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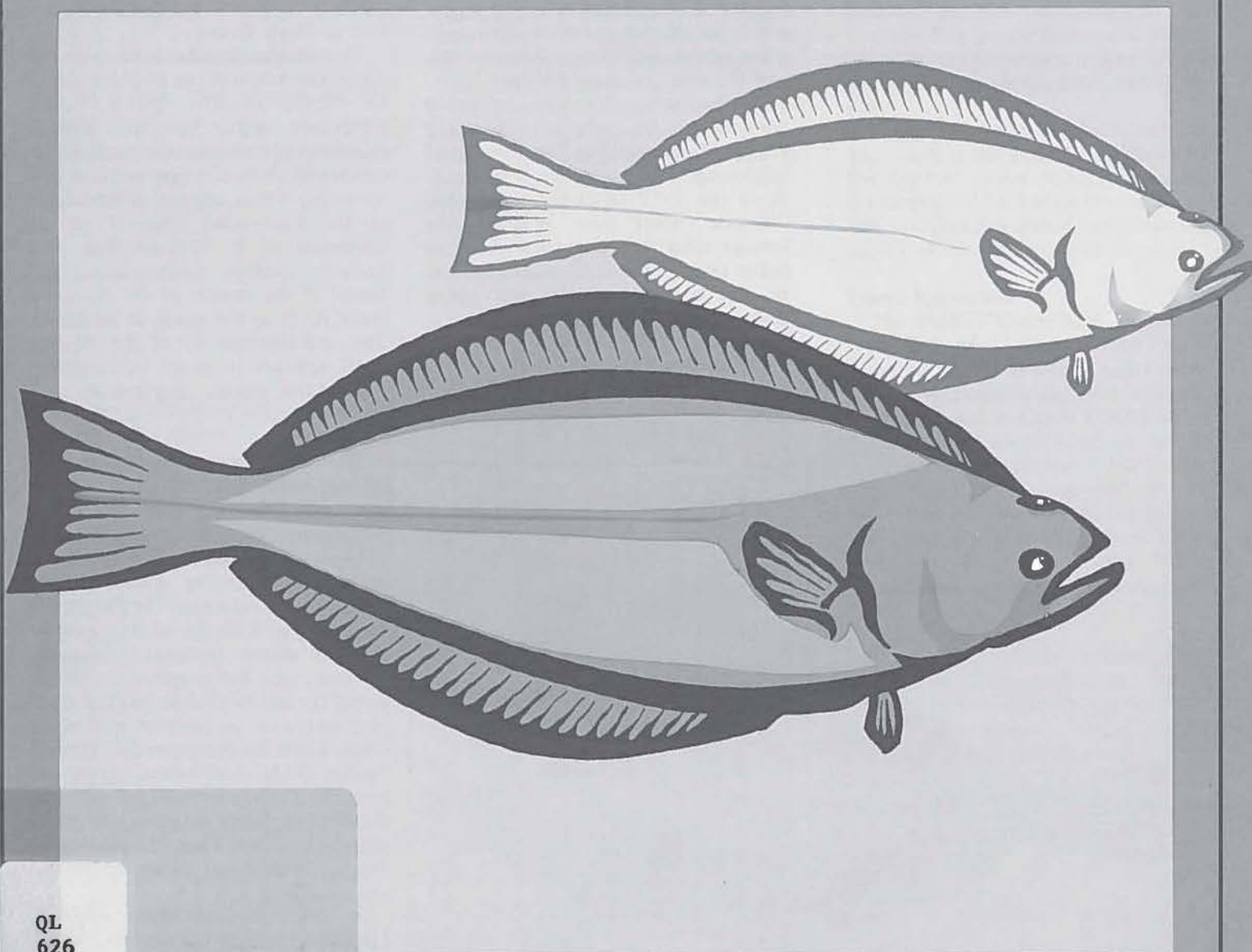
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# Underwater World

**Turbot (Greenland Halibut)**



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**Canada**

## Turbot (Greenland Halibut)

The Greenland halibut is a deep-water flatfish which is known to many people under many names. To Americans it's the Greenland halibut, to eastern Canadians the "Greenland turbot" or "Newfoundland turbot", to English fishermen the "blue halibut", to Danes the "hellefisk", to Greenlanders the "kaleralik", and to German fishermen, the "black halibut".

This marine fish is similar to the common or Atlantic halibut, except that it is much smaller (reaching a maximum size of 120 centimetres and a weight of 25 kilograms). The upper side is also darker in colour. Hence, its other names: the *black* or *blue halibut*, and the *lesser* or *mock halibut*.

In the past, Canadian fishermen were forced to compete with many foreign fleets seeking the Greenland halibut in the northwestern Atlantic. Since the 1977 establishment of the 200-mile fishing zone, however, the foreign effort has been phased out in many areas, and the Canadian harvest of this lucrative species has vastly improved.

