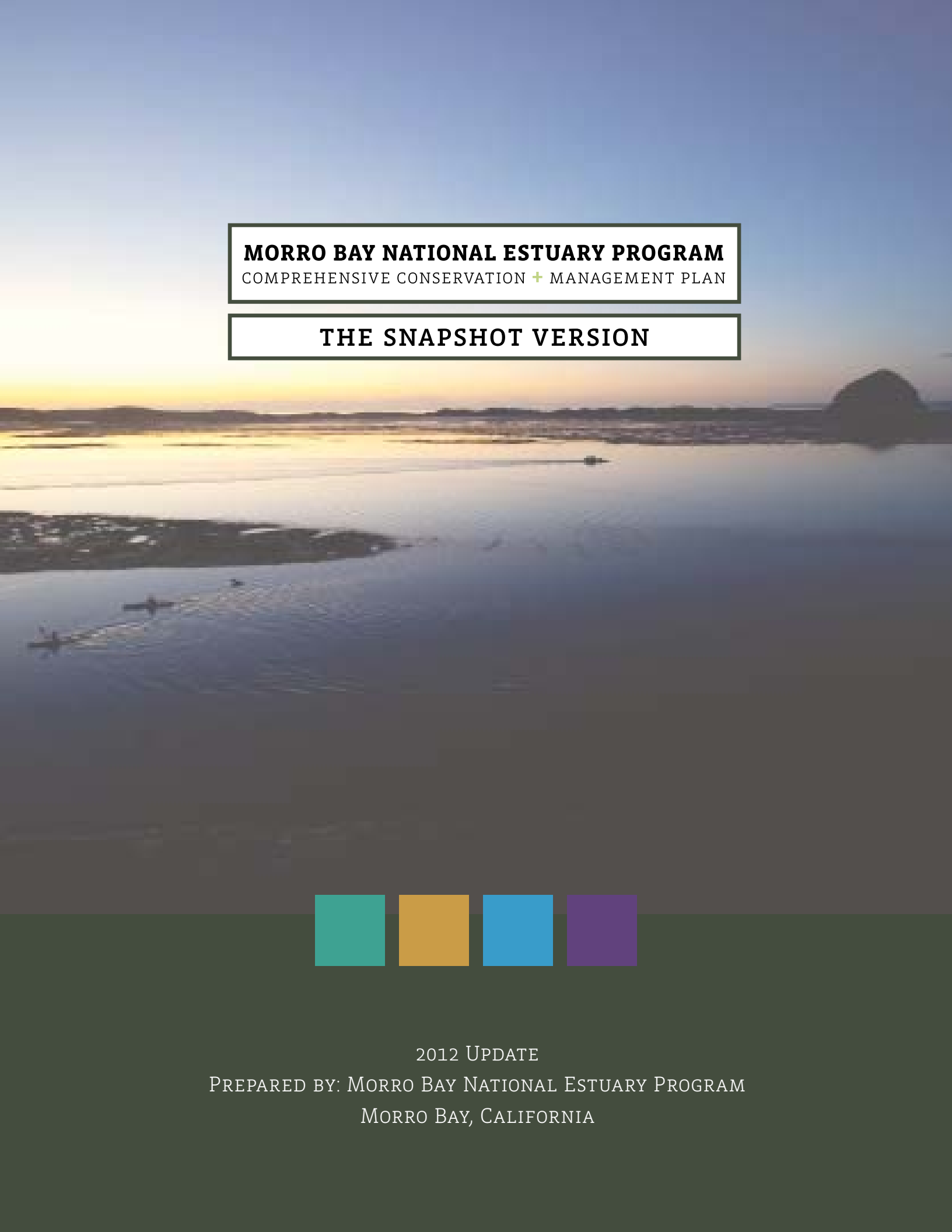


MORRO BAY NATIONAL ESTUARY PROGRAM

COMPREHENSIVE CONSERVATION + MANAGEMENT PLAN

THE SNAPSHOT VERSION

2012 Update

Prepared by: Morro Bay National Estuary Program

Morro Bay, California

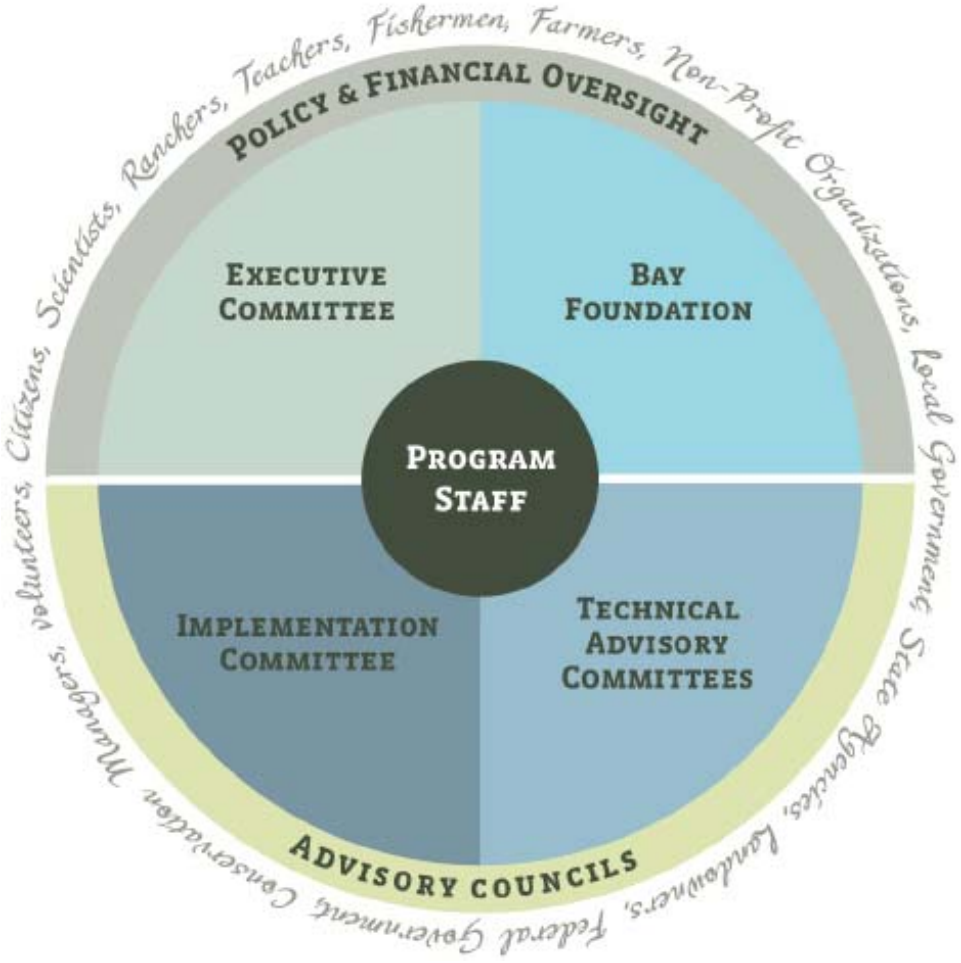
Morro Bay National Estuary Program

The Morro Bay National Estuary Program works to protect and restore the Morro Bay estuary for people and wildlife. The Estuary Program is a collaborative, non-regulatory, non-profit organization that brings citizens, local governments, non-profit organizations, state and federal agencies, and landowners together to support a healthy environment and vibrant local communities.

The Morro Bay estuary is a 2,300 acre semi-enclosed body of water where freshwater flowing from the land mixes with the saltwater of the sea. The estuary environment encompasses the lower reaches of Chorro and Los Osos creeks, a wide range of wetlands, salt and freshwater marshes, intertidal mud flats, eelgrass beds, and other sub-tidal habitats. Morro Bay hosts one of the most significant and least disturbed wetland systems on the central and southern California coast.

Comprehensive Conservation and Management Plan

The Comprehensive Conservation and Management Plan (CCMP) defines the priority issues facing the health of the Morro Bay estuary and watershed and presents action plans to effectively address those issues. The CCMP is the guiding document for the Estuary Program, and was developed through the dedication and hard work of numerous community members and partners.



Watershed Goals

Codifying strong, visionary goals for the CCMP will help the Estuary Program and its partners maintain focus on the long-term outcomes desired for the Morro Bay estuary and watershed. The goals listed below articulate a long-term vision for the four main areas of the Estuary Program.

Water Quality Protection and Enhancement

Water quality in the Morro Bay watershed and estuary supports diverse habitats and wildlife populations, recreation, clean drinking water, and well-balanced economic uses.

One of the main tenets of the National Estuary Program (NEP) is to protect and restore water quality, as the NEP is part of the federal Clean Water Act. This goal illustrates the aspiration for clean water that supports a variety of uses by people and wildlife in Morro Bay.

Ecosystem Restoration and Conservation

The Morro Bay watershed and estuary sustain a resilient community with high habitat connectivity, ample biological integrity, proper ecosystem function, and a vibrant economy.

