

COASTAL CONSERVANCY

Staff Recommendation  
October 21, 2010

**SAN FRANCISCO BAY ECOSYSTEMS CLIMATE ADAPTATION ASSESSMENT**

File No. 10-027-01  
Project Manager: Matthew Gerhart

**RECOMMENDED ACTION:** Authorization to accept \$357,000 from the Gordon and Betty Moore Foundation; authorization to disburse up to this amount plus an additional \$300,000 to further the Bay Area Ecosystems Climate Change Consortium's development of climate change research priorities, adaptation practices and pilot projects in the San Francisco Bay Area; and authorization to disburse up to \$150,000 of the total amount to Point Reyes Bird Observatory to coordinate the science review, technical support and mapping efforts of the Consortium.

**LOCATION:** All nine San Francisco Bay Area counties (San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, Marin), the San Francisco Estuary, and the ocean to the Greater Gulf of the Farallones (Exhibit 1).

**PROGRAM CATEGORY:** San Francisco Bay Area Conservancy

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**EXHIBITS**

Exhibit 1: [Map of the San Francisco Bay Area](#)

Exhibit 2: [BAECCC Draft Goals and Objectives](#)

Exhibit 3: [Project Letters](#)

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**RESOLUTION AND FINDINGS:**

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31000 *et seq.* of the Public Resources Code:

“The State Coastal Conservancy (“Conservancy”) hereby authorizes acceptance of three hundred fifty seven thousand dollars (\$357,000) from the Gordon and Betty Moore Foundation, and disbursement of up to this amount plus an additional three hundred thousand dollars (\$300,000) to further the development by the Bay Area Ecosystems Climate Change Consortium (“Consortium”) of climate change research priorities, adaptation practices and pilot projects. The Conservancy further authorizes disbursement of up to one hundred fifty thousand dollars (\$150,000) of this total amount to Point Reyes Bird Observatory (“PRBO”) to coordinate the

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science review, technical support and mapping efforts of the Consortium. Prior to the disbursement of any Conservancy funds to PRBO:

1. PRBO shall submit for the review and written approval of the Executive Officer a detailed work program, budget and schedule; and the names and qualifications of any contractors and subcontractors that it intends to employ, and
2. The Conservancy shall have received adequate matching funds from the Gordon and Betty Moore Foundation to support PRBO's work on the project."

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 project is consistent with the current Project Selection Criteria and Guidelines.
2. The proposed authorization is consistent with Chapter 4.5 of Division 21 of the Public Resources Code, regarding the resource and recreation goals of the San Francisco Bay Area, including the protection, restoration and enhancement of natural habitats and connecting corridors, scenic areas, and other open space resources of regional importance, and the ocean and bay.
3. PRBO is a nonprofit organization existing under Section 501(c)(3) of the United States Internal Revenue Code, and whose purposes are consistent with Division 21 of the California Public Resources Code."

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**PROJECT SUMMARY:**

Staff requests authorization to disburse up to \$657,000 to further the Bay Area Ecosystems Climate Change Consortium's ("BAECCC's") development of climate change research priorities, adaptation practices and pilot projects, including the completion of a technical climate change update to the *Baylands Ecosystem Habitat Goals* ("Baylands Goals") report. Of this dollar amount, three hundred fifty seven thousand dollars (\$357,000) would originate in a grant from the Gordon and Betty Moore Foundation to the Conservancy for use in this project. Up to one hundred fifty thousand (\$150,000) of the authorization will be granted to Point Reyes Bird Observatory ("PRBO") to direct the science support and mapping efforts of BAECCC. The remainder will be used to contract for professional services that further the Conservancy's and BAECCC's climate change adaptation objectives. Conservancy funds will be dedicated to the preparation of the Baylands Goals Technical Update, while Moore Foundation funds will be expended on coordination of BAECCC's research strategy, management recommendations and communication efforts, including PRBO technical assistance.

BAECCC is a collaborative, multi-jurisdictional organization formed in 2009 for the purpose of integrating resource managers, scientists and policy makers to jointly address the impacts of accelerating climate changes to Bay Area ecosystems, including its uplands, the estuary and the ocean. (See Exhibit 2 for a description of BAECCC members, goals and objectives). The Conservancy and PRBO are both key members of BAECCC. BAECCC is currently working to

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secure natural ecological and economic benefits to society by reducing the negative impacts of climate change on the region's wildlife, habitats and ecosystem functions, while also enhancing the role of natural systems in mitigating those impacts. BAECCC has established the following ten-year outcomes:

1. Science-based adaptive management approaches have been identified, tested, implemented, and disseminated to reduce negative impacts of climate change and variability on upland, coastal and ocean ecosystems as well as human communities;
2. Natural resource management protocols, plans, policies, regulation and statutes are revised and developed to prioritize greatest ecological response to increasingly unpredictable climate and greater extremes than experienced in the past century; and
3. The San Francisco Bay uplands, ocean and estuarine ecological systems have an enhanced ability to respond to rapid climate change to sustain ecological services on which our coastal communities rely.

To date, BAECCC participants have been providing in-kind services to: convene and conduct meetings; develop its membership; formulate its mission, goals and objectives; establish a website; conduct outreach; and to seek funding to undertake projects. BAECCC is now poised to direct significantly more resources toward implementing the particular set of two-year objectives described below. Members have pledged matching funds toward contracting for technical assistance, the National Oceanic and Atmospheric Administration has awarded BAECCC a \$300,000 grant for technical studies, and the Gordon and Betty Moore Foundation is considering, and is currently expected by Conservancy staff to approve in early November, a \$357,000 grant proposal for coordination and science support.

