COASTAL CONSERVANCY

Staff Recommendation
October 2, 2014

FEMA-SUPPORTED BEACH PROFILE DATA COLLECTION 2014-2015

Project No. 13-017-02
Project Manager: Moira McEnespy

RECOMMENDED ACTION: Authorization to disburse up to $25,000 to the University of Southern California Sea Grant Program to provide surveys of beach profile changes and high-water mark data along Santa Monica Bay, Los Angeles County.

LOCATION: Beach areas of Santa Monica Bay, Los Angeles County

PROGRAM CATEGORY: Climate Change

EXHIBITS

Exhibit 1: Project Location Map

RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Section 31113 of the Public Resources Code:

"The State Coastal Conservancy hereby authorizes disbursement of up to $25,000 to the University of Southern California Sea Grant Program to provide surveys of beach profile changes and high-water mark data along Santa Monica Bay, Los Angeles County."

Staff further recommends that the Conservancy adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed authorization is consistent with the purposes and objectives of Public Resources Code Section 31113, regarding addressing the potential impacts of climate change on coastal resources.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria and Guidelines.
3. The University of Southern California is an organization existing under Section 501(c)(3) of the Internal Revenue Code, and whose purposes are consistent with Division 21 of the Public Resources Code."

PROJECT SUMMARY:

Staff recommends that the Conservancy authorize disbursement of up to $25,000 to the University of Southern California (USC) Sea Grant Program to provide surveys of beach profile changes and high-water mark data along Santa Monica Bay, Los Angeles County, during the 2014-15 storm season.

The Federal Emergency Management Agency (FEMA), Region IX is particularly interested in high water mark data, and is providing a grant to the Conservancy to collect that data and provide surveys of profile changes to beaches, dunes, and berms at up to four locations in coastal California. Close collaboration with Coastal Commission staff helped determine the following potential locations and research teams:

- Scripps Institute of Oceanography, a department of the University of California, San Diego (Scripps): Imperial Beach, San Diego County; Newport Beach, Orange County[1]
- University of Southern California (USC): Santa Monica Bay, Los Angeles County (the subject of this authorization)
- California State University, Monterey Bay (CSUMB): southern Monterey Bay.

The resultant data will help characterize coastal change during 2014/2015 winter storm conditions, and possibly from El Niño conditions. Information gathered through this monitoring is important for several reasons. For example, beach berms are used as a form of flood protection along parts of the southern and central California coast, where they are constructed in the late fall from available beach sand and lowered in the spring after the main storm season. The resultant data would certainly be applicable to berm management, such as modeling berm dynamics and determining their effectiveness for current storm and sea level conditions—and El Niño events could help in preparing for future sea level and storm conditions. Information will also be used for validating models for beach dynamics, run-up, and overtopping; and may be used by all levels of government, the private sector and the general public as a risk assessment and communication tool.

Finally, the potential for a 2014/2015 El Niño winter season provides an urgency for starting a rapid deployment monitoring program in which researchers from around the state routinely obtain perishable data on shoreline change and high water marks that result from storms, high tides, or other important conditions. As the need for such monitoring will continue long after the 2014/2015 winter storm season ends, this project will be used to demonstrate the utility and benefits of establishing such a rapid deployment monitoring program statewide. It may also serve as a model for other states, possibly developing into a network that can respond to and monitor coastal change from major events around the country.

The proposed data collection builds on and supports existing Conservancy work to help communities prepare for impacts of climate change, such as development of the Coastal Storm Modeling System (CoSMoS) for southern California, and the "Climate Ready" grants to the County of Los Angeles Department of Beaches and Harbors and the City of Imperial Beach to

[1] Funds will be disbursed to UC San Diego and CSU, Monterey Bay via inter-agency and inter-governmental agreements to monitor locations in San Diego, Orange, and Monterey counties.

conduct vulnerability assessments and develop adaptation strategies for public beach facilities, and both natural and built environments.

Approach: The proposed monitoring will supplement historical or ongoing monitoring by building on existing survey data; LiDAR data; historic profiles developed by FEMA, the US Army Corps of Engineers and academic researchers; and photographic images from projects such as "Watch the Water" and the "California King Tides Initiative." The project will be designed for flexibility, adaptability, and refinement as new data are identified and additional analyses are undertaken.

The Southern California Coastal Ocean Observing System (SCCOOS) and the Central and Northern California Ocean Observing System (CeNCOOS), or other mutually agreed-upon portal, will support data management and user interface.

