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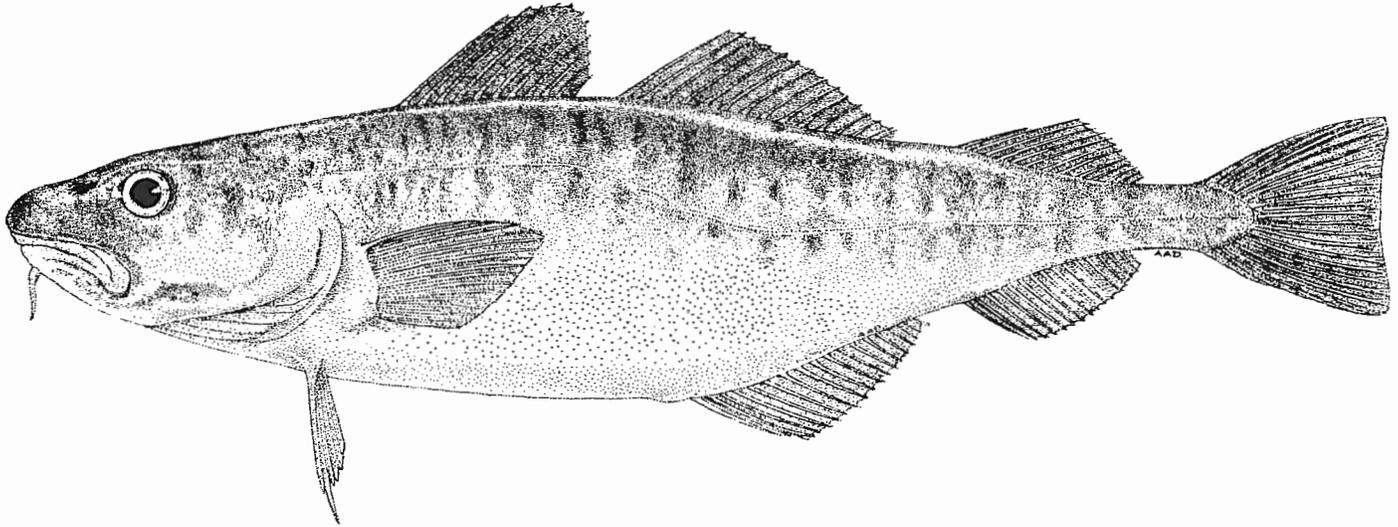
Gouvernement
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Fisheries
and Oceans

Pêches
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Fisheries Fact Sheet

Pacific (Grey) Cod



THE PACIFIC (GREY) COD

Pacific cod (*Gadus macrocephalus*) is the only large-sized cod species in the north Pacific Ocean, and is closely related to the famous cod (*Gadus morhua*) of the north Atlantic Ocean. Species mis-named 'cod' in British Columbia include blackcod (*Anoplopoma fimbria*), lingcod (*Ophiodon elongatus*) and rock cod (numerous species of rockfishes, *Sebastes*). None of these is closely related to, or resembles, Pacific cod.

Geographical range of Pacific cod is the continental shelf of North America and Asia, from southern California to the Yellow Sea. However, the range for commercial abundance is much smaller. No appreciable commercial fisheries exist off North America south of Grays Harbour, Washington. Commercial fisheries exist for Pacific cod throughout B.C. waters, and landings are particularly large from Hecate Strait. During 1960-78, Pacific cod landings from B.C. waters ranged from 3,500 to 16,700 tonne (t) per year. Principal regions

are Hecate Strait (1,814-9,072 t/yr) and the west coast of Vancouver Island (907-5,443 t/yr). Secondary regions are Queen Charlotte Sound (434-2,722 t/yr) and Georgia Strait and adjacent straits (907-1,168 t/yr). These large fluctuations in annual landings have been attributed, to date, to factors other than fishing.

Only Canadian and U.S. vessels participated in this fishery. Virtually all Pacific cod are caught by otter trawl, principally in 30-60 fm (55-110 m) of water. Recreational fisheries for Pacific cod are negligible.

DESCRIPTION

Colour of Pacific cod is mottled grey-green on the back, shading into off-white on the belly. Distinguishing features are the three dorsal fins, two anal fins, and a long barbel ('whisker') extending downward from the outer tip of the lower jaw. Most members of the cod family (*Gadidae*) possess three dorsal fins and two anal fins, but not all possess a barbel. In B.C. waters, there are three other gadids — Pacific hake

(*Merluccius productus*), walleye pollock (*Theragra chalcogramma*) and Pacific tomcod (*Microgadus proximus*). Only tomcod possesses a barbel, a short one. The tomcod is a 'mini-cod' and rarely exceeds 30 cm in length. A similar species exists in the northwest Atlantic Ocean. Pacific cod, Pacific tomcod and walleye pollock are the only species in the eastern Pacific Ocean that possess three dorsal fins and two anal fins.

BIOLOGY

Spawning season for Pacific cod in B.C. waters is February - March in most areas. Eggs are fertilized in the water. To date (1980), no fertilized eggs have been observed or collected in the sea. In the laboratory, fertilized eggs are heavier than sea water, and are slightly adhesive. This suggests that the eggs incubate on the bottom. Laboratory incubation lasted eight to nine days at 11°C, and 17 days at 5°C. Bottom temperatures on the spawning grounds in B.C. are usually 7-8°C. Newly hatched larvae are about 4.5 mm long. Subsequent

growth of cod is rapid but life is short. Cod reach an average length of about 26 cm (0.2 kg) at age one; 43 cm (0.7 kg) at age two; 55 cm (1.6 kg) at age three; and 63 cm (2.4 kg) at age four. Few Pacific cod survive past age four. Maximum recorded length is 100 cm (9.7 kg). Some cod mature as early as age two, and virtually all are mature at age three. Female cod lay large numbers of eggs, and the quantity increases with increasing length — 600,000 at 50 cm; 1,200,000 at 60 cm; and 2,100,000 at 70 cm.

Diet of Pacific cod is quite variable, but in general, small cod (less than 50 cm) eat plankton (euphausiids or shrimp) and large cod (greater than 49 cm) eat fish, crabs and shrimp. Principal fish species in the diet are herring and sand lance (needlefish).

Migrations of Pacific cod between major regions are relatively rare. Tagging experiments have been conducted in Hecate Strait, Georgia Strait, Puget Sound, and off the northwest Washington coast (by U.S. scientists), and off southwest Vancouver Island. Few cod tagged in Hecate Strait were recaptured elsewhere in Canadian or U.S. waters, and few tagged elsewhere were recaptured in Hecate Strait. No cod were tagged in Queen Charlotte Sound, and few tagged elsewhere were recaptured there. A modest migration of cod has been demonstrated to occur between four southern regions: Georgia Strait, Puget Sound, southwest Vancouver Island and the northwest Washington coast.