

CDFW

MARINE AND ESTUARINE MESSAGES



This document provides guidance to California Department of Fish and Wildlife employees, as well as outside organizations, to help deliver accurate and consistent messages about marine and estuarine resource issues to a broad spectrum of public audiences.

The purpose is to articulate information about the cultural and natural history of California's marine and estuarine resources, ongoing management considerations, and solutions to some of the most vexing problems facing coastal ecosystems today.

1. A HEALTHY OCEAN HELPS CALIFORNIANS SURVIVE AND THRIVE

California's tidal shoreline spans 1,100 miles of interwoven aquatic systems. We depend on healthy estuaries and a resilient ocean in many ways, most importantly for our own survival.

- a) The ocean makes human life possible by producing much of the Earth's oxygen that we breathe and food that we eat.
- b) The ocean moderates California's coastal weather, bringing cooler temperatures near the shore and seasonal precipitation.
- c) Estuaries serve as the important final component of an inland waterway filtration system, where they also absorb impacts from coastal storm surges and act as nurseries for many species.
- d) The bounty of the ocean supports California's commercial and recreational fishing industry and is a major economic driver in coastal communities.
- e) New benefits of marine resources – for food, medicine, and energy – continue to be discovered and explored.

2. CALIFORNIANS VALUE THEIR OCEAN AND ESTUARINE HERITAGE

Our historic relationship with marine resources shapes who we are today. Californians continue to welcome visitors from around the world who explore and enjoy our coast.

- a) Native peoples were the first consumers and stewards of marine resources in California, and relied on the ocean for much of their food, medicine and tools. Their unique relationship with the sea endures to this day.
- b) The first European explorers to California utilized marine and estuarine resources for sustenance and trade. Post settlement, coastal communities built a thriving fishing culture that continues to shape our identity as Californians.
- c) California's coast is world-renowned for its recreational opportunities, including fishing, boating, surfing, diving, swimming and wildlife viewing.
- d) Lessons from historic ocean and estuarine use help to guide present-day decisions on marine resource management, including biological, economic and cultural considerations.



3. FROM MOUNTAIN TOPS TO OCEAN DEPTHS, CALIFORNIA'S AQUATIC HABITATS ARE INTERCONNECTED

Fresh water moves across and through landscapes towards the sea, where it merges with coastal estuaries. From there, water flows to the ocean, interacting with coastal currents and seasonal weather patterns.

- a) California watersheds link land use to ocean ecosystems where surface runoff impacts water quality within rivers, estuaries and marine environments.
- b) Coastal wetlands are vital connection points for migration and propagation of many species.
- c) Throughout the year, the California Current cycles cold water southward from British Columbia to Baja. During winter months, the weaker Davidson Current brings warmer waters northward adjacent to the coast.
- d) Coastal winds push warm surface water away from the coast. This shift of water allows for the upwelling of deep, cold, nutrient-rich water.
- e) Weather systems, seasonal heating and cooling, and cyclical events like El Nino and La Nina effect both estuarine and marine systems.

4. CALIFORNIA'S ESTUARIES AND OCEAN ENVIRONMENTS ARE GLOBAL WILDLIFE HOTSPOTS

California's unique convergence of marine and coastal habitats generate unparalleled biological diversity and species abundance.

- a) Biological diversity is due in part to coastal upwelling and cyclical weather patterns, as well as to the mixing of different temperature regimes: sub-arctic waters in the north and sub-tropical waters in the south.
- b) California's ocean and estuarine environments are comprised of many distinct habitat communities, including mudflats, salt marshes, eelgrass beds, intertidal surf zones, rocky reefs, kelp forests, soft ocean bottoms, seamounts, underwater pinnacles and deep ocean canyons.
- c) California's coastal biodiversity is complex and abundant. It includes close to 40 species of marine mammals, nearly 800 species of marine algae, more than 2,000 species of estuarine plants and animals, and one of the most diverse assemblages of finfish and invertebrates in the world.
- d) Less than 5% of the world's oceans have been explored. In deep sea environments along California's coast, previously unknown species continue to be discovered.



