March 8, 2018

Ms. Kelly Hammerle
National OCS Oil and Gas Leasing Program Manager
Bureau of Ocean Energy Management (VAM-LD)
45600 Woodland Road
Sterling, VA 20166-9216

Submitted online via regulations.gov

Re: Request for comments on the 2019–2024 National Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program, Docket # BOEM-2017-0074-0001.

Dear Ms. Hammerle:

On behalf of our millions of members and supporters, Audubon Alaska, Oceana, Ocean Conservancy, The Pew Charitable Trusts, and World Wildlife Fund (WWF) submit these comments in response to the Bureau of Ocean Energy Management's (BOEM) request for comments on the 2019–2024 National Outer Continental Shelf (OCS) Oil and Gas Leasing Draft Proposed Program (DPP).

The DPP includes 25 of the 26 OCS planning areas. These comments, however, address only Arctic waters off the coast of Alaska, including the northern Bering Sea region, Chukchi Sea, and Beaufort Sea**.** Some of the undersigned organizations may submit separate comments with input relevant to other geographic areas.

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As described in more detail in the sections that follow, we urge BOEM to discontinue efforts to develop a 2019–2024 OCS leasing program. If BOEM does continue to pursue a new program, that program should not include lease sales in the Planning Areas encompassing the northern Bering Sea, Chukchi Sea, and Beaufort Sea.

As described in section C of this comment letter, if BOEM opts to continue development of a 2019–2024

OCS leasing program and if that program includes lease sales in the Chukchi Sea and/or Beaufort Sea Planning Areas, BOEM should provide the strongest possible protections for Important Marine Areas (IMAs) in those seas. IMAs include wildlife migration routes, foraging hotspots, subsistence use areas, seafloor habitats, ice habitat, and places with high primary productivity essential to the health and functioning of the Arctic ecosystem.

A. Maintain the existing OCS leasing program

As an initial matter, we again urge BOEM to maintain the current 2017–2022 OCS Leasing Program and to discontinue efforts to create a new program. The 2017–2022 Program was developed carefully over the course of a multi-year process that included numerous opportunities for public comment. There is simply no need for a new OCS leasing program at this time. Instead of developing a new program, BOEM should instead focus on implementation of the existing 2017–2022 program, including careful evaluation of whether to proceed with scheduled lease sales.

B. If BOEM continues to develop a new 2019–2024 leasing program, that program should not include lease sales in the Chukchi Sea or Beaufort Sea Planning Areas or in any of the northern Bering Sea Planning Areas.

If BOEM proceeds with the development of a new 2019–2024 OCS program, the agency should not include sales in Chukchi Sea or Beaufort Sea Planning Areas. In addition, we support the requests of local tribes and communities, the Alaska congressional delegation, Governor Walker, and others to exclude Planning Areas in the northern Bering Sea from the 2019–2024 OCS leasing program.

1. There should be no lease sales in the Chukchi Sea and Beaufort Sea Planning Areas.

Oil and gas activities pose significant and distinct risks in the Arctic Ocean. As explained in section C of this comment letter, the Arctic Ocean contains unique and important ecosystems. Oil and gas activities put the health of these ecosystems at risk. All available evidence leads to the conclusion that responders would not be able to effectively clean up a major oil spill in real-world Arctic conditions. The 2010 BP *Deepwater Horizon* disaster in the Gulf of Mexico highlighted the difficulty of spill response even in comparatively favorable conditions. A report by the National Research Council (2014) concluded that cleaning up a major oil spill in the Arctic would be much more challenging. Your agency has recognized these particular risks; the lessons from the *Deepwater Horizon* spill and Shell's failed exploration efforts led the Department of the Interior to promulgate Arctic-specific prevention and response rules. In addition to the risk of a major spill, even routine exploration and development will cause noise, air, and water pollution. The potential magnitude and cumulative effects of these impacts are not well understood.

The lack of infrastructure in the Arctic also makes it a poor candidate for OCS development—and would make spill response especially difficult. The 2014 National Research Council report found that "[t]he lack of infrastructure in the Arctic would be a significant liability in the event of a large oil spill," that building the requisite spill response capacity "will require significant investment in physical infrastructure and human capabilities," and that "[t]here is presently no funding mechanism to provide for development, deployment, and maintenance of temporary and permanent infrastructure." At a recent symposium, U.S. Coast Guard Commandant Admiral Paul Zukunft (2017) voiced concern about the ability to respond to a large spill in the Arctic, saying "we don't have the infrastructure up there." Admiral Zukunft also

noted that "we don't know what the long-term impacts [of a major spill] will be to one of the most pristine environments in the world and it's not an area we would want to oil and find out after the fact."

There is also uncertainty about the legality of future lease sales. Using his authority under Section 12(a) of OCSLA, President Obama withdrew the vast majority of the Chukchi and Beaufort OCS from leasing in Presidential memoranda issued in 2015 and 2016. President Trump attempted to rescind these withdrawals in Executive Order 13795 (April 28, 2017). Some conservation organizations and an Alaska Native grassroots network have mounted a legal challenge alleging that President Trump lacks the authority to rescind these withdrawals. As a result, there is uncertainty surrounding the legal status of the Chukchi and much of the Beaufort Sea Planning Area, which again underscores the imprudence of expending further federal resources to evaluate Arctic leasing in this process.

