E 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XE957]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Narwhal, LLC Oil and Gas Exploration Activities in West Harrison Bay, Alaska

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: Notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Narwhal, LLC (Narwhal) to incidentally take by harassment marine mammals during oil and gas exploration activities in west Harrison Bay, Alaska.

DATES: This authorization is effective for one year from the date of notification by the IHA-holder, not to exceed one year from the date of issuance (August 12, 2025).

ADDRESSES: Electronic copies of the application, IHA, and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-narwhal-llcs-oil-and-gas-exploration-activities-west-harrison*. In case of problems accessing these documents, please contact the contact listed below.

FOR FURTHER INFORMATION CONTACT: Craig Cockrell, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. Section 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) directs the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed IHA is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other "means of effecting the least practicable adverse impact" on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as "mitigation"); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On October 25, 2022, NMFS received a request from Narwhal for an IHA to take marine mammals incidental to oil and gas exploration activities in and around west Harrison Bay, Alaska. Narwhal withdrew the original request and then resubmitted an application on November 1, 2024. The application was deemed adequate and complete on January 27, 2025. Narwhal's request is for take of four marine mammal species, by Level B harassment only. Neither Narwhal nor NMFS expect serious injury or mortality to result from the specified activity, and therefore, an IHA is appropriate.

Description of Activity

Overview

Narwhal proposes to conduct oil and gas exploration activities, including shallow hazard geophysical surveys, exploratory drilling operations, and associated construction and operation of ice trails, roads, and pads, in west Harrison Bay, Alaska. The activities are planned to occur between August 2025 and July 2026 and will occur primarily in west Harrison Bay and the area between west Harrison Bay and Prudhoe Bay, Alaska. Narwhal will also conduct mobilization and barge transport activities out of Prudhoe Bay, Alaska. Shallow hazard geophysical surveys (hereinafter, "shallow water hazard surveys") will use airguns and sparkers as acoustic sources and would introduce underwater sound that may result in take by Level B harassment of marine mammals. Construction and operation of sea ice trails around the Colville River Delta may result in take by Level B harassment of ringed seals due visual disturbance. Shallow hazard surveys at all six sites will take place over approximately 12 days and will occur over a 12-hour period each day. Offshore ice road and trail construction will occur over approximately 167 days and will occur as needed throughout a 24-hour period. A number of other activities will occur during the course of the specified activities, but, they are not expected to result in take of marine mammals.

Since publication of the **Federal Register** notice of the proposed IHA, Narwhal estimates that eight barges may need to be used for option staging activities (*see* 90 FR 21182, 21185, May 16, 2025). This minor change to this activity does not change NMFS' determination that this activity is unlikely to result in take of marine mammals.

A detailed description of the specified activities is provided in the **Federal Register** notice for the proposed IHA (90 FR 21182, May 16, 2025). No other changes have been made to the planned activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specified activity.

Comments and Responses

A notice of NMFS' proposal to issue an IHA to Narwhal was published in the **Federal Register** on May 16, 2025 (90 FR 21182). That notice described, in detail, Narwhal's specified activities, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. In that notice, we requested public input on the request for authorization described therein, our analyses, the proposed authorization, and any other aspect of the notice of proposed IHA and requested that interested persons submit relevant information, suggestions, and comments. NMFS received one substantive comment letter from the Center for Biological Diversity (CBD). Please see CBD's comment letter, available online at *https://www.fisheries.noaa.gov/action/incidental-take-authorization-narwhal-llcs-oil-and-gas-exploration-activities-west-harrison*, for full detail regarding the comments and associated rationale. The Arctic Peer Review Panel (PRP), convened by NMFS as required under 50 CFR 216.108(d), reviewed the Monitoring Plan (please see the **Monitoring Plan Peer Review** section, below). We have not responded to comments that failed to raise a significant point for us to consider (*e.g.*, comments that are out of scope of the proposed IHA; mitigation, monitoring, or reporting measures already included in the proposed IHA). Furthermore, if a comment received was unclear, NMFS does not include it here as it could not determine whether it raised a significant point for NMFS to consider.

Comment 1: The PRP stated that NMFS should require aircraft used by Narwhal to follow flight paths either five miles inland or five miles offshore to minimize impacts to subsistence hunting for marine mammals.

Response 1: NMFS disagrees with this recommended mitigation measure. The IHA contains a minimum altitude limit for aircraft to avoid potential disturbance to marine mammals or effects to the availability of marine mammals for subsistence uses.

All aircraft must maintain an altitude of 457 meters (m) (1,500 feet (ft)) during flight and if flights must occur below 457 m the flight course must be altered to maintain 457 m of horizontal separation from any marine mammals. The recommended measure is impracticable given the unpredictability of weather conditions and the remote nature of the project area; pilots will fly the most direct path to the aerial survey areas to minimize time in the air but maintain the minimum altitude requirements. Given the low potential for take from this activity and the mitigation measure of 457 m minimum altitude for aircraft, based on the best available scientific information, the likelihood of take by Level B harassment from this activity is discountable.

Comment 2: CBD asserted that NMFS did not provide adequate justification to assume that aircraft flights flown at a minimum of 457 m by Narwhal would not result in take of marine mammals and NMFS' determination that no take would result from this activity is inaccurate.

Response 2: NMFS disagrees that flights operated at a minimum altitude of 457 m would result in takes of marine mammals. In Narwhal's application, they note that received levels of in-air noise from fixed-wing propeller aircraft sounds ranged from 75 to 90 dB and airborne noise levels from helicopters were 60 to 70 dB at 460 m (1509 ft.) (Richardson *et al.* 1995). This is below the 100 dB disturbance threshold for in-air sounds for pinnipeds (NMFS 2024). To affect the least practicable adverse impact on and marine mammals and based on Born *et al.* (1999), which indicated that if the aircraft does not approach the seals closer than an altitude of 500 m (1,640 ft), the risk of flushing the seals into the water can be greatly reduced. Based on the analysis presented above and in the proposed IHA, NMFS proposed the minimum altitude of 457 m mitigation measure.

CBD partially quotes the Notice of the proposed IHA's summary of Bradford (2005) (*i.e.,* "[H]elicopter presence resulted in flushing of most of the hauled out seals during observations…") to support their claim that the mitigation measure is insufficient

to mitigate take - the remainder of the sentence in the Notice states, "... [T]hey did not note specific distances of the helicopter at which flushing occurred." CBD did not provide additional scientific information for NMFS to consider. Given the low potential for take from this activity and the mitigation measure of 457 m minimum altitude for aircraft, based on the best available scientific information, the likelihood of take by Level B harassment from this activity is discountable.

Comment 3: The PRP recommended that Narwhal complete its shallow water hazard survey by August 25th to prevent any diversion of migrating bowhead whales that may impact the subsistence bowhead hunt by Kaktovik, Nuiqsut, and Barrow whaling crews.

Response 3: NMFS disagrees that a time restriction measure is necessary to ensure no unmitigable adverse impact on the availability of the stock for taking for subsistence uses. The Level B harassment zone for survey activities is outside the core migration area of bowhead whales and presence of bowhead whales in west Harrison Bay is relatively low as reflected in the estimated take analysis. Narwhal has signed a Conflict Avoidance Agreement (CAA) for this action with potentially affected communities and will follow the measures included in the CAA. The Alaska Eskimo Whaling Commission (AEWC) facilitates an annual CAA that allows for direct communication between subsistence hunters and industry representatives. The CAA process provides an important forum for subsistence hunters to share concerns about potential impacts of proposed projects with industry representatives in order to inform project implementation, including mitigation measures intended to avoid impacts to subsistence hunting activities. While not required, NMFS strongly encourages applicants to engage with AEWC through the CAA process.

Comment 4: The PRP recommended that staging of equipment for activities be completed as early as possible to reduce vessel traffic during the fall migration and hunt.

Response 4: NMFS disagrees that a time restriction measure is necessary to ensure no unmitigable adverse impact on the availability of the stock for taking for subsistence uses because NMFS does not anticipate take of bowhead whales from this activity. As described in response to the previous comment, Narwhal recognizes that it must resolve subsistence concerns raised by potentially affected communities, and signed a CAA with those communities. Narwhal has agreed to complete staging activities at the earliest possible date, as soon as the preferred staging area has been identified and equipment is available for transport to the staging area.

Comment 5: CBD asserted that NMFS did not adequately analyze the potential impacts of Narwhal's activities on marine mammals and that NMFS analysis does not capture the impacts of acoustic disturbances underestimating potential takes. Specifically, the commenter stated that spotted seals and ringed seals haul out in response to vessel and aircraft noise and that bowhead whales exhibit avoidance behaviors and changes to vocal behaviors at received levels below 160 decibels (dB) re 1 micropascal (μPa) when exposed to sound from airguns.

Response 5: NMFS disagrees with CBD's comment and finds that CBD does not provide compelling rationale for its assertion that NMFS underestimates takes that are likely to occur. Use of the seismic airgun and sparker are expected to result in Level B harassment of marine mammals, as described by NMFS in the proposed IHA notice, which may include takes primarily resulting from behavioral disturbance or, as a less likely outcome, temporary threshold shift. Avoidance of sufficiently aversive stimuli, including noise from Narwhal's seismic survey activity, is expected to be the main response from bowhead whales and pinnipeds. For bowhead whales, NMFS agrees that there are multiple studies documenting changes in behavior and/or communication amongst large whales in response to airgun noise. Changes in vocalization associated with exposure to airgun surveys within migratory and non-migratory contexts have been

observed, and NMFS specifically discussed the results cited by CBD (e.g., Blackwell et al., 2013) in its notice of proposed IHA. The potential for anthropogenic sound to have impacts over large spatial scales is not surprising for species with large communication spaces, like mysticetes; however, not every change in a vocalization would necessarily rise to the level of a take. As noted previously, the planned survey effort would be relatively brief in duration and it is expected that the shallow waters (*e.g.* < 3 m) where the survey will occur will have a relatively low density of bowhead whales and would not result in any sustained impacts to such behaviors for bowhead whales. CBD did not provide additional scientific information for NMFS to consider.

Pinnipeds may occur in higher relative abundance compared to bowhead whales in west Harrison Bay. Although there is likely higher occurrence of pinnipeds, the use of west Harrison Bay is mainly transitory and does not include any of the critical habitat for both bearded and ringed seals. NMFS used the best available scientific information when determining the appropriate densities of pinnipeds in the project area and associated take numbers by Level B harassment. NMFS also considered all of the activities proposed by Narwhal in this project and made determinations on which activities may result in take. CBD specifically cites that aircraft noise and vessel noise could cause seals to haulout. NMFS disagrees with this claim given the mitigation measures for both aircraft and vessels. Aircraft noise is not anticipated to result in take given the minimum altitude mitigation measure as discussed in response to Comment 2, and vessel noise will not result in take of marine mammals given the size of vessels proposed for use (< 20 ft. (6 m)) and the relatively slow speed of travel. Therefore, take is neither expected nor authorized.

CBD also fails to provide any additional scientific information for NMFS to consider regarding Narwhal's project to reasonably assume take may occur for those activities where NMFS did not authorize take.

Comment 6: CBD states the mitigation measure to complete construction no later than March 1st to deter pregnant seals from establishing birth lairs in disturbed areas should be considered as an additional source of harassment, rather than an effective mitigation measure and suggests that this is an additional reason why NMFS has underestimated take.

Response 6: CBD mischaracterizes the construction schedule as a mitigation measure. NMFS did not propose a mitigation measure requiring Narwhal to complete construction prior to March 1st. Rather, NMFS proposed additional mitigation measures after March 1st recognizing ringed seal birth lair establishment in the project area. NMFS disagrees incidental take from ice trail activities is underestimated. In the Notice of the proposed IHA and herein, NMFS estimated the incidental take of ring seals from the ice trail activities, including construction, operation, and demobilization, and the estimated take analysis does not account for mitigation measures associated with these activities in the analysis. CBD states that "Disturbing [establishment of lairs for pupping] can lead to lair abandonment, increased pup mortality, and exposure to predators and environmental stressors." However, as NMFS described in the notice of proposed IHA, the successful implementation of this requirement would accomplish avoidance of these outcomes precisely because lairs would not be established in areas where disturbance is likely to cause abandonment and/or lead to negative outcomes for pregnant females or pups.

Comment 7: CBD noted that NMFS developed its pinniped take estimates through use of uniform densities within the project area. Specifically, density estimates for bearded and spotted seals are derived from Beaufort Sea vessel-based surveys that are not specific to Harrison Bay. The estimated density of ringed seals was based on spring aerial surveys covering a broad area that was not specifically limited to Harrison Bay. CBD asserts that use of this density data underestimates or incorrectly estimates take.

Response 7: NMFS acknowledges that data used to determine pinniped densities included some areas that occur outside the boundaries of west Harrison Bay. Available data for pinniped densities is limited from within west Harrison Bay. NMFS used the best scientific information available to determine the appropriate densities for all of the pinniped species in the specified geographic region. See the **Estimated of Marine Mammals** section for a detailed description of the data sources that were used to develop the pinniped density estimates. CBD does not provide additional scientific information for NMFS to consider.

Comment 8: CBD stated that NMFS' presumption of perfect implementation of mitigation measures and environmental conditions introduces significant uncertainty into the estimated take analysis, particularly related to Level A take. CBD also stated that NMFS failed to account for animal behaviors "such as diving and undemonstrative presence at the sea surface".