Under this authorization, the Conservancy would contract for professional services to work with BAECCC members to guide and implement ecosystem adaptation for the region, and to meet BAECCC's two year objectives. These professional services will include technical and management tasks. PRBO, a BAECCC founding member, will coordinate the science review, technical support and mapping aspects of BAECCC's work. BAECCC's work will include the following key elements:

- 1) A "research strategic plan" that prioritizes the most important and urgent gaps in scientific research and monitoring needed for effective adaptation of Bay Area ecosystems to climate change;
- 2) A technical climate change update to the 1999 *Baylands Ecosystem Habitat Goals (Baylands Goals)* report;
- 3) A set of the most effective "best management practices" for ecosystem adaptation;
- 4) Development of Bay Area climate change science and resource management information and communication, including improvements to long-term monitoring and informatics capacity, and;
- 5) A case study documenting, evaluating and disseminating lessons learned from BAECCC's experiences as an example of a consortium linking science with resource management to guide and accelerate implementation of climate change adaptation.

The federal matching funds recently secured by BAECCC members will allow for the initiation of several pilot projects in the region. Specific pilot projects include developing predictions of

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future sea-level rise and storm impacts on coastal resources to assist coastal resource managers in preparing action plans; predicting sea-level rise impacts on San Francisco Bay wetlands to prioritize conservation and restoration actions; and monitoring changes in ocean ecosystems to inform ocean managers and complete the Ocean Adaptation Plan for the Greater Gulf of the Farallones. These efforts will complement BAECCC's participation in climate change elements of the Bay Area Open Space Council's (BAOSC's) Upland Habitat Goals Project, proposed Conservation Lands Network, and Critical Linkages work. The Upland Habitat Goals project has been funded in part with Conservancy support and the Critical Linkages work is being considered for funding at this board meeting as part of a separate staff recommendation that would authorize a grant to the San Francisco Parks Trust.

The key focus of the Conservancy's funding contribution to the project will be the technical update to the 1999 San Francisco *Baylands Goals* report to incorporate an improved understanding of the processes affecting bay habitats resulting from climate change. Focused on wetlands at the Bay's edge, the *Baylands Goals* report has been the guiding document for wetlands restoration and enhancement around the Bay for the past decade, having contributed to the protection of 40,000 acres of baylands and having attracted significant funding for implementation of acquisition, protection, and restoration projects. With the impending and significant effects that climate change will have on the Bay's wetland ecosystems, there is an urgent need to incorporate an assessment of these predicted impacts and associated adaptation strategies in a Technical Update of the report.

To complete the *Baylands Goals* Technical Update within the two-year period of this project the Conservancy will assist BAECCC in developing a process that emphasizes up-front consensus from scientists and managers. The main goals of the Technical Update will be to:

- i. Identify upland sites that can accommodate wetland transgression upslope;
- ii. Identify management strategies for marshes to be more resilient (e.g., improve sedimentation dynamics);
- iii. Identify long-term science and management gaps needing resolution to implement recommendations; and
- iv. Develop recommendations for "living shorelines"- using habitats to reduce shoreline erosion.

Work will start with a review of existing wetland science and restoration projects in San Francisco Bay to understand ongoing efforts and compile the specific gaps needing attention in the Technical Update. This will be accomplished through a workshop to bring together those with critical knowledge and a working group to summarize the results. Key to understanding future wetland issues will be synthesizing existing sediment budget information and estimating the amount needed to sustain baylands, as well as incorporating recent advances in hydrological, sea-level rise, and carbon sequestration modeling.

The project will revisit the habitat restoration and protection goals produced in 1999 to reflect the acquisition and restoration work completed since, and after assessing feasible and realistic approaches to addressing climate change impacts and ecosystem function, will include revisions to these goals in order to continue to guide efforts to protect, restore, and manage Bay wetlands. As with the original *Baylands Goals* report, these revised habitat restoration and protection goals

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will provide a set of common goals for all the agencies and organizations working to protect the Bay's wetlands for the next decade or more.

The full Technical Update will be distributed via the web with an Executive Summary printed for policy-makers. By integrating the revised assessments and goals developed for the Technical Update into the California Resources Agency's San Francisco Bay Adaptation Plan, currently being developed through the San Francisco Bay Conservation and Development Commission ("BCDC"), these results will guide broader efforts throughout the Bay Area in support of key wetland objectives.

BAECCC is a collaboration of public and non-profit research and land management agencies and organizations dedicated to providing regional leadership and expertise for addressing the rapid environmental change now facing the Bay Area. BAECCC members have broad experience in assessing climate change impacts at a regional scale; conducting scientific research and monitoring; developing predictive models to understand possible future changes and prioritize conservation actions; employing, testing, and improving adaptive management strategies; and conducting outreach to local and regional stakeholders, policymakers and the public. These organizations, in working with Conservancy staff, are therefore highly qualified to bring a comprehensive, proactive and science-based approach to the Bay Area conservation community's evolving response to climate change.

PRBO, a nonprofit organization established under Section 501(c)(3) of the U.S. Internal Revenue Code, is a leader in the incorporation of climate change science into habitat assessment and the development of adaptation strategies. As a founding and central member of BAECCC, PRBO works with Bay Area partners to promote sound incorporation of science and modeling results into natural resource management, and is highly suited to direct the scientific review, technical support and mapping aspects of BAECCC's work during the project. This project will allow PRBO to advance its goals of protecting the Bay Area's wildlife and ecosystems and ensuring that high quality science informs Bay Area resource managers' response to climate change.

**Project History:** The need for an estuary-wide habitat based plan to protect, enhance and restore wetlands was recommended in the San Francisco Estuary Project's 1993 Comprehensive Conservation and Management Plan (CCMP). At that time, there were major conflicts between state and federal agencies over how to protect, restore and manage the remaining wetlands. The Baylands Goals project began in 1995, and involved more than 100 participants representing local, state and federal agencies, academia and the private sector over four years. The project galvanized significant support for acquisition and restoration of former baylands, with a goal of adding 60,000 acres of tidal marsh to the 40,000 acres that existed in San Francisco Bay at the time the report was written in 1999.

Since the release of the *Baylands Goals* Report, approximately 40,000 acres of salt ponds and other diked lands around San Francisco Bay have been acquired by public resource agencies or conservation organizations and are at various stages of restoration planning or implementation. This includes the former salt ponds in the Napa-Sonoma Marshes, the South San Francisco Bay Salt Ponds, Hamilton Airfield and Bel Marin Keys Unit V, Cullinan Ranch, Skaggs Island, Bahia, Bair Island, and Sears Point, among others.

