

COASTAL CONSERVANCY

Staff Recommendation
March 17, 2011

INVASIVE SPARTINA PROJECT

99-054-01

Project Manager: Marilyn Latta

RECOMMENDED ACTION: Consideration and possible Conservancy authorization to disburse up to \$4,889,947, of which \$3,810,893 will be reimbursed by the Wildlife Conservation Board and \$266,679 will be reimbursed under a federal Coastal Impact Assistance Program grant, for 2011 and 2012 planning, management, treatment, revegetation activities, and water quality monitoring to implement the Invasive Spartina Project Control Program within the San Francisco Estuary.

LOCATION: The baylands and lower creek channels of the nine counties that bound the San Francisco Bay.

PROGRAM CATEGORY: San Francisco Bay Area Conservancy

EXHIBITS

- Exhibit 1: [September 25, 2003 Staff Recommendation](#)
 - Exhibit 2: [March 10, 2005 Staff Recommendation](#)
 - Exhibit 3: [June 16, 2005 Staff Recommendation](#)
 - Exhibit 4: [March 8, 2007 Staff Recommendation](#)
 - Exhibit 5: [May 24, 2007 Staff Recommendation](#)
 - Exhibit 6: [April 24, 2008 Staff Recommendation](#)
 - Exhibit 7: [April 2, 2009 Staff Recommendation](#)
 - Exhibit 8: [June 4, 2009 Staff Recommendation](#)
 - Exhibit 9: [Change in Net Non-native *Spartina* cover since 2004](#)
 - Exhibit 10: [Draft site-specific plans for activities for the 2011-2015 treatment seasons](#)
 - Exhibit 11: [Regional Map of 2011-2015 Treatment Sites](#)
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RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Chapter 4.5 of Division 21 of the Public Resources Code:

“The State Coastal Conservancy hereby authorizes the following:

1. Disbursement of up to \$1,074,054 (one million seventy four thousand fifty four dollars), for ongoing invasive and hybrid *Spartina* treatment and eradication projects through 2012 (or subsequent), of which \$261,679 (two hundred sixty one thousand six hundred seventy nine dollars) will be reimbursed under a grant awarded to the Conservancy through the Natural Resources Agency by the Minerals Management Service pursuant to the Coastal Impact Assistance Program (MMS CIAP grant). The grant funds for treatment and eradication projects may be used to augment existing grants to the California Wildlife Foundation, Friends of Corte Madera Creek Watershed, the East Bay Regional Park District, City of Alameda, City of San Leandro, the City of Palo Alto, the San Mateo County Mosquito Abatement and Vector Control District, the Alameda County Flood Control and Water Conservation District, U.S. Fish and Wildlife Service, and the California Department of Parks and Recreation. Any grant of funds for treatment and eradication shall be subject to the following conditions:
 - a. Prior to implementing any treatment and eradication project and prior to disbursement of any funds to the grantee, the grantee shall submit for review and approval of the Executive Officer a plan detailing the site-specific work for 2011 and 2012, based on the outcome and extent of the 2010 treatment, and including a list of identified mitigation measures, a work program for 2011 and 2012 treatment and 2013 planning activities, if applicable, including a schedule and budget, and evidence that the grantee has obtained all necessary permits and approvals for the project.
 - b. In carrying out any treatment and eradication project, the grantee shall comply with all applicable mitigation and monitoring measures that are set forth in the approved site-specific plan, that are required by any permit, the amended Biological Opinion or any other approval for the project, and that are identified in the “Final Programmatic Environmental Impact Statement/Environmental Impact Report, San Francisco Estuary Invasive *Spartina* Project: *Spartina* Control Program” (FEIS/R), adopted by the Conservancy on September 25, 2003.
2. Disbursement of up to \$3,815,893 (three million eight hundred fifteen thousand eight hundred ninety three dollars), of which \$3,810,893 (three million eight hundred ten thousand eight hundred ninety three dollars) will be reimbursed by the Wildlife Conservation Board (WCB) and \$5,000 (five thousand dollars) will be reimbursed under the MMS CIAP grant, for planning, management, treatment monitoring, water quality monitoring and revegetation activities for the ISP Control Program. Prior to disbursement of any Wildlife Conservation Board funds, the Executive Officer shall enter into a Memorandum of Understanding with the WCB, permitting the Invasive *Spartina* Project (ISP) Control Program work under this authorization as an approved phase of project work under WCB Agreement No. WC-3032BT, describing the budget and work to be performed, and providing for reimbursement of the Conservancy’s expenditures for the work.”