2. There should be no lease sales in the northern Bering Sea Planning Areas.

Many of the foregoing factors apply with equal force to Planning Areas in the northern Bering Sea. As a result, we support requests from area tribes and communities, Alaska's elected officials, and others to exclude northern Bering Sea Planning Areas from the next OCS leasing program.

Local tribes and northern Bering Sea communities have requested that planning areas in the Bering Sea and North Aleutian Basin be excluded from a new program, should one be developed.[1] Following the lead of the local communities, U.S. Senators Murkowski and Sullivan joined with Alaska's sole Congressman, Representative Young, to request that BOEM drop from consideration eleven of the Alaska Region's OCS Planning Areas, including all Planning Areas in the northern Bering Sea.[2] Alaska Governor Bill Walker has also stated that the State of Alaska opposes new lease sales in the northern Bering Sea.[3] We urge BOEM to respect these requests and remove northern Bering Sea Planning Areas from the proposed 2019–2024 OCS leasing program.

C. If BOEM's proposed 2019–2024 OCS Leasing Program includes lease sales in the Chukchi Sea or Beaufort Sea, BOEM should give the strongest possible protections to Important Marine Areas in those seas.

The best available science confirms that certain areas of Chukchi and Beaufort Seas are particularly important to the health and functioning of the marine ecosystem and have significant environmental values that could be compromised by industrial activities. Instead of being considered for leasing, any future leasing program should afford these areas the strongest possible protection from OCS oil and

[1] *See, e.g.,* letter from Kawerak, Inc. to Kelly Hammerle, BOEM (August 3, 2017) (requesting that BOEM exclude the Norton Sound, St. Matthew-Hall, Navarin Basin and Hope Basin Planning Areas from the 2019-2024 Five-Year Program); Letter from Association of Village Council Presidents and Bering Sea Elders Group to Secretary of the Interior Ryan Zinke (undated) (requesting that BOEM exclude the Norton Sound, St. Matthew-Hall, Navarin Basin, Aleutian Basin, and St. George Basin from the 2019-2024 Five-Year Program); and letter from Bristol Bay Economic Development Corporation, Bristol Bay Native Corporation, United Tribes of Bristol Bay, Nunamta Aulukestai and Bristol Bay Native Association to Secretary of the Interior Ryan Zinke, (July 31, 2017) (requesting continued protection of the North Aleutian Basin Planning Area).

[2] Letter from Senator Murkowski, Senator Sullivan, and Representative Young to Secretary of the Interior Zinke (Jan. 26, 2018) (requesting removal of Hope Basin, Norton Basin, St, Matthew-Hall, Navarin Basin, Aleutian Basin, Bowers Basin, Aleutian Arc, St, George Basin, Shumagin, Kodiak, and Gulf of Alaska Planning Areas from the 2019–2024 OCS leasing program).

[3] Press Release from Alaska Governor Bill Walker (Jan. 30, 2018) (calling for the 2019–2024 OCS leasing program to exclude all Alaska Planning Areas except the Beaufort, Chukchi, and Cook Inlet Planning Areas).

gas activities. If BOEM's proposed 2019–2024 OCS Leasing Program includes lease sales in the Chukchi Sea or Beaufort Sea**,** the agency should exclude the specific areas described in subsections 2 and 3 below and protect them from the impacts of oil and gas operations. These IMAs are depicted in the attached map.

1. Important Marine Areas are Identified Using Best Available Science.

Well-informed management decisions require an understanding of the manner in which the Arctic marine food web functions. We conducted a multi-year study to identify areas critical to the functioning of the marine ecosystem in the U.S. Chukchi and Beaufort seas based on a synthesis of the current body of knowledge available about Arctic marine ecosystems. We conducted an extensive literature review to find the best available data, and used spatial analyses and mapping to examine patterns and overlap of high-value habitats. Our synthesis (attached as an appendix) resulted in identification of eight IMAs that include wildlife migration routes, foraging hotspots, subsistence use areas, seafloor habitats, ice habitat, and places with high primary productivity.

2. BOEM's Potential Exclusion Areas merit strong protection and should be excluded from the OCS leasing program.

BOEM's Potential Exclusion Areas (PEAs), as identified in the DPP's Alaska Region Program Option 2, fall within the IMAs we identified through our extensive scientific synthesis. Here, we summarize the ecological values supporting the exclusion of the PEAs, and in the following section (section 3) outline additional values of IMAs in geographic areas that are not included in BOEM's list of PEAs.

BOEM's PEAs should be excluded based on the following outstanding biological and cultural values:

a. Hanna Shoal in the Chukchi Sea (within the Hanna Shoal Region IMA)

During a time of rapid change, Hanna Shoal is, and will likely continue to be, an important foraging and haulout area. This shallow area diverts warm water masses flowing northward from the Bering Sea, entraining colder water long into the summer season (Weingartner et al. 2005). As a result, sea ice persists in this area longer into the summer season as well (Martin and Drucker 1997, Spall 2007), although the duration and extent of ice retention varies between years. Even though the shoal is no longer covered by continuous pack ice all year, it still has the most reliable ice present on the Chukchi shelf, in the form of broken ice floes (Weingartner et al. 2013). Hanna Shoal's persistent ice floes are increasingly important because they may become a last stronghold for some ice-obligate species such as Pacific walrus, polar bear, bearded seal, and ringed seal (Moore and Huntington 2008). Recent satellite-tracking data demonstrates the periodic importance of the Hanna Shoal area during bowhead whale migration in the fall (Quakenbush et al. 2010, Citta et al. 2015), and for walrus foraging and resting, especially during the summer (U.S. Geological Survey 2009-2013, Jay et al. 2012).

