



CHESAPEAKE BAY FOUNDATION  
*Saving a National Treasure*

March 9, 2018

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National Program Manager  
Bureau of Ocean Energy Management  
Mailstop VAM-LD  
45600 Woodland Road  
Sterling, VA 20166

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**RE: Notice of Availability of the 2019-2024 Draft Proposed Outer Continental Shelf Oil and Gas Leasing Program and Notice of Intent to Prepare a Programmatic Environmental Impact Statement; BOEM-2017-0074**

Dear Ms. Hammerle:

The Chesapeake Bay Foundation, Inc. (CBF) provides the following comments on the Bureau of Ocean Energy Management's (BOEM's) 2019-2024 National Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program (DPP) and Notice of Intent to Prepare a Programmatic Environmental Impact Statement (PEIS).

The Chesapeake Bay Foundation is a 501(c)(3) non-profit organization whose mission is to "Save the Bay" and keep it saved. CBF represents more than 241,000 members across the country and has offices in Easton and Annapolis, Maryland; Richmond and Virginia Beach, Virginia; Harrisburg, Pennsylvania, and the District of Columbia. For 50 years, CBF has been working to restore the Chesapeake Bay and its tributary rivers and streams. Our large education staff takes more than 32,000 students and adults out on the Bay and its tributaries each year to learn about its complex ecosystems.

The Chesapeake Bay is the largest estuary in the United States and the third largest in the world. CBF participated in the development of the Chesapeake Bay Total Maximum Daily Load (TMDL) and the Bay jurisdictions' Watershed Implementation Plans—collectively, the Chesapeake Bay Clean Water Blueprint. CBF continues to participate in efforts to implement and refine the Blueprint throughout the Bay watershed. The Blueprint is designed to reduce the input of nitrogen, phosphorous, and sediment into the Bay from both air and water sources. However, offshore oil and gas drilling threatens the health of the Bay, the industries that rely on Maryland and Virginia's healthy beaches and coastal resources, and the wellbeing of the citizens who call this region home.

Like many other East Coast citizens, state and local governments, and local and national conservation groups, CBF is strongly opposed to the proposal to open the Atlantic outer continental shelf (OCS) to oil and gas drilling in the 2019-2024

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Five Year Program. At a time when our nation needs to drastically reduce greenhouse gases, it is irresponsible to expand fossil fuel exploration and development offshore. No matter where fossil fuels are burned, the Chesapeake Bay suffers from related sea level rise inundating our fragile wetlands and historic communities, acidic waters threatening our seafood industry, and more intense storms washing pollution into our rivers and streams. CBF urges BOEM and Secretary Zinke to remove the Atlantic in the next draft of the Five Year Program, in recognition of the risk offshore oil and gas activities pose to the many ocean-dependent economies and way of life in the Atlantic and the Chesapeake Bay.

After careful consideration of public comment and relevant social, economic, and environmental factors, BOEM excluded all planning areas in the Atlantic Ocean from the finalized 2017-2022 Five-Year Program. We do not believe that any relevant environmental or socio-economic changes have occurred since that time that warrant modification of the 2017-2022 Five Year Program to open the Atlantic OCS to the risks of oil and gas exploration and drilling. Rather, the impacts of an oil spill would still be devastating on the Bay and its natural resources. And robust evidence of the continued progression and impacts from climate change has only advanced farther since that exclusion was established. CBF finds that this new risk to the Bay, one of the nation's most precious renewable resources—and one that is on a path toward recovery with the guidance of the Chesapeake Bay TMDL—is not worth the potential dire consequences and uncertain reward from pursuing new petroleum resources on the Atlantic Coast. Further, the program will increase the amount of fossil fuel available for consumption which will increase subsequent carbon dioxide emissions that contribute to climate change and harms the Chesapeake Bay. Due to the potential impact to vital Bay resources and the potential damage to our regional economy, CBF cannot support the proposition of opening the Atlantic OCS to drilling. It is more prudent to meet our energy needs by pursuing energy efficiency and conservation now, and developing solar, wind, and other renewable sources for the future.

## **Legal Background**

### **A. The Outer Continental Shelf Lands Act**

The Department of the Interior—through BOEM—manages the outer continental shelf and its resources under the Outer Continental Shelf Lands Act (OSCLA). OSCLA directs the Secretary of the Interior to manage the outer continental shelf “in a manner which considers economic, social, and environmental values of the renewable and nonrenewable resources contained in the outer Continental Shelf, and the potential impact of oil and gas exploration on other resource values of the outer Continental Shelf and the marine, coastal, and human environments.”<sup>1</sup> OSCLA directs the Secretary to develop an oil and gas leasing

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<sup>1</sup> 43 U.S.C. § 1344(a)(1)

program that establishes the schedule and location of proposed lease sales for a five year period.<sup>2</sup> The Secretary determines the timing and location of oil and gas exploration, development, and production based on a consideration of eight factors:

- (A) existing information concerning the geographical, geological, and ecological characteristics of such regions;
- (B) an equitable sharing of developmental benefits and environmental risks among the various regions;
- (C) the location of such regions with respect to, and the relative needs of, regional and national energy markets;
- (D) the location of such regions with respect to other uses of the sea and seabed, including fisheries, navigation, existing or proposed sealanes, potential sites of deepwater ports, and other anticipated uses of the resources and space of the outer Continental Shelf;
- (E) the interest of potential oil and gas producers in the development of oil and gas resources as indicated by exploration or nomination;
- (F) 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;
- (G) the relative environmental sensitivity and marine productivity of different areas of the outer Continental Shelf; and
- (H) relevant environmental and predictive information for different areas of the outer Continental Shelf.<sup>3</sup>

When selecting the time, size, and location of potential lease sales, the Secretary must balance “the potential for environmental damage, the potential for discovery of oil and gas, and the potential for adverse impact on the coastal zone.”<sup>4</sup>

## **B. National Environmental Policy Act**

BOEM must also comply with the National Environmental Policy Act (NEPA) when developing and implementing the National OCS Oil and Gas Leasing Program. NEPA requires federal agencies to conduct an environmental review of major federal actions that have significant impact to the human environment, and disclose those impacts to the public.<sup>5</sup> For federal actions with broad geographic scope, agencies may develop a Programmatic Environmental Impact Statement (PEIS) to analyze environmental impacts at a broader level for a nationwide or large

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<sup>2</sup> 43 U.S.C. § 1344(a).

<sup>3</sup> 43 U.S.C. § 1344(a)(2).

<sup>4</sup> 43 U.S.C. § 1344(a)(3).

<sup>5</sup> 42 U.S.C. § 4332(2)(C).

regional program.<sup>6</sup> A federal agency can then tier subsequent analyses of lesser scope to the broad PEIS.<sup>7</sup>

The first step in the NEPA process is scoping, where the agency determines the potential actions, impacts, and alternatives to consider in the environmental impact statement.<sup>8</sup> Agencies must consider connected, cumulative, and similar actions to determine the scope of the EIS.<sup>9</sup> Agencies must also consider the no action alternative, other reasonable courses of action, and mitigation measures.<sup>10</sup> And agencies must consider direct, indirect, and cumulative impacts.<sup>11</sup> Direct impacts are caused by the federal action and occur at the same time and place, but indirect impacts are caused by the action and occur later in time or farther removed in distance but are still reasonably foreseeable.<sup>12</sup> Cumulative impacts are the impacts on the environment that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions.<sup>13</sup> Cumulative impacts can result from “individually minor but collectively significant actions taking place over a period of time.”<sup>14</sup> The scoping stage is an early and collaborative process that engages the public and state and local government to identify concerns, potential impacts, and relevant effects of past actions and possible alternatives.<sup>15</sup>

### **Discussion**

As discussed below, offshore oil and gas exploration and drilling will negatively impact the Atlantic Ocean, which in turn negatively impacts the Chesapeake Bay. Climate change is harming coastal ecosystems across the globe, and increasing fossil fuel consumption and dependence will further exacerbate these harms. BOEM has not demonstrated the need to expand offshore oil and gas drilling, and the realities of climate change and the potential impacts from an oil spill dictate against expanding fossil fuel development.

The impacts of offshore oil and gas drilling caution against opening up the Atlantic to this harmful use of the outer continental shelf. The Chesapeake Bay, the nation’s largest estuary, is intimately tied to the ocean waters off the coast of Maryland and Virginia. The natural hydrology around the mouth of the Chesapeake Bay, and coastal storms, result in an almost constant exchange of water between the Bay and the Atlantic Ocean, meaning a spill off either Maryland or Virginia’s coast

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<sup>6</sup> 40 C.F.R. § 1508.28.

<sup>7</sup> 40 C.F.R. § 1508.28(a).

<sup>8</sup> 40 C.F.R. § 1508.25.

<sup>9</sup> 40 C.F.R. § 1508.25(a).

<sup>10</sup> 40 C.F.R. § 1508.25(b).

<sup>11</sup> 40 C.F.R. § 1508.25(c).

<sup>12</sup> 40 C.F.R. § 1508.8.

<sup>13</sup> 40 C.F.R. § 1508.7.

<sup>14</sup> *Id.*

<sup>15</sup> 43 C.F.R. § 46.235(a).

could have devastating consequences for the Bay region. Just as Secretary Zinke plans to remove Florida from the Five Year Program in recognition of the threat to Florida's beaches and economy from offshore oil and gas drilling,<sup>16</sup> Secretary Zinke must make the same conclusion about Maryland and Virginia. As explained below, offshore oil and gas development poses an unjustifiable risk to the Atlantic, the Chesapeake Bay, and the industries that are dependent on oil-free oceans. BOEM must consider these impacts and the effects offshore oil and gas drilling will have on climate change when selecting where to offer oil and gas leases, and in consideration thereof, must remove the Atlantic from the Five Year Program.

**I. The Section 18(a)(2) factors of the Outer Continental Shelf Lands Act weigh against drilling in the Atlantic.**

BOEM should remove all Atlantic Planning Areas from the 2019-2024 Program because the potential for environmental damage and adverse impact on the coastal zone outweighs the potential for discovery of oil and gas. When BOEM developed the 2017-2022 Five Year Program, BOEM did not offer leases in the Atlantic because of strong local opposition, conflicts with other uses, current market dynamics, and the comments of Governors of affected states.<sup>17</sup> BOEM should make the same decision in the 2019-2024 Program, because the same conditions that lead to BOEM excluding the Atlantic are still present. The Secretary must weigh the eight factors in Section 18 to determine where to offer oil and gas lease sales.<sup>18</sup> The balance of these factors still weighs against offering lease sales anywhere in the Atlantic, specifically in the Mid-Atlantic.

*A. Geographical, Geological, and Ecological Characteristics*

BOEM and the oil and gas industry have unsuccessfully attempted to produce offshore oil and gas in the Atlantic in the past, and present data on discoverable deposits does not suggest that current exploration efforts would be any different. Chapter 4 of the Draft Proposal recounts the history of oil and gas exploration in the Atlantic OCS as having only 51 exploratory wells since 1960 and none of those wells yielded any commercial discoveries.<sup>19</sup> No exploration of the Atlantic OCS has occurred since 1984. Clearly, the industry and the federal government have repeatedly passed over the Atlantic OCS as a lucrative and necessary production area. That continues to be the case.

