States Department of the Interior

NATIONAL PARK SERVICE  
Golden Gate National Recreation Area  
Fort Mason, San Francisco, California 94123

IN REPLY REFER TO

Via eFILING

MAR 19 2015

Brenda Goeden  
Bay Conservation and Development Commission  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102

RECEIVED  
MAR 19 2015

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

Re: Hanson Marine Operations Sand Mining Permit Application, BCDC Permit Application No. 2013.004.00

Dear Ms. Goeden:

Golden Gate National Recreation Area (GGNRA) has reviewed BCDC Permit Application No. 2013.004.00 regarding the Hanson Marine Operations Sand Mining Permit Application. We have an interest in the project because the park manages adjacent areas of San Francisco Bay, as well as 90 miles of shoreline including sandy beaches inside the bay and on the outer coast. We are particularly concerned about the potential impacts to Ocean Beach from sand mining in the Central Bay.

Ocean Beach is one of the most rapidly retreating coastlines in California and has been the subject of extensive study by Patrick Barnard and his colleagues at USGS; lack of sand supply appears to be a key contributing factor to the severe erosion at the south end of Ocean Beach. Recent research on sand provenance showed that the sand-sized material at Ocean Beach is consistent with the material moving through San Francisco Bay toward the ocean, including major lease sites, demonstrating a sediment transport pathway between the Bay and the outer coast.<sup>1, 2, 3</sup> Collectively, the research conducted by Barnard and others has clearly demonstrated that sand mining in the Bay is having a negative impact on the sediment supply to the open coast.

Ocean Beach is GGNRA's most important resource for wintering and migrating shorebirds and supports two threatened bird species. Additionally, it supports recreational activities including birdwatching, hiking, and surfing. Persistent erosion along the southern reach of Ocean Beach threatens its habitat and recreation values. Climate change and projected sea level rise increases the urgency of maintaining sediment supply to our beaches which provide an important line of defense against storms and erosion.

Although we are supportive of the recent reductions in mining volumes proposed within lease areas along sediment transport pathways in the Central Bay (PRC 709, PRC 5871), we remain

application. If the maximum volume of permitted material were to be removed, this would be a considerable increase over volumes removed during the last lease period.

We urge BCDC to consider reducing the volume of sand that is permitted for removal to a level that is closer to the average annual amounts removed during the last lease period, including further reductions in the amount permitted for removal from the Presidio Shoals (PRC 709) and the Alcatraz South Shoal (PRC 5871). We also recommend the inclusion of additional mitigation requirements in the form of research and monitoring to better analyze the potential impacts of sand mining to the San Francisco Bar and Ocean Beach.

Thank you for your consideration.

Sincerely,

Aaron Roth  
Acting General Superintendent

<sup>1</sup>Barnard, P.L., L.H. Erikson, E.P.L. Elias and P. Dartnell. 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 345* (2013):72-95.

<sup>2</sup> Barnard P.L., A.C. Foxgrover, E.P.L. Elias, L.H. Erikson, J.R. Hein, M. McGann, K. Mizell, R.J. Rosenbauer, P.W, Swarzenski, R.K. Takesue, F.L. Wong and D.L. Woodrow. 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 345*(2013): 181-206.

<sup>3</sup>Hein, J.R., K. Mizell and P.L. Barnard. 2013. Sand sources and transport pathways for the San Francisco Bay coastal system, based on X-ray diffraction mineralogy. *Marine Geology Special Issue 345*(2013): 154-169.

RECEIVED  
FEB 23 2015

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

February 23, 2015



R. Zachary Wasserman, Chair  
San Francisco Bay Conservation & Development Commission  
455 Golden Gate Ave., Suite 10600  
San Francisco, CA 94102-7019

Dear Chair Wasserman:

**Chair of the Board**

Keith Archuleta  
Principal, Emerald HPC International,  
LLC

**Chair-Elect**

Andrew Sabey  
Partner, Cox, Castle & Nicholson, LLP

**Vice President – Finance**

A.J. Major  
Vavrinek, Trine, Day & Company, LLP

**Vice President - Engagement**

Bielle Moore  
Richmond Sanitary Inc./Republic Services

**Vice President - Events**

Ron Brown  
Save Mount Diablo

**Vice President – Talent & Workforce**

Ken Mintz  
AT&T

**Vice President – Economic Development & Jobs**

Steve Van Wart  
Principal, Tunbridge Associates

**Vice President – Communications**

Peggy White  
Executive Director, Diablo Regional Arts  
Association

**Vice President – Member Services**

James Brandt  
First Vice President-Wealth Mgt.  
Morgan Stanley Smith Barney

**Chief Legal Counsel**

Peter McGaw  
Shareholder, Archer Norris

**Immediate Past Chair & Vice President -Infrastructure**

Terry Bowen  
Principal, Gray-Bowen-Scott

**President & CEO**

Kristin B. Connelly

On behalf of the East Bay Leadership Council (EBLC), a private sector, regional business organization representing nearly three hundred employers throughout the East Bay, our Board has recently taken a position of support for the permitting of the Lehigh Hanson/Lind Marine Sand Mining request.

This action was taken after review by our Environmental/Manufacturing Task Force, our Executive Committee and finally by the full Board after consideration of the significant benefit this process provides to our regional economy. The final product, sand, is a crucial ingredient for all types of construction in our region. It is needed for concrete, asphalt, road and foundation base material, compaction material for retaining walls and many other crucial construction processes.

By taking advantage of this local resource we see significant benefit in miles traveled to transport sand from regional sand pits which reduces congestion, lowers greenhouse gas emissions and significantly saves time. The efforts that Lehigh Hanson/Lind Marine has taken to be respectful of the environmental issues seem to be significant as well. Finally, they have been involved with sand mining in our Bay and Delta for numerous years without significant negative impacts.

As a result, the Board of Directors of the East Bay Leadership Council recommends the continued permitting of Lehigh Hanson/Lind Marine's sand mining project.

Thank you for your consideration.

Warmest regards

Kristin B. Connelly  
President & CEO

**Subject:** Re: Update on Timing of Sand Mining Permits - comments continued

**Date:** Tuesday, March 17, 2015 4:11:46 PM Pacific Daylight Time

**From:** JLucas1099@aol.com <JLucas1099@aol.com>

**To:** Goeden, Brenda@BCDC <brenda.goeden@bcdc.ca.gov>

RECEIVED  
MAR 17 2015

San Francisco Bay Conservation and Development Commission  
455 Golden gate Avenue, Suite 10600  
San Francisco, California 94102

March 17, 2015

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

Dear Chairman Wasserman and Members of the Board,

In regards this Thursday, March 19, 2015, BCDC Board Agenda Items 9, 10, 11 and 12 permit applications for sand mining leases in Central San Francisco Bay, Suisun Bay and at Middle Ground in Suisun Channel, please decide on an outright denial of these applications.

Scientific studies have been submitted that show extent of degradation of beaches just outside Golden Gate due to loss of sand recruitment to San Francisco Bay, but do not believe comparable studies have been made to document equivalent levee erosion within South Delta and of natural areas such as Antioch Dunes.

Had intended to submit full range of flow data and suspended sediment loads as measured for dry and wet years by USGS on Sacramento River at Freeport and at Chipps Island but as correlation of data does not fall into an easily predictable pattern, did not submit it earlier in comment period. (Also two weeks of flu impaired rudimentary mathematical skills.)

However, would submit that low flows of 1990, being similar to drought Delta flows of last three years, carried sediment load of 5.93 million cu yds, as total for the year, measured at Chipps Island. The proposed sand mining permits, that are before you, would require a third of this sediment supply, depriving salt marshes and sub tidal habitats throughout the Estuary of essential levels of sand recruitment for historic beneficial uses.

These permits would continue for ten years regardless of cumulative loss and impacts to Bay ecosystems, and undocumented irreversible financial losses to agriculture, fisheries and recreation of the Bay and Delta.

Do not believe appropriate assessment has been made as to how long it takes sub tidal habitats to restore sufficient equilibrium to floor of Bay to support robust ecosystems on which the entire Estuary relies. There will be cumulative impacts to marine reserves Federally established in Pacific Ocean outside Golden Gate which are critically dependent on health and stability of fishery ecosystems of Delta and San Francisco Bay.

As there are alternate sources for mining sand that could not create disastrous domino effect of degradation of West Coast's unique estuary, do not understand why these ten year permits have been requested of you.

Believe State Lands Commissioners were guilty of dereliction of duty in processing a deficient EIR in this regard, but in hopes that your staff's subsequent research into how serious inevitable impacts to estuary resources will be, has put this mining of public natural resources into an appropriate economic perspective.

Please do not compromise your actions by any moderation in amounts of sand extraction for these permits. Sand mining day and night, throughout the year, for ten years, would be an albatross around the neck of our estuary that is fighting for its equilibrium in drought conditions to support basic agriculture, aqua culture and urban needs for entire State of California. As a priority, cement production is not on list of historic Bay uses.

Thank you for consideration of my continued concerns.

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

March 10, 2015

Honorable R. Zachary Wasserman, Chair  
Honorable Commissioners  
San Francisco Bay Conservation and Development Commission  
455 Golden Gate Avenue, Suite 1600  
San Francisco, CA 94102

RECEIVED  
MAR 16 2015

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

Re: Support for Hanson/Lind Marine Sand Harvesting Application

Dear Chairman Wasserman and Commissioners:

The City of San Francisco is in support of the above-referenced application currently under review by BCDC. Commercial sand mining has occurred in San Francisco for many years. Hanson/Lind Marine Inc. currently uses sand from San Francisco Bay and the western Bay Delta estuary on land leased primarily from the California State Lands Commission.

The Hanson/Lind Marine sand is used primarily for construction activities throughout the greater San Francisco Bay Area and as a local resource helps lower public and private construction costs. Use of local sand resources reduces costs and associated transportation, environmental and other impacts of trucking material from outside the Bay Area. This sand is critical to the Bay Area economy and the environment. We respectfully request that BCDC continue to allow this local sand harvesting at the historic levels requested in the permit application.

Thank you very much for considering our request. Please let us know if we can provide any additional information.

Sincerely,



Todd Rufo  
Director

cc: Larry Goldzband, Executive Director





RECEIVED  
FEB - 9 2015

February 4, 2015

Honorable R. Zachary Wasserman, Chair  
Honorable Commissioners  
San Francisco Bay Conservation and Development Commission  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

*RE: Support for Hanson/Lind Marine Sand Harvesting Application*

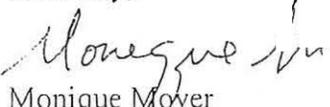
Dear Chairman Wasserman and Commission Members,

The Port of San Francisco sends its support for the Lehigh Hanson/Lind Marine Inc. sand harvesting application currently under review by the Bay Conservation & Development Commission. As you know, commercial sand mining has occurred within the San Francisco Bay for more the 70 years. Hanson/Lind Marine Inc. currently uses sand from the San Francisco Bay and the western Bay Delta estuary on land leased primarily from the California State Lands Commission.

The Hanson/Lind Marine sand is used for construction activities throughout the greater San Francisco Bay Area and as a local resource helps lower public and private construction costs. Use of local sand resources reduces costs and associated transportation, environmental and greenhouse gas impacts of trucking material from out of the Bay Area. Lehigh Hanson/Lind Marine sand is critical to the Bay Area economy and the environment. We respectfully request that BCDC continue to allow this local sand harvesting at the historic levels requested in the permit application.

Thank you for considering our request and for your leadership on this issue. Please let us know if we can provide any additional information.

Sincerely,

  
Monique Moyer  
Executive Director

cc: Larry Goldzband, Executive Director

**CALIFORNIA COASTAL COMMISSION**

45 FREMONT STREET, SUITE 2000  
SAN FRANCISCO, CA 94105-2219  
VOICE AND TDD (415) 904-5200



January 23, 2015

Lawrence Goldzband, Executive Director  
San Francisco Bay Conservation and  
Development Commission  
455 Golden Gate, Suite 10600  
San Francisco, CA 94102

Attn: Brenda Goeden, Sediment Program Manager

Re: Coastal Commission Staff Comments on BCDC Review of Sand Mining Applications in  
San Francisco Bay

Dear Mr. Goldzband:

The California Coastal Commission (Commission) staff is providing the comments below for the San Francisco Bay Conservation and Development Commission (BCDC) to consider during its review of the above-referenced applications submitted by Jerico Products, Hanson Marine Operations, and Suisun Associates for 10 year permits to mine a total of 2.04 million cubic yards/year ( $y^3/yr.$ ) from the Central and Suisun Bays in San Francisco Bay. As discussed below, the Commission has a responsibility for review and comment on actions such as these, and on behalf of the Commission, the staff recommends:

1. Consideration of extraction limits that are more appropriate for an eroding coastal system that has limited sources of new sand;
2. Focusing extraction efforts to areas where sand transport has been identified as going into the Bay; and
3. Development of a robust monitoring program to improve characterization of the linkages between and effects of sand mining in SF Bay and erosion of SF Bar and Ocean Beach.

The activities require permits from the U.S. Army Corps of Engineers and are located outside the portion of the California coastal zone that is within the jurisdiction of the California Coastal Commission (Commission). Typically, under Section 307 (c)(3) of the federal Coastal Zone Management Act (16 USC § 1456 (c)(3)(B)), when federally permitted activities outside the Commission's jurisdiction would have "reasonably foreseeable effects on ... any coastal use or

resource,” the Commission has the opportunity to submit a request to the Office for Coastal Management (OCM) for permission to review the activity” (15 CFR § 930.53 and 930.54). If such permission is granted, the applicant for the federal license would need to submit a consistency certification directly to the Commission for its review.

