April 2, 2021

Mr. Benjamin Friedman
Deputy Under Secretary for Operations
National Oceanic and Atmospheric Administration
Submitted via email at: OceanResources.Climate@noaa.gov

Re: Climate Recommendations for Fisheries and Protected Resources

Dear Mr. Friedman:

Please accept these comments on behalf of the Aleut Community of St. Paul Island Tribal Government, Association of Village Council Presidents, Bering Sea Elders Group, Kawerak, Inc., Ocean Conservancy, and The Pew Charitable Trusts U.S. Arctic Program in response to the request for information regarding Section 216(c) of Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*. We are concerned about the global climate crisis and applaud NMFS for reaching out to gather the necessary input in addressing these problems.

The Aleut Community of St. Paul Island is the federally designated name used to identify the community of Unangan, also known as Aleuts, residing on St. Paul Island in the Bering Sea. The Association of Village Council Presidents (AVCP) is the regional non-profit Tribal consortium for 56 federally recognized Tribes in the Yukon-Kuskokwim Delta. The Bering Sea Elders Group (BSEG) is an association of Elder Representatives appointed by 38 Tribes in the Yukon-Kuskokwim and Bering Strait regions. Kawerak, Incorporated (Kawerak) is the Alaska Native non-profit Tribal consortium for the 20 federally recognized Tribes of the Bering Strait region. Ocean Conservancy is a national non-profit organization working to protect the ocean from today's greatest global challenges. The Pew Charitable Trusts is an independent non-profit organization that works to improve public policy, inform the public, and invigorate civic life.

These comments focus on climate-driven disruptions in the Bering Sea that have placed the ecosystem in peril, with devastating impacts on both fisheries and protected resources. The Bering Sea is an exceptional ecosystem of tremendous ecological, economic, and cultural importance. It supports one of the largest fisheries in the world and provides critical habitat for marine and terrestrial plants and wildlife. The Bering Sea region is home to numerous communities of Central Yup'ik, Cup'ik, St. Lawrence Island Yupik, Unangan, and Inupiaq people and Tribes that reside between the southern Chukchi Sea and the Aleutian and Pribilof Islands. Indigenous people of the region have an innate connection to the lands and waters that they have been stewards to for millennia and whom also live a low-carbon lifestyle. The people of the region are especially vulnerable to the impacts of climate change, of which they did little to create. Executive Order 13754—reinstated under the same Executive Order to which these comments respond—recognized the extreme ecological and cultural importance of the northern Bering Sea and made it the policy of the United States to "enhance the resilience of the northern Bering Sea region by conserving the region's ecosystem, including those natural resources that provide important cultural and subsistence value and services to the people of the region."

The call for information specifically seeks recommendations on how to make fisheries and protected resources more resilient to climate change. Climate-ready fishery management comes in many forms, and it is critical that the range of management actions to respond to climate change are inclusive, equitable, and include precautionary measures that do not assume that industrial-scale fishing is appropriate everywhere.

The following paragraphs will detail the many overlapping threats facing the Bering Sea ecosystem, and propose a path forward. Climate-ready fishery management in the Bering Sea includes looking at fisheries management in the context of this ecosystem-wide crisis, which extends beyond fishery-specific impacts. Climate-ready fishery management must center the importance of Bering Sea Indigenous Peoples' ways of life in NOAA's approach to research, management, and policy. It must also apply an equitable approach to fishery management. In the North Pacific, the National Marine Fisheries Service (NMFS) and the North Pacific Fisheries Management Council (NPFMC) must make meaningful efforts to collaborate and partner with Indigenous people of the northern Bering Sea, and there must be dedicated Tribal voting seats on the NPFMC. An ecosystem-based and precautionary approach should be applied, and there should be critical examination of expansion of industrial commercial fisheries into the northern Bering Sea. Any such expansion would have irreparable impacts on an ecosystem in flux and collapse and impacts on Indigenous food security, traditional cultural activities, and spiritual practices. NOAA should engage in partnerships and collaborative research to create a shared understanding of the Bering Sea. Meaningful

and ongoing Tribal involvement in research, at all levels and in all aspects, will better contribute to fuller and more actionable understandings of the changes we continue to see and experience first-hand. Traditional Knowledge is highly valuable in understanding climate change and must play a central role in management decisions.

