

## **Climate Change Adaptation Efforts at the State and Bay Area Regional Levels**

*This is a write-up of a information presented by Sam Schuchat (Executive Officer, State Coastal Conservancy, and Secretary, Ocean Protection Council), Nadine Hitchcock (Deputy Executive Officer, State Coastal Conservancy) and Steve Goldbeck, (Deputy Director for Climate Change and Legislation, San Francisco Bay Conservation and Development (BCDC)) at Planning for Climate Change Workshops offered September 22 and 23, 2009 in Oakland and Sunnyvale, CA (respectively). Please direct comments or questions to Sara Polgar at [sarap@bcdca.gov](mailto:sarap@bcdca.gov).*

### **Executive Order S-13-08 by the CA Governor**

<http://gov.ca.gov/executive-order/11036/>

This Executive Order requests that the National Academy of Sciences (NAS) convene an independent panel to complete the first California Sea Level Rise Assessment Report and initiate an independent sea level rise science and policy committee made up of state, national and international experts.

It also requires that (prior to release of the final Sea Level Rise Assessment Report from the NAS) all state agencies that are planning construction projects in areas vulnerable to future sea level rise shall consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. The order does not specify sea level rise scenarios, but it is worth noting that sea level rise projections for California of 16 inches by 2050 and 55 inches by 2100 have been considered and/or used by multiple state agencies (e.g. BCDC, the State Coastal Conservancy, and the California Coastal Commission) in impacts analyses and policy development.

The Executive Order also directs the California Resources Agency, through the Climate Action Team, to develop a state Climate Adaptation Strategy (see next item). The strategy will summarize the best known science on climate change impacts to California (led by CEC's PIER program), assess California's vulnerability to the identified impacts and then outline solutions that can be implemented within and across state agencies to promote resiliency.

### **California Climate Adaptation Strategy (Discussion Draft)**

<http://www.climatechange.ca.gov/adaptation/>

The Strategy summarizes the best known science on climate change impacts and provides recommendations on how to manage against those threats. The strategy is organized by seven different sectors: Public Health, Biodiversity and Habitat, Ocean and Coastal Resources, Water Management, Agriculture, Forestry, and Transportation and Energy Infrastructure. The most relevant sector for Bay Area local land-use planners is the Ocean and Coastal Resources sector.

The draft articulates guiding principles for adaptation in the Ocean and Coastal Resource Sector and establishes a state policy to avoid future hazards due to climate change and protect critical habitat. Specifically, the draft recommends that State agencies "consider project alternatives that avoid significant new development in areas that cannot be adequately protected from flooding due to climate change," and "generally no plan, develop, or build any new significant structure in a place where that structure will require significant protection from sea level rise, storm surges, or coastal erosion during the expected life of the structure." The draft also recognizes that some vulnerable shoreline areas have or are proposed to have development of "regionally significant economic, cultural, or social value" that may need to be protected, and that "in-fill development in these areas should be accommodated."

Although the draft Strategy itself does not imposed new requirements on state or local governments, these Ocean and Coastal Resource Sector adaptation strategies, as well as the overall Preliminary Recommendations of the report indicate the approaches to addressing climate change impacts that the state is likely to adopt in future policy.

## **State Coastal Conservancy Project Selection Criteria**

<http://www.scc.ca.gov/index.php?cat=26>

The Coastal Conservancy has adopted criteria for project selection to address climate change. Project applicants are now required to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, reduce expected risks and increase resiliency to sea level rise. Another, optional project criterion addresses vulnerability from climate change impacts other than sea level rise. The Conservancy will "look favorably" upon projects for which the project objectives, design and siting consider and address these other climate change vulnerabilities.

