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Energy and Ocean Resources
Staff: JLL, SMH—SF
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STATUS REPORT ON SONGS MITIGATION PROGRAM

Following is a brief status report for the mitigation projects required in 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.

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 impacts to fishes caused by the operation of SONGS. In April 1997, the Commission reaffirmed its 1992 approval of the permittee's choice of the San Dieguito River Valley as the site for the wetland restoration project and allowed for up to 35 acres credit for enhancement at San Dieguito Lagoon on the condition of perpetual inlet maintenance.

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Wetland Restoration Planning. The Commission approved SCE's preliminary wetland restoration plan for the San Dieguito Lagoon in November 1997. The CEQA/NEPA environmental review incorporated the mitigation project into the overall San Dieguito River Valley Regional Open Space Park project and included additional wetland restoration required under the permittee's settlement agreement with the Earth Island Institute. The lead agencies for the CEQA/NEPA review were the San Dieguito River Valley Regional Open Space Park Joint Powers Authority (JPA) and the U.S. Fish and Wildlife Service.

Following the review period on the January 2000 draft EIR/EIS, the final EIR/EIS was released on September 5, 2000. At a public hearing on September 15, 2000, the JPA certified the EIR and voted to support the EIR's designation of Mixed Habitat plan as the environmentally preferred alternative. The Commission's contract scientists attended the meeting and concurred with this decision. As required by NEPA, the availability of the final EIR/EIS was published in the Federal Register in September 2000, and the USFWS will prepare and issue a final Record of Decision. Lawsuits challenging the adequacy of the final EIR/EIS have been filed by the Del Mar Sandy Lane Association and Citizens United to Save the Beach.

The permit requires SCE to submit the final restoration plan to the Commission within 60 days following the final action on the EIR/EIS, which will be the USFWS Record of Decision. SCE is proceeding diligently to complete the planning process and is in compliance with the Commission's permit conditions on the wetland restoration project. In January 2001, SCE submitted an administrative draft final restoration plan to the JPA for review of the plan's compliance with the EIR/EIS. The JPA found the Draft Final Restoration Plan generally consistent with the approved Final EIR/EIS and requested further elaboration and clarification in a number of areas.

The remaining issues involving the least tern nesting sites (e.g., maintenance and maintenance monitoring responsibilities, mitigation of potential impacts to existing wetlands) are complex and require additional discussion and negotiation among the primary parties. Although the least tern nesting sites are included in the overall plan, they are a previous requirement from a coastal development permit granted to the 22nd Agricultural District (CDP No. 6-84-525), 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 is working with SCE, USFWS, Department of Fish and Game, the JPA, and the 22nd Agricultural District (District) to bring these issues to closure as soon as possible. At a meeting on April 26, staff 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. Staff also discussed the need for mitigating impacts to existing wetlands caused by the construction of the nesting sites. As a follow-up to the meeting, staff presented a draft annual maintenance plan and estimated annual costs. Staff is preparing a more formal interpretation of the District's obligations under its permit. Staff will continue to work with the parties to try to reach consensus and enable SCE to move forward with the Final Restoration Plan.

Pre-restoration Monitoring. The Commission contract scientists continued pre-restoration monitoring in San Dieguito Lagoon and in other southern California wetlands that may be used as reference sites in post-restoration monitoring. In recent months, this monitoring has focused on determining the appropriate number and spacing of samples for use in the post-restoration monitoring of intertidal epibenthic and infaunal invertebrates. Fieldwork for this study, carried out in Tijuana Estuary, Mugu Lagoon, and Carpinteria Salt Marsh, was completed in early December 2000. Laboratory analysis of the samples is continuing. The contract scientists are continuing to monitor water quality in San Dieguito lagoon and Carpinteria Salt Marsh and have recently established a station in Mugu lagoon.

Contract scientists also visited potential reference wetlands with representatives from SCE to examine the types of habitat that will be used to assess the performance of the restored site during post-restoration monitoring. In addition, contract scientists helped wetland consultants for SCE to collect soil samples at three potential reference wetlands, the Tijuana estuary, the Mugu lagoon, and the Carpinteria salt marsh. The samples were taken along marked transects at known tidal elevations. These transects were established by the contract scientists for pre-restoration monitoring study of the relationship between salt marsh vegetation and tidal inundation. Data from the soil samples, along with samples collected in the San Dieguito lagoon, will be used by SCE consultants to determine whether the soils in the San Dieguito restoration are likely support healthy salt marsh vegetation and to help in designing soil amendments in case they do not.