This goal illustrates the Estuary Program's interest in conserving and restoring habitats, biodiversity, and ecosystem processes, all of which affect the local economy. The goal also envisions a healthy ecosystem and economy even in the face of change.

Public Education, Outreach, and Stewardship

Citizens and visitors around Morro Bay understand basic estuary science and the impacts of specific actions on estuary health, and are engaged stewards of the Morro Bay estuary and watershed.

This goal represents the importance of informed and engaged citizens for the future health of Morro Bay and a vision that community members will increasingly become stewards of the estuary.

Fostering Collaboration

Local citizens, local government, non-profits, state and federal agencies, and public and private landowners collaborate and leverage resources to facilitate effective management and increased scientific knowledge of the Morro Bay estuary and watershed.

Another core tenet of the NEP is collaboration, as described in the Clean Water Act. This goal showcases the Estuary Program's commitment to fostering collaboration to effectively understand and manage the resources of Morro Bay.

Priority Issues, Focus Areas, and Action Plans

The CCMP describes seven priority issues impacting the health of the Morro Bay estuary and watershed. These issues were identified through grassroots public participation, scientific study, and more than a decade of conservation and restoration experience. They are:

- **Accelerated sedimentation**
- **Bacterial contamination**
- **Elevated nutrient levels**
- **Toxic pollutants**
- **Scarce freshwater resources**
- **Preserving biodiversity**
- **Environmentally balanced uses**

The Estuary Program will direct its work toward a primary focus for each priority issue over the next five years. The Estuary Program will specify which action plans will be implemented to address each primary focus in its annual workplan. (The annual workplan is completed each spring and outlines the tasks to be undertaken the following year.) The focus areas are not meant to limit the Estuary Program or preclude work in other areas, but instead to provide strategic direction about what projects and partnerships to pursue.

Figure 1: As with all of the Estuary Program's work, the four goals described in Chapter 1 overarch all the priority issues. Each priority issue has one primary focus, described below. A number of relevant action plans can be used to address each focus area over the 5-year time horizon. Sedimentation is used here as an example.

Focus Areas

Sedimentation Primary Focus: Upland erosion sources

Goal: Address erosion problems in the upper watershed, including improvements to rural roads and fire management, and develop a better understanding of relative erosion from individual sub-watersheds to help prioritize upland implementation projects.
Outcome: Upgrade high priority eroding roads and reduce sediment delivery to Chorro Creek and its tributaries.
Measure: Estimated sediment load reductions; miles of roads upgraded. Updated fire management plan for the watershed.

Bacteria and Nutrients Primary Focus: (These two priority issues overlap in the case of some sources and solutions, so one focus area was chosen to address both. In addition, a second focus area was identified for bacteria in the estuary.)

- **Stormwater management (to address bacteria and nutrients)**
  Goal: Strengthen the collective understanding of the dynamics of stormwater as a mechanism for transporting bacteria and nutrients and implement best management practices and projects to address pollutant sources.
  Outcome: Estuary Program supports partner efforts (including data sharing) to increase the understanding of stormwater dynamics. Estuary Program directly supports the implementation of best management practices (BMPs) to address nutrient and bacteria sources.
  Measure: Stormwater volume subject to BMPs. Estimated reductions in pollutants due to BMPs implemented by the Estuary Program and partners.

- **Disposal of waste in the estuary (to address bacteria)**
  Goal: Continue to support city efforts to maintain functioning and easily accessible pump-out facilities, encourage alternative pump-out options, and educate the boating public about proper waste disposal.
  Outcome: Estuary Program participates in city efforts to install or upgrade pump-out facilities and actively encourages alternative pump-out options. Estuary Program and partners complete at least two seasons of a boater education campaign that addresses bacteria and toxics, reaching a majority of slip and mooring renters. (See also the focus area for Toxic Pollutants).
  Measure: Amount of waste diverted by pump-out facilities and alternative options. Number of education campaigns completed and number of boaters reached.

Toxics Primary Focus: Marina and boat-related toxics

Goal: Implement projects designed to reduce toxic inputs to the bay from marina and boating activities, such as: removal of abandoned vessels and illegal moorings, purchasing supplies for oil spills preparedness, and facilitating access to disposal facilities. Implement education and outreach activities to increase awareness among the boating public about proper disposal of hazardous waste and use of bay-friendly alternatives.
Outcome: Estuary Program continues strong partnership with City of Morro Bay to address derelict boats and illegal moorings as they occur. City of Morro Bay's capacity to address oil spills is maintained at existing levels. Estuary Program and partners complete at least two seasons of a boater education campaign that addresses bacteria and toxics, reaching a majority of slip and mooring renters.
Measure: Amount of toxics diverted, if applicable to projects completed. Capacity to address oil spills and number of incidents addressed by local responders. Number of education campaigns completed and number of boaters reached.

