

March 15, 2024

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U.S. Army Corp of Engineers, Los Angeles District
915 Wilshire Blvd., Suite 930
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Re: Lagoon Sedimentation Effects of the Encinitas-Solana Beach Coastal Storm Damage Reduction Project

Dear Ms. Ming,

As manager of the San Dieguito Lagoon (SDL) Restoration Project, Southern California Edison Company (SCE) has a vested interest in the implementation and potential impacts of the U.S. Army Corp of Engineer's (USACE) Encinitas-Solana Beach Coastal Storm Damage Reduction Project (USACE Project) on SCE's SDL Restoration Project. SCE has reviewed the USACE Project Integrated Feasibility Report (IFR) and Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and has prepared this letter to address several concerns regarding the proposed USACE Project and its potential impacts to regional coastal wetlands, including SDL, the San Elijo Lagoon, and the Los Peñasquitos Lagoon. To address these concerns, SCE is requesting that a formal agreement be developed and executed between USACE and each of the lagoon managers, including SCE, to: (1) establish agreed-upon monitoring methodologies and metrics that will accurately identify USACE Project-related increases in sediment accumulation; (2) define the process to identify when an impact occurs and the extent of the impact; and (3) describe how and when compensation for impacts will be determined and allocated.

As you know, SCE has met several times with USACE over the past 15 months to ask questions and to express our concerns regarding the USACE Project. SCE is now providing this letter to explain and document, in detail, our concerns, and our proposed path forward with USACE, in order to commence and to help expedite the development and finalization of such an agreement. As you are aware, the SDL Restoration Project is a long-term environmental mitigation project related to the former San Onofre Nuclear Generation Station (SONGS), of which SCE was a co-owner and the operating agent. SCE is managing the SDL Restoration Project, and is providing this letter, on behalf of itself and the other SONGS co-owners, San Diego Gas & Electric Company and the City of Riverside.

BACKGROUND

The purpose of the USACE Project is to reduce risks to public safety and economic damages associated with the bluff and beach erosion along the shorelines of the cities of Encinitas and Solana Beach, and to reduce erosion and shoreline narrowing to improve recreational

opportunities. The USACE Project in Encinitas includes increasing the beach width by 50 feet along a 7,800-foot-long-- stretch of shoreline using 340,000 cubic yards of sediment, with re-nourishment in the amount of 220,000 cubic yards every five years over a 50-year period for a total of nine additional nourishments. The USACE Project in Solana Beach includes increasing the beach width by 150 feet along a 7,200--foot-long stretch of shoreline using 700,000 cubic yards of sediment, with re-nourishment in the amount of 290,000 cubic yards every 10 years over a 50-year period for a total of four additional nourishments.

The SDL inlet is located approximately 0.3-mile (~1,700 feet) south of the southern edge of the Solana Beach sand receiver site. The San Elijo Lagoon inlet is located between the two receiver sites at approximately two miles south of the Encinitas site and approximately 1.2 miles north of the Solana Beach site. Los Peñasquitos Lagoon is located approximately 3 miles south of the Solana Beach site.

According to the USACE Project Mitigation and Monitoring Plan (Appendix H of the IFR and EIS/EIR), post-construction monitoring will include data collection of the lagoon entrances to evaluate potential impacts. Monitoring methods will consist of oblique aerial photography, physical inspections, and an assessment of past lagoon closure and maintenance dredging records. The program proposes to collect data annually in the spring and fall for two years post-initial beach nourishment and for two years following each re-nourishment event (Table 6.1-1 of IFR Appendix H). Monitoring is anticipated to indicate if the beach fills result in increases in dredge quantities and/or inlet closure rates. Based on the USACE assessment, should the monitoring results indicate significant closure/restrictions to lagoon entrances and significant increases in dredging requirements, mitigation measures (dredging) to offset lagoon sedimentation may be implemented (Section 6.1.3 of Appendix H).

