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Sharks of Virginia Waters

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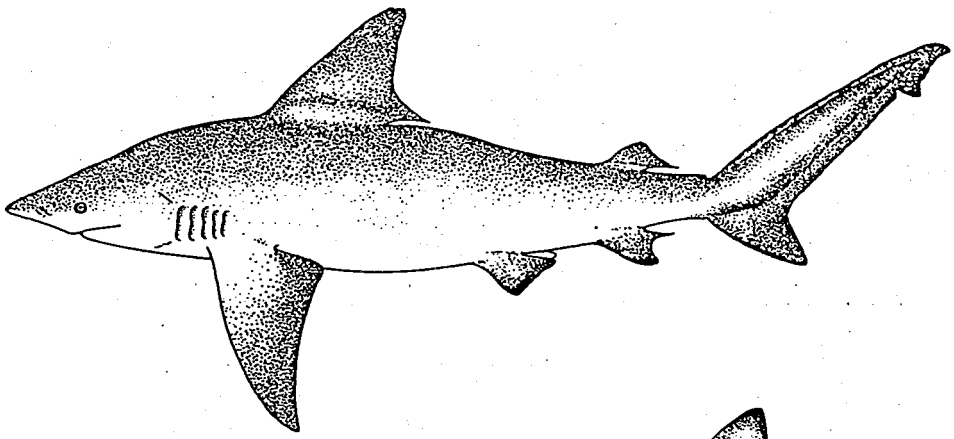
SHARKS

OF VIRGINIA WATERS



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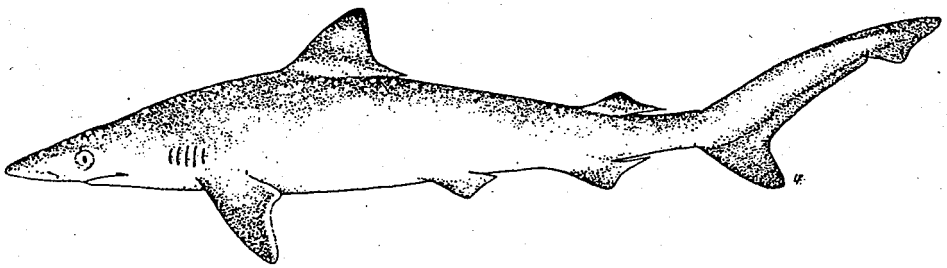

STEVE BRANSTETTER
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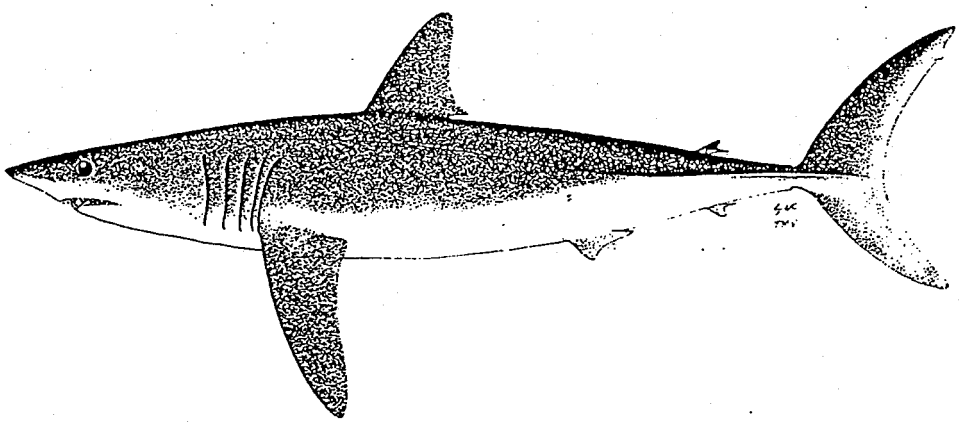


THE SHARK RESEARCH PROGRAM
VIRGINIA INSTITUTE OF MARINE SCIENCE
GLOUCESTER POINT, VA 23062

VIRGINIA MARINE RESOURCE REPORT #92-7

Over the last twenty years, sharks have become an increasingly popular target of recreational and commercial fishermen. Many species occur quite close to shore and are readily available to recreational and commercial fishermen alike. Recreational fishing kills about 450,000 sharks (10,000 tons) annually in the northwest Atlantic. Commercial fishing for sharks for meat for retail sale, and fins for making shark-fin soup (an oriental delicacy) takes about 200,000 to 300,000 sharks (5,000 - 7,000 tons) annually. Additionally, another 250,000 sharks (5,000+ tons) are taken as an indirect by-catch in shrimp, swordfish, and tuna commercial fisheries. In many instances, the fishermen simply cut off the fins, and discard the rest of the shark, sometimes while the shark is still alive. Fortunately, this rather inhumane and wasteful practice is being discouraged, and is not as common now as it was a few years ago.

