

## Finetooth Shark

*Carcharhinus isodon*

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### DESCRIPTION

#### Taxonomy and Basic Description

The finetooth shark, *Carcharhinus isodon* (Valenciennes in Muller and Henle 1839) is a member of the Carcharhinidae family; or Requiem sharks. The finetooth is a small to medium size carcharhinid, characterized by a pointed snout shorter than the width of the mouth, and slender,



erect, smooth-edged teeth in both jaws. The gill slits are relatively large, the fins unmarked and the color is bluish gray above and white below. The finetooth preys primarily on menhaden and other small fishes. Maximum reported size is 189 cm (75 inches) total length (TL) (Castro 1983) although the maximum size recorded from South Carolina samples taken between 1998 and 2004 was 155 cm (61 inches) TL.

Male and female finetooth sharks reach sexual maturity at approximately 5 years old and the oldest observed females in Drymon's (2003) life history study were 12.3 years and the oldest male 10.3 years. Finetooth examined in South Carolina waters reached older ages and had lower growth rates than populations studied in the Gulf of Mexico (Carlson et al. 2003).

#### Status

Castro (1993) described the finetooth shark as one of the least known carcharhinid sharks in the coastal waters of the southeastern United States. The level of knowledge for this species has been improving in recent years but the scarcity of species specific data reduces the level of confidence in the stock status of this species. The most recent small coastal stock assessment conducted by National Marine Fisheries Service (NMFS) in 2002 determined that stocks of finetooth were not currently overfished but that overfishing was occurring; fishery removals were exceeding sustainable levels (Cortes 2002) In addition, South Carolina waters represent an important pupping and nursery area for the finetooth shark (Ulrich et al. in press).

#### POPULATION DISTRIBUTION AND SIZE

The finetooth shark is distributed in coastal waters from North Carolina to Florida, throughout the Caribbean Sea and the Gulf of Mexico (Compagno 1984). However Castro (1993) has found the species to be uncommon in the Caribbean with the center of distribution being the

southeastern United States. In South Carolina, the finetooth shark arrives late spring and stays through early fall in the states estuaries and shallow coastal waters before migrating to Florida waters during the winter months (Drymon 2003).

The finetooth shark is the second most abundant South Carolina shark collected by the COASTSPAN study (Cooperative Atlantic States Shark Pupping and Nursery) (Ulrich et al. in press). The overfishing noted in the 2002 stock assessment (Cortes 2002) that is occurring within the southeastern Atlantic and Gulf of Mexico could result in declines of the stocks if proposed measures (NOAA Fisheries 2003) to reduce fishing mortality are not implemented. The populations of finetooth sharks within South Carolina waters appears to be relatively stable within the limited time series available to date (1998 through 2004) (Ulrich et al. in press).

## HABITAT AND NATURAL COMMUNITY REQUIREMENTS

The first occurrence of finetooth sharks in estuarine waters during the spring occurs at water temperatures of approximately 24°C (75 °F). The earliest capture of a finetooth juvenile or adult in near-shore coastal waters was in mid May at a water temperature of 22°C (72 °F). The latest captures were in late October when water temperatures ranged from 20 to 23°C (68 to 73 °F) (Ulrich et al. in press). This species apparently initiates offshore or southerly migrations earlier than the blacknose (*Carcharhinus acronotus*), sandbar (*Carcharhinus plumbeus*) and Atlantic sharpnose (*Rhizoprionodon terraenovae*) sharks.

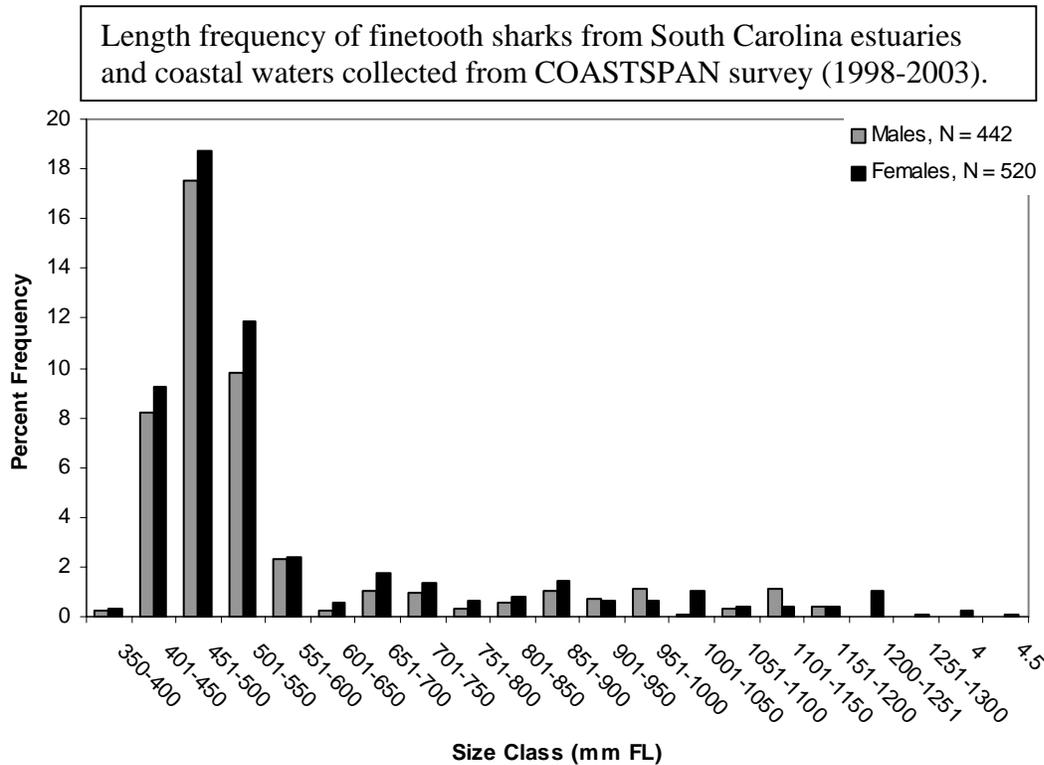
Males and females mature at about 1000 mm FL (fork length) at age five years. The neonates (as determined by the presence of a readily detectable umbilical scar) are less than five months old and range from 400 to 550 mm FL (16 to 22 inches). Estuaries are clearly critical habitat for finetooth sharks, particularly the neonates. Important habitats for adult finetooth include the mouths of coastal inlets and the shallow coastal areas off the front beaches including the surf zone. Adult and juvenile finetooth frequent shallow coastal waters where baitfish, such as menhaden are plentiful.