OUTLINE OF CONCERNS

SCE believes that the USACE Project IFR and EIS/EIR does not adequately analyze impacts to regional coastal lagoons, including SDL, from sand replenishment activities. National Marine Fisheries Service communicated a similar concern in their comment letter submitted to the USACE in 2013: *According to [Project EIR/EIS] Appendix B-2, as gross transport increases with increasing beach nourishment, lagoon sedimentation is expected to increase. An increase in lagoon sedimentation is a negative project impact, and the estimated costs of removing the sedimentation by dredging provide a valuation of this impact. However, this impact is not described in Section 5.4 Biological Resources nor are mitigation measures identified to address the increased sedimentation. In addition, no environmental commitments are identified in Section 10.2. This impact may also warrant discussion in Section 5.1 Geology and Topography and/or Section 5.2 Oceanographic and Coastal Processes (NOAA, 2013).*

While the USACE response states that the Project includes an allowance for increased maintenance costs, it does not provide a Mitigation and Monitoring Plan that is adequate to identify and quantify impacts to these lagoons, does not clearly and sufficiently define mitigation triggers, and lacks identification of funding sources, compensation amount, and timing.

Monitoring: The USACE Project proposes monitoring that is limited to visual observations, analysis of oblique aerial photography, and review of past dredging records and closures. These proposed monitoring techniques are insufficient to accurately determine the volume of sediment loading from the USACE Project or the spatial and temporal deposition of the sediment within the lagoons.

The USACE Project assumes that transported sediment will remain in the inlet and will not migrate further into the lagoon channels and marsh habitats. Data collected at San Elijo and Los Peñasquitos lagoons suggest that sand accumulation from past replenishment projects have moved further into those lagoons' channels (M. Hastings and D. Gibson, pers. comm., 2023). Direct measurement methodologies, such as geomorphic cross-sectional transects, bathymetric surveys, and sand grain size analysis are necessary to accurately determine the presence and volume of USACE Project-generated sediment accumulation within the lagoons. Grain size analysis of the borrow sites has been completed and could easily be applied to the monitoring methodology along with an analysis of grain size within each inlet. The USACE has indicated that funding for these more appropriate and accurate monitoring methods is not available, however, without adequate monitoring of potentially significant impacts to local coastal lagoon restoration projects and a mitigation plan, implementation of USACE Project activities is premature.

Identification of Impacts: The USACE defines impacts to the lagoons as “significant closures/restrictions” and “significant increases in dredging requirements,” but ignores potential impacts to lagoon hydrology, water quality, and marsh habitat accretion caused by sediment accumulation and migration into the lagoons. These impacts may occur well before sand accumulation becomes apparent through annual visual observations, and long before a lagoon closure occurs and USACE compensation for additional dredging is approved. Dredging at the SDL inlet has historically been performed on a two-year dredging cycle based on existing natural sedimentation accumulation processes. The addition of large sources of sediment upcoast and adjacent to SDL will result in greater volumes of sand accumulation at SDL, restrictions of tidal flushing, the need for more frequent dredging, potentially higher dredge volumes, and a perpetually higher risk of inlet closures. Monitoring of sediment accumulation at lagoon inlets must be performed regularly to identify and prevent potential closures or hydrologic restrictions before they occur. Sand transport is not a linear process with time but can accelerate during periods of high storm frequency and intensity (including high waves and flooding event), and with changes in local winds, currents, and tides.

The USACE also does not address the secondary sedimentation impacts to the lagoons caused by an increased volume of sediment entering the inlet. The most significant impact will be the increase of sediment that propagates further into the lagoon, causing sediment accumulation and accretion within the sensitive marsh habitat. An increase in sand placement on the shoreline of the City of Encinitas and Solana Beach will naturally lead to an increase in sedimentation within the lagoon, reducing the flow and potentially requiring dredging beyond the inlet, further into the lagoon.

In addition, the meaning of “significant” closure/restrictions and “significant” increases in dredging are not defined by the USACE Project and are subjective in their application. SCE is concerned that USACE will misinterpret Project-related sediment accumulation as natural

sediment accumulation without supporting data. Hence, SCE supports the need for sediment grain analysis as one of the monitoring metrics to assist in identification of USACE Project impacts.

