COASTAL CONSERVANCY

Staff Recommendation
March 26, 2015

INVASIVE SPARTINA PROJECT

99-054-01
Project Manager: Marilyn Latta

RECOMMENDED ACTION: Authorization to disburse up to $1,580,000 for planning, management, treatment, and monitoring to implement the Invasive *Spartina* Project within the San Francisco Estuary in 2015.

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: February 14, 2013 Staff Recommendation

Exhibit 2: May 26, 2014 Staff Recommendation

Exhibit 3: Change in Net Non-native *Spartina* cover since 2004

Exhibit 4: Summary Chart of Conservancy and outside funding sources to date

Exhibit 5: Regional Map of 2015 Treatment Sites

Exhibit 6: Pictures of Treatment, Revegetation, and Enhancement Islands

Exhibit 7: July 17, 2014 ISP Memo Re: Review of the ISP Treatment Program for CEQA Impact and Mitigation [Due to size of file, e-version posted on the Conservancy website, but not reproduced in hard copy].

Exhibit 8: Project Letters

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 disbursement of up to a total of $1,580,000 (one million five hundred eighty thousand dollars) for the San Francisco Estuary Invasive *Spartina* Project, allocated as follows:

1. Approximately $150,000 (one hundred fifty thousand dollars), for ongoing invasive and hybrid *Spartina* treatment and eradication projects through 2015 (or in subsequent years). The grant funds for treatment and eradication projects may be used to augment existing grants to the California Wildlife Foundation, the Friends of Corte Madera Creek Watershed, the East Bay Regional Park District, the City of Alameda, the City of Palo Alto, the San Mateo County Mosquito Abatement and Vector Control District, 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 have in place all required permits and approvals and shall submit for review and approval of the Executive Officer a final plan detailing the site-specific work for 2015, based on the outcome and extent of the 2014 treatment, and including a list of identified mitigation measures, a work program for 2015 treatment, 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 plans, that are required by any permit, the applicable U.S. Fish and Wildlife Service 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. Approximately $1,430,000 (one million four hundred thirty thousand dollars), for planning, management, treatment, and monitoring activities for the Invasive *Spartina* 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. Disbursement of additional funds for the Invasive *Spartina* Project treatment and eradication projects, and planning and management, remains consistent with Public Resources Code Sections 31160-31165.

2. The proposed authorization is consistent with the Project Selection Criteria and Guidelines last updated by the Conservancy on October 2, 2014.
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, and whose purposes are consistent with Division 21 of the California Public Resources Code."

PROJECT SUMMARY:

The purpose of the Invasive *Spartina* Project (ISP) is to eradicate invasive *Spartina* in order to protect the long-term health of the native marsh ecosystem and restore the affected habitats of the San Francisco Estuary. The ISP is comprised of two primary funding components: 1) environmental consulting services to provide program planning, management, and monitoring activities, centered primarily around permit acquisition and compliance, and 2) grants to carry out treatment activities.

This authorization would enable the Conservancy to continue ongoing planning, management, monitoring, and permit compliance activities needed to support treatment activities through March 31, 2016 and to carry out treatment and eradication work by grantees through the 2015 treatment season and to carry out restoration activities during the winter of 2015-16, as follows:

1. <u>Planning and Management Consulting Services</u>

These services were initiated in 2003 and are ongoing under existing contract(s). Conservancy staff recommends continuing services necessary to plan and support invasive *Spartina* treatment and eradication, from April 1, 2015 through March 31, 2016, including the following:

