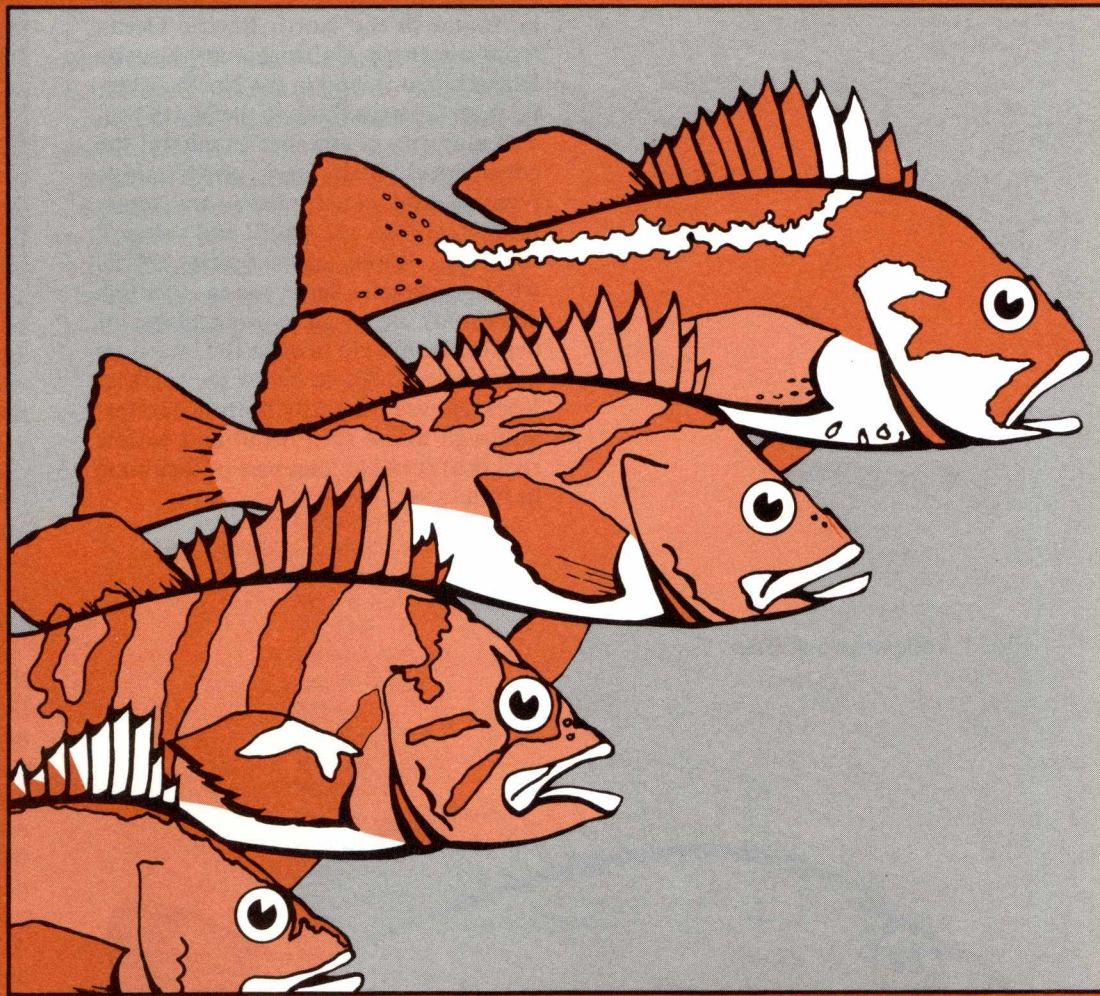


# UNDERWATER WORLD



**Rockfish**





## ROCKFISH

To Pacific fishermen they're known as snappers, canaries, greenies and rock salmon, but collectively they're called 'rockfish' or 'rockcod'. The name "rockcod" is a misnomer, since these fish are not at all related to the true cod. In British Columbia waters there are 36 known species of rockfish belonging to the family Scorpaenidae, which in turn is represented by 34 species of the genus *SEBASTES* and two of the genus *SEBASTOLOBUS*.

