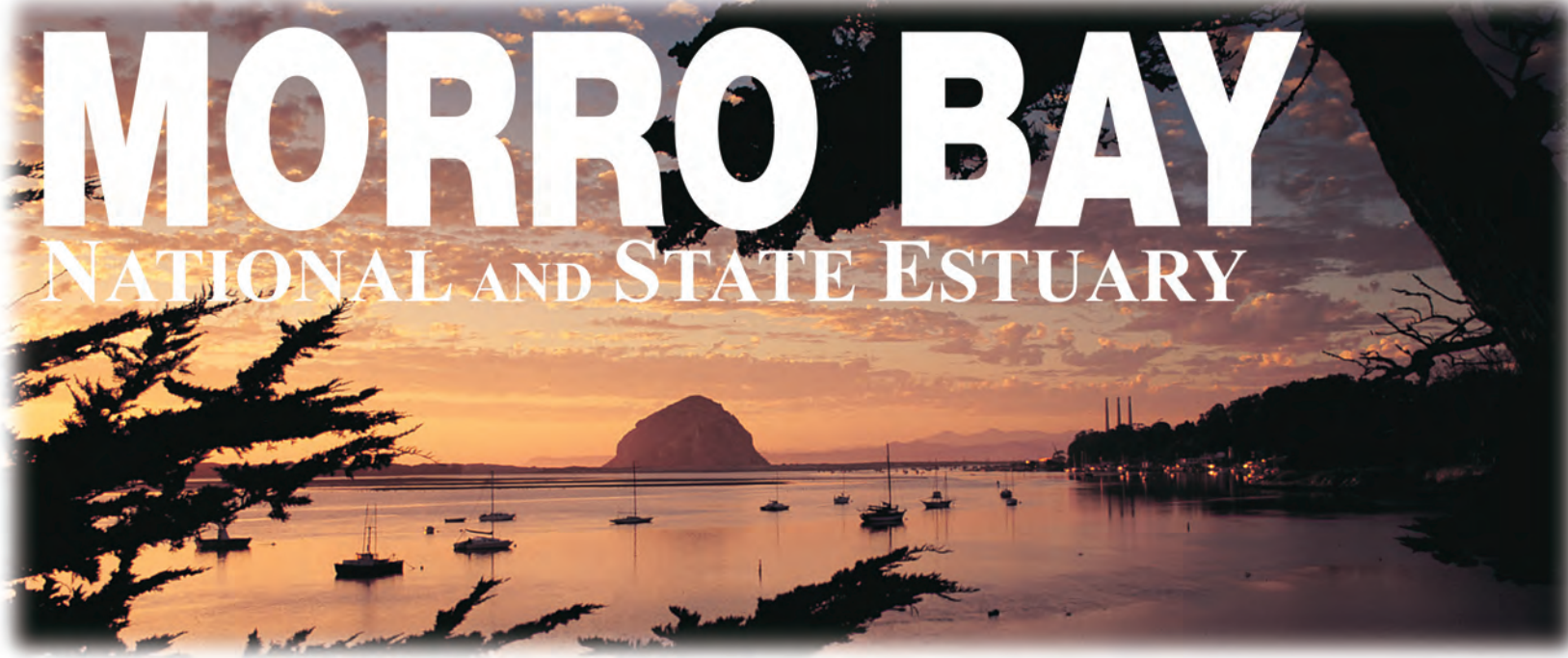


MORRO BAY

NATIONAL AND STATE ESTUARY



The Morro Bay National Estuary Program



Dedicated to protecting and restoring the natural resources of the Morro Bay estuary and its watershed, the MBNEP is a community-based collaborative partnership made up of local non-profits, businesses, government agencies, property owners and interested citizen volunteers. The MBNEP was created largely through the efforts of the Friends of the Estuary and the Bay Foundation, which continue to contribute to the protection of the estuary.

The work of the MBNEP and its partners is diverse. Projects include habitat protection and restoration, pollution reduction strategies, water conservation measures, monitoring the health of the bay, and public education. The Estuary Nature Center offers educational exhibits and literature about local natural resources. The MBNEP office and the Estuary Nature Center are located at the corner of Marina and Embarcadero, upstairs in Marina Square. For more information, please visit our website at www.mbnep.org.