However, under state law, the California Coastal Act proscribes an alternative review process for activities located outside the Commission’s jurisdiction but subject to BCDC’s jurisdiction. Because the sand mining activities would be located entirely within San Francisco Bay, and well east of the dividing line between our respective agencies’ jurisdictions (i. e., east of a line drawn from Point Bonita in Marin County to Point Lobos in San Francisco County), the alternative review process called out under Section 30330 of the Coastal Act applies, as follows:

*With respect to any project outside the coastal zone that may have a substantial effect on the resources within the jurisdiction of the San Francisco Bay Conservation and Development Commission, established pursuant to Title 7.2 (commencing with Section 66600) of the Government Code, and for which any certification is required pursuant to the Federal Coastal Zone Management Act of 1972 (16 U.S.C. 1451, et seq.), such certification shall be issued by the Bay Conservation and Development Commission; provided however, the commission may review and submit comments for any such project which affects resources within the coastal zone.*

Absent this Coastal Act provision, the Commission staff would have requested OCM permission to review the federally permitted sand mining proposals, based on the reasonable likelihood they would exacerbate shoreline erosion at Ocean Beach. Historically, the Commission staff has monitored federal agency notices for dams, sand mining, and other hydrological modifications with the potential to reduce sand transport to the coast. For sand mining proposals located inland of the coastal zone, the Commission staff has only agreed to refrain from requesting OCM permission to review the activities’ coastal effects in situations where sand mining proponents have, at the Commission staff’s request, provided sufficient evidence that the levels proposed would not cause or exacerbate shoreline erosion (in particular where existing structures are threatened, inducing the need for shoreline armoring). However, for sand mining in BCDC’s jurisdiction, under the above Coastal Act provision, in this case the Commission staff instead urges BCDC to limit its authorizations to mining levels that would similarly avoid exacerbating beach erosion in areas within the Commission’s jurisdiction.

The Commission staff’s primary concern over coastal resources within the Commission’s coastal zone is the potential for continued and increased levels of sand mining within the bay to increase erosion outside the bay, in particular, at southern Ocean Beach, a growing erosion “hot spot” that

involves major federal, state, and city efforts and expenditures to plan for inevitable shoreline retreat affecting major public transportation and sewage treatment infrastructure.<sup>1</sup> We are concerned the proposed sand mining in the Bay would reduce sand inputs to the San Francisco Bar (SF Bar), which both feeds sand to Ocean Beach and shelters the beach from the full force of large storm waves. The Commission staff has reviewed the materials provided on the BCDC and the State Lands Commission (SLC) websites concerning this issue. As BCDC's July 11, 2014 Sediment Transport and Sand Mining Background Report notes:

*The trend of overall sediment loss in San Francisco Bay, and sand loss in particular, has been well-documented by researchers. From 1959 to 2009, the total amount of sediment in San Francisco Bay fell by 190 million cubic yards.<sup>30</sup> From 1997 to 2008, the rate of sediment loss in Central Bay (3 centimeters per year across the Bay floor) was nearly three times higher than during the 1947-1979 period<sup>31</sup>; most of this erosion was from sandy areas. In sediments found at the mouth of the Bay, the percentage of sand decreased while the percentage of mud increased from 1997 to 2008.<sup>32</sup> Finally, a recent analysis of bedforms (underwater sand dune formations) found that they are shorter than would be predicted by local water currents and hydrodynamics, indicating that the system is erosional.<sup>33</sup>*

*From 1873 to 2005, the San Francisco Bar lost an average of 80 centimeters in elevation across its entire area, contracted in diameter, and migrated an average of 1 kilometer towards the shoreline.<sup>34</sup> This likely resulted from reduced tidal flows due to historic filling, diking, and sedimentation of the Bay, and from decreased amounts of sediment leaving the Bay as a result of hydrologic modifications upstream, mining, and dredging.<sup>35</sup> The erosion and contraction of the San Francisco Bar has effectively resulted in more sand being delivered to northern Ocean Beach, and less to southern Ocean Beach.<sup>36</sup> Additionally, modeling has demonstrated that changes to the Bar affect wave energy reaching the shoreline, with northern Ocean Beach being protected, and southern Ocean Beach being more exposed.<sup>37</sup> These changes help explain recent accretion at Baker Beach, Crissy Field, and northern Ocean Beach, and partially explain erosion at southern Ocean Beach.*

---

<sup>1</sup> City of San Francisco and federal government agencies spent roughly \$750,000 in 2012 and \$580,000 in 2014, on short-term erosion solutions (email communications, National Park Service, 1/12/15). San Francisco Planning & Urban Research Association (SPUR) planning documents projects hundreds of millions of dollars of public funds will be needed to implement a long-term management plan to address the erosion issues. These projections include approximately \$50 million to relocate the Great Highway, and approximately \$150 million for a combination of measures to restore the beaches in the area (with just over \$24 million alone for continued sand relocation from north Ocean Beach to south Ocean Beach).

[http://www.spur.org/sites/default/files/migrated/anchors/Ocean\\_Beach\\_Master\\_Plan052012.pdf](http://www.spur.org/sites/default/files/migrated/anchors/Ocean_Beach_Master_Plan052012.pdf)

*(Historically, the mean high tide line at Ocean Beach was landward of the Great Highway; the beach was artificially extended seaward in the early 1900s.<sup>38</sup>)*<sup>2</sup> [References repeated in footnote 2 below]

Based on the information in that background report, as well as the numerous USGS and other studies cited in it, the following dynamics stand out:

- historic sediment inputs into the bay have been vastly reduced (particularly compared with hydraulic mining eras (1850s-1920s));
- at least 200 million cubic meters (m<sup>3</sup>) of sediment lost from the San Francisco Bay Coastal System over the 50 year period between 1959 and 2009;<sup>3, 4</sup>
- approximately 85%-95% of sand outflows due to mining are not being replenished,
- erosion levels are greater over time in the mined areas compared to non-mined areas;
- flood control and other hydrological modifications implemented in the watershed during the latter half of the 20<sup>th</sup> century have significantly reduce the potential for major flood events to deliver major quantities of sand sized sediment to the bay and ocean; and
- not only has the height and areal extent of the SF Bar been reduced, but sand grain size at the SF Bar are also diminishing, further lessening its ability to protect the outer shoreline.

When these factors are combined with Sea Level Rise projected to occur over the remainder of the 21<sup>st</sup> century, there can be no question that Ocean Beach is not in an equilibrium state, that shoreline erosion will continue or accelerate, and that attempting to even simply maintain the

---

<sup>2</sup> 31 Ibid.; Theresa A. Fregoso, Amy C. Foxgrover, and Bruce E. Jaffe, *Sediment Deposition, Erosion, and Bathymetric Change in Central San Francisco Bay: 1855-1979* (U. S. Geological Survey, 2008).

<sup>32</sup> Patrick L. Barnard, Jeff E. Hansen, and Li H. Erikson, "Synthesis Study of an Erosion Hot Spot, Ocean Beach, California," *Journal of Coastal Research* 28, no. 4 (2012): 903-22.

<sup>33</sup> Patrick L. Barnard et al., "Sediment Transport Patterns in the San Francisco Bay Coastal System from Cross-Validation of Bedform Asymmetry and Modeled Residual Flux," *Marine Geology* 345 (2013): 72-95.

<sup>34</sup> Kate L. Dallas and Patrick L. Barnard, "Anthropogenic Influences on Shoreline and Nearshore Evolution in the San Francisco Bay Coastal System," *Estuarine, Coastal and Shelf Science* 92, no. 1 (2011): 195-204.

<sup>35</sup> K. L. Dallas and P. L. Barnard, "Linking Human Impacts within an Estuary to Ebb-Tidal Delta Evolution," *Journal of Coastal Research Special*, no. 56 (2009): 713-16.

<sup>36</sup> Jeff E. Hansen, Edwin Elias, and Patrick L. Barnard, "Changes in Surfzone Morphodynamics Driven by Multi-Decadal Contraction of a Large Ebb-Tidal Delta," *Marine Geology* 345 (2013): 221-34.

<sup>37</sup> Dallas and Barnard, "Anthropogenic Influences on Shoreline and Nearshore Evolution in the San Francisco Bay Coastal System."

<sup>38</sup> Patrick L. Barnard, Jeff E. Hansen, and Li H. Erikson, "Synthesis Study of an Erosion Hot Spot, Ocean Beach, California."

<sup>3</sup> Patrick L. Barnard et al., "Sediment Transport in the San Francisco Bay Coastal System: An Overview," *Marine Geology* 345 (2013): 3-14.

<sup>4</sup> One cubic meter = approx.. 1.3 cubic yards.

status quo will be a challenge. The dynamics of sediment in so large a region and watershed are complex, and putting the contributions from sand mining to the overall changes in transport system is an obviously difficult task.

In looking at the above trends, we find it difficult to rectify the evidence of long-term erosion throughout the San Francisco Bay system with the modeled conclusion cited in the SLC EIR that an additional 10 years of sand extraction at past permitted rates would reduce sand transport through the Golden Gate on the order of 5,000-7,000 y<sup>3</sup>/yr., and that significant impacts “are not likely to exist outside the immediate vicinity of the lease areas...”. The EIR’s technical report (EIR Appendix G - Coast and Harbor Engineering, Technical Report, Sand Mining Resource Evaluation and Impact Analysis, June 22, 2009) further states:

*Since the vast majority of the mined material has been accounted for immediately adjacent to the lease areas, it appears that sand mining in Central Bay is not likely to cause measurable sediment depletion in areas outside the mining areas, such as the San Francisco Bar, Ocean Beach or other areas.*

This analysis does not take into consideration any of the sediments entering the system from the surrounding small watersheds or any of the known in-bay transport of sediment from Ocean Beach. The net current velocities used in the model show none of the in-bay currents that are significant transport mechanisms for movement of sediments into the Bay. The examination of the mine area sediment budget has not included all the sediment sources, thus likely underestimating the difference between identified sediment losses and losses from mining activity, as well as the general impacts that could be attributed to the larger Bay-Bar system from mining activities.

Of more significance is that the SF Bar has developed through normal bay-shoal dynamics. One validation of the model’s ability to predict impacts to the San Francisco Bar from existing mining or from changes to mining amounts would be its ability to recreate historic changes to the SF Bar from historic changes in sediment supplies and hydrodynamic conditions. However, the model used to determine that mining will have minimal impacts on the sediment supply to SF Bar has not been tested to replicate the changes to the Bar that have been observed recently, and it is not clear whether all the sources of sediment into the Central Bay were included in the sediment budget.

While the technical report’s conclusion was based on numerical modeling studies, it may not adequately reflect long-term, and extremely complex, dynamics. If physical studies (such as tracer studies) were to be designed to confirm or refine these estimates, we might consider the estimates more reliable. Even if they were, however, the long terms trends (reduced sediment inputs, reduced grain size, greater coastal erosion and Sea Level Rise) are likely to render them meaningless.

As noted earlier, the City of San Francisco and the Federal Government have made major commitments of time, staff and financial resources to reduce or stem erosion at Ocean Beach and protect the vital infrastructure that is now or will soon be threatened by on-going erosion. Given the uncertainties as to the precise transport mechanisms for sediment transport from the lease areas

to the open ocean coast, we would disagree with any public policy decision that attempts to maximize private industry profits in the face of such extensive public expenditures to grapple with the outer coast erosion issues. An appropriate response would be to limit mining to sustainable amounts (considering natural replenishment), at least until such time that additional confirmation of its impacts can be further documented.

Knowledge of sediment dynamics and the linkages between sediments in San Francisco Bay and sediments on SF Bar and in the Ocean Beach littoral cell has increased significantly since sand mining activities started in the Bay. Public policy needs to consider new science as it develops and not perpetuate activities that result in major avoidable impacts to critical public resources.

Accordingly, given the evidence that mined areas are not being replenished (with only 5-15% replenishment of mined sand quantities), we recommend limiting permitted amounts to 15% of historic mining levels (the upper estimate of the replenishment value), at least until such time as the sediment transport mechanism can be further studied to provide assurances that the mining is limited to sustainable levels.

With 2.24 million  $y^3/yr.$  representing past maximum permitted levels, such an approach would bring permitted levels down to about 335,000  $y^3/yr.$ , which is close to the range of the amounts mined over the last 5 year period (averaging approximately 400,000  $y^3/yr.$  from 2009 through 2013, according to tables supplied by BCDC, and which thus may also represent current market conditions). We would also point out that the longer the mining levels can remain at levels similar to sand inputs, the longer the economic benefits accruing from the mining can continue into the future.

We also recommend that BCDC seriously consider the suggestions made by USGS that mining activities focus in areas of bayward-directed sediment transport. USGS suggested:

*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. Similarly, navigational dredging practices could be more efficiently managed by placing spoils along pathways that will keep sediment in the estuarine-coastal system, but not along convergent pathways that might lead to additional navigational hazards.*

Unless BCDC determines that the localized biological implications of implementing this approach are unacceptable, it would appear from a purely sediment supply perspective that focusing mining efforts on areas where they would have a more delayed effect on transport to the open ocean could reduce (or at least delay) adverse effects on ocean beach sediment supply.

Finally, while the scientific understanding of the Bay-Ocean sediment dynamics has clearly advanced since the start of sand mining, uncertainties remain about the detailed connections between sand extraction from the Bay and sand depletion from the outer coast. We recommend the development of a peer-reviewed, scientifically defensible monitoring program designed to better clarify:

- Sediment transport rates, volumes and pathways within SF Bay and between the Bay and SF Bar and Ocean Beach;
- Major drivers for transport from the Bay to the ocean coast, such as episodic flood events, storm waves, or tidal currents;
- Threshold levels of sediment transport from the Bay to sustain SF Bar in its current configuration; and
- Mining locations and volumes that support the identified thresholds.

Toward this end, we recommend that BCDC require, as part of its permit action, that the applicants develop and implement a detailed sediment monitoring program, designed to advance understanding of these four identified concerns. The monitoring plan should include seasonal and annual bathymetric surveys of the mined areas and SF Bar, seasonal and annual tracer studies undertaken in conjunction with current and turbidity measurements at the mined areas, and grab samples of sediment from the mined areas and SF Bar. The monitoring plan should identify the monitoring efforts, expertise necessary to undertake each study, timing for studies, and methods for public dissemination of studies results on an annual or more frequent basis.