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<sup>16</sup> Richard Gonzales, *Interior Secretary Zinke: Florida Offshore Oil Drillings is 'Off The Table'*, NPR (Jan. 9, 2018), <https://www.npr.org/sections/thetwo-way/2018/01/09/576938087/interior-secretary-zinke-florida-offshore-oil-drilling-is-off-the-table>.

<sup>17</sup> BOEM, 2017-2022 Outer Continental Shelf Oil and Gas Leasing Proposed Program S-2 (2016).

<sup>18</sup> 43 U.S.C. §1344(a)(2).

<sup>19</sup> 2019-2024 Draft Proposed Program, at 4-9.

While the Atlantic does not have the same oil resources as other areas of the OCS, the Atlantic does support many other rich ecosystems and natural resources. The Atlantic is home to many diverse species of fish, marine mammals, sea turtles, and deepwater corals. Submarine canyons stretch from New England to Virginia. Marine mammals and sea turtles migrate up and down the East Coast annually. The Atlantic supports commercial fisheries from Maine to Florida, managed at the state and federal level. As illustrated in the discussion below, Atlantic states like Maryland and Virginia rely heavily on natural resources and healthy coastal habitats along the Atlantic. Offshore oil and gas drilling threatens these resources.

*B. Equitable Sharing of Development Benefits and Environmental Risk*

BOEM views development benefits as public benefits that positively impact the nation at large. These “benefits” are heavily skewed toward the oil and gas industry, while environmental risks fall to the public as a negative externality. BOEM must consider this shift in its view of “equitable sharing,” and ensure that the public does not bear the brunt of the risks of oil and gas activities while the oil and gas companies benefit.

The supposed job and revenue benefits of offshore oil and gas activities are not outweighed by the environmental risks posed to a region dependent on healthy ocean and bay ecosystems. BOEM classifies additional jobs, revenue sharing, and proximity of energy as the main regional benefits of the offshore oil and gas industry.<sup>20</sup> But as illustrated below, the tourism, fishing, and offshore wind industry support hundreds of thousands of jobs in Maryland and Virginia alone. Tourism and commercial fishing and aquaculture are multi-billion dollar industries in both states. And both states are moving forward with large offshore wind projects that will help meet the state’s energy needs. But all of these industries are threatened by the day-to-day activities of oil and gas drilling, and would suffer severe consequences if there was a major oil spill in the Mid-Atlantic.

The regional risks of offshore oil and gas activities in the Mid-Atlantic do not outweigh the regional benefits of no offshore drilling. As discussed more below, an oil spill in the Mid-Atlantic would devastate the Chesapeake Bay. Day-to-day offshore drilling operations pose a risk to the region through associated water and air pollution. Drilling rigs routinely release produced water, drilling muds, and drill cuttings into the ocean, which contain toxic pollutants and cloud the water.<sup>21</sup> This

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<sup>20</sup> *Id.* at 8-3-8-8.

<sup>21</sup> BOEM, *Questions, Answers, and Related Resources*, Environmental Stewardship, <https://www.boem.gov/Environmental-Stewardship/Environmental-Assessment/CWA/Offshore-Discharges-From-Oil-and-Gas-Development-Operations---FAQ.aspx> (last visited Mar. 7, 2018); NRDC, *Ocean Facts—Protecting Our Ocean and Coastal Economies: Avoid Unnecessary Risks from Offshore Drilling* (2009), [www.nrdc.org/oceans/offshore/files/offshore.pdf](http://www.nrdc.org/oceans/offshore/files/offshore.pdf); Jonathan Wills, *Muddied Waters: A Survey of Offshore Oilfield Drilling Wastes and Disposal Techniques to Reduce the*

pollution is in addition to the continuous level of oil that is spilled from wells and pipelines.

In addition to water pollution, offshore wells release large volumes of air pollutants. An average oil and gas exploration well releases roughly 50 tons of nitrogen oxides, 13 tons of carbon monoxide, and 6 tons of sulfur oxides a year.<sup>22</sup> For the Chesapeake Bay, the risk of this pollution is heightened. Bay states are already working to reduce pollution in the Chesapeake Bay under the Chesapeake Bay TMDL, and introducing a new pollution source to the Bay would make the Bay's fragile beginnings of recovery especially challenging. In addition to water pollution, Maryland and Virginia are struggling with air pollution from nitrogen oxides, sulfur dioxide, toxic air pollutants, particulate matter, and greenhouse gas emissions, especially in major cities like Baltimore and Richmond.<sup>23</sup> Emissions from offshore drilling wells would exacerbate this problem, and contribute to Bay pollution via deposition of nitrogen to the Bay. The construction of onshore infrastructure also poses a risk to the Mid-Atlantic region and the sensitive coastal and wetland habitats closest to shore, because onshore construction could result in the permanent destruction or alteration of existing habitats.<sup>24</sup>

The benefits of a healthy Atlantic Ocean—and a healthy Bay—are apparent through the thriving coastal industries along the East Coast, including in Maryland and Virginia. Offshore oil and gas activities threaten the health of both coastal and Bay ecosystems, and in turn the economies that rely on them. This is not outweighed by the supposed benefits of offshore oil and gas drilling.

### *C. Regional and National Energy Markets*

The Draft Proposed Program proceeds from a false premise of energy need, including the need for expanded offshore oil and gas development now. BOEM has not, however, demonstrated that current need. And BOEM has not demonstrated that other sources of energy, namely renewable energy, could not meet this supposed need. The draft proposal's interpretation of energy need in section 2.5 narrowly focuses on oil and gas as if they were the only types of energy development or policy that could support job creation; improve the GDP and the national balance of trade; improve national energy security; and serve as an integral component to national

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*Ecological Impact of Sea Dumping*, Sakhalin Environment Watch 11 (2000). See section II.A below for a fuller discussion of the water quality impacts of oil drilling.

<sup>22</sup> *Id.*

<sup>23</sup> Sierra Club Virginia, Top 25 Virginia Localities with the Highest Toxic Air Emissions 14 (2017), <https://mgtvwrlic.files.wordpress.com/2017/08/sierra-club-virginia-2017-toxic-air-report.pdf>; Sierra Club, *Maryland's Air: Still At Risk*, [https://content.sierraclub.org/creative-archive/sites/content.sierraclub.org/creative-archive/files/pdfs/1079-MD-AirPollution-Fact\\_02\\_low.pdf](https://content.sierraclub.org/creative-archive/sites/content.sierraclub.org/creative-archive/files/pdfs/1079-MD-AirPollution-Fact_02_low.pdf).

<sup>24</sup> 2019-2024 Draft Proposed Program, at 8-8.



economic and energy policies in general. All of these goals could be met through similar investments in renewable energy and energy conservation policies. The Proposed Program must demonstrate that growth in renewable energy would not supply future energy needs without expanded OCS oil and gas developments and use such analysis as rationale for rejecting a renewable energy/conservation option in an alternatives analysis. Such analysis should identify how much additional oil and gas production would be needed, beyond the significant amount which is already supplied by onshore unconventional drilling techniques projected throughout the same time period.

In its analysis of the Regional and National Energy Markets in the Draft Proposed Program, BOEM assumes that a reduction in OCS production would need to be replaced with other imports, onshore energy production, and coal. This assumption is flawed, and fails to analyze how the growing renewable energy sector could meet the nation's energy needs. Further, the 2017-2022 Five Year Plan did not reduce offshore energy production.<sup>25</sup> All of the actively producing planning areas were included in the 2017-2022 Program, and BOEM paints an unrealistic picture in the 2019-2024 DPP by asserting the need to replace OCS production when production has not decreased. In fact, Gulf of Mexico crude oil production has increased steadily in the past three years, surpassing the high production volumes that preceded the BP oil spill in 2010.<sup>26</sup> The United States has a surplus of oil and gas due to the boom in onshore natural gas production, and is currently exporting oil and gas at a record rate.<sup>27</sup> With oil prices continuing to drop, expanded offshore drilling could actually negatively impact the industry and the economy by driving prices down even further.

Renewable energy—including offshore wind—has the potential to meet the nation's energy needs, and contribute to much needed reductions in greenhouse gas emissions, while at the same time eliminating the substantial risk posed by an oil spill or leak. The United States has abundant offshore wind resources: 2,058 gigawatts of offshore wind resource capacity are accessible in U.S. waters, which is enough energy to provide nearly double the electric generation of the United States.<sup>28</sup> BOEM must analyze renewable energy potential in the region before deciding to increase unsustainable offshore oil and gas production to meet the supposed energy needs of the United States. Renewable energy contributed between a fourth and a third of the approximately 10% reduction in U.S. energy-related greenhouse gas emissions

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<sup>25</sup> BOEM, 2017-2022 Outer Continental Shelf Oil and Gas Leasing Proposed Final Program (2016).

<sup>26</sup> Energy Information Administration, *Federal Offshore – Gulf of Mexico Field Production of Crude Oil, Petroleum and Other Liquids* <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFP3FM2&f=A> (last visited Feb. 15, 2018).

<sup>27</sup> Laura Blewitt, *The U.S. is Exporting Oil and Gas at a Record Pace*, Bloomberg Markets (Dec. 12, 2017), <https://www.bloomberg.com/news/articles/2017-12-12/u-s-fuels-the-world-as-shale-boom-powers-record-oil-exports>.

<sup>28</sup> Department of Energy & Department of the Interior, *National Offshore Wind Strategy: Facility the Development of the Offshore Wind Industry in the United States*, vii (2016)



between 2007 and 2013.<sup>29</sup> As the cost of renewable energy continues to decrease and renewable capacity continues to expand, it will become increasingly important for policy makers to evaluate the role of such sources in meeting energy demand and their proven potential for reducing greenhouse gas emissions.<sup>30</sup>

Maryland is already taking serious steps to transition away from fossil fuels to renewable energy. The state's Renewable Portfolio Standards aim to source 25 percent of the electricity used in the state from renewable energy by 2020.<sup>31</sup> In 2013, Maryland passed the Offshore Wind Energy Act, which amended the state's Renewable Portfolio Standards to include offshore wind projects, carving out 2.5% of the state's Renewable Portfolio Standards for offshore wind projects.<sup>32</sup> Maryland has also committed to reducing the state's greenhouse gas emissions 40% from 2006 levels by 2030.<sup>33</sup> Similar efforts are underway in many other coastal states in the Atlantic. Renewable energy holds the potential to meaningfully contribute to the energy needs of the United States, while achieving the reductions in greenhouse gases needed to combat climate change. BOEM cannot discount the role renewable energy plays, especially the growing offshore and onshore wind industry, and assume that forgone OCS development will necessitate increased onshore oil and gas production.

#### *D. Location with Respect to Other Uses of the Sea and Seabed*

The Mid-Atlantic region supports vibrant commercial and recreational fishing, tourism, renewable energy, commercial shipping, and the military. These uses conflict with oil and gas activities off the coasts of Maryland and Virginia. BOEM must consider the location of these other uses when determining when and where to offer future lease sales. The presence of these uses and industries in the Atlantic cautions against offshore oil and gas exploration and development in the Atlantic Planning Areas, which could jeopardize the other uses of the sea and seabed.

