

California Coastal Sediment Master Plan

Mission

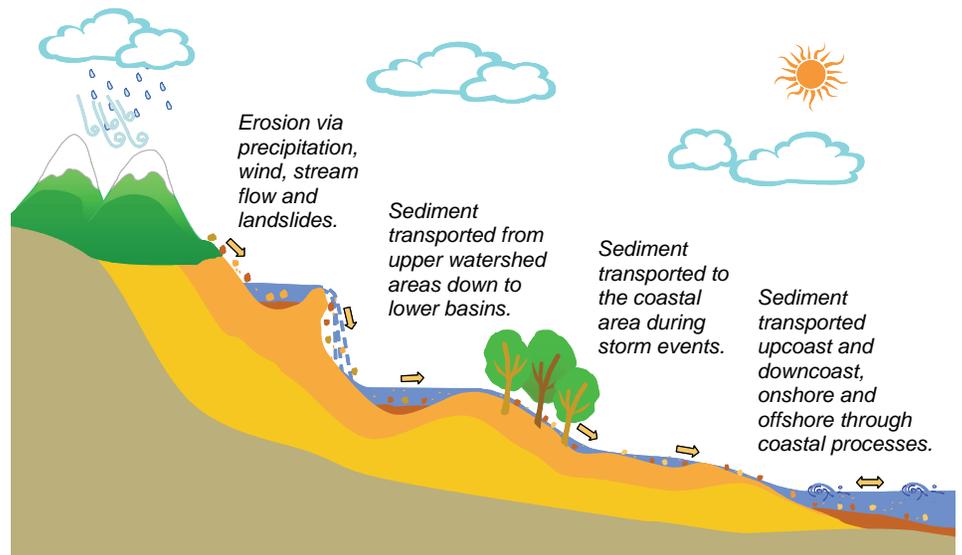
Develop a comprehensive master plan for the conservation, restoration, and preservation of the valuable sediment resources along the coast of California to reduce shoreline erosion and coastal storm damages, provide for environmental restoration and protection, increase natural sediment supply to the coast, restore and preserve beaches, improve water quality along coastal beaches, and optimize the beneficial use of material dredged from ports, harbors, and other opportunistic sediment sources.

The California Coast – An Important Resource

The California coastline consists of a variety of landforms such as sand and cobble beaches, rocky intertidal areas, rocky cliffs, and loosely consolidated bluffs. These landforms provide habitat for hundreds of wildlife species covering the spectrum of birds, mammals, reptiles, amphibians, fishes, and invertebrates. The California shoreline also provides residential, industrial, commercial, and military land uses for humans as well as recreational and educational opportunities.

Natural Sediment Processes

Much of the sediment that makes up the sand and cobble beaches of the coast is material carried to the coast by rivers and streams. Under natural conditions, weathering processes erode sediment from the watershed via precipitation, wind, stream flow, and landslides. Streams transport gravel, sand, silts, and clays from the upper watershed areas down to the lower basins, where the sediment is subsequently transported to the coast during storm events. The volume and size of the sediment transported by streams depends upon the stream forces. Larger storms cause increased volumes of sediment with higher proportions of sand and gravel to be transported to the coast. Upon reaching the coast, waves, currents, and winds transport the sediment upcoast and downcoast as well as onshore and offshore, contributing to the dynamic nature of coastal beaches.



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Beneficial Uses of Coastal Sediment

