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**INTERIOR BOARD OF LAND APPEALS
OFFICE OF HEARINGS AND APPEALS
UNITED STATES DEPARTMENT OF THE INTERIOR
801 NORTH QUINCY ST., SUITE 300
ARLINGTON, VA 22203**

INTERNATIONAL ASSOCIATION OF
GEOPHYSICAL CONTRACTORS (“IAGC”),
TGS, WESTERNGECO LLC,
CGG SERVICES (U.S.) INC.,
SPECTRUM GEO INC.,
MULTIKLIENT INVEST AS,

Appellants,

v.

UNITED STATES DEPARTMENT OF THE
INTERIOR,

Respondent,

and

OCEANA, INC.

Proposed Respondent-Intervenor

IBLA Nos. 2017-1035, *et al.*

OCEANA, INC.’S MOTION TO INTERVENE AND MEMORANDUM IN SUPPORT

Under 43 C.F.R. §4.406, Oceana, Inc. respectfully moves to intervene in the above-captioned appeals in which International Association of Geophysical Contractors (“IAGC”), TGS, WesternGeco LLC, CGG Services (U.S.) Inc., Spectrum Geo Inc., and MultiKlient Invest AS appeal the Bureau of Ocean Energy Management’s (“BOEM”) denial of seismic surveying permits in the Atlantic.

I. BACKGROUND

A. BOEM denied the seismic permits for the Atlantic.

Several companies applied to BOEM for permits to conduct geological and geophysical surveying in the Atlantic to identify potential areas for oil and gas drilling. While developing the 2017-2022 Five-Year Program for Oil and Gas Leasing, BOEM considered offering lease sales in the Mid- and South Atlantic. Ultimately, BOEM did not include the Atlantic in the Five-Year Program.¹ Considering that the Atlantic was not included in the Five-Year Program, BOEM denied the pending permits for seismic surveying. on or around January 6, 2017, for the reasons discussed below.²

In the decision memorandum, the BOEM Director noted several reasons for the denial, including that (1) there is no immediate need for new geological and geophysical (“G&G”) data from seismic airgun surveys in light of the removal of the Atlantic planning areas from leasing in the 2017-2022 Five-Year Program; (2) the G&G data to be acquired could become outdated; (3) developments in technology might allow for used of lower impact airguns or other instruments that do not have the potential for the level of impacts on the environment from the currently

¹ BOEM, 2017-2022 Outer Continental Shelf Oil and Gas Leasing Proposed Program (March 2016), <https://www.boem.gov/2017-2022-Proposed-Program-Decision/>; Jennifer A. Dlouhy, *Obama Bars Atlantic Offshore Oil Drilling in Policy Reversal*, Bloomberg (Mar. 15, 2016), <http://www.bloomberg.com/news/articles/2016-03-15/obama-said-to-bar-atlantic-coast-oil-drilling-in-policy-reversal>.

² BOEM, BOEM Denies Atlantic Seismic G&G Permits (Jan. 6, 2017), <https://www.boem.gov/press01062017/>; Memorandum from Abigail Ross Hopper, BOEM Director, to Michael Celata, Regional Director, Gulf of Mexico Region re Airgun Seismic Survey Permit Applications (Jan. 5, 2017) (included with denied permits).

proposed airgun surveys; and (4) the possibility of high intensity impacts from airguns on the environment, including the endangered North Atlantic right whale and other species, is unnecessary given the lack of immediate need for G&G data at this time.³

The BOEM Director stated:

In the present circumstances and guided by an abundance of caution, we believe that the value of obtaining the geophysical and geological information from new airgun seismic surveys in the Atlantic does not outweigh the potential risks of those surveys' acoustic pulse impacts on marine life.⁴

In addition, the BOEM director noted:

Deep penetration seismic surveys are conducted by vessels towing an array of airguns that emit acoustic energy pulses into the seafloor over long durations and over large areas. Many whale species hear and vocalize at low frequencies which overlap with the low frequencies produced by deep penetration seismic surveys. Seismic airguns penetrate several thousand meters beneath the seafloor. These surveys are controversial because of public concerns over potential impacts of the sound produced by these surveys to marine life.

