

**CALIFORNIA COASTAL COMMISSION**

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**STAFF REPORT: REGULAR CALENDAR**

**Application No.:** 6-17-0732

**Applicant:** Cabrillo Power I LLC

**Agent:** Sheila Henika

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

**Project Description:** Dredge up to 500,000 cu. yds. of lagoon bottom sand within the existing approved dredge limits of the outer basin of Agua Hedionda Lagoon and deposit on 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, and October 2014, for dredging projects similar to the proposed project. The subject dredging is proposed to remove sediment transported into the lagoon by tidal action through the existing jetty structure and will allow

for the maintenance of the tidal prism required to provide the Encina Power Station with an adequate volume of seawater for cooling purposes. 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.

The City recently required the applicant to undertake a new sand volume "carrying capacity" study to determine the optimal amount of sand to place on North Beach taking into account sand loss rate and sand retention time. This study determined that based on a pre-dredge beach profile survey, North Beach is already at or exceeds its "carrying capacity;" thus, as approved by the City, no sand is proposed to be placed on North Beach during the proposed 2017/2018 dredge cycle. Instead, approximately 70% of the dredged sand will be placed on Middle Beach and 30% on South Beach. Thus, the amount of sand to be placed on Middle Beach is up to 335,000 cubic yards, and up to 165,000 cubic yards on South Beach, for a total maximum sand placement of 500,000 cubic yards.

Although in prior years the Commission has approved similar projects including placement of sand on North Beach, the placement of all the sand on Middle and South Beaches 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 is currently in a widened condition that allows maximum recreational use, while Middle and South Beaches are narrower, currently limiting recreational opportunities on these beach segments. In addition, North Beach is located in closer proximity to sensitive nearshore reef and surfgrass habitats and to surf breaks that could be adversely impacted by additional sand placement than Middle and South Beaches. Placement of all the sand on Middle and South Beaches will also limit the potential adverse impacts to sensitive biological resources.

In order to avoid and minimize potential adverse impacts to sensitive open water and wetland habitat located within Agua Hedionda Lagoon, Commission staff is recommending nine special conditions. **Special Condition 1** requires final plans with timing restrictions to avoid impacts to California least tern and grunion; **Special Condition 2** requires pre- and post-dredge surveys; **Special Condition 3** requires an Eelgrass Mitigation and Monitoring Plan; **Special Condition 4** requires beach profile monitoring at sand placement sites; **Special Condition 5** requires monitoring of invasive species; **Special Condition 6** requires submission of annual nearshore marine habitat monitoring reports; **Special Condition 7** limits the permit term to one dredge cycle; **Special Condition 8** requires the applicant to submit all necessary local, state, and federal discretionary permits, including approval from the United States Army Corps of Engineers; and **Special Condition 9** 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.

Therefore, Commission staff recommends **approval** of coastal development permit application 6-17-0732 as conditioned.

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### APPENDICES

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## I. MOTION AND RESOLUTION

### Motion:

*I move that the Commission **approve** Coastal Development Permit Application No. 6-17-0732 subject to the conditions set forth in the staff recommendation.*

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

### Resolution:

*The Commission hereby approves coastal development permit 6-17-0732 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 and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. 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

This permit is granted subject to the following 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 permittee 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 permittee to bind all future owners and possessors of the subject property to the terms and conditions.

### III. SPECIAL CONDITIONS

This permit is granted subject to the following 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).
  - (c) Prior to depositing materials on beach areas during March through April, the applicant shall consult with the CDFW for the expected spawning and hatching periods of the California grunion, and shall provide monitors (qualified biologists or environmental resource specialists trained to monitor grunion) on the beach during the time of the predicted run. Grunion monitoring shall be conducted each evening of the predicted run, for 30 minutes prior to, and two hours following, the predicted start of each spawning event. If no grunion are observed, sand deposition activities can take place until the next predicted run. If grunion are observed, there can be no activities until the next predicted run, at which time the monitoring shall be repeated.

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. **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](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.

4. **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.
5. **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.

6. **Habitat Monitoring.** The applicant shall submit copies of the annual Nearshore Marine Habitat Mapping reports, required by the ACOE, to the Executive Director monitoring changes in turbidity/sedimentation, water quality, coverage of coastal aquatic resources, and biology within the proposed discharge site and the adjacent offshore area. The monitoring plan and surveys 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.
7. **Permit Term.** This coastal development permit authorizes development on a temporary basis only. The proposed maintenance dredging is authorized for one dredge cycle (2017/2018 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.

