E 3510-22-P

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**[RTID 0648-XE199]**

# Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Hilcorp Alaska, LLC Production Drilling Support in Cook Inlet, Alaska

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

**ACTION:** Notice; issuance of an incidental harassment authorization.

**SUMMARY:** In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Hilcorp Alaska, LLC (Hilcorp) to incidentally harass marine mammals during production drilling support activities in Cook Inlet, Alaska.

**DATES:** This authorization is effective from September 24, 2024 through September 23, 2025.

**ADDRESSES:** Electronic copies of the application 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/national/marine-mammal-protection/incidental-take-authorizations-oil-and-gas*. In case of problems accessing these documents, please call the contact listed below.

**FOR FURTHER INFORMATION CONTACT:** Reny Tyson Moore, Office of Protected Resources, NMFS, (301) 427-8401.

**SUPPLEMENTARY INFORMATION**:

## Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct 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 monitoring and reporting of the takings. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

**Summary of Request**

On August 2, 2023, NMFS received a request from Hilcorp for an IHA to take marine mammals incidental to production drilling support activities in Cook Inlet, Alaska. Following NMFS' review of the application, Hilcorp submitted revised versions on September 29, 2023, December 27, 2023, February 29, 2024, and April 8, 2024. The application was deemed adequate and complete on April 12, 2024, and the notice for the proposed IHA was published in the **Federal Register** on July 24, 2024 (89 FR 60164). Hilcorp's request is for take of 12 species of marine mammals, by Level B harassment.

Neither Hilcorp nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued two consecutive IHAs to Hilcorp for similar work (87 FR 62364, October 1, 2022). Hilcorp complied with all the requirements (*e.g.,* mitigation, monitoring, and reporting) of the previous IHAs, and information regarding their monitoring results may be found in the Potential Effects of Specified Activities on Marine Mammals and their Habitat section of this notice.

There are no changes from the proposed IHA to the final IHA other than the addition of some clarifying language and some minor typographical corrections.

**Description of Specified Activity**

Hilcorp plans to use three tug boats to tow and hold, and up to four tug boats to position, a jack-up rig to support production drilling at existing platforms on 6 non-consecutive days during a 1-year period, in middle Cook Inlet and Trading Bay Alaska. Tug activities will include one demobilization effort of a jack-up rig (Spartan 151 or equivalent rig) from an existing platform to Rig Tenders Dock in Nikiski, one jack-up rig relocation between existing platforms, and one remobilization effort of the jack-up rig from Rig Tenders Dock in Nikiski to middle Cook Inlet. Noise produced by tugs under load with a jack-up rig may result in take, by Level B harassment, of 12 marine mammal species. References to tugging activities herein refer to activities where tugs are under load with the rig (*i.e.*, tugs towing, holding, and or positioning a jack-up rig).

A detailed description of the planned tugging activities is provided in the **Federal Register** notice for the proposed IHA (89 FR 60164, July 24, 2024). Since that time, no 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 specific activity.

**Comments and Responses**

A notice of NMFS' proposal to issue an IHA to Hilcorp was published in the **Federal Register** on July 24, 2024 (89 FR 60164). That notice described, in detail, Hilcorp's activity, 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.

During the 30-day public comment period, NMFS received comments from Hilcorp, the Center for Biological Diversity (CBD), and Cook Inletkeeper. All relevant, substantive comments, and NMFS' responses, are provided below and are organized by topic. The comments and recommendations are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*. Please see the comment submissions for full details regarding the recommendations and supporting rationale.

*Comment 1*: Hilcorp requests that NMFS provide context for the term "serious" as used in the description of effects that temporary threshold shifts (TTS) can have on marine mammals included in the **Federal Register** notice for the proposed IHA (89 FR 60164, July 24, 2024) and/or edit for better accuracy.

*Response*: NMFS reviewed the referenced text provided in the Potential Effects of Specified Activities on Marine Mammals and Their Habitat of the notice of proposed IHA, which is referenced in this notice. We determined the discussion was sufficiently clear as originally written.

*Comment 2*: Hilcorp requests that NMFS clarify that NMFS has found permanent threshold shifts (PTS) to not be likely based on the modeling results provided in the **Federal Register** notice for the proposed IHA (89 FR 60164, July 24, 2024).

*Response:* NMFS concurs that PTS resulting from Hilcorp's tugging activities is unlikely. As described in the **Federal Register** notice for the proposed IHA (89 FR 60164, July 24, 2024), Hilcorp contracted SLR Consulting to model the extent of the harassment isopleths for tugs under load with a jack-up rig during their planned activities. The modeling efforts used detailed propagation calculations that accounted for local bathymetry and specific sound source locations and frequency-dependent propagation effects in an attempt to improve the representation of the influence of relevant environmental variables on the propagation of sound from Hilcorp's planned activities. The results of these modeling efforts estimated distances to PTS thresholds under the mobile tug scenarios that are smaller than the overall size of the tug and rig configuration (*i.e.*, less than or equal to 8 meters (m)), making it unlikely an animal would remain close enough to the tug engines to incur PTS. For stationary positioning of the jack up rig, the PTS isopleths for both the 3-tug and 4-tug scenarios were estimated to be up to 749 m for high frequency (HF) cetaceans and up to 102 m for all other species, but calculated on the assumption that an animal would remain within several hundred meters of the jack-up rig for the full 5 hours of noise-producing activity. Given the location of the activity is not in an area known to be essential habitat for any marine mammal species with extreme site fidelity, in addition to the mobile nature of marine mammals and the likelihood of avoidance, NMFS concurs that the occurrence of PTS is unlikely and thus, Level A harassment was not proposed or authorized for any species.

*Comment 3*: Hilcorp requests that NMFS clarify that the required mitigation measures will reduce Level B harassment as well as the already insignificant potential for Level A harassment as a result of the specified activity.

*Response*: As described in NMFS' response to Comment 2, there is a discountable potential for marine mammals to incur PTS from the project. Source levels from Hicorp's tugging activities are anticipated to be relatively low, non-impulsive, and animals would

have to remain at very close distances for multiple hours to accumulate acoustic energy at levels that could damage hearing. We agree that mitigation measures required by NMFS are expected to be effective in further reducing the potential for Level A and Level B harassment and minimizing impacts of the specified activity. These measures include the employment of multiple protected species observers (PSOs), vessel maneuvering restrictions, pre-clearance monitoring prior to commencing activities (which includes a measure that Hilcorp must delay any tugging activities should Cook Inlet beluga whales (CIBWs) be observed at any distance or if other marine mammals are observed within a 1.5 kilometer (km) clearance zone) as well as a requirement that Hilcorp must conduct tugging activities with a favorable tide to reduce noise output. These required measures should reduce any effects of the specified activity on marine mammals by minimizing the numbers of marine mammals exposed to sound and by minimizing the intensity of any exposures. Please see the Mitigation section of this notice for a full description of the required mitigation measures.

*Comment 4*: Hilcorp notes that some of the densities reported in the **Federal Register** notice for the proposed IHA (89 FR 60164, July 24, 2024) did not match those included in the Hilcorp application.

*Response*: Hilcorp correctly identified a typo in table 10 of the notice of proposed IHA (89 FR 60164, July 24, 2024) regarding the density of minke whales. The table included a density of 0.0004 individuals per kilometers squared ($km^2$), whereas Hilcorp's application included a density of 0.00003 individuals per $km^2$. That table (table 9 in this notice) has been corrected to include the correct density estimate of 0.00003 individuals per $km^2$ for this species.

Hilcorp also commented that the density value for CIBWs based on MML annual surveys for the entire Cook Inlet reported in table 10 in the notice for the proposed IHA (89 FR 60164, July 24, 2024) (*i.e.*, 0.07166 individuals per $km^2$) does not align with other

numbers provided in that table for CIBWs. This value was calculated as the average density of CIBWs in the entire Cook Inlet from 2000 through 2022 as indicated by table 16 in Hilcorp's application and is included in table 9 of this notice.

*Comment 5*: Hilcorp requests that NMFS specify that Hilcorp's activity will not cause repeated, sequential exposure or repetitious sounds. They also state that the best available information shows no potential for any population level impacts.

*Response*: As described in the Negligible Impact Analysis and Determination section of the notice for the proposed IHA (89 FR 60164, July 24, 2024) and this notice, we describe how repeated, sequential exposure to elevated noise or repetitious sounds from tugs under load with a jack-up rig over a long duration could result in more significant impacts to individuals that could affect a population (via sustained or repeated disruption of important behaviors such as feeding, resting, traveling, and socializing; Southall *et al*., 2007). It is unlikely that any individual would be exposed to repeated, sequential exposures or repetitious sounds from Hilcop's activities given the short duration of Hilcorp's tugging activities (*i.e.*, 6 non-consecutive days over a 1-year period), and the low densities of marine mammals in the planned action area (see tables 10 in the notice for the proposed IHA (89 FR 60164, July 24, 2024) and table 9 in this notice). However, the potential for some repeat, sequential exposure or repetitious sounds from Hilcorp's tugging activities, though limited, does exist given that NMFS does not know with certainty that any individuals would not be exposed to Hilcorp's activity more than once.

Despite the small potential for limited repeated, sequential exposure or repetitive sounds from Hilcorp's tugging activities, NMFS concurs with Hilcorp that the best available science supports the notion that exposure to tugging activities would not have impacts on the fitness or reproductive success of any individual marine mammals, much less population level impacts. Marine mammals, including CIBWs, frequent and use

Cook Inlet despite being exposed to anthropogenic sounds such as those produced by tug boats and other vessels across many years. The absence of any pinniped haul outs or other known home-ranges in the planned action area further decreases the likelihood of any population level impacts. As described in the Description of Sound Sources for the Specified Activities section of the notice for the proposed IHA (89 FR 60164, July 24, 2024), while marine mammals may be present in low numbers during Hilcorp's tugging activities, most individuals, including CIBWs, are anticipated to be transiting through the area, limiting exposure duration. CIBWs in the area are expected to be headed to or from the concentrated foraging areas farther north near the Beluga River, Susitna Delta, and Knik and Turnigan Arms. Similarly, humpback whales (*Megaptera novaeangliae*), fin whales (*Balaenoptera physalus*), minke whales (*Balaenoptera acutorostrata*), gray whales (*Eschrichtius robustus*), killer whales (*Orcinus orca*), California sea lion (*Zalophus californianus*), and Steller sea lions (*Eumetopias jubatus*) are not expected to remain in the area of the tugs. Dall's porpoise (*Phocoenoides dalli),* harbor porpoise (*Phocoena phocoena*), and harbor seal (*Phoca vitulina*) have been sighted with more regularity than many other species during oil and gas activities in Cook Inlet, but due to the transitory nature of these species, they are unlikely to remain close to a tug under load for the full duration of the noise-producing activity. Further, previous observations of marine mammals sighted near Hilcorp's planned activities have shown little to no observable reactions to tugs under load with a jack-up rig (*e.g.*, Horsley and Larson, 2023).

Lastly, no serious injury or mortality is anticipated to result from this activity. Take by Level A harassment (injury) is considered unlikely and is not authorized because of the small estimated Level A harassment zones resulting from tugs under load with a jack-up rig (*i.e.*, ≤ 8 m during mobile tugging activities and ≤ 749 m for stationary tugging activities), the mobile nature of both the activity itself and marine mammals in

the project area, and the required mitigation and monitoring program. Any take that may potentially occur would be in the form of Level B harassment, likely in the form of avoidance of the vessels and the noise they produce. Please see the Negligible Impact Analysis and Determination section of the notice for the proposed IHA (89 FR 60164, July 24, 2024) and this notice for more detailed information regarding why population level impacts resulting from the additional noise produced by tugs under load with a jack-up rig are not anticipated.

*Comment 6*: Hilcorp suggests that because the MMPA requires NMFS to use the "best scientific information available", NMFS should use the CIBW abundance estimate of 331 from Goetz *et al.* (2003) as described in the footnote of table 12 of the **Federal Register** notice for the proposed IHA (89 FR 60164, July 24, 2024) rather than 271 from the most recent Stock Assessment Report (Young *et al.*, 2023) when considering the percentage of the stock proposed to be authorized for taking.

*Response*: As noted by Hilcorp, the abundance estimate provided by Goetz *et al*. (2023) is the most recent CIBW abundance estimate available. Footnotes 8 and 4 in tables 2 and 12, respectively, of the notice of the proposed IHA (and table 1 and table 11 in this notice) also state that "in accordance with the MMPA, this population estimate will be incorporated into the CIBW SAR, which will be reviewed by an independent panel of experts, the Alaska Scientific Review Group. After this review, the SAR will be made available as a draft for public review before being finalized." Even when more recent abundance estimates are available, NMFS typically considers abundance estimates from the SARs to be the best available given the rigorous SAR review process. However, in this case, regardless of whether the number of instances of takes is compared to the abundance estimate in the current CIBW SAR or the Goetz *et al.* (2023) abundance estimate, the number of instances of take as a percent of the stock abundance is less than

6 percent and is considered to be small numbers even if each instance of take represents a different CIBW.

*Comment 7*: Hilcorp requests that NMFS delete the requirement of the proposed IHA that they must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. They state that Hilcorp is not required to "monitor the project area to the maximum extent possible," but rather is required to monitor certain zones, according to the terms of the IHA.

*Response:* NMFS has revised the IHA to make clear that the requirement to "monitor the project area to the maximum extent possible" does not refer to mitigation clearance zones but is rather a monitoring requirement that applies once operations commence. Specifically, we moved that requirement, which Hilcorp included in its application, to item 5(a) of the IHA, which addresses monitoring requirements during tug operations (in acknowledgement of the fact that Hilcorp will not be able to shut down activities once the tugs are under-load with the jack-up rig). We have also clarified in the final IHA that the maximum extent possible is the maximum distance possible.

The monitoring requirement during operations is distinguished from the mitigation-related pre-clearance zones identified in item 4 of the IHA, which identifies the clearance zones that must be monitored as part of a pre-operational mitigation requirement. See the Mitigation section of this final notice for additional details.

*Comment 8*: Hilcorp requests that NMFS delete and/or modify language that describes NMFS' purpose and alternatives considered in the agency's Environmental Assessment (EA). Specifically they state that language included in the draft EA incorrectly states NMFS' purpose, and that NMFS does not have the authority to require Hilcorp to use alternative technologies.

*Response*: NMFS believes the referenced paragraph regarding NMFS' purpose in the EA appropriately describes our intent (which includes evaluating the information in Hilcorp's application). Therefore, NMFS has not deleted the referenced text as requested by Hilcorp. NMFS has revised the language referring to alternatives considered but eliminated from further consideration to clarify that NMFS does not have authority under the MMPA to prescribe that an applicant use alternative technologies to accomplish their objectives (*i.e.*, an IHA does not authorize an activity, rather take of marine mammals incidental to an activity).

*Comment 9*: CBD states that NMFS failed to seriously evaluate the assertion that noise from tugboats is the highest noise threat to CIBWs according to NMFS' Recovery Plan for CIBWs (NMFS, 2016).

*Response*: NMFS' Recovery Plan (NMFS, 2016) ranks noise from tugboats as the most important source that could potentially interfere with CIBW recovery based on signal characteristics and spatio-temporal acoustic footprint. Specifically, NMFS (2016) identified propeller cavitation (the formation of bubbles in a liquid) and engine noise including azimuth/bow thruster noise from tug boats as concerning. However, notably, the Recovery Plan is referencing tugboat noise as a whole across all vessels and the entirety of Cook Inlet, not Hilcorp's specified activity in the specified location and geographic region, which is likely a small portion of overall tugboat use in Cook Inlet throughout the year. The NMFS Alaska Regional Office (AKRO) issued a Biological Opinion on September 4, 2024, under section 7 of the Endangered Species Act (ESA), on the issuance of an IHA to Hilcorp under section 101(a)(5)(D) of the MMPA by the NMFS Office of Protected Resources, which addressed the impacts of the CIBW take NMFS is authorizing in the context of both the environmental baseline and the cumulative effects (including tugboats) and found that it is not likely to jeopardize the

continued existence of CIBWs or to destroy or adversely modify their designated Critical Habitat.

NMFS acknowledges that the sounds produced by Hilcorp's tugging activities may potentially result in take, by Level B harassment (behavioral disturbance), of some marine mammals, most likely in the form of avoidance of the vessels and the noise they produce. As described in the Estimated Take section of the notice for the proposed IHA (89 FR 60164, July 24, 2024) and this notice, the sound source levels of tugging activities range widely according to the level of operational effort, with full power output and higher speeds generating more propeller cavitation and hence greater sound source levels than lower power output and lower speeds. As such, Hilcorp will implement mitigation measures intended to reduce the sound source levels from the tugs under load. First, the IHA requires that Hilcorp must conduct tug towing rig operations with a favorable tide unless human safety or equipment integrity are at risk. This is in an effort to reduce the operational effort of the tugs under load and to minimize source levels from Hilcorp's activities. Further, Hilcorp will only use bow thrusters occasionally for a short duration (20 to 30 seconds) to either push or pull a vessel in or away from a dock or platform, and the total tugging activities will be limited to (at most) 6 days of operations out to an estimated maximum distance of 4,453 m around the noise source. Last, the IHA prohibits Hilcorp from initiating tugging activities if a CIBW is observed at any distance within the pre-clearance monitoring period. If a CIBW(s) is observed during those 30 minutes, operations may not commence until the CIBW(s) is no longer detected at any range or 30 minutes have elapsed without any observations of CIBWs. Therefore, NMFS anticipates that Hilcorp would not initiate a tow (which would include the use of bow thrusters) if a CIBW is within the portion of the Level B harassment zone that is closer to the activity, and thus more likely to disturb a CIBW. Lastly, it is important to note that there are multiple contextual factors (including the signal characteristics and the spatio-temporal

(space and time) acoustic footprint of Hilcorp's activity as well as bearing and distance, predictability of source movement, and likelihood of habituation to routine vessel traffic) that minimize this potential and the likelihood of behavioral disturbance even if a marine mammal is exposed above the Level B harassment threshold. Based on this analysis, NMFS has made the determinations required by the MMPA and authorized take accordingly.

