



Agua Hedionda Lagoon Outer Basin –
Maintenance Dredge and Beach Nourishment
2020/2021

Agenda

- **INTRODUCTIONS**
 - Cabrillo in partnership with Poseidon will perform the Agua Hedionda Lagoon (Lagoon) – Outer Basin Maintenance Dredge and Beach Nourishment (AHL-OB MD/BN)
 - Poseidon will manage the AGL-OB MD/BN
- **Background**
- **Permits**
- **Dredge Volume and Sand Placement**
- **Surveys, Plans and Monitoring**

Background

- Location – City of Carlsbad
- Owner of Lagoon – Cabrillo Power I LLC
- Lagoon Dredged in 1954
- Outer Basin has been dredged 30 times
- Carlsbad Beach Nourishment
 - North Beach
 - Middle Beach
 - South Beach



Open Inlet Is Critical To A Healthy Lagoon

- **Maintenance Dredge to remove a flood-tide shoal in the Agua Hedionda Lagoon – Outer Basin inlet is needed in order to maintain:**
 - **The lagoon environment; and**
 - **Intake water flow for the Claude “Bud” Lewis Carlsbad Desalination Plant.**
- **Since 2018, Cabrillo no longer intakes water from the lagoon.**



Why Is It Important to Preserve & Protect the Agua Hedionda Lagoon?

POSEIDON WATER AND THE AGUA HEDIONDA LAGOON: Committed to Preserving & Protecting Our Coastal Environment



1 Claude "Bud" Lewis Carlsbad Desalination Plant



The Carlsbad Desalination Plant produces over 50 million gallons of high-quality and climate resilient drinking water each day, meeting approximately 10 percent of the region's water demand.

In 2019, plant owner and operator Poseidon Water assumed stewardship of the lagoon, along with its recreational and marine resources.

2 Improved Coastal Access and Lagoon Restoration



Through the lagoon stewardship, Poseidon Water is enhancing coastal access and oceanfront land for hiking trails, beach access, and beach parking and an expansion of the Hubbs-SeaWorld fish hatchery. Poseidon Water is also ensuring the restoration and protection of marine life through the periodic dredging and maintenance of the lagoon.

3 Protecting Marine Habitats



Agua Hedionda Lagoon encompasses over 400 acres of marine, estuarine, and wetlands habitat that is home to hundreds of fish, invertebrate and bird species. Among them are the vibrant California state marine fish, the Garibaldi, which are found in greater numbers here than comparable habitats in the pristine environments of Coronado, San Clemente and Santa Catalina islands.

4 YMCA Aquatic Park



The YMCA Aquatic Park, better known as Camp H2O, is a summer camp geared towards seven- to twelve-year-olds and offers affordable day camp activities including swimming, kayaking, boating and fishing. The camp plays an important role in educating youth about the precious marine environment and the need to preserve the lagoon for future generations.

5 Hubbs-SeaWorld Fish Hatchery



Hubbs-SeaWorld Resources Enhancement and Hatchery Program includes a 22,000 square-foot fish hatchery on the lagoon. The Program actively contributes to the restoration of the California white seabass population, adding over 350,000 juveniles annually. Hubbs-SeaWorld has begun to expand its marine restoration activities as a result of additional acreage donated by Poseidon Water.

6 Beach Sand Replenishment



Historically, tidal patterns affecting Carlsbad State Beach removed most of the beach's sand, leaving only rough cobblestones. As stewards of the lagoon, Poseidon Water will continue the periodic lagoon dredging, which provides the beach with a permanent sand supply and replenishment.

7 Warm Water Jetties Surf Break



The power plant's discharge channel acted as a manmade river mouth that delivered sand to the end of the jetties, creating a natural sand bar. For years, this has created one of the most popular surf spots in North San Diego County. With the decommissioning of the power plant, the surf break was threatened. However, with the Carlsbad Desalination Plant's use of the jetties, the surf break will exist for years to come.

8 Agua Hedionda Lagoon Foundation Discovery Center



Opened in 2006, the Discovery Center offers visitors an opportunity to learn about the lagoon's native plants and marine life through exhibits and educational programs.

9 Recreational Boating



Boating remains one of the most popular lagoon activities for residents and visitors. California Water Sports offers expert lessons and rents a variety of boats, including kayaks, canoes and paddleboats to the public.

