

**CALIFORNIA COASTAL COMMISSION**

455 MARKET STREET, SUITE 228 SAN  
FRANCISCO, CA 94105-2219 VOICE  
(415) 904-5200  
FAX (415) 904-5400



# Th8a

August 18, 2023

**TO:** Commissioners and Interested Parties

**FROM:** Kate Huckelbridge, Executive Director  
Cassidy Teufel, Director of Energy, Ocean Resources and Federal Consistency  
Division  
Alexis Barrera, Environmental Scientist

**SUBJECT:** 2023-2024 Work Plan and Budget for Poseidon Carlsbad Desalination  
Mitigation Independent Monitoring Program

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## SUMMARY OF STAFF RECOMMENDATION

California Coastal Commission (Commission) staff recommends the Commission approve a one-year work plan and a \$625,741 one-year budget paid by Poseidon Resources (Channelside) LP (hereafter "Poseidon") for the independent monitoring and technical oversight of Poseidon's Carlsbad Desalination Facility Mitigation Project. The mitigation project and the permittee-funded independent monitoring are required under Poseidon's coastal development permit (CDP) for its Carlsbad Desalination Facility, CDP No. E-06-013. The mitigation project itself was approved by the Commission through CDP No. 9-14-0731.

### Work Plan and Budget for 2023-2024

This proposed 2023-2024 work plan will cover the second year of work required under the independent mitigation monitoring program specified in CDP No. 9-14-0731. The proposed budget will fund the costs of the independent monitoring and technical oversight program, including the independent contract scientist, program staff, consultants, science advisory panel, administrative support, and operating expenses from September 2023 through August 2024. The staff proposed to be funded represent the minimum required to achieve the goals outlined in Special Condition 7 of CDP No. 9-14-0731 and to fulfill the tasks outlined in the Commission-approved Marine Life Mitigation Plan (MLMP) for the second year. This MLMP is provided as Appendix A.

### Coastal Act Violation

As described further below, Poseidon has failed to comply with the terms and conditions of CDP No. 9-

14-0731. This CDP required Poseidon to commence the creation/restoration of coastal wetlands authorized by the permit by October 30, 2021, but Poseidon began this work in the fall of 2022. The Commission's Enforcement Division has initiated an investigation into this violation, issued a Notice of Violation letter on February 11, 2022, notifying Poseidon of the violation, and is pursuing enforcement actions as a separate matter. Approving the proposed work plan and budget will not resolve the outstanding violation nor interfere with the Enforcement Division's efforts to resolve it.

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### **EXHIBITS**

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[EXHIBIT 2: Detailed Budget](#)

### **APPENDICES**

[APPENDIX A: Marine Life Mitigation Plan](#)

## **I. MOTION AND RESOLUTION**

Commission approval of the 2023-2024 one-year work plan and budget requires the following motion:

I hereby move that the Commission **approve** the 2023-2024 Work Plan and Budget for the Poseidon Carlsbad Desalination Facility Mitigation Independent Monitoring Program as recommended by the staff.

The staff recommends a **“YES”** vote on the foregoing motion, which will result in the adoption by the Commission of the following resolution:

The Commission hereby determines that the 2023-2024 Work Plan and Budget for the Poseidon Carlsbad Desalination Facility Mitigation Independent Monitoring Program that is recommended by staff carries out the intent of Special Condition 7 of Coastal Development Permit No. 9-14-0731 and Condition B, 2.0 of the Marine Life Mitigation Plan by requiring the permittee to provide reasonable and necessary funding for the Commission contract scientists’ technical oversight and independent monitoring responsibilities pursuant to the mitigation and lost resource compensation conditions.