*Comment 10*: CBD asserts that NMFS should defer issuance of incidental take of CIBWs unless and until NMFS has a better understanding of the reasons the species is failing to recover. They state that until it does so, NMFS has no rational basis for concluding that any amount of take constitutes a "negligible impact" to the species. Cook Inletkeeper also comments that NMFS should not authorize any take of CIBWs due to uncertainty regarding trends in their population and the impacts that anthropogenic noise may have on this species.

*Response*: NMFS shares the commenter's concern regarding the impacts of human activities on CIBWs and is committed to supporting the conservation and recovery of the species. Under section 101(a)(5)(D) of the MMPA, NMFS considers the at-risk status of CIBWs (and other species) in both the negligible impact analysis and through our consideration of impact minimization measures that support the least practicable adverse impact on those species. For example, the IHA includes a requirement for Hilcorp to delay the commencement of tugging activities should CIBWs be observed at any distance during the pre-clearance monitoring period and requires that tug operations occur with favorable tides. However, section 101(a)(5)(D) also mandates that NMFS "shall issue" an IHA, provided the necessary findings are made for the specified activity for which incidental take is requested.

In accordance with our implementing regulations at 50 CFR 216.104(c), we use the best available scientific evidence to determine whether the taking by the specified

activity within the specified geographic region will have a negligible impact on the species or stock and will not have an unmitigable adverse impact on the availability of such species or stock for subsistence uses. Based on the scientific evidence available, NMFS determined that the take, by Level B harassment only, incidental to Hilcorp's tugging of the jack-up rig, which is primarily acoustic in nature, transient, and of a low level, would have a negligible impact on CIBWs. Moreover, Hilcorp proposed and NMFS has required in the IHA a rigorous mitigation plan to further reduce potential impacts to CIBWs (and other marine mammal species/stocks) to the lowest level practicable. Additionally, the ESA Biological Opinion determined that the issuance of the IHA is not likely to jeopardize the continued existence of CIBWs, the Mexico Distinct Population Segment (DPS) of humpback whales, the Western DPS of Steller sea lions, and the Northeast Pacific stock of fin whales, or to destroy or adversely modify CIBW critical habitat. The Biological Opinion also outlined Terms and Conditions and Reasonable and Prudent Measures to reduce impacts, which have been incorporated into the IHA. Therefore, based on the analysis of potential effects, the parameters of the activity, and the rigorous mitigation and monitoring program, NMFS determined that the taking from the specified activity would have a negligible impact on the CIBW stock.

Cook Inletkeeper stated that recent changes in survey methods calls into question the reliability of using the most recent aerial survey data to identify trends in population status, and that based upon this potential uncertainty and the impact that anthropogenic noise may have on this species, NMFS should not authorize any take of CIBWs. Cook Inletkeeper is incorrect in that survey methods for detecting trends in CIBW population have changed; the survey field methods are essentially unchanged since 2004 (Paul Wade, personal communication, December 11, 2023). The analysis methods used to detect trends in the CIBW population have been updated and implemented in recent

studies examining the CIBW population, notably Sheldon and Wade (2019) and Goetz *et al.* (2023).

Results of recent studies provide evidence that the CIBW population increased between 2004 and 2010, declined after 2010, and increased again from 2016 to 2022 (Jacobsen *et al.,* 2020; Shelden and Wade, 2019; Warlick *et al.,* 2023; Goetz *et al.,* 2023). While there is some uncertainty around CIBW population trend analyses, the results of these four studies are consistent in showing general trends. Thus, while Cook Inletkeeper is correct that some studies confirm a declining trend in CIBW abundance, recent studies, which NMFS considers the best scientific information available, suggest the population may now be increasing (see Goetz *et al*., 2023). Additional data in the coming years will help to inform whether the recent positive trend in the CIBW population will continue.

Beyond the requirements in this IHA to minimize the impact of any taking from Hilcorp's activity, NMFS is taking several proactive steps to help protect and better understand the species. For example, NMFS is supporting the development of a population consequences of disturbance (PCoD) model, currently being developed by NMFS researchers, to quantitatively assess the degree to which anthropogenic disturbance, and in particular noise, may impact survival and reproduction of CIBWs. Results of Phase 1 of the model were published in 2023 (McHuron *et al*., 2023) and the Phase 2 analysis is underway. NMFS also continues to conduct outreach and education to various stakeholders to minimize the potential for unauthorized take of CIBWs. NMFS also issued Cook Inlet and Kodiak Marine Mammal Disaster Response Guidelines in 2019 (NMFS, 2019b) and a stranding response plan specific to CIBWs in 2009 (NMFS, 2009), which could inform responses and further reduce impacts to CIBWs. NMFS initiated efforts to update the 2009 stranding response plan in 2021, and those efforts are ongoing. For more information, see NMFS' 5-year Priority Action Plan (2021-2025) for CIBWs as part of its Species in the Spotlight initiative to provide immediate, targeted

efforts to halt declines and stabilize populations of the species most at-risk of extinction in the near future (see *https://www.fisheries.noaa.gov/resource/document/species-spotlight-priority-actions-2021-2025-cook-inlet-beluga-whale*).

*Comment 11*: CBD and Cook Inletkeeper comment that NMFS cannot issue "Renewed" IHAs under the MMPA. CBD further comments 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. CBD states 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:* 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 two 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 Hilcorp 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.

*Comment 12*: CBD states that NMFS' small numbers determination is arbitrary, unlawful, unreasonable, and improper. They comment that NMFS' determination is based on a patently unlawful interpretation of what constitutes a small number and fails to consider that even a relatively small number of takes of critical endangered CIBWs can be more than small considering the species' highly imperiled status.

In support of NMFS' small numbers determination, Hilcorp recommends that NMFS expressly reference the **Federal Register** notice where the standard for small numbers is identified and fully explained, include that reference in the record, and summarize that explanation in this final notice of IHA issuance. They also request that NMFS clearly express its finding that the proposed incidental harassment levels constitutes a "small number" for each marine mammal stock, independent of NMFS's "one-third" standard.

*Response*: Our notice of the proposed IHA referenced an earlier rulemaking in which we provided a full explanation of the agency's interpretation of "small numbers." (86 FR 5322, 5438, January 19, 2021). NMFS makes its small numbers findings based on an analysis of whether the number of individuals authorized to be taken annually from a specified activity is small relative to the stock or population size. This relative approach is consistent with the statement from the legislative history that "[small numbers] is not capable of being expressed in absolute numerical limits" (H.R. Rep. No. 97-228, at 19 (September 16, 1981)), and relevant case law (*Center for Biological Diversity* v. *Salazar*, 695 F.3d 893, 907 (9th Cir. 2012) (holding that the U.S. Fish and Wildlife Service reasonably interpreted "small numbers" by analyzing take in relative or proportional terms)). Using such a simple approach that establishes equal bins corresponding to small, medium, and large proportions of the population abundance, 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. (86 FR 5322, 5438, January 19, 2021).

As described in the Small Numbers section of the **Federal Register** notice of the proposed IHA (89 FR 60164, July 24, 2024) and this notice of issuance, NMFS is authorizing take of less than 2 percent for all stocks, except for CIBWs whose authorized take is 5.38 percent of the stock; see tables 12 and 11 in the notice for the proposed IHA (89 FR 60164, July 24, 2024) and this notice, respectively). Here, NMFS finds the taking of 5.38 percent of CIBWs, and 2 percent of other 14 other stocks of marine mammals constitutes small numbers of marine mammals taken relative to the population size of the affected species or stocks. As Hilcorp's comment letter points out, these percentages also fall under the amount upheld as small numbers by the U.S. District Court for the District of Alaska in *Native Village of Chickaloon v. NMFS,* 947 F. Supp. 2d 1031 (D. Alaska 2013) (concluding that NMFS' authorization of 10 percent of CIBWs constituted small numbers relative to the affected population size). This is well below NMFS' upper limit

of one-third as described above. Further, using the take numbers (which actually represent instances of take) to compare to the population abundance conservatively assumes (for small numbers purposes) that each take represents a different individual (rather than a few individuals experiencing multiple instances of take). Therefore, NMFS has deemed the taking to be of small numbers of marine mammals (relative to the relevant species or stock abundances).

Finally, we disagree with CBD's assertion that NMFS' small number determination for CIBWs should consider the highly imperiled status of the species. The argument to establish a small numbers threshold on the basis of stock-specific context is unnecessarily duplicative of the required negligible impact finding, in which relevant biological and contextual factors are considered in conjunction with the amount of take, and would risk conflating the two standards. See *Ctr. for Biological Diversity* v. *Salazar*, 695 F.3d at 907 (cautioning the U.S. Fish and Wildlife Service to "keep[] the standards distinct").

*Comment 13*: CBD comments that NMFS' negligible impact determination is improper and arbitrary. They state that it overlooks that CIBWs are among the most highly endangered animals under the agency's jurisdiction to protect. They state that NMFS has no rational basis for concluding that additional harassment by noise has a negligible impact on the species.

*Response*: NMFS disagrees with the comment. In the Negligible Impact Analysis and Determination section of the notice of the proposed IHA (89 FR 60164, July 24, 2024) and again in this notice, we describe how the take estimated and authorized for Hilcorp's tugging activity will have a negligible impact on all of the affected species or stocks, including CIBWs. We discuss how this determination is based upon, among other things, the low number of takes of each stock that might be exposed briefly during 6 days of activity over the course of the 1-year IHA, the comparatively low level of behavioral

harassment that might result from an instance of take that could occur within that year, and the likelihood that the mitigation measures required further lessen the likelihood, magnitude, or severity of exposures. NMFS also considered the status of each stock in its analysis.

NMFS' negligible impact finding considers a number of parameters including, but not limited to, the nature of the activities (*e.g.*, duration, sound source), effects/intensity of the taking, the context of takes, and mitigation. For CIBWs, NMFS considered data from previous similar tugging activities. Hilcorp's most recent annual marine mammal monitoring report indicates that it did not record any sightings of CIBWs from their rig-based monitoring efforts (Horsley and Larson, 2023), and the most recent monthly monitoring report that describes monitoring results from the May 2024 rig transiting also indicates no recorded sightings of CIBWs during transit (Weston Solutions, 2024). Any disturbance that may occur is anticipated to be limited to behavioral changes such as increased swim speeds, changes in diving and surfacing behaviors, and alterations to communication signals, not the loss of foraging capabilities or the abandonment of critical habitat. Given these anticipated impacts, none of which would be expected to impact the fitness or reproduction of any individual marine mammals, much less adversely impact annual rates of recruitment or survival of CIBWs, NMFS' independent evaluation of the best scientific evidence in this case supports our negligible impact determination. Further, the ESA Biological Opinion concluded that the proposed action is not likely to jeopardize the continued existence of CIBWs or to destroy or adversely modify designated CIBW critical habitat.

*Comment 14*: CBD asserts that NMFS discounts the best available science for CIBWs. CBD claims that NMFS incorrectly stated that CIBWs are not known to engage in critical behaviors in the area where Hilcorp's project is planned.

*Response:* NMFS acknowledges observation of two potential but unconfirmed incidences of mating behavior in the Trading Bay area in 2014, but the extent to which critical behaviors occur in Hilcorp's project area is still unknown (Lomac-Macnair *et al.,* 2016). Such behaviors have not been reported since. Surveys by NMFS or McGuire *et al.* (2020) with concentrated effort on the western coast of Cook Inlet have not yielded a comparable sighting. Other key behaviors, such as calving and feeding, are described in more detail below but are thought to occur primarily in other concentrated areas outside of Hilcorp's action area.

We are unaware of any information regarding areas where CIBWs are more likely to engage in mating behavior, however, what is known about calving suggests that it is most concentrated in the upper Inlet, north of Hilcorp's project area. McGuire *et al.* (2020) characterizes habitat use by age class in northern Cook Inlet and documented the majority of calves in the northernmost parts of Cook Inlet (*e.g.,* Susitna Delta) despite concentrated survey effort in areas along the west part of the Inlet heading south toward the Forelands. NMFS acknowledges that CIBWs use the area, especially in spring and fall months, but their habitat range at those times is not nearly as constricted as their summer habitat, which is concentrated in a small area with high anthropogenic activity.

CIBWs may well occur in the project area, which is why a small amount of take by Level B harassment is authorized for this species incidental to Hilcorp's jack-up rig towing. Tagging data, acoustic studies, and opportunistic sightings indicate that CIBWs continue to occur in the upper inlet throughout the winter months, in particular the coastal areas from Trading Bay to Little Susitna River, with foraging behavior detected in lower Knik Arm and Chickaloon Bay, and also detected in several areas of the lower inlet such as the Kenai River, Tuxedni Bay, Big River, and NW Kalgin Island (*e.g.*, Castellote *et al.,* 2020, 2021; C. Garner, pers. comm.; Shelden *et al.,* 2015a, 2018). CIBWs were historically seen in and around the Kenai and Kasilof rivers during June aerial surveys

conducted by ADFG in the late 1970s and early 1980s and by NMFS starting in 1993 (Shelden *et al.,* 2015b), and throughout the summer by other researchers and local observers. In recent years, sightings in and near these rivers have been more typical in the spring and fall (Ovitz, 2019). It is unknown if this is due to increased monitoring efforts in the area or an increase in CIBWs using this area. While visual sightings indicate peaks in spring and fall, acoustic detections indicate that CIBWs can be present in the Kenai River throughout the winter (Castellote *et al.,* 2016). Despite the historic sightings (1970s-1990s) of CIBWs throughout the summer (June-August) in the area, recent acoustic detections and visual sightings indicate that there appears to be a steep decline in CIBWs presence in the Kenai River during the summer, despite an annual return in recent years of 1-1.8 million sockeye salmon, which are important CIBW prey. Further, while feeding behaviors may occur in Hilcorp's project area, there are no known foraging hot spots near the project area. CIBWs are expected to be transiting through the area, headed to or from the concentrated foraging areas farther north near the Beluga River, Susitna Delta, and Knik and Turnigan Arms. Therefore, any exposures are likely to be limited in duration during the 6 days of tugging activity and would take place in a small portion of available foraging habitat. Any impacts on feeding are expected to be minimal.

As described above, we have no reason to expect CIBWs to be concentrated in the path of Hilcorp's tug boats for the purposes of reproductive or feeding behaviors, but even if one or more of the 15 instances in which noise from tugboat operations briefly intersects with an individual CIBW engaged in these behaviors, the anticipated short duration and low level disturbance of any such encounter would not be likely to impact reproductive or foraging success of any individuals.

The commenter further asserts that NMFS' negligible impact conclusion is particularly arbitrary considering the project will occur within a year-round Biologically Important Area (BIA) for CIBWs and also in CIWB critical habitat. While exposure to

elevated noise levels associated with Hilcorp's activities may result in low-level behavioral changes in marine mammals, NMFS' review of the best available scientific evidence, as summarized and cited herein, demonstrates that these responses do not rise to the level of having adverse effects on the reproduction or survival of any marine mammals, much less on rates of recruitment or survival of any species or stock, and the commenter has provided no evidence to the contrary. Further, while Hilcorp's project area does overlap ESA-designated critical habitat for CIBWs and the CIBW small and resident BIA (Wild *et al*., 2023), the impacts from the project are not expected to occur in areas that are specifically important for feeding or reproduction for any species, including CIBWs, nor are they anticipated to result in a loss of prey or habitat. Monitoring data from Hilcorp's past activities suggest that tugging activities do not discourage CIBWs from transiting throughout Cook Inlet and between critical habitat areas and that the whales do not abandon critical habitat areas (Horsley and Larson, 2023). In addition, large numbers of CIBWs have continued to use Cook Inlet and pass through the area, likely traveling to critical foraging grounds found in upper Cook Inlet (*i.e.*, outside of the project area), while noise-producing anthropogenic activities, including vessel use, have taken place during the past two decades (*e.g.*, Shelden *et al*., 2013, 2015b, 2017, 2022; Shelden and Wade, 2019; Geotz *et al*., 2023).

*Comment 15*: CBD asserts that NMFS negligible impact determination for all species relies on mitigation measures that rely nearly exclusively on visual monitoring measures that it claims are "known to be ineffective and inadequate" to protect marine mammals.

