



MARINE MAMMAL COMMISSION

1 May 2019

Ms. Jolie Harrison, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Marine Fisheries Service's (NMFS) 1 April 2019 notice (84 Fed. Reg. 12330) and the September 2018 application¹ submitted by Hilcorp Alaska, LLC (Hilcorp) and Harvest Alaska, LLC (Harvest)², seeking issuance of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA). The taking would be incidental to conducting oil and gas-related activities in Cook Inlet, Alaska, during a five-year period. Activities would occur from April to October for the next five years (1 May 2019³ to 30 April 2024).

Background

Hilcorp is proposing to conduct oil and gas exploration, development, production, and decommissioning activities in middle and lower Cook Inlet (south of a line from the Susitna River Delta to Point Possession and north of a line from Ursus Cove to Nanwalek). Proposed activities include two- and three- dimensional (2D and 3D) seismic surveys, geohazard surveys (using echosounders⁴ and both high- and low-resolution sub-bottom profilers), exploratory drilling (including impulse drive pipe installation and vertical seismic profiling (VSP)), causeway construction (including vibratory sheet pile driving), platform and pipeline maintenance (including use of grinders, water jets, and/or sub-bottom profilers), and support vessels and aircraft.

NMFS preliminarily has determined that the proposed activities could cause Level A and B harassment of small numbers of marine mammals, but that the total taking would have a negligible impact on the species or stocks. NMFS does not anticipate any lethal take of marine mammals. NMFS believes that the potential for take by Level A and B harassment would be at the least

¹ The application is dated September 2018, and the preamble indicated that NMFS deemed the application complete in October 2018. However, the Commission was informed by NMFS that it received further revisions in November 2018 from Hilcorp. That revised application also is dated September 2018. The extent of the revisions and their applicability to the information contained in NMFS's proposed rule are unclear.

² Although Harvest is listed as a co-applicant on the application, NMFS only included Hilcorp as the applicant in the preamble and proposed rule. Thus, it is unclear who the applicant is and to what entity the regulations would apply.

³ Hilcorp has since notified NMFS that seismic activities planned to begin in April 2019 would be delayed until Fall 2019.

⁴ That operate above 200 kHz.

practicable level because of the proposed mitigation measures. The proposed mitigation, monitoring, and reporting measures include—

- using observers to monitor the Level A and B harassment zones⁵ for 15 or 30 minutes⁶ before, during, and for 30 minutes after proposed activities;
- using ramp-up/soft-start, delay, power-down, and shut-down procedures⁷;
- using aircraft surveys to confirm that beluga whales are not in the 2D and 3D seismic survey area prior to the start of survey activities;
- implementing a shutdown for any beluga whale observed within or entering an exclusion or safety zone;
- not operating any sound-generating equipment within 16 km of the mean higher high water line of the Susitna River Delta between 15 April and 15 October;
- using power-down and shutdown procedures if a species for which taking has not been authorized, or for which authorized numbers of takes have been met, approaches or is observed within the Level B harassment zone;
- restricting use of a single “mitigation” airgun during power down procedures to not more than three hours;
- using vessel strike avoidance procedures;
- implementing immediate shutdown procedures in the event of a live stranding within 50 km of survey operations if advised to do so by the NMFS Office of Protected Resources;
- reporting all injured or dead marine mammals to the NMFS Office of Protected Resources and the regional stranding network as soon as feasible; and
- submitting weekly and monthly monitoring reports and a final report to NMFS.

Availability of marine mammals for subsistence use

Based on the timing and location of the proposed activities and of subsistence hunting in the project area(s), NMFS preliminarily has determined that the proposed mitigation measures provide the means of effecting the least practicable impact on the availability of marine mammals for subsistence use by Alaska Natives. The preamble stated that Hilcorp must provide a plan of cooperation (POC) or information that identifies what measures have been taken to minimize adverse effects on the availability of marine mammals for subsistence purposes. The POC must include (1) a statement that the applicant has notified affected subsistence communities and provided them a draft POC, (2) a schedule for meeting with the affected communities to discuss proposed activities and to resolve potential conflicts, (3) a description of the measures the applicant will take to ensure the proposed activities will not interfere with subsistence hunting, and (4) plans to continue to meet with the affected communities to resolve conflicts and to notify the communities of any changes in the proposed activities.

