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Energy and Ocean Resources
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Staff Report: December 19, 2002
Hearing Date: January 8, 2003

ANNUAL REPORT ON THE STATUS OF SONGS MITIGATION PROGRAM JANUARY - DECEMBER 2002

Four mitigation projects are required under Southern California Edison Company's (SCE) coastal development permit for the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 (permit no. 6-81-330, formerly 183-73). The conditions originally were adopted by the Commission in 1991 to mitigate the adverse impacts of the power plant on the marine environment. The 1991 conditions also require SCE to provide the funds necessary for Commission technical oversight and independent monitoring of the mitigation projects, to be carried out by independent contract scientists under the direction of the Executive Director. In 1993, the Commission added a requirement for the permittee to partially fund construction of an experimental fish hatchery. The Commission has since approved amendments to the conditions in April 1997 and October 1998.

From December 1998 through August 2002, the staff provided brief monthly status reports for the SONGS mitigation projects to inform the Commissioners of potential issues that could delay the mitigation projects and to enable the Commissioners to keep their constituents informed of the general progress. Because the Commission's wetland pre-restoration monitoring and reef monitoring programs are well underway, the staff determined that it would be more efficient to make the status reports quarterly rather than monthly, starting with the July-September 2002 period. For the final quarter this year, the staff is providing the following report covering the January-December 2002 period that tracks the progress of the Commission's technical oversight and independent monitoring tasks contained in the approved 2002-2003 work program.

The results of the Commission's wetland and reef monitoring programs during 2002 will be reviewed at an annual public workshop in February 2003. The workshop will be held on February 24, 2003 at the City of San Clemente Community Center. A schedule and draft agenda will be posted on the Commission's web site (www.coastal.ca.gov) in early February.

WETLAND RESTORATION MITIGATION

The Project

Condition A of the permit requires the permittee to create or substantially restore a minimum of 150 acres of wetlands to mitigate for the reduction in the standing stocks of nearshore fishes

At the same time, the staff and SCE have continued to work with the parties to resolve the remaining issues involving the least tern nesting sites. Although the least tern nesting sites are included in the overall plan, they are a previous requirement from a coastal development permit (CDP No. 6-84-525) granted to the 22nd Agricultural District (District), and not a requirement of SCE's SONGS permit. SCE has agreed to construct the nesting sites for the District in exchange for access to and use of District property near the rivermouth. At issue is who is to take on the financial responsibility for implementing the maintenance, monitoring, and mitigation requirements.

Staff has worked with SCE, USFWS, Department of Fish and Game, the JPA, and the District on these issues. During the past year and a half, staff has discussed the annual nesting site maintenance and maintenance monitoring (i.e., site maintenance, including vegetation control and fence inspection and repair, predator monitoring and control, and bird monitoring) needed to maintain a viable least tern habitat as required under the District's coastal development permit, raised the need for mitigating impacts to existing wetlands caused by the construction of the nesting sites, and provided a draft annual maintenance plan and estimated annual costs. In July 2001, staff presented a formal interpretation of the outstanding obligations the District continues to have under its permit.

In addition, the State Lands Commission is continuing its efforts to resolve property ownership issues with the District. Resolution of title and boundary interests involving the San Dieguito River will assist in negotiations for access to the rivermouth for the restoration project.

The District is seeking resolution of these and other issues (unrelated to the wetland restoration project) with the Coastal Commission, Department of Fish and Game, and State Lands Commission. An initial meeting with the parties with participation from the Resources Agency and the Attorney General's Office was held in September 2002. Representatives of the Attorney General's Office toured the site and met with the District in October. The next step will be a meeting between the Commission staff and Attorney General's Office, which will be scheduled as soon as practicable.

- ***Final Restoration Plan.*** In the meantime, SCE has moved ahead to develop its Final Plan while recognizing that project revisions may be necessary pending resolution of the outstanding issues. The staff is reviewing SCE's plan informally and will continue to work with SCE to ensure that the plan meets the objectives and standards specified in the permit and to ensure that Coastal Act issues will be addressed appropriately at the coastal development permit stage of the project. The staff plans to bring SCE's final plan to the Commission for approval only after the CEQA/NEPA process is completed.