KELP REEF MITIGATION

The Project

Condition C of the permit requires construction of an artificial reef that consists of an experimental reef and a larger mitigation reef. The experimental reef must be a minimum of 16.8 acres and the mitigation reef must be of sufficient size to sustain 150 acres of medium to high density kelp bed community. The purpose of the experimental reef is to determine what combination of substrate type and substrate coverage will best achieve the performance standards specified in the permit. The design of the mitigation reef will be contingent on the results of the experimental reef. Construction of the 56-module experimental reef was completed in September 1999. Construction monitoring done by SCE confirmed that the area and the percentage covers of reef material of the modules conformed closely to the design specifications.

In April 1997, the Commission added the requirement for a payment of \$3.6 million to the State's Ocean Resource Enhancement and Hatchery Program (OREHP) to fund a mariculture/marine fish hatchery to provide compensation for resources not replaced by the artificial mitigation reef. SCE has fully satisfied this requirement.

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Some of the major results seen in the analyses done to date are:

- (1) The amount of artificial reef material placed on the reef as determined from dive surveys by Commission contract scientists is considerably higher than the intended nominal coverages of 17%, 34% and 67%.
- (2) There has been substantial colonization of giant kelp on all reef designs with a trend for declining density of new kelp with increasing distance from the nearest natural kelp bed (San Mateo Kelp bed).
- (3) The abundance of invertebrates and understory algae on the artificial reef tends to increase with the coverage of hard substrate. The abundance and number of species of invertebrates and understory algae on the artificial reef is generally within the range observed on nearby natural reefs. The relative abundance of invertebrates and algae, however, differs substantially between artificial and natural reefs.

- (4) Fish species composition and abundance on the artificial reef modules is generally similar to that found on nearby natural reefs with the exception that water column species were substantially less abundant on the artificial reef.

Commission contract scientists presented talks on these issues for the symposium, "Marine Ecology of Rocky Reefs and Areas of Biological Significance," held as part of the Southern California Academy of Sciences annual meeting on May 4-5.

The contract scientists recently completed the first of their two semi-annual surveys of giant kelp for 2001. The annual summer survey of benthic invertebrates and macroalgae will begin by July 1, 2001. Data from this survey are being entered into the database. Analyses of kelp and invertebrate data are being done to determine whether the sampling effort for both surveys can be reduced without compromising the quality of the data.

FISH BEHAVIORAL MITIGATION

The Project

Condition B requires the permittee to install and maintain behavioral barrier devices at SONGS to reduce fish impingement losses.

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SCE conducted a number of laboratory and in-plant experiments testing the behavioral response of fish to lights and sound devices from 1992 through 1999. None of the experiments showed evidence that these devices would reduce fish impingement losses as required by Condition B. At the same time, SCE continued its modified heat cleaning treatments at the plant, which result in a considerable reduction in fish impingement losses.

In October 2000, the Commission reviewed the conclusions on the effectiveness of the behavioral barriers (see staff report entitled *Executive Director's Determination that Fish Behavioral Barriers Tested at SONGS are Ineffective*, dated September 22, 2000) and concurred that (1) the fish behavioral barriers installed and tested at the plant were ineffective and unlikely to result in a two metric ton (MT) reduction in fish impingement losses as required by Condition B of the permit, (2) no currently available alternative behavioral barriers are likely to be effective or feasible in reducing fish losses as required by Condition B, and (3) a procedural modification made by SCE in the heat cleaning treatment of the cooling water intake systems of SONGS Units 2 and 3 has reduced fish losses on average by approximately 4.3 MT per year. Based on this determination, the Executive Director concluded that no further testing of alternative behavioral barriers should be required at this time, provided that (1) SCE continues to adhere to the operating and monitoring procedures for the modified heat cleaning treatments and (2) SCE makes every effort to test and install, if feasible, future technologies or techniques for fish protection if such techniques become accepted industry standards or are required by the Commission in other power plant regulatory actions. Thus, the Executive Director determined, and the Commission concurred, that SCE is currently in compliance with Condition B of the SONGS permit.