The identified PEA within the Hanna Shoal Region IMA encompasses the following values:

- Mid to late-summer lingering sea ice
- Seafloor (benthic) biomass and primary productivity hotspots
- Western migration corridor for marine mammals and birds
- High-density summer core areas for birds including ivory gull, which is a WatchList species of concern

- Feeding area for gray whales, bearded seals, and marine birds
- High-concentration walrus summer haulout and foraging area
- Core use area of the Chukchi Sea subpopulation of polar bears including sea ice critical habitat designated under the Endangered Species Act (ESA)
- Ecosystem resilience and climate change refugia

BOEM's Hanna Shoal PEA was excluded from leasing in the 2017–2022 final program. This area merits ongoing protection in future OCS programs.

b. Subsistence Use Area in the Chukchi Sea and the Barrow Whaling Area in the Beaufort Sea (within the Barrow Canyon IMA)

Barrow Canyon and the associated complex of ecological values straddle the boundary between the Beaufort and Chukchi Seas. Complex water mass mixing, upwelling, and sea ice dynamics make the waters around Point Barrow and Barrow Canyon very productive compared to other nearby areas and the nutrient-poor Canada Basin (Mathis et al. 2007). This submarine canyon runs along the Chukchi Sea coast, approximately 5 to 15 miles offshore from Point Franklin to Point Barrow, and then cuts through the shelf break into the Canada Basin. It is 150 miles long, about 15 miles wide, and reaches depths that are about 1,200 feet below the surrounding cliffs and peaks. Barrow Canyon is a concentrated migration passageway for marine mammals and birds following open leads in the sea ice. The area has very high levels of primary productivity (Grebmeier et al. 2006), along with a high biomass of zooplankton. *Pseudocalanus* copepods and euphausiids concentrate off Point Barrow to the shelf break (Ashjian et al. 2010), serving as an important food source (Moore and Laidre 2006), especially in the fall (Moore et al. 2010). Nearshore areas are globally important staging and foraging areas for several species of birds, including yellow-billed loons (Schmutz and Rizzolo 2012); spectacled and king eiders (Oppel et al. 2009, Sexson et al. 2012); Arctic terns; black-legged kittiwakes; glaucous and Sabine's gulls; long-tailed ducks; and red phalaropes (Smith et al. 2014).

The identified PEA within the Barrow Canyon IMA encompasses the following values:

- Seafloor (benthic) biomass and primary productivity hotspots
- Essential Fish Habitat
- A major migration passageway for birds nesting on the North Slope in summer
- High-density summer core areas for birds including yellow-billed loon and black-legged kittiwake, which are WatchList species of concern
- Globally significant Important Bird Areas
- A major migration passageway for marine mammal species in the U.S. Arctic Ocean
- A major concentration area for bowhead whales feeding in the spring, summer, and fall, and concentrated sightings of mothers with calves
- A core concentration area for beluga whales in summer and fall
- Gray whale feeding and rearing hotspots
- Core use areas of the Chukchi and Southern Beaufort Sea subpopulations of polar bears, including sea ice critical habitat designated under the ESA and known feeding and denning concentration areas for polar bears
- Feeding and migration areas for walrus
- A MESA (Most Environmentally Sensitive Area) identified by Alaska Department of Fish and Game

- Ecosystem resilience and climate change refugia
- Subsistence hunting areas for the communities of Utqiagvik and Wainwright

BOEM's Subsistence Use Area PEA in the Chukchi Sea was excluded from leasing in the 2012–2017 and 2017–2022 final programs. BOEM's Barrow Whaling Area PEA in the Beaufort Sea was excluded from leasing in Lease Sale 186 (2003) and in the 2007–2012, 2012–2017, and 2017–2022 final programs. These areas merit ongoing protection in future OCS programs.

c. 25-Mile Coastal Buffer in the Chukchi Sea (within the Chukchi Corridor IMA)

The Chukchi Corridor IMA, approximately 50 miles in width, follows the Chukchi Sea coast from Point Hope to Wainwright and offshore of Utqiagvik. Within this corridor, there is significant wildlife activity, including one of the largest marine mammal migrations in the world. From winter through early summer, the area is covered in sea ice with recurring open leads and polynyas (Eicken et al. 2005, Mahoney et al. 2012) that allow wildlife to migrate north from the Bering Sea to areas of the Chukchi or Beaufort seas during spring and early summer. The entire Chukchi Sea coastline serves as an essential corridor for marine mammals including bowhead whales, Pacific walrus, and ice seals as well as for indigenous subsistence hunters (Oceana 2013). Birds follow the Chukchi Corridor to northern waters and inland to the North Slope. The corridor contains globally important hotspots for several bird species including yellow-billed and red-throated loons (Schmutz and Rizzolo 2012); spectacled, Steller's and king eiders (Martin et al. 2009, Oppel et al. 2009, Sexson et al. 2012); brant (Johnson 1993); common and thick-billed murres (Hatch et al. 2000); glaucous gulls; pomerine jaegers; and black-legged kittiwakes (Smith et al. 2014). Aside from its importance during migration, the Chukchi Corridor is an important summer destination for animals. Pacific walrus use this zone, particularly after the sea ice retreat in late summer. Walrus make trips to and from Hanna Shoal, hauling out on the coast off Icy Cape, and then forage on benthic organisms until they migrate south along the Chukchi coast (Jay et al. 2012).