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. Disbursement of additional funds for the ISP Control Program treatment and eradication projects, and planning and management, remains consistent with Public Resources Code Sections 31160-31165 and with the resolutions, findings and discussion accompanying the Conservancy authorizations of September 25, 2003, March 10, 2005, June 16, 2005, March 8, 2007, May 24, 2007, April 24, 2008, April 2, 2009, and June 4, 2009 as shown in the staff recommendations attached as Exhibits 1 through 8 to the accompanying staff recommendation.
2. The proposed authorization remains consistent with the Project Selection Criteria and Guidelines last updated by the Conservancy on June 4, 2009.
3. The California Wildlife Foundation and Friends of Corte Madera Creek Watershed are nonprofit organizations existing under Section 501(c)(3) of the United States Internal Revenue Code, whose purposes are consistent with Division 21 of the California Public Resources Code.”

PROJECT SUMMARY:

The Invasive *Spartina* Project (“ISP”) Control Program, the objective of which is the removal of invasive *Spartina* to restore the affected wetlands and streams of the San Francisco estuary, is comprised of 1) consulting services for planning and management needed to plan, coordinate and obtain environmental permits and approvals for its implementation, and 2) grants to existing grantees to carry out treatment activities. This authorization would enable the Conservancy to implement ongoing planning, management, treatment monitoring, revegetation, and water quality monitoring needed for treatment activities through March 31, 2013 and to carry out treatment and eradication of invasive *Spartina* by grantees through the 2012 treatment season, as follows:

1. Planning and Management Consulting Services:

On June 4, 2009, the Conservancy authorized funding for ongoing planning and management through March 31, 2011. The June 4, 2009 staff recommendation, attached as Exhibit 8, describes the broad range of management, planning and monitoring efforts to be carried out over this time period. Conservancy staff recommend to continue these services from April 1, 2011 through March 31, 2013, including: environmental documentation, invasive *Spartina* and hybrid *Spartina* inventory and treatment efficacy monitoring, water quality collection and sampling, California clapper rail monitoring, refinement of lab analyses of *Spartina* samples, management of an enormous amount of monitoring data, scheduling and coordinating treatment among grantees, initiating a revegetation program, and numerous site visits to conduct the three types of monitoring and to oversee treatment, mitigation, and restoration activities. Total proposed funding for these activities is \$3,815,893.

2) Treatment and Eradication:

On June 4, 2009, the Conservancy authorized funding for treatment and eradication activities for 2010 (in 2008, the Conservancy had previously approved site-specific plans for the 2008 through the 2010 treatment seasons).

The current, proposed authorization would enable the project to undertake an additional two years of treatment and monitoring, extending the available funding to cover the 2011 and 2012 treatment activities. Total proposed funding for these activities is \$1,074,054.

PROJECT HISTORY

The State Coastal Conservancy first approved funding for the ISP Control Program in September 2003 (see Exhibits 1-8). This invasive species eradication project has become a successful, region-wide model for treating an invasive species with multiple landowners and agency partners in all nine counties of the San Francisco Bay Area. Since the peak of invasion in 2005, the Project has successfully eliminated more than 700 net acres (nearly 90%) of invasive *Spartina alterniflora*, *densiflora*, *anglica*, and *patens*; and hybridized *Spartina foliosa* x *alterniflora* from more than 20,000 acres of infested tidal marsh and mudflats bay-wide. There is an estimated total of less than 100 net acres of remaining non-native and hybrids, still within thousands of acres of tidal wetland sites in San Francisco Bay.

Since 2005, the Conservancy, with the assistance of its contractors, has coordinated, and its grantees have implemented, the ISP Control Program at 25 sites that include more than 170 sub-sites in the estuary.¹ Treatment methods through 2010 have included one or more of the following, singly or in combination: manual removal (hand digging and covering of plants); mechanical removal (discing); herbicide application via manual methods (accessing wetland sites on foot and applying herbicide via backpack sprayers and direct application to plants), broadscale herbicide application techniques via mechanical methods (application of herbicide via amphibious vehicles, airboats, and helicopter spraying); and a combination of sub-lethal mechanical removal plus herbicide application (chemical mowing). The ISP staff completed two reports - on 2008-09 treatment activities and on 2008-09 monitoring activities - in February 2011, which summarizes project success to date.