## **BCDC Bay Plan Amendment: Climate Change Policies**

[http://www.bcdc.ca.gov/proposed\\_bay\\_plan/bp\\_amend\\_1-08.shtml](http://www.bcdc.ca.gov/proposed_bay_plan/bp_amend_1-08.shtml)

BCDC has developed a draft report that analyzes vulnerabilities to climate change in the Bay and on the shoreline and recommended new and updated San Francisco Bay Plan Findings and Policies. The Commission is schedule to vote on the policy recommendations in late 2009 or early 2010. Once adopted by the Commission, the new policies will likely affect design and siting requirements for some projects requiring permits from BCDC, and staff will develop guidance for applicants on the changes. Check BCDC's website for updates on the status of this amendment process.

## **Joint Policy Committee: Regional Agency Adaptation Program**

Steve Goldbeck, [steveg@bcdc.ca.gov](mailto:steveg@bcdc.ca.gov)

The San Francisco Bay Joint Policy Committee (JPC), a partnership of four Bay Area regional agencies (Association of Bay Area Governments (ABAG), Bay Conservation and Development Commission (BCDC), Bay Area Air Quality Management District and Metropolitan Transportation Commission), recognizes that tackling complex climate-related problems and overcoming adaptation planning barriers should not fall immediately to individual local governments. The JPC agencies have established a Regional Climate Change Adaptation Program. ABAG and BCDC jointly lead the Program and have articulated a set of tasks for the Program over the next three years that will set the stage for developing and implementing a regional adaptation strategy.

- Identify and summarize Bay Area climate change impacts in 2050
- Produce a "foundation" document and web site on impacts and the need for action
- Create a campaign to generate action on adaptation
- Create a regional adaptation strategy
- Create and implement a local adaptation assistance program (see next item)

## **Adaptation Assistance Program (AAP)**

Sara Polgar, [sarap@bcdc.ca.gov](mailto:sarap@bcdc.ca.gov)

The long-term goal of the AAP is to help San Francisco Bay Area communities succeed in achieving coordinated and region-wide adaptation to climate change impacts. The AAP contributes to this goal by building capacity within local governments to assess climate change issues, and to plan for and implement adaptation strategies. Based on input from local government staffs and elected officials, as well as research on barriers to adaptation planning in California's local governments, BCDC identified the following objectives for achieving this program goal:

- Provide and facilitate access to information, tools, guidance and training for adaptation planning that are relevant to local governments' and resource-based managers' needs; easily accessible to, and in formats easily utilized by, planners and managers; and derived from current and reliable sources.
- Help local and regional governments and resource-based managers integrate and coordinate climate change adaptation planning with ongoing planning and management for the region, and with their greenhouse gas mitigation efforts.
- Help local governments and resource-based managers find and secure resources (e.g. funding, staff time, expert consultation time, data, etc.) needed to conduct adaptation planning and to implement strategies and ongoing monitoring.

- Facilitate coordination among planners and managers of neighboring and overlapping jurisdictions to help achieve consistent adaptation planning.
- Provide guidance for local and regional agencies and organizations on how to: achieve consistency with federal, state and regional adaptation policy; and take advantage of federal, state and regional resources available for adaptation planning and implementation.

BCDC has identified five broad program components for accomplishing these AAP objectives: (1) building partnerships that cut across jurisdictional boundaries, both geographic and sectoral; (2) creation of a “one stop shop” website and information clearinghouse; (3) public outreach to build community and institutional support for adaptation planning; (4) education to help planners and managers develop knowledge and skills for adaptation planning; and (5) development and dissemination of strategies to improve the region’s resilience and adaptive capacity. Work on some of these components, such as partnership building and educational workshops for local governments, has already begun. AAP partners will be prioritizing the next steps in program development based on feedback about initial outreach and education efforts.

### **Lower Corte Madera Creek — Innovative Wetland Adaptation Techniques**

Adam Parris, [adamp@bccdc.ca.gov](mailto:adamp@bccdc.ca.gov)

BCDC will study the effects of sea level rise and the impact of the local sediment budget on wetland restoration in the watershed. Outcomes will include wetland restoration strategies that will increase resilience to, and mitigation of, climate change impacts on water quality; design recommendations for shoreline adaptation strategies that reduce shoreline flooding while conserving or restoring wetlands; and distribution of climate preparedness packages with these guidelines to local governments.