The Importance of the Bering Sea for the Continuance and Sustainability of Indigenous Ways of Life Must be Central to NOAA's Approach to Research, Management, and Policy

Indigenous Peoples have been sustained for millennia by the incredibly productive Bering Sea region, including the countless species of seabirds, marine mammals, fish and invertebrates. Our oceans have critical cultural and subsistence value for coastal communities, and also provide jobs, food, and small scale exports that boost our national economy, making them some of the most valuable ecosystems in the world. However, the Bering Sea, as a distinct and dynamic region containing some of the world's largest and most productive fisheries, is now being threatened by climate change and human-induced impacts.[1]

Due to the amplified impacts of climate change in high latitudes, the Bering Sea is warming at a significantly faster rate than oceans in temperate zones. Indicator species such as zooplankton, seabirds, and marine mammals are showing signs of stress and population declines under warmer, more acidic, and increasingly toxic conditions as a result of harmful algal blooms and increasingly ice-free ocean conditions.

Climate change is an existential threat to the Bering Sea ecosystem. These unprecedented environmental changes are coupled and compounded by human-driven stressors, including increased marine traffic, fishing activities, mining exploration and extraction, marine debris, and seabird and marine mammal unusual mortality events

[1] RB Smith, *Oily Substance Found Near Savoonga Remains A Mystery*, THE NOME NUGGET (July 24, 2020), http://www.nomenugget.net/news/oily-substance-found-near-savoonga-remains-mystery; Catherine Rubano, *Bering Strait Region Sees More Debris from Russian Side, But Source Still Unknown*, KNOM (Oct. 17, 2020), https://www.knom.org/wp/blog/2020/10/17/bering-strait-region-sees-more-debris-from-russian-side-but-source-still-unknown; Atle Staalesen, *LNG tanker loses engine power on Northern Sea Route*, THE BARENTS OBSERVER (Jan. 19, 2021), https://thebarentsobserver.com/en/arctic-lng/2021/01/lng-tanker-loses-engine-power-northern-sea-route.

that occurred in 2011[2] and 2019.[3] Alaska Native marine mammal subsistence hunters have witnessed startling changes to marine mammal health.[4] Salmon are dying due to heat stress not long after they enter river ecosystems, causing shock in communities across the region. These stressors exceed the capacity of current single-species management, and demands systematic management changes in favor of adaptable and dynamic Indigenous-led approaches to preserve long-term ecosystem health in the Bering Sea.[5] Further compounding this stress is the lack of inclusive efforts to achieve comprehensive and integrated monitoring, observation, research, and response in the Bering Sea region, which effectively excludes coastal community members and Tribes from current decision-making process.

These human-ecosystem interactions threaten the entire Bering Sea, but they are especially concerning in biologically diverse areas with uniquely high ecological value relative to the larger ecosystem. For example, the Pribilof Islands marine ecosystem is a biologically rich microcosm of the Bering Sea, and has often been referred to as a bellwether for change, offering abundant evidence of the environmental changes that have already occurred and are currently underway or expanding.

Collective climate stressors are accelerating the decline of the Bering Sea ecosystem. There is an urgent need to adopt precautionary management measures for those development stressors and to conserve biodiversity and subsistence opportunities. Resource managers must address these changes, and leaders must act to stop carbon pollution to prevent ecological collapse.

Apply a Precautionary and Equitable Approach to Fishery Management in the Northern Bering Sea

Commercial fishing, while economically beneficial, can disrupt the region's delicate food webs by removing large volumes of fish (targeted and prohibited species) and damaging fragile benthic habitat. An increase in marine traffic heightens the risk of major events like oil spills and whale strikes and introduces millions of gallons of

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[2] NOAA, Diseased Ice Seals and Unusual Mortality Events, https://www.fisheries.noaa.gov/alaska/marine-life-distress/diseased-ice-seals#2011-2016-unusual-mortality-event.

[3] NOAA, NOAA Fisheries Declares Unusual Mortality Event Due to Elevated Strandings of Ice Seals in the Arctic (Sept. 12, 2019), https://www.fisheries.noaa.gov/feature-story/noaa-fisheries-declares-unusual-mortality-event-due-elevated-strandings-ice-seals.