## **II. FINDINGS AND DECLARATIONS**

### **A. POSEIDON CARLSBAD DESALINATION PERMIT BACKGROUND**

On November 15, 2007, the Commission approved the coastal development permit (CDP No. E-06-013) for Poseidon’s proposal to construct and operate a desalination facility in Carlsbad, San Diego County, subject to Poseidon meeting several conditions prior to issuance of the permit. Special Condition 8 in CDP No. E-06-013 required Poseidon to submit a Marine Life Mitigation Plan (MLMP) for additional Commission review and approval. Poseidon and Commission staff worked together to develop the MLMP, which the Commission subsequently approved on August 8, 2008. The MLMP establishes the minimum standards and objectives to ensure sufficient mitigation for the marine life impacts caused by the facility’s use of estuarine water and entrainment of marine organisms. Specifically, it required the restoration of 66.4 acres of estuarine wetland habitat within the Southern California Bight. The MLMP also includes performance standards, timing restrictions, monitoring requirements, and other elements needed to ensure successful and adequate mitigation.

On November 3, 2009, after all prior to issuance conditions had been met, Commission staff issued CDP No. E-06-013 to Poseidon. Within 10 months of receiving the CDP for the desalination facility, Poseidon was required to submit its proposed restoration site(s) and preliminary wetland restoration plan for Commission review and approval. The wetland performance and independent monitoring requirements included in the MLMP were modeled after those included in the CDP authorizing construction and operation of the San Onofre Nuclear Generating Station (SONGS) (CDP No. 6-81-330-A, formerly 183-73). Thus, the independent monitoring for the restoration mitigation project is modeled after the SONGS Mitigation Monitoring Plan for the San Dieguito Wetland Restoration Project.

Subsequently, on May 9, 2019, the Commission approved Poseidon’s coastal development

permit (CDP No. 9-14-0731) for the creation and restoration of coastal wetlands on two noncontiguous sites within the San Diego National Wildlife Refuge in South San Diego Bay (**Exhibit 1**). These restoration sites, totaling 34.6 acres for the Otay River Floodplain and 90.9 acres for Pond 15, are also known as the Otay River Estuary Restoration Project. The Commission's approval of this coastal development permit was contingent upon compliance with all applicable conditions from CDP No. E-06-013 (i.e. the CDP for the desalination project). Prior to issuance of CDP No. 9-14-0731 for the wetland restorations, the Commission provisionally approved the Final Wetland Restoration Plan (FRP) for the restoration project. The FRP outlines the mitigation for all wetland impacts associated with the desalination facility and a draft monitoring plan prepared by an independent Science Advisory Panel (SAP), subject to review by the Executive Director. On April 30, 2021, CDP No. 9-14-0731 was issued and on September 19, 2022, the Executive Director approved the final version of the FRP.

Special Condition 7 of CDP No. 9-14-0731 requires independent monitoring of the mitigation project pursuant to a monitoring plan developed by the independent scientist, Commission staff, and the SAP, in consultation with Poseidon. Condition A, 5.0 (Wetland Monitoring, Management and Remediation) of the Poseidon MLMP states that "Monitoring, management (including maintenance), and remediation shall be conducted over the 'full operating life' of Poseidon's desalination facility, which shall be 30 years from the date "as-built" plans are submitted pursuant to subsection 4.1(l)." To ensure full compensation for the loss of coastal resources, the monitoring, management (including maintenance) and remediation of the wetland restoration will be carried out for 30 years after construction. If the restoration fails to meet the performance standards in some years, this may result in a monitoring period longer than 30 years.

## **B. COMMISSION OVERSIGHT AND INDEPENDENT MONITORING**

Condition B of the MLMP establishes the administrative structure for the operation and funding of the independent monitoring and technical oversight of the mitigation project. Conditions A through C and CDP No. 9-14-0731 outline the financial responsibility of Poseidon for oversight and monitoring functions, including providing "reasonable and necessary costs" for personnel with appropriate scientific or technical expertise, support personnel, equipment, overhead, consultants, contractors for identified studies, and expenses related to a SAP convened by the Executive Director. The MLMP and CDP also include requirements for periodic public review of project performance and the availability of scientific data through a publicly accessible database.