As shown in Exhibit 9, the area of non-native *Spartina* has been reduced markedly since the first full season of effective treatment started just five years ago. As with any weed eradication effort, the final 100 acres is expected to be the most difficult, because finding remaining individual plants or small patches of hard-to-see invasive shoots within a marsh is labor intensive and costly on a dollar-per-acre-eradicated basis. In addition to this typical weed-management challenge, the ISP must also contend with complexities related to the hybrids which were formed between the introduced *S. alterniflora* and the native *S. foliosa*, and which are the most invasive and environmentally damaging of the introduced species. The hybrids demonstrate a very wide range of physical characteristics, sometimes looking distinctly different from the native, but sometimes looking nearly identical to it, except that they still have the ability to overrun areas that the native would not populate.

¹ These activities have been undertaken pursuant to the 2003 Programmatic EIS/EIR and the 2005 addendum, and under the 2003 U.S. Fish and Wildlife Service Programmatic Biological Opinion and subsequent site-specific amendments in 2004, 2005, 2008, and 2011 (pending).

Hybrid *Spartina foliosa x alterniflora* plants account for nearly all of the remaining 100 net acres. Over the past five years, the ISP Control Program has treated and killed most of the very obvious hybrid populations, and completing the eradication is now further complicated by the close similarity of the appearance of the remaining hybrid plants and the native plants, requiring careful inspection and sometimes genetic testing. Due to this fact, remaining treatment will be more time-consuming and cost roughly the same amount as in 2008-10, partially because the more cost-effective broad scale herbicide application via helicopter and airboats is not suitable at these sites, and because the remaining work will require highly-trained personnel to do detailed field identification and herbicide application via manual application and hand removal.

There are multiple issues that require planning at this point in the overall eradication effort, including: special-status species protection as the structure of non-native *Spartina* is removed, revegetation planning to expedite the recolonization of native *Spartina foliosa* and other high marsh native vegetation, limitations of laboratory methods for genetic confirmation of hybrids, and concerns over developing plant resistance to herbicide the longer it is used at some sites. The ISP is working to address these topics, with the collaboration of multiple agencies and landowners, in order to develop the best approach to complete eradication while accounting for the complexities of the issues mentioned. A forum funded by NOAA will be presented by the Conservancy ISP contractors on March 10-11, 2011. The forum will bring together national and international experts in *Spartina* ecology, invasion biology, evolutionary genetics and biodiversity, applied population genetics, and tidal marsh revegetation to discuss the hybridization issue and advise the ISP management and the Conservancy on the eradication goals and preferred next steps.

2013 Goal to have 90% of sites at zero presence of non-native *Spartina*, with 2016 Goal of three years of monitoring to confirm eradication: It is the goal of the State Coastal Conservancy and the ISP to eradicate non-native *Spartina* to a zero level at 90% of the treatment sub-sites (~153) by the end of the treatment season in 2013. It is important to note that at a limited number of sub-sites, this will not be confirmed until monitoring is completed in 2014. In addition, some percentage of these sites are likely to have plants discovered in one or more of the subsequent monitoring years. Thus, for these sites, the zero year starting point would be reset to that year and monitoring would continue for three more years.

Due to various site-specific issues, 10% of the sub-sites (~17) will probably not be at zero by the end of 2013 treatment, and will require ongoing low-level treatment over one to several additional seasons to achieve the first zero year, with three years of monitoring to confirm eradication. There are seven sites that are certain to be among the 10% of sites in this category:

- Arrowhead Marsh (Oakland)
- MLK Marsh (Oakland)
- Bair Island B2 North (Redwood City)
- Cooley Landing (East Palo Alto)
- Calaveras Point Marsh (Alviso)
- Creekside Park Marsh (Corte Madera)
- Southhampton Marsh (Benicia)

Therefore, Conservancy staff anticipates that funding needs will stay consistent at existing levels through 2013, and that funding from 2014-16 will be needed at a reduced level with a primary focus on site monitoring. Funding is expected to end after 2016, with a positive confirmation that the non-native and hybrid *Spartina* have been completely eradicated from the estuary.

Continued funding for the ISP is critical at this stage of the project as we approach the 2013 goal of zero non-native *Spartina* at 90% of sub-sites, and the 2016 monitoring goal for eradication.

PROJECT FINANCING

State Coastal Conservancy funds	\$812,375
Wildlife Conservation Board funds	\$3,810,893
Minerals Management Service CIAP funds	\$266,679
Total Authorization	\$4,889,947

The proposed disbursement of up to \$4,889,947 under this authorization will derive from State Coastal Conservancy and Wildlife Conservation Board (WCB) bond funds and from funds remaining under a grant (the MMS CIAP grant) awarded to the Conservancy through the Natural Resources Agency by the Minerals Management Service (MMS) pursuant to the Coastal Impact Assistance Program (CIAP).

