

CALIFORNIA COASTAL COMMISSION

SAN DIEGO DISTRICT OFFICE
7575 METROPOLITAN DRIVE, SUITE 103 SAN DIEGO, CA 92108-4402
VOICE (619) 767-2370
FAX (619) 767-2384



Th16c

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STAFF REPORT: REGULAR CALENDAR

Application No.: 6-20-0240

Applicant: Cabrillo Power I LLC

Agent: Peter MacLaggan, Poseidon Water

Location: Outer basin of Agua Hedionda Lagoon and Carlsbad State Beach, Carlsbad, San Diego County

Project Description: Dredge up to 500,000 cubic yards of lagoon-bottom sand within the existing approved dredge limits of the outer basin of Agua Hedionda Lagoon and deposit on North, Middle and South Beaches in Carlsbad.

Staff Recommendation: Approval with conditions

SUMMARY OF STAFF RECOMMENDATION

Staff is recommending approval of the proposed project with conditions to allow maintenance dredging of up to 500,000 cubic yards of beach quality sand from the outer basin of Agua Hedionda Lagoon and beach deposition of the dredged material on Middle and South Beaches in Carlsbad. The outer Agua Hedionda Lagoon was originally dredged in 1954 as part of the construction of the Encina Power Station and has been subject to routine maintenance dredging since that time. The Commission has approved dredging at this location since 1977. The most recent approvals were in January 2002, August 2004, November 2006, November 2008, August 2010, October 2014, and December 2017 for dredging projects similar to the proposed project. The Encina Power Station discontinued operation in December 2018, however, the subject dredging is proposed to remove sediment transported into the lagoon by tidal action through the existing jetty structure to

maintain tidal exchange throughout the lagoon and provide seawater to support the operation of the Claude “Bud” Lewis Carlsbad Desalination Plant. The proposed project is consistent with past Commission actions for maintenance dredging and beach deposition.

Sand dredged from Agua Hedionda has historically been deposited on North Beach (Pine Avenue south to North Jetty), Middle Beach (between inlet and outfall channels), and South Beach (south of outfall channel). All three of these beaches are public recreational destinations that benefit from sand deposition, but the City of Carlsbad has typically prioritized placement of sand on North Beach, which is one of the City’s most popular recreational beaches, while the power station operator has typically preferred to deposit the dredged sand on the two beaches south of the lagoon inlet channel (Middle and South Beaches), as sand placed at North Beach is more likely to redistribute back into the channel mouth due to the north south littoral transport in this region. Thus, the specific amount of sand placed on these three locations has been balanced between these objectives. In addition, sand placement can impact biological resources including offshore reefs, and grunion, and these impacts must be avoided or minimized.

For the current project, the applicant anticipates that approximately 300,000 cubic yards of sand will be dredged and placed on three beach segments. The applicant proposes to place up to 200,000 cubic yards on North Beach. Of the remaining 100,000 cubic yards, approximately 42% (42,000 cubic yards) would be placed on Middle Beach, and 58% (58,000 cubic yards) would be placed on South Beach.

Although in more recent years the Commission has approved similar projects that placed smaller quantities of sand on North Beach, the placement of 200,000 cubic yards of sand on North Beach during this proposed dredge cycle is consistent with the Commission’s goal of placing sand where it will provide the greatest recreational benefit. North Beach has not been nourished since 2014 and has lost significantly more sand than Middle and South Beaches since 2018. North Beach is the most popular beach segment and the proposed sand volume will restore sand lost from this beach, increasing beach widths to benefit recreational use.

The primary issues raised by the proposed project include potential impacts to biological resources and surfing resources. All three beaches have routinely received sand through sand replenishment programs, and the proposed sand deposition volumes will not expand the beaches beyond historic widths. As a result, the placement of sand here is unlikely to have an adverse impact on nearshore marine habitat. **Special Condition 7** requires the applicant to conduct ecological monitoring to track changes that may occur. Because work on the beach could disrupt California least tern and grunion, **Special Condition 1** restricts the timing of dredging and sand placement. **Special Condition 5** requires detailed grunion monitoring, allowing work to occur in areas where grunion have not spawned and avoiding areas where the fish have spawned.

Agua Hedionda Lagoon supports eelgrass that could be impacted by dredging operations. Therefore, **Special Condition 4** requires surveys before and after construction to identify any impacts to eelgrass and describes mitigation requirements where impacts occur. Finally, **Special Condition 6** requires monitoring to avoid spread of the invasive algae, *Caulerpa taxifolia*.

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Because this project would place a significant quantity of sand on North Beach after a period of no nourishment, surf in this area could be adversely impacted by the sand placement. To understand any potential impacts, **Special Condition No. 11** requires the applicant to monitor surfing conditions prior to and following nourishment activities and submit monitoring reports. In addition, **Special Condition 10** requires the applicant to work with Commission staff and community stakeholders to assess regional alternative options for placement of dredged sand to both enhance beneficial reuse of the sand and also address concerns about potential impacts to coastal resources prior to applying for a new coastal development permit or amendment to this coastal development permit to conduct future maintenance dredging

Special Conditions 2 and **3** require the applicant to prepare a final map of pre-dredge conditions of the lagoon, sand deposition plan, and pre- and post-dredge profiles at approved beach deposition locations to monitor changes in beach profiles over time. **Special Condition 9** requires the applicant to submit all necessary local, state, and federal discretionary permits, including approval from the United States Army Corps of Engineers. Finally, **Special Condition 8** limits the permit term to one dredge cycle to allow ongoing assessment of impacts.

Therefore, Commission staff recommends **approval** of coastal development permit application 6-20-0240 as conditioned.

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EXHIBITS

[Exhibit 1 – Vicinity Map](#)

[Exhibit 2 – Aerial Photo](#)

[Exhibit 3 – Dredge Limits](#)

[Exhibit 4 – Beach Profile Locations](#)

[Exhibit 5 – Walker Scale Graphic](#)

I. MOTION AND RESOLUTION

Motion:

I move that the Commission approve Coastal Development Permit 6-20-0240 pursuant to the staff recommendation.

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of Commissioners present.

Resolution:

The Commission hereby approves the Coastal Development Permit for the proposed project and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS

- 1. Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the applicant or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
- 2. Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
- 3. Interpretation.** Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.
- 4. Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
- 5. Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the applicant to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

1. **Timing of Dredging and Beach Deposition Placement.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and approval, final plans that include the following:
 - a. Placement of sand on area beaches shall occur outside of the summer season (Memorial Day weekend through Labor Day of any year).
 - b. To avoid potential impacts to the California least tern breeding period and the California grunion spawning period, dredging and sand placement shall occur between September 15 and April 15. The permittee may extend the dredge period to April 30, if the extension is approved in writing by the Executive Director in consultation with the U.S. Army Corps of Engineers (ACOE) and the California Department of Fish and Wildlife (CDFW).

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

2. **Pre- and Post-Dredge Requirements.** At least two weeks prior to dredging and within 60 days of completion of the proposed dredge cycle, the applicant shall submit to the Executive Director for review and written approval the following:
 - a. A map of pre-dredge conditions of the outer lagoon and pre- and post-deposition profiles at the approved beach deposition locations; proposed dredge quantities; deposition plan and methodology; and a signage plan to ensure that coastal visitors will be made aware of the project and its boundaries.
 - b. A copy of the results of the approved sampling analysis plan submitted to the ACOE and evidence the ACOE has approved the proposed dredge sediment as suitable for deposition at the approved beach locations, pursuant to the ACOE permit.
3. **Beach Profile Monitoring.** Prior to the placement of any sand material, the applicant shall prepare a total of ten (10) profiles of the relevant beach and off-shore area (to closure or wading depth, consistent with the survey requirements of the ACOE permit) showing the pre-deposition conditions. Profiles shall be taken at the same locations annually thereafter until the area either returns to its pre-deposition condition or is further modified by additional nourishment. Reports shall be provided to the Executive Director following the one-month after deposition profiles and after each annual survey, which provide information on site conditions and an analysis of the long-term changes in sediment supply.

