



Exhibit message

Sharks have a range of hunting techniques and behaviours. This panel describes a possible technique used by sharks to submerge and release their prey until it bleeds to death. This hunting technique has been called exsanguination.

Quick fact

Great white sharks feed once every few weeks. They can live up to 45 days on a single bite of food and they usually seek out energy rich, fatty prey to sustain them.

Great white sharks compete with other sharks over food by slapping their tails up and down at the water's surface.

Graphic panel text

Bleeding a meal

White sharks usually attack seals from underneath. Sharks use different attack methods, including a bleeding technique.

Sometimes, they hold the seal in their jaws, pulling it deeper underwater and leaving a trail of blood rising to the water's surface.

When the seal stops bleeding, the shark seems to bite down, removing flesh and allowing the seal to flee or float back to the surface.

The shark repeats this hunting technique (called exsanguination) until the seal is dead.

White sharks (*Carcharodon carcharias*) sometimes leave carcasses floating for two hours before returning to eat.

Illustration adapted by permission of American Scientist, magazine of Sigma Xi, The Scientific Research Society, Professor Klimley.

Want to know more about great white shark attack techniques?

Great white sharks do not use one style of attack. Some great whites use a few different methods, while other great whites prefer to use a particular style of attack.

Some great white sharks sneak up and grab prey directly from behind, but most seem to approach prey from underneath.

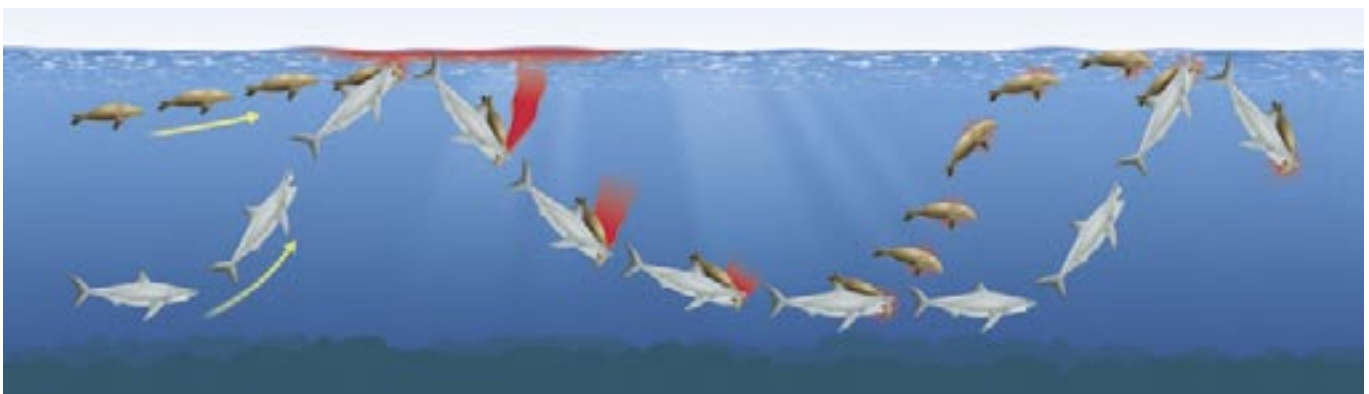
Some sharks use the 'attack from below' technique to grab prey (particularly seals) just below the water's surface. The shark does not breach the water's surface and these attacks are more difficult to observe.

Other sharks attack from below, but launch themselves partially or fully out of the water with the prey (particularly sea lions) trapped in the shark's jaws. This awesome sight is easier to observe as an explosive splash and frenzy of activity.

Another possible technique that sharks use is to grab a seal or a sea lion in their jaws, drag the prey deeper down into the water, bite out a chunk of flesh and release the prey so it swims or floats back up to the surface.

The shark may follow the prey to the surface to grab and pull the prey down repeatedly until it has bled to death and stopped struggling. This hunting technique is called exsanguination and was studied in sharks that live off the coast of California (United States of America).

By damaging and releasing the prey, scientists think that these sharks may be trying to minimise the risk of injury from prey that are struggling to get away. Sharks seem to bite down on sea lions sooner than they bite down on seals, possibly because sea lions have stronger fore flippers that could do more damage to the shark.





Extra for experts

Sharks tend to hunt prey with a high level of body fat such as seals, sea lions, dolphins, elephant seals and marine turtles.

Less fatty prey with high muscle content such as marine birds, sea otters and even humans tend to be less attractive to sharks. If sharks attack these animals, they will sometimes take a bite, then spit out the flesh and swim away. Sharks also attack and spit out man-made objects such as buoys, surfboards, rafts and boats as well.

Sharks even seem to judge the freshness of prey and usually leave decomposing sea lion carcasses alone.

Californian seals and sea lions must swim through stretches of water where sharks are likely to attack. To reduce the chance of being attacked, they swim in groups leaping in and out of the water with a 'porpoising' style of movement.

Sea lions have a better chance of escaping shark attacks than seals, because sea lions have stronger fore-flippers that give them better propulsion.

Further information

Special thanks to:

- Professor Timothy Tricas
<http://www.hawaii.edu/fishlab/>
- Dr Richard Martin
<http://www.elasmo-research.org/index.html> and
- A. Peter Klimley
<http://wfc.ucdavis.edu/>

for their advice on shark hunting behaviour (including exsanguination).

The Predatory Behavior of the White Shark.
American Scientist. A. Peter Klimley.
March/April 1994. Vol 82: 122–133.

White shark attack shows they're not man-eaters
http://www.eurekalert.org/pub_releases/2003-08/uoc--wsa_1082803.php

Florida Museum of Natural History
Ichthyology Department
<http://www.flmnh.ufl.edu/fish/Gallery/Describe/Whiteshark/whiteshark.html>

Predatory Behavior of the White Shark
(*Carcharodon carcharias*) with Notes on its Biology.
Proceedings of the California Academy of Sciences.
Timothy C. Tricas, John E. McCosker.
July 12 1984. Vol 43 (14): 221–238.