North Carolina
Coastal Federation
Working Together for a Healthy Coast

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RE: Comments for the 2019-2024 Draft Proposed Outer Continental Shelf Oil and Gas Leasing Program

Dear Ms. Hammerle:

Please accept the following comments on the proposed 2019-2024 Outer Continental Shelf Oil and Gas Leasing Program (DPP) on behalf of the North Carolina Coastal Federation (federation). The federation is a state based non-profit organization dedicated to protecting and enhancing coastal water quality and habitat. It represents 16,000 supporters. For the past 36 years the federation has been taking an active role in the protection of North Carolina's coastal water quality, habitat and public beach access.

Offshore oil and gas development poses impacts that are not compatible with the federation's priorities and efforts. Since 1982 the federation has been working with coastal communities and other partners to improve and protect coastal water quality and natural habitats, which are intricately tied to our coastal economy. By focusing primarily, but not exclusively on natural and productive estuarine shorelines, oyster and marsh restoration, coastal management and cleaning the estuaries of marine debris we strive to support and enhance the coastal natural environment.

The federation strongly opposes oil and gas exploration and drilling in the Mid- and South Atlantic. We are concerned about the combined detrimental effects that seismic testing, a precursor to drilling, oil drilling and future oil spills will have on the water quality, ocean and estuarine species and the economy. **Representing a broad state base, we are firmly committed to ensuring our coast stays free of offshore oil and gas.**

The DPP is one of the preliminary steps to offshore oil and gas drilling close to our state waters. **Offshore oil and gas drilling will lead to imminent oil spills.** Oil spill occurrence is not a question of probability but a question of time. Although the overall number of oil spills from tankers has been decreasing over time due to improved technology, oil spills still occur every year.[1] This does not include oilrig spills. In fact, the second largest oil spill

[1] http://www.itopf.com/knowledge-resources/data-statistics/statistics/

and the largest accidental oil spill in the history was the Deepwater Horizon that occurred only seven years ago.[2]

DPP recommends leasing a staggering 90 percent of the Outer Continental Shelf (OCS) only 12 miles off the North Carolina coast. The detrimental effects of oil spill this close to our thriving shoreline and from such a large lease area are unacceptable.

For these and the reasons stated below **we respectfully request that the BOEM excludes North Carolina from the 2019 – 2024 Draft Proposed OCS Oil and Gas Leasing Program.**

DPP is Inconsistent With North Carolina's Laws, Goals, and Policies

Under 43 U.S.C.A. § 1344(a)(2)(F) the Secretary of Bureau of Ocean Energy Management is required to prepare and maintain an oil and gas leasing program consistent with "*laws, goals, and policies of affected States which have been specifically identified by the Governors of such States as relevant matters for the Secretary's consideration*". As such, it is imperative to recognize that unlike his predecessor, the recently elected Gov. Cooper does not support the inclusion of North Carolina in the Mid- and South Atlantic OCS Leasing Program. Along with six Atlantic coast governors he requested an exemption from the DPP, similar to the one Secretary Zinke declared for Florida.[3]

Joining Governor Cooper, as of February 2018 more than 170 communities have passed local resolutions strongly opposing offshore oil and gas exploration, drilling, and production. These resolutions have been substantiated by the addition of letters submitted by representatives from the fishing and tourism industries urging BOEM to protect our critically important ocean ecosystems and coastal assets.

DPP Would Undo State and Federal Government Investments in Coastal Resources

In the recent decades North Carolina has invested large amounts of state funds to protecting clean water and enhancing water quality. For example, Clean Water Management Trust Fund that was established in 1996 has awarded through grants hundreds of millions of dollars to protect and enhance coastal water quality.[4] North Carolina Ecosystem Enhancement Program also provides significant funds for coastal water quality restoration.

Similarly, many federal government agencies support coastal water quality and habitat restoration and enhancement in our state. For example, restoration of oyster sanctuaries is

[2] NOAA. Office of response and restoration. Deepwater Horizon Spill. https://response.restoration.noaa.gov/oil-and-chemical-spills/significant-incidents/deepwater-horizon-oil-spill

[3] Letter from Bipartisan Governors of Seven Atlantic States to Secretary Ryan Zink (January 17, 2018) (Requesting Exemption from Offshore Drilling Plan).

