



ALASKA ESKIMO WHALING COMMISSION
P.O. Box 570 BARROW, ALASKA 99723

June 8, 2018

VIA ELECTRONIC MAIL to ITP.Daly@noaa.gov

Ms. Jolie Harrison, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Springs, MD 20910

**Re: Comments on Proposed Incidental Take Regulations and Letter of
Authorization Relating to Construction and Operation of the Liberty
Drilling and Production Unit, Beaufort Sea, Alaska**

Dear Ms. Harrison:

On behalf of the Alaska Eskimo Whaling Commission (AEWC), thank you for the opportunity to comment on the proposed incidental take regulations and Letter of Authorization (LOA) relating to the proposal of Hilcorp Alaska, LLC (HAK) for the construction and operation of the Liberty Production and Drilling Island (LPDI) in Foggy Bay, Alaska in the Beaufort Sea. We appreciate the opportunity to provide feedback to the National Marine Fisheries Service (NMFS) on the application and plan of cooperation submitted by HAK for the LPDI.

As you know, AEWC represents the eleven bowhead whale subsistence hunting villages of Barrow, Nuiqsut, Kaktovik, Point Hope, Wainwright, Kivalina, Wales, Savoonga, Gambell, Little Diomed, and Point Lay. The bowhead whale and the bowhead whale subsistence harvest are central to the nutritional and cultural health of the Inupiat and Siberian Yupik communities of northern Alaska. All of our villages participate in the federally and internationally sanctioned subsistence harvest of the bowhead whale.

The AEWC is responsible for guarding the health of the bowhead whale and its habitat, and for preserving the physical ability and legal right of our whaling captains to continue to provide the bowhead whale subsistence resource to our communities. The AEWC fulfills U.S. Government responsibilities for local management of the bowhead whale subsistence harvest, implementing the harvest regulations set by the International Whaling Commission, through a

Cooperative Agreement with the Department of Commerce/NOAA. The AEWc's authority stems, additionally, from delegated tribal authority conferred through regional and village tribal entities.

Thus, the AEWc exists to preserve the rights of our communities to harvest the bowhead whale subsistence resource through sound management practices, including preservation of the whale and its habitat. However, as whaling captains, we also are aware of the need in our communities for employment and the creation of opportunities related to the cash portion of our mixed subsistence-cash economy, thus the AEWc supports continued, appropriately planned, oil and gas leasing in the Arctic. Recognizing these two priorities, AEWc has worked with offshore operators since the early 1980s, when offshore leasing came to our waters, to design mitigation measures that balance our subsistence, management, and resource and habitat preservation priorities with operational needs of offshore exploration and development companies.

The following comments and recommendations are in keeping with the AEWc's federal-local co-management responsibilities and our related, and balanced, approach to the co-management of offshore oil and gas activities in our arctic waters. They are also informed by the Marine Mammal Protection Act (MMPA) and our long history of working with these statutory requirements in arctic waters.

Alaskan Native subsistence takes of marine mammals are exempt from the MMPA's moratorium on the take of marine mammals.¹ In addition, Congress has given our subsistence livelihood priority over other uses of the marine environment in Alaska, requiring that other users mitigate impacts of any activities with the potential to adversely affect the availability of our subsistence resources for subsistence uses.² This fundamental understanding of the priority given to our subsistence uses by Congress is essential in successfully managing offshore operations in Arctic marine waters.

Each year we devote significant resources towards negotiating a Conflict Avoidance Agreement (CAA) with oil and gas companies to mitigate the impacts of oil and gas exploration and development on our subsistence uses protected by the MMPA. The CAA includes specific operational restrictions like time area closures, vessel routes, vessel speed restrictions, and restrictions on use of aircraft to ensure industrial activities do not deflect bowhead whales from subsistence hunting areas or interfere in the ability of our whaling captains to access their subsistence resources. The CAA also includes critical communication protocols to ensure that offshore operators remain in contact with our local villages to address incidents in real time as they arise. The "Comm Centers" have proven essential in maximizing hunter safety and avoiding conflicts on the water.

NMFS has historically relied in part upon a signed CAA between an offshore operator, AEWc, and the village captains association as a basis for reaching the "no unmitigable adverse impacts" requirement of the MMPA. The mitigation measures in the CAA are then incorporated

¹ 16 U.S.C. § 1371(b)(1).

² 16 U.S.C. §§ 1371(b), (a)(5)(A)(i)(I), (a)(5)(D)(i)(II).

into the Incidental Harassment Authorizations (IHAs) issued by NMFS for the proposed activities.

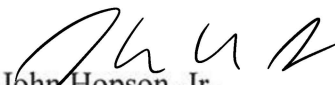
AEWC wishes to express its appreciation to HAK for participating in the CAA process and for its adoption of the Good Neighbor Policy (GNP), which was originally entered into between BP, AEW, NSB, and ICAS. HAK has agreed to the mitigation measures recommended by AEW and has signed the CAA since it has been operating in the Beaufort Sea, and, based on its representations, we expect HAK to continue to do so moving forward into the future.

While the CAA is an annual agreement, we understand that HAK is requesting five-year regulations and a letter of authorization for a similar time period. Thus, we recommend that the regulations and the LOA either: 1) require the specific mitigation measures included in the most recent version of the CAA, which we have included with our comments; or 2) require HAK to sign the CAA with AEW with residual authority retained by NMFS to impose other mitigation should HAK fail to do so. In the absence of specific mitigation in the regulations themselves and the LOA, we do not believe that NMFS can reach the required finding of no unmitigable adverse impacts. However, by adopting one of these two recommended approaches, NMFS may take into account the specific mitigation agreed to by AEW, the local villages, and HAK in reviewing and deciding upon HAK's application.

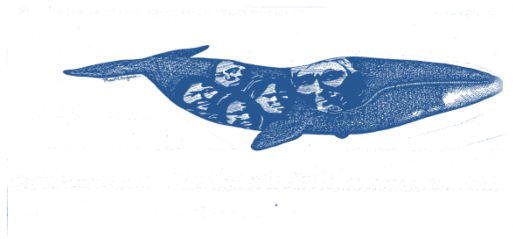
We have also attached our comments to the Bureau of Ocean Energy Management on the Draft Environmental Impact Statement for the Liberty project. We understand that NOAA is going to rely upon the final EIS to fulfill its obligations under the National Environmental Policy Act prior to issuing regulations and/or the IHA discusses herein.

Thank you for considering our comments, and please do not hesitate to contact our office if you have any questions. We look forward to working with NOAA, BOEM and HAK as this project moves forward.

Sincerely,


John Hopson, Jr.
Chairman

cc: AEW Commissioners
Mayor Brower, North Slope Borough



ALASKA ESKIMO WHALING COMMISSION
P.O. BOX 570 UTQIAGVIK, ALASKA 99723

December 8, 2017

Via: <http://www.regulations.gov/>

Bureau of Ocean Energy Management
ATTN: Liberty Draft EIS Comments
BLM Public Information Center
222 West 7TH Avenue #13
Anchorage, AK 99513

Re: Draft Environmental Impact Statement (DEIS) for the Liberty Development and Production Plan (DPP) in the Beaufort Sea Planning Area

Dear Sir or Madam:

The Alaska Eskimo Whaling Commission (AEWC) appreciates the opportunity to submit the following comments on the Bureau of Ocean Energy Management's (BOEM's) Draft Environmental Impact Statement (DEIS) for the Liberty Development and Production Plan (DPP) in the Beaufort Sea Planning Area.

Introduction

The bowhead whale and the bowhead whale subsistence harvest are central to the nutritional and cultural health of the Inupiat and Siberian Yupik communities of northern Alaska. The AEWC represents the 11 northern Alaskan villages of Kaktovik, Nuiqsut, Barrow, Wainwright, Pt. Hope, Kivalina, Wales, Little Diomedes, Savoonga, and Gambell, all of whom participate in the federally and internationally sanctioned subsistence harvest of the bowhead whale.

The AEWC is responsible for guarding the health of the bowhead whale and its habitat, and for preserving the physical ability and legal right of our whaling captains to continue to provide the bowhead whale subsistence resource to our communities. The AEWC fulfills U.S. Government responsibilities for local management of the bowhead whale subsistence harvest, implementing the harvest regulations set by the International Whaling Commission, through a Cooperative Agreement with the Department of Commerce/NOAA. The AEWC's authority stems, additionally, from delegated tribal authority conferred through regional and village tribal entities.

Thus, the AEWC exists to preserve the rights of our communities to harvest the bowhead whale subsistence resource through sound management practices, including preservation of the whale

and its habitat. However, as whaling captains, we also are aware of the need in our communities for employment and the creation of opportunities related to the cash portion of our mixed subsistence-cash economy, thus the AEWC supports continued, appropriately planned, oil and gas leasing in the Arctic. Recognizing these two priorities, the AEWC has worked with offshore operators since the early 1980s, when offshore leasing came to our waters, to design mitigation measures that balance our subsistence, management, and resource and habitat preservation priorities with the operational needs of offshore exploration and development companies.