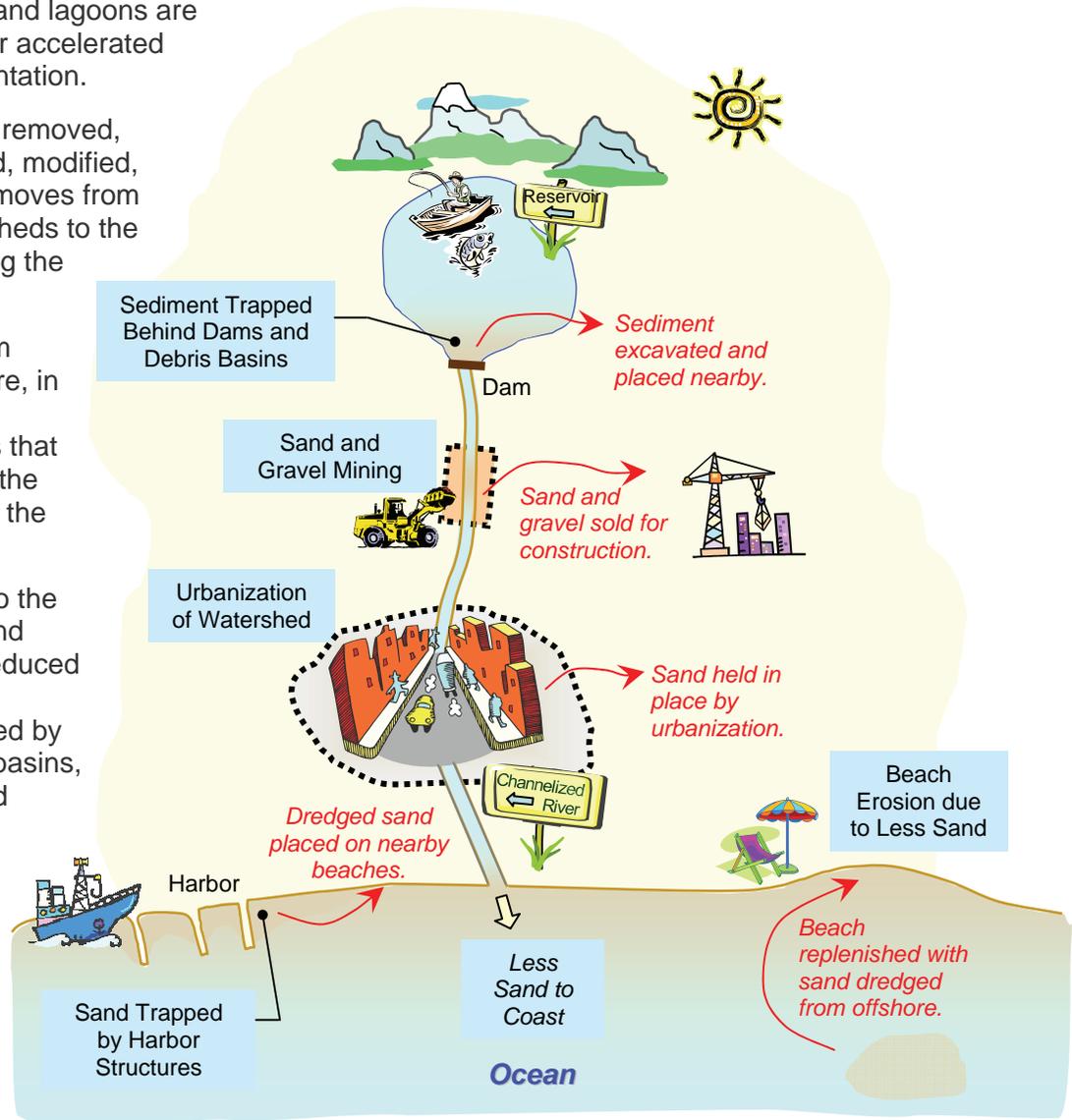


Coastal sediment provides many beneficial uses for humans and wildlife. Sand and gravel provide habitat for various wildlife species that use streams and beaches, while sand also provides recreational beach space for humans and shoreline protection. Additionally, silts and clays carried from river substrates, supplies needed nutrients for nearshore habitats. Sand and gravel, extracted from in-stream and offshore sources, is used by the construction industry for infrastructure development. Easy access to this important construction material has been a factor in California's economic growth.