*Response:* NMFS disagrees with the comment. Our discussion in the Negligible Impact Analysis and Determination section below contains the factors NMFS considered in reaching its negligible impact determinations. Although NMFS' implementing regulations at 50 CFR 216.104 (c) state that NMFS may incorporate successful

implementation of mitigation measures to arrive at a negligible impact determination, for issuance of the IHA for Hilcorp's tug towing activities, NMFS did not rely upon an assumption of set level of effectiveness in mitigation to make our negligible impact determinations. While NMFS acknowledges that visual observations can be difficult in Cook Inlet due to the extreme tidal range, harsh weather, turbid waters, and seasonal ice presence (*e.g.*, Castellote *et al*., 2020; Lammers *et al*., 2013), prior monitoring efforts by Hilcorp have shown that it is clearly possible to detect and identify marine mammals to the species several km away from the source, including CIBWs, acknowledging that visibility depends on several factors such as visual acuity, sea state, glare, light, animal behavior/body type, speed of travel for vessel and animal, *etc*. (Horsley and Larson, 2023). NMFS does not assume total effectiveness of monitoring, but the demonstrated record of PSO sightings for activities in Cook Inlet illustrate that visual monitoring is appropriate for implementing mitigation in this case.

*Comment 16*: CBD and Cook Inletkeeper comment that NMFS fails to ensure the least practicable adverse impact on CIBWs, the other species or stocks to be taken, and their habitats because NMFS failed to consider requiring several practicable mitigation measures, such as the use of passive acoustic monitors (PAM) and drones to help detect the presence of marine mammals, time-area restrictions, and requiring the use of noise-quieting engines. Cook Inletkeeper recommended that NMFS should require improved look-outs for marine mammals and additional monitoring.

*Response*: We disagree with the commenter's claims. NMFS has included measures designed to effect the least practicable adverse impact on marine mammals species and their habitat, and has also included appropriate monitoring and reporting requirements. For example, during tugging activities, Hilcorp must conduct pre-clearance monitoring prior to commencing activities and must delay the start of activities if marine mammals are within designated pre-clearance zones (1,500 m for non-CIBW species and

at any distance for CIBWs). Hilcorp must also conduct tugging activities with a favorable tide to reduce noise output. Please see the Mitigation section of this notice for a full description of the required mitigation measures.

The CBD states that NMFS should require PAM for marine mammals. The use of PAM for real-time mitigation purposes has been used in Cook Inlet for some studies. These efforts have generally not resulted in successful deployment of PAM or useful detections of marine mammals to inform mitigation and monitoring during the activities due to the environmental conditions of the region (Austin and Zeddies, 2012; Kendall *et al.*, 2015). For example, background acoustic conditions, including flow noise from strong currents, large tidal changes, and weather along with additional noise from the project (*e.g.*, vessel noise, noise from project equipment) made it difficult to detect marine mammals from a real-time PAM system implemented as part of the 2012 Apache 3D seismic survey program in lower- and mid-Cook Inlet (Austin and Zeddies, 2012; Lomac-MacNair *et al.,* 2013) and during the 2015 SAExploration Cook Inlet 3D seismic survey program (Kendall *et al*., 2015). Further, environmental conditions restricted the type of PAM systems that could be deployed during these programs to a single omni-directional hydrophone lowered from the side of a vessel, which restricted the possible range of detections. These factors suggest that effective PAM monitoring in Cook Inlet can be challenging (Austin and Zeddies, 2012).

As CBD notes, academic researchers have begun to implement more effective passive acoustic monitors for research purposes at several places in Cook Inlet (*e.g.,* Lammers *et al*., 2013 and Castellote *et al.,* 2020 as cited by CBD). However, the framework used by those researchers is not practicable for Hilcorp's planned activity. An article on NOAA's website (*https://www.fisheries.noaa.gov/science-blog/beluga-whale-acoustic-monitoring-survey-post-3*) illustrates the level of customization, expertise, and difficulty required to assemble a passive acoustic mooring to then deploy in the Inlet.

Additionally, these instruments are stationary, which means to effectively use these monitors as a means of avoiding harassment of marine mammals during Hilcorp's tugging activities, Hilcorp would need to build and successfully deploy dozens (or more) stationary monitors along a route of travel that is subject to change depending upon weather or other environmental and shipping restrictions. Additionally, the data stored on these types of moorings is not accessible until they are retrieved by the researcher who deployed them. In the future, if an established network of passive acoustic monitors with shared access to the data is available, this could be a useful tool for implementing mitigation measures, but is currently not practicable.

Contrary to CBD's assertion, NMFS did consider a time-area restriction; both the IHA and resulting ESA Biological Opinion require that Hilcorp maintain a distance of at least 2.4 km from the mean lower-low water line of the Susitna River Delta (Beluga River to the Little Susitna River) between April 15 and November 15, as this is an area where CIBWs can aggregate for feeding. CBD suggested further restrictions could include, for example, a prohibition on activities in April and May at Trading Bay where and when CIBWs have been observed engaged in probable mating behavior (Lomac-MacNair *et al*., 2016); or a prohibition on activities from July through September when CIBWs have been observed feeding in the area. Hilcorp's activity in Trading Bay would be either a single day of transit or several hours of positioning the jack-up rig at an existing well site. As discussed in our above comment response, there has been one published observation of potential (not confirmed) mating behavior of CIBWs in Trading Bay in 2014. Surveys by NMFS or McGuire *et al.* (2020) with concentrated effort on the western coast of Cook Inlet have not yielded a comparable sighting. Closure of the entire area for two months is not practicable as Hilcorp would not be able to access the well sites that are part of the intended activity. As discussed above and in the species-specific section of the proposed IHA, CIBWs are highly concentrated in the upper Cook Inlet

especially in the summer months (Goetz *et al.,* 2012; McGuire *et al.,* 2020). In the past, CIBWs used the Kenai area in summer months but that trend has shifted in recent decades to occasional spring and fall sightings (Ovitz, 2019). Throughout the Inlet, mean group sizes during the summer and fall were largest in July and smallest in October, with the largest groups seen during mid-July and early August in the Susitna River Delta, while the smallest group sizes were in the Kenai River Delta. These patterns of high seasonal concentrations have continued to be documented since 2012 (*e.g.,* McGuire *et al.,* 2020). In reflection of this information, NMFS, as described above, has imposed time area restrictions in the Susitna River Delta from April to November to reduce effects of Hilcorp's activity to the greatest extent practicable. A closure in the middle Inlet during the summer months, in the season with longest daylight hours and best conditions for visual observations to implement mitigation and monitoring, is not warranted under the least practicable adverse impact standard.

CBD states that NMFS failed to consider requiring noise-quieting engines, such as electric tugboats, which would have the added benefit of reducing air pollution and greenhouse gas emissions from tugs. NMFS is not aware of any commercially available seaworthy tug vessels that are used in tandem (*e.g*., three tug configuration) with effective quieting technologies or of any company or entity with electric tug fleets able to use them in tandem as required for Hilcorp's activities. The eWolf, and electronic tug boat, was christened in San Francisco Bay in June 2024 and was the first of its kind in U.S. waters. NMFS is also not aware of alternative technologies available that would allow Hilcorp to move the jack-up rig to various well sites without generating noise, which is the primary activity that has the potential to take marine mammals by harassment. Further, as described in our response to Comment 8, NMFS does not have the authority under the MMPA or ESA to prescribe that an applicant use alternative technologies to accomplish their objectives.

CBD also commented that NMFS failed to consider an alternative that would require the use of drones, in addition to PSOs, to detect the presence of marine mammals. Cook Inletkeeper similarly suggested that NMFS should require a combination of drone and visual monitoring at all times. While unmanned aerial vehicles (UAVs; *i.e.*, drones) have been used in some instances to observe marine mammals, there are logistical reasons (including limited berthing availability) that this measure is not practicable for Hilcorp to implement for this project. For these reasons, NMFS has not required that Hilcorp use drones or other UASs to assist in detecting marine mammals during their planned tugging activities.

CBD correctly notes that the 1,500 m pre-clearance zone for non-CIBWs is smaller than the Level B harassment zone (≤ 4,453 m). However, as mentioned in the response to Comment 7 above, NMFS has prescribed a requirement for this IHA (not included in previous IHAs issued to Hilcorp for take of marine mammals incidental to tugging activities; 87 FR 62364, October 14, 2022) that Hilcorp establish a pre-clearance zone whereby they delay new operational activities should CIBWs be observed at any distance. This measure provides additional protection for CIBWs by further limiting the potential that tugging activities will commence while CIBWs are nearby. Further, using the Level B harassment zone as the clearance zone would not be practicable for some non-CIBW species (*e.g.*, pinnipeds, harbor species) whose smaller size and often cryptic behavior may make accurate identification difficult at greater distances in Cook Inlet's environmental conditions. While underway, PSOs will observe for marine mammals to the greatest distance possible (they are not limited to observing within 1,500 m of the vessel). Any marine mammal sighted by PSOs at any distance is noted and reported to NMFS, per the reporting requirements of the IHAs.

Cook Inletkeeper recommended that NMFS require improved look-outs (*i.e.*, additional observers) and additional monitoring to better inform about the marine

mammal populations and distributions as well as impacts from the proposed activities to better inform future activities. Hilcorp has informed NMFS that stationing additional PSOs on the tug boats or jack-up rig is not a practicable option for this project due to the limited berthing areas on the vessels. Cook Inletkeeper did not provide any recommendations for what additional monitoring would entail; however, the IHA does require that Hilcorp monitor and carefully record all observations of marine mammals, regardless of distance from the activity, as well as additional data such the group composition of any species observations, their distance and bearing from the source, their closest approach and time spent in estimated harassment zones, and any behavioral observations, including an assessment of behavioral responses thought to have resulted from the tugging activities. This information will be used to inform any future decisions regarding the issuance of IHAs for tugging activities, similarly as details documented by Hilcorp in their reports (*e.g.*, Horsley and Larson, 2023) informed the decisions made herein.

Lastly, Cook Inletkeeper recommended that NMFS not permit tug towing rig activities during periods of low visibility or at night, even to accommodate a favorable tide. Hilcorp's ability to move the jack-up rig is limited by several factors, including the presence of favorable environmental conditions for safe operations, crew availability, and the availability of the tug boats, which is limited by other scheduled work. Hilcorp must balance these factors with the timing of their planned actions. Despite this, Hilcorp will only begin operations in low light or night conditions if necessary for safety purposes (*e.g.*, incoming inclement weather or ice) or to accommodate a favorable tide. Tugs may work at up to 80 percent power for much longer durations of time when pulling against the strong tides in Cook Inlet. As sound is the primary potential stressor from the proposed activity, limiting the sound output is preferred and tugs moving with the tide will reduce engine load by as much as 60 percent. Additionally, limited daylight,

particularly in the shoulder seasons, results in at least a portion of activity occurring in low light or night conditions. As the ice-free season is already limited to roughly half the year, in order to maximize the ice-free season, operations in low-light or night conditions may be necessary. To mitigate this and enhance PSO's visibility, PSOs are required to use NMFS-approved night vision devices (NVDs) (e.g., PVS-7s, or equivalent) and have magnifying lenses available for use.

*Comment 17*: Cook Inletkeeper asserts that NMFS must consider whether the cumulative impacts from Hilcorp's proposed activities in Cook Inlet will have a negligible impact on the area's marine mammals. Specifically, NMFS must consider the cumulative impacts of noise in Cook Inlet, including noise impacts from vessels and nearby construction, and determine what activities or combinations of activities would exceed a cumulative negligible impact threshold. Cook Inletkeeper urges NMFS to perform such an analysis before authorizing any ITAs for take of CIBWs.

*Response:* Neither the MMPA nor NMFS' codified implementing regulations call for consideration of the take resulting from other activities in the negligible impact analysis. The preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989) states, in response to comments, that the impacts from other past and ongoing anthropogenic activities are to be incorporated into the negligible impact analysis via their impacts on the baseline. Consistent with that direction, NMFS has factored into its negligible impact analysis the impacts of other past and ongoing anthropogenic activities via their impacts on the baseline (*e.g.,* as reflected in the density/distribution and status of the species, population size and growth rate, and other relevant stressors (such as incidental mortality in commercial fisheries, Unusual Mortality Events (UMEs), and subsistence hunting); *see* the Negligible Impact Analyses and Determinations section of this notice of issuance). The 1989 final rule for the MMPA implementing regulations also addressed public comments regarding cumulative effects from future, unrelated activities.

There, NMFS stated that such effects are not considered in making findings under section 101(a)(5) concerning negligible impact. In this case, this IHA as well as other incidental take authorizations (ITAs) currently in effect or proposed within the specified geographic region, are appropriately considered an unrelated activity relative to the others. The ITAs are unrelated in the sense that they are discrete actions under section 101(a)(5)(D) issued to discrete applicants.

Through the response to public comments in the 1989 implementing regulations, NMFS also indicated (1) that we would consider cumulative effects that are reasonably foreseeable when preparing a National Environmental Policy Act (NEPA) analysis, and (2) that reasonably foreseeable cumulative effects would also be considered under section 7 of the Endangered Species Act (ESA) for ESA-listed species, as appropriate. Accordingly, NMFS has prepared an EA that considers cumulative effects. Additionally, under the ESA, NMFS' Biological Opinion independently considered the reasonably foreseeable cumulative effects of activities on ESA-listed species.

*Comment 18*: Cook Inletkeeper raises concerns with Hilcorp's record of safety and environmental compliance. They state that according to the Alaska Oil and Gas Conservation Commission (AOGCC), Hilcorp has a documented pattern of accidents and safety violations and disregard for compliance with the law in Alaska. They assert that NMFS must consider Hilcorp's record and provide rigorous oversight.

*Response:* It is the responsibility of the applicants to comply with all applicable laws and regulations, and to work with the state to obtain approval of their Oil Discharge Prevention and Contingency Plans (ODPCP). Hilcorp complied with the mitigation, monitoring, and reporting requirements of previously issued LOAs and IHAs under the MMPA (Fairweather Science, LLC, 2020; Korsmo *et al*., 2022; Horsley and Larson, 2023; Weston Solutions, 2024), thus we have no reason to believe that the requirements of the current IHA will not be upheld.

**Changes from the Proposed IHA to Final IHA**

There are no changes from the proposed IHA to the final IHA other than the addition of some clarifying language and some minor typographical corrections.

**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 expected and authorized for this activity 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 (as described in NMFS' SARs). While no serious injury or mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included in table 1 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. 2022 SARs. All values presented in table 1 are the most recent available at the time of publication (including from the draft 2023 SARs) and are available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*.

**Table 1 -- Species[1] with Estimated Take from 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 M/SI[4] |
|---|---|---|---|---|---|---|
| Order Artiodactyla – Cetacea – Mysticeti (baleen whales) | | | | | | |
| *Family Eschrichtiidae* | | | | | | |
| Gray Whale | *Eschrichtius robustus* | Eastern N Pacific | -, -, N | 26,960 (0.05, 25,849, 2016) | 801 | 131 |
| *Family Balaenidae* | | | | | | |
| *Family Balaenopteridae (rorquals)* | | | | | | |
| Fin Whale | *Balaenoptera physalus* | Northeast Pacific | E, D, Y | UND[5] (UND, UND, 2013) | UND | 0.6 |
| Humpback Whale | *Megaptera novaeangliae* | Hawai'i | -, -, N | 11,278 (0.56, 7,265, 2020) | 127 | 27.09 |
| | | Mexico-North Pacific | T, D, Y | N/A[6] (N/A, N/A, 2006) | UND | 0.57 |
| | | Western North Pacific | E, D, Y | 1,084 (0.088, 1,007, 2006) | 3.4 | 5.82 |
| Minke Whale | *Balaenoptera acutorostrata* | Alaska | -, -, N | N/A[7] (N/A, N/A, N/A) | UND | 0 |
| Odontoceti (toothed whales, dolphins, and porpoises) | | | | | | |
| *Family Delphinidae* | | | | | | |
| Killer Whale | *Orcinus orca* | Eastern North Pacific Alaska Resident | -, -, N | 1,920 (N/A, 1,920, 2019) | 19 | 1.3 |
| | | Eastern North Pacific Gulf of Alaska, Aleutian Islands and Bering Sea Transient | -, -, N | 587 (N/A, 587, 2012) | 5.9 | 0.8 |
| Pacific White-Sided Dolphin | *Lagenorhynchus obliquidens* | North Pacific | -, -, N | 26,880 (N/A, N/A, 1990) | UND | 0 |
| *Family Monodontidae (white whales)* | | | | | | |
| Beluga Whale | *Delphinapterus leucas* | Cook Inlet | E, D, Y | 279[8] (0.061, 267, 2018) | 0.53 | 0 |
| *Family Phocoenidae (porpoises)* | | | | | | |
| Dall's Porpoise | *Phocoenoides dalli* | Alaska | -, -, N | UND[9] (UND, UND, 2015) | UND | 37 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Harbor Porpoise | *Phocoena phocoena* | Gulf of Alaska | -, -, Y | 31,046 (0.21, N/A, 1998) | UND | 72 |
| Order Carnivora – Pinnipedia | | | | | | |
| *Family Otariidae (eared seals and sea lions)* | | | | | | |
| CA Sea Lion | *Zalophus californianus* | U.S. | -, -, N | 257,606 (N/A, 233,515, 2014) | 14,011 | >321 |
| Steller Sea Lion | *Eumetopias jubatus* | Western | E, D, Y | 49,837[10] (N/A, 49,837, 2020) | 299 | 267 |
| *Family Phocidae (earless seals)* | | | | | | |
| Harbor Seal | *Phoca vitulina* | Cook Inlet/Shelikof Strait | -, -, N | 28,411 (N/A, 26,907, 2018) | 807 | 107 |

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/*; Committee on Taxonomy (2022)).
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's 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 CV associated with estimated mortality due to commercial fisheries is presented in some cases.
5 - The best available abundance estimate for this stock is not considered representative of the entire stock as surveys were limited to a small portion of the stock's range. Based upon this estimate and the Nmin, the PBR value is likely negatively biased for the entire stock.
6 - Abundance estimates are based upon data collected more than 8 years ago and, therefore, current estimates are considered unknown.
7- Reliable population estimates are not available for this stock. Please see Friday *et al.* (2013) and Zerbini *et al*. (2006) for additional information on numbers of minke whales in Alaska.
8- On June 15, 2023, NMFS released an updated abundance estimate for endangered Cook Inlet beluga whales (CIBWs) in Alaska (Goetz *et al.*, 2023). Data collected during NOAA Fisheries' 2022 aerial survey suggest that the whale population is stable or may be increasing slightly. Scientists estimated that the population size is between 290 and 386, with a median best estimate of 331. In accordance with the MMPA, this population estimate will be incorporated into the CIBW SAR, which will be reviewed by an independent panel of experts, the Alaska Scientific Review Group. After this review, the SAR will be made available as a draft for public review before being finalized.
9 - The best available abundance estimate is likely an underestimate for the entire stock because it is based upon a survey that covered only a small portion of the stock's range.
10 - Nest is best estimate of counts, which have not been corrected for animals at sea during abundance surveys.