⁵ Identified as exclusion and safety zones, respectively, in the preamble and proposed rule.

⁶ NMFS has specified a pre-activity clearance time of 15 minutes for stationary sources and 30 minutes for mobile sources in the proposed rule; this differs from the 30-minute pre-activity clearance time indicated for both sources in the preamble.

⁷ NMFS has specified a clearance time, after a power down or shutdown of a seismic or geohazard survey, of 15 minutes for porpoises and pinnipeds and 30 minutes for other cetaceans, and a clearance time after shutdown of pile or pipe-driving activities of 30 minutes for all marine mammals, in the proposed rule.

The preamble stated that Hilcorp had developed a stakeholder engagement plan to help coordinate activities with local stakeholders and subsistence users. That plan was not included in Hilcorp's application nor was it posted on the NMFS website, even though Hilcorp provided a draft of the plan to the U.S. Fish and Wildlife Service (FWS; dated April 2018). That plan included reference to subsistence takes of harbor seals and Steller sea lions, as well as sea otters by Cook Inlet Alaska Native communities. Hilcorp provided to NMFS a copy of its stakeholder letter and a list of entities contacted, but not a summary of input received from the communities it contacted, a schedule for ongoing engagement, or measures that would be implemented to mitigate any potential conflicts. Therefore, the Commission recommends that NMFS ensure all applicants submit, as part of their Letter Of Authorization (LOA) requests, a site-specific stakeholder engagement plan or POC that includes the required information on the species or stocks potentially affected by the proposed activities, a list of communities contacted, a summary of input received, a schedule for ongoing community engagement, and measures that would be implemented to mitigate any potential conflicts with subsistence hunting.

Inadequate basis for issuance of incidental take regulations

As indicated in previous letters regarding proposed incidental take authorizations for other sound-producing activities in Cook Inlet⁸, the Commission remains concerned about the potential impacts of human activities on the endangered Cook Inlet beluga whale population. The Commission has recommended that NMFS defer issuance of incidental take authorizations and regulations until it has better information on the cause or causes of the decline in that population and, as part of NMFS's small numbers and negligible impact determinations, has a reasonable basis for determining that authorizing additional takes by harassment would not contribute to or exacerbate that decline. In addition, NMFS did not follow, or even mention in the preamble, its more recent interpretations of what constitute small numbers⁹ and a negligible impact¹⁰. Further, NMFS did not discuss its criteria and interpretation for ensuring the means of effecting the least practicable adverse impact¹¹ on the stock. Consistent with these concerns, the Commission once again recommends that NMFS defer issuance of a final rule to Hilcorp, Harvest, or any other applicant proposing to conduct sound-producing activities in Cook Inlet until NMFS has a reasonable basis for determining that authorizing any incidental harassment takes would not contribute to or exacerbate that decline.

⁸ See the Commission's 21 October 2011, 9 January 2013, 31 January 2014, 4 April 2014, 9 May 2014, 14 September 2014, 13 April 2015, 20 April 2015, 24 July 2015, 12 January 2016, 7 March 2016, 28 March 2016, 13 July 2016, and 29 March 2018 letters.

⁹ See NMFS's proposed and final incidental harassment authorizations for geological and geophysical activities in the Atlantic Ocean (82 Fed. Reg. 26244 and 83 Fed. Reg. 63268, respectively) and the Commission's [6 July 2017 letter](#).

¹⁰ See NMFS's proposed and final incidental harassment authorizations for geological and geophysical activities in the Atlantic Ocean (82 Fed. Reg. 26244 and 83 Fed. Reg. 63268, respectively) and the Commission's [6 July 2017 letter](#); see also NMFS's proposed rule for geological and geophysical activities in the Gulf of Mexico (83 Fed. Reg. 29212) and the Commission's [21 August 2018 letter](#).

