



CALIFORNIA COASTAL COMMISSION

NOAA COASTAL MANAGEMENT FELLOW PROGRAM

Application for 2016-2018:

Prioritizing Sea Level Rise Adaptation Planning along the California Coast



Miramar Inn, Half Moon Bay CA | March 2014 | CA King Tides Initiative | Jack Sutton

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Introduction

Climate change is happening now. Rapidly melting ice caps, rising sea levels, floods, extreme heat waves, droughts, and fires are just a few of the effects of climate change. These effects are having profound impacts on our coast and are changing coastal management planning and decision making at global, national, state, regional, local, and individual scales. Given current trends in greenhouse gas emissions, sea levels are expected to rise at an accelerating rate in the future, and scientists project a significant increase in California's sea level in coming decades.

The potential environmental, economic, and social impacts of sea level rise in California underscore the importance of addressing the issue in land use planning and regulatory work. For example, just over 21 million people lived in California's coastal counties as of July 2014 and the state supports a \$40 billion coastal and ocean economy. Many aspects of the coastal economy, as well as California's broader economy, are at risk from sea level rise, including coastal-related tourism, beach and ocean recreational activities, transfer of goods and services through ports and transportation networks, coastal agriculture, and commercial fishing and aquaculture facilities.

Fortunately, California has the legal and planning framework in place to address climate change and sea level rise along the coast by ensuring future development is consistent with the Coastal Act and by updating policies in coastal land use plans, called Local Coastal Programs, to reflect current and future coastal hazards and sea level rise. Reviewing permit applications and updating Local Coastal Programs through a "sea level rise" lens however, requires adequate information and understanding of the risks and vulnerabilities of particular sites and regions. The Commission recently unanimously adopted comprehensive ***Sea Level Rise Policy Guidance (Guidance): Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits*** (August 2015). While this is a huge accomplishment and success for the Commission, implementation of this Guidance and continued and enhanced participation with ongoing and future adaptation planning efforts is a key next step that will require additional staff capacity at both the state and local levels. The Commission's two previous NOAA Coastal Management Fellows were instrumental in the development and completion of this Guidance.

Currently, most of the Commission staff is dedicated to meeting the direct planning and regulatory requirements of the Coastal Act and there is a lack of staff capacity to conduct the analysis that are needed at a state-wide level to inform policy development. To respond to this need for information and capacity, the Commission seeks a fellow to be a key part of prioritizing the Commission's climate preparedness and adaptation planning efforts by integrating existing information (both spatial data and assessments) on vulnerability, location of shoreline armoring structures, and Coastal Act protected resources within geographic regions. Working both individually and as part of team, the fellow would prepare and present information in both digital and narrative format for use by the Coastal Commission and staff as well as local governments, other state agencies, and the public in its adaptation planning efforts that are currently underway.

Background

The California Coastal Commission (Commission) has regulatory and permitting responsibilities over all development within the coastal zone, a 1.5 million-acre area stretching 1,270 miles along the state's mainland coastline from Oregon to Mexico, and around nine offshore islands (333 miles of island shoreline). The coastal zone extends seaward three miles, with a landward boundary that varies from several miles inland in some places, to a few hundred feet from the shore in others.

The California Coastal Act of 1976 is the legal basis for the Commission's comprehensive state coastal protection program. The law establishes a partnership between the Commission and local government jurisdictions to implement the Coastal Act within the coastal zone through Local Coastal Programs. Among the coastal resources specifically protected under the Coastal Act are: public access, wetlands and other environmentally sensitive habitat areas (ESHA), agriculture, low-cost visitor-serving recreational uses, visual resources, commercial and recreational fishing, and community character.

The Commission has a very strong and proven commitment to NOAA's Coastal Management Fellowship Program as demonstrated by the many fellows the agency has had over the course of the program. We continue to enhance the fellow's learning experience and improve how we work with and support fellows. The Commission also uses the fellowship for recruiting and training future permanent staff members. The Commission currently employs several former NOAA fellows as permanent staff members and several other fellows have worked for the Commission for a period of time and/or moved on to resource management jobs in other locations. In 2009 the Commission recruited two candidates for permanent positions in addition to selecting a fellow.

The Commission is currently working to enhance coordination local governments on coastal resiliency efforts with heightened attention and focused on updating Local Coastal Programs (LCPs). At the same time, the Commission is facing a large number of retirements over the next two to five years. As a result, we are building a new team of staff to carry on the Commission's important mission under the Coastal Act. NOAA's Coastal Management Fellowship program has introduced exceptional candidates to the Commission and the Commission has seized the opportunity to offer employment opportunities to those interested fellows selected for the program.