The Problem – Human Modifications Have Altered Processes and Impacted Uses

Humans have substantially altered natural sediment transport processes within California's coastal watersheds, reducing storm protection, habitat and recreation. Dams, built to control floods and store water, trap sediment in reservoirs. Sand and gravel are mined from stream systems for use in construction. Timbering, grading, and earth moving strip off vegetation and expose the watersheds to excessive erosion. Conversely, construction of channels, roads, and buildings hardens the watershed, which reduces erosion and leads to decreases in the amount of coarse sediment available for delivery via streams. Some coastal structures such as harbors, jetties, groins, and breakwaters alter movement of sediment along the shoreline while other coastal structures such as riprap and seawalls reduce the amount of sediment supplied directly to the shoreline through the reduction of bluff and cliff erosion. Human modifications to the coastal watersheds and shorelines of California have resulted in the following sediment-related problems:

- Beaches are undergoing accelerated erosion, reducing recreational opportunities, contributing to loss of habitat, and increasing the probability of storm damage along the coast.
- Coastal stream water quality has become impaired.
- Coastal wetlands and lagoons are experiencing either accelerated erosion or sedimentation.
- Sediment is being removed, trapped, redirected, modified, and polluted as it moves from the coastal watersheds to the shoreline and along the coast.
- Sand dredged from harbor channels are, in many instances, placed in locations that does not optimize the beneficial reuse of the material.
- Sediment supply to the coast has been, and continues to be, reduced as a result of interruptions caused by dams and debris basins, mining of sand and gravel, artificially stabilizing the shoreline, and hardening of the coastal watersheds.

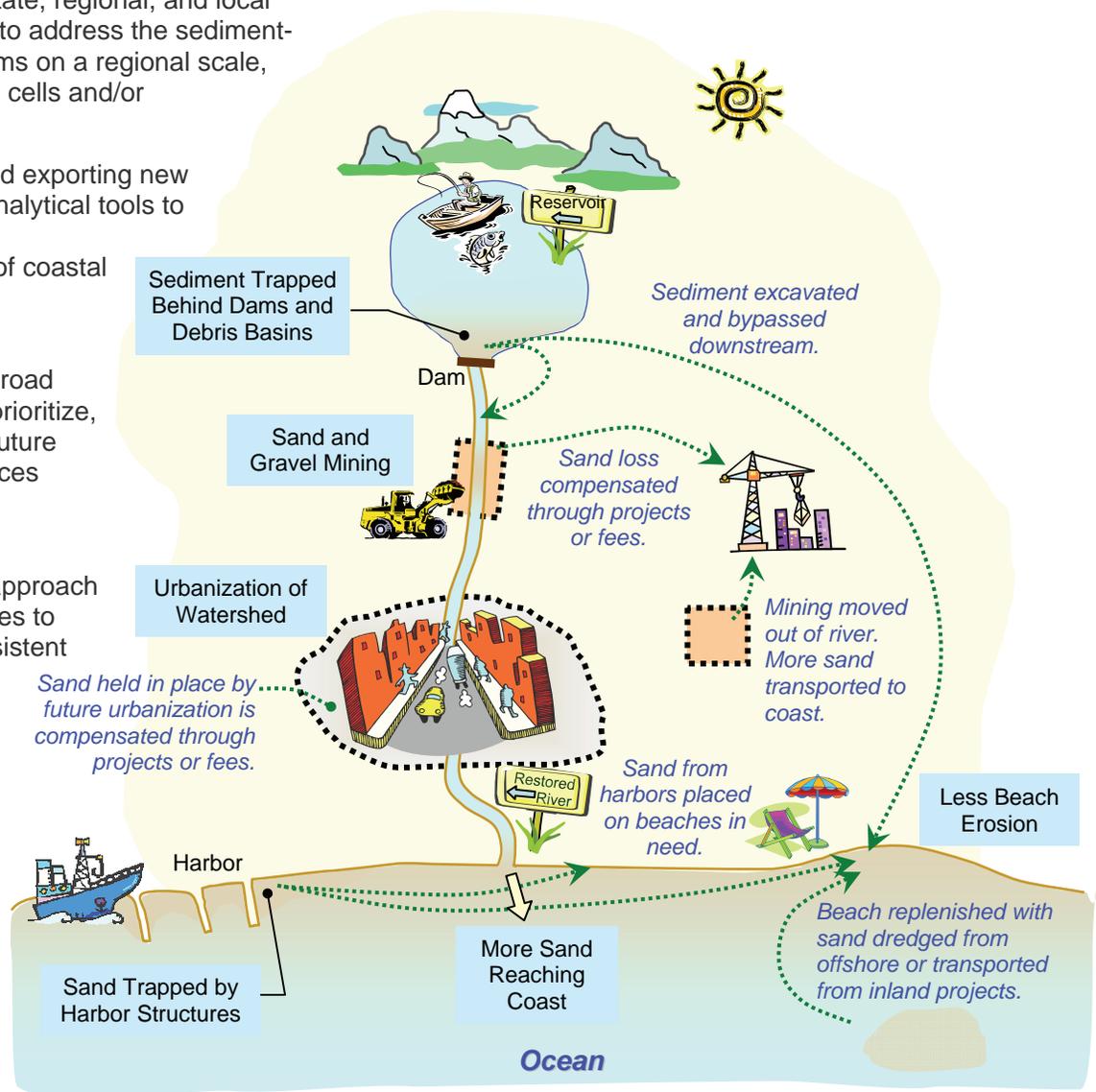


Existing Sediment (Sand) Management

The Road to Solutions – The California Coastal Sediment Master Plan

Many watershed and shoreline problems caused by human modifications to the coast can be solved and/or addressed through the development of a new approach known as Regional Sediment Management (RSM). The California Coastal Sediment Management Workgroup (CSMW), a partnership of several federal and state agencies, is currently developing the California Coastal Sediment Master Plan (SMP) study, to foster a regional sediment management approach for the entire state. The SMP will provide a framework for finding solutions through RSM by:

- Identifying sediment-related problems along the California coast, such as beach erosion, wetland erosion/sedimentation, habitat loss, and water quality impairment.
- Defining the causes of sediment-related problems such as dams; debris basins; dredging; sand and gravel in-stream mining; coastal structures; lack of project coordination; and inconsistent policies, procedures, and regulations.
- Providing a solid scientific framework and database regarding technical issues within the coastal environment to support sediment management decisions.
- Developing a framework, through collaboration with federal, state, regional, and local governments, to address the sediment-related problems on a regional scale, such as littoral cells and/or watersheds.
- Developing and exporting new and existing analytical tools to assist in the management of coastal resources.
- Providing a programmatic road map to plan, prioritize, and program future coastal resources projects.
- Fostering a collaborative approach among agencies to provide a consistent framework for project proponents.
- Establishing a streamlined process for coastal resources related project approvals.



Regional Sediment (Sand) Management

What Will The Sediment Master Plan Do?

Implementation of the Sediment Master Plan is expected to provide the following benefits:

- Improved beach conditions and reduced erosion attributed to human causes.
- Improved wetland quality through smaller fluxes in localized sedimentation and erosion.
- Improved water quality through better sediment management.
- Improved use of federal and state agency resources through leveraging of funds and technical resources, improved staff coordination, and the formulation of regional solutions.
- Optimized project execution by programmatically assessing environmental impacts of regional coastal projects, streamlining the permitting process, and holistically integrating discrete solutions into comprehensive regional solutions.



The California Coastal Sediment Management Workgroup (CSMW)

The California Coastal Sediment Management Workgroup (CSMW) was established by the U.S. Army Corps of Engineers (Corps) and the California Resources Agency (Resources Agency) in 1999 to develop regional approaches to protecting, enhancing and restoring California's coastal beaches and watersheds through federal, state and local cooperative efforts. The CSMW is the first state and federal partnership developed in California for on-going, multi-agency interaction on statewide coastal sediment management issues.



Federal Participation

U.S. Army Corps of Engineers, South Pacific Division
U.S. Army Corps of Engineers, San Francisco District
U.S. Army Corps of Engineers, Los Angeles District
National Oceanic Atmospheric Administration
U.S. Geological Survey
U.S. Environmental Protection Agency
U.S. Minerals Management Service
National Ocean Service

State Participation

California Resources Agency
California State Coastal Conservancy
Department of Boating and Waterways
Department of Parks and Recreation
California Department of Transportation
California State Lands Commission
California Coastal Commission
Department of Fish and Game
California Geological Survey

Local Participation

California Coastal Coalition

For More Information

To learn more about the Sediment Master Plan, visit: <http://dbw.ca.gov/CSMW/CSMWHome.htm>.