[4] Lex Treinen, *The mysterious case of the sinking seals*, KTUU (Dec. 30, 2019), https://www.ktuu.com/content/news/The-mysterious-case-of-the-sinking-seals-566571471.html.

[5] Raymond-Yakoubian and Daniel. 2019. An Indigenous approach to ocean planning and policy in the Bering Strait region of Alaska. *Marine Policy 97 (2018) 101–108*.

wastewater, chemicals, trash, and noise pollution.[6] Marine pollution poses significant threats to wildlife and overall ecosystem health, especially in the remote Arctic where enforcement is lacking. It is imperative that NMFS/NOAA use Traditional Knowledge to better understand the shifts in the carrying capacity of the Bering Sea that Indigenous people are witnessing.

Commercially important species like Pacific cod (*Gadus macrocephalus*) and pollock (*G. chalcogrammus*) have historically been confined to the southeastern reaches of the Bering Sea.[3] In recent years, however, these species have moved into the northern Bering Sea. One indication of this northward shift is in the collapse of the Pacific cod fishery in the Gulf of Alaska, which was closed in December 2019 in response to record low numbers. Since 2012, the center of the Bering Sea pollock population has moved northward at a rate of 18 miles per year. Researchers have observed a sharp decrease in the availability of prey for young walleye pollock in the southern Bering Sea during warmer years, which limits the survival of pollock during their first winter and decreases recruitment over consecutive years.[7]

Changes in the abundance, distribution, and energy content of forage fish may affect the survival and growth of apex predators like seabirds and marine mammals. Survival rates are generally highest when ample forage fish are available, while disease and starvation rates increase when prey availability is low. It is critical that resource managers consider the ways that human consumption of marine resources can exacerbate climate impacts and further disrupt the Bering Sea ecosystem.

NMFS and the NPFMC must make commitments to be inclusive of Indigenous people, Tribes, and Traditional Knowledge as part of their processes in real and substantial ways. NMFS and the NPFMC must make meaningful efforts to collaborate with Indigenous people of the northern Bering Sea, and there must be dedicated Tribal voting seats on the NPFMC. In order to protect subsistence ways of life, at risk, endangered or otherwise protected species, and the sustainability of the ecosystem as a whole - no expansion of industrial commercial fisheries in the northern Bering Sea should take place.

Climate Change/Ocean Acidification

[6] Melissa Parks, Austin Ahmasuk, Barry Compagnoni, Andrew Norris, Roger Rufe, *Quantifying and mitigating three major vessel waste streams in the northern Bering Sea*, MARINE POLICY (Aug. 2019).

[7] Van Pelt, T.I., North Pacific Research Board, The Bering Sea Project: Understanding ecosystem processes in the Bering Sea (Ed., 2015).

As part of the fastest-warming region on Earth, the Bering Sea is in peril and its changes may have ripple effects around the world. Traditional Knowledge, together with national and international research, suggests that the region is undergoing an unprecedented environmental shift, with troubling consequences for the marine ecosystem.[8] Over the past five years, the winter atmospheric conditions that influence the region have been significantly different from the historical norm.[9] Sea surface temperatures in the northern Bering Sea have been as much as 5°C warmer than the historical average.[10] The lack of winter sea ice in most of the Bering Sea defies previous climate forecasts, which predicted that we would not see these conditions until 2050.[11] Meanwhile, observations and data indicate that the distributions, population sizes, and survival of key marine species are changing drastically, with increasing reports of massive die-offs of seabirds and marine mammals.[12]

Like most modern environmental challenges, these disruptions in the Bering Sea are driven by climate change. Left unchecked, our consumption of fossil fuels will have countless negative impacts not just to the Bering Sea ecosystem, but also to the entire country and world. Management agencies should contribute to climate change mitigation by implementing policies that reduce carbon emissions.

Marine Traffic/Shipping

While some decision-makers celebrate the fact that the loss of Arctic sea ice creates new "opportunities" for marine shipping and tourism, military exercises, resource extraction and more, there are significant concerns that these new activities will cause additional harm to the Bering Sea ecosystem.[13] A rise in vessel traffic increases the likelihood of major events like oil spills and whale strikes and entanglements[14] and also

[8] NOAA, 2020 Arctic Report Card, https://arctic.noaa.gov/Report-Card.

