COASTAL CONSERVANCY

Staff Recommendation
October 18, 2012

SOUTH BAY SALT POND RESTORATION: MERCURY STUDIES

Project No. 02-070-04
Project Manager: Brenda Buxton

RECOMMENDED ACTION: Authorize disbursement of up to $545,562, including $465,562 to be reimbursed by the United States Environmental Protection Agency, for a comprehensive program of mercury studies as part of adaptive management of the South Bay Salt Ponds Restoration Project.

LOCATION: Alviso, San Jose, Santa Clara County (Exhibit 1)

PROGRAM CATEGORY: San Francisco Bay Area Conservancy

EXHIBITS

Exhibit 1: Project Location and Site Map

Exhibit 2: Letters of Support for U.S. Environmental Protection Agency grant application

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RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31160-31165 of the Public Resources Code:

"The State Coastal Conservancy hereby authorizes disbursement of up to $545,562 (five hundred forty-five thousand five hundred sixty-two dollars), including $465,562 (four hundred sixty-five thousand, five hundred sixty-two dollars) to be reimbursed by the United States Environmental Protection Agency (EPA), as follows: to the United States Geological Survey (USGS) up to approximately $390,000 (three hundred ninety thousand dollars); to the San Francisco Estuary Institute (SFEI) up to approximately $40,000 (forty thousand dollars); and to the University of California at Davis (UCD) up to approximately $150,000 (one hundred fifty thousand dollars); in order to undertake studies related to sediment transport, mercury accumulation in sediments, mercury bioaccumulation, and modeling of scouring of sediments with mercury contamination, associated with the South Bay Salt Ponds Restoration Project. Prior to the disbursement of any Conservancy funds for the project, the USGS, SFEI and UCD shall submit for the review and approval of the Conservancy's Executive Officer a work program for each study, including schedule and budget, and a plan to acknowledge the Conservancy in all publications."

Staff further recommends that the Conservancy adopt the following findings:

SOUTH BAY SALT POND RESTORATION: MERCURY STUDIES

"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 the purposes and objectives of Chapter 4.5 of Division 21 of the Public Resources Code, regarding the Conservancy's mandate to address the resource and recreational goals of the San Francisco Bay Area.
3. SFEI is a nonprofit organization existing under the provisions the U.S. Internal Revenue Code Section 501(c)(3), whose purposes are consistent with Division 21 of the Public Resources Code."

PROJECT SUMMARY:

This authorization would provide up to $545,562 for the mercury-focused studies that are a high priority for the South Bay Salt Pond (SBSP) Restoration Project by allowing the Conservancy to disburse $465,562 from the U.S. Environmental Agency (EPA) San Francisco Bay Area Water Quality Improvement Fund (SFBAWQIF), and $80,000 in additional Conservancy funds, which is required as a match for the EPA grant funds. An additional $34,438 of the EPA grant funds would provide for Conservancy staff project management to ensure consistency and coordination with the SBSP Restoration Project, a multi-agency effort to restore 15,100 acres of former commercial salt ponds in South San Francisco Bay to a mix of wetland habitats.

The SBSP Restoration Project is one of the country's largest wetland restoration projects. The Conservancy, with U.S. Fish and Wildlife Service, California Department of Fish and Game, Santa Clara Valley Water District, Alameda County Flood Control District, United States Geological Society (USGS), and other agencies and organizations completed the programmatic plan in January 2009. The plan calls for the eventual conversion of former salt evaporation ponds to tidal wetlands or enhanced pond habitat while providing wildlife-oriented public access opportunities and flood protection for adjacent communities. One of the challenges the project faces, however, is that it is located in a mercury-rich environment due to historic and continuing run off from the New Almaden Quicksilver Mine, which is located within the Guadalupe River watershed which drains into the Alviso portion of the project area. As a result, mercury, a neurotoxin, has been identified as one of the project's key scientific uncertainties in the project's Adaptive Management Plan.