Although the geographic range is different for each species, rockfish may be found in the North Pacific Ocean from southern California to Kyushu Island (Japan), and in the North Atlantic from Georges Bank to the North Sea. The majority of the species inhabit the continental shelf and upper slope regions, and consequently are sometimes described as "shelf" and "slope" rockfish. While each species exists within a specific depth range, rockfish commonly occur at a wide range of depths, from kelp beds in the intertidal zone down to 900 m below the surface. Rockfish are primarily bottom species, although a few (yellowtail and widow rockfish) spend at least part of their time in midwater.

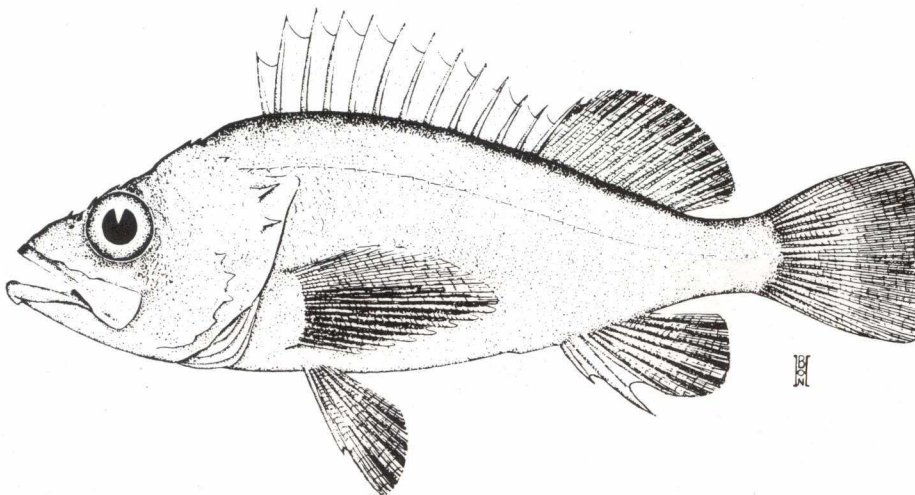
Rockfish are distinguished by their stout, heavy build. Large, broad heads, usually bearing spines and strong ridges, and heavily-spined fins are notable features. The colour patterns vary greatly among species and range from black and drab green through brilliant orange and crimson, and some are accented by the presence of wide red or black vertical stripes.

### Biology

The two species of *SEBASTOLOBUS* are egg layers, depositing their eggs in transparent, gelatinous masses which float at or near the surface, while the *SEBASTES* group bear live young (larvae). The reproductive cycle for *SEBASTES* basically consists of three phases: insemination (transfer of sperm to the female), fertilization, and parturition (release of larvae). In general, females are inseminated during the autumn months but actual fertilization of the eggs take place in winter or early spring. The eggs develop into larvae which are approximately 6 mm at the time of release. Time of parturition varies considerably among areas and species, but the majority release their larvae sometime between January and May. An adult female rockfish (*SEBASTES* spp.) may release 200,000 to 800,000 larvae, depending on the species and size of the female.

During the first stage of development the larvae are pelagic and presumably live near the surface for some time before settling to the bottom. During this early (planktonic) stage, rockfish are not easily identified by species. It is not until the larvae evolve into juveniles that they begin to differentiate and develop the morphological characteristics of the adult. For some species, the coloration of the juveniles, when they are about 10 cm, may be similar to that of the adult stage. Others, like the juveniles of the yelloweye rockfish, are quite different from the adult, and were at one time considered to be separate species.