According to BOEM's website, the Atlantic outer continental shelf region G&G permits that were denied are the following six permits that proposed the use of seismic airguns to conduct the surveys: TGS (Permit Number E14-001), Ion/GX Technology Corporation (Permit Number E14-004); WesternGeco LLC (Permit Number E14-004), CGG Services (U.S.) Inc (Permit Number E14-005), Spectrum Geo Inc (Permit Number E14-006), and MultiKlient Invest

³ BOEM, BOEM Denies Atlantic Seismic G&G Permits (Jan. 6, 2017), <https://www.boem.gov/press01062017/>; Memorandum from Abigail Ross Hopper, BOEM Director, to Michael Celata, Regional Director, Gulf of Mexico Region re Airgun Seismic Survey Permit Applications (Jan. 5, 2017) (included with each of the six denied permits).

⁴ BOEM, BOEM Denies Atlantic Seismic G&G Permits (Jan. 6, 2017), <https://www.boem.gov/press01062017/>; Memorandum from Abigail Ross Hopper, BOEM Director, to Michael Celata, Regional Director, Gulf of Mexico Region re Airgun Seismic Survey Permit Applications (Jan. 5, 2017) (included with each of the six denied permits).

AS (Permit Number E14-007).⁵ Two permits that proposed the use of G&G survey technologies other than seismic airguns were granted.⁶

All six permit applicants that proposed the use of seismic airguns have appealed BOEM's denial to the Interior Board of Land Appeals ("Board"). In addition, the International Association of Geophysical Contractors ("IAGC"), while not a permit applicant, filed appeals along with several of the permit applicants. The Board granted IAGC standing to appeal BOEM's denial of the seismic permit applications. On March 30, 2017, certain stakeholders concerned about seismic exploration, not including Oceana, met with BOEM officials and learned about these appeals. After the meeting, some of the attendees informed employees of Oceana that appeals had been filed.

B. Oceana represents members' interests in the conservation and management of the Atlantic Ocean.

Oceana is an international non-profit organization dedicated to protecting and conserving the world's oceans. Oceana is headquartered in Washington, D.C. with offices or staff in the United States in Alaska, California, Oregon, Massachusetts, Florida, New York, North Carolina, and South Carolina, in addition to the District of Columbia. Oceana has worldwide offices or staff in Madrid, Spain; Brussels, Belgium; Copenhagen, Denmark; Geneva, Switzerland; Belmopan, Belize; Santiago, Chile; Manila, Philippines; Brasilia, Brazil; and Toronto, Canada.

⁵ BOEM, Currently submitted Atlantic OCS Region Permits, <https://www.boem.gov/Currently-submitted-Atlantic-OCS-Region-Permits/> (last visited April 30, 2017) (including a list of six denied permits and links to each). Five of the permit applicants are located in the United States in Houston, Texas, while one – MultiKlient Invest AS, is located in Norway.

⁶ Memorandum from Abigail Ross Hopper, BOEM Director, to Michael Celata, Regional Director, Gulf of Mexico Region re Airgun Seismic Survey Permit Applications (Jan. 5, 2017) (included with each of the six denied permits); *see, e.g.*, NEOS GeoSolutions, Inc. Permit No. E15-002, <https://www.boem.gov/Currently-submitted-Atlantic-OCS-Region-Permits/> (proposing use of a different technology, airborne gravity gradient and magnetic operation).