- 4. Eelgrass Mitigation and Monitoring Plan.** PRIOR TO THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit for review and written approval of the Executive Director, an Eelgrass Mitigation and Monitoring Plan that includes, at a minimum, the following:
- a. Performance of a pre-construction eelgrass survey of the project area by a qualified biologist immediately prior to the proposed maintenance dredging, in order to establish the location of all eelgrass habitat.
 - b. The location of all eelgrass habitat found in the pre-construction survey so that the contractor can avoid impacting these areas during the proposed maintenance dredging. No anchorage of dredging equipment is permitted outside the limits of the dredging operation.
 - c. Performance of a post-construction eelgrass survey of the project area by a qualified biologist no more than 30 days after the completion of the work to determine if any eelgrass habitat was impacted by dredging activities.
 - d. Performance of mitigation if it is determined by the post-construction eelgrass survey that there has been a loss of eelgrass habitat. This mitigation must be performed in accordance with and subject to the requirements of the October 2014 *California Eelgrass Mitigation Policy* (http://www.westcoast.fisheries.noaa.gov/publications/habitat/california_eelgrass_mitigation/Final%20CEMP%20October%202014/cemp_oct_2014_final.pdf) (1.38:1 starting ratio to achieve a final mitigation ratio of 1.2:1). The applicant shall consult with the Executive Director prior to construction to determine if an additional coastal development permit or amendment is required for any necessary mitigation.

The permittee shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the plans shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

- 5. Grunion Monitoring & Avoidance Plan.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, a Grunion Monitoring and Avoidance Plan that provides for the following:
- a. Should sand placement activities be necessary below the high tide line between March 1 and April 30, the applicant shall avoid impacts to mature and/or spawning grunion and to grunion eggs. The applicant shall retain the services of a biologist with appropriate qualifications. The annually published California Department of Fish and Wildlife (CDFW) expected grunion runs shall be used to determine possible grunion spawning periods. The plan shall, at a minimum, include:

- i. Sand placement sites shall be monitored for grunion runs beginning at least two weeks prior to commencement of sand placement activities, and throughout the period of planned sand placement work from March 1 through April 30. Monitoring is not necessary in areas where there is no sand, such as areas supporting 100% cobble or bluff backed beaches with no sand exposed during high tide.
- ii. Grunion monitoring shall be conducted by a qualified biologist for 30 minutes prior to, and two hours following, the predicted start of each daily spawning event. Sufficient qualified biologists shall be employed to ensure that the entire proposed sand placement site is monitored during the predicted grunion run. The magnitude and extent of a spawning event shall be defined in 300-foot segments of beach using the Walker Scale ([Exhibit 5](#)). Every individual fish (males and females) shall be counted to determine the Walker Scale value (e.g. 0, 1, 2, 3, 4, or 5) of each 300-foot segment within the proposed work area. Sand placement activities shall be modified according to the following plan:
 - A. If a grunion run consisting of 0-100 individual fish per 300-foot segment (Walker Scale 0 or 1) is reported within two weeks prior to, or during, sand placement work, the applicant does not need to take any avoidance action for grunion eggs. No mature grunion may be buried or harmed as a result of sand placement.
 - B. Within two weeks prior to proposed work, if a grunion run consisting of 100 or more individual fish per 300-foot segment (Walker Scale 2, 3, 4, or 5) is reported, the applicant shall avoid work on the respective beach segment(s) and truck route and additionally, shall avoid a 100-foot buffer on either side of the segment(s) and route, for a minimum of two weeks, to ensure that no grunion eggs are buried or disturbed.¹ These areas shall be memorialized through multiple GPS coordinates, and marked with irrigation flags for a minimum of two weeks when the next scheduled grunion run will be monitored. The applicant shall adapt the sand placement schedule to avoid operations on such beach segments and their associated buffers. No mature grunion may be harmed as a result of sand placement.

¹ During grunion spawning season, grunion spawn once every two weeks, on several nights, during the highest tides that occur during each month (called spring and neap tides). Grunion eggs take approximately 10 days to mature and hatch during the next high tide. Monitoring for grunion runs must happen, per the annual CDFW published grunion spawning schedule, because one cannot predict where grunion will spawn from one event to another.

- C. If sand placement has already commenced, and a grunion run consisting of 100 to 500 individual fish, in one or more 300-foot segment (Walker Scale 2) in the work area is reported, the applicant shall avoid impacts to grunion eggs to the greatest extent feasible and then shall minimize impacts to grunion eggs through such measures as alteration of the truck route, sand discharge points, sand spreading areas, and sand placement locations.
- D. If sand placement has already commenced, and a grunion run consisting of 500 or more individual fish per segment (Walker Scale 3, 4, or 5) is reported, the applicant shall avoid work on the respective beach segment(s) and truck route and additionally, shall avoid a 100-foot buffer on either side of the segment(s) and route, for a minimum of two weeks, to ensure that no grunion eggs are buried or disturbed. These areas shall be memorialized through multiple GPS coordinates, and marked with irrigation flags for a minimum of two weeks when the next scheduled grunion run will be monitored. The applicant shall adapt the sand placement schedule to avoid operations on such beach segments and their associated buffers. No mature grunion may be harmed as a result of sand placement.

6. Invasive Species. PRIOR TO THE COMMENCEMENT OF DREDGING, the applicant shall provide evidence that dredging of the outer lagoon can occur without the risk of spreading the invasive green alga *Caulerpa taxifolia* as follows:

- a. Not earlier than 90 days nor later than 30 days prior to commencement or re-commencement of any development authorized under this coastal development permit, the applicant shall undertake a survey of the project area (including the dredging area, anchoring areas and any other areas where the bottom could be disturbed by project activities) and a buffer area of at least ten (10) meters beyond the project area to determine the presence of the invasive alga *Caulerpa taxifolia*. The survey shall include a visual examination of the substrate.
- b. The survey protocol shall be prepared in consultation with the Regional Water Quality Control Board, the California Department of Fish and Wildlife, and the National Marine Fisheries Service.
- c. Within five (5) business days of completion of the survey, the applicant shall submit the survey:
 - i. For the review and written approval of the Executive Director, and
 - ii. To the Surveillance Subcommittee of the Southern California Caulerpa Action Team (SCCAT). The SCCAT Surveillance Subcommittee may be contacted through William Paznokas, California Department of Fish and

Wildlife (CDFW) (858-467-4218) or Bryant Chesney, National Marine Fisheries Service (NMFS) (562-980-4037).