Photos by: R and K Muschenetz ©

Welcome to Morro Bay National Estuary



- 1 Morro Rock Natural Preserve**
The Portola expedition noted this monolith during its explorations of California in the 1580s. It is both a historical landmark and an ecological preserve. The endangered peregrine falcon nests here. Just north of the Rock at Morro Strand State Beach is a popular surfing spot.
- 2 HarborWalk, Coleman Park and Coleman Beach**
The City of Morro Bay's new HarborWalk, a pedestrian and bicycle path along the Morro Bay harbor, is a scenic and safe route connecting the popular Embarcadero area with Morro Rock and Morro Strand State Beach. Nearby Coleman Park affords fine views of the bay as it curves toward the open ocean. Coleman Beach is an easy-to-access kayak launch site and is a great protected beach for young children.
- 3 Morro Bay Harbor Office & Coast Guard Station**
The City Harbor Patrol and US Coast Guard enforce vessel safety and environmental regulations. Visitors can get information about tides and ocean conditions, fishing and boating safety at their offices.
- 4 City Piers**
Public piers, found at several places along the waterfront, provide excellent opportunities for viewing estuarine wildlife and the activities of the working fishing port. The Coastal Conservancy and the Department of Boating and Waterways helped fund the piers, which are managed by the City of Morro Bay.
- 5 Morro Bay Estuary Nature Center**
The Estuary Nature Center is a fun and free stop on the Embarcadero. Stop by and discover what's essential about eelgrass and learn to identify local birds. The Center also has literature about the local environment. Upstairs on the waterfront by Marina Street.
- 6 Tidelands Park**
The stylishly landscaped park provides views of the bay, a public launch ramp and fishing sites. Popular with picnickers, the park contains an imaginative play area for children. The California Department of Boating and Waterways helped fund this park.
- 7 Bayshore Bluffs Park**
This secluded park overlooks Grassy Island, an important roosting area for waterfowl. There are picnic tables, grills, and a stairway to the bay shore.
- 8 Heron Rookery Natural Preserve and Windy Cove**
Eucalyptus and cypress trees provide roosting and nesting sites for cormorants, egrets and herons. Visitors can view lively brooding behavior in the spring.
- 9 Morro Bay State Park Museum of Natural History**
The museum maintains interpretive exhibits about the geology, archaeology and ecology of Morro Bay and the surrounding area. Knowledgeable docents lead walks, extending the interactive experience to the outdoors. Visitors can spot mortar holes made by the native Chumash people in the rocks near the Museum.
- 10 Morro Bay State Park**
Encompassing over 2700 acres, the park offers camping and other recreational opportunities. A short but steep trail leads to the top of Black Hill, which affords unparalleled views of the estuary and watershed. Several turnouts on the east side of South Bay Blvd. offer parking at trailheads leading to Cerro Cabrillo and afford stellar views of the estuary.
- 11 Morro Bay State Park Marina and Marina Peninsula Trail**
The Marina Peninsula trail starts at the south end of the Morro Bay State Park Marina parking lot. It is open to hikers and favored for birding, but closed to bikes and dogs. The marina also provides a fine spot to launch a kayak.
- 12 Morro Estuary Natural Preserve**
This 800-acre salt marsh area, located within the bounds of Morro Bay State Park, is protected as a natural habitat preserve. Tidal sloughs and pickleweed expanses teem with waterfowl and shorebirds. It is important to keep a respectful distance from any wildlife you encounter. If wildlife moves away, responds to your presence by raising a head to watch you, or increases the frequency and volume of their call, you are too close.
- 13 Elfin Forest Natural Preserve**
This preserve, split between Morro Bay State Park and the County of San Luis Obispo, was created largely through the efforts of Small Wilderness Area Preservation. The preserve protects extremely rare coastal dune scrub habitat and a forest of diminutive oak trees. A boardwalk trail overlooking the bay is popular with bird watchers.
- 14 Audubon Overlook**
Maintained by Morro Coast Audubon Society, this sheltered overlook provides a quiet location to enjoy the birds of the back bay. Be sure to bring your binoculars. To reach the overlook, take 3rd Street north off Santa Ysabel in Los Osos, and turn right at the end of 3rd onto the dirt road. Continue on the short block to the overlook.
- 15 Sweet Springs Nature Preserve**
The Morro Coast Audubon Society owns and manages this Preserve. It includes a unique freshwater pond, home to turtles and red-legged frogs.
- 16 Morro Dunes Natural Preserve**
An extension of Montaña de Oro State Park, the seven-mile long sand spit shields Morro Bay from the open ocean. Endangered snowy plovers nest on this beach from March to September. Seasonal fencing protects these tiny shorebirds and their young. Please respect seasonal closures and posted pet limitations.
- 17 Montaña de Oro State Park**
This magnificent park ranges over 8000 acres of dunes, chaparral, creeks, wetlands, rocky outcroppings and sandy beaches. A popular bluff top trail offers spectacular views of the sea. There is a campground and interpretive center.
- 18 Los Osos Oaks State Reserve**
Trails wind through a centuries-old live oak forest thriving on sand dunes. The Oaks Preserve is a relic habitat that was once much more extensive.