The following comments and recommendations are in keeping with the AEWC's federal-local co-management responsibilities and our related, and balanced, approach to the co-management of offshore oil and gas activities in our arctic waters.

Hilcorp's participation in the Open Water Season Conflict Avoidance Agreement (CAA), its adoption of BP's Good Neighbor Policy, and its willingness to work with the Nuiqsut Whaling Captains to mitigate subsistence harvest concerns are central to the AEWC's support for the DPP; engagement in the Camden Bay Initiative is needed.

At the outset, the AEWC wishes to express its appreciation for Hilcorp's participation in the CAA Process and for its adoption of the Good Neighbor Policy (GNP), originally entered between BP and the AEWC, NSB, and ICAS. Additionally, the AEWC understands that Hilcorp has entered a Memorandum of Understanding with the Nuiqsut Whaling Captains' Association to defray costs associated with the adverse impacts to their bowhead whale subsistence harvest from Hilcorp's operations at Liberty and Northstar. The CAA Process and the GNP (including similar agreements subsequently entered to cover various offshore drilling operations) are central to the AEWC's ability to help our communities balance our bowhead whale harvest priorities and management responsibilities with the benefits of development in our region. Therefore, Hilcorp's continued participation in these agreements, as well as its willingness to work with Nuiqsut, the most directly affected community, are central to the AEWC's support for the Liberty Project.

Maintaining a balance between our region's subsistence and development priorities has been a key component of the AEWC's successful co-management of the bowhead whale subsistence harvest and conservation of the bowhead whale resource from the very early days of the AEWC's formation and our entry into the NOAA-AEWC Cooperative Agreement.

In addition to the above, the AEWC appreciates Hilcorp's decision to undertake island construction during the winter months, since this schedule is consistent with the AEWC's need to guard our bowhead whale resource and subsistence harvest from adverse development impacts. However, the AEWC also would like to enlist BOEM's support for encouraging Hilcorp to engage in the Camden Bay Initiative as development gets underway at Liberty.

Since its initiation in 1985, for the 1986 operating season, the CAA Process has matured into a reliable annual collaboration between our whaling captains and oil and gas companies working

in our offshore waters. Together, and working with NSB and other teams of scientists and technical experts, we have learned how to facilitate exploration and development opportunities in our region while protecting vital subsistence resources and activities. In more recent years, as companies have begun to refocus on the Beaufort Sea, the AEWc has extended our collaborative work under the CAA, which sets forth agreed mitigation measures primarily applicable to exploration activities and vessel movement. We seek to cooperate with developers who are moving toward production in areas where activities have the potential to affect the fall bowhead whale migration route.

The goal of collaboration in this context is to bring developers together with hunters and scientists to apply what we know, from hunter experience and from past research on exploration and development impacts in the Beaufort Sea, to current development and operation plans. Through this site-specific process, we can work with developers to optimize design and production plans in a way that is consistent with our existing knowledge of whale responses to potential impacts, thus reducing – hopefully eliminating – future conflict between the producer/facility operator and our subsistence hunters. The AEWc, the NSB Department of Wildlife Management, and Shell initiated this project for Shell’s planned development at Sivulliq, the reason the project’s name is identified with Camden Bay. However, the area of application is the entire mid-Beaufort Sea Region.

The planned location of Hilcorp’s Liberty production island, along the southern edge of the Beaufort Sea fall bowhead whale migration route and to the east of existing production facilities, including Northstar, creates a possible cumulative noise impacts scenario with the potential for long-term deflection of the fall migration as it moves toward Barrow. To address concerns in this regard and to ensure the best possible collaborative planning effort for long-term operation of Liberty Island, the AEWc strongly encourages Hilcorp – and seeks BOEM’s support in this regard – to work with the AEWc and NSB Department of Wildlife Management on the site-specific plan as the project moves forward. The Camden Bay Initiative provides the venue for this collaboration.

The AEWc supports the comments submitted by the North Slope Borough on the DPP and Requests the Institution of Revenue Sharing for This Project.

The AEWc agrees with the comments submitted on this docket by the North Slope Borough (NSB), including the stated preference for Alternative 3B, for the reasons stated in the NSB’s comments. Additionally, the AEWc notes BOEM’s statement that the island location identified for this Alternative “would slightly decrease the volume of associated sediments introduced into adjacent waters.” (DEIS, Section 4.2.2.3, Alternative 3B: Relocate LDPI Approximately 1.5 Miles to the Southwest, p. 4-30.)

Relocation of the island into state waters would enable the North Slope Borough to gain revenue from taxation of the infrastructure. The AEWEC strongly supports the creation of a local revenue stream from this development, if not through local taxation, then through federal-state revenue sharing with a special provision for local revenue sharing. Our communities and our subsistence hunters bear 100 percent of the risks of offshore development in our waters. At the same time, we struggle to find funding to enable us to meet the many regulatory demands placed on our subsistence hunting by our federal government and, with respect to our bowhead whale harvest, by the International Whaling Commission.

The Federal Government continues to reduce funding essential to our efforts to comply with the regulatory demands placed on our subsistence activities, while it earns revenue for itself from activities that create risks for our hunter safety and our food security. It is time to make our local governments and communities parties to the benefits that flow from offshore oil and gas activity.

The AEWEC recommends the following edit to the text of the EIS.

At Appendix C, page C-2, at the very bottom of the page, under: “Mechanisms to Protect Subsistence Whaling and Other Marine Mammal Subsistence-Harvesting Activities (Stipulation No. 6 of Lease Sale 124 and Stipulation No. 5 of Lease Sales 144 and 202),” the AEWEC would like to suggest that in future documents, the phrase “will not result in unreasonable interference with subsistence harvests” be replaced with “will not result in an unmitigable adverse impact to the availability of marine mammal subsistence resources.” The suggested language is consistent with Sections 101(a)(5)(A) and (D) of the Marine Mammal Protection Act.

Thank you for your attention to these comments. The AEWEC looks forward to working with BOEM and Hilcorp as this project moves forward.

Sincerely,

/s/: JOHN HOPSON, JR.

John Hopson, Jr.
Chairman

cc: AEWEC Commissioners
Mayor Brower, North Slope Borough



June 8, 2018

Jolie Harrison
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910
ITP.Daly@noaa.gov

Re: Application by Hilcorp Alaska to Take Marine Mammals While Constructing and Operating the Liberty Drilling and Production Island in the Beaufort Sea

On behalf of the Center for Biological Diversity, these comments urge you to deny any authorization for Hilcorp Alaska to take marine mammals in the course of constructing and operating the Liberty Drilling and Production Island in the Beaufort Sea.

The project involves the construction and operation of an oil and gas drilling and production facility on a 9.3-acre artificial gravel offshore island, a 5.6-mile offshore pipeline, a 1.5-mile onshore pipeline, a 20-acre gravel mine; the extraction of up to 167 million barrels of oil; and the transport, refining and consumption of the produced oil. If developed, the Liberty Project would be the first surface development project producing oil in federal waters on the Arctic Outer Continental Shelf.

The authorization should be denied because it will harm and harass endangered species, including bowhead whales, polar bears,¹ and ice seals. To the extent that the agency is nonetheless considering issuing a letter of authorization to Hilcorp Alaska, it should consider the following concerns in its decisionmaking for the authorization and related environmental review.

1. The Marine Mammal Protection Act allows the Service to authorize marine mammal take only if certain conditions are met.

Congress enacted the Marine Mammal Protection Act (MMPA) in 1972 in response to widespread concern that “certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man’s activities.”² The legislative history states that the purpose of the MMPA is to manage marine mammals “for their benefit and not for

¹ While take authorizations for polar bear and walrus are under the jurisdiction of the Fish and Wildlife Service, harm to these marine mammals will be a concomitant result of the issuance of a take authorization by the National Marine Fisheries Service for Hilcorp’s proposed activities. Moreover, the Beaufort Sea incidental take regulations issued by the Fish and Wildlife Service for take of polar bears and walrus by oil and gas operations should not be relied upon because they are flawed and inadequate to protect those species.

