The Truth About Sharks
Chapter 6: Sharks and the Ecosystem

Sharks Eat!

As the top predators in many regions of the ocean, sharks have a direct effect on the ocean ecosystem. By consuming ill, weak, and injured prey, they help animal populations in the ocean maintain a healthy balance. These prey populations in turn affect populations of organisms at lower trophic levels until the presence of sharks in an ecosystem can be felt throughout the food chain.

Sharks are also scary…to prey. Their presence intimidates prey and alters the spatial distribution of prey that choose habitats safe from sharks. As they adjust to the presence of sharks, those organisms that are food for sharks maintain activity levels that affect their own prey. The cascading effect of sharks in an ecosystem eventually dictates the structure of the entire community.

Because sharks eat, they wield their control of ocean communities through their stomachs. But, as cold-blooded animals, they need less food than a similar-sized warm-blooded animal because they are not trying to maintain their body heat. Scientists have studied shark diets and determined that they need to eat about 2% to 3% of their body weight in food each day. They can accomplish this by gorging when food is present; a great white shark might eat a seal pup every three days to satisfy its food needs. Sharks can hold food in their stomachs for a period of time before they digest it, therefore giving them the flexibility to save the food for energy use later.

Sharks at SeaWorld: Real and Imagined

Sharks in captivity provide scientists an opportunity to study them. At SeaWorld in Orlando, Florida, marine biologists give their sharks annual physicals during which they take blood and make body measurements to help them better understand and manage the sharks' diet and keep them healthy. Because they are not living in the open ocean, sharks at SeaWorld eat less than those in the wild: about 1-10% of their body weight in food per week depending on the shark species. They are fed a variety of food like herring, mackerel, and blue runner from tongs that hold the fish so that the sharks can get their mouths around it without biting the feeders. Visitors to Sea World can learn about sharks and watch a feeding as part of their visit.

One mission of SeaWorld is to inspire guests to celebrate and protect the natural world. Through animal encounters, educational exhibits, and innovative entertainment, visitors are made aware of the need for animal conservation work across the globe. Because sharks are a popular part of SeaWorld's educational and entertainment programming, the park in Orlando is planning a massive new attraction for 2016: a shark-inspired roller coaster

called “Mako.” Named for the mako shark, the roller coaster is planned to be the tallest, fastest, longest coaster in Orlando. It will mimic the quick turns and speeds of a mako shark on the hunt. Riders will experience what it is like to be an apex predator, surging through the water at top speed, changing directions quickly and chasing prey.

Further Reading

What will make the “Mako” roller coaster the most like the movements of a mako shark? What properties and characteristics of the mako shark can be translated into a theme-park ride? You can learn more about mako sharks by searching the Internet for information about their appearance, feeding style, and hunting speed. Some of the following websites will get you started:

- Mako Shark
- Shortfin Mako Shark (Wikipedia)
- Mako Research (GHRI)
- SeaWorld aims for tallest, fastest coaster in Orlando

Questions for Discussion

1. Why have the roller coaster builders called their newest ride at SeaWorld the “Mako”? Why not the “Great White” or the “Hammerhead”?

2. What do you think a car on the roller coaster should look like? What color(s) should it be? What shape? What size?

3. How does a mako shark hunt? How can the movements of the roller coaster mimic the predator in motion? What would make the “Mako” even more thrilling and shark-like?

4. Do you think that an attraction like the “Mako” helps SeaWorld with their conservation mission? Explain.