Whittier Artificial Reef Study

Artificial Reefs as a Restoration Tool for Alaska's Coastal Waters

In May 2006, Alaska's first pre-planned artificial reef was installed in Smitty's Cove in northwestern Prince William Sound. The reef is a pilot research project funded by NOAA Fisheries Alaska Regional Office, NOAA Fisheries Restoration Center, the U.S. Fish and Wildlife Service Alaska Coastal Program and the Alaska Marine Lines mitigation fund. A reef of one hundred fish havens and one hundred reef balls was deployed in three paired patches on a declining slope (15-20m depth) over a mixed soft and hard sediment substrate.

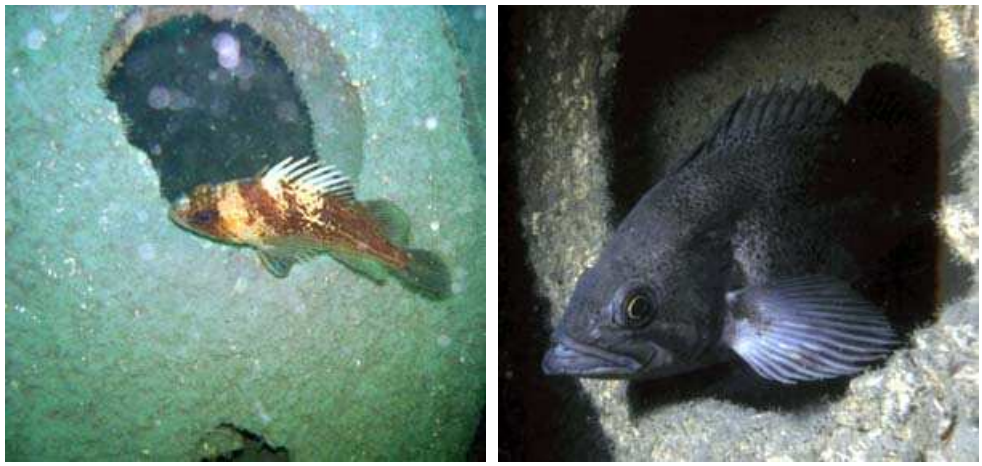
Deploying reef balls and fish havens in May 2006.

The researchers installed the artificial reef near Whittier in northwestern Prince William Sound because the coastal habitats adjacent to Whittier are increasingly stressed by recreational, industrial and fishery impacts. The area is a recreational destination for Anchorage residents and seasonal tourists, and a port for the Marine Highway ferry system, cargo vessels, cruise ships, and commercial fishing vessels. As economic growth and development continues in Whittier, marine coastal habitat is altered by a variety of development activities such as harbor development, dredge and fill operations, sheet-pile dock structures, and log transfer facilities. These development activities alter the function of pristine marine coastal habitats principally by the removal, alteration, or elimination of existing living habitat structure including rocky reefs and aquatic vegetation.

Through the Whittier Artificial Reef Study NOAA Fisheries will assess the efficacy of artificial reefs as a fish habitat enhancement tool in cold Alaskan waters. Project results will provide knowledge and direction for management of future marine habitat restoration in Alaskan coastal communities experiencing similar developmental and recreational pressures. Artificial reefs are used worldwide to restore or enhance productivity in marine ecosystems and have been designated by NOAA Fisheries as essential fish habitat in some regions of the U.S.

At just the beginning of year 2, of a 5 year study, the artificial reef is developing the beginnings of an Alaskan nearshore community, including colonization by algae and kelp, invertebrates such as starfish, snails, tunicates, hermit crab, and shrimp, as well as dusky, copper, and quillback rockfish, juvenile lingcod, and sculpin.

In late May, divers from NOAA Fisheries, the Prince William Sound Science Center and the University of South Alabama, Daupin Island Sea Lab will dive on the artificial reef to survey the colonization of aquatic vegetation, invertebrates and fish. In an associated study, copper rockfish and ling cod will be captured, fitted with acoustic tags, and monitored to determine the size of their home range, residence time and site fidelity.



Three months after the artificial reef is installed, a copper rockfish (left) and a dusky rockfish (right) swim in and out of reef balls in Smitty's Cove in Passage Canal of northwestern Prince William Sound.