In any event, the mortality rate on the shark stock, which includes about 40 species along the U.S. east coast, is about twice the mortality that the stock can withstand. This has been the case for over a decade; consequently the shark stock is declining alarmingly.

Sharks are very vulnerable to fishing pressure because of their biology. The large species produce very few (6-10) young during each reproductive cycle. The developing young are carried inside the mother for about a year, and most receive nourishment from a placental connection, analogous to mammals. After the mother gives birth, she will not become pregant again for another full year. Thus, the entire cycle is two (and maybe three) years in length.

Coupled to this low annual birth rate is the fact that sharks grow very slowly. Some species do not mature until they are 25-30 years old. Even "fast growing" species do not mature for 5-10 years. Thus, there is a long lag-time between when a shark "pup" is born, and when it can contribute new generations back to the population.

It is estimated that some of the slow-growing sharks can only increase their population size by about 2% annually, but current fishing pressure is removing as much as 10% of the population annually. Even with stringent restrictions on shark fishing, it will require decades for the stocks to recover.

Currently, four states along the east coast - Virginia, North Carolina, Florida, and Texas - have regulations that restrict recreational and commercial shark fishing efforts. However, states only have jurisdiction for a limited distance offshore. An inclusive federal management program has been in development for about four years, but has yet to be enacted. This lack of timely management has reduced the abundance of many shark species to a dangerously low level from a biological point of view.

About twenty shark species inhabit Virginia waters on a seasonal basis. These species migrate north in the spring from more southern locations, and use the Virginia coastal waters as a summer feeding ground. These fish all migrate south again in the fall when water temperatures begin to fall.

Additionally, the Chesapeake Bay and adjacent coastal waters are important nursery grounds for two species. One of these, the sandbar shark (*Carcharhinus plumbeus*), uses the waters inside Chesapeake Bay and the inlets and channels of the Eastern Shore as its nursery ground. This may be the largest nursery ground for this species in the North Atlantic. A second species, the dusky shark (*Carcharhinus obscurus*), uses the near-shore coastal waters of the Eastern Shore, and shallow beach waters along the Virginia Beach region as its nursery ground.

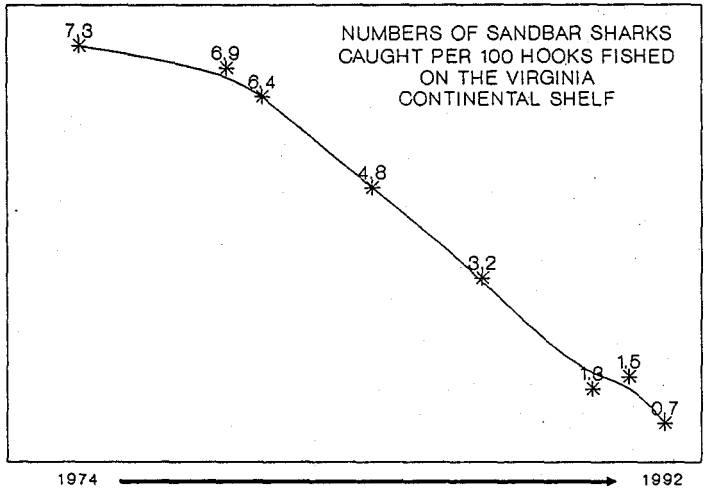
Scientists at the Virginia Institute of Marine Science (VIMS) have been monitoring the abundance and species composition of the shark fauna of the Virginia region since the early 1970's. Over that time, the catch rates of most species have declined an order of magnitude (10 times). The VIMS shark survey is designed so that these catch rates can be used to indicate shark abundance in the region. Some species, particularly the dusky shark, are becoming very rare in the region. Catch rates for four common shark species in the Virginia region are graphically illustrated on an attached page.