What is an Estuary?

An estuary is a place where fresh water from creeks and rivers mixes with salty ocean water. Estuaries are among the richest habitats known. The confluence of creeks, wetlands, sand dunes, mudflats, salt marshes, and open water attracts a tremendous variety of wildlife. Morro Bay, a small estuary of 2300 acres, is fed by Chorro and Los Osos Creeks and is protected from the Pacific Ocean by a lengthy sand spit.

Fish Nursery

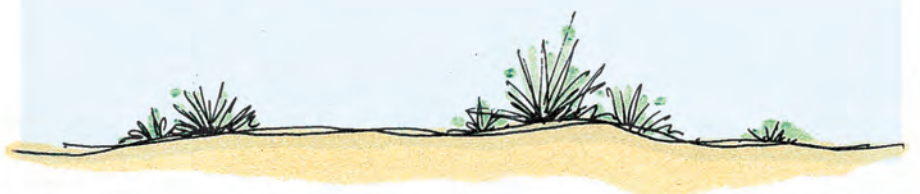
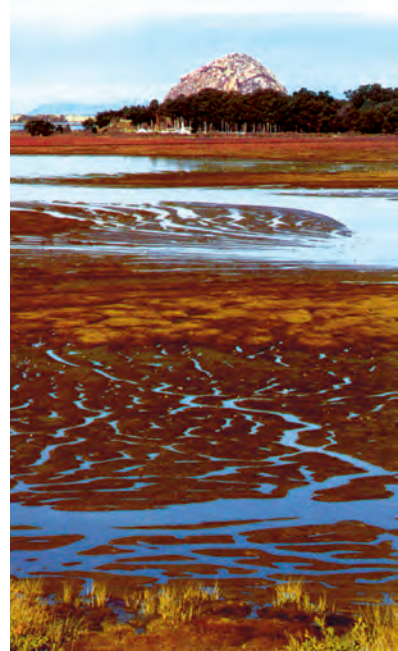
The estuary is a nursery for many species of fish that live as adults in the ocean. The shallow water, eelgrass beds and wetlands provide protected habitat and rich food sources for larvae and fry. Chorro and Los Osos Creeks also host steelhead trout, a threatened species that spawns in creeks but migrates to the sea.

Spectacular Bird Habitat

Morro Bay is an important stop-over on the Pacific Flyway and a critical winter home to numerous bird species. The bay and its 48,000-acre watershed rank perennially among the top sites in the nation during the Audubon Christmas Bird Count.

Morro Bay - A Living Fossil

Lagoons and wetlands were once common along the southern California coast, but most were filled and developed before their ecological importance was understood. Morro Bay has largely survived - a rare example of a bygone environment. However, the estuary is struggling today with the impacts of human activities. We all need to work together to protect and restore this special place.



