

## **Introduction**

The San Francisco Estuary Project is a federal-state-local partnership established in 1987 under the Clean Water Act's Section 320: National Estuary Program. It is a cooperative effort working to promote effective management of the Bay-Delta Estuary, and to restore and maintain its water quality and natural resources while maintaining the region's economic vitality. The Estuary Project oversees and tracks implementation of the Comprehensive Conservation and Management Plan (CCMP); manages complicated technical research and restoration projects; and disseminates newsletters, fact sheets, videos, and other materials to educate the public about Bay-Delta Estuary wetlands, wildlife, aquatic resources, and land use issues. It administers small grants, organizes erosion control and science workshops and conferences, and conducts many other programs.

### **Introduction**

The San Francisco Estuary Project's Comprehensive Conservation and Management Plan (CCMP) is a collaboratively produced, consensus-based agreement about what should be done to protect and restore the Estuary. It serves as a roadmap for restoring the Estuary's chemical, physical, and biological health. The CCMP was mandated under a reauthorization of the Clean Water Act in 1987, and Congress has directed that it be implemented. However, many of the actions suggested in the CCMP will require regulatory or policy initiatives to ensure implementation. Meanwhile, securing the necessary funding for acquisition, restoration, and other projects is an ongoing challenge.

This 2007 CCMP updates the 1993 CCMP, which was based on input from the broad stakeholder community—including more than one hundred representatives from federal and state agencies, local governments, environmental groups, business and industry, academia, and the public, all with an interest in the Estuary. The 2007 CCMP includes new and revised actions, while retaining many of the original plan's actions. Based on successes since 1993 and new and continuing challenges, participants updating the CCMP focused on those actions they considered most relevant at this time. Some actions from the 1993 edition were not revised due to time and resource constraints.

### **Achievements, 1993 – 2007**

CCMP actions are being carried out by many entities—federal and state agencies, nonprofits, cities, counties, private businesses, and coalitions of such groups. The bottom line is that, as was intended, Estuary advocates have taken action since the original CCMP was approved in 1993 by the Governor and the Administrator of the U.S. Environmental Protection Agency. Much progress has been made. There has been a change in scientists' and resource managers' thinking about managing and restoring the Estuary. There is more integration of disciplines, including hydrology, geology, biology (both plant and animal), and chemistry. Specialization in species or habitats has given way to a more interdisciplinary focus on watersheds and watershed management. A groundswell of citizen activism has also taken place. For almost every river and stream that flows to the Estuary today, there is a "Friends" group or a watershed council

working, often in partnership with wetland groups, to remove invasive vegetation, grow and plant native plants, clean up trash, and advocate for healthier watersheds.

There have been many additional CCMP-related successes, including:

- The “Baylands Ecosystem Habitat Goals Report” was completed.
- Nearly 67,000 acres of wetlands, including 16,000 acres of South Bay salt ponds, have been acquired and are in the process of being restored. More than 28,000 acres of this total were acquired from Cargill Salt through the unprecedented collaboration of the state and federal governments and private foundations.
- Gains have been made in controlling some non-native invasive species—*Spartina alterniflora*, for example.
- The scope and scale of habitat restoration, both tidal wetland and riparian, have increased.
- Private landowners in the Central Valley are restoring and returning vineyards planted in floodplains years ago back to riparian forests.
- Government agencies have partnered with nonprofit organizations on large-scale riparian restoration projects along several of the Estuary’s rivers; some of those projects have resulted in the return of bird species not seen in decades.
- Regional agencies and local governments are beginning to explore ways to establish watershed goals and protection policies.
- The Regional Monitoring Program for Water Quality in the San Francisco Estuary has evolved from a program that tracked status and trends of pollutants in the Estuary to one that also advances scientific understanding of the Estuary and its watershed to aid decision-makers in resource management.
- Many total maximum daily load (TMDL) projects—for pathogens, nutrients, salt, selenium, sediment, pesticides, polychlorinated biphenyls (PCBs), oxygen, and mercury—are being developed and implemented, both in the Bay Area and in the Central Valley. The phase-out of most urban uses of diazinon can be partly attributed to the attention this pesticide received as a source of water quality impairment.
- The Long Term Management Strategy for the Placement of Dredged Material (LTMS) in the San Francisco Bay Region was launched in 1990 as a multi-agency approach to managing dredged materials. The LTMS has implemented the majority of the actions called for in the 1993 CCMP Dredging and Waterway Modification program, including the beneficial re-use of over nine million cubic yards of dredged material.

- The San Francisco Bay National Estuarine Research Reserve has been established.
- The San Francisco Bay Joint Venture, the Riparian Habitat Joint Venture, and the Central Valley Joint Venture were created as large-scale collaborative efforts to restore and protect habitat and natural resources. They involve coalitions of nonprofits, business, government, and agency stakeholders throughout the Estuary watershed.

### **Challenges, 2007–2017**

The 2007 CCMP identifies new concerns that affect CCMP implementation. Global climate change is now widely recognized by the scientific community, government agencies, and the public as a significant threat to ecosystem health and public safety. Anticipated sea level rise from global warming may result in saltwater intrusion into the Delta, changes in timing and flows of rivers and streams flowing into the Estuary, and damage to restored wetlands and marshes. These impacts may degrade drinking water quality and undermine the viability of fisheries, and present even greater challenges for the preservation of already endangered species.

