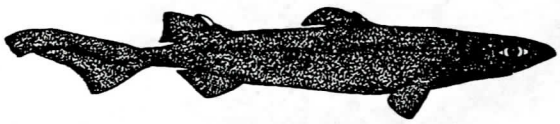
STOCK STATUS REPORT

LAURENTIAN REGION

Maurice Lamontagne Institute
P.O. Box. 1000, Mont-Joli, Québec, G5H 3Z4, CANADA

DFO, Atlantic Fisheries, Stock Status Report 96/61 June 1996

THE BLACK DOGFISH IN THE GULF OF ST. LAWRENCE



OVERVIEW OF THE BLACK DOGFISH

The black dogfish (*Centroscyllium fabricii*) is a small shark with a wide distribution throughout the North Atlantic along the continental shelf, at depths of 275 to 1,400 m (150 to 750 fathoms). Its distribution is thought to extend from the Gulf of Mexico to Iceland and Morocco, and perhaps as far as South Africa.

Despite the black dogfish's wide distribution and great abundance, almost nothing is known about its biology, apart from a few brief references to its taxonomy and occurrence. Like all sharks in the Squalidae family, of which it is a member, the black dogfish is ovoviparous, which means that the eggs develop inside the female and young sharks are born almost fully formed. The embryos, which are carried in small numbers, may grow to 14 cm (5½") in length. It is presumed that, as is true of all sharks in the Squalidae family, it grows slowly, reaches sexual maturity at a late age and has low fertility.

STATE OF THE RESOURCE

Information on the black dogfish in the Gulf of St. Lawrence comes primarily from research surveys. Some information is also available from deepwater fishery by-catches (redfish and shrimp), but these by-catches are always discarded.

Observations that have been made during summer surveys carried out aboard the Alfred Needler since 1990 show that, in the Gulf, the black dogfish is limited to the deep waters (more than 275 m) of the Laurentian Channel. It is generally found from the Sept Iles region as far as Cabot Strait and outside the Gulf (Figure 1).

Pêches et Océans Fisheries and Oceans
Canada

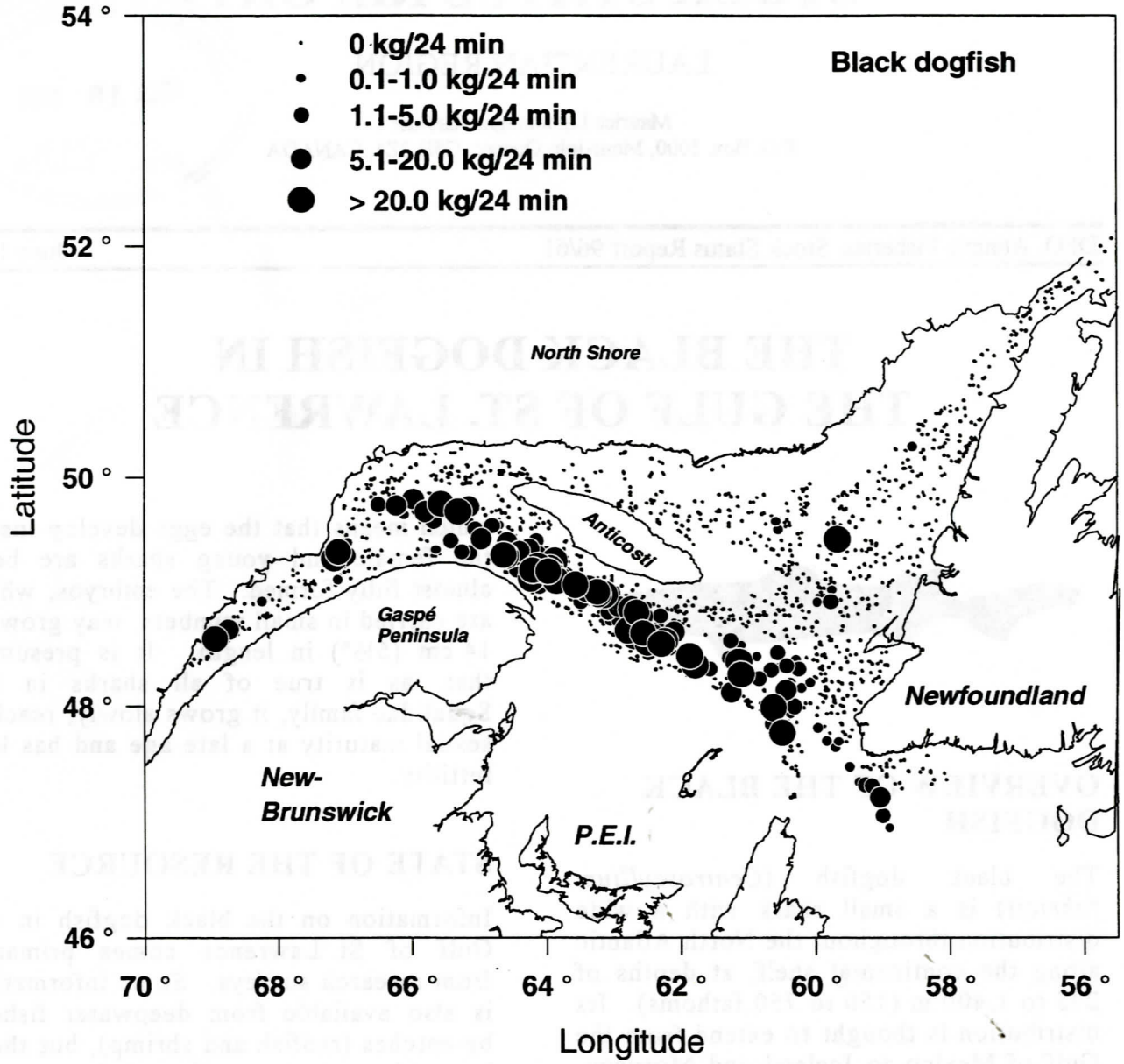


Figure 1. Distribution of black dogfish catches in the Gulf of St. Lawrence from observations made during surveys on the Alfred Needler between 1990 and 1995.