### Distribution

Greenland halibut thrive in the cold, northern waters of the Pacific and Atlantic oceans, and is most plentiful wherever there are rich stocks of sea prawn. In the northwestern Atlantic, they are especially abundant in the deep coastal bays or fjords of West Greenland, off the continental shelf of Baffin Island and in the Ungava Bay area of Hudson Strait. They are also found at greater depths along the continental slope of Labrador, and in the deepwater bays of northeastern Newfoundland. Upon approaching maturity there appears to be a general migration to Davis Strait.

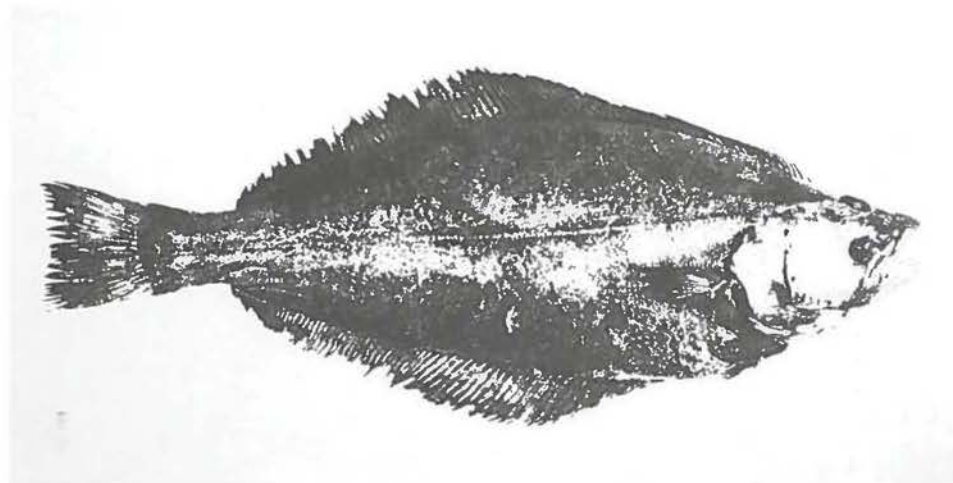
Though the abundance of these fish diminishes south of the northern slopes of Newfoundland's Grand Banks, Greenland halibut have also become relatively plentiful in the Gulf of St. Lawrence in the last few years. A pre-spawning winter concentration occurs in the Laurentian Channel to the southwest of St. Georges Bay, and summer feeding concentrations are found at the mouth of the St. Lawrence River to the north of Anticosti. The southeastern tip of the Scotian Shelf appears to mark the southern edge of this species' distribution.

### Description

The *Reinhardtius hippoglossoides* belongs to an order of flat, bilaterally symmetrical fish, the *Pleuronectiformes*, comprising some seven families and 117 species. The members of this order undergo an amazing transformation during the larval stage. They begin life swimming with the dorsal fin upwards, like any salmon or trout. Gradually, however, one eye migrates across the top of the larva's skull to position itself close to the eye on the other side of the head. There are corresponding modifications to the skull bones, nerves and muscles. The eyeless side, for example, becomes flat while the other side grows slightly rounded. Then, the developing fish turns over and swims on its flat, eyeless side.

A few features distinguish the Greenland halibut from other flatfish. Normally, the eyes of flatfish are located on the top, coloured side of the

Dorsal view of an adult Greenland halibut.







Scientists onboard a research vessel extracting otoliths (earbones) from a Greenland halibut for ageing purposes.

age of six to seven years. After that, the abundance of males decreases, and those remaining grow much more slowly than the females. Fish larger than 90 centimetres are all female. The reason is that much of the energy previously used for body growth by the early maturing males is subsequently diverted to the formation of products needed for egg fertilization. Females also tend to live longer, with specimens as old as 20 years being recorded, while males seldom live longer than 12 years.

#### Predators

Casualty rates are high among Greenland halibut. The most significant predator of adults is the Greenland shark, found in great numbers in the same waters and at the same depths as halibut. Fishermen frequently find, on retrieving hooked lines, that their catch has been mutilated by the sharks, particularly in the area of west Greenland.

Other important predators of adult fish are seals and two species of Arctic whales — the white whale and the narwhal. As early as 1852, scientists working in the Greenland area noted that

the periodic disappearance of the fish usually coincided with increased sightings of white whales. Periodic invasions by whales into the fjords is now known to be usually followed by a collapse of the halibut fishery.

The larvae of Greenland halibut are eaten by cod and salmon, whereas the young, bottom-dwelling fish and medium-sized adolescents are eaten by cod and by larger Greenland halibut.

#### The fishery

For management purposes, Greenland halibut are treated as three stocks in the Northwest Atlantic.

#### Baffin Island/West Greenland

The most northerly management unit of Greenland halibut constituted an important harvest for Greenlanders from the mid-1800s right up to the 1920s, when milder climatic conditions resulted in a large influx of cod into these waters. By 1935, the fishery had completely failed because of the pressures of numerous cod as predators as well as competitors. Almost 20 years passed before the harvest again improved enough to warrant increased exploitation in Greenland, and more energetic marketing in Europe and the United States.

During the past decade, landings have fluctuated widely, with over 25,000 metric tons (t) taken in 1975, for example, while 1979 catches totalled only 12,000 t.