As indicated above, all 12 species (with 15 managed stocks) in table 1 temporally and spatially co-occur with the activity to the degree that take could occur. In addition, the northern sea otter may be found in Cook Inlet, Alaska. However, northern sea otters are managed by the U.S. Fish and Wildlife Service and are not considered further in this document.

A detailed description of the species likely to be affected by Hilcorp's tugging activities, including a brief introduction to the affected stock as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice of the proposed IHA (89 FR 60164, July 24, 2024). Since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (*https://www.fisheries.noaa.gov/find-species*) for generalized species accounts.

*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.*). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in table 2. Specific to this action, gray whales, fin whales, minke whales, and humpback whales are considered low-frequency (LF) cetaceans, beluga whales, pacific white-sided dolphins, and killer whales are considered mid-

frequency (MF) cetaceans, harbor porpoises and Dall's porpoises are considered high-frequency (HF) cetaceans, Steller sea lions and California sea lions are otariid pinnipeds (OW), and harbor seals are phocid pinnipeds (PW).

**Table 2 – Marine Mammal Hearing Groups (NMFS, 2018)**

| Hearing Group | Generalized Hearing Range* |
|---|---|
| Low-frequency (LF) cetaceans<br>(baleen whales) | 7 Hz to 35 kHz |
| Mid-frequency (MF) cetaceans<br>(dolphins, toothed whales, beaked whales, bottlenose whales) | 150 Hz to 160 kHz |
| High-frequency (HF) cetaceans<br>(true porpoises, *Kogia*, river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*) | 275 Hz to 160 kHz |
| Phocid pinnipeds (PW) (underwater)<br>(true seals) | 50 Hz to 86 kHz |
| Otariid pinnipeds (OW) (underwater)<br>(sea lions and fur seals) | 60 Hz to 39 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 are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.*, 2007) and PW pinniped (approximation). | |

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information.

**Potential Effects of Specified Activities on Marine Mammals and Their Habitat**

The effects of underwater noise from Hilcorp's tugging activities have the potential to result in harassment of marine mammals in the vicinity of the project area. The notice of proposed IHA (89 FR 60164, July 24, 2024) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise from tugging activities on marine mammals and their habitat. That information and analysis is referenced in this final IHA determination and is not repeated here; please refer to the notice of proposed IHA (89 FR 60164, July 24, 2024).

**Estimated Take of Marine Mammals**

This section provides an estimate of the number of incidental takes authorized through the IHA, which will inform NMFS' consideration of "small numbers," the negligible impact determinations, and impacts on 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, as use of the acoustic sources (*i.e.,* tugging activities) may result in disruption of behavioral patterns of individual marine mammals. We note here that given the slow, predictable, and generally straight path of tug towing, holding, and positioning, the likelihood of a resulting disruption of marine mammal behavioral patterns that would qualify as harassment is considered relatively low; however, at the request of the applicant, we have quantified the potential take from this activity, analyzed the impacts, and authorized take. The required mitigation and monitoring measures are expected to minimize the potential for take and, if take were to occur, the severity of the taking to the extent practicable. Based on the nature of the activity (*e.g.*, the very small area ensonified above the Level A harassment threshold), Level A harassment is neither anticipated nor authorized.

No serious injury or mortality is anticipated or authorized for this activity. Below we describe how the take numbers are estimated.

To determine whether Level B harassment is expected to result from acoustic exposure, NMFS considers the received levels a marine mammal is expected to be exposed to as compared to the relevant NMFS Level B harassment thresholds, as well as

multiple contextual factors that can impact whether a marine mammal's behavioral patterns are likely to be disrupted (*e.g.*, bearing and distance, predictability of source movement, whether habituation in a noisier/busy area is likely); specifically, whether any contextual factors would be expected to lower the likelihood of behavioral disturbance even when a marine mammal is exposed above the Level B harassment threshold. Where the take of marine mammals is considered likely or is requested by the applicant, 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 (absent relevant contextual factors) or incur some degree of permanent hearing impairment where relevant; (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 would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS 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.,* Richardson *et al*., 1995; 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 uses a generalized acoustic threshold based on received level to support the estimation of the onset of Level B harassment and to quantify likely Level B harassment. Acknowledging the consideration of contextual factors noted above, NMFS generally predicts that marine mammals are likely to be behaviorally disturbed in a manner considered to be Level B harassment when exposed to underwater anthropogenic noise above root-mean-squared pressure received levels (root mean square [RMS] sound pressure level [SPL]) of 120 dB (referenced to 1 micropascal (re 1 µPa)) for continuous sources (*e.g.,* tugging, 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 thresholds are expected to include any likely takes by TTS as, in most cases, the likelihood of TTS occurs at distances from the source smaller 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 would not otherwise occur.

Hilcorp's planned activity includes the use of continuous sources (tugging activities), and therefore the RMS SPL threshold of 120 dB is applicable.

*Level A harassment* – NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to

noise from two different types of sources (impulsive or non-impulsive). Hilcorp's planned activity includes the use of non-impulsive sources (*i.e.,* tugging activities).

The thresholds identifying the onset of PTS are provided in table 3 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS' 2018 Technical Guidance, which may be accessed at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*. Take by Level A harassment is considered unlikely for this action because of the small estimated Level A harassment zones resulting from tugs under load with a jack-up rig (*i.e.*, < 1 m) (as described below), the mobile nature of both the activity itself and marine mammals in the project area, and the required mitigation and monitoring program (see the Mitigation and Monitoring sections of this notice).

**Table 3 – Thresholds Identifying the Onset of PTS**

| | PTS Onset Acoustic Thresholds* (Received Level) | |
|---|---|---|
| Hearing Group | Impulsive | Non-impulsive |
| Low-Frequency (LF) Cetaceans | *Cell 1*<br>$L_{pk,flat}$: 219 dB<br>$L_{E,LF,24h}$: 183 dB | *Cell 2*<br>$L_{E,LF,24h}$: 199 dB |
| Mid-Frequency (MF) Cetaceans | *Cell 3*<br>$L_{pk,flat}$: 230 dB<br>$L_{E,MF,24h}$: 185 dB | *Cell 4*<br>$L_{E,MF,24h}$: 198 dB |
| High-Frequency (HF) Cetaceans | *Cell 5*<br>$L_{pk,flat}$: 202 dB<br>$L_{E,HF,24h}$: 155 dB | *Cell 6*<br>$L_{E,HF,24h}$: 173 dB |
| Phocid Pinnipeds (PW) (Underwater) | *Cell 7*<br>$L_{pk,flat}$: 218 dB<br>$L_{E,PW,24h}$: 185 dB | *Cell 8*<br>$L_{E,PW,24h}$: 201 dB |
| Otariid Pinnipeds (OW) (Underwater) | *Cell 9*<br>$L_{pk,flat}$: 232 dB<br>$L_{E,OW,24h}$: 203 dB | *Cell 10*<br>$L_{E,OW,24h}$: 219 dB |

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure ($L_{pk}$) has a reference value of 1 µPa, and cumulative sound exposure level ($L_E$) has a reference value of 1µPa$^2$s. In this table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI, 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The 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 acoustic thresholds will be exceeded.

*Ensonified Area*

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 (TL) coefficient.

The sound field in the project area is the existing background noise plus additional noise resulting from the planned project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.,* tugging activities). Calculation of the area ensonified by the planned action is dependent on the background sound levels at the project site, the source levels of the planned activities, and the estimated TL coefficients for the planned activities at the site. These factors are addressed below.

*Sound Source Levels of Tugging Activities.* The project includes three to four tugs under load with a jack-up rig. Hilcorp conducted a literature review of underwater sound emissions of tugs under various loading efforts. The sound source levels for tugs of various horsepower (2,000 to 8,200) under load can range from approximately 164 dB RMS to 202 dB RMS. This range largely relates to the level of operational effort, with full power output and higher speeds generating more propeller cavitation and hence greater sound source levels than lower power output and lower speeds. Tugs under tow produce higher source levels than tugs transiting with no load because of the higher

power output necessary to pull the load. The amount of power the tugs expend while operating is the best predictor of relative sound source level. Several factors will determine the duration that the tugboats are towing the jack-up rig, including the origin and destination of the towing route (*e.g.,* Rig Tenders Dock, an existing platform) and the tidal conditions. The power output will be variable and influenced by the prevailing wind direction and velocity, the current velocity, and the tidal stage. Unless human safety or equipment integrity are at risk, transport will be timed with the tide to minimize towing duration and power output.

Hilcorp's literature review identified no existing data on sound source levels of tugs towing jack-up rigs. Accordingly, for this analysis, Hilcorp considered data from tug-under-load activities, including berthing and towing activities. Austin and Warner (2013) measured 167 dB RMS for tug towing barge activity in Cook Inlet. Blackwell and Greene (2002) reported berthing activities in the POA with a source level of 179 dB RMS. Laurinolli *et al.* (2005) measured a source level of 200 dB RMS for anchor towing activities by a tugboat in the Strait of Juan de Fuca, WA. The Roberts Bank Terminal 2 study (2014) repeated measurements of the same tug operating under different speeds and loading conditions. Broadband measurements from this study ranged from approximately 162 dB RMS up to 200 dB RMS.

The rig manager for Hilcorp, who is experienced with towing jack-up rigs in Cook Inlet, described operational conditions wherein the tugs generally operate at half power or less for the majority of the time they are under load (pers. Comm., Durham, 2021). Transits with the tide (lower power output) are preferred for safety reasons, and effort is made to reduce or eliminate traveling against the tide (higher power output). The Roberts Bank Terminal 2 study (2014) allowed for a comparison of source levels from the same vessel (Seaspan Resolution tug) at half power versus full power. Seaspan Resolution's half-power (*i.e.,* 50 percent) berthing scenario had a sound source level of

180 dB RMS. In addition, the Roberts Bank Terminal 2 Study (2014) reported a mean tug source level of 179.3 dB RMS from 650 tug transits under varying load and speed conditions.

The 50 percent (or less) power output scenario will occur during the vast majority of tug towing jack-up rig activity. Therefore, based on Hilcorp's literature review, a source level of 180 dB RMS was found to be an appropriate proxy source level for a single tug under load based on the Roberts Bank Terminal 2 study. If all three tugs were operating simultaneously at 180 dB RMS, the overall source emission levels will be expected to increase by approximately 5 dB when logarithmically adding the sources (*i.e.,* to 185 dB RMS). To further support this level as an appropriate proxy, a sound source verification (SSV) study performed by JASCO Applied Sciences (JASCO) in Cook Inlet in October 2021 (Lawrence *et al.*, 2022) measured the sound source level from three tugs pulling a jack-up rig in Cook Inlet at various power outputs. Lawrence *et al.* (2022) reported a source level of 167.3 dB RMS for the 20 percent-power scenario and a source level of 205.9 dB RMS for the 85 percent-power scenario. Assuming a linear scaling of tug power, a source level of 185 dB RMS was calculated as a single point source level for three tugs operating at 50 percent power output. Because the 2021 Cook Inlet SSV measurements by JASCO represent the most recent best available data, and because multiple tugs may be operating simultaneously, the analyses presented below use a mean tug sound source level scenario of 185 dB RMS to calculate the 120-dB isopleths for three tugs operating at 50 percent power output. In practice, the load condition of the three tugs is unlikely to be identical at all times, so sound emissions will be dominated by the single tug in the group that is working hardest at any point in time.

Further modeling was done to account for one additional tug working for 1 hour at 50 percent power during jack-up rig positioning, a stationary activity. This is equivalent in terms of acoustic energy to three tugs operating at 180.0 dB RMS (each of

them) for 4 hours, joined by a fourth tug for 1 hour, increasing the source level to 186.0 dB RMS only during the 1-hour period (the logarithmic sum of four tugs working together at 180.0 dB RMS). A sound exposure level (SEL) of 185.1 dB was used to account for the cumulative sound exposure when calculating Level A harassment by adding a 4th tug operating at 50 percent power for 20 percent of the 5-hour period. This is equivalent in terms of acoustic energy to three tugs operating at 185.0 dB for 4 hours, joined by a fourth tug for 1 hour, increasing the source level to 186.0 dB only during the 1-hour period. The use of the 20 percent duty cycle was a computational requirement and, although equal in terms of overall energy and determination of impacts, should not be confused with the actual instantaneous SPL (see section 6.2.1.1 of Hilcorp's application for additional computational details).

In summary, Hilcorp proposed to use a source level of 185.0 dB RMS to calculate the stationary 120-dB isopleth where three tugs were under load for 4 hours with a 50 percent power output and a source level of 186.0 dB RMS to calculate the stationary 120-dB isopleth where four tugs were under load for 1 hour with a 50 percent power output. Further, Hilcorp proposed to use a source level of 185.1 dB SEL to calculate the stationary Level A harassment isopleths where three tugs were underload for 4 hours and then one tug joined for 1 additional hour. Lastly, Hilcorp proposed to use the 185.0 dB RMS level to model the mobile Level A harassment isopleths for three tugs under load with a 50 percent power output. NMFS concurs that Hilcorp's proposed source levels are appropriate.

*Underwater Sound Propagation Modeling*. Hilcorp contracted SLR Consulting to model the extent of the harassment isopleths for tugs under load with a jack-up rig during their planned activities. Cook Inlet is a particularly complex acoustic environment with strong currents, large tides, variable sea floor and generally changing conditions. Accordingly, Hilcorp applied a more detailed propagation model than the "practical

spreading loss" approach that uses a factor of 15. The objective of a more detailed propagation calculation is to improve the representation of the influence of some environmental variables, in particular by accounting for bathymetry and specific sound source locations and frequency-dependent propagation effects.

Modeling was conducted using the dBSea software package. The fluid parabolic equation modeling algorithm was used with 5 Padé terms to calculate the TL between the source and the receiver at low frequencies (1/3-octave bands, 31.5 Hz up to 1 kHz). For higher frequencies (1 kHz up to 8 kHz) the ray tracing model was used with 1,000 reflections for each ray. Sound sources were assumed to be omnidirectional and modeled as points. The received sound levels for the project were calculated as follows: (1) One-third octave source spectral levels were obtained via reference spectral curves with subsequent corrections based on their corresponding overall source levels; (2) TL was modeled at one-third octave band central frequencies along 100 radial paths at regular increments around each source location, out to the maximum range of the bathymetry data set or until constrained by land; (3) The bathymetry variation of the vertical plane along each modeling path was obtained via interpolation of the bathymetry dataset which has 83 m grid resolution; (4) The one-third octave source levels and transmission loss were combined to obtain the received levels as a function of range, depth, and frequency; and (5) The overall received levels were calculated at a 1-m depth resolution along each propagation path by summing all frequency band spectral levels.

*Model Inputs.* Bathymetry data used in the model was collected from the NOAA National Centers for Environmental Information (AFSC, 2019). Using NOAA's temperature and salinity data, sound speed profiles were computed for depths from 0 to 100 m for May, July, and October to capture the range of possible sound speed depending on the time of year Hilcorp's work could be conducted. These sound speed profiles were compiled using the Mackenzie Equation (1981) and are presented in table 8 of Hilcorp's

application (available at *https://www.fisheries.noaa.gov/action/incidental-take-authorization-hilcorp-alaska-llc-oil-and-gas-activities-cook-inlet-alaska-0*). Geoacoustic parameters were also incorporated into the model. The parameters were based on substrate type and their relation to depth. These parameters are presented in table 9 of Hilcorp's application (available at *https://www.fisheries.noaa.gov/action/incidental-take-authorization-hilcorp-alaska-llc-oil-and-gas-activities-cook-inlet-alaska-0*).

Detailed broadband sound transmission loss modeling in dBSea used the source level of 185 dB RMS calculated in one-third octave band levels (31.5 Hz to 64,000 Hz) for frequency dependent solutions. The frequencies associated with tug sound sources occur within the hearing range of marine mammals in Cook Inlet. Received levels for each hearing marine mammal group based on one-third octave auditory weighting functions were also calculated and integrated into the modeling scenarios of dBSea. For modeling the distances to relevant PTS thresholds, a weighting factor adjustment was not used; instead, the data on the spectrum associated with their source was used and incorporated the full auditory weighting function for each marine mammal hearing group.