##### 1. Commercial Fishing

The Chesapeake Bay produces approximately 500 million pounds of seafood a year.<sup>34</sup> In 2015, Maryland and Virginia brought in \$290 million in landings revenue, supported nearly 29,000 jobs, and generated approximately \$2.5 billion dollars in sales.<sup>35</sup> Recreational fishing supported over 12,000 jobs, and generated \$1.24 billion

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<sup>29</sup> Kristina Mohlin, et. al, *Factoring in the Forgotten Role of Renewables in CO<sub>2</sub> Emission Trends Using Decomposition Analysis*, 116 ENERGY POL'Y 290, 295 (2018).

<sup>30</sup> *Id.*

<sup>31</sup> MD. CODE ANN., PUB. UTIL. § 7-702(b).

<sup>32</sup> *Id.* at § 7-702(b)(12)-(15).

<sup>33</sup> MD. CODE ANN., ENVIR. § 2-1205(c).

<sup>34</sup> Chesapeake Bay Program, *Facts and Figures*, <https://www.chesapeakebay.net/discover/facts> (last visited Feb. 7, 2018).

<sup>35</sup> NOAA, *Fisheries Economics of the United States* 106 (2017), <https://www.fisheries.noaa.gov/resource/document/fisheries-economics-united-states-report-2015>.

dollars in sales.<sup>36</sup> The region is home to important recreational sport fishing ports like Ocean City, Chincoteague Island, and Rudee Inlet. Ocean City—the “White Marlin Capital of the World”—is famous for its recreational fishing, and draws visitors for a myriad of offshore fishing tournaments. The Mid-Atlantic Fishery Management Council expressed concern to BOEM that “environmental risks associated with offshore oil development are not consistent with the Council’s vision” for healthy and productive marine ecosystems.<sup>37</sup> The Atlantic States Marine Fisheries Commission, responsible for the management of nearshore fish species from Maine to Florida, expressed opposition to including the Atlantic in the Five Year Program.<sup>38</sup> CBF echoes these concerns.

Important commercial and recreational species in the Bay region include striped bass, blue crabs, American shad, and Atlantic menhaden. These species spend significant parts of their life cycles in both the coastal waters of the mid-Atlantic and the estuarine waters of the Chesapeake Bay. In a number of cases, an oil spill in the proposed drilling area could negatively impact these species during extremely vulnerable stages of their life cycle, as discussed below.

The Chesapeake Bay is home to the largest percentage of striped bass of any region on the Atlantic Coast. Striped bass, also known as rockfish, is a commercially and recreationally important species in the Bay. Several phases of the striped bass life cycle would be negatively impacted by an oil spill. The Bay is home year-round to non-migratory adult striped bass and juvenile stripers remain in Bay waters until the age of two.<sup>39</sup> More importantly, 70 to 90 percent of all Atlantic stocks of striped bass utilize the Bay as primary spawning and nursery habitat.<sup>40</sup> Finally, the near shore coastal waters of Virginia and North Carolina serve as the wintering grounds for the coastal migratory stock.

Blue crabs spawn in the waters of the lower Chesapeake Bay and the larvae are swept offshore into the very waters in which drilling is being proposed.<sup>41</sup> A spill would be toxic to those blue crab larvae, since they float miles into the Atlantic. Ninety percent of the Bay’s blue crab population utilize these waters during these sensitive early life stages. This iconic Bay species has seen a recent population

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<sup>36</sup> *Id.*

<sup>37</sup> Letter from Dr. Christopher Moore, Executive Director, Mid-Atlantic Fisheries Management Council, to Kelly Hammerle, National Program Manager, BOEM (August 7, 2017).

<sup>38</sup> Letter from Douglas E. Grout, Chair, Atlantic States Marine Fisheries Commission, to Kelly Hammerle, National Program Manager, BOEM (Aug. 17, 2017).

<sup>39</sup> ALICE JANE LIPPSON AND ROBERT L. LIPPSON, LIFE IN THE CHESAPEAKE BAY (3d. ed. 2006); Chesapeake Bay Program, *Striped Bass: Morone saxatilis*, [https://www.chesapeakebay.net/S=0/fieldguide/critter/striped\\_bass](https://www.chesapeakebay.net/S=0/fieldguide/critter/striped_bass) (last visited Feb. 27, 2018).

<sup>40</sup> U.S. Fish & Wildlife Service Chesapeake Bay Field Office, *Striped Bass (morone saxatilis)*, <https://www.fws.gov/chesapeakebay/striper.html> (last updated Jan. 28, 2011).

<sup>41</sup> Chesapeake Bay Program, *Blue Crab: Callinectes sapidus*, [https://www.chesapeakebay.net/S=0/fieldguide/critter/blue\\_crab](https://www.chesapeakebay.net/S=0/fieldguide/critter/blue_crab) (last visited Feb. 27, 2018).

increase due to sound management; an oil spill could hinder, halt, or even reverse this progress.

Atlantic menhaden are common throughout the Bay and found in surface waters within 20 miles of shore.<sup>42</sup> Their eggs hatch in our inshore waters and juveniles spend their first vulnerable year of life in the Bay.<sup>43</sup> Atlantic menhaden then leave the Bay for deeper, warmer ocean waters south of Cape Hatteras in the winter.<sup>44</sup> An oil spill in the Mid-Atlantic Planning Area would be disastrous for these filter-feeding species and cause the loss of a major food source for the Bay's fisheries food chain.

American shad are also a part of the Bay's food web, supplying an important protein-rich food source to the Bay's waters each spring.<sup>45</sup> American shad migrate back to Bay waters where they were born to spawn and their young spend their first summer here.<sup>46</sup> Even with extensive restoration efforts, the Bay's spawning stock is only estimated to be 10 percent of historical populations.<sup>47</sup> Shad recovery is progressing, but can be easily destroyed by an oil spill. A loss of this foraging species would deprive other commercially-fished species of an important food source.

## 2. Tourism and Recreation

Maryland and Virginia's beaches and waterways draw tourists that support an economically important industry in the region. Ocean dependent tourism and recreation supports over 66,000 jobs in Maryland and contributed over \$3 billion to the state's GDP in 2014.<sup>48</sup> For comparison, tourism in the entire state of Maryland in 2014 contributed \$7.9 billion to the state GDP, meaning approximately 38% of the

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<sup>42</sup> Chesapeake Bay Program, *Atlantic Menhaden: Brevoortia tyrannus*, [https://www.chesapeakebay.net/S=0/fieldguide/critter/atlantic\\_menhaden](https://www.chesapeakebay.net/S=0/fieldguide/critter/atlantic_menhaden) (last visited Feb. 27, 2018).

<sup>43</sup> *Id.*

<sup>44</sup> Maryland Department of Natural Resources, *Maryland Fish Facts: Menhaden*, <http://dnr.maryland.gov/Fisheries/Pages/Fish-Facts.aspx?fishname=Menhaden> (last visited Feb. 27, 2018).

<sup>45</sup> U.S. Fish and Wildlife Chesapeake Bay Field Office, *American Shad: Alosa sapidissima*, <https://www.fws.gov/chesapeakebay/shad.htm> (last visited Feb. 27, 2018).

<sup>46</sup> Chesapeake Bay Program, *American Shad: Alosa sapidissima*, [https://www.chesapeakebay.net/S=0/fieldguide/critter/american\\_shad](https://www.chesapeakebay.net/S=0/fieldguide/critter/american_shad) (last visited Feb. 27, 2018).

<sup>47</sup> U.S. Fish and Wildlife Chesapeake Bay Field Office, *American Shad: Alosa sapidissima*, <https://www.fws.gov/chesapeakebay/shad.htm> (last visited Feb. 27, 2018); NOAA Chesapeake Bay Office, *Fish Facts: Alosines*, [https://chesapeakebay.noaa.gov/index.php?option=com\\_content&view=article&id=162:aloesines&catid=14:fish-facts&Itemid=162](https://chesapeakebay.noaa.gov/index.php?option=com_content&view=article&id=162:aloesines&catid=14:fish-facts&Itemid=162) (last visited Feb. 27, 2018).

<sup>48</sup> NOAA, *Quick Report Tool for Socioeconomic Data*, <https://coast.noaa.gov/quickreport/#/index.html> (report generated Feb. 26, 2018) (Selected Ocean Economy Data (Employment Data), then selected Maryland and Virginia, looking at data only for 2014 to generate the figures above.).

tourism GDP is attributable to ocean-dependent tourism.<sup>49</sup> In Virginia, tourism supports over 60,000 jobs and contributes \$1.9 billion to the GDP. In coastal counties in Maryland and Virginia, the leisure and hospitality industry supports over 190,000 jobs and contributes \$9.1 billion to Maryland's GDP, and supports over 234,000 jobs and contributes \$8.8 billion to Virginia's GDP. Offshore oil and gas exploration and development, and the associated onshore infrastructure, threatens to spoil Maryland and Virginia's coastal and ocean beaches and the industry they support.

### 3. Offshore Wind

Both Maryland and Virginia have recognized the potential for offshore wind energy, and companies are actively leasing and developing offshore wind projects in the Mid-Atlantic. BOEM offered lease sales off the coast of Maryland and Virginia in 2013 and 2014. Dominion Energy won the lease for an area of the OCS off the coast of Virginia Beach, Virginia, and U.S. Wind won the lease for an area of the OCS off the coast of Ocean City, Maryland.<sup>50</sup> The U.S. Wind project off the shore of Maryland calls for installing 32 wind turbines, with the capacity to produce 250 megawatts of power, contributing to the state's offshore wind renewable energy goals.<sup>51</sup> The project is estimated to create 9,700 full time jobs, and result in more than \$2 billion of economic activity in Maryland.<sup>52</sup> The Dominion project plans to build two 6-megawatt turbines off the coast of Virginia Beach.<sup>53</sup> Offshore oil and gas development conflicts with the use of the OCS as a source of clean, renewable wind energy.

### 4. Commercial Shipping

Commercial shipping is a multibillion dollar industry in Mid-Atlantic, with Baltimore, MD and Norfolk, VA serving as two major ports in the region. In 2014, marine transportation contributed over \$3.6 billion to Maryland's GDP and over \$2.18 billion to Virginia's GDP.<sup>54</sup> The Port of Baltimore is the ninth ranking port in the United States for the overall dollar value of cargo, valuing at \$49.9 billion dollars,

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<sup>49</sup> Tourism Economics, *The Economic Impact of Tourism in Maryland: Tourism Satellite Account Calendar Year 2014* (2015).

<sup>50</sup> 2019-2022 Draft Proposed Program, at 6-32.

<sup>51</sup> U.S. Wind, *Our Projects: Maryland*, <http://www.uswindinc.com/our-projects/> (last visited Feb. 23, 2018).

<sup>52</sup> Maryland Energy Administration, *Offshore Wind Energy in Maryland*, <http://energy.maryland.gov/Pages/Info/renewable/offshorewind.aspx> (last visited Feb. 23, 2018).

