COASTAL CONSERVANCY

Staff Recommendation
November 9, 2006

SAN FRANCISCO BAY NON-NATIVE OYSTER REMOVAL PROJECT

File No. 06-093
Project Manager: Abe G. Doherty

RECOMMENDED ACTION: Consideration and possible Conservancy authorization to disburse up to $25,000 to the San Francisco Estuary Institute for non-native oyster removal in San Francisco Bay.

LOCATION: All nine San Francisco Bay Area counties (San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, Marin) (Exhibit 1)

PROGRAM CATEGORY: San Francisco Bay Area Conservancy

EXHIBITS

Exhibit 1: Project Location Map

Exhibit 2: Map of Initial Survey Results for Non-native Oysters

Exhibit 3: Letters of Support

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 the disbursement of an amount not to exceed twenty-five thousand dollars ($25,000) to the San Francisco Estuary Institute to remove non-native oysters in San Francisco Bay. Prior to disbursement of any Conservancy funds, the San Francisco Estuary Institute shall submit for review and approval of the Executive Officer of the Conservancy a detailed work program, timeline, and budget, and the names and qualifications of any intended contractors."

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 adoption is consistent with Chapter 4.5 of Division 21 of the Public Resources Code (Sections 31160 *et seq.)*, regarding the Conservancy's mandate to address the resource goals of the San Francisco Bay Area.

2. The proposed adoption is consistent with the Project Selection Criteria and Guidelines adopted by the Conservancy Board on January 24, 2001.

3. San Francisco Estuary Institute is a nonprofit organization existing under Section 501(c)(3) of the U.S. Internal Revenue Code, whose purposes are consistent with Division 21 of the Public Resources Code."

PROJECT SUMMARY:

The proposed authorization would grant up to $25,000 to the San Francisco Estuary Institute to undertake a project to remove non-native oysters, *Crassostrea gigas (C. gigas)*, from San Francisco Bay and to perform related monitoring and analysis. The project will involve surveying for *C. gigas* along the shoreline and in deeper areas with hard structures such as bridge supports, pier pilings, bases of power towers and similar substrates in the Dumbarton Bridge and San Mateo Bridge areas. The Pacific oyster predominantly settles and grows on hard substrates such as those described above, but also has been found in San Francisco Bay growing directly on the sediment. The grantee will lead these surveys in conjunction with volunteers or local agency staff, recruited and/or organized by the grantee. Any *C. gigas* seen will be removed by hand, using scrapers or hammers and chisels. Some of the oysters will be processed or retained for research or as voucher specimens, as needed; the rest will be disposed of. Depending on the availability of funds, analysis may be conducted to determine the age, origin, mechanism of introduction, reproductive status, and genetic diversity and history of the oysters, and to detect the presence of parasites or disease.

The non-native oysters were discovered growing in San Francisco Bay in the summer of 2006 and were genetically analyzed and determined to be the Pacific oyster, *Crassostrea gigas*, which is a large, fast-growing, efficient filter-feeder with relatively broad temperature and salinity tolerances. It is exotic to San Francisco Bay and to the Pacific Coast of North America. Although valued for food, in some regions where it has become established, it has spread invasively, settled in dense aggregations that exclude or smother native species, altered habitats and food webs, and harmed populations of native organisms including other oyster species. For example, in New South Wales in Australia, *C. gigas* displaces and smothers the native Sydney rock oyster which is a prized seafood species and the main focus of oyster production in the region. In 1985 *C. gigas* was listed as a noxious pest species in Australia, and was banned both in Victoria and most of New South Wales. In New Zealand, *C. gigas* had similar impacts, growing faster than the native New Zealand rock oysters, preventing them from reaching market size, and eventually overgrowing them. In the past two decades, *C. gigas* has also spread invasively in the Dutch and German Wadden Sea, where it was thought it could not establish, and is overgrowing and eliminating beds of the native blue mussel. Other reported impacts include the fouling of power plant cooling systems in the Netherlands; making shore access difficult; and cutting hands and feet.

Although *C. gigas* has been farmed in large numbers in various central and northern California bays since 1928, including San Francisco Bay in the 1930s, there are records of only a handful of

naturally settled *C. gigas* in central and northern California in all that time. However, about 260 *C. gigas* have already been collected in San Francisco Bay in 2006, out of a total population estimated at 1,000-2,000 oysters. This is a few orders of magnitude greater rate of settlement than has been observed in the previous seven and a half decades, occurring in a bay where there is no commercial cultivation of the oyster. This strongly suggests that something is different -- either the *C. gigas* in San Francisco Bay are genetically distinct from the *C. gigas* that have been cultivated in California in a way that makes them more capable of settling in these waters, or conditions have changed in a way that makes it easier for them to settle.