The tugs towing the jack-up rig represent a mobile sound source, while tugs holding and positioning the jack-up rig on a platform are more akin to a stationary sound source. In addition, three tugs will be used for towing (mobile) and holding and positioning (stationary) and up to four tugs could be used for positioning (stationary). Consequently, sound TL modeling was undertaken for the various stationary and mobile scenarios for three and four tugs to generate the distances to the 120-dB (relevant Level B) and Level A harassment isopleths.

For acoustic modeling of the stationary Level A harassment isopleths, two locations representative of where tugs will be stationary while they position the jack-up rig were selected in middle Cook Inlet near the Tyonek platform and in lower Trading Bay where the production platforms are located. To account for the mobile scenarios, the

acoustic model calculated the Level A harassment isopleths along a representative route from the Rig Tenders dock in Nikiski to the Tyonek platform, the northernmost platform in Cook Inlet (representing middle Cook Inlet), as well as from the Tyonek Platform to the Dolly Varden platform in lower Trading Bay, then from the Dolly Varden platform back to the Rig Tenders Dock in Nikiski. Note that this route is representative of a typical route the tugs may take; the specific route is not yet known, as the order in which platforms will be drilled with the jack-up rig is not yet known. The locations represent a range of water depths from 18 to 77 m found throughout the project area.

For mobile Level B harassment and stationary Level B harassment with three tugs, the average distance to the 120 dB RMS threshold was based on the assessment of 100 radials at 25 locations across seasons (May, July, and October) and represented the average 120-dB isopleth for each season and location (table 4). The result is a mobile and stationary 120-dB isopleth of 3,850 m when three tugs are used (table 4). For four stationary tugs, the average distance to the 120 dB threshold was based on 100 radials at two locations, one in Trading Bay and one in middle Cook Inlet, across seasons (May, July, and October) and represents the average 120-dB isopleth for each season and location. The result is a stationary 120-dB isopleth of 4,453 m when four tugs are in use (table 5). NMFS concurs that 3,850 m and 4,453 m are appropriate estimates for the extent of the 120-dB isopleths for Hilcorp's towing, holding, and positioning activities when using three and four tugs, respectively, for the purpose of predicting the number of potential takes by Level B harassment.

**Table 4 -- Average Distances to the 120-dB Threshold for Three Tugs Towing (Mobile) and Holding and Positioning for 4 hours (Stationary)**

| Location | Average distance to 120-dB threshold (m) | | | Season average distance to 120-dB threshold (m) |
|---|---|---|---|---|
| | May | July | October | |
| M1 | 4,215 | 3,911 | 4,352 | 4,159 |
| M2 | 3,946 | 3,841 | 4,350 | 4,046 |
| M3 | 4,156 | 3,971 | 4,458 | 4,195 |
| M4 | 4,040 | 3,844 | 4,364 | 4,083 |

| | | | | |
|---|---|---|---|---|
| M5 | 4,053 | 3,676 | 4,304 | 4,011 |
| M6 | 3,716 | 3,445 | 3,554 | 3,572 |
| M7 | 2,947 | 2,753 | 2,898 | 2,866 |
| M8 | 3,270 | 3,008 | 3,247 | 3,175 |
| M9 | 3,567 | 3,359 | 3,727 | 3,551 |
| M10 | 3,600 | 3,487 | 3,691 | 3,593 |
| M11 | 3,746 | 3,579 | 4,214 | 3,846 |
| M12 | 3,815 | 3,600 | 3,995 | 3,803 |
| M13 | 4,010 | 3,831 | 4,338 | 4,060 |
| M14 | 3,837 | 3,647 | 4,217 | 3,900 |
| M15 | 3,966 | 3,798 | 4,455 | 4,073 |
| M16 | 3,873 | 3,676 | 4,504 | 4,018 |
| M18 | 5,562 | 3,893 | 4,626 | 4,694 |
| M20 | 5,044 | 3,692 | 4,320 | 4,352 |
| M22 | 4,717 | 3,553 | 4,067 | 4,112 |
| M24 | 4,456 | 3,384 | 4,182 | 4,007 |
| M25 | 3,842 | 3,686 | 4,218 | 3,915 |
| M26 | 3,690 | 3,400 | 3,801 | 3,630 |
| M27 | 3,707 | 3,497 | 3,711 | 3,638 |
| M28 | 3,546 | 3,271 | 3,480 | 3,432 |
| M29 | 3,618 | 3,279 | 3,646 | 3,514 |
| Average | 3,958 | 3,563 | 4,029 | 3,850 |

**Table 5 -- Average Distances to the 120-dB Threshold for Four Tugs Positioning (Stationary) for 1 hour**

| Location | Average distance to 120-dB threshold (m) | | | Season average distance to 120-dB threshold (m) |
|---|---|---|---|---|
| | May | July | October | |
| Trading Bay | 4,610 | 3,850 | 4810 | 4423 |
| Middle CI | 4,820 | 4,130 | 4500 | 4483 |
| Average | 4,715 | 3,990 | 4655 | 4453 |

The average Level A harassment distances for the stationary, four tug scenario were calculated assuming a SEL of 185.1 dB for a 5-hour exposure duration (table 6). For the mobile, three tug scenario, the average Level A harassment distances were calculated assuming a SEL of 185.0 dB with an 18-second exposure period (table 7). This 18-second exposure was derived using the standard TL equation (Source Level − TL = Received Level) for determining threshold distance (R [m]), where TL = 15Log10. In this case, the equation was 185.0 dB − 15Log10 = 173 dB. Solving for threshold distance (R) yields a distance of approximately 6 m, which was then used as the preliminary ensonified radius to determine the duration of time it would take for the ensonified area of the sound source traveling at a speed of 2.06 m/s (4 knots) to pass a marine mammal. The duration (twice the radius divided by speed of the source) that the ensonified area of a single tug would take to pass a marine mammal under these conditions is 6 seconds. An 18-second exposure was used in the model to reflect the time it would take for three ensonified areas (from three consecutive individual tugs) to pass a single point that represents a marine mammal (6 seconds + 6 seconds + 6 seconds = 18 seconds).

**Table 6 -- Average Distances to the Level A Harassment Thresholds for Four Stationary Tugs Under Load with a Jack-up Rig for 5 Hours**

| Location | Season | Average distance (m) to Level A harassment threshold by functional hearing group | | | | |
|---|---|---|---|---|---|---|
| | | LF | MF | HF | PW | OW[1] |
| Trading Bay | May | 107 | 77 | 792 | 64 | -- |
| Trading Bay | July | 132 | 80 | 758 | 66 | -- |
| Trading Bay | October | 105 | 75 | 784 | 79 | -- |
| Middle Cook Inlet | May | 86 | 85 | 712 | 78 | -- |

| | | | | | | |
|---|---|---|---|---|---|---|
| Middle Cook Inlet | July | 95 | 89 | 718 | 80 | -- |
| Middle Cook Inlet | October | 82 | 86 | 730 | 80 | -- |
| Average | | 102 | 82 | 749 | 75 | 0 |
| [1]The Level A harassment distances are smaller than the footprint of the tugs | | | | | | |

**Table 7 -- Average Distances to the Level A Harassment Thresholds for Three Mobile Tugs Under Load with a Jack-up Rig Assuming an 18-second Exposure Duration**

| Location | Season | Average distance (m) to Level A threshold by functional hearing group | | | | |
|---|---|---|---|---|---|---|
| | | LF[1] | MF[1] | HF | PW[1] | OW[1] |
| M2 | May | - | - | 10 | - | - |
| M2 | July | - | - | 5 | - | - |
| M2 | October | - | - | 10 | - | - |
| M11 | May | - | - | 10 | - | - |
| M11 | July | - | - | 5 | - | - |
| M11 | October | - | - | 10 | - | - |
| M22 | May | - | - | 10 | - | - |
| M22 | July | - | - | 5 | - | - |
| M22 | October | - | - | 10 | - | - |
| Average | | 0 | 0 | 8 | 0 | 0 |
| [1]The Level A harassment distances are smaller than the footprint of the tugs | | | | | | |

Tugs are anticipated to be towing the jack-up rig between platforms and considered a mobile sound source for 6 hours in a single day per jack-up rig move. Tugs are anticipated to be towing the jack-up rig and considered a mobile source during demobilization and mobilization to/from Rig Tenders Dock in Nikiski for 9 hours. One jack-up rig move between platforms is planned during the IHA period. Tugs are anticipated to be holding or positioning the jack-up rig at the platforms or Rig Tenders Dock during demobilization and mobilization and are considered a stationary sound source for 5 hours in the first day and 5 hours in the second day if a second attempt to pin the jack-up rig is required due to the first pinning event being unsuccessful. A second attempt was built into the exposure estimate for each pinning event; three total pinning events are anticipated during the IHA period for production drilling.

The ensonified area for a location-to-location transport for production drilling represents a rig move between two production platforms in middle Cook Inlet and/or Trading Bay and includes 6 mobile hours over an average distance of 16.77 km in a single day and 5 stationary hours on the first day and 5 stationary hours on a second day. The 5 stationary hours are further broken into 4 hours with three tugs under load and 1 hour with four tugs under load. One location-to-location jack-up rig move is planned for the IHA period.

The ensonified area for production drilling demobilization and mobilization represents a rig move from a production platform in middle Cook Inlet to Rig Tenders Dock in Nikiski and reverse for mobilization and includes 9 mobile hours over a distance of up to 64.34 km in a single day and 5 stationary hours on the first day and 5 stationary hours on a second day, which are further broken into the same three tugs working for 4 hours and four tugs working for 1 hour as mentioned above. A summary of the estimated Level A and Level B harassment distances and areas for the various tugging scenarios is provided in table 8.

**Table 8 -- Average Distances and Areas to the Estimated Level A and Level B Harassment Thresholds for the Various Tugging Scenarios**

| Activity | Level A harassment distance (m) / area ($km^2$) | | | | | Level B harassment distance (m) / area ($km^2$) |
|---|---|---|---|---|---|---|
| | LF | MF | HF | PW | OW | |
| Demobilization / Mobilization | | | | | | |
| 3 Tugs Towing a Jack-Up Rig – Mobile | --[1] | --[1] | 8 / 1.07 | --[1] | --[1] | 3,850 / 541.96 |
| 3 Tugs Towing a Jack-Up Rig – Stationary for up to 4 hours | 102 / 0.03 | 82 / 0.02 | 749 / 1.76 | 75 / 0.02 | --[1] | 3,850 / 46.56 |
| 4 Tugs Towing a Jack-Up Rig – Stationary for up to 1 hour | 102 / 0.03 | 82 / 0.02 | 749 / 1.76 | 75 / 0.02 | --[1] | 4,453 / 62.30 |
| Location-to-Location | | | | | | |
| 3 Tugs Towing a Jack-Up Rig – Mobile | --[1] | --[1] | 8 / 0.28 | --[1] | --[1] | 3,850 / 175.6 |
| 3 Tugs Towing a Jack-Up Rig – Stationary for up to 4 hours | 102 / 0.03 | 82 / 0.02 | 749 / 1.76 | 75 / 0.02 | --[1] | 3,850 / 46.56 |
| 4 Tugs Towing a Jack-Up Rig – Stationary for up to 1 hour | 102 / 0.03 | 82 / 0.02 | 749 / 1.76 | 75 / 0.02 | --[1] | 4,453 / 62.30 |

[1]The Level A harassment distances are smaller than the footprint of the tugs

*Marine Mammal Occurrence*

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

Densities for marine mammals in Cook Inlet were derived from NMFS' Marine Mammal Laboratory (MML) aerial surveys, typically flown in June, from 2000 to 2022 (Rugh *et al.,* 2005; Shelden *et al.,* 2013, 2015b, 2017, 2019, 2022; Goetz, *et al.* 2023). While the surveys are concentrated for a few days in summer annually, which may skew densities for seasonally present species, they represent the best available long-term dataset of marine mammal sightings available in Cook Inlet. Densities were calculated by

summing the total number of animals observed during the MML surveys and dividing the number sighted by the approximate area of Cook Inlet. For CIBWs, several correction factors were applied to the density estimates to address perception, availability, and proximity bias; correction factors were not applied to the non-CIBW density estimates. For CIBWs, densities were derived for the entirety of Cook Inlet as well as for middle and lower Cook Inlet; for non-CIBW marine mammals densities account for both lower and upper Cook Inlet. There are no density estimates available for California sea lions and Pacific white-sided dolphins in Cook Inlet, as they were so infrequently sighted. Average densities across survey years are presented in table 9.

**Table 9 --Average Densities of Marine Mammal Species in Cook Inlet[1]**

| Species | Density (individuals per km2) |
|---|---|
| Humpback whale | 0.00185 |
| Minke whale | 0.00003 |
| Gray whale | 0.00007 |
| Fin whale | 0.00028 |
| Killer whale | 0.00061 |
| Beluga whale (Entire Cook Inlet) | 0.07166 |
| Beluga whale (Middle Cook Inlet) | 0.00658 |
| Beluga whale (Lower Cook Inlet) | 0.00003 |
| Beluga whale (North Cook Inlet)[2] | 0.00166 |
| Beluga whale (Lower Cook Inlet)[2] | 0.00000 |
| Beluga whale (Trading Bay)[2] | 0.01505 |
| Dall's porpoise | 0.00014 |
| Harbor porpoise | 0.00380 |
| Pacific white-sided dolphin | N/A[3] |
| Harbor seal | 0.26819 |
| Steller sea lion | 0.00669 |
| California sea lion | N/A[3] |

[1]Density estimates are derived from MML surveys unless otherwise identified
[2]Density estimates are derived from the Goetz *et al*. (2012a) habitat-based model
[3]Density estimates are not available in Cook Inlet for this species

CIBW densities estimated from the MML surveys across regions are low, however, there is a known effect of seasonality on their distribution. Thus, densities derived directly from these summer surveys might underestimate the density of CIBWs in lower Cook Inlet at other ice-free times of the year. Therefore, additional CIBW densities were considered as a comparison of available data. The other mechanism for arriving at CIBW density considered here is the Goetz *et al.* (2012a) habitat-based model. This model is derived from sightings and incorporates depth soundings, coastal substrate type, environmental sensitivity index, anthropogenic disturbance, and anadromous fish streams to predict densities throughout Cook Inlet. The output of this model is a density map of Cook Inlet, which predicts spatially explicit density estimates for CIBW. Using the resulting grid densities, average densities were calculated for two regions applicable to Hilcorp's operations (table 9). The densities applicable to the area of activity (*i.e.,* the North Cook Inlet Unit density for middle Cook Inlet activities and the Trading Bay density for activities in Trading Bay) are provided in table 9 above and were carried forward to the exposure estimates as they were deemed to likely be the most representative estimates available. Likewise, when a range is given, the higher end of the range was used out of caution to calculate exposure estimates (*i.e.,* Trading Bay in the Goetz model has a range of 0.004453 to 0.015053; 0.015053 was used for the exposure estimates).

*Take Estimation*

Here we describe how the information provided above was synthesized to produce a quantitative estimate of the take that could occur and is authorized.

As described above, Hilcorp's tugging activity considers a total of three rig moves across 6 days (one 2-day location-to-location jack-up rig move, one 2-day demobilization effort, and one 2-day mobilization effort). For the location-to-location move, Hilcorp assumed 6 hours of mobile (towing) and 5 hours of stationary (holding and positioning)

activities on the first day, and 5 hours of the stationary activity (4 hours with three tugs and 1 hour with four tugs) on the second day to account for two positioning attempts (across 2 days). For the demobilization and mobilization efforts, Hilcorp assumed 9 hours of mobile and 5 hours of stationary (4 hours with three tugs and 1 hour with four tugs) activities on the first day, and 5 hours of stationary (4 hours with three tugs and 1 hour with four tugs) activities on the second day (across 2 days for each effort, for a total of 4 days of tugs under load with a jack-up rigs).

Potential take by Level A harassment was quantified by multiplying the ensonified Level A harassment areas per tugging activity scenario for each functional hearing group (table 8) by the estimated marine mammal densities (table 9) to get an estimate of exposures per day. This value was then multiplied by the number of days per move and the number of moves of that type of activity scenario. The estimated exposures by activity scenario were then summed to result in a number of exposures for all tugging activities. Based on this analysis, only Dall's porpoise, harbor porpoise, and harbor seals had potential estimated take by Level A harassment that was greater than zero: 0.001, 0.018, and 0.006, respectively. For mobile tugging, the distances to the PTS thresholds for HF cetaceans and phocids are smaller than the overall size of the tug and rig configuration (*i.e.,* 8 m and 0 m, respectively), making it unlikely an animal will remain close enough to the tug engines to incur PTS. For stationary positioning of the jack up rig, the PTS isopleths for both the 3-tug and 4-tug scenarios are up to 749 m for HF cetaceans and up to 102 m for all other species, but calculated on the assumption that an animal would remain within several hundred meters of the jack-up rig for the full 5 hours of noise-producing activity. Given the location of the activity is not in an area known to be essential habitat for any marine mammal species with extreme site fidelity over the course of 2 days, in addition to the low exposure estimates for take by Level A harassment (*i.e.*, $\leq 0.18$ for all species), the mobile nature of marine mammals, and the

general tendencies of most marine mammals to avoid loud noises, the occurrence of PTS is unlikely and thus not authorized for any species.