- iii. If *Caulerpa* is found, then the NMFS and CDFW contacts shall be notified within 24 hours of discovery.
 - d. If *Caulerpa* is found, the applicant shall, prior to the commencement of dredging, provide evidence to the Executive Director for review and written approval either that all *Caulerpa* discovered within the project and buffer area has been eradicated or that the dredging project has been revised to avoid any contact with *Caulerpa*. No changes to the dredging project shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.
7. **Habitat Monitoring.** The applicant shall submit copies of the annual Nearshore Marine Habitat Monitoring Mapping reports, required by the ACOE, to the Executive Director. These reports shall monitor changes in turbidity/sedimentation, water quality, coverage of coastal aquatic resources, and biology within the proposed discharge site and the adjacent offshore area. The Nearshore Habitat Monitoring Mapping reports shall identify and delineate coastal habitat types, including eelgrass beds, high-relief reef and low-relief vegetated reefs (with indicator species including giant and feather boa kelp, large sea fans, sea palms and surf-grass), located immediately adjacent up coast and down coast of the proposed discharge, with potential to be impacted by the proposed discharge.
8. **Permit Term.** This coastal development permit authorizes development on a temporary basis only. The proposed maintenance dredging is authorized for one dredge cycle (2020/2021 cycle), commencing upon the date of Commission approval, after which time the authorization for continuation of dredging and deposition of dredged sand on area beaches approved as part of this permit shall cease. After the authorization for the development expires, the continuation of dredging and deposition on area beaches will require either the issuance of a new coastal development permit or an amendment to this coastal development permit.

All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions. Any deviation from the approved project plans must be submitted for review by the Executive Director to determine whether an amendment to this coastal development permit is legally required.
9. **Required Agency Permits.** PRIOR TO THE COMMENCEMENT OF DREDGING, the applicant shall submit to the Executive Director, all necessary local, state, and federal discretionary permits, including approval from the ACOE and CDFW. The applicant shall inform the Executive Director of any changes to the project required.
10. **Future Permit Coordination and Informational Requirements.** By acceptance of this coastal development permit, the applicant agrees that prior to any request for a new coastal development permit or amendment to this coastal development permit

to conduct future maintenance dredging within the outer basin of Agua Hedionda Lagoon, the applicant will work with Commission staff and community stakeholders to assess regional alternative options for the placement and volumes of dredged sand to address concerns about potential impacts to coastal resources.

11. Surf Monitoring Plan. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director, for review and written approval, a Surf Monitoring Plan to visually monitor surfing conditions at and adjacent to North Beach before and after sand placement. The Surf Monitoring Plan shall include, at a minimum, the following:

- a. Identify the major surging breaks at and adjacent to North Beach and determine appropriate monitoring sites;
- b. Document morning conditions using a standardized data sheet, with video recording as appropriate, as follows:
 - i. Pre-construction monitoring shall begin four weeks prior to sand placement, and take place 3 times per week over 30 days; and
 - ii. Post-construction monitoring shall begin within two weeks following completion of sand placement, and take place 3 times per week over 30 days.
- c. Surf monitoring shall include estimates of wave height, type of wave (hollow or mushy), breaker distance from shore, length of peel, and existence of backwash;
- d. Conduct standardized interviews with surfers using a questionnaire;
- e. Estimate the density of surfers at each surfing site during monitoring; and
- f. A final report that includes the monitoring results and an analysis of any change in surfing conditions, which shall be submitted to the Executive Director within 90 days of the final survey.

The permittee shall undertake development in conformance with the approved final plan unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required for any proposed minor deviations.

IV. FINDINGS AND DECLARATIONS

A. Project Description and Background

The applicant proposes to dredge up to 500,000 cubic yards of lagoon bottom sand within the outer basin of Agua Hedionda Lagoon and deposit it on three Carlsbad beaches, North Beach, Middle Beach and South Beach. The dredged material will be removed from the lagoon bottom within a pre-defined dredge limit area, as established by the Army Corps of Engineers (ACOE) permit (#SPL-2001-00328-RRS) and approved by the Commission in past dredging projects to allow for protection of eelgrass resources ([Exhibit 3](#)). The dredged slurry would be pumped through a floating 20-inch diameter pipeline. For delivery of dredged material to the north, the pipe would float on the lagoon under the Carlsbad Boulevard bridge and would connect to above ground, temporary pipes that would be placed along the beach. For southern deposition, the pipe would float on the outer lagoon and connect to existing underground pipes under Carlsbad Boulevard. The pipes would be extended along the surface of Carlsbad State Beach to reach the south side of the Encina Power Station (now the Claude “Bud” Lewis Carlsbad Desalination Plant) discharge jetty. Temporary dikes and berms would be used to de-water the slurry. Bulldozers and front-end loaders would then be used to spread the sand on the beach. Equipment and material staging would occur on the north and west shore of the outer lagoon and along the beach.

Agua Hedionda Lagoon consists of three basins, the outer, middle, and inner basins ([Exhibit 2](#)). The outer Agua Hedionda Lagoon (66 acres) was originally dredged in 1954 as part of the construction for the Encina Power Station and has been subject to routine maintenance dredging since that time. The dredging is performed to remove sediment transported into the lagoon by tidal action through the existing jetty structure. Sand transport into the lagoon system is further accelerated by the seawater pumping activities historically associated with operation of the power plant and ongoing operation of the desalination plant. According to the applicant, the average historical sand influx is calculated at 400+ cubic yards per day but can range up to 800+ cubic yards per day based on background conditions and storm and wave energy. The power plant stopped operating its once-through cooling system in 2018. Poseidon has assumed sole responsibility for operating the intake system for its desalination operations. Poseidon is currently permitted to pump in up to 299 million gallons of seawater per day for its desalination facility. Therefore, operation of the desalination plant will require on-going maintenance dredging of the lagoon in the future. The proposed dredging will maintain tidal exchange throughout the lagoon and provide seawater to support the operation of the desalination plant. The desalination plant is located on the south shore of the outer basin on Agua Hedionda Lagoon within 300 feet of the Pacific Ocean. Other existing uses within the outer lagoon include aquaculture farming and marine research (Hubbs Fish Hatchery).

As described in detail below in section B. Permit and Sand Placement History, the Commission has approved regular dredging of Agua Hedionda Lagoon since 1977. The dredge sediment has been placed on North, Middle, and South Beaches in varying amounts. Between 2000 and 2014, the Commission authorized similar projects with

placement of approximately 30% of the dredged sand onto North Beach and the remaining 70% on Middle and South Beaches (ref. CDP Nos. 6-00-111, 6-01-80, 6-04-54, 6-06-61, 6-08-047, 6-10-046, and 6-14-1128). The last maintenance dredging of the outer lagoon was completed in April 2018 and resulted in the placement of 205,482 cubic yards of sand on Middle and South Beaches. No sand was placed on North Beach in that dredge cycle because the North Beach segment was already in a widened condition. The Commission authorized placement of 70% of the dredged sand onto Middle Beach and 30% on South Beach (ref. CDP No. 6-17-0732).

The Commission has routinely authorized maintenance dredging of up to 500,000 cubic yards and placement of that sand on the three beach segments, however, past projects have typically resulted in less than 500,000 cubic yards. In the subject dredge cycle, the applicant estimates that approximately 300,000 cubic yards of sand material is available to be dredged from the outer basin, similar in scope and scale to previously approved maintenance projects. The applicant proposes to deposit up to 200,000 cubic yards of the sand on North Beach (Pine Avenue south to North Inlet Jetty), 42,000 cubic yards on Middle Beach (between the inlet and outfall channels), and up to 58,000 cubic yards on South Beach (south of outfall channel) ([Exhibit 1](#)). If more than 300,000 cubic yards is dredged during this cycle, the applicant would distribute any excess sand up to the 500,000 cubic yard maximum with approximately 42% on Middle Beach and 58% on South Beach.

