

VERMILION ROCKFISH (*Sebastes miniatus*)



Vermilion Rockfish are an important component of the rocky reef ecology along the west coast of North America. They are also an important fishery species being targeted by both recreational and commercial fishers. This colorful species is very popular both in the fresh fish markets and with the commercial fishery live fish market. Adult Vermilion Rockfish are red or orange-red in color and often have grey and black mottling along their sides. They are similar in appearance to Yelloweye and Canary Rockfish, but the bright yellow eye of the former and the distinct light color band along the lateral line of the latter can help distinguish these species.

OVERVIEW

- **Oregon Conservation Strategy Species**
- **Size:** Up to 30 inches long
- **Weight:** Up to 14.9 pounds
- **Lifespan:** At least 68 years
- **Key Strategy Habitats:** Nearshore
- **Similar Species:** Yelloweye Rockfish, Canary Rockfish, Sunset Rockfish

FISHING TIPS

- Start in the morning.
- Target rocky reef areas.
- Drop your hook to the bottom, then reel up slowly.
- A variety of lures and flies work well.
- Remember to check the fishing regulations for the area before you go and be sure you have your fishing license and descending device.

FUN FACTS

Favorite Food: Crustaceans such as krill, copepods, shrimp, mysids, and amphipods. They also eat small fish, octopus, and squid.

- Genetic work revealed that what we once thought of as Vermilion Rockfish are really two different species, the Vermilion Rockfish and the Sunset Rockfish which lives primarily in waters deeper than 333 feet south of Point Conception.
- Vermilion Rockfish mature at about 4-9 years old.
- Female Vermilion Rockfish can produce up to 2,600,000 eggs a year.
- Vermilion Rockfish can form schools of 100 or more fish, both near the bottom and up off the bottom.

RANGE AND DISTRIBUTION

In Oregon: Vermilion Rockfish can be found throughout the state's marine waters but are more common in southern Oregon waters.

Everywhere Else: Vermilion Rockfish range from the Prince William Sound, Alaska to central Baja California. They are more common and abundant from Vancouver Island, Canada to northern Baja. Most adults seem to live at depths less than about 345 feet.



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LIFE HISTORY AND ECOLOGY

In all rockfish species, fully formed larvae are released from the mother's body and live for several months in the water column. Very little is known about the pelagic larval stage of this species. Young of the year juvenile Vermilion Rockfish may settle to the bottom as small as 0.5 inches in length, but most seem to be about an inch long. These juveniles have dark colored bodies and will settle in a wide variety of low relief habitats including in sand dollar beds. They change color as they grow becoming red, often with light blotches before growing to their adult coloration. Genetic research suggests that larval dispersal for this species may be limited and there appear to be barriers to movement along the Washington coast as well as at Cape Mendocino and Point Conception.

Rockfish don't spawn; spawning refers to the release of sperm and unfertilized eggs into the environment. Rather, all rockfish species mate and have internal fertilization, but the process of courtship and mating has been observed for relatively few of the many species. About half of the female Vermilion Rockfish sampled off Oregon were mature at 7.5 years of age and all were mature by 13 years. Female Vermilion Rockfish are thought to release pelagic larvae almost throughout the year with perhaps a peak in the fall. Female Vermilion Rockfish sampled off Oregon have been found with fertilized eggs in April, May, June, September and October. The developing embryos get substantial nourishment that does not come from the egg itself. There is no placenta or other structure for transfer of nutrition and research suggests that the nourishment comes from dead embryos and undeveloped eggs that are reabsorbed into the amniotic fluid. The long lifespan with an annual reproductive cycle helps to ensure that when the right combination of environmental conditions occur in the highly variable California Current system that a good year class of recruits are produced.

Newly settled young of the year have been observed living in sand dollar beds in sandy bottoms, tube worm colonies, eel grass beds, and cobble bottoms. Coloration of the young of the year and juveniles is very different from the adults and may provide camouflage. Adult Vermilion Rockfish seem to have a small home range and may not travel far, but the data on individual movements is somewhat limited. They tend to prefer rocky bottom habitat with high relief that has cracks, crevices, and caves. Juveniles and adults can form schools of 100 or more fish, both near the bottom and up off the bottom.

Known predators of Vermilion Rockfish include marine mammals, birds (for juveniles), and humans. Vermilion Rockfish are caught on recreational bottom fishing trips off Oregon. They are also taken by commercial fishermen and many are sold live. Live fish prices are considerably higher than for freshly caught fish that are landed dead, and the brightly colored Vermilion Rockfish are among the most valuable. Live fish are sold in many Asian restaurants in the bigger cities on the west coast.

DIET AND FORAGING

Vermilion Rockfish eat a variety of crustaceans including krill, mysids, crabs, amphipods, and copepods. They also eat small fish, octopus, and squid.



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HABITAT CHARACTERISTICS

Coastal waters usually less than about 345 feet deep with rocky bottoms. Adult Vermilion Rockfish seem to prefer high relief complex bottoms with crevices, cracks, and caves.

CONSERVATION AND MANAGEMENT

Threats: Vermilion Rockfish that reside in the California Current Ecosystem benefit from the annual seasonal cycle that includes upwelling of cold nutrient rich waters during the spring and summer months, which are critical for ocean productivity. Changes in ocean productivity, whether they are human induced or natural, can affect reproductive success and population size. Vermilion Rockfish are also vulnerable to overfishing based on productivity and susceptibility analysis.

Conservation and management: Vermilion Rockfish are included in the federal Pacific Coast Groundfish Fishery Management Plan administered by the Pacific Fishery Management Council (PFMC). The Oregon Department of Fish and Wildlife works in concert PFMC and manages fisheries for Vermilion Rockfish within state waters. At present a “data-poor” stock assessment is used to manage fisheries for Vermillion Rockfish. There is much still unknown about this species and there is an extensive set of research and data needs to improve conservation and management. Some of these needs include a fishery-independent survey in rocky habitats to get better information on abundance throughout its range, better information on stock structure, and genetic differences at a variety of scales throughout the species range. Almost nothing is known about the pelagic larvae or their dispersal.

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