² 16 U.S.C. § 1361(1).

the benefit of commercial exploitation.”³ The primary mechanism by which the MMPA protects marine mammals is through a moratorium on takings.⁴ Under the MMPA, the term “take” is broadly defined to mean “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.”⁵ “Harassment” is further defined to include acts of “torment” or “annoyance” that have the “potential” to injure a marine mammal or marine mammal stock in the wild or have the potential to “disturb” them “by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.”⁶

The MMPA provides several narrow exceptions to the moratorium on take. Relevant here, the Service may, upon request, promulgate regulations authorizing take of small numbers of marine mammals for a period up to five years, provided certain conditions are met. An activity: (i) must be “specified” and limited to a “specific geographical region,” (ii) must result in the incidental take of only “small numbers of marine mammals of a species or population stock,” (iii) can have no more than a “negligible impact” on species and stocks, and (iv) cannot have “an unmitigatable adverse impact on the availability of such species or stock for taking for subsistence uses” by Alaska Natives.⁷ Although the MMPA does not define small numbers or negligible impact, the Ninth Circuit confirmed that the MMPA requires the Service to separately find both that only small numbers of marine mammals will be harmed and that the impacts to the species or stock will be negligible.⁸ In issuing an authorization, the Service must provide for the monitoring and reporting of such takings and must prescribe methods and means of affecting the “least practicable impact” on the species or stock and its habitat.⁹

2. The Service must fully analyze and not underestimate the impact of noise pollution from the project’s construction and operation on marine mammals.

The proposed construction and operation of Hilcorp’s offshore oil development project will be harmful to sensitive arctic marine mammals. The noise pollution, vessel and air traffic, gravel mining, construction and operation of an oil development project in the Beaufort Sea will have detrimental habitat and disturbance impacts. Moreover, many of the marine mammal species for which Hilcorp seeks take authorization are protected species under the Endangered Species Act. The proposed project will disrupt, harass, and harm whales, polar bears, and ice seals.

As described in Hilcorp’s application, the project will generate underwater noise that will adversely affect marine mammals. The loudest noise pollution will result from pile driving and sheet driving. Pile driving produces some of the loudest anthropogenic high-intensity sounds in the marine environment.¹⁰ The noise can cause temporary or permanent auditory damage in marine mammals as well as affect their behavior. The disturbance or disruption of essential biological functions, such as feeding or breeding, can have severe consequences for arctic

³ H. Rep. No. 92-707, at 11 (1971), reprinted in 1972 U.S.C.C.A.N., pp. 4144, 4154.

⁴ 16 U.S.C. § 1371(a).

⁵ *Id.* §1362(13).

⁶ *Id.* § 1362(18); *see also* 50 C.F.R. § 216.3 (defining “Level A” and “Level B” harassment).

⁷ *See* 16 U.S.C. § 1371(a)(5)(D)(i).

⁸ *Center for Biological Diversity v. Salazar*, 695 F.3d 893 (9th Cir. 2012).

⁹ 16 U.S.C. § 1371(a)(5)(D)(ii)(I).

¹⁰ Gedamke, Jason and Amy R. Scholik-Schlomer, Overview and summary of Recent Research into the Potential Effects of Pile Driving on Cetaceans (2011).

wildlife. The Arctic's polar bears, whales, and seals are threatened with extinction and oil development deepens that threat.

The Service must carefully consider how far noise from the construction activities will travel. The waters surrounding the project area are relatively shallow, and the Service must evaluate how far noise will travel in those specific bathymetric conditions. Strikingly, noise pollution from seismic airguns travels far distances blanketing as much as 300,000 km² and elevating noise 100 times normal levels continuously, for consecutive days.¹¹ Bailey et al. measured 205-dB of broadband sound at 100 meters from the pile-driving source.¹² Modeling showed that pile driving could mask strong bottlenose dolphin vocalizations 10-15 km from the source.¹³

High intensity noise can contribute to a range of damaging impacts on wildlife. It can harm marine mammals through hearing impairment; physiological changes like stress; behavioral impacts such as avoidance or displacement from important habitats; and masking that impairs their ability to communicate, find prey, or detect predators.¹⁴

The Service must not underestimate the harm to marine mammals from the proposed action. Current scientific literature establishes that behavioral disruption can occur at low received levels for some species, including many species that will be impacted by Hilcorp's activities in the Beaufort Sea. For example, bowhead whales migrating through the Beaufort Sea have shown almost complete avoidance of seismic airgun received levels at 120 dB to 130 dB and below.¹⁵ Bowhead whales increase call rates at detection of airguns at 94 dB, decrease at 127 dB, and entirely stop calling at 160 dB.¹⁶ Further, one recent study found endangered bowhead whales in the Beaufort Sea significantly dropped their calling rates when exposed to airgun sounds of at least 116 dB re 1 μ Pa.¹⁷

¹¹ Marine Mammal Commission, *Marine Mammals and Noise: A Sound Approach to Research and Management*, Report to Congress, Appendix 1 at C-3 (March 2007) ("Seismic noise from eastern Canada measured 3,000 km away in the middle of the Atlantic was the loudest part of the background noise heard underwater.").

¹² Bailey, Helen, et al. Assessing underwater noise levels during pile-driving at an offshore windfarm and its potential effects on marine mammals, *Marine Pollution Bulletin* 60: 888 (2010). Note, however, that the thresholds used for TTS and PTS in this study are not stringent enough.

¹³ David, J.A. Likely sensitivity of bottlenose dolphins to pile-driving noise, *Water and Environment Journal* 20:48-54 (2006).

¹⁴ Hildebrand, J., *Impacts of Anthropogenic Sound on Cetaceans*, in *Marine Mammal Research: Conservation Beyond Crisis* (Reynolds, J.E. III et al., eds. 2006); Weilgart, L.S., *The Impacts of Anthropogenic Ocean Noise on Cetaceans and Implications for Management*, *Canadian J. Zoology* 85:1091-1116 (2007); National Research Council, *Ocean Noise and Marine Mammals* (2003), https://www.ncbi.nlm.nih.gov/books/NBK221262/pdf/Bookshelf_NBK221262.pdf.

¹⁵ Miller, G.W., Elliot, R.E., Koski, W.R., Moulton, V.D., and Richardson W.J., Whales, in Richardson, W.J. (ed.), *Marine Mammal and Acoustical Monitoring of Western Geophysical's Open-Water Seismic Program in the Alaskan Beaufort Sea*, 1998 (1999), <ftp://ftp.lgl.com/Public/For%20DRDC/TA2230-3%20Final%20Report.pdf>; Richardson, W.J., Miller, G.W., and Greene Jr., C.R., Displacement of migrating bowhead whales by sounds from seismic surveys in shallow waters of the Beaufort Sea, *Journal of the Acoustical Society of America* 106:2281 (1999).

¹⁶ Blackwell, S.B. et al., Effects of airgun sounds on bowhead whale calling rates: Evidence for two behavioral thresholds, *PLoS ONE* 10(6):e0125720 (2015).

¹⁷ Blackwell, S.B., et al., Effects of airgun sounds on bowhead whale calling rates in the Alaskan Beaufort Sea, *Marine Mammal Science* 29(4): E342-E365 (2013).

Bowhead whales are sensitive to low-frequency noise, such as that from large vessels and drilling. Bowhead whales use sound for navigation, communication and mating, and are known to have complex vocalizations during mating season. Within the vicinity of the proposed project lies an important reproductive area where cow-calf pairs of bowhead whales occur during the fall, as well as important feeding and migration habitat. While bowhead whales have experienced a population increase since they were protected under the Endangered Species Act, researchers warn that “offshore oil development, increasing shipping traffic, changes in the Bering Sea ecosystem, sea ice retreat, and possibly killer whale predation within its range could impact this bowhead population and should be carefully monitored.”¹⁸

Noise can impact communication and vocal behavior of whales. For example, marine mammals have been noted to cease communications and echolocation activities for two to three days in an area after pile driving.¹⁹ A single seismic survey has been shown to cause endangered fin and humpback whales to stop vocalizing – a behavior essential to breeding and foraging – and other baleen whales to abandon habitat over an area at least 100,000 square nautical miles.²⁰ Similarly, a low-frequency, high-amplitude fish mapping device was recently found to silence humpback whales at a distance of 200 kilometers, where received levels ranged from 88 dB to 110 dB.²¹ Some odontocetes, such as beluga whales, are highly sensitive to a range of low-frequency and low-frequency-dominant anthropogenic sounds which has been shown to displace belugas from near-coastal foraging areas out beyond the 130-dB isopleth.²² Oil and gas exploration and other activities have been linked to reductions of calf survival in baleen whales.²³

Ice seals use sound for navigation, communication, foraging, and to avoid predation, and they are sensitive to sound.²⁴ Spotted seals have extremely sensitive hearing in water, and they have some of the most sensitive hearing ever recorded for a marine mammal in air.²⁵ The researchers thus concluded that noise from oil and gas activities could mask the communications of spotted

¹⁸ George, J. C., et al., Abundance and population trend (1978-2001) of western arctic bowhead whales surveyed near Barrow, Alaska, *Marine Mammal Science* 20.4:755-773 (2004).

¹⁹ Gedamke & Scholik-Schlomer (2011).

²⁰ Clark, C.W., and Gagnon, G.C., Considering the temporal and spatial scales of noise exposures from seismic surveys on baleen whales (2006) (IWC Sci. Comm. Doc. IWC/SC/58/E9); see also MacLeod, K., Simmonds, M.P., and Murray, E., Abundance of fin (*Balaenoptera physalus*) and sei whales (*B. Borealis*) amid oil exploration and development off northwest Scotland, *Journal of Cetacean Research and Management* 8: 247-254 (2006).

