STATE OF CALIFORNIA—THE RESOURCES AGENCY GRAY DAVIS, GOVERNOR

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

F-11.5

Energy and Ocean Resources
Staff: JJL, SMH—SF
Staff Report: June 20, 2003
Hearing Date: July 11, 2003

STATUS REPORT ON SONGS MITIGATION PROGRAM APRIL – JUNE 2003

Following is a brief status report for the April-June 2003 period 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 the reduction in the standing stocks of nearshore 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 that the ocean inlet is maintained open to tidal flow in perpetuity.

Progress Report

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. 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.

In September 2000, the JPA certified the EIR and voted to support the EIR's designation of the Mixed Habitat plan as the environmentally preferred alternative. The Commission's contract scientists concurred with this decision. As required by NEPA, the availability of the final EIR/EIS was published in the Federal Register in September 2000; however, the USFWS had not yet issued a final Record of Decision (ROD) when lawsuits on the Final EIR (FEIR) were filed (see next paragraph). The final ROD will be issued after the conclusion of the lawsuits when any revisions to the FEIR have been finalized.

Litigation on Final EIR. Lawsuits challenging the adequacy of the FEIR were filed by the Del Mar Sandy Lane Association and Citizens United to Save the Beach. Although in a July 2001 decision the Court rejected certain of the plaintiff's claims, it determined that the FEIR is inadequate with regard to several issues, most significantly that there is insufficient evidence supporting the FEIR's conclusion that the project will not increase scour and loss of sand at the river mouth. The Court set aside the JPA's certification of the FEIR and remanded the matter back to the JPA. Both parties appealed the Court's decision in early 2002, and have spent the intervening months briefing the appeals. Briefing on the case was completed in February 2003. A hearing is scheduled for this summer and a decision is expected in early fall 2003.

Outstanding issues. Although the JPA is appealing the Court's ruling on the FEIR, the JPA, SCE and USFWS have moved forward during the appeals process to address the points other than the coastal process issue deemed inadequate by the Court in order to be ready to re-certify the FEIR if necessary. The JPA and SCE have consulted regularly with Commission staff. Regardless of the outcome of the appeals process, these additional analyses will be needed at the time of the Commission's review of the coastal development permit application for the restoration project.

At the same time, the staff and SCE have worked with the parties to resolve the remaining issues involving 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 river mouth. 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. 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; has raised the need for mitigating impacts to existing wetlands caused by the construction of the nesting sites; has drafted an annual maintenance plan and estimated annual costs; and has provided a formal interpretation of the outstanding obligations the District continues to have under its permit.

In addition, the State Lands Commission has worked 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 river mouth for the restoration project.

During 2002 the District sought resolution on 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 of the parties, facilitated by representatives of the Attorney General's Office, was held in September 2002. Representatives of the Attorney General's Office then toured the site and met with the District last October. The next step—a meeting between the Commission staff and Attorney General's Office—has not yet been scheduled by the facilitators.

Final Restoration Plan. In the meantime, SCE has developed a preliminary Final Plan, 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.

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 following construction. Pre-restoration monitoring data are also needed to develop sampling designs for post-restoration monitoring that can effectively determine whether the various performance standards have been met.

Results of the pre-restoration monitoring activities undertaken during 2002 were reviewed at the annual public workshop held on February 24, 2003. During the technical session, the Commission's contract scientists also discussed selection of sites used for reference in wetland restoration, sampling effort, and statistical methods for estimating similarity in evaluating performance standards with participants from state and federal resource agencies, SCE, members of the Commission's Scientific Advisory Panel, and the general public. Written proceedings of the workshop are being prepared and will be posted on the Commission's web site.

Evaluation of sampling methods for adverse effects. Vegetated marsh and channel banks can be greatly impacted during fish sampling, especially with the use of seines. Contract scientists continue to explore the use of sampling gear, such as enclosure traps, that minimize impacts to marsh habitats while permitting the concurrent sampling of replicate areas for effective comparison of the abundance and number of species of fishes between San Dieguito Lagoon and reference wetlands.

Appropriate spatial and temporal scales of sampling. One focus of the pre-restoration monitoring is the analysis of data collected to determine the appropriate number and spacing of samples for use in the post-restoration monitoring of intertidal epibenthic and infaunal invertebrates and fishes. Fieldwork for this study is being carried out in three wetlands that may serve as reference sites in post-restoration monitoring (Tijuana Estuary, Mugu Lagoon, and Carpinteria Salt Marsh). Laboratory processing of the invertebrate samples was completed during 2002 and the data are currently being analyzed. Contract scientists developed and field tested a protocol for sampling benthic fishes using enclosure traps and used this protocol in a

number of southern California wetlands to determine the appropriate spacing and number of samples for comparisons among wetlands. Contract scientists are currently conducting sampling experiments to examine the magnitude of temporal variability in estimates of fish species richness and abundance.

Data collected on invertebrates and fishes were used in analyses of spatial statistics and analysis of variance to determine the appropriate spacing and number of samples for use in post-restoration monitoring of species richness and abundance.

Effectiveness of types of sampling gear. Another major focus of the contract scientists' pre-restoration monitoring tasks is to develop sampling designs that will allow unbiased comparisons of the abundance and number of species of fish in the restored and reference wetlands and will minimize any adverse effects of sampling on fish and invertebrate populations. Recent work has focused on evaluating the effectiveness of enclosure traps. This is important because enclosure traps have been estimated to be much more effective at sampling gobies, small fish that dominate wetland fish communities and serve as an important source of food for larger fish and many species of wading birds. Results to date suggest that enclosure traps are between 50 to 100 times more effective at sampling gobies than other sampling gear. Contract scientists also conducted preliminary studies that indicate that abundances of gobies estimated from enclosure traps are consistently higher than more traditional sampling methods. Analyses are now under way to determine whether differences in abundance obtained using different methods vary with habitat type or fish density.

