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STATUS REPORT ON SONGS MITIGATION PROGRAM OCTOBER – DECEMBER 2004

Following is a brief status report for the October-December 2004 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 Commission originally adopted the conditions in 1991 to mitigate the adverse impacts of the power plant on the marine environment. The 1991 conditions (Condition D) 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.

Implementation of the mitigation projects is the responsibility of SCE whereas the Commission is responsible for implementing its independent monitoring and technical oversight function, including the wetland pre-restoration monitoring program and experimental reef monitoring program described below. The Commission has operated under approved work programs and budgets since 1993. The Commission unanimously approved the work program and budget for calendar years 2004 and 2005 in November 2003.

Another aspect of the Commission's monitoring and oversight is periodic public review of the performance of the mitigation projects. The staff and contract scientists conducted workshops on the San Dieguito wetland and reef mitigation projects in February and March 2004, respectively. Slides of the wetland workshop presentations (in PDF format) and proceedings of the reef workshop are posted on the Coastal Commission website at www.coastal.ca.gov.

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 Project. 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 (USFWS).

In September 2000, the JPA certified the EIR after public hearing. The EIR/S designated the Mixed Habitat plan as the environmentally preferred alternative. 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. The lawsuits have now concluded (see next paragraph). USFWS issued the ROD on November 28, 2003.

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 was inadequate with regard to several issues, most significantly that there was 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 August 2003, the Court of Appeal ruled that there is substantial credible evidence supporting each of the JPA's conclusions concerning the environmental impacts of the restoration project and the appropriateness of the mitigation measures, thus reversing the judgment of the trial court. All appeals are final; on October 6, 2003, the Appeals Court issued its order directing the Superior Court to issue the revised judgment.

Outstanding issues/Next steps in implementing wetland restoration. The permit requires SCE to submit a final plan and coastal development permit application to the Commission and to obtain other agency approvals and permits. The plan submitted must substantially conform to the preliminary restoration plan approved by the Commission in November 1997, unless the CEQA/NEPA review concludes that an alternative plan that meets the conditions for minimum standards and objectives is the environmentally superior alternative.

Following completion of its final design and engineering plans, SCE began the process of obtaining necessary permits, including its coastal development permit from the Commission. On August 17, 2004, SCE submitted its Coastal Development Permit Application (#6-04-88) to the Commission's San Diego and San Francisco offices. Initial review of the application and associated documents by the Commission's contract scientists and staff determined that additional information must be submitted in order to deem the application filed complete and suitable for processing. SCE responded to the staff's request at the end of October and beginning of November. In a subsequent letter, dated November 30, 2004, staff determined that all of the additional required information is not yet submitted and the application cannot yet be filed

complete. Staff is working with SCE, its contractors, and staffs of the relevant resource and regulatory agencies to help SCE provide necessary information.

Two other issues remain to be resolved before the Commission considers the final plan and coastal development permit application: the 22nd Agricultural District's requirement for Least Tern nesting habitat under its previously granted coastal development permit (CDP No. 6-84-525) and the JPA's proposal for public trails. This quarter the staff has continued its work with the District and representatives of the Attorney General's Office; tentative agreement has been reached between the staffs of the Commission and District. The staff expects to bring the agreement to the Commission at the earliest possible meeting following review by the District Board of Directors.

Consultations regarding the trails are partly dependent upon resolution of the issues with the District since portions of the proposed trail would be placed on District property. SCE revised the CDP application to propose that horses be allowed only on the trail east of the I-5 freeway, and not be allowed to go under the I-5 freeway, relieving one of the staff's major concerns. Staff will have further discussions on the proposed trail with SCE and JPA during the processing of the CDP application.

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 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 that will be monitored during post-restoration monitoring. Pre-restoration data are required to assess 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. This information will be incorporated into the CCC Monitoring Plan.

Contract scientists continued to collect and analyze pre-restoration data on water quality, invertebrates, and fishes in San Dieguito Lagoon and prospective reference wetlands. Results of the pre-restoration monitoring activities undertaken during 2003 were reviewed at an annual public workshop held in February 2004, in Del Mar. The Commission's contract scientists made presentations at both technical and general workshop sessions. The presentations in both sessions discussed the sampling methods that will be used to evaluate the performance standards during post-restoration monitoring, and the purpose and status of the CCC Monitoring Plan, including the technical appendices, which will contain detailed results of pre-restoration monitoring. Additional workshop presentations given by SCE and the JPA focused on the status of the restoration project and public trails proposal. Slides of the presentations for the public workshop on the San Dieguito Wetland Restoration project (February 18, 2004) are posted in PDF format on the Coastal Commission website at www.coastal.ca.gov.

Fish sampling methods. Contract scientists are working to finalize methods for sampling fish with beach seines and purse seines. This work includes efforts to minimize impacts to fish populations and wetland habitats by optimizing gear configurations, streamlining field sampling methods, and determining the appropriate numbers and spacing of samples for each gear type.

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 continue to monitor salinity and oxygen concentration, which are important to the health, abundance, and richness of estuarine biota. These baseline data on water quality, and also tidal height, are collected by continuously recording instruments placed in San Dieguito Lagoon and Carpinteria Salt Marsh (a 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 finalizing methods for using aerial photography in combination with ground-truthing to monitor changes both in restored habitats and in existing wetland. Methods for evaluating this performance standard are being incorporated into the Monitoring Plan.

Invertebrate monitoring. Compilation of the results of pre-restoration monitoring for wetland invertebrates is complete and sampling methods for evaluating this performance standard are being incorporated into the Monitoring Plan.