In winter, the species tends to concentrate in the Cabot Strait region.

Survey estimates of the abundance of black dogfish vary considerably from one year to the next (by a factor of 15, Figure 2). They fluctuated between 3,300 t in 1990 and 49,500 t in 1995. These multiyear variations are not due to demographic phenomena (mortality or

recruitment), as we do not expect to see the abundance of the species fluctuate so rapidly because of its slow growth and low fertility. Rather, they are related to sampling variability. The species is highly gregarious, and it is not unusual to see very large catches in some places and very small or no catches in others. This wide spatial variability makes our estimates very uncertain.

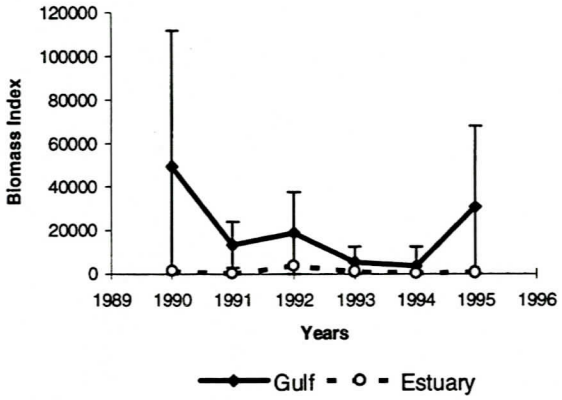


Figure 2. Black dogfish biomass index during surveys made by the Alfred Needler between 1990 and 1995. The vertical lines represent confidence intervals of 95%.

The mean from 1990 to 1995 (20,200 t) is thus probably the best general indicator of the species' abundance in the Gulf of St. Lawrence. It should be interpreted cautiously, as we do not know how the black dogfish reacts to the trawl and thus what proportion is caught in the net. These biomass estimates should thus only be considered an indicator of how large the species' biomass is in the Gulf.

The size distribution of black dogfish was very stable between 1991 (when the data became available) and 1995, with the modal sizes always around 55 to 60 cm (Figure 3).

There is no directed dogfish fishery at this time, although there is a request to commercialize 450 t (1,000,000 lb) of it in 1996, mainly from the Estuary. However, the black dogfish biomass in the Estuary (west of 65° west latitude) represents only 6% of the total biomass present in the Gulf.

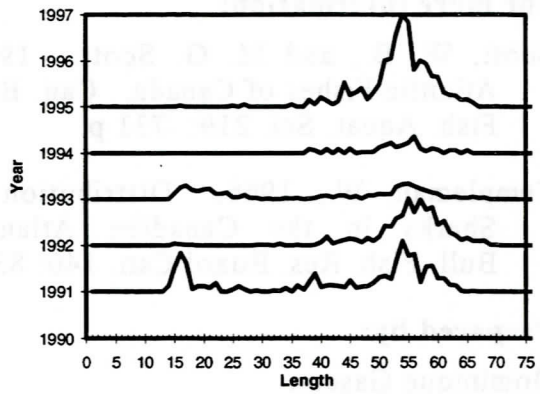


Figure 3. Black dogfish size distribution from Alfred Needler surveys, 1991 to 1995.

With so little information available, it is impossible to calculate a target harvest rate and estimate the corresponding catches. However, it is known that the proposed catches represent less than 14% of the lowest biomass estimated between 1990 and 1995 and a similar percentage of catches would not interfere with conservation of the resource.

For the moment, it is impossible to estimate a sustainable catch level that would not imperil the species' conservation. Nor is it possible to predict what the effects of intensive local fishing would be because of the total lack of

information on movements and interactions between concentrations of black dogfish.

However, because of its biological characteristics (it is believed to grow slowly and mature late, and it definitely has low fertility), the black dogfish may be harmed by commercial exploitation. Should markets develop and catches increase, it will be necessary to act cautiously when the fishery is expanded.

For more information:

Scott, W. B., and M. G. Scott. 1988. Atlantic Fishes of Canada. Can. Bull. Fish. Aquat. Sci. 219: 731 p.

Templeman, W., 1966. Distribution of Sharks in the Canadian Atlantic. Bull. Fish. Res. Board Can. 140: 83 p.

Prepared by:

Dominique Gascon
Tel: (418) 775-0631
Fax: (418) 775-0740
E-mail: d_gascon@qc.dfo.ca

This report is available:
Stock Assessment Regional Office
Laurentian Region
Department of Fisheries and Oceans
Maurice-Lamontagne Institute
P.O. Box 1000, Mont-Joli
Québec
G5H 3Z4

La version française de ce document est disponible à l'adresse ci-dessus.