The California Marine Science Foundation (CMSF) currently manages the funds for the oversight and monitoring program and assists Commission staff with administrative tasks. The Commission staff has contracted SAP members to provide scientific expertise and an independent scientist to manage the monitoring program. As the program progresses, additional staff, consultants, and contractors may be required based on specific tasks and expertise. Commission staff also spends a portion of its time administering the work plan; therefore, costs associated with staff time and travel are also included in the proposed budget.

### **Monitoring Plan**

Condition A of the MLMP requires monitoring, management (including maintenance), and remediation throughout the entire 30-year "full operating life" of Poseidon's desalination

facility, starting from when Poseidon submits as-built plans to the Commission. This monitoring evaluates the wetland restoration's success in achieving stated restoration goals and performance standards. As outlined in Condition B (Administrative Structure) of the MLMP, contract scientists have developed a draft Monitoring Plan focused on Post-Restoration Monitoring, which assesses project compliance with the MLMP's performance standards. The draft Monitoring Plan also emphasizes the requirement for pre-restoration site monitoring to collect baseline data on the stated wetland attributes, which will inform and potentially modify the overall monitoring plan. Monitoring will also be conducted during and immediately after each stage of construction to ensure adherence to the design plans.

The performance standards used to evaluate the success of the wetland restoration project can be categorized into two main types: long-term physical standards and biological performance standards. The long-term physical standards include topography, water quality, tidal prism integrity, and habitat areas. These are absolute standards that are measured at the mitigation site only. The biological performance standards include biological communities (e.g., fish, macroinvertebrates, and birds), vegetation, Spartina canopy architecture, reproductive success of specific plants, food chain support functions, and control of exotic species. These are relative standards that are measured relative to approximately four reference sites. The MLMP describes these reference sites as relatively undisturbed, natural tidal wetlands within the Southern California Bight. The independent scientist (who will manage the monitoring program) and the SAP are currently discussing potential reference sites and are consulting with Commission and Poseidon staff. The final reference sites will be brought to the Executive Director for approval in the coming year. The final monitoring plan will specify the measure of similarity, such as a specified range or the 95% confidence interval, used to compare the biological performance standards for the mitigation and reference sites.

### **Implementation Structure**

The independent scientist will lead the implementation of the mitigation monitoring program and provide scientific expertise to the Commission. Additionally, a SAP consisting of prominent experts in the field will provide guidance to Commission staff and the independent scientist on various aspects of the mitigation project. The current SAP members include Dr. Richard Ambrose, a Research Professor in the Department of Environmental Health Sciences at the University of California Los Angeles; Dr. Peter Raimondi, a Professor in the Department of Ecology and Evolutionary Biology at the University of California, Santa Cruz; and Dr. Brett Sanders, a Professor of Civil and Environmental Engineering, Urban Planning and Public Policy at the University of California, Irvine.

To meet the goals specified in the MLMP, the independent scientist may be supported by contract staff biologists or temporary staff. In addition, the independent scientist, working with Commission staff and the SAP, will establish a data management system to store and process monitoring data collected from the independent monitoring program over time. Maintaining continuous collaboration between the independent scientist and contract staff biologists will be crucial to fulfilling the monitoring tasks for the wetland restoration project. Staffing levels for wetland monitoring tasks will likely be determined largely during the pre-restoration monitoring stage at the restoration sites and reference sites, as well as during pre-construction and construction monitoring stages.

### **C. WORK PLAN: 2023-2024**

## **Status of Wetland Restoration Mitigation**

Poseidon is responsible for funding the scientific and support staff retained by Commission staff to oversee the site assessments, project design and implementation, and monitoring activities for the mitigation project. In the fall of 2022, Poseidon began constructing the Otay River Estuary Restoration Project. Construction of the Otay River floodplain site is to be finished by early 2024 and the Pond 15 site by early 2025.