[4] According to 2007 CWMTF Annual Report two N.C. coastal regions (Northern and Southern Coastal Planes) received approximately $368 millions from 1997-2007.

currently underway in Pamlico Sound, the nation's second largest estuary with funds from National Oceanic and Atmospheric Administration. Furthermore, Environmental Protection Agency funds a number of projects every year through the 319 program to improve coastal water quality; and U.S. Fish and Wildlife Service through the North American Wetlands Conservation Act funds protecting, restoring and enhancing wetland habitat for birds. Finally, the Farm Bill through the Wetlands Preserve Program offers funds to protect coastal wetlands.

Allowing offshore oil and gas off the North Carolina coast and the imminent spills that would ensue would undo all these public investments in the coastal ecosystems.

North Carolina's Coast Boasts Rich Natural Environment

North Carolina has an extensive shoreline with about 325 miles of ocean shoreline and over 12,000 miles of shore along the estuary.[5] Large portion of that area is claimed by the Albemarle-Pamlico estuarine system, the second largest in the continental U.S., that received congressional designation as an estuary of national significance in 1987, and boasts over 2.3 million acres of habitat [6]

They are home to sounds, creeks and intertidal marshes that are replete with rich and vibrant marine life. Coastal marshes, also known as *living shorelines* that the federation is working on restoring and enhancing act as fish and crab nurseries, and attenuate wave energy, providing natural shoreline stabilization.

Furthermore, coastal waters of our state have historically housed millions of *oysters*. Oyster habitat in North Carolina is unique. It ranges from deep-water reefs in the Pamlico Sound (sub-tidal) to low relief patch reefs in intertidal waters and reefs fringing salt marshes along our estuarine shorelines. North Carolina is the only state that has both types of reefs on our coast.

Oysters and the reefs that they form provide several ecological, economic and social benefits. Known as a keystone species in the estuary, oysters reflect the overall health of a coastal ecosystem. They provide food and fish habitat and filter water improving its quality.

Recognizing the importance of oysters in our waters the federation with numerous other partners has been working on restoring and enhancing oyster population in the state.

Furthermore, recognizing the economic and ecological importance of oysters and the potential our coastal waters the State Legislature has charged a group of stakeholders (the federation is an active member) with developing a *Shellfish Mariculture Strategic Plan*. The goal of the plan is to recommend strategies that would enhance the industry and water quality in the state.

5 https://www.nccoastalatlas.org/maps/by-title/ocean-estuarine-shorelines
6 http://portal.ncdenr.org/web/apnep/our-estuaries.

Offshore oil drilling off our coast could cause detrimental consequences to this rich ecosystem biodiversity carrying along numerous economic impacts. Drilling rigs routinely discharge produced water, drilling muds and drill cuttings into the marine environment.[7] Produced water and drilling muds contain toxic pollutants such as mercury, lead, chromium, barium, arsenic, cadmium, and polycyclic aromatic hydrocarbons.[8] These pollutants are toxic to marine life at high concentrations and can cause defects and impair growth at lower concentrations.

The chronic and disaster related oil spills cause irreversible damage to marine and coastal environments, and the destructive impacts of large spills are immediate and severe. Therefore the federation *does not accept* BOEM's statement that, "[t]he burden of environmental risk is borne primarily by the marine and coastal areas and human populations adjacent to and within which oil and gas activities occur," as stated in the DPP (2019-2024).[9]

Insufficient Data about the Outer Continental Shelf

Oil Pollution Act of 1990, entitled the "Outer Banks Protection Act" charged the North Carolina Environmental Sciences Review Panel with (1) assessing the adequacy of the available physical, oceanographic, ecological, and socioeconomic information regarding the OCS lands offshore of North Carolina in general and Manteo Block 467 in particular; and (2) recommending studies to obtain the additional information where necessary.