Response 8: NMFS disagrees the estimated take analysis is flawed due to presumptions regarding the effectiveness of mitigation measures. As discussed in the Notice of the proposed IHA and herein, the activity (shallow water hazard survey) results in a relatively small ensonified area. Given the mobile nature of the acoustic sources and because marine mammals are likely moving through the project areas and not remaining for extended periods of time, the potential for permanent or temporary threshold shifts in marine mammal hearing is unlikely. The expected low density of animals within the project area further reduces the potential that animals will be present in the Level A harassment zones.

The suite of mitigation measures further reduces the low likelihood of take. The Level A shutdown zones associated with the operation of the airgun and sparker are all under 1,100 m (3,281 ft) (see **Mitigation**). The relatively small shutdown zones and expected high detection capability within those zones (for example, approximately nearly

24 hours of daylight are expected during the planned survey window) and general avoidance behaviors for marine mammals further support the conclusion that Level A harassment is not likely. Ramp-up of the acoustic sources is also expected to produce noise that is sufficient to warn marine mammals of pending operations and allow sufficient time for those animals to leave the immediate vicinity. If a marine mammal appears in the Level A shutdown zone, the acoustic source will be shut down immediately. These measures would occur prior to accumulating energy to the extent necessary to cause auditory injury.

While diving behavior has been observed for bowhead whales, that particular behavior is not expected within the project area given the shallow waters (*i.e.*, < 3 m) and not expected to affect the visual detection of this species. For these reasons, the likelihood of take by Level A harassment from this activity is discountable.

Comment 9: CBD asserts that NMFS failed to properly estimate take because it did not account for the "cumulative auditory impact" from construction, support activity, snow machines, aircrafts, trucks, and other industrial noise.

Response 9: NMFS disagrees that the analysis in the proposed IHA and herein fails to account for the impacts of noise. NMFS has responded in detail about the effects of aircraft in response to Comment 1. Ice road and trail construction is expected to result in take by Level B harassment due to the physical presence of construction equipment and personnel. Both in-air and in-water noise levels are expected to be below the relevant harassment thresholds. Further, Williams *et al.* (2006) found that active ringed seal structures (dens and breathing holes) experienced notably weaker sound levels due to the sound being attenuated in the ice and snow. During the winter of 2000, background unweighted in air noise levels from various machineries measured in the vicinity of Northstar ranged from 59 to 84 dB re 20 μPa, and this background noise level was related to wind speed (Greene *et al.* 2008). Similar levels were reported during the winter of

2001 and 2002 by Blackwell *et al.* (2004a, b) with minimum background unweighted in-air noise levels of 44 to 52 dB re 20 µPa measured in ice-covered conditions with low wind up to 10 km (6 mi) from Northstar in Prudhoe Bay. Therefore, in-air and in-water acoustic impacts of the ice trail construction are not expected for ringed seals.

Further, acoustic impacts associated with the drilling activities are similarly not expected to exceed the relevant harassment criteria. As described in the proposed IHA (May 16, 2025, 90 FR 21182) drilling sounds are expected to transmit poorly from the drill rig machinery through ice or soft substrate into the water (Richardson *et al.* 1995). Underwater sound during drilling alone (*i.e.*, without other production noises from the island) were reported in Blackwell *et al.* (2004a) as 114 dB re 1µPa at 250 m (820 ft) from the source during ice-covered conditions. The lowest level of underwater sound recorded during drilling alone was reported as 104 dB re 1µPa at 1 km, while background sound levels (measured at 95 dB re 1µPa) were reached 2 to 4 km from the source (Blackwell *et al.* 2004a). Given the low level of sound expected to be produced by the drilling activities, take of marine mammals is not likely to occur from this activity.

CBD does not provide any additional information for NMFS to consider regarding the auditory impacts of sound within the project area. Moreover, these activities will generally occur at different times and locations and thus, NMFS does not anticipate cumulative acoustic impacts from these activities on marine mammals.

Comment 10: CBD states NMFS' estimate take analysis fails to account for cumulative stress from climate change on ice seals and how such stress can make ice seals more vulnerable to project activities, including auditory and physical impact from ice road and trail construction.

Response 10: NMFS is required to authorize the requested incidental take by harassment if it finds the incidental take of small numbers of marine mammals by U.S. citizens "while engaging in that (specified) activity" within a specified geographic region

will have a negligible impact on such species or stock and, where applicable, will not have an unmitigable adverse impact on the availability of such species or stock for subsistence uses (16 U.S.C. 1371(a)(5)(D)). The relevant specified activities here are ice trail construction and operation. Therefore, NMFS' estimated take analysis was appropriately limited to incidental take from ice trail construction and operation.

NMFS agrees that decreases in ice cover could negatively affect ice seals in the future and consistent with the preamble of NMFS' implementing regulations, NMFS considered the effects of climate in the affected environment analysis of the final EA for this action and Biological Opinion issued pursuant to Section 7 of the ESA (54 FR 40338, September 29, 1989).

Comment 11: CBD asserted that NMFS proposed mitigation measures failed to ensure the least practicable adverse impact on affected marine mammals and claims that NMFS' negligible impact determination for all species depends on the successful implementation of mitigation measures. Specifically, CBD noted that detection-based mitigation measures, such as implementation of shutdown zones, rely on the ability of marine mammal observers to detect marine mammals and are not as effective as time/area restrictions. CBD states that NMFS does not adequately acknowledge the limitations of observers. Further, CBD claims that the ramp-up procedures NMFS has proposed may not be an effective deterrent to acoustic sources. CBD finally states that its claims support "the need for more robust pre-activity monitoring and supplementary mitigation strategies which are of greater known effectiveness."

Response 11: NMFS disagrees with the commenter that the proposed mitigation measures do not meet the least practicable adverse impact determination. The use of time/area restrictions is not practicable for this project since the presence of marine mammals, while low in overall density, could be present throughout the year.

The use of PSOs and ramp-up procedures are a standard practice in seismic surveys and have been well documented in minimizing the number and/or severity of incidents of take of animals. The use of shutdowns initiated by PSOs have been documented in monitoring reports for seismic surveys. During three years of observation in the Gulf of America oil and gas exploration activities, 106 shutdowns of active sources occurred when marine mammals were spotted in established shutdown zones. During pre-activity monitoring, 155 delays occurred when marine mammals were spotted in either the shutdown zones or Level B harassment zones (EnerGeo Alliance 2025). Given the high avoidance rates of marine mammals authorized in response to seismic airguns as discussed in response to Comment 5, NMFS expects that the use of ramp-up procedures would be effective at warning marine mammals and providing sufficient time for those animals to leave the immediate vicinity. CBD fails to recommend measures that would increase the effectiveness of pre-activity monitoring.

While the negligible impact determination takes into consideration the implementation of mitigation and monitoring measures, it is not dependent on successful implementation of such measures (*see* **Negligible Impact Analysis and Determination** section).

Comment 12: CBD noted that NMFS should have required additional mitigation measures, including the use of passive acoustic monitoring (PAM) to detect marine mammals ahead of approaching active acoustic sources, the use of a bubble curtain to attenuate the sound from the seismic airgun, and the use of drones for visual monitoring of shutdown and harassment zones.

Response 12: NMFS has determined requiring PAM for this project does not affect the least practicable adverse impact on marine mammals. It is not practicable for Narwhal because berthing space on the vessels used for the shallow water hazard survey is extremely limited and additional vessels would need to be used to accommodate the

additional PAM equipment. Furthermore, NMFS has determined PAM is not likely to be particularly useful for these survey activities, nor is it necessary for low-energy surveys with the relatively small harassment zones considered here. With specific regard to bowhead whales, it is generally well-accepted fact that, even in the absence of a firing airgun, using a towed passive acoustic sensor to detect baleen whales (including bowhead whales) is not typically effective because the noise from the vessel, the flow noise, and the cable noise are in the same frequency band and will mask the vast majority of baleen whale calls. Because the seismic pulse and the whale's call are within the same frequency range, and the seismic pulse is much louder than the whale's call (see below), it is unlikely that a baleen whale can be detected during the seismic pulse, therefore PAM becomes ineffective at detecting approaching whales.

NMFS has determined the use of bubble curtains for noise attenuation during survey activities does not affect the least practicable adverse impact on marine mammals. Typically, use of bubble curtains occurs during the use of impulsive acoustic sources on stationary objects and attenuates the sound produced from the source. The use of bubble curtains on a mobile source would be difficult to execute and may not prove effective at attenuating the noise produced during the shallow water hazard survey. CBD did not provide additional information for NMFS to consider to support the effectiveness of its proposed mitigation measure, particularly during a mobile survey.

NMFS agrees with the commenter that drones can be an effective tool for monitoring for marine mammals during certain projects. As stated in the response for Comment 13, NMFS believed that visual monitoring and the related protocols NMFS has prescribed are an appropriate part of the suite of mitigation measures here that satisfy the MMPA's least practicable adverse impact standard. Additionally, it is expected that there will be nearly 24 hours of daylight during the shallow water hazard survey and low-light conditions should not persist during monitoring periods. The use of drones would not

substantially increase the effectiveness of the mitigation measures or affect the least practicable adverse impact determination. The use of drones are also not practicable for Narwhal to implement due the need for FAA licensed and trained staff on vessels, limited deck space for staff and the drones, and the distance limitations of some drones would render them unusable for observing for long periods. Further, CBD provides no evidence that drones can fully replace visual monitoring as an effective monitoring measure for this mobile survey.

Comment 13: CBD stated that the current 15-minute pre-activity monitoring and 15-minute post shutdown monitoring period are insufficient for the clearance of shutdown zones. CBD urged NMFS to consider a 30-minute period for bowhead whales citing deep diving behavior and drift diving behavior which may cause them to linger in an area for prolonged periods.

Response 13: NMFS disagrees extending the monitoring periods will affect the least practicable adverse impact on marine mammals. The survey will generally occur in waters 3 meters or less. If bowhead whales are present in the area, it is expected that they will continuously move through the area, and their movements will be observed by PSOs. Diving behavior of bowhead whales is not expected to occur in the project area due to the shallow water. Additionally given the tight turns and quick succession of track lines of the seismic survey design which minimize the down time of the acoustic sources, 15-minute pre-clearance periods would be sufficient to monitor the area before beginning a new track line.

Comment 14: CBD stated that NMFS cannot issue "Renewed" IHAs under the MMPA. Further, CBD stated that NMFS cannot issue "successive" IHAs without a comprehensive analysis and must analyze and mitigate the total take it is proposing to authorize across all two years. Additionally, CBD stated that the 15-day comment period proposed for renewals is also unlawful and places a burden on interested members of the

public to review not only the original authorization and supporting documents but also the draft monitoring reports, the renewal request, and the proposed renewed authorization and then to formulate comments, all within 15 calendar days. They assert that NMFS should set forth, via proposed regulation or policy document, its rationale for the renewal process and to allow public comment.

Response 14: The process of issuing a Renewal IHA does not bypass the public notice and comment requirements of the MMPA. The notice of the proposed IHA initiated a 30-day public comment period and expressly notifies the public that under certain, limited conditions an applicant could seek a Renewal IHA for an additional year. The notice describes the conditions under which such a renewal request could be considered and expressly seeks public comment in the event such a renewal is sought. Importantly, any such renewals (if issued) would be limited to where the activities are identical or nearly identical to those analyzed in the proposed IHA, monitoring does not indicate impacts that were not previously analyzed and authorized, and the mitigation and monitoring requirements remain the same, all of which allow the public to comment on the appropriateness and effects of a renewal at the same time the public provides comments on the initial IHA.

Importantly, Renewal IHAs are evaluated by NMFS on a case-by-case basis and are not an automatic matter of right. Each 1-year IHA must independently satisfy the negligible impact standard for the authorized taking and include the means of effecting the least practicable adverse impact on the species or stock and its habitat and, where relevant, on the availability of such species or stock for taking for subsistence uses (*i.e.*, mitigation). Moreover, NMFS is not proposing to issue a "successive" IHA for a second year. For these reasons, a comprehensive analysis of the impacts of potential take across 2 years is not appropriate under the MMPA. Any renewal request would be evaluated under the appropriate statutes (*e.g.*, MMPA, National Environmental Policy Act (EPA),

and ESA) for compliance with relevant standards. These analyses would consider the environmental baseline at that time, including any impacts of the IHA we have issued.

Should a renewal request be made, additional documentation would be required from Narwhal that NMFS would make publicly available and would use to verify that the activities are identical to those in the initial IHA, are nearly identical such that the changes would have either no effect on impacts to marine mammals or decrease those impacts, or are a subset of activities already analyzed and authorized but not completed under the initial IHA. NMFS would also confirm, among other things, that the activities would occur in the same location; involve the same species and stocks; provide for continuation of the same mitigation, monitoring, and reporting requirements; and that no new information had been received that would alter the prior analysis. If new information has been received that would alter the prior analysis, that information would be analyzed in the notice of the proposed Renewal IHA. A renewal request would also contain a preliminary monitoring report, specifically to verify that effects from the activities do not indicate impacts of a scale or nature not previously analyzed. Any renewal request is subject to an additional 15-day public comment period that provides the public an opportunity to review these few documents, provide any additional pertinent information and comment on whether they think the criteria for a renewal have been met. Between the initial 30-day comment period on these same activities and the additional 15 days, the total comment period for a Renewal is 45 days.

In addition to the IHA renewal process being consistent with all requirements under section 101(a)(5)(D), it is also consistent with Congress' intent for issuance of IHAs to the extent reflected in statements in the legislative history of the MMPA. Through the provision for renewals in the implementing regulations, description of the process and express invitation to comment on specific potential renewals in the Request for Public Comments section of each proposed IHA, the description of the process on

NMFS' website, further elaboration on the process through responses to comments such as these, posting of substantive documents on the agency's website, and provision of 30 or 45 days for public review and comment on all proposed initial IHAs and renewals respectively, NMFS has ensured that the public has full opportunity to meaningfully participate in the agency's decision-making process.