We recommend the applicants also fund an expert panel that reports to BCDC's Engineering Criteria Review Board, that will review and approve the monitoring plan and review and provide feedback on all monitoring results and reports, and that serves for the duration of the permit or until such time that the panel can assert that no further understanding of the Bay-Ocean sediment dynamics is possible or necessary to establish appropriate long-term sand excavation locations and volumes.

CCC letter to BCDC  
SF Bay Sand Mining  
January 23, 2015  
Page 8

In conclusion, we recommend serious consideration of: (1) limiting mining volumes; (2) focusing mining to areas where sand transport has been identified to be moving bayward, rather than towards the open ocean; and (3) monitoring transport within the Bay-Ocean system. We appreciate the opportunity to comment on this important public policy matter. Please do not hesitate to contact me at (415) 904-5289 or Dr. Lesley Ewing, Senior Coastal Engineer, at (415) 904-5291, with any questions you might have.

Sincerely,



MARK DELAPLAINE  
Manager, Energy, Ocean Resources,  
and Federal Consistency Division

DR. LESLEY EWING, Ph.D., PE  
Senior Coastal Engineer

cc: North Central District Office  
U.S. Army Corps of Engineers, S.F. District (Sahrye Cohen)



# Napa-Solano Counties BUILDING AND CONSTRUCTION TRADES COUNCIL

AFFILIATED WITH  
AFL-CIO  
CALIFORNIA LABOR FEDERATION, AFL-CIO  
BUILDING TRADES DEPARTMENT, WASHINGTON, D.C.  
STATE BUILDING & CONSTRUCTION TRADES COUNCIL



PHONE (707) 426-6454  
FAX (707) 426-6419  
2540 N. WATNEY WAY  
FAIRFIELD, CALIFORNIA 94533-6732

January 15, 2015

San Francisco Bay Conservation and Development Commission  
455 Golden Gate Ave., Ste. 10600  
San Francisco, CA 94102-7019

RECEIVED  
JAN 15 2015  
SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

Dear Chair Wasserman and Commissioners:

On behalf of the Napa-Solano Building and Construction Trades Council and the thirty trade unions that we represent with over 10,000 Building Trades men and women. I write to express our strong support for the Lehigh Hanson sand harvesting application currently under review by the Commission.

This sand is a critical component for our local economy. It is used in thousands of construction activities/projects throughout the greater San Francisco Bay Area. The list of new or restorative projects that rely on this sand, whether private development, public works or even environmental restoration, is numerous.

To mention just a few benefits, locally harvested sand reduces project costs. It keeps our environment cleaner as it minimizes the need to ship or truck sand from faraway places. These operations sustain a middle class workforce that makes the bay area an affordable area for our members to live and raise a family.

This sand is a critical and very much needed public benefit. The demand for this sand, and the construction products that are created with this sand, will not change. But changing the source of this sand will have a negative impact on jobs, the environment and the local economy.

An Environmental Impact Report (EIR) has been completed and certified by the California Lands Commission on a 3-0 vote (Lt. Governor Newsom, Controller Chaing, and the Department of Finance Director). The EIR demonstrated that a majority of the potential environmental impacts were less than significant and for those that were significant, they will be fully mitigated.

We respectfully urge that you approve the application from Lehigh Hanson for continued sand harvesting in the Bay.

Sincerely,

Ben Espinoza  
President

BE:brm



2001 Gateway Place, Suite 101E  
(408)501-7864 svlg.org

CARL GUARDINO  
President & CEO

**Board Officers:**  
STEVE BERGLUND, Chair  
Trimble Navigation  
GREG BECKER, Vice Chair  
SVB Financial Group  
JOHN ADAMS, Secretary/Treasurer  
Wells Fargo Bank  
TOM WERNER, Former Chair  
SunPower  
AART DE GEUS, Former Chair  
Synopsis  
MIKE SPLINTER, Former Chair  
Applied Materials

**Board Members:**  
MARTIN ANSTICE  
Lam Research  
SHELLY ARCHAMBEAU  
MetricStream, Inc.  
ANDY BALL  
Suffolk Construction  
GEORGE BLUMENTHAL  
University of California, Santa Cruz  
JOHN BOLAND  
KQED

CHRIS BOYD  
Kaiser Permanente  
BRADLEY J. BULLINGTON  
Bridgelux  
DAVID CUSH  
Virgin America  
CLAUDE DARTIGUELONGUE

BD Biosciences  
MICHAEL ENGH, S.J.  
Santa Clara University  
TOM FALLON  
Infinaer Corporation  
BRANT FISH  
Chevron Corporation  
HENRY FORE  
Comcast  
KEN GOLDMAN  
Yahoo!

RAQUEL GONZALEZ  
Bank of America  
DOUG GRAHAM  
Lockheed Martin Space Systems  
LAURA GUIO  
IBM

KEN KANNAPPAN  
Plantronics  
GARY LAUER  
eHealth

ENRIQUE LORES  
HP

MATT MAHAN  
Brigade

TARKAN MANER  
Nexenta

KEN MCNEELY  
AT&T

KEVIN MURAI  
Synnex

JES PEDERSON  
Webcor

KIM POLESE  
ClearStreet

MO OAYOUMI  
San Jose State University

VIVEK RANADIVÉ  
TIBCO

STEVEN ROSSI  
Bay Area News Group

ALAN SALZMAN  
VantagePoint Capital Partners

RON SEGE  
Echelon Corporation

ROSEMARY TURNER  
UPS

RICK WALLACE  
KLA-Tencor

DAN WARMENHOVEN  
NetApp, Inc.

JED YORK  
San Francisco 49ers

Established in 1978 by  
DAVID PACKARD

January 19, 2015

San Francisco Bay Conservation and Development Commission (BCDC)  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102

RE: Support for Hanson/Lind Marine Sand Harvesting Application

Dear Chairman Wasserman and Commission Members,

The Silicon Valley Leadership Group is pleased to express support for the Lehigh Hanson/Lind Marine Inc. sand harvesting application currently under review by the Commission. As you know, commercial sand mining has occurred within the San Francisco Bay for more the 70 years. Hanson/Lind Marine Inc. currently uses sand from the San Francisco Bay and the western Bay Delta estuary on land leased primarily from the California State Lands Commission.

The Hanson/Lind Marine sand is used for construction activities throughout the greater San Francisco Bay Area and as a local resource helps lowers public and private construction costs. Alternatives will significantly impact greenhouse gas emissions in the region. It is critical to the Bay Area economy and the environment that BCDC continue to allow this local sand harvesting at the historic levels requested in the permit application.

In 2012, California State Lands Commission (CSLC) approved an Environmental Impact Report (EIR) for their San Francisco Bay and Delta Sand Mining Project. The CLSC'S EIR concluded that with the imposition of mitigation measures, all environmental impacts would be reduced to less than significant. In fact, the project is projected to reduce 4.7 million miles of truck traffic on Bay Area roads every year, resulting in greenhouse gas emissions 45 times lower than those associated with the evaluated "no project alternative."<sup>1</sup>

Shipping sand from remote locations for these purposes will only exacerbate the environmental challenges, dramatically increase costs and have a negative impact on local efforts to get ahead of these challenges. Additionally, sand harvested from the Bay is used in Bay Area residential and commercial buildings, road and freeway construction, and in other types environmental restoration.

In summary, we respectfully request BCDC approve the Lehigh Hanson/Lind Marine Inc. sand harvesting permit at the historic levels previously approved by the Commission.

Thank you for considering our request and for your leadership on this issue. Please let us know if we can provide any additional information.

Sincerely,

Carl Guardino  
President and CEO  
Silicon Valley Leadership Group

<sup>1</sup> "No Project" alternative means sand will be imported from other areas of the state, country and Canada; Source: Air Quality Technical Appendix: In support of an Environmental Assessment of the Hanson Jerico Sand Mining Operations in the SF Bay Area, for the US Army Corps of Engineers under the National Environmental Policy Act ENVIRON International Corporation, San Francisco, California: December 9, 2013



THE INDUSTRIAL ASSOCIATION  
OF CONTRA COSTA COUNTY

January 14,2015

San Francisco Bay Conservation and Development Commission (BCDC)  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102-7019

Dear Chairman Wasserman and Commission Members:

On behalf of the member companies of the Industrial Association of Contra Costa County, I am also writing to express our support for the Lehigh Hanson/Lind Marine Inc, sand-harvesting application currently under review by the Commission. Commercial sand mining has occurred in the Bay-Delta since the 1930's more than 70 years.

This method is a critical component for our local economy and environment. It is used for construction activities throughout the San Francisco Bay Area from ready-mix, hot mix asphalt, in construction and maintenance of our highway and freeway systems and residential construction.

Any alternate would have a major impact on our environment. If shipped from elsewhere it would have a major impact on greenhouse gas emissions (GHG) in the Bay Area by the way of increased shipping and truck emissions. In addition, increased emissions would disproportionately impact environmental justice (EJ) communities throughout the Bay Area.

In summary, this process is critical to the Bay Area economy (jobs) and the environment and that we urge BCDC to approve the volumes requested by Lehigh Hanson/Lind Marine Inc sand-harvesting permit at 2.04 million cubic yards annually.

Sincerely,

Jack Bean  
Executive Officer



# SAN MATEO COUNTY BUILDING & CONSTRUCTION TRADES COUNCIL

1153 Chess Drive #206 • Foster City, CA 94404 • Tel. (650) 358-9977 • Fax (650) 358-9979

December 8, 2014



San Francisco Bay Conservation and Development Commission (BCDC)  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102-7019

Dear Chair Wasserman and Commissioners:

On behalf of the 14,000 men and women of the San Mateo County Building and Construction Trades Council, I am writing to express our strong support for the Lehigh Hanson Sand Harvesting application currently under review by the Commission.

This sand is a critical component for our local economy. It is used in thousands of construction activities/projects throughout the greater San Francisco Bay Area. The list of new or restorative projects that rely on this sand – whether private development, public works or even environmental restoration - is numerous.

To mention just a few benefits - locally harvested sand reduces project costs. It keeps our environment cleaner as it minimizes the need to ship or truck sand from faraway places. These operations sustain a middle class workforce that makes the bay area an affordable area for our members to live and raise a family.

This sand is a critical and very much needed public benefit. The demand for this sand, and the construction products that are created with this sand, will not change. But changing the source of this sand will have a negative impact on jobs, the environment and the local economy.

An Environmental Impact Report (EIR) has been completed and certified by the California Lands Commission on a 3-0 vote (Lt Governor Newsom, Controller Chaing, and the Department of Finance Director). The EIR demonstrated that a majority of the potential environmental impacts were less than significant and for those that were significant, they will be fully mitigated.

We respectfully urge that you approve the application from Lehigh Hanson for continued sand harvesting in the Bay.

Sincerely,

William Nack  
Business Manager



December 16, 2014

Mr. Lawrence Goldzband, Executive Director  
San Francisco Bay Conservation and Development Commission (BCDC)  
455 Golden Gate Avenue, Suite 10600  
San Francisco, CA 94102-7019

Via electronic mail to [grace.gomez@bcdc.ca.gov](mailto:grace.gomez@bcdc.ca.gov)

RE: Sand Mining Permit Applications

Dear Mr. Goldzband and Commissioners:

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 respectfully submit these comments for consideration by staff and Commissioners, in advance of future hearings related to permit applications received from Hanson Marine Operations, Jerico Products, and Suisun Associates, for rights to increase commercial sand extraction from San Francisco Bay and Suisun Bay for at least ten more years. The vast majority of sand mined from the Bay over the past several decades has not been replenished, resulting in a permanent loss of sediment with far-reaching, irreversible effects on San Francisco's coastline. Nevertheless, the permit applications before the Commission allow mining to *increase* significantly, compared against recent extraction rates, and accelerate the exhaustion of non-renewable mineral resources in San Francisco Bay. To lessen these effects, Baykeeper recommends that the Commission revise the proposed extraction rate to be equal to the average extraction rate by these companies over the last 10 years. The 2005-2014 average reflects both peaks and troughs of mining intensity, and therefore fairly captures likely conditions over the next permit cycle.

Applicants argue that, notwithstanding the project's impacts to sediment supply and coastal erosion, the project should be approved because it provides great benefit to the construction industry and economic growth of the region.<sup>1</sup> However, the most recent two years have been marked by significant construction activity and yet local sand demand has remained low. Even more importantly, the simple fact that these interrelated companies maintain a near monopoly on sand extraction in the region does not automatically give them superseding importance over the serious environmental concerns at stake. The Commission, for example, did not permit Google to maintain a mobile data center afloat in San Francisco Bay, despite the widespread use of Google and its central importance to the technology economy of the Bay Area. The Bay Plan's authority over projects with substantial public benefit should be interpreted traditionally, to support projects with a truly public purpose, such as restoration, or aids to navigation; it is not enough to privatize a public resource for the production of a widely used commercial product.

---

<sup>1</sup> Letter from John Briscoe to Larry Goldzband, July 2, 2014, p. 3.

I. BCDC Should Incorporate Minimization Measures and Other Revisions into Any Sand Mining Permit Approvals.

As discussed below, the Bay Plan’s Tidal, Subtidal, and Climate Change policies all dictate that any approval of these permit applications should be heavily conditioned to lessen the burden that mining continues to place on the Bay and surrounding beaches. The Bay Plan repeatedly states that sediment decline in the Bay is an ever-worsening problem, with significant implications for coastal erosion, sandy habitats, recreational uses, and sea level rise vulnerability. The Bay Plan therefore provides strong policies that promote sustainable and balanced management of Bay resources.

The State Lands Commission’s EIR for the proposed project openly admits that sand mining has occurred and is occurring at unsustainable extraction rates, and that the proposed project would increase mineral extraction over the next ten years. Historic mining data supports this assertion (*Appendix 1, Historic Mining Volumes versus Proposed Permit Volumes*). This approach is simply contrary to the Bay Plan, which requires that the Bay’s sandy floor, tidal flats, and beaches be conserved, and impacts minimized. At a minimum, therefore, the Commission should require the mining companies’ unsustainable extraction rates to be lessened, rather than increased.