Oceana's mission is to use science, law and policy advocacy in our efforts to make the world's oceans as rich, healthy, and abundant as they once were.⁷

Oceana has more than 740,000 members and supporters worldwide, including over 200,000 members and supporters who live in coastal states along the Atlantic Ocean. Oceana's members in coastal Atlantic states include conservationists, commercial and recreational fishermen, business owners, locally elected officials, scientists, and other ocean enthusiasts.⁸

Oceana members rely on Oceana to represent their interests in the conservation and management of marine resources and ecosystems, including the Atlantic Ocean.⁹

Oceana's individual members use and enjoy the Atlantic Ocean and the areas identified for G&G surveys using seismic airguns for various purposes, including both recreational and commercial uses. Recreational uses include swimming, recreational fishing, kayaking, canoeing, paddle surfing, boating, surfing, windsurfing, kite surfing, scuba diving, snorkeling, wildlife viewing (e.g., seabirds, sea turtles, dolphins, whales), and lounging or walking along the beach, among others. Commercial uses include: businesses that provide the aforementioned recreational opportunities to tourists, photography, scientific research, and commercial fishing, among others.¹⁰

All of these recreational and commercial uses depend on a healthy marine environment that is able to support populations of fish, birds, and marine mammals. The Atlantic Ocean off the East Coast of the United States serves as an important location for breeding, feeding, staging,

⁷ Declaration of Nancy Pyne, ¶ 3.

⁸ Declaration of Nancy Pyne ¶ 3; *see also* Declaration of Johnny Miller.

⁹ Declaration of Nancy Pyne, ¶ 4.

¹⁰ Declaration of Nancy Pyne, ¶ 5.

and/or habitat for numerous species, including a number of endangered species, such as the North Atlantic right whale and several species of sea turtles.¹¹

Oceana's members in coastal Atlantic states use, observe, and otherwise enjoy marine species and depend on a healthy marine environment in the Atlantic Ocean. G&G surveying for oil and gas deposits on the U.S. outer continental shelf in the Atlantic with seismic airguns adversely affects the marine environment, marine species and the interests of Oceana's members.¹²

C. Oceana directly participated in the government process underlying this appeal.

Oceana participated extensively in the government processes associated with the seismic permits. Oceana submitted detailed comments on: (1) NEPA scoping as well as the draft and final programmatic environmental impact statement for proposed geological and geophysical ("G&G") exploration on the Atlantic outer continental shelf ("OCS");¹³ (2) the state consistency certifications required by the Coastal Zone Management Act for permit applicants (e.g., Maryland, Delaware, North Carolina, Georgia, and Florida);¹⁴ (3) the seismic airgun blasting permit applications;¹⁵ (4) the applications submitted to the National Marine Fisheries Service for marine mammal incidental take authorizations required pursuant to the Marine Mammal

¹¹ Declaration of Nancy Pyne, ¶ 6.

¹² Declaration of Nancy Pyne, ¶ 7.

¹³ Letter from Oceana, et. al, to Regional Supervisor, Leasing and Environment, Minerals Management Service (May 17, 2010) (on file with Oceana); Letter from Oceana, et. al, to Gary D. Goeke, Chief, Regional Assessment Section, Bureau of Ocean Energy Management (July 2, 2012) (on file with Oceana); Letter from Oceana and International Fund for Animal Welfare, to Gary D. Goeke, Chief, Environmental Assessment Section, Bureau of Ocean Energy Management (May 7, 2014) (on file with Oceana).

¹⁴ See e.g. Letter from Oceana, to Braxton Davis, Director, North Carolina Division of Coastal Management (Mar. 2, 2015). Oceana also filed comments to the state of Maryland with respect to Spectrum, TGS, and GX Technology permit requests; to the state of Delaware with respect to Spectrum Geo and GX Technology; to the state of North Carolina with respect to TGS; to the state of South Carolina with respect to Spectrum Geo, GX Technology, and CGG Services; to the state of Georgia with respect to Spectrum Geo, GX Technology, CGG Services, and TGS; and to the state of Florida with respect to Spectrum Geo, GX Technology, TGS, and CGG's permit applications for seismic surveying. All comment letters are on file with Oceana.

¹⁵ Letter from Oceana, to Abigail Ross Hopper, Director, Bureau of Ocean Energy Management (Apr. 29, 2015) (on file with Oceana).