8. **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.
9. **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.

## **IV. FINDINGS AND DECLARATIONS**

### **A. PROJECT DESCRIPTION**

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 two Carlsbad beaches, 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 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 Blvd. 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 Blvd. The pipes would be extended along the surface of Carlsbad State Beach to reach the south side of the Encina Power 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 associated with operation of the power 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 proposed dredging will allow for the maintenance of the tidal prism required to provide the Encina Power Plant with an adequate volume of seawater for cooling purposes. The power 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) and a desalination plant (Poseidon's Claude "Bud" Lewis Carlsbad Desalination Plant).

The power plant is anticipated to stop operating its once-through cooling system by the end of 2018. At that time, Poseidon is expected to assume sole responsibility for operating the intake system for its desalination operations. The Encina Power Station is currently permitted to discharge 863.5 MGD of seawater under NPDES CA0001350 R9-2006-0043 authority; however, according to the applicant, the actual flows range from 350 to 800 million gallons per day (MGD). Poseidon is currently permitted to pump in up

to 304 MGD for its desalination facility. Therefore, operation of the desalination plant is expected to result in daily seawater pumping volumes similar or lower to what has been historically associated with the power plant. Thus, it is expected that on-going maintenance dredging of the lagoon will continue to be necessary in the future.

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 have been placed on North, Middle, and South Beaches in varying amounts. The last maintenance dredging of the outer lagoon was completed in April 2015 and resulted in the placement of 294,661 cubic yards of sand on North, Middle, and South Beaches. The Commission authorized placement of 24% of the dredged sand onto North Beach and the remaining 76% on Middle (54%) and South (24%) Beaches in that dredge cycle (ref. CDP No. 6-14-1128). Between 2000 and 2010, the Commission authorized similar projects with placement of 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, and 6-10-046).

The subject dredging project is similar in scope and scale to previously approved maintenance projects. The applicant proposes to distribute the dredged material based on a new study required by the City of Carlsbad's Special Use Permit. The City 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 identifies a "carrying capacity" of 135,100 cubic yards on North Beach. Thus, as approved by the City, the proposed project must place dredged material up to, but not exceeding, the "carrying capacity" on North Beach (Pine Avenue south to North Jetty), with about 70% of the remaining sand placed on Middle Beach (between inlet and outfall channels), and about 30% on South Beach (south of outfall channel) ([Exhibit 1](#)). If, based on a pre-dredge beach profile survey, North Beach is already at or exceeds 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 study determining a sand volume "carrying capacity" is discussed in detail below under Section E. Distribution of Sand. However, the applicant conducted the required beach profile survey on October 11, 2017, which indicated that the existing sand volume on North Beach already exceeds its carrying capacity of 135,100 cubic yards. Therefore, pursuant to the City's Special Use Permit requirements, and as proposed, no sand will be deposited on North Beach during the proposed 2017/2018 dredge cycle; approximately 70% of the dredged sand will be placed on Middle Beach and 30% on South Beach. Thus, the amount of sand to be placed on Middle Beach is up to 335,000 cubic yards, and up to 165,000 cubic yards on South Beach, for a total maximum sand placement of 500,000 cubic yards.

The City of Carlsbad has a certified LCP; however, development will occur within an area of 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 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 existing 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 and 6-14-1128). 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 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 where it would provide the most recreational benefit to coastal visitors – at Middle Beach because it is one of the most heavily attended beaches in Carlsbad and has 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 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 pay for 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. Most recently, 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.

### **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:*

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:*

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 power 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 power 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 power 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 power 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 2014/2015) 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.

At the City's Planning Commission hearing for this project in September 2017, Carlsbad residents raised questions regarding sediment toxicity within Agua Hedionda Lagoon based on a recent recommendation by the San Diego Regional Water Quality Control Board (Regional Water Board) to list the lagoon as an impaired waterbody under Section 303(d) of the Clean Water Act. Agua Hedionda Lagoon is not a listed water body for any pollutant according to the currently active 2012 Section 303(d). However, in July 2016, as part of the review and update of the 303(d) list, the Regional Water Board recommended that the State Water Resources Control Board list the lagoon for sediment toxicity based on studies conducted in 2003, 2004, 2005, and 2008. Of eight samples collected, three samples indicated sediment toxicity above thresholds. The three samples exceeding toxicity thresholds were collected from the inner lagoon basin, while the five passing results were from samples collected from the middle and outer basins (all of the subject dredging would occur in the outer basin). More recent samples collected in 2013 from all three basins were below the toxicity thresholds, suggesting that sediment quality has improved since the 2003 to 2008 samples. Thus, the City Planning Commission approved the special use permit for this project without requiring additional sediment testing.