Changes from the Proposed IHA to Final IHA

Several changes have been made to the Final IHA. NMFS has revised the ensonified area calculations for the seismic airgun and the sparker after coordination with the NMFS Alaska Regional Office and Narwhal. In the proposed IHA, it was estimated that the total daily distance of airgun use would be 48 km over a total of 12 days. Narwhal estimated that it would take 2 days to survey each of the six drilling sites. The total survey distance of a drilling site is 48 km (see Figure 1-6 of Narwhal's application). Narwhal still expects that use of the seismic airgun will take 2 days at each site. Given that the survey will take place over 2 days per site, NMFS and Narwhal have revised the daily distance of the airgun survey to 24 km. This change reduced the ensonified area from 337.98 km^2 to 184.95 km^2 in this final IHA.

In the proposed IHA, NMFS assumed the daily distance for the sparker use to be 48 km, similar to the seismic airgun. After further review, NMFS determined that the total daily distance of 33.6 km was appropriate for the operation of the sparker (see Figure 1-5 of Narwhal's application). This reduced daily distance reduced the overall ensonified area from 43.54 km^2 to 30.66 km^2 in this final IHA. NMFS also determined that this distance would survey an entire drilling site with the sparker in 1 day. Therefore, NMFS revised the total days for the use of the sparker from 12 to 6 since each potential drilling site will only require 1 day of sparker use. Both the seismic airgun and sparker revisions have reduced the summer open water take estimates from the proposed IHA and NMFS has updated the **Estimated Take** section and tables 8, 9, and 11 accordingly.

In the **Federal Register** notice for the proposed IHA, the estimated take numbers during the construction and operation of the ice trail were calculated incorrectly. Inadvertently, an incorrect density of 0.61 ringed seals/km^2, rather than 0.63 ringed seals/km^2 as described in the proposed IHA, was used to calculate the take estimate resulting in 1,044 takes by Level B harassment. This take estimate has been corrected using a density of 0.63 seals/km^2 resulting in an estimated 1,076 takes by Level B harassment for the construction and operation of the ice trail. Tables 10 and 11 have been updated to reflect this correction.

During the development of the Final IHA, Narwhal expressed new practicability concerns regarding some of the mitigation and monitoring measures in the proposed IHA. Below is a summary of resulting changes from the proposed IHA to the final IHA.

Mitigation Changes

Narwhal requested and NMFS modified mitigation measure 4(a)(i) to clarify that PSOs only be on duty when an acoustic source is active. Narwhal noted that there may be times when the acoustic sources may be in the water but not active to save deck space on the vessels being used for the shallow hazard survey. This change satisfies the original intent of the proposed measure while avoiding potential for unintended practicability consequences.

Mitigation measure 4(a)(ii) has also been changed to reduce the time for post-activity monitoring from 1-hour to 15 minutes once acoustic sources cease operation. NMFS modified this measure, at Narwhal's request, due to variable weather conditions that may occur resulting in the timely retrieval of equipment and transit to safe harbor. Additionally, given the shallow water of the survey sites, it is anticipated any behavioral changes in marine mammals that may occur would likely be observed within 15 minutes after sources have been active. NMFS agrees with these mitigation changes and these

changes have been documented in the **Mitigation** section of this notice and the final IHA issued to Narwhal.

Monitoring Changes

The PSO requirements described in section 5(a)(i)(1) of the IHA states that all PSOs must be employed by a third-party observer provider and must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew. Narwhal raised concerns over the ability to safely accommodate additional persons as third-party PSOs on the vessels used for the shallow water hazard survey. Vessels being used by Narwhal are very small (20 to 30 ft in length (6 to 9 m)) with limited bunk and deck space. Narwhal has a total berthing capacity of 19 to 20 personnel across the three vessels being used during the shallow water hazard survey. NMFS has revised the PSO requirements in the IHA at 5(a)(i)(1). This change would authorize Narwhal to employ an independent third-party lead PSO who will train Narwhal watch standers as PSOs during the shallow water hazard survey and will retain responsibility for decision making regarding necessary implementation of required mitigation measures. The additional staff PSOs would be used during the seismic survey portion of the shallow water hazard survey where the use of two PSOs is required and during all acoustic source use if the lead PSO approaches the maximum work limit of 12 hours.

Section 5(d)(i) of the IHA was a monitoring measure that requires Narwhal to monitor a seal if found within 50 m of the centerline of the ice trail to have an initial documentation period of 15 minutes and then be observed every 6 hours after that period until the animal moves farther than 50 m of the centerline of the ice trail or is no long visible. Narwhal noted that there could be periods longer than 6 hours where there is no activity on the trail and as the measure is currently written, a dedicated environmental specialist would need to make a dedicated observation trip to observe the animal. Given

the remote location of the trail and the highly variable weather conditions there are safety concerns with sending an observer out when the trail in not being actively used. Therefore, the measure has been revised to only require observation of a seal within 50 m of the centerline of the trial when the trail is being actively used.

Narwhal has also requested a change to section 5(d)(ii)(1)(a) of the IHA for the ice trail monitoring measures related to surveying the ice trail for seals or seal structures after March 1st. The measure in the proposed IHA required Narwhal to complete these surveys every other day. Given the remote nature of the Colville River Delta crossing and the associated risk for personnel, Narwhal will be implementing a convoy policy for transit of the entire sea ice trail which will require a minimum of two vehicles traveling together on the trail. With this policy, it is more logistically feasible for Narwhal to complete these surveys every three days rather than every other day. NMFS agrees with these monitoring changes and these changes have been documented in the **Monitoring** section of this notice and the final IHA issued to Narwhal.

All changes to the mitigation and monitoring requirements described here and in further detail in the respective sections were made in coordination with Narwhal and align with NMFS' statutory authority to prescribe measures to affect the least practicable adverse impact on the affected marine mammal species or stocks and to prescribe appropriate monitoring requirements.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history of the potentially affected species. NMFS fully considered all of this information, and we refer the reader to these descriptions instead of reprinting the information. Additional information regarding population trends and threats may be found in NMFS' Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-*

protection/marine-mammal-stock-assessments) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species).*

Table 1 lists all species or stocks for which take is likely from the specified activities and authorized and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. While no serious injury or mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species or stocks and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Alaska SARs. All values presented in table 1 are the most recent available at the time of publication, including from the draft 2024 SARs, and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*.

Table 1 -- Species[1] Likely Impacted by the Specified Activities

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[2]	Stock abundance (CV, N_{min}, most recent abundance survey)[3]	PBR	Annual Mortality and Serious Injury (M/SI)[4]

Order Artiodactyla – Cetacea – Mysticeti (baleen whales)						
Family Balaenidae						
Bowhead whale	*Balaena mysticetus*	Western Arctic	E, D, Y	15,227 (0.165, 13,263, 2019)	133	57
Order Carnivora – Pinnipedia						
Family Phocidae (earless seals)						
Bearded Seal	*Erignathus barbatus*	Beringia	T, D, Y	UND (UND, UND, 2013)	Unknown (UND)	6,709
Ringed Seal	*Pusa hispida*	Arctic	T, D, Y	UND (UND, UND, 2013)	UND	6,459
Spotted Seal	*Phoca largha*	Bering	-, -, N	461,625 (N/A, 423,237, 2013)	25,394	5,254
1 - Information on the classification of marine mammal species can be found on the web page for The Society for Marine Mammalogy's Committee on Taxonomy (*https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies/*).						
2 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.						
3 - NMFS marine mammal stock assessment reports online at: https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region/. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.						
4 - These values, found in NMFS' SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range.						

A detailed description of marine mammals in the specified geographic region, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (90 FR 21182, May 16, 2025). NMFS is not aware of any new relevant information since publication of the notice of proposed IHA; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for the proposed IHA (90 FR 21182, May 16, 2025) for detailed descriptions.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into hearing groups based on directly measured (behavioral or auditory evoked potential techniques) or estimated hearing ranges (behavioral response data, anatomical modeling, *etc*.). Generalized hearing ranges were chosen based on the ~65 decibel (dB) threshold from composite audiograms, previous analyses in NMFS (2018), and/or data from Southall *et al.* (2007) and Southall *et al.* (2019). We note that the names of two hearing groups and the generalized hearing ranges of all marine mammal hearing groups have been recently updated (NMFS 2024) as reflected below in table 2.

Table 2 -- Marine Mammal Hearing Groups (NMFS, 2024)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 36 kHz
High-frequency (HF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
Very High-frequency (VHF) cetaceans (true porpoises, *Kogia*, river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*)	200 Hz to 165 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	40 Hz to 90 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 68 kHz
* Represents the generalized hearing range for the entire group as a composite (*i.e.*, all species within the group), where individual species' hearing ranges may not be as broad. Generalized hearing range chosen based on ~65 dB threshold from composite audiogram, previous analysis in NMFS 2018, and/or data from Southall *et al.* 2007; Southall *et al.* 2019. Additionally, animals are able to detect very loud sounds above and below that "generalized" hearing range	

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2024) for a review of available information (*https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance-other-acoustic-tools*).

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

The effects of underwater noise and visual disturbance from Narwhal's specified activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the project area. The notice of proposed IHA (90 FR 21182, May 16, 2025) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise and visual disturbance from Narwhal's specified activities on marine mammals and their habitat. There is no newly available relevant information that would change our analyses or the results thereof; therefore, discussion of potential effects is not provided here. Please refer to that **Federal Register** notice for the proposed IHA (90 FR 21182, May 16, 2025).

Estimated Take of Marine Mammals

This section provides an estimate of the number of incidental takes from Narwhal's specified activities, which informed NMFS' consideration of "small numbers," the negligible impact determinations, and impacts to subsistence uses.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A

harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes will be by Level B harassment only, in the form of disruption of behavioral patterns and/or TTS for individual marine mammals resulting from exposure to noise resulting from use of airguns and sparkers (*i.e.*, geophysical survey) and the construction and operation of ice trails. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures (*i.e.*, shutdown zones and ice trails specific measures) discussed in detail below in the **Mitigation** section, Level A harassment (auditory injury (AUD INJ)) is neither anticipated nor authorized.

As described previously, no serious injury or mortality is anticipated or authorized for these activities. Below we describe how the take numbers were estimated.

For acoustic impacts, generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these factors can contribute to a basic calculation to provide an initial prediction of potential takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the take estimates.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals are reasonably expected to

be behaviorally harassed (equated to Level B harassment) or to incur auditory injury of some degree (equated to Level A harassment).

Level B Harassment – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source or exposure context (*e.g.*, frequency, predictability, duty cycle, duration of the exposure, signal-to-noise ratio, distance to the source), the environment (*e.g.*, bathymetry, other noises in the area, predators in the area), and the receiving animals (hearing, motivation, experience, demography, life stage, depth) and can be difficult to predict (*e.g.*, Southall *et al.,* 2007, 2021, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a metric that is both predictable and measurable for most activities, NMFS typically recommends use of a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS generally predicts that marine mammals are likely to be behaviorally harassed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (RMS SPL) of 120 dB (referenced to 1 micropascal (re 1 µPa)) for continuous (*e.g.,* vibratory pile driving, drilling) and above RMS SPL 160 dB re 1 µPa for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources. Generally speaking, Level B harassment take estimates based on these behavioral harassment thresholds are expected to include any likely takes by TTS as, in most cases, the likelihood of TTS occurs at distances from the source less than those at which behavioral harassment is likely. TTS of a sufficient degree can manifest as behavioral harassment, as reduced hearing sensitivity and the potential reduced opportunities to detect important signals (conspecific communication, predators, prey) may result in changes in behavior patterns that will not otherwise occur.

Narwhal's activities include the use of impulsive (single airgun and sparker) sources, and therefore, the RMS SPL threshold of 160 dB re 1 µPa is applicable. Narwhal's activities also include the use of construction equipment while building ice trials, which will produce continuous sounds, for which use of the RMS SPL threshold of 120 dB re 1 µPa is applicable. However, as noted in the **Marine Mammal Effects** section of the proposed IHA (90 FR 21182, May 16, 2025), that threshold is not expected to be met for the ice trail construction equipment that will be used by Narwhal and, in general, disturbance of seals due to ice trails activities may be attributable broadly to a suite of potential sources of disturbance, including acoustic or visual disturbance.

Level A harassment – NMFS' Updated Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0) (NMFS, 2024) identifies dual criteria to assess AUD INJ (Level A harassment) to five different underwater marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). Narwhal's activity includes the use of impulsive (*i.e.*, single airgun and sparker) sources, and no take of marine mammals is expected to result from exposure to continuous noise produced by Narwhal's activities (*e.g.*, ice trail construction).