- Planning, coordinating, and managing invasive *Spartina* treatment at all sites that the U.S. Fish and Wildlife Service (FWS) has approved for treatment (currently 24 sites with 200 sub-areas, including overseeing and monitoring treatment to efficiently locate and kill remaining plants and achieve eradication at each site;
- Conducting annual surveys for the endangered Ridgway's rail (formerly the "California Clapper Rail") at 152 sub-areas to provide data required by FWS and to assess the effect of invasive *Spartina* eradication on the rail population;
- Planning and managing an aggressive tidal marsh revegetation program to enhance habitat for the Ridgway's rail, which will ultimately allow treatment to be resumed and completed at 10 sub-areas where treatment is currently not authorized and one sub-area with limited authorization (seed suppression) (see below for more information);
- Conducting annual inventories of potential invasive *Spartina* habitat, including collecting and analyzing plant samples to determine genetic composition where needed, to map the location of remaining invasive *Spartina* plants at treated sites and to assure that new populations of invasive *Spartina* are identified and treated as quickly as possible and prevent further spread; and

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- Collecting and analyzing water samples at 1-5 representative sites to confirm that there is no impact to water quality from herbicide residue and to comply with state and federal regulations (e.g., Non-Point Discharge Elimination System permits required by the U.S. Environmental Protection Agency).

The total proposed funding for these activities is $1,430,000.00.

2) Treatment and Eradication

The Conservancy authorized funding for treatment and eradication activities starting in 2003. Existing grantees will continue to implement site specific control plans (see Exhibit 1) prepared under consulting services at sites as authorized by FWS under a current FWS Biological Opinion. Treatment methods employed may include, singly or in combination, and as authorized by state and federal regulatory agencies: manual removal (hand digging and covering of plants); mechanical removal (discing); herbicide application via manual methods (accessing wetland sites by foot, truck, or amphibious vehicle 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 (seed suppression).

The proposed authorization would enable the grantees to undertake one additional year of treatment, and restoration work, extending the available funding to cover the 2015 treatment activities; and winter 2015-16 restoration activities (see Exhibits 1 and 2) through March 2016.

The total proposed funding for these activities is $150,000, which will be added to the approximately $160,000 of Conservancy funds remaining from the February 14, 2013 authorization (See Exhibit 1).

PROJECT HISTORY

The Conservancy first approved funding for the ISP in September 2003 (see Exhibit 1), as it also certified a Programmatic Environmental Impact Report (PEIR) for the project. The PEIR analyzed the project and concluded that controlling invasive *Spartina* was "critical to the long-term health of the San Francisco Estuary, and to the species which inhabit and rely upon the salt marshes and tidal flats along its perimeters," and that the unchecked spread of invasive *Spartina* in the Estuary could cause failure of tidal restoration efforts underway by the Conservancy and others (e.g., the South Bay Salt Pond Restoration Project).

Since its initial authorization, the Conservancy has authorized a total of $7,442,742 in Conservancy funds (see Exhibit 4). The project has received almost three times that amount ($19,596,468) from other sources, including the Wildlife Conservation Board ($10,036,260), CALFED Bay Delta Program ($3,980,657), the National Oceanic and Atmospheric Administration under the American Recovery and Reinvestment Act of 2009 ($1,734,522), the FWS under the National Coastal Wetlands Conservation Program ($1,000,000) and under the North American Wetlands Conservation Act grant program ($1,000,000), the Port of Oakland ($684,412), the U.S. Minerals Management Services Coastal Impact Assistance Program ($661,679), the U.S. Environmental Protection Agency/Association of Bay Area Governments

($165,464), and other grant sources ($333,474). These outside fund sources have included approximately $510,000 in additional funds for Conservancy staff time to provide support for the project. Conservancy staff time has been critical to ensure thoughtful and strong technical oversight of such a complex regional project that is being planned and implemented by multiple contractors, grantees, and dozens of regional collaborators bay-wide. Conservancy staff provides leadership on technical planning, permit application and compliance, stakeholder communication, and information-sharing with a variety of scientists, agencies, landowners, and non-profits in San Francisco Bay; as well as to ensure coordination with other critical Conservancy projects, such as the South Bay Salt Pond Restoration Project. The Conservancy has dedicated 40% of one full-time project manager's time to the ISP since its inception 12 years ago, has increased the staff time over the past two years to approximately 50%, and has successfully secured approximately $510,000 in outside fund sources to cover portions of this staff time.