The San Francisco Estuary Institute is a nonprofit research institute whose mission is to foster the development of the scientific understanding needed to protect and enhance the San Francisco Estuary. It is governed by a Board of Directors composed of Bay Area scientists, environmentalists, regulators, local governments, and industries. The Project Manager, Dr. Andrew Cohen, is a Senior Scientist and the Director of SFEI's Biological Invasions Program, and a nationally recognized expert on invasive aquatic species. He wrote the petition that led to the listing of the alga *Caulerpa taxifolia* as a federally-banned species and helped to initiate the successful eradication of that species from southern California after it was discovered there in 2000. He has managed the current project since its start in late July, working closely and collaboratively with numerous federal, state and local agencies and NGOs, planning and organizing the field work, and recruiting and directing volunteers.

Site Description:

The *C. gigas* have all been found near the margins of the bay, in the intertidal zone up to about 6' above Mean Lower Low Water, primarily on rocks, concrete structures, or concrete debris, with a few on sediment between and among rocks, a few attached to metal debris, and one attached to wood.

Primary project areas (where oysters were found or indicated by surveys to date, and are thus sites for further survey and removal work) include Alameda, San Mateo and Contra Costa Counties: Don Edwards National Wildlife Refuge in Newark to south of the San Leandro Marina, Foster City shore, Hoffman Marsh area in Richmond, San Mateo & Dumbarton highway bridges and Dumbarton railroad bridge and adjacent structures. Refer to Exhibit 2 for a map of the locations in San Francisco Bay where the non-native oyster have been detected and removed during surveys on July 27-August 13, 2006.

Secondary project areas (where no oysters have been found to date, but may become sites for surveys and removals) include remaining areas of hard substrate in San Francisco Bay, potentially including areas to the mouth of the Bay, upstream at least as far as Carquinez Strait, and in other tributaries up to the limit of salt water, including areas in Santa Clara, San Francisco, Marin, Sonoma and Solano Counties as well as the three counties mentioned in the primary project areas.

Project History:

In the summer of 2006, researchers from the University of California at Davis discovered the non-native oyster while performing a survey for native oysters, working under a Conservancy contract for planning the restoration of native oysters in San Francisco Bay.

The grantee worked in conjunction with many agency, non-profit and academic partners and volunteers to conduct a survey and removal effort on July 27-August 13, 2006 in San Francisco Bay. Nearly all of the *C. gigas* that have been found to date were in southeastern San Francisco Bay, on property owned or managed by the U.S. Fish and Wildlife Service (Don Edwards National Wildlife Refuge), CA Department of Fish and Game (the shore at Whale's Tail and Eden Landing marshes), the City of Hayward (Hayward Area Recreation District shoreline), the East Bay Regional Park District (Hayward Shoreline) or the City of San Leandro (Roberts Landing shore), or on structures owned and managed by the CA Department of Transportation (CalTrans). The grantee has been communicating and collaborating with each of these parties during the initial phase of this work, has received in-kind support or assistance from several of them, and obtained needed permits or authorizations from USFWS/Don Edwards NWR, CDFG and CalTrans.

PROJECT FINANCING:

Coastal Conservancy	$25,000
Other sources (Cash)	58,000
Total Project Cost	**$83,000**

Matching Funds

San Francisco Bay Joint Venture (awarded)	$2,000
SF Estuary Project (requested)	10,000
National Fish & Wildlife Foundation (requested)	46,000
Total Matching Funds	**$58,000**

In addition to the matching funds described above, an estimated $100,000 will be provided through in-kind services, including approximately $39,000 from the grantee, the San Francisco Estuary Institute, for unreimbursed time spent on the project to date. Entities that have committed significant in-kind services include the Department of Water Resources (estimated $25,000), the U.S. Geological Services (estimated $8,000) and the U.S. Fish and Wildlife Services/Don Edwards National Wildlife Refuge (estimated $7,500). Other entities providing in-kind services include the CA Department of Fish and Game, the East Bay Regional Park District, the Hayward Area Recreation District, Save the Bay and several academic institutions.

The expected source of Conservancy funds for this project is the Fiscal Year 2005/2006 appropriation from the "California Clean Water, Clean Air, Safe Neighborhood Parks and Coastal Protection Act of 2002" (Proposition 40) to the San Francisco Bay Area Conservancy. This funding source may be used for the acquisition, development and restoration of land and water resources in accordance with the provisions of the Conservancy's enabling legislation, Division 21 of the Public Resources Code. The proposed restoration project will result in the removal of a non-native species which threatens the water resources of San Francisco Bay's intertidal and subtidal regions. The project's consistency with Chapter 4.5 of Division 21 is discussed below. As described above, this project has significant matching funds, which meets

the requirement of Proposition 40 that the Conservancy give priority to projects which have matching funds.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

This project is undertaken pursuant to Chapter 4.5 of the Conservancy's enabling legislation, Public Resource Code Sections 31160-31164, to address resource goals in the San Francisco Bay Area.