The identified PEA within the Chukchi Corridor IMA encompasses the following values:

- Essential Fish Habitat
- Coastal spawning areas for capelin and smelt and staging areas for pink and chum salmon
- A major migration passageway for birds nesting on the North Slope in summer
- Critical habitat designated under the ESA for molting and staging spectacled eiders
- A network of globally significant Important Bird Areas
- Nesting colonies that support one quarter million breeding birds
- High-density summer core areas for birds including yellow-billed loon, spectacled eider, and black-legged kittiwake, which are WatchList species of concern; spectacled eider is listed as threatened under the ESA
- A major migration passageway for marine mammal species
- Important habitat for foraging, transiting, and hauled-out walrus
- A significant nearshore concentration of molting and calving beluga whales with offshore summer foraging areas
- Core use area of the Chukchi Sea subpopulation of polar bears, including sea ice critical habitat designated under the ESA and known feeding and denning concentration areas for polar bears
- Concentration area for ribbon seals in summer, and bearded and ringed seals in winter/spring, with haulouts for bearded and spotted seals along the coast
- Gray whale rearing and feeding hotspots

- Three MESAs identified by Alaska Department of Fish and Game
- Ecosystem resilience and climate change refugia
- Subsistence hunting areas for the communities of Point Hope, Point Lay, Wainwright, and Utqiagvik

BOEM's 25-Mile Coastal Buffer PEA in the Chukchi Sea has a long history of being excluded from leasing, including from the 1992–1997, 1997–2002, 2002–2007, 2007–2012, 2012–2017, and 2017–2022 final programs. This area merits ongoing protection in future OCS programs.

d. The Kaktovik Whaling Area in the Beaufort Sea (overlapping the Oliktok to Demarcation Core Areas IMA)

The U.S. Beaufort shelf is part of the fall migratory corridor for bowhead whales from the Beaufort to Bering Seas (Moore 2000, Moore et al. 2000). During fall migration, bowhead whales follow continental slope habitat closer to the coast than the slope migratory pathway they follow during the spring migration. Within the migration corridor across the Beaufort shelf there are several areas where more bowhead whales are consistently observed from year to year than in other areas, likely because those places provide feeding habitat for the long journey to the southern Bering Sea. The area northeast and east of Cross Island has consistently been observed to have more bowhead whales observed during surveys than surrounding areas in the bowhead migration corridor (National Oceanic and Atmospheric Administration 2015). Cross Island is used by subsistence hunters as a staging location from which to harvest bowhead whales in the fall (Galginaitis 2014). The area east of Kaktovik, and Camden Bay just west of Kaktovik, are also important feeding and resting hotspots for bowhead whales and are important to the subsistence values of this Inupiaq community. The central U.S. Beaufort is also characterized by nearshore barrier islands with productive lagoon areas. The lagoons and surrounding marine areas have significantly high abundances of marine birds, including long-tailed ducks, king and common eiders, yellow-billed and red-throated loons, glaucous gulls, and brant (Drew and Piatt 2013, Audubon Alaska 2014, Smith et al. 2014, Walker and Smith 2014).

The identified PEA within the Oliktok Point to Demarcation Bay Core Areas IMA encompasses the following values:

- Hotspots of primary productivity relative to other areas of the Beaufort Sea
- High-density summer core areas for birds including spectacled eider, which is a WatchList bird species of concern and is listed as threatened under the ESA
- A globally significant Important Bird Area
- A concentration area for bowhead whales feeding and resting in the fall, and high sightings of mothers with calves
- Core use area of the Southern Beaufort Sea subpopulation of polar bears, including sea ice critical habitat designated under the ESA and known feeding and denning concentration areas for polar bears
- Ringed seal winter denning concentration area and subnivean pupping habitat
- Two MESAs identified by Alaska Department of Fish and Game
- Subsistence hunting area for the communities of Nuiqsut and Kaktovik

BOEM's Kaktovik Whaling Area PEA in the Beaufort Sea has a long history of being excluded from leasing, including from Lease Sale 186 (2003) and in the 2007–2012, 2012–2017 and 2017–2022 final programs. This area merits ongoing protection in future OCS programs.

Governor Walker recently announced the State of Alaska's support for exclusion of the Chukchi 25-mile coastal buffer, the Barrow Whaling Area, and the Kaktovik Whaling Area from the 2019–2024 OCS leasing program. BOEM should respect these requests.[4] In addition, the DPP rightly recognizes the North Slope Borough, Alaska Eskimo Whaling Commissions and Arctic Slope Regional Corporation's historic support for the exclusion on the aforementioned areas.