The EIR’s environmentally superior alternative provides a step in this direction, proposing that extraction rates not be increased:

*This alternative would reduce permitted annual mining volumes in all of the lease areas to a level equivalent to current baseline mining volumes (i.e., the 2002 to 2007 average mined at each Project parcel). The total amount of material mined would be 1,346,267 cy/yr, which is approximately 694,000 cubic yards less than is proposed under the Project. It is slightly less than the baseline volume assumed for the Project analysis because one of the Central Bay parcels mined during the baseline period is not proposed to be mined as part of the Project. (EIR at 3-15.)*

The EIR found this alternative to be feasible but did not evaluate the feasibility of further reducing extraction rates to below the unsustainable levels represented by the 2002 to 2007 average. An even more reasonable extraction rate, serving to lessen environmental impacts consistent with Bay Plan policies, while remaining consistent with the mining companies’ historic business operations, could be based off of the most recent 10-year average (2005 to 2014), which includes roughly equal periods of intense mining activity, decline, and moderate use intensity.

Table 1. Sand Mining Volumes for Project Alternatives and 5/10-yr Average Extraction Volumes (cy/yr)<sup>2</sup>

| Lease Areas | Proposed Project | Reduced Project Alternative | 2008-2014 Annual Average (5-years) | 2005-2014 Annual Average (10-years) |
|-------------|------------------|-----------------------------|------------------------------------|-------------------------------------|
| Central Bay | 1,540,000        | 1,060,656                   | 303,578                            | 628,575                             |
| Suisun Bay  | 500,000          | 285,612                     | 101,045                            | 177,915                             |
| Total       | 2,040,000        | 1,346,267                   | 404,623                            | 806,490                             |

<sup>2</sup> Based on data provided by BCDC. Extraction rate for 2014 scaled from Q1 and Q2 data. Refer to Appendix 1 for more details.

As shown above and in Appendix 1, since 2008 mining activity has decreased significantly, based on reduced local demand and increased imports, even as construction has increased. Importantly, analysis by the United States Geological Survey (“USGS”) of a 2014 bathymetric survey requested by BCDC staff states in-Bay erosion was *reversed* between 2008 and 2014, suggesting sand extraction during this period more closely approximated sand contributions to the area. During this five year period, annual extraction for all lease areas averaged 404,623 cy/yr, or 20% of the proposed extraction rate. Accretion, or build-up, of the Bay floor was observed in the vicinity of lease areas, though 79% more accretion was observed outside the lease areas. It was beyond the scope of the survey to determine causality of the accretion, though the 2008-2014 accretion rate, calculated at 0.8 million m<sup>3</sup>/yr, “stands in contrast to the change detected from 1997 to 2008,” which indicated erosion from throughout the study area of 1.3 million m<sup>3</sup>/yr.<sup>3,4</sup> As shown in the Appendix 1 figures, 1997 to 2008 coincides with an era of peak extraction intensity over the last 40 years.

In conjunction with a reduced extraction rate set at the most recent 10-year average, we urge the Commission to require further a tracer study to track transport of sand from within the lease areas to areas along the outer coast, as well as a requirement to fund bathymetric surveys in lease areas every 5-years to detect change and permit appropriate management. Lastly, we request that the proposed permit terms be reduced from 10 years to 5, to allow for appropriate permit revisions or other adaptive management strategies based on the results of these required studies.

## **II. Historic and Emerging Science Show a Conclusive Connection Between Sand Mining and Coastal Erosion.**

Historic sand mining in San Francisco Bay has already contributed to permanent sediment loss throughout the Bay and coastal systems, which would accelerate under the proposed permit terms. Studies show that during the 20th century, over 200 million cubic meters of sediment was directly removed from the San Francisco Bay Coastal System through dredging, aggregate mining, and borrow pit mining, including at least 54 million cubic meters of sand-sized or coarser sediment from Central Bay.<sup>5,6</sup> During this time, over 150 million cubic meters of sediment loss was measured from the sand-dominated substrates of Central Bay, the Golden Gate, and ebb tidal delta.<sup>7,8,9</sup>

An applicant-sponsored study conducted by Coast & Harbor Engineering (“CHE”) estimated approximately 11.6 million cubic yards, or 8.9 million cubic meters, of sediment were lost from the

---

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

<sup>4</sup> Report: Bathymetric change analysis for west-central Bay and Suisun Bay, 2008-2014. 2014. Data analysis performed by Patrick Barnard, USGS, Pacific Coastal and Marine Science Center, Santa Cruz, CA. Multibeam data collected and processed by Rick Kvittek and Pat Iampietro, CSU Monterey Bay, Sea Floor Mapping Lab, Seaside, CA

<sup>5</sup> Dallas, K. L. & Barnard, P. L., 2009. Linking human impacts within an estuary to ebb-tidal delta evolution.. *Journal of Coastal Research*, Volume 56, pp. 713-716.

<sup>6</sup> Dallas, K. L. & Barnard, P. L., 2011. Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system. *Estuarine, Coastal and Shelf Science*, Volume 92, pp. 195-204.

<sup>7</sup> Hanes, D. M. & Barnard, P. L., 2007. Morphological evolution on the San Francisco Bight. *Journal of Coastal Research Special Issue*, Issue 50, pp. 469-473.

<sup>8</sup> Fregoso, T. A., Foxgrover, A. C. & Jaffe, B. A., 2008. Sediment deposition, erosion, and bathymetric change in central San Francisco Bay: 1855-1979, s.l.: U.S. Geological Survey Open-File Report 2008-1312 (46 pp.).

<sup>9</sup> Barnard, P. L. & Kvittek, R. G., 2010. Anthropogenic influence on recent bathymetric change in west-central San Francisco Bay.. *San Francisco Estuary and Watershed Science*, 8(3).

Central Bay sand mining lease areas between 1997 and 2008, an amount roughly equivalent to the reported volume of sand mined in these areas over this same time period. A “clear correlation appears between areas with measured erosion and the locations of mining events.” The CHE study further found that “the vast majority of sediment mined from the Central Bay lease areas during the past decade has not been replenished through natural processes,” estimating a permanent loss of between 85-95% of the sand mined.

Peer-reviewed research by the USGS indicates an even higher amount of sediment loss: 14.1 million cubic meters lost between 1997 and 2008, representing an approximately three-fold acceleration of the rate observed from 1947 to 1979 in the Central Bay.<sup>10</sup> More recent science thoroughly documented in a special edition of *Marine Geology*, with featured findings appearing in Appendix 2 of this letter, established a “causal link” between sand removal in the Bay with “both the widespread erosion of the ebb tidal delta and extensive erosion of the adjacent south coast shoreline”.<sup>11</sup> Impacts of this erosion are visible along San Francisco’s Ocean Beach, forcing San Francisco and coastal management agencies to spend considerable time and money towards protection of sewerage and transportation infrastructure from eroding beaches, bluffs and roadways.

The permit applicants argue that their relative contribution to coastal erosion is smaller than many other contributing factors. But this ratio comparison fails to acknowledge that the more compromised the affected environment is, the lower the threshold for a new project’s impacts to be problematic. Accordingly, such an overall comparison provides no meaningful information at all, and should not be considered. (See, e.g., *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692,721; *CBE v. California Resources Agency* (2002) 103 Cal.App.4th 98, 120.) This principle against the ratio approach is further supported in the Bay Plan, as discussed below.

### III. BCDC’s Authorities and Mandates Allow and Require BCDC to Impose Project Modifications to Conserve Bay and Coastal Resources.

#### A. The McAteer-Petris Act Gives BCDC Authority to Determine Whether and How to Approve a Project.

The McAteer-Petris Act requires any person wishing to extract materials from the Bay floor to first obtain a permit from BCDC, and provides that BCDC may approve such a project permit only if the nature of the proposed activities are consistent with the Bay Plan then in effect. (Government Code § 66632.) The Act further provides that, “[t]o effectuate those purposes, the commission may grant a permit subject to reasonable terms and conditions including the uses of land or structures, intensity of uses, construction methods and methods for dredging or placing of fill.” (Government Code § 66632(f).)

A review of applicable Bay Plan findings and policies, below, clearly demonstrates that the proposed permits’ use intensity must be reduced to achieve any semblance of consistency with the Bay Plan.

---

<sup>10</sup> Barnard, P. L. & Kvittek, R. G., 2010. Anthropogenic influence on recent bathymetric change in west-central San Francisco Bay. *San Francisco Estuary and Watershed Science*, 8(3).

<sup>11</sup> Hein, J. R., Mizell, K. & Barnard, P. L., 2013. Sand sources and transport pathways for the San Francisco Bay coastal system, based on X-ray diffraction mineralogy. *Marine Geology*, 345, 154-169.

1. *The Bay Plan's Tidal Lands Policies Directly Bear upon the Sand Mining Permit Applications.*

Sand Mining from the Bay has caused, and, as proposed, would increase, the loss of sediment available for shoreline beach replenishment. The Bay Plan recognizes this problem in two findings describing the importance of tidal flats, which the Plan defines as follows:

*Tidal flats occur from the elevation of the lowest tides to approximately Mean Sea Level and include . . . sandflats . . . Historically, around 50,000 acres of tidal flats occurred around the margins of the Bay; approximately 29,000 acres remain—a reduction of over 40 percent. (Finding H.)*

It is against this backdrop of already having lost 40% of tidal flats that the Commission must consider this project. The continued, unsustainable extraction of sand from the Bay will only increase losses of sandy tidal areas. As the Bay Plan describes:

*Sedimentation is an essential factor in the creation, maintenance and growth of . . . tidal flat habitat. Scientists studying the Bay have observed that the volume of sediment entering the Bay annually from the Sacramento and San Joaquin Delta is declining. . . . As sea level rise accelerates, the erosion of tidal flats may also accelerate, thus potentially exacerbating shoreline erosion and adversely affecting the ecosystem and the sustainability of ecosystem restoration projects. An adequate supply of sediment is necessary to ensure resilience of the Bay ecosystem as sea level rise accelerates. (Finding L.)*

*Buffers are areas established adjacent to a habitat to reduce the adverse impacts of surrounding land use and activities. Buffers also minimize additional loss of habitat from shoreline erosion resulting from accelerated sea level rise and allow tidal habitats to move landward. . . . (Finding N.)*

These findings raise particular concern for the proposed sand mining permits that would further decrease the available sediment to maintain tidal flats and buffer zones in tidal areas, increasing erosion and, as a result, vulnerability to sea level rise. Accordingly, the Bay Plan sets forth three protective policies:

*Tidal marshes and tidal flats should<sup>12</sup> be conserved to the fullest possible extent . . . [P]rojects that would substantially harm tidal marshes or tidal flats should be allowed only for purposes that provide substantial public benefits and only if there is no feasible alternative. (Policy 1.)*

Note here that the Plan goes beyond requiring avoidance or mitigation where feasible, and instead uses the strongest possible mandate, “to the fullest possible extent.” Further, the Oxford English Dictionary defines “conserve” to mean, “to preserve or keep; to maintain in a continuous existence.” Again, because the permittees’ privatization of a public resource for production of a widely-used commercial product does not rise to the level of a substantial public benefit, the Bay Plan requires that sand mining essentially have no impact to tidal flats.

---

12 According to the Bay Plan, all use of the word “should is mandatory.”

In addition, the Bay Plan requires that:

*Projects should be sited and designed to avoid, or if avoidance is infeasible, minimize adverse impacts on any transition zone present between tidal and upland habitats. (Policy 3.)*

Here, the Bay Plan allows for some level of impact to transition zones between the tidal zone and upland habitat, but still requires that these impacts be avoided if feasible, and if not, at least minimized. In this way, the Bay Plan requires BCDC to implement minimization measures that may not have been included in the CEQA process prior (discussed further, below), as CEQA requires the implementation of feasible mitigation measures and alternatives to reduce or avoid project impacts to below the stated CEQA threshold of significance, while the Bay Plan goes further by requiring all minimization measures be implemented.

Lastly, the Bay Plan requires further study of ongoing impacts to sediment supply and transport:

*The Commission should support comprehensive Bay sediment research and monitoring to understand sediment processes necessary to sustain and restore wetlands. Monitoring methods should be updated periodically based on current scientific information. (Policy 5.)*

Here, the Bay Plan allows the Commission to require further study as a condition of project approval.

*2. The Bay Plan's Subtidal Lands Policies Directly Bear upon the Sand Mining Permit Applications.*

The Bay Plan's subtidal lands policies echo many of the same concerns as its policies protecting tidal reaches, with a focus instead on changes to the Bay floor itself:

*The Bay is a dynamic ecosystem influenced by natural processes on tidal and seasonal scales, as well as by events that occur annually or on longer-term scales. The depth and shape of the Bay (its bathymetry) is at any moment the result of the interacting forces of erosion and deposition of sediment. This natural balance has changed during the past 150 years due to such human actions as hydraulic mining . . . and dredging, all of which have significantly altered the Bay's historic sedimentary processes. (Finding G.)*

*Furthermore, the value of a particular subtidal area to a species is influenced by the Bay's physical characteristics (including sediment type, depth, salinity, temperature and currents), by process (such as sediment movement, sand replenishment, wind and wave action, erosion and deposition) . . . (Finding H.)*

Building on these findings, the Bay Plan contains three policies pertinent here:

*Any proposed . . . dredging project in a subtidal area should be thoroughly evaluated to determine the local and Bay-wide effects of the project on: . . . (b) tidal hydrology and sediment movement; (c) fish, other aquatic organisms and wildlife; (d) aquatic plants; and (e) the Bay's bathymetry. Projects in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects. (Policy 1.)*

This policy calls into question not only the effects sand mining will have in the immediate vicinity of any mining operation, but also examines the broader effects on sediment movement throughout the Bay and outer coast. Again, harmful effects must be avoided altogether if feasible; and at a minimum, must be minimized.