Task 1.2: Pre-restoration Monitoring. The SONGS permit establishes physical and biological performance standards that must be met by the restored wetland. As part of the Commission's technical oversight, monitoring and management responsibilities under Condition D, the contract scientists are conducting pre-restoration monitoring in San Dieguito Lagoon and in other southern California wetlands that may be used as reference sites in post-restoration monitoring. Pre-restoration monitoring includes the collection of baseline physical and biological data on the wetland attributes to be monitored during post-restoration monitoring. Pre-restoration data are required to assess construction-related impacts and changes in the existing wetland

- ***Water quality.*** Water quality is one of the long-term physical standards that will be used to measure the performance of the restored wetland. The contract scientists monitor salinity and oxygen concentration, which are important to the health, abundance, and richness of estuarine biota. In 2002, the contract scientists continued collecting baseline data on water quality and tidal height from continuously recording instruments placed in San Dieguito Lagoon and in Carpinteria Salt Marsh (a prospective reference wetland).

- ***Annual low-level aerial photography.*** Orthorectified, digital images were collected during aerial overflights of San Dieguito Lagoon, and two potential reference wetlands, Carpinteria Salt Marsh and Tijuana Estuary, in August-September 2002. The cover of major categories of vegetation and open space, estimated from the aerial photographs, will be verified using ground-surveying techniques to assess the utility of aerial photography in monitoring the cover of vegetation and open space during and following wetland construction.

Task 1.3: Monitoring and Management Plan. The permit requires the preparation of a Monitoring and Management Plan as part of the Commission's oversight and monitoring function. Tasks for such a plan include evaluating and selecting reference sites for post-restoration monitoring, developing criteria for determining compliance of the wetland mitigation program with the performance standards, and finalizing sampling methods and criteria for assessing similarity between the restored wetland and reference wetlands.

Contract staff will finalize selection of reference sites for post-restoration monitoring. These sites will be relatively undisturbed, natural tidal wetlands within the Southern California Bight and may include Carpinteria Salt Marsh, Mugu Lagoon, and Tijuana Estuary. The permittee and experts in wetland ecology will be consulted during the selection process. Contract staff are selecting criteria and evaluating statistical approaches to assess similarity between the restored wetland and reference wetlands. The statistical approaches may include both parametric and nonparametric methods. The Monitoring and Management Plan will provide a framework to guide post-restoration monitoring and include sampling methods (e.g., seines, trawls, traps) and general sampling design (e.g., spacing and frequency of sample collection). Data collected and analyzed on invertebrates and fishes during pre-restoration monitoring will be used to design the post-restoration monitoring program for these taxa. Data collected on macroinvertebrates are currently being analyzed using spatial statistics to determine the appropriate number and spacing of samples. Studies are currently underway to design a monitoring program for wetland fish that permits the concurrent sampling of replicate areas for the comparison of abundance and number of species of fish between the restored and reference wetlands.

Task 1.4: Construction Monitoring. Once the lawsuit is resolved and all permits have been obtained, SCE will begin construction on the San Dieguito wetland restoration project. The contract staff will begin construction monitoring at that time to (1) determine whether the work is conducted according to plans, (2) determine whether construction causes adverse impacts to sensitive habitats, and (3) finalize the sampling methodologies for post-restoration monitoring.

reasonable statistical power to detect differences among reef designs. To address this issue, the fish monitoring for 2002 was altered. Instead of surveying each replicate of each reef design and both reference sites as was done during the first two years of monitoring, sampling was conducted at only one of the eight reef designs (intermediate cover of quarry rock) in each of the seven blocks and at seven of the nine sites at only one of the two reference reefs (San Mateo kelp forest). All 14 locations in this reduced design were sampled during a single day on 13 different days in the fall of 2002. Budget constraints prevent implementing this new sampling protocol in addition to the normal fish sampling during this third year of monitoring. Data collected using the new 2002 fish monitoring protocol will be used to determine an effective monitoring strategy for evaluating which of the artificial reef designs meet the performance standards for fish in the fifth and final year of the experiment.