²¹ Risch, D., Corkeron, P.J., Ellison, W.T., and van Parijs, S.M., Changes in humpback whale song occurrence in response to an acoustic source 200 km away, *PLoS ONE* 7(1): e29741(2012).

²² Miller, G.W., Moulton, V.D., Davis, R.A., Holst, M., Millman, P., MacGillivray, A., and Hannay, D., Monitoring seismic effects on marine mammals—southeastern Beaufort Sea, 2001-2002, in Armsworthy, S.L., et al. (eds.), *Offshore oil and gas environmental effects monitoring/Approaches and technologies*, at 511-542 (2005); see also Finneran, J.J., Noise-induced hearing loss in marine mammals: A review of temporary threshold shift studies from 1996 to 2015, *The Journal of the Acoustical Society of America* 138: 1702 (2015).

²³ Cooke, J.G., Weller, D.W., Bradford, A.L., Sychenko, O., Burdin, A.M., Lang, A.R., and Brownell, R.L., Jr., Updated population assessment of the Sakhalin gray whale aggregation based on the Russia-US photoidentification study at Piltun, Sakhalin, 1994-2014 (Nov. 2015) (Western Gray Whale Advisory Panel Doc. WGWAP/16/17).

²⁴ Sills, J.M., Southall, B. and Reichmuth, C., Amphibious hearing in spotted seals (*Phoca largha*): underwater audiograms, aerial audiograms and critical ratio measurements, *Journal of Experimental Biology* 217: 726-734 (2014).

²⁵ Id.

seals.²⁶

High-intensity noise can also harm fish and invertebrates,²⁷ with potential impacts on prey availability and foraging success of marine mammals. Fish and invertebrates use sound for their life functions. Seismic air gun surveys have been found to damage fish ears at distances of 500 m to several kilometers from seismic surveys, with no recovery apparent 58 days after exposure.²⁸ In addition, fish have also been reported to flee from seismic shooting areas as inferred from decreased catch rates for both long lines and trawler fisheries.²⁹ Reduced catch rates of 40%–80% and decreased abundance have been reported near seismic surveys.³⁰ In one study, fish presence declined by 78 percent during seismic surveys.³¹ Noise from a single airgun blast caused an abundance decline of 50 percent in 58 percent of the zooplankton species observed.³² The study found that two to three times more dead zooplankton after the exposure compared to controls, and the krill larvae experienced 100 percent mortality.³³

Notably, the Service must fully evaluate and mitigate the impacts of the frequent and ongoing vessel and aircraft trips that are anticipated in the proposed action on ice seals and other marine mammals. A study of spotted seal haulout patterns in Piltun Lagoon on Sakhalin Island noted that small motorboats operated by local fishers and hunters and helicopters related to offshore oil and gas development activities caused the majority of hauled-out seals to quickly flee into the water.³⁴ Ringed seals also are sensitive to aircraft noise and flee into the water in response.³⁵

The Service must also consider that even behavioral disturbance can amount to Level A take if it interferes with essential life functions. Temporary threshold shift can impair biological functions that can amount to harm or Level A harassment. The Service must consider that any authorization of take must include factors beyond auditory damage that can cause injuries. For example, high intensity sound from the proposed activities can cause whales to change their behavior, causing panic and rapid surfacing resulting in an injury like the bends. It can also cause

²⁶ Id.

²⁷ Popper, A.N. & Hastings, M.C., Effects of Anthropogenic Sources of Sounds on Fishes, *Journal of Fish Biology* 75:455 (2009); Weilgart, L., *The Impact of Ocean Noise Pollution on Fish and Invertebrates* (2018).

²⁸ Weilgart, L., A review of the impacts of seismic airgun surveys on marine life, Submitted to the CBD Expert Workshop on Underwater Noise and its Impacts on Marine and Coastal Biodiversity, 25-27 (February 2014), available at: <http://www.cbd.int/doc/?meeting=MCBEM-2014-01>; Weilgart L. (2007).

²⁹ Slabbekoorn, H., N. Bouton, I. van Opzeeland, A. Coers, C. ten Cate, and A. N. Popper. A noisy spring: the impact of globally rising underwater sound levels on fish. *Trends in Ecology and Evolution* 25: 419-427 (2010), [https://www.cell.com/trends/ecology-evolution/pdf/S0169-5347\(10\)00083-2.pdf](https://www.cell.com/trends/ecology-evolution/pdf/S0169-5347(10)00083-2.pdf).

³⁰ Weilgart, L., A review of the impacts of seismic airgun surveys on marine life. Submitted to the CBD Expert Workshop on Underwater Noise and its Impacts on Marine and Coastal Biodiversity, 25-27 February 2014, London, UK (2013); <http://www.cbd.int/doc/?meeting=MCBEM-2014-01>.

³¹ Paxton, A. B., Taylor, J. C., Nowacek, D. P., Dale, J., Cole, E., Voss, C. M., & Peterson, C. H., Seismic survey noise disrupted fish use of a temperate reef, *Marine Policy*, 78:68-73 (2017).

³² McCauley, D. et al., Widely used marine seismic survey air gun operations negatively impact zooplankton. *Nature Ecology and Evolution*, 1(7):195 (2017).

³³ Id.

³⁴ Bradford, A.L., et al. Spotted sea haul-out patterns in a coastal lagoon on Sakhalin Island, Russia, *Mammal study* 30:145 (2005);

³⁵ Born, E.W. et al., Escape response of hauled out ringed seals (*Phoca hispida*) to aircraft disturbance, *Polar Biology* 21:171 (1999).

disturbance, stress, or displacement from habitat that impairs reproduction or foraging. The cumulative effects of noise pollution also need analysis.

Hilcorp's application appears to downplay and underestimate the potential for marine mammal harassment. The Service has a duty and obligation to conduct an independent assessment to comply with the small numbers and negligible impact requirements under the MMPA as well as the National Environmental Policy Act (NEPA).

3. The Service must require mitigation to ensure the least practicable adverse impact on marine mammals and their habitat.

To the extent that the Service is considering issuing the authorization, it must require mitigation to ensure the least impact on marine mammals. The Service must evaluate additional mitigation beyond that proposed by the applicant to achieve "the least practicable adverse impact on marine mammal species, stock, and habitat..., paying particular attention to rookeries, mating grounds, and areas of similar significance."³⁶

In issuing an authorization, the Service must prescribe methods and means of affecting the "least practicable adverse impact" on the species or stock and its habitat.³⁷ According to the courts, the least practical adverse impact requirement is a stringent standard.³⁸ The least practicable adverse impact mandate is "an independent threshold statutory requirement" that must be met in addition to the requirements that take authorizations have only a negligible impact and be only for small numbers of marine mammals.³⁹

The Service cannot merely rely on mitigation measures that are known to be ineffective. The Service has acknowledged that lookouts are not as effective in mitigating acoustic impacts as time-area restrictions.⁴⁰ In *Conservation Council for Hawaii v. National Marine Fisheries Service*, the court determined that the Service may not choose the lesser mitigation option of lookouts to protect marine mammals from military sonar "especially knowing that many potential disruptions to marine mammal behavior will be difficult to detect or avoid through lookouts."⁴¹

The Service may not rubberstamp the mitigation measures proposed by the applicant, but it must consider the practicality of other measures.⁴² Moreover, the Service may not merely pick and choose mitigation measures that would reduce impacts, but it must "prescribe mitigation that will have the least impact."⁴³

³⁶ 16 U.S.C. § 1371(a)(5)(A)(i)(II)(aa); 50 CFR § 216.104(a).

³⁷ 16 U.S.C. § 1371(a)(5)(A)(i)(II)(aa).

³⁸ *NRDC v. Evans*, 364 F. Supp. 2d 1083, 1111 (ND Cal 2003).

³⁹ *NRDC v. Pritzker* 828 F.3d 1125, 1133 (9th Cir. 2016), see also *Conserv. Council for Hawaii v. Nat'l Marine Fisheries Serv.*, 97 F. Supp. 3d 1210, 1229 (D. Haw. 2015).

⁴⁰ *Pritzker* at 1133.

⁴¹ *Conserv. Council* at 1230.

⁴² *Id.*

⁴³ *Pritzker* at 1133.