Similarly, the Bay Plan requires that:

*Subtidal areas that are scarce in the Bay or have an abundance and diversity of fish, other aquatic organisms and wildlife (e.g., eelgrass beds, sandy deep water or underwater pinnacles) should be conserved. Filling, changes in use, and dredging projects in these areas should therefore be allowed only if: (a) there is no feasible alternative; and (b) the project provides substantial public benefits. (Policy 2.)*

Approximately 8% of the Bay floor is comprised of sandy shoals, and the amount of sand available for both habitat and mineral resource use has steadily decreased; the impacted resources should therefore certainly qualify as scarce. To “conserve” means to protect, or to maintain, but the proposed project would increase an already-unsustainable sand mining extraction rate. Therefore, at a minimum, the use intensity of the proposed permits should be decreased to begin to achieve consistency with this policy.

Lastly, again, the Bay Plan requires the Commission to obtain further expansion of scientific information on the Bay’s subtidal areas, including:

*(a) inventory and description of the Bay’s subtidal areas; (b) the relationship between the Bay’s physical regime and biological populations; (c) sediment dynamics, including sand transport, and wind and wave effects on sediment movement; (d) areas of the Bay used for spawning, birthing, nesting, resting, feeding, migration, among others, by fish, other aquatic organisms and wildlife; and (e) where and how restoration should occur. (Policy 5.)*

The EIR studies, supported by the permit applicants, were too temporally and spatially limited to inform the Commission the extent to which these Bay Plan policies may or may not be satisfied. In the face of such incomplete information, permit applicants may attempt to deride any Commission approach that would exercise caution as governed by a “paralyzing principle,” but such is not the case.<sup>13</sup> Policy 5 requires the further study of unknown or under-studied Bay sandy habitats, to support informed agency decision-making.

### *3. The Bay Plan’s Climate Change Policies Directly Bear upon the Sand Mining Permit Applications.*

Last but certainly not least, the further loss of sediment along shoreline beaches will increase vulnerability to sea level rise. Permit applicants turn this fact on its head, and argue that provision of sand will support local construction projects engineered to help defend the region from the impacts of rising seas.<sup>14</sup> A review of Bay Plan findings shows that the Commission has adopted the opposite approach, favoring, instead, to support natural systems as sustainable adaptation measures.

---

<sup>13</sup> Letter from John Briscoe to Larry Goldzband, July 2, 2014, “The ‘precautionary’ or ‘paralyzing principle.’”

<sup>14</sup> Memorandum from Christine Bordreau, et al. to Brenda Goeden, et al., July 14, 2014, p. 3.

*Natural systems and human communities are considered to be resilient when they can absorb and rebound from the impacts of weather extremes or climate change and continue functioning without substantial outside assistance. Systems that are currently under stress often have lower adaptive capacity and may be more vulnerable or susceptible to harm from climate change impacts. . . . (Finding F.)*

*Adaptation actions that protect existing development and infrastructure can include protecting shorelines . . . (Finding G.)*

*[B]eaches . . . are particularly vulnerable to flooding from sea level rise and storm activity . . . Flooding of, or damage to these areas would adversely affect the region's quality of life, if important public spaces and recreational opportunities are lost. (Finding I.)*

*The principle of sustainability embodies values of equity, environmental and public health protection, economic vitality and safety. The goal of sustainability is to conduct human endeavors in a manner that will avoid depleting natural resources for future generations and producing no more than can be assimilated through natural processes, while providing for improvement of the human condition for all the people of the world. Efforts to improve the sustainability of natural systems and human communities can improve their resilience to climate change by increasing their adaptive capacity. (Finding J.)*

The EIR for the proposed project fully admits that historic sand mining extraction rates have been unsustainable, and that proposed future sand extraction rates are increased from those of the past. This approach flies in the face of the Bay Plan's Climate Change Findings F through J. Coastal resilience is already under severe stress, a condition the proposed permits would only worsen. The Bay Plan therefore provides several requirements. First, Policy 1(a) provides that the Bay Plan's Climate Change findings and policies apply to projects within San Francisco Bay, which obviously include the proposed mining permits. The Bay Plan then requires that:

*To address the regional adverse impacts of climate change, undeveloped areas that are both vulnerable to future flooding and currently sustain significant habitats or species, or possess conditions that make the areas especially suitable for ecosystem enhancement, should be given special consideration for preservation and habitat enhancement and should be encouraged to be used for those purposes. (Policy 4.)*

*[A]dvance regional public safety and economic prosperity by protecting: . . . (iii) infrastructure that is crucial to public health or the region's economy, such as airports, ports, regional transportation, wastewater treatment facilities, major parks, recreational areas and trails. (Policy 7.)*

The proposed project's impact of increasing Ocean Beach erosion, for example, directly implicates these policy requirements. Rates of coastal erosion along the outer coast south of the Golden Gate are the highest for the entire coast of California and have accelerated by 50% between Ocean Beach and Pt. San

Pedro since the 1980s, coinciding with intense sand mining activities in the Bay.<sup>15,16,17</sup> As a result, critical infrastructure, including San Francisco's Great Highway and the Oceanside Wastewater Control Plant, face dire threats from coastal erosion, which is partly driving the creation and implementation of the Ocean Beach Master Plan, at significant cost to San Franciscans and other stakeholders.<sup>18</sup> Further loss of coarse-grained sediment at Ocean Beach reduces San Francisco's resiliency and capacity for adaptation to sea level rise. Accordingly, the proposed permits must be completely evaluated and conditioned for consistency with the Bay Plan's Climate Change policies.

**B. Neither CEQA nor the State Lands Commission's EIR Limit BCDC's Authority.**

The project applicants are wrong to argue that the Commission's ability to require any minimization or avoidance measures in approving the proposed sand mining permits is in any way circumscribed by the EIR prepared for the project.<sup>19</sup> As noted above, the McAteer-Petris Act expressly provides the Commission with the authority and duty to place conditions on any project approval, and nothing in the Act provides otherwise. The applicants' interpretation of the law runs contrary to California Supreme Court jurisprudence: "The foremost principle under CEQA is that the Legislature intended the act to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Laurel Heights Improvement Assn. v. Regents of Univ. of Calif.* (1988) 47 Cal.3d 376, 390.) To interpret any provision of CEQA to hamstring a responsible agency with specific jurisdiction and expertise over an affected resource is to use CEQA to diminish the state's ability to protect the affected environment.

As a responsible agency, the Commission must *consider* the EIR prepared by the State Lands Commission, and may not presume it to be invalid unless and until so determined by a reviewing court. (Pub. Resources Code § 21167.3(b).) Nevertheless, pursuant to CEQA, the Commission still "has responsibility for mitigating or avoiding ... the direct or indirect environmental effects of those parts of the project which it decides to carry out, finance, or approve." (CEQA Guidelines § 15096(g)(1).) Nothing in CEQA limits an agency's further duties provided in its enabling statute. (See, e.g., *Central Delta Water Agency v. State Water Resources Control Board* (2004) 124 Cal.App.4th 245, 274; *San Diego Coastkeeper v. California State Lands Commission* (2010) WL 5058429.)

**IV. BCDC's Authorities and Mandates Do Not Implicate Any Constitutional Takings in This Matter.**

Lastly, the Commission should not let veiled threats of "constitutional takings" alter its course.<sup>20</sup> Here, any modification or limitation imposed by the Commission upon any mining permit deemed necessary to protect vital Bay and coastal resources fall safely within the Commission's regulatory bounds, and will

---

15 Hapke, C. J., Reid, D. & Richmond, B., 2009. Rates and trends of coastal change in California and the regional behavior of the beach and cliff system. *Journal of Coastal Research*, 25(3), pp. 603-615.

16 Hapke, C. J. 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.

17 Dallas, K. L. & Barnard, P. L., 2011. Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system. *Estuarine, Coastal and Shelf Science*, Volume 92, pp. 195-204.

<sup>18</sup> Ocean Beach Master Plan available at [www.spur.org](http://www.spur.org)

<sup>19</sup> Letter from John Briscoe to John Bowers, September, 2014.

<sup>20</sup> Letter from John Briscoe to John Bowers, September, 2014, p. 3.

not implicate any required compensation. In *Lucas v. South Carolina Coastal Council*, the U.S. Supreme Court identified

*two discrete categories of regulator action as compensable without case-specific inquiry into the public interest advanced in support of the restraint. The first encompasses regulations that compel the property owner to suffer a physical 'invasion' of his property. . . . The second . . . is where regulation denies all economically beneficial or productive use of land. (505 U.S. 1003, 1029 (1992).)*

Here, no application of the Bay Plan's policies would physically intrude upon any private property interest, nor would conditioning project approval deny all economically beneficial use. Moreover, even where regulation *does* deprive an owner of all economically beneficial use of property, governmental compensation is not required if "the proscribed use interests were not part of his title to begin with," including, for example, "a public navigable water held subject to Government's navigational servitude. . . ." (*Lucas, supra*, at 1030, nor would "the owner of a lake bed . . . be entitled to compensation when he is denied the requisite permit to engage in a land filling operation that would have the effect of flooding others' land.") Justice Kennedy, concurring in the *Lucas* opinion, added, "[c]oastal property may present such unique concerns for a fragile land system that the State can go further in regulating its development and use . . ." (*Lucas, supra*, at 1035.) Here, the state's exercise of its overriding interest, right, and duty to protect public resources, even to the complete denial of the project, would not implicate any compensable taking.<sup>21</sup>

The permit applicants were aware of this fact before receiving lease approval from the State Lands Commission, as the EIR states:

*When BCDC takes any action affecting lands subject to the public trust, it should assure that the action is consistent with the public trust needs for the area and, in case of lands subject to legislative grants, should also assure that the terms of the grant are satisfied and the project is in furtherance of statewide purposes. (EIR at 4.7-29.)*

Mining projects are no exception to these rules. In *Keystone Bituminous Coal Association v. DeBenecitis*, 480 U.S. 470 (1987), the United States Supreme Court did not require any compensation to mining companies where a state statute was enacted requiring mining companies to leave 50% of existing coal deposits in place, underground, to support the surface of the land above. By analogy here, maintenance of the current 10-year extraction rate to support the conservation of coastal beaches should reach the same result. Nor did Congress' adoption of the Surface Mining Control and Reclamation Act of 1977 implicate any constitutional takings, even though vast limitations on previously-existing mining rights were imposed. (*Hodel v. Virginia Surface Mining & Reclamation Assn., Inc.*, 452 U.S. 264 (1981).)

Finally, any permit condition requiring further study of the impacted areas does not trigger any need for compensation as an exaction for the public good. Such study is rationally related to the scope of

---

<sup>21</sup> In addition to the public protections provided for in *Lucas*, the U.S. Supreme Court declined to review the application of the common law doctrine of "custom" as applied by the Oregon courts in ruling that the public has a right of access to dry sand areas of beaches for recreational purposes. (*Stevens v. City of Cannon Beach*, 854 P.2d 449 (Or. 1993), cert. denied in *Stevens v. City of Cannon Beach*, 114 S.Ct. 1332 (1994).

authority and duty the Commission has been given through the McAteer-Petris Act and the Bay Plan to regulate the use of Bay resources in the public interest; and the conditioned study would clearly be roughly proportional to the scope of the project, as the project's impacts themselves would be under study. (See, *Dolan v. City of Tigard*, 512 U.S. 374, 390-396 (1994).)

## V. Conclusion

In summary, we ask the Commission to consider three conditions for permit approval:

- 1) Establish an extraction rate equivalent to the current 10-year baseline (refer to Table 1);
- 2) Require the funding of analysis to quantify on-going impacts associated with sand mining, including a tracer study and completion of bathymetric surveys every five years; and
- 3) Reduce proposed permit duration from 10 years to 5 to allow for adaptive management.

Years of publicly-funded research and reams of peer-reviewed scientific papers identify a causal link between sand mining in San Francisco Bay and erosion along the coast. Researchers expressed their hope that with the release of this research "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>22</sup> This process affords an opportunity to rely on sound science to achieve tangible benefits in terms of habitat protection, climate resiliency and sustainable management of valuable sediment resources. We look forward to working with BCDC to enhance these benefits through improved coarse sediment management in San Francisco Bay.

Sincerely,

Ian Wren  
Staff Scientist, San Francisco Baykeeper

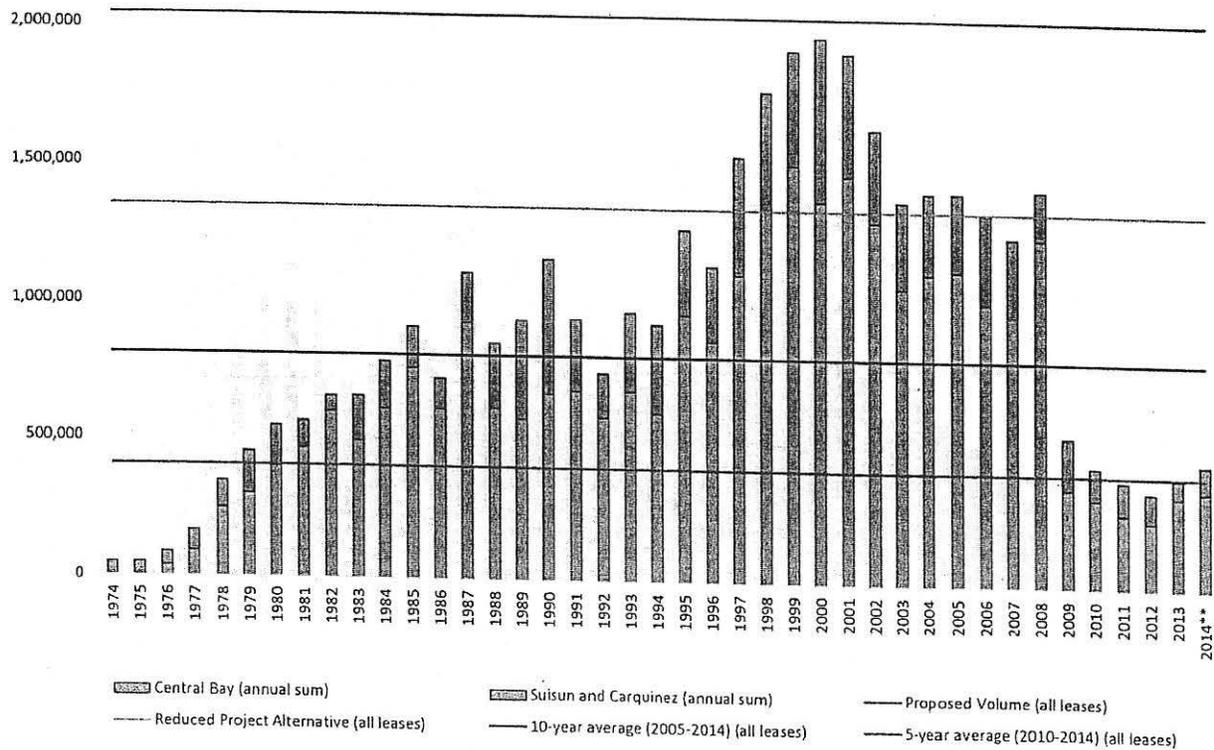
Jason R. Flanders  
Aqua Terra Aeris Law Group

---

<sup>22</sup> Hein, J. R., Mizell, K. & Barnard, P. L., 2013. Sand sources and transport pathways for the San Francisco Bay coastal system, based on X-ray diffraction mineralogy. *Marine Geology*, 345, 154-169.