In order to continue to restore tidal wetlands, the SBSP Restoration Project must address the questions about the potential for tidal restoration to remobilize mercury-laden sediments or to create environmental conditions that increase mercury methylation and bioaccumulation in the food web. To answer these questions, the SBSP Restoration Project has started a comprehensive, regional mercury monitoring effort that builds on past studies. The studies proposed in this authorization will monitor the changes in mercury's distribution, availability and bioaccumulation that could be caused by project actions. Two recent SBSP Restoration Project Phase I projects that reconnected salt ponds back to the Bay are of particular concern. Pond A8 was opened to Bay in June 2011 through a water control structure, and Pond A6 was fully connected to the tides

through levee breaches in December 2010. The mercury studies will be focused in the Alviso Slough area, adjacent to these projects.

Without these studies, the SBSP Restoration Project will not have sufficient information about mercury risks and the project will be faced with the undesirable choice of either continuing with tidal restoration actions without fully understanding their effects on mercury, or forgoing the tremendous benefits of tidal wetland restoration because of the fears of possible environmental harm. With declining sediment levels in the Bay, modeling indicates that if opening ponds to tidal waters is significantly delayed in the Alviso area, some of the most deeply subsided ponds may never evolve into vegetated marsh since sea-level rise could outpace sediment supply. This highlights the urgency to resolve the scientific uncertainties related to mercury.

The five inter-related studies proposed in this application are part of an international scientific collaboration among mercury, water quality, and geomorphic modeling experts with funding from a wide variety of agencies. USGS scientists will undertake the studies to document the erosion resulting from the restoration efforts, estimate the mass of mercury released, determine the direction or flux of the sediment movement in the Alviso Slough system, assess the relationship between total mercury and suspended sediment in Alviso Slough, and model future mercury mobilization potential in Alviso Slough resulting from different restoration scenarios. In addition, University of California, Davis (UC Davis) scientists will conduct biosentinel (fish) monitoring to determine the methylmercury concentrations in the South Bay food web. The results of these studies will be analyzed by the SBSP Restoration Project's Lead Scientist to understand the significance of these findings for the SBSP Restoration Project and the region. San Francisco Estuary Institute will also provide technical support with the creation of the quality assurance plan required as a condition of EPA funding.

The total match for the EPA grant is $543,000. The Conservancy has already provided $430,812 in match towards mercury studies, with $380,812 authorized by the Conservancy on November 11, 2011 as part of the SBSP Restoration Project Phase II adaptive management and an additional $50,000 provided by the Conservancy for monitoring of mercury in biosentinel species in the North Bay through an interagency agreement with the Aquatic Science Center (a Joint Powers Authority created by the State Water Resources Control Board, Bay Area Clean Water Agencies, and San Francisco Estuary Institute). Using these matching funds and $179,410 from Santa Clara Valley Water District and the City of San Jose and $463,345 from USGS and the U.S. Army Corps of Engineers, the Conservancy was successful at securing the $465,562 mercury monitoring grant from the EPA. However, to meet EPA match requirements and to cover some unfunded but high priority mercury work, staff recommends authorization of an additional $80,000 of Conservancy funds.

Site Description: The entire South Bay salt pond complex is spread over an area of approximately 26,000 acres. Salt ponds surround nearly the entire San Francisco Bay south of the San Mateo Bridge (Exhibit 1), on lands that were formerly tidal marsh. An estimated 85 percent of the historic tidal marshes in the San Francisco Bay-Delta Estuary have been filled or significantly altered over the past two centuries for urban development, agriculture, and salt production. Although dramatically different from 150 years ago, the South Bay's wetland habitats, including the salt ponds, tidal marshes, sloughs, mudflats, and open bay, are used by large populations of waterfowl and

shorebirds, by harbor seals, and by a number of threatened and endangered species, including the California clapper rail, California black rail, California brown pelican, California least tern, western snowy plover, salt marsh harvest mouse, and steelhead trout.

Project History: In March 2003, 15,100 acres of South Bay salt ponds, along with 1,400 acres of crystallizer ponds along the Napa River were acquired with $72 million from the Wildlife Conservation Board, $8 million from the FWS, and $20 million from the Goldman Fund, Hewlett Foundation, Moore Foundation, and Packard Foundation. FWS owns and manages the Ravenswood and Alviso pond complexes and DFG owns and manages the the Eden Landing pond complex.