To comply with NEPA, the Service must also consider a reasonable range of alternatives, including a no action alternative, to avoid and reduce the impacts of oil and gas activities. NEPA requires that the agency “rigorously explore and objectively evaluate all reasonable alternatives’ to a proposed plan of action that has significant environmental effects.”⁴⁴ The alternatives analysis is “the heart” of the environmental review⁴⁵

The purpose of this requirement is to ensure agencies do not undertake projects “without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means.”⁴⁶ Importantly, this evaluation extends to considering more environmentally protective alternatives and mitigation measures.⁴⁷ NEPA regulations require that alternatives “include appropriate mitigations measures.”⁴⁸ Additionally, the regulations require that the analysis of environmental consequences discuss “means to mitigate adverse environmental impacts.”⁴⁹

The Service should require mitigation measures, these include but are not limited to:

Time-area closures: The Service must implement seasonal prohibitions on construction activities and other disturbing operations activities during the seasons when the marine mammals are most likely to be present in the area. The figures below show these seasons for bowhead whales, and Clark et al. 2015 describes other biologically important areas and seasons for whales in the Arctic, including those for beluga whales.⁵⁰ The Service must also prohibit construction and operations activities that will disturb ice seals during their pupping season in the spring.

⁴⁴ 40 C.F.R. § 1502.14(a).

⁴⁵ Natural Resources Defense Council v. U.S. Forest Service, 421 F.3d 797, 813 (9th Cir. 2005).

⁴⁶ *Env’tl Defense Fund., Inc. v. U.S. Army Corps. of Eng’rs*, 492 F.2d 1123, 1135 (5th Cir. 1974); see also, *City of New York v. Dept. of Transp.*, 715 F.2d 732, 743 (2nd Cir. 1983) (NEPA’s requirement for consideration of a range of alternatives is intended to prevent the EIS from becoming “a foreordained formality.”); *Utahns for Better Transportation v. U.S. Dept. of Transp.*, 305 F.3d 1152 (10th Cir. 2002).

⁴⁷ See, e.g., *Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094, 1122-1123 (9th Cir. 2002) (and cases cited therein).

⁴⁸ 40 C.F.R. § 1502.14(f).

⁴⁹ 40 C.F.R. § 1502.16(h).

⁵⁰ Clarke, J.T. et al. Biologically Important Areas for Cetaceans Within U.S. Waters – Arctic Region Aquatic Mammals 41(1):94-103 (2015).

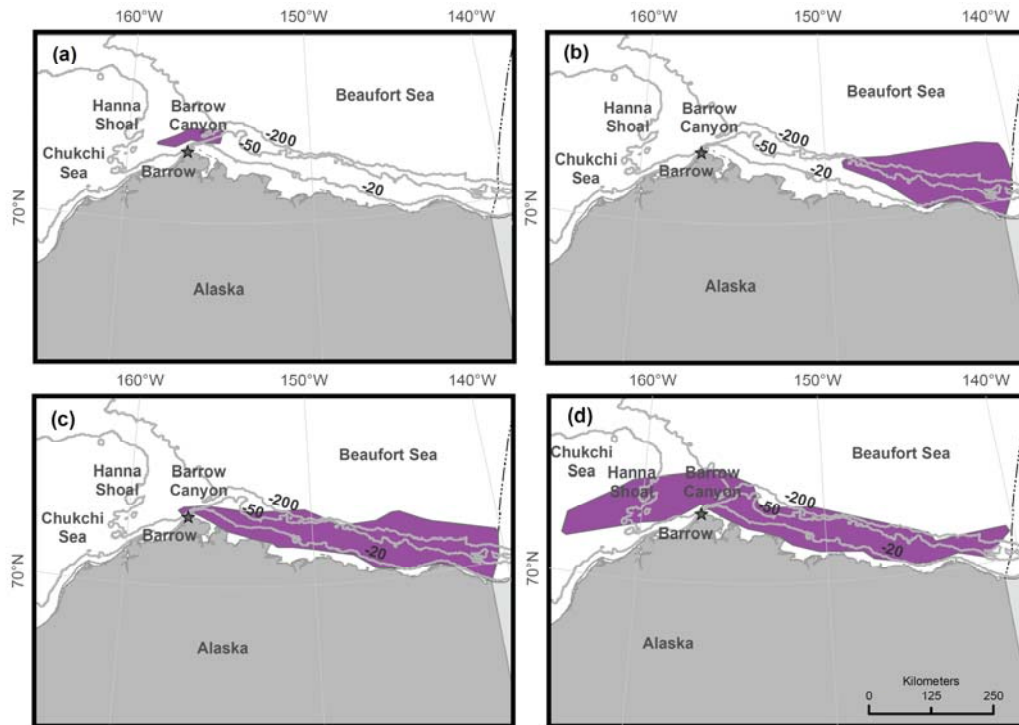


Figure 8.1. Bowhead whale (*Balaena mysticetus*) reproduction Biologically Important Areas (BIAs) during (a) spring and early summer (April through early June); (b) summer (July and August); and fall (c) September and (d) October, determined from calf sightings collected during aerial- and ice-based surveys. Also shown are the 20-, 50-, and 200-m depth contours.

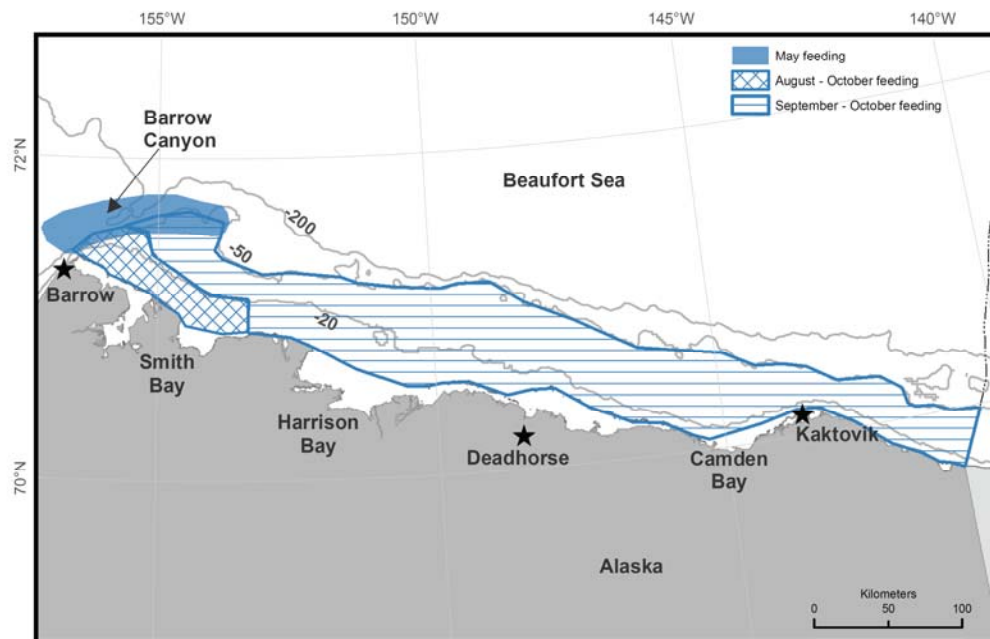


Figure 8.2. Bowhead whale feeding BIAs during the eastward spring migration in May near Barrow Canyon; from Smith Bay to Point Barrow in August through October, generally shoreward of the 20-m isobaths; and during the westward fall migration from September through October, generally shoreward of the 50-m isobath. BIAs were determined using aerial survey data. Also shown are the 20-, 50-, and 200-m depth contours.

Improved look-outs for marine mammals: To effectively monitor exclusion zones, the Service should require prohibiting pile driving and sheet driving in low light and low visibility. Moreover, look-outs alone are insufficient to avoid and mitigate the impact of noise on marine mammals.⁵¹ For example, bowhead whales are often not visible on the sea surface; and scientists note that areas exposed to seismic surveys may have 3 to 63 percent higher abundance of bowhead whales.⁵² Acoustic or thermal monitoring, in addition to the unmanned drones mentioned in the application, should be considered.

Larger exclusion zones for sound: Because some of the affected marine mammals may be extremely sensitive with behavioral changes below the Service's commonly-used thresholds. Pile driving generates some of the loudest sounds in the ocean, and it must have a robust exclusion zone. The Service should require in-situ sound source verification to determine the extent of the exclusion zone to afford the least practicable adverse impact.

Air curtains or other noise reduction technologies: There are technologies available to reduce noise from pile driving. For example, air bubble curtains can reduce sound by 20 to 30 dB depending on their design. Pile caps, dewatered cofferdams, and other physical barrier mitigation should also be explored.

Vessel speed limits: Speeds of 10 knots or less can significantly reduce the risk of marine mammal ship strikes, reduce air pollution and reduce ocean noise that can mask marine mammal communications and displace marine mammals.

Prohibiting hydraulic fracturing and acidization: Preventing unconventional well stimulation techniques will reduce the risks of chemical and oil spill, and it will reduce air and noise pollution from trucks and vessels and generators needed for fracking thus reducing impacts on marine mammals.

The Service should include all of the mitigation measures described above and analyze such mitigation in its alternatives analysis.

4. Hilcorp's activities and the Service's take authorization could have an adverse impact on subsistence use.

The oil and gas activities and take authorization here will have adverse impacts on subsistence use by Alaska Natives that the Service must analyze. The MMPA requires that any incidental take authorized will not have "an unmitigatable adverse impact on the availability of such species or stock for taking for subsistence uses" by Alaska Natives.⁵³ Hilcorp's project is likely to reduce the availability of marine mammals for subsistence use.