Goals and Objectives

The goal of this project is to assist Commission staff in prioritizing climate preparedness and adaptation planning efforts by creating useful state-wide products that visually display approved land uses, sea level rise hazards, and at-risk resources. The fellow would be involved with preparing and presenting this critical information for decision-making in both digital and narrative format for use by Coastal Commission staff as well as local governments, other state agencies, and the public in Local Coastal Program planning and for use in coastal permitting decisions.

The fellow will accomplish this by:

- 1) Synthesizing data and information from existing datasets, vulnerability assessments, studies, and staff knowledge to develop maps and other products for adaptation planning purposes;
- 2) Conducting geospatial analysis of shoreline armoring throughout the state;
- 3) Integrating vulnerability data with shoreline armoring conditions to analyze the suite of adaptation options that could be considered at an appropriate geographic scale;
- 4) Recommending adaptation options and policy choices for consideration in LCPs; and
- 5) Developing outreach materials for use in training, enhancement of policy development and decision-making and distribution through the Coastal Commission's website for local governments, project applicants, other agencies, stakeholders, and the public.

Project Description

The fellowship project is designed to fill key capacity needs at the Commission to organize, compile, populate and synthesize data and information that is already available or currently being developed for use in prioritizing the Commission's adaptation planning effort. This prioritization is critical given the scale of potential impacts the state is facing from climate change and sea level rise and the complexity of addressing these hazards in land use planning and permitting decisions. The first year of the fellowship will be focused on synthesizing existing data and information to produce regional products that help prioritize adaptation planning efforts. The fellow will then spend the second year of the fellowship focusing within those specific geographic areas of the state to identify and analyze the feasibility of implementing adaptation strategies that address the site conditions, resources present and critical infrastructure at risk. Throughout the fellowship, the fellow will play key role in the ongoing outreach and training needed to assist local governments, project applicants, other agencies, partners and the public in the use and implementation of the Commission's recently adopted *Sea Level Rise Policy Guidance*.

Task 1 – Orientation, Vulnerability Assessment Synthesis and Mapping

At the beginning of the fellowship, the mentors will orient the fellow to Coastal Commission staff, laws and policies, the regulatory processes governing development in the coastal zone, and the recently adopted SLR Policy Guidance. The fellow will also be reviewing information such as Commission staff reports that illustrate the breadth of projects and issues that come before the Commission, the Coastal Act, the Coastal Zone Management Act, Strategic Plan, and other key documents relevant to the Commission's work.

In the fiscal year preceding the fellow's arrival, Commission staff will begin to synthesize and summarize information that is available from various vulnerability assessments and other studies that have been completed or that are underway throughout the state. Through this effort, Commission staff will start to document what resources are at-risk to sea level rise by geographic regions and where gaps in information may exist.

The Commission would look to the fellow to compile, organize and continue to synthesize information on vulnerability and at-risk resources for several regions where on-going work to update LCPs to address climate change and sea level rise is already underway. California has a number of vulnerability assessment projects in progress at a variety of scales and although staff are involved with these efforts, the Commission would look to the fellow as a lead point person to compile, organize and synthesize this information to help guide and prioritize efforts state-wide. The Commission envisions the products of this effort would be regional in scope and have a spatial/map component as well as a narrative description. The fellow would develop a standard format for these regional products for consistency state-wide. Development of outreach materials based on this product would also be expected (as described in Task 5).

Outcome/milestone for Task 1: Vulnerability map(s) for 1 - 3 geographic regions with narrative description of resources and critical infrastructure at-risk from sea level rise.

Timeline: August 2016 – June 2017

Task 2 – Geospatial Analysis of Shoreline Armoring throughout the State

The Commission developed a spatial shoreline armoring dataset in 2005 and has recently created a geodatabase to support integration of coastal development permit history with shoreline structure type. Since 2005, only one county in the armoring dataset has been updated and more work is needed to both to accurately represent conditions on the ground and to update more counties. The fellow would work with members of the Commission’s Geographic Information Systems (GIS) unit and District staff team members to integrate shoreline protection permitting information into the Commission’s existing spatial database for one or more counties. The fellow would then create an analysis tool useful for supporting adaptation planning.

For example, through data query and analysis, the Commission would like to be able to determine the following: where will there be increased requests for armoring, and are there opportunities for alternative adaptation strategies in these areas? Where are structures placed by Emergency¹ Permit located and do they have approved follow-up Coastal Development Permits? Where are older, non-permitted structures? Could shoreline armoring be removed?

