

CALIFORNIA OCEAN  
PROTECTION COUNCIL

Staff Recommendation  
January 13, 2006

**Morro Bay Ecosystem Based Management Program**

Developed By: **Timothy Duff**

**RECOMMENDED ACTION:** Consideration of the Morro Bay Ecosystem Based Management Program, and possible 1) determination that it is a high priority project, and 2) authorization for the Council's Secretary to take actions needed to disburse up to \$500,000 for its implementation.

**NEAREST OCEAN or COASTAL LOCATION:** Estero Bay and Morro Bay National Estuary, San Luis Obispo County (Exhibit 1).

**AGENCY OR ENTITY RECOMMENDING PROJECT:** State Coastal Conservancy, California Polytechnic State University Center for Coastal Marine Science (Cal Poly), Packard Foundation, Resources Legacy Fund Foundation.

**GRANTEE:** Cal Poly Foundation

---

**EXHIBITS**

Exhibit 1: Project Location Map

Exhibit 2: Summary Tables of EBM Objectives & Deliverables

Exhibit 3: Letters of Support

---

**RESOLUTION:**

"The Ocean Protection Council finds pursuant to Sections 35600 *et seq.* of the Public Resources Code that the Morro Bay Ecosystem Based Management Program proposal, as herein described, is of high priority for ocean conservation, and authorizes the Secretary to take actions necessary for its planning or implementation, including the allocation of up to \$500,000."

**PROJECT DESCRIPTION:**

The Center for Coastal Marine Science at California Polytechnic State University (Cal Poly) is requesting up to \$500,000 in match funding to develop an Ecosystem Based Management ("EBM") Program for the Morro Bay region. Conceptually, EBM

## MORRO BAY ECOSYSTEM BASED MANAGEMENT PROGRAM

emphasizes a more holistic resource management approach that involves the participation of scientists, land and marine resource managers and other stakeholders in an institutional network that encompasses the linkages and boundaries of ecosystems. Such an approach serves to increase the efficacy of resource management, conservation, and restoration by incorporating high quality and broadly shared ecosystem knowledge into these activities. By identifying the critical issues relevant at all systemic levels, resource managers and others are able to focus their time and resources more effectively.

Regional efforts to conduct science and manage the resources in the Morro Bay area are seen by project proponents as fragmented within narrowly defined elements of the ecosystem. The two primary groups pursuing research, conservation, and sustainable use in the area are the Marine Interests Group of San Luis Obispo (“MIG”) and the Morro Bay National Estuary Program (“MBNEP”). The MIG has focused on the coastal and marine areas of the ecosystem, while the MBNEP has directed its efforts to the estuary and watershed. Operating independently and with a focus on different geographic areas of the ecosystem has led to significant gaps in understanding of the larger ecosystem and, specifically, of the key ecological and economic linkages between the terrestrial, freshwater, and marine habitats. Currently, neither the State Department of Fish and Game (DFG) nor the State Department of Parks and Recreation (DPR) is formally represented on the MIG or MBNEP, and as a result, much of the MIG/MBNEP activity has to date largely taken place in isolation of these two key resource agencies.

The Morro Bay EBM Program will distill a core set of interrelated objectives and deliverables focused on the most important issues of ecosystem concern (i.e. water quality, indicators of biological health, indicators of socio-economic health, critical nursery and spawning grounds, and human access). It will also develop an effective institutional framework for resource managers and other stakeholders to apply the results. A critical component of this framework is the creation of an EBM advisory committee comprised of staff from all of the relevant resource management agencies and community stakeholders in the project area, including DFG and DPR.

The program’s broad objectives will be:

1. To develop and monitor relevant physical/chemical, biological, and socioeconomic indicators across the ecosystem and to determine how the various components are interconnected and how they affect one another;
2. To establish a clear understanding of the institutional linkages within the ecosystem and to build and reorganize the “institutional ecosystem” where needed;
3. To provide land managers and stakeholders with improved ecological and sociological data for shared deliberation and decision making on an ecosystem-wide basis for maximum impact and cost effectiveness; and

## MORRO BAY ECOSYSTEM BASED MANAGEMENT PROGRAM

4. To develop a model for EBM that can be utilized in other areas of California, the nation, and the world.

The above objectives translate into a set of specific deliverables and associated management values that are summarized in Exhibit 2.