Freshwater Resources Primary Focus: Water budgets and water conservation

- **Water budgets**

  Goal: Participate in efforts to define water budgets for Chorro Creek and Los Osos Valley watersheds to better inform water conservation and freshwater flow management.
  Outcome: Estuary Program will support our partners in defining a water budget for Los Osos Valley and Chorro Creek watersheds. Water budgets are shared with relevant stakeholders and managers.
  Measure: Completion of water budget for Los Osos Valley and Chorro Creek watersheds and dissemination of information to stakeholders.

- **Water conservation**

  Goal: Engage in outreach and education efforts concerning water conservation and support local agencies and partners in improving water conservation at a broader scale.
  Outcome: Estuary Program continues implementation of the "Clean Water, Great Life" campaign and creates at least three new outreach tools based on the campaign. Estuary Program actively supports local agencies and partners in improving water conservation within the watershed.
  Measure: Number of projects that Estuary Program collaborates with local agencies and partners. Change in local water conservation at the household/landowner level.

Biodiversity Primary Focus: Informing effective restoration

Goal: Identify a network of interconnected lands to focus conservation efforts that provide critical habitat for sensitive species; high biodiversity patterns; essential ecosystem services and functions; and provide the greatest opportunity for biodiversity to adapt naturally in a changing and variable environment.
Outcome: Estuary Program completes a conservation planning effort that identifies areas of focus for conservation and restoration efforts based on the following criteria: critical habitat for sensitive species; high biodiversity patterns; essential ecosystem services and functions; and providing opportunity for adaptation and preserving resilience in a changing and variable environment.
Measure: Completed conservation plan as described, with implementation goals for next five years.

Environmentally Balanced Uses Primary Focus: Define future efforts

Goal: Over the next five years, the Estuary Program will focus its efforts to address environmentally balanced uses on determining the key areas of concern under this priority issue and developing approaches to address those concerns.
Outcome: Estuary Program engages partners and stakeholders in developing a plan for implementing actions that address environmentally balanced uses.
Measure: Completed plan to address the priority issue that engages partners and outlines specific actions, with implementation goals for the next five years.

Action Plans

To address the priority issues and primary focus areas, the CCMP outlines a number of action plans to bring about positive environmental change in the watershed and estuary. These are the heart of the CCMP and were developed through the dedication and hard work of numerous community members and partners. Many of these actions plans are based on those described in the 2001 CCMP; some are new action plans to address new and emerging issues or techniques. Each action plan can address multiple priority issues and focus areas. The action plans are tools to achieve conservation success and they will be implemented as they are relevant to the focus areas and priority issues of the Estuary Program. The Estuary Program prepares an annual workplan that specifies the action plans to be implemented each year.

Table 1: *A matrix documenting which priority issues are addressed by each action plan.*

Categorized Action Plans		CCMP Priority Issues						
		Bacteria	Nutrients	Toxics	Sediment	Bio-diversity	Fresh-water Flows	Balanced Uses
Land Protection								
LP-1	*Protect Special Habitats/Species*					x		
LP-2	*Restore Floodplains*		x		x	x	x	
LP-3	*Direct Urban Development*	x	x	x	x	x	x	x
LP-4	*Reduce Water Demand*					x	x	
LP-5	*Enhance Public Recreation*							x
Water Quality Standards and Monitoring								
TMDLs								
MON-1	*Support Development of TMDLs*	x	x	x	x			x
Monitoring Approaches								
MON-2	*Monitor Environmental Indicators*	x	x	x	x	x	x	x
MON-3	*Monitor Project Effectiveness*	x	x	x	x	x	x	x
Volunteer Monitoring Program (VMP)								
MON-4	*Maintain VMP*	x	x	x	x	x	x	x
Monitoring Partners								
MON-5	*Support Partners*	x	x	x	x	x	x	x
MON-6	*Support Research Activities*	x	x	x	x	x	x	x
Best Management Practices								
Agricultural and Grazing								
BMP-1	*Agricultural and Grazing BMPs*	x	x		x	x	x	x
Rural Lands								
BMP-2	*Rural Roads Erosion*		x		x	x		
BMP-3	*Fire Management Plan*				x	x		
BMP-4	*Mine Remediation*		x	x	x	x		
Urban								
BMP-5	*Support BMPs by private land-owners and municipalities*	x	x	x	x			x
BMP-6	*Reduce Pet Waste*	x						
BMP-7	*Support Stormwater BMPs*	x	x	x	x			x
Boating								
BMP-8	*Harbor Operations BMPs*	x		x		x		x
BMP-9	*Boating BMPs*	x		x		x		x
Municipal Wastewater Plants								
BMP-10	*Los Osos Wastewater*	x	x					x
BMP-11	*CMC Wastewater*	x	x			x	x	
BMP-12	*MB Wastewater*	x	x					