<sup>53</sup> News Release, Dominion Energy, Dominion Energy Moving Forward on Offshore Wind Project with Global Market Leader DONG Energy as Partner, Jul. 10, 2017, <http://dominionenergy.mediaroom.com/2017-07-10-Dominion-Energy-Moving-Forward-on-Offshore-Wind-Project-with-Global-Market-Leader-DONG-Energy-as-Partner>

<sup>54</sup> NOAA, *Quick Report Tool for Socioeconomic Data*, <https://coast.noaa.gov/quickreport/#/index.html> (report generated Feb. 26, 2018) (Selected Ocean Economy Data (Employment Data), then selected Maryland and Virginia, looking at data only for 2014 to generate the figures above.).

handling over 10.1 million tons of cargo in 2016.<sup>55</sup> The Port of Virginia handled over 50 million tons of cargo, valued at \$69 billion.<sup>56</sup> The Port of Virginia is the third largest port on the East Coast.<sup>57</sup> Offshore oil and gas activities, especially the associated increase in ship traffic, could conflict with the already busy shipping lanes and ports in the Mid-Atlantic.

## 5. Military Uses

The United States military has a large presence in the Atlantic, with multiple naval bases and extensive readiness training operations. Both the Department of Defense and the National Aeronautics and Space Administration identified the Mid- and South Atlantic Planning Activities as areas important for mission activities.<sup>58</sup> The largest naval station in the world, Naval Station Norfolk, operates out of Norfolk, Virginia.<sup>59</sup> The Department of Defense also conducts at-sea training in portions of the Chesapeake Bay, and the Virginia Capes (Cape Charles and Cape Henry, which define the entrance to the Chesapeake Bay).<sup>60</sup> Offshore oil and gas drilling in areas like coastal Maryland and Virginia with heavy military presence could conflict with military activities and threaten the security of the United States.<sup>61</sup>

In sum, the Atlantic OCS supports many other ocean-dependent uses, including natural resource use, tourism, renewable energy, commercial shipping, and military preparedness. Offshore oil and gas activities threaten all of these other uses, both on a daily basis and in the event of a catastrophic spill like the Deepwater Horizon oil spill. The Secretary of the Interior should much more thoroughly and systematically consider the impact oil and gas activities would have on these other uses, and remove the Atlantic planning areas from the Five Year Program in recognition of such conflicts.

### *E. Laws, Goals, and Policies of Affected States Identified by Governors*

The Governors of Maryland and Virginia have both expressed their strong opposition to offshore oil and gas activities off the coast of their states. Maryland Governor Larry Hogan expressed opposition to oil and gas drilling off the coast of

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<sup>55</sup> Maryland at a Glance, *Waterways: Port of Baltimore* <http://msa.maryland.gov/msa/mdmanual/01glance/html/port.html> (last visited Feb. 23, 2018).

<sup>56</sup> The Port of Virginia, *Hampton Roads Harbor: 2016 Trade Overview*, [http://www.portofvirginia.com/pdfs/about/POV2016\\_Trade\\_Overview.pdf](http://www.portofvirginia.com/pdfs/about/POV2016_Trade_Overview.pdf) (last visited Feb. 23, 2018).

<sup>57</sup> *Id.*

<sup>58</sup> BOEM, 2017-2022 Outer Continental Shelf Oil and Gas Leasing Proposed Program 4-10 (2016).

<sup>59</sup> Commander, Navy Installation Commands, *Welcome to Naval Station Norfolk*, [https://www.cnic.navy.mil/regions/cnrma/installations/ns\\_norfolk.html](https://www.cnic.navy.mil/regions/cnrma/installations/ns_norfolk.html) (last visited Feb. 23, 2018).

<sup>60</sup> 2019-2024 Draft Proposed Program, at 6-29.

<sup>61</sup> Oceana, *Maps Highlight Department of Defense Conflicts with Potential Offshore Drilling Activities in Atlantic Ocean*, <http://usa.oceana.org/climate-and-energy/maps-highlight-department-defense-conflicts-potential-offshore-drilling-0> (last visited Mar. 7, 2018).

Maryland, and urged the exclusion of the Atlantic from the 2019-2024 Five Year Program.<sup>62</sup> Governor Hogan and the Maryland Department of Natural Resources are concerned about the threat of oil spills, and the impact an oil spill would have on coastal and bay ecosystems and economies.<sup>63</sup> Virginia Governor Ralph Northam requested that Virginia be excluded from the 2019-2024 Five Year Program, noting that Virginia’s tourism and seafood industry as well as its military assets would be threatened by offshore oil and gas activities.<sup>64</sup>

Governors Hogan and Northam, along with Governor Malloy of Connecticut, Governor Carney of Delaware, Governor Cooper of North Carolina, Governor Baker of Massachusetts, and Governor Raimondo of Rhode Island urged Secretary Zinke to exclude the Atlantic from the program as Florida has been excluded, stating that “the environmental and economic importance of the Atlantic Ocean must be weighed against the unintended consequences of these types of activities.”<sup>65</sup> The Governors note that local municipalities along the East Coast—more than 170 as of February 2018—have passed resolutions opposing offshore drilling in the Atlantic.<sup>66</sup> Opposition from East Coast elected officials is abundantly clear, and Secretary Zinke should exclude the Atlantic planning areas from the Five Year Plan in recognition of this staunch opposition.

#### *F. Interest of Potential Oil and Gas Producers*

BOEM has not demonstrated that the oil and gas industry is seriously interested in production in the Atlantic. In a draft proposed plan of nearly 400 pages, BOEM devotes one page to its analysis of the interest of potential oil and gas producers, and summarizes the comment letters from the oil and gas industry in two pages.<sup>67</sup> BOEM’s “analysis” of industry interest functions more like a blank check than a meaningful evaluation of where producers would seriously invest in oil and gas activities. This is hardly sufficient for such a consequential decision-making document. The interest in “potential” for oil and gas resources—which has yet to be

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<sup>62</sup> Erin Cox, *Hogan, Atlantic Governors Ask to be Exempted from Offshore Drilling*, BALT. SUN, Jan. 20, 2018, <http://www.baltimoresun.com/news/maryland/politics/bs-md-off-shore-drilling-20180119-story.html>.

<sup>63</sup> Letter from Mark Belton, Secretary, Maryland Department of Natural Resources, to Kelly Hammerle, National Program Manager, BOEM (Aug. 16, 2017) (on file with CBF).

<sup>64</sup> Letter from Ralph Northam, Governor of Virginia, to Ryan Zinke, Secretary, Department of the Interior (Jan. 10, 2018) (on file with CBF).

<sup>65</sup> Letter from the Governors of Maryland, Virginia, Delaware, North Carolina, Connecticut, and Massachusetts, to Ryan Zinke, Secretary, Department of the Interior (Jan. 17, 2018) (on file with CBF).

<sup>66</sup> Oceana, *Grassroots Opposition to Offshore Drilling and Exploration in the Atlantic Ocean and Eastern Gulf of Mexico*, <http://usa.oceana.org/climate-and-energy/grassroots-opposition-offshore-drilling-and-exploration-atlantic-ocean-and#toc-municipalities-and-counties> (last visited Feb. 23, 2018).

<sup>67</sup> 2019-2024 Draft Proposed Program, at A-46-A-48.



proven (as past exploratory efforts showed)—does not outweigh the environmental harms, public opposition echoed by regional elected officials, and conflicts with other ocean uses that sustain East Coast states.

### G. *Relative Environmental Sensitivity and Marine Productivity*

BOEM’s environmental sensitivity and marine productivity analysis is severely flawed, and does not offer a meaningful comparison of the sensitivity of each planning area to oil and gas development. BOEM must reevaluate its sensitivity analysis, and factor in actual species, their life histories, behaviors, and habitats that have been empirically studied, in relation to oil and gas activities.

#### 1. Relative Environmental Sensitivity

One of the most disturbing statements in section 7.3.2.1 of the DPP is the opening sentence that states “*Relative environmental sensitivity is not a commonly applied concept in ecology.*”<sup>68</sup> We heartily agree, and that is for good reason. Reducing the complexity of ecosystems as wide ranging as the Bering Sea, the Gulf of Mexico and the Mid-Atlantic to composite indices of environmental sensitivity seems to be a convention that serves only to make decision making easier and has no real basis in ecology whatsoever. As in other sections of the DPP, geographical extent—a major prong of the sensitivity analysis—includes reference to coastal ecosystems like estuaries, nearshore habitats, and submerged aquatic vegetation. However, the rest of the DPP excludes the quantification of oil and gas program activities in the coastal zone. How can the analysis consider resilience to impact producing factors (IPFs) on coastal ecosystem components and species without at least estimating levels of onshore infrastructure that would be needed to service offshore oil and gas exploration and development? Furthermore, resilience is neither defined nor empirical studies referenced that would explain an index score.

In section 7.3.2.2 (Methods), BOEM mentions that several alternative methods were evaluated and considered, but none of those met BOEM’s “mission needs.”<sup>69</sup> This could be perceived as a “loaded” statement. Without sharing anything about those alternatives and why they did not meet mission needs, the selection of this method seems completely arbitrary. The section goes on to state that the chosen approach treats all regions of analysis equally without bias to area, presence of existing BOEM activities, or differences in species composition. *But these factors are the very essence of what defines an ecological region.* All things are not equal. A complex Mid-Atlantic offshore canyon that has never seen OCS development activity cannot be placed on the same measuring stick as a featureless sandy plain in the Gulf of Mexico that has been drilled and spilled upon for decades.

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<sup>68</sup> 2019-2024 Draft Proposed Program, at 7-38.

<sup>69</sup> *Id.*



The Draft Proposed Program completely omits sensitive ecological areas on the seaward side of the OCS leasing area that have significant conservation and education value or are simply unknown. Submarine canyons were created by some of the East Coast's largest rivers when sea levels were hundreds of feet lower than they are today, and continue to evolve and increase in complexity as submarine landslides act on their ancient template.<sup>70</sup> These canyons occur along the shelf break where upwelling from offshore deep currents and high relief bathymetry create unique biological communities found nowhere else. The DPP makes no mention of these canyons in its review of ecological resources or any of the protections granted by the previous Presidential withdrawal from leasing activity.<sup>71</sup> Furthermore, the DPP does not include any of the research analysis BOEM has already done on the Baltimore and Norfolk canyons in its sensitivity analysis.<sup>72</sup> Instead, the draft proposal simply lists a canyon exclusion zone as an un-preferred alternative, suggesting lease sales could occur in these ecologically sensitive zones with no further environmental review and without specifically stating that doing so would reverse the previous presidential withdrawal. BOEM must fully analyze the deep sea canyons in the Atlantic, particularly with respect to their sensitivity to disturbance from oil and gas activities. Many of the species found in the canyons are found nowhere else in the world and depend on the unique geography of the canyons to survive.<sup>73</sup> In fact, some of these chemosynthetic communities are closely associated with the very resources that are likely to be exploited through offshore oil and gas exploration.<sup>74</sup> The canyons are highly sensitive and unique ecosystems that scientists have barely explored, and BOEM must fully analyze any potential impacts to the canyons in its sensitivity analysis for the Mid-Atlantic region.

CBF also brings offshore canyons to the attention of BOEM because of the potential for research, education and outreach at existing academic and educational institutions within the Chesapeake region. Baltimore and Norfolk canyons were identified as potential National Marine Sanctuaries because of the potential for

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<sup>70</sup> Steve W. Ross & Sandra Brooke, *Mid-Atlantic Deepwater Canyons*, NOAA Ocean Explorer, <http://oceanexplorer.noaa.gov/explorations/12midatlantic/background/canyons/canyons.html> (last visited Feb. 24, 2018).

