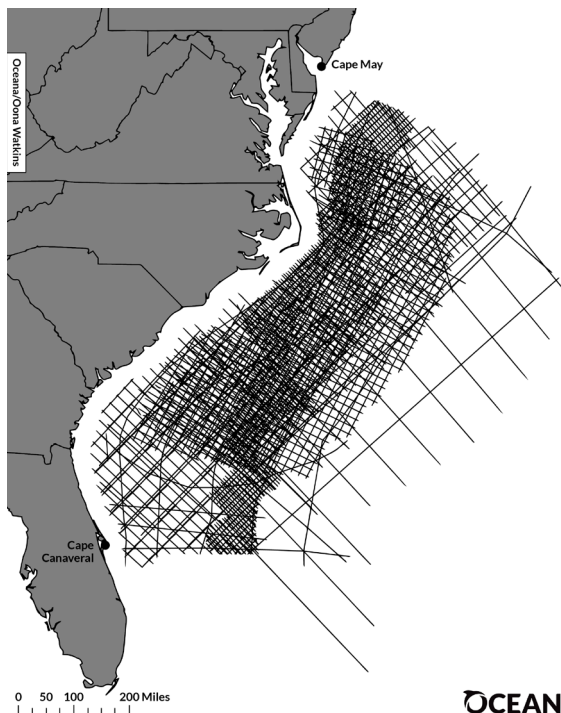


Exploration for Offshore Oil Drilling with Seismic Airguns Harms Marine Life

Seismic airgun blasting in search of offshore oil is shortsighted and dangerous. Seismic airgun arrays create one of the loudest manmade sounds in the ocean.¹ Noise from airguns can disturb, injure or kill marine animals from zooplankton, the base of the food web, to large whales.²⁻⁷ According to the government's own estimates, seismic airgun blasting in the Atlantic Ocean will injure and disturb marine mammals, like dolphins and whale, hundreds of thousands of times.⁸

Seismic Surveys in the Atlantic



Composite of proposed seismic survey tracklines

Seismic airgun blasting is the first step towards dirty and dangerous offshore drilling. In November 2018, the National Oceanic and Atmospheric Administration (NOAA) issued Incidental Harassment Authorizations (IHAs) for five companies to harm marine mammals while conducting large-scale seismic surveys for oil and gas in the Atlantic.⁸

Seismic airguns produce loud, repetitive sounds that can travel underwater up to 2,500 miles.⁹ Blasts are repeated as often as every 10 seconds for days, weeks or months at a time.^{8,9} These Atlantic authorizations allow nearly 850 combined days of around-the-clock activity, amounting to more than five million total seismic airgun blasts.⁸

The blast zone stretches from the mouth of Cape May, New Jersey to Cape Canaveral, Florida and contains at least thirty-four species of marine mammals.⁸ The area also includes the only known calving ground for the

critically endangered North Atlantic right whale. Endangered and threatened sea turtles live in the region's waters and nest on its beaches.¹⁰ The blast zone is also home to hundreds of species of fish and shellfish, many of which support important commercial and recreational fisheries.^{11,12}

Bad Deal for Coastal Communities

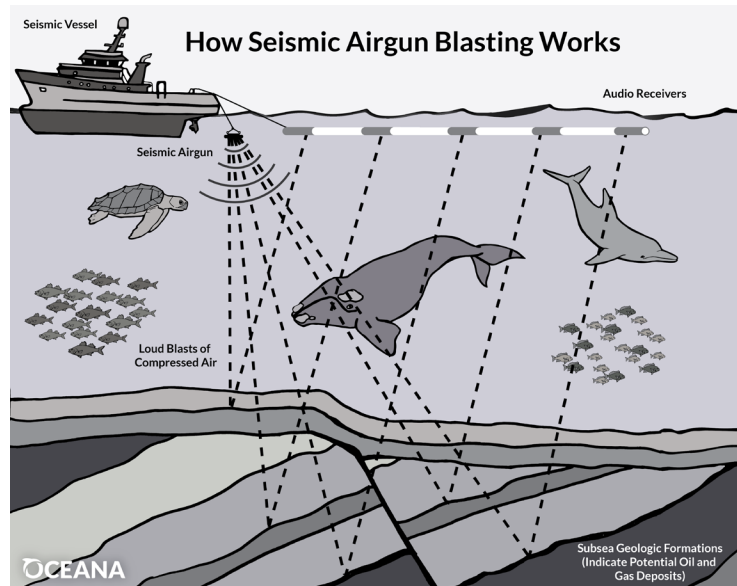
Seismic airgun blasting for oil and gas along the Atlantic coast threatens healthy marine resources that support over 1.5 million jobs and generate nearly \$108 billion in GDP through tourism, fishing and recreation.¹³ Risking the existing clean coast economy to *potentially* locate and extract very little oil and gas would be a