Protection Act (“MMPA”), which are required in order for BOEM to grant permit applications for seismic airgun blasting;¹⁶ and (5) the Fisheries Service’s guidance for assessing the effects of anthropogenic sound on marine mammal hearing.¹⁷

II. ARGUMENT

A. A party is normally allowed to intervene in an appeal if its interests may be adversely affected by the outcome of the appeal.

Under 43 C.F.R. § 4.406, a motion to intervene must be filed within 30 days “after the person knew or should have known that the decision had been appealed to the Board.”¹⁸ The motion must set forth the basis for the proposed intervention, including whether the person “had the right to appeal the decision under § 4.410 or would be adversely affected if the Board reversed, vacated, set aside, or modified the decision.”¹⁹ If a proposed intervenor “demonstrates . . . that its interests could be adversely affected by the outcome of the appeal (e.g., if the agency decision were overturned), the IBLA will normally grant the motion [to intervene] in accordance with 43 C.F.R. § 4.406.”²⁰

The movant must demonstrate a legally cognizable interest in the subject matter of the appeal.²¹ An intervenor’s interest can “include cultural, recreational, and aesthetic uses and enjoyment of public lands.”²² A party can demonstrate potential adverse effect to its interests by

¹⁶ Letter from Oceana, to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service (Aug. 28, 2015) (on file with Oceana); Letter from Oceana, et. al, to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service (Aug. 28, 2015) (on file with Oceana); Letter from Oceana, et. al, to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service (Aug. 28, 2015) (on file with Oceana) (commenting on the incompleteness of the IHA applications).

¹⁷ Letter from Oceana, to Amy R. Scholik-Schlomer, Protected Resources Acoustic Coordinator, National Marine Fisheries Service (Sept. 14, 2015) (on file with Oceana). *See also* Declaration of Nancy Pyne, ¶¶ 9-18.

¹⁸ 43 C.F.R. § 4.406(a). Oceana meets this first requirement for intervention: Oceana filed its motion within 30 days of the date Oceana was made aware of the appeal.

¹⁹ 43 C.F.R. § 4.406(b)(1).

²⁰ U.S. Dep’t of Interior, IBLA Manual Part VIII, Ch. 4.

²¹ *Hanley Ranch Partnership v. BLM*, 183 IBLA 184, 194 (2013).

²² *See Coalition of Concerned Nat’l Park Retirees*, 165 IBLA 79, 80 (2005).

providing “colorable allegations of adverse effect and ... a causal relationship between the action undertaken and the injury alleged.”²³ An intervenor is not required to show that “an injury has actually occurred; rather, a colorable allegation of injury suffices.”²⁴

B. Oceana and its members and supporters’ interests will be adversely affected if the seismic companies’ appeal succeeds.

1. Oceana and its members and supporters have specific commercial, recreational and aesthetic interests in the Atlantic Ocean and surrounding coastal areas.

Oceana and its members and supporters have legally cognizable interests in the areas of the Atlantic Ocean proposed for seismic surveying. Oceana’s interests include conservation and management of marine resources and ecosystems in the Atlantic Ocean. Oceana’s staff work on a number of campaigns in the Atlantic to defend marine conservation laws, promote responsible fishing practices, ban the trade of shark fins, and stop seismic airgun blasting and the expansion of offshore drilling while promoting responsible development of offshore wind energy.

Oceana has a strong organizational interest in protecting the marine ecosystems of the Atlantic Ocean from negative effects associated with seismic airgun blasting and offshore drilling. Oceana members rely on Oceana to represent their interests with regard to protection for, and advocacy on behalf of, marine resources and the environment, including those that are adversely affected by oil and gas activities, such as seismic airgun blasting.

Oceana and its members also have an interest in conserving the ecological values of the Atlantic and protected species that could be adversely affected by seismic surveying, for both scientific and aesthetic uses. The Atlantic is home to five species of endangered whales, including the critically endangered North Atlantic right whale, and five species of threatened or endangered sea turtles. Oceana members engage in wildlife viewing in the Atlantic Ocean.

²³ *Santa Fe NW Info. Council, Inc.*, 174 IBLA 93, 103 (2008).

²⁴ *Coalition of Concerned Nat’l Park Retirees*, 165 IBLA at 80.