The ensonified Level B harassment areas calculated per activity scenario (three tug stationary, four tug stationary, and three tug mobile for the location-to-location move and the demobilization and mobilization efforts) for a single day (see table 8) were multiplied by marine mammal densities to estimate takes by Level B harassment per day, acknowledging that there are contextual factors that make take less likely to result from this activity. This was then multiplied by the number of days per move and the number of moves of that type of activity scenario to arrive at the number of estimated exposures above 120 dB per activity type. These exposures by activity scenario were then summed to result in a number of exposures for all Hilcorp's tugging activities during the IHA period (table 10). As exposure estimates were calculated based on specific potential rig moves or well locations, the density value for CIBWs that was carried through the estimate was the higher density value for that particular location (table 9; *i.e.*, 0.00658 for locations in middle Cook Inlet and 0.01505 for locations in Trading Bay). There are no estimated exposures based on this method of calculation for California sea lions and Pacific white-sided dolphins because the assumed density of these species in the project area is 0.00 animals per $km^2$. Table 10 also indicates the number of takes, by Level B harassment, authorized. For species where the total calculated exposures above the Level B harassment threshold is less than the estimated group size for that species, NMFS adjusted the take authorized up to the anticipated group size. Explanations for species for which take authorized is greater than the calculated take are included below.

**Table 10 – Calculated Exposures and Total Authorized Take by Level B Harassment, by Species and Stock, for Hilcorp's Tugging Activities**

| Scenario | Location-to-Location | | | Demobilization / Mobilization | | | Total Calculated Level B Harassment Exposures | Total Authorized Take by Level B Harassment |
|---|---|---|---|---|---|---|---|---|
| | 3 Mobile Tugs | 3 Stationary Tugs | 4 Stationary Tugs | 3 Mobile Tugs | 3 Stationary Tugs | 4 Stationary Tugs | | |
| Level B Harassment Area ($km^2$) | 175.67 | 46.56 | 62.30 | 541.96 | 46.56 | 62.30 | | |
| Species | Calculated Exposures above the Level B Harassment threshold | | | | | | | |
| Humpback whale | 0.324 | 0.029 | 0.010 | 2.001 | 0.057 | 0.019 | 2.440 | 3 |
| Minke whale | 0.005 | 0.000 | 0.000 | 0.031 | 0.001 | 0.000 | 0.037 | 3 |
| Gray whale | 0.012 | 0.001 | 0.000 | 0.072 | 0.002 | 0.001 | 0.088 | 3 |
| Fin whale | 0.048 | 0.004 | 0.001 | 0.299 | 0.009 | 0.003 | 0.364 | 2 |
| Killer whale | 0.108 | 0.009 | 0.003 | 0.663 | 0.019 | 0.006 | 0.808 | 10 |
| Beluga whale | 1.900 | 0.168 | 0.056 | 7.133 | 0.204 | 0.068 | 9.529 | 15 |
| Dall's porpoise | 0.024 | 0.002 | 0.001 | 0.148 | 0.004 | 0.001 | 0.180 | 6 |
| Harbor porpoise | 0.667 | 0.059 | 0.020 | 4.117 | 0.118 | 0.039 | 5.020 | 12 |
| Pacific white-sided dolphin | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3 |
| Harbor seal | 47.112 | 4.163 | 1.392 | 290.699 | 8.325 | 2.785 | 354.476 | 355 |
| Steller sea lion | 1.175 | 0.104 | 0.035 | 7.253 | 0.208 | 0.069 | 8.844 | 9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| California sea lion | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2 |

During annual aerial surveys conducted in Cook Inlet from 2000 to 2016, humpback group sizes ranged from 1 to 12 individuals, with most groups comprised of 1 to 3 individuals (Shelden *et al.*, 2013). Three humpback whales were observed in Cook Inlet during SAExploration's seismic study in 2015: two near the Forelands and one in Kachemak Bay (Kendall and Cornick, 2015). In total, 14 sightings of 38 humpback whales (ranging in group size from 1 to 14) were recorded in the 2019 Hilcorp lower Cook Inlet seismic survey in the fall (Fairweather Science, 2020). Two sightings totaling three individual humpback whales were recorded near Ladd Landing north of the Forelands on the recent Harvest Alaska CIPL Extension Project (Sitkiewicz *et al.*, 2018). Based on documented observations from the CIPL Extension Project, which is the data closest to the specific geographic region, NMFS has authorized, three takes by Level B harassment for humpback whales, which is slightly greater than the calculated exposures using the methods described above (0.2440 takes by Level B harassment, table 10).

Minke whales usually travel in groups of two to three individuals (NMFS, 2023b). During Cook Inlet-wide aerial surveys conducted from 1993 to 2004, minke whales were encountered three times (1998, 1999, and 2006), all were observed off Anchor Point (Shelden *et al.*, 2013, 2015b, and 2017). Several minke whales were recorded off Cape Starichkof in early summer 2013 during exploratory drilling (Owl Ridge, 2014), suggesting this location is regularly used by minke whales year-round. During Apache's 2014 survey, a total of two minke whale groups (three individuals) were observed. One sighting occurred southeast of Kalgin Island while the other sighting occurred near Homer (Lomac-MacNair *et al.*, 2014). SAExploration noted one minke whale near Tuxedni Bay in 2015 (Kendall and Cornick, 2015). Eight sightings of eight minke whales were recorded in the 2019 Hilcorp lower Cook Inlet seismic survey (Fairweather Science, 2020). Based on these observations of group size and consistency of sightings in Cook Inlet, NMFS has authorized three takes by Level B harassment for minke whales (table

10). This is higher than the exposure estimate (*i.e.,* 0.037, table 10) to allow for the potential occurrence of a group, or several individuals, during the project period.

During Apache's 2012 seismic program, nine sightings of a total of nine gray whales were observed in June and July (Lomac-MacNair *et al.*, 2013). In 2014, one gray whale was observed during Apache's seismic program (Lomac-MacNair *et al.*, 2014) and in 2015, no gray whales were observed during SAExploration's seismic survey (Kendall and Cornick, 2015). No gray whales were observed during the 2018 CIPL Extension Project (Sitkiewicz *et al.*, 2018) or during the 2019 Hilcorp seismic survey in lower Cook Inlet (Fairweather Science, 2020). The greatest densities of gray whales in Cook Inlet occur from November through January and March through May; the former are southbound, the latter are northbound (Ferguson *et al.*, 2015). Based on this information, NMFS has authorized three takes by Level B harassment for gray whales. This is higher than the exposure estimate (*i.e.,* 0.088, table 10) to allow for the potential occurrence of a group, or several individuals, particularly during the fall shoulder season during the higher density periods mentioned above.

Fin whales most often travel alone, although they are sometimes seen in groups of two to seven individuals. During migration they may be in groups of 50 to 300 individuals (NMFS, 2010). During the NMFS aerial surveys in Cook Inlet from 2000 to 2018, 10 sightings of 26 estimated individual fin whales were recorded in lower Cook Inlet (Shelden *et al.*, 2013, 2015b, and 2017; Shelden and Wade, 2019). Wild *et al.* (2023) identified areas south of the mouth of Cook Inlet as a fin whale feeding BIA from June to September with an importance score of 1 and an intensity score of 1 (see Harrison *et al.* 2023 for more details regarding BIA scoring). As such, the potential for fin whales to occupy waters adjacent to the BIA during that time period and near the specified area may be higher. Acoustic detections of fin whales were recorded during passive acoustic monitoring in the fall of 2019 (Castellote *et al.*, 2020) Additionally, during seismic

surveys conducted in 2019 by Hilcorp in lower Cook Inlet, 8 sightings of 23 fin whales were recorded in groups ranging in size from 1 to 15 individuals (Fairweather Science, 2020). The higher number of sightings in a single year relative to the multi-year NMFS aerial surveys flown earlier in season each year suggests fin whales may be present in greater numbers in the fall. Given the possible presence of fin whales in the project area, NMFS has authorized two takes by Level B harassment for fin whales during Hilcorp's planned activities.

Killer whale pods typically consist of a few to 20 or more animals (NMFS, 2023c). During seismic surveys conducted in 2019 by Hilcorp in lower Cook Inlet, 21 killer whales were observed. Although also observed as single individuals, killer whales were recorded during this survey in groups ranging in size from two to five individuals (Fairweather Science, 2020). One killer whale group of two individuals was observed during the 2015 SAExploration seismic program near the North Foreland (Kendall and Cornick, 2015). Based on recent documented sightings, observed group sizes, and the established presence of killer whales in Cook Inlet, NMFS has authorized 10 takes by Level B harassment for killer whales. This will account for two sightings with a group size of five individuals, which represents the upper end of recorded group size in recent surveys conducted in Cook Inlet.

The total calculated exposures for CIBW was calculated to be 9.529 individuals based on recorded densities and estimated durations that tugs will be under load with a jack-up rig (table 10). The 2018 MML aerial survey (Shelden and Wade, 2019) reported a median beluga group size estimate of approximately 11 whales, although estimated group sizes were highly variable (ranging from 2 to 147 whales) as was the case in previous survey years (Boyd *et al.*, 2019). The median group size during 2021 and 2022 MML aerial surveys was 34 and 15, respectively, with variability between 1 and 174 between the years (Goetz *et al.*, 2023). Additionally, vessel-based surveys in 2019 found CIBW

groups in the Susitna River Delta (roughly 24 km north of the Tyonek Platform) that ranged from 5 to 200 animals (McGuire *et al.*, 2022). Based on these observations, NMFS increased the estimated take calculated above and has authorized 15 takes by Level B harassment for CIBWs to account for 1 group of 15 individuals, the lower end of the 2022 median group size, or 2 observations of smaller-sized groups. While large groups of CIBWs have been seen in the Susitna River Delta region, they are not expected near Hilcorp's specified activity because groups of this size have not been observed or documented outside river deltas in upper Cook Inlet; however, smaller groups (*i.e.,* around the 2022 median group size) could be traveling through to access the Susitna River Delta and other nearby coastal locations.

Dall's porpoises are usually found in groups averaging between 2 and 12 individuals (NMFS, 2023d). During seismic surveys conducted in 2019 by Hilcorp in lower Cook Inlet, Dall's porpoises were recorded in groups ranging from two to seven individuals (Fairweather Science, 2020). The 2012 Apache survey recorded two groups of three individual Dall's porpoises (Lomac-MacNair *et al.*, 2014). NMFS has authorized six takes by Level B harassment for Dall's porpoises. This is greater than the estimated exposure estimate for this species (0.180, table 10), but will allow for at least one group at the higher end of documented group size or a combination of small groups plus individuals.

Harbor porpoises are most often seen in groups of two to three (NMFS, 2023e); however, based on observations during project-based marine mammal monitoring, they can also occur in larger group sizes. Shelden *et al.* (2014) compiled historical sightings of harbor porpoises from lower to upper Cook Inlet that spanned from a few animals to 92 individuals. The 2018 CIPL Extension Project that occurred in middle Cook Inlet reported 29 sightings of 44 individuals (Sitkiewicz *et al.*, 2018). NMFS has authorized 12 takes by Level B harassment for harbor porpoises to allow for multiple group sightings

during the specified activity. These authorized takes are greater than the exposure estimate calculated (5.020, table 10) but will account for the possibility of a couple sightings of small groups of harbor porpoises during Hilcorp's 6 days of tugging activity.

Recent data specific to Pacific white-sided dolphins within Cook Inlet are lacking, and the calculated exposure estimate is zero based on the paucity of sightings of this species in this region (table 10). However, Pacific-white sided dolphins have been observed in Cook Inlet. During an aerial survey in May 2014, Apache observed three Pacific white-sided dolphins near Kenai. No large groups of Pacific white-sided dolphins have been reported within Cook Inlet, although acoustic detections of several Pacific white-sided dolphins were recorded near Iniskin Bay during Hilcorp's 3D seismic survey in 2020. Prior to this, only one other survey in the last 20 years noted the presence of Pacific white-sided dolphins (three animals) within Cook Inlet. As a result of the dearth of current data on this species, an accurate density for Pacific white-sided dolphins in the specific project region has not been generated. However, based on the possibility of this species in the project area, NMFS has authorized three takes by Level B harassment for Pacific white-sided dolphins, the maximum number of Pacific white-sided dolphins that have been recorded in the somewhat recent past are present in Cook Inlet. This is consistent with NMFS' IHA for Hilcorp's previous tugging activities (87 FR 62364, October 14, 2022).

Harbor seals are often solitary in water but can haul out in groups of a few to thousands (Alaska Department of Fish and Game (ADF&G), 2022). Given their presence in the study region, NMFS has authorized 355 takes by Level B harassment for harbor seals, which is commensurate with the calculated exposure estimate based on harbor seal densities and Hilcorp's estimated durations for tugging activities (table 10).

Steller sea lions tend to forage individually or in small groups (Fiscus and Baines, 1966) but have been documented feeding in larger groups when schooling fish were

present (Gende *et al.*, 2001). Steller sea lions have been observed during marine mammal surveys conducted in Cook Inlet. In 2012, during Apache's 3D Seismic survey, three sightings of approximately four individuals in upper Cook Inlet were reported (Lomac-MacNair *et al.*, 2013). Marine mammal observers associated with Buccaneer's drilling project off Cape Starichkof observed seven Steller sea lions during the summer of 2013 (Owl Ridge, 2014). During SAExploration's 3D Seismic Program in 2015, four Steller sea lions were observed in Cook Inlet. One sighting occurred between the West and East Forelands, one occurred near Nikiski, and one occurred northeast of the North Foreland in the center of Cook Inlet (Kendall and Cornick, 2015). During NMFS CIWB aerial surveys from 2000 to 2016, 39 sightings of 769 estimated individual Steller sea lions in lower Cook Inlet were reported (Shelden *et al.*, 2017). During a waterfowl survey in upper Cook Inlet, an observer documented an estimated 25 Steller sea lions hauled out at low tide in the Lewis River on the west side of Cook Inlet (K. Lindberg, pers. comm., August 15, 2022). Hilcorp reported one sighting of two Steller sea lions while conducting pipeline work in upper Cook Inlet (Sitkiewicz *et al.*, 2018). Commensurate with exposure estimates shown in table 10, NMFS has authorized nine takes by Level B harassment for Steller sea lions.

While California sea lions are uncommon in the specific geographic region, two were seen during the 2012 Apache seismic survey in Cook Inlet (Lomac-MacNair *et al.*, 2013). California sea lions in Alaska are typically alone but may be seen in small groups usually associated with Steller sea lions at their haulouts and rookeries (Maniscalco *et al.*, 2004). Despite the estimated exposure estimate being zero due to the lack of sightings during aerial surveys, NMFS has authorized two takes by Level B harassment for California sea lions to account for the potential to see up to two animals over the course of the season. This is consistent with NMFS authorization for Hilcorp's previous tugging activities (87 FR 62364, October 14, 2022).

**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 ITAs 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 (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (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.

There is a discountable potential for marine mammals to incur PTS from the project, as source levels are relatively low, non-impulsive, and animals would have to remain at very close distances for multiple hours to accumulate acoustic energy at levels that could damage hearing. Therefore, we do not believe there is reasonable potential for

Level A harassment and we are not authorizing it. Hilcorp will implement a number of mitigation and related monitoring measures designed to reduce the potential for and severity of Level B harassment and further reduce the already insignificant potential for Level A harassment.

The tugs towing a jack-up rig are not able to shut down while transiting, holding, or positioning the rig. Hilcorp will maneuver the tugs towing the jack-up rig such that they maintain a consistent speed (approximately 4 knots [7 km/hr]) and avoid multiple changes of speed and direction to make the course of the vessels as predictable as possible to marine mammals in the surrounding environment, characteristics that are expected to be associated with a lower likelihood of disturbance.

Hilcorp will use two NMFS-approved PSOs to observe and implement clearance zone procedures as described below (*i.e.*, pre-clearance monitoring). If a marine mammal(s) is observed within the relevant clearance zone during the pre-clearance monitoring period, tugging activities will be delayed, unless the delay interferes with the safety of working conditions. The pre-clearance zones include a distance of 1.5 km for non-CIBWs and any distance for CIBWs (note: transitioning from towing to positioning without shutting down will not be considered commencing a new operational activity). The 1.5 km clearance zone is consistent with previous authorizations for tugging activities (87 FR 62364, October 14, 2022), and was determined to be appropriate as it is approximately twice as large as the largest Level A harassment zone (table 9) and is a reasonable distance within which cryptic species (*e.g.,* porpoises, pinnipeds) could be observed. The larger clearance zone for CIBWs is a new measure aimed to further minimize any potential impacts from tugs under load with a jack-up rig on this species.

During daylight hours, for 30 minutes prior to commencing new operational activities, or if there is a 30-minute lapse in operational activities, two PSOs will observe and implement clearance zones procedures as described below (*i.e.*, pre-clearance

monitoring); Note: transitioning from towing to positioning without shutting down will not be considered commencing a new operational activity. If no marine mammals are observed within the relevant clearance zones described above during this 30 minute pre-clearance monitoring period, tugging activities may commence. If a CIBW(s) is observed at any distance during those 30 minutes, operations may not commence until the PSO(s) confirm that the CIBW(s) or any other CIBW(s) has not been observed for 30 minutes, unless the delay interferes with the safety of working conditions. If a non-CIBW marine mammal(s) is observed within the relevant clearance zone (*i.e.*, 1.5 km) during the 30 minute pre-clearance monitoring period, tugging activities will not commence until the PSO(s) observe that the non-CIBW animal(s) is outside of and on a path away from the clearance zone, or 30 minutes have elapsed without observing the non-CIBW marine mammal.

