

Sharks visiting our coastal bays are vital to ecology

KATHERINE PHILLIPS, MARYLAND COASTAL BAYS – DelmarvaNow July 15, 2015

COLUMN: As vacationers head to the beach this summer, it is important to remember the key role sharks play in the marine ecosystem.



In light of Discovery Channel's famed Shark Week and recent shark sightings along the East Coast, sharks are in the forefront of vacationers' minds as they make their way to the beach this summer.

However, the chances of a vacationer being attacked by a shark are very slim. The United States averages only 19 shark attacks a year, with a 1-in-3.7 million chance of being attacked.

Your chances of being killed by a lightning strike are much higher, with 37 casualties a year in the coastal United States alone. Sharks are unfairly cast as villains due to cheesy Hollywood movies and people's personal fears; however, they really are an amazingly diverse group of animals that have perfectly evolved to suit their habitat.

Sharks are cartilaginous fish belonging to the class Chondrichthyes. This class also contains many other types of cartilaginous fish, like skates, rays, sawfish, guitarfish and angelfish. All of the fish in class Chondrichthyes have skeletons made up of cartilage instead of bone, dermal tentacles that can make their skin feel like sandpaper and gills that are open through slits instead of the bony covering found in bony fish.

There are more than 400 species of sharks worldwide. However, only three account for more than half of all shark attacks on humans. These species are the great white, tiger shark and bull shark.

Bull sharks are able to live in both salt and freshwater environments. This ability — combined with the bull sharks' tendency to hunt in shallow waters — increases their exposure to humans.

Tiger sharks are known for their tendency to eat just about anything. They also attack when they feel threatened or endangered, which poses a risk to humans.

Great whites account for the majority of shark attacks. They are naturally curious creatures and most attacks on humans result in releasing the victim. This indicates humans are not the intended source of food, which typically consists of sea lions, seals and small toothed whales.

Worldwide, shark populations are declining rapidly due to commercial fishing. Each year, more than 100 million sharks are killed, with some species declining by more than 50 percent in the last 15 years alone. Sharks are often caught for their fins or as bycatch in other commercial fishing operations.

Sharks reproduce at a slow rate, with a gestation period averaging between nine and 12 months, but can last up to two years depending on the species. Their reproduction rate is much slower than the rate at which they are being killed, leading to their decline.

Sharks have two types of reproductive strategies: giving birth to live young or laying eggs. Nearly 70 percent of all shark species give birth to live young in what is known as viviparity. Many shark species only produce one or two young a year, while some — such as whale sharks — can produce up to 300 young a year.

Upon birth, pups are entirely independent and receive no care from the mother.

Sharks are vital to maintain and regulate marine ecosystems as an apex or top predator. The loss of these apex predators means their prey — such as rays, skates and smaller sharks — will increase in numbers. Along the East Coast, declining shark populations have allowed species such as the cownose ray to increase in population size. This has led to a negative impact on bivalve populations such as scallops, clams and oysters, which are the primary food source for the rays.

Both bay scallop and quahog clam populations are in severe decline due to increased predation. Bivalves are filter feeders that help maintain water quality. With this reduction in filter feeders, there will be an increase in harmful algal blooms which can result in dead zones.

As vacationers head to the beach this summer, it is important to remember the key role sharks play in the marine ecosystem. The sharks that visit our coastal bays such as the great white named Mary Lee or more-recently sighted hammerheads are vital to the health of our bays and should be respected.

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