Seismic surveying may interfere with this use by directly harming wildlife, or making it harder to view wildlife by displacing populations or decreasing abundance. Oceana members also engage in commercial and recreational fishing, and seismic surveying poses a risk to fish populations.

Oceana's members use and enjoy the Atlantic Ocean for commercial and recreational uses as well as aesthetic enjoyment. Recreational uses include swimming, recreational fishing, kayaking, canoeing, paddle surfing, boating, surfing, windsurfing, kite surfing, scuba diving, snorkeling, wildlife viewing (e.g., seabirds, sea turtles, dolphins, whales), and lounging or walking along the beach, among others. Commercial uses include: businesses that provide the aforementioned recreational opportunities to tourists, photography, scientific research, commercial fishing and restaurants that serve locally caught seafood.

Nancy Pyne, Oceana's Acting Director of the Climate and Energy Campaign, Grassroots Manager of U.S. Campaigns and Oceana member, grew up swimming in the Atlantic Ocean (e.g., Long Island beaches, the Rockaways and the Jersey Shore).²⁵ The Atlantic Ocean was an important part of every family vacation she took as it was a fun, accessible way for her family to take a trip together.²⁶ Now that she lives in Washington, D.C., she enjoys swimming, snorkeling, viewing wildlife, and boating as well as lounging on the beach in coastal communities along the Atlantic in Delaware, Maryland and Virginia. Excursions to the Atlantic Ocean are the best part of her summers.²⁷ She also enjoys eating fresh, local and sustainably caught seafood when in restaurants along the Atlantic coast.²⁸ Seismic airgun blasting and the offshore drilling that

²⁵ Declaration of Nancy Pyne, ¶ 31.

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

would likely follow would put this all at risk and adversely affect her chances of enjoying these activities in the future.²⁹

Johnny Miller, a Commissioner for the City of Fernandina Beach and Oceana member, enjoys scuba diving, kayaking, canoeing and joining his friends on their wildlife viewing tours by boat to see dolphins and manatees.³⁰ He is deeply concerned that seismic airgun testing will adversely affect his ability to engage in these activities well into the future. As a scuba diving instructor, the adverse effects of seismic airgun testing on marine animals would also adversely affect my ability to teach my students about these amazing creatures.³¹

Mr. Miller believes that seismic surveying will impair not only his ability to enjoy his home and community on the Atlantic coast, but also the ability of the 12,000 constituents of the city he represents, which is the birthplace of the modern shrimp industry.³² Neither he nor the residents of Fernandina Beach want seismic airgun testing happening off their coast. Seismic airgun testing will adversely affect their economy, which is heavily dependent on tourism and fishing and will adversely affect the residents' as well as his own enjoyment of their coastal homes.³³ Mr. Miller and his constituents as well as tourists who come to the City of Fernandina Beach are vocal about protecting marine animals, such as whales and dolphins, as they are a source of aesthetic enjoyment.³⁴ They do not want to see BOEM's decision to deny the seismic airgun permits reversed as it would endanger these marine animals.³⁵ Navigation, communication, hunting, mating – everything that marine animals must do to survive in the

²⁹ *Id.*

³⁰ Declaration of Johnny Miller, ¶¶ 1, 12.

³¹ *Id.* at ¶¶ 1, 12.

³² *Id.* at ¶¶ 1, 6-8.

³³ *Id.* at ¶ 6.

³⁴ *Id.*

³⁵ *Id.* at ¶ 20.

marine environment – can be adversely affected by the earth-shattering explosive sounds from seismic airgun testing.³⁶

In addition, Mr. Miller, his constituents and tourists currently reap the benefits of commercial and recreational fishing in and around Fernandina Beach; however, certain fish and other species disperse or become alarmed by seismic airgun blasts. Seismic airgun testing could also mean that local fishermen will have to forego their usual fishing areas to avoid seismic airgun testing equipment, which are towed behind a ship in an array that can have over 90 airguns and can be well over a mile long and a mile wide.