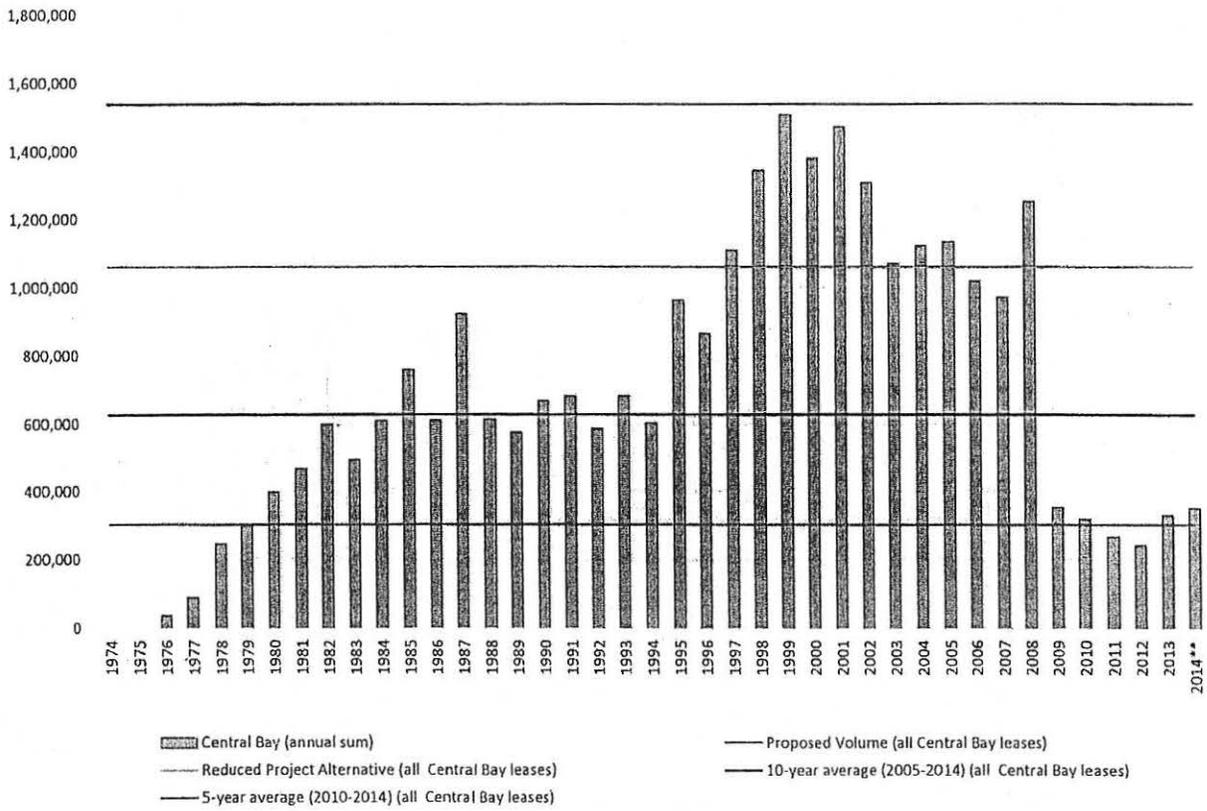


Figure 1: Historic Mining Volumes, Proposed Permit Volumes and Historic Averages – Suisun and Central SF Bay Lease Areas (cubic yards/yr)\*



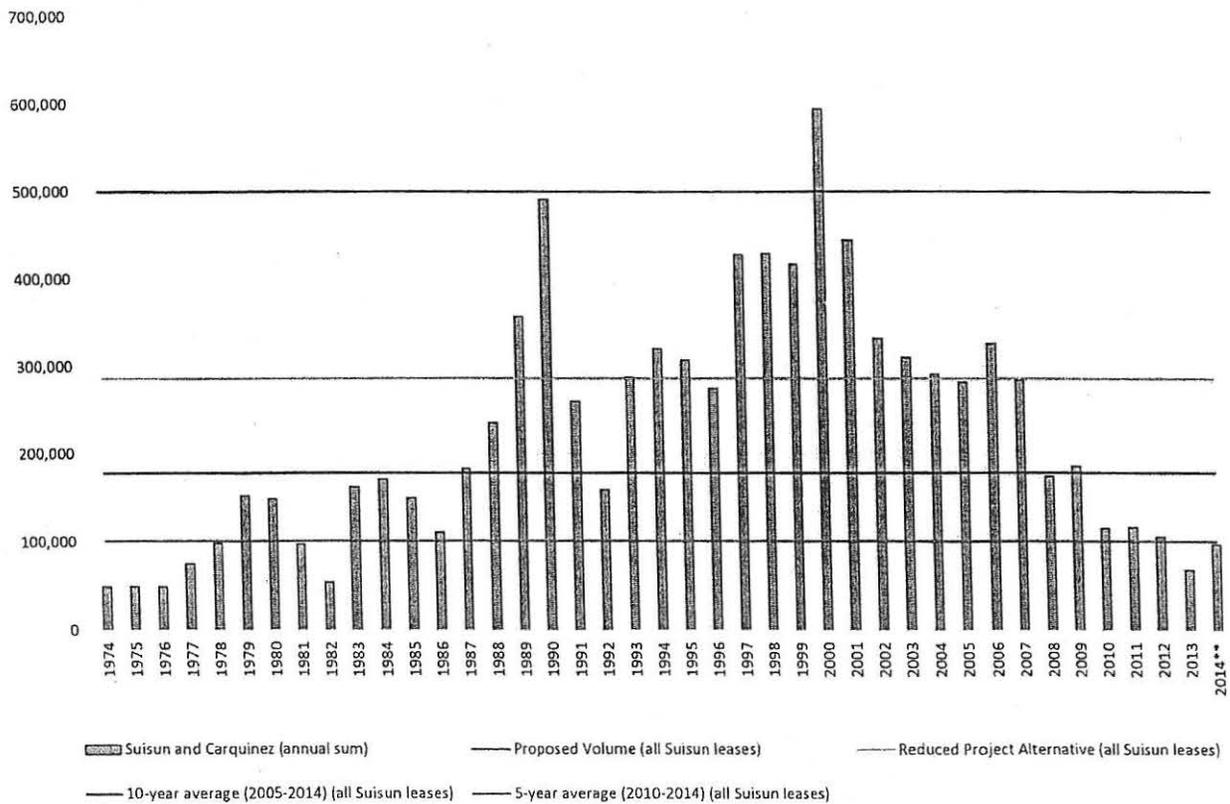
\* Data provided by BCDC, based on quarterly reports from the mining companies  
 \*\* 2014 volumes scaled for the year based on Q1 and Q2 data

Figure 2: Historic Mining Volumes, Proposed Permit Volumes and Historic Averages – Central SF Bay Lease Areas (cubic yards/year)



\*2014 volumes scaled for the year based on Q1 and Q2 data

Figure 1: Historic Mining Volumes, Proposed Permit Volumes and Historic Averages – Suisun Bay Lease Areas (cubic yards)



\*2014 volumes scaled for the year based on Q1 and Q2 data



A recent issue of *Marine Geology* presented ~20 papers focused on sediment transport research in the San Francisco Bay Coastal System. This special issue is considered a culmination of nearly 100 years of research on many topics, ranging from tidal marsh sustainability, suspended sediment transport, bedform migration and evolution, behavior of the open coast littoral system, and fluvial impacts. (Barnard, et al., 2013) Several papers were the output of a multi-faceted, multi-disciplinary provenance study designed to establish the primary sources, sinks, and inferred transport pathways of sand in the region. This research established links between anthropogenic activities and geomorphic change through extensive sampling and analysis of sediment from the seabed, bayfloor, beaches, representative rock units, and all major and some minor drainages. (Hein, et al., 2013) Anthropogenic activities, including aggregate mining, were definitively identified as directly limiting beach-sized sand supply to the outer coast. (Barnard, et al., 2013)

Specific findings:

- Authors conclude that the causal link between dredging/aggregate mining and coastal erosion is "...effectively established by the data presented in this special issue..." thereby "...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." (Hein, et al., 2013)
- This work highlights the need to more efficiently manage existing in-Bay sediment resources, as active aggregate mining and dredging occurs along well-defined sand transport pathways that carry sediment toward outer coast beaches, at removal rates that exceed the present-day sediment supply rates from all San Francisco watersheds (Barnard, et al., 2013).
- A definitive understanding of sediment sources, sinks and pathways in urbanized coastal-estuarine systems is essential for assessing the current and future effects of sediment-impacting activities, such as dredging operations, aggregate mining, shoreline armoring and watershed modifications. More informed management of sediment resources can promote the sustainability of fringing tidal wetlands and beaches, the first line of defense as sea level rises and potentially larger storms, increase the vulnerability of coastal environments over the next century and beyond, enhancing threats to public safety, vital infrastructure and ecosystems (Barnard, et al., 2013).
- Dredging and aggregate mining in the Bay, as well as watershed modifications, are correlated to ~150 million m<sup>3</sup> of erosion from the floor of San Francisco Bay over the last half of the 20<sup>th</sup> century (Barnard & Kvitek, 2010). This significant erosion of the Bay floor is temporally correlated with similarly high volumes of erosion of the ebb-tidal delta at the mouth of San Francisco Bay (Hanes & Barnard, 2007) (Dallas & Barnard, 2009), as well as widespread erosion of adjacent, open-coast beaches (Hapke, et al., 2006) (Dallas & Barnard, 2011) (Barnard, et al., 2012a).
- Multi-decadal erosion and contraction of the ebb-tidal delta have modified sediment transport patterns along Ocean Beach, effectively driving more sediment toward the northern end of the beach and less toward the southern end. The modeled patterns are supported by observed beach and nearshore changes over inter-annual and multi-decadal time scales, including a 3-fold

increase in the rates of shoreline accretion at the north end over the last several decades and similarly higher rates of erosion at the south end have led to significant infrastructure damage (Barnard, et al., 2013).

- As the northern shoreline has continued to extend seaward, increasingly higher volumes of northward-moving sand are no longer trapped at Pt. Lobos at the north end of Ocean Beach, and instead move toward Baker Beach and eventually into the Central Bay at Crissy Field. For example, over the last decade, sedimentation forced the relocation of a tide gauge and caused shoaling within the adjacent yacht harbor. These three sites have been linked geochemically, and recently accelerating rates of shoreline accretion at Baker Beach and Crissy Field correlate temporally with observed changes at northern Ocean Beach. These trends and correlative impacts are expected to continue as higher sea levels and further reductions in sediment supply drive further contraction of the ebb-tidal delta. (Barnard, et al., 2013)
- Based on multiple techniques for assessing sand provenance, the Sierra Nevada Range is the dominant source of beach-sized sand to the San Francisco Bay Coastal System. This sand is actively transported into and through the Bay to the mouth of San Francisco Bay, and along the southern open coast. This dominant pathway for beach-sized sand material destined for the open coast directly intersects the two major active aggregate mining regions in San Francisco Bay, Suisun Bay and Central Bay (Barnard, et al., 2013).
- Sediment geochemistry indicates that local sediment sources predominate along the coast north of the Golden Gate and south of San Francisco, with Sierran sources supply sediment to northern San Francisco beaches (i.e. Baker and north Ocean Beaches) and the seafloor of the Golden Gate (Barnard, et al., 2013).
- Sediment found at northern Ocean Beach is linked geochemically to Baker Beach (and the adjacent Golden Gate sand wave field), and Crissy Field, representative of the dominant Sierran source, primarily via the Sacramento River-Suisun Bay-San Pablo Bay transport pathway. This is consistent with numerical modeling, in situ measurements, and bedform asymmetry that document a distinct pathway for sediment into San Francisco Bay along the northern shoreline of the San Francisco peninsula. However, sand at southern Ocean Beach and offshore are consistent with sand locally eroded from beach-backing cliffs comprising the Colma formation (Barnard, et al., 2013).
- Within the 20<sup>th</sup> century, over 200 million m<sup>3</sup> of sediment was directly removed from the San Francisco Bay Coastal System through dredging, aggregate mining, and borrow pit mining, including at least 54 million m<sup>3</sup> of sand-sized or coarser sediment from Central Bay (Dallas & Barnard, 2009) (Dallas & Barnard, 2011).
- Over 150 million m<sup>3</sup> of sediment loss during the 20<sup>th</sup> century was measured from the sand-dominated substrates of Central Bay, the Golden Gate, and ebb tidal delta (Hanes & Barnard, 2007) (Fregoso, et al., 2008) (Barnard & Kvitek, 2010).
- Within the last century, rates of coastal erosion along the outer coast south of the Golden Gate is the highest for the entire coast of California (Hapke, et al., 2006) (Hapke, et al., 2009) and has accelerated by 50% between Ocean Beach and Pt. San Pedro since the 1980s (Dallas & Barnard, 2011).

