

Seismic Airgun Blasting

To prospect for oil and gas, the industry typically employs large air guns that fire intense blasts of compressed air – often as loud as explosives – about every 10 to 12 seconds, 24 hours per day, for days, weeks, or months on end. The blasts of sound are known to travel more than a thousand miles through the ocean, and into the seabed, reflecting back information under the sea floor. (see image below) In the process, these blasts harm, deafen, and even kill marine mammals, sea turtles, fisheries and other wildlife.

Federal Approval Process

Companies conducting seismic testing must receive two approvals before blasting may begin: a Geological and Geophysical permit from the Bureau of Ocean Energy Management (BOEM) and an Incidental Harassment Authorization (IHA) from the National Marine Fisheries Service (NMFS). An IHA is essentially a permit to harm marine mammals. A summary of the full process is available [here](#). The Obama administration denied six applications for seismic blasting in the Atlantic in January 2017. As part of President Trump’s [America First](#) Executive Order and a [Secretarial Order](#) that followed, however, five of those seismic permits are currently being reviewed for approval. NMFS released its [draft IHA permits](#) for public comment on June 6. The comment period closes on July 6, 2017.

The Five Permits Under Review

Five companies are each seeking permission to conduct seismic airgun blasting at various locations along the Atlantic coastline from Delaware to Cape Canaveral, Florida. All would conduct blasting off [Virginia’s coastline](#). Based on the grid survey pattern of all survey vessels combined, the companies would blast paths that include nearly 150,000 kilometers—that’s the same distance as circumnavigating the Earth 3.5 times. According to BOEM, these seismic surveys would harm over 138,000 marine mammals.

Seismic Blasting Harms Marine Life & Fisheries

Sound is a fundamental element of the marine environment. Whales, fish, and other wildlife depend on it for breeding, feeding, navigating, and avoiding predators – in short, for their survival and reproduction.

Specifically airgun blasting affects marine mammals, fish and other marine life by:

- disrupting behavior
- disrupting foraging
- impairing communication
- disrupting breeding
- displacing fish and whales from their habitat
- causing physical injury (hearing loss) and death

These impacts from seismic blasts are on a *wide* geographic scale. For example, a single seismic survey has been shown to cause endangered fin and humpback whales to stop vocalizing – a behavior essential to breeding and foraging – over an area at least 100,000 square nautical miles in size, and can cause baleen whales to abandon habitat over the same scale.¹ (100,000 square nautical miles is over three times the land area of Virginia.) The endangered North Atlantic right whale—with only 500 individuals remaining in the species—would also be susceptible to seismic blasting harm; leading scientists have expressed their concern [here](#).

Virginia-specific marine resources located at False Cape State Park, First Landing State Park, Kiptopeke State Park, Mockhorn Island State Wildlife Management Area, Back Bay National Wildlife Refuge, Assateague National Seashore, and more are also at risk.

Commercial fisheries are impacted by airgun blasting—it has been shown to dramatically depress catch rates (by 40-80%).² Fishermen in some parts of the world are seeking industry compensation for their losses. In addition to disrupting and displacing adult fish, several studies indicate that seismic blasting can kill or decrease the viability of fish eggs and larvae. Virginia’s commercial fisheries landed 388 million pounds of seafood in 2014 with sales over \$1.2 billion. And Virginia’s 50 commercial fishery species support 17,000 jobs. The Mid-Atlantic Fishery Management Council has recently expressed its concerns that seismic blasting may pose a threat to fish populations [in a letter](#) to Secretary of the Interior Zinke.

Additional Conflicts

The Department of Defense in its [October 30, 2015 report to BOEM](#) has categorically labeled much of Virginia’s Outer Continental Shelf as “No Oil and Gas Activity.” The DoD cites, among other reasons, the need for: “Preservation of a sterile test environment for live fire test events; combat readiness training flexibility; on-going live ordnance release/impact, tactical training.”