The 2024 Updated Technical Guidance criteria include both updated thresholds and updated weighting functions for each hearing group. The thresholds are provided in table 3. The references, analysis, and methodology used in the development of the criteria are described in NMFS' 2024 Updated Technical Guidance, which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance-other-acoustic-tools.*

Table 3 -- Thresholds Identifying the Onset of Permanent Threshold Shift

	AUD INJ Onset Thresholds* **(Received Level)**	
Hearing Group	**Impulsive**	**Non-impulsive**

Low-Frequency (LF) Cetaceans	*Cell 1* $L_{p,0\text{-pk,flat}}$: 222 dB $L_{E,p,LF,24h}$: 183 dB	*Cell 2* $L_{E,p,LF,24h}$: 197 dB
High-Frequency (HF) Cetaceans	*Cell 3* $L_{p,0\text{-pk,flat}}$: 230 dB $L_{E,p,HF,24h}$: 193 dB	*Cell 4* $L_{E,p,HF,24h}$: 201 dB
Very High-Frequency (VHF) Cetaceans	*Cell 5* $L_{p,0\text{-pk,flat}}$: 202 dB $L_{E,p,VHF,24h}$: 159 dB	*Cell 6* $L_{E,p,VHF,24h}$: 181 dB
Phocid Pinnipeds (PW) (Underwater)	*Cell 7* $L_{p,0\text{-pk.flat}}$: 223 dB $L_{E,p,PW,24h}$: 183 dB	*Cell 8* $L_{E,p,PW,24h}$: 195 dB
Otariid Pinnipeds (OW) (Underwater)	*Cell 9* $L_{p,0\text{-pk,flat}}$: 230 dB $L_{E,p,OW,24h}$: 185 dB	*Cell 10* $L_{E,p,OW,24h}$: 199 dB
IN-AIR		
Phocid Pinnipeds (PA)	*Cell 11* $L_{p,0\text{-pk.flat}}$: 162 dB $L_{E,p,PA,24h}$: 140 dB	*Cell 12* $L_{E,p,PA,24h}$: 154 dB
Otariid Pinnipeds (OA)	*Cell 13* $L_{p,0\text{-pk,flat}}$: 177 dB $L_{E,p,OA,24h}$: 163 dB	*Cell 14* $L_{E,p,OA,24h}$: 177 dB

* Dual metric thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating AUD INJ onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds are recommended for consideration.

Note: Peak sound pressure level ($L_{p,0\text{-pk}}$) has a reference value of 1 µPa, and weighted cumulative sound exposure level ($L_{E,p}$) has a reference value of 1µPa^{2}s. In this table, thresholds are abbreviated to be more reflective of International Organization for Standardization standards (ISO 2017). The subscript "flat" is being included to indicate peak sound pressure are flat weighted or unweighted within the generalized hearing range of marine mammals (*i.e.*, 7 Hz to 165 kHz). The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, HF, and VHF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The weighted cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.*, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these thresholds will be exceeded.

Ensonified Area for the Single Airgun

Here, we describe operational and environmental parameters of the activity that are used in estimating the area ensonified above the acoustic thresholds, including source levels and transmission loss coefficient.

Sound propagation and the distances to the sound isopleths for marine mammal hearing groups are defined by NMFS for Level A harassment of marine mammals under the 2024 Technical Acoustic Guidance. To assess the potential for exposure to underwater sounds that might exceed relevant threshold criteria during seismic surveys,

Narwhal conducted noise modeling of the single 105 cu. in. (1,721 cc) airgun at a proposed survey site to determine sound source levels that are shown in table 4 based on Gundalf Designer software, which is a seismic source modelling software package that may be used to estimate source levels of active acoustic sources. The estimated distances discussed in this section are used for estimating potential exposures to noise exceeding relevant harassment criteria.

Table 4 -- Estimated Underwater Sound Source Levels for the Single Airgun

Source Level Type (Measured at Site 10)	**Source Levels**
Peak sound pressure level (Pk SPL) (dB re 1 µPa @ 1 m)	231
Root-mean-square sound pressure level (rms SPL) (dB re 1 µPa @ 1 m with a 90%-energy pulse duration of 12.5 milliseconds)	204
Sound exposure level (SEL) (dB re µPa2·s @ 1 m)	193

Estimated Level A harassment zone distances were modeled for the single 105-cu. in. (1,721 cc) airgun, which is an impulsive, mobile source. Estimated distances to Level A harassment thresholds for weighted SEL_{24hr} are presented here and in greater detail in Appendix B of the Narwhal application. Shallow hazard surveys will be conducted one site at a time. Each survey block is approximately 2,400 m by 2,400 m in area. The airgun will fire every 12.5 m along a track line (*i.e.*, every 6 or 7 seconds traveling at a speed of 2 m/s). Therefore, there will be an estimated 192 shots per track line. The area of ensonification for the seismic survey was calculated by multiplying the estimated distances (in km) to the harassment thresholds by the distance of the seismic track line (in km) to be surveyed each day. A single track line is approximately 2 km in length, which will take approximately 20 minutes to shoot assuming a vessel speed of 2 m/s. Narwhal expects that in a 24 hour24-hour, approximately 24 km can be surveyed at each potential

drilling site. Given the total distance to survey one drilling site is 48 km, it is expected to take 2 days to complete each site and a total of 12 days to complete the survey at all six drilling sites.

Level A harassment zones were calculated using the source levels modeled from the Gundalf software. A fluid parabolic equation modelling algorithm (RAMGeo) was used to calculate the propagation of noise form the airgun source. The noise source was assumed to be omnidirectional and modelled as a point source. Only low frequency acoustic energy (< 1 kHz, *e.g.*, single airgun) was modeled. Greater detail on the modeling methods used by Narwhal is available in Section 6.2.3.1 and Appendix B of Narwhal's application. Modeling results estimated Level A harassment zone distances for LF cetaceans as 1,076 m (3,530 ft) and for phocids as 322 m (1,056 ft) from the seismic source vessel while the airgun is operating.

The following equation is used to estimate the ensonified area:
Mobile Ensonification Area (km2) Equation = Distance*(2*Threshold Value/1000) + (Pi*(Threshold Value/1000)^2).

Following the same process, with additional procedures described in Appendix B of Narwhal's application to convert modeled SEL values to RMS SPLs, Narwhal estimated the distance to the 160 dB re 1 µPa Level B harassment threshold to be 3,188 m (10,459 ft). Narwhal then used the mobile ensonification equation above to calculate the total area of the Level B harassment, which resulted in an area of 184.95 km^2 (71 mi^2). It should be noted that since the study area is in close proximity to shore, some sound is likely to be truncated by land to a certain extent.

Ensonified Area for the Sparker

Using data from Crocker and Fratantonio (2016), NMFS estimated source levels for the sparker to be 213 db RMS while operating at 1000 joules of energy across 240 active tips.

Take by Level A harassment is not expected during the use of the sparker given the small injury zone sizes expected with the sparker use and likelihood that marine mammals will avoid the sound source before incurring auditory injury. Using the source levels above, NMFS calculated the estimated distance to the 160 dB re 1 μPa Level B harassment threshold to be 447 m (1,467 ft). NMFS estimated the total distance the sparker will survey in a 24-hour period at 33.6 km (21 mi.). Given there are six sites, it is estimated that the sparker survey can be completed in 6 days. NMFS then used the same mobile ensonification equation to calculate the total area of the Level B harassment zone which resulted in an area of 30.66 km^2 (12 mi^2).

Disturbance Area for the Ice Trails on the Colville River Delta

Ringed seals are the only marine mammal expected to be present in the project area during winter activities. To estimate incidents of disturbance that may constitute a take, the total area of potential disturbance (*i.e.*, ice trails) associated with construction and maintenance of specific portions of the coastal sea ice trail are included in the estimate. As noted in the **Description of Marine Mammals in the Area of Specified Activities** section, ground sea ice (occurring > 3 m of water depth) is not considered suitable habitat for ringed seals. The coastal sea ice trail will be on grounded ice; however, the Colville River Delta is included in the take estimate to account for the possibility that ringed seals may occur in that section of the route given the potential for open leads or cracks in the sea ice, which could provide habitat for ringed seals. For the offshore sea ice trails/roads in west Harrison Bay, water depths at planned pad locations are less than 3 m (average); therefore, the majority of ice trails/roads in west Harrison Bay will be on grounded ice or limited portions of floating ice in water depths between 1.6 m (5 ft) and 3 m (10 ft) and not expected to provided suitable ringed seal habitat.

The width of the coastal sea ice trail across the Colville River Delta is defined as 170 m (558 ft) on either side of the ice trail centerline, or a total width of 340 m (1,115

ft). The total width (340 m or 0.34 km (.21 mi)) is then multiplied by the portion of the total length of trail/roads transiting ringed seal habitat, as described above. The linear distance of the coastal sea ice trail across the Colville River Delta is 57.8 km (36 mi). To calculate the potential exposure area, linear distance is multiplied by the total width (*i.e.*, 57.8 km * 0.34 km = 19.65 km^2 (12.2 mi^2). The calculated area of disturbance (19.65 km^2) is applied to activity associated with Narwhal's construction, operation, and demobilization phases.

Marine Mammal Density Estimates

In this section, we provide information about the occurrence of marine mammals, including density or other relevant information that will inform the take calculations.

Narwhal and NMFS used a variety of data sources to estimate appropriate marine mammal densities for evaluation of potential take incidental to the activities. Neither NMFS nor Narwhal relied on data available from Cañadas *et al.* 2020 (Duke University Arctic Study Area Models; see *https://seamap.env.duke.edu/models/Duke/Arctic/*). For bowhead whales, more recent data (through 2021) is available in the Aerial Surveys of Arctic Marine Mammals (ASAMM) dataset, opposed to the Arctic Study Area Models where data through 2019 was used. For bearded seal, estimates of density are available but, as noted in Cañadas *et al.* (2020), there is a high degree of observer bias, which leads to uncertainty in species identification and, therefore, uncertainty in model outputs and resultant densities. Therefore, data from previous, site-specific vessel surveys (Funk *et al.* 2010) provide the best estimates of species proportions in Harrison Bay during the open water period. Neither spotted seal nor ringed seal density estimates are available from Cañadas *et al.* (2020).

Bowhead Whale

Bowhead whale sighting data from ASAMM aerial survey Block 3, which includes Harrison Bay, for the period 2012 – 2021 were used to estimate bowhead

density near the project area. For reference, Harrison Bay is approximately 250 km^2 relative to the larger total area of ASAMM survey Block 3. Harrison Bay also is not preferred habitat of bowhead whales given the lack of observations from within the bay as noted above in the **Description of Marine Mammals in the Area of Specified Activities** Section. Therefore, the density estimates presented here could be slightly higher than expected in the project area. Densities were calculated by Narwhal using a two-step approach. First, a sighting rate is calculated based on whales per km, then transect length (km) is multiplied by the effective strip width of the transect using the modeled effective strip width for bowhead whales observed during aerial surveys conducted from an Aero Commander airplane (1.15 km (CV = 0.08)) (Ferguson and Clarke 2013). Therefore, whales per km^2 = whales per km/(2*1.15km). For survey Block 3, the average density estimate in summer is 0.009 bowhead whales per km^2 (table 5). The average fall density was calculated at 0.017 bowhead whales per km^2; however, since the shallow water hazard survey work will be completed in the summer, NMFS used the summer density for calculating take estimates.

As noted in the **Description of Marine Mammals in the Area of Specified Activities** section, we do not expect bowhead whales to be present during Narwhal's winter or spring activities.

Table 5 -- Bowhead Whale Sighting Data From 2012 Through 2020 and Resulting Densities

Survey Year	Survey Time Period	On Transect Distance (km)	Bowhead Whale Sightings on Transect	Bowhead Whales per km	Bowhead Whales per km^2
2012 Summer	Jul-Aug	1,742	1	0.001	0.004
2012 Fall	Sep-Oct	1,388	26	0.019	0.083
2013 Summer	Jul-Aug	950	8	0.009	0.0039
2013 Fall	Sep-Oct	1,217	7	0.006	0.0026

2014 Summer	Jul-Aug	1,290	0	0.000	0.000
2014 Fall	Sep-Oct	1,927	1	0.001	0.0004
2015 Summer	Jul-Aug	1,570	0	0.000	0.000
2015 Fall	Sep-Oct	1,949	66	0.034	0.0148
2016 Summer	Jul-Aug	1,845	259	0.141	0.0613
2016 Fall	Sep-Oct	1,959	61	0.032	0.0139
2017 Summer	Jul-Aug	2,188	6	0.003	0.0013
2017 Fall	Sep-Oct	2,269	35	0.016	0.0070
2018 Summer	Jul-Aug	2,049	7	0.004	0.0017
2018 Fall	Sep-Oct	2,390	32	0.014	0.0061
2019 Summer	Jul-Aug	2,822	7	0.003	0.0013
2019 Fall	Sep-Oct	3,853	8	0.003	0.0013
2020 Fall	Sep-Oct	654	32	0.049	0.0213
2021 Fall	Sep-Oct	1,637	58	0.035	0.0154
Summer Average					0.009
Fall Average					0.017

Bearded and Spotted Seals

Spring aerial surveys conducted as part of industry monitoring for the Northstar production facility provide limited sighting numbers of bearded seals from 1999-2002 (Richardson and Williams, 2002 and 2003). Given the lack of bearded seal data in Harrison Bay, NMFS reviewed survey data from Funk *et al.* (2010). This information represents a compilation of monitoring data gathered during vessel-based seismic operations in the Beaufort Sea from 2006-2008. NMFS considers this the best available data to derive a density estimate for bearded seals and spotted seals (see below). This survey observed ringed seals, bearded seals, spotted seals, ribbon seals, and some

unidentified seals. Narwhal proposed to base the percentage of seals present in the survey area as a percentage of the total identified seals and multiplying that percentage by the ringed seal summer/fall density. The density that Narwhal proposed in their application was 0.03 bearded seals/km^2. NMFS expects that relying on this method to calculate the percentage of bearded and spotted seals may result in underestimation of potential seal occurrence.

