

CALIFORNIA OCEAN PROTECTION COUNCIL

Staff Recommendation

February 29, 2008

**CALIFORNIA MARINE ECOSYSTEM HEALTH LABORATORY**

File No. 08-003-01

Project Managers: Neal Fishman/Carol Arnold

**RECOMMENDED ACTION:** Consideration and possible authorization to grant up to \$242,000 to prepare plans, designs and environmental documents for the California Marine Ecosystem Health Laboratory at the University of California, Davis.

**LOCATION:** The facility will be located within the School of Veterinary Medicine complex at the University of California, Davis, but the services it provides will be available to ocean resource managers statewide, as well as throughout the nation and the world.

**STRATEGIC PLAN OBJECTIVE(S):** Research and Monitoring

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**EXHIBITS**

Exhibit 1: [Project Location and Site Maps](#)

Exhibit 2: [Letters of Support](#)

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**RESOLUTION:**

Staff recommends that the Ocean Protection Council (OPC) adopt the following resolution pursuant to Sections 35500 *et seq.* of the Public Resources Code:

“The OPC hereby approves the disbursement of an amount not to exceed \$242,000 to the University of California, Davis (University) to prepare plans, designs and environmental documents for the California Marine Ecosystem Health Laboratory (Laboratory), subject to the condition that, prior to the disbursement of any funds, the University shall submit for the review and written approval of the Secretary to the OPC a work program, including scope of work, budget and schedule,”

Staff further recommends that the OPC adopt the following findings:

“Based on the staff report and attached exhibits, the OPC hereby finds that:

1. The proposed project is consistent with purposes of Division 26.5 of the Public Resources Code, the Ocean Protection Act.
2. The proposed project is consistent with the OPC’s project funding guidelines.

**PROJECT SUMMARY:**

This project will result in the preparation of plans, designs and environmental documents for the construction of a state-of-the-art marine ecosystem health laboratory at the University of California, Davis. The Laboratory will be associated with the Wildlife Health Center under the umbrella of the University's School of Veterinary Medicine (SVM) which, in addition to its superb world-wide reputation as a research and health facility for domestic animals, is increasingly establishing itself as a leader in wildlife and ecosystem health.

Specifically, the proposed Laboratory would offer the following services:

- Laboratory facilities for ocean and coastal resource managers to assist in the diagnosis and analysis of marine organism pathology, including that of marine mammals, birds, fish and invertebrates;
- Support for the development and optimization of new methodologies for detecting and tracking diseases and toxins affecting living marine resources;
- Application of best-available methodologies and techniques to evaluate ocean health parameters on an on-going basis by trained and dedicated staff at a centralized facility, maximizing efficiency and minimizing cost;
- Assumption of a California and West Coast leadership role in recognizing and describing emerging diseases in the ocean;
- Dissemination of information on ocean health to agencies, institutions and organizations making key decisions for the advancement of marine stewardship in the state as well as throughout the nation and the world.

No where in California - or in the world - is there a diagnostic facility exclusively dedicated to evaluating the health of marine mammals, birds, fish and invertebrates, and the ocean ecosystems upon which they depend. Although other research laboratories look at some aspects of ocean ecosystem health, such as the impacts of oil spills on marine wildlife, there is no facility that offers the current technologies necessary to identify causes of marine wildlife morbidity and mortality that will be available through the proposed Laboratory. Although the California Office of Spill Prevention and Response (OSPR) operates a Sea Otter rehabilitation and laboratory facility at the Marine Wildlife Veterinary Care and Research Center in Santa Cruz, this facility is not adequate to serve the purposes of the proposed Laboratory because it does not have the staff or equipment to provide the same comprehensive state-of-the-art level of analysis of tissue samples from marine organisms or of dilute water samples to determine the causes of marine ecosystem pathology. Due to persistent declines in numbers and health among many populations of marine wildlife, there is an urgent need for such a facility, the research opportunities and results of which would be available to scientists from all over the state and Pacific coast, as well as the world.

Specifically, the Laboratory would benefit California's marine and coastal natural resources and serve the stakeholders and public that use and enjoy these resources, by offering the following:

- Solutions for improving ocean and coastal water quality. Identification of pathogens and toxins will allow site-specific evaluation of ocean health and on-going monitoring and

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surveillance of problem areas. Establishment of more specific pathogen regulatory action levels may be developed, especially for pathogens that are important for human health, including food-borne illnesses like *Toxoplasma gondii*. The Laboratory would provide the facilities required for large-scale application of diagnostics and monitoring of the coastal environment.