Mitigation and Compensation: There is not sufficient explanation in the Mitigation and Monitoring Plan of when or how mitigation will be implemented. The lack of clarity in the meaning of a “significant” metric, the fact that mitigation will not be implemented until after two years of monitoring, and the lack of detail regarding when or how mitigation would occur puts an onerous burden on lagoon managers to mitigate impacts from the USACE Project themselves as they occur in real time.

The Mitigation and Monitoring Plan states, “Based on the USACE assessment, should the monitoring results indicate significant closure/restrictions to lagoon entrances and significant increases in dredging requirements, mitigation measures (dredging) to offset lagoon sedimentation may be implemented.” (Section 6.1.3 of Appendix H). SCE interprets this language as indicating that the USACE will compensate SCE for the full cost of any additional dredging events that are necessary outside of the established two-year dredging cycle in order to prevent an inlet closure or to avoid a significant hydrological restriction caused by the USACE Project. Additionally, SCE considers all associated costs related to increased inlet maintenance, including permitting, required sediment analysis, dredging, health and safety management, construction management, and water quality monitoring as required, during each of the two-year cycle events. However, the USACE Project IFR and EIS/EIR is ambiguous in these details.

Lagoon managers frequently monitor lagoon inlets visually for signs of sediment accumulation that could result in closures or hydrologic restrictions. In the event that a closure or major restriction appears imminent outside of the annual monitoring proposed in the Mitigation and Monitoring Plan, lagoon managers would need to act expeditiously to address the sediment accumulation before the USACE could determine that an impact has occurred and approves a decision on mitigation. It is also unclear if the USACE would compensate SCE entirely for an additional dredging event if required outside of the established two-year cycle, or how the compensation would be calculated. Immediate action to prevent an inlet closure is essential for the protection of wetland plants and animals, to prevent anoxic water conditions from forming, and to prevent the formation of freshwater ponds that become breeding grounds for mosquitos known to transmit diseases, including West Nile virus, Zika virus, and encephalitis. SCE is contractually obligated to ensure uninterrupted tidal flushing of SDL. SCE is concerned—based on the downcoast proximity of SDL to the Solana Beach receiver site— about USACE -Project related sediment accumulation at the inlet prior to the two-year waiting period before mitigation would be available. Although impacts during the two-year waiting period are considered, the impacts to sensitive lagoon resources will have already occurred before mitigation is considered. Further, without a mitigation agreement to financially offset the additional dredging costs, these costs will be borne by SCE ratepayers, who do not reside within the Project area. For both San Elijo and Los Penasquitos lagoons, the additional costs would be borne by non-profit funding sources. In the absence of mitigation funding, these expenditures displace other critical resource management needs.

In addition, SCE is required through a Coastal Development Permit to comply with annual performance metrics associated with the SDL Restoration Project. Long-term impacts associated

with increased sedimentation and reduced water quality caused by the USACE Project sand replenishment events are likely to hinder SCE in achieving these performance metrics. Failure to meet permit performance requirements would trigger additional mitigation efforts for SCE, and SCE ratepayers could be saddled with additional costs associated with the compliance failure.

HISTORY OF IMPACTS

We explain below that historically, sand placed on beaches north of SDL has moved south into the lagoon area. This sand has tended to remain resident on the Del Mar beaches, resulting in a widening of these beaches and an increase in sedimentation in the lagoon inlet. While SCE periodically dredges the lagoon inlet to maintain the opening, such dredging projects are contractually limited to 16,000 yd³ for each project and are thus unable to fully compensate for large additions of sand to the system. Additional sand placement will result in negative impacts on SDL and potentially other lagoons to the south. To mitigate for these impacts and maintain the lagoon system in good conditions this will require: 1) increase of the frequency of inlet channel dredging; 2) increase of the volume of the sand to be dredged, and 3) modifications to the existing dredging plan of the lagoon inlet channel and existing permits from state and federal agencies.