The Panel found severe inadequacies in studies relevant to both the Manteo Area Block 467 and North Carolina OCS lands. Generally, there was a greater deficiency of information for the OCS lands, than for the Manteo Block. The Panel recommended a number of studies for both the Manteo Block and the OCS land in the fields of physical oceanography, ecology, and socio-economics.

The studies have not been conducted and all the concerns presented by the Panel still stand. **Until these studies are completed the OCS lands of North Carolina must not be considered for offshore oil and gas exploration.**

North Carolina's Ocean Economy is Valuable

North Carolina's coast is a productive area and an important contributor to state's economy. At $32 billion in 2013 twenty coastal counties contributed 6.8 percent to state's total gross GDP and 8.2 percent of total employment with 336,522 employees.[10] Recent report defines North Carolina's ocean economy as a bundle of market and non-market services and goods – from measurable ones, such as commercial fishing and aquaculture opportunities, seafood, tourism and recreation, shipping and transportation, to those with

7 Minerals mgmt. Serv., mms 2007-003, outer continental shelf oil & gas leasing program: 2007-2012 final environmental impact statement. At iv-279 (2007).
8 *Id.* At IV-279-280.
9 DPP at 8-8.
[10] North Carolina's Ocean Economy. 2017 Duke Nicholas Institute. N.C. Sea Grant.

intrinsic values such as the ecosystem services of regulating climate, aesthetic and spiritual benefits, or nutrient cycling.[11]

As acknowledged by BOEM, ocean-dependent tourism and commercial and recreational fishing are "important economic uses in and along all the Atlantic planning areas."[12] Indeed, tourism and fishing – both commercial and recreational – are the economic backbone of the communities and carry a heavy weight in our ocean economy. These industries are entirely dependent upon the quality of estuarine and ocean ecosystems.

Tourism is a $3 billion industry, representing 54 percent of the total state ocean's economy GDP and contributes 88 percent to the overall coastal employment.

Commercial fishing industry alone is valued at $95 million in North Carolina.[13] In 2013, recreational fishing provided an estimated $1.6 billion in sales, and 16,150 additional jobs.[14] The fishing grounds located near the convergence of the Gulf Stream and Labrador currents off North Carolina's coast support a highly productive commercial fishery that sustain consumers and generate revenues of nearly $100 million annually within the State.[15]

Furthermore, every dollar invested in environmental restoration creates $4 in economic value by enhancing tourism and fishing.[16]

One common underpinning to this successful ocean economy is healthy ecosystems. As such, healthy natural environment and rich coastal biodiversity are the backbone of our communities. These are just some of the reasons *the federation is dedicated to restoring and protecting these critical coastal habitats*.

Imminent oils spills that would follow offshore oil and gas exploration off our state's coast would have detrimental impacts on these economic resources and would reverse decades of community work to protect and restore the coastal natural habitats that support them.

[11] DPP at 8-8
[12] DPP at 6-28.
[13] https://www.coastalreview.org/2017/07/cooper-vows-lead-offshore-drilling-fight/
14 https://ncseagrant.ncsu.edu/ncseagrant_docs/products/2010s/NC_Ocean_Economy_White_Paper.pdf
15 Fisheries of the US publication, p. 10; https://fisheries.noaa.gov/resource/document/fisheries-united-states-2016-report.
16 https://ncoysters.org/wp-content/uploads/2017/06/State-of-the-Oyster-Report_2016.pdf

Seismic Testing That Precedes Offshore Oil Drilling Has Detrimental Effects to the Natural Environment and the Economy

A precursor to offshore oil drilling is seismic testing, an exploratory method that relies surveys on continuous blasting of compressed air from airguns towed behind the survey vessels. Numerous studies have shown this process can harm marine life including but not limited to marine mammals (including the endangered North Atlantic Right Whale), fish, sea turtles (including the threatened Loggerhead Sea Turtle) and zooplankton.

The ocean is acoustic. Marine mammals and many other marine animals rely on low frequency sounds for their survival. Mammals in particular use sound for communication, breeding, foraging, and orientation among others.[17] Sounds from seismic testing coupled with the existing ambient noise caused by anthropogenic sources from shipping vessels[18], transportation, commercial, sport and recreational fisheries, and naval sonar testing, only exacerbate damage to marine life.