3. Additional areas of particularly significant ecological or cultural importance merit exclusion.

As mentioned above, we conducted a multi-year effort to gather data and assess ecosystem hotspots, or IMAs. In our synthesis (attached as an appendix) we identified and described the eight IMAs critical to ecosystem functioning:

- Chukchi Corridor
- Hanna Shoal Region and Herald Shoal
- Barrow Canyon
- Smith Bay
- Harrison Bay – Colville Delta
- Oliktok Point to Demarcation Bay
- Beaufort Shelf Break

These regions of the U.S. Arctic Ocean, depicted in the attached map, have particularly significant ecological and cultural importance and merit protection from impacts associated with industrial activities. Yet, much of this geography is not included in the DPP as PEAs. Exclusion of BOEM's PEAs alone will not ensure the health and functioning of the Arctic marine ecosystem. Here we outline the outstanding biological and cultural values of these additional Important Marine Areas that should be excluded from future OCS programs.

a. Chukchi Corridor

The Chukchi Corridor, approximately 50 miles in width, follows the Chukchi Sea coast from Point Hope to Wainwright and offshore of Utqiagvik. This Corridor is an essential migratory pathway for virtually all animals reaching summer feeding areas in the Chukchi and Beaufort Seas and the North Slope.

BOEM identified the 25-Mile Coastal Buffer as a PEA but the following values are also significant for the area 25 to 50 miles offshore of the Chukchi Sea coast:

Chukchi Corridor South: Point Hope to Cape Lisburne

- Very high density of zooplankton relative to other areas of the Chukchi Sea
- Highest measured density of snow crab in the Chukchi Sea
- Potentially high species richness of demersal fish
- A system of recurring leads and polynyas used by migratory wildlife in spring
- High-density summer core areas for birds

[4] Press Release from Alaska Governor Bill Walker (Jan. 30, 2018) (calling for the 2019–2024 OCS leasing program to exclude all Alaska Planning Areas except the Beaufort, Chukchi, and Cook Inlet Planning Areas).

- A major concentration area for thick-billed and common murres that nest on the Lisburne Peninsula and forage out to 100 or more miles offshore
- A spring migration corridor regularly used by bowhead and beluga whales
- A high-use sea ice habitat area for polar bears based on resource selection models and core use area of the Chukchi Sea subpopulation including ESA sea ice critical habitat
- A biologically important gray whale feeding area
- Concentration area for ribbon seals in summer

Chukchi Corridor Central: Ledyard Bay to Kasegaluk Lagoon

- A system of recurring leads and polynyas used by migratory wildlife in spring
- Very high density of zooplankton relative to other areas of the Chukchi Sea
- High levels of benthic biomass that provide food for eiders and marine mammals including walrus and bearded seals
- A core use area for threatened spectacled eiders that are migrating, staging, and foraging; this area is designated critical habitat for eiders
- A high concentration staging area for king eiders during spring and fall migration; the entire breeding population of King Eiders in western North America—about 500,000 birds—is believed to use this area
- High-density summer core areas for birds, including yellow-billed loons and spectacled eiders, which are WatchList species of concern; spectacled eider is listed as threatened under the ESA
- A spring migration corridor regularly used by bowhead and beluga whales
- Used for foraging by high concentrations of walrus in early summer and late fall
- A high-use sea ice habitat area for polar bears based on resource selection models and core use area of the Chukchi Sea subpopulation including sea ice critical habitat designated under the ESA
- Highly concentrated bearded seal habitat in spring

Chukchi Corridor North: Icy Cape to Point Belcher

- A system of recurring leads and polynyas used by migratory wildlife in spring
- Very high density of zooplankton relative to other areas of the Chukchi Sea
- High-density summer core areas for birds including black-legged kittiwake, a WatchList species of concern
- High levels of benthic biomass that provide food for marine mammals including walrus, bearded seals, and gray whales
- A spring migration corridor regularly used by bowhead and beluga whales
- A biologically important area for gray whale feeding and reproduction (including sightings of calves) in summer and fall
- A foraging area and major transit area for walrus traveling between haulouts onshore and the Hanna Shoal Region
- Core use area of the Chukchi Sea subpopulation of polar bears, including sea ice critical habitat designated under the ESA

b. Hanna Shoal Region and Herald Shoal

Hanna Shoal is an area of late-summer lingering sea ice and higher benthic biomass that provides essential habitat for animals such as walrus. Similar to Hanna Shoal, Herald Shoal also diverts warm water masses flowing northward from the Bering Sea, so colder water is retained here long into the summer season (Weingartner et al. 2005). As a result, sea ice persists in this area longer into the

summer season as well (Martin and Drucker 1997, Spall 2007), although the duration and extent of ice retention varies between years. Even though the shoal is no longer covered by continuous pack ice all year, it still has some of the most reliable ice present on the Chukchi shelf, in the form of broken ice floes (Weingartner et al. 2013). There is very limited data available about Herald Shoal, yet what is known indicates ecological importance. Seabirds, walrus, and beluga whales appear to utilize the forage resources and lingering ice haulouts at Herald Shoal in summer.