- Improvements in local, state, and federal management of California's marine wildlife and ecosystems. Without the ability to diagnose and monitor marine ecosystem health parameters, it is extremely difficult to manage and protect marine resources. The objective data produced by the laboratory will empower marine managers to make more scientifically-based and effective management decisions.
- Development of scientific research to support practical approaches for ecosystem-based management. Marine and coastal ecosystems are complex and the disease ecology in ocean and coastal wildlife populations and communities is not well understood. A specialty of the Laboratory would be the determination of emerging threats to healthy ocean and coastal wildlife populations and communities.
- Enhancement of the scientific understanding of our ocean resources. The Laboratory would contribute to the broad understanding of the conditions of our ocean resources.

A diagnostic facility capable of conducting health surveillance of marine wildlife, as well as tracking pathogens moving between terrestrial and marine environments, would allow scientists to be in a position to provide centralized, high quality services similar to what currently exists for domestic animal and human health. Without a centralized facility devoted to these purposes, the ability to recognize emerging diseases and pathogen pollution, and most importantly the development of action plans to address these problems, are severely limited.

The burgeoning populations of coastal cities in California and along the Pacific coast, as well as coastal cities around the world, are seriously impacting marine wildlife and the habitats upon which they depend. Although some diagnostic tests for toxin exposure and diseases of marine wildlife are now conducted regularly throughout the world, the resultant data and analyses are not consistently available to researchers, managers and stewards responsible for monitoring ocean resources and making necessary recommendations to assure ocean ecosystem health. Locating the Laboratory within the SVM complex will help systematize and track the development of these diagnostic tests for which there is currently no centralized, location.

Due to the design and construction schedule for the main expansion of the SVM, a brief window of time exists that will enable the cost-effective and efficient design and construction of the Laboratory. It would be part of planned new construction for the SVM with all land and site costs provided by the University. The overall building will be approximately 17,000 square feet; the Laboratory portion will be about 3,600 square feet. OPC monies will fund only the plans, designs and environmental documents related to the portion of the project housing the Laboratory. Costs for construction would be shared with other state and federal agencies, as well as private donors. Once plans and environmental documents are completed, if the University requests partial funding for the construction of the Laboratory from the OPC this request will be evaluated and prioritized as if it were a new proposal. Nothing in this recommendation should be construed as a commitment to such future funding.

### **PROJECT GRANTEE:**

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The University is well positioned to house the Laboratory in that it is located in the center of the state, offering easy access to both the Pacific coast where much of the research will be focused and the California state capital where many participating resource agencies are headquartered. The project is supported by numerous agencies and entities, including ocean resource managers and environmental organizations (Exhibit 2: Letters of Support).

The University is fully capable of managing a project of this type, having established itself as a leader in both wildlife and domestic animal health, and having managed numerous government and private grants for various planning and construction projects. The University has recently completed the UC Davis Long Range Development Plan (LRDP) that will be updated to incorporate the proposed project once plans and designs are finalized.

**SITE DESCRIPTION:** The University is situated in the center of California and along the North American coast of the Pacific Ocean, enabling relatively easy access to coastal sites where research will be conducted, as well as government offices in Sacramento where many California state and federal resource agencies are located. The proposed facility will be adjoined to new construction planned for the SVM, located in the southwest section of the campus.

A primary focus of the proposed Laboratory will be marine ecosystem health in California and the West Coast. However, the benefits of the project will extend beyond these geographical regions by providing a centralized location for data collected in other areas of the nation and the world that would be beneficial for all managers of ocean wildlife resources.

### **PROJECT HISTORY:**

This project evolved out of resource managers' concerns for ocean ecosystem health related to marine wildlife. For example, various species of marine mammals, including pinnapeds, cetaceans and sea otters, have all been affected by pathogens and pollutants in ocean waters, with resulting impacts on morbidity and mortality. Similarly, some marine birds, fish and invertebrate species have been deleteriously impacted by pathogens and pollutants in ocean waters. Although there are many facilities that deal with similar types of impacts on domestic animals, there is no facility that focuses exclusively on impacts of pathogens and pollutants on marine wildlife.

In 2007, the University proposed a project related to sea otter mortality, but after consultations with other resource managers and environmental groups concluded that a program devoted to the health of marine wildlife in general, rather than just a specific project focused on sea otters, would better serve the marine research community. Assuming a lead role in this effort, the University has proposed constructing a facility and establishing a program that would focus exclusively on marine ecosystem health issues and operate in association with the world renowned SVM.