Therefore, NMFS modified this approach and calculated the bearded seal percentage as a proportion of the observed ringed seals in the Funk *et al.* (2010) survey. NMFS took this approach because the bearded seal density was being derived from the ringed seal summer/fall density, and such does not utilize the best available scientific information and likely underestimates the potential for bearded seal take. Percentages calculated using NMFS method are found in table 6 and differ from the Narwhal application. Based on this ratio, NMFS expects that the bearded seal density will be 21.3 percent of the summer/fall ringed seal density (0.213 * 0.32 = 0.07 bearded seals/km^2).

Similar to the method used for bearded seals, NMFS derived the density of spotted seals by first determining the ratio of the number spotted seals observed to the number of ringed seals observed from Funk *et al.* (2010) (table 6). Based on this ratio, NMFS expects that the spotted seal density will be 34.8 percent of the summer/fall ringed seal density (0.348 * 0.32 = 0.11 spotted seals/km^2).

Table 6 -- Bearded seal and Spotted Seal Ratios Based on the Observed Ringed Seals from Funk *et al.* (2010)

Species	**Percentage of Ringed Seal**
Bearded Seal	21.3
Spotted Seal	34.8

Ringed Seal

Winter/Spring Density - Narwhal originally proposed in their application the use of data from a number of on-ice surveys and aerial surveys for ringed seal density estimates for on-ice periods. These included site-specific surveys for ringed seals along the Beaufort Sea coast that were conducted in association with industry activities in the late 1980s and continued into the 2020s (Kelly *et al.* 1986; Frost and Burns 1989; Frost and Lowry 1987; Richardson and Williams 2001, 2002, and 2004; Frost *et al.* 2004; Moulton *et al.* 2005; and Quakenbush *et al.* 2022 and 2023). Several of these studies estimated approximate seal densities by considering the detection by trained dogs of seal structures such as breathing holes, haulout lairs, or pupping lairs. Aerial surveys were also included in the density estimate that was completed in the spring of the year. Narwhal proposed a ringed seal density estimate for the winter/spring season of 0.49 seals/km^2 (see table 6-3 in Narwhal's application).

However, NMFS determined that a different approach to calculate the ringed seal density is more appropriate, as several of the papers used by Narwhal included inconsistent correction factors for seal abundance (Quakenbush 2022 and 2023), some of the data Narwhal proposed for use was approximately 40 years old, and because NMFS assumed that aerial surveys provide a more accurate density calculation than on-ice surveys given they are actual seal counts rather than counts of potential seal structures. NMFS relied only on spring aerial surveys conducted in 1997-2002 (Moulton *et al.* 2005) and 1996-1999 (Frost *et al.* 2004), which included a broad section of the total survey area. Densities reported by Moulton *et al.* (2005) were lower than those estimated by Frost *et al.* (2004) for that same area: 0.43 vs. 0.73 seals/km^2 in 1997, 0.39 vs. 0.64 seals/km^2 in 1998, and 0.63 vs. 0.87 seals/km^2 in 1999. Narwhal had noted that the differences in density were mainly because of differences in ice composition (fast ice vs. pack ice) between Frost *et al.* (2004) and Moulton *et al.* (2005). Specifically, Narwhal

cited an average observed density of seals on fast ice over the 4 year period ranging from 0.57 to 1.14 seals/km^2. On pack ice, observed densities ranged from 0.92 to 1.33 seals/km^2 (Frost et al 2004). Given these differences, Narwhal calculated the average ringed seal density using data inclusive of waters less than 3 m in depth only from the Moulton et al. (2005) surveys, which resulted in the 0.49 seals/km^2 density.

NMFS considered this information but does not agree the higher observed densities reported by Frost *et al.* (2004) are due to differences in the composition of sea ice surveyed between the two studies, since these observed densities are for the same area and years. Further, Frost *et al.* (2004) noted that the two studies were similar in timing and methods. For these reasons, NMFS calculated an average density of 0.63 seals/km^2 using these two data sources (table 7).

Table 7 -- Ringed Seal Aerial Survey Densities for Winter/Spring

Source	Year	Observed Density (seals/km^2)
Moulton *et al.* (2005)	1997	0.43
Moulton *et al.* (2005)	1998	0.39
Moulton *et al.* (2005)	1999	0.63
Moulton *et al.* (2005)	2000	0.47
Moulton *et al.* (2005)	2001	0.54
Moulton *et al.* (2005)	2002	0.83
Frost *et al.* (2004)	1996	0.81
Frost *et al.* (2004)	1997	0.73
Frost *et al.* (2004)	1998	0.64

Frost *et al.* (2004)	1999	0.87
Average		0.63

Summer/Fall Density - Hauser *et al.* (2008) summarized sighting data from a 2008 seismic survey (inside and outside the barrier islands) near Thetis Island north and east of the action area. Hauser *et al.* (2008) found that most seal sightings were observed in waters seaward of the barrier islands (~76 percent of 38 sightings). Sightings of ringed seals in the shallow waters shoreward of the barrier islands were substantially lower. Narwhal's action area is most similar to what Hauser *et al.* (2008) defined as shallow waters. Hauser *et al.* (2008) reported a seal density for all species combined of 0.11 seals/km^2 for shallow waters during open-water conditions.

While this average seal density based on actual observations does not reflect seals that may not have been visible to observers, several publications acknowledge that during open-water months, ringed seals are more abundant farther offshore (Harwood and Stirling 1992, Kelly *et al.* 2010b, McLaren 1958, Von Duyke *et al.* 2020). For example, 1999 aerial surveys conducted over 8 days near Prudhoe Bay reported that the density of seals visible near shore decreased compared to the density offshore (Richardson and Williams 2000b). Narwhal estimated a summer density for ringed seals by using a 50 percent conversion factor of the winter/spring densities (table 8). NMFS agrees with this methodology and estimated the summer/fall density to be 0.32 seals/km^2 (*i.e.* 50 percent of 0.63 seals/ km^2 the winter/spring density).

Take Estimation

Here, we describe how the information provided above is synthesized to produce a quantitative estimate of the take that is reasonably likely to occur and authorized in the IHA.

For all marine mammal species, NMFS does not expect take by Level A harassment during any activities. Narwhal proposes to implement an 1,100 m (3,608 ft) shutdown zone for LF cetaceans and a 350 m (1,148 ft) shutdown zone for phocids during the operation of the single 105 cu. in. (1,721 cc) airgun. These zones are larger than the respective Level A harassment zones and therefore, will reduce the already low likelihood of take by Level A harassment. Take by Level A harassment is unlikely because Narwhal will shut down the single airgun before a marine mammal will enter the Level A harassment zone. Take by Level A harassment is also unlikely because animals will avoid the area of active acoustic sources.

Summer/Fall Take Estimates - As described above, the estimated Level B harassment area for the seismic airgun is 184.95 km^2 and for the sparker 30.66 km^2. Given that the Level B harassment zone of 447 m for the sparker, it is expected that Narwhal will implement a shutdown zone of 500 m for bowhead whales and no take of bowhead whales will occur during sparker use. Similar to the single airgun, Narwhal will shut down the sparker before a marine mammal will enter the Level A harassment zone and therefore prevent take by Level A harassment. This area was used to determine the number of take based on the densities of marine mammals as described above multiplied by the number of days (*i.e.*, 12 days of seismic survey and sparker use) of activity. NMFS expects the number of take for each species as outlined in tables 8 and 9.

Table 8 -- Estimated Level B Harassment of Marine Mammals During Use of the Seismic Airgun

Species	**Density (animal/km^2)**	**Ensonified Area of the airgun (km^2)**	**Days of Activity**	**Total Take Estimate by Level B Harassment**
Bowhead Whale	0.009	184.95	12	20
Ringed Seal	0.320	184.95	12	710

Bearded Seal	0.070	184.95	12	155
Spotted Seal	0.110	184.95	12	244

Table 9 -- Estimated Level B Harassment of Marine Mammals During Use of the Sparker

Species	**Density (animal/km^2)**	**Ensonified Area of the sparker (km^2)**	**Days of Activity**	**Total Take Estimate by Level B Harassment**
Ringed Seal	0.320	30.66	6	59
Bearded Seal	0.070	30.66	6	13
Spotted Seal	0.110	30.66	6	20

Winter/Spring Take Estimate - NMFS estimated the take estimates based on the total construction and operation area that will be affected during the winter period. As discussed previously, the total potential disturbance area of the Colville River Delta sea ice trail is estimated to be 19.65 km. NMFS multiplied the area of the sea ice trail with the winter/spring density of ringed seals for the construction, operation, and demobilization activities to determine the total number of potential takes by Level B harassment for ringed seals (table 10).

Table 10 -- Estimated Level B Harassment of Ringed Seals During Colville River Delta Coastal Sea Ice Trail Activities

Sea Ice Trail Activity	**Area of Disturbance (km^2)**	**Density (animal/km^2)**	**Days of Activity**	**Total Take Estimate by Level B Harassment**
Construction	19.65	0.63	25	309

Operation	19.65	0.63	40	495
Demobilization	19.65	0.63	22	272
Total				1,076

The total number of take estimated for Narwhal's specified activity is available in table 11.

Table 11 -- Summary of All Marine Mammal Exposures Requested by Species

Species	Stock	Total Take by Level B Harassment During the Shallow Water Hazard Survey	Total Take by Level B Harassment During Ice Trail Construction and Operation	Total Take by Level B Harassment	Population Estimate	Take as a Percentage of the Population
Bowhead Whale	Western Artic	20	0	20	15,277	0.1
Ringed Seals	Artic	769	1,076	1,845	342,836[a]	0.5
Bearded Seals	Beringia	168	0	168	301,836[b]	<0.1
Spotted Seals	Bering	264	0	264	461,625	<0.1

[a]Conn *et al.* (2014) calculated an abundance estimate of 171,418 using a subset of aerial survey data collected in 2012 by Moreland *et al.* (2013) that covered the entire ice-covered portions of the Bering Sea. This estimate is considered to be low and was multiplied by a factor of two (Young *et al.* 2023).
[b]Conn *et al.* (2014), using a sub-sample of the data collected from the U.S. portion of the Bering Sea in 2012, calculated an abundance estimate of 301,836 bearded seals (Young *et al.* 2023).

Effects of Specified Activities on Subsistence Uses of Marine Mammals

The availability of the affected marine mammal stocks or species for subsistence uses may be impacted by this activity. Measures included in this IHA to reduce the impacts of the activity on subsistence uses are described in the **Mitigation** section. Last, the information from this section and the **Mitigation** section is analyzed to determine whether the necessary findings may be made in the **Unmitigable Adverse Impact Analysis and Determination** section.

The effects of Narwhal's specified activities were discussed in detail in the notice of the proposed IHA (90 FR 21182, May 16, 2025). There is no newly available relevant information that would change our analyses or the results thereof; therefore, discussion of effects are not provided here. Please refer to the notice of proposed IHA (90 FR 21182, May 16, 2025).

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, NMFS considers two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat, as well as subsistence uses. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (*i.e.*, probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (*i.e.*, probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost and impact on operations.

The mitigation requirements described in the following discussion were contained in Narwhal's in its adequate and complete application or are the result of subsequent coordination between NMFS and Narwhal. Narwhal has agreed that all of the mitigation measures are practicable. NMFS has fully reviewed the specified activities and the mitigation measures to determine if the mitigation measures would result in the least practicable adverse impact on marine mammals and their habitat, as required by the MMPA, and has determined the measures are appropriate. NMFS describes these below as mitigation requirements and has included them in the issued IHA.

Mitigation for Shallow Water Hazard Surveys

Vessels used during the surveys will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear. No materials capable of becoming entangled around marine mammals will be discarded into marine waters.

Vessel-Visual Based Mitigation Monitoring – Visual monitoring requires the use of trained observers (herein referred to as PSOs) to scan the ocean surface visually for the presence of marine mammals. PSOs shall establish and monitor a pre-start clearance zone (shutdown zones in table 11) and, to the extent practicable, a Level B harassment zone (table 11). These zones shall be based upon the radial distance from the edges of the acoustic source (rather than being based around the vessel itself). The shutdown zones are based off the size of the Level A harassment zone with slightly larger areas to ensure shut down before the animal enters the harassment zone. During pre-start clearance (*i.e.*, before ramp-up begins), the pre-start clearance zone is the area in which observations of marine mammals within the zone will prevent airgun and sparker operations from beginning (*i.e.*, ramp-up). The pre-start clearance zone will encompass the shutdown zones.

During survey operations (*e.g.*, any day on which use of the acoustic source is planned to occur, and whenever the acoustic source is activated in the water), a minimum of two PSOs during the operation of the airgun and a minimum of one PSO during the operation of the sparker must be on duty and conducting visual observations at all times during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset). Visual monitoring must begin no less than 15 minutes prior to use of the acoustic source and must continue 15 minutes after use of the acoustic source ceases. Visual PSO(s) must coordinate to ensure 360-degree visual coverage around the vessel from the most appropriate observation posts, and must conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.

Any observations of marine mammals by crew members shall be relayed to the PSO team. During good conditions (*e.g.*, daylight hours, Beaufort sea state (BSS) 3 or less), visual PSOs shall conduct observations when the acoustic source is not operating for comparison of sightings rates and behavior with and without use of the acoustic source and between acquisition periods, to the maximum extent practicable.

Visual PSOs may be on watch for a maximum of 4 consecutive hours followed by a break of at least 1 hour between watches and may conduct a maximum of 12 hours of observation per 24-hour period.