Respect Wildlife

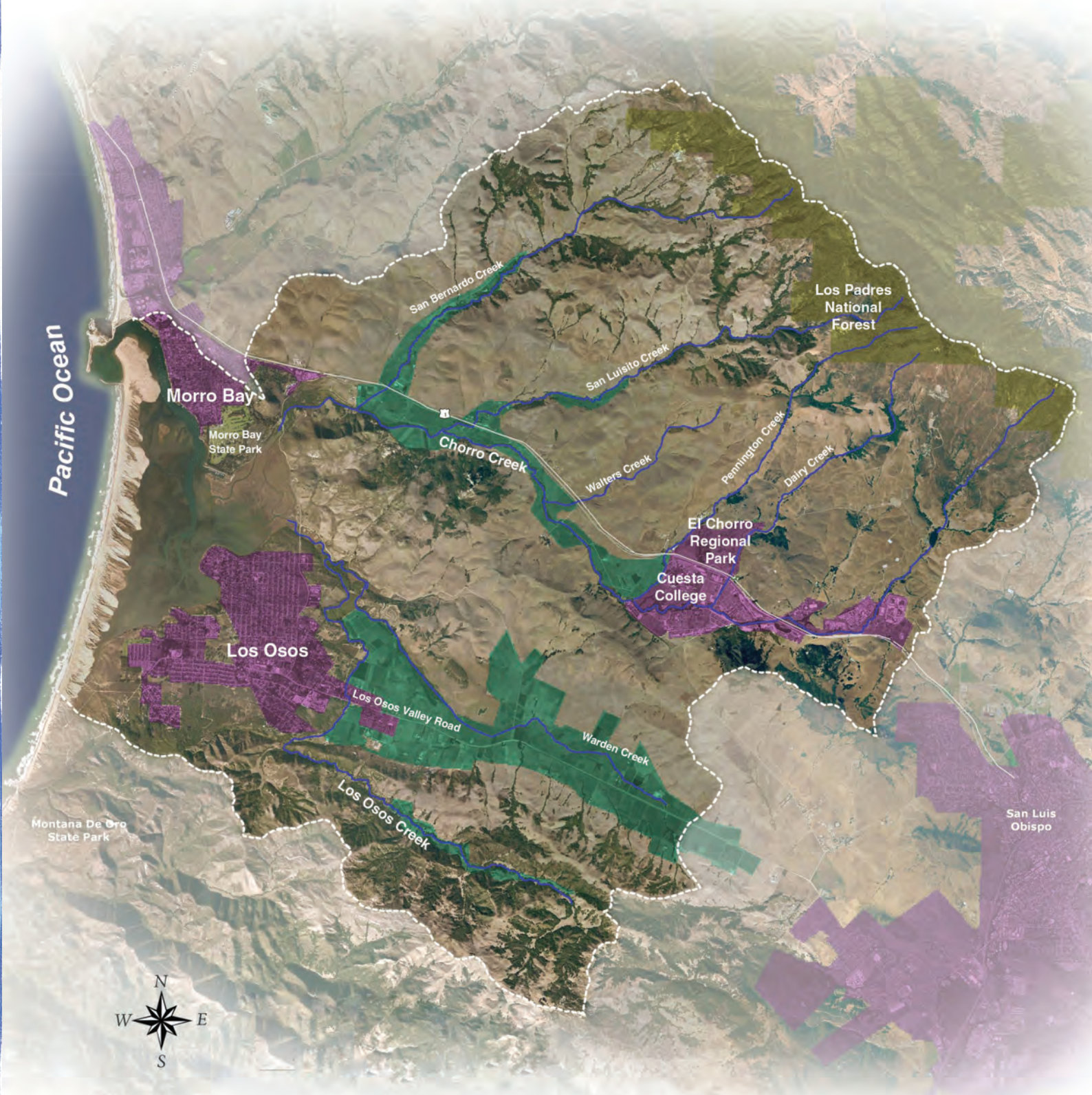


As you enjoy Morro Bay and the surrounding areas, please keep a respectful distance from birds and other wildlife. Repeated disturbances by people and pets add up. Use binoculars if you would like to get a closer look.

The Morro Bay Watershed

Morro Bay connects freshwater creeks and the open ocean. The area of land that drains into creeks leading to the bay is called the watershed. What enters the bay through those creeks has a critical effect on the estuary's health.

Much effort is being made to control erosion in the watershed, trap sediment before it enters the bay, ensure adequate freshwater flows in the creeks, and reduce sources of water pollution.



- National Forest Lands
- City Boundaries
- Prime Farmland

Morro Bay is a California State Marine Protected Area. Marine protected areas protect fish and wildlife in coastal waters, and are monitored and evaluated by state and local marine biologists for their effectiveness. To learn more about MPAs go to www.dfg.ca.gov/mlpa.

Major Problems Facing the Bay

Pollution

The watershed and estuary are subjected to pollution from many sources. Examples include urban and agricultural runoff, failing septic systems, animal waste and boats with inadequate waste disposal facilities.