Section 31162 of the Public Resources Code authorizes the Conservancy to undertake projects and award grants in the nine-county San Francisco Bay Area. All of the proposed project area is within the nine-county San Francisco Bay Area.

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 proposed project is fully consistent with these objectives.

In addition, the project satisfies all of the five criteria for determining project priority under §31163(c), as follows: 1) the project serves a multi-jurisdictional constituency, since it involves multiple counties in the San Francisco Bay Area; 2) the project can be implemented in a timely fashion-once funded, the project is expected to begin promptly and be completed by 2008; 3) in the event the project is not implemented promptly, the opportunity for undertaking the project may be lost because the population of non-native oysters may have grown to a size where it is no longer feasible to eradicate; 4) the Conservancy funding is matched by substantial and in-kind services; and 5) the project is fully consistent with and supported by adopted regional plans, including the San Francisco Bay Plan as described in the Consistency With San Francisco Bay Plan section, below.

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

Consistent with **Goal 5, Objective C** of the Conservancy's Strategic Plan, the proposed project will control or eradicate a non-native invasive species.

Consistent with **Goal 10, Objective A** of the Conservancy's Strategic Plan, the proposed project will protect and restore natural habitats in San Francisco Bay through the control or eradication of the non-native Pacific oyster.

CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines adopted January 24, 2001, 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 project is supported by the National Oceanic and Atmospheric Administration/National Marine Fisheries Service, the U.S Fish and Wildlife Service/Don Edwards San Francisco Bay National Wildlife Refuge, the U.S. Fish and Wildlife Service/Aquatic Nuisance Species Program, the Bay Conservation and Development Commission, the California Regional Water Quality Control Board/San Francisco Bay Region, the San Francisco Estuary Project, the East Bay Regional Park District, the San Francisco Bay Joint Venture, the Hayward Area Recreation and Park District and Save the Bay. See Exhibit 3 for support letters from these entities.
4. **Location:** The project is located within the nine San Francisco Bay Area counties, entirely within the jurisdiction of the San Francisco Bay Area Conservancy.
5. **Need:** This grant from the Conservancy is necessary in order for the grantee to be able to implement the project, since there are no other sources of funding that are available in a timely manner.
6. **Greater-than-local interest:** This project involves multiple counties within the San Francisco Bay Are and control of this non-native species is necessary to avoid transport to other coastal and estuarine areas of the state.

Additional Criteria

7. **Urgency:** There is an urgent need for removal of the non-native oysters in San Francisco Bay, in order to increase the likelihood that this species can be prevented from becoming established and spreading to other locations.
8. **Leverage:** See the "Project Financing" section above.
9. **Readiness:** The grantee is ready and eager to begin the project as soon as possible to minimize the harm from the spread of this non-native species.
10. **Realization of prior Conservancy goals:** This project is consistent with the Conservancy's role and involvement in past non-native species eradication and control projects, including *Caulerpa* and *Spartina*. This project is also consistent with and helps to protect the investment that the Conservancy has made in contracts to support native oyster restoration planning in San Francisco Bay and development of the San Francisco Bay Subtidal Habitat Goals Project.
11. **Cooperation:** This project involves extensive cooperation among the various landowners, resource managing agencies, community groups, academics and public volunteers. See the large number of in-kind contributions under the "Project Financing" section above.

CONSISTENCY WITH SAN FRANCISCO BAY PLAN:

This project is consistent with Policy 7 of the San Francisco Bay Plan concerning tidal marshes and tidal flats around the bay: "The Commission should continue to support and encourage the expansion of scientific information on the arrival and spread of invasive plants and animals, and when feasible, support the establishment of a regional effort for Bay-wide eradication of specific invasive species." The Executive Director of the Bay Conservation and Development Commission submitted a support letter for this project and noted that the project is "conceptually consistent with the Commission's management program for San Francisco Bay".

COMPLIANCE WITH CEQA:

This project consists of surveying San Francisco Bay for the presence of non-native oysters and for removal of any non-native oysters found during the surveys, using hand-tools. The component of the project that involves surveying and monitoring for the presence of the non-native oysters is categorically exempt from CEQA, based on CCR Section 15306, "Information Collection", since it consists of basic resource evaluation activities that do not result in a serious or major disturbance to an environmental resource. The remaining component of the project, removal of the non-native oysters by hand-tools, is categorically exempt from CEQA based on CCR Section 15333, since it is a small habitat restoration project less than five acres in size and is necessary to assure the maintenance, restoration, enhancement and protection of habitat for wildlife. There will be no significant adverse impact on endangered, rare or threatened species or their habitat. There are no hazardous materials at or around the project site that may be disturbed or removed. The project will not result in impacts that are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects.

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