The proposed sand quantities for each location were determined based on several factors. North Beach is the most heavily recreated beach of the three, due in part to parking facilities available at the Pine Avenue lot at the northern end and Tamarack State Beach lot at the southern end of this segment. In addition, beach profile surveys conducted in May 2020 and September 2020 indicate that more sand has eroded from North Beach since April 2018 than Middle or South Beaches. Therefore, the applicant is proposing to place the majority of the dredged material on North Beach to restore this beach to its 2018 condition and maximize recreational opportunities. Other factors considered include avoiding impacts to sensitive hard bottom habitat as sand placed on the beach moves offshore, and re-establishing a sand volume “carrying capacity” to optimize the theoretical sand loss rate and sand retention time (discussed in greater detail below under B. Permit and Sand Placement History).

The City of Carlsbad has a certified LCP; however, development will occur within an area of the Commission’s original permit jurisdiction and as such, the standard of review is the Chapter 3 policies of the Coastal Act with the certified Agua Hedionda Land Use Plan and Mello II LCP used as guidance.

B. Permit and Sand Placement History

The Coastal Commission has approved dredging of Agua Hedionda Lagoon for many years in association with the needs of the former power plant dredging program (ref. CDP Nos. F5536, 6-93-193, 6-93-193-A, 6-93-193-A2, 6-97-46, 6-97-83, 6-00-111, 6-01-80, 6-04-54, 6-06-61, 6-08-047, 6-10-046, 6-14-1128 and 6-17-0732). As noted, while the dredging has occurred regularly over a period of many years, the preferred location and distribution of the dredged sand on the adjacent beaches has varied based

on balancing the City's desire to maintain wide sandy beaches at the most popular recreational destinations (typically North Beach), with the power plant (now desalination plant) operator's interest in limiting the amount of sand placed north of the inlet (that is, on North Beach) as the north to south littoral transport in this region can result in sand placed in this location reentering the lagoon in a relatively short period of time. A brief permit history follows.

CDP No. F5536 (1977) permitted the applicant to annually deposit dredged sand from the lagoon's outer basin onto Carlsbad State Beach, immediately adjacent to the facility to the west. It was replaced by CDP No. 6-93-193 in March 1994.

In CDP No. 6-93-193 and amendments, the Commission approved the applicant's request to modify the boundary of the approved dredged sediment placement limits associated with the applicant's beach nourishment program to extend north of the lagoon to Oak Street; to allow dredging of 130,000 to 150,000 cubic yards of sand on an annual basis from October 1 to April 15 or at 30 month intervals for five years through February 3, 1997; and amended the approved maintenance provisions as they relate to the operation of the Encina Power Plant.

In CDP No. 6-97-45 (August 1997), the Commission approved the dredging of approximately 200,000 cubic yards of sand from the outer basin of Agua Hedionda Lagoon, starting September 15, 1997 and ending April 15, 1998. SDG&E (the owner of the plant at that time) had proposed to put the sand on South Beach. The City of Carlsbad had requested that the sand should be placed on North Beach. The Commission found that the sand should be placed at Middle Beach where it would provide the most recreational benefit to coastal visitors – Middle Beach was narrower than North and South Beaches, was one of the most heavily attended beaches in Carlsbad and had supporting parking facilities, public walkways, and lifeguard service, while South Beach provides less beach use and fewer support facilities.

In CDP No. 6-97-46 (November 1997), the Commission approved the dredging of approximately 57,000 cubic yards of sand from the middle basin of Agua Hedionda Lagoon. The Commission again found that the dredged sediment should be placed on Middle Beach for the same reasons cited in CDP No. 6-97-45. Project studies indicated an additional 57,000 cu. yds. could be easily accommodated on Middle Beach. However, at the hearing, the Commission expressed a desire to see some amount of material from future dredging placed north of the power plant intake jetty on North Beach to support recreational users there.

In light of the differing opinions on where the sand should be placed, the Commission required the permittee to complete a study to determine the effects of the power plant on sand transport and erosion rates within the vicinity of Agua Hedionda Lagoon, to be used for decision-making on future dredging projects. The study was to enable the Commission to determine where beach quality material dredged from Agua Hedionda Lagoon by SDG&E should be placed in the future, in order to replenish those beaches most affected by the operation of the power plant.

In CDP No. 6-97-83, the Commission approved up to 797,000 cubic yards of dredging

within the inner (647,000 cu. yds. starting Spring 1998) and outer basins (150,000 cu. yds. starting Spring 1999) of Agua Hedionda Lagoon. Approximately 341,000 yards of beach quality sand resulting from the inner lagoon dredging was approved to be placed on Middle Beach and all sand resulting from the outer lagoon dredging was approved to be placed on North Beach, directly north of Middle Beach and continuing to Oak Street for approximately one mile. The remaining 306,000 yards of material was approved to be buried and capped within a "borrow pit" in the inner lagoon. SDG&E requested the permit application for dredging of the inner and outer lagoon be scheduled prior to obtaining the results of the study to keep its dredging operation on schedule and not jeopardize funding, but also to address the Commission's stated concerns regarding the need to increase the tidal prism of the entire lagoon. Absent the findings of the study, the Commission again required the dredged sediments from the inner lagoon be placed on Middle Beach where it could be easily accommodated.

However, the Commission also required that the dredged sediments from the outer lagoon be placed on North Beach, as SDG&E had the capability to deliver the sand there from the outer lagoon. The Commission found that sand placement on North Beach, which is served by a parking lot and numerous public access points, would also provide a clear recreational benefit for coastal visitors. In the same action, the Commission denied the applicant's request to receive a 5-year approval to perform maintenance dredging. The Commission found absent the findings of the sand transport study and due to other concerns, any subsequent dredge cycles should be subject to a separate coastal development permit to assure its consistency with Coastal Act policies and involve coordination with the Army Corps of Engineers, City of Carlsbad and State Parks to determine the appropriate deposition site(s) for the future.

In 2001, the San Diego Association of Government's (SANDAG) sand replenishment project placed approximately 2 million cu. yds. of sand on 12 local San Diego County beaches, including northern Carlsbad beaches (ref. CDP No. 6-00-38/SANDAG). The Final Environmental Impact Report for that project noted that the SANDAG project was projected to further increase sedimentation of the lagoon, which SDG&E (the power plant operators at that time) identified as further reason to avoid future placement of dredged sand north of the lagoon.

To address this concern, the Commission required Cabrillo Power to fund an independent study to assess sediment transport conditions in the area of the Agua Hedionda Lagoon. In October 1999, the report commissioned by the Coastal Commission and prepared by Dr. Hany Elwany of Coastal Environments entitled "Study of Sediment Transport Conditions in the Vicinity of the Agua Hedionda Lagoon" was presented to the Commission. Dr. Elwany's report looked at average historical sedimentation rates and conditions in and around the lagoon. The report states, "Approximately 80% of the sand trapped inside the lagoon is deposited from the southward sand transport and 20% from northward sand transport..." These findings are based on historical averages. The report goes on to state "The evaluation of sand-placement options provides the following results: 1) to replenish sand removed by the power plant about 80% of the dredged sand should be placed on Middle and South Beach, and 20% on North Beach; 2) to minimize the need for re-dredging, the sand

should be placed as far from the intake channel as possible... Therefore, for sand placement on North Beach, a 2,000-ft. buffer is recommended..." However, the report recommends that 30% of the sand dredged from Agua Hedionda Lagoon be placed on North Beach, near Pine Avenue and 70% be placed on Middle and South Beaches. The finding that 20% of the sand be placed north, is therefore, based on a scientific understanding of sediment transport conditions while the 30% figure represents "...a reasonable compromise between the competing needs for the sands, benefits and costs, and environmental constraints." Carlsbad's 2001 special use permit approval found that "based on a variety of scientific and public benefit considerations, that 30% of the dredged sand should be placed on North Beach."