<sup>71</sup> Presidential Memorandum, Withdrawal of Certain Areas off the Atlantic Coast on the Outer Continental Shelf from Mineral Leasing (Dec. 20, 2016), <https://obamawhitehouse.archives.gov/the-press-office/2016/12/20/presidential-memorandum-withdrawal-certain-areas-atlantic-coast-outer>; *Fact Sheet: Unique Atlantic Canyons Protected from Oil and Gas Activity*, [https://www.doi.gov/sites/doi.gov/files/uploads/atlantic\\_canyons\\_fact\\_sheet\\_for\\_release.pdf](https://www.doi.gov/sites/doi.gov/files/uploads/atlantic_canyons_fact_sheet_for_release.pdf) (last visited Feb. 24, 2018).

<sup>72</sup> BOEM, *Atlantic Canyons: Pathway to the Abyss*, <https://www.boem.gov/Atlantic-Canyons-Pathways-to-the-Abyss/> (last visited Feb. 24, 2018); BOEM, *Environmental Studies Program: Ongoing Studies* <https://www.boem.gov/AT-10-03/> (last visited Feb. 24, 2018).

<sup>73</sup> BOEM, *Atlantic Canyons: Pathway to the Abyss*, <https://www.boem.gov/Atlantic-Canyons-Pathways-to-the-Abyss/> (last visited Feb. 24, 2018).

<sup>74</sup> NOAA Ocean Explorer, *Cold Seeps*, [http://oceanexplorer.noaa.gov/edu/themes/cold\\_seeps/welcome.html](http://oceanexplorer.noaa.gov/edu/themes/cold_seeps/welcome.html) (last visited Feb. 27, 2018).

education at shore-based facilities like the Virginia Aquarium in Virginia Beach and the National Aquarium in Baltimore. Not only would continued exploration and education about the canyons have a positive potential economic benefit, but it would also inspire the next generation to protect our fragile marine environment, including Chesapeake Bay. CBF is a partner with these institutions and our own Education Department serves as a pipeline and incubator for students and professionals who may one day work there and contribute new and exciting scientific discoveries.

BOEM assumes that planning areas within the same BOEM ecoregion share the same vulnerability and resilience to potential impacts from oil and gas exploration and development.<sup>75</sup> This is also a hugely flawed assumption. The Gulf Stream and the Labrador current flow through the Mid-Atlantic ecoregion and the influence of these currents shifts seasonally. This creates an extreme amount of heterogeneity between one portion of the ecoregion and another over both space and time. Within the Chesapeake Bay, the geographic center of the Mid-Atlantic ecoregion, this variability has resulted in both Harp seals and manatees spending time in our coastal waters. While these species can be considered rare and occasional visitors, the reality is that these very different species can overlap ranges in the Mid-Atlantic. This suggests an artificial attempt at homogenizing this diverse ecoregion that is highly weighted toward mission needs.

The analysis continues to simplify in Section 7.3.2.4 in selecting indicator species, habitats, and impacts that neatly fit into the model for generating indices for comparisons between regions. The DPP does not disclose the list of species or habitats used in the sensitivity analysis. The list of IPFs is hardly exhaustive and there appears to be no characterization of the feeding, migratory, or breeding behaviors of any of the species that could be affected by this list of IPFs. Species are not randomly distributed and their mere proximity to these activities does not inform risk or resilience. The description of resilience serves up another flawed assumption that, rather than evaluating the probability of an impact occurring, BOEM assumes all impacts occur everywhere on the OCS.<sup>76</sup> Given the decades-long experience BOEM has with offshore oil and gas exploration and development, especially in places like the Gulf of Mexico and Alaska, as well as a wealth of empirical literature from oil spills and other IPFs over the years, a more robust risk analysis should be offered.

Finally, impact-independent modifiers such as climate change assign a meaningless scale of 0-2 depending on the intensity of effects. Such a rating system fails to acknowledge that many climate change parameters are shown to be non-linear such as accelerating sea level rise. Again, since coastal habitats are included in this analysis, what assumptions are made in assigning a relative scale to how sea level will affect the persistence and resilience of those habitats? Downscaled relative sea

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<sup>75</sup> 2019-2024 Draft Proposed Program, at 7-41.

<sup>76</sup> 2019-2024 Draft Proposed Program, at 7-45.

level rise predictions exist that could better inform such a parameter. In addition, the very act of expanding oil and gas leasing will change the risk and resilience of species and habitats into the future and this reality is not evaluated. So, in effect, it is improper to consider climate-related impacts to be an “impact-independent modifier.”

The results and conclusions in the sensitivity analysis reflect a layering of one simplified index over another and calculating a normalized score to describe an ecosystem. This is akin to describing what a person looks like by assigning them a number. It would be impossible to unpack the real differences between OCS regions and what real risks to resilience species and habitats will have to unknown and unquantified potential future leasing activities because so many of the underlying parameters vary both within and between ecoregions.

## 2. Marine Productivity

The marine productivity analysis also has fundamental issues. While section 7.3.3.1 lists phytoplankton, macroalgae and submerged aquatic vegetation (SAV) as contributors to primary productivity, only estimates of phytoplankton abundance seem to be considered based on chlorophyll-a from satellite measurements on the ocean’s surface. These techniques are insufficient to estimate standing stock of macroalgae or SAV because those plants exist over long, narrow stretches of coastline and well inland throughout estuaries. Satellite penetration to the limits of photosynthetically active radiation is insufficient to estimate macroalgae or SAV biomass. This can only be done with low elevation aerial photography, underwater videography, and numerous field samples to provide reference of biomass to aerial extent – some of which is the kind of detailed science conducted in the Chesapeake Bay annually by research institutions.<sup>77</sup>

Many coastal and deep-water species derive their secondary and tertiary productivity from detritus-based food webs associated with macroalgae and submerged aquatic vegetation or “marine snow” from down-welled plankton and detritus. Therefore, using phytoplankton biomass as the sole determinant of primary productivity underestimates primary productivity in each OCS region and probably not equally. The analysis fails to cite a relationship to ecoregion-specific food web models, which are needed to estimate the amount of energy consumed that would allow calculation of net primary productivity (NPP). Again, coastal and offshore components of the ecosystem are inconsistently applied as a characteristic that can be compared between regions.

Perhaps most perplexing is that nowhere in Section 7.3 of the DPP is it explained how the combination of relative environmental sensitivity indices and

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<sup>77</sup> Robert Orth, 2016 Distribution of Submerged Aquatic Vegetation in Chesapeake Bay and Coastal Bays (2017), <http://web.vims.edu/bio/sav/sav16/index.html>.

marine productivity estimates affects decision-making regarding OCS leasing activities. The summary of the methodology simply states that it is one of many considerations when developing the National OCS program. It appears as though the analysis is an administrative hoop to jump through providing numerous possible explanations for an otherwise arbitrary and capricious decision-making process. BOEM must properly analyze the sensitivity of the Atlantic to offshore oil and gas drilling, which if properly analyzed would caution against offering leases in any of the Atlantic planning areas.

#### *H. Environmental and Predictive Information*

Because of the Chesapeake Bay's unique relationship to the two major currents in the Atlantic, an oil spill anywhere in the Atlantic would negatively impact the Bay. As BOEM discussed in its 2014 report titled *Economic Inventory of Environmental and Social Resources Potentially Impacted by a Catastrophic Discharge Event within OCS Regions*, a catastrophic discharge event ("CDE" is an oil spill over one million barrels) in the Mid-Atlantic could severely damage the Chesapeake Bay.<sup>78</sup> The Chesapeake Bay is "the largest and one of the most productive estuaries in the United States, and the third largest estuary in the world."<sup>79</sup> The interconnectedness of Atlantic coastal currents produces risk to Chesapeake Bay of an oil spill regardless of where that spill occurs along the Atlantic Coast. The Chesapeake Bay holds a unique position along the Atlantic Coast where summer seasonal currents bring warm waters and more southerly distributed species into the bay. During the winter, those conditions reverse bringing colder water and more northerly species to our shores. That means there is no time of the year that the Chesapeake Bay would be safe from a catastrophic offshore oil spill. Using the historical spill data on Table 7-3 of the DPP, the probability of a spill is about 0.4 to 0.6 percent over a 40-year period.<sup>80</sup> BOEM expects 99.8 percent of oil spills to be less than 5 million barrels of oil, the approximate size of the Deepwater Horizon oil spill.<sup>81</sup> Yet assuming these probabilities are correct, just one catastrophic spill similar to the Deepwater Horizon could devastate coastal resources throughout the Atlantic Coast for decades.

The Secretary of the Interior has the duty to select the timing and location of oil and gas leasing that strikes a balance among the potential for environmental damage, the discovery of oil and gas, and adverse impacts on the coastal zone. The potential for oil and gas discovery is low in the Atlantic compared to other regions of the OCS, but the potential for environmental damage and adverse impacts is high. The states of Maryland and Virginia rely on a healthy ocean and Chesapeake Bay to

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<sup>78</sup> BOEM, *Economic Inventory of Environmental and Social Resources Potentially Impacted by a Catastrophic Discharge Event within OCS Regions* 23 (2014).

<sup>79</sup> *Id.* at 22.

<sup>80</sup> 2019-2024 Draft Proposed Program, at 7-35.

<sup>81</sup> *Id.* at 7-36.

support fishing and tourism industries, and a way of life in the Bay. Offshore oil and gas drilling threaten these industries. The balance of environmental harm and oil and gas production weigh in favor of removing the Atlantic from the 2019-2024 Five Year Program.

**II. The Programmatic Environmental Impact Statement must look at impacts beyond those to the OCS, and fully analyze how introducing the oil and gas industry to the Atlantic would impact the coastal environment.**

The PEIS must analyze the potential environmental impacts of oil and gas leasing on the environment, which may identify areas that warrant exclusion from the leasing program based on environmental impacts. BOEM uses the draft PEIS in conjunction with the Draft Proposed Program and the Proposed Program to make a final decision about leasing location in the Proposed Final Program. In the draft PEIS, BOEM must consider the direct, indirect, and cumulative effects of offshore oil and gas leasing on the environment. This means that BOEM must consider how oil and gas activities offshore will impact onshore areas like the Chesapeake Bay, and how the associated onshore infrastructure needs of the oil and gas industry will affect the East Coast, which is currently devoid of such supporting infrastructure. BOEM must also analyze how offshore oil and gas leasing will contribute to climate change, and how that contribution will affect the Chesapeake Bay. Finally in this regard, BOEM must consider how industrializing the East Coast will impact environmental justice communities.

**A. BOEM must analyze how routine oil production operations would impact onshore areas like the Chesapeake Bay.**

BOEM must analyze how offshore oil and gas activities will impact the Chesapeake Bay and other onshore ecosystems. While direct effects will be felt on the OCS where drilling occurs, the production process leads to water pollution and degradation that can be felt in onshore areas like the Bay and surrounding watershed. These indirect effects must be analyzed in the Programmatic Environmental Impact Statement to fully understand the scope of impacts.

