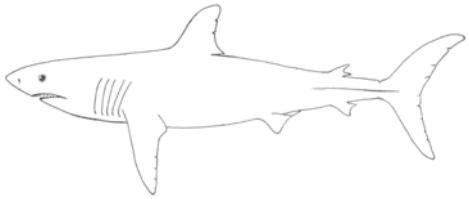
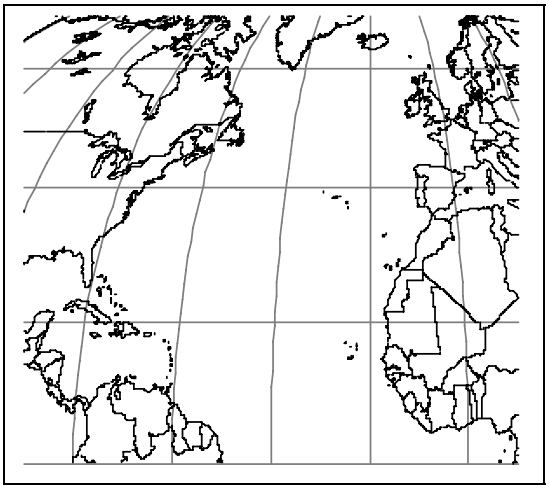


SHORTFIN MAKO SHARK



Background

The shortfin mako (Isurus oxyrinchus) is a warm-temperate and tropical species that occurs in the Atlantic, Pacific and Indian oceans. The species range extends from Newfoundland to Argentina in the west Atlantic and from southern Norway and the British Isles to South Africa in the east Atlantic and includes the mid-Atlantic and the Mediterranean. The preferred water temperature for the shortfin mako shark is close to 18 C, and ranges from 17 to 22 C. Based on tagging data, it has been suggested that the Mid-Atlantic Ridge may separate east and west Atlantic stocks of shortfin mako. Mako sharks occur occasionally in Canadian Atlantic coastal waters during the summer months but are taken primarily off the continental shelf. Tagging data and commercial catch data show distinct seasonal movements by mako sharks northward and inshore of the western margin of the Gulf Stream during the spring and summer and, it is hypothesized, offshore to wintering grounds in the Gulf Stream and Sargasso Sea during the fall and 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"). The shortfin mako is ovoviviparous. Pregnant females continue to release eggs and the embryos obtain nourishment by consuming these unfertilized eggs in the uterus. Development is prolonged and young are born at a relatively large size, which reduces the number of potential predators of the young. The number of young produced (litter size) ranges from 4-21, with an average of 14-16 pups per litter. Size at birth is approximately 70cm. The reproductive cycle of mature females is thought to be two years long. Males mature at approximately 200cm total length while females mature at approximately 280cm total length. Growth of the shortfin mako is rapid when compared with most other species of sharks. Maximum reported size is 394cm and 570kg.

Diet of the shortfin mako consists primarily of fishes of a wide variety of species including bluefish, mackerels, tunas, bonitos, swordfish and other sharks. Squid is also an important diet item. The only likely natural predators are other large sharks.

The Fishery

Shortfin mako sharks have occasionally been reported as a by-catch in a number of Canadian fisheries in the past, but primarily in the swordfish longline fishery. Mako and porbeagle sharks are closely related species and are similar in appearance. Prior to 1992, Canadian porbeagle and mako shark **landings** were recorded together as mackerel sharks and were less than 125t annually. Reported Canadian landings of mako shark in 1994 and 1995 were 157t and 107t respectively; however there is concern that a substantial amount of this may be porbeagle shark.

Shortfin mako sharks are also taken as a by-catch by Japanese longline vessels fishing for tunas in the Canadian zone. Observer reports indicate by-catches of 3 to 34t of shortfin mako for the 1987-95 period.

Shortfin mako sharks are caught in many commercial fisheries elsewhere in the Atlantic Ocean, primarily as by-catches in longline fisheries directed at tunas and swordfish. The total catch of mako sharks is unknown because landings are often not reported, or reported as

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unspecified sharks, or discarded when targeting other species.

The shortfin mako is a prized sportfish and is important to recreational fisheries throughout the species range, but particularly in the U.S. Atlantic. Interest in angling for sharks has increased in Atlantic Canada over the last few years, based primarily on blue shark catches, but shortfin mako sharks are occasionally reported. Catches by this developing recreational fishery have not been recorded.

Resource Status

There are uncertainties concerning the stock area of this species, and its biology is poorly understood. In addition, landings data are incomplete, and proper identification of shark species remains a problem. Until these issues are resolved, it will not be possible to estimate the stock abundance 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.

The precautionary catch level of 250t in the 1995 Shark Management Plan is not based on an estimate of stock abundance. The species is at the northern limit of its range, associated with warm water of the Gulf Stream. Therefore, it is unlikely that a directed fishery for shortfin mako shark in Canadian Atlantic waters is feasible.

This shark is part of a large pelagic species complex that includes other large sharks, tunas, swordfish and billfishes. It has been shown that the shortfin mako is closely associated with swordfish. A directed fishery for shortfin mako would likely result in high by-catch levels of swordfish and possibly of bluefin tuna.

It is possible that shortfin mako and porbeagle sharks are not being identified correctly by fishermen and in the marketplace. Criteria should be developed that will permit better discrimination between these two species in the landing statistics.

The stock area of this species extends beyond the Canadian zone. Management of this resource will require international cooperation.

For More Information

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References

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