⁵¹ Verfuss, U.K. et al., Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys, *Marine Pollution Bulletin* 126:1-18 (2018).

⁵² Robertson, F.C., W.R. Koski, J.R. Brandon, T.A. Thomas, and A.W. Trites, Correction factors account for the availability of bowhead whales exposed to seismic survey operations in the Beaufort Sea. *Journal of Cetacean Research and Management*. 15: 35-44 (2015).

⁵³ 16 U.S.C. § 1371(a)(5)(A) & (D).

The Bureau of Ocean Energy Management acknowledges that the project will have major and disproportionate impacts on Alaska Native communities, especially Nuiqsut.⁵⁴ The Bureau predicts that the Liberty Project will disrupt Nuiqsut's Cross Island whaling activities, leading to cascading effects on the community's health and culture:

Long-term loss of subsistence harvests of bowhead whales due to deflection, interference, whaler avoidance, or summer construction at the proposed [Liberty Drilling and Production Island] could result in severe disruptions to sharing patterns and cultural values. This could create cultural stressors and diminished nutritional status in communities. Long-term loss means for a substantial portion of a subsistence harvest season or more. This in turn could erode or damage social organization and community identity and create stress on local institutions such as health care systems, whaling crew relationships, and annual community feasts.⁵⁵

There are existing concerns with the oil and gas activities' impacts on subsistence use. For example, the Native Village of Nuiqsut enacted Resolution 16-04 resolving "that the United States should not schedule or hold any new oil and gas leases in the Beaufort or Chukchi Seas" because the threat of oil and gas activities to subsistence uses, among other reasons. Such problems have been noted for a similar drilling island, "[i]t is probable that Nuiqsut whalers have largely been displaced from whaling in the Northstar area due to the presence of industrial development."⁵⁶

5. The Service must look at the cumulative impacts of the numerous oil and gas activities in the Arctic.

The Service must evaluate the cumulative effects of the decades-long Liberty Drilling and Production Island project with the other continuing and proposed activities in the region. Marine mammal take authorizations for the oil and gas industry activities have been occurring since 1993. In 1992, the Southern Beaufort Sea polar bear population was estimated to be 1,800 bears—double the current estimate.⁵⁷ The impacts of oil and gas construction, seismic surveys, and operations over time can accumulate thus resulting in population level effects on marine mammals. For example, changes in habitat use, communication, and stress can adversely affect foraging and reproduction. The long-term impacts of repeated displacement from preferred habitat can require higher levels of activity, lower success in feeding, and poor body condition. Similarly, interference with communication for whales can inhibit breeding or social structures within marine mammal populations.

The Service must analyze the cumulative impacts of other reasonably foreseeable actions. For example, the Bureau of Ocean Energy Management has proposed six Arctic Ocean lease sales

⁵⁴ Bureau of Ocean Energy Management, Liberty DEIS at 4-295 ("BOEM expects disproportionately high and adverse impacts to occur for Nuiqsut."); <https://www.boem.gov/2016-010-Volume-1-Liberty-EIS/> & <https://www.boem.gov/2016-010-Volume-2-Liberty-EIS/>.

⁵⁵ *Id.* at 4-233.

⁵⁶ *Id.* at 4-257.

⁵⁷ 64 Fed. Reg. 68976 (Dec. 9, 1999)

between 2019 and 2024. The Trump administration has launched a process to hold the first lease sale in the Arctic National Wildlife Refuge. There is a pending application for a geological and geophysical permit for seismic surveys to explore for oil and gas in the Beaufort Sea from 2018 to 2020. There are several additional coastal plain oil development projects — Greater Moose’s Tooth-2, Willow, Nanushuk — underway that will impact marine mammals affected by this proposed action. It is also expected that shipping via the Arctic Ocean will increase. Recently, the first commercial cruise will begin operating a line through the Northwest Passage.⁵⁸

6. The indirect and cumulative impacts of greenhouse gas pollution from operations and downstream consumption of fossil fuels must be analyzed.

When considering the project’s impacts on marine mammals, the Service must consider: (1) the additional burden of the project on arctic species that are already threatened by rapid climate change; and (2) the project’s direct and downstream greenhouse gas emissions and evaluate their contribution to the take of arctic marine mammals.

First, the Arctic is rapidly changing and leaving arctic marine mammals vulnerable to impacts from the proposed project. The Arctic has experienced some of the most severe and rapid warming associated with climate change, which places the Arctic and its species at heightened risk to additional impacts. The Arctic has warmed at twice the rate of the rest of the globe on average,⁵⁹ and some areas have warmed even faster. For example, average annual temperatures in Alaska have increased by 3.4°F (1.9°C) in the past 50 years, almost three times the global average over the same time period, and by 6.3°F (3.5°C) in winter.⁶⁰ The Arctic Ocean and adjacent seas (60-90°N) have also experienced pronounced summertime surface warming over the past 100 years, especially since 2000, with some of the greatest warming occurring in the Beaufort Sea.⁶¹ By the end of this century, the Arctic is expected to warm by an additional 5.4 to 9°F (3 to 5°C) over land and up to 12.6 °F (7°C) over the oceans under a mid-level emissions scenario.⁶²

The rapid decline in arctic sea ice is one of the most striking and visible indicators of global climate change. Arctic summer sea ice extent and thickness have decreased to about half of what they were several decades ago,⁶³ with an accompanying drastic reduction in volume.⁶⁴ Sea-ice

⁵⁸ Zak, Annie, This luxury cruise ship will soon sail through the Arctic. Here’s what that means for Alaska. Alaska Daily News (Jun. 12, 2016); <http://www.adn.com/arctic/2016/06/12/this-luxury-cruise-ship-will-soon-sail-through-the-arctic-heres-what-that-means-for-alaska/>.

⁵⁹ USGCRP, Climate Science Special Report: Fourth National Climate Assessment, Volume I at 23 (2017); https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf.

⁶⁰ USGCRP, Global Climate Change Impacts in the United States. U.S. Global Change Research Program. Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, (2009); <https://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf>.

⁶¹ Steele, M., W. Ermold, and J. Zhang. Arctic Ocean surface warming trends over the past 100 years. *Geophysical Research Letters* 35, L02614 (2008).

⁶² Meehl, G. A., et al., 2007: Global Climate Projections. in S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and G. H. Miller, editors. *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (2007); <https://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter10.pdf>.

⁶³ Stroeve, J., M. Serreze, S. Drobot, S. Gearheard, M. M. Holland, J. Maslanik, W. Meier, and T. Scambos,. Arctic sea ice extent plummets in 2007. *EOS Transactions, AGU* 89:13-14 (2008).

losses have been particularly large in the Beaufort Sea.⁶⁵ A nearly ice-free Arctic in summer is expected by mid-century or before, with estimates of 2020 or earlier, 2030 on average, and 2040 or later based on three modeling approaches.⁶⁶ Winter sea ice has declined faster than IPCC climate models projected.⁶⁷ This year the winter sea ice maximum was the second lowest ever recorded, and the last four years marked the four lowest sea ice extent years.⁶⁸ Models indicate that sea ice will decline by 43 to 94 percent by 2100.⁶⁹

The sea ice is not only shrinking in extent, it is also getting thinner,⁷⁰ melting earlier in spring, and forming later in autumn.⁷¹ Arctic sea ice is only half as thick as it was just a few decades ago,⁷² as the amount of older, thicker sea ice declines. At the end of the summer in 2010, less than 15% of the remaining sea ice was more than two years old, compared to 50 to 60% during the 1980s, and virtually none of the oldest, thickest ice (greater than 5 years old) remained in the Arctic.⁷³ In the Beaufort Sea, sea-ice thickness declined by -50% between 1958 to 2007.⁷⁴ The length of the ice season also decreased drastically by 35 days in the Beaufort Sea between 1979 and 2007.⁷⁵ This extreme loss of sea ice habitat is already affecting ice-dependent species such as polar bears, walrus and ice seals; and it will only get worse over the course the proposed action timeline.

The Arctic is also facing significant threats from ocean acidification. As sea ice continues to form later in the winter, the Beaufort shelf is likely to be persistently undersaturated with respect to aragonite.⁷⁶ In the future, all surface waters surrounding Alaska are projected to be undersaturated year-round with respect to aragonite by the end of the century. Recent regional observations demonstrate substantial decline in surface water pH.⁷⁷ Current average surface pH

⁶⁴ Schweiger, A., J. Zhang, R. Lindsay, M. Steele, and H. Stern, Arctic Sea Ice Volume Anomaly, version 2, Polar Science Center (2012), available at <http://psc.apl.washington.edu/wordpress/research/projects/arctic-sea-ice-volume-anomaly/>; Steele (2008).