This invasive species eradication project has become a successful, region-wide model for treating an invasive species with multiple landowner and agency participants in all nine counties of the San Francisco Bay Area. The first few years of the project efforts focused on preparing environmental compliance documents, finding and mapping invasive *Spartina* populations, acquiring permits, developing an extensive network of participating entities, testing treatment methods, and developing site specific plans. Full-scale treatment was initiated in 2005, by which time the invasion had spread to over 800 net acres. Between 2005 and 2014, the project has successfully eliminated more than 775 net acres (96%) of invasive *Spartina* from more than 25,000 acres of infested tidal marsh and 20,000 acres of mudflats bay-wide.

In 2011, FWS became concerned that rapid removal of invasive *Spartina* from some areas may have contributed to a decline in populations of the Ridgway rail, an endangered bird which had come to use tall, dense stands of hybrid *Spartina*. As a result, the 2011-2014 Biological Opinions issued by FWS did not authorize treatment at all sites, imposed timing and method restrictions at other sites, and required the Conservancy to develop and implement a plan to rapidly enhance Ridgway rail support at treated sites through aggressive revegetation and other means. In 2011 the Conservancy authorized $650,000 for the effort, and it was implemented throughout 2011-2014, and ongoing. The Conservancy has also received a total of $3,284,412 of funds from the Port of Oakland, WCB, and FWS to aid in this work and has applied for additional grant funds.

Current Status:

Non-native *Spartina* Eradication:

Exhibit 1 summarizes the reduction in the area of non-native *Spartina* since the first full season of effective treatment ten years ago. The net area of invasive *Spartina* is currently down to 29.3 net acres, a reduction of 35% since the previous year, and 96% since the peak in 2005.

As with any weed eradication effort, the steps to find and remove the last remaining stands of the plant are expected to be the most difficult. This is because individual plants and small patches are hard to discern on a vast mudflat or within a complex marsh, and doing so is quite labor

intensive. However, failure to do so will result in a regrowth of the remaining plants and rapid spread back into the previously eradicated areas.

A major remaining challenge stems from the FWS actions in the interest of Ridgway's rails (see Exhibits 1 and 2). Greater than 75% of the remaining invasive *Spartina* mapped in 2014 (23.1 net acres of 29.3 net acres remaining) occurred at sites that were not authorized for treatment in 2012-2014. The Biological Opinion did not authorize treatment at 11 sub-areas, and imposed timing and method restrictions at other sites. FWS staff indicates that treatment at these sites may again be authorized once monitoring data shows an increase in California clapper rail numbers, with the current target increase being 80 birds bay-wide. Areas where treatment cannot be implemented are a special management concern, as they continue to produce seed which may spread on-site or to nearby marshes, and they further attract more Ridgway's rails which might be affected by treatment. ISP consultants have developed a plan for these sites that will enable a strategic, phased approach to treatment as soon as possible, to minimize spread and reduce the long-term residual effect of this lapse in treatment.

The expected timely receipt of the Biological Opinion for 2015 will allow planning for the treatment season to move forward rapidly and efficiently. With this, Conservancy staff anticipates that 2015 should be a very successful year for sites where treatment is allowed (6.2 net acres). Conservancy staff expects to do additional outside fundraising to support ongoing treatment and monitoring activities.

For more detail on eradication please refer to Exhibit 1 which provide comprehensive descriptions of previous work and current program considerations.

Ridgway's Rail Monitoring

The ISP has continued to conduct annual bay-wide surveys for California clapper rails in collaboration with FWS, PRBO Conservation Science, and others. The ISP's report for surveys conducted in 2014 indicate a range of 307 to 422 (average 365) California Ridgway's Rails were present at sites surveyed by OEI staff in 2014.

Conservancy staff and consultants are optimistic that these results combined with the successful revegetation program described below, will support a future FWS decision to allow the ISP to resume *Spartina* control at all sites, consistent with a strategic, phased plan.