It is anticipated that \$812,375 of the proposed funding of \$1,074,054 for the treatment and eradication grants will come from appropriations to the Conservancy in fiscal years 2008-09 and 2009-10 from the “Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006” (Proposition 84). This funding source may be used for the protection of bays and coastal waters, including projects to protect and restore the natural habitat values of coastal waters and lands, pursuant to the Conservancy’s enabling legislation, Division 21 of the Public Resources Code. The proposed project serves to restore natural habitat values of the San Francisco Bay watershed. In addition, as discussed below, the project is consistent with Chapter 4.5 of Division 21.

Proposition 84 also requires that for restoration projects that protect natural resources, the Conservancy assess whether the project meets at least one of the criteria specified in Public Resources Code Section 75071(a)-(e). The ISP Control Program satisfies 3 of the specified criteria, as follows: (a) Landscape/Habitat Linkages: the areas that are restored through the removal of invasive *Spartina* are areas that link to, or contribute to linking, existing protected areas with other large blocks of protected habitat; (b) Watershed Protection: the project serves to protect and restore the natural resources of the San Francisco Bay and Estuary, a priority watershed as identified by the Resources Agency; and (c) Under-protected habitats: the project is focused on relatively large areas of intertidal mudflats, tidal marshes and wetlands that are under-protected major habitat types.

The balance of the funding for the treatment and eradication grants, \$261,679, is expected to come from the remaining funds under the MMS CIAP grant. The Conservancy accepted the MMS CIAP grant at its meeting on April 2, 2009 (see staff recommendation for the April 2, 2009 meeting, attached as Exhibit 7). However, at that meeting the Conservancy only authorized the disbursement of \$400,000 of the MMS CIAP grant, with the understanding that Conservancy staff would return for the authorization to use the remaining funding for future ISP Control Program activities. The use of the remaining MMS CIAP funds for the ISP Control Program under the proposed authorization remains consistent with the MMS CIAP funding source, for the same reasons detailed in the April 2, 2009 staff recommendation (Exhibit 7).

Conservancy funding for all but \$5,000 of the proposed disbursement of \$3,815,893 for the Invasive *Spartina* Project planning, management, monitoring and related costs is expected to be provided under an existing grant agreement by which WCB may provide funds to the Conservancy for San Francisco Bay projects. Under the grant agreement with WCB, the Conservancy may use these funds for habitat restoration projects within the nine-county San Francisco Bay Area that implement the restoration goals of the San Francisco Bay Joint Venture and the San Francisco Baylands Ecosystem Habitat Goals Report and that meet the priorities of the Conservancy as described in Section 31162 of the Public Resources Code. Specific recommendations for the management and eradication of non-native invasive species are made in the 1999 Baylands Habitat Goals Report. The Invasive *Spartina* Project is consistent with these recommendations. In addition, any proposed project must, under the WCB grant agreement, be a “high priority” project as identified in the grant agreement or otherwise authorized as a priority project by WCB in the “Memorandum of Understanding” between WCB and the Conservancy that is required before any project may move forward. WCB has agreed to amend the Memorandum of Understanding to identify the proposed work as a “high priority” project and the WCB funding will be dependent on such an amendment, as required by the proposed authorization.

The WCB grant funding, in turn, is derived from an appropriation from the Water Security, Clean Drinking Water, Coastal Beach Protection Fund of 2002 (Proposition 50), The Proposition 50 funds were appropriated under the specific authorization found in Section 79572(c) of the Water Code and may be used for the general purpose of acquisition, protection and restoration of coastal wetlands. The balance of \$5,000 of the funding for the ISP Control Program planning, management, monitoring and related costs is expected to come from the remaining funds under the MMS CIAP grant, described above.