The current work plan and budget for 2022-2023 (**Exhibit 2**) that the Commission approved in August 2022 provides detailed tasks and cost estimates for August 2022 to August 2023, and that approved budget totaled \$625,978. The Commission approved a one-month extension of this workplan and budget on August 8, 2023, in response to a request from Poseidon for more time to work with Commission staff, the independent scientist and SAP on the pending 2023-2024 workplan and budget. During the first year of the mitigation monitoring program, CMSF hired an independent scientist to lead the program's implementation. Working with the SAP and Commission staff, the independent scientist started work on several of the tasks listed in the 2022-2023 Work Plan including Task 1: Construction Monitoring, Task 2: Evaluate and select reference sites, Task 3: Determine method of assessing permit compliance, Task 4: Develop a sampling design for post-construction monitoring, and Task 5: Develop a data management system. In addition, Commission staff, the independent scientist, and SAP in consultation with Poseidon developed the proposed Work Plan and Budget for 2023-2024 that is the subject of this report and recommendation.

## **Consultation with Permittee**

Commission staff carried out extensive consultation with Poseidon on the proposed work plan and budget for 2023 to 2024. As established in a review schedule developed and agreed upon by both Poseidon and Commission staff, Commission staff provided the proposed work plan and budget to Poseidon for review on June 12, 2023. As established in that schedule, Poseidon was provided with four weeks to complete its review of the work plan and budget and to provide questions and concerns to Commission staff. Despite this review period and the five coordination meetings with Poseidon that were held by Commission staff within it, Poseidon was unable to provide comprehensive input in a timely manner and requested an additional month of review time, which was approved by the Commission in August 2023 through a one-month extension of the current workplan and budget. With the additional review time, Commission staff met with Poseidon three times and provided two updated work plan and budget drafts addressing Poseidon's comments and established a schedule for Poseidon's additional review. Although Poseidon was again unable to provide input until after the end of the established review period, on August 8, it provided comments on the draft work plan tasks to Commission staff. Commission staff worked to revise the workplan to address the majority of those comments.

## **2023-2024 Work Plan Tasks**

At this early construction stage of Poseidon's mitigation projects, there are many variables regarding the planning process and construction schedule. This makes it difficult to provide refined cost projections and fully anticipate each of the studies and tasks that may be required in the upcoming year for the independent mitigation monitoring program. The work program

and budget presented in this report represent the best efforts of the independent scientist, Commission staff, Poseidon and the SAP to provide detailed tasks and cost estimates for September 2023 through August 2024, but if additional staff or funds are necessary to carry out the identified tasks, Commission staff will work with Poseidon to bring an addendum to this workplan and budget to the Commission for consideration.

The following tasks will be completed during the 2023-2024 work period. Tasks will be carried out by the independent scientist under the direction of Commission staff and the SAP. Commission staff, SAP, and the independent scientist will consult with Poseidon on the elements of the work plan and will keep Poseidon informed of progress.

### **1) Construction monitoring: (September 2023 – August 2024)**

The independent scientist will develop a construction monitoring plan and sampling design to monitor hydrological variables and physical wetland features during construction. The independent scientist will use monitoring results to evaluate whether restoration work is conducted according to approved final design plans.

Once the monitoring plan and sampling design are approved by Commission staff, the independent scientist will coordinate monitoring efforts with Poseidon's construction monitoring tasks, as required under CDP 9-14-0731. The specific monitoring tasks are described below:

- a) Request market-competitive proposals from universities and consulting entities to confirm wetland elevations through drone photogrammetric sampling, field sampling, and RTK and GPS technology. Hired contractors will conduct surveys immediately following construction, at six months and one-year post-construction, and as necessary following significant hydrological events. Arrange discussions between wetland elevation surveyors contracted by Poseidon and the independent scientist to facilitate mutual understanding of survey goals and methods.
- b) Determine methods for measuring tidal prism and ensure that the hydrographs for the Pond 15 and Otay River sites match the as-built plans.
- c) Select monitoring locations for dissolved oxygen and water depth levels at restoration wetlands and set up equipment to log data every 15 minutes in early 2024. Dissolved oxygen measurements will begin in 2025 at the Otay River floodplain site.
- d) Manage and analyze data collected during construction monitoring, provided by consultants, present analysis of data to Commission staff, SAP, and Poseidon for review.
- e) Submit annual regular reports on construction progress and a final report evaluating any deviations from the approved plans to Commission staff and Poseidon.
- f) Review monitoring reports from other agencies and Poseidon associated with the restoration project.