Revegetation and Enhancement

The Conservancy launched an aggressive Ridgeway's rail habitat revegetation and enhancement program in 2011, and has been working closely with FWS and a technical advisory committee to optimize the success of the program for supporting and increasing Ridgway's rail numbers. The program successfully planned and implemented installation of 330,000 native tidal marsh plants at 35 marshes the first four years. The project will continue this work in winter 2015-16, with an ultimate expectation of enhancing up to 38 marshes with 430,000 total native plants, enhancing approximately 650 acres of habitat to benefit Ridgway's rails.

In addition to the revegetation work, the program is developing and implementing innovative techniques to replace the lost structure of the non-native and hybrid *Spartina* forms, and enhance

habitat through the installation of artificial floating nesting islands and construction of high tide refuge islands to provide better high tide habitat for Ridgway's rail. The program worked with FWS to design earthen high tide refuge islands, acquire permits, and construct and plant 43 pilot earthen high tide refuge islands in 2012-2015. It is expected that the project will construct 19 more earthen high tide refuge islands in winter 2015-16 (See Exhibits 1 and 2). The current funding proposal does not include support for island construction and revegetation, which is funded via a prior $1,000,000 Conservancy authorization, a secured $684,412 grant from the Port of Oakland; a secured $150,000 portion of a grant from the Wildlife Conservation Board (WCB), and two secured FWS grants totaling $2,000,000.

Support for the Invasive *Spartina* Project

The Conservancy initiated the ISP in 2000 in response to widespread concerns that not only was the existing native marsh ecosystem at risk from invasive *Spartina*, but the extensive wetland restoration that was underway or planned in the San Francisco Bay would be severely compromised if the invasion was not stopped. The Conservancy took up the project on behalf of the wetland stakeholders of the San Francisco Bay, and has been the solid leader since then. These and other interests continue to support the invasive *Spartina* eradication effort, and express gratitude to the Conservancy for its commitment in spearheading the project. Exhibit 8 includes letters of support from stakeholders affected by invasive *Spartina*, including: FWS, Environmental Services; and FWS, Don Edwards San Francisco Bay National Wildlife Refuge; San Francisco Bay Joint Venture; California Department of Fish and Wildlife; East Bay Regional Park District (EBRPD, grantee); Alameda; and San Mateo Mosquito Abatement District (grantee).

Continued funding for the ISP is critical at this stage of the project as we approach eradication. The Conservancy and agencies that are part of the ISP Project Management Team (FWS Don Edwards San Francisco Bay National Wildlife Refuge, CDFW, EBRPD, and the San Francisco Joint Venture) will seek external grant funding for future years, in keeping with past fundraising efforts and the Conservancy intends to rely heavily on partners and landowners in the outlying years for the final stages of eradication.

PROJECT FINANCING

State Coastal Conservancy funds	$1,580,000
Total Authorization	**$1,580,000**

It is anticipated that $750,000 of the proposed funding will come from the "Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002" (Proposition 50), which allocates funding to the Conservancy for "grants for the purpose of protecting coastal watersheds…." The removal of non-native vegetation which, if left unchecked, would profoundly and adversely alter the San Francisco Estuary, directly serves this purpose. Under Proposition 50, funds may also be used, as here, for planning and permitting associated with the

restoration activities, as well as for the restoration activities themselves. (Water Code Section 79570). 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 Conservancy's Project Selection Criteria & Guidelines" section, below, under "3. Promotion and implementation of state plans and policies".

It is anticipated that $830,000 of the proposed funding will come from appropriations to the Conservancy 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 requires that for restoration projects that protect natural resources, the Conservancy shall give priority to restoration projects that demonstrate one or more of the following characteristics specified in Public Resources Code Section 75071(a)-(e). The ISP 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 Natural 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 breakdown of costs for planning, management and monitoring and for treatment and eradication projects under the proposed authorization is as follows:

Planning, Management and Monitoring through March 31, 2016:

State Coastal Conservancy	$1,430,000.00

Breakdown by Grantee of Expected Financing for Ongoing Treatment Projects through 2015:

Depending on the respective efficacy of the 2014 treatment found at the various project sites, the funding each current grantee (Exhibits 1 and 2) 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 staff expects to contribute new funding to two existing grantees approximately as follows:

Grantee	Funding
San Mateo Co. Mosquito Abatement District	$40,000
California Wildlife Foundation	$110,000
Total	**$150,000**

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

As described in previous staff recommendations (See Exhibit 1) and associated Conservancy resolutions, the ISP serves 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 continues to protect and restore tidal marshes, which are natural habitats of regional importance.