Categorized Action Plans		CCMP Priority Issues						
		Bacteria	Nutrients	Toxics	Sedi-ment	Bio-diversity	Fresh-water Flows	Balanced Uses
Ecosystem Conservation and Restoration								
Riparian								
ECR-1	*In-stream Habitat*	x	x			x	x	
ECR-2	*Riparian Corridors*	x	x		x	x	x	
Wetlands								
ECR-3	*Wetlands Protection and Enhancement*	x	x			x		x
ECR-4	*Wetlands Inventory*	x	x			x		x
Estuarine								
ECR-5	*Sediment Traps*				x	x		
ECR-6	*Hydrology and Bathymetry*				x	x	x	
ECR-7	*Eelgrass Data and Research*					x		x
ECR-8	*Eelgrass Restoration*					x		x
ECR-9	*Regional and National Collaboration*	x	x	x	x	x	x	x
ECR-10	*Nutrient and Bacteria Dynamics*	x	x					
ECR-11	*Conserve Ecosystem Functions*	x	x	x	x	x		x
Upland								
ECR-12	*Upland Habitats*					x		
Special Status Species and Recovery Plans								
ECR-13	*Population Dynamics*					x		
ECR-14	*Support Recovery Plans*					x		
ECR-15	*Steelhead Barriers and Habitat*					x	x	
Invasive Species								
ECR-16	*Invasive Species Action Plan*				x	x	x	x
Watershed Crew								
CREW-1	*Watershed Crew*	x	x	x	x	x	x	x
Freshwater Flow								
Resource Management								
FWR-1	*Manage Freshwater Resources*					x	x	x
FWR-2	*Scientific Information for Management*					x	x	x
FWR-3	*Understand Flow for Public Trust Resources*					x	x	x
FWR-4	*Chorro Valley Water Users Group*					x	x	x
Water Conservation and Re-Use								
FWR-5	*Water Conservation*					x	x	x
FWR-6	*Groundwater Re-charge*					x	x	x
Climate Change								
CLIM-1	*Climate Change Information*	x	x	x	x	x	x	x
CLIM-2	*Climate Action Plans*	x	x	x	x	x	x	x
CLIM-3	*Climate and Adaptation Education*	x	x	x	x	x	x	x

Categorized Action Plans		CCMP Priority Issues						
		Bacteria	Nutrients	Toxics	Sedi-ment	Bio-diversity	Fresh-water Flows	Balanced Uses
Environmentally Sound Estuarine Resource Use								
Recreational Uses								
USE-1	*Recreational Uses*					x		x
Shellfish Farming								
USE-2	*Shellfish Farming*	x				x		x
Commercial Fishing								
USE-3	*Commercial Fishing Port Uses*			x				x
Morro Bay Power Plant								
USE-4	*Morro Bay Power Plant*					x		x
Urban Development								
USE-5	*Urban Developement*	x	x	x	x	x	x	x
Education and Outreach								
Public Education and Outreach								
EO-1	*Publice Education and Outreach*	x	x	x	x	x	x	x
State of the Bay								
EO-2	*State of the Bay*	x	x	x	x	x	x	x
Nature Center and Related Displays								
EO-3	*Nature Center*	x	x	x	x	x	x	x
Formal Education Programs								
EO-4	*Formal Education Programs*	x	x	x	x	x	x	x

The action plans are organized by categories of similar action, not priority issue like the original CCMP. This makes it easier to track how action plans address multiple priority issues. Leveraging each action for the greatest impact will allow the Estuary Program and its partners to effect greater change in a more strategic fashion. Each action plan includes a short discussion followed by a list of partners, timeframe, cost estimates, and ways that the implementation of the action plan can be tracked. To read more about the specific action plans, please refer to Chapter 3 of the CCMP document.

Visit the Estuary Program's website for the complete CCMP document: www.mbnep.org

Map of Morro Bay Watershed Boundary

The Morro Bay estuary watershed covers approximately 48,000 acres of land and includes the City of Morro Bay, the town of Los Osos, Cuesta College, and a state prison.

This document was made possible by a grant from the U.S. Environmental Protection Agency and countless hours of volunteer time from the engaged and thoughtful community members of the Morro Bay watershed.

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