The fellow would conduct field work to ground-truth priority areas where shoreline armoring conditions would inform development of potential adaptation options in a given region. This information will be important to factor in when assessing the vulnerabilities of specific areas. In addition, if El Nino storms in 2015-2016 are as strong as predicted, there could be additional data and on-the-ground conditions that need to be captured and documented both spatially and in narrative form to better understand the impacts of future storms. Data on El Nino

¹ The Coastal Act specifically defines “Emergency” as used in [Public Resources Code section 30624](#), as: a sudden unexpected occurrence demanding immediate action to prevent or mitigate loss or damage to life, health, property or essential public services.

impacts will be collected throughout the 2015-2016 storm season and tracked in the Commission's Coastal Data Management System where emergency permit actions occur; this information will be used to guide the fellow's work on this task. The fellow will also work with District staff to obtain El Nino impact information for incorporation into the armoring dataset.

Outcome/milestone for Task 2: Up-to-date shoreline armoring geodatabase for one or more counties covered in Task 1; integration of information resulting from El Nino storms; analysis of data queries that would be used to inform development of adaptation options in Task 3.

Timeline: August 2016 – June 2017

Task 3 – Information Integration; Identification of Adaptation Planning Priorities

Based on assembling the results of vulnerability analyses for certain regions along the coast and integration of that information with the shoreline armoring geodatabase, identify priority LCP planning segments for adaptation planning to address sea level rise hazards or that have critical infrastructure or resource vulnerabilities for which adaptation planning should begin now. For LCP updates already underway, work with relevant District staff to evaluate adequacy of local vulnerability information for use in sea level rise planning and policy development.

Outcomes/milestones for Task 3: Description of high priority LCP segments, critical infrastructure and resources at risk.

Timeline: July - September 2017

Task 4 - Adaptation Options (Opportunities and Constraints)

With the results of the integration of information under tasks 1-2 and priorities established in task 3, the fellow will assess the feasibility of employing various adaptation strategies to address resources at-risk. The fellow will not be expected to develop adaptation options for every priority area throughout the state; instead, the fellow will drill down into one or more priority segments to fully evaluate potential adaptation strategies that could be employed based on physical conditions, existing land uses, and likely future development scenarios. This task will require working closely with District staff to understand the environmental, social, economic, and political conditions of an area to assess feasibility of adaptation options.

Outcome/milestone for Task 4: A report outlining recommendations for adaptation options by region or appropriate geographic segment for use in LCP planning, policy development and coastal permitting. The fellow will present this information to Commission executive team and relevant District Managers.

Timeline: October 2017 – July 2018

Task 5 – Develop Outreach Materials for Local Governments and Others

As stated above, the Commission recently unanimously adopted Sea Level Rise Guidance for use in LCPs and Coastal Development Permits (CDPs). During the 2015-2016 fiscal year

Commission staff will be undertaking internal staff training on the Guidance as well as an assessment of local government needs for training on implementation of the Guidance at the local level. In late summer of 2016, the fellow will be joining the Commission at a critical time when development of outreach and training materials for local governments will be needed. The results of the local government assessments will help inform the type and format of these materials. The fellow will also have the opportunity to assist in presenting trainings and conducting outreach on the Guidance over the course of the fellowship. The fellow would also be expected to develop outreach materials based on Tasks 1 and 2 products described above.

Outcome/milestone for Task 5: Outreach products (fact sheets, website content, training materials, presentations)

Timeline: ongoing throughout the project

Additional Project Information

The ideal candidate will have a keen interest in public policy, science and climate change, as well as land use planning and coastal management. The Commission is especially interested in individuals that may bring specialized skills or interests to the fellowship such as coastal engineering, shoreline processes, spatial analysis skills, and/or resource economics. Most importantly, **the Commission is open to candidates with a variety of skills and academic specialties and will customize and tailor the tasks of the project to take advantage of the fellow's strengths and interests.** The fellow will need to be able to work effectively individually and as part of a team within a multi-jurisdictional regulatory arena. He/she will also be expected to understand and interpret science and research, coastal management issues and other issue areas that may be important to this project and turn this understanding into policy recommendations.

Fellow Mentoring

The Supervising Mentor will be Chief Deputy Director Susan Hansch, with supporting mentorship from the Federal Programs Manager, Michelle Jesperson. The Supervising Mentor (Hansch) will be responsible for the fellow and provide project direction and guidance as he/she works with other Commission staff members on various tasks. The Support Mentor (Jesperson) will be available for day-to-day management of task/activities and coordination assistance amongst agency staff and with outside partners, such as representatives from local governments. The fellow will have the opportunity to meet with the Supervising Mentor on a regular basis (i.e. minimum once a month) during which the Supervising Mentor will review the work completed to date and update the fellow's work plan as needed. The fellow will have direct and frequent access to the Supervising Mentor for help, guidance and facilitating collaboration with staff throughout the agency. Both the Supervising and Support Mentor will work closely together in a collaborative way and as team, will offer support for the fellow.