Fig. 1 Yelloweye rockfish



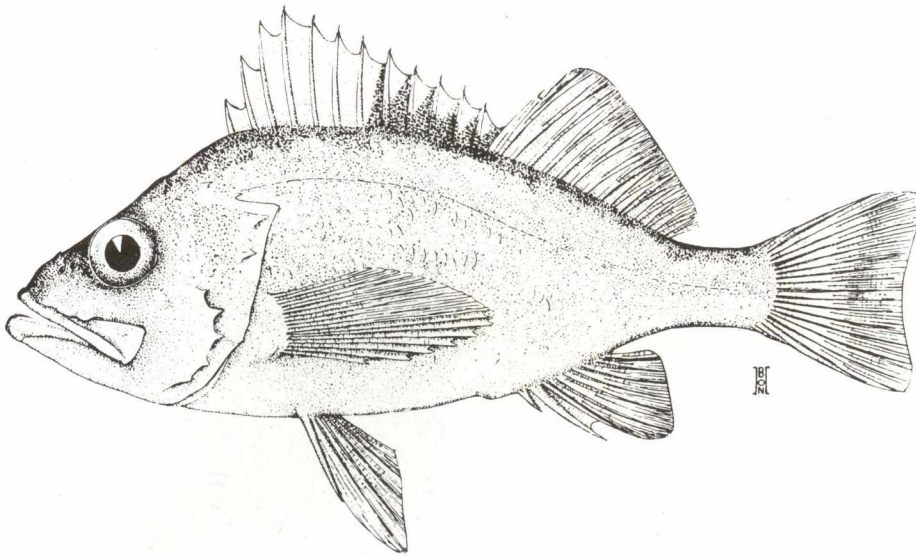


Fig. 2 Canary rockfish

There is little information available about the migration patterns of rockfish. They are considered to be a non-migratory species with localized movement only, although there are indications that some species undergo seasonal depth migrations. Some species form large schools while others are solitary and hide in crevices.

Rockfish eat a variety of foods including herring, sand lance, crabs, shrimp and euphausiids. They are considered to be opportunistic feeders that will take whatever food is available at the time.

Recent advances in age determination techniques have revealed that rockfish as a group are long-lived and grow slowly. Several species have been recorded to be older than 70 years and one roughey rockfish was estimated to be 136 years old. Most of the species do not reach commercial size until they are eight to 11 years of age (approximately 30 to 35 cm). Adult rockfish range in size, depending on the species, from 15 cm for the pygmy rockfish (*S. wilsoni*) to 100 cm for the shortraker rockfish (*S. borealis*). The average size of most commercially important species ranges from 35 to 50 cm.

Males generally reach sexual maturity at an earlier age than females of the same species, and adult females are usually larger than males of the same age. The age at first maturity (age at which 50 per cent of the fish are first mature) ranges from two years for female Puget Sound rockfish (*S. emphaeus*) to approximately 18 years for female canary rockfish (*S. pinniger*).