Future work will also involve fish sampling with three other types of gear—beach seines, purse seines, and trawls—to determine the minimum sample size for each gear type so as to minimize impacts on fish populations and the effort per sample. Work will then proceed on determining the appropriate spacing and number of samples for each of these gear types.

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. The contract scientists continued collecting baseline data on water quality and tidal height from continuously recording instruments placed in San Dieguito Lagoon and Carpinteria Salt Marsh (a prospective reference wetland).

Vegetation monitoring. Wetland-wide monitoring of various habitats, including vegetated and un-vegetated intertidal habitat will be necessary to insure that conditions of the SONGS permit are met. Contract scientists are exploring the use of aerial photography in combination with ground-truthing to monitor changes both in restored habitats and in existing wetland.

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 which combinations of substrate type and substrate coverage will most likely achieve the performance

standards specified in the permit. The design of the mitigation reef will be contingent on the results of the experimental reef.

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 portion of the kelp mitigation requirement.

Progress Report

Following completion of the environmental review and permitting process, construction of the experimental reef located off San Clemente was completed in September 1999. The experimental reef tests eight different reef designs that vary in substrate composition (quarry rock or recycled concrete), substrate coverage (actual coverages are higher than the intended nominal coverages of 17%, 34% and 67%, at approximately 54%, 65%, and 84%, respectively), and presence of transplanted kelp. All eight reef designs are represented as individual 40 m x 40 m modules that are replicated in seven areas (i.e., blocks) for a total of 56 artificial reef modules totaling 22.4 acres.

Experimental Reef Monitoring. The monitoring plan approved by the Commission specifies that the abundance of giant kelp, macro invertebrates, understory algae, and kelp bed fish, and the area and coverage of hard substrate on the artificial reef modules be surveyed each year for five years.

The third year of these studies was completed in 2002. Results of the experimental reef monitoring and process studies undertaken during 2002 were reviewed at the annual public workshop held on February 24, 2003. During the technical session, the Commission's contract scientists also discussed patterns of sea fan colonization on the artificial reef, reef fish variability and sampling design and effort, and statistical methods for estimating similarity in evaluating performance standards with participants from state and federal resource agencies, SCE, members of the Commission's Scientific Advisory Panel, and the general public. Written proceedings of the workshop are being prepared and will be posted on the Commission's web site.

An information transfer meeting between the Commission's and SCE's science and management teams was held on May 20, 2003 to discuss the mitigation monitoring activities anticipated for 2003, and to begin planning the monitoring efforts for the 2004-2005 work plan. With the exception of fish, the level of monitoring to be done on the artificial reef and nearby reference reefs in 2003 will be the same as that done in 2002. In 2003 kelp bed fish will be monitored using the original sampling protocol employed in 2000 and 2001, which consists of two surveys of all reef designs and references sites in the fall. A different protocol that involved high frequency sampling of a single reef design was employed in 2002 to obtain more complete information on temporal variability in fish abundance. Results from the 2002 fish surveys indicated that a substantial increase in effort is needed to determine whether the various reef designs differ significantly from each other with respect to the abundance and species number of kelp bed fish. All in attendance at the meeting agreed that substantially increasing the effort in this area was not cost effective because all artificial reef designs have performed at least as well as the natural reefs with regard to fish abundance and diversity.

Kelp, benthic invertebrate and algae surveys. During 2003, the fourth year of the experimental reef monitoring program, the annual winter/spring survey of giant kelp adults was completed in May. Database entry and quality control of the 2003 kelp survey data was completed in June. The benthic invertebrates and algae surveys will begin in late June.

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.

Study of colonization, growth and survival of the invasive sea fan. 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 the *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. In June 2003 contract scientists began additional studies aimed at predicting future sea fan abundance and size distributions in order to predict whether certain reef designs might support sea fan populations that would inhibit kelp populations sufficiently to prevent meeting the permit requirements (sustained densities of 4 adult giant kelp per 100 m^2). As part of these studies contract scientists will be following the growth and survivorship of approximately 200 individually marked *Muricea* over the next several years. These data will help corroborate the more spatially comprehensive estimates of *Muricea* growth and mortality that will be obtained from the benthic monitoring surveys.

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 was scant colonization of biota (mainly hydroids, diatoms and microscopic algal turf) and no apparent effects of substrate type or location on colonization rates. This experiment was re-sampled during March/April 2003.

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. Fish production was also examined by analyzing the number of recruits per adult for two species of surf perch. Surf perch are useful for such analyses because the adults are live-bearers and parochial. Thus the number of young per adult can be assumed to provide a measure of reproductive output for a particular module and hence allows comparisons among reef design, which vary from module to module. Analyses of data collected in 2002 are ongoing.

FISH BEHAVIORAL MITIGATION

The Project

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

Progress Report

SCE is currently in compliance with Condition B of the SONGS permit.

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 (called the Fish Chase procedure), which result in a considerable reduction in fish impingement

In October 2000, the Commission reviewed the results and 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, monitoring, and reporting 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.

The staff has reviewed SCE's annual reports, which indicate that the fish chase procedure is consistent with the Commission's requirements and that SCE continues in compliance with Condition B.