### **Regional Sediment Management (RSM)**

Brenda Goeden, [brendag@bccdc.ca.gov](mailto:brendag@bccdc.ca.gov)

BCDC is developing a Regional Sediment Management (RSM) Program for San Francisco Bay and has been partially funded to prepare an integrated, regional management strategy for studying, understanding and managing Bay sediment processes in order to maximize the health of the Bay, minimize management costs, and address system stressors, including impacts of climate change. Through the initial funding, BCDC will gather existing data, identify data gaps and management questions, hold a workshop (in January 2010) with sediment managers and scientists to develop research priorities and a management strategy that can be further developed into a regional management plan. As the program develops, funding will also be applied to do public outreach about RSM for San Francisco Bay.

### **Rising Tides Design Competition**

[http://www.bccdc.ca.gov/proposed\\_bay\\_plan/bp\\_amend\\_1-08.shtml](http://www.bccdc.ca.gov/proposed_bay_plan/bp_amend_1-08.shtml)

In 2009, BCDC held an open international design competition for ideas responding to sea level rise in San Francisco Bay and beyond. The competition garnered some 130 entries from more than 18 countries that range from the plausible and pragmatic to the aggressively imaginative. All entries added a new dimension to the discussion of sea level rise adaptation and go beyond what one would normally think of when discussing shoreline protection. In July 2009, an esteemed international jury chose six entries as finalists. The competition exhibit at the Ferry Building in San Francisco received strong interest and responses from the public. BCDC is working to catalog and make available as a resource the concepts represented in the entries, and curate an exhibit of the design entry boards for display throughout the Bay Area in public venues such as libraries and schools.

### **Dutch Partnership**

<http://www.deltaalliance.org/>

In 2007 the Netherlands initiated a partnership with the State of California on climate change adaptation through the Dutch research program Knowledge for Climate (Kennis voor Klimaat). This is an applied

research program aiming at developing strategies to make the Netherlands climate proof. One of the program's components, the Delta Alliance, is dedicated to international collaboration and joint research. California was identified as the priority international hotspot for the Delta Alliance because of its strong research institutes and progressive attitude in fighting and adapting to climate change globally. Thirteen areas of interest have been identified for Knowledge for Climate in California and the first pilot project has started. This pilot project aims to develop adaptation strategies for shoreline development along San Francisco Bay. Dutch research institutes and private firms are working with the state agency San Francisco Bay Conservation and Development Commission to execute this project. One of the results of this pilot project was symposium on September 21, 2009 in San Francisco to further strengthen the relationships between the Netherlands and California through the Delta Alliance and to present the results of the first project. These results are presented in a brochure, "A New Alliance for Climate Change Adaptation," available at the Delta Alliance website (above).

### **Climate Ready Estuaries**

<http://www.epa.gov/cre/>

The San Francisco Estuary Project (SFEP), a Climate Ready Estuaries (CRE) Program partner, is working with the US EPA on a pilot project to assess key vulnerabilities of the San Francisco estuary system to climate change impacts. The assessment will take advantage of significant work that is already underway in the region, particularly on sea level rise, to support further analysis of climate drivers and ecosystem effects.

The focus of the pilot project in San Francisco Bay is to better understand the impacts of climate change to salt marsh habitat in the context of current climate drivers and stressors to this habitat type. In March 2010 the CRE program will be convening scientists for two expert elicitation workshops to examine two ecosystem processes, sediment retention and community interactions between shorebirds and invertebrate communities in tidal mudflats. The purposes of these workshops are to develop best consensus projections of what will occur with climate change impacts to these processes, what measures of the habitat enable us to distinguish if the projected changes are occurring; and how management practices for salt marsh habitat might need to be modified to address shifts. A summary of the expert elicitation outcomes will be made available through BCDC's website.