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To: Commissioners and Interested Parties

From: Dr. Kate Huckelbridge, Executive Director
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Subject: Executive Director's Determination to Transition to Reduced Monitoring at the SONGS Mitigation Reef

SUMMARY OF EXECUTIVE DIRECTOR'S DETERMINATION

This report provides the Executive Director's determination that the Wheeler North Reef mitigation projects is successful, based on satisfaction of all performance standards each year for a three-year period following the completion Phase III reef construction in 2021. The Executive Director is therefore recommending the Commission approve a reduced monitoring program for Southern California Edison's (SCE) San Onofre Nuclear Generating Station (SONGS) mitigation reef. This reduction in monitoring is allowed for through Special Condition D, Section 3 of SCE's Coastal Development Permit (No. 6-81-330-A). The motion and resolution is provided on page 5 of this report.

Background of SONGS Mitigation

A variety of permit conditions were adopted by the Commission in 1991 to mitigate the adverse impacts of the operation of SONGS Units 2 and 3 on the marine environment. Broadly, the conditions require SCE and its partners to: (1) create or substantially restore a minimum of 150 acres of southern California wetlands (Condition A), (2) install fish barrier devices to reduce the biomass of fish killed inside the power plant (Condition B), and (3) construct an artificial reef large enough to sustain 150 acres of medium- to high-density kelp bed community together with funding for a mariculture/marine fish hatchery (Condition C). The conditions also require SCE to provide the funds necessary for technical oversight and independent monitoring of the mitigation projects. This monitoring and oversight is required to be carried out by independent contract scientists under the direction of the Executive Director of the Coastal Commission (Condition D).

Implementation of the mitigation projects is the responsibility of SCE whereas the Commission is responsible for overseeing the independent monitoring and technical oversight. The independent monitoring and oversight also includes a provision for periodic public review of the performance of the mitigation projects.

The independent field monitoring program is carried out through a contract with the University of California, Santa Barbara. Under this contract, monitoring data are collected by university biologists under the direction of four Principal Scientists that serve as project managers for the monitoring effort (collectively known as “contract scientists”). Southern California Edison also provides funds for a science advisory panel (SAP) to provide independent scientific expertise to the Commission and to the contract scientists.

Performance of the Wheeler North Reef to Date

The artificial reef complex SCE constructed to meet permit requirements is known as Wheeler North Reef (WNR). After construction and monitoring of an experimental reef, Phase I of WNR, the Commission approved the coastal development permit and final reef mitigation plan on February 6, 2008 (CDP No. E-07-010) for construction of WNR’s Phase II. Construction of WNR’s Phase II mitigation reef was completed in September 2008, and on January 27, 2009, the Executive Director determined that the constructed reef met the Final Design Plan specifications in SCE’s permit. Annual monitoring of Phase II of WNR began in the summer of 2009 and has continued to the present time. In March 2019, the Commission approved SCE’s CDP No. 9-19-0025¹ for the construction of a Phase III remediation reef to address low fish standing stock in the Phase II reef and create up to 210 additional acres of low-relief reef at WNR. Construction of the Phase III reef was completed in July 2020.

Based on the protocol established through the Commission’s permit conditions, SCE receives mitigation credit for any given year only if WNR has similar performance to at least one of two reference reefs across 11 relative performance standards, meets the relative performance standard for undesirable and invasive species, and meets the absolute performance standard for hard substrate. Relative and absolute performance standards are evaluated annually through an intensive monitoring program². Additionally, there are absolute performance standards (giant kelp acreage and fish standing stock) that accumulate mitigation credit over time until a required value is met.

To date, WNR has met mitigation requirements since 2019³. This means that five of the required 32 years of mitigation have been satisfied and 27 additional years of successfully meeting the performance standards are required. Three of these five years followed the completion of the Phase III remediation reef, including 2023 ([Exhibit 1](#)). To date, WNR has acquired 229 acres of the required cumulative 4800 acres of kelp (acres are accumulated annually based on monitoring performance) and 35 tons of the

¹ [Staff report for CDP No. 9-19-0025](#)

² [Monitoring Plan for the SONGS' Reef Mitigation Project-Revised-2023-11-30](#)

³ [2022 Annual Monitoring Report SONGS Mitigation Reef](#)

required cumulative 129 tons of fish standing stock (also accumulated annually based on monitoring data).

Reduction in Monitoring

Although SCE's CDP for SONGS included requirements of comprehensive ongoing monitoring to gauge the success of its mitigation projects, the CDP conditions also established a process whereby the monitoring effort for the reef could be "scaled down" or reduced after the project reached a certain success milestone.

Specifically, Special Condition D, Section 3.0 of CDP 6-81-330-A states:

"The mitigation projects will be successful when all performance standards have been met each year for a three-year period. The Executive Director shall report to the Commission upon determining that all of the performance standards have been met for three years and that the project is deemed successful. If the Commission determines that the performance standards have been met and the project is successful, the monitoring program will be scaled down, as recommended by the Executive Director and approved by the Commission. A public review shall thereafter occur every five years, or sooner if called for by the Executive Director. The work program shall reflect the lower level of monitoring required. If subsequent monitoring shows that a standard is no longer being met, monitoring may be increased to previous levels, as determined necessary by the Executive Director.