5. HUMAN ACTIONS ARE RAPIDLY CHANGING CALIFORNIA'S MARINE AND ESTUARINE ENVIRONMENTS

Natural processes are being affected by human actions, where impacts may build cumulatively and magnify in intensity, resulting in large-scale environmental problems. Many of those impacts are driven by increasing human population, which puts direct and indirect pressure on the state's finite marine and estuarine resources.

- a) California has lost the vast majority of its tidal wetlands, mainly due to agricultural and urban development. The continuing destruction of these vital habitats disrupts ecosystem services for humans and wildlife alike.
- b) Unsustainable fishing practices in the past contributed to the decline of some fish and invertebrate species in California.
- c) The human introduction of non-native species threatens complex and sometimes fragile interactions within California's estuarine and marine ecosystems.
- d) Human production of heat-trapping gases, through the burning of fossil fuels, is creating warmer water temperatures and ocean acidification across the globe. These conditions disrupt physiological processes, habitats, migratory routes and complex predator-prey relationships for many species.
- e) Pollution, such as chemicals, nutrients, plastics and other contaminants, have impacted species and habitats along the entire coast.

6. THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE IS LEADING EFFORTS TO CONSERVE AND RESTORE OCEAN AND ESTUARINE RESOURCES

California's marine and estuarine environments continue to be abundant and biologically diverse, due in part to ongoing management actions on the part of the California Department of Fish and Wildlife.

- a) Statewide habitat conservation and restoration efforts protect valuable ecosystem services that estuaries provide.
- b) Fisheries management uses a science-based, ecosystem approach to promote sustainable harvests and recovery of depleted stocks.
- c) The California Network of Marine Protected Areas (MPAs) is designed to safeguard the natural diversity and abundance of marine life. California's MPAs comprise the largest ecologically connected MPA network in the world.



- d) The California Department of Fish and Wildlife is working in collaboration with key partners, including other governmental agencies, Tribes, non-governmental organizations, for-profit businesses, local communities, the recreational and commercial fishing industries, and private individuals. Together these partners monitor, protect, and sustain California's unique coastal resources

7. HELP PROTECT OUR OCEAN AND ESTUARIES: YOUR ACTIONS MAKE A DIFFERENCE

Californians enjoy the beauty of the coast and the bounty of its waters. Responsible conservation decisions by individuals help promote the health and resilience of our ocean and estuarine systems.

- a) When walking on coastal trails, stay on marked paths to avoid destroying fragile habitats and disturbing sensitive species.
- b) Be respectful of marine and coastal life. View marine mammals and shore birds from a safe distance, for their protection as well as yours. Avoid handling or removing animals, shells or rocks from tidepools.
- c) When hunting waterfowl in estuarine environments, know the seasons for targeted species and the allowable limits.
- d) When fishing, know the species you are targeting, take only what is legally allowable, and return unintentionally caught species as quickly and safely as possible. Employment of a descending device is recommended for proper release of pressure-sensitive bycatch.
- e) Marine fishing in California is managed for sustainability. Buy California-caught seafood and avoid imports.
- f) Avoid disposable packaging, especially plastics. Reduce, reuse, recycle and repurpose.
- g) Keep toxins out of waterways: safely dispose of harmful pollutants such as electronics, batteries, pharmaceuticals, oil, paint and other chemicals.
- h) Reduce your carbon footprint: reduce fossil fuel use by driving less and conserving energy.
- i) By working together, we can ensure healthy, abundant and biologically diverse coastal ecosystems for future generations. To find out more about protecting California's ocean and estuarine resources, go to www.wildlife.ca.gov.

The development of these messages involved a comprehensive effort in 2016 and 2017 engaging interpreters and scientists from across CDFW regions. Members of the planning team included Marnin Robbins, Virginia Guhin, David Moore, Amanda Ankenbrandt, Robin Madrid, Mary Patyten and Angela Edmunds.

Cover photo of girl overlooking the ocean: Marnin Robbins