The applicant is also required to obtain a Notice of Applicability from the Regional Water Board to enroll as a discharger under General Order No. 96-32 for this project. In response to resident concerns raised at the City Planning Commission hearing, the Regional Water Board provided an extended 54-day period for public review and

comment on the proposed project. No public comments were received. The Regional Water Board also considered requiring additional sediment testing to its existing monitoring conditions. However, after reviewing the history of sediment testing for the outer lagoon, the Regional Water Board concluded that additional sediment toxicity testing for this project was not necessary. The Regional Water Board issued its Notice of Applicability on November 20, 2017.

Thus, because the dredged material from the outer basin is sand from the littoral cell and all samples taken from the outer lagoon have passed toxicity screening, the Commission finds that additional sediment toxicity testing is unnecessary. 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, can result in adverse impacts to marine resources.

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 between 300,000 and 500,000 cubic yards of material will be dredged in the proposed 2017/2018 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 3 years since 1955. In the last 60 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 seven 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 power 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 power 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. The current proposal would place all of the sand on Middle and South Beaches, consistent with this direction. 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 2019. To track changes to these marine habitats over time, the Commission imposes **Special Condition No. 6** 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. 7** limits the permit term to one dredge cycle (2017/2018 dredge cycle). Additionally, authority from the State Water Resources Control Board to use once-through cooling at the power plant will expire at the end of 2018, thus future dredging for the purpose of maintaining power plant operations will not be necessary. However, Poseidon is expected to assume sole responsibility for operating the intake system for its desalination operations and future dredging.

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. Therefore, **Special Condition No. 1** 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 consult with the CDFW for the expected spawning and hatching periods of the California grunion, and shall provide monitors on the beach during the time of the predicted run. If no grunion are observed, deposition activities can take place until the next predicted run. If grunion are observed, there can be no activities until the next predicted run, at which time the monitoring shall be repeated.

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. 3** 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. 5**, 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 power plant. 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 & 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: the Encina Power Plant; 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 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 widened, providing an important local recreational beach. One recreational activity that can be at risk from beach nourishment is surfing. Although the Commission has required surf monitoring for other beach nourishment projects to ensure that sand deposition does not adversely impact surf conditions, in this case, sand deposition on these beaches has occurred every 1-3 years since 1955 in volumes similar to the amount proposed in this project. Thus, it seems unlikely that continuing to place sand on any of the three subject beaches could result in any changes to surf conditions.

However, during review of the last maintenance dredge project in 2014 (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 161,000 cubic yards of sand was placed on North Beach every other year between 1999 and 2009. It seems 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 10 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. Although a meeting was held in August 2017, no new comments were received regarding issues with sand placement locations or volumes.

The subject project is similar to the last five maintenance dredging and beach deposition projects approved by the Commission over the past ten years (ref. CDP Nos. 6-04-54, 6-06-61, 6-08-047, 6-10-046, 6-14-1128). The only difference between the subject project and these previously approved sand placement activities is that the proposed project ties sand deposition volumes to the theoretical carrying capacity of North Beach. Because the recent beach profiles indicate that the existing sand volume on North Beach exceeds the 135,100 cubic yard carrying capacity, the applicant is not proposing to place any sand on North Beach in this dredge cycle as opposed to the 24-30% in previously approved dredge cycles. Thus, there is no potential for adverse impacts to surf conditions near North Beach. Further, due to the history of sand placement on Middle and South Beaches, the Commission finds the proposal is consistent with past Commission approvals and is not anticipated to result in any adverse impacts to coastal resources. Therefore, the Commission finds that monitoring of surf conditions near North Beach is not necessary in this case; however, **Special Condition No. 9** requires the applicant to

continue outreach to community stakeholders regarding any ongoing concerns about potential impacts to coastal resources.