Scientists have explained that a *marine mammals* being exposed to the frequencies of seismic testing underwater is equivalent to a human standing 82ft away from a jet at takeoff (frequency considered high enough to produce permanent hearing damage). The airguns produce these low-frequency sounds 24 hours a day for periods of weeks or months at a time, masking the animals' sounds and impeding their effective use of the same.

The area proposed by the DPP encompasses productive grounds off the coast of Cape Hatteras that are home to the highest cetacean species richness on the East Coast and Gulf of Mexico (Fig 1). Thirty-five cetacean species inhabit the proposed DPP area. However, the OCS Atlantic resource potential identified by BOEM in DPP (Figure2) directly crosses this same biodiversity rich area, posing harm to the species that inhabit it (Fig 2).

[17] Castellote, M., Clark, C.W., and Lammers, M.O. 2012. Acoustic and behavioral changes by fin whales (Balaenoptera physalus) in response to shipping and airgun noise, Biological Conservation 147: 115-122.

[18] 90 percent of the world trade is seaborne. International Maritime Organization https://business.un.org/en/entities/13

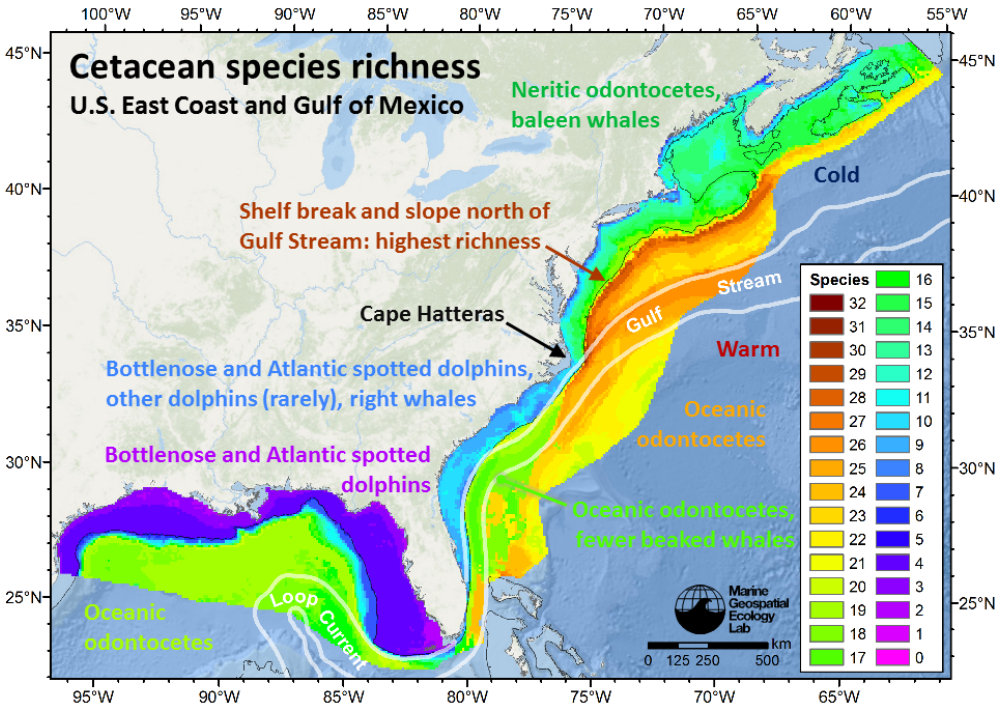

Fig 1: Cetacean species richness. Source: Duke Marine Geospatial Ecology Lab.