Oil releases to water are common in the production and distribution of oil. Oil can enter waters as small spills or as slow chronic releases concentrated in production areas, including routine discharges permitted by the U.S. Environmental Protection Agency (EPA). Since the iconic 1969 oil spill in Santa Barbara, California, there have been 44 oil spills, each releasing over 420,000 gallons of oil into U.S. waters.<sup>82</sup> Even

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<sup>82</sup> NOAA Office of Response and Restoration, *Largest Oil Spills Affecting U.S. Waters Since 1969*, <https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/largest-oil-spills-affecting-us-waters-1969.html> (last visited Feb. 26, 2018).

relatively small oil spills can cause major environmental and economic harm depending on the location of the spill, the time of year, and the environmental sensitivity of the region.<sup>83</sup> But oil itself is only one source of pollution. Produced waters are water already present or pumped into oil and gas reservoirs to help force product to the surface. Drilling fluids are used to lubricate and stabilize wells. Drill cuttings are ground rock created during drilling. All three of these materials can contain oil, solids, and other toxic materials, and must be treated to reduce, but not eliminate, pollutants in accordance with an EPA general permit before discharge.<sup>84</sup> And even still, pollution can occur through willful violations of permits and not only accidental release, which BOEM must also consider.<sup>85</sup> A comprehensive study from the National Academy of Sciences noted that these regular “inputs are not trivial” and these “releases from petroleum extraction activities that take place near shore or even on shore can pose significant risks to sensitive coastal environments.”<sup>86</sup> The table below provides the annual average amount of oil released to marine waters from oil production operations in United States between 1998 and 2007, as permitted.

**Average Amount of Oil Released Each Year from Oil  
Production Operations<sup>87</sup>**

Source	Gallons of Oil Per Year
Platforms	53,000
Produced water discharge*	2,276,000
Pipeline spills	3,334,000
Tanker spills	765,000
Coastal facility spills	178,000
Total	6,606,000 (157,000 barrels)

\*These are discharges of oil in produced waters that are permitted by EPA.

<sup>83</sup> *Id.*

<sup>84</sup> Environmental Protection Agency, *Western and Central Gulf of Mexico Offshore Oil and Gas NPDES Program*, <https://www.epa.gov/npdes-permits/western-and-central-gulf-mexico-offshore-oil-gas-npdes-program> (last visited Feb. 24, 2018); Environmental Protection Agency, *NPDES General Permit for Oil and Gas Facilities on the Outer Continental Shelf and Contiguous State Waters in the Beaufort Sea*, <https://www.epa.gov/npdes-permits/npdes-general-permit-oil-and-gas-exploration-facilities-outer-continental-shelf-and> (last visited Feb. 24, 2018); Environmental Protection Agency, *NPDES General Permit for Oil and Gas Facilities on the Outer Continental Shelf and Contiguous State Waters in the Chukchi Sea*, <https://www.epa.gov/npdes-permits/npdes-general-permit-oil-and-gas-exploration-facilities-outer-continental-shelf> (last visited Feb. 24, 2018); Environmental Protection Agency, *NPDES General Permit for Oil and Gas Exploration Facilities in Federal Waters of Cook Inlet*, <https://www.epa.gov/npdes-permits/npdes-general-permit-oil-and-gas-exploration-facilities-federal-waters-cook-inlet> (last visited Feb. 24, 2018).

<sup>85</sup> Ron Soble, *Chevron Pays Fine of \$6.5 Million for Pollution*, LOS ANGELES TIMES, July 21, 1992, [http://articles.latimes.com/1992-07-21/local/me-4169\\_1\\_largest-penalty](http://articles.latimes.com/1992-07-21/local/me-4169_1_largest-penalty).

<sup>86</sup> NATIONAL RESEARCH COUNCIL COMMITTEE ON OIL IN THE SEA, *OIL IN THE SEA III: INPUTS, FATES, EFFECTS* (2003), <https://www.ncbi.nlm.nih.gov/books/NBK220701/>.

<sup>87</sup> American Petroleum Institute, *Analysis of U.S. Oil Spillage* (2009), [www.api.org/environmenthealth-and-safety/clean-water/oil-spill-prevention-and-response/~media/93371edfb94c4b4d9c6bbc766f0c4a40.ashx](http://www.api.org/environmenthealth-and-safety/clean-water/oil-spill-prevention-and-response/~media/93371edfb94c4b4d9c6bbc766f0c4a40.ashx).

Normal operations also release pollution to the air. Exploration and drilling at the platform, transportation via tankers, and refining on land all can release volatile organic compounds (VOCs), greenhouse gases, and other air pollutants. For example, an average oil and gas exploration well releases roughly 50 tons of nitrogen oxides, 13 tons of carbon monoxide, and 6 tons of sulfur oxides per year.<sup>88</sup> BOEM must consider how these day-to-day operations of oil and gas drilling, and accompanying water and air pollution, would impact onshore ecosystems in its environmental review documents and subsequent proposed program documents.

**B. BOEM must analyze how offshore oil and gas activities will impact the onshore environment through the development of onshore infrastructure, which is an indirect impact of offshore oil and gas activities.**

BOEM is proposing to open up areas of the Atlantic for offshore oil and gas activities where there has been none for decades. This means that onshore infrastructure would be needed in order to bring oil and gas products to shore and market. Necessary infrastructure may include increased tanker traffic, more and bigger pipelines, additional refinery capacity, more terminals and storage facilities, improved highways, and more truck traffic. All of these activities can directly or indirectly discharge new water and air pollution, and disrupt or destroy sensitive coastal ecosystems like the Bay. The construction of onshore infrastructure is an indirect impact of offshore oil and gas drilling. The impacts are later in time and farther away from the offshore activity, but they are an entirely foreseeable consequence of authorizing new offshore drilling activity in the Atlantic. BOEM must analyze how onshore infrastructure will impact the onshore environment in the Mid-Atlantic.

Once drilling has commenced, oil and natural gas has to be brought on shore via pipelines or oil tankers. BOEM must consider what the impacts would be to the Atlantic OCS if pipelines were installed like they have been in the Gulf of Mexico.<sup>89</sup> The construction of pipelines is an indirect impact of offshore oil and gas leasing that may impact benthic communities in the Mid-Atlantic. While pipelines will be constructed later in time, the need for pipelines to transport oil to shore is reasonably foreseeable, if not inevitable. The construction of pipelines will also have cumulative effects based on the volume and pathway of pipelines. Drilling infrastructure, including pipelines, permanently alters the ocean floor. And pipelines can rupture and leak oil directly into deep ocean waters. These effects must be analyzed in the PEIS, especially for the sensitive habitats in the Atlantic like the submarine canyons and nearshore habitats that support endangered species like Atlantic sturgeon and North

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<sup>88</sup> NRDC, *Ocean Facts—Protecting Our Ocean and Coastal Economies: Avoid Unnecessary Risks from Offshore Drilling* (2009), [www.nrdc.org/oceans/offshore/files/offshore.pdf](http://www.nrdc.org/oceans/offshore/files/offshore.pdf).

<sup>89</sup> Karen Edelstein, *Oil and Gas Development in the Gulf of Mexico*, ArcGIS (Mar. 8, 2017), <https://www.arcgis.com/home/webmap/viewer.html?webmap=7aa4535ca4364efe86da66e0cbc376ab>.



Atlantic right whale or lucrative fisheries like striped bass or blue crab. Oil is also transported to shore in tankers, which does not lessen the risk of a spill. BOEM must analyze how a potential spill from an oil tanker would impact the Chesapeake Bay, especially if the spill occurred near the mouth of the Bay where winds and tidal currents could distribute the oil throughout the Bay.

Once the oil is onshore, it will need to be processed, however, Maryland and Virginia have no operating refineries.<sup>90</sup> The Gulf of Mexico, Alaska, and even parts of the Pacific have built infrastructure to support offshore oil and gas production. But the Atlantic has little to no supporting onshore infrastructure, and the construction of this infrastructure would likely have negative environmental impacts. As BOEM stated in the DPP, “onshore construction could result in a variety of adverse impacts including the destruction or alteration of existing habitat such as wetlands or nesting areas for turtles and birds, permanent or temporary displacement of species that rely on those habitats, and behavioral disruption that could have acute or long-term impacts on individuals and populations.”<sup>91</sup>

The transportation and refining of oil products contributes to air pollution, and BOEM must analyze these impacts in the PEIS. Increased shipping traffic in to the ports of Baltimore and Norfolk will likely lead to increased emissions of pollutants. Emissions from the commercial shipping and ports contribute to air pollution nationwide and in the Chesapeake Bay region.<sup>92</sup> Air pollution contributes to a third of the nitrogen deposited into the Chesapeake Bay—more than 85 million pounds of nitrogen.<sup>93</sup> BOEM must consider how increasing vessel traffic into Baltimore and Norfolk and the associated emissions from vessels would impact the air quality in those ports and the surrounding areas. Air pollution from oil refineries is of particular concern in the Mid-Atlantic region as well, where “air emissions create larger monetized environmental impacts on human health, agriculture, and material damage” because the region is more developed and populous.<sup>94</sup> BOEM must analyze the onshore effects of new oil and gas production in the Mid-Atlantic region, which

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<sup>90</sup> Earthjustice, *Oil Refineries in the United States*, <https://earthjustice.org/features/147refineries> (last visited Feb. 24, 2018). The only refinery in Virginia, the Giant Yorktown Refinery, was converted to operate as a storage facility. Scott Harper, *Virginia’s only oil refinery becoming storage facility*, VIRGINIA PILOT, Dec. 23, 2012, [https://pilotonline.com/business/article\\_89b4ec81-2e7f-5a5a-a21a-8d8ad21cb9be.html](https://pilotonline.com/business/article_89b4ec81-2e7f-5a5a-a21a-8d8ad21cb9be.html).

<sup>91</sup> 2019-2024 Draft Proposed Program, at 8-8–8-9.

<sup>92</sup> Environmental Protection Agency, National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gases at US Ports (2016), <https://www.epa.gov/ports-initiative/national-port-strategy-assessment-reducing-air-pollution-and-greenhouse-gases-us>.

<sup>93</sup> Environmental Protection Agency, Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment (December 29, 2010), <https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document>; Chesapeake Bay Foundation, *Air Pollution: Danger from the Air*, <http://www.cbf.org/issues/air-pollution/> (last visited Mar. 1, 2018).

<sup>94</sup> *Id.* at 5-20.

includes analyzing the air pollution impacts of refineries and associated infrastructure and vessels transporting oil onshore.

Bringing oil to shore will have significant impacts on both the offshore and onshore environment. The impacts of offshore oil and gas activities are not isolated to the OCS. Many of the most harmful impacts will occur in onshore areas and coastal waters, and BOEM must fully analyze how introducing the offshore oil and gas industry to the unspoiled Atlantic would impact the environment.

**C. BOEM must analyze the climate change impacts of offshore oil and gas activities.**

Climate change will have profound impacts on the Chesapeake Bay, and many impacts are already occurring. Offshore oil and gas activities will contribute to long term climate change, mainly by increasing available fossil fuels, which when burned release carbon dioxide that directly contributes to climate change. Climate change will negatively impact the Chesapeake Bay, and BOEM must analyze these impacts in the PEIS.