The breakdown of costs for planning, management and monitoring and for treatment and eradication projects under the proposed authorization is as follows:

A. Planning, Management and Monitoring through March 31, 2013

Wildlife Conservation Board	\$3,815,893
<u>TOTAL</u>	<u>\$3,815,893</u>

B. Breakdown by Grantee of Expected Financing for Ongoing Treatment Projects through 2012:

Depending on the respective efficacy of the 2010 treatment found at the various project sites, the funding each grantee will receive may be adjusted among grantees, but with no increase to the total amount authorized. Each grantee will contribute in-kind services to the project through staff time and use of equipment. The Conservancy will contribute funding as follows:

<u>Grantee</u>	<u>State Coastal Conservancy</u>
San Mateo Co. Mosquito Abatement District	\$136,000
California Wildlife Foundation	\$300,000
East Bay Regional Park District	\$130,000
Alameda County Flood Control & Water Conservation District	\$86,000
City of Alameda	\$60,000
City of San Leandro	\$8,000
City of Palo Alto	\$11,500
Friends of Corte Madera Creek Watershed	\$103,929
California Department of Parks and Recreation	\$20,000
U.S. Fish and Wildlife Service	<u>\$218,635</u>
TOTAL	\$1,074,054

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

As described in previous staff recommendations (Exhibits 1 through 8) and associated Conservancy resolutions, the ISP and implementation of the Control Program serve to carry out the objectives for the San Francisco Bay Area Conservancy Program mandated by Chapter 4.5 of Division 21 of the Public Resources Code, Sections 31160-31165. The ISP and its Control

Program continue to protect and restore tidal marshes, which are natural habitats of regional importance.

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

The ISP and implementation of the Control Program continue to carry out the goals and objective of the 2007 Strategic Plan, as specified in the staff recommendation of April 24, 2008 (Exhibit 6).

**CONSISTENCY WITH CONSERVANCY'S
PROJECT SELECTION CRITERIA & GUIDELINES:**

The proposed authorization, which provides additional funding for the ISP Control Program is consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated June 4, 2009, for the same reasons as detailed in the staff recommendation of April 24, 2008 (Exhibit 6). In addition, this information is applicable to the new criteria regarding climate change:

Required Criteria

7. **Sea level rise vulnerability:** This project does not involve the construction or placement of any structures that may be vulnerable to sea level rise. Indeed, the advent of global-warming induced sea level rise may give invasive *Spartina*, which has greater salinity tolerance, yet another competitive advantage over the native. This would argue for the ongoing effort to eradicate non-native *Spartina* prior to when significant sea level rise occurs.

Additional Criteria

18. Minimization of greenhouse gas emissions:

Carbon Sequestration:

The remaining invasive *Spartina* in the San Francisco Estuary consists of approximately 100 net acres of plants scattered throughout the Bay's edges and streams draining into the Bay. There will be a loss of carbon sequestration greater than that generated by the return of native vegetation, including, eventually, the return of native *Spartina foliosa*. However, the difference will be negligible, since the removal of invasive *Spartina* from the marsh areas will enable the re-establishment of the native cordgrass. Further, as has been observed in many areas where invasive *Spartina* has been eradicated, other native plants, which have been displaced by the non-native *Spartina*, including *Sarcocornia*, *Grindelia*, *Frankenia*, *Jaumea*, and *Distichlis*, re-inhabit that area and flourish.

To the extent that re-vegetation does not completely replace the invasive *Spartina* that has been removed, the FEIS/R already provides for required project mitigation that will further offset this impact. The FEIS/R requires the replanting of various sites with native vegetation, as part of the project. For example, ISP continues to restore the treated tidal marsh at the Elsie Roemer Bird Sanctuary in Alameda by planting native marsh vegetation. ISP is also growing native marsh plants offsite to ensure an adequate supply of appropriate native

vegetation for Elsie Roemer and other potential restoration sites that have been cleared of invasive *Spartina*. In light of these forms of re-vegetation, the loss of carbon sequestration is considered not a significant impact.

Carbon Dioxide Caused by Vehicle Miles Traveled:

Green house gas emissions will result from vehicle usage during treatment and monitoring activities. During treatment boats and helicopters will be utilized for the application of herbicide to remove invasive *Spartina*. For monitoring activities small cars will be used by field biologists to travel to all sites around the estuary, and an airplane will be used to take aerial photography. On an annual basis, at maximum 1,469 gallons of fuel will be used by helicopters (for travel of approximately 800 miles) and an airplane (for 160 miles), and 1,126 gallons of fuel for boats (800 miles) and small automobiles (20,000 miles). Based on fuel usage, the total emissions equal 24.50336 “carbon dioxide equivalent units”, or the global warming equivalent of less than 25 metric tons of CO₂ per year. This was determined by applying the CARROT 3.1 general reporting protocol for greenhouse gas emissions (GHG’s) provided by the Climate Registry for aviation fuel and motor fuel. This level of emissions will persist for only two more years under the proposed authorization and, in the following two years for the project as a whole, the annual total will decrease substantially, as the remaining acreage of non-native *Spartina* shrinks, until zero presence at 90% of sub-sites, expected in 2013.

