

Minimize the impact of invasive species

Reduce the impact of invasive species through prevention, early detection, rapid response, eradication, and control. Conduct work with national and regional coordinating bodies and the key agencies implementing specific programs.

TASK 9-1 Expand and improve invasive species prevention programs. Actions may include developing new or expanding existing policies and programs, conducting outreach, and working with existing bodies to identify priority activities.

2016-2021 Develop new or expand existing policies and programs to prevent non-native species invasions. Coordinate and streamline programs throughout the western region and identify priority activities.

TASK 9-2 Increase early detection, monitoring, and rapid response programs. Rapid response should be adaptive and include activities such as 1) assessing and mapping Estuary-wide distribution of key invasive species; 2) improving the Calflora website and expanding it to include wetland species and to increase citizen reporting of species; 3) working with professional divers associations and training them to detect new invasive species while cleaning boat bottoms; 4) increasing scientific monitoring to measure the number of new species coming into the region; and 5) increasing citizen science monitoring.

BY 2021 Identify 3-4 funding sources for early detection, monitoring, and rapid response.

TASK 9-3 Implement eradication and control programs with priority given to species detected early, species that have a chance of being eradicated, and species that have extensive impacts on habitats important to the health of the estuarine ecosystem. Research and test pilot control measures for key invasive species.

2016-2021 Reduce acreage of key invasive species.

TASK 9-4 Provide adequate specificity in permit language requirements for restoration projects to include non-native plant monitoring requirements where appropriate; add language about non-native plant monitoring requirements where lacking. Confirm that best management practices are shared for invasive species where they exist (for example: Invasive Spartina Project Best Management Practices 2016). Confirm that “percent cover” requirements in permits are appropriate to individual invasive species.

BY 2021 Increase the number of permits with improved invasive spartina requirements.

BACKGROUND

Invasive species threaten native species and habitats in the Estuary. Prevention is the best, most cost effective method for reducing the rate of invasions by new species. However, invasive species management also benefits from consistent monitoring and targeted early detection programs. Early detection can provide opportunities for eradication before invasions become unmanageable, and for controlling impacts on sensitive Estuary habitats.

The tasks in this action refer to “key” species targeted by management programs in the Estuary. Examples of key species include: invasive *Spartina alterniflora* and *spartina* hybrids, wild mustard (*Lepidium*), water hyacinth (*Eichornia crassipes*), Brazilian waterweed (*Egeria densa*), the Asian clam (*Corbicula fluminea*), the overbite clam (*Potamocorbula amurensis*), and giant reed (*Arundo donax*). Eradication and control programs should be assessed on a regular basis to determine the overall effectiveness of the program as well as potential impacts to threatened and endangered species. Climate change should also be taken into account.

In the Estuary’s aquatic habitats, activities in support of this action may include improving ballast water management programs, improving management of recreational boats moving species overland (via boat trailers), and preventing introduction and spread of “fouling” species along the coast via several vectors. (Fouling species are those that attach to vessel hulls, piers, and other underwater infrastructure, the accumulation of which can impede functionality.)

This CCMP action supports working through existing organizing and coordinating bodies and key agencies to address invasive species, including, but not limited to, the Federal Aquatic Nuisance Species Task Force, the Western Regional Panel on Aquatic Nuisance Species, the National Invasive Species Advisory Committee, the Pacific Ballast Water Group, the California Invasive Species Advisory Committee, the California State Lands Commission’s Marine Invasive Species Program, and the California Department of Fish and Wildlife’s Aquatic Invasive Species Program. This CCMP action also supports consulting the *State Aquatic Invasive Species Management Plan (AIS)*, *State Weed Plan*, and *State Strategic Framework for Preventing the Spread of Invasive Species* for guidance, as well as the federal task force’s strategic plan. It should be noted that the state AIS plan includes a *Rapid Response Plan*, but that there is limited money for training and implementation.

ACTION 9 CONT'D

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On a regional level, this CCMP action also supports *Baylands Ecosystem Habitat Goals Science Update 2015* recommendations to ensure the continuity of programs to detect, manage, and eliminate invasive species. The update underscores the importance of early detection and rapid response for novel invasions or outbreaks in a variety of habitats. Estuary management agencies should be prepared for rapid response if a species is detected, and determine if eradication and or containment is possible.

OWNERS

CA State Coastal Conservancy (Task 9-4)
SF Estuary Partnership (Tasks 9-1, 9-2, 9-3)

COLLABORATING PARTNERS

CA Department of Fish and Wildlife, CA SCC Invasive Spartina Project, CA Invasive Plant Council, CA State Lands Commission, CA State Parks Department of Boating and Waterways, CA State Water Resources Control Board and Regional Water Quality Control Boards, Delta Stewardship Council, NOAA Fisheries, SF Bay National Estuarine Research Reserve, US Army Corps of Engineers, US Coast Guard, US Department of Agriculture, US Environmental Protection Agency, US Fish and Wildlife Service.

NEXUS

Actions 5, 10, 18, 23, 28
Goal 1
Objectives b, c

CCMP INTEGRATION: WILDLIFE

By emphasizing planning and action around diverse habitat mosaics and whole watersheds, the 2016 CCMP supports not only threatened and endangered species but also the health of the larger estuarine ecosystem and natural communities in which they live.

The San Francisco Estuary flows through a variety of urban, rural, and natural habitats and across myriad socioeconomic and political boundaries. The CCMP addresses these challenging and changing conditions for sensitive species in a holistic way. It accounts for conditions across the entire plan area, ranging from stream flows to transitional habitats and migration corridors. It ensures that actions appropriately target critical, science-based recommendations for improving the health of the Estuary.

The 2015 *State of the Estuary Report* is the most comprehensive health assessment ever completed for the San Francisco Estuary. Its findings are summarized in Section II and meticulously detailed for many species and biological communities, ranging from benthic invertebrates to wintering waterfowl, in the full report and its appendices at: www.sfestuary.org/about-the-estuary/soter/

The report's assessment of ecosystem health includes specific indicators for various sensitive species such as Ridgeway's Rail, as well as for the degree of invasion by non-native aquatic organisms and plants, among other indications of healthy life in the Estuary. These indicators were used to guide development of CCMP goals, objectives, and actions.

Section IV of this 2016 CCMP, *Tracking Progress*, links the species-specific indicators in the *State of the Estuary Report* to CCMP actions designed to protect native aquatic flora and fauna.

Section V, *Sensitive Species*, details how the recommendations in this CCMP benefit selected threatened and endangered fish, birds, mammals, and plants of critical management concern. Section V also ties the CCMP's habitat and watershed approach to central concepts in species protection, including habitat protection and recovery, protection of essential migration routes, resilience to climate change, and reduction of negative impacts from invasive species.

The San Francisco Estuary Partnership recognizes the numerous individuals and organizations working tirelessly to protect the species that make both San Francisco Bay and the Delta

special, and has developed a whole-habitat mindset for the 2016 CCMP that supports their efforts and strengthens collaboration on sensitive species issues across the entire Estuary.