**1. BOEM must analyze how increasing fossil fuel availability and subsequent greenhouse gas emissions will impact the Chesapeake Bay.**

Greenhouse gas emissions harm the Bay regardless of where fossil fuels are developed or burned. CBF is opposed to increasing greenhouse gas emissions to satisfy U.S. energy needs regardless of location. Increased greenhouse gas emissions and associated climate change is a global phenomenon linked to the burning of fossil fuels. BOEM estimates an increase of greenhouse gas emissions from proposed OCS oil and gas leasing range of 413.8 million to 773.9 million tons of carbon dioxide equivalent depending on the future price of oil.<sup>95</sup> Current emissions from oil and gas burning in the U.S. are already over 4.75 billion tons of carbon dioxide equivalent.<sup>96</sup> The leasing allowed under the DPP would add anywhere from 10 to 16 percent more carbon dioxide emissions. The Chesapeake Bay already suffers from sea level rise drowning tidal wetlands and coastal communities, increased water temperatures affecting the ability of the Bay to hold dissolved oxygen, and acidification of estuarine waters that could threaten oysters, crabs and other key fisheries and ecosystems—all caused by climate change.

Carbon dioxide and other greenhouse gases accumulate in the atmosphere, which has caused the global annual average temperature to increase by more than

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<sup>95</sup> 2019-2024 Draft Proposed Program, at B-11.

<sup>96</sup> Environmental Protection Agency, Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks, Public Review of Draft U.S. Inventory of Greenhouse Gas Emissions and Sinks: 1990-2016 ES-6 (2018).

1.2°F.<sup>97</sup> The Fourth National Climate Assessment concludes that “it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20<sup>th</sup> century.”<sup>98</sup> The warming of the planet has had a twofold effect on our oceans: ocean temperatures have increased, and sea ice has melted. Warmer waters cause thermal expansion, and melting sea ice has increased the volume of water in our oceans. The combined effect of these two changes contribute to sea level rise.

Globally, sea level is projected to rise at least 8 inches but no more than 6.6 feet by 2100.<sup>99</sup> Within 20 years, nearly 170 U.S. communities will be chronically inundated with flooding from sea level rise.<sup>100</sup> More than 70% of these communities will be in Louisiana and Maryland: the canaries in the coal mine for sea level rise.<sup>101</sup> In the Southern Chesapeake Bay region, land subsidence, the sinking or lowering of land surface, increases the rate of relative sea level rise, which contributes to the region’s high rate of sea level rise—the fastest on the Atlantic Coast.<sup>102</sup> Sea level rise threatens to inundate small coastal communities and major cities alike in the Chesapeake Bay region. In Maryland alone, sea level rise threatens to flood over 61,000 homes by 2100, valued at \$19 billion.<sup>103</sup> Entire previously inhabited islands are now underwater in the Chesapeake Bay, with more likely to follow if greenhouse gas emissions do not decrease substantially.<sup>104</sup> In Norfolk, Virginia, sea level rise poses significant risk to military infrastructure and operations.<sup>105</sup> Naval Station

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<sup>97</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment* 10, 13 (2017) (“Human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20<sup>th</sup> century.”).

<sup>98</sup> *Id.* at 12.

<sup>99</sup> Adam Parris, et. al, *Global Sea Level Rise Scenarios for the US National Climate Assessment*, NOAA Technical Memo 1 (2015).

<sup>100</sup> Erika Spanger-Siegfried, et. al, *When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities*, Union of Concerned Scientists 2 (2017).

<sup>101</sup> *Id.*

<sup>102</sup> U.S. Geological Survey, *Land Subsidence and Relative Sea Level Rise in the Southern Chesapeake Bay Region* 2, 4 (2013).

<sup>103</sup> Catherine Rentz, *Rising sea levels threaten \$19 billion in real estate across Maryland, study says*, The Baltimore Sun (Oct. 28, 2017), <http://www.baltimoresun.com/news/maryland/investigations/bs-md-suninvestigates-sea-level-20171026-story.html>.

<sup>104</sup> Erik Ortiz, *How to Save A Sinking Island*, NBC NEWS (Nov. 13, 2017), <https://www.nbcnews.com/specials/deal-island>; David Fahrenthold, *Last house on sinking Chesapeake Bay island collapses*, WASHINGTON POST (Oct. 26, 2010), <http://www.washingtonpost.com/wp-dyn/content/article/2010/10/24/AR2010102402996.html>; Jon Gertner, *Should the United States Save Tangier Island From Oblivion?*, NEW YORK TIMES MAGAZINE (July 6, 2016), <https://www.nytimes.com/2016/07/10/magazine/should-the-united-states-save-tangier-island-from-oblivion.html>.

<sup>105</sup> “Sea level rise at just one site can have a significant impact on [both military policy and] strategy. Hampton Roads, Virginia, dubbed ‘the greatest concentration of military might in the world’ by former Secretary of Defense Leon Panetta, is by itself an invaluable operational and strategic hub for both the United States and its allies. It... is the backbone of the U.S. Atlantic Fleet. It is also a low-lying site and very exposed to sea level rise and storm surge. If significant portions of the Hampton Roads

Norfolk is the largest naval base in the world, and many of the 65,000 active duty and civilian base personnel live off base and commute to work through Norfolk, making the housing and road infrastructure in Norfolk critical to mission readiness for the United States Navy.<sup>106</sup>

Sea level rise also threatens the health of wetlands in the Chesapeake Bay. Wetlands trap and filter pollution and sediment, reducing the level of pollutants entering the Bay.<sup>107</sup> Wetlands also protect coastal communities from storm surge and erosion.<sup>108</sup> Wetlands inundated with saltwater from sea level rise cannot provide the same water quality and habitat benefits as healthy wetlands.<sup>109</sup> Wetlands are typically some of the first areas to be exposed to chronic flooding from sea level rise. Wetlands have the ability to migrate in response to changes in water levels, provided they have the space and time to do so.<sup>110</sup> But the pace of sea level rise and changes in land use in coastal communities have weakened the ability of wetlands to migrate inland.<sup>111</sup>

Sea level rise also threatens forested buffer areas, as saltwater seeps into the soil, killing trees and creating “ghost forests.”<sup>112</sup> Researchers at the University of Maryland are researching the rate of wetland and marsh migration into coastal farmland and forests in response to sea level rise and saltwater intrusion.<sup>113</sup> More severe storms with increased rainfall could also impact forest buffers as well, reducing their ability to filter nutrient runoff from more intense rain events. Average U.S. precipitation has increased since the 1990s, and the frequency and intensity of

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infrastructure... were regularly inundated, as is projected under a number of scenarios for the years 2035- 2100, the impediment to force deployments for critical Atlantic, Mediterranean and Pacific war-fighting and humanitarian operations – many of which are tied to core strategic goals of the United States – would be significant.” The Center for Climate and Security, Military Expert Panel Report: Sea Level Rise and the U.S. Military’s Mission 23–24 (2016), [https://climateandsecurity.files.wordpress.com/2016/09/center-for-climate-and-security\\_military-expert-panel-report2.pdf](https://climateandsecurity.files.wordpress.com/2016/09/center-for-climate-and-security_military-expert-panel-report2.pdf).

<sup>106</sup> Army Corps of Engineers, Draft Integrated City of Norfolk Coastal Storm Risk Management Feasibility Study/ Environmental Impact Statement ii (2017).

<sup>107</sup> *Wetlands*, Chesapeake Bay Program, <https://www.chesapeakebay.net/issues/wetlands> (last visited Jan. 11, 2018).

<sup>108</sup> *Id.*

<sup>109</sup> Joseph Kurt and Victor Unnone, *Climate Change and the Chesapeake Bay Total Maximum Daily Load: Policy Priorities and Options*, Virginia Coastal Policy Center 4 (2016).

<sup>110</sup> Erika Spanger-Siegfried, et. al, *When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities*, Union of Concerned Scientists 10 (2017).

<sup>111</sup> *Id.*

<sup>112</sup> *Id.* See also John Upton, ‘Ghost Forests’ Appear As Rising Seas Kill Trees, Climate Central (Sept. 15, 2016), <http://www.climatecentral.org/news/ghost-forests-appear-as-rising-tides-kill-trees-20701>.

<sup>113</sup> Agroecology Lab, *Research*, <http://www.agroecologylab.com/research.html> (last visited Mar. 7, 2018); Virginia Gewin, *The Slow-Motion Catastrophe Threatening 350-Year-Old Farms*, THE ATLANTIC, (Mar. 2, 2018), <https://www.theatlantic.com/science/archive/2018/03/maryland-salt-farms/554663/>.

heavy precipitation events is increasing.<sup>114</sup> Increased scouring of streambeds and runoff from more intense rain events carry significantly higher loads of nitrogen, phosphorous, and sediment into the Bay tributaries that have already been declared as impaired.<sup>115</sup>

In addition to contributing to sea level rise, warming water also depletes the level of available oxygen in the Bay. This will have major repercussions in the Chesapeake Bay, which already struggles with dead zones of hypoxic water from nitrogen and phosphorus pollution.<sup>116</sup> Excess nutrient pollution in the Bay fuels algal blooms. When those blooms of algae die and decompose, they consume oxygen which depletes the availability of oxygen for other species.<sup>117</sup> This creates hypoxic and anoxic areas of the Bay with little to no oxygen available. Warming ocean temperatures will only exacerbate the dead zone in the Bay, because warmer water molecules hold less oxygen than colder water molecules.<sup>118</sup>

Greenhouse gas emissions have also caused ocean and bay waters to acidify. Our oceans are a sink for atmospheric carbon, absorbing about a quarter of the carbon dioxide released into the atmosphere each year.<sup>119</sup> This absorption is not without consequence: excess carbon dioxide is changing the ocean's chemistry.<sup>120</sup> A chemical reaction occurs between carbon dioxide, water, and carbonate ions that reduces seawater pH and depletes the concentration of carbonate ions and calcium carbonate minerals.<sup>121</sup> This negatively affects calcifying species by impairing their shell-making ability. Ocean acidification threatens the growth and reproduction of oysters, clams, blue crabs, and other creatures with calcium shells.<sup>122</sup> Oysters and blue crab in particular are important commercial species in the region's multi-billion dollar

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<sup>114</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment* 19, 20 (2017).

<sup>115</sup> Environmental Protection Agency, Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment ES-3, xiii, 2-10–2-13 (December 29, 2010), <https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document>

<sup>116</sup> *The Dead Zone*, Chesapeake Bay Program, [https://www.chesapeakebay.net/state/dead\\_zone](https://www.chesapeakebay.net/state/dead_zone) (last visited Jan. 12, 2018).

<sup>117</sup> *Id.*

<sup>118</sup> Gary Shaffer, et. al, *Long-term Ocean Oxygen Depletion in Response to Carbon Dioxide Emissions from Fossil Fuels*, NATURE GEOSCIENCE (2009); Chris Mooney, *Global warming could deplete the oceans' oxygen – with severe consequences*, WASHINGTON POST, Apr. 28, 2016, [https://www.washingtonpost.com/news/energy-environment/wp/2016/04/28/global-warming-could-deplete-the-oceans-oxygen-levels-with-severe-consequences/?utm\\_term=.9c3333011616](https://www.washingtonpost.com/news/energy-environment/wp/2016/04/28/global-warming-could-deplete-the-oceans-oxygen-levels-with-severe-consequences/?utm_term=.9c3333011616).

<sup>119</sup> NOAA Pacific Marine Environmental Laboratory Carbon Program, *Ocean Acidification: the Other Carbon Dioxide Problem*, <https://www.pmel.noaa.gov/co2/story/Ocean+Acidification> (last visited Jan. 12, 2018).