[9] NOAA Fisheries, *Scientific teams set out to track unprecedented changes in the Eastern Bering Sea* (April 18, 2019).

[10] NOAA Alaska Fisheries Science Center, Alaska Marine Ecosystem Status Report: 2018 Eastern Bering Sea Executive Summary (2019), https://access.afsc.noaa.gov/REFM/REEM/EcoWeb/index.php?ID=28.

[11] Hal Bernton, *As Bering Sea ice melts, Alaskans, scientists, and Seattle's fishing fleet witness changes 'on a massive scale*, SEATTLE TIMES (Sept. 15, 2019).

[12] Davis Hovey, *Years of data suggest ecosystem shifts in the Northern Bering Sea*, KNOM (Aug. 5, 2019).

[13] Davis Hovey, *NSEDC Concerned Crab Stock Could Crash, ADF&G Moving Forward with Winter Season*, KNOM (Feb. 11, 2020), https://www.knom.org/wp/blog/2020/02/11/nsedc-concerned-crab-stock-could-crash-adfg-moving-forward-with-winter-season/.

[14] Rosalind M. Rolland, Katherine M. Graham, Raphaela Stimmelmayr, Robert S. Suydam, John C. George, *Chronic stress from fishing gear entanglement is recorded in baleen from a bowhead whale (Balaena mysticetus)*, MARINE MAMMAL SCIENCE (2019).

raises the risk of pollution from the discharge of wastewater, chemicals, trash or debris.[15]

Another concern surrounding increased marine traffic is the impact of vessel-generated noise on marine mammals, which use sound to communicate. Marine mammals exposed to noise from marine traffic can suffer from increased stress levels, hearing loss, changes in behavior, injuries or death.[16] Constant noise could force marine mammals out of their usual or preferred habitats, potentially reducing their ability to find prey.

Although there are still gaps in our understanding of how increased marine traffic will affect the Bering Sea ecosystem, it is clear that these activities pose enough risk to warrant caution.

The Need for Collaborative Research

The Indigenous and Tribal signatories to this letter emphasize that Indigenous Peoples have lived in the Arctic for millennia. As stewards of our lands and waters we have developed inextricable connections that form the foundation of our own understandings of our environments, including marine, freshwater, terrestrial, atmospheric, and ice. Our knowledge has been passed down from generation to generation, and is continually updated, adapted, and reshaped as our individual and collective experiences and observations inform them. Our view of the 'ecosystem' is holistic and recognizes different systems, and the connections between them, such as the physical, biological, chemical, social, and cultural systems.

Alaska Native organizations, Tribes, and communities are extremely concerned about environmental and other changes happening in the Arctic and are eager to contribute to our collective understanding of them. Arctic research must incorporate Indigenous roles that those communities and experts can offer. Our desire is to work to create a collaborative, effective, and widely beneficial understanding of the Arctic and have meaningful involvement and leading roles in research to better understand the changes we continue to see first-hand.

The ability to do this is largely dependent on the relationships between federal agencies, like NMFS, and Tribes and Tribal organizations. We encourage NFMS to continue to work to build equitable relationships that can foster equitable, collaborative, and co-productive research endeavors. This can be done via the development of

[15] Melissa Parks, Austin Ahmasuk, Barry Compagnoni, Andrew Norris, Roger Rufe, *Quantifying and mitigating three major vessel waste streams in the northern Bering Sea*, MARINE POLICY (Aug. 2019).

[16] Clear Seas, Underwater Noise and Marine Mammals, https://clearseas.org/en/underwater-noise/.

specific partnerships, via increased communication and engagement, and by ensuring that internal agency capacity is available for these efforts. Within the Alaska Region of NMFS, including at the research hub for the Arctic region—the Alaska Fisheries Science Center (AFSC)—we would like to see, in particular, more Tribal Liaisons and a dramatic increase in non-economic social science staff. These changes would improve NFMS's ability to develop relationships and carry out collaborative and meaningful research, as well as benefit agency work at all levels by facilitating better connections with and understandings of Indigenous peoples, communities, concerns, and knowledges.