⁶⁵ Perovich, D. K., and J. A. Richter-Menge. Loss of sea ice in the Arctic. *Annual Review of Marine Science* 1:417-441 (2009).

⁶⁶ Overland, J.E. and M. Wang. When will the summer Arctic be nearly sea ice free? *Geophysical Research Letters* 40(10): 2097-2101 (2013); USGCRP (2017).

⁶⁷ Stroeve, J., M. M. Holland, W. Meier, T. Scambos, and M. Serreze. Arctic sea ice decline: Faster than forecast. *Geophysical Research Letters* 34:L09501 (2007).

⁶⁸ NSIDC, Arctic sea ice maximum at second lowest in the satellite record (March 23, 2018) <https://nsidc.org/news/newsroom/arctic-sea-ice-maximum-second-lowest-satellite-record>.

⁶⁹ USGCRP (2017).

⁷⁰ Lindsay, R. W., L. J. Zhang, A. Schweiger, M. Steele, and H. Stern, Arctic sea ice retreat in 2007 follows thinning trend. *Journal of Climate* 22:165-176 (2009).

⁷¹ Rodrigues, J., The increase in the length of the ice-free season in the Arctic. *Cold Regions Science and Technology* 59:78-101 (2009).

⁷² Kwok, R., and D. A. Rothrock, Decline in Arctic sea ice thickness from submarine and ICESat records: 1958-2008. *Geophysical Research Letters* 36:L15501 (2009).

⁷³ NSIDC. Weather and feedbacks lead to third-lowest extent (2010); <http://nsidc.org/arcticseaicenews/2010/100410.html>.

⁷⁴ Kwok, R., et al. (2009).

⁷⁵ Markus, T., J. Stroeve, and J. Miller, Recent changes in Arctic sea ice melt onset, freezeup, and melt season length. *Journal of Geophysical Research* 114:C12024 (2009).

⁷⁶ Bednaršek et al., Extensive Dissolution of Live Pteropods in the Southern Ocean, *Nature Geoscience* 5:881-885 (2012).

⁷⁷ Cross, J. N., J. T. Mathis, N. R. Bates, and R. H. Byrne, Conservative and non-conservative variations of total alkalinity on the southeastern Bering Sea shelf. *Marine Chemistry* 154:100-112 (2013).

across the region is 8.03-8.05 but the average surface pH may decline to 7.66 by the end of the century.⁷⁸ By 2100 all waters around Alaska are projected to permanently undersaturated with respect to aragonite and some regions in the north even undersaturated with respect to calcite. By the end of the century with business as usual scenarios, change in pH will be 0.34 to 0.37 units from present levels will occur in all waters across Alaska including the Chukchi Sea, Beaufort Sea, Bering Sea, and the Gulf of Alaska — that is a 100 to 150 percent change.⁷⁹ If current emissions trends continue, scientists predict that by 2050 all arctic surface waters will be corrosive to organisms that use aragonite to build their shells, and that most of the Arctic will be corrosive to calcite-using organisms by 2095.⁸⁰ Declines and losses of these calcifying creatures would undoubtedly be disastrous for the arctic food web.

The Service must consider the baseline conditions that face the Beaufort Sea environment when it considers the impacts of the proposed action on marine mammals.

Second, the Service must evaluate how the project's contribution to climate change will harm marine mammals. The federal waters of the Beaufort Sea are largely free of offshore oil and gas development. Hilcorp's Liberty Drilling and Production Island is intended to extract as much as 167 million barrels of oil.

A 2016 analysis found that carbon emissions from developed reserves in currently operating oil and gas fields and mines would lead to global temperature rise beyond 2°C.⁸¹ Excluding coal, currently operating oil and gas fields alone would take the world beyond 1.5°C.⁸² To stay well below 2°C, the study recommends that no new fossil fuel extraction or transportation infrastructure should be built, and governments should grant no new permits for new fossil fuel extraction and infrastructure.⁸³ And a 2015 study found that “all Arctic resources should be classified as unburnable,” because “development of [fossil fuel] resources in the Arctic . . . [is] incommensurate with efforts to limit average global warming to 2°C.”⁸⁴

Relevant for this analysis is that ice seals are dependent on sea ice for their survival. Bearded seals rely on sea ice for breeding, feeding, giving birth, molting, and other essential life functions.⁸⁵ And ringed seals excavate subnivalian lairs in snowdrifts over breathing holes, which they use for resting, giving birth, and nursing pups.⁸⁶ Without sufficient sea ice and snow cover,

⁷⁸ Mathis, J. T., S. R. Cooley, N. Lucey, S. Colt, J. Ekstrom, T. Hurst, C. Hauri, W. Evans, J. N. Cross, and R. A. Feely, Ocean acidification risk assessment for Alaska's fishery sector. *Progress in Oceanography* 136:71–91 (2015); <https://www.sciencedirect.com/science/article/pii/S0079661114001141/pdf?md5=fa3873eb1acf67f3f09354f4e60e0eb7&pid=1-s2.0-S0079661114001141-main.pdf>.

⁷⁹ *Id.*

⁸⁰ Fabry, V. J., J. B. McClintock, J. T. Mathis, and J. M. Grebmeier, Ocean acidification at high latitudes: the bellweather. *Oceanography* 22:160-171 (2009).

⁸¹ Oil Change International, *The Sky's Limit: Why the Paris Climate Goals Require A Managed Decline of Fossil Fuel Production* (September 2016); http://priceofoil.org/content/uploads/2016/09/OCI_the_skys_limit_2016_FINAL_2.pdf.

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ 77 Fed. Reg. 76,740, 76,742 (Dec. 28, 2012) (final rule listing bearded seals as threatened under the ESA).

⁸⁶ 77 Fed. Reg. 76,706, 76,709 (Dec. 28, 2012) (final rule listing Arctic ringed seals as threatened under the ESA).

ringed seals freeze to death or are eaten by predators.⁸⁷ Studies have documented a nearly 100 percent mortality rate when snow cover was insufficient to build snow caves.⁸⁸

Recent studies also show that loss of sea ice is also leading to poor body condition in ringed seals. For example, Harwood et al. (2015) found that ringed seals in the Beaufort Sea experienced a significant decline in body condition over the last two decades, as well as low pup production in recent years (2012, 2013, 2014), which could have far-reaching negative consequences in the Beaufort Sea ecosystem.⁸⁹ And MacIntyre et al. (2015) found that “losses in ice cover may negatively impact bearded seals, not just by loss of habitat but also by altering the behavioral ecology” of the population in the Beaufort Sea region.⁹⁰ In other words, climate change stress is increasing for ice seals, and already having negative effects on populations.

The project will exacerbate climate change with further stress for imperiled marine mammals which will result in harm and take ice seals and other marine mammals that depend on sea ice for their survival.

7. The Service must include in its analysis the effects on marine mammals from oil spills.

The Service should take into account the effects of oil spills on marine mammals and their habitat related to the construction and operation of the Liberty Drilling and Production Island. Offshore oil and gas development consistently results in both chronic and disaster-related oil spills. These spills cause irreversible damage to marine and coastal environments, and the destructive impacts of large spills are immediate and severe. While take-by-oil-spill cannot be authorized under the MMPA, oil spills must nonetheless be considered during the decision-making process.

Large and catastrophic oil spills are particularly devastating. For Example, the 1989 Exxon Valdez spilled more than 11 million gallons of oil into Alaska’s Prince William Sound. And in 2010, the BP Deepwater Horizon spilled an estimated 206 million gallons of oil into the Gulf of Mexico over the course of almost three months. These spills had long-term and damaging effects on the environment and marine mammals.

The Arctic is especially vulnerable to large oil spills because neither the technology nor the infrastructure exists to respond to an oil spill in the Arctic. A 2014 report by the National Research Council 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

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ Harwood, L.A. et al., Change in the Beaufort Sea ecosystem: Diverging trends in body condition and/or production in five marine vertebrate species, 136 Progress in Oceanography 263 (2015).

⁹⁰ MacIntyre, K., The relationship between sea ice concentration and the spatio-temporal distribution of vocalizing bearded seals (*Erignathus barbatus*) in the Bering, Chukchi, and Beaufort Seas from 2008 to 2011, 136 Progress in Oceanography 241 (2015).

maintenance of temporary and permanent infrastructure.”⁹¹ The lack of infrastructure should be a factor that counsels toward heightened mitigation of the risk of an oil spill to protect marine mammals.