The Executive Director may make a determination on the success or failure to meet the performance standards or necessary remediation and related monitoring at any time, not just at the time of the annual public review."

Additionally, Special Condition C, Section 2.4 states:

"If these standards are met after ten years following the completion of construction, then monitoring can be reduced to annual site inspections."

Phase I of WNR was an experimental design, meant to inform the design of Phase II, which was constructed in 2008. Monitoring of Phase II of WNR began in 2009. As the project approached the 10-year deadline for transitioning to annual site inspections, it was apparent that the Phase II reef was not meeting the absolute standard for fish standing stock and possibly would also not consistently meet the absolute standard for giant kelp acreage. The Principal Scientists, SAP, and Commission staff spent several years analyzing and examining the reasons for this underperformance, ultimately determining that WNR was not large enough to meet these performance standards. They recommended to the Executive Director that the size of the reef be significantly increased. Following numerous meetings and conversations with SCE, SCE proposed construction of a new reef to achieve this increase and the Commission approved SCE's CDP No. 9-19-0025 in March 2019 for the construction of Phase III of WNR.

To date, the combined WNR has accrued three years of mitigation credit following the completion of Phase III in 2020. Analysis of monitoring data collected on the mitigation reef from 2009–2021 led the SAP and Principal Scientists to conclude that reduced monitoring would likely lead to similar conclusions as full monitoring, though with slightly less confidence. Following close, collaborative review of 13 years of annual monitoring data, the Principal Scientists, SAP, and Executive Director are in support of transitioning to a reduced monitoring plan.

The previous full monitoring program involved sampling at 82 locations (i.e., transects) each at the mitigation and reference reefs for nine of the relative performance standards. For giant kelp area and fish standing stock standards, data was collected from 151 locations at Wheeler North Reef. The performance standards for fish production, reproduction, and food chain support were evaluated using five species of fish collected throughout the summer season. The reduced sampling effort would reduce the number of sampling locations (i.e. transects) to 15 each at the mitigation and reference reefs for the relative performance standards sampled with transects. For the absolute performance standards (hard substrate, kelp area, fish standing stock), sampling would be reduced from 151 to 111 transects on the mitigation reef. Fish production would be estimated from fish biomass measured in transects and would not require any additional sampling, whereas fish reproduction and food chain support would be evaluated using fewer individuals of two species.

Return to Full Monitoring

Even if the Commission approves a reduction in monitoring effort, as a protective measure Special Condition D, Section 3.0 of CDP 6-81-330-A, establishes that monitoring may also be increased to previous levels in the future as determined by the Executive Director based on monitoring and reef performance. The November 2023 Monitoring Plan^{2 above2} outlines criteria for such a return to full monitoring and states:

“Failure of WNR to meet the performance standards under reduced monitoring during annual site inspections may be due to actual underperformance by WNR or due to a small sample size that is not capable of detecting a true difference in similarity [to the lowest performing reference reef]. Distinguishing between these two putative causes requires data from full monitoring, which has sufficient sample sizes to detect statistically acceptable differences in similarity...The decision to return to full monitoring is only relevant in years when Wheeler North Reef meets fewer relative performance standards than either reference reef...This approach involves calculating the probability (P) that Wheeler North Reef fails to meet n relative performance standards (where n ranges from 0-11) in a given year due to chance alone, which assumes that Wheeler North Reef, San Mateo and Barn have an equal 33% probability of failing to meet each standard. A return to full monitoring would occur when Wheeler North Reef fails to receive mitigation credit (i.e., n for Wheeler North Reef > n for [reference reefs]) and P for n < critical $\alpha = 0.1$.”

This statement means that a return to full monitoring is recommended if there is greater than a 90% probability that either of the reference reefs outperformed WNR due to actual differences between the reefs rather than chance alone. If full monitoring resumes, monitoring would not switch back to the reduced annual site inspections until WNR again meets the performance criteria for another three successive years.

Executive Director's Determination

Based on the successful performance of the recently expanded Wheeler North Reef and satisfaction of the criteria for reduced monitoring, the Commission's Executive Director is providing this report to the Commission of her determination that all of the performance standards have been met for three years and that the Wheeler North Reef project is on a successful trajectory. The Executive Director is recommending that the Commission also determines that the performance standards have been met and accordingly, the monitoring program may be scaled down.

Motion:

I move that the Commission concur with the Executive Director's determination to transition to a reduced monitoring scheme for Southern California Edison's (SCE) San Onofre Nuclear Generating Station (SONGS) mitigation reef. I recommend a yes vote.

Executive Director's Recommendation:

The Executive Director recommends a **yes** vote on the motion. Passage of this motion will result in a transition to a reduced monitoring scheme for Southern California Edison's (SCE) San Onofre Nuclear Generating Station (SONGS) mitigation reef.

Exhibit 1

[Performance of the Wheeler North Reef - 2023 Monitoring Results](#)