The significant progress made to restore the baylands is threatened by climate change and rising sea levels. The San Francisco Bay Area counties are home to approximately 75% of the State's

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350,000 acres of wetlands. Projected sea level rise potentially will significantly alter a large portion of these. While additional risk analysis is being undertaken, a focused effort is needed to identify specific actions that can be taken to protect, manage, and restore wetlands to sustain their functions along with the rising sea level.

Over the past decade, the Bay Area has also emerged as one of the key centers nationally in the development of regional climate science, ecological management strategies, and adaptation policy. Since forming in 2009, BAECCC has worked to understand and begin coordinating the vast range of federal, state and local efforts developing around climate change adaptation. The Conservancy has also taken a lead in this regard, adopting climate change policies in 2009 recognizing the need to address vulnerabilities of projects to sea level rise and other effects of climate change such as habitat change, water quantity and quality shifts, and altered sediment supplies.

**PROJECT FINANCING:**

Coastal Conservancy	\$300,000
Gordon and Betty Moore Foundation	\$357,000
National Oceanic and Atmospheric Administration	\$300,000
National Park Service	\$108,000
United States Geological Survey	\$65,000
PRBO Conservation Science	<u>\$15,000</u>
<b>Total Project Cost</b>	<b>\$1,145,000</b>

The Conservancy's contribution for the proposed project, \$300,000, is expected to come from the Conservancy's FY08 appropriation of the "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" (Proposition 84). Public Resources Code section 75001, et seq. This funding source may be used for projects that protect and restore the natural habitat values of coastal waters and lands and are consistent with Chapter 4.5 (the San Francisco Bay Area Program) of the Conservancy's enabling legislation. Public Resources Code Section 75060(c). In addition, Proposition 84 funds may be used to finance planning necessary for the successful design, selection, and implementation of such projects. Public Resources Code Section 75072. This portion of the authorization is consistent with the funding source because the project will serve to protect the beaches, bays and coastal waters of the state for future generations by identifying, evaluating, and interpreting resource data and information relevant to the establishment of goals and guidance for the preservation of bayland habitat in the San Francisco Bay Area.

The project is also an appropriate funding priority under Public Resources Code section 75071(e) because it includes a significant commitment of matching funds. Of the total project funding, \$357,000 will come to the San Francisco Bay Area Conservancy Program from a grant from the Gordon and Betty Moore Foundation. BAECCC members including the San Francisco Bay Joint Venture, Bay Area Open Space Council, and U.S. Fish and Wildlife Service are pledging technical and staff matching assistance. Nearly \$500,000 in additional match funding is being provided through federal matching funds for BAECCC pilot projects and directly by BAECCC members.

**CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:**

The Conservancy is authorized under Section 31111 of the Public Resources Code to fund and undertake plans and feasibility studies, and to award grants to nonprofit organizations for these purposes, in order to implement Division 21. Additionally, the Conservancy is authorized by Section 31104 to accept financial support from public and private sources, such as the Gordon and Betty Moore Foundation. The proposed grant to PRBO would assist the nonprofit organization and BAECCC as they analyze climate-related habitat and restoration needs for the San Francisco Bay Area to ensure that acquisition and enhancement projects are resilient to the future effects of climate change.

This project would be undertaken pursuant to Chapter 4.5 of the Conservancy's enabling legislation, Public Resources Code Sections 31160-31165, to address resource and recreational goals in the San Francisco Bay Area. Under Section 31162(b), the Conservancy may undertake projects and award grants to protect, restore, and enhance natural habitats and connecting corridors, watersheds, scenic areas, and other open-space resources of regional significance. The proposed authorization will assist the Conservancy and its project partners in meeting these goals by facilitating the identification of significant climate vulnerabilities, and appropriate updates to habitat conservation goals in the San Francisco Bay Area Conservancy Program area. Consistent with Section 31163(b), the Conservancy will be supporting public/private partnerships in the San Francisco Bay Area.

This project is appropriate for prioritization under the selection criteria set forth in Section 31163(c) in that: (1) it will inform the incorporation of climate change considerations into projects supported in adopted local and regional plans, (2) it is multijurisdictional, involving all nine Bay Area counties, (3) it can be implemented in a timely way because PRBO and BAECCC members are ready to begin work, (4) it provides potential benefits (and avoids impacts) that need to be quickly implemented, and (5) it includes matching funds from the Gordon and Betty Moore Foundation, as well as partnering federal agencies.

Finally, consistent with Section 31165, the Conservancy will be supporting activities that are compatible with the preservation, restoration and enhancement of ocean, coastal and bay resources in order to benefit the San Francisco Bay region.

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

Consistent with **Goal 9 Objective A** of the Conservancy's Strategic Plan, the proposed project will help maintain and update lists of high-priority areas for the Bay Area Program, including projects that protect and restore natural habitats and open-space lands of regional significance, through the incorporation of climate change considerations into bayland and coastal habitat conservation goals and restoration priorities.

**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 June 4, 2009, 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:** This project is supported the membership of the BAECCC, a consortium of land conservation agencies and organizations (Exhibit 2).
4. **Location:** The proposed project area is the baylands of the nine-county San Francisco Bay Area, as well as adjoining coast and ocean encompassing the Gulf of the Farallones.
5. **Need:** Resource professionals from around the San Francisco Bay Area will donate their time to this project, but Conservancy staff direction and the scientific and technical direction of PRBO are needed to lead the effort in a timely and efficient way.
6. **Greater-than-local interest:** In creating the San Francisco Bay Area Conservancy Program, the legislature designated the San Francisco Bay Area as an area of statewide concern. The modeling, assessment and adaptation techniques being developed in the project, as well as the BAECCC collaboration itself, are intended to become models statewide if not nationally in the realm of climate change adaptation.
7. **Sea level rise vulnerability:** The project is designed to specifically assess the vulnerability of bay, ocean, and bayland ecosystems to sea-level rise, and incorporate those concerns into planning for future acquisition, restoration, and management.