Pre-Start Clearance and Ramp-Up – A ramp-up procedure, involving a gradual increase in source level output, is not required for use of the airgun but is required at the start of the activation of the sparker when technically feasible. Operators should ramp up sparker source to half power for 5 minutes and then proceed to full power. A 15-minute pre-start clearance observation period must occur prior to the start of ramp-up. The intent of pre-start clearance observation (15 minutes) is to ensure no marine mammals are within the shutdown zones prior to the beginning of ramp-up. The intent of ramp-up is to

warn marine mammals of pending operations and to allow sufficient time for those animals to leave the immediate vicinity. A 15-minute pre-start clearance period is required for all species for this project due to the quick succession of track lines and in general the shallow water of the project area. All sound source operators must adhere to the following pre-start clearance and ramp-up requirements:

- The operator must notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time should not be less than 60 minutes prior to the planned ramp-up in order to allow the PSOs time to monitor the shutdown zones for 15 minutes prior to the initiation of ramp-up (pre-start clearance). During this 15-minute pre-start clearance period, the entire applicable shutdown zones must be visible, except as indicated below.
- Source use shall be scheduled so as to minimize the time spent with the source activated prior to the start of acquisition.
- A visual PSO conducting pre-start clearance observations must be notified again immediately prior to initiating ramp-up procedures and the operator must receive confirmation from the PSO to proceed.
- Any PSO on duty has the authority to delay the start of survey operations if a protected species is detected within the applicable pre-start clearance zone.
- The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that mitigation commands are conveyed swiftly while allowing PSOs to maintain watch.
- Ramp-up (sparker) or source use (airgun) may not be initiated if any marine mammal is within the applicable shutdown zone. If a marine mammal is observed within the applicable shutdown zone during the 15-minute pre-start clearance

period, ramp-up may not begin until the animal(s) has been observed exiting the zones or until an additional time period has elapsed with no further sightings (15 minutes for all marine mammals).

- PSOs must monitor the shutdown zones 15 minutes before and during ramp-up, and ramp-up must cease and the source must be shut down upon observation of a marine mammal within the applicable shutdown zone.
- Ramp-up may occur at times of poor visibility, including nighttime, if appropriate visual monitoring has occurred with no detections of protected species in the 15 minutes prior to beginning ramp-up.
- If the sparker is shut down for brief periods (*i.e.*, less than 30 minutes) for reasons other than implementation of prescribed mitigation (*e.g.*, mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual observation and no detections of protected species have occurred within the applicable shutdown zone. For any longer shutdown, pre-start clearance observation and ramp-up are required.

Shutdown Procedures

Any PSO on duty will have the authority to call for the shut down of the acoustic sources, as appropriate. The operator must also establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic sources to ensure that shutdown commands are conveyed swiftly while allowing PSOs to maintain watch. Narwhal must implement shutdown if a marine mammal species for which take was not authorized or a species for which authorization was granted but the authorized takes have been met approaches the Level B harassment zone. If the seismic activity is halted due to the presence of a marine mammal, the activity may not resume until either the animal has voluntarily exited and been visually confirmed beyond the

shutdown zone indicated in table 12, or 15 minutes have passed without re-detection of any marine mammal.

Table 12 -- Shutdown zones and Level B harassment zones for each activity.

Activity	Shutdown Zone Radius (m)		Level B Harassment Zone Radius (m)
	Low-Frequency Cetaceans	Phocid Pinnipeds	
Single Airgun	1,100	350	3,188
Sparker	500	N/A	447

Vessel Strike Avoidance

Crew and supply vessel personnel should use an appropriate reference guide that includes identifying information on all marine mammals and other marine aquatic protected species that may be encountered. Vessel operators must comply with the below measures except under extraordinary circumstances when the safety of the vessel or crew is in doubt or the safety of life at sea is in question.

- Vessel operators and crews must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any protected species. A single protected species at the surface may indicate the presence of submerged animals in the vicinity of the vessel; therefore, precautionary measures should always be exercised. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (species-specific distances detailed below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish protected species from other phenomena and 2) broadly to identify a marine mammal as a whale, seal, or other marine mammals.

- Vessel speed within west Harrison Bay must generally be restricted to 15 knots or less, must be reduced to 5 knots if within 300 yds (274 m) of a whale and must be reduced to 10 knots or less when weather conditions reduce visibility to 1.6 km or less;
- All vessels must maintain a minimum separation distance of 100 m from bowhead whales. If a bowhead whale is sighted within the relevant separation distance, and if safety allows, the vessel must reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 100 m (328 ft).
- All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 100 yds (91 m) from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel), and;
- When protected species are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area, reduce speed and shift the engine to neutral). This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

Mitigation for the Sea Ice Trail Crossing the Colville River Delta

Unless otherwise noted, these measures apply to ringed seals and the portion of the sea ice trail crossing the Colville River Delta. Take is only expected for this section of trail because this is the only suitable ringed seal habitat the ice trails will cross. These mitigation measures are organized into the following categories: 1) general mitigation

measures (implemented throughout the ice trail season, which occurs generally from December through May) and 2) mitigation measures that begin after March 1st.

General Ice Trail Mitigation Measures

Ice trail mitigation measures are based on the following assumptions:
ice trail construction occurs from approximately December 1st to mid-February (or as soon as sea ice conditions allow safe access and permit such activity); operations and maintenance generally occur from approximately mid-January through mid- to late-May. Ringed seals begin to establish birth lairs in late March. Therefore, ice trail construction should be initiated no later than March 1st (*i.e.*, surface-disturbing activities such as clearing or packing of snow or grading to be completed for the full spatial extent of the ice trails prior to March 1st) to reduce the potential for disturbance to ringed seal birth lairs/dens; and disturbance associated with construction prior to March 1st may deter pregnant seals from establishing birth lairs in the disturbed areas.

The following mitigation measures will be implemented throughout the entire ice trail season, including during construction, maintenance, active use, and decommissioning:

- Qualified observers for ice trail monitoring activities need not be trained PSOs, but they will have received the training described in the Wildlife Training in this section. In addition, they will be capable of detecting, observing, and monitoring ringed seal presence and behaviors, and accurately and completely recording data.
- Prior to initiation of sea ice trail construction activities, project personnel associated with ice trail construction, maintenance, or use (*i.e.*, construction workers, surveyors, vehicle operators, security personnel, and the environmental team) will receive annual training on seal avoidance mitigation measures appropriate for the work that they will perform (*e.g.*, ice trial maintenance). The annual training for all such personnel will include reviewing applicable portions of Narwhal's Wildlife Interaction Plan, which include the following measures:

- In addition to reviewing the mitigation measures, wildlife training for personnel involved in ice trail construction/maintenance or seal monitoring will include:
- how to identify ringed seal adults and pups;
- seal life history;
- habitat and diet;
- presence in project area;
- importance of lairs, breathing holes, and basking;
- potential effects of disturbance; and
- applicable laws and regulatory requirements.
- Personnel shall not approach or interact with any wildlife.
- Personnel must follow directions of Security and posted signs when traveling the ice trail.
- Workers must notify appropriate personnel if a seal is observed within 50 m, or if a seal structure (*i.e.*, breathing hole or lair) is observed within 150 m of the centerline of the ice trail.
- Workers must stay in the vehicle and continue traveling at a constant speed if a seal is observed near the trail. Do not slow down, stop, or exit the vehicle.
- Transport vehicles (passenger vehicles and trucks hauling goods) will not stop within 50 m of observed seals or 150 m of known seal lairs. Instead, they will continue travelling at a constant speed.
- Ice trail speed limits will be 45 miles per hour (72 kilometers per hour) or less, based on environmental, road conditions, and ice trail longevity considerations.

- The coastal sea ice trail will be established with GPS point coordinates and operators will be required to adhere to the route during transit. Any deviation from the established route will be for safety purposes. Delineators will mark the roadway in a minimum of ¼-mile increments on both sides of the portions of ice trails in west Harrison Bay to delineate the path of vehicle travel and areas of planned on-ice activities (e.g., emergency response exercises). Delineators may also be used to mark the centerline of the roadway.
- Corners of rig mats, steel plates, and other materials used to bridge sections of hazardous ice will be clearly marked or mapped using GPS coordinates of the locations.
- Any seal structures (*i.e.*, breathing holes and lairs) observed will be avoided by a minimum of 150 meters (about 500 feet) during ice testing and new trail construction and their locations will be reported and physically marked.
- Personnel will be instructed that approaching or interacting with seals is prohibited.
- If a seal is observed within 50 meters (164 feet) or if a seal structure (*i.e.*, breathing hole or lair) is detected within 150 meters (about 500 feet) of the centerline of an ice trail, the Narwhal's Environmental Specialist or Project Manager will be informed of the observation, who will then carry out the notification protocol and implement the procedures described in the Monitoring Measures for Ice Trails section (below). The following procedures will also be followed:
    - The location of the seal or seal structure will be physically marked (*e.g.*, at its position along the axis of the ice trail) by placing a readily visible marker (*e.g.*, pole and flag) within 15 meters (50 feet) of the edge of the

ice trail, while maintaining a distance of at least 15 meters (50 feet) from the seal/seal structure.

- During the period in which a seal structure is periodically monitored as described in the Monitoring Measures for Ice Trails section (below), maintenance work will proceed in a manner that minimizes impacts or disturbance to the area.

Ice Trail Mitigation Measures that Begin After March 1st

After March 1st and continuing until the decommissioning of ice trails is completed, on-ice activities can occur anywhere on sea ice where water depth is less than 3 meters (10 feet) (*i.e.*, habitat less suitable for ringed seal lairs and breathing holes). However, after March 1st on those sections of the ice trails where water depth is greater than 3 meters (10 feet), all activities will occur within the boundaries of the driving lane or shoulder area of the ice trail and other previously disturbed areas (*e.g.*, spill and emergency response areas, snow push areas), as long as personnel safety is ensured.

- If safety concerns due to unstable ice trail conditions warrant the creation of workaround route after March 1st, the route will be surveyed for seal structures using a trained observer in a tracked vehicle approximately 2 days prior to establishing the route, weather permitting. Surveys must occur following improved weather conditions before establishing the workaround route. The following protocol will be used for these surveys:
  - During daylight hours with good visibility, a trained wildlife observer will survey the route 2 days prior to route construction to search for potential seal structures. The observer will be dedicated to monitoring for seal structures while the driver operates the tracked vehicle. Ringed seal structures will be avoided by a minimum of 150 m during ice testing and new route construction.

    - If a suspected seal structure is observed within 150 m of either edge of the proposed new or workaround route, a marker will be placed 15 m from the location and GPS coordinates will be recorded. The new route must avoid any suspected seal structures by a 150 m distance.

- Ice trail construction and maintenance activities will remain at least 50 meters (164 feet) from a seal and 150 meters (about 500 feet) from a known seal structure (*i.e.*, breathing hole or lair) except under emergency conditions when blading or snow blowing is necessary. If snow blowing must occur within 50 meters (164 feet) of a seal or 150 meters (about 500 feet) of a seal structure, the snow will first be pushed so that it can subsequently be blown downwind of the animal or seal structure.

Mitigation Measures for Aircraft

- Except during takeoff and landing and in emergency situations, all aircraft will transit at an altitude of at least 457 meters (1,500 feet) while maintaining Federal Aviation Administration flight rules (e.g., avoidance of cloud ceiling, etc.). If flights must occur at altitudes less than 457 meters (1,500 feet), aircraft will make course adjustments, as needed, to maintain at least a 457 meters (1,500 feet) horizontal separation from all observed marine mammals.

- Aircraft will not hover or circle over marine mammals.

- Aircraft will not land on ice within 1 nautical mile (1.9 kilometers) of hauled-out seals.

Mitigation for Subsistence Uses of Marine Mammals or Plan of Cooperation

Regulations at 50 CFR 216.104(a)(12) further require IHA applicants conducting activities in or near a traditional Arctic subsistence hunting area and/or that may affect the availability of a species or stock of marine mammals for Arctic subsistence uses to

provide a Plan of Cooperation (POC) or information that identifies what measures have been taken and/or will be taken to minimize adverse effects on the availability of marine mammals for subsistence purposes. A plan must include the following:

- A statement that the applicant has notified and provided the affected subsistence community with a draft plan of cooperation;
- A schedule for meeting with the affected subsistence communities to discuss activities and to resolve potential conflicts regarding any aspects of either the operation or the plan of cooperation;
- A description of what measures the applicant has taken and/or will take to ensure that activities will not interfere with subsistence whaling or sealing; and
- What plans the applicant has to continue to meet with the affected communities, both prior to and while conducting the activity, to resolve conflicts and to notify the communities of any changes in the operation.

After withdrawing its original request, Narwhal resubmitted its application on November 1, 2024, which included a draft POC for NMFS. The POC outlines Narwhal's extensive coordination with subsistence communities that may be affected by the oil and gas exploration project. It includes a brief description of the project, community outreach that has already been conducted, as well as the concerns raised in those discussions and how they were addressed, and project mitigation measures. Narwhal has agreed to continue coordination with subsistence communities throughout the project duration and maintain constant communication with subsistence groups, as described below and in the POC. The POC is a living document and has been updated during the IHA process. The IHA includes a requirement stating that Narwhal must conduct the communication and coordination as described in the POC, which is available on our website at

https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-other-energy-activities-renewable.