Researchers will work with interested stakeholders (lifeguards, local citizens, municipal employees, government officials and/or other concerned groups) to obtain photographs of the survey sites throughout the winter season, and will suggest protocols to ensure that the photographs and visual observations are made in a manner that will best support the survey data (e.g., all photos should be time and date stamped and taken from an identifiable location).

Researchers will also attend at least one public meeting (city council, planning commission, life guard training, etc.) to discuss the survey results. In addition, the USC Sea Grant program will use relevant findings on potential local sea level rise implications as part of its ongoing sea level rise vulnerability training with local coastal planners and managers in Southern California counties.[2]

Specific Description: A small research team will monitor pre-and post-storm conditions at least twice during the winter season at established key profile sites within the chosen geographic locations:

1. Conduct beach and berm profiles every 50 meters for 20 km of the Santa Monica coast, with site chosen to coincide, if possible, with existing survey locations developed for FEMA or the US Army Corps of Engineers.
2. Conduct surveys prior to and after two significant storms in the 2014-2015 season. If possible, investigators will consult with the Coastal Data Information Program, co-researchers at Scripps, concerning expected wave conditions and local life guards concerning actual beach conditions to assist in identifying the two storm events that are most appropriate for monitoring.

Grantee Qualifications: USC is a section 501(c)(3) nonprofit corporation, making it an appropriate grantee under the Conservancy's enabling legislation. The lead researcher will be Dr. Costas Synolakis, whose research interests include inundation field surveys, numerical and analytical modeling, hazard assessment, and wave dynamics. In addition, USC Sea Grant program staff will use the results to continue to connect science to policymakers, particularly

[2] For example, through efforts such as development of the Coastal Storm Modeling System (CoSMoS 3.0) and "Regional Adapt LA."
http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2013/1306/20130620Board10_South_Coast_Storm_Model.pdf; (2) http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2014/1403/20140327Board03B_Climate_Readiness_Capacity_South_Coast.pdf

under the program's "hazard resilient coastal communities" focal area. The Sea Grant Program seeks to use its integrated research, training, and technical assistance capabilities, and its presence in coastal communities, to play a major role in helping local citizens, decision-makers, and industries plan for hazardous events and optimize the ability of their communities to respond and rebuild. The USC Sea Grant Program has been extensively involved in working with local and state governments to help coastal managers adapt to the impacts of climate change.[3]

The Conservancy has built a very successful partnership with the USC Sea Grant Program. In June 2013, the Conservancy authorized funds to develop a coastal storm modeling system (CoSMoS) for southern California, and the USC Sea Grant program will ensure the model meets user needs and effectively supports policy and planning decisions. In March 2014, the Conservancy authorized additional funds to provide training sessions that will build the capacity of coastal communities in the southern California area to understand and plan for the impacts of climate change.

Site Description: Beach areas along Santa Monica Bay.

Project History: The proposed project was developed during discussions about future storm conditions and flood risk reduction that included staff from FEMA and the Coastal Commission. FEMA expressed interest in funding beach surveys, particularly to obtain high-water marks in the 2014/2015 storm season, and suggested augmenting funds conveyed to the Conservancy via an existing Cooperating Technical Partners agreement.[4]

PROJECT FINANCING

Coastal Conservancy	$0
FEMA	$25,000
Project Total	**$25,000**

The anticipated source of funds is a federal FEMA "2014 Cooperating Technical Partners" (CTP) grant (Funding Opportunity Announcement No.: DHS-14-MT-045-009-01). The CTP program seeks to increase local involvement in, and ownership of, the development and maintenance of flood risk data and products. Grant funds seek to enhance local capabilities in hazard identification, risk assessment, risk communication and mitigation – the foundation for building disaster-resilient communities. FEMA Region 9 staff identified this source of funds as appropriate for the proposed project.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

The proposed project would be undertaken pursuant to Section 31113 of the Public Resources Code.

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[3] http://www.usc.edu/org/seagrant/research/climatechange.html

[4] FEMA and the Conservancy signed a *Cooperating Technical Partnership Agreement* (CTP) on August 6, 2013; a *Risk Map Project Mapping Activities Statement* (MAS) on August 20, 2013; and a *Cooperative Agreement* on September 18, 2013. The "Workplan and Coordination" section of the MAS provides for SCC staff to submit specific project workplans that detail tasks, schedules, and budgets. SCC staff submitted a second workplan on June 9, 2014 to conduct the monitoring project entitled "Extreme Event Beach Change and High Water Mark Monitoring—2014/2015 Winter Season" using additional funds to be conveyed via the agreement.