In CDP No. 6-00-111, the applicant proposed to comply with the findings of Dr. Elwany's report and to cooperate with the City of Carlsbad to allow maintenance dredging to occur in the fall. To this end, the applicant proposed to put 30% of the sand north of the intake jetty. However, the applicant indicated it would prefer to commit to placing 20% of sand on North Beach, during each dredge event, because this number is based on a scientific understanding of sediment transport conditions within the vicinity of the lagoon. Nonetheless, the applicant proposed to place the dredged sediments consistent with the recommendations contained in the Elwany report as follows: 100,000 cubic yards (approximately 30%) of dredged material would be placed on North Beach (between Oak Street and Cherry Street); with the remainder (approximately 40%) being placed on Middle Beach (beach between intake and outfall jetties); and 30% on South Beach (south of outfall jetties). The Commission approved the deposition process as proposed.

In CDP No. 6-01-80 (February 2002), the Commission approved maintenance dredging and beach deposition that resulted in the dredging of 336,857 cubic yards of sand in April 2003. The Commission again limited its approval to a one-time only occurrence and not for multiple dredges over a five-year period as requested by the applicant. Because of possible changes to local environmental conditions that could affect shoreline processes (El Niño, severe winter storms, beach nourishment on the Carlsbad shoreline from other projects, invasive algae that has been found in the lagoon), the Commission found that each individual dredge cycle must be approved separately.

In August 2004, November 2006, November 2008, and August 2010 (CDP Nos. 6-04-54, 6-06-61, 6-08-047, 6-10-046), the Commission approved an identical maintenance dredging and beach deposition as the 2002 project. In October 2014 (CDP No. 6-14-1128), the Commission approved maintenance dredging and beach deposition nearly identical to these previously approved projects with the only difference being the placement of 24% of sand on North Beach and 76% on Middle and South Beaches versus the previously approved placement of 30% of sand on North Beach and 70% on Middle and South Beaches.

In 2017, the applicant relied on a new methodology to determine sand placement quantities. The City of Carlsbad required the applicant to undertake a scientific study identifying a sand volume "carrying capacity" on North Beach to optimize the theoretical sand loss rate and sand retention time on this popular recreational destination. The "Beach Equilibrium Analysis of North Beach Disposal Options for Dredged Sands from

Agua Hedionda Lagoon, Carlsbad, CA” prepared by Dr. Scott Jenkins identified a “carrying capacity” of 135,100 cubic yards on North Beach. In reliance on this study, the City required the project to first place dredged material up to, but not exceeding, the “carrying capacity” on North Beach, with about 70% of the remaining sand placed on Middle Beach, and about 30% on South Beach. If, based on a pre-dredge beach profile survey, North Beach was already at or exceeded its “carrying capacity,” no sand would be placed on North Beach and the entire volume of dredged sand would be deposited on Middle and South Beaches with the previously determined split.

The applicant conducted the required beach profile survey on October 11, 2017, which indicated that the existing sand volume on North Beach already exceeded its carrying capacity of 135,100 cubic yards. Therefore, pursuant to the City’s Special Use Permit requirements, the applicant proposed to deposit no sand on North Beach, and instead place 70% of the dredged sand on Middle Beach and 30% on South Beach. Although Commission staff had concerns about the validity of Dr. Jenkins’ carrying capacity methodology, in December 2017 (CDP No. 6-17-0732), the Commission approved the placement of all the sand on Middle and South Beaches because it was consistent with the Commission’s goal of placing sand where it will provide the greatest recreational benefit. North Beach was already in a widened condition, allowing maximum recreational use. Middle and South Beaches were narrower, so sand placement on those segments would improve beach widths and, as a result, recreational opportunities. That dredge cycle was completed in April 2018 and resulted in the placement of 205,482 cubic yards of sand on Middle and South Beaches.

As described above, while the carrying capacity methodology was considered in the allocation of sand for the current project, the main determination of the amount of sand proposed to be placed in each of the three locations with this permit is based largely on restoration of previous beach width at North Beach.

C. Biological Resources

Section 30230 of the Coastal Act states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimal populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow,

encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30233 of the Coastal Act states:

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
- (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.
- (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.
- (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.
- (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
- (6) Restoration purposes.
- (7) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

Section 30233(a) limits dredging and filling of open coastal waters and wetlands to specific permitted uses. The proposed dredging will occur within open coastal waters. In this particular case, the project is a permitted use as it is maintenance dredging for a minor incidental public service purpose (i.e., to assure the continued operation of the desalination plant). Section 30233(c) further limits the purpose of dredging in the 19 coastal wetlands identified in CDFW's report titled, "Acquisition Priorities for the Coastal Wetlands of California." Agua Hedionda is one of those listed wetlands, and consistent with Section 30233(c), the proposed dredge project is for "very minor incidental public facilities." The proposed dredge is routine maintenance dredging to ensure continued operation of the desalination plant and any impacts to the lagoon associated with the dredge will be temporary in nature. The proposed project is the least environmentally damaging feasible alternative. The no project alternative is infeasible because it would disrupt operation of the existing desalination plant, and as proposed the dredging is the minimum amount necessary to meet the project objectives. Additionally, periodic dredging may help maintain the lagoon's functional capacity. A lack of dredging could potentially create other environmental impacts (such as to water quality) and forego the opportunity to replenish sand on nearby public beaches. As identified in the remainder of this report, the Commission also finds that project impacts have been mitigated as also required in Section 30233.

Sand Compatibility

Dredging of the outer basin of Agua Hedionda Lagoon will result in removal of up to 500,000 cubic yards of material. Section 30233(b) encourages the reuse of dredge sediments on neighboring beaches where appropriate. As described previously, sediment transport studies have determined that the majority of the shoaling occurring within the outer basin of Agua Hedionda Lagoon can be attributed to beach sand from the coastal littoral cell becoming trapped in the lagoon as a result of tidal action and the pumping operations of the previous power plant and existing desalination plant. The United States Army Corps of Engineers (ACOE) permit for this maintenance dredging requires testing to confirm the suitability of the dredged sand with beach sand at deposition sites for each dredge cycle. The sediment characterization and testing program undertaken to support the last maintenance dredging (Winter 2017/2018) sampled the outer lagoon flood shoal as well as the proposed dredge sediment receiver beaches (North, Middle, and South Beaches) to determine the suitability of the dredged material for deposition on these beaches. The results of sand grain size and total organic carbon analysis of the shoal and receiver beaches suggest that the shoal is highly suitable for beach replenishment within the local receiver beach areas. For example, the outer lagoon samples ranged from 98.1 to 99.3 percent sand, averaged 98.8 percent sand, and average median particle size per sample was 0.36 mm; while the proposed beach receiving sites ranged from 98.9 to 100 percent sand, averaged 99.4 percent sand, and average median particle size per sample was 0.33 mm. These results are very similar, and it is anticipated that the proposed dredge cycle will yield comparable results to ensure suitability of the dredged material with the approved beach deposition sites.

However, to ensure that the dredged material is consistent with and suitable for

deposition on the three beach areas, **Special Condition No. 2** requires the applicant to submit evidence that the ACOE has determined that the dredged material is suitable for deposition on the beach areas and requires the applicant to submit a copy of the results of the sediment characterization report prior to dredging. Therefore, the Commission finds that the dredge material is compatible with and suitable for use as beach sand.

Marine Resources

The dredged sediment will help nourish the beaches temporarily where the sand is initially placed, but the sand will ultimately be transported down coast to other beaches or nearshore areas within the littoral cell. Such activities, while a benefit to public access and recreation in the short term, can result in adverse impacts to marine resources in the longer term.