**Additional Criteria**

8. **Urgency:** Climate change is already affecting the coastal and bay resources of the nine-county Bay Area, and effective management solutions and adaptation strategies are needed as soon as possible. This proposed project will help guide future land protection and restoration efforts.
9. **Resolution of more than one issue:** The project is specifically designed to assess multiple and simultaneous climate challenges to bay ecosystems and provide comprehensive adaptation strategies. The collaborative development undertaken in this project will provide capacity for addressing other climate-related concerns in the region, such as issues of habitat connectivity, water supply and quality, and terrestrial-marine linkages.
10. **Leverage:** See the "Project Financing" section above.
12. **Innovation:** BAECCC represents a unique and evolving strategy to collaborative multi-jurisdictional response to climate change.
13. **Readiness:** BAECCC has secured matching funds and is prepared to begin as soon as Conservancy funding is available.
14. **Realization of prior Conservancy goals:** See "Project History" above.

16. **Cooperation:** BAECCC represents a unique and evolving collaboration among state, federal and local organizations on how to confront the challenges of climate change through innovative, regional efforts.
17. **Vulnerability from climate change impacts other than sea level rise:** The project will assess multiple climate impacts beyond sea level rise, including changes in hydrology, sediment supply, and habitat viability.

**COMPLIANCE WITH CEQA:** As a planning activity for possible future actions that have not been approved, adopted, or funded, this project is exempt from California Environmental Quality Act (CEQA) review under 14 California Code of Regulations Section 15262. Similarly, the project is exempt from CEQA review under Section 15306, which exempts basic data collection, research, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource.



## **Bay Area Ecosystems Climate Change Consortium**

### **2010-2012 Goals**

Revised Draft: September 2010



### **Bay Area Ecosystems Climate Change Consortium - BAECCC**

The Bay Area Ecosystems Climate Change Consortium (BAECCC) identifies and addresses climate change impacts on ecosystems by using science to inform adaptive management for long-term ecological and economic benefits.

*WHY:* Recognizing the urgent need for coordinated, science-based strategies to address the impacts of accelerating climate change on ecological systems ([www.climatescience.gov](http://www.climatescience.gov)), federal, state and non-governmental research, management and planning agencies in the San Francisco region have joined forces to launch the Bay Area Ecosystems Climate Change Consortium (BAECCC). Through our joint efforts, we will provide a national model of cooperative, adaptive conservation to sustain nature's benefits to our communities ([www.millenniumassessment.org](http://www.millenniumassessment.org)) in the face of rapid environmental change. Working cooperatively, BAECCC members leverage expertise, funds and resources to more effectively address the ecological challenges of our time.

*WHERE:* BAECCC focuses on the ocean to the estuary – from the pelagic, near-shore and coastal areas of the Greater Gulf of the Farallones to the subtidal, tidal wetland and adjacent uplands of San Francisco Bay, stretching inland to Suisun Bay.

*WHO:* BAECCC founding members include California Coastal Conservancy, California Department of Fish and Game, National Park Service's Golden Gate National Recreation Area and Point Reyes National Seashore, NOAA's Coastal Services Center, NOAA's Gulf of the Farallones Marine Sanctuary, PRBO Conservation Science, San Francisco State University, US Fish and Wildlife Service's San Francisco Bay Refuge Complex, and US Geological Survey's Pacific Southwest Area as well as San Francisco Bay Conservation and Development Commission, San Francisco Bay Joint Venture and San Francisco Estuary Project.

*WHAT:* BAECCC members jointly assess climate change impacts at a regional scale; conduct scientific research and monitoring; develop predictive models to understand possible future changes and prioritize conservation actions; guide natural resource managers in employing, testing, and improving adaptive management strategies; and conduct outreach to local and regional stakeholders, policymakers and the public. Working with numerous agencies, NGOs, academia and other collaborators, BAECCC ensures timely, accessible, web-based information sharing as well as ongoing outreach to policymakers and the public to advance its vision.

Exhibit 2: BAECCC Draft Goals and Objectives

**Overall Goal:** BAECCC is working to secure nature's ecological and economic benefits to society by reducing the negative impacts of climate change on San Francisco Bay Area upland-estuarine-ocean wildlife, habitats and ecosystem function while also enhancing the role of natural systems in mitigating those impacts. BAECCC will create a more pro-active and informed approach to climate change among Bay Area institutions by actively engaging adaptation scientists with resource managers and regional planners to prioritize and coordinate climate change adaptation research, monitoring and management efforts, and thus overcome fragmented institutional approaches.

**BIG PICTURE GOALS**

-integrating resource managers, scientists and policy makers to jointly address impacts of accelerating climate change on natural resources to the benefit of the region, ecologically, economically

**Ten Year Outcomes:**

1. Science-based adaptive management approaches are identified, tested, implemented, and disseminated to reduce negative impacts of climate change and variability on coastal and ocean ecosystems as well as human communities.
2. Natural resource management protocols, plans, policies, regulations and statutes are revised and developed to prioritize greatest ecological response to increasingly unpredictable climate and greater extremes than experienced in the past century.
3. San Francisco ocean-estuary ecological systems have an enhanced ability to respond to rapid climate change to sustain ecological services on which our coastal communities rely.

As a robust, respected collaboration of scientists and resource managers BAECCC will assess scientific and resource management needs and guide adaptation actions and investments for coastal, estuarine, wetland, and upland resources in the Bay Area. BAECCC will develop and describe these in several key products as described below, including a "research strategic plan" that prioritizes the most important and urgent gaps in scientific research and monitoring needed for effective adaptation of Bay Area ecosystems to climate change; a Technical Update of the 1999 San Francisco "Baylands Ecosystem Habitat Goals" report; a set of the most effective "best management practices" for ocean, estuarine and upland ecological adaptation; and, a BAECCC web portal with user friendly web-based materials to inform the public, resource managers and policymakers and to improve conservation outcomes in the face of accelerating climate change.