In 2018, 600,000 yds³ of sand were placed on Cardiff and Fletcher Cove beaches associated with the Regional Beach Sand Project. This sand was transported south into the SDL area, as demonstrated in Figures 1 and 2. These figures compare beach widths before (February 2018, top panels) and after (March 2020, bottom panels) sand placement. Figure 1 shows the beach north of the SDL inlet; Figure 2 shows the beach south of the inlet. In both locations, beach width increased in the two years after sand was placed to the north. The placed sand is the only source of sand to the beaches around SDL in this time. Figure 3 shows the changes in beach width since 2010; mean beach width increased by 48 feet following the placement of sand on Cardiff/Fletcher Cove beaches. The City of Del Mar Beach widths from 2020 to present is widest than the beach widths since 1983 (Coastal Environments, 2023).

In addition to widening beaches, longshore transport of sand causes some sand to move into the lagoon inlet, potentially causing inlet closure (Coastal Environments, 2023). For this reason, SCE performs maintenance to keep the inlet open. Figure 4 shows the area of concern for sand accumulation in the inlet between Highway 101 and the Railroad Bridge; this is the area dredged by SCE. Figure 5 shows the beach width and the volume of sand in concern. Sand volume within the inlet has increased since 2018 despite regular dredging, from an average of 34,319 yd³ in 2018-19 to 40,618 yd³ in 2023. Sand accumulation within the inlet due to the Cardiff/Fletcher Cove Beaches sand placement in 2018 is estimated to be 6,300 yd³ (Coastal Environments, 2023).

These data are consistent with USACE longshore transport analysis performed for the project. In a letter to the Los Peñasquitos Lagoon Foundation from Josephine Axt, Chief of Planning and Policy Division (September 22, 2015), the USACE acknowledges that modeled beach fill sand migration shows substantial sand migrating to approximately 6,000 feet south of the southern limit of the Solana Beach receiver site within 15 years after construction (Figure B6-2 in Appendix BB of Appendix B). Based on SDL's location, approximately 1,700 feet south of the southern boundary of the Solana Beach receiver site, SCE anticipates impacts from sand migration much sooner than 15 years following construction.

CONCLUSIONS

USACE proposes placing an initial 340,000 yd³ of sand on the beaches of the cities of Encinitas and 700,000 yd³ of sand on the Solana Beach, followed by placement of an additional 220,000 yd³ every five years at Encinitas and additional 290,000 yd³ every ten years at Solana Beach, for a total of about 4,180,000 yd³ over 50 years. This sand will be transported southwards to SDL and into the lagoon inlet channel. Based on the lagoon response to the 2018 Cardiff/Fletcher Cove sand replenishment project, current levels of maintenance dredging will be unable to compensate for the increased sand volume within the lagoon inlet between Highway 101 and the Railroad Bridge. As a result, the lagoon tidal prism will be reduced, and the reduction of outflow strength will reduce the ability of the lagoon to naturally maintain the inlet opening. Furthermore, the increased volume of sand could propagate east of Railroad Bridge and require much more costly dredging operations. This will increase the likelihood that the inlet will close during periods of high waves. In addition, as sand volume in the inlet increases, the ability of the lagoon to drain decreases, raising the lagoon water level at low tide, resulting in impacts to the lagoon vegetation. Unusual changes in lagoon volume, due either to reduced draining or lagoon closure, can rapidly cause negative impacts to lagoon biota.

SCE is contractually obligated to maintain an open lagoon inlet but is limited in the volume of sand that may be removed during each dredging project. While the initial volume of sand for the proposed project is larger than the 2018 sand replenishment project, also the repeated sand replenishments total a much larger final volume. The 2018 project is still increasing sand volumes at SDL six years afterwards. It seems that adding more sand at five-year intervals will accelerate the accumulation of sand in SDL. The increased volume and extent of sand deposited in the SDL inlet will require more extensive and/or more frequent dredging operations, requiring additional permitting and more costly procedures.