In January 2009, the Record of Decision was completed for the South Bay Salt Pond Restoration Project's programmatic plan, Adaptive Management Plan, and Phase I projects Environmental Impact Report/Study (EIR/S). Phase I construction projects began in 2009 and are nearing completion. The ponds that were not enhanced or restored as part of Phase I) are actively managed according to the goals set forth in the Initial Stewardship Plan (e.g. open, unvegetated ponds with enough circulation to prevent salt production). Funding for Phase II planning was authorized by the Conservancy on November 11, 2011 and is currently underway, with the plan and environmental review documents expected to be complete in late 2013.

PROJECT FINANCING:

Coastal Conservancy	**$80,000**
EPA grant to Coastal Conservancy	**$465,562**
Total (this authorization)	**$545,562**
Additional Matching Funds	
Coastal Conservancy (previously authorized)	$430,812
USGS	$253,775
U.S. Army Corps of Engineers	$209,570
Regional Monitoring Program	$40,000
Santa Clara Valley Water District	$116,245
City of San Jose	$23,165
Total Matching Funds	**$1,073,567**
Total Project Costs	**$1,619,129**

The source of the Conservancy's $80,000 for these mercury studies is expected to be the Conservancy's fiscal year 2005 appropriation from the "Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002" (Proposition 50). Proposition 50 authorizes the use of these funds for the purpose of protecting coastal watersheds through projects that restore land and water resources. Funds may be used for planning and permitting associated with restoration, as well as the restoration activities (Water Code Section 79570). The proposed project will accomplish these purposes by completing

scientific studies identified in the Adaptive Management Plan for the SBSP Restoration Project, which are a prerequisite to constructing tidal wetland and shallow water habitats as part the next phase of the project.

In addition, under Proposition 50, any watershed protection activities financed with Proposition 50 funds must be "consistent with the applicable adopted local watershed management plan and the applicable regional water quality control plan adopted by the regional water quality control board" (Water Code Section 79507). The proposed project is consistent with such plans, as described in detail in the "Consistency with Local Watershed Management Plan/State Water Quality Control Plan" section, below.

The source of the US EPA funding is the 2012 federal appropriation to the San Francisco Bay Area Water Quality Improvement Fund, the purpose of which is to protect and restore the water quality of the San Francisco Bay and its watersheds consistent with the San Francisco Estuary Partnership's (SFEP) Comprehensive Conservation and Management Plan (CCMP). The funds were awarded specifically for the work under this proposed authorization.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

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 goals in the San Francisco Bay Area.

The South Bay salt ponds are within the nine-county Bay Area, and, thus, within the jurisdiction of the S.F. Bay Area Conservancy Program under Section 31162 of the Public Resources Code.

Under Section 31162(b), the Conservancy may act to protect, restore, and enhance natural habitats and connecting corridors, watersheds, scenic areas, and other open-space resources of regional significance. The restoration of the South Bay salt ponds will restore or enhance nearly 16,000 acres of wetlands, and is a habitat restoration project of regional and national significance. Resolving scientific uncertainties through the Adaptive Management Plan's recommended Applied Studies, such as these mercury studies, is an essential element of the phased restoration plan for the South Bay Salt Ponds Restoration Project.

Consistent with Section 31163(c), activities that further restoration of the South Bay salt ponds meets the following criteria: (1) is supported by adopted regional plans (*San Francisco Bay Plan, San Francisco Baylands Ecosystem Habitat Goals Report (1999)*, pp. 97, 126-139, and the *Water Quality Control Plan (1993)* p. 5-3 for the San Francisco Bay Basin), (2) is multijurisdictional and serves a regional constituency (the studies involve many agencies and will generate regionally significant data), (3) can be implemented in a timely way (funding is for the second phase of studies already underway), and (4) provides opportunities for benefits that could be lost if the project is not quickly implemented such as the ability to use natural processes to bring pond bottoms up to marsh plain elevations.

The project is also consistent with Sections 31163(a) and (b), directing the Conservancy to participate in and support interagency actions and public/private partnerships in the

San Francisco Bay Area to implement long-term resources and outdoor recreational goals.

CONSISTENCY WITH CONSERVANCY'S 2007 STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):

Consistent with **Goal 10, Objective B** of the Conservancy's 2007 Strategic Plan, these mercury studies will support planning for restoration or enhancement of the approximately 3,000 acres of wetlands proposed for Phase II of the SBSP Restoration Project.

