COPPER ROCKFISH (*Sebastes caurinus*)

Copper Rockfish are an important component of the rocky reef ecology along the west coast of North America. They can be solitary or form small schools and mix with other rockfish species. Copper Rockfish are an important fishery species being targeted by both recreational and commercial fishers. This colorful species is very popular with the commercial fishery live fish market. Copper Rockfish have several bars of copper orange, brown, or yellowish that radiate back from their eyes. Their coloration can vary considerably but they tend to have blotchy color patches and a light-streak along the back third of the lateral line as a common feature.

OVERVIEW

- **Oregon Conservation Strategy Species**
- **Size:** Up to 26.4 inches long
- **Weight:** Up to 10 pounds
- **Lifespan:** At least 50 years
- **Key Strategy Habitats:** Nearshore, Estuaries
- **Similar Species:** Quillback Rockfish, Gopher Rockfish

FISHING TIPS

- Start in the morning.
- Target rocky reef areas.
- Drop your hook to the bottom, then fish very near the bottom.
- 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.

FUN FACTS

Favorite Food: They eat a variety of crustaceans such as crabs, shrimp, and amphipods. They also eat squid, octopus, and fish.

- Copper Rockfish have occasionally been observed in the dens of giant Pacific octopus.
- Female Copper Rockfish may produce up to 640,000 eggs a year with all larvae released in one batch.
- They mature between 3 and 8 years of age can live at least 50 years.
- Copper Rockfish generally are found at or near the bottom and tend to stay in a small area.

RANGE AND DISTRIBUTION

In Oregon: Copper Rockfish can be found throughout the state's marine waters and in also in some estuaries at least as juveniles.

Everywhere Else: Copper Rockfish range from the western Gulf of Alaska to central Baja. They are more common and abundant from southeast Alaska to northern Baja. Adults are known to live at depths up to 600 feet, but they seem to be more common at depths less than 300 feet.

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LIFE HISTORY AND ECOLOGY

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 mating behavior has observed for relatively few of the many species. Copper Rockfish mature between about 3 to 8 years of age and can live to at least 50 years. Females produce more eggs as they get larger and may have as many as 640,000 in a year. 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. Fully formed larvae are released from their mother's body to live for up to several months in the water column. Female Copper Rockfish release their larvae once during the year. The larvae are less than a quarter inch long when extruded from their mothers. Very little is known about the pelagic larval stage of this species, but it is thought to be relatively short with larvae settling out to very nearshore habitats when they are still less than an inch long. Researchers off Oregon have collected larval young of the year Copper Rockfish that are getting ready to settle out to the bottom in what are called standardized monitoring units for the recruitment of fishes, or SMURFs, which are essentially bags of folded plastic just below the surface that are anchored in about 50 feet of water. They are designed to simulate a kelp canopy. Young of the year that have settled to the bottom have also been collected in several Oregon estuaries. Young of the year seem to like vegetation such as kelp or eel grass. 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.

Studies of tagged adult Copper Rockfish suggest that they usually stay at or near the bottom and have small home ranges, but the number of tagged fish in these short term studies is small. They can be solitary or form small schools and sometimes mix with other rockfish species. Copper Rockfish have occasionally been observed with giant Pacific octopus in the same crevice or den.

Predators of Copper Rockfish include sea birds, marine mammals, fish, and humans. Copper 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 colorful Copper 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

Copper Rockfish mostly feed near the bottom, but will take fishes in the water column. They eat crabs, shrimp, other crustaceans, fish, octopuses, and squid.

HABITAT CHARACTERISTICS

Coastal waters less than 600 feet deep with rocky bottoms. Adult Copper Rockfish seem to prefer high relief complex bottoms such as boulders and areas with cracks and crevices.

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CONSERVATION AND MANAGEMENT

Threats: Copper 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 stock size. Copper Rockfish are also vulnerable to overfishing based on productivity and susceptibility analysis.

Conservation and management: Copper 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 Copper Rockfish within state waters. To date there has only been one stock assessment done for Copper Rockfish and it was what is considered to be a "data-moderate" assessment rather than a full assessment. 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 nearshore rocky habitat to get better information on abundance throughout its range and better information on stock structure. There is also limited information available on the life history of this species. Almost nothing is known about the pelagic larvae or their dispersal.

REFERENCES

Hannah, R. W. and P. S. Rankin. 2011. Site fidelity and movement of eight species of Pacific rockfish at a high-relief rocky reef on the Oregon coast. North American Journal of Fisheries Management 31:483-494

Love, M. S., M. Yoklavich, and L. Thorsteinson, 2002. The rockfishes of the Northeast Pacific. University of California Press, Berkeley, Los Angeles and London.

Love, M. S. 2011. Certainly more than you want to know about the fishes of the Pacific Coast: a postmodern experience. Really Big Press, Santa Barbara, CA.

Rankin, P. S., R. W. Hannah and M. T. O. Blume. 2013. Effect of hypoxia on rockfish movements: implications for understanding the roles of temperature, toxins and site fidelity. Marine Ecology Progress Series. 492:223-234.

Schwartzkopf, B. D., A. D. Whitman, A. J. Lindsley, and S. A. Heppell. 2020. Temporal and habitat differences in the juvenile demersal fish community at a marine-dominated northeast Pacific estuary. Fisheries Research. Vol. 227.

https://www.pcouncil.org/stock-assessments-star-reports-stat-reports-rebuilding-analyses-terms-of-reference/groundfish-stock-assessment-documents/

https://www.pcouncil.org/managed_fishery/groundfish/

https://myodfw.com/sport-bottomfish-seasons