The ISP will continue to be undertaken pursuant to Chapter 4.5 of the Conservancy's enabling legislation, Public Resource Code Sections 31160-31165, which states that the Conservancy may award grants in the nine-county San Francisco Bay Area to help achieve the goals of the San Francisco Bay Area Conservancy Program. The ISP is located in all nine San Francisco Bay Area counties. The following goals of the San Francisco Bay Area Conservancy Program are achieved by this proposed project:

Section 31162(b) authorizes the Conservancy to award grants to "protect, restore, and enhance natural habitats and connecting corridors, watersheds, scenic areas, and other open-space resources of regional importance". This project entails the restoration and enhancement of tidal and wetland and mudflat habitats of San Francisco Bay and is consistent with the restoration and enhancement of natural habitats.

Section 31162(c) authorizes the Conservancy to "assist in the implementation of the policies and programs of the California Coastal Act of 1976, the San Francisco Bay Plan, and the adopted plans of local governments and special districts". The San Francisco Bay Plan and other regional government plans recommend the removal of invasive species and this Project helps to implement that goal.

The proposed project satisfies all of the criteria for determining project priority under Section 31163(c) as follows: 1) the proposed Project is supported by adopted regional plans including the Baylands Ecosystem Habitat Goals Report (1999), San Francisco Bay Subtidal Habitat Goals Report (2010), San Francisco Bay Joint Venture Implementation Strategy (2011), San Francisco Estuary Comprehensive Conservation and Management Plan (2007), Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California (2013), San Francisco Bay Basin Water Quality Control Plan (2007), and EBRPD's Master Plan (1996); 2) the proposed project serves a regional constituency by creating habitat for endangered species; 3) the proposed project can be implemented in a timely manner; 4) the proposed project provides benefits to migratory birds,

endangered species, and the Bay ecosystem that would be lost if the project is not quickly implemented; and 5) the proposed project will include in-kind matching funds from the grantees.

CONSISTENCY WITH CONSERVANCY'S
2013 STRATEGIC PLAN GOAL(S) & OBJECTIVE(S)

The ISP carries out the goals and objective of the 2013 Strategic Plan, adopted by the State Coastal Conservancy Board on December 6, 2012.

Consistent with **Goal 7, Objective D** of the Conservancy's 2013 Strategic Plan, the proposed project will install high tide refuge islands and artificial floating nesting islands for California Clapper Rail, which helps to implement adaptation pilot projects that reduce hazards from sea level rise and extreme storm events, and which protect natural resources and maximize public benefits.

Consistent with **Goal 11, Objective G** of the Conservancy's 2013 Strategic Plan, the proposed project will develop plans to eradicate non-native invasive species that threaten important habitats in the San Francisco Bay Area.

Consistent with **Goal 11, Objective H** of the Conservancy's 2013 Strategic Plan, the proposed project will eradicate non-native invasive species that threaten important habitats in the San Francisco Bay Area.

CONSISTENCY WITH CONSERVANCY'S
PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed authorization, which provides additional funding for the ISP is consistent with the Conservancy's Project Selection Criteria and Guidelines, adopted October 2, 2014, 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. **Promotion and implementation of state plans and policies:** By eradicating invasive species and enhancing native tidal marsh species, the project serves to promote and implement several statewide plans and policies including:
    - **San Francisco Bay Water Quality Control Plan for the San Francisco Basin (as amended through June 29, 2013):** This document was developed by the regional water quality control board and identifies the protection, preservation, and restoration of the Bay's tidal marsh system as essential for maintaining the ecological integrity,

and thus water quality, of the San Francisco Bay. The proposed Project will aid in achieving these goals. Project enhancements will aid in improving water quality of the San Francisco Bay by improving ecological connectivity and wetland function.