A number of marine resources are present in and adjacent to the lagoon. These include an endangered bird species, the California least tern, as well as California grunion and eelgrass beds. Impacts to such resources can occur during construction, as the noise and general activity can cause birds to move out of the area and can prevent grunion from spawning. In addition, dredging can cause removal of eelgrass. Furthermore, the highly-invasive tropical species *Caulerpa taxifolia* has been found in Agua Hedionda, thus the potential spread of *Caulerpa* is an additional marine resource impact concern. The sensitive marine ecosystems in and immediately adjacent to the proposed beach deposition sites include sandy beach, rocky intertidal supporting surfgrass beds and subtidal rocky reefs supporting kelp beds and understory algae. Beach nourishment can impact the diversity and abundance of invertebrates, plants, and birds present on sandy beaches and intertidal areas. Beach nourishment can bury kelp wrack washed ashore during high tides as well as disturb plants and invertebrates colonizing the sand. As such, sand replenishment must be carried out in a manner that sustains the biological productivity of coastal waters.

The applicant estimates that approximately 300,000 cubic yards of material will be dredged in the proposed 2020/2021 dredge cycle and placed on area beaches. Although not insignificant, this amount is similar to that placed on these beaches numerous times before. Maintenance dredging and deposition of sand on North, Middle and/or South Beaches has occurred every 1 to 4 years since 1955. In the last 65 years, the total volume of sand dredged and deposited on the beaches has ranged from a low of 90,000 cubic yards in 1955 to a high of 458,973 cubic yards during the 1990/1991 dredge cycle. More recently, since 2000, four out of eight dredge cycles involved a total sand volume exceeding 300,000 cubic yards. Thus, these beaches have a long history of receiving dredged sand in the amount proposed. The advantage to continuing to place sand in these locations is that any impacts to marine species at and around the deposition sites have previously occurred here.

In addition, the sand being proposed to be placed on the beach is brought into the lagoon directly from the littoral cell. This sand would otherwise continue down coast through normal sand transportation processes. As such, the sand being deposited is not a new source of sand into the littoral cell, but rather replacement of sand that was already within the littoral cell that has become trapped by tidal activity and the presence

of the desalination plant and other infrastructure within the lagoon. In other words, the project mimics the sand placement that would occur naturally in this location were it not for the artificial development of Agua Hedionda Lagoon to support the desalination plant. This type of sand bypass activity is far less likely to result in significant, long-term ecological impacts because the dredged sand originated from the littoral cell and so therefore is similar to the native beach sand already present on the receiver beaches.

In 2014, the United States National Marine Fisheries Service (NMFS) reviewed the project for renewal of the ACOE permit. NMFS recommended that no sand be placed on North Beach and all dredge material instead be placed on Middle and South Beaches because North Beach is located in closer proximity to surfgrass and rocky reef habitats. NMFS also recommended a monitoring program to understand how episodic sand deposition activities affect nearshore marine habitats. Pursuant to a condition of the ACOE permit, the applicant began monitoring of nearshore marine habitats with the 2014/2015 dredge cycle. This annual monitoring is required to continue through the end of the ACOE permit term in 2024.

In the subject dredge cycle, the applicant is proposing to deposit up to 200,000 cubic yards of sand on North Beach. This is significantly more sand than has been placed on North Beach in recent years. During the 2010/2011 and 2014/2015 dredge cycles, 62,030 cubic yards and 64,968 cubic yards, respectively, were placed on North Beach. No sand was placed on this segment in the most recent dredge cycle (2017/2018). However, between 1999 and 2009, much larger quantities of sand were routinely placed on this segment. In four of the six dredge cycles in that time period, sand volumes placed on North Beach ranged from approximately 141,000 cubic yards to 162,000 cubic yards. Although it has been some time since a larger quantity of sand was placed on North Beach, this beach and the neighboring nearshore marine habitats have routinely received dredged sand.

In addition, beach profile surveys conducted in September 2020 indicate that approximately 231,000 cubic yards of sand has eroded off of North Beach since April 2018; a larger quantity than is proposed to be placed here. As a result, the proposed placement of 200,000 cubic yards will not expand the width of North Beach beyond its previous extent. The Commission's ecologist has reviewed the proposed project and agrees that replacement of sand that has already eroded off of North Beach is unlikely to result in new impacts to nearshore habitats. Further, the applicant will complete habitat monitoring prior to the commencement of this dredge cycle, providing valuable baseline data about the condition of nearshore marine habitats. In order to track changes to these marine habitats over time, the Commission imposes **Special Condition No. 7** requiring the applicant to submit copies of the habitat monitoring reports required by the ACOE permit to the Executive Director. The Commission has similarly required ecological monitoring as a condition of approval for recent projects that include deposition of sand on the beach (ref. CDP Nos. 6-16-0275/San Elijo Lagoon Restoration; 4-15-0390/Broad Beach GHAD). Ecological monitoring may be further refined in future Commission permits for maintenance dredging to improve understanding of the impacts sand deposition has as it moves offshore and into the littoral cell. In order to allow on-going reassessment of impacts, **Special Condition No.**

8 limits the permit term to one dredge cycle (2020/2021 dredge cycle).

To address the potential impacts to the California least tern and the spawning of grunion, the applicant proposes to limit, consistent with other resource agency approvals, dredging and sand placement activities to occur between September 15 and April 15. These restrictions are intended to avoid California least tern breeding season and much of the California grunion spawning season. To ensure that dredging or sand placement activities will not have any impacts to avian and grunion species, **Special Condition No. 1** addresses the timing of construction. Dredging outside these sensitive breeding seasons is allowed with the option of extending the dredge period to April 30 if approved in consultation with the California Department of Fish and Wildlife (CDFW) and the ACOE. On several occasions the ACOE has allowed dredging to extend until April 30, finding by field inspection that the time extension would not adversely impact either the least tern or grunion breeding seasons.

Beach deposition of dredged materials can bury grunion eggs that are deposited at South, Middle, and North Beach during high tides during the spawning season. The eggs hatch from stimulation associated with the subsequent high tide and the larvae return to the ocean. According to the CDFW, spawning occurs from March through August, and occasionally in February and September. Peak spawning period is between late March and early June. Thus, the proposed beach deposition could have adverse impacts if sand were deposited over the eggs before they hatch. That is, sand could be deposited so high above the eggs that the tides could not reach the eggs to hatch them.

In order to monitor grunion runs and spawning events, the Walker Scale² was developed. The Walker Scale is used to monitor California grunion runs and spawning events by observing the number of fish and their proximities on a beach. The Walker Scale is provided as [Exhibit 5](#) to this report. In order to avoid impacts to grunion, **Special Condition No. 5** requires monitoring of expected grunion runs that are annually predicted by the CDFW during sand placement. Prior to disposing materials on beach areas during March through April, the applicant shall monitor the beach in 300-foot segments during predicted grunion runs. Each 300-foot segment must be memorialized through multiple GPS coordinates and be marked with irrigation flags. Each individual fish shall be counted to determine the Walker Scale value. Areas of high concentration of grunion and grunion eggs must be avoided, and sand placement activities must halt in these high concentration areas unless a 100-foot buffer on either side of the area is observed and no work occurs within the 100-foot buffers. The condition allows work to occur in areas where grunion have not spawned, while avoiding areas where the fish have spawned in the case of a Walker Scale 2. Construction must completely halt if a Walker Scale 3, 4, or 5 is observed. As conditioned, the applicant must monitor, GPS map, and flag the runs so that construction will halt, if necessary, to ensure that impacts to egg masses and areas of high concentrations of grunion and grunion eggs are

² The Walker Scale is used for monitoring California grunion runs. For more information, visit <http://grunion.pepperdine.edu/sighting.asp>.

avoided.