The Soviet Union and Denmark were the main exploiters of the fishery. Soviet fishermen harvested the halibut from large offshore bottom trawlers, while the Danes prefer longlines and gillnets. In more recent years, the Greenlanders have been mainly involved in this fishery.

#### Labrador/East Newfoundland Stock

The sale of Greenland halibut from this stock dates back as far as 1857. Until 1964, Newfoundlanders played an important part (along with Greenland Danes) in a traditional baited-line fishery. The products, mainly in salted form, were exported to eastern Canadian markets, as well as to the United States and British West Indies.

Typical mixed catch of Greenland halibut, redfish and witch flounder on a Polish trawler.



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*Reward poster distributed to fishermen for the return of tags recovered from Greenland halibut.*

However, with the introduction of highly efficient synthetic gillnets in the mid-1960s, the use of longlines decreased, and by 1967 had been practically eliminated from the Greenland halibut fisheries. Also in the late 1960s, Polish and Soviet fleets began to compete for the harvest in the deep waters of the continental slope off northern Labrador. Newfoundland landings dropped sharply as a result. From 1970 to 1977, landing stabilized at around 30,000 t annually.

However, with the introduction of the 200-mile limit in 1977, the foreign effort began to be phased out. By 1980, the fishery for Greenland halibut in this area belonged once again to Newfoundland fishermen.

The Newfoundland gillnet fishery has proved very lucrative over the past few years, and the 1980 gillnet landings reached three times the 1967 level of 9,000 t.

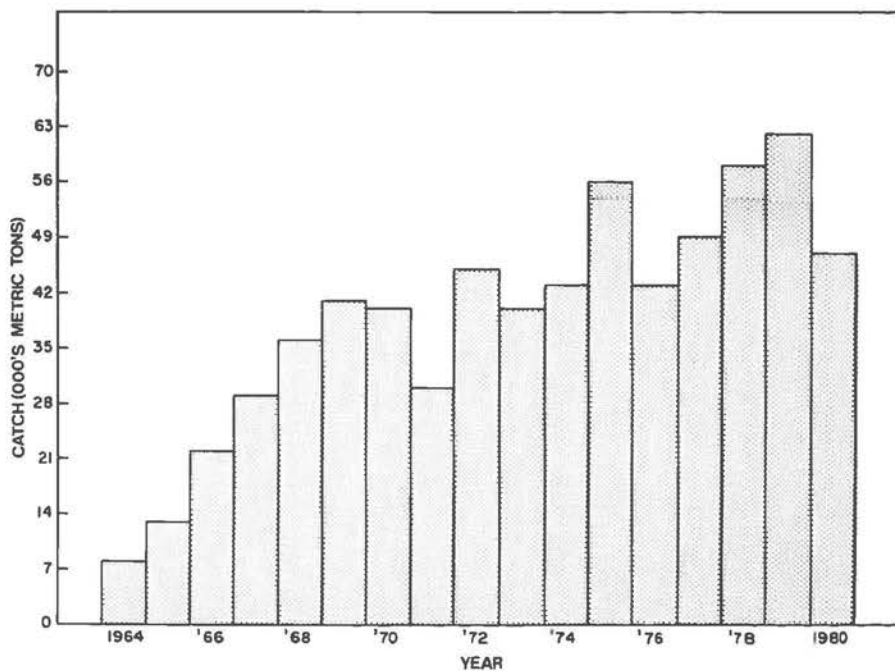
### The Gulf of St. Lawrence

The fishery for Greenland halibut is rather new to the Gulf of St. Lawrence with landings up to 1976 varying from 600 to 1,000 t each year. In 1977 and 1978, landings increased to 4,000 t, and the next year, it more than doubled to almost 10,000 t. The 1980 catches however, declined to just over 7,000 t.

Until 1979, most of the landings represented by-catches taken during summertime on the north side of Anticosti Island by Quebec fishermen fishing for shrimp. Some of the harvest was also taken by Newfoundland trawlers to the southwest of St. Georges Bay in the Laurentian Channel where the Greenland halibut form a pre-spawning concentration during the winter.

Since 1979, however, the fishery has been carried out almost exclusively by the Quebec gillnet fishermen fishing for Greenland halibut on the southwest side of Anticosti Island, and near the mouth of the St. Lawrence River.

*Landings of Greenland halibut throughout the Northwest Atlantic.*



### Quota Regulation

The Baffin Island/West Greenland unit and the Labrador/East Newfoundland unit have been under catch quota regulation since 1974 with the Total Allowable Catch (TAC) being based on the scientific advice of the International Commission for Northwest Atlantic Fisheries and of the Northwest Atlantic Fisheries Organization. The TAC for 1981 by all countries was 25,000 t for the Baffin Island/West Greenland stock, and 55,000 t for the Labrador/East Newfoundland stock.

The Gulf of St. Lawrence stock had never been under catch quota regulation. However, scientific advice from the Canadian Atlantic Scientific Advisory Committee recommended a 1982 catch limitation of 7,500 t which was subsequently imposed.

**Further Reading:**

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