- **San Francisco Bay Conservation and Development Commission's (BCDC) San Francisco Bay Plan:** The Central and South Bays are an integral component of this document that guides state regulation. The objectives of the plan are to protect the bay as a great natural resource for the benefit of present and future generations and to develop the bay and its shoreline to its highest potential with a minimum of bay filling. The proposed projects will further the BCDC's objectives by enhancing marsh and mudflat habitats for the benefit of multiple species.
- **San Francisco Bay Subtidal Habitat Goals (2010) and Baylands Habitat Goals (1999, plus climate change update in preparation):** Both Goals documents, created through a collaboration among BCDC, the California Ocean Protection Council, the Conservancy, the National Oceanic and Atmospheric Administration (NOAA), and the San Francisco Estuary Partnership (SFEP), recommend eradication of invasive Spartina from the San Francisco Estuary in order to protect native biodiversity and ecosystem functions of mudflats, marshes, and associate upland habitats. The reports also recommend the restoration of native cordgrass and marsh gumplant habitat as part of a multi-objective habitat restoration approach to increased wave attenuation, sediment stabilization, and other climate adaptation benefits.

4. **Support of the public:** The ISP is strongly supported by multiple regional scientists and landowners, the California Department of Fish and Wildlife, the FWS Don Edwards San Francisco Bay National Wildlife Refuge, the San Francisco Bay Joint Venture, the West Coast Governors Agreement Spartina Task Force; and the findings of both the Third International Invasive *Spartina* Conference (November, 2004) and the Forum on Hybrid Spartina (March, 2011). Renowned scientists from the San Francisco Bay Area, other coastal states, and around the world agree that the Conservancy should continue its aggressive actions to eradicate invasive *Spartina* from the San Francisco Estuary. The objective of eradication of invasive *Spartina* is also specifically supported in the Baylands Ecosystem Habitat Goals Report and forthcoming 2015 climate change update to that report, and by more than 50 regional partners including landowners, agencies, and municipalities who support the project. Furthermore, in the published Comprehensive Conservation Management Plan for the San Francisco Estuary, San Francisco Estuary Project stakeholders have identified control of invasive species as the top priority for the restoration and protection of the Estuary.
5. **Location** This project is located in the nine San Francisco Bay Area Counties.
6. **Need:** Without funding, invasive *Spartina* treatment will come to a halt or be limited in nature and the invasive *Spartina* will quickly recolonize already treated areas of marsh and mudflat, impacting Bay ecosystems and increasing costs of the overall effort to eradicate invasive *Spartina*.
7. **Greater-than-local interest:** Introduced *Spartina* threatens to move up stream in the

San Francisco Bay-Delta, and down the coast to southern California. Recent 2012 drift card studies show that seeds can travel as far south as Fitzgerald Marine Reserve in Moss Landing, and as far north as Tomales Bay. In the San Francisco Bay, introduced *Spartina* threatens to displace state and federally listed species, such as the Ridgway's rail, California black rail, and the salt marsh harvest mouse.

8. **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. In addition, improving the resiliency of existing habitats is a key recommended action to help combat the effects of sea level rise.

Additional Criteria

9. **Urgency:** As confirmed at the Third International Invasive *Spartina* Conference, experts from the region and around the world believe that if the spread of introduced *Spartina* is not controlled within the near-term, the greater than exponential spread of the plants and extensive hybridization with the native *Spartina foliosa* will preclude any chance for successful control in the future. If the Conservancy and its partners can address the problem with the appropriately stepped up level of treatment in the short-term, long-term maintenance expenses can be avoided.

10. **Readiness:** In 2014, the ISP treated invasive *Spartina* with support and permission from dozens of bay-wide landowners. Environmental service consultants and grantees are already fully engaged in the pre-treatment season planning, including updating the existing Site-Specific Plans, and are eager to continue treatment in 2015.