¹¹ See NMFS's proposed rule for geological and geophysical activities in the Gulf of Mexico (83 Fed. Reg. 29212) and the Commission's [21 August 2018 letter](#); see also NMFS's proposed rule for Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) sonar (84 Fed. Reg. 7186) and the Commission's [1 April 2019 letter](#).

Programmatic approach to evaluating and limiting incidental takes of beluga whales

The Commission is concerned that NMFS is continuing to propose and issue authorizations for the incidental taking of Cook Inlet beluga whales without adequate consideration of the combined or cumulative impacts of current and planned activities on that population. The Commission's [14 July 2015 letter](#) on NMFS's Draft Cook Inlet Beluga Whale Recovery Plan contained a recommendation that NMFS place annual limits on the total number and types of incidental takes authorized, based on the most recent population estimate.

In 2014, NMFS issued a notice of intent to prepare a programmatic environmental impact statement (PEIS) on the issuance of incidental take authorizations in Cook Inlet (79 Fed. Reg. 61616). This was followed by a notice of intent to prepare a programmatic environmental assessment on the issuance of annual incidental take authorizations in 2016 (80 Fed. Reg. 48299) and in 2018 (82 Fed. Reg. 41939). The subsequent draft environmental assessment, made available for review in March 2016, was limited to an evaluation of oil and gas activities, despite a concurrent proposal by the Port of Anchorage to conduct pile driving activities¹². The programmatic approach appears to have been abandoned. Instead, individual environmental assessments or environmental impact statements are being developed and consider only the activities and potential impacts of individual applicants rather than all activities occurring in Cook Inlet that may affect beluga whales. In the current instance, Alaska Gasline Development Corporation (AGDC) also submitted an application for incidental take regulations for construction of a liquefied natural gas facility on the Kenai Peninsula and a pipeline across Cook Inlet; the AGDC application is being processed simultaneously with Hilcorp's application. The Commission continues to believe that a PEIS should be drafted and finalized before any further authorizations are granted. The Commission therefore recommends that NMFS defer issuance of Hilcorp's final rule until all activities for which incidental take authorizations or regulations have been or are expected to be issued are considered with respect to their anticipated, cumulative take of Cook Inlet beluga whales, as part of a PEIS. Given the number of sound-producing activities expected to occur in Cook Inlet and the potential impact of such activities on beluga whales, the Commission also reiterates its recommendation that NMFS establish annual limits on the total number and type of takes that are authorized for all sound-producing activities in Cook Inlet before issuing the final rule.

Should NMFS decide, once again, to issue the final rule despite the Commission's recommendation that issuance be deferred, the Commission has the following additional concerns regarding this proposed rule.

Inaccuracies and ambiguities in description of proposed activities

Types of sound sources—The preamble to the proposed rule indicated that incidental taking is unlikely to occur during tug-towing activities based on the predictable movement of the tug, similar to other transiting vessels. The Commission agrees but questions why NMFS included the extents of both Level A and B harassment zones in Tables 5 and 6 in the *Federal Register* notice, respectively.

In addition, Hilcorp's application indicated that the source level for the underwater pipe cutter was 148 dB re 1 μ Pa and 159 dB re 1 μ Pa for the hydraulic grinder—both presumably

¹² See the Commission's [28 March 2016](#) letter to NMFS providing comments on the draft environmental assessment.

referenced to 1 m (but this should be clarified). Despite their similar source levels, only the grinder was included in the preamble¹³ as a source that could result in Level B harassment. However, use of the hydraulic grinder was not included in any of the take tables (Tables 9 and 10 in the *Federal Register* notice), and it is unclear whether takes were in fact attributed to the hydraulic grinder. Neither cutters nor grinders are typically considered when authorizing the incidental taking of marine mammals, presumably due to their low source levels and rapid attenuation. Thus, it is not clear whether and why takes were not discounted for both sources. The Commission recommends that NMFS address and fix inconsistencies with respect to information provided regarding the referenced sound sources.