Narwhal continues to document its communications with the North Slope subsistence communities, as well as the substance of its communications with subsistence stakeholder groups, and Narwhal will continue to routinely engage with local communities and subsistence groups. Multiple user groups are often consulted simultaneously as part of larger coalition meetings such as the AEWC and Ice Seal Committee meetings. Local communities and subsistence groups identified by Narwhal are listed in Section 5 of the POC. Narwhal has developed a POC and will implement this plan before initiating construction operations to coordinate activities with local subsistence users and stakeholders to eliminate the risk of interfering with subsistence hunting activities and keep current as to the timing and status of the bowhead whale hunt and other subsistence hunts. Narwhal will utilize in-person, video conferencing, telephonic, written, and email communication formats depending upon stakeholder representative locations, schedule availability, meeting location preferences and other factors. All stakeholder engagement activities and communications will be documented in the Narwhal Stakeholder Communication Log. The IHA requires that Narwhal must coordinate with local subsistence communities, notify the communities of any changes in the operation, and take action to avoid or mitigate impacts to subsistence harvests.

The AEWC works annually with industry partners to develop a CAA. This agreement implements mitigation measures that allow industry to conduct their work in or transiting the vicinity of active subsistence hunters, in areas where subsistence hunters anticipate hunting, or in areas that are in sufficient proximity to areas expected to be used for subsistence hunting where the planned activities could potentially adversely affect the subsistence bowhead whale hunt through effects on bowhead whales, while maintaining

the availability of bowheads for subsistence hunters. Narwhal has stated that they will enter the CAA for the project year.

Narwhal will continue to coordinate with Alaska Native villages and subsistence organizations to identify and avoid potential impacts to subsistence hunting.

As described in the **Effects of Specified Activities on Subsistence Uses of Marine Mammals** section of the proposed IHA, Narwhals activities do not overlap with the areas where subsistence hunters typically harvest ice seals and given the extent of impacts to seals described in that section, these activities are not expected to impact subsistence hunts of ice seals. Therefore, NMFS does not propose to include mitigation measures for subsistence harvest of ice seals; however, Narwhal will continue to meet with subsistence groups, including the Ice Seal Committee, as described in its POC.

NMFS conducted an independent evaluation of the proposed measures, and has determined that the mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for subsistence uses.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (e.g., presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (e.g., source characterization, propagation, ambient noise); (2) affected species (e.g., life history, dive patterns); (3) co-occurrence of marine mammal species with the activity; or (4) biological or behavioral context of exposure (e.g., age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (e.g., marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and,
- Mitigation and monitoring effectiveness.
- The monitoring and reporting requirements described in the following were proposed by Narwhal in its adequate and complete application and/or are the result of subsequent coordination between NMFS and Narwhal. Narwhal has agreed to the requirements. NMFS describes these below as requirements and has included them in the IHA.

PSO Requirements for shallow water hazard surveys

Vessel-Based Visual Monitoring

As described above, PSO observations will take place during daytime airgun operations. During shallow water hazard survey operations, two visual PSOs will be on duty at all times during daytime hours. Narwhal will provide the lead PSO and all other PSOs the equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals. Narwhal must use a dedicated, trained, and NMFS-approved lead PSO. Additional PSOs may be Narwhal staff members that are trained by the lead PSO, and they must have no other assigned tasks during monitoring periods other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew (including brief alerts regarding maritime hazards). At least one visual PSO aboard the vessel must have a minimum of 90 days at-sea experience working in those roles, respectively, with no more than 18 months elapsed since the conclusion of the at-sea experience. One visual PSO with such experience shall be designated as the lead for the entire protected species observation team. The lead PSO shall serve as primary point of contact for the vessel operator and ensure all PSO requirements per the IHA are met. To the maximum extent practicable, the experienced PSOs should be scheduled to be on duty with those PSOs with appropriate training but who have not yet gained relevant experience. The PSOs must have no tasks other than to conduct observational effort, record observational data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements. The lead PSO resume shall be provided to NMFS for approval. Monitoring shall be conducted in accordance with the following requirements:

- PSOs shall have successfully completed an approved PSO training course appropriate for their designated task.

- NMFS must review and approve PSO resumes accompanied by a relevant training course information packet that includes the name and qualifications (*i.e.*, experience, training completed, or educational background) of the instructor(s), the course outline or syllabus, and course reference material as well as a document stating successful completion of the course.
- PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program.
- PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics.
- The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted to NMFS and must include written justification. Requests shall be granted or denied (with justification) by NMFS within 1 week of receipt of submitted information. Alternate experience that may be considered includes, but is not limited to (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting academic, commercial, or government-sponsored protected species surveys; (3) previous work experience as a PSO; the PSO should demonstrate good standing and consistently good performance of PSO duties; or (4) PSOs may also substitute Alaska native traditional knowledge for experience.

Monitoring for Shallow Water Hazard Surveys

During the operation of the single airgun, one PSO will conduct monitoring duties from the source vessel and a second PSO will conduct monitoring from a support vessel. PSOs must record all observations of marine mammals, regardless of distance from the single airgun or sparker, as well as the additional data as required in the reporting requirements.

Monitoring During Ice Trail Construction and Operation

If a seal is observed within 50 meters (164 feet) or if a seal structure (*i.e.*, breathing hole or lair) is observed within 150 meters (about 500 feet) of the centerline of the ice trail the location of the seal or seal structure will be reported to the Environmental Specialist or Project Manager, who will then relay the observation location information to all personnel using the ice trail.

- As soon as practicable after the initial seal observation, the Environmental Specialist or qualified observer will observe the seal for approximately 15 minutes to document the animal's location relative to the trail.
- Qualified observers for ice trail monitoring activities need not be trained PSOs, but they will have received the training described in the sea ice trails observer/environmental specialist requirements section above. In addition, they will be capable of detecting, observing, and monitoring ringed seal presence and behaviors, and accurately and completely recording data.
- All work that is occurring when the seal is observed and the behavior of the seal during this observation period will be documented for an initial 15-minute observation period and every 6 hours thereafter during daylight hours (during active use of the route) until the animal moves more than 50 meters (164 feet) from the center of the road/trail or is no longer observed.

- If a ringed seal breathing hole or lair is observed within 150 m of the sea ice trail within the Colville River Delta, the location of the structure will be documented to the extent possible from the sea ice trail using GPS and reported to the Narwhal Permitting and Compliance Manager.
    - At least one ATV driver from a traveling group will monitor the breathing hole/lair from the trail for 15 minutes in daylight conditions on the day of the initial sighting to determine whether a ringed seal is present; and
    - Observations by an ATV driver for a seal near the breathing hole/lair will occur for 15 minutes each day while the trail is traveled unless it is determined the structure is not actively being used (*i.e.*, a seal is not sighted at that location during monitoring).

Monitoring measures that begin after March 1st:

- If an ice trail is being actively used, under daylight conditions with good visibility, a dedicated observer (not the vehicle operator) must conduct a survey along the sea ice trail to observe if any ringed seals are within 150 m (500 ft) of the roadway corridor. The following survey protocol must be implemented:
    - Surveys will be conducted every 3 days during daylight hours. Survey protocol consists of driving the ice trail and stopping every ½ mile to observe the area within 150 meters (about 500 feet) of the roadway corridor for approximately 5 minutes on each side of the corridor to check for the presence of seals or structures.
    - When performing observations, qualified observers will have no other primary duty than to watch for and report observations related to ringed seals during this survey. If the observer is driving a vehicle, then the survey will be performed when the driver stops, at periodic intervals sufficient to complete a thorough assessment of the area, given visibility

conditions. If weather conditions become unsafe, the monitoring activity will be discontinued.

Narwhal will engage subsistence hunters for monitoring recommendations:

- Narwhal will engage local hunters through the Ice Seal Committee point of contact to gather recommendations on methods for ringed seal detection within the exposure areas along the Colville River Delta; and
- Narwhal will incorporate recommendations, as appropriate, into training materials provided to personnel responsible for monitoring for ringed seals along the sea ice trail.

Narwhal is required to submit a draft report on all monitoring conducted under the IHA within 90 calendar days of the completion of marine mammal monitoring or 60 days prior to the issuance of any subsequent IHA for this project, whichever comes first. A final report shall be prepared and submitted within 30 days following resolution of comments on the draft report from NMFS. This report shall include:

For Shallow Water Hazard Surveys:

For data collection purposes, PSOs must use standardized electronic data collection forms. PSOs shall record detailed information about any implementation of mitigation requirements, including the distance of animals to the airgun array and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the airgun array. If required mitigation was not implemented, PSOs should record a description of the circumstances. At a minimum, the following information must be recorded:

- Vessel name, vessel size and type, maximum speed capability of vessel;
- Dates (MM/DD/YYYY) of departures and returns to port with port name;

- PSO names and affiliations, PSO identification (initials or other identifier);
- Date (MM/DD/YYYY) and participants of PSO briefings;
- Visual monitoring equipment used (description);
- PSO location on vessel and height (meters) of observation location above water surface;
- Watch status (description);
- Dates (MM/DD/YYYY) and times (Greenwich Mean Time (GMC)/Coordinated Universal Time (UTC)) of survey on/off effort and times (GMC/UTC) corresponding with PSO on/off effort;
- Vessel location (decimal degrees) when survey effort began and ended and vessel location at beginning and end of visual PSO duty shifts;
- Vessel location (decimal degrees) at 30-second intervals if obtainable from data collection software, otherwise at practical regular interval;
- Vessel heading (compass heading) and speed (knots) at beginning and end of visual PSO duty shifts and upon any change;
- Water depth (meters) (if obtainable from data collection software);
- Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions changed significantly), including BSS and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;
- Factors that may have contributed to impaired observations during each PSO shift change or as needed as environmental conditions changed (description) (*e.g.*, vessel traffic, equipment malfunctions); and
- Vessel/Survey activity information (and changes thereof) (description), such as airgun power output while in operation, number and volume of

airguns operating in the array, tow depth of the array, and any other notes of significance (*i.e.*, pre-start clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, *etc.*).

- Upon visual observation of any marine mammals, the following information must be recorded:
    - Sighting ID (numeric);
    - Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
    - Location of PSO/observer (description);
    - Vessel activity at the time of the sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other);
    - PSO who sighted the animal/ID;
    - Time/date of sighting (GMT/UTC, MM/DD/YYYY);
    - Initial detection method (description);
    - Sighting cue (description);
    - Vessel location at time of sighting (decimal degrees);
    - Water depth (meters);
    - Direction of vessel's travel (compass direction);
    - Speed (knots) of the vessel from which the observation was made;
    - Direction of animal's travel relative to the vessel (description, compass heading);
    - Bearing to sighting (degrees);
    - Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified) and the composition of the group if there is a mix of species;

- Species reliability (an indicator of confidence in identification) (1 = unsure/possible, 2 = probable, 3 = definite/sure, 9 = unknown/not recorded);
- Estimated distance to the animal (meters) and method of estimating distance;
- Estimated number of animals (high/low/best) (numeric);
- Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, *etc.*);
- Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
- Detailed behavior observations (*e.g.*, number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
- Animal's closest point of approach (meters) and/or closest distance from any element of the airgun array;
- Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up) and time and location of the action;
- Photos (Yes/No);
- Photo Frame Numbers (List of numbers); and
- Conditions at time of sighting (Visibility; BSS).

For Ice Trails:

- Date and time of each observation event (*e.g.*, initial observation of a seal or seal structure) and subsequent monitoring;
- Environmental conditions during each observation event;

- Number of animals per observation event; and number of adults/juveniles/pups per observation event;
- Behaviors of seals during each observation event;
- Geographic coordinates of the observed animals or structure (breathing hole or lair), with the position recorded by using the most precise coordinates practicable (coordinates will be recorded in decimal degrees, or similar standard, and defined coordinate system); and
- Distance of seals and seal structures from the centerline of the ice trail.

Reporting Dead or Injured Marine Mammals - In the event that personnel involved in the project activities covered by the authorization discover an injured or dead marine mammal, the IHA-holder shall report the incident to the Office of Protected Resources (OPR), NMFS (*PR.ITP.MonitoringReports@noaa.gov* and *ITP.cockrell@noaa.gov*) and to the Alaska regional stranding coordinator (907-586-7209) as soon as feasible. The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

Vessel Strike—In the event of a strike of a marine mammal by any vessel involved in the activities covered by the authorization, Narwhal shall report the incident to OPR, NMFS,

and the Alaska regional stranding coordinator (907-586-7209) as soon as feasible. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Vessel's speed during and leading up to the incident;
- Vessel's course/heading and what operations were being conducted (if applicable);
- Status of all sound sources in use;
- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measure were taken, if any, to avoid strike;
- Environmental conditions (*e.g.*, wind speed and direction, BSS, cloud cover, visibility) immediately preceding the strike;
- Species identification (if known) or description of the animal(s) involved;
- Estimated size and length of the animal that was struck;
- Description of the behavior of the marine mammal immediately preceding and following the strike;
- If available, description of the presence and behavior of any other marine mammals present immediately preceding the strike;
- Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
- To the extent practicable, photographs or video footage of the animal(s).

Monitoring Plan Peer Review

The MMPA requires that monitoring plans be independently peer reviewed where the proposed activity may affect the availability of a species or stock for taking for

subsistence uses (16 U.S.C. 1371(a)(5)(D)(ii)(III)). Regarding this requirement, NMFS' implementing regulations state that upon receipt of a complete monitoring plan and at its discretion, NMFS will either submit the plan to members of a peer review panel for review or within 60 days of receipt of the proposed monitoring plan, schedule a workshop to review the plan (50 CFR 216.108(d)).

