

RESTORING FISHING AND FISH HABITAT TO SOUTHERN CALIFORNIA



Photo Credits: Garibaldi with Kelp (David Witting, MSRP); Anglers on Belmont Pier (Gabrielle Dorr, MSRP); Cabazon on an oil rig (David Witting, MSRP); Trawl survey of White Croaker (Ken Nielson, Seaventures)



MSRP fishing and fish habitat restoration projects take place on some of the California Channel Islands, and throughout the southern California region as shown on this map.

Restoring Fishing

In 1991 and 2009, the State of California released Fish Consumption Advisories to protect humans from risks associated with eating certain species of fish that are contaminated with PCBs and DDTs. The loss of fishing opportunities caused by these Fish Consumption Advisories was one of the natural resource injuries of the Montrose case. The **Montrose Settlements Restoration Program's (MSRP)** approach to restoring this injury is to:

- 1) Provide complete and accurate information to anglers about fish contamination including identifying fish that are safe for consumption
- 2) Build an artificial reef in a public fishing area that will attract a greater diversity of fish species which are more suitable for consumption

Restoring Fish Habitat

The presence of DDT and PCB contaminants in the sediments located on the Palos Verdes Shelf have impaired the function of fish habitat due to the ongoing contamination of the fish. This injury is persistent and is unlikely to disappear by itself in the near future. The Environmental Protection Agency (EPA) is considering different alternatives for remediation of the impact site. MSRP is improving and restoring fish habitat in areas throughout southern California to enhance fish production in areas that produce less contaminated fish. MSRP restores three major habitat types in southern California including kelp forests, rocky reefs, and wetlands. Wetlands provide nursery habitat for fish and kelp forests and rocky reefs provide food and shelter. We also provided funding for studies that focused on the effectiveness of Marine Protected Areas.

A full description of fishing and fish habitat restoration projects is on the back!



FISHING AND FISH HABITAT PROJECT DESCRIPTIONS



Restoring Fishing

Public Information

MSRP provides information to anglers so they can make sound decisions about where they fish and which species are not safe to consume. **Outreach materials developed by MSRP and with partners focus on the link between the ecology and life history of a particular fish species and its tendency to bioaccumulate contaminants.** One of our most popular outreach products, a comic book titled "What's the Catch?" tells the story of how contaminants were released into the ocean and how they impacted fish and wildlife. MSRP also provides funds annually to organizations that focus on educating youth and families about fish contamination. We have reached over 10,000 youth and families through this program!

Artificial Reefs

Artificial reefs have often been used to mitigate for environmental impacts to natural fish habitats. MSRP's objective for building an artificial fishing reef is to attract a greater diversity of fish species that are lower in DDTs and PCBs for anglers to consume. The geographic placement of reefs depends on the number of soft-bottom species with high levels of contaminants in a particular area. MSRP considers several critical elements for reef placement, including sediment contamination, existing fishing pressure and accessibility, and suitability for kelp recruitment and establishment to identify the location and design of all restoration reefs. **MSRP is evaluating plans to build a series of reef modules along the Belmont Pier in Long Beach, California.**

Restoring Fish Habitat

Wetlands Restoration

Coastal estuarine wetlands are critical habitat for many species of marine fish. **MSRP funding is directed at full-tidal wetland restoration projects that will increase the production of commonly caught coastal fish species, such as the California Halibut.**

Huntington Beach Wetlands

MSRP provided funding to the restoration of Huntington Beach wetlands, specifically to restore parts of the Talbert and Brookhurst Marsh segments. MSRP's support for this project filled a critical funding gap and the full restoration of the Huntington Beach Wetlands is now completed. This project has resulted in approximately 140 acres of full-tidal wetlands that will play an important role as nursery and foraging habitat for fish and birds.

Bolsa Chica Wetlands

MSRP provided funding for maintenance dredging of the Bolsa Chica wetlands in 2009. The Bolsa Chica wetlands project is one of the largest full-tidal-exchange wetland restoration projects in southern California and was completed in 2006. Full tidal exchange is a critical element in the wetlands function as nursery and foraging habitat for marine fish. MSRP's contribution to the maintenance of tidal flow helped to maintain the function of the wetland.

Monitoring Marine Protected Areas

The goal of this project was to improve the fish habitat function in Southern California by providing funds needed to evaluate and implement Marine Protected Areas (MPAs). **MSRP provided necessary funds for implementation of the Channel Islands network of MPAs to ensure they provide the best possible basis for further implementations of MPA networks throughout California.** This project provides specific benefits to the fish habitats adjacent to the Northern Channel Islands while also promoting longer-term benefits of fishing and fish habitats throughout California. The data collected during this project will improve site selection and design of future networks of MPAs. MSRP provided funds for two MPA projects that focused on monitoring and recruitment of marine life within various habitats of the Channel Islands National Park and were completed in 2009.

Kelp Forest Restoration

Kelp forest habitat has made a slow but steady recovery in southern California. However, there are still areas where kelp forest recovery is limited by the formation of urchin barrens. High numbers of urchins in these barrens remove all vegetation before it has a chance to grow into mature plants. The urchins are also in a constant state of starvation because there is not enough food to support them. Predators that consume urchins such as sea otters, large sheephead, and large lobsters rarely feed in urchin barrens because there is no kelp canopy that provides cover for them and the urchins have little nutritional value. **The goal of this project is to reduce the abundance of urchins from 95 acres of identified urchin barrens along the Palos Verdes Shelf area to a level that represents a healthy kelp forest habitat.** Once scientists and volunteers remove the urchins kelp plants will be able to grow and establish in these areas over time.

Rocky Reef Restoration

A series of landslides along the Palos Verdes Shelf area have caused major losses of Rocky Reef habitat over the past several decades. Biologists have measured approximately 250 acres of buried, low-relief Palos Verdes reef habitat resulting from a landslide in 1999. City and county officials have implemented erosion control measures but the reefs remain buried and no longer provide habitat for fish and other marine life. **MSRP is building artificial reef modules that are high relief reef habitats to be more resistant to large amounts of sediment in the surrounding water.** The reefs will attract a diversity of fish and marine life and promote the growth of kelp forests.