- Aggregate mining removes approximately 0.9 million m<sup>3</sup>/yr of sand and gravel sized sediment in Central Bay and Suisun Bay (Hanson, et al., 2004), while dredging removes about 3 million m<sup>3</sup>/yr of sediment, with the majority of this material permanently removed from the San Francisco Bay Coastal System (Dredged Material Management Office, 2008) (San Francisco Estuary Institute, 2009). Together, these losses exceed the present annual sediment supply from the Sierras and local watersheds combined. Therefore, management of the current sediment inventory in the Bay will be critical (Barnard, et al., 2013).
- Bathymetric change analysis from 1997 to 2008 across aggregate mining lease sites on Presidio Shoals in southern Central Bay records a volume loss of ~2.3 million m<sup>3</sup>, most of this attributed to sand and gravel removed by aggregate mining (Barnard & Kvitek, 2010). This has significantly reduced the sediment available for transport to the mouth of San Francisco Bay and adjacent beaches (Barnard, et al., 2013).
- The consensus results highlight the regional impact of a sharp reduction in the primary sediment source to the San Francisco Bay Coastal System over the last century – the Sierras – in driving massive erosion of the Bay floor, ebb-tidal delta, and the highest regional shoreline retreat rates in California along the adjacent outer coast (Barnard, et al., 2013).
- The dominant regional direction of sediment transport is from the Bay seaward toward the ebb-tidal delta, and then primarily to the south (Barnard, et al., 2013). This link defines a critical pathway because large volumes of sediment have been removed from the Bay over the last century via channel dredging, aggregate mining and borrow pit mining. During this same period, comparable volumes of erosion from the ebb tidal delta over the same period have been observed, in addition to high rates of shoreline retreat along the adjacent, open-coast beaches. (Hein, et al., 2013)
- The Central Bay is a zone of mineralogical mixing from multiple sources and an important source of beach-sized sediment to the ebb tidal delta at the mouth of San Francisco Bay and outer coast region to the south (including Ocean Beach). This work is consistent with previous studies that connected the removal of 54 million m<sup>3</sup> of sand from the area since 1900 to erosion of the ebb tidal delta and the adjacent south coast shoreline (i.e. Ocean Beach). (Dallas & Barnard, 2009) (Dallas & Barnard, 2011) (Barnard, et al., 2012a) (Barnard, et al., 2012b)
- Mineral signatures of sediment from the Sacramento and San Joaquin Rivers are consistent with sediments in the North and Central Bay, as well as Baker Beach, Ocean Beach and dune sandstone from Fort Funston, implying a link in sediment supply from these locations. (Hein, et al., 2013)
- Analysis of ~45,000 bedforms along the Bay flood indicates net transport of sand to the open coast, strongly suggesting that anthropogenic removal of sediment from the estuary, particularly along clearly defined seaward transport pathways, will limit the supply of sand to chronically eroding, open coast beaches (Barnard, et al., 2012b).

## References

- Barnard, P. L. et al., 2012b. Sediment transport patterns in the San Francisco Bay Coastal System from cross-validation of bedform asymmetry and modeled residual flux. *Sediments, Morphology and Sedimentary Processes on Continental Shelves: Advances in technologies, research and applications: International Association of Sedimentologists (IAS) Special Publication*, Volume 44, pp. 272-294.
- Barnard, P. L. et al., 2013. Integration of bed characteristics, geochemical tracers, current measurement, and numerical modeling for assessing the provenance of beach sand in the San Francisco Bay Coastal System. *Marine Geology*, 345, pp.181-206.
- Barnard, P. L., Hansen, J. E. & Erikson, L. H., 2012a. Case study of an erosion hot spot, Ocean Beach, CA (USA). *Journal of Coastal Research*, 28(4), pp. 903-922.
- Barnard, P. L. & Kvitek, R. G., 2010. Anthropogenic influence on recent bathymetric change in west-central San Francisco Bay.. *San Francisco Estuary and Watershed Science*, 8(3).
- Barnard, P. L., Schoellhamer, D. H., Jaffe, B. E. & McKee, L. J., 2013. Sand transport in the San Francisco Bay Coastal System: An overview. *Marine Geology*, 345, pp.3-17.
- Dallas, K. L. & Barnard, P. L., 2009. Linking human impacts within an estuary to ebb-tidal delta evolution.. *Journal of Coastal Research*, Volume 56, pp. 713-716.
- Dallas, K. L. & Barnard, P. L., 2011. Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system. *Estuarine, Coastal and Shelf Science*, Volume 92, pp. 195-204.
- Dredged Material Management Office, 2008. *2007 Annual Report*, s.l.: s.n.
- Fregoso, T. A., Foxgrover, A. C. & Jaffe, B. A., 2008. *Sediment deposition, erosion, and bathymetric change in central San Francisco Bay: 1855-1979*, s.l.: U.S. Geological Survey Open-File Report 2008-1312 (46 pp.).
- Hanes, D. M. & Barnard, P. L., 2007. Morphological evolution on the San Francisco Bight. *Journal of Coastal Research Special Issue*, Issue 50, pp. 469-473.
- Hanson, C. et al., 2004. *Assessment and Evaluation of the Effects of Sand Mining on Aquatic habitat and fishery populations of Central San Francisco Bay and the Sacramento-San Joaquin Estuary.*, s.l.: Hanson Environmental Inc. (Available from: <http://hansonenvironmentalinc.com/reports.htm>).
- Hapke, C. J., Reid, D. & Richmond, B., 2009. Rates and trends of coastal change in California and the regional behavior of the beach and cliff system.. *Journal of Coastal Research*, 25(3), pp. 603-615.
- Hapke, C. J. 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.

Hein, J. R., Mizell, K. & Barnard, P. L., 2013. Sand sources and transport pathways for the San Francisco Bay coastal system, based on X-ray diffraction mineralogy. *Marine Geology*, 345, pp.154-169.

San Francisco Estuary Institute, 2009. *The pulse of the estuary: monitoring and managing water quality in the San Francisco Estuary.*, Oakland, CA, 96 pp.: San Francisco Estuary Institute Contribution, 583.

## Recent Research Confirms Link Between Ocean Beach Erosion and Sand Removal in the Bay

Research Summary by Ian Wren, Baykeeper Staff Scientist

A recent issue of the scientific journal *Marine Geology* included over 20 papers focused on sediment transport research in the San Francisco Bay Coastal System, including the synthesis of a series of studies conducted over the last decade. This special issue is considered a culmination of nearly 100 years of research on many topics, ranging from tidal marsh sustainability, suspended sediment transport, bedform migration and evolution, behavior of the open coast littoral system, and fluvial impacts (Barnard, et al., 2013).

This research was driven by the need for a definitive understanding of sediment sources, sinks, and pathways in this highly urbanized estuary. An understanding of how activities within the estuary affect the coast is essential for assessing current and future effects of sediment-impacting activities, such as dredging operations, aggregate mining, shoreline armoring, and watershed modifications. More informed management of sediment resources can promote the sustainability of tidal wetlands and beaches, the first line of defense against sea level rise and potentially larger storms. Erosion of beaches and wetlands increases the vulnerability of coastal environments and communities, enhancing threats to public safety, vital infrastructure, and ecosystems (Barnard, et al., 2013).

Several papers were the output of a multi-faceted, multi-disciplinary study designed to establish the primary sources, sinks, and transport pathways of sand in the region. This research established links between anthropogenic activities and geomorphic change through extensive sampling and analysis of sediment from the seabed, Bay floor, beaches, representative rocks, and all major and some minor rivers and creeks (Hein, et al., 2013). Anthropogenic activities, including sand mining and dredging, were definitively identified as directly limiting the supply of beach-sized sand grains to the southern outer coast, most notably from the vicinity of Ocean Beach at Noriega Street, in San Francisco, and extending south to Pacifica (Barnard, et al., 2013).

### Specific findings:

- Based on multiple techniques for assessing the geologic origin (or provenance) of sand in the region, the Sierra Nevada Range is the dominant source of beach-sized sand to the San Francisco Bay Coastal System, including Ocean Beach. This sand is actively transported into and through the Bay to the mouth of San Francisco Bay, and along the southern open coast. This dominant pathway for beach-sized sand material destined for the open coast directly intersects the two major active aggregate mining regions in San Francisco Bay, Suisun Bay and Central Bay (Barnard, et al., 2013).
- From 1997 to 2008, approximately 2.3 million (cubic meters) of sand was lost from aggregate mining lease sites on Presidio Shoals in southern Central Bay. Most of this was attributed to sand and gravel removed by aggregate mining (Barnard & Kvitek, 2010). Researchers found that mining activities have significantly reduced the sediment available for transport to the mouth of San Francisco Bay and adjacent beaches (Barnard, et al., 2013).

- Based on USGS analysis and review of dredging and mining records within the 20<sup>th</sup> century, over 200 million cubic meters of sediment was removed from the San Francisco Bay Coastal System through dredging, aggregate mining, and borrow pit mining, including at least 54 million cubic meters of sand-sized or coarser sediment from Central Bay alone (Dallas & Barnard, 2009; Dallas & Barnard, 2011).
- Within the last century, rates of coastal erosion along the outer coast south of the Golden Gate are the highest for the entire coast of California (Hapke, et al., 2006; Hapke, et al., 2009) and have accelerated by 50% between Ocean Beach and Pt. San Pedro since the 1980s (Dallas & Barnard, 2011).
- Aggregate mining removes approximately 900,000 cubic meters per year of sand and gravel-sized sediment in Central Bay and Suisun Bay (Hanson, et al., 2004), while dredging removes about 3 million cubic meters of sediment per year, with the majority of this material permanently removed from the San Francisco Bay Coastal System (Dredged Material Management Office, 2008; San Francisco Estuary Institute, 2009). Together, these losses exceed the present annual sediment supply from the Sierras and local watersheds combined (Schoellhamer, et al., 2005).
- Dredging and aggregate mining in the Bay, as well as watershed modifications, are correlated to approximately 150 million cubic meters of erosion from the floor of San Francisco Bay over the last half of the 20<sup>th</sup> century (Barnard & Kvitek, 2010). At the same time, the San Francisco Bar, an ebb-tide delta at the mouth of San Francisco Bay (Hanes & Barnard, 2007; Dallas & Barnard, 2009) has eroded significantly, as have adjacent, open-coast beaches (Hapke, et al., 2006; Dallas & Barnard, 2011; Barnard, et al., 2012).
- Erosion of the San Francisco Bar, which extends seaward from the coastline just north and south of the Golden Gate, has caused it to contract and close in toward the Golden Gate over several decades. This migration has modified sediment transport patterns along Ocean Beach, effectively causes more sediment to build up at the northern end of Ocean Beach,
- As the northern shoreline has continued to extend seaward, increasingly higher volumes of northward-moving sand are no longer trapped at Pt. Lobos at the north end of Ocean Beach, instead moving toward Baker Beach and eventually into Central Bay at Crissy Field. Over the last decade, sedimentation within the Bay forced the relocation of a tide gauge and caused shoaling within the adjacent yacht harbor. These trends and correlative impacts are expected to continue as higher sea levels and further reductions in sediment supply drive further contraction of the ebb-tidal delta. (Barnard, et al., 2013)
- While sediment is building up at the north end of Ocean Beach, the southern end of the beach is eroding at a similar rate. Modeling supports observed changes over this time, including a three-fold increase in the rates of shoreline accretion at the north end of Ocean Beach and similarly higher rates of erosion at southern Ocean Beach, leading to significant infrastructure damage to existing roadways and posing eminent threat to adjacent sewer mains (Barnard, et al., 2013).
- The dominant regional direction of sediment transport is from the Bay seaward toward the ebb-tidal delta, and then primarily to the south (Barnard, et al., 2013). This link defines a critical pathway because large volumes of sediment have been removed from the Bay over the last

century via channel dredging, aggregate mining, and borrow pit mining. During this same period, comparable volumes of erosion from the San Francisco Bar over the same period have been observed, in addition to high rates of shoreline retreat along the adjacent, open-coast beaches. (Hein, et al., 2013)

- This work highlights the need to more efficiently manage existing in-Bay sediment resources, as active aggregate mining and dredging occurs along well-defined sand transport pathways that carry sediment toward outer coast beaches, at removal rates that exceed the present-day sediment supply rates from all San Francisco watersheds (Barnard, et al., 2013) (Schoellhamer, et al., 2005).
- Researchers agree that the reduction in sediment originating from the Sierras is driving massive erosion of the Bay floor, ebb-tidal delta, and the highest regional shoreline retreat rates in California along the adjacent outer coast (Barnard, et al., 2013).

## References

Barnard, P. L. et al., 2012. Sediment transport patterns in the San Francisco Bay Coastal System from cross-validation of bedform asymmetry and modeled residual flux. *Sediments, Morphology and Sedimentary Processes on Continental Shelves: Advances in technologies, research and applications: International Association of Sedimentologists (IAS) Special Publication*, Volume 44, pp. 272-294.

Barnard, P. L. et al., 2013. Integration of bed characteristics, geochemical tracers, current measurement, and numerical modeling for assessing the provenance of beach sand in the San Francisco Bay Coastal System. *Marine Geology*, Issue in press, available online.

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

Barnard, P. L., Schoellhamer, D. H., Jaffe, B. E. & McKee, L. J., 2013. Sand transport in the San Francisco Bay Coastal System: An overview. *Marine Geology*, Issue in press, available online.

Dallas, K. L. & Barnard, P. L., 2009. Linking human impacts within an estuary to ebb-tidal delta evolution.. *Journal of Coastal Research*, Volume 56, pp. 713-716.

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

Dredged Material Management Office, 2008. *2007 Annual Report*.

