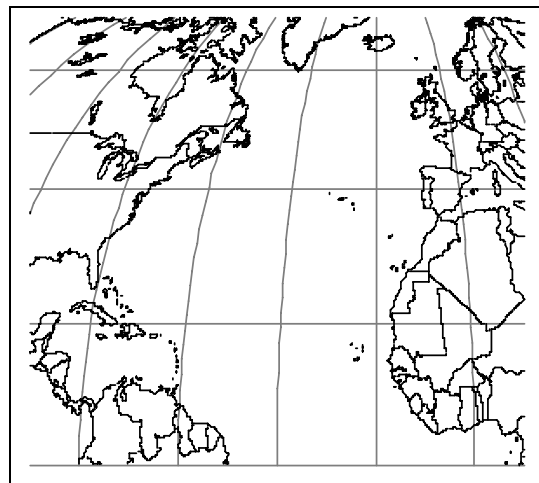


BLUE SHARK



Background

The blue shark (*Prionace glauca*), is a cosmopolitan species, occurring throughout tropical, sub-tropical and temperate waters of the Atlantic, Pacific and Indian oceans. It is probably the most widely distributed of all shark species. The species range extends from Newfoundland to Argentina in the west Atlantic and from Norway to South Africa in the east Atlantic and includes the mid-Atlantic and the Mediterranean. Based on tagging data, it has been suggested that the stock area may include the entire north Atlantic, and that a clockwise migration occurs around this area. Blue sharks may utilize or be carried by the major current systems over the entire Atlantic Ocean basin. The blue shark prefers water temperatures in the range of 13-18 °C but can tolerate from 7-27 °C. In Canadian Atlantic waters, blue sharks move onto the Scotian Shelf in the late spring and into the Gulf of St. Lawrence and onto the Grand Banks during the summer and early fall. Blue sharks move into deeper water in late fall and are taken off the continental shelf in winter.

Unlike most of the teleosts (bony fishes), the fertilization of eggs occurs internally in elasmobranchs (sharks, skates and rays). In most species of sharks, fertilized eggs continue to develop in the uterus of the female and young are born as fully formed juveniles (often referred to as "pups"). Embryos obtain nourishment in the uterus through a yolk-sac placenta. Development is prolonged and young are born at a relatively large size, which reduces the number of potential predators of the young. The female typically produces 26 - 50 pups per litter. Size at birth is approximately 40cm. The reproductive cycle is thought to be one year long but may be two years. Females mature at age 5-6 years, at a total length of approximately 190cm, while males mature at age 4-6, at a length of approximately 180cm. Blue sharks are among the faster-growing species of sharks. Maximum reported size is 383cm total length.

Diet of the blue shark consists primarily of small pelagic schooling fishes such as herring, mackerel, sardines, and anchovies. Squid is also an important diet item. The blue shark is an opportunistic feeder and will take any locally abundant fishes. The list of reported prey items includes many species of pelagic and benthic fishes and invertebrates, small sharks, wounded marine mammals and mammalian carrion, and seabirds. The only likely natural predators are other large sharks.

The Fishery

Landings (t)

Year	1990	1991	1992	1993	1994	1995
Foreign	115	117	205	112	62	
Canada	8	32	101	21	133	123
TOTAL	123	149	306	133	195	123

All landings provisional

Blue sharks have been taken as a **by-catch** in a number of Canadian fisheries in the past, but were usually discarded. Interest in developing markets for blue sharks has increased in the last few years. Reported Canadian landings have increased from 8t in 1990 to 133t in 1994 and 123t in 1995.

Significant by-catches of blue shark occur in most pelagic longline fisheries in the North Atlantic. These are often not reported as landings. Reports suggest that the by-catch of blue sharks by swordfish longline vessels often exceeds the catch of swordfish. Similar by-catch levels occur in tuna longline fisheries. Canadian observer reports indicate that Japanese tuna longline vessels fishing in the Canadian Atlantic zone in 1994 and 1995

caught 325t and 110t of blue sharks respectively. Blue shark by-catches are often discarded and are for the most part not reported. In many cases, they represent an undocumented source of mortality as a result of the practice of "**finning**" (removal and retention of the fins and discarding the carcass). A ban on this practice in the Canadian Zone was set out in the 1994 and 1995 Shark Management Plans but was not implemented. A similar ban is in place in US waters. There is no restriction on finning in international waters. As a result, mortality levels due to finning are probably very high.

The blue shark is an important sportfish in **recreational fisheries** in many parts of the species range. Angling for sharks has increased in Atlantic Canada over the last few years, based primarily on blue shark catches. Information on removals by this developing recreational fishery are not yet available.

Resource Status

Blue shark catches are currently under-reported, and rarely associated with effort data. There are uncertainties concerning the stock area and gaps in our knowledge of the biology. Given the limited information available, it is not possible to estimate the status of this resource.

Outlook

Sharks in general are slow growing, long-lived, and have delayed sexual maturity. They bear live young and produce low numbers of offspring. This combination of life history characteristics makes sharks highly susceptible to over-exploitation. Some shark fisheries have collapsed after a relatively brief period of exploitation. Relative to other species of sharks, the blue shark is faster growing with higher

fecundity, offering **some potential** as a sustainable fishery if properly managed.

However, substantial by-catches of blue sharks occur in tuna and swordfish longline fisheries. By-catch and incidental mortality rates in these fisheries need to be determined. Similarly the mortality associated with a hook and release recreational fishery should be determined.

The precautionary catch level of 250t in the 1995 Shark Management Plan was not based on an estimate of abundance and exploitation rates may already be high due to the by-catch in other pelagic, longline fisheries. Therefore, caution needs to be exercised in the development of a directed fishery for blue sharks. Any directed fishery should be characterized as exploratory until such time as the status of the resource can be determined. Commercial effort should not be expanded until there is better documentation of by-catches in other fisheries. The fishery must have a comprehensive scientific component to collect the information necessary to fill the identified knowledge gaps. Specific provisions are required for the collection of catch and effort data, including the species, size and sex composition of all shark catches, on a set by set basis. Research into the basic biology and stock structure of this species is also required.

This species is part of a large pelagic species complex that includes other large sharks, tunas, swordfish, and billfishes. A directed fishery for blue sharks will likely require spatial and temporal limitations and careful monitoring to minimize by-catches of other species in the complex. Also, continued monitoring of blue shark catches in other large pelagic fisheries is required.

International cooperation will be necessary to assess and manage a fishery for this species.

For More Information

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