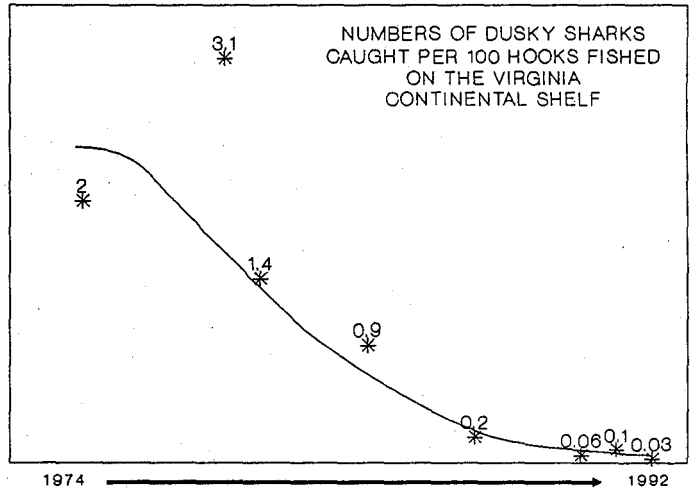
Although some might argue that reducing sharks in the marine environment is a good thing, this is far from the truth. Many people only think about sharks in terms of "shark attacks"; however it has been shown the probability of a shark-human encounter is increased more by increasing numbers of people in the water at any one time than by shark abundance. Thus, reducing shark abundance does little to decrease the possibility of such an event.

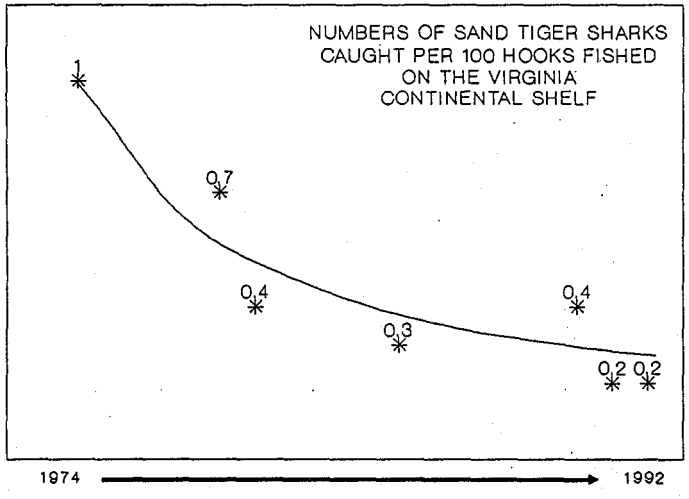
Sharks occupy an important place in the marine environment as top predators in the food web; they help regulate the populations of prey species, and keep the ecosystem balanced. A similar situation exists between humans and lions. Humans have a good reason to exhibit caution in "lion country", yet most people will agree that these potentially dangerous animals serve an important and useful function in their ecosystem. The same is true for sharks.

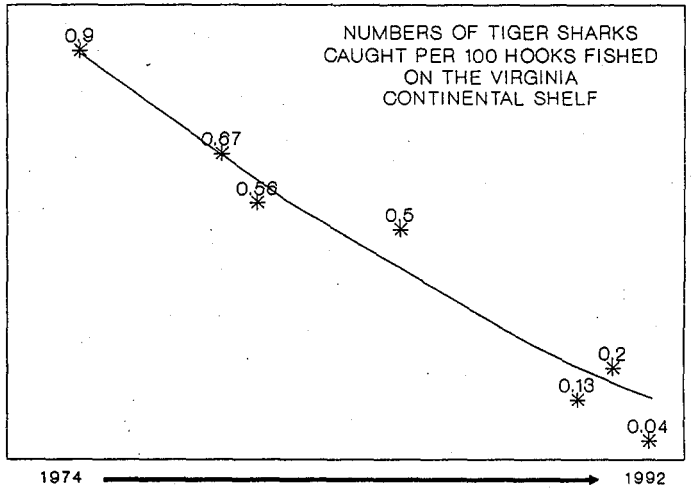
The VIMS Shark Research Program scientists hope that this hand-out, the exhibits and lectures that you will see and hear today will better inform you as to the importance of this graceful, ancient creature of the sea, and that they are in trouble and need our help. It is in our best interest, and that of the environment, that shark populations be kept healthy.