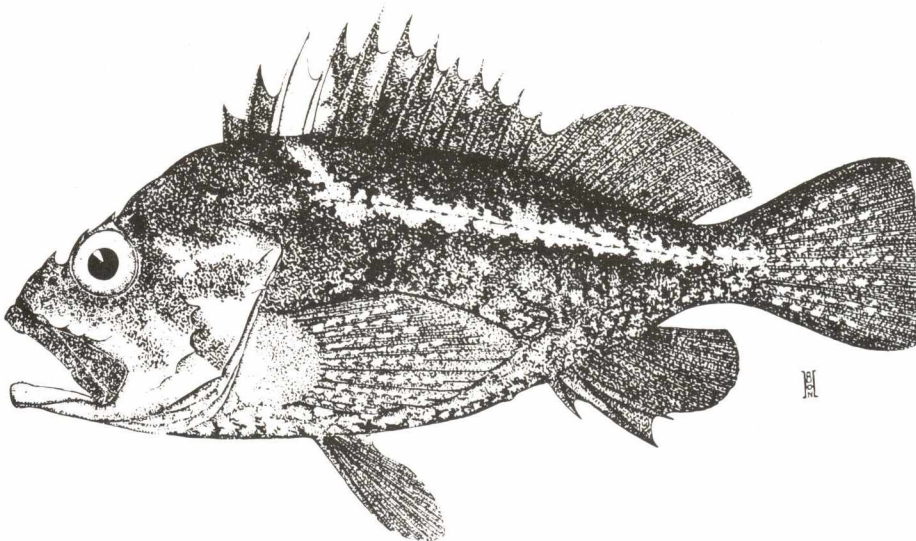


Fig. 3 China rockfish



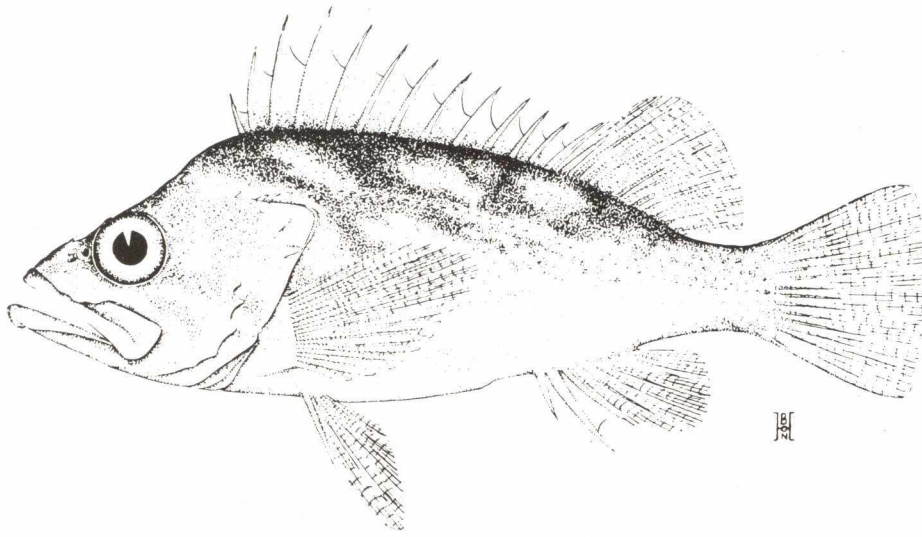


Fig. 4 Copper rockfish

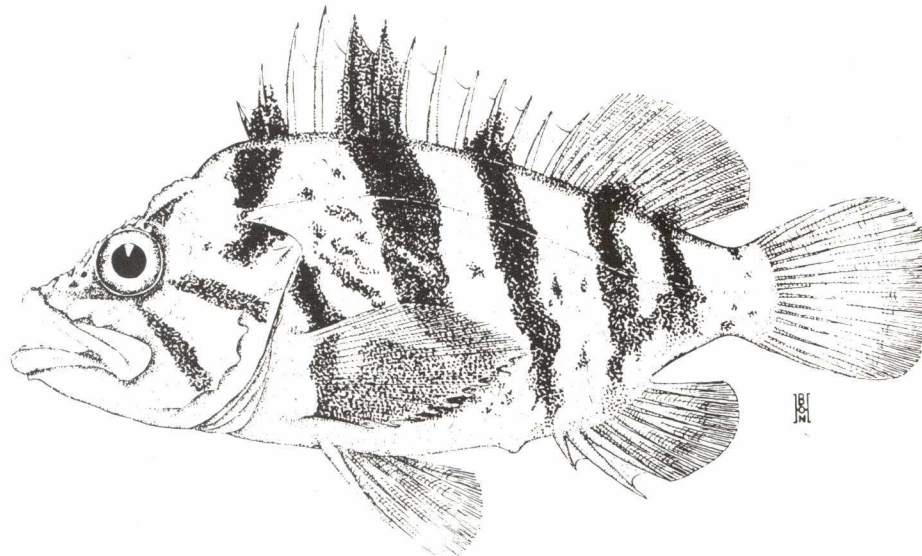


Fig. 5 Tiger rockfish

### The Fishery

High opening otter trawls are the most common gear used to catch rockfish in the commercial fishery. Many rockfish species are caught, although at present only eight have any substantial commercial value. Some quantities of rockfish are also taken by sport fishermen who usually jig or troll for them along rocky reefs and near kelp beds.