Duration of proposed activities—Table 1 of the *Federal Register* notice provided a summary of the proposed activities and the total anticipated duration of each activity, in days, during the five-year period covered by the proposed rule. The preamble of the *Federal Register* notice also provided the duration of each activity to be covered by the proposed rule, for the purpose of estimating the total number of takes. However, the number of days indicated for several of the activities listed are not the same. For example, Table 1 indicated that the 2D and 3D seismic surveys would occur for 30 and 90 days, respectively; whereas, the preamble indicated that the same activities would occur only for 10 and 60 days, respectively.

Further, the estimated days to install the conductor pipes as indicated in the preamble of the *Federal Register* notice do not comport with the statement in section 6.4.2.5 of the application that it takes three days to install each pipe. If there will be four wells at Lower Cook Inlet and two wells at Trading Bay, that is a total of six wells. With three installation days per well, that would total 18 days rather than 4.5 days as stated in the preamble. Similarly, Hilcorp estimated that VSP would occur for up to two days per well, yet a total of only two days was indicated for VSP for all four exploratory wells proposed for lower Cook Inlet. The reductions appear to account only for the amount of time an activity is expected to occur on a given day (e.g., pile driving would occur for only 6 hours per day and VSP would occur for 4 hours per day), with fractions of days summed to generate the total number of days used to estimate takes for each proposed activity. Moreover, the application noted that water-jetting activities would occur three times a month for 7 months (section 6.4.2.8) but estimated that activities would occur only on 10.5 days. It appears that Hilcorp, and thus NMFS, incorrectly confused hours and number of days. Based on water jetting occurring for 0.5 hours per day, 3 days per month, and for 7 months, 10.5 *hours* of activities would occur over 21 *days*. These methods underestimate the total number of takes and also contradict NMFS's 24-hour reset policy. The Commission recommends that NMFS require Hilcorp to ensure that the total number of days for each activity is accurate and consistent and revise the number of days used to estimate the number of marine mammal takes for each of the proposed activities based on the number of days each type of activity is scheduled to occur regardless of the duration of those activities on a given day.

¹³ The Commission notes that Table 4 in the *Federal Register* notice does not include the inputs for NMFS's user spreadsheet, including source levels and other assumptions, for the hydraulic grinder even though the Level A and B harassment zones were included in Tables 5 and 6, respectively. The Commission further notes that Level B harassment zones for both the impulsive and non-impulsive thresholds (160 and 120 dB re 1 μ Pa, respectively) were provided for the grinder. Only one Level B harassment threshold applies to a given sound source.

The number of days needed to conduct a geohazard survey at each well site also appears to have been calculated incorrectly in section 6.4.1 of Hilcorp's application (and subsequently noted on 84 Fed. Reg. 12356). The total distance required to be surveyed at each well site is given as 153.6 km, which is divided into 32 transects of 4.8 km each. If each transect takes 0.65 hr (38 min) to complete¹⁴, the total time to complete the survey would be 20.8 hrs. Assuming the survey occurs for 12 hrs per day, a maximum of 18 transects could be completed each day. Based on that, it would take only 2 days to complete a geohazard survey, not 7.7 days as stated in the preamble. If the survey durations in the preamble are incorrect, the Commission recommends that NMFS require Hilcorp to revise the geohazard survey durations for each of the well sites (the four lower Cook Inlet OCS sites, the North Cook Inlet Unit site, and the two Trading Bay area sites)¹⁵ accordingly and re-estimate the number of marine mammal takes.

Timing of proposed activities—After the *Federal Register* notice published, the Commission was informed that Hilcorp intended to delay its 3D seismic survey activities, previously scheduled to begin in lower Cook Inlet in April 2019, until August 2019. This casts uncertainty as to whether the survey can be completed this year. The delay likely will affect how the numbers of takes of marine mammals were estimated, and ultimately the numbers to be authorized, in both 2019 and 2020. The Commission recommends that NMFS determine which of the proposed activities will actually occur this year and which will be delayed until 2020 and revise the numbers of marine mammal takes accordingly.