BAECCC will ultimately serve as the "go-to" entity for state, federal and regional efforts addressing climate change impacts and ecosystem adaptation on a practical eco-regional scale. Already, the US Department of Interior's CA Landscape Conservation Cooperative and the California Resources Agency's SF Bay Adaptation Plan being developed through the Bay Conservation and Development Commission have engaged with BAECCC to seek guidance on ecosystem impacts and adaptation actions.

Exhibit 2: BAECCC Draft Goals and Objectives

To increase knowledge and implementation of best practices for creating effective boundary organizations that effectively link the scientific community and natural resource managers to address climate change adaptation, BAECCC will document and communicate its experience and lessons learned. BAECCC will produce a manuscript for submission to a peer-reviewed publication that evaluates and disseminates lessons learned in linking science and resource management to address climate change adaptation. Sharing this experience will help establish and strengthen other efforts in the US and around the world.

BAECCC will address the urgent need for coordination of science and resource management efforts to create a more informed and pro-active approach to climate change ecological mitigation and adaptation among Bay Area institutions by implementing the following activities:

- 1) Establish BAECCC as a consortium of scientists and resource managers to guide and implement effective ecosystem adaptation for the Bay Area's ecosystems including assessing science and management needs and developing priorities.
  - a) Develop detailed multi-year work plan including to initiate, facilitate and integrate the Consortium including:
    - (1) Develop structure, governance, engagement and appropriate representation of partners, and information flow
    - (2) Ensure integration of Bay Area ocean, estuarine and upland resource management and research efforts to address climate change impacts.
    - (3) Identify and begin developing mechanisms for more ongoing funding for staffing, project seed funding and other needs
    - (4) Oversee coordinator and activities for Baylands Goals Technical Update
  - b) Coordinate meetings and ensure regular communication of consortium members and committees.
  - c) Coordinate implementation of consortium projects.
  - d) Coordinate with existing conservation partnerships such as the San Francisco Bay Joint Venture, the California Landscape Conservation Cooperative and the ACCESS Oceans research partnership.
  - e) Represent BAECCC to other entities addressing related issues including scientific meetings, workshops, media events, etc.
  - f) Coordinate with and provide leadership to significant public climate and ecosystem science and policy efforts, such as the State of California Climate Action Team.

Exhibit 2: BAECCC Draft Goals and Objectives

- g) Other activities as directed by the Executive Committee.
- 2) Identify gaps in science, monitoring and management actions and develop a prioritized “Research Strategic Plan” for ecosystem adaptation to climate change in the Bay Area and to guide researchers.
- a) Develop a BAECCC Science Committee, with responsibilities that include reviewing existing literature and practices, identifying gaps and develop comprehensive lists of applicable research materials and related information that can be used now in the Bay Area.
  - b) Facilitate a process that engages Bay Area uplands-estuarine-ocean resource managers and scientists to jointly identify priority management needs and how that can inform the science.
  - c) Develop strategy to implement research and management needs including potential RFP process, pilot studies, etc.
  - d) Conduct and support comprehensive, science-based research that facilitates current understanding of the impacts of climate change on ecosystems.
  - e) Develop long term monitoring protocol and indicators, to provide early indicators of change and improve adaptive management practices.
  - f) Identify and prioritize high value upland, estuarine and marine habitats for protection, using existing conservation plans such as the Upland Habitat Goals Project and the Gulf of the Farallones National Marine Sanctuary 2010 Climate Summit Recommendations.
  - g) Ensure research is translated for understanding and application by managers.
- 3) Initiate and complete the “Climate Change Technical Update of the San Francisco Baylands Goals” to address climate change impacts on estuarine habitats.
- a) Coordinate science-based, collaboratively produced estuarine adaptation strategies and guidelines, addressing key factors including sea level rise, storm surges, sedimentation, invasives and salinity.
  - b) Prioritize focal areas for adaptation investments in the decades ahead.
  - c) Identify incremental measures to sustain marshes and utilize them to mitigate impacts on human infrastructure.
  - d) Address dredging and other strategies and policies to secure required sedimentation needs.

Exhibit 2: BAECCC Draft Goals and Objectives

- e) Assess and recommend regulatory and policy changes needed to sustain healthy tidal habitats over the long term.
- 4) Identify current, most effective first draft “best management practices” for ecosystem adaptation to climate change in the Bay Area and assess, compile, and disseminate.
- a) Establish and facilitate a Management Practices Committee, including scientists and managers.
  - b) Survey and develop inventory of global ecosystem adaptation management best practices and prioritize those relevant to Bay Area upland-estuarine-marine ecosystems.
  - c) Develop, disseminate and train using an “Adaptation Best Practices Tool Box” for natural resource managers.
  - d) Develop plan for regularly updating and improving the Tool Box and its management application into the future.
  - e) Initiate pilot projects in marine, coastal and upland habitats to test, demonstrate and improve “best management practices” for ecosystem adaptation.
  - f) Conduct annual or biannual workshops for researchers and managers to share priorities, needs and findings.
- 5) Develop a case study documenting, evaluating and disseminating lessons learned from BAECCC’s experience as an example of a consortium linking science with resource management to guide and accelerate implementation of climate change adaptation.
- a) Engage a researcher(s) to design methodology and scope of case study project
  - b) Determine whether to include other consortiums as part of the case studies to learn how we might improve BAECCC’s work
  - c) Disseminate, publish and present case study results.
- 6) Begin developing plan for establishing long term monitoring network including what would be monitored, where and how, and how to capture the information to drive applied conservation efforts.
- a) By end of year 2, complete a plan for establishing a network of monitoring sites and monitoring protocols to provide early indicators of change
  - b) Work with BAECCC Science Committee and others to identify and agree upon initial indicators (physical and biological) for monitoring.