During nighttime hours or low/no-light conditions, NVDs shown to be effective at detecting marine mammals in low-light conditions (*e.g.,* Portable Visual Search-7 model, or similar) will be provided to PSOs to aid in their monitoring of marine mammals. Every effort will be made to observe that the relevant clearance zone is free of marine mammals by using night-vision devices and or the naked eye, however it may not always be possible to see and clear the entire clearance zones prior to nighttime transport. Prior to commencing new operational activities during nighttime hours or if there is a 30-minute lapse in operational activities in low/no-light conditions, the two PSOs will observe and implement clearance zone procedures as described below while using NVDs (*i.e.,* pre-clearance monitoring). If a marine mammal(s) is observed during the 30 minute pre-clearance monitoring period, operations may not commence until the PSO(s) observe that one of the following conditions is met, unless the delay interferes with the safely of working conditions: (1) the animal(s) is outside of the observable area; or (2) 30 minutes have elapsed without observing the marine mammal. If no marine mammals are observed

during the 30 minute pre-clearance monitoring period, tugs may commence towing, positioning, or holding the jack-up rig.

Hilcorp will operate with the tide, resulting in a low power output from the tugs towing the jack-up rig, unless human safety or equipment integrity are at risk. Due to the nature of tidal cycles in Cook Inlet, it is possible that the most favorable tide for the towing operation will occur during nighttime hours. Hilcorp will only operate the tugs towing the jack-up rigs at night if the nighttime operations result in a lower power output from the tugs by operating with a favorable tide.

Out of concern for potential disturbance to CIBWs in sensitive and essential habitat, Hilcorp will maintain a distance of 2.4 km from the mean lower-low water (MLLW) line of the Susitna River Delta (Beluga River to the Little Susitna River) between April 15 and November 15. The dates of applicability of this exclusion area have been expanded based on new available science, including visual surveys and acoustic studies, which indicate that substantial numbers of CIBWs continue to occur in the Susitna Delta area through at least mid-November (M. Castellote, pers. comm., T. McGuire, pers. comm.). In addition, Hilcorp will coordinate with local Tribes as described in its Stakeholder Engagement Plan (see appendix C in Hilcorp's application), notify the communities of any changes in the operation, and take action to avoid or mitigate impacts to subsistence harvests.

For transportation of a jack-up rig to or from the Tyonek platform, in addition to the two PSOs stationed on the rig during towing, one additional PSO will be stationed on the Tyonek platform to monitor for marine mammals. The PSO will be on-watch for at least 1 hour before tugs are expected to arrive (scheduled to approach the estimated 120-dB isopleth).

Based on our evaluation of our proposed measures and consideration of public comments, NMFS has determined that the required mitigation and related monitoring

measures (see below for additional descriptions) 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.

Hilcorp will abide by all monitoring and reporting measures contained within the IHA and their Marine Mammal Monitoring and Mitigation Plan (see appendix D of Hilcorp's application). A summary of those measures and additional requirements from NMFS is provided below.

Hilcorp must monitor the project area once tugging activities are underway to the maximum distance possible based on the required number of PSOs, required monitoring locations, and environmental conditions. PSOs must also conduct monitoring for marine mammals during the pre-clearance monitoring periods, through 30 minutes post-completion of any tugging activity each day, and after each stoppage of 30 minutes or greater.

A minimum of two NMFS-approved PSOs must be stationed on the tug or jack-up rig for monitoring purposes for the entirety of jack-up rig towing, holding, and positioning operations and pre-clearance monitoring. PSOs must be independent of the activity contractor (for example, employed by a subcontractor) and have no other assigned tasks during monitoring periods. At least one PSO must have prior experience performing the duties of a PSO during an activity pursuant to a NMFS-issued ITA or Letter of Concurrence. Other PSOs may substitute other relevant experience (including

relevant Alaska Native traditional knowledge), education (degree in biological science or related field), or training for prior experience performing the duties of a PSO.

PSOs must also have the following additional qualifications:

(a) The ability to conduct field observations and collect data according to assigned protocols;

(b) Experience or training in the field identification of marine mammals, including the identification of behaviors;

(c) Sufficient training, orientation, or experience with the tugging operation to provide for personal safety during observations;

(d) Sufficient writing skills to record required information including but not limited to the number and species of marine mammals observed; dates and times when tugs were under load with the jack-up rig; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and

(e) The ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

PSOs must be positioned aboard the tug or the jack-up-rig at the best practical vantage points that are determined to be safe, ideally an elevated stable platform from which a single PSO would have an unobstructed 360-degree view of the water or a total 360-degree view between all PSOs on-watch. Generally, one PSO will be on the port side and one PSO will be on the starboard side. Additionally, when towing the jack-up rig to the Tyonek platform, an additional PSO must be stationed on the Tyonek platform 1 hour before tugs are expected to arrive (*i.e.,* scheduled to approach the estimated 120-dB isopleth) to monitor for marine mammals. PSOs may use a combination of equipment to scan the monitoring area and to verify the required monitoring distance from the project

site, including the naked eye, 7 by 50 binoculars, and NMFS approved NVDs for low light and nighttime operations. PSOs must be in communication with all vessel captains via VHF radio and/or cell phones at all times and alert vessel captains to all marine mammal sightings relative to the vessel location.

Hilcorp must submit interim monthly reports for all months in which tugging activities occur. Monthly reports will be due 14 days after the conclusion of each calendar month, and must include a summary of marine mammal species and behavioral observations, delays, and tugging activities completed (*i.e.*, tugs towing, holding, or positioning the jack-up rig). They also must include an assessment of the amount of tugging remaining to be completed, in addition to the number of CIBWs observed within estimated harassment zones to date.

A draft final summary marine mammal monitoring report must be submitted to NMFS within 90 days after the completion of the tug towing jack-up rig activities for the year or 60 calendar days prior to the requested issuance of any subsequent IHA for similar activity at the same location, whichever comes first. The draft summary report must include an overall description of all work completed, a narrative regarding marine mammal sightings, and associated marine mammal observation data sheets (data must be submitted electronically in a format that can be queried such as a spreadsheet or database). Specifically, the summary report must include:

- Date and time that monitored activity begins or ends;
- Activities occurring during each observation period, including (a) the type of activity (towing, holding, positioning), (b) the total duration of each type of activity, (c) the number of attempts required for positioning, (d) when nighttime operations were required, and (e) whether towing against the tide was required;
- PSO locations during marine mammal monitoring;

- Environmental conditions during monitoring periods (at the beginning and end of the PSO shift and whenever conditions change significantly), including Beaufort sea state, tidal state, and any other relevant weather conditions including cloud cover, fog, sun glare, overall visibility to the horizon, and estimated observable distance;
- Upon observation of a marine mammal, the following information:
    - Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;
    - Time of sighting;
    - Identification of the animal(s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
    - Distance and location of each observed marine mammal relative to the tug boats for each sighting;
    - Estimated number of animals (min/max/best estimate);
    - Estimated number of animals by cohort (adults, juveniles, neonates, group composition, *etc.*);
    - Animal's closest point of approach and estimated time spent within the harassment zone;
    - Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.,* no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- Number of marine mammals detected within the harassment zones, by species; and

- Detailed information about implementation of any mitigation (*e.g.,* delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

If no comments are received from NMFS within 30 days, the draft summary report will constitute the final report. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

In the event that personnel involved in Hilcorp's tugging activities discover an injured or dead marine mammal, Hilcorp must report the incident to the Office of Protected Resources, NMFS (*PR.ITP.MonitoringReports@noaa.gov, itp.tyson.moore@noaa.gov*), and to the Alaska Regional Stranding Coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, Hilcorp must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the IHA. Hilcorp must not resume their activities until notified by NMFS. The report must include the following information:

- Time, date, and location (latitude and 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.

**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 discussion of our analysis applies to all the species listed in table 10, except CIBWs, given that many of the anticipated effects of this project on different marine mammal stocks are expected to be relatively similar in nature. For CIBWs, there are potentially meaningful differences in anticipated responses to activities, impact of expected take on the population, or impacts on habitat; therefore, we provide a separate independent detailed analysis for CIBWs following the analysis for other species for which we authorize take.

NMFS has identified several key factors to assess whether potential impacts associated with a specified activity should be considered negligible. These include (but are not limited to) the type and magnitude of taking, the amount and importance of the available habitat for the species or stock that is affected, the duration of the anticipated

effect on the individuals, and the status of the species or stock. The potential effects of the specified activity on humpback whales, minke whales, gray whales, fin whales, killer whales, Dall's porpoises, harbor porpoises, Pacific white-sided dolphins, Steller sea lions, harbor seals, and California sea lions are discussed below. These factors also apply to CIBWs; however, an additional analysis for CIBWs is provided in a separate sub-section below.

Tugs under load with the jack-up rig, as outlined previously, have the potential to disturb or displace marine mammals, and the number of authorized takes that could potentially result from Hilcorp's activities have been identified above in the Estimated Take section. Hilcorp's planned activities and associated impacts will occur within a limited, confined area of the affected species or stocks' range over a total of 6 days between September 24, 2024, and September 23, 2025. The intensity and duration of take by Level B harassment will be minimized through use of mitigation measures described herein. In addition, NMFS does not anticipate that serious injury or mortality will occur as a result of Hilcorp's planned activity given the nature of the activity, even in the absence of required mitigation.

Exposures to elevated sound levels produced during tugs under load with the jack-up rig may cause behavioral disturbance of some individuals within the vicinity of the sound source. Behavioral responses of marine mammals to tugs under load with the jack-up rig are expected to be mild, short term, and temporary. Effects on individuals that are taken by Level B harassment, as enumerated in the Estimated Take of Marine Mammals section, on the basis of reports in the literature as well as monitoring from other similar activities conducted by Hilcorp (Horsley and Larson, 2023), will likely be limited to behavioral response such as increased swimming speeds, changing in directions of travel and diving and surfacing behaviors, increased respiration rates, or decreased foraging (if such activity were occurring) (Ridgway *et al.*, 1997; Nowacek *et al.*, 2007; Thorson and

Reyff, 2006; Kendall and Cornick, 2015; Goldbogen *et al.*, 2013b; Blair *et al.*, 2016; Wisniewska *et al.*, 2018; Piwetz *et al.*, 2021). Marine mammals within the 120-dB isopleths may not present any visual cues they are disturbed by activities, or they could become alert, avoid the area, leave the area, or have other mild responses that are not observable such as increased stress levels (*e.g.,* Rolland *et al.* 2012; Bejder *et al.*, 2006; Rako *et al.*, 2013; Pirotta *et al.*, 2015; Pérez-Jorge *et al.*, 2016). They may also exhibit increased vocalization rates (*e.g.,* Dahlheim, 1987; Dahlheim and Castellote, 2016), louder vocalizations (*e.g.,* Frankel and Gabriele, 2017; Fournet *et al.*, 2018), alterations in the spectral features of vocalizations (*e.g.,* Castellote *et al.*, 2012), or a cessation of communication signals (*e.g.,* Tsujii *et al.*, 2018). However, as described in the Potential Effects of Specified Activities on Marine Mammals and Their Habitat section of the **Federal Register** notice of the proposed IHA (89 FR 60164, July 24, 2024), marine mammals observed near Hilcorp's planned activities have shown little to no observable reactions to tugs under load with a jack-up rig (Horsley and Larson, 2023).

Tugs towing, holding, and positioning a jack-up rig are slow-moving as compared to typical recreational and commercial vessel traffic. Assuming an animal is stationary, exposure from the moving tug configuration (which comprises most of the tug activity being considered) will be on the order of minutes in any particular location. The slow, predictable, and generally straight path of this activity is expected to further lessen the likelihood that sound exposures at the expected levels will result in the harassment of marine mammals, though the potential takes based on straight calculations have nonetheless been considered in the analysis. Also, this slow transit along a predictable path is planned in an area of routine vessel traffic where many large vessels move in slow straight-line paths, and some individuals are expected to be habituated to these sorts of sounds. While it is possible that animals may swim around the project area, avoiding closer approaches to the boats, we do not expect them to abandon any intended path.

Further, most animals present in the region will likely be transiting through the area; therefore, any potential exposure is expected to be brief. Based on the characteristics of the sound source and the other activities regularly encountered in the area, it is unlikely Hilcorp's planned activities will be of a duration or intensity expected to result in impacts on reproduction or survival.

Further, most of the species present in the region will only be present temporarily based on seasonal patterns or during transit between other habitats. These temporarily present species will be exposed to even shorter periods of noise-generating activity, further decreasing the impacts. Most likely, individual animals will simply move away from the sound source and be temporarily displaced from the area. Takes also have the potential to occur during important feeding times. However, the project area represents a small portion of available foraging habitat and impacts on marine mammal feeding for all species should be minimal.

We anticipate that any potential reactions and behavioral changes are expected to subside quickly when the exposures cease and, therefore, we do not expect long-term adverse consequences from Hilcorp's planned activities for individuals of any species. The intensity of Level B harassment events will be minimized through use of mitigation measures described herein, which were not quantitatively factored into the take estimates. Hilcorp will use PSOs to monitor for marine mammals before commencing any tugging activity, which will minimize the potential for marine mammals to be present within the 120-dB isopleth when tugs are under load, further reducing the likely amount of any potential Level B harassment. Further, given the absence of any major rookeries or areas of known biological significance for marine mammals (*e.g.,* foraging hot spots) within the estimated harassment zones (other than critical habitat and a BIA for CIBWs as described below), we predict that potential takes by Level B harassment will have an

inconsequential short-term effect on individuals and will not result in population-level impacts.

Theoretically, repeated, sequential exposure to elevated noise from tugs under load with a jack-up rig over a long duration could result in more severe impacts to individuals that could affect individual fitness or reproductive success (via sustained or repeated disruption of important behaviors such as feeding, resting, traveling, and socializing; Southall *et al.*, 2007). Alternatively, marine mammals exposed to repetitious sounds may become habituated, desensitized, or tolerant after initial exposure to these sounds (reviewed by Richardson *et al.*, 1995; Southall *et al.*, 2007). Cook Inlet is a regional hub of marine transportation and is used by various classes of vessels, including containerships, bulk cargo freighters, tankers, commercial and sport-fishing vessels, and recreational vessels. Off-shore vessels, tug vessels, and tour boats represent 86 percent of the total operating days for vessels in Cook Inlet (BOEM, 2016). Given that marine mammals still frequent and use Cook Inlet despite being exposed to anthropogenic sounds such as those produced by tug boats and other vessels across many years, and that it is unlikely that any individual would be exposed to repeated, sequential exposures or repetitious sounds from Hilcop's activities, no impacts to the reproduction or survival of any marine mammal individuals from the additional noise produced by tugs under load with a jack-up rig are anticipated. The absence of any pinniped haul outs or other known home-ranges in the planned action area further decreases the likelihood of any more severe energetic impacts that might affect reproduction or survival.

Hilcorp's planned activities are also not expected to have significant adverse effects on any marine mammal habitat as no physical impacts to habitat are anticipated to result from the specified activities and any impacts to marine mammal habitat (*i.e.*, elevated sound levels) will be temporary. In addition to being temporary and short in overall duration, the acoustic footprint of the planned activity is small relative to the

overall distribution of the animals in the area and their use of the area. Additionally, the habitat within the estimated acoustic footprint is not known to be heavily used by marine mammals.

Impacts to marine mammal prey species are also expected to be minor and temporary and to have, at most, short-term effects on foraging of individual marine mammals, and likely no effect on the populations of marine mammals as a whole. Overall, as described above, the area anticipated to be impacted by Hilcorp's planned activities is very small compared to the available surrounding habitat and does not include habitat of particular importance to marine mammals. The most likely impact to prey will be temporary behavioral avoidance of the immediate area. When tugs are under load with the jack-up rig, it is expected that some fish will temporarily leave the area of disturbance (*e.g.,* Nakken, 1992; Olsen, 1979; Ona and Godo, 1990; Ona and Toresen, 1988), thus impacting marine mammals' foraging opportunities in a limited portion of their foraging range. But, because of the relatively small area of the habitat that may be affected, and lack of any foraging habitat of particular importance, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

Finally, Hilcorp will minimize potential exposure of marine mammals to elevated noise levels by delaying tugging activities if CIBWs are observed at any distance or if non-CIBW marine mammals are observed within 1.5 km during the pre-clearance monitoring period. Hilcorp will also implement vessel maneuvering measures to reduce the likelihood of disturbing marine mammals during any periods when marine mammals may be present near the vessels. Lastly, Hilcorp will also reduce the impact of their activity by conducting tugging operations with favorable tides whenever feasible.