SCE supports sand replenishment projects that protect the southern California shoreline and promote coastal recreation and access; however, considering SCE's concerns as outlined above, SCE is requesting that a formal agreement between USACE and each of the lagoon managers be developed and executed prior to complete implementation of the first Phase of the USACE Project. The agreement should clearly identify: 1) agreed-upon monitoring methodologies and metrics that will accurately identify USACE Project-related increases in sediment accumulation, 2) define the process to identify when an impact occurs and the extent of the impact, and 3) describe how and when compensation for impacts will be determined and allocated. In addition, the amount and mechanism of available funding should be clearly identified and the time period- over which funding will be made available (e.g., annually over the 50-year Project lifetime). The agreement should include a process for compensation of any impacts identified during the two-year waiting period and during the interim periods between scheduled annual monitoring events in order to expedite mitigation actions and compensation.

While sand nourishment projects are needed, design plans (volume, location, frequency, etc.) should take into consideration the need to minimize impacts on other environmental resources such as our valuable coastal lagoons. The San Dieguito Restoration completed in 2011 is built on a sizable historical data set tracking lagoon functioning and has expanded understanding of how

coastal lagoons can be preserved in the face of changing environmental factors. As beach nourishment projects are a necessary response to these changes, it is important that these two projects be coordinated to expand our ability to protect our coastal environment and avoid damages that may require hundreds of thousands of dollars and many years of work to reverse.

Sincerely,



Alisa Krizek
SCE Environmental Department

CC:

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Bryant Chesney, NOAA National Marine Fisheries Service
Robert Revo Smith Jr., Regulatory Division, U.S. Army Corps of Engineers
Mike Hastings, Los Peñasquitos Lagoon Foundation
Doug Gibson, Nature Collective, San Elijo Lagoon
Joseph Lim, Solana Beach Community Development Director
Greg Wade, Solana Beach City Manager
Andrew Park, Riverside Public Utility
Juan Fernandez, San Diego Gas and Electric
Kenneth Borngrebe, SCE Environmental Department Director
Shawna Anderson, San Dieguito River Park JPA
Kim Smith, SANDAG

REFERENCES

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Josephine Axt, Chief of Planning and Policy Division, U.S. Army Corp of Engineers. Letter to Los Peñasquitos Lagoon Foundation. September 22, 2015.

Rodney R. McInnis, Regional Administrator. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Letter to Josephine R. Axt, Chief of Planning and Policy Division, U.S. Army Corps of Engineers. February 26, 2013.

San Diego Association of Governments (SANDAG). (2011g, May). Regional Beach Sand Project (RBSP) II Final Environmental Impact Report/Environmental Assessment (EIR/EA). www.sandag.org/, pp 622 plus 10 Appendices.

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Figure 1. Comparison between beach widths north of San Dieguito Lagoon inlet, prior to placement of the sand at Cardiff and Solana Beach (upper) and after (lower). Black line indicates mean-high water.

