North Carolina Coastal Federation
Working Together for a Healthy Coast

For more information, contact
Ana Zivanovic-Nenadovic
anaz@nccoast.org 252-393-8185

SEISMIC TESTING

What is it?

Seismic testing is a first step toward oil and gas drilling. It is the exploration of the ocean floor bottom to map oil and gas reserves.

How is it done?

A fleet of vessels travel through open water towing airguns used to fire strong blasts of compressed air toward the ocean floor. This compressed air produces powerful soundwaves that are reflected back, providing imaging of the ocean floor.

Why is it a concern?

There are several concerns related to seismic testing:

1. The compressed sound waves move vertically and horizontally through water for several thousand miles, adversely affecting marine mammals and other animals that rely on sound for survival.
2. The sound produced by seismic testing is very loud — 180 dB/1uPa. For comparison, it is as if you were standing just 82 feet away from a jet taking off. A thunderclap, for example, is 120 dB.
3. The noise produced by seismic testing is:
    a. Continuous — every 10-15 seconds for months at a time
    b. Cumulative — several fleets work at the same time around the world. These sounds are also cumulative with other ocean noises — natural (waves, pressure changes, wind) and man-made (shipping, fisheries, navy sonar testing, recreational activities).

Which animals are affected and how?

The biggest concerns to date have been related to the effects of seismic testing on marine mammals, but this practice has adverse effects on many other marine organisms, including sea turtles, fish and zooplankton:

1. **Marine mammals** rely on sound propagation for communication, breeding, feeding and navigation. But seismic testing sounds overlap with and mask sounds produced by marine mammals. For reference, this would be as if you were trying to talk to someone while someone else was continuously talking over you. About 30 species of marine mammals can be found in the area proposed for seismic testing. The most vulnerable of them are the right whales, of which only 500 remain.
2. Many **fish** species are affected by loud noises produced by seismic testing. Fish can be stunned, startled or displaced by the sound. A local study done in Beaufort showed that 78 percent of reef fish, such as snapper, grouper and angelfish, went missing at the time of nearby seismic testing. It is important to recognize that these fish are among favorites for recreational fishers. They also constitute a main source of protein for many families who rely on subsistence fishing for survival.
3. Recent studies show that seismic testing can kill **zooplankton** for up to three-quarters of a mile from the testing area. These are tiny animals on which many other marine organisms, like reef fish, depend on for survival. Scientists at Duke estimated that in local waters, killing of zooplankton could have detrimental effects on reef fish, like the snapper. In general, any drastic harm to zooplankton populations could lead to grave consequences for the entire food chain.