

**CALIFORNIA COASTAL COMMISSION**

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# Th25b

21 August 2003

## RECORD PACKET COPY

To: California Coastal Commissioners

From: Susan Hansch, Chief Deputy Director  
Rebecca Roth, Federal Programs Manager  
Mark Johnsson, Staff Geologist

Re: Recommended approval of an agreement with the Environmental Careers Organization to provide administrative services for a NOAA Coastal Fellowship to develop a Statewide Coastal Bluff Erosion and Armor Database

### STAFF RECOMMENDATION

Staff recommends that the Commission authorize the Executive Director to enter into an agreement with the Environmental Careers Organization (ECO) to provide administrative services to support the completion of a project entitled "Development of a Coastal Bluff Erosion and Armor Database" to be carried out by Jennifer Dare, a Coastal Management Fellow under the overall sponsorship of the Coastal Services Center of the National Oceanic and Atmospheric Administration (NOAA). The total amount of this agreement is \$15,000, which represents the Commission's portion of the Fellow's stipend over a two-year period. The Coastal Services Center will provide the remaining \$60,000 of the stipend. In addition to personnel expenses, the Commission will provide in-kind contributions to cover supervision and mentoring and basic operating expenses and equipment.

### STAFF SUMMARY

In 1994, the Coastal Services Center (CSC) was created within NOAA to identify, develop, and facilitate the use of technologies and information that support the sustainable use and management of coastal resources. To that end, CSC established a competitive coastal management fellowship program that provides both professional education and training opportunities for post-graduate students in coastal management and policy. The fellowship provides on-the-job education and training opportunities for post-graduate students in coastal resource management and policy while also contributing specific technical assistance for state coastal resource management programs. The Coastal Commission has hosted three previous fellows from the program, in every year but one since its inception. Staff believes that the NOAA Coastal Fellowship program provides a very cost-effective way to address key issues that are a part of the Coastal Commission's core program

## NOAA Coastal Fellowship Contract

In December 2002, the NOAA Coastal Management Fellowship project committee announced that the Coastal Commission would receive a Fellow for a two-year term starting in September 2003. Consistent with the Commission's proprieties, the project addresses the ways to evaluate and coastal erosion and limit coastal armoring on a statewide basis. The project will culminate in the development of a Geographical Information System (GIS) cataloging erosion rate data and existing coastal armor throughout the state. The following sections discuss the development of this Fellowship project, its goals, and the scope of work.

The Commission will contribute \$15,000 toward the Fellow's stipend. This funding will be paid to the Environmental Careers Organization (ECO), the sponsoring institution for this Fellowship. In addition, the Commission has agreed to administer the fellowship and to provide Internet and computer access, day-to-day supervision, office space, and basic operating expenses over the two year period of the Fellowship.

### **IMPORTANCE OF THE FELLOWSHIP PROJECT**

Most of California's coast is backed by coastal bluffs, and most of these bluffs are actively eroding. Not only does this erosion threaten existing development, but it also creates a coastal management challenge in regulating the development of existing legal lots. Establishing appropriate erosion mitigation strategies is an important coastal zone management priority. In fact, the California Coastal Act requires that erosion protection in the form of coastal armoring "be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion." Armoring is, however, of concern because it inevitably fixes the landward edge of a beach or other coastal habitat, arresting the natural landward movement of these habitats as a result of sea level rise. This inevitably results in the loss of these habitats. Further, coastal armoring can reduce the contribution of sand from coastal bluffs to the beach environment, and has potential impacts to biological resources, aesthetic values, and public access. Although a great deal of coastal erosion data do exist for the state, there has been no attempt to organize these data into a useful tool for coastal zone management.

Such a tool would be useful to coastal zone management in California in a number of ways. First, by identifying unarmored areas with high erosion rates, requests for future armoring can be anticipated. Anticipation of future coastal armoring requests before a crisis situation develops allows time for better consideration of alternative methods of shoreline protection, or even alternatives to armoring. Second, during the periodic review of Local Coastal Programs, knowledge of areas that are currently armored and areas that are experiencing high erosion rates would allow for improvement of land use plan policies and implementing measures which could include, for example, the establishment of realistic construction setbacks. Third, the database will allow technical staff of the Coastal Commission to evaluate the data submitted in support of permit applications by comparing the submitted erosion rate data with those predicted on the basis of comparison to similar geologic environments. The coastal erosion and armoring databases also will be useful to the staff of the Monterey Bay National Marine Sanctuary (MBNMS) to help assess resources at risk from coastal armoring. This database will be an important step towards developing a coordinated regional approach to regulating coastal armoring, as well as strengthening the current case-by-case permit review used by state and federal agencies.

## **PROJECT DESCRIPTION**

The primary objective of the project will be to organize existing data on coastal erosion and current coastal armoring into a GIS-based database that can be queried to help identify areas that may be susceptible to future armoring requests. The database will first be assembled for the portion of the California coast adjacent to the Monterey Bay National Marine Sanctuary (MBNMS), but will later be expanded to include all of the California coast. The section of the California coast embraced by the Monterey Bay National Marine Sanctuary represents approximately 25% of the California coastline and contains great variability in coastal bluff morphology, geology, erosion rate, and human development pressure. We anticipate that early in the fellowship period a robust database encompassing all of the MBNMS will be developed. The database will then be extended throughout the remaining portions of the California coast. By the end of the project, an interactive database with a WWW interface will be constructed tying together the coastal erosion and armor data with other, existing, databases that address coastal wetlands and access inventory needs. The resultant integrated system will be made available to Coastal Commission staff through the Commission's intranet, and ultimately will be made available to the public on the Commission's web site.

## **SCOPE OF WORK**

Dr. Mark Johnsson, staff geologist for the Commission, will provide day-to-day supervision. The work program incorporates peer review. The primary goals and objectives are:

- To develop a database cataloging coastal erosion rates current coastal armoring for the California Coast
- To integrate this databases into a GIS that is compatible with existing databases developed at the Coastal Commission and elsewhere, and make them available through an interactive web-based interface.
- To provide a learning environment for the Fellow, in which she will develop an expertise in coastal erosion and GIS database development, and will be exposed to a wide range of coastal zone management issues.
- To provide Commission staff and the Fellow with the opportunity to develop relationships with researchers interested in coastal erosion issues, with coastal zone managers/planners working at the local, county, and state levels, and with NOAA staff charged with protecting the nation's largest marine sanctuary.

## **BENEFITS TO THE COMMISSION AND THE STATE OF CALIFORNIA**

This project requires expertise in coastal geology, coastal processes, and GIS management. Commission staff could not undertake this project unless technical staff resources were diverted from current critical assignments. The cost for the Commission staff to undertake this effort would far exceed the cost of the agreement with the Environmental Careers Organization and the NOAA Coastal Services Center. Under the proposed standard agreement, ECO will receive \$15,000 to support the remaining stipend of the NOAA CSC Fellow for completing the work described above in accordance with the specifications of the Fellowship project.