The outer basin of Agua Hedionda Lagoon also contains extensive eelgrass beds, a protected resource under Coastal Act policies. Eelgrass provides habitat for many fish and invertebrates. Previous Commission approvals have required mapping of the existing eelgrass beds prior to dredging and after dredging to determine any impacts from dredging. If any eelgrass impacts occurred, the ACOE permit requires revegetation to be carried out at a ratio of 1.2 sq. ft. of mitigation area for each square foot of area impacted, with the final location of the mitigation area to be verified by the NMFS in conjunction with the CDFW. The mitigation area would not be subject to future dredging. Monitoring and maintenance of the revegetation effort is also required through the ACOE permit. As required by the latest California Eelgrass Mitigation Policy (CEMP), a starting ratio of 1.38 to 1 (transplant area to vegetated cover impact area) is required to achieve a final mitigation ratio of 1.2 to 1. Therefore, **Special Condition No. 4** addresses this concern and requires the applicant to perform pre-dredge surveys to determine the location of eelgrass so that it can be avoided during dredging operations. This condition also requires post-dredging surveys to determine if any eelgrass has been impacted and requires mitigation for such impacts at an ending ratio of 1.2:1.

The invasive green alga, *Caulerpa taxifolia* (referred to hereafter as Caulerpa), has proven to be detrimental to native habitats; and, in 1999 Caulerpa was designated a prohibited species in the United States under the Federal Noxious Weed Act. AB 1334, enacted in 2001 and codified at California Fish and Wildlife Code Section 2300, forbids possession of Caulerpa. In June 2000, Caulerpa was discovered in Agua Hedionda Lagoon, and in August of that year an infestation was discovered in Huntington Harbor in Orange County. Other infestations are likely. Although a tropical species, Caulerpa has been shown to tolerate water temperatures down to at least 50 degrees Fahrenheit and will rapidly expand in lagoon environments until endemic species become displaced. Although warmer southern California habitats are most vulnerable, until better information is available, it must be assumed that the whole California coast is at risk. All shallow marine habitats could be impacted.

In response to the threat that Caulerpa poses to California's marine environment, the Southern California Caulerpa Action Team (SCCAT) was established to respond quickly and effectively to the discovery of Caulerpa infestations in Southern California. The group consists of representatives from several state, federal, local and private entities. The goal of SCCAT is to completely eradicate all Caulerpa infestations. If Caulerpa were allowed to reproduce unchecked within the outer basin, sensitive eelgrass beds and the wildlife that depend upon them would be adversely impacted. Therefore, eradication of Caulerpa would be beneficial for native habitat and wildlife.

At this time, it appears that the Caulerpa infestation in Agua Hedionda Lagoon has been successfully eradicated. However, there are still concerns about its reemergence. If Caulerpa is present, any project that disturbs the bottom could cause its spread by dispersing viable tissue fragments. In order to assure that the proposed project does not cause the dispersal of Caulerpa, the Commission imposes **Special Condition No. 6**, which requires the applicant, prior to dredging, to survey the project area (which includes the dredged area, anchoring areas, and any other areas where the bottom

could be disturbed by project activities) for the presence of Caulerpa. If Caulerpa is found in the project area, then prior to commencement of any dredging, the applicant must provide evidence that the Caulerpa within the project site has been eradicated (the applicant could seek an emergency permit from the Executive Director to authorize the eradication) or that the dredging project has been revised to avoid any disturbance of Caulerpa. If revisions to the project are proposed to avoid contact with Caulerpa, then the applicant shall consult with the local Coastal Commission office to determine if an amendment to this permit is required.

Conclusion

In summary, the proposed dredging operation is necessary to maintain the necessary tidal prism in the outer lagoon to assure effective operation of the desalination plant and tidal exchange throughout the lagoon. Similar dredge operations have occurred over the years. The proposed dredging is a permitted use under Section 30233 of the Coastal Act, and the project will maintain or possibly enhance the functional capacity of the wetland. As conditioned, impacts to sensitive species will be avoided or minimized to the maximum extent feasible, consistent with Sections 30230, 30231 and 30233 of the Coastal Act.

D. Public Access and Recreation

Section 30210 of the Coastal Act states:

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211 of the Coastal Act states:

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30212.5 of the Coastal Act states:

Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Section 30213 of the Coastal Act states:

Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the

impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Section 30220 of the Coastal Act states:

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30233(b) of the Coastal Act states:

Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

In addition, Policy 3.3 of the certified Agua Hedionda Land Use Plan states:

Maintenance dredging and channel alteration must be performed in a manner consistent with the applicable sections of the Coastal Act. All dredging activities will require a permit for the Army Corps of Engineers with review by appropriate agencies, including the Department of Fish and Game, U.S. Fish and Wildlife, etc. In addition, a Department of Fish and Game 1601-03 permit may be required.

Agua Hedionda Lagoon is a prominent community resource and public asset. The lagoon and its surrounding uplands support numerous land uses and activities that depend on a healthy lagoon including: Poseidon's Carlsbad Desalination Plant; Hubbs-Sea World Research Institute, aquaculture research and farming; a YMCA children's camp; commercial water sports entities; a residential boat harbor; private residences; and many other public recreational open space amenities and uses including kayaking and fishing.

There are several provisions of the Coastal Act that encourage use of suitable material to supply the region's littoral zones with sand. Such deposition of beach quality material on the region's shoreline creates and protects coastal recreational areas for use by the general public consistent with Coastal Act policies. Section 30233 addresses, among other things, the dredging of open coastal waters and placement, within the littoral zone, of dredged sediments. Section 30233 clearly suggests the benefit of restoring the region's beaches through use of material that would otherwise reach the shoreline, but for human intervention by development and flood control projects. Therefore, the Commission finds when dredge material is compatible with and suitable for use as beach sand along the region's shoreline; it should be transported to the shoreline for such uses, consistent with the public access and recreation policies of the Coastal Act.

Providing as much sandy beach area as possible for use by the public is also consistent with the intent of Sections 30210 and 30212.5, which require that public access and recreational opportunities be maximized in order to protect any one natural resource area (i.e., shoreline, park) from overuse. Providing additional recreational area, through

the placement of sand along a useable shoreline, will result in less crowding and provide an alternative to existing resource areas that are highly utilized by the public based on the availability of sand. The provision of additional useable beach area is providing a lower cost visitor and public recreational facility. When it is feasible for dredging projects that involve excavation of large volumes of beach suitable material to deposit the dredged material on the region's beaches, such activity is consistent with Section 30213 of the Coastal Act. Creation of additional coastal areas, such as beaches, suited for water-oriented recreational activities is also consistent with Section 30220.

Section 30211 requires that development not interfere with the public's access to coastal resources, including the use of dry sand. While the sand replenishment on North, Middle and South Beaches will restrict the public's access to the immediate coastal resources temporarily, the sand placement activities will result in benefits to public access in the long term. The applicant anticipates that work will occur during daylight hours between Monday and Friday, unless storm delays require work during daylight hours on Saturdays. Therefore, peak weekend use hours shall be avoided to the extent feasible. No work is permitted in summer season (Memorial Day to Labor Day). Further, the City's special use permit requires that the applicant maintain a minimum five foot wide path of travel for lifeguard and public pedestrian access between sand deposition areas and seawalls at the back of the beach at all times. Therefore, the proposed project is consistent with section 30211 of the Coastal Act.