BOEM identified the 40-meter isobath around Hanna Shoal as a PEA, and the following values are also significant within the Hanna Shoal Region and Herald Shoal IMAs outside of the PEA boundary:

Hanna Shoal Region

- A connectivity corridor that provides a link between Hanna Shoal and the coastline
- Relatively high levels of primary production across the greater Hanna Shoal region
- High-density summer core areas for birds, including yellow-billed loons, a WatchList species of concern
- A majority of the Hanna Shoal Walrus Use Area identified by the United States Fish and Wildlife Service (USFWS)
- Bowhead whale migration and foraging hotspots in the fall
- Very high levels of benthic biomass to the north and south of Hanna Shoal that provide food for marine mammals, which is especially important to walrus
- Core use area of the Chukchi Sea subpopulation of polar bears including sea ice critical habitat designated under the ESA

Herald Shoal

- Seafloor (benthic) biomass hotspot
- High-concentration walrus summer haulout and foraging area
- Core use area of the Chukchi Sea subpopulation of polar bears including sea ice critical habitat designated under the ESA
- Beluga whales from the Eastern Chukchi Stock have been observed to concentrate around Herald Shoal in October
- Ecosystem resilience and climate change refugia

c. Barrow Canyon

Barrow Canyon is an area of habitat diversity, upwelling, and water mass mixing that creates excellent foraging conditions and attracts a long list of species. This is a high-use subsistence hunting region.

BOEM identified the Subsistence Use Area in the Chukchi Sea and the Barrow Whaling Area in the Beaufort Sea as PEAs but the following values are also significant within the Barrow Canyon IMA outside of the PEA boundaries:

- High levels of primary productivity, zooplankton density, and benthic biomass
- High-density summer core areas for birds including yellow-billed loons, which are a WatchList species of concern
- An important feeding area for bowhead whales in the summer and fall in the region east of Point Barrow
- A spring and fall migration area for bowhead whales near the mouth of Barrow Canyon

- A core summer and fall use area for the Eastern Chukchi Stock of beluga whales at the mouth of Barrow Canyon
- Core use areas of the Chukchi and Southern Beaufort Sea subpopulations of polar bears, including sea ice critical habitat designated under the ESA

d. Smith Bay

Several low-elevation, slow-moving rivers flow into the Smith Bay area—including the Meade, Topagoruk, Alaktak, Chipp, Inaru, and Ikpikpuk—inside of barrier islands that separate shallow (5–20 m deep) brackish waters from the greater Beaufort Sea. Smith Bay is adjacent to the Teshekpuk Lake area, a known ecological hotspot for molting and nesting shorebirds and waterfowl that also forage along the nearby coasts and marine waters. Smith Bay and the adjacent waters from Dease Inlet to Cape Halkett comprise important estuarine and shallow-water habitat that support a wide range of fishes, birds, and marine mammals.

The Smith Bay IMA has not been identified by BOEM as a PEA, and it warrants protection based on the following resource values:

- Important forage fish habitat and nursery for Arctic cod
- Staging areas for pink and chum salmon
- A globally significant Important Bird Area for many species
- High-density summer core areas for birds including yellow-billed loon and black-legged kittiwake, which are WatchList species of concern, as well as many other species such as Arctic tern, brant, glaucous gull, king eider, long-tailed duck, red-throated loon, red phalarope, Sabine's gull, thick-billed murre, and short-tailed shearwaters
- A fall staging area for thousands of shorebirds
- An important feeding area for bowhead whales in the summer and fall in the region east of Point Barrow; a core part of the bowhead whale fall migration corridor, and high sightings of mothers with calves
- Haulouts for spotted seals along the coast
- Ringed seal winter denning concentration area and subnivean pupping habitat
- A major maternal denning area for polar bears as well as critical habitat designated under the ESA for terrestrial and nearshore denning
- Core use areas of the Chukchi and Southern Beaufort Sea subpopulations of polar bears, including sea ice critical habitat designated under the ESA and known feeding concentration areas for polar bears

e. Harrison Bay – Colville Delta

Harrison Bay is located offshore from Cape Halkett east of Teshekpuk Lake, adjacent to the Colville River Delta. The Colville River is one of the major rivers in the circumpolar Arctic. Shallow depth along with nutrient supply from the Colville results in relatively high productivity compared to other nearshore areas of the Beaufort Sea (Alexander et al. 1975). Likely because of this higher productivity and shallow, sheltered waters, Harrison Bay supports substantial numbers of birds of concern, including scoters, eiders, and loons (Fischer et al. 2002, Lysne et al. 2004, Audubon Alaska 2014, Smith et al. 2014).

The Harrison Bay – Colville Delta IMA has not been identified by BOEM as a PEA, and it warrants protection based on the following values:

- A hotspot of primary productivity relative to other areas of the Beaufort Sea
- Staging areas for pink and chum salmon
- A globally significant Important Bird Area
- High-density summer core areas for birds, including yellow-billed loons and spectacled eiders, which are WatchList species of concern; spectacled eider is listed as threatened under the ESA
- A major migration staging area for red-throated and yellow-billed loons in summer and fall, and for spectacled and king eiders in spring and fall
- A hotspot for benthic-feeding seabirds in summer
- Ringed seal winter denning concentration area and subnivean pupping habitat
- A major maternal denning area for polar bears as well as critical habitat designated under the ESA for terrestrial and nearshore denning
- Core use area of the Southern Beaufort Sea subpopulation of polar bears including sea ice critical habitat designated under the ESA and known feeding concentration areas
- A MESA identified by Alaska Department of Fish and Game

f. Oliktok Point to Demarcation Bay

The area from Oliktok Point to Demarcation Bay is an important migratory corridor for bowhead whales, foraging area for marine birds, and a subsistence whaling area for the communities of Nuiqsut and Kaktovik.