Reduced Freshwater Flow

The estuary's ecosystem depends on the balance of salt and fresh water. Human water use, for businesses, homes and agriculture, can reduce creek flows by tapping shallow water basins beneath or near the creeks. In turn, lower creek flows harm many species of plants and animals, including steelhead trout, which need cool water and deep pools.

Loss of Habitat

It is obvious that development of natural open space causes loss of habitat for wildlife. In the case of California wetlands, over 90% have been lost. Few people realize that degradation of habitats is also a serious problem. Habitat quality can be compromised by invasion of non-native species, erosion, trampling of native plants, and pollution. Morro Bay and its watershed contain several increasingly rare habitats such as coastal dunes, bay eelgrass beds, fresh and salt water wetlands, and maritime chaparral.



- Extent of Salt Marsh -1890
- Extent of Salt Marsh -1990

Accelerated bay sedimentation has increasingly filled the bay at the Chorro Creek outflow with sand and silt from the upper watershed, creating the salt marsh which has doubled in size in only 100 years.

Sedimentation

When land erodes in the watershed, especially during winter storms, creeks carry sand and silt downstream to the bay. Unless trapped, the sediments settle out in the bay. Although this is a natural process, it is accelerated by disturbances in the watershed, such as grading and construction, agriculture, mining and wildfires. Morro Bay is filling up at an unnaturally rapid rate.

Solving the Problems

Almost everyone wants to help protect the estuary. Success depends on the continued efforts of government agencies, volunteer organizations, property owners and the people who live in or visit this fragile area.

Reducing Pollution

Many projects have been implemented to reduce pollution entering the bay. Communities in the watershed are working to ensure that sewage is properly treated; many farmers and ranchers are careful to protect the creeks and groundwater while they use the land; and educational programs are teaching people to be more careful with fertilizers, pesticides, oil and other household wastes.

Stemming Erosion

Work is under way in many parts of the watershed to reduce erosion and to repair places susceptible to loss of soils. Many other sites remain vulnerable and need improvements.

Habitat Protection

Careful stewardship of the land is critical to the protection of habitats. Many property owners utilize "best management practices" on their land, thereby helping to nurture natural resources. However, development and mismanagement are a constant threat. Land acquisition and conservation easements are effective protection measures, but they are costly. Therefore, organizations and agencies must work together to protect the threatened habitats in the watershed and along the bay. A significant example is the successful work of the Morro Estuary Greenbelt Alliance, numerous partners and contributors to create a "greenbelt" of open space around Los Osos comprised of rare dune scrub and verdant riparian areas.

Trapping Sediment

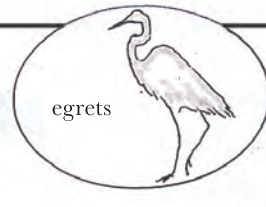
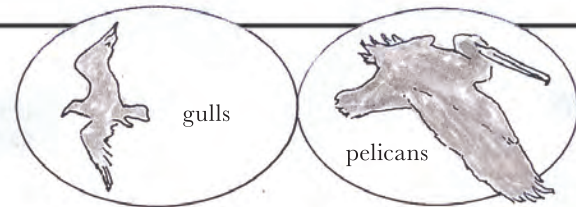
One of the most effective ways to reduce the amount of sediment deposited in the estuary is to restore the natural floodplains upstream of the estuary. As high flows spread across the floodplain, the mud, sand and silt in the storm waters is deposited across these wetlands instead of carried to the bay. Floodplains have been restored at Chorro Flats on Chorro Creek, and on lower Los Osos Creek. In addition to trapping sediment, both projects also restored significant wetland habitat benefiting fish and wildlife.

Freshwater Conservation

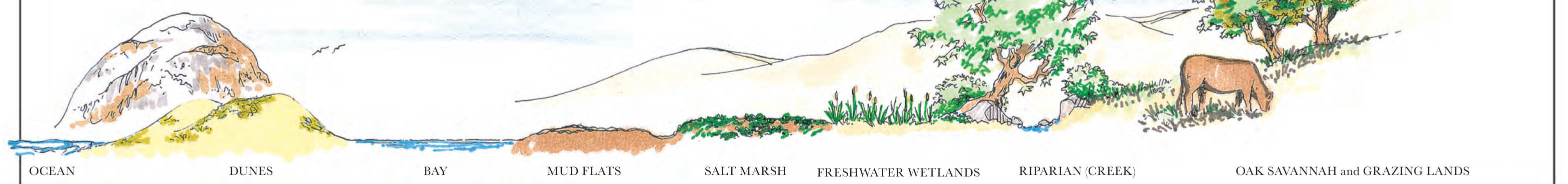
Throughout the area, residents and visitors are trying to conserve water. That means more fresh water for creeks and the estuary.