### **2) Evaluate and select reference sites: (September 2023 – August 2024)**

Commission staff, the SAP, and the independent scientist in coordination with Poseidon will use the following process to identify and evaluate potential reference site(s) for the restoration



project:

- a) By October 1, 2023 the independent scientist will provide a schedule outlining deliverables required to finalize items (e) and (f) below.
- b) Continue review of the SAP's draft Monitoring Plan and the proposed reference sites described in the Plan. Review comments submitted by Poseidon on potential reference sites.
- c) Continue managing and analyzing existing information on potential reference wetlands. Identify data gaps that remain following data analysis. Assess similarities between the restoration project and potential reference sites.
- d) Conduct field surveys and purchase necessary equipment to gather data on each potential reference wetland. Determine the method of sample processing for the collected data. Using the collected data, evaluate the suitability of each site to serve as a reference wetland for the restoration project.
- e) Evaluate pros and cons of potential reference sites and select three or four reference sites.
- f) The independent scientist will develop a memo outlining the rationale for selecting the potential reference sites for review by Commission staff, the SAP, and Poseidon.
- g) The final selection of reference sites will be approved by the Commission's Executive Director.

**3) Determine method of assessing permit compliance for relative standards: (January 2024 – August 2024)**

The independent scientist will determine the approach for assessing the similarity of relative performance standards between the restoration project and reference wetlands. The independent scientist will also produce an updated monitoring plan outlining the approach for evaluating permit compliance. Specific tasks include:

- a) Continue review of Section 2.1 Determination of Similarity in the SONGS Mitigation Monitoring Plan and draft Monitoring Plan.
- b) Produce a final white paper for review by Commission staff, SAP, and Poseidon, describing the approach for assessing similarity based on field methods and analytical assessment, similar to the SONGS Mitigation Monitoring Plan.
- c) Update the draft Monitoring Plan based on reference site selection and method development.

**4) Develop a sampling design for post-construction monitoring: (January 2024 – August 2024)**

The independent scientist will develop sampling design methods for post-construction monitoring of each absolute and relative standard detailed in the permit. This task includes the following tasks:

- a) Continue review of the draft Monitoring Plan prepared by the SAP and comments

submitted by Poseidon.

- b) Continue to review permit requirements, existing data, modeling, and relevant information to inform sampling methods.
- c) Select potential sampling sites within the mitigation and reference wetlands for physical and biological monitoring and method assessment.
- d) Research and develop sampling methods for the restoration project and reference wetlands. Purchase or construct (e.g., enclosure traps for fish) necessary equipment.
- e) Update the draft monitoring plan with details of the sampling design and locations of sampling sites for evaluating performance standards within the restoration project and reference wetlands.
- f) Provide the Regional Water Quality Board staff with draft fish sampling details and methods for review.

#### **5) Data management system: (September 2023 - August 2024)**

The independent scientist, with help from the SAP, will develop a preliminary database. The independent scientist will manage the storage of physical variables monitored at the restoration sites, and document methods for data collection to ensure data quality control, storage, and curation. In addition, the independent scientist, with help from the SAP and in consultation with Poseidon will explore different methods of longer-term data storage associated with ramped up monitoring of restoration and reference sites.

- a) Continue review of the draft Monitoring Plan to understand the scope of data collection in light of chosen reference sites.
- b) Explore the most suitable approach for database management, ensuring accessibility, quality control, cost effectiveness, and security.
- c) Consider various management approaches for the project's data management such as the independent scientist developing the database, hiring a contractor to develop the database, or forming a contractual partnership with the SONGS project database.
- e) Coordinate with Poseidon to transfer pre-construction monitoring data (including existing physical, biological, and relevant datasets and modeling results) to Commission staff and the independent scientist. This data will inform the design of the post-construction monitoring program.