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:** The SBSP Restoration Project is supported by Senator Dianne Feinstein, the Goldman Fund, the Hewlett Foundation, the Moore Foundation, the Packard Foundation, Resources Legacy Fund, California Department of Fish and Game, U.S. Fish and Wildlife Service, Santa Clara Valley Water District, Alameda County Flood Control District, the San Francisco Bay Joint Venture, Save The Bay, The Bay Institute, National Audubon Society, Citizen's Committee to Complete the Refuge, Cargill, and many other agencies, organizations, and individuals. Letters supporting the Conservancy's application for the EPA funds are attached in Exhibit 2.
4. **Location:** The South Bay salt ponds are in the nine-county San Francisco Bay Area, and, thus within the jurisdiction of the S.F. Bay Conservancy Program under Section 31162 of the Public Resources Code. These studies will collect data from a variety of sites around the Bay but will largely focus on the Alviso Slough area in Santa Clara County.
5. **Need:** Approximately 85 percent of the tidal marsh in San Francisco Bay has been lost since the Gold Rush, leading to dramatic losses of fish and wildlife, decreased water quality and increased turbidity in the Bay, and changes to physical processes as the size of the Estuary shrank, increasing the need for dredging and the local hazards of flooding. The need for restoration of tidal marsh in San Francisco Bay in order to aid in the recovery of at-risk species, and improve water quality and the physical health of the Bay, is well recognized among scientists and resource managers. Without the resolution of the scientific uncertainties surrounding mercury in the food web, the ability of the project to continue to restore wetlands will likely be curtailed. Conservancy funding,

including the proposed EPA funds, are needed to fill the funding gap for required studies for Phase II SBSP restoration projects.

6. **Greater-than-local interest:** Restoration of this area is of national significance and will result in the largest tidal wetland restoration project on the west coast of the United States. When combined with other restoration projects underway in San Francisco Bay, including Napa-Sonoma Marsh, Hamilton/Bel Marin Keys, Bair Island, Eden Landing, and Sonoma Baylands, the project is on scale with other national restoration efforts, such as the Everglades and Chesapeake Bay. Restoration of the South Bay salt ponds to a mix of tidal marsh and managed ponds will provide benefits to a large number of species, including migratory waterfowl and shorebirds, and aid in the recovery of several threatened or endangered species, including the California clapper rail and salt marsh harvest mouse.

7. **Sea level rise vulnerability:** Due to their location, all tidal wetland restoration projects can be vulnerable to sea-level rise impacts. However, once the marsh plain of a restored wetland is colonized by vegetation, marshes become efficient sediment traps and keep pace with sea-level rise. On the other hand, if the Bay's natural sediment supplies decline over time, wetland evolution will be slowed down. For this reason, it is critical that wetland restoration start as soon as possible so the Bay's current high sediment loads will establish vegetated marsh plain before the predicted sea-level rise.

<u>Additional Criteria</u>

8. **Urgency:** As stated above, in the face of rising sea levels and declining sediment supply in the Bay, the likelihood of successful marsh establishment increases the sooner wetland restoration starts. These mercury studies address scientific uncertainties so that the SBSP Restoration project can continue to restore tidal wetland as rapidly as possible.

9. **Leverage:** See the "Project Financing" section above.

10. **Innovation:** Restoration of the South Bay salt ponds is a national model for how to coordinate a scientifically sound, publicly-supported, multi-objective, multi-agency project, on scale with the Everglades and Chesapeake Bay. These scientific studies are one of many examples in the South Bay Salt Pond Restoration Project of interagency funding and cooperation to complete planning, scientific studies, and construction projects.

11. **Realization of prior Conservancy goals:** This project builds on the Conservancy's participation in the development of the *San Francisco Baylands Ecosystem Habitat Goals Report*, which has goals, objectives, and recommendations for restoration in San Francisco Bay, and the Conservancy's participation in wetland acquisition and restoration projects in San Francisco Bay, including Napa Marsh, Bair Island, and Hamilton/Bel Marin Keys. This authorization builds upon previous authorizations by the Conservancy and maintains the Conservancy's investment of $14.9 million to date in planning and implementation of the SBSP Restoration Project.

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CONSISTENCY WITH SAN FRANCISCO BAY PLAN:

The South Bay salt ponds are within the permit jurisdiction of the San Francisco Bay Conservation and Development Commission ("BCDC").