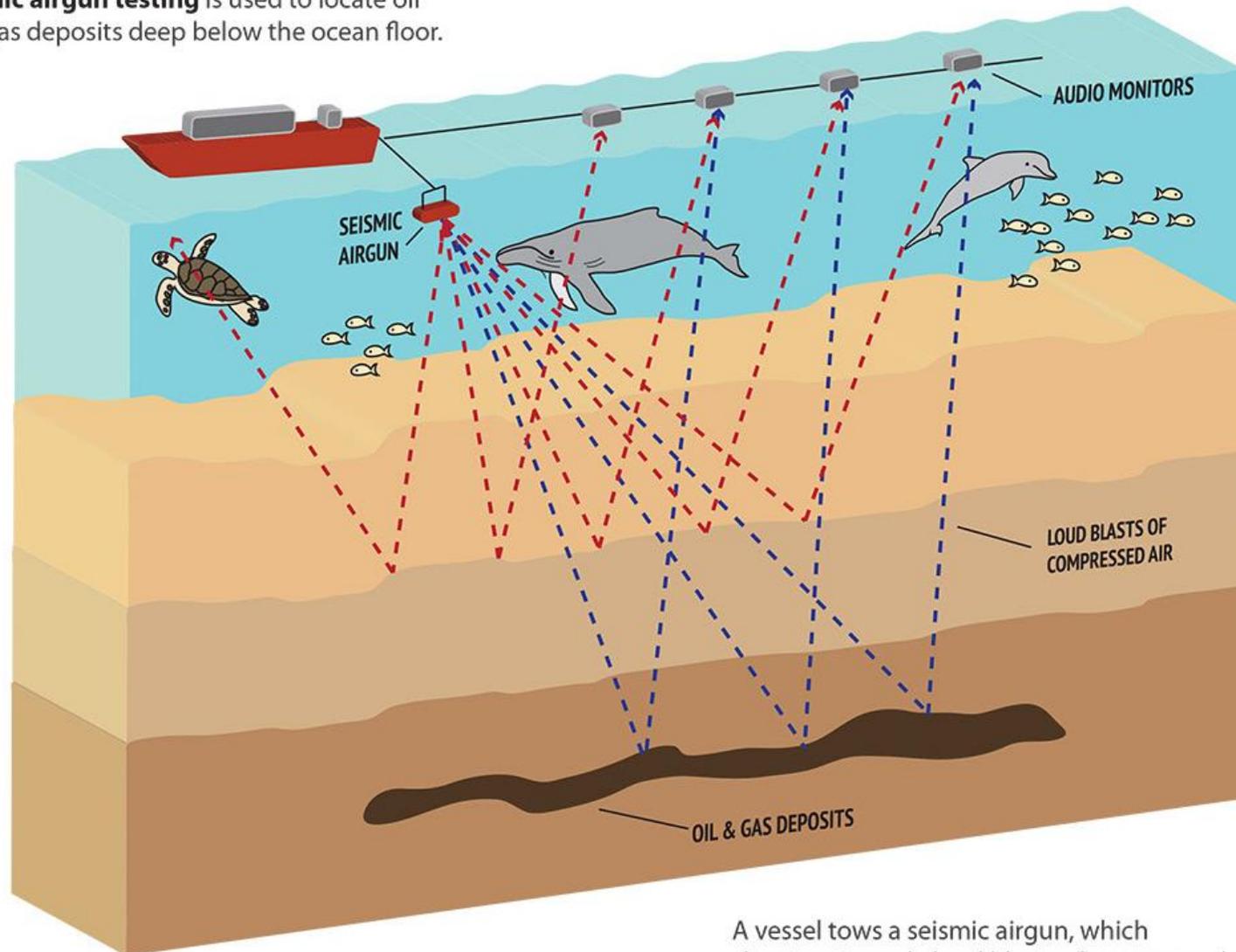
Significant community, business and scientific opposition exists to seismic blasting—view a partial list [here](#).

¹ Clark, C.W., and Gagnon, G.C., Considering the temporal and spatial scales of noise exposures from seismic surveys on baleen whales (2006) (IWC Sci. Comm. Doc. IWC/SC/58/E9); Clark, C.W., pers. comm. with M. Jasny, NRDC (Apr. 2010); see also MacLeod, K., Simmonds, M.P., and Murray, E., Abundance of fin (*Balaenoptera physalus*) and sei whales (*B. borealis*) amid oil exploration and development off northwest Scotland, *Journal of Cetacean Research and Management* 8: 247-254 (2006).

² Engås, A., Løkkeborg, S., Ona, E., and Soldal, A.V., Effects of seismic shooting on local abundance and catch rates of cod (*Gadus morhua*) and haddock *Melanogrammus aeglefinus*, *Canadian Journal of Fisheries and Aquatic Sciences* 53: 2238-2249 (1996); see also Skalski, J.R., Pearson, W.H., and Malme, C.I., Effects of sounds from a geophysical survey device on catch-per-unit-effort in a hook-and-line fishery for rockfish (*Sebastes ssp.*), *Canadian Journal of Fisheries and Aquatic Sciences* 49: 1357-1365 (1992).

HOW IT WORKS

Seismic airgun testing is used to locate oil and gas deposits deep below the ocean floor.



A vessel tows a seismic airgun, which shoots extremely loud blasts of compressed air through the ocean and miles under the seafloor, **every ten seconds, 24 hours a day, for days to weeks on end.**