CATCH RATES OF 4 COMMON SHARK SPECIES IN VIRGINIA WATERS



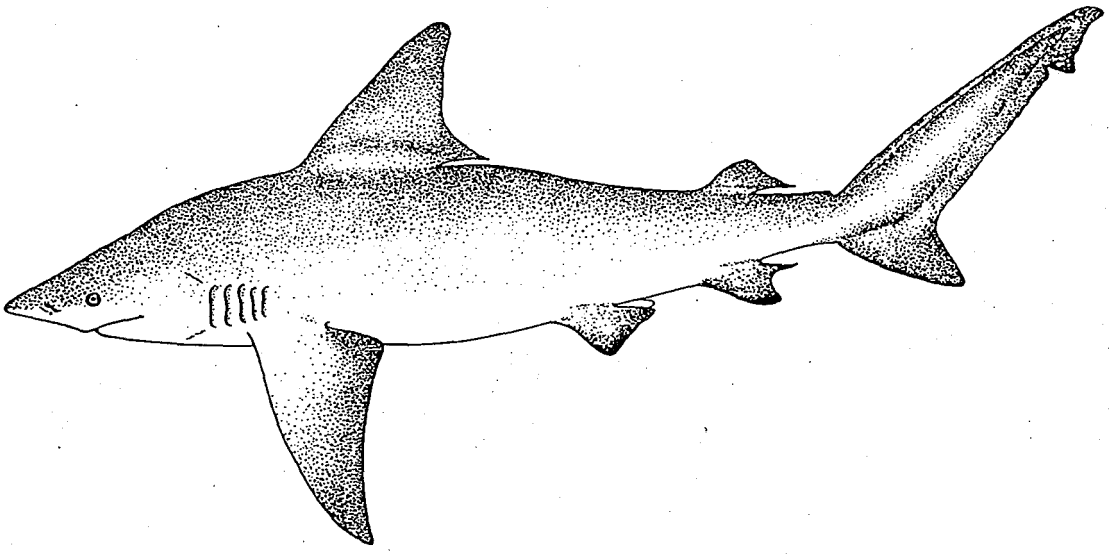






SANDBAR SHARK

(*Carcharhinus plumbeus*)



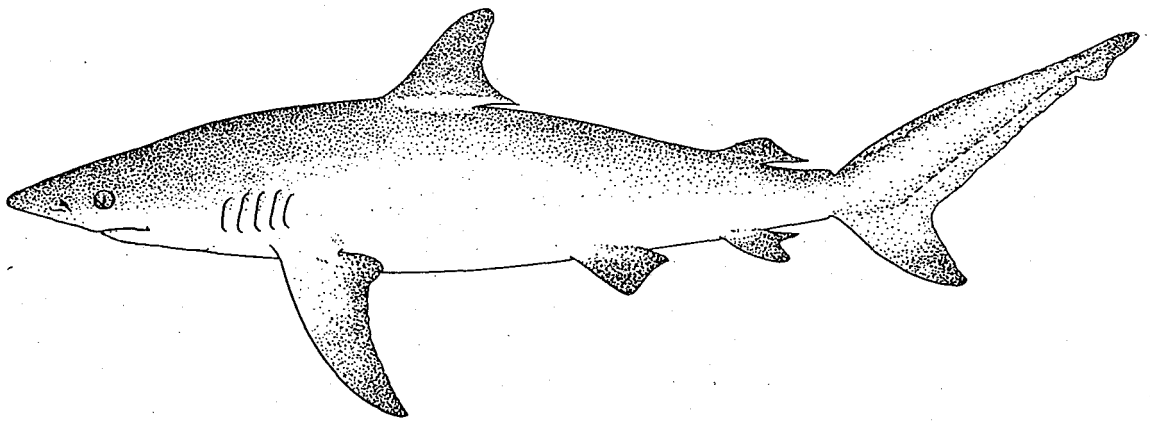
This is the most common large shark of the Virginia region. Adolescent and adult individuals use the Virginia coastal waters as a summer feeding ground, and more importantly, the Chesapeake Bay is one of the major nursery grounds in the Northwest Atlantic region for juveniles.

The sandbar shark is often caught by recreational fishermen, and it is a primary species taken in the commercial fishery. The meat is very good, and because the shark has very large fins, the sale of its fins to make shark-fin soup is an important component of the economics behind its commercial value.

This shark reaches a maximum size of about 250 cm, or about 8 feet. About 8 young comprise a litter of pups that are born at about 55 cm (20"). The species grows very slowly and does not mature until it is about 25 years old. Maximum age is unknown, but may exceed 50 years.

DUSKY SHARK

(*Carcharhinus obscurus*)



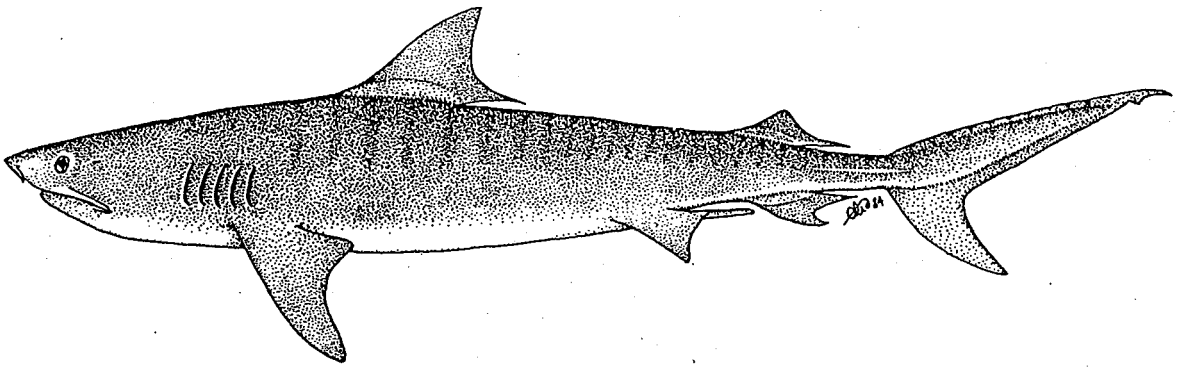
This was a common large shark of the Virginia region. Although adults are more common in offshore waters, the juveniles use coastal waters of the Virginia area as a nursery ground. Heavy fishing pressure on this species has reduced its numbers alarmingly. It is now only a rare event to see a dusky shark in the Virginia region.