The University is in the process of upgrading its campus facilities. It recently completed a LRDP including proposed additions and changes to the SVM, among others. A Programmatic Environmental Impact Report (EIR) on the LRDP has been certified. As a more recent proposal, the Laboratory is not currently a part of the LRDP or EIR, although a "footprint" for construction in the area of the SVM is. The University is fully committed to designing the Laboratory to be consistent with the goals of the LRDP. The University expects construction funding to flow

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from a variety of sources, including federal and state government agencies, as well as private donors.

**PROJECT FINANCING**

Ocean Protection Council	\$242,000
University of California, Davis (in-kind)	<u>756,000</u>
<b>Total Project Cost</b>	<b>\$998,000</b>

The anticipated source of OPC funds for the proposed project is from the "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" (Proposition 84). Proposition 84 gives priority to projects that develop scientific data needed to adaptively manage the state’s marine resources. (Pub. Res. Code § 75060(g)). The proposed facility will be dedicated to the collection of scientific data necessary for effective decision-making on the part of resource managers regarding actions and policies affecting marine ecosystem health.

Pursuant to Public Resources Code Section 75060(g), the specific appropriation allows for the expenditure of funds on projects consistent with Public Resources Code Section 35650, establishing the California Ocean Protection Trust Fund. Under Section 35650, Ocean Protection Trust Fund monies may be expended for projects authorized by the OPC that are consistent with the Ocean Protection Act (Public Resources Code Sections 35500 *et seq.*). As discussed in the section below, the project is consistent with the Ocean Protection Act.

**CONSISTENCY WITH CALIFORNIA OCEAN PROTECTION ACT**

This project is consistent the Ocean Protection Act, Division 26.5 of the Public Resources Code, in the following respects:

Section 35650 of the Public Resource Code authorizes grants from the council that provide "scientific data to improve state efforts to protect and conserve ocean resources" and grants that "improve management, conservation, and protection of coastal waters and ocean ecosystems." When constructed and fully operating, the proposed project would serve the function of conducting scientific research into marine ecosystem health and housing data from other sources that would otherwise not be readily available to state resource managers in their efforts to protect and restore coastal and ocean ecosystems. Consistent with subsection (d), by providing the necessary scientific perspective, the facility would encourage cooperative management efforts among state and federal efforts to protect and conserve coastal and ocean habitats and the ecological processes that support those habitats.

**CONSISTENCY WITH OCEAN PROTECTION COUNCIL’S STRATEGIC PLAN GOALS AND OBJECTIVES:**

The proposed project supports the OPC’s Five-year Strategic Plan by furthering **Section B, Research and Monitoring, Objective 1:** “Improve scientific understanding of our ocean and coastal ecosystems.” The Laboratory would promote improved understanding of ocean and

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coastal ecosystems by conducting research into marine ecosystem health and promoting science as the foundation of ocean and coastal policy. The Laboratory would work to detect and track diseases and toxins affecting living marine resources, and would make available this information to various agencies, institutions and organizations making key decisions for the advancement of marine stewardship. When completed, the proposed project would promote California as a national and world model for research and data collection related to marine ecosystem health.

The project also supports **Section B, Research and Monitoring, Objective 2**: “Monitor and map the ocean environment to provide data about conditions and trends.” The Laboratory would operate as a state-sponsored ocean observing program, working to gather and disseminate scientific data regarding conditions and trends related to marine ecosystem health.

### CONSISTENCY WITH OCEAN PROTECTION COUNCIL’S PROJECT SELECTION CRITERIA & GUIDELINES

The proposed project is consistent with the OPC’s Project Funding Guidelines adopted June 14, 2007 in the following respects:

The proposed project directly relates to California’s ocean and coast, is supported by the public and is of interest statewide. Understanding California’s marine ecosystem health issues and status will lead to more informed and sustainable management of marine mammals, birds, fish and invertebrates. More specifically, a world-class laboratory of this type will enable the protection and expansion of declining marine wildlife populations, including those species listed by the state and/or federal government as threatened and endangered, using technologies that are based upon the most up to date scientific information available.

The proposed project has vast public support as exhibited by the numerous letters from government agencies and private environmental organizations attached as Exhibit 2. The project will serve a broad statewide function as research will be focused on ocean locations adjacent to the coast of California, as well as other locations along the North American Pacific coast. Additionally data will be collected from researchers around the world and made available to all those involved marine resource management.