The Morro Bay National Estuary and adjacent watershed and coastal zone provide a unique opportunity within the central coast of California to utilize and benefit from a formalized EBM approach. The area encompasses one of the least impacted and most naturally functioning estuarine ecosystems in California, and therefore provides an unusual opportunity to test EBM benefits. Morro Bay is also considered an ideal model watershed for this EBM program because it is small enough to be feasible for study, restoration, and protection efforts, yet is large enough to reflect national and international watershed issues such as non-point source pollution, development, agriculture and rangeland uses, and wastewater treatment. A major goal of this EBM program will be to develop a model for regional efforts suitable for replication elsewhere in California, the nation, and in other countries.

Morro Bay was also selected for the proposed development of an EBM program because the effort would build on existing resources and infrastructure, and complement and magnify the many ongoing efforts to protect and restore this nationally significant estuarine system. As mentioned above, all of the key resource management agencies and community stakeholders in the project area will be serving on a proposed advisory committee. The program will serve to focus attention on critical issues, and provide ongoing feedback to committee participants on scientific progress and results that will serve to enhance their ongoing collaboration.

The grantee is well suited to carry out the proposed EBM program. The faculty members associated with the Cal Poly Center for Coastal Marine Science have acquired and successfully managed over \$8 million in grant funding in the last seven years to execute a variety of research programs aimed at understanding the ecological processes of coastal marine systems. All of the collaborating scientists are proven experts in their field, offering the EBM program the best of local and national talent. The core leadership team collectively has decades of proven expertise in leveraging resources cost effectively, delivering high-quality, problem-solving scientific results, communicating effectively with resource managers, stakeholders and the public, and sustaining and building productive collaborative networks.

As Cal Poly's partner on the leadership team for this proposal, and as one of the Coastal Conservancy's primary project partners in the Morro Bay region, the Morro Bay National Estuary Program (MBNEP) is well-positioned to assist in the successful execution of this EBM program. MBNEP staff has provided critical support on a wide variety of complex conservation projects, and has managed nearly \$3 million dollars in federal, state, and private grants in the past five years. The MBNEP has also been responsible for directing the expenditure of over \$3.6 million for restoration projects in

MORRO BAY ECOSYSTEM BASED MANAGEMENT PROGRAM

the area from the Central Coast Region 3 Water Quality Control Board's Morro Bay Restoration Fund.

Staff recommends that the Ocean Protection Council find that the Morro Bay Ecosystem Based Management Program proposal is a high priority and authorize the Secretary to the Council to take actions necessary to provide for its planning and implementation. If approved by the Ocean Protection Council, the proposed \$500,000 grant to the Cal Poly Foundation would be matched by a total of \$1,900,000 from the Packard Foundation and the Resources Legacy Fund Foundation, and together with an additional \$719,000 from Cal Poly, would provide the funding needed to develop the program over a three-year period beginning in early 2006.

**PROJECT FINANCING**

**Possible Funding Sources:**

Ocean Protection Council (Tidelands oil funds)	\$500,000
Packard Foundation	1,500,000
Resources Legacy Fund Foundation	400,000
Cal Poly Foundation	<u>\$719,000</u>

**Total Project Cost**

**\$3,119,000**

Staff anticipates using \$1,100,000 of the Ocean Protection Council's Tidelands oil funds appropriated to the Secretary of Resources in FY 04/05 for projects authorized pursuant to the Ocean Protection Act. The Resources Agency has entered into an interagency agreement with the Conservancy to administer these funds on behalf of the Council and to recommend projects for funding. These funds are to be expended by the Conservancy in concert with the Council for programs and projects that the Council finds to be of high priority. If authorized by the Ocean Protection Council, Conservancy staff will recommend a grant of \$500,000 to Cal Poly for consideration at the Conservancy's next public meeting on February 8, 2006. Additional match funding of \$1,500,000 is being provided by the Packard Foundation, along with \$400,000 from the Resources Legacy Fund Foundation, and \$719,000 from Cal Poly. The Central Coast Region 3 Water Quality Control Board staff is currently evaluating options to provide match funding, and expects to identify suitable grant fund sources early next year.