<sup>120</sup> NOAA Pacific Marine Environmental Laboratory Carbon Program, *What is Ocean Acidification?*, <https://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F> (last visited Jan. 12, 2018).

<sup>121</sup> *Id.*

<sup>122</sup> Sarah M. Giltz and Caz M. Taylor, *Reduced Growth and Survival in the Larval Blue Crab Callinectes sapidus Under Predicted Ocean Acidification*, 36 J. OF SHELLFISH RESEARCH 481 (2017).

seafood industry.<sup>123</sup> CBF is committed to restoring the native oyster, *Crassostrea virginica*, in the Bay. Chesapeake oysters play a vital ecological role in the Bay by filtering algae, sediment, and other pollutants, and oyster reefs also provide habitat for fish, crabs, and other bay organisms.<sup>124</sup> CBF has two oyster restoration centers in Maryland and Virginia, and has planted more than 200 million oysters into the Bay. CBF in coalition with other oyster restoration organization launched the Chesapeake 10 Billion Oysters Partnership, with the goal of adding 10 billion new oysters to the Bay by 2025.<sup>125</sup> Ocean acidification will impair that goal, and erosion of that investment is an unwelcome future.

## **2. BOEM must analyze how climate change effects will impact any proposed offshore oil and gas activities and infrastructure.**

In its environmental review, BOEM must also consider how climate change will affect offshore oil and gas drilling. Climate change will increase the frequency and intensity of major storms like hurricanes and nor'easters, and BOEM must consider how these storms will impact offshore oil and gas drilling operations and associated infrastructure.

Hurricanes pose a serious threat to offshore oil and gas operations in the Gulf of Mexico, and major hurricanes have shut down offshore production. Hurricanes Katrina and Rita collectively destroyed 115 platforms, damaged 52 additional platforms, and damaged 535 pipeline segments, causing a near total shut down of the Gulf's offshore oil and gas production.<sup>126</sup> Hurricane Harvey shut down offshore production as the storm passed, but the onshore flooding from record-breaking rainfall—which was exacerbated by climate change—caused refineries onshore to shut down production.<sup>127</sup> Hurricanes in the summer, and nor'easters in the winter, are going to become stronger and more frequent due to climate change.<sup>128</sup> BOEM must

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<sup>123</sup> *The Economic Importance of the Bay*, Chesapeake Bay Foundation, <http://www.cbf.org/issues/what-we-have-to-lose/economic-importance-of-the-bay/> (last visited Jan. 16, 2018).

<sup>124</sup> *Oyster Restoration Centers*, Chesapeake Bay Foundation, <http://www.cbf.org/about-cbf/our-mission/restore/oyster-restoration-centers/> (last visited Jan. 12, 2018).

<sup>125</sup> Chesapeake 10 Billion Oysters Partnership, <http://www.tenbillionoysters.org/index.html> (last visited Mar. 6, 2018).

<sup>126</sup> Bureau of Safety and Environmental Enforcement, *Hurricane Katrina and Rita*, <https://www.bsee.gov/research-record/category/hurricane-katrina-and-rita> (last visited Mar. 6, 2018).

<sup>127</sup> Henry Fountain, *Scientists Link Hurricane Harvey's Record Rainfall to Climate Change*, THE NEW YORK TIMES, (Dec. 13, 2017), <https://www.nytimes.com/2017/12/13/climate/hurricane-harvey-climate-change.html>; Molly Lempriere, *Offshore Oil: Recovering from Harvey*, OFFSHORE TECHNOLOGY, (Nov. 6, 2017), <https://www.offshore-technology.com/features/offshore-oil-recovering-harvey/>.

<sup>128</sup> U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I, Chapter 9: Extreme Storms* (2017), <https://science2017.globalchange.gov/chapter/9/>; Andrea Alfano, *Nor'easters May Become More Intense with Climate Change*, SCIENTIFIC AMERICAN (Jan. 26, 2015),



consider these impacts, especially before opening up portions of the Atlantic that can be hit with major storms year round.

In sum, there are a myriad of climate change impacts on the Atlantic Ocean and the Chesapeake Bay, and all of these impacts stem from the burning of fossil fuels that release carbon dioxide. BOEM must analyze these impacts which, while not unique to the Chesapeake Bay and impact coastal areas nationwide, will nevertheless redound to the great detriment of the Bay.

#### **D. BOEM must consider the environmental justice impacts of offshore oil and gas activities in the PEIS.**

BOEM must consider environmental justice issues and impacts in its NEPA analysis because marginalized communities continue to face a disproportionate burden of environmental risks and hazards. The Gulf of Mexico is still recovering from the aftermath of the BP Deepwater Horizon offshore drilling oil spill, which impacted both natural resources and vulnerable communities alike.<sup>129</sup> The current administration's offshore drilling policies will put every coastal community within the Atlantic region at risk. Increasing offshore drilling, while relaxing safety regulations for offshore oil producers that were put in place after the BP oil spill, will have negative impacts on overburdened communities.<sup>130</sup>

According to EPA's Environmental Justice Screening and Mapping Tool (EJScreen), there are currently several communities located within the Bay watershed that fall below the poverty level, have a large minority population, and reside along the Atlantic coast shore.<sup>131</sup> Hampton and Norfolk, Virginia are two prime examples. Many Hispanic and African Americans in these two communities depend heavily on subsistence fishing and foods. 74% of the population of Hampton, Virginia is minority, and 54% of the households are low income.<sup>132</sup> Hampton is in the 90<sup>th</sup> percentile for environmental justice community exposure to particulate matter, 91<sup>st</sup> percentile for ozone, and 93<sup>rd</sup> percentile for hazardous waste proximity.<sup>133</sup> 70% of

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<https://www.scientificamerican.com/article/nor-easters-may-become-more-intense-with-climate-change/>.

<sup>129</sup> Hari M. Osofsky, et. al, *Environmental Justice and the BP Deepwater Horizon Oil Spill*, 20 N.Y.U. ENVTL. L.J. 99 (2012).

<sup>130</sup> Bureau of Safety and Environmental Enforcement, *Oil and Gas and Sulphur Operations on the Outer Continental Shelf – Oil and Gas Production Safety Systems – Revisions*, 82 Fed. Reg. 61703 (Dec. 29, 2017).

<sup>131</sup> EPA, *EJSCREEN: Environmental Justice Screening and Mapping Tool*, <https://www.epa.gov/ejscreen>.

<sup>132</sup> EPA, *EJSCREEN ACS Summary Report*, Hampton, VA, <https://ejscreen.epa.gov/mapper/> (last accessed Mar. 7, 2018) (search for Hampton, VA, then click "Get 2011-2015 ACS Report" to view report).

<sup>133</sup> EPA, *EJSCREEN Report (Version 2017)*, <https://ejscreen.epa.gov/mapper/> (last accessed Mar. 7, 2018) (search for Hampton, VA, then click "Get Printable Standard Report" to view report).



the population in Norfolk is minority, and 55% of the population is low income.<sup>134</sup> Norfolk is in the 82<sup>nd</sup> percentile for environmental justice community exposure to particulate matter, 83<sup>rd</sup> percentile for ozone, and 96<sup>th</sup> percentile for hazardous waste proximity.<sup>135</sup> As discussed above, the Hampton Roads region, which includes Norfolk and Hampton, is also expected to experience sea level rise at one of the fastest rates in the country, which will impact environmental justice communities in the region that do not have the means to relocate. These vulnerable communities should be considered in an Environmental Justice analysis under NEPA. According to EJScreen, such communities already face a disproportionate share of wastewater discharge issues, air pollution, and the communities are in close proximity to hazardous waste sites. If an oil spill were to occur, the aftermath could be devastating.

The National Environmental Policy Act (NEPA) was enacted in 1969 in part to promote federal activities that would prevent or reduce harm to the environment.<sup>136</sup> NEPA requires federal agencies to assess the environmental effects of their proposed actions to inform their decision-making. In 1994, Executive Order 12898—*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*—required Federal agencies to consider human health and environmental conditions in minority communities and low-income communities and to adopt strategies to address environmental injustice.<sup>137</sup> In determining whether to allow offshore drilling in the mid-Atlantic, BOEM should analyze the environmental effects, including human health, economic, and social effects, of their proposed action on minority and low-income communities located around the mid-Atlantic. To meet these goals, BOEM should consider these four specific actions stated in the presidential memorandum attached to Executive Order 12898:

1. Each federal agency must analyze environmental effects, including human health, economic, and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA.
2. Mitigation measures outlined or analyzed in EAs, EISs, or Records of Decision (RODs), whenever feasible, should address significant and adverse environmental effects of proposed federal actions on minority communities and low-income communities.
3. Each federal agency must provide opportunities for community input in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving

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<sup>134</sup> EPA, EJSCREEN ACS Summary Report, Hampton, VA, <https://ejscreen.epa.gov/mapper/> (last accessed Mar. 7, 2018) (search for Norfolk, VA, then click “Get 2011-2015 ACS Report” to view report).

<sup>135</sup> EPA, EJSCREEN Report (Version 2017), <https://ejscreen.epa.gov/mapper/> (last accessed Mar. 7, 2018) (search for Norfolk, VA, then click “Get Printable Standard Report” to view report).

<sup>136</sup> National Environmental Policy Act of 1969 § 102, 42 U.S.C. § 4332 (1994).

<sup>137</sup> Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 11, 1994).

accessibility of public meetings, official documents, and notices to affected communities.

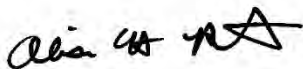
4. In reviewing other agencies' proposed actions under Section 309 of the Clean Air Act, EPA must ensure that the agencies have fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects.<sup>138</sup>

These are all actions BOEM should consider for its Programmatic EIS when determining whether offshore drilling in the mid-Atlantic is environmentally feasible. By taking these actions into consideration, BOEM is improving the affected communities access to the NEPA process and identifying alternatives that may mitigate these impacts.

### Conclusion

The Chesapeake Bay Foundation strongly opposes the expansion of offshore oil and gas drilling in the outer continental shelf. It is well past time for the nation to take climate change and its many adverse impacts seriously. The best contemporary models demonstrate that global patterns of climate change associated with the burning of fossil fuels hurt coastal communities adjacent to all OCS regions. Major spills would jeopardize our region's environment and vital fishing and tourist economies. Gambling the Bay's renewable aquatic resources for a single non-renewable petroleum source is far too risky. Introducing a potential new source of pollution is in direct conflict with the significant renewed investment, by six states, the District of Columbia, and the federal government, that is planned over the next 15 years to restore the Bay in accordance with the Chesapeake Bay Blueprint. BOEM should therefore remove the Atlantic from the 2019-2024 Five Year Program, and at the very least, must adequately evaluate the direct, indirect, and cumulative impacts, including impacts to vulnerable communities, which such activities are likely to cause.

Sincerely,



Alison Prost, Esq.  
Maryland Executive Director  
Interim Vice President for Environmental Protection and Restoration  
Chesapeake Bay Foundation

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<sup>138</sup> EPA, Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (1998), [https://www.epa.gov/sites/production/files/2014-08/documents/ej\\_guidance\\_nepa\\_epa0498.pdf](https://www.epa.gov/sites/production/files/2014-08/documents/ej_guidance_nepa_epa0498.pdf).