The project would also satisfy the following funding criteria priorities:

1. **Enhance the capacity of government programs to meet the goals of the California Ocean Protection Act:** The California Ocean Protection Act (Public Resources Code Sections 35500 *et seq.*) and subsequent adopted documents of the OPC emphasize that it is state policy to implement ecosystem-based approaches in managing coastal and marine resources using sound science. Implementation of ecosystem-based management strategies requires consideration of interactions between species, their habitats and human activities. Many of these interactions are not well understood, and significant data and information gaps currently hinder the effort. The existence of a university-associated laboratory of the type proposed here would help fill these gaps through top-quality scientific research on ocean ecosystem health conducted by its own faculty and staff, as well as the collection and housing of data from around the world that may not currently be available to state government resource managers.

2. **Improve enforcement of California’s ocean and coastal protection laws:** To be most effective, ocean regulations and policies should be based upon sound science. The proposed project will enable regulators and policy makers to have at their disposal the most up to date scientific data regard marine ecosystem health available world-wide.
3. **Develop practical approaches to implementing ecosystem-based management:** see number 1 above.
4. **Improve scientific understanding of our ocean resources:** The proposed Laboratory would accelerate improved scientific understanding of ocean resources through its goals of developing and optimizing new methodologies for detecting and tracking diseases and toxins; applying the best-available methodologies and techniques to evaluate ocean health parameters on an on-going basis at a centralized facility, maximizing efficiency and minimizing cost; assuming a leadership role in recognizing and describing emerging diseases in the ocean; disseminating information on ocean health to agencies, institutions and organizations making key decisions for the advancement of marine stewardship in the state, on the North American Pacific coast and in the world.
5. **Improve the quantity and quality of ocean and coastal habitat:** State of the art scientific research into ocean ecosystem processes must necessarily serve as the cornerstone of any program to improve the quantity and quality of ocean and coastal habitat. The proposed project will accomplish this by providing a world-class university-based marine ecosystem health laboratory that will not only undertake its own research projects, but will collect and house the results of other marine wildlife studies completed by scientists from around the world. With such a facility available, resource managers will be able to access the most up to date scientific data available on the health of marine ecosystems, which will in turn inform their decisions and choices in developing programs to expand and improve ocean and coastal habitat.
6. **Increase healthy ocean and coastal wildlife populations and communities:** As marine ecosystem health data is gathered and made available to resource managers as the result of Laboratory research and archival functions, programs to increase healthy ocean and coastal wildlife populations and communities are likely to result in greater success as the result of enhanced science-based decisions. One of the primary purposes of the Laboratory will be to make all data available to interested parties not only in California and the North American Pacific coast, but around the world. The health of wildlife populations declines or improves based primarily on actions taken by ocean and coastal resource managers and regulators, and one of the most important elements potentially influencing these actions is the quality and quantity of scientific data at their core.
7. **Promote ocean and coastal awareness and stewardship:** State of the art research technologies applied to projects related to marine ecosystem health can provide the basis of coastal awareness and stewardship programs developed for the purpose of educating and involving the public in efforts to conserve and restore ocean resources. The Laboratory will utilize such technologies when undertaking its own research and evaluating research from other sources. All information will be available to ocean scientists, managers and members of the public interested in marine conservation.

**Additional Criteria**

8. **Timeliness or Urgency:** A brief window of time exists to conduct this project, during which the most cost-effective and efficient design processes will be enabled. Construction of the Laboratory would occur as part of planned construction for the SVM with all land and site costs provided by the University.
9. **Innovation:** When fully operating, the Laboratory will provide an essential function in ocean management that currently exists nowhere else in the world. It would be exclusively devoted to the collection and archiving of data related to marine wildlife diseases and pollution pathogens. This data would be made available to ocean managers around the world who will be making the essential decisions dictating marine ecosystem health in the future.
10. **Coordination:** This project is a cooperative effort between the OPC, the University and numerous other agencies and organizations the extent of which is apparent in support letters attached as Exhibit 2.

**COMPLIANCE WITH CEQA:** The project is statutorily exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to 14 Cal. Code of Regulations Section 15262, because it involves only feasibility or planning studies for possible future actions, which the OPC has not yet approved, adopted, or agreed to fund. Further, because the project only involves environmental review and design, the project does not have the potential for causing a significant effect on the environment and is thus exempt under 14 Cal. Code of Regulations Section 15061(b)(3). Upon OPC approval of the project, staff will file a Notice of Exemption.