To establish context in which to consider the order of magnitude of these project-generated GHG’s, it may be noted that the California Air Resources Board has proposed a threshold of 7,000 metric tons of CO₂/year, below which the effects of a project would be deemed “not significant”, for industrial projects that result in stationary, continuous sources of GHG emissions. Likewise, the South Coast Air Quality Management District has adopted a threshold of 10,000 tons of CO₂ per year for similar industrial projects. Further, the South Coast Air Quality Management District has proposed for consideration, but not adopted, a threshold of 3,000 metric tons per year for residential and commercial projects. It should be noted that each of these thresholds are based on the annual emission each year throughout the project’s useful life.

By contrast the GHG’s anticipated under this authorization are less than 25 tons per year and will persist for only two years, with future ISP Control Program GHG’s to dwindle each year to near zero in 2012, when it is anticipated that invasive *Spartina* will be predominantly eradicated. In order to further reduce the comparatively minor GHG impact of the proposed actions, the Conservancy ISP contractors have agreed to require that field biologists engaging in monitoring activities carpool to the extent possible. The Conservancy will also negotiate with its ISP contractors to allow for a monetary incentive for any project travel by contractors or their subcontractors if travel is done by public transportation or bicycle.

In light of the low carbon dioxide equivalent generated by the project and the proposed further reduction of automobile miles traveled, this is also considered not a significant impact.

CONSISTENCY WITH SAN FRANCISCO BAY PLAN:

The ISP Control Program remains consistent with the San Francisco Bay Plan adopted by the San Francisco Bay Conservation and Development Commission, as detailed in earlier staff

recommendations (see e.g. Exhibit 8).

COMPLIANCE WITH CEQA:

As part of the June 16, 2005 ISP staff recommendation (Exhibit 3), the Conservancy authorized initial funding for 22 of the treatment and eradication projects that are proposed for additional funding under this authorization. The June 16, 2005 staff recommendation refers to 22 treatment sites. However, after the June authorization, one of the 22 sites was split into 2 sites for ease of treatment management while another site dropped out bringing the total again to 22 sites (the original treatment sites). On May 24, 2007, the Conservancy authorized a redirection of funds for treatment activities along the Petaluma River (see Exhibit 5), thus resulting in 23 treatment sites for 2007. The North San Pablo Bay site was added as a new treatment site for 2008, increasing the total to 24 treatment sites for 2008 and beyond.

The Conservancy's June 16, 2005 authorization (Exhibit 3) included consideration and review of the site specific plans for each of the 22 original treatment sites for activities through 2007. The May 24, 2007 authorization (Exhibit 5) included consideration and review of the one-year site-specific plan for treatment of the Petaluma River site. The April 2, 2009 authorization (Exhibit 7) included review of the site-specific plans for the treatment activities through the 2010 treatment season at the original treatment sites, the Petaluma River site and one new site- the North San Pablo Bay.

Based on this information, in each instance, staff recommended and the Conservancy found that the environmental effects associated with each of these treatment projects and the required mitigation to reduce those effect to less than significant level had been fully considered under the Conservancy-certified (See Exhibit 1) programmatic "Final Programmatic Environmental Impact Statement/Environmental Impact Report, San Francisco Estuary Invasive *Spartina* Project: *Spartina* Control Program" (FEIS/R) prepared for the ISP Control Program pursuant to the California Environmental Quality Act (CEQA) and that no new mitigation measures were required.

The two-year updated site-specific plans and mitigation matrices for activities for the 2011 and 2012 treatment seasons for all of these 24 sites (original treatment sites plus Petaluma River site plus North San Pablo Bay site) are attached (See Exhibits 10 and 11). These plans have not changed substantially in nature, extent, duration or scope since 2005 for the original treatment sites, since 2007 for the Petaluma River site or since 2008 for the North San Pablo Bay site, with the exception of some additional sub-areas added as new plants were found. Overall, treatment and potential impacts are reduced because of successful treatment in the prior years.

Since the projects, including potential environmental effects and mitigation measures, remain unchanged, the proposed authorization remains consistent with the CEQA findings adopted by the Conservancy in connection with the June 16, 2005 authorization for the 22 original treatment sites and with the May 24 2007 authorization for the Petaluma River site and with the April 24, 2008 authorization for the North San Pablo Bay site. No further environmental documentation for these treatment activities is required.