Because of its large size, the dusky shark is a popular target of recreational fishermen. It is (was) one of the primary species entered in shark fishing tournaments. It is caught in the commercial fishery, and is often taken in the offshore fishery for swordfish and tuna. The meat is very good, and the fins of of a good quality for sale to make shark-fin soup.

This large shark reaches a maximum size of about 400 cm, or about 13 feet. About 10 young comprise a litter of pups that are born at about 90 cm, or 3 feet. A female only gives birth about every three years. The species grows very slowly; it matures in 17-20 years, and maximum age may exceed 50 years.

TIGER SHARK

(*Galeocerdo cuvier*)



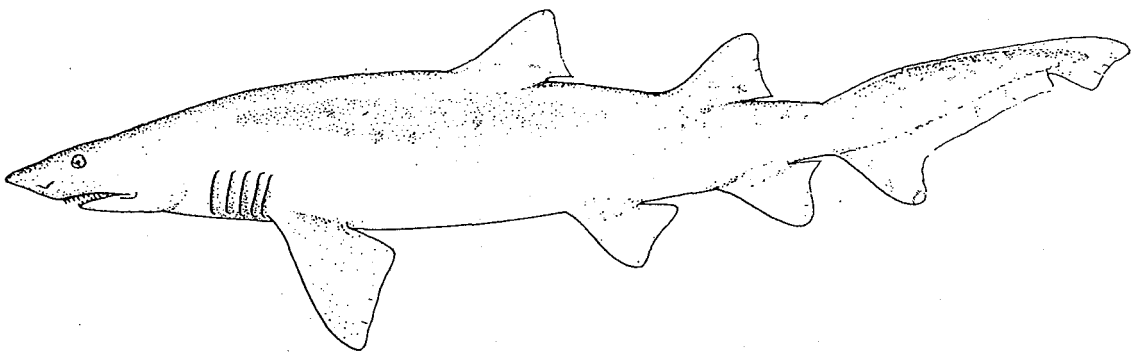
This is (was) a common coastal shark of the Virginia region, found most commonly in waters about 60 feet deep. The majority of individuals that occur in the region are sub-adults and adults; the juveniles are born farther south and remain there during their first years.

Because of its large size, it is a popular target of recreational fishermen. Although it is occasionally caught by commercial fishermen, the meat and fins have little value, and it is usually released. It is common both in coastal and offshore, oceanic waters.

This large shark may reach a maximum size of about 550 cm, or about 18 feet, but most individuals are less than 13 feet (400 cm). This is a prolific species that produces as many as 70 young per litter, although most litters are comprised of about 20-30 pups. Pups are born at about 90 cm, or 3 feet. A female only gives birth every three years. The species grows very fast compared to some other species, maturing in about 8-9 years. Abundance of this species has declined markedly in the Virginia region in recent years.

SAND TIGER SHARK

(*Odontaspis taurus*)



This is a common coastal shark of the Virginia region, found most commonly in waters 30-60 feet deep. It is common along the Eastern Shore, and along the Virginia Beach region.

Because of its large size, it is a popular target of recreational fishermen, and is often entered in tournaments. Although it is occasionally caught by commercial fishermen, the meat and fins have little value. It is usually released. This species has an unusual habit of swallowing air into the stomach to make it neutrally buoyant in the water, and can thus swim very slowly, nearly hovering. Because of this attribute, its large size, and its very visible long, spiked teeth, it is a popular shark for public aquarium display.

This large shark reaches a maximum size of about 300 cm, or about 10 feet. Only 2 young comprise a litter of pups that are born at about 90 cm, or 3 feet. A female only gives birth every two years. The species grows very fast compared to some other species, maturing in about 5-6 years. Even so, with the low birth rate, the population of this species has also been reduced from fishing pressure.