These use-based interests are the types of “legally recognized” cultural, recreational, and aesthetic interest that the Board has previously found sufficient for participation in an appeal.³⁷ Based on the attached declarations of Nancy Pyne and Johnny Miller, which clarify not only their use-based interests but also those of Oceana’s members, Oceana as an organization and the constituents of the City of Fernandina Beach, Florida, the Board should find this element been met.

2. These interests will be directly and adversely affected if the Board were to reverse BOEM’s decision denying the seismic permits.

Oceana and its members will be adversely affected if the Board reverses BOEM’s decision and authorizes seismic activity. The question before the Board on appeal is centered on the decision not to authorize exploration activities that could have harmful impacts on the surrounding environment.³⁸ A decision reversing the denial will adversely affect Oceana’s members, because it will allow seismic surveying to move forward.

³⁶ *Id.* at ¶ 7.

³⁷ See *Coalition of Concerned Nat’l Park Retirees*, 165 IBLA at 80.

³⁸ *Shell Gulf of Mexico Inc., et al.*, 187 IBLA 290, 292 (2016)

Seismic surveying has the potential to harm marine mammals, sea turtles, and fish, and conflicts with other uses of the ocean like recreational boating and fishing.³⁹ In light of this, seismic airgun blasting adversely affects Oceana’s members use and enjoyment of the Atlantic.

Seismic airgun noise is one of the loudest sources of noise in the oceans.⁴⁰ Seismic airguns release pressurized air bubbles to create powerful sound waves that travel through the water column and seafloor⁴¹ and provide information about the properties of geologic formations more than six miles below the seafloor.⁴² These sound waves travel as echoes back to the sea surface, where they are captured by hydrophones.⁴³ Airgun pulses are loud, repetitive, explosive sounds. Because sound travels so efficiently underwater, seismic airgun blasts can be heard far from their sources – sometimes more than 2,500 miles away.⁴⁴ The seismic permits would potentially allow temporally and spatially overlapping seismic surveys along the Atlantic coast that would result in cumulative impacts to marine life. This seismic airgun blasting would occur in an area twice the size of California, 330,032 square miles, spanning from Delaware south to central Florida.⁴⁵

³⁹ Declaration of Nancy Pyne, ¶ 23-26; Declaration of Johnny Miller, ¶ 10.

⁴⁰ Declaration of Johnny Miller, ¶ 7; Brad Badelt, *The Inventor of the Seismic Air Gun Is Trying to Supplant His Controversial Creation*, Hakai Magazine (Dec. 3, 2015), <https://www.hakaimagazine.com/articleshort/inventorseismicairguntryingtoplantthiscontroversialcreation>.

⁴¹ Declaration of Johnny Miller, ¶ 7; The Acoustic Ecology Institute, *Backgrounder: Seismic Surveys at Sea: The contributions of air guns to ocean noise* (Nov. 2004), http://www.oceanmammalinst.com/Backgrounder_SeismicSurveys.pdf.

⁴² National Research Council – Committee on Potential Impacts of Ambient Noise in the Ocean on Marine Mammals, *Ocean Noise and Marine Mammals* (2003), <http://www.nap.edu/catalog/10564.html>.

⁴³ The Acoustic Ecology Institute, *Backgrounder: Seismic Surveys at Sea: The contributions of air guns to ocean noise* (Nov. 2004), http://www.oceanmammalinst.com/Backgrounder_SeismicSurveys.pdf.

⁴⁴ Sharon Nieukirk, et al., *Sounds from airguns and fins whales recorded in the mid-Atlantic Ocean, 1999-2009*, 131 J. Acoustic. Soc’y. Am. 1102-1112 (Feb. 2012), <https://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/29250/NieukirkSharonHMSCSoundsFromAirguns.pdf?sequence=1>.

⁴⁵ BOEM 2014 Final Programmatic EIS at Section 4.2 (noting that “the area covered by the Programmatic EIS (‘Area of Interest’ or ‘AOI’) extends from the mouth of the Delaware Bay to just south of Cape Canaveral, Florida and from the shoreline (excluding estuaries) to 648 kilometers (km) (403 miles [mi]) from shore,” with the total AOI of 854,779 km² (330,032 mi²)).