Bird monitoring. The SONGS permit has two monitoring requirements regarding birds: (1) monitoring of the total abundance and number of species of birds in the restored and reference wetlands, and (2) monitoring of bird feeding rates in the restored and reference wetlands as a measure of food chain support. The contract scientists prepared general requirements for such monitoring and are working with Kathleen Whitney, a wetlands bird expert at Marine Science Institute, UCSB, to design specifics of monitoring protocols to address these requirements. Sampling methods for evaluating this performance standard are being incorporated into the Monitoring Plan.

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 are most likely to 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 or absence of transplanted kelp on quarry rock modules with a nominal coverage of 34%. 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. Efforts to transplant kelp were deemed successful in 2001. Dense natural recruitment of kelp, however, also occurred on all reefs and swamped the effect of kelp transplantation. Consequently, kelp densities did not differ between reefs with and without transplanted kelp and, therefore, monitoring of the two reef designs with transplanted kelp was discontinued in 2001. The results presented below are for the remaining six designs, which represent different combinations of substrate cover and type.

Results from 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 fourth year of these studies was completed at the end of 2003. Results from the first four years of the five-year artificial reef experiment were reviewed at an annual public workshop held at the San Clemente Community Center in March 2004 (Proceedings from the Fourth Annual Public Workshop of the SONGS Mitigation Project Condition C: Kelp Forest Mitigation are posted on the Coastal Commission website at www.coastal.ca.gov). The major focus of the workshop was on the effectiveness of the different experimental reef designs in supporting kelp forest biota. The effectiveness of the different reef designs was gauged in relation to their ability to meet the fixed and relative performance standards that will be used to judge the success of the 150-acre mitigation reef. The results presented at the workshop revealed three major concerns about some or all of the artificial reef designs:

1. There is a potential for dominance of all reef designs by the sea fan, *Muricea*.
2. Dominance by *Muricea* and possibly other benthic invertebrates could inhibit the sustainability of giant kelp and thus prevent the artificial reef from succeeding in meeting the performance standard for giant kelp.
3. None of the reef designs currently meet the permit standards for the abundance and richness of understory algae whose mean values are diverging from the natural reference reefs on all reef designs.

Two studies are currently underway and will continue through 2005 to address these areas of concern. One is a continuation of demographic studies the sea fan *Muricea* spp. These studies will provide information necessary to make projections regarding the densities of large adult sea fans likely to become established on the different reef designs. A second study will determine the relative importance of competition by invertebrates and shading by adult giant kelp on the abundance and species richness of understory algae and on the abundance of juvenile giant kelp. These studies will provide much needed insight into whether one or more designs are heading inexorably toward dominance by benthic invertebrates (which would prevent them from meeting the performance standards for giant kelp and understory algae) or whether the patterns are due primarily to the more ephemeral effects of shading by adult kelp. Information gained from these studies will be extremely useful in deciding on the eventual design of the 150-acre mitigation reef.

Year-five monitoring of the artificial reef modules and reference reefs began in May 2004. Contract scientists completed the following sampling and surveys in 2004: (1) giant kelp in June, (2) sea fan demography in July, (3) understory algae and benthic invertebrates in August, and (4) kelp bed fish in September and December. Side-scan sonar surveys used to monitor changes in the footprint area of the artificial reef modules were completed in September 2004 by EcoSystems Management under a contract negotiated by project staff. The experiment designed to evaluate the relative importance of competition by invertebrates and shading by adult giant kelp on the abundance and species richness of understory algae was set up in April 2004 and sampled in April, July and October 2004. Numerous small (<1 mm height) *Muricea* were observed on the artificial reef during the October 2004 sampling period indicating that pulses in the recruitment of this invasive sea fan may occur more frequently than previously believed.

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 contract scientists reviewed data and analyses on the fish chase procedure at SONGS that were contained in SCE's 2003 *Annual Marine Environmental Analysis* report, and specifically noted the following:

(1) The impingement for the year 2003 was about 21,923 kg, which was 6,050 kg more than in 2002 but still less than the long-term average of about 22,064 kg.

(2) The Fish Chase procedure resulted in 2,386 kg of fish returned live to the ocean, a decrease of 2,715 kg from 2002.

(3) For the year 2003, the Fish Chase effectiveness relative to impingement was 11%, which meets the 10% target value.

(4) There was a clear discussion concerning methods, results and interpretation of results. A series of unusual events occurred in 2003 (e.g., Sea Lion rescues and returns of Giant Sea Bass to the ocean). All resulted in a favorable outcome.

The review indicated that the fish chase procedure in 2003 was consistent with the Commission's requirements and that SCE continues in compliance with Condition B.

MARINE FISH HATCHERY

The Project

Condition F, adopted by the Commission in 1993, 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. 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 Memorandum of Agreement among the Coastal Commission, DFG and OREAP.

Progress Report

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, a scientific panel created under the MOA, which is responsible for advising DFG on the hatchery program.

On September 1, 2004, the Executive Director approved an increase to the release limit for the OREHP White Seabass program. The Joint Panel had requested that the white seabass release limit be increased from 125,000 to 350,000 fish annually, as the hatchery now has the capacity to produce 300,000 to 400,000 fish annually. Commission staff reviewed the conditions governing an increase in the release limit, found that most had been met, and determined that conditions of overcrowding in the grow-out pens called for an immediate increase in the release limit. The Executive Director granted a two-year increase to the release limit, to 350,000 fish annually, and required that within eighteen months the Joint Panel submit a new request including the following: (1) information indicating that all conditions relating to an increase in the annual

release limit have been met, (2) information that all grow-out facilities are in compliance with existing coastal development permits and Coastal Act permitting requirements, (3) research data, currently being finalized, relating to white seabass genetics, and (4) an adaptive management plan for the white seabass hatchery and grow-out program.