Deep-Water Sharks

In the Gulf of Mexico

A Deep-C Consortium Fact Sheet

Dive into the Unknown

The deep sea is one of the largest and most unique ecosystems on the planet, yet we know more about the surface of the moon than we do the deep sea. This cold, mysterious place hosts worlds within worlds and endless varieties of weird and wonderful life, including many species of deep-water sharks.

"Most people don't realize that 56% of all shark species in the world live their whole lives below 700 feet deep."

Dr. Dean Grubbs, Deep-C Scientist

Spotlight Species: Bluntnose Sixgill Shark

The bluntnose sixgill shark (*Hexanchus griseus*) is one of the most common species of large deep-water sharks. They are found all over the world, from temperate to tropical regions, and have been known to dive as deep as 6,000 feet. This gives them among the widest distributions of any other shark species.

While most sharks have 5 gills, these have 6. They have a heavy, powerful body and a round, blunt snout. Other distinctive features include the presence of only a single dorsal fin—most sharks have two—and unique, saw-like teeth. Bluntnose sixgills are typically found in water temperatures of 5—16°C, which correspond to depths of about 700-2,500 feet deep throughout most of their range. However, juveniles occur in shallower waters at night in cold-temperate regions such as the northeast Pacific. In much of their range, bluntnose sixgill sharks make daily vertical migrations, spending daylight hours at depths greater than 2,000 feet, but rising at night to depths as shallow as 700 feet.

We're Gonna Need a Bigger Boat

Bluntnose sixgills are the world's third largest predatory shark and grow to at least 18 feet long. This is comparable only to great white sharks.

Just like great whites, they are at the top of their food chain. Their prey likely includes smaller sharks, skates, bony fishes, and large squids. They also scavenge on large dead animals (including whales) that sink to the bottom.

Jurassic Shark

The sixgill sharks are among the most ancient of the living sharks. The teeth of the bluntnose sixgill closely resemble those of species found in fossils dating back more than 200 million years, when the dinosaurs roamed the earth.

Reproduction

Bluntnose sixgills are very slow growing and likely require many years to reach sexual maturity. It is thought that they have a long gestation period of perhaps two years or more, and females produce litters of 22-108 pups. A recent study found that a single litter from a bluntnose sixgill shark was sired by at least eight different fathers.

Threats

Fishing is the main threat to bluntnose sixgills. Although they are rarely specifically targeted as commercial catches, they are often taken as bycatch in deep-water fisheries.

Other threats include climate changes and subsequent ocean acidification, which is the process by which carbon dioxide is absorbed by the oceans.

Finally, the Gulf produces 23% of the U.S.A.'s crude oil and, with this activity, comes the risk of oil spills. This became clear in 2010 with the Deepwater Horizon incident, which is now considered to be the worst accidental oil spill in international history. Some of the carbon from the oil spill entered the marine food web through bacterial consumption, and the effects of the carbon are still under investigation.

Scientist Profile: Dr. Dean Grubbs

Dr. Dean Grubbs, a marine ecologist working for the Deep-C Consortium, is studying the effects of the 2010 Deepwater Horizon oil spill on deep-water sharks.

He has been investigating differences in community structure and abundances of deep sea fishes as a function of the proximity to the oil spill. He and colleagues are also examining the extent to which oil-related toxins, such as polycyclic aromatic hydrocarbons (PAHs), are metabolized by sharks and other marine species. Dean and his team have caught and examined more than 1,500 fishes so far. In addition, they have tracked the movements of 19 large bluntnose sixgill sharks, including six in the Gulf of Mexico up to 17 feet long.

> ***"The closer you get to the oil spill, the more fish are metabolizing PAHs, but what we are seeing so far is that it's at a pretty low level. If our colleagues find evidence of oil in a shark, it comes from the shark's diet, not from oil stuck to gills. Variation in the diets between sharks provides evidence of what other species were contaminated. The deeper you go in the ocean, the slower an animal's metabolism, so it may take a long time for the contaminants to work through the food chain."***

Deep-C CONSORTIUM

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