permanent mistake. In total, the Atlantic's economically-recoverable reserves would only meet domestic oil demand for seven months and gas demand for six months.¹³ The opposition to seismic airgun blasting is bipartisan and widespread, including more than 250 East Coast municipalities, over 1,600 elected officials, and an alliance representing over 43,000 businesses and 500,000 fishing families.¹⁴

Danger of Seismic Surveys

An extensive and growing body of research demonstrates the serious threat of seismic airgun blasting to marine animals.¹⁵ Airgun noise can reduce catch rates for fish¹⁶ and disrupt essential behaviors in marine mammals, like dolphins and whales.⁴ For marine animals, sound plays an essential role in feeding, mating, communicating and avoiding predators. The threats of underwater noise to marine life are well-documented, including stress, injury and disruption of important life functions, which lead to increased risk of death and lowered reproductive success.^{17–21} Keeping our ocean healthy and teeming with marine life is critical for tourism, fishing and recreation, important drivers of the coastal economy.



A review of the scientific literature demonstrates that seismic airgun blasting has substantial impacts on marine life:

Marine Mammals

- Seismic airgun noise disrupts feeding, predator avoidance, and social behavior – all of which can harm marine mammals populations.^{15,22,23}
- Seismic surveys can interfere with finding food and lead to starvation, if whales do not get enough food it prevents successful pregnancies and increases the chance of death.^{3,24}
- Whales may move to avoid seismic airgun noise^{4,23,25}, potentially leaving important habitat for feeding, mating or raising young.
- Airgun noise can block or impair communication^{4,5,26,27} between mates or between mothers and calves.
- Some marine mammals spend extra energy on communication, making louder than normal sounds²⁷ that may never be heard because of airgun noise.
- Activities to find food are reduced in sperm whales²² and porpoises²⁸ after seismic surveys.



Fish

- Seismic airgun noise can injure fish hearing structures^{7,29} and cause hearing loss,³⁰ leaving fish unable to use sound for communicating, finding food or avoiding predators.
- In North Carolina, the number of active reef fish dropped over 75 percent during a seismic survey almost five miles away.³¹
- Seismic airgun noise causes behavioral changes in swimming and habitat use.^{29,31-34} Fish may move to avoid the noise, potentially leaving high quality habitat with abundant food or moving into places with more predators.
- Fish show alarm responses³⁵ and experience increased stress³⁶ with airgun noise, compromising the health of the fish and altering normal behavior.
- For some commercially and recreationally important fish species such as cod and haddock, catch rates can decrease by as much as 80 percent after seismic airgun blasts.^{16,37,38}

Sea Turtles

- Sea turtles swim erratically to avoid seismic airgun noise,^{29,39} spending energy on escape maneuvers.
- Sea turtles are at risk of hearing damage or loss from airgun noise, and displacement from high quality habitat.⁴⁰

Invertebrates (e.g. shellfish and zooplankton)

- A single seismic airgun can cause massive mortality in zooplankton – the base of the marine food web.²
- Seismic airgun noise causes increased mortality in scallops⁴¹ and can damage the immune system of lobsters.⁴²
- Airgun noise delays growth and causes body abnormalities in young scallops.⁶
- Squid show alarm near seismic airguns.^{29,33} Moving to avoid the noise means potentially wasting energy or leaving habitat that has abundant food and safety from predators.

Visit www.oceana.org/BlockTheBlast to join the fight to protect the Atlantic coast from the threat of seismic airgun blasting.



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