One of these species is the Delta smelt, which is quickly approaching extinction. The rapid decline of open water, or pelagic, organisms, like the Delta smelt, is creating ever more urgency around the question: How can we best manage the Delta, and for what purposes and values? Answers to this question affect a variety of management decisions, including whether or not a new “peripheral canal,” smaller than the one voters rejected twenty-five years ago, should be built; whether levees should be fortified or abandoned; and whether the amount and timing of flows from the state and federal pumps must be changed. Governor Arnold Schwarzenegger established the Delta Vision to examine these questions. It is anticipated that a draft Delta Vision will be developed by December 2007, and a Strategic Plan recommended by December 2008.

Despite significant pollution control efforts, many pollutants and legacy contaminants persist throughout the Estuary, which means that warnings about eating fish from the Estuary are still in effect. Plastics and other trash from creeks and rivers continue to flow into the Estuary, impacting water quality, wildlife, and the aesthetics of the Bay and Delta. Other, less visible pollutants must also be addressed. Agricultural pollution and urban runoff continue to be a problem. And new and emerging pollutants include the myriad products humans use every day in the form of pharmaceuticals and personal care products. Wastewater treatment plants do not completely remove these compounds.

Many challenges relate to wetlands. There is a new focus on methylmercury production in wetlands. Advocates and scientists alike are researching options that would facilitate continued stream and tidal wetland restoration projects without increasing methylmercury, the most biologically available form of mercury.

Although great strides have been made in restoring tidal marshes and other aquatic habitats in the Estuary, seasonal wetlands and riparian areas throughout the watershed continue to be lost, mostly to urban expansion. Future impacts to these valuable resources

could be minimized through the preparation of regional watershed plans. In addition to identifying the most valuable wetland and riparian areas, these plans should seek to provide and protect transition habitats between wetlands and uplands, buffer areas adjacent to wetlands and stream corridors, and functional connections between wetlands, riparian areas, and other ecologically important parts of the watershed. Watershed plans should be based on scientifically developed habitat goals.

Even with watershed plans in place, development will continue to adversely affect wetlands and riparian areas within the Estuary watershed. To offset these impacts more effectively, the design and management of compensatory mitigation—both individual mitigation projects and mitigation banks—should be improved.

As restoration activities have burgeoned, the need for sustainable sources of funding continues to grow as well. Many restoration projects, currently in the acquisition or planning stages, will need substantial funding to be implemented.

Although much progress has been made reusing dredge materials, federal policies—and budgets—continue to favor open-water disposal. Improved state and federal policies and funding for beneficial reuse are needed. If the cost of reusing dredged material could be made comparable to that of open-water disposal, more dredgers (especially small ones) could participate in beneficial reuse projects.

Two of the biggest challenges to ecosystem protection are continued population growth and urban sprawl. Regional and local land use decisions that direct development toward existing infrastructure, including mass transportation, flood protection, water systems, and jobs, would help protect the Estuary and its watershed. Better land use policies, better project designs, including green stormwater systems, and better building practices are needed to preserve open space and habitat, improve resource efficiency, and reduce water quality and other environmental impacts. Challenges in achieving more sustainable land use throughout the Estuary watershed include the complexity of integrated planning; the lack of understanding of the full costs of sprawl and of the potential benefits of infill, higher density, and mixed-use development; and tax policies that make development and associated fees more attractive than investment in open space uses. Additionally, it is difficult to secure voter approval for funds to purchase and protect open space.

As the state's population increases, the need for broad public support and understanding of the Estuary's natural resources and functions also continues to grow. Such support is possible only if the public shares the goals of the CCMP and values attempts to protect and restore the Estuary. For that to happen, people need to see and experience the Estuary and its waters and wildlife, and they also need to understand the threats to its health. Developing this kind of broad community support and understanding requires hands-on programs and printed media efforts that reach all the diverse communities of the Bay-Delta region, overcoming language, economic, and cultural barriers. Even though such programs may be difficult to fund and sustain, they are absolutely essential for the success of efforts presented in the CCMP.

## **Readers Guide to the 2007 CCMP**

The 1993 CCMP Action Plan has been fully integrated into this edition of the CCMP, including all nine program areas with their mission statements, goals, and actions. Participants in the update process left some program areas intact and revised others. The Public Involvement Program has been updated to reflect the many organizations now working to implement the CCMP. The Research and Monitoring Program was not revised. The 2007 CCMP also recognizes that a number of its actions are interconnected and therefore provides appropriate cross-references among actions.

The 2007 CCMP has some new features. A list of actions is provided at the beginning of each program. Each action is designated as “1993 CCMP,” “Revised 2007,” or “New 2007.” All new actions will evaluate progress using performance measures. Cost estimates for new actions are given using a \$-sign scale that reflects the magnitude of the cost. The type of cost—policy action, program development/implementation, project, staff, resource purchases, etc.—and level of uncertainty are also evaluated in each action. The new cost estimates also acknowledge the fact that some costs are not easily quantifiable.

### **Cost Key**

<b>Symbol</b>	<b>Amount</b>
\$	Up to \$100,000
\$\$	Up to \$1 million
\$\$\$	Up to \$10 million
\$\$\$\$	Up to \$100 million
\$\$\$\$\$	> \$100 million