Extents of the Level A harassment zones

NMFS based the extents of the Level A harassment zones on various assumptions described in Table 5 of the *Federal Register* notice. Unfortunately, several of these assumptions are either incorrect or inconsistent with information provided elsewhere. For example, the source level for pipe driving was 190 dB re 1 μ Pa at 55 m in Table 8 of the application and 195 dB re 1 μ Pa at 55 m in Table 4 of the *Federal Register* notice. Source levels based on peak sound pressure level (SPL_{peak}) were not provided for the sub-bottom profiler, VSP, or pipe driving either in Table 4 of the *Federal Register* notice or in the application. Yet, NMFS reported the extents of various Level A harassment zones in Table 5 of the notice.

In addition, NMFS indicated in Table 4 that the sub-bottom profiler is an impulsive source, but the weighting factor adjustments, pulse duration, and repetition rate reveal that may not be the case. Table 9 in the application specified that both chirps (i.e., Edgetech 3200¹⁶) and boomers (i.e., Applied Acoustics AA251¹⁷) could be used. The use of both sources appears to explain why NMFS inappropriately used a combination of assumed thresholds and inputs. The Edgetech 3200 is a chirp, which is a non-impulsive source, and the 20-msec pulse duration and repetition rate can be considered appropriate. However, the pulse duration and repetition rate given for the Applied Acoustics AA251 is not appropriate. The pulse duration is 90 msec and thus could never repeat at a rate of every 30 msec (see Tables 4 and 5 in Crocker and Fratantonio (2016)¹⁸).

¹⁴ Assuming a vessel speed of 4 knots, or 7.41 km/hr.

¹⁵ The number of days to conduct the geohazard surveys is used to estimate takes, so take estimates should be revised as well.

¹⁶ With a source level of 210 dB re 1 μ Pa at 1 m and operating frequency of 2–24 kHz.

¹⁷ With a source level of 212 dB re 1 μ Pa at 1 m and operating frequency of 1–4 kHz.

¹⁸ The Edgetech 3200/424 variant also is included in this document. Note that all measured source levels are less than manufacturer specifications.

Furthermore, the pulse durations of 20 msec included in Table 4 of the preamble for both VSP and impact pile driving are not correct. NMFS has indicated in its manual for its user spreadsheet that, when pulse durations are not available for these sources, 100 msec should be used as the default (see Appendices B and C in NMFS (2018)). Alternatively, NMFS could have used single-strike sound exposure level (SEL_{s-s}) source levels, obviating the need for a pulse duration, similar to what was noted in Table 4 for the 2D/3D seismic survey. In any event, the source level provided for pipe driving in Table 4 is based on SPL_{rms} and a pulse duration is not provided. NMFS either needs to use source levels based on SPL_{rms} and appropriate pulse durations or source levels based on SEL_{s-s} for all activities involving seismic airguns and impact pile driving.

More troubling is the fact that, when the assumptions in Table 4 are used to estimate the extents of the Level A harassment zones, many of the zones are not the same as those listed in Table 5 of the *Federal Register* notice. In some instances, the calculated zones are larger¹⁹ and in other instances, they are smaller²⁰. Since the zones stipulated in Table 5 cannot be recreated based on the information in Table 4 and many of the assumptions and thresholds used to estimate those zones are incorrect, the proposed numbers of takes cannot be substantiated²¹. It is therefore impossible to deem the mitigation measures²² based on those zones as appropriate means for effecting the least practicable adverse impact. As such, the Commission recommends that NMFS recalculate all of the Level A harassment zones²³ and revise the numbers of marine mammal takes and mitigation measures accordingly.

Appropriateness of the Level B harassment threshold

Non-impulsive, intermittent sources—The Level B harassment thresholds currently are based on impulsive or continuous sources. Hilcorp has proposed to use chirp sub-bottom profilers, which are considered non-impulsive, intermittent sources. Researchers have observed that various species of marine mammals, including harbor porpoises and harbor seals, respond to sound from sources with similar characteristics as these (including acoustic deterrent devices, acoustic harassment devices, pingers, echosounders, and sonars) at received levