



This amazing view of the Cliff House from Ocean Beach reminds us that we are a park on the edge.

As one stares out at the often gray and choppy seas off the coast, you wonder if the late Dr. Edgar Wayburn and other conservationists were thinking about ocean protection in the midst of their efforts to establish the Golden Gate National Recreation Area. Ocean awareness often resurfaces as a result of problems such as the erosion of Ocean Beach or the Cosco Busan oil spill. Beaches are our portal into the mysterious world of the ocean - what washes ashore are some of the few clues to ocean health and changes.

## Basic Beach Ecology

Sandy shores seem open and endless, but actually include a number of different habitats. Starting at the crashing waves of the tidal zone, animals such as the mole crab bury themselves in the shifting sands, moving up and down the beach as the waves break and the tide turns. Up from the intertidal zone is the wrack line – seaweed and other flotsam gathered on the upper beach. Bull kelp, feather boa algae, dead sea life, and drift wood provide homes for amphipods and black flies. These

beach decomposers help break down dead plant and animals, and in turn are food for small shorebirds such as the threatened snowy plover. Beach sediments are also very diverse, ranging from sands of Sierra origins, to the rainbow cherts of Rodeo, to the ancient sandstones of Fort Funston. There are many beaches to enjoy and explore in Golden Gate including Stinson, Muir, Tennessee Valley, Rodeo, Baker, China, and Ocean Beaches.

## Sea level Rise and Beach Erosion

Tidal records from Crissy Field indicate a sea level rise of 8 inches in the last 100 years. This rate of change, coupled with the likelihood of more frequent and intense winter storms will exacerbate ongoing coastal erosion of park beaches such as Ocean Beach, and result in flooding of low-lying areas such as Fort Point. These physical factors also affect marine organisms and habitats. Shorebirds like snowy plovers that inhabit low lying coastal areas will be forced out, as already fragmented habitats disappear

below the surface of the water. The small spits of sand or offshore rocks where harbor seals haul out may become submerged. As part of the General Management Plan update, the park is including possible adaptations to future sea level rise. We are also working with the U.S. Geological Survey on studies aimed at improving our understanding of the complex coastal processes that shape our beaches.



Beach erosion from Winter 2009-10 caused major infrastructure problems, while visitors come into conflict with resources at Crissy Field.

## Recreation Challenges?

Park beaches provide valuable habitat and are not just giant sand boxes to play in. Can a beach be “loved to death?” Because we are a recreation area, this question is a tough one. As we all know, the public will not protect what it has not enjoyed and understood, but there is a de facto hierarchy of beaches in the park. Are Ocean Beach, Crissy Field, and Stinson Beach to be considered primarily for recreation, even though they are the only

beaches in the park that harbor overwintering threatened snowy plovers? What kinds of recreation is appropriate on park beaches that doesn't lead to trash accumulation and other invasive species? Our current Dog Management Plan has a large focus on park beaches. These questions will continue to arise as visitation increases in future decades, and we need to carefully balance visitor enjoyment with resource protection.



Volunteers from Beach Watch look for dead or injured marine organisms, as well as violations and pollution at Baker Beach.

Park volunteers and staff are actually hard at work on park beaches doing management and education activities. Thanks to partners such as Gulf of the Farallones National Marine Sanctuary and many others, we are able to reach a much wider public and reinforce messages concerning ocean stewardship. The beach is a place of strong memories for many of us; it can also be where we shift our paradigm of resources to include the 1/4 mile of offshore waters that are within park boundaries. We are first and foremost a coastal park, and it is in this framework that all of our cultural and natural resources weave together.



Students in Crissy Marsh collect mud samples through the WISE program, while volunteers gather for Coastal Cleanup Day at Ocean Beach.

### Beach Watch

Beach Watch is a long-term shoreline monitoring project that was founded in 1993. This year-round assessment program is conducted by dedicated volunteers who regularly survey an assigned beach within the Gulf of the Farallones and Monterey Bay National Marine Sanctuaries. Currently, Beach Watch volunteers monitor 42 beach segments every two to four weeks from Bodega Head in Sonoma County to Año Nuevo State Reserve on the Santa Cruz county line. Volunteers collect data

on live and dead species of birds, marine mammals and invertebrates, visitor activities, and status of streams and lagoons. They also report violations, detect pollution, and collect oil and tar ball samples. The data is then used in various management capacities. The program is a model citizen science program whose data has been used in many scientific studies and to assess the impacts of local oil spills. The data and reports are available online.

Check it out at: [http://www.farallones.org/volunteer/beach\\_watch.php](http://www.farallones.org/volunteer/beach_watch.php)

### Beach Cleanups and Coastal Cleanup Day

The Coastal Conservancy supports many volunteer efforts at Golden Gate. California Coastal Cleanup Day is the premier volunteer event focused on the marine environment in the country, and hailed by the Guinness Book of World Records as “the largest garbage collection.” Every September, beach captains in the three counties that span the park coordinate thousands of volunteers with data sheets and clip boards in hand to record what kind of trash we are finding on park beaches. Two recent changes in the event organization have been

to “stop trash where it starts” and focus on the urban trash or street litter that ends up on our beaches; and to BYO buckets, gloves, etc to reduce internal trash. There is also a year-round Adopt-A-Beach program where school groups or corporations can adopt a park beach and commit to cleaning it at least three times per year. Golden Gate also has a volunteer coordinator dedicated to leading beach cleanups across the park, with monthly programs at Ocean Beach and Muir Beach.

Check it out at: <http://www.coastal.ca.gov/publiced/ccd/>

### Beaches as an Education Gateway

A number of park partners focus on education, and beaches are one of the main stages where this education plays out. From the Gulf of the Farallones Visitor Center and Crissy Field Center, to the Marine Mammal Center, Point Bonita YMCA and Headlands Institute, tens of thousands of park youth are being exposed to park beaches every year. These partners are teaching science

and environmental education in nature’s classroom. They help inspire in children a personal connection to the natural world and share responsible actions to sustain it. Golden Gate is currently working on its own Junior Rangers Oceans program for youth and families that should be available by 2012.

Learn more at: <http://www.nps.gov/goga/parkmgmt/partners.htm>