**CONSISTENCY WITH CALIFORNIA'S OCEAN ACTION STRATEGY:** The proposed project is consistent with action item 10 which recommends that funding be directed to coordinated ecosystem based management approaches at the local level to guide and improve the stewardship of ocean and coastal resources (see Action Strategy pg. 20). Furthermore, the proposed project seeks to maximize funding opportunities for projects that further the coordinated management of bays, estuaries and coastal lagoons (*id.* pg. 33).

**CONSISTENCY WITH OCEAN PROTECTION COUNCIL'S PROJECT SELECTION CRITERIA & GUIDELINES:**

**Mandatory Criteria**

**1. Furthers the following statutory purposes and policies of the Ocean Protection Act:**

- **Improves management, conservation, and protection of coastal waters and ocean ecosystems:** COPA recommends development of EBM programs that integrate ecosystem approaches to reach broad conservation, restoration, and sustainability goals. The proposed EBM approach for Morro Bay will emphasize a more holistic management concept involving scientists, resource managers, and other stakeholders in an institutional network that encompasses the linkages and the boundaries of ecosystems (e.g. land, estuary, ocean). The proposal will apply this integrated approach to the important scientific, resource management, and stakeholder interests related to the health of Morro Bay's watershed lands, estuary, coast and ocean ecosystems. The overall program goals include conservation, restoration, and sustainable use informed by high-quality and broadly-shared ecosystem knowledge.
- **Encourage those activities and uses that are consistent with sustainable, long-term protection and conservation of ocean and coastal resources:** Resource managers, stakeholders, and scientists have worked together to develop a conceptual model of the watershed, estuary, and near shore ocean environments. This model has identified critical interrelationships that require targeted research in order to inform important resource management issues and develop shared approaches to resolve them. For example, one objective of the proposed EBM project is to determine the effects of human access on coastal resources and to ultimately suggest levels of activity that will sustain the long-term health of resources at desired levels.
- **Promotes aesthetic, educational and recreational uses of the coast and ocean:** The EBM program has several elements which will promote educational uses of the coast and ocean through 1) a public kick-off meeting to engage people that live and work in Morro Bay, 2) semiannual workshops to discuss progress and updates of the projects, and 3) a biennial "State of the Bay...and Beyond" conference with cable TV coverage and archiving. In addition, an interactive web site will be developed along with an email listserve to involve "citizen scientists" and provide an "ecosystem dashboard" to summarize results for the interested public.
- **Improve monitoring, data gathering, and advances in scientific understanding of the ocean and coastal environment:** A central part of the proposed EBM program involves collecting real-time data on water quality throughout the "Morro Bay Ecosystem". The data collected from these efforts will offer unprecedented knowledge about the temporal and spatial variability of nutrients in Morro Bay. The data will also offer the ability to calculate broad scale nutrient budgets for the bay identifying the most likely sources and sinks of nutrients that can be used to better establish TMDL's for nutrients. Such data will also help to improve the understanding of the degree to which productivity in the

## MORRO BAY ECOSYSTEM BASED MANAGEMENT PROGRAM

Morro Bay estuary is driven by sources of nutrients from the watershed and from the coastal ocean, which will in turn improve our understanding of the ecological connections between watershed, estuary, and near shore environments. These questions are of fundamental importance to the understanding of how the ecosystem functions and how to effectively manage the area. Additionally, the program will develop a web-based interface that will enable interested government agencies and academic institutions to access the archived and real-time data.