**Special Condition Nos. 1, 2, and 4** 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 have resisted 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 most recent attempt to determine where and how much sand to place on the beaches adjacent to the lagoon is the “Beach Equilibrium Analysis of North Beach Disposal Options for Dredged Sands from Agua Hedionda Lagoon, Carlsbad, CA” prepared by Dr. Scott Jenkins. Dr. Jenkins methodology is intended to both maximize sand retention time on North Beach and reduce the amount of sand that moves off the beach, down coast and into the outer lagoon basin. This study identifies a “carrying capacity” of 135,100 cubic yards on North Beach, which provides the optimal balance between the rate of sand loss and time that the sand stays on the beach (known as retention time). Dr. Jenkins also identified a sand carrying capacity for Middle and South Beaches (134,500 cubic yards on Middle Beach and 66,300 cubic yards on South Beach), however Dr. Jenkins suggests that Middle and South Beaches are better suited for deposition of large quantities of sand than North Beach. The sand placed at Middle and South Beaches will move down coast, feeding the littoral cell and mimicking natural coastal processes. Dr. Jenkins characterizes North Beach as at a convergence zone, that results in sand being quickly transported away from the beach, with much of the sand being trapped in the outer basin of the lagoon as it moves south from North Beach. As a result, Dr. Jenkins recommends that sand only be placed on North Beach up to its calculated optimal capacity and that 67% of the remaining dredged sand be placed on Middle Beach and 33% on South Beaches, even if the total amount deposited exceeds the carrying capacities for those two beach segments.

As previously described, the applicant conducted the required beach profile survey on October 11, 2017 which indicates that the existing sand volume on North Beach already exceeds its carrying capacity of 135,100 cubic yards. Therefore, pursuant to the City's Special Use Permit requirements, and as proposed, no sand will be deposited on North Beach during the proposed 2017/2018 dredge cycle; approximately 70% of the dredged sand will be placed on Middle Beach and approximately 30% on South Beach. The table below summarizes for each beach segment the carrying capacity, the existing sand volume calculated using the beach profile survey, and the quantity of dredged sand that should be placed according to the City's Special Use Permit conditions.

<b>Receiver Site</b>	<b>Carrying Capacity</b>	<b>October 2017 Existing Sand Volume</b>	<b>Target Placement Volume</b>
North Beach	135,100 cy	355,300 cy	0 cy
Middle Beach	134,600 cy	32,000 cy	up to 335,000 cy
South Beach	66,300 cy	22,100 cy	up to 165,000 cy
		<b>TOTAL</b>	<b>up to 500,000 cy</b>

The Commission's coastal engineer has reviewed the study, and is not prepared at this time to accept this study as conclusive. While both the sand loss rate and retention time can be important factors for a beach nourishment effort, these factors do not consider the recreational beach needs for the area. It is not clear how the volumes Dr. Jenkins recommends relate to recreational, useable beach width. It is further unclear what beach width at North Beach would be acceptable to the City.

The Commission suggests that before the City and applicant attempt to apply Dr. Jenkins' methodology for future maintenance dredging and sand deposition events, the profiles that were used to determine the optimal sand volume (carrying capacity) for North Beach should be provided and superimposed upon the existing beach profile surveys developed and maintained at these beaches by SANDAG.<sup>1</sup> In addition to, or in place of, the optimal volume trigger for nourishment at North Beach, the Commission also suggests development of minimum dry beach width triggers (measured from the back beach to the MSL beach) that could be used to direct future sand placement.

Although Commission staff is not able to recommend use of Dr. Jenkins' carrying capacity methodology at this time, the placement of all the sand on Middle and South Beaches with approximately 70% on Middle and 30% on South Beach is consistent with the Commission's goal of placing sand where it will provide the greatest recreational benefit. North Beach is currently in a widened condition that allows maximum recreational use. Middle and South Beaches are more narrow than North Beach, so sand placement on these segments will improve beach widths and, as a result, recreational opportunities. Furthermore, given the proximity of North Beach to sensitive nearshore reef and surfgrass habitats and to surf breaks that could be adversely impacted by

<sup>1</sup> SANDAG Shoreline Management Program's Regional Shoreline Monitoring, <http://www.sandag.org/index.asp?classid=17&subclassid=32&projectid=298&fuseaction=projects.detail>

additional sand placement, placement of all of the sand on Middle Beach and South Beach during this proposed dredge cycle will maximize the benefits and limit the potential impacts of the project, 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 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 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 July 2014; 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; State Water Resources Control Board Resolution No. 2017-0047