Sound is a key element of the marine environment, which marine mammals use for breeding, feeding, navigating, and avoiding predators.⁴⁶ Human-made sound, including sound from G&G survey technologies (e.g., seismic airguns and multibeam echo sounders) can negatively affect marine mammal hearing and can lead to disturbances in behavior that may cause serious injury.⁴⁷ Sound from seismic airguns has been recorded from more than 2,500 miles (4,000 km) away, which is the distance from Washington, DC to Las Vegas, Nevada.⁴⁸ Seismic surveys could continue for days, weeks, and even months at a time exposing marine mammals in the Atlantic Ocean ecosystem to harmful noise.⁴⁹

Seismic airgun noise can alter the behavior of marine mammals.⁵⁰ Of particular concern are the large whale species distributed along the Atlantic coast of the United States, as most are listed as endangered under the Endangered Species Act. These whales rely on sound for feeding, communication, navigation, and other behaviors necessary for survival.⁵¹ Studies show that seismic airgun noise can cause hearing impairment, physiological changes, and behavioral changes.⁵² These include chronic stress, avoidance, displacement, communication masking, and vocalization changes.⁵³

⁴⁶ Oceana Comment Letter re *Draft Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing* (Sept. 14, 2015); Letter from Oceana and 61 NGOs to Abigail Ross Hopper, Director, Bureau of Ocean Energy Management (April 28, 2016).

⁴⁷ Declaration of Nancy Pyne, ¶ 23.

⁴⁸ NOAA Office of Science and Technology, *Sound Check: New NOAA Effort Underway to Monitor Underwater Sound*, <http://www.st.nmfs.noaa.gov/feature-news/acoustics> (last updated Aug. 24, 2015); see also Oceana Press Release, *New Oceana Animated Maps Show Dolphins and Whales Threatened by Seismic Airgun Blasting in Atlantic Ocean* (Aug. 24, 2016), <http://usa.oceana.org/press-releases/new-oceana-animated-maps-show-dolphins-and-whales-threatened-seismic-airgun-blasting>.

⁴⁹ Declaration of Johnny Miller, ¶ 7.

⁵⁰ Douglas P. Nowacek, et al., *Marine seismic surveys and ocean noise: time for coordinated and prudent planning*, 13 *Frontiers in Ecology and the Environment* 378-386 (2015).

⁵¹ Declaration of Johnny Miller, ¶ 7.

⁵² Declaration of Nancy Pyne, ¶¶ 23–24; Jonathan Gordon, et al., *A Review of the Effects of Seismic Surveys on Marine Mammals*, 37 *Mar. Technol. Soc. J.* 16, 16 (2004).

⁵³ *Id.*

Seismic surveying can also harm fish, invertebrates, and sea turtles.⁵⁴ Seismic surveying has reduced catch rates in Atlantic cod, haddock, rockfish, herring, sand eel, and blue whiting.⁵⁵ And some species of fish have experienced behavioral responses and damage to hearing structures.⁵⁶ Invertebrates like bivalves, crabs, and squid experience stress responses, and behavioral changes.⁵⁷ And sea turtles have demonstrated alarm and avoidance responses to seismic airgun noise, and are at risk of possible entanglement in survey equipment.⁵⁸

Oceana's ability to represent its members' interests in a healthy marine environment in the Atlantic would be significantly diminished and adversely affected by a reversal of BOEM's denial of the seismic permits. Oceana members who fish, whale watch, or interact with sea turtles will be harmed if the Board reverses BOEM decision to deny the permits to conduct seismic airgun blasting in the Atlantic. In addition, if the Board were to reverse BOEM's decision to deny the seismic permits, Nancy Pyne would be adversely affected as her enjoyment

⁵⁴ Declaration of Nancy Pyne, ¶¶ 25-26.