NMFS established an independent PRP to review the Monitoring Measures in Narwhal's application in April 2025. NMFS provided the panel with a copy of Narwhal's application and a list of considerations to guide their discussion of the monitoring plan. The panel provided a final report to NMFS on May 2, 2025 containing recommendations for Narwhal's monitoring plan. The PRP's primary recommendations and comments are summarized and addressed below. The PRP's full report is posted on NMFS' website at: *https://www.fisheries.noaa.gov/action/incidental-take-authorization-narwhal-llcs-oil-and-gas-exploration-activities-west-harrison*

Recommendation 1.2.1

The PRP recommended that the PSO team consist of one lead PSO (biologist) and strongly advised that Narwhal have at least one Iñupiat observer and that the lead PSO have at least one year of prior PSO experience, preferably on projects in Arctic Alaska. Given the extensive traditional knowledge of local Iñupiat on marine mammals and their behavior, the inclusion of a local Iñupiat Observer will enhance the monitoring data. Based on the requirement in the MMPA to avoid unmitigable adverse impacts on the availability of marine mammals for subsistence use, the PRP stated that presence of the local Iñupiat Observer will enable the vessel to be better informed of subsistence activities in the area and will facilitate communications with subsistence hunters in the area. Narwhal plans to have one third-party observer onboard as a lead PSO as outlined in the PSO requirements of the IHA. Narwhal will source an Iñupiat observer to the best of its ability.

The lead PSO will be stationed directly on the source vessel and will be responsible for monitoring the shutdown zone and for communications with the project manager when implementation of mitigation measures is necessary. The lead PSO will also oversee and coordinate the other PSOs. The PRP recommended that given the likelihood of 24-hour operations in the summer, the PRP understands that at least four PSOs will be needed during seismic activities. While Narwhal notes that 24-hour operations are not planned, Narwhal has agreed to the PSO shift limitations in the IHA and will provide sufficient PSO staffing, in addition to the independent lead PSO, to carry out the monitoring duties.

The PRP also recommended that NMFS require Narwhal to abide by its most recent PSO qualification requirements. The PRP recommended that NMFS make it clear to Narwhal that vessel crew are not to be used as PSOs. Only experienced NMFS-qualified PSOs and local Iñupiat Observers should be used to satisfy the observer requirements. The PRP further recommended that, if bunk space is limited, Narwhal should consider use of a third vessel for the PSOs and local Iñupiat Observers during the shallow hazard survey. The PRP stated that a third vessel will provide ample bunk space for the appropriate number of observers to effectively monitor the zone during this activity. Narwhal has requested the use of trained staff, under the supervision of an independent lead PSO, as the other qualified PSOs given the limited berthing capacity of the survey vessels used in the shallow water hazard survey. Currently only two vessels are planned for use in the survey and the placement of a third vessel will increase vessel traffic in the area and it is logistically not feasible.

NMFS is requiring that the lead PSO be a third-party independent observer as recommended by the PRP. The PRP's recommendation for all PSOs to be independent third-party observers is not practicable given the reasons described above, and therefore, NMFS has not included this recommendation in the final IHA.

Recommendation 1.2.2

The first two PRP recommendations in this section were related to mitigation measures. First the PRP recommended that Narwhal should be required to complete all of the seismic activities prior to August 25, 2025, to avoid impacts to migrating bowhead whales. The second recommendation was that staging of equipment for activities be completed as early as possible to reduce vessel traffic during the fall migration and hunt. NMFS responded to these recommendations in the Comments and Response section of this notice. Please see Comments 3 and 4 for NMFS response to these recommendations.

The PRP also stressed its opinion that communication with local subsistence hunters will be key to preventing unmitigable adverse impacts on subsistence use, as required by the MMPA. The PRP recommended that Narwhal be required to engage in daily communication with subsistence whaling crews and other marine mammal subsistence hunters to ensure that adverse impacts on subsistence hunting are avoided or minimized.

Narwhal has agreed to engage in daily communication with subsistence whaling crews and other marine mammal subsistence hunters as outlined in the CCA signed by Narwhal on July 7, 2025.

Recommendation 1.2.3

The PRP noted that Narwhal did not specify in the monitoring plan what methods it plans to use to detect sea lairs (*e.g.*, opportunistic ground-based sightings, trained dogs, aerial surveys, infrared aerial sensors). Further the PRP stated that it is prudent that Narwhal be able to detect ringed seal lairs effectively, as ice trail construction activities have the potential to result in injuries or mortalities of ringed seals that occupy lairs that have gone undetected in close proximity to those activities. Therefore, the PRP recommends that Narwhal be required to (1) engage local hunters through the Ice Seal Committee point of contact to gather recommendations on methods for ringed seal and

lair detection along sea ice roads/trails within the exposure areas, (2) incorporate the Committee's recommendations into Narwhal's training materials provided to personnel responsible for monitoring for ringed seals and lairs along sea ice roads/trails, and (3) include the methods used for detection of seals and lairs in the final report.

Narwhal has agreed to implement all of these recommendations from the PRP and Narwhal has agreed to include the methods for detection for all seal structures including breathing holes in its final report. This reporting requirement is included in the final IHA.

Recommendations 1.2.4, 1.2.5, and 1.2.6

These recommendations were mitigation-focused, rather than monitoring-focused. Therefore, NMFS has responded to these recommendations as public comments. Recommendation 1.2.4 was already included as a mitigation measure in the proposed IHA and is not part of the Comment and Response Section of this notice. Please see Comment 2 in the Comments and Responses section of this notice for responses to 1.2.5. Recommendation 1.2.6 regarding the use of inland community trails and awareness of associated wildlife such as caribou and polar bears. These species are managed by USFWS, rather than NMFS. NMFS has passed along the recommendation to USFWS.

Recommendation 1.2.7

The PRP recommended that Narwhal include communications with Whaling Captains Associations of Barrow, Native Villages of Barrow, Kuukpik Corporation, Inupiat Community of the Arctic Slope, Alaska Nannut Co-Management Council, and the Beluga Whale Committee as part of their POC. The panel urged Narwhal to meet with these communities and provide a summary of the concerns that were shared and what measures Narwhal intends to incorporate in its plans to address these concerns and updates reflected in the final monitoring plan.

Narwhal has agreed to reach out to all of the organizations the PRP recommended and update the POC with the concerns raised at those meetings and how Narwhal intends

to address those concerns. Since the PRP meeting Narwhal has updated their POC with meetings including the Beluga Whale Committee and the Nuiqsut City Council.

Recommendation 1.2.8

The PRP recommended that Narwhal report the estimated distance to each observed seal structure and seal observed during the construction and operation of the ice trails. The PRP also requested that NMFS provide the 90-day report submitted by Narwhal to review for use in future monitoring plan reviews by the PRP. Narwhal has agreed to include the estimated distance of seals and seal structures in its final report, and this requirement has been added to the final IHA.

NMFS will provide a copy of the final, approved 90-day report to the PRP.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through harassment, NMFS considers other factors, such as the likely nature of any impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this

analysis via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the majority of our analysis applies to all the species listed in table 10, given that many of the anticipated effects of the specified activities on different marine mammal stocks are expected to be relatively similar in nature. Where there are meaningful differences between species or stocks or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, they are described independently in the analysis below.

The shallow water hazard survey (single seismic airgun and sparker) and the construction and operation of coastal sea ice trails have the potential to disturb or temporarily displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment only, from use of the acoustic source during shallow water hazard surveys or through disturbance incidental to the construction and operation of coastal sea ice trails. No mortality or serious injury is anticipated given the nature of the activity. The potential for Level A harassment from the shallow water hazard survey is minimized through the implementation of the required mitigation measures (see **Mitigation Measures** section). The applicant will implement shutdowns of acoustic sources during the shallow water hazard survey before marine mammals enter the Level A harassment zones. Take by Level A harassment is not expected during the construction and operation of the sea ice trails.

The shallow water hazard survey has the potential to overlap with bowhead whale Biological Important Areas (BIAs) identified as important for feeding and migration. Three of the four BIAs (Alaska Beaufort Parent, Harrison Bay Child, and West Alaska Beaufort Child) for feeding occur for the months of August and September (during the

shallow water hazard survey) and are of moderate to high importance and intensity with high data support and boundary certainty. Only a very small portion of the shoreward boundary of the three feeding BIAs will overlap with the project area and only 12 days of active acoustic sources during the shallow water hazard surveys will occur. The relative size and timing of remaining available feeding habitat for bowheads does not suggest the activity will result in decreased fitness of feeding bowhead whales. One of the two migratory BIAs (Beaufort) also occurs during August and September (during the shallow water hazard survey) and is of high importance and intensity with high data support and boundary certainty. Only small portions of the entire BIA will overlap with the shallow water hazard survey when compared to the entire available area. The shallow water hazard survey also will only occur over 12 days, therefore reducing the potential for long-term effects. Given the small portion of overlap and the short-term effects of this activity, it is not expected to impact reproduction or survivorship of any individuals using the BIAs.

As described above, the project does not overlap with critical habitat for ringed seals or bearded seals. There are no anticipated effects from this project on designated critical habitat for these species. While some ice trail activities (operation and demobilization) may occur during pupping season for ringed seals, Narwhal plans to construct the entirety of their expected ice trails prior to March 1st when the ringed seal pupping season begins. The additional mitigation measures required after March 1st will mitigate any potential disturbances to seals that are actively pupping. During the construction of the ice trail, behavioral disturbance of ringed seals may occur but is expected to be limited given the mitigation and monitoring measures.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely

affect any of the species or stocks through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- The anticipated incidents of Level B harassment would consist of, at most, temporary modifications in behavior that would not result in fitness impacts to individuals;
- The area impacted by the specified activities is very small relative to the overall habitat ranges of all species;
- While impacts will occur within areas that are important for feeding and migration for bowhead whales, because of the small footprint of the activity relative to the area of these important use areas and the scope and nature of the anticipated impacts of shallow water hazard survey, we do not expect impacts to the reproduction or survival of any individuals.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from the specified activities will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted previously, only take of small numbers of marine mammals may be authorized under section 101(a)(5)(D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of

marine mammals. When the predicted number of individuals to be taken is fewer than one-third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The number of takes NMFS proposes to authorize is below one-third of the modeled abundance for all relevant populations (specifically, take of individuals is less than 0.6 percent of the most appropriate abundance estimate for each stock, see table 10). This is conservative because this approach assumes all takes are of different individual animals, which is likely not the case. Some individuals may be encountered multiple times in a day, but PSOs will count them as separate individuals if they cannot be identified.

Based on the analysis contained herein of the activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

In order to issue an IHA, NMFS must find that the specified activity will not have an "unmitigable adverse impact" on the subsistence uses of the affected marine mammal species or stocks by Alaskan Natives. NMFS has defined "unmitigable adverse impact" in 50 CFR 216.103 as an impact resulting from the specified activity: (1) That is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by: (i) Causing the marine mammals to abandon or avoid hunting areas; (ii) Directly displacing subsistence users; or (iii) Placing physical barriers between the marine mammals and the subsistence hunters; and (2) That cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

Given the nature of the activity and the required mitigation measures, serious injury and mortality of marine mammals is not expected to occur. Impacts to marine mammals will be limited to temporary behavioral disturbances of seals and bowhead whales. As described above, the required mitigation measures, such as implementation of shutdown zones, are expected to reduce the frequency and severity of takes of marine mammals.

Project activities could deter target species from west Harrison Bay. However, much of the project season avoids traditional ice seal harvest windows. (As noted in the **Effects of Specified Activities on Subsistence Uses of Marine Mammals** section above, Nuiqsut residents typically harvest ice seals in the highest numbers in June, July, and August, and Narwhal's project will not begin until August.) While some hunting continues throughout the early fall, we do not anticipate that there will be impacts to seals that will make them unavailable for subsistence hunters. As noted in the **Effects of Specified Activities on Subsistence Uses of Marine Mammals** section, subsistence use of bowhead whales is limited in this area, as it is not within the preferred and frequented hunting areas. The authorized takes are not expected to affect the fitness of any bowhead whales, or cause significant deflection outside of the typical migratory path in areas where subsistence hunts occur. Narwhal will continue to coordinate with local communities and subsistence groups to minimize impacts of the project, as described in the POC, which the IHA requires Narwhal to abide by.

Based on the description of the specified activity, the measures described to minimize adverse effects on the availability of marine mammals for subsistence purposes, and the mitigation and monitoring measures, NMFS has determined that there will not be an unmitigable adverse impact on subsistence uses from Narwhal's activities.

Endangered Species Act

Section 7(a)(2) of the ESA of 1973 (ESA; 16 U.S.C. 1531 *et seq*.) requires that each Federal agency ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS OPR consults internally whenever we propose to authorize take for endangered or threatened species, in this case with the NMFS Alaska Regional Office (AKR).

NMFS Alaska Regional Office issued a Biological Opinion under section 7 of the ESA on the issuance of an IHA to Narwhal under section 101(a)(5)(D) of the MMPA by the NMFS OPR. The Biological Opinion concluded that the proposed action is not likely to jeopardize the continued existence of bowhead whale, bearded seal (Beringia DPS), and ringed seal (Arctic subspecies), and is not likely to destroy or adversely modify critical habitat for those species.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq*.) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

NMFS prepared an EA and analyzed the potential impacts to marine mammals that would result from Narwhal's oil and gas exploration project, and subsequently signed a Finding of No Significant Impact (FONSI) regarding the effects of its proposed action on the human environment. Copies of the EA and FONSI are available at *https://www.fisheries.noaa.gov/action/incidental-take-authorization-narwhal-llcs-oil-and-gas-exploration-activities-west-harrison*.

Authorization

NMFS has issued an IHA to Narwhal for the potential harassment of small numbers of four marine mammal stocks incidental to the oil and gas exploration activities in west Harrison Bay, Alaska.

Dated: August 15, 2025.

Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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