#### **6) Manage consultants and contracts: (August 2023 – 2024)**

The wetland monitoring tasks may require the involvement of contractors or the establishment of contractual relationships. In collaboration with the independent scientist and Commission staff, CMSF will provide administrative support to manage contracts, consultancy agreements, and budget tracking. All work requiring contracts will be described in the proposed budget that Poseidon has reviewed and which Commission staff has approved.

#### **7) Establish a shared workspace in San Diego and hire seasonal staff: (January 2024 – August**

## 2024)

To facilitate the monitoring program, the independent scientist will use the following process to establish a workspace and hire seasonal staff.

- a) Initially, secure office space for one to two staff personnel by joining an existing operational workspace that provides necessary office services, including Wi-Fi and printers.
- b) Begin to hire San Diego-based staff, including seasonal field staff. The seasonal worker will work directly for CMSF and be charged with assisting with data collection for the purpose of selecting reference sites, for erecting and maintaining sensors at the Otay River floodplain site, for assisting in the development of field sampling methods, for data collection, and possibly for additional tasks as they arise.
- c) Upon review and approval from Commission staff, purchase field and laboratory equipment and establish a storage location.

### **D. BUDGET: 2023-2024**

CDP No. 9-14-0731 and the MLMP require Poseidon to fund the Commission staff's oversight of the mitigation and independent monitoring functions outlined in the MLMP. The permittee must provide "reasonable and necessary costs" for retaining personnel with appropriate scientific or technical expertise, as well as providing adequate funding for support staff, equipment, overhead, consultants, contractors, and the SAP. CMSF will manage the funds for the oversight and monitoring program.

The total budget to implement the work plan is intended as a "not-to-exceed" amount. The permittee provides funds periodically throughout the budget period rather than as a lump sum payment, to minimize the advance outlay of cash. Any unspent funds at the end of the budget period will either be carried over to the next period or returned to Poseidon.

### **Proposed Budget for 2023 and 2024**

The proposed budget for September 2023 through August 2024 covers the costs for the second year of the Poseidon independent mitigation monitoring and oversight program. It covers various costs, including for an independent scientist, seasonal monitoring staff, SAP, consultants, contract administrative support, and operating expense throughout the one-year budget period. CMSF, as the independent accounting entity, will handle financial administration duties, and the overhead cost in the budget represents the current rates charged by CMSF for this service.

The total funding requested to implement the monitoring and oversight program for one year is \$625,741, as shown below. As additionally demonstrated in the detailed budget that is included in **Exhibit 2**, this funding would cover the independent monitoring and oversight-related work to be performed by various staff (as well as their related expenses) for the tasks in the 2023-2024 work plan.

**PROPOSED WORK PLAN BUDGET 2023-2024**

<b>Budget Element</b>	<b>Hours</b>	<b>Cost</b>
Independent Scientist	2,080	\$204,715
Seasonal Staff	1,300	\$64,246
Consultants/Contractors	N/A	\$25,000
Commission Staff	350	\$24,600
SAP	621	\$154,091
Travel	N/A	\$33,604
Operational Expenses	N/A	\$38,350
Direct Costs		\$511,001
Overhead & Contingency		\$114,740
<b>TOTAL COST</b>		<b>\$625,741</b>

**E. Coastal Act Violation**

A violation of the Coastal Act exists with respect to Poseidon’s failure to comply with the terms and conditions of CDP No. 9-14-0731. That permit required that restoration work commence by October 30, 2021; work began in fall of 2022 but is not yet completed. On February 11, 2022, Commission staff notified Poseidon of the violation through issuance of a Notice of Violation letter, and Commission staff is pursuing resolution of that violation as a separate matter. Approval of the proposed Work Plan and Budget will not resolve the outstanding violation. Although a violation of CDP No. 9-14-0731 exists, consideration of this Work Plan and Budget by the Commission has been based solely upon the

requirements for a permittee-funded independent mitigation monitoring program outlined in CDP Nos. E-06-013 and 9-14-0731.