BOEM identified the Kaktovik Whaling Area in the Beaufort Sea as a PEA, and the following values are also significant within the Oliktok Point to Demarcation Bay Core Area IMA outside of the PEA boundary:

- Hotspots of primary productivity relative to other areas of the Beaufort Sea
- Staging areas for pink and chum salmon
- A globally significant Important Bird Area
- High-density summer core areas for birds including the spectacled eider, which is a WatchList species of concern and listed as threatened under the ESA
- A major concentration area for king eiders in spring and spectacled eiders in spring through fall
- A hotspot for benthic-feeding seabirds in fall
- A concentration area for bowhead whales feeding and resting in summer and fall, and high sightings of mothers with calves
- Ringed seal winter denning concentration area and subnivean pupping habitat
- A major maternal denning area for polar bears as well as critical habitat designated under the ESA for terrestrial and nearshore denning
- Core use area of the Southern Beaufort Sea subpopulation of polar bears including sea ice critical habitat designated under the ESA and known feeding concentration areas
- Two MESAs identified by Alaska Department of Fish and Game
- Subsistence hunting area for the community of Nuiqsut at Cross Island

g. Beaufort Shelf Break

Aerial surveys and satellite tagging have consistently demonstrated that the Beaufort Shelf Break is a major fall migratory corridor for beluga whales, including the estimated 50,000 animals in the Beaufort Sea stock as well as belugas from the Eastern Chukchi Stock as they migrate west through the U.S. Beaufort Sea. The consistency of this pattern from year to year and over time suggests that the physical feature of the shelf break may be a crucial factor in determining the migratory path, and thus is likely to be a resilient ecological feature into the future (Hauser et al. 2017b).

The Beaufort Shelf Break IMA has not been identified by BOEM as a PEA, and it warrants protection based on the following values:

- A core area in September for female beluga whales from the Beaufort Sea stock
- A fall migration area and likely feeding area for beluga whales
- A beluga whale hotspot relative to other areas of the Chukchi and Beaufort seas at the mouth of Barrow Canyon and the shelf break to the east of Barrow Canyon
- Beluga whale concentration area north of Kaktovik
- Core use area of the Southern Beaufort Sea subpopulation of polar bears including sea ice critical habitat designated under the ESA

The attached appendix provides the best available scientific information and geospatial data supporting the identification of the aforementioned Important Marine Areas. Specifically:

- For information on Chukchi Corridor, see appendix chapters 1, 2 and 3
- For information on Hanna Shoal Region and Herald Shoal, see appendix chapters 1,2 and 3
- For information on Barrow Canyon, see appendix chapters 1, 2, 3, 4 and 5
- For information on Smith Bay, see appendix chapters 1, 4 and 5
- For information on Harrison Bay – Colville Delta, see appendix chapters 1, 4 and 5
- For information on Oliktok Point to Demarcation Bay, see appendix chapters 1, 4 and 5
- For information on Beaufort Shelf Break, see appendix chapters 1, 4 and 5

4. Important Marine Areas merit strong protection and should be excluded from the OCS leasing program.

All of the areas described in subsections 2 and 3 lend particular support to the functioning of U.S. Arctic marine ecosystems and will help contribute to ecosystem resilience in the light of climate change. BOEM must ensure that the important values in these areas are protected. The areas identified as Important Marine Areas merit strong protections under any future program. BOEM should not include the Chukchi and Beaufort Sea Planning Areas in the 2019–2024 OCS leasing program, thereby providing de facto protections to these IMAs. To the extent that any future program schedules lease sales in the Arctic OCS, BOEM should protect and exclude the areas highlighted above. In addition, BOEM should ensure that if any OCS oil and gas activities are permitted in Arctic waters, those activities do not adversely affect any IMAs.

D. BOEM should address ongoing science gaps, mitigation, and monitoring.

There has been real progress with regard to scientific research and synthesis efforts in the Arctic region. The recently published *Ecological Atlas of the Bering, Chukchi, and Beaufort Seas* (Smith et al. 2017) synthesizes the new data that will help inform management decisions. For example:

- Bowhead whales are predicted to spend more time in summer and fall feeding areas, and overwintering may become more common (Druckenmiller et al. 2017).
- Barrow Canyon continues to be identified as an ecological hotspot for whales and pinnipeds; generally, the importance of underwater canyons and continental shelf features and slopes as ecological hotspots for marine mammals and seabirds has been confirmed (Clarke et al. 2017).
- Saffron cod (*Eleginus gracilis*), a key component of the Arctic food web, varies in its lipid and fatty acid content depending on location (Copeman et al. 2016). Spatial variability of nutritional content of saffron cod is likely an important factor in foraging habitat selection for many species.
- The importance of the shallow waters of the Chukchi and Beaufort Sea as foraging habitat for North Pacific grey whales (*Eschrichtius robustus)* was again confirmed. The highest densities of feeding grey whales are associated with high benthic amphipod abundance, particularly from Point Barrow to Icy Cape (Brower et al. 2017). Grey whales are using some habitat areas in the southern Chukchi for longer periods (Clarke et al. 2016).
- The Beaufort Sea, particularly the western Beaufort, is important habitat for both the Chukchi and Beaufort beluga stocks (Stafford et al. 2016). Beluga whales in the Beaufort are having a harder time growing, and individual growth rates have declined over the past 20 years, which may be due to the greater variability in the environment (Choy et al. 2017). The timing of beluga whales' southward migration seems to become more variable with changing conditions (Hauser et al. 2017a). Beluga whale habitat preferences are related to bathymetric features, like the Barrow Canyon and slope regions that promote upwelling productivity (Hauser et al. 2017b).