Exhibit 2: BAECCC Draft Goals and Objectives

- c) Ensure monitoring supports and is tied to identified research and management gaps and needs.
- 7) Establish BAECCC as the greater Bay Area hub for climate change science and management communications.
- a) Coordinate the gathering and dissemination of critical information for effective ecosystem adaptive management.
  - b) Develop and publish user friendly, web-based materials to inform managers, scientists, policymakers and the public.
- 8) Establish shared informatics capacity and systems for the Bay Area ecosystem adaptation science and management.
- a) Build on existing informatics capacity of regional partners.
  - b) Establish Informatics Task Force to design the BAECCC data portal and distributed data bases.
- 9) Seek additional funding to support this innovative partnership and export lessons learned to other entities regionally, nationally and globally.
- a) By the end of year 2, the BAECCC Coordinator working with BAECCC members will secure new funding for coordination, pilot projects, communications and other BAECCC activities.
  - b) Build funding coalitions with BAECCC partners and others.

Exhibit 3: Project Letters



*Making San Francisco Bay Better*

September 15, 2010

Douglas Bosco, Chair  
State Coastal Conservancy  
1330 Broadway, Suite 1300  
Oakland, CA 94612

SUBJECT: San Francisco Bay Ecosystems Climate Adaptation Assessment Project

Dear Chair Bosco:

I am writing to support a two year proposal from the Bay Area Ecosystems Climate Change Consortium (BAECCC) to provide critical climate change adaptation coordination, technical analysis, and climate adaptation and policy guidance to Bay Area partners seeking to address the effects of accelerating environmental change on Bay Area ecosystems.

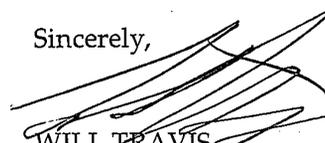
Since its inception in 2009, BAECCC has evolved into a collaborative, multi-jurisdictional organization working to integrate resource managers, scientists and policy makers to jointly address the impacts of climate change to Bay Area ecosystems. BAECCC is currently working to secure natural ecological and economic benefits to society by reducing the negative impacts of climate change on the region's wildlife, habitats and ecosystem functions.

In the course of the two-year project, BAECCC partners will focus on a suite of key products that will expand our knowledge of potential climate change impacts to ocean, coastal and bay resources and enhance our ability to respond to those challenges. In particular, BAECCC will complete analyses that identify gaps in science, monitoring and management actions through a "Research Strategic Plan" for ecosystem adaptation; prioritize estuarine adaptation strategies and projects through a technical update to the Baylands Ecosystem Habitat Goals report; identify and disseminate effective best management practices for ecosystem adaptation; improve regional climate monitoring and informatics capacity; implement a suite of pilot adaptation projects; and develop a case studying documenting and disseminating lessons learned from the partnership's work linking climate change science to on-the-ground resource management.

This information will be critically important to our Commission as we strive to fully integrate the initiatives we are advancing to adapt to the impacts of sea level rise in the Bay with the broader regional efforts to reduce greenhouse gas emissions through land use planning that will establish where and how our region grows in the future.

I would appreciate your favorable consideration of this project and thank you for your continued support of efforts to protect, restore and enhance the estuarine, coastal and ocean resources of the San Francisco Bay region.

Sincerely,



WILL TRAVIS  
Executive Director



**Gary Knoblock**  
Program Officer

gary.knoblock@moore.org  
650-213-3165

**VIA ELECTRONIC MAIL**

September 14, 2010

Douglas Bosco, Chair  
State Coastal Conservancy  
1330 Broadway, Suite 1300  
Oakland, CA 94612

Re: San Francisco Bay Ecosystems Climate Adaptation Assessment Project

Dear Mr. Bosco:

I am writing today in support of the Bay Area Ecosystems Climate Change Consortium's (BAECCC's) two year proposal to provide critical climate change adaptation coordination, technical analysis, and climate adaptation and policy guidance to Bay Area partners seeking to address the effects of accelerating environmental change on Bay Area ecosystems.

We have been working closely with the staff of the Coastal Conservancy over the past 12 months to coordinate our collective efforts as funders to effectively catalyze this new Consortium. All of us have seen there is a significant gap in coordination around ecosystem adaptation to climate change and this lack of coordination is a barrier to securing funding to address the problem. The Moore Foundation and Coastal Conservancy staff have worked together to shape this effort with the vision of improving the opportunities for funders to make meaningful investments.

We anticipate taking to our trustees a proposal in early October for approximately \$350,000 which will support the staff required for the overall coordination of the new collaboration and will specifically work on developing a "research strategic plan." Although we cannot commit to future investments, it's our hope that the research strategic plan will provide a prioritized list for where additional investment from our foundation and other funders can make a meaningful impact.

Thank you for your consideration of this project and for your continued support of efforts to protect, restore and enhance the estuarine, coastal and ocean resources of the San Francisco Bay region.

Best regards,

A handwritten signature in blue ink that reads "Gary Knoblock". The signature is written in a cursive style and is positioned above the printed name and title.

Gary Knoblock  
Program Officer

Exhibit 3: Project Letters



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**Coastal Services Center**  
2234 South Hobson Avenue  
Charleston, South Carolina 29405-2413

September 14, 2010

Douglas Bosco, Chair  
State Coastal Conservancy  
1330 Broadway, Suite 1300  
Oakland, CA 94612

Dear Mr. Bosco,

I am writing in support of the Bay Area Ecosystems Climate Change Consortium's (BAECCC) two year proposal for climate change adaptation coordination, technical analysis, and climate adaptation and policy guidance to Bay Area partners working to address the effects of accelerating change on natural ecosystems.

As part of the National Oceanic and Atmospheric Administration (NOAA), the Coastal Services Center (CSC) works with private and public sector partners to address coastal resource management issues, including climate change. BAECCC was formed among federal, state and non-governmental natural resource research, management and planning agencies in the greater San Francisco region to address the impacts of accelerating climate change on ecosystems. In line with CSC's mission to support environmental, social, and economic well being of coastal communities, BAECCC partners prioritize research, conserve natural resources and sustain natural benefits to human communities from the ocean to the estuary and upland habitats. By coordinating around climate change, BAECCC members leverage expertise, funds and resources to support our mutual goals.