None of the beaches that are nourished by sand from the Agua Hedionda dredging activities are in an unaltered condition. Sand supplies and sand transport have been modified by Oceanside Harbor and the Agua Hedionda jetties, and the back beach location has been fixed by shoreline armoring. There have been times that North, Middle and South beach have been quite narrow, providing little recreational beach area for beach visitors. Beach nourishment can be beneficial to beach use activities such as sunbathing, walking on the beach and other beach recreation. Through the regular bypassing of sand at Oceanside Harbor, the Regional Beach Sand Projects 1 and 2 and Agua Hedionda dredging, North Beach has historically been widened, providing an important local recreational beach.

One recreational activity that can be at risk from beach nourishment is surfing. The Commission has required surf monitoring for other beach nourishment projects to ensure that sand deposition does not adversely impact surf conditions. However, the Commission has not historically required surf monitoring for this routine maintenance dredge.

During review of the 2014 maintenance dredge project (ref. CDP No. 6-14-1128), Commission staff received comments from Carlsbad residents and Surfrider objecting to the placement of 24% of the dredged sand on North Beach citing potential adverse impacts to neighboring surf spots. One of the objections received in 2014 alleged that surf conditions off of North Beach deteriorated noticeably in 2011 after the placement of "~68,000 cubic yards" of sand associated with the lagoon maintenance dredge. However, based on applicant records of the quantities of sand placed on area beaches since maintenance dredging began in 1955, approximately 100,000 to 162,000 cubic

yards of sand was placed on North Beach every other year between 1999 and 2009. The Commission concluded it was unlikely that a noticeable difference in surf conditions would not have occurred until 2011 when roughly half the amount of sand was placed on North Beach compared to the quantities that had been placed regularly in the ten years prior. Nevertheless, in order to ensure citizen input on impacts associated with the dredging and sand deposition, the Commission required the applicant to work with Commission staff and community stakeholders to assess regional alternative options for the placement and volumes of dredged sand.

In the last maintenance dredge project in 2017/2018 (ref. CDP No. 6-17-0732), the applicant did not propose any sand on North Beach and the volumes of sand proposed to be placed on Middle and South Beaches were similar to prior years. The Commission found that there was no potential for adverse impacts to surf conditions near North Beach because no sand would be placed on that segment. Similarly, the Commission found that there was no potential for adverse impacts to surf conditions near Middle and South Beaches because sand had been placed on those beach segments continuously since 1955. Therefore, no surf monitoring was required.

In this case, however, the applicant is now proposing to deposit a significantly larger quantity of sand on North Beach than has been placed on this segment in the last ten years. To understand whether this sand placement has any adverse impacts to surf, **Special Condition No. 11** requires the applicant to monitor surf conditions near North Beach prior to commencement of nourishment activities and immediately following nourishment activities and to submit a monitoring report to the Commission. In addition, **Special Condition No. 10** requires the applicant to continue outreach to community stakeholders regarding any ongoing concerns about potential impacts to coastal resources in future dredge cycles. Finally, in order to allow on-going reassessment of impacts, **Special Condition No. 8** limits the permit term to one dredge cycle (2020/2021 dredge cycle).

Special Condition Nos. 1, 2, and 3 require that the applicant prepare a final map of pre-dredge conditions of the lagoon and pre- and post-deposition profiles at the approved beach deposition locations similar to the dredge limit survey and beach profiles in [Exhibits 3 and 4](#). The deposition profile reports will provide a record of how existing and proposed beach profiles have changed, and will be used to place sand in areas where it will be retained the longest to ensure that the beach deposition project provides maximum access and recreation opportunities along the coast for the public, consistent with Section 30210. Also required is an accounting of proposed dredge quantities; a deposition plan and methodology; and a signage plan to ensure that coastal visitors will be made aware of the project and its boundaries. As conditioned, impacts to public access and recreation will be avoided or minimized to the maximum extent feasible, consistent with Sections 30210, 30211, 30212.5, 30213, and 30220 of the Coastal Act.

E. Distribution of Sand

As described above under Section B. Permit and Sand Placement History, the determination of the most beneficial location to put the sand dredged from Agua

Hedionda Lagoon has been somewhat contentious over the years. Historically, the City of Carlsbad has desired much of the dredged sand be placed north of the lagoon as opportunistic beach fill. The power plant owners historically expressed concerns over putting sand on the beach north of Agua Hedionda Lagoon inlet because some studies have shown that much of the sand ends up right back in the lagoon, thus increasing the overall annual maintenance dredging burden.

The applicant proposes to place the majority of sand dredged in this cycle on North Beach. The proposed 200,000 cubic yards is the highest volume of sand that has been placed on this segment in recent years. However, the Commission's coastal engineer believes that nourishment of the North Beach area is appropriate for several reasons. No sand has been added to North Beach since 2014, and beach profile surveys completed in September 2020 indicate a significant sand deficit here. According to the applicant, approximately 231,000 cubic yards has eroded off of North Beach since April 2018; far more than has been lost from Middle and South Beaches. The Commission's coastal engineer further calculated that more than 300,000 cubic yards of sand volume has been lost from North Beach since 2017. Finally, North Beach is the most heavily recreated of the three beach segments. The applicant's proposal to place 200,000 cubic yards of sand on North Beach will restore much of the sand that has been lost from North Beach since 2018, improving beach widths and maximizing recreational benefits. For these reasons, the placement of up to 200,000 cubic yards of sand on North Beach with the remaining approximately 100,000 cubic yards placed on Middle and South Beach is consistent with the Commission's goal of placing sand where it will provide the greatest recreational benefit. **Special Condition No. 8** limits the permit term to one dredge cycle (2020/2021 dredge cycle), will ensure that future sand placement decisions will benefit from the habitat and surf monitoring data gathered in connection with this permit, and will be consistent with the biological and recreational protection policies of the Coastal Act.

F. Local Coastal Planning

Section 30604(a) also requires that a coastal development permit shall be issued only if the Commission finds that the permitted development will not prejudice the ability of the local government to prepare a Local Coastal Program (LCP) in conformity with the provisions of Chapter 3 of the Coastal Act. In this case, such a finding can be made.

The subject site is located in the City of Carlsbad; however, it is not part of the City's certified Local Coastal Program because it is located in an area of the Commission's original jurisdiction. Therefore, the Coastal Commission retains permanent permit authority in this area and Chapter 3 of the Coastal Act remains the legal standard of review with the certified Agua Hedionda Land Use Plan and Mello II LCP used as guidance. As conditioned, the proposed development is consistent with all applicable Chapter 3 policies of the Coastal Act. Approval of the project, as conditioned, will not prejudice the ability of the City of Carlsbad to obtain a fully certified Local Coastal Program for the Agua Hedionda plan area.

G. California Environmental Quality Act

Section 13096 of the Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment. The City of Carlsbad found that the project was exempt pursuant to Public Resources Code Section 15304(g) [maintenance dredging].

The proposed project has been conditioned in order to be found consistent with the Chapter 3 policies of the Coastal Act. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project is the least environmentally-damaging feasible alternative and can be found consistent with the requirements of the Coastal Act to conform to CEQA.

APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

Certified Agua Hedionda Land Use Plan; Cabrillo Power I LLC, Agua Hedionda Lagoon Flood Shoal Maintenance Dredging Sediment Characterization Report December 2017; CDP Nos. F55336, 6-93-193-A, 6-93-193-A2, 6-97-83, 6-00-111, 6-01-80, 6-04-54, 6-06-61, 6-08-047, 6-10-046, 6-14-1128, and 6-17-0732.