Our sampling indicates that adult finetooth make minimal utilization of estuarine waters. Estuarine catches were strongly dominated by neonates, which made up 73.8 percent of the catch. Juvenile finetooth accounted for the majority of the remaining catch.

## CHALLENGES

The finetooth makes up a significant portion of the landings from a commercial drift gillnet fishery off the southeastern United States coast (Carlson 2003). Additional fishing mortality results from the bottom longline fishery directed primarily at large coastal shark species. The overfishing noted in the 2002 stock assessment results primarily from these commercial fisheries. Limited fishing mortality may occur from recreational angler harvest because of mis-identification of this species. However if anglers identify the species correctly and abide by the size limit, the threat posed by this source of mortality is slight. It also appears that incidental capture of the finetooth shark by shrimp trawlers is a negligible source of mortality.

Overfishing of this species noted in the 2002 small coastal stock assessment is being addressed with proposed quota reductions in the current amendment to the Highly Migratory Species Management Plan (NOAA Fisheries 2003).



Maintaining good water quality within the estuaries is important to the survival of neonate and juvenile finetooth sharks due to their dependence on estuarine habitat as nursery grounds.

### CONSERVATION ACCOMPLISHMENTS

South Carolina’s adoption of the provisions of the Highly Migratory Species Management Plan and future amendments will afford this species protection within the critical habitats occurring within state waters. Participation in the COASTSPAN program and recent augmentation of this sampling program with SRFAC (State Recreational Fisheries Advisory Committee) funding will provide valuable information on localized population trends as adequate time series of data become available. These studies will also provide a better understanding of the essential role of estuarine and nearshore habitats for the success of finetooth and other coastal shark species.

This shark is classified as a small coastal species under the 1993 Shark Management Plan and commercial quotas and recreational bag limits have been imposed on this species group (NOAA Fisheries 1999). South Carolina has adopted the provisions of this plan as state law. An amendment to the management plan is being finalized that includes provisions to eliminate overfishing of this species.

Recreational regulations tend to limit landings because a very small percentage of the population reaches the 54-inch FL minimum size limit set for this species under the federal management plan (NOAA Fisheries 1999).

## CONSERVATION RECOMMENDATIONS

- Continue to monitor finetooth shark stock status and abundance trends, primarily through the COASTSPAN program.
- Determine the species and size composition of neonate and juvenile sharks utilizing South Carolina estuaries as essential nursery habitat.
- Establish the physical parameters (temperature, salinity and bottom type) affecting the occurrence and abundance of sharks within estuarine waters.
- Determine annual trends in catch per unit effort (CPUE) for important shark species.
- Partner with other southeastern states and the NMFS to share data and work toward regional management of finetooth shark.
- Improve the public's understanding of the importance of sharks in the ecosystem through outreach activities such as school programs, providing story opportunities for media, and educational brochures.
- Increase the public's ability to correctly identify sharks in order to comply with conservation regulations by holding workshops and providing low-cost or free identification brochures or posters.
- The primary action at the State level to insure that overfishing is eliminated is law enforcement partnering to insure adequate compliance with regulatory actions implemented through the Federal management plan and subsequent amendments.
- Implement a unified development plan for coastal areas that would provide for adequate buffer zones adjacent to estuaries and tidal creeks and other actions to reduce point and non-point source pollutants entering estuarine areas.

## MEASURES OF SUCCESS

Regional management efforts to maintain healthy, sustainable finetooth shark populations will require active participation from South Carolina due to its' importance as pupping and nursery habitat for the species. Expanding our knowledge of the extent of finetooth utilization of estuaries throughout the State would enable managers to determine the relative importance of each major estuarine area to the maintenance of finetooth shark populations and to implement appropriate protective regulations. The proposed reductions in harvest contained in Amendment 1 to the Fishery Management Plan (FMP) will address the overfishing problem if enforcement and monitoring of harvesting within State waters of the southeastern United States is adequate. Success could be measured by the extent to which shark landings from state waters are adequately accounted for on a species specific basis and adequate law enforcement patrols are conducted to insure a high rate of compliance to regulations applying to commercial and recreational harvesters. Maintaining ongoing monitoring programs to develop indices of abundance and trends over time are critical to the success of calculating accurate regional stock assessments. South Carolina's continued participation in the regional COASTSPAN (Cooperative Atlantic States Shark Pupping and Nursery Survey) program should be an integral part of regional management efforts for the finetooth and other important species of sharks. The

ultimate success criteria would be the finding that overfishing was no longer occurring on finetooth sharks when the next regional stock assessment is conducted in 2007.

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