- **Improves the health of fish and fosters sustainable fisheries in ocean and coastal waters:** Another area of scientific inquiry within the Morro Bay EBM program involves determining critical spawning and nursery areas for commercially and recreationally important fish species, using a combination of habitat sampling and side-scan sonar bathymetry to identify the most important fish habitats within Morro Bay. Experiments will also be conducted to assess the degree to which Morro Bay is utilized as a nursery ground by coastal populations of California Halibut.
- **Helps to integrate and coordinate the state's laws and institutions responsible for protecting and conserving ocean and coastal resources:** The Morro Bay EBM program was explicitly designed to involve all relevant institutions and interests groups that have a stake in the management and conservation of the area's land, bay, coastal and ocean resources. The program seeks to address the fundamental problems that arise when regional efforts to conduct science and manage resources are fragmented within narrowly defined elements of the ecosystem (e.g. land vs. estuary vs. coastal habitats, conservation vs. economic concerns) and driven by isolated institutions (e.g. local governments, State Parks, Coastal Commission, Fish and Game, Regional Water Quality Control Board). All of the major resource management agencies and stakeholders have a direct interest in one or more of the proposed EBM projects, and all have agreed to participate on the proposed advisory committee.
- **Helps to coordinate the collection and sharing of scientific data:** The project sponsors have developed and identified several key elements which will help coordinate the collection and sharing of the data. The Morro Bay EBM program is intimately tied to the two key stakeholder entities active in the Morro Bay region: 1) the Morro Bay National Estuary Program and the Marine Interests Group of San Luis Obispo County. Both groups are actively engaged in science and monitoring within the region and the Morro Bay EBM Program has developed explicit protocols to integrate and augment programs currently administered by those groups. There will also be an active advisory committee engaging all major resource agencies and stakeholder interests in the execution and application of program activities. Each of the proposed Morro Bay EBM projects leverages and builds upon existing research and established protocols to answer identified research questions. The program will also have the active participation of other stakeholders (i.e. fishermen, birders, trained volunteer monitors, and others) in defining critical questions, in the collection of data, and in the sharing of their knowledge and perspectives. As a result, a richer understanding of ecosystem dynamics will be developed, along with the building of a broader base of public

## MORRO BAY ECOSYSTEM BASED MANAGEMENT PROGRAM

understanding and appreciation. This type of active citizen engagement is seen as essential to effective ecosystem-based approaches.

2. **Consistent with the purposes of the funding source:** See Project Financing Section above.
3. **Has demonstrable support from the public:** The proposal has broad-based support from local and state agencies, academic institutions, community groups, and individuals. See Exhibit 3 for a complete list of supporters.
4. **Relates directly to the ocean, coast, associated estuaries, and coastal-draining watersheds:** Resource managers, stakeholders, and scientists have worked together to develop a conceptual model of the watershed, estuary, and near shore ocean environments. This model has identified critical interrelationships that require targeted research in order to inform important resource management issues and develop shared approaches to resolve them. The proposed Morro Bay EBM program provides a framework to pursue this research and apply it across these ecosystems.
5. **Has greater-than-local interest:** Development of an EBM approach for the Morro Bay National Estuary and surrounding region would complement and magnify the many ongoing efforts to protect and restore this nationally significant estuarine system. The EBM program would be developed to serve as a model for regional ecosystem-based management efforts suitable for replication elsewhere in California, the nation, and in other countries.

### Additional Criteria

6. **Helps implement the California Ocean and Coastal Information, Research, and Outreach Strategy and other priorities of local, state or federal advisory groups, or scientific or policy reports, adopted by the council:** The research and monitoring activities to be undertaken by those involved in the Morro Bay EBM program will serve to support management of one of the state's most significant estuarine systems, as well as provide important data on the linkages between the bay and near shore ocean and coastal ecosystems. In addition, the EBM program will provide an internet-based information system via development of a web-based interface that will enable interested government agencies and academic institutions to access archived and real-time data.
7. **The project includes a contribution of funds or services by other entities:** Significant match funding is being provided by the Packard Foundation (\$1,500,000), Resources Legacy Fund Foundation (\$400,000), and Cal Poly Foundation (\$719,000).
8. **The project involves innovation (e.g. environmental or economic demonstration):** The proposal represents the beginnings of a completely new

MORRO BAY ECOSYSTEM BASED MANAGEMENT PROGRAM

model for ecosystem-based exploration and management of Morro Bay's watershed, estuary, and near shore ocean environments.

9. **The project is ready to implement (grantee or contractor will start and finish the project in a timely manner):** A previous Packard Foundation planning grant supported development of this comprehensive EBM program proposal. The project sponsors are ready to initiate and complete the project over a defined three-year period.
  
10. **The project involves a combination of local, state, or federal agencies or is a public/private partnership:** The Morro Bay EBM program was explicitly designed to involve all of relevant local and state agencies and private interest groups that have a stake in the management and conservation of the area's estuary, coastal, and ocean resources.