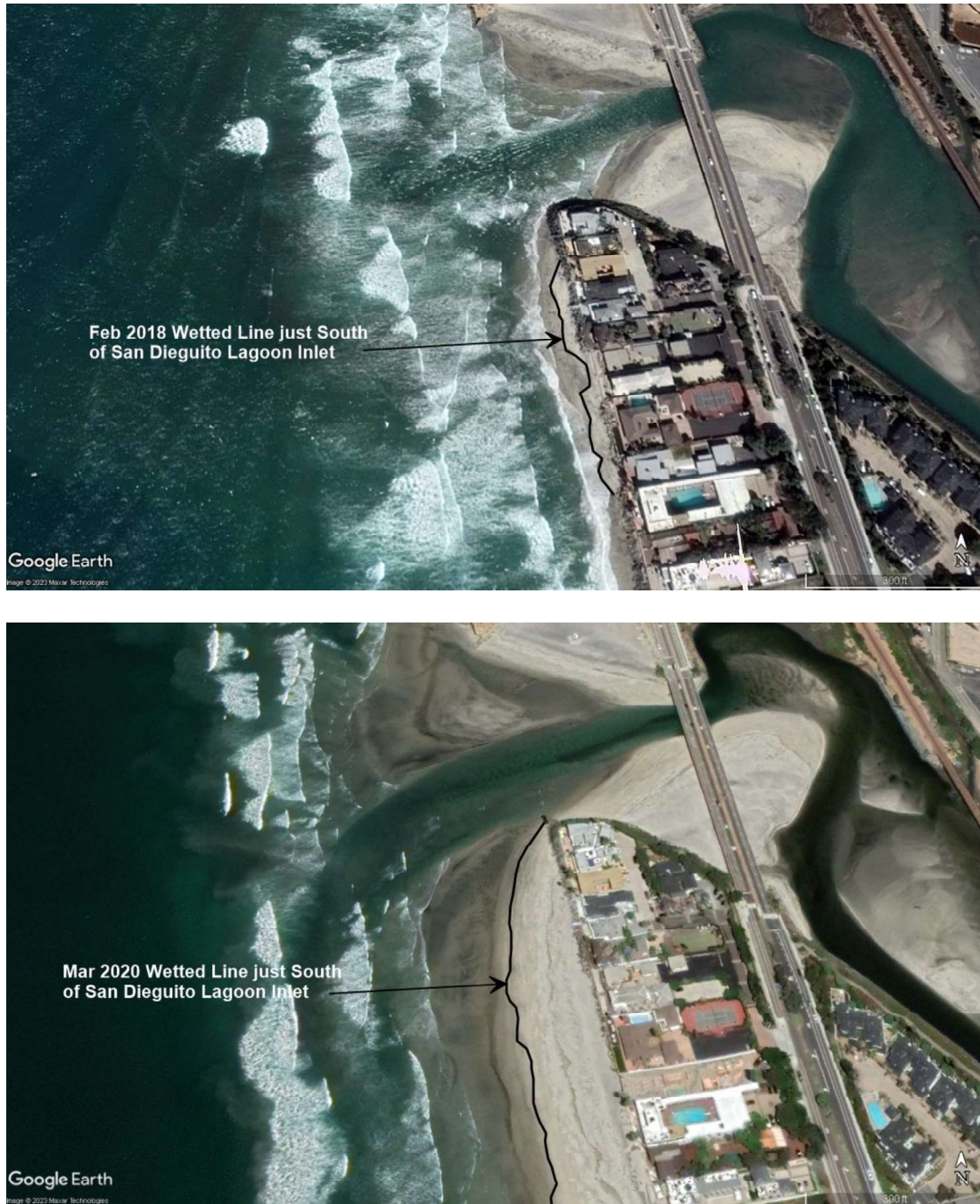


Figure 2. Comparison between beach widths South of San Dieguito Lagoon inlet, prior to placement of the sand at Cardiff and Solana Beach (upper) and after (lower). Black line indicates the mean-high water.