⁵⁵ Declaration of Nancy Pyne, ¶ 26; John Dalen & Geir Magne Knutsen, *Scaring Effects in Fish and Harmful Effects on Eggs, Larvae and Fry by Offshore Seismic Explorations*, Progress in Underwater Acoustics 93 (1987); Arill Engas, et. al, *Effects of Seismic Shooting on Local Abundance and Catch Rates of Cod (Gadus morhua) and Haddock (Melanogrammus aeglefinus)*, 53 Canadian J. Fisheries & Aquatic Sci. 2238, 2238 (1996); Arne Hassel, et. al, *Influence of seismic shooting on the lesser sandeel (Ammodytes marinus)*, 61 ICES J. Marine Sci. 1165, 1164 (2004); Svein Lokkeborg, *Effects of a Geophysical Survey on Catching Success in Longline Fishing*, ICES CM Documents 2 (1991); John Skalski, et. al, *Effects of Sounds from a Geophysical Survey Device on Catch-per-unit-effort in a Hook-and-line Fishery for Rockfish (Sebastes spp.)*, 49 Canadian J. Fisheries & Aquatic Sci., 1357, 1357 (1992); Aril Slotte, et. al, *Acoustic Mapping of Pelagic Fish Distribution and Abundance in Relation to a Seismic Shooting Area off the Norwegian West Coast*, 67 Fisheries Research 143, 143 (2004).

⁵⁶ Robert D. McCauley, et. al., *Marine Seismic Surveys: Analysis and Propagation of Airgun signals; and Effects of Air Gun Exposure on Humpback Whales, Sea Turtles, Fishes and Squid* ii (2000); Robert McCauley, et. al, *High Intensity Anthropogenic Sound Damages Fish Ears*, 130 J. Acoustical Soc'y Am. 638, 638 (2003)

⁵⁷ Robert D. McCauley, et. al., *Marine Seismic Surveys: Analysis and Propagation of Airgun signals; and Effects of Air Gun Exposure on Humpback Whales, Sea Turtles, Fishes and Squid* ii (2000); M. Moriyasu, et al. *Effects of Seismic and Marine Noise on Invertebrates: A Literature Review*, Canadian Science Advisory Secretariat. Research Document 2004/126 (2004); Department of Fisheries and Oceans, *Potential Impacts of Seismic Energy on Snow Crab*, Can. Sci. Advis. Sec. Habitat Status Report No. 2004/003 (2004).

⁵⁸ Declaration of Nancy Pyne, ¶ 25; Robert D. McCauley, et. al., *Marine Seismic Surveys: Analysis and Propagation of Airgun signals; and Effects of Air Gun Exposure on Humpback Whales, Sea Turtles, Fishes and Squid* ii (2000); Caroline Weir, *Observations of Marine Turtles in Relation to Seismic Airgun Sound off Angola*, 116 Marine Turtle Newsletter 17 (2007).

of swimming, snorkeling, viewing wildlife, and boating as well as lounging on the beach in coastal communities along the Atlantic in Delaware, Maryland and Virginia would be impaired.

And, Johnny Miller's enjoyment of scuba diving, kayaking, canoeing, and wildlife viewing by tour boat would be adversely affected if the Board were to reverse BOEM's denial of the seismic permits. The people of the City of Fernandina Beach and over 120 coastal communities like them would also be adversely affected by a reversal of BOEM's denial of the seismic permits. These communities have made that it abundantly clear by passing resolutions that they oppose seismic airgun blasting and/or offshore drilling off the Atlantic coast.

Seismic surveying poses a significant threat to many marine species, and will affect our member's ability to observe and study those animals in the wild. This constitutes an adverse effect on a legally cognizable interest, and is sufficient to grant intervention.

III. Conclusion

For the foregoing reasons, Oceana respectfully requests that the Board grant its Motion to Intervene. In the alternative, if the Board does not grant the Motion, Oceana requests permission to submit a brief as *amicus curiae* pursuant to 43 C.F.R. § 4.406(d).

Date: May 1, 2017

Respectfully submitted,

/s/ Alicia Cate

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