This project offers a fellow a challenging opportunity for professional development as an integral member of an interdisciplinary team of dedicated Commission staff members, including

many senior managers and technical specialists working closely with local jurisdictions and other partners, to include climate change and adaptation into its planning and regulatory decision-making. Although a team member, the fellow will have specific responsibilities and is expected to complete the tasks as outlined in the project description to help fill critical capacity gaps in the Commission's climate change work. The fellow will complete specific products and have person accomplishments during the fellowship.

While the fellow will be based in the Commission's headquarters in San Francisco, there will be some travel within California to meet and work with Commission staff located in district offices (Arcata, Santa Cruz, Ventura, Long Beach and San Diego), as well as local government representatives, researchers, and others who may be important to the successful completion of this project. The extent of travel will depend on available budget, scheduling constraints, and other factors. The Supervising Mentor may also designate a point of contact in the Commission's district offices to act as the liaison between the fellow and local jurisdictions depending on the geographic areas of focus for certain tasks.

In addition to the task outlined in the Project Description, the fellow will be expected to participate in and contribute to the Commission's broader climate work such as implementation of the *Safeguarding California Plan*, adherence to Executive Orders and responding to information request/legally-mandated climate change reporting requirements. As a result, the fellow will be exposed to multi-agency collaborative efforts. The fellow will also participate with Commission staff (including managers and executive team members) on external multi-agency or stakeholder work groups such as the State's Climate Action Team Coast and Ocean Work Group, the Coastal States Organization (CSO) Adaptation Work Group, and others.

Project Partners

This project will be highly interactive and depend on a significant amount of contact with local, state and federal agencies, Commission staff, stakeholders, and other experts in the field. There will be varying degrees of contact with various other entities, which may include: local coastal counties and cities, the San Francisco Bay Conservation and Development Commission (BCDC), the State Coastal Conservancy, Ocean Protection Council, State Lands Commission, the California Natural Resources Agency, San Francisco Bay National Estuarine Research Reserve; federal agency partners such as NOAA, U.S. Geological Survey, U.S. Fish and Wildlife Service, and the Federal Emergency Management Agency; and other entities like the Coastal States Organization, Sea Grant – California and USC, California State Association of Counties, California League of Cities, California State Associations of Counties (CSAC), academic institutions, and other nonprofit organizations.

Cost Share Description

The \$15,000 cost-sharing element of this proposal will be funded from the Coastal Commission's regular personnel budget, provided from the State's general fund. In addition, the State will provide the fellow with other in-kind services, including office space and general

supplies, computer equipment, training and mentoring, telephone, and some travel costs, depending on budgetary constraints. The Commission will prepare its budget to ensure that the \$15,000 is available for the fellow over the two-year period. The Commission will also provide \$65 per month as a public transit subsidy (equal to what is given to state employees).

Strategic Focus Areas

The proposed project is directly relevant to and will advance the efforts of all three Strategic Focus Areas – Healthy Coastal Ecosystems, Resilient Coastal Communities and Vibrant Sustainable Coastal Economies. The Coastal Act is a comprehensive law that includes policies to protect and provide maximum public access to and along the shoreline, protect sensitive coastal resources and provide for priority economic and visitor serving land uses. The products completed under this project must be consistent with Coastal Act policies. More specifically, the project aligns with the following components of the Strategic Focus Areas:

Healthy Coastal Ecosystems –

- *Build innovative natural and social science capacity, products and applications ...*

Through completion of task 1, the fellow will synthesize both natural and social science information into state-wide products that will be used to strengthen policies in Local Coastal Programs for land use planning and to guide decisions in coastal permit to enable effective management of coast and ocean resources.

Resilient Coastal Communities -

- *Build capacity to pursue strategies such as hazard preparedness, mitigation ...; [and]*
- *Increase public awareness of coastal hazards and actions that can be taken...; [and]*
- *Identify and engage partners in maximizing the understanding...*

Under this project, the fellow will synthesize data and information to develop products that: 1) build capacity of both Commission and local governments to develop strategies that will prepare them for hazards posed by sea level rise; 2) increase public awareness of coastal hazards through development of outreach materials based on outcomes from tasks 1 and 2 and the Commission's Sea Level Rise Guidance; and 3) help Commission staff, local governments and other partners identify and visualize the application of risk-wise strategies through vulnerability maps and updates to the Commission's shoreline armoring database.

Vibrant and Sustainable Coastal Economies –

- *Assist coastal decision makers in conserving active and passive recreational uses in preparing for existing and emerging coastal and ocean uses*

The fellow will assist coastal decision makers in conserving active and passive recreational uses by evaluating adaptation options that address vulnerability and site constraints that are consistent with Coastal Act regarding protection of recreational opportunities, public access to the coast and ocean and coastal dependent economic uses.