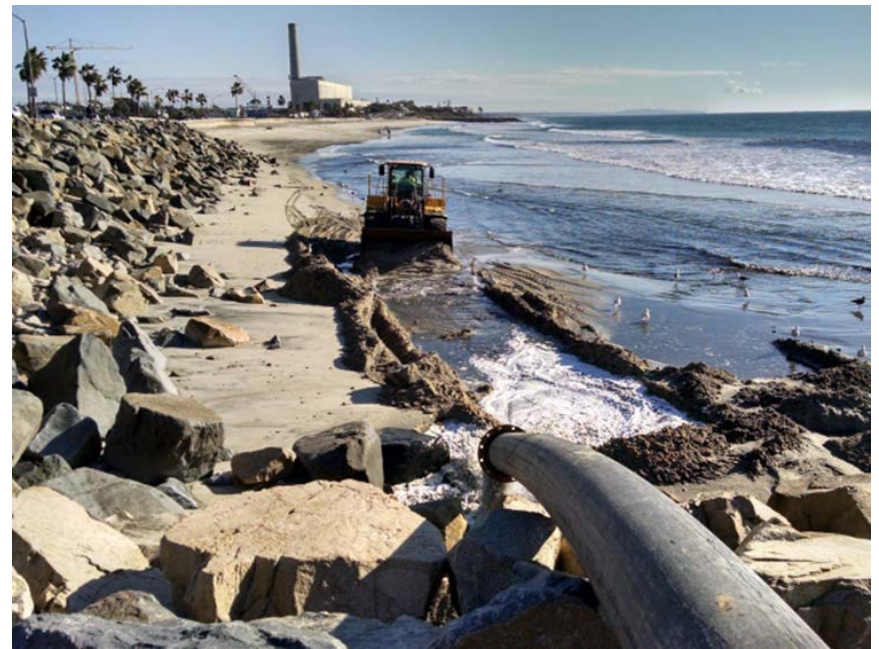
10 Carlsbad Aquafarm



The lagoon is home to the Carlsbad Aquafarm, Southern California's only shellfish aquafarm, where over 1.5 million pounds of shellfish are grown sustainably each year. The farm is a growing contributor to the \$1.5 billion U.S. aquafarming industry and the San Diego region's local economy.

Background and Project Overview

- Dredge and Beach Nourishment
 - Similar operations have been performed over the last six decades. Dredge and Beach Nourishment quantities have ranged from 159,000 to 429,000 cy. The most recent operation, completed in 2018, accounted for 205,482 cy.
 - All Dredging and Beach Nourishment activities occurs between September 15th thru April 15th, outside the nesting and high beach usage season.



Permits

- **The work will be performed in accordance with the stipulations in the following permits:**
 - **City of Carlsbad Special Use Permit (SUP) 06-10X2(A)**
 - **US Army Corps of Engineers Permit SPL-2001-00328-RRS**
 - **California Coastal Commission Coastal Development Permit**
 - **San Diego Regional Water Quality Control Board 401 Water Quality Certification**
 - **California Department of Parks and Recreation Right of Entry Permit**
 - **California State Lands Commission Lease PRC 932.1 and PRC 8721.1**

Dredge Volume and Sand Placement

Sand Deposition Plan – July 2020

- Beach Profile Surveys – May 2020
- Sand Placement
 - Re-Establish Sand Equilibrium Profiles
 - Replace Sand Erosion Since 2018 – 295,274 cy
 - Maximize Recreational Widths in Proportion to Use
 - Avoid Impact to Sensitive Hard Bottom Habitat



Dredge Volume, Sand Placement and Schedule

Receiver Site	Approximate Placement Quantity	Approximate Schedule
North Beach	200,000 cy	October 2020 to December 2020
No. Inlet Jetty to Maple Ave	125,000 cy	
Maple Ave to Pine Ave	75,000 cy	
Middle Beach	42,000 cy	January 2021 to February 15, 2021
South Beach	58,000 cy	February 15, 2021 to March 2021 ¹
Total	up to 300,000 cy	

¹Sand placement operations may extend beyond March 2021 if adverse weather conditions or equipment issues are encountered. No sand will be placed on beaches after April 15, 2021.

Survey, Plans and Monitoring

- Pre- and Post-dredge bathymetric surveys & beach profiles: US-ACOE, CofC, CCC
- Pre-dredge Sand Deposition Plan: CofC
- Pre-dredge Sampling and Analysis Plan: US-ACOE, CCC, SLC
- Pre-dredge *Caulerpa taxifolia*: US-ACOE, CofC, CCC
- Pre- and Post-dredge eelgrass: US-ACOE, CofC, CCC
- Pre- and Post-dredge Nearshore Habitat Mapping: US-ACOE
- Grunion: US-ACOE, CCC
- Sea Turtle: US-ACOE, NMFS
- Water Quality Monitoring Plan: SD-RWQCB

Surveys, Plans and Monitoring

- Pre- Project Monitoring Plan; US-ACOE
- Dredging and Disposal Operations Plan: US-ACOE
- BMPs: CofC, CA PR
- Pre- and Post-Notifications and various reports: all agencies
- Public safety postings and other protections: CofC, CA PR, CCC
- Timing: Sept. 15 to Apr. 15 cycle for Least Tern nesting season, recreational benefit, etc.

Stakeholder's Comments

- Please send your comments by September 4, 2020 to:
 - Josie McKinley at JMcKinley@Poseidonwater.com