11. **Leverage:** The ISP depends on a large, regional network of more than 50 entities that assist with treatment, provide permissions and access, and partner with the project because it helps to fulfill their organizational goals for tidal wetland protection in the Bay Area. These partners provide in-kind support and matching funds.

12. **Innovation:** The ISP has developed innovative techniques in GIS mapping, hybrid identification, and treatment methods. This data is regularly shared with multiple agencies and partners in the San Francisco Bay Area, including academic institutions and organizations conducting similar invasive eradication projects.

13. **Readiness:** The ISP is operating under a well-established eradication plan, with multiple partners who have been trained on treatment techniques, have specialized equipment available and prioritized for this project, and are ready to continue treatment activities.

14. **Realization of prior Conservancy goals:** The ISP is a key step in the restoration of native tidal wetland habitat in the San Francisco Bay Area. The Conservancy has put substantial resources into the project to date, and this next phase builds on the continued success of the

project. In addition, the Conservancy is leading multiple large-scale wetland restoration projects (South Bay Salt Pond Restoration Project, Hamilton Field, Breuner Marsh, Napa Sonoma Marshes, etc.) that would be at risk of invasion of invasive *Spartina* if the ISP did not continue.

16. **Cooperation:** The eradication plan was developed with significant input from many organizations, including FWS, Bay Conservation and Development Commission, State Water Resources Control Board, California Invasive Plant Council, and the San Francisco Bay Joint Venture.

17. **Minimization of Greenhouse Gas Emissions**:

Carbon Sequestration:
The remaining invasive *Spartina* in the San Francisco Estuary consists of approximately 29.3 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. The ISP is growing native marsh plants offsite to ensure an adequate supply of appropriate native vegetation for multiple 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:

Greenhouse 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 CO_2 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 85% of sub-areas, expected in 2016.

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 CO_2/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 CO_2 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 GHG's from the ISP to dwindle each year to near zero in 2016, 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.

18. **Vulnerability from climate change impacts other than sea level rise:** This area is subject to cool wet winters and warm dry summers. With climate change, the period of precipitation is anticipated to become shorter and summer drought periods longer and warmer. Some areas may be subjected to more intense short-duration storms resulting in flashy flows from the upper Watershed into San Francisco Bay. Culverts and bridges in the area may require more frequent maintenance to remove accumulated sediment (increased by hybrid *Spartina*) to prevent over topping or flooding of adjacent areas. There are no structures in flood prone areas that might be at risk of damage from increased runoff or flooding. Plant communities in coastal California are well adapted to fluctuations in climatic patterns and can withstand wetter and dryer periods.

CONSISTENCY WITH SAN FRANCISCO BAY PLAN:

The ISP is almost entirely within the permit jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC). The ISP remains consistent with BCDC's San Francisco Bay Plan, Policy 3(c), found in the section entitled "Marshes and Mudflats" (page 9), that states: "the quality of existing marshes should be improved by appropriate measures

whenever possible." The main purpose of this project is to remove invasive *Spartina* to improve the long-term quality of existing marsh habitat in the baylands of the San Francisco Estuary.

COMPLIANCE WITH CEQA:

As detailed in the February 14, 2013 Conservancy staff recommendation (See Exhibit 1), at its June 16, 2005 meeting the Conservancy authorized initial funding for treatment and eradication of invasive Spartina at 22 project sites and certified a "Final Programmatic Environmental Impact Statement/Environmental Impact Report, San Francisco Estuary Invasive *Spartina* Project: *Spartina* Control Program" (FEIS/R), prepared for the ISP pursuant to the California Environmental Quality Act (CEQA). Subsequently, through the 2014 treatment season, the Conservancy has authorized funding for treatment and eradication projects at all of the sites now being proposed for future 2015 activities. In general, over the duration of the ISP Control Program, the nature, duration, scope, location and site characteristics of treatment has not changed. Over time, some additional sites and sub-areas have been added as new plants were found but treatment and potential impacts have been reduced because of successful treatment in prior years.

