

Palos Verdes Kelp Forest Restoration Project



HOW DOES THIS PROJECT BENEFIT YOU?

- Enhances the fish habitat in this area creating more opportunities for commercial and recreational fisheries.
- Attracts a greater diversity of fish and marine life providing more opportunities for recreational activities.
- Enhances the ecosystem function providing a buffer to the effects of climate change

WHY RESTORE KELP FORESTS IN SOUTHERN CALIFORNIA?

Kelp forests are one of the world's most productive marine habitats. In southern California, they provide critical habitat for marine life and benefits to humans ranging from supporting recreational and commercial fisheries to protecting the shoreline by creating a buffer against storm-driven waves. Sadly, coastal southern California has suffered a decline in kelp forest habitat that spans most of the 20th century. More recently, improved coastal management and favorable ocean conditions have resulted in significant recovery of kelp forests in some areas.

In other areas, urchin barrens have formed preventing a full recovery of kelp forests. An urchin barren is a term used to describe an area where kelp has disappeared and urchins are overpopulating. Once an urchin barren is formed, it is difficult for kelp forests to return. The lack of sea urchin predators and a change in urchin behavior are the main factors involved when a kelp forest turns into an urchin barren. In a healthy kelp forest, urchins live in rocky crevices where they are safe from predators and feed on drift kelp. When you have less predators feeding on urchins and drift kelp is no longer available, then urchins adapt their behavior in order to avoid starvation by leaving the crevices and eating all kelp or algae in their path.

Photo Captions:

Top: Healthy Kelp Forest in southern California. (David Witting, NOAA)

Left: Urchin barren in Palos Verdes. (David Witting, NOAA)

Back: Urchin barren transformed to a Kelp Forest in Palos Verdes. (David Witting, NOAA)

WHY PALOS VERDES?

The Palos Verdes shelf is also known as a superfund site. Hundreds of acres of fish habitat were injured along the shelf due to the presence of DDTs and PCBs in the sediments. The Montrose Settlements Restoration Program (MSRP) is responsible for identifying projects that restore important fish habitat in the vicinity of the Palos Verdes Shelf. This project was a high priority for MSRP because of the extensive urchin barrens that exist along the Palos Verdes coast. The Palos Verdes Kelp Restoration Project will provide benefits to fisheries, ecosystem function, and increase recreational opportunities.

WHAT IS NOAA'S MSRP DOING TO RESTORE KELP FORESTS IN PALOS VERDES?

MSRP is providing the necessary funding for this project through a partnership with The Bay Foundation. This group coordinates teams of scientists, volunteers, and fishermen to reduce sea urchin densities. These urchins are not harvestable because they have reduced gonads (the edible part) from being in a constantly starved state. The teams survey the barren areas before and after restoration to determine the density of urchins. They remove the appropriate number of urchins in an area to bring the urchin level back to a more natural density.



WHAT IS THE PROGRESS TO DATE?

The Bay Foundation with several partners began restoration activities in July 2013. Three commercial sea urchin harvesters joined the project in October 2013. Four active restoration sites have been established, two each in Honeymoon cove and Underwater Arch Cove on the Palos Verdes shelf. In all four locations, divers have reduced purple sea urchin (*Strongylocentrotus purpuratus*) densities in depths of 2 to 40 feet and there is now about 6 acres cleared and in various states of recovery. A variety of macroalgae are now beginning to grow on the reefs in all four sites. In some sites, giant kelp (*Macrocystis pyrifera*), has reached impressive lengths exceeding 25 feet already!

WHAT ARE THE NEXT STEPS FOR KELP FOREST RESTORATION?

We are fully committed to intensive restoration work for about 2-3 more years. As sites are restored, detailed monitoring will assess the rate of recovery and persistence of the restored kelp beds. When the project is complete, we hope to have 75-80 acres of restored kelp forests.

HOW CAN YOU BE INVOLVED IN THIS PROJECT?

Volunteers are needed to assist with restoration efforts on this project. All volunteers are required to become certified as scientific divers under standards established by the American Academy of Underwater Scientists. There have been 51 boat trips since summer 2013 with 35 volunteer divers contributing at total of 1080 hours to the project to date.

If interested in volunteering for this project email msrp@noaa.gov.