Habitat Restoration

Environmentally valuable habitat is being restored or created along creeks, in dunes, along the bay shore and in the watershed. Examples include projects to replace exotic plant species with native species, restore creeks to their natural shapes, re-create floodplains and wetlands, improve water quality by limiting cattle access to creeks, and remove barriers that prevent fish from spawning in creeks. Over 3000 acres have been protected or restored in the Morro Bay Watershed through the work of the many partners in the Morro Bay National Estuary Program.



The Many Habitats of the Estuary...



Ten Things You Can Do To Keep the Estuary Healthy

Estuary Program Partners

Many organizations and individuals are essential to the ongoing work of protecting and restoring the Morro Bay Estuary.

- Bay Foundation of Morro Bay · California Polytechnic State University
- California Coastal Commission · California Coastal Conservancy
- California Conservation Corps · California Department of Boating and Waterways
- California Department of Corrections (Men's Colony)
- California Department of Fish and Game · California Department of Forestry
- California Department of Health Services · California Department of Parks and Recreation
- California Department of Transportation · California Department of Water Resources
- California National Guard (Camp San Luis) · California Native Plant Society
- Central Coast Natural History Association
- Central Coast Regional Water Quality Control Board
- Central Coast Salmon Enhancement · City of Morro Bay
- Coastal Alliance on Plant Expansion · Coastal Resources Institute
- Coastal San Luis Resource Conservation District · County of San Luis Obispo
- Farm Bureau · Friends of the Estuary · Land Conservancy of San Luis Obispo County
- Los Osos / Baywood Chamber of Commerce
- Los Osos Community Services District · Morro Bay Beautiful
- Morro Bay Chamber of Commerce · Morro Bay Commercial Fisherman's Association
- Morro Coast Audubon Society · Morro Estuary Greenbelt Alliance
- National Marine Fisheries Service · Natural Resources Conservation Service
- Partners for the Conservation of the Los Osos Coastal Dunes
- San Luis County Air Pollution Control District · Sierra Club
- San Luis Obispo County Community Foundation · Small Wilderness Area Preservation
- Trust for Public Land · UC Cooperative Extension · US Army Corps of Engineers
- US Bureau of Land Management · US Coast Guard
- US Environmental Protection Agency · US Fish and Wildlife Service
- US Forest Service · Wildlife Conservation Board

This map was made possible through funds from the US Environmental Protection Agency and the San Luis Obispo County Community Foundation.



- 1** Conserve water. Use low-flow faucets, shower heads and toilets, and don't let water go down the drain.
- 2** Use native plants and plants that don't need a lot of irrigation when landscaping.
- 3** Don't dump household pollutants like automobile oil, paint or household cleaners down drains. Remember, all storm drains eventually empty into the estuary or the ocean.
- 4** Make your boat pollution-free. Use pump out stations. Avoid gas engines in the back bay. Don't clean boats where paint chips can get into the bay.
- 5** Clean up after your dog. Especially along the bay front, this can be a significant source of pollution.



- 6** Keep a respectful distance from birds and wildlife. Especially when canoeing and kayaking, don't get too close to birds or marine mammals. Use binoculars for observation. Also, please keep your dog from chasing birds and wildlife.
- 7** Learn more about natural resources and the ecosystem. The Natural History Museum, the MBNEP Nature Center, and libraries are good places to start.
- 8** Let your elected officials know: protecting the estuary is important. Drop a line or send an e-mail reminding them that these resources are fragile and need our help.
- 9** Contribute toward conservation efforts. Select an organization working on estuary protection and make a donation. The Morro Bay National Estuary Program is one such non-profit that welcomes your donations.
- 10** Volunteer your time. There are many ways people can contribute and many organizations are looking for help. Besides, it's usually a lot of fun! Call (805) 772-3834 to discuss volunteer opportunities.



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