In summary and as described above, the following factors (with additional analyses for CIBWs included below) primarily support our determinations that the

impacts resulting from the activities described for this IHA are not expected to affect any individual marine mammal's fitness for survival or reproduction, and thus is not expected to adversely affect the species or stocks through effects on annual rates of recruitment or survival:

- No takes by mortality, serious injury, or Level A harassment are anticipated or authorized;
- Exposure, and resulting impacts, will likely be brief given the short duration of the specified activity and the transiting behavior of marine mammals in the action area;
- Marine mammal densities are low in the project area; therefore, there will not be substantial numbers of marine mammals exposed to the noise from the project compared to the affected population sizes;
- Take will not occur in places and/or times where take is more likely to accrue to impacts on reproduction or survival, such as within ESA-designated or proposed critical habitat, BIAs (other than for CIBWs as described below), or other habitats critical to recruitment or survival (*e.g.,* rookery);
- The project area represents a very small portion of the available foraging area for all potentially impacted marine mammal species;
- Take will only occur within middle Cook Inlet and Trading Bay – a limited, confined area of any given stock's home range;
- Monitoring reports from previous projects where tugs were under load with a jack-up rig in Cook Inlet have documented little to no observable effect on individuals of the same species impacted by the specified activities;
- The required mitigation is expected to be effective in reducing the effects of the specified activity by minimizing the numbers of marine mammals exposed to sound and the intensity of the exposures; and

- The intensity of anticipated takes by Level B harassment is low for all stocks consisting of, at worst, temporary modifications in behavior, and will not be of a duration or intensity expected to result in impacts on reproduction or survival.

*Cook Inlet Beluga Whales.* For CIBWs, we further discuss our negligible impact findings in addition to the findings discussed above for all species in the context of potential impacts to this endangered stock based on our evaluation of the take authorized (table 10).

All tugging activities will be done in a manner implementing best management practices to preserve water quality, and no work will occur around creek mouths or river systems leading to prey abundance reductions. In addition, no physical structures will restrict passage, though impacts to the acoustic habitat are relevant and discussed here. While the specified activity will occur within CIBW Critical Habitat Area 2, and the CIBW small and resident BIA (see the Description of Marine Mammals in the Area of Specified Activities section in the notice for the proposed IHA; 89 FR 60164, July 24, 2024), monitoring data from Hilcorp's activities suggest that the presence of tugs under load with a jack-up rig do not discourage CIBWs from transiting throughout Cook Inlet and between critical habitat areas and that the whales do not abandon critical habitat areas (Horsley and Larson, 2023). In addition, large numbers of CIBWs have continued to use Cook Inlet and pass through the area, likely traveling to critical foraging grounds found in upper Cook Inlet, while noise-producing anthropogenic activities, including vessel use, have taken place during the past two decades (*e.g.,* Shelden *et al.*, 2013, 2015b, 2017, 2022; Shelden and Wade, 2019; Geotz *et al.*, 2023). These findings are not surprising as food is a strong motivation for marine mammals. As described in Forney *et al.* (2017), animals typically favor particular areas because of their importance for survival (*e.g.,* feeding or breeding), and leaving may have significant costs to fitness (reduced foraging success, increased predation risk, increased exposure to other anthropogenic threats).

Consequently, animals may be highly motivated to maintain foraging behavior in historical foraging areas despite negative impacts (*e.g.,* Rolland *et al.*, 2012).

Generation of sound may result in avoidance behaviors that will be limited in time and space relative to the larger availability of important habitat areas in Cook Inlet; however, the area ensonified by sound from the specified activity is anticipated to be small compared to the overall available critical habitat for CIBWs to feed and travel. Therefore, the specified activity will not create a barrier to movement through or within important areas. We anticipate that disturbance to CIBWs will manifest in the same manner as other marine mammals described above (*i.e.,* increased swimming speeds, changes in the direction of travel and dive behaviors, increased respiration rates, decreased foraging (if such activity were occurring), or alterations to communication signals). We do not believe exposure to elevated noise levels during transit past tugging activity will have adverse effects on individuals' fitness for reproduction or survival.

Although data demonstrate that CIBWs are not abandoning the planned project area during anthropogenic activities, results of an expert elicitation (EE) at a 2016 workshop, which predicted the impacts of noise on CIBW survival and reproduction given a specific amount of lost foraging opportunities, helped to inform our assessment of impacts on this stock. The 2016 EE workshop used conceptual models of an interim population consequences of disturbance (PCoD) for marine mammals (NRC, 2005; New *et al.*, 2014; Tollit *et al.*, 2016) to help in understanding how noise-related stressors might affect vital rates (survival, birth rate and growth) for CIBW (King *et al.*, 2015). NMFS (2016b) suggests that the main direct effects of noise on CIBWs are likely to be through masking of vocalizations used for communication and prey location and habitat degradation. The 2016 workshop on CIBWs was specifically designed to provide regulators with a tool to help understand whether chronic and acute anthropogenic noise from various sources and projects are likely to be limiting recovery of the CIBW

population. The full report can be found at *https://www.smruconsulting.com/publications/* with a summary of the expert elicitation portion of the workshop below.

For each of the noise effect mechanisms chosen for the EE, the experts provided a set of parameters and values that determined the forms of a relationship between the number of days of disturbance a female CIBW experiences in a particular period and the effect of that disturbance on her energy reserves. Examples included the number of days of disturbance during the period April, May, and June that would be predicted to reduce the energy reserves of a pregnant CIBW to such a level that she is certain to terminate the pregnancy or abandon the calf soon after birth, the number of days of disturbance in the period April-September required to reduce the energy reserves of a lactating CIBW to a level where she is certain to abandon her calf, and the number of days of disturbance where a female fails to gain sufficient energy by the end of summer to maintain herself and her calf during the subsequent winter. Overall, median values ranged from 16 to 69 days of disturbance depending on the question. However, for this elicitation, a "day of disturbance" was defined as any day on which an animal loses the ability to forage for at least one tidal cycle (*i.e.,* it forgoes 50–100 percent of its energy intake on that day). The day of disturbance considered in the context of the report is notably more severe than any Level B harassment expected to result from these activities, which as described is expected to be comprised predominantly of temporary modifications in the behavior of individual CIBWs (*e.g.,* faster swim speeds, longer dives, decreased sighting durations, alterations in communication). Also, NMFS has authorized 15 instances of take, with the instances representing disturbance events within a day—this means that either 15 different individual CIBWs are disturbed on no more than 1 day each, or some lesser number of individuals may be disturbed on more than 1 day, but with the product of individuals and days not exceeding 15. Given the overall authorized take, and the short duration of the specified activities (*i.e.,* 6 days), it is unlikely that any one CIBW will be

disturbed on more than a couple of days. Lastly, even if a CIBW was exposed every day of Hilcorp's planned activities, these activities are only planned for 6 days, and thus do not fall into the expected range of days of disturbance expected to elicit an effect on energy reserves as determined by the experts as described above (*i.e.,* 16 to 19 days). Further, Hilcorp will implement mitigation measures specific to CIBWs whereby they will not begin tugging activities should a CIBW be observed at any distance. While Level B harassment (behavioral disturbance) is authorized, this measure, along with other mitigation measures described herein, will limit the severity of the effects of that Level B harassment to behavioral changes such as increased swim speeds, changes in diving and surfacing behaviors, and alterations to communication signals, not the loss of foraging capabilities. Finally, take by mortality, serious injury, or Level A harassment of CIBWs is not anticipated or authorized.

In summary and as described above, the additional following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the CIBWs through effects on annual rates of recruitment or survival:

- The area of exposure will be limited to habitat primarily used for transiting, and not areas known to be of particular importance for feeding or reproduction;
- The activities are not expected to result in CIBWs abandoning critical habitat nor are they expected to restrict passage of CIBWs within or between critical habitat areas; and
- Any disturbance to CIBWs is expected to be limited to temporary modifications in behavior, and will not be of a duration or intensity expected to result in impacts on reproduction or survival.

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 required monitoring and mitigation measures, NMFS finds that the total marine mammal take from the planned specified activity 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 (see 86 FR 5322, January 19, 2021). Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

For all stocks whose abundance estimate is known, the amount of authorized taking is less than one-third of the best available population abundance estimate (in fact it is less than 2 percent for all stocks, except for CIBWs whose authorized take is for up to 5.38 percent of the stock; see table 11). The numbers of animals authorized to be taken are small relative to the relevant species or stock abundances even if each estimated take occurred to a new individual.

**Table 11 -- Authorized Take as a Percentage of Stock Abundance**

| Species | Total Amount of Take Authorized | Stock | Abundance (Nbest[1]) | Percent of Stock |
|---|---|---|---|---|
| Humpback whale | 3 | Hawaii (Hawaii DPS) | 11,278 | 0.03 |
| | | Mexico- North Pacific (Mexico DPS) | N/A[1] | N/A |
| | | Western North Pacific | 1,084 | 0.28 |

| | | | | |
|---|---|---|---|---|
| Minke whale | 3 | Alaska | N/A[2] | N/A |
| Gray whale | 3 | Eastern Pacific | 26,960 | 0.01 |
| Fin whale | 2 | Northeast Pacific | UND[3] | N/A |
| Killer whale | 10 | Eastern North Pacific Alaska Resident | 1,920 | 0.52 |
| | | Eastern North Pacific Gulf of Alaska, Aleutian Islands, and Bering Sea Transient | 587 | 1.7 |
| Beluga whale | 15 | Cook Inlet | 279[4] | 5.38 |
| Dall's porpoise | 6 | Alaska | UND[5] | N/A |
| Harbor porpoise | 12 | Gulf of Alaska | 31,046 | 0.04 |
| Pacific white-sided dolphin | 3 | North Pacific | 26,880 | 0.01 |
| Harbor seal | 365 | Cook Inlet/ Shelikof | 28,411 | 1.29 |
| Steller sea lion | 9 | Western U.S. | 49,932[6] | 0.02 |
| California sea lion | 2 | U.S. | 257,606 | < 0.01 |

[1] Abundance estimates are based upon data collected more than 8 years ago and, therefore, current estimates are considered unknown.
[2] Reliable population estimates are not available for this stock. Please see Friday *et al.* (2013) and Zerbini *et al*. (2006) for additional information on numbers of minke whales in Alaska.
[3] The best available abundance estimate for this stock is not considered representative of the entire stock as surveys were limited to a small portion of the stock's range.
[4] On June 15, 2023, NMFS released an updated abundance estimate for endangered CIBWs in Alaska (Goetz *et al.*, 2023). Data collected during NOAA Fisheries' 2022 aerial survey suggest that the whale population is stable or may be increasing slightly. Scientists estimated that the population size is between 290 and 386, with a median best estimate of 331. In accordance with the MMPA, this population estimate will be incorporated into the CIBW SAR, which will be reviewed by an independent panel of experts, the Alaska Scientific Review Group. After this review, the SAR will be made available as a draft for public review before being finalized. When the number of instances of takes is compared to this median abundance, the percent of the stock authorized is 4.53 percent.
[5] The best available abundance estimate is likely an underestimate for the entire stock because it is based upon a survey that covered only a small portion of the stock's range.
[6] Nest is the best estimate of counts, which have not been corrected for Steller sea lions at sea during abundance surveys.

Abundance estimates for the Mexico-North Pacific stock of humpback whales are based upon data collected more than 8 years ago and, therefore, current estimates are

considered unknown (Young *et al.*, 2023). The most recent minimum population estimates ($N_{MIN}$) for this population include an estimate of 2,241 individuals between 2003 and 2006 (Martinez-Aguilar, 2011) and 766 individuals between 2004 and 2006 (Wade, 2021). NMFS' Guidelines for Assessing Marine Mammal Stocks suggest that the $N_{MIN}$ estimate of the stock should be adjusted to account for potential abundance changes that may have occurred since the last survey and provide reasonable assurance that the stock size is at least as large as the estimate (NMFS, 2023a). The abundance trend for this stock is unclear; therefore, there is no basis for adjusting these estimates (Young *et al.*, 2023). Assuming the population has been stable, and that the 4 authorized takes of humpback whale will all be of the Mexico-North Pacific stock, this represents small numbers of this stock (0.18 percent of the stock assuming a $N_{MIN}$ of 2,241 individuals and 0.52 percent of the stock assuming an $N_{MIN}$ of 766 individuals).

A lack of an accepted stock abundance value for the Alaska stock of minke whale did not allow for the calculation of an expected percentage of the population that will be affected. The most relevant estimate of partial stock abundance is 1,233 minke whales in coastal waters of the Alaska Peninsula and Aleutian Islands (Zerbini *et al.*, 2006). Given three authorized takes by Level B harassment for the stock, comparison to the best estimate of stock abundance shows, at most, less than 1 percent of the stock is expected to be impacted.

There is no stock-wide abundance estimate for Northeast Pacific fin whales. However, Young *et al.* (2022) estimate the minimum stock size for the areas surveyed is 2,554. Given two authorized takes by Level B harassment for the stock, comparison to the minimum population estimate shows, at most, less than 1 percent of the stock is expected to be impacted.

The Alaska stock of Dall's porpoise has no official NMFS abundance estimate for this area, as the most recent estimate is greater than 8 years old. As described in the 2022

Alaska SAR (Young *et al.*, 2023) the minimum population estimate is assumed to correspond to the point estimate of the 2015 vessel-based abundance computed by Rone *et al.* (2017) in the Gulf of Alaska (N = 13,110; CV = 0.22). Given six authorized takes by Level B harassment for the stock, comparison to the minimum population estimate shows, at most, less than 1 percent of the stock is expected to be impacted.

Based on the analysis contained herein of the planned activity (including the required 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 sizes 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.

Hilcorp's tugging activities will occur offshore and north of Kenai and the Village of Salmatof. The last ADF&G subsistence survey conducted in Kenai was in 1998 (Fall *et al.*, 2000). In the greater Kenai area, an estimated 13 harbor seals and no sea lions were harvested in 1988 by an estimated 10 households. In the Kenai area, estimated harbor seal harvest has ranged between 13 (1998) and 35 (1997) animals. In 1996, two sea lions and six harbor seals were harvested. No sea otters have been reported harvested in Kenai.

ADF&G Community Subsistence Information System harvest data are not available for Salamatof, so Hilcorp assumes the subsistence harvest patterns are similar to other communities along the road system on the southern Kenai Peninsula, namely Kenai.

Tugging activities at the Tyonek platform in the North Cook Inlet Unit in middle Cook Inlet will occur approximately 10 km from the Native Village of Tyonek. Tyonek, on the western side of middle Cook Inlet, has a subsistence harvest area that extends south from the Susitna River to Tuxedni Bay (Stanek *et al.*, 2007). Moose and salmon are the most important subsistence resources measured by harvested weight (Stanek, 1994). In Tyonek, harbor seals were harvested between June and September by 6 percent of the households (Jones *et al.*, 2015). Seals were harvested in several areas, encompassing an area stretching 32 km along the Cook Inlet coastline from the McArthur Flats north to the Beluga River. Seals were searched for or harvested in the Trading Bay areas as well as from the beach adjacent to Tyonek (Jones *et al.*, 2015).

Seal hunting occurs opportunistically among Alaska Natives who may be fishing or traveling in upper Cook Inlet near the mouths of the Susitna River, Beluga River, and Little Susitna River. Hilcorp's tugging activities may overlap with subsistence hunting of seals. However, these activities typically occur along the shoreline or very close to shore near river mouths, whereas most of Hilcorps's tugging is in the middle of the Inlet and rarely near the shoreline or river mouths.

Any harassment to marine mammals will be limited to minor behavioral changes (*e.g.,* increased swim speeds, changes in dive behaviors and communication signals, temporary avoidance near the tugs) and is anticipated to be short-term, mild, and not result in any abandonment or behaviors that would make the animals unavailable to Alaska Natives.

To further minimize any potential effects of their action on subsistence activities, Hilcorp has outlined their communication plan for engaging with subsistence users in

their Stakeholder Engagement Plan (see appendix C of Hilcorp's application). This includes using traditional/subsistence knowledge to inform planning for the activity. Hilcorp is required to abide by this plan and update the plan accordingly.

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 required mitigation and monitoring measures, NMFS has determined that the authorized harassment will not have an unmitigable adverse impact on the availability of marine mammal species or stocks for taking for subsistence uses.

**Endangered Species Act**

Section 7(a)(2) of the ESA of 1973 (16 U.S.C. 1531 *et seq*.) requires that each Federal agency insure 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 consults internally whenever we propose to authorize take for endangered or threatened species, in this case with the NMFS AKRO.

Four marine mammal species (fin whale, humpback whale (Mexico DPS), beluga whale (Cook Inlet), and Steller sea lion (Western DPS)) occur in the project area and are listed as threatened or endangered under the ESA. The NMFS AKRO issued a Biological Opinion under section 7 of the ESA on the issuance of an IHA to Hilcorp under section 101(a)(5)(D) of the MMPA by NMFS Office of Protected Resources. The Biological Opinion concluded that the action is not likely to jeopardize the continued existence of these species and is not likely to destroy or adversely modify their critical habitat.

**National Environmental Policy Act**

To comply with the NEPA of 1969 (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 Hilcorp's planned activities. A Finding of No Significant Impact (FONSI) was signed on September 4, 2024. Copies of the EA and FONSI are available at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-oil-and-gas*.

**Authorization**

NMFS has issued an IHA to Hilcorp for the potential harassment of small numbers of 12 marine mammal species incidental to Hilcorp's use of tugs to tow, hold, and position a jack-up rig in support of their oil and gas activities in Cook Inlet, Alaska from September 24, 2024 through September 23, 2025, that includes the previously explained mitigation, monitoring and reporting requirements.

Dated: September 24, 2024.

**Kimberly Damon-Randall,**

*Director, Office of Protected Resources,*

*National Marine Fisheries Service*.

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