Despite these research advancements, significant gaps remain in our knowledge and understanding of Arctic marine ecosystems. For example, there have been relatively few systematic surveys of marine mammals conducted north of 72° N latitude. Similarly, relatively few marine mammal surveys have been conducted during the early spring or winter, limiting our understanding of species use and occupancy. Additionally, much of the available data are fit for programmatic but not project-level planning. BOEM should design studies capable of assessing fine-scale impacts in areas in which development is anticipated.

BOEM recently completed a two-year field study to add to the baseline understanding of marine fish and lower trophic levels in the Beaufort and Chukchi Seas. When this research is completed and the data published, they will provide information about areas important to fish and further insights concerning areas important to higher-trophic species such as pinnipeds. There are also ongoing studies by BOEM, the North Slope Borough, the National Oceanic and Atmospheric Administration, and the Alaska Department of Fish and Game on the distribution and movement of pinnipeds that should provide some insight about habitat use by ice seals.

BOEM should prioritize a study establishing a soundscape in the Beaufort and Chukchi seas that uses a co-production of knowledge approach with indigenous knowledge and other best available science to provide a better understanding of cumulative effects of anthropogenic noise in the Arctic marine environment. BOEM should ensure that any proposed activity will consider the level of impacts from sound and identify mitigation measures to protect marine resources. Investment in a multi-agency and multi-disciplinary noise monitoring infrastructure would also provide data necessary for meaningful analyses of proposed actions at future stages of OCS leasing and permitting.

The impact of climate change on the Arctic marine ecosystem is a pervasive science gap. The most recent NOAA Arctic Report Card indicates that the Arctic environmental system has entered a "new normal" that includes significant changes in sea ice cover, sea surface temperatures, and ocean primary productivity (Richter-Menge et al. 2017). Unprecedented Arctic environmental change highlights the need and importance of adaptation. Any activities proposed by BOEM will need to ensure that appropriate mitigation measures account for the ability of important subsistence and ecological environments to adapt with change.

E. Consultation with local tribes and communities is of the utmost importance

As recognized by Governor Walker in a recent letter to Secretary of the Interior Zinke,[5] BOEM has a legal obligation to engage in meaningful consultation with tribal governments on a government-to-government basis regarding policy decisions that impact tribes. Any governance framework should incorporate consultation well in advance of management decisions and include a strategy for sharing information and providing feedback about indigenous residents' concerns.

There must be meaningful opportunities for participation by local communities, governments, tribes, co-management organizations, Alaska Native Claims Settlement Act corporations, and similar Alaska Native organizations to identify the areas in the OCS they deem important, from both subsistence and indigenous knowledge perspectives.

CONCLUSION

BOEM should discontinue efforts to prepare a 2019–2024 OCS leasing program and should instead focus on implementation of the existing 2017–2022 program, including careful evaluation of whether to proceed with scheduled lease sales.

If BOEM continues to develop a new 2019–2024 OCS leasing program, the program should not include new lease sales in the U.S. Arctic, including the Chukchi Sea, Beaufort Sea, and northern Bering Sea. We reiterate our support for requests made by local tribes and communities—as well as Alaska's governor and its entire congressional delegation—all of which urge BOEM to exclude planning areas in the Bering Sea from the proposed 2019–2024 OCS leasing program.

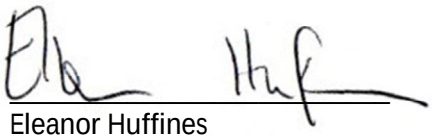
Excluding the Chukchi and Beaufort Planning Areas from the 2019–2024 OCS leasing program is the best way to safeguard the productivity, biodiversity, function, structure, and resilience of the Arctic Ocean. If any future program does schedule sales in the Chukchi Sea and/or Beaufort Sea, BOEM should take all necessary steps, including excluding the Important Marine Areas identified in Section C, to ensure the health of the ecosystem.

[5] Letter from Governor Bill Walker to Secretary of the Interior Ryan Zinke (Jan. 19, 2018) (requesting that BOEM "hold formal consultations with the tribes, Alaska Native corporations, and other stakeholders in the planning areas in Alaska where lease sales have been proposed.").

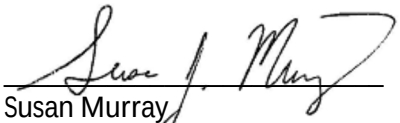
We have endeavored to make our recommendations as transparent and scientifically defensible as possible using the best available information. Please do not hesitate to contact us for additional information.

Sincerely,

Nils Warnock
Executive Director
Audubon Alaska



Eleanor Huffines
Senior Officer, U.S. Arctic Program
The Pew Charitable Trusts



Susan Murray
Deputy Vice President, Pacific
Oceana

Margaret Williams
Managing Director
WWF U.S. Arctic Field Program

Andrew Hartsig
Director, Arctic Program
Ocean Conservancy

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