The West Coast office of CSC is an active and supportive member of BAECCC. As such, the proposal to expand our knowledge of potential climate impacts to ocean, coastal, and bay resources will enhance the ability to respond to those challenges of all involved. In particular, we support the proposal to hire a coordinator who, under the guidance of the BAECCC steering committee, will organize the collaboration of scientists, public and private wild land managers, and regulators in the San Francisco Bay ocean-upland region. This position will help leverage member resources to accomplish BAECCC's goals through joint research, working groups, and workshops with stakeholders.

The San Francisco Bay Ecosystems Climate Adaptation Assessment Project will greatly assist us in our efforts to streamline our resources and minimize gaps in dealing with climate change in the Bay Area. It will also contribute to the Coastal Conservancy's technical update to the Baylands Ecosystem Habitat Goals report. Therefore, I support BAECCC's proposal for full-time coordination support and encourage the Coastal Conservancy to fund the project.

Sincerely,

A handwritten signature in black ink, appearing to read "Rebecca A. Smyth", with a long horizontal flourish extending to the right.

Rebecca A. Smyth  
Regional Coastal Services, Division Chief  
National Oceanic and Atmospheric Administration, Coastal Services Center



**NOAA Coastal Services Center**  
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

[www.csc.noaa.gov](http://www.csc.noaa.gov)

National Ocean Service • National Marine Fisheries Service • National Weather Service  
Office of Oceanic and Atmospheric Research • National Environmental Satellite, Data, and Information Service



September 29, 2010

Mr. Douglas Bosco, Chair  
California State Coastal Conservancy  
1330 Broadway, Suite 1300  
Oakland, CA 94612

Re: San Francisco Bay Ecosystems Climate Adaptation Assessment Project

Dear Mr. Bosco:

It is with pleasure that we write in support of the Bay Area Ecosystems Climate Change Consortium's (BAECCC's) two-year proposal to provide critical climate change adaptation coordination, technical analysis, and climate adaptation and policy guidance to Bay Area partners seeking to address the effects of accelerating environmental change on Bay Area ecosystems.

Since its inception in 2009, BAECCC has evolved into a collaborative, multi-jurisdictional organization working to integrate resource managers, scientists and policy makers to jointly address the impacts of climate change to Bay Area ecosystems. In the course of the two-year project, BAECCC partners will focus on a suite of key products that will expand our knowledge of potential climate change impacts to ocean, coastal and bay resources and enhance our ability to respond to those challenges.

The Bay Area Open Space Council is a coalition of over 60 member organizations involved in protecting and managing important lands throughout the San Francisco Bay Area. We have been participating in BAECCC and feel it serves a critical coordination role to help ensure that we are keeping each other informed and thinking strategically about the protection and restoration of upland, subtidal and bay ecosystems.

The Bay Area Open Space Council is working to further integrate climate change data into the Upland Habitat Goals project and the Bay Area Critical Linkages project. We will be hosting a Climate Change workshop that brings together decision makers, land managers and scientists to further address how we need to think differently about protection and management of the lands in the region. By participating in BAECCC, we are able to ensure that efforts such as these are informed by the diverse membership and expertise within BAECCC and information made available to the larger community.

Thank you for your consideration of this project and for your continued support of efforts to protect, restore and enhance the estuarine, coastal and ocean resources of the San Francisco Bay region.

Sincerely,

A handwritten signature in black ink that reads "Bettina K. Ring".

Bettina K. Ring  
Executive Director

**DEPARTMENT OF WATER RESOURCES**

1416 NINTH STREET, P.O. BOX 942836  
SACRAMENTO, CA 94236-0001  
(916) 653-5791



September 29, 2010

Mr. Douglas Bosco, Chair  
State Coastal Conservancy  
1330 Broadway, Suite 1300  
Oakland, CA 94612

Subject: San Francisco Bay Area Ecosystems Climate Adaptation Assessment Project

Dear Mr. Bosco:

We are pleased to write in support of the Bay Area Ecosystems Climate Change Consortium's (BAECCC's) two-year proposal to provide climate change adaptation coordination, technical analysis, and policy guidance to address the effects of accelerating change on the region's ecosystems.

Since its inception in 2009, BAECCC has evolved into a collaborative, multi-jurisdictional organization working to integrate the work of resource managers, scientists and policy makers so they can jointly address and reduce the impacts of climate change on the Bay Area's wildlife, habitats and ecosystem functions. In the course of the two-year project, BAECCC will focus on a suite of products that will expand our knowledge of potential climate change impacts to ocean, coastal and bay resources, and enhance our ability to respond to those challenges. In particular, BAECCC will complete analyses that identify gaps in science, monitoring and management actions through a "Research Strategic Plan" for ecosystem adaptation; prioritize estuarine adaptation strategies and projects through a technical update to the *Baylands Ecosystem Habitat Goals* report; identify and disseminate effective best management practices for ecosystem adaptation; improve regional climate monitoring and informatics capacity; implement pilot adaptation projects; and develop a case study documenting and disseminating lessons learned from the partnership's work linking climate change science to on-the-ground resource management.

Climate change is having a profound impact on California water resources, as evidenced by changes in snowpack, river flows and sea level. The Department of Water Resources (DWR) is addressing these impacts through mitigation and adaptation measures to ensure that Californians have sustainable water supplies, reliable flood management, and healthy ecosystems. To that end, DWR is contributing to numerous efforts within the Bay Area that integrate well with the work proposed by the BAECCC. These efforts include: 1) providing both financial and technical assistance for Integrated Regional Water Management planning and implementation activities that adapt water management to a changing climate; 2) using computer models to assess the potential impacts to water supply and flood control from sea level rise; and 3) participating in the Coastal and Ocean Climate Action Team (CO-CAT) Sea Level Rise Task Force. The BAECCC fills a valuable role in helping us link our efforts to other resource managers, scientists, and policy makers within the Bay Area.

Thank you for your consideration of this project and your continued support of efforts to protect, restore and enhance the estuarine, coastal and ocean resources of the San Francisco Bay Area. Please contact Erin Chappell in our North Central Region Office at (916) 376-9633 if you have any questions.