Fregoso, T. A., Foxgrover, A. C. & Jaffe, B. A., 2008. *Sediment deposition, erosion, and bathymetric change in central San Francisco Bay: 1855-1979*, U.S. Geological Survey Open-File Report 2008-1312 (46 pp.).

Hanes, D. M. & Barnard, P. L., 2007. Morphological evolution in the San Francisco Bight. *Journal of Coastal Research Special Issue*, Issue 50, pp. 469-473.

Hanson, C. et al., 2004. *Assessment and Evaluation of the Effects of Sand Mining on Aquatic habitat and fishery populations of Central San Francisco Bay and the Sacramento-San Joaquin Estuary.*, Hanson Environmental Inc. (Available from: <http://hansonenvironmentalinc.com/reports.htm>).

Hapke, C. J., Reid, D. & Richmond, B., 2009. Rates and trends of coastal change in California and the regional behavior of the beach and cliff system.. *Journal of Coastal Research*, 25(3), pp. 603-615.

Hapke, C. J. 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*, U.S. Geological Survey Open File Report 2006-1219.

Hein, J. R., Mizell, K. & Barnard, P. L., 2013. Sand sources and transport pathways for the San Francisco Bay coastal system, based on X-ray diffraction mineralogy. *Marine Geology*, Issue in press, available online.

San Francisco Estuary Institute, 2009. *The pulse of the estuary: monitoring and managing water quality in the San Francisco Estuary.*, Oakland, CA, 96 pp.: San Francisco Estuary Institute Contribution, 583.

Schoellhamer, D. H. et al., 2005. *Bay sediment budgets: sediment accounting 101. The pulse of the estuary: monitoring and managing contamination in the San Francisco Estuary*, Oakland, CA, 96 pp.: San Francisco Estuary Institute Contribution, 583.





SANTA CLARA AND SAN BENITO COUNTIES

# TEAMSTERS UNION LOCAL 287

FREIGHT, CONSTRUCTION, GENERAL DRIVERS, WAREHOUSEMEN AND HELPERS

Affiliated with International Brotherhood of Teamsters

Office: 1452 No. 4th St.

Telephone: (408) 453-0287

FAX: (408) 453-2034

San Jose, California 95112-4778

November 20, 2014



SF Bay Conservation and Development Commission

→ Larry Goldzband at BCDC

455 Golden Gate Ave., 10<sup>th</sup> Floor

San Francisco, CA 94102

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

Our local union represents many of the workers at Lehigh Hanson. They harvest sand from the bay floor that we process into concrete and hot mix asphalt that is used in the construction and maintenance of roads, highways, public buildings and residential construction projects throughout the Bay Area. Hanson's sand harvesting lease requires a permit renewal. We would appreciate your support of these efforts.

Sand harvesting and processing has been a local operation for decades and is regulated by numerous state and federal agencies including the San Francisco Bay Conservation and Development Commission (BCDC).

Locally produced sand reduces project costs. It keeps our environment cleaner as it minimizes the need to ship or truck sand from faraway places. These operations sustain a middle class workforce that makes the bay area an affordable area for our members to live and raise a family.

An Environmental Impact Report (EIR) has been completed and certified by the California Lands Commission on a 3-0 vote (Lt Governor Newsom, Controller Chiang, and Department of Finance Director). The EIR demonstrated that a majority of the potential environmental impacts were less than significant and of those that were significant will be fully mitigated. The company now needs to renew their 10-year BCDC permit renewal and a public hearing and vote is scheduled for early next year.

We would appreciate it if our fellow union allies would join us in supporting this BCDC permit extension. There is active opposition from an environmental group so we need to stand up for the good paying jobs that are created by this environmentally sensitive sand reuse.

Sincerely,

Bob Blanchet  
Secretary-Treasurer

Cc: Mike Roth  
Vice President Region West  
Lehigh Hanson, Inc.  
12667 Alcosta Blvd., Suite 400  
San Ramon, CA 94583







12667 Alcosta Blvd., Suite 400  
San Ramon, CA 94583  
Phone (925) 244-6532  
Fax (925) 244-6585

November 25, 2014

HAND DELIVERED

John Gioia  
Board of Supervisors  
Contra Costa County  
11780 San Pablo Avenue, Suite D  
El Cerrito, CA 94530

RECEIVED  
DEC -1 2014

SAN FRANCISCO BAY CONSERVATION  
& DEVELOPMENT COMMISSION

**Re: Hanson Aggregates and Earlier Sand Mining Litigation**

Dear Commissioner Gioia:

Thank you for your work with BCDC and your interest in the activities of Hanson Aggregates. BCDC staff briefed the Commission on the background of sand mining during the Commission's meeting on July 17, 2014. Following that staff report, you asked about some prior litigation involving sand miners that you recalled. Staff was not able to answer your questions, and I offered to prepare an answer for you. This letter fulfills that request.

Faced with the depletion of its land-based sources of construction-grade sand in the late 1990s, Hanson looked to marine-based sources of sand as an alternative. In 1999, Hanson purchased several mining companies operating in San Francisco Bay, including Tidewater Sand and Gravel, Inc. ("Tidewater"), Moe Sand Co., Olin Jones Sand Co., and Jones Sand Co. (collectively, the "Predecessor Companies"). The Predecessor Companies held mining leases in the Bay with the State Lands Commission ("SLC") and one or more private parties. From the representations given by the Predecessor Companies when they were sold to Hanson and the due diligence performed by Hanson and its counsel, it appeared that the Predecessor Companies were operating legally and in full compliance with all applicable permits and regulations.

Indeed, in 2001, after acquiring the Predecessor Companies, Hanson passed an SLC audit of the mining leases. Although the audit noted some minor record-keeping issues, the Senior Staff Counsel for the SLC wrote that "(w)e were pleased to see that Hanson has been operating according to the terms of the leases since it took them by assignment."

Unbeknownst to Hanson, however, the Predecessor Companies had been exceeding their permit limits and mining sand outside their lease boundaries. In addition, during a labor dispute between Hanson and the unions, a former employee of Tidewater filed a "whistleblower" claim alleging that the Predecessor Companies had underpaid royalties. BCDC and the California Attorney General's office filed separate actions against Hanson for these violations.

It should be noted that Hanson acquired the stock or partnership interest of each of the Predecessor Companies, thereby acquiring all of their respective assets and liabilities, including their legal liability for past violations of state regulations applying to their mining leases, even where that liability was neither caused nor created by Hanson.

Litigation followed and it has been resolved. More importantly, Hanson has made operational changes to prevent similar problems from arising again in the future, including the use of GPS technology to ensure that all mining is done within established boundaries. The mining leases with the State were amended by the SLC to provide for an easy-to-apply royalty rate on sand mined from the San Francisco Bay.

In a press release issued at the time by BCDC, then chairperson Barbara Kaufman commended Hanson "for taking responsibility for the violations and bringing a quick resolution to this enforcement problem."

Deputy Attorney General Joseph Rusconi ably represented the SLC in that litigation, and we continue to commend him and his office for their professionalism and dedication to public service. Now we and Mr. Rusconi and his client, the SLC, are jointly defending the six-year CEQA process that produced the EIR for the next ten years of sand mining that is important to the San Francisco Bay economy, construction activity, and erecting sea-level-rise protective works.

We are happy to work with you, other commissioners and staff of BCDC, and other stakeholders as we continue to mine sand in the Bay.

Please contact me if you have any questions.

Sincerely,

Mike F. Roth  
Vice President Region West

MR/jlw

cc: Larry Goldzband, Executive Director of BCDC

**From:**

**Date:** Wednesday, July 16, 2014 3:11 PM

**To:**

**Subject:** Re: BCDC Commission Meeting Notice and Commission Briefing - Sediment Transpo...

San Francisco Bay Conservation and Development Commission  
July 16, 2014  
455 Golden Gate Avenue, Suite 10600  
San Francisco, California 94102

Dear Chairman Wasserman and Members of the Board,

In regards Agenda Item 10 of BCDC Commission Meeting of July 17, a Briefing on Sand Mining Background Report, please request clarification on total volume of sand to be extracted annually by proposed combined projects of Jerico, Hanson, and Suisun Associates in San Francisco Bay, Central Bay and Suisun Bay.

On page 1 and 10 of Sediment Transport and Sand Mining Background Report it states 'Applicants are now seeking new 10-year permits to mine a total of 2.04 million cubic yards annually ' within seven lease areas.

In reviewing last year's USACE Public Notice Numbers 2013-00129S, 2013-00130S, 2013-00131S, and 2013-00132S for permits for Jerico Products Sand Mining Operations, Suisun Associates Sand Mining Operations, Hanson Middle Ground Sand Mining Operations and Hanson Marine Operations Sand Mining it appears that Suisun Associates and Hanson Marine reference identical 2601 acre area site for sand mining, consisting of 9 parcels of submerged lands that comprise 4 leases from California State Lands Commission designated as Mineral Extraction Lease Nos. 709.1, 2036.1, 7779.1, and 7780.1 (Central Bay Leases).

These applications each would permit applicant to conduct sand mining operations of up to 1,540,000 cubic yards of sand annually between 2013 and 2023. This amount is then modified to 14,920,650 cu yds in total.

The Suisun Associates Sand Mining Operations USACE Application No.2013-00130S also includes a permit for sand mining up to 300,000 cubic yards annually over next 10 years within a 938 acre area of submerged lands within the Suisun Channel in Suisun Bay leased from States Land Commission as Mineral Extraction Lease Parcel No.7781.1.

The total million cubic yards of sand to be extracted by these four permits then should be 39.3413, not 20.4?

Feel this permitting process needs to be precise in consideration that California State Lands Commission in 2007 did fine Hanson \$42.2 million for failing to fully report sand taken from mining sites and which thereby deprived the State of millions of dollars in royalty payments.

On page 8 of staff report mention is made that in Suisun Bay, the invertibrate community is dominated by two species of invasive clams. Can BCDC staff suggest measures be taken to insure that territory of these invasive clams is constrained and will not encompass all of San Francisco Bay? In South Bay, Santa Clara Valley Water District has implemented stringent controls to keep Coyote Valley and South Valley clam free.

Finally, in consideration of protracted Bay Delta Conservation Plan negotiations, please request that staff explore full ramifications of proposed diversions, in light of drought and global warming, as to feasible level of Sacramento River flows that will be strong enough to carry sediments and sand to Central Bay, to marsh restoration in salt ponds of South Bay and on out the Golden Gate to ocean beaches and beyond, I would submit that any consideration of these 10 year mining leases at this time is premature.

The present stated diversion of 9000 cfs of Sacramento River to three Delta tunnels may be accompanied by a sediment removal facility, as it was in earlier engineer's design. This would critically deplete sand source in Sacramento River, Central Bay and Suisun Channel and Bay. Believe your September staff review must incorporate all impacts that BDCP is anticipated to make on this critical mid section of the Estuary. Should BDCP be implemented in next five years wouldn't it run head on into these mining leases to detriment of all?

Thank you for any consideration that you can give to these concerns.

Libby Lucas

# Sierra Morgan's Public Comment

March 18, 2015

## I. Introduction

- Student at San Francisco State
- Intern for Ocean Research Foundation
- Resident of San Francisco

## II. Understanding and Concerns

- Permitting these 4 companies is very concerning to me individually and communally
  - Reliance on the natural sediment transport of the sand each year
  - More sand is lost due to mining and dredging of SF Bay than the amount that washes in naturally
- I understand the sand is very desirable
  - 2 major mining sites are along the Bay floor along the natural pathway for sand
  - Sand's consistency
  - Must be aware of the future, not just "NOW NOW NOW" that is so often demanded
- Coastal Erosion
  - Rates of erosion along outer coast south of Golden Gate are highest in CA
    - Have accelerated 50% between Ocean Beach and Pt. San Pedro since 1980's
  - San Francisco Bar erosion has caused contracting and closing in toward Golden Gate
    - Modifying sediment transport patterns along Ocean Beach
      - Causing more sediment build up at North end and less at South
        - Leading to erosion, altering coastlines, and receding beaches
        - Expected to continue as higher sea levels and eroding sediment
        - Affecting safety of homes, jobs and tourism
- Bays Ecosystems
  - Impacting bottom-dwelling invertebrates and shellfish
  - ex) Major mining area between San Francisco's waterfront and Angel Island
    - Juvenile Dungeness crab, Sturgeon, and Others being "scooped up"
  - Turbidity also known as "water smoke"
- Replenishing of Beaches
  - If mining continues and increases, future will be replenishing beaches by using sand from different areas, very costly
  - Possibility of introducing harmful organisms to Bay Area that could destroy ecosystems

## III. Relate Back to Community

- Bay and Ocean Beach has had a positive influence as a public resource
  - Relaxation, Exploration and a place to be admired, cherished and protected

*"Allowing private companies to extract sand in an unsustainable way is not an appropriate use of this public resource. Plus, excessive sand mining damages two of our region's natural treasures, the Bay and Ocean Beach."* -Ian Wren, Baykeeper Staff Scientist

- Bay Area is a progressive community and should be an example for curbing sand mining and dredging for other places that are experiencing sand mining at extreme levels (sand mafias)

## IV. Conclusion and Thanks

With the impact of climate change, droughts, ruining of oceans and coasts, its not just about a certain species or areas, but it is a much larger issue of what our future will look like.

1. Barnard, P. L. et al., 2013. Integration of bed characteristics, geochemical tracers, current measurement, and numerical modeling for assessing the provenance of beach sand in the San Francisco Bay Coastal System. *Marine Geology*, Issue in press, available online.

2. Barnard, P. L. et al., 2012. Sediment transport patterns in the San Francisco Bay Coastal System from cross-validation of bedform asymmetry and modeled residual flux. *Sediments, Morphology and Sedimentary Processes on Continental Shelves: Advances in technologies, research and applications: International Association of Sedimentologists (IAS) Special Publication, Volume 44*, pp. 272-294.

3. Dallas, K. L. & Barnard, P. L., 2011. Anthropogenic influences on shoreline and nearshore evolution in the San Francisco Bay coastal system. *Estuarine, Coastal and Shelf Science*, Volume 92, pp. 195-204.