Marine Debris/Plastics Pollution

Despite its small population and remote location, Alaska's coast is littered with thousands of tons of marine debris, the majority of which is fishing-related gear. Human-generated waste is deliberately or accidentally deposited in oceans and waterways, making its way to the Arctic from lower latitudes. Marine debris is generated by vessels of all types and sizes operating in and outside of the Arctic. Weather events and ocean currents may transport large volumes of debris from afar. Growing populations, increased maritime activity, and consumer preference for plastic-based single-use products have resulted in a rapid accumulations of marine debris, which threatens wildlife and ecosystem health in numerous ways.

Most marine debris contains plastic. Each year millions of tons of plastic leak into the ocean from coastal regions alone—equivalent to dumping the contents of one garbage truck into the ocean every minute.[17] Without significant action, there may be more plastic than fish in the world's oceans, by weight, by 2050. According to the United Nations, marine plastics pollution costs an annual $13 million per year in damage to marine ecosystems, including impacts to marine productivity, fisheries, and tourism. In addition to the direct economic costs, marine plastic pollution has adverse impacts that are more difficult to quantify, including effects on human health, food chains, and other essential economic and societal systems.

Globally, approximately 20% of marine debris is generated at sea.[18] Abandoned, lost, or discarded fishing gear, also known as derelict fishing gear, is one of the most pervasive and harmful types of marine debris, and is the most common type of marine debris

[17] World Economic Forum, The New Plastics Economy: Rethinking the Future of Plastics (2016).

[18] Ocean Health Index, Trash Pollution, http://www.oceanhealthindex.org/methodology/components/trash-pollution.

found in the Bering Sea region.[19] Due to the high level of fishing activity in the region, fishing nets (trawl, seine, and gill nets), lines and ropes, and plastic bands are frequently adrift or washed ashore.[20] These materials can entangle animals and result in death through starvation and strangulation. Although once less common in the Bering Sea ecosystem, marine debris is increasing. We recommend that NOAA and NMFS prioritize addressing working with the Bering Sea region's Tribes and Indigenous organizations in the region in identifying the threats and potential policies needed to mitigate threats to Indigenous food security[21] from marine debris.

Tribal Sovereignty and Building Meaningful Roles for Tribes in Management

The United States must not turn its attention away from meaningful Tribal involvement in coastal and maritime management. Contemporary ecosystem management recognizes the importance of communities' participation in effective management; if sought collaboratively, this participation could address many concerns of national interest. If a program existed for communities—including Tribes—to collaborate with state and federal government in managing the nation's coastal areas and resources, more effective management would result.

The reinstated Northern Bering Sea Climate Resilience Area Executive Order seeks to create a Tribal role in the future of the northern Bering Sea. We wholeheartedly welcome this effort, are eager to be involved, and urge NMFS to ensure inclusion of Indigenous Peoples. Including Bering Sea communities and Tribes, as well as their Traditional Knowledge, in coastal and marine resource management will only strengthen federal processes.

Critical Next Steps

Coastal communities, Tribes, and ocean conservation organizations are in agreement that the Bering Sea is in peril, due in large part to the human-created stressors described in this letter. We are facing an ecological crisis that requires timely actions and changes in management strategies and practices, as well as precautionary measures to strengthen the resilience of the Bering Sea ecosystem. Importantly, this includes the incorporation of community observations, tribal perspectives, and

[19] Alaska Marine Stewardship Foundation, Analysis of Trawl, Seine and Cargo Net Samples from Marine Debris Cleanups in Alaska (2014).

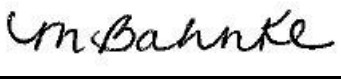
[20] Alaska Marine Stewardship Foundation, A Review of Marine Debris Surveys, Accumulations and Cleanup Projects in Alaska through 2014 (2014).

[21] Inuit Circumpolar Council, Alaska, Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic from an Inuit Perspective—Summary and Recommendations Report (2015) (created as part of 2015 Alaskan Inuit Food Security Conceptual Framework Technical Report).

Traditional Knowledge and integration with Western science to ensure the Bering Sea continues to operate as a highly productive and valuable marine ecosystem.

Thank you for the opportunity to comment and please do not hesitate to contact any of the organizations for further information.

Sincerely,



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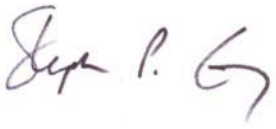

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