Section 31113(a) authorizes the Conservancy to undertake projects that address extreme weather events, sea level rise, storm surge, beach and bluff erosion, flooding, and other coastal hazards that threaten coastal communities, infrastructure, and natural resources. Consistent with this section, the proposed project will support collection of beach profile and high-water mark data critical to effectively manage California's beaches (and the development and natural resources they protect) as they become subject to more severe storms.

Section 31113(b) enables the Conservancy to award grants to public agencies and nonprofit organizations for activities authorized pursuant to Section 31113(a), prioritizing projects that, among other things, maximize public benefits. Consistent with this section, the Conservancy will grant funds to the USC Sea Grant Program (a program within a nonprofit organization) to collect data critical to manage California's beaches, a public resource of maximum importance.

The project is consistent with section 31104, which authorizes the Conservancy to receive federal grants.

CONSISTENCY WITH CONSERVANCY'S 2013 STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):

Consistent with **Goal 7** of the Conservancy's 2013-2018 Strategic Plan, the proposed project seeks to enhance the resiliency of coastal communities and ecosystems to the impacts of climate change. Consistent with **Goal 7 Objective A**, the proposed project involves cooperating with public agencies, universities, and others to gather data critical for addressing beach management and thus maintaining resilient coastal communities and natural resources, particularly:

- For modeling berm dynamics and determining their effectiveness for current storm and sea level conditions;
- For validating models for beach dynamics, run-up and overtopping;
- As a risk assessment and communication tool that can be used by all levels of government, the private sector and the general public to support the implementation of risk reduction and loss avoidance measures.

CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated on November 10, 2011, in the following respects:

Required Criteria

1. **Promotion of the Conservancy's statutory programs and purposes:** See the "Consistency with Conservancy's Enabling Legislation" section above.
2. **Consistency with purposes of the funding source:** See the "Project Financing" section above.
3. **Support of the public:** The proposed project will collect data that will be used by scientists, agencies, and community leaders to provide public information about potential future sea level rise conditions, and to better address future management issues. The data will also be posted to and available from a public web site. Although the proposed project was not

initiated directly by the general public, scientists, agency staff, and community leaders support obtaining the data to better manage and protect public and private resources and infrastructure.

4. **Location:** The proposed project would be located within the coastal zone of the County of Los Angeles.
5. **Need:** Conservancy participation is necessary to bridge federal and regional interests in obtaining critical management data, i.e., to coordinate several regions statewide.
6. **Greater-than-local interest:** The proposed project constitutes one of four regional locations selected statewide, which will collectively serve as a basis for building a statewide rapid monitoring program.
7. **Sea level rise vulnerability:** The proposed project will collect high-water data points and beach profile surveys during the 2014-15 storm season, a potential El Niño season in which storm events could help illustrate vulnerability and inform management needs under future sea level and storm conditions.

Additional Criteria

8. **Urgency:** FEMA, the Conservancy, and the research institutions are moving as quickly as possible to enable data collection as soon as possible, preferably prior to the onset of the 2014-15 storm season in order to include the planned pre-season surveys. Data collection will at the very least capture early-season, if not pre-season, profiles.
9. **Cooperation**: The proposed project is part of a pilot network of rapid deployment beach monitoring locations that will collaborate with three other counties (San Diego, Orange, and Monterey), two other research institutions, Coastal Commission and FEMA staff, and the southern and central coast's ocean observing systems.

CONSISTENCY WITH LOCAL COASTAL PROGRAM POLICIES:

The City of Santa Monica's Local Coastal Program (Land Use Plan dated August 1992 and certified November 17, 1992; implementing ordinances not yet certified) adopts policies intended to accomplish the following Coastal Act goal: "Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and man-made resources." Consistent with this goal, the proposed project will collect beach profile and high-water mark data that will enable better modeling of beach dynamics and hence better beach management strategies.

COMPLIANCE WITH CEQA:

The proposed project is categorically exempt from review under the California Environmental Quality Act (CEQA) pursuant to 14 California Code of Regulations Section 15306 because the project involves only data collection, research and resource evaluation activities that will not result in a serious or major disturbance to an environmental resource.