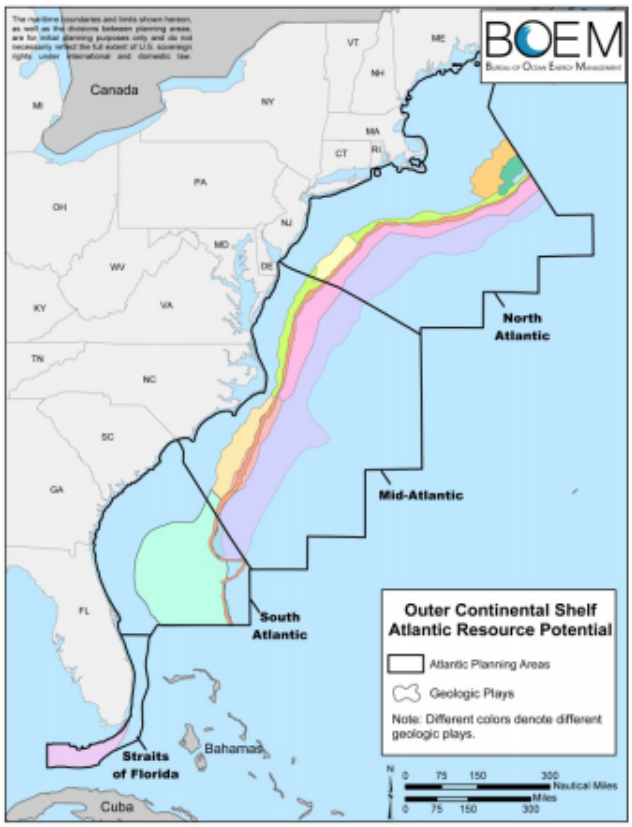

Figure 2: Extent of Geologic Plays in the Atlantic Region Planning Areas. Source: BOEM[19]

[19] https://www.boem.gov/NP-Draft-Proposed-Program-2019-2024/

Numerous studies around the world have shown that seismic surveys cause disturbance to *fish*, and potentially cause important detrimental effects to fisheries. More locally, a recent study done in the vicinity of Beaufort, N.C. has shown that reef fish (i.e. snapper, angel fish) can be negatively affected by seismic surveys. Scientists observed a 78 percent decline in reef fish abundance after seismic testing and concluded that hours after the testing fish from study area simply disappeared.[20] Other studies from Northeastern Atlantic showed that commercial fish species catches, such as of cod and haddock, were reduced by 40-80% post seismic testing.[21]

A recent study off the coast of Tasmania showed that seismic surveys can kill *zooplankton*, which serve a vital function as prey species in the ocean ecosystem.[22] The study showed a 64 percent decreased abundance as a result of increased mortality rates of 200-300% of these animals.

More locally in the Mid-South Atlantic region, scientists from Duke University replicated this study method and estimated that the same effect in North Carolina would kill approximately 280 trillion individual copepods (used as representative of zooplankton in the Mid-Atlantic Bight) in the area proposed by the DPP at any time. These numbers of zooplankton can feed many individual snapper fish, a species popular among fishing enthusiasts.[23]

[20] Study: Seismic Testing Disrupts Fish Behavior. https://www.coastalreview.org/2017/02/19376/

[21] Engås, A., Løkkeborg, S., Ona, E., and Soldal, A.V. 1996. 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(10): 2238-2249

[22] McCauley, R., Day, R. D., Swadling, K. M., Fitzgibbon, Q. P., Watson, R. A., & Semmens, J. M. (2017). Widely used marine seismic survey air gun operations negatively impact zooplankton. *Nature Ecology & Evolution*, *1*, 1-8.

[23] Personal conversation with Dr. Douglas Nowacek, Randolph K. Repass and Sally-Christine Rodgers University Associate Professor of Conservation Technology in the Nicholas School of the Environment and the Edmund T. Pratt, Jr. School of Engineering

Conclusion

North Carolina's coast has a diverse and rich natural environment and is an important state economic driver. The relationship between coastal communities and marine environment has deep social, cultural and spiritual roots.

Keeping our coast healthy, thriving and free of oil spills is crucial for the survival and prosperity of our communities, and thus at heart of our work at the federation. We are committed to ensuring that our decades-long work and the encouragement by the 16,000 supporters we represent are protected and enabled to continue.

For the reasons stated above the federation urges BOEM to exclude the Mid- and South Atlantic OCS Planning Areas from leasing in the 2019-2024 leasing program.

Thank you for taking our comments under consideration.

Sincerely,

Ana Zivanovic-Nenadovic
Senior Policy Analyst

Michael Flynn
Coastal Advocate