Pacific ocean perch has historically been the most valuable of the rockfish species to both domestic and foreign fleets fishing in Canadian waters. Other rockfish species have been exploited by U.S. vessels since the mid 1960s, and by foreign fleets since the latter 1960s when Pacific ocean perch stocks began to decline in areas of previous abundance. By contrast, Canadian fishermen did not begin directed fishing for these species until the mid 1970s.

Foreign fleet activity in Canadian waters, primarily from the Soviet Union, Japan and Poland, began in 1965 and peaked during its initial onslaught (1965-1967) removing an estimated 102,000 t. By 1970, the rockfish catch and effort of the foreign fleet had decreased by more than 80 per cent. With the advent of the 200-mile limit in 1977, quotas were set by Canadian fishery managers to protect the major off-shore rockfish species. In 1978 the foreign fleet, which by then consisted only of Japanese trawlers, ceased to fish for rockfish in B.C. waters, and the U.S. trawl fleet has not fished in Canadian waters since April, 1981.

Most of the rockfish caught by the domestic commercial fleet is filleted, packaged for freezing and exported to the U.S., Japan and Europe. A limited amount goes to the local fresh fish market.

Over the past several years the market for rockfish has gradually expanded with the landed value per pound doubling since 1970. The steadily increasing demand for rockfish was reflected in its increased value. In 1980, rockfish were worth (wholesale) more than nine million dollars (landed value — 3.1 million).



Fig. 6 Otter trawler bringing in rockfish

#### Further Reading:

Hart, J.L. 1973. *Pacific Fishes of Canada*, Fish Res. Bd. Can. Bull. No. 180.

Eschmeyer, W.N. Earl S. Herald, Howard Hammon. *A Field Guide to Pacific Coast Fishes of North America* 1983.

#### Text:

Dick Nagtegaal  
Fisheries Research Branch  
Pacific Biological Station  
Nanaimo, British Columbia

**Underwater World** factsheets are brief illustrated accounts of fisheries resources and marine phenomena prepared for public information and education. They describe the life history, geographic distribution, utilization and population status of fish, shellfish and other living marine resources, and/or the nature, origin and impact of marine processes and phenomena.

#### Others in this series:

Alewife  
American Eel  
American Oyster  
American Plaice  
American Shad  
American Smelt  
Arctic Char  
Arctic Cod  
Atlantic Cod  
Atlantic Fishing Methods  
Atlantic Groundfish  
Atlantic Halibut  
Atlantic Herring  
Atlantic Mackerel  
Atlantic Pelagic and Diadromous Fish  
Atlantic Salmon  
Atlantic Shellfish  
Atlantic Snow Crab  
Beluga  
Bluefin Tuna  
Bowhead Whale  
Capelin  
Cetaceans of Canada  
Crabs of the Atlantic Coast of Canada  
Dungeness Crab  
Grey Seal  
Haddock  
Irish Moss

Lake Trout  
Lingcod  
Lumpfish  
Marine Fish Eggs and Larvae  
Narwhal  
Northern Shrimp  
Pacific Salmon  
Pollock  
Red Hake  
Red Sea Urchin  
Red Tides  
Redfish (Ocean Perch)  
Roundnose Grenadier  
Sand Lance  
Sea Cucumber  
Sealing - A Canadian Perspective  
Sea Scallop  
Selected Freshwater Fish  
Selected Shrimps of British Columbia  
Soft-Shell Clam  
Spiny Dogfish  
Squid  
Thorny and Smooth Skates  
Trout in Canada's Atlantic Provinces  
Turbot (Greenland Halibut)  
Walleye  
White Hake  
Winter Flounder  
Witch Flounder  
Yellowtail Flounder

**Published By:**

Communications Directorate  
Department of Fisheries and Oceans  
Ottawa, Ontario  
K1A 0E6

**DFO/4836 UW/51**

© Minister of Supply and Services  
Canada 1985  
Catalogue Number Fs 41-33/51-1985E  
ISBN 0-662-14043-5  
Reprinted 1993

**Disponible en français**



Printed on recycled paper