A report funded by the Bureau of Safety and Environmental Enforcement and conducted by Nuka Research quantified the inherent difficulties of responding to an oil spill in the Arctic Ocean.⁹² The report entitled “Estimating an Oil Spill Response Gap for the Arctic Ocean” shows that traditional control measures such as in situ burning and mechanical recovery will be rendered infeasible for a large percentage of the time by ice, wind, weather and visibility conditions. It is important to note the report anticipated ideal conditions, which are rarely present in the harsh arctic waters. Even under the optimistic scenario, the analysis found that all of the traditional oil spill response tactics would be precluded by arctic conditions for a significant portion of the time, even during the summer. A 2011 report for the National Energy Board of Canada found similar limitations in oil spill response for the Canadian Beaufort Sea and Davis Strait.⁹³

Beyond large spills, the project anticipates numerous leaks and spills in the normal course of operations that should be considered. The Service should know that Hilcorp has had multiple leaks and spills in its current drilling operations in Alaska. For example, on February 7, 2017, Hilcorp reported a natural gas leak in Cook Inlet.⁹⁴ The source of the leak, which was 98.67 percent methane, was later identified as an 8-inch transmission pipeline, and a flow analysis conducted after Hilcorp discovered the leak revealed that the pipeline began leaking in late December 2016.⁹⁵ Hilcorp was unable to investigate or repair the leak for nearly four months due to broken ice, tidal flows, and limited daylight.⁹⁶ It is estimated that the pipeline leaked 193,000 (at its lowest leakage rate) to 325,000 (at its highest leakage rate) of cubic feet of natural gas every day until the leak was finally reported repaired on April 14, 2017.⁹⁷ Hilcorp also had multiple other incidents in Cook Inlet during 2017, including a spill of oil-based drilling mud from its Steelhead platform in the Trading Bay oil field,⁹⁸ an ongoing natural gas release from

⁹¹ National Research Council, *Responding to Oil Spills in the U.S. Arctic Marine Environment*. National Academy of Sciences, Washington, DC at 8 (2014), <https://www.mmc.gov/wp-content/uploads/18625.pdf>.

⁹² Nuka Research and Planning Group, LLC. *Estimating an Oil Spill Response Gap for the U.S. Arctic Ocean*. (2014); http://www.nukaresearch.com/files/140910_Arctic_RGA_Report_FNL.pdf

⁹³ Ross, S.L., Environmental Research Ltd. *Spill Response Gap Study for the Canadian Beaufort Sea and the Canadian Davis Strait* (2011), http://aleutianriskassessment.com/documents/A2A6V0_-_SL_Ross_Environmetal_Research_Limited_-_Spill_Response_Gap_Study_for_the_Canadian_Beaufort_Sea_and_the_Canadian_Davis_Strait.pdf.

⁹⁴ PHMSA, *In the Matter of Hilcorp Alaska, LLC*, CPF No. 5-2017-0004S, Notice of Proposed Safety Order (Mar. 3, 2017).

⁹⁵ *Id.* at 2-4.

⁹⁶ *Id.* at 7.

⁹⁷ Shankman, S., *Natural Gas Leak in Cook Inlet Stopped, Effects on Marine Life Not Yet Known*, Inside Climate News (Apr. 15, 2017), <https://insideclimatenews.org/news/14042017/hilcorp-alaska-cook-inlet-temporary-fix-made-pipeline>; Alaska Department of Environmental Conservation, *Hilcorp Natural Gas Leak from 8-inch Pipeline, Situation Report #1* (Feb. 15, 2017); Alaska Department of Environmental Conservation, *Hilcorp Natural Gas Leak from 8-inch Pipeline, Situation Report #3* (Mar. 1, 2017); Alaska Department of Environmental Conservation, *Hilcorp Natural Gas Leak from 8-inch Pipeline, Situation Report #4* (Mar. 14, 2017); Hilcorp Alaska, LLC, *Middle Ground Shoal Gas Leak Sampling and Monitoring Plan*, Mar. 2017.

⁹⁸ Cochran, S. *Hilcorp Reports Another Spill in Cook Inlet*, Alaska Public Media (Aug. 11, 2017), <http://www.alaskapublic.org/2017/08/11/hilcorp-reports-another-spill-in-cook-inlet/>.

the Steelhead platform pipeline to shore,⁹⁹ and a crude oil spill from its Anna platform in the Upper Inlet near Granite Point.¹⁰⁰ Hilcorp also had numerous accidents from its operations on the North Slope. For example, “in February 2015, Hilcorp spilled nearly 10,000 gallons of crude oil and produced water onto 40,000 square feet of arctic tundra and gravel pad. The spill resulted from a leak in the bottom of a pipeline from Hilcorp’s Milne Point Tract 14 production line.”¹⁰¹

Oil spills, which are an inherent risk in oil drilling, will compound the harm to marine mammals from the take authorization sought here. In making its negligible impact determination and to comply with NEPA, the Service must include the potential harm from oil spills to its analysis.

8. Conclusion

As described here, there are many concerns that the Service must take into account when considering Hilcorp’s application for authorization to take marine mammals. We believe that the significant dangers of drilling and producing oil in harsh, icy arctic waters combined with the habitat damage from construction mean that the Liberty Drilling and Production Island will have non-negligible impacts on marine mammals and subsistence use. Accordingly, we ask that the Service deny the permit.

Sincerely,

/s/Miyoko Sakashita

Miyoko Sakashita

Oceans Program Director

⁹⁹ McChesney, R., *Hilcorp shuts down third pipeline in Cook Inlet*, Alaska Public Media (April 7, 2017), <https://www.alaskapublic.org/2017/04/07/hilcorp-shuts-down-third-pipeline-in-cook-inlet/>

¹⁰⁰ Alaska Department of Environmental Conservation, Hilcorp Anna Platform Crude Oil Line Leak, Situation Report (SITREP), 4th and Final, (May 7, 2017) http://dec.alaska.gov/spar/ppr/response/sum_fy17/170401201/17239909101_Hilcorp_Anna_Platform_Crude_Oil_Line_Leak_SITREP4andFINAL.pdf.

¹⁰¹ EPA, News Release, BP Exploration Alaska and Hilcorp Alaska Settle with EPA and State of Alaska for North Slope Oil Spills (July 14, 2016), <https://www.epa.gov/newsreleases/bp-exploration-alaska-and-hilcorp-alaska-settle-epa-and-state-alaska-north-slope-oil>.

Form Letter- Example 1

Ms. Jolie Harrison
Chief, Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
ITP.Daly@noaa.gov

Dear Ms Harrison,

I am writing to express my sincere objections to Hilcorp's plans for Arctic drilling in the Beaufort Sea, and application for bypassing protections for marine mammals. A permit to allow incidental take (aka killing) of bowhead whales, ringed seals, bearded seals and other imperiled Arctic marine mammals during exploration and operation processes should be denied.

Environmental rules have been in place for decades, offering whales and other marine life a degree of protection from the cacophony of seismic activity that can damage or kill. These rules should be strongly adhered to especially with regards to the Arctic. High decibels are known to reduce the presence of zooplankton, impair fish eggs and larvae, and temporarily if not permanently deafen adults and juveniles. Without the ability to hear, fish and marine mammals struggle to communicate, navigate, avoid predators, and locate prey. These disturbances can also disrupt important migratory patterns, forcing marine life away from suitable habitats meant for foraging and mating. In addition, seismic surveys have been implicated in whale beaching and stranding incidents. Offshore drilling threatens our oceans, marine wildlife, and terrestrial wildlife with the risk of catastrophic oil spills; the possible, if not imminent, loss of imperiled species would be unconscionable.

As I understand it, a special permit from USFWS, for the incidental "take" of polar bears, a federally protected and declining species, would also be necessary. With under 900 Beaufort Sea polar bears remaining, this is also unacceptable.

Hilcorp's atrocious track record in Alaska dates back to 2012, according to a lengthy list of Hilcorp missteps and violations, where state regulators write that "disregard for regulatory compliance is endemic to Hilcorp's approach to its Alaska regulations."

Clearly Hilcorp's history of numerous violations demonstrate that pipeline hazards and disasters are imminent, and would cause irreparable harm to marine life, as well as federally protected species.

I urge you to deny Hilcorp's request and uphold laws put into place to protect Arctic wildlife.

Thank you for your time and consideration of my comment,

Signed.

Form Letter- Example 2

Dear Chief, Permits and Conservation Division Jolie Harrison,

I am writing to urge you to reject Hilcorp's plan to drill for oil in the Arctic Ocean and bypass protections for marine wildlife.

Injuring Arctic whales and seals to do dangerous offshore drilling is reckless and cruel. These imperiled species are already being harmed enough by our fossil fuel dependence. And they face multiple dangers from this project – first during construction and then from the oil spills that will inevitably follow in this unforgiving environment.

As you know, Hilcorp has a terrible track record, with state regulators writing that "disregard for regulatory compliance is endemic to Hilcorp's approach to its Alaska operations." Last year one of Hilcorp's underwater gas pipelines in Cook Inlet leaked for nearly four months because the company said the presence of sea ice prevented its repair.

This company can't be trusted to safely operate in Cook Inlet, and it has no business in treacherous Arctic waters. That's why I urge you to deny Hilcorp's request and uphold the laws protecting the Arctic's amazing wildlife.

Sincerely,