Sincerely,

ORIGINAL SIGNED BY

John T. Andrew  
Assistant Deputy Director

cc: Erin Chappell

Exhibit 3: Project Letters



**San Francisco Bay National Estuarine Research Reserve**

3152 Paradise Drive, Tiburon, CA 94920-1205  
Tel (415) 338-3707 Fax (415) 435-7120 Web: www.sfbaynerr.org

October 1, 2010

Douglas Bosco, Chair  
State Coastal Conservancy  
1330 Broadway, Suite 1300  
Oakland, CA 94612

Re: San Francisco Bay Ecosystems Climate Adaptation Assessment Project

Dear Mr. Bosco:

I am writing to express enthusiastic support for the Bay Area Ecosystems Climate Change Consortium's (BAECCC's) two year proposal to provide critical climate change adaptation coordination, technical analysis, and climate adaptation and policy guidance to Bay Area partners. Such a project is sorely needed in the Bay Area, where our remaining natural resources are under threat from myriad projected climate change impacts to our region.

BAECCC has evolved into an effective collaborative, multi-jurisdictional organization that integrates resource managers, scientists and policy makers to address the impacts of climate change to Bay Area ecosystems. This project will focus on a suite of key products that will expand our knowledge of potential climate change impacts to ocean, coastal and bay resources and enhance our ability to respond to those challenges. In particular, BAECCC will complete analyses for a "Research Strategic Plan" for ecosystem adaptation; complete a technical update to the *Baylands Ecosystem Habitat Goals* report; identify and disseminate effective best management practices for ecosystem adaptation; improve regional climate monitoring and informatics capacity; implement pilot adaptation projects; and develop a case study on "lessons learned" on linking science to on-the-ground resource management.

The San Francisco Bay National Estuarine Research Reserve was established for long-term research, education and stewardship of San Francisco Bay. We can both contribute to and benefit from the activities described above. Through our Coastal Training programs, we can assist in the dissemination of new information to management communities. Our affiliation with San Francisco State University enables us to collaborate with researchers who are focused on the Bay and its watershed, and our Research and Monitoring program is connected to a network of 27 other estuaries around the nation that are facing similar concerns. We already work closely with many BAECCC partners, and look forward to deepening these connections through new opportunities such as those in BAECCC's current proposal.

Thank you for your consideration of this important project.

Sincerely,

A handwritten signature in cursive script that reads "Jaime C. Kooser".

Jaime C. Kooser, Ph.D.  
Reserve Manager



*San Francisco Bay National Estuarine Research Reserve is a partnership among National Oceanic and Atmospheric Administration, San Francisco State University, California State Parks, Solano Land Trust and the Bay Conservation and Development Commission.*





735 B Center Blvd  
Fairfax, CA 94930  
415-259-0334 phone  
415-259-0340 fax

October 6, 2010

Douglas Bosco, Chair  
State Coastal Conservancy  
1330 Broadway, Suite 1300  
Oakland, CA 94612

**MANAGEMENT BOARD:**

Bay Area Audubon Council  
Bay Area Open Space Council  
Bay Planning Coalition  
Citizens Committee to  
Complete the Refuge  
Ducks Unlimited  
National Audubon Society  
PRBO Conservation Science  
PG&E Corporation  
Save San Francisco Bay  
Association  
Sierra Club  
The Bay Institute

**Ex-Officio Members:**

Bay Conservation &  
Development Commission  
California Department  
of Fish and Game  
California Resources Agency  
Coastal Conservancy  
Coastal Region, Mosquito &  
Vector Control District  
National Fish and Wildlife  
Foundation  
National Marine Fisheries  
Service  
Natural Resources  
Conservation Service  
Regional Water Quality Control  
Board, SF Bay Region  
San Francisco Estuary Project  
U.S. Army Corps of Engineers  
U.S. Environmental  
Protection Agency  
U.S. Fish & Wildlife Service  
U.S. Geological Survey  
Wildlife Conservation Board

**Re: San Francisco Bay Ecosystems Climate Adaptation Assessment Project**

Dear Mr. Bosco:

I am writing on behalf of the San Francisco Bay Joint Venture (SFBJV) to confirm that the SFBJV supports updating the *Baylands Ecosystem Habitat Goals* to incorporate the projected effects of climate change.

The SFBJV is a partnership of non-governmental organizations, utilities, landowners, non-voting agencies and others collaborating to acquire, restore and enhance 200,000 acres of wetlands and wildlife habitat within its geographic region, San Francisco Bay and the regional California coast. The SFBJV is one of 18 habitat joint ventures in the United States, operating under the certification of the North American Waterfowl Management Plan, a Congressional agreement between the United States, Canada, and Mexico. Our major focus has been to implement the recommendations of the *Baylands Ecosystem Habitat Goals*, confirmed in our Implementation Plan, *Restoring the Estuary* (2001).

While the SFBJV has taken no official position on how the *Baylands Ecosystem Habitat Goals* should be updated or who is the best entity to lead the task, we are in agreement that climate change impacts should continue to be analyzed and climate adaptation recommendations be developed to reduce projected negative impacts of climate change on the region's wildlife, habitats, and ecosystems. SFBJV is a partner in the Bay Area Ecosystems Climate Change Consortium (BAECCC). In fact, BAECCC emerged as a climate change coalition partly as a result of recommendations in a white paper developed by the SFBJV to address climate change. Many of the members of BAECCC are partners in the SFBJV.

We understand that the proposal to update the *Baylands Ecosystem Habitat Goals* will be a two-year proposal to provide critical climate change adaptation coordination, technical analysis, and climate adaptation and policy guidance to Bay Area partners seeking to address the effects of accelerating environmental change on Bay Area ecosystems. The SFBJV strongly supports the update to incorporate climate change impacts, and also wants to express guidance from discussions by our Management Board that this not be a long, protracted process. As a partnership of resource and project managers, permitting agencies, and environmental organizations, and the business community, we welcome the opportunity to be well-integrated into this process.

Thank you for your consideration of this project and for your continued support of efforts to protect, restore and enhance the estuarine, coastal and ocean resources of the San Francisco Bay region.

Sincerely,

Diane Ross-Leech  
Chair