Data from previous years showed that fish density and species number did not differ between rock and concrete modules, but did differ among modules having different amounts of hard substrate. Therefore a reduced sampling scheme that includes sampling fish density at both reference reefs and on quarry rock modules of the artificial reef will be done in December, weather permitting. Data collected from this survey will provide continuity in the contract scientists' time series data on reef fish abundance, which will be useful in assessing temporal trends in fish abundance among reef designs having different amounts of hard substrate.

Task 2.2: Experimental Reef Process Studies. Focused process studies were identified as a means of reducing uncertainties in decision-making that stem from (1) the short length of the experiment (5 years), and (2) the small size of the experimental modules compared to the size of the mitigation reef. The following process studies are underway.

- ***Colonization, growth and survival of the invasive sea fan, Muricea californica.*** During the spring 2002 survey of giant kelp, dense colonization of the invasive sea fan *Muricea californica* was observed on many of the experimental reef modules. During the subsequent survey of benthic invertebrates, the effects of different artificial reef designs on the colonization, growth and survival of these *Muricea* recruits were evaluated by following changes in the density and size structure of *Muricea* in the 12 permanently marked 1 m^2 quadrats located on each experimental reef module as well as in permanently marked 1 m^2 quadrats at each of the two reference sites. Concurrent data collected on the physical and biological characteristics of each quadrat will be used to determine whether the survivorship and growth of Muricea is related to other variables.

- ***Effects of reef design.*** An experiment to determine the effects of reef material (artificial vs. natural) and location (artificial reef vs. reference reef) on the species composition and abundance of colonizing reef biota was set up in March 2002, and sampled during early June 2002. At this early stage of the experiment, there is scant colonization of biota (mainly hydroids, diatoms and microscopic algal turf) and no apparent effects of substrate type or location on colonization rates.

- ***Performance of reef designs relative to fish production.*** Studies on the resident blackeye goby began in June 2002 to compare reproductive rates on the artificial reef to those at the two reference reefs. This work is being done in collaboration with Professor Todd Anderson of San Diego State University.

MARINE FISH HATCHERY

The Project

In 1992 the Commission required the permittee to contribute $1.2 million towards the construction of an experimental marine fish hatchery and an evaluation program to determine the extent to which the hatchery is effective at increasing the stock of fish (Condition F). SCE paid the initial sum, fulfilling the permit condition.

The marine fish hatchery program is operated by the State of California through the Ocean Resources Enhancement and Hatchery Program (OREHP), which is administered by the Department of Fish and Game (DFG). Hubbs-Sea World Research Institute, under contract to DFG, constructed and operates the fish production hatchery at Agua Hedionda Lagoon in Carlsbad, California.

A ten member panel, the Ocean Resources Enhancement Advisory Panel (OREAP), assists DFG in establishing policy for the program. Because of the experimental nature of the hatchery, the Commission included conditions for the hatchery program in the permit that must be met by DFG and OREAP, through a 1994 Memorandum of Agreement (amended in 1997).

Progress Report

4.1: Oversight of the Fish Hatchery Program. The Commission identified two major goals of the fish hatchery condition: (1) providing scientifically credible evidence that the hatchery is or is not enhancing the stock of white seabass, and (2) preserving maximum genetic diversity in hatchery fish. Included in the MOA between the Commission and DFG are requirements for an evaluation program and a genetic quality assurance program.

The work on this task is done by permanent Commission staff (which adds no costs to the Commission's work program budget). Staff participates on the Joint Panel, which is responsible for advising DFG on the hatchery program. At a recent Joint Panel meeting, DFG committed to providing a summary and analysis of hatchery operations and related research to date. It is expected that a draft report will be completed by summer of 2003.

SUMMARY OF COMMISSION EXPENDITURES

The approved budget for calendar years 2002 and 2003 covers the monitoring and oversight program costs for the Commission's contract scientists, contract field personnel to monitor the wetlands and experimental reef, science advisory panel, consultants, contract administrative and project management support, and operating expense. The following table summarizes the Commission's expenditures during 2002.