The project is consistent with the following policies of BCDC's San Francisco Bay Plan (Reprinted 2008):

Part III: The Bay as a Resource

Water Quality (p.17)

- To the greatest extent feasible, the Bay marshes, mudflats, and water surface area and volume should be maintained and, whenever possible, increased.

Water Surface Area and Volume (p. 20)

- Water circulation in the Bay should be maintained, and improved as much as possible.

Marshes and Mudflats (p. 21)

- To offset possible additional losses of marshes due to necessary filling and to augment the present marshes: (a) former marshes should be restored when possible through removal of existing dikes; (b) in areas selected on the basis of competent ecological study, some new marshes should be created through carefully placed lifts of dredged spoils; and (c) the quality of existing marshes should be improved by appropriate measures whenever possible.

Part IV: Development of the Bay and Shoreline

Salt Ponds and Other Managed Wetlands Around the Bay (pp. 65-68)

- As long as is economically feasible, the salt ponds should be maintained in salt production and the wetlands should be maintained in their present use. Property tax policy should assure that rising property taxes do not force conversion of the ponds and other wetlands to urban development. In addition, the integrity of the salt production system should be respected (i.e., public agencies should not take for other projects any pond or portion of a pond that is a vital part of the production system).

  If, despite these provisions, the owner of the salt ponds or the owner of any managed wetland desires to withdraw any of the ponds or marshes from their present uses, the public should make every effort to buy these lands, breach the existing dikes, and reopen these areas to the Bay. This type of purchase should have a high priority for any public funds available, because opening ponds and managed wetlands to the Bay represents man's last substantial opportunity to enlarge the Bay rather than shrink it. (In some cases, if salt ponds are opened to the Bay, new dikes will have to be built on the landward side of the ponds to provide the flood protection now being provided by the salt pond dikes.)

CONSISTENCY WITH LOCAL WATERSHED MANAGEMENT PLAN/ STATE WATER QUALITY CONTROL PLAN:

As required by Proposition 50, the proposed project is consistent with local and regional plans (Water Code Section 79507) The *Baylands Ecosystem Habitat Goals Report*

(*Report*) is a multi-jurisdictional local planning document providing guidance for watershed protection activities for the San Francisco Bay. Proposition 50 recognizes the *Report* as appropriate to guide the selection of restoration projects within the Bay region. Water Code Section 79572. The *Report* concludes that "the overall goal in the South Bay subregion is to restore large areas of tidal marsh connected by wide corridors of similar habitat along the perimeter of the Bay. Several large complexes of salt ponds, managed to optimize shorebird and waterfowl habitat functions, should be interspersed through the subregion...". (*Report*, p. S-5). Completion of the applied studies, such as the mercury studies proposed in this authorization, will allow the South Bay Salt Pond Restoration Project will meet these goals by resolving key uncertainties about mercury and tidal wetlands and to continue to restore tidal wetlands and managed pond habitats.

Since these studies are a key part of planning and research that must take place before restoring additional tidal wetlands, the proposed studies are also consistent with the San Francisco Bay Regional Water Quality Control Board's goal to protect beneficial uses of waters of the State, as described in the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin (1995). The Water Board made the following finding in its regulatory approval of the project:

> "Restoring tidal wetland functions to former salt ponds will improve water quality in the South San Francisco Bay Estuary on a spatially significant scale with large contiguous habitat to maximize ecotonal or edge habitat, and minimize non-native vegetation (if appropriate management efforts are taken to control non-native species). Marsh systems that are tidally connected to the estuary improve water quality by filtering and fixing pollutants, in addition to protecting beneficial uses by providing the following: nursery habitat and protection from predation for native fish species, significant biological productivity to the estuarine system, and habitat for rare and endangered species such as the salt marsh harvest mouse (*Reithrodontomys raviventris*) and the California clapper rail (*Rallus longirostris obsoletus*)."

COMPLIANCE WITH CEQA:

As feasibility and planning activity, this project is categorically exempt from review under 14 California Code of Regulations Section 15262. Similarly, the project is also exempt under 14 Cal. Code of Regulations Section 15306 as it consists of basic data collection, research, and resource-evaluation activities which do not result in a serious or major disturbance to an environmental resource.

Staff will file a Notice of Exemption upon Conservancy approval of the project.