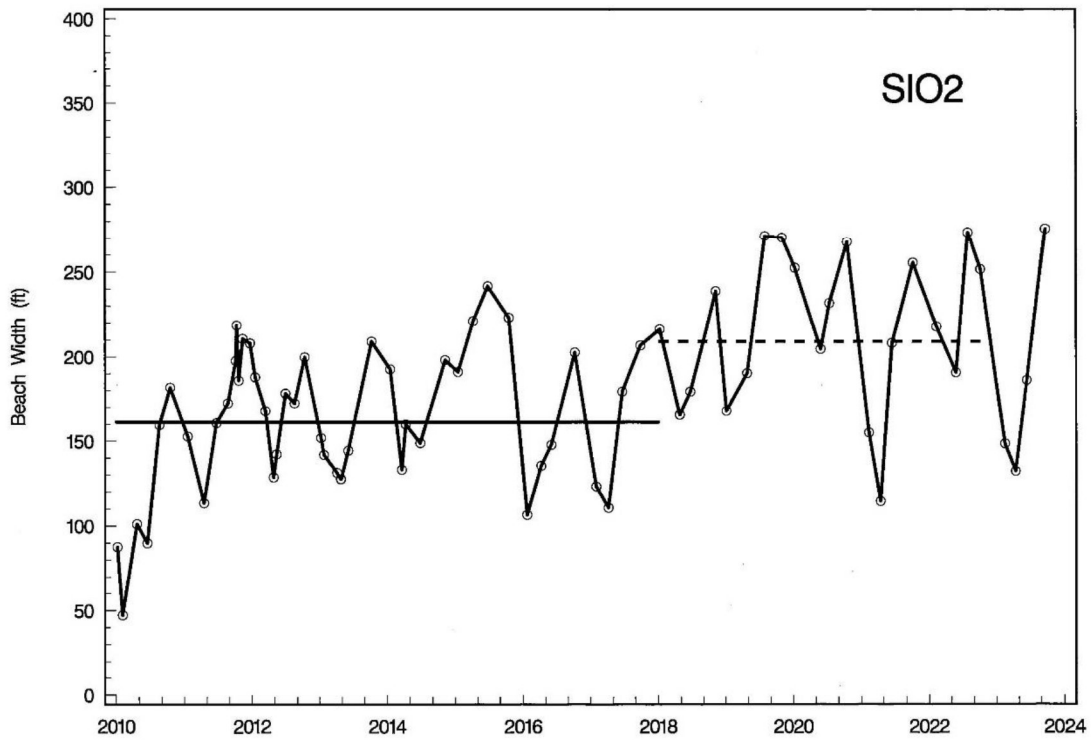


Figure 3. Beach width south of San Dieguito Lagoon inlet, City of Del Mar, from 2010 through 2023. Average beach width prior to 2018 was 161 feet; after 2018 average width increased to 209 feet. Average beach width since 2018 is higher than has historically been observed since 1983.



Figure 4. San Dieguito Lagoon Inlet. Red polygon shows area of sand accumulation between Highway 101 and the Railroad Bridge used for calculation of sand volume.

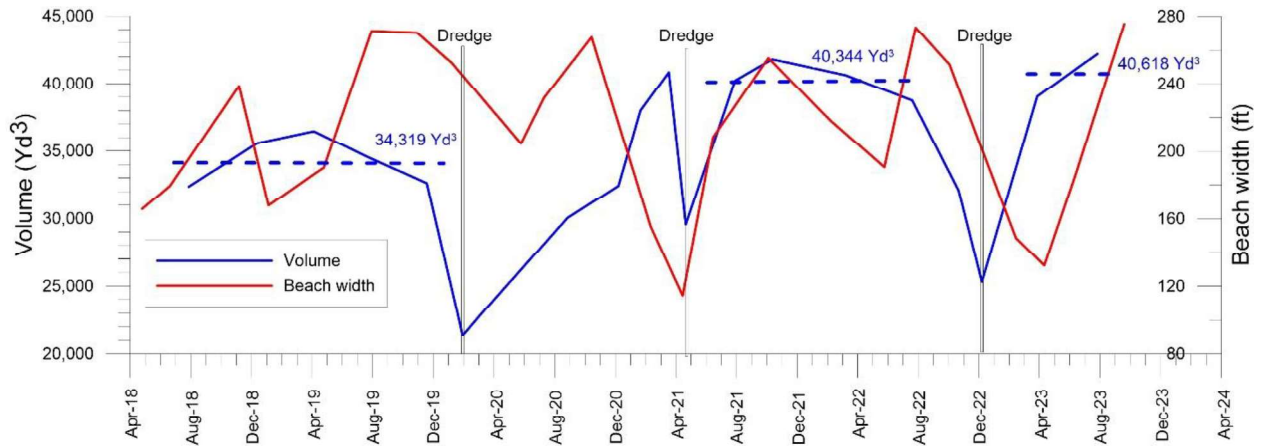


Figure 5. Volume of sand accumulated in the San Dieguito Lagoon Inlet compared to beach widths between April 2018 and December 2023. Dashed lines show average sand volume during intervals between regular channel dredging. Sand accumulation due to Cardiff/Fletcher Cove Beaches sand placement in 2018 is estimated to be 6,300 yd³.