The FEIS/R is a *programmatic* environmental impact report (Section 15168 of the CEQA Guidelines, 14 Cal. Code of Regulations, Sections 15000 *et seq.*, hereafter "Guidelines") in that it analyzes the potential environmental effects of implementing the ISP Control Program as a whole, rather than the effects of any one or more individual treatment and eradication projects. The program-level FEIS/R identifies mitigation measures that will be applied to reduce or eliminate impacts at various treatment locations, under varying site characteristics and conditions, and using varying methods of treatment.

A subsequent activity that follows under a programmatic environmental impact report that has been assessed and certified pursuant to CEQA (such as the FEIS/R) must be examined in the light of that programmatic report to determine whether an additional environmental document must be prepared. If the agency proposing the later activity finds that the environmental impacts of the later activity and the required mitigation to reduce those impacts were already identified and considered under the program environmental report, the activity can be approved with no further environmental documentation. (CEQA Guidelines, Section 15168(c)). The Guidelines suggest the use of a written checklist or similar device to document the evaluation of the activity to determine whether the environmental effects of the operation were covered in the program environmental impact report.

Whenever additional funding for the ISP Control Program treatment has been sought, the Conservancy staff has assessed the proposed treatment using, as the "checklist" suggested by the CEQA Guidelines, site specific plans for each treatment site and mitigation matrices to identify the impacts and required mitigation needed to avoid or reduce those impacts. Based on that information, the Conservancy has concluded in each instance that the environmental effects associated with proposed treatment and the required mitigation to reduce those effects to less

than significant level had been fully considered under the FEIS/R. For purposes of 2015 treatment under this proposed authorization, staff has reached the same conclusion.

Two-year site-specific plans for activities for the 2013 and 2014 treatment seasons for the ISP eradication program were attached to the February 14, 2013 staff recommendation (Exhibit 1). In addition, on July 17, 2014, the Conservancy's retained environmental services contractor prepared a memo detailing the review of proposed 2014 proposed treatment and eradication and the impact and needed mitigation measures under CEQA. Attached to the memo are tables providing a matrix, by site, of the impacts and needed mitigation related to the proposed site - specific activities and a second set of tables providing a site-specific matrix of mitigation measures required under the FWS Section 7 Biological Opinion, also a requirement of the FEIS/R. See Exhibit 7, July 17, 2014 ISP Memo Re: Review of the ISP Treatment Program for CEQA Impact and Mitigation, and attachments. This Exhibit is lengthy – comprising over 300 pages. Rather than providing this document in paper form, it is made available as an electronic exhibit, available electronically on the Conservancy website (http://scc.ca.gov/) in connection with the Agenda for this March 2105 meeting, but it has not been reproduced in hard copy. After reviewing all of the proposed activities and associated site-specific impacts and mitigation, the conclusion made by the July 17, 2014 ISP Memo was that the impacts of the proposed 2014 treatment and eradication activities had been assessed under the program FEIS/R and that no new impacts were identified nor new or different mitigation measures needed.

For purposes of the 2015 treatment season, the nature, duration, scope, location and site characteristics of the proposed treatment and control work have not changed. Eradication and control efforts will continue in the same areas as in 2014, but at a decreased intensity because of the reduction in invasive *Spartina* removed in 2014. Thus, the 2014 matrix of impacts and mitigation measures (see attachments to Exhibit 7) continues to apply to and fully detail the impacts and needed mitigation measures for the activities to be undertaken in 2015 under the new funding proposed by this staff recommendation. The matrix also serves to demonstrate that, since there are no new activities and the project remains essentially unchanged, the proposed treatment and control activities in 2015 will involve only those potential impacts previously identified by the FEIR and will not require any new or different mitigation beyond that required by the FEIR to avoid or reduce those potential impacts.

Since the project activities proposed for funding under this authorization, including the potential environmental impacts and required 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 subsequent Conservancy findings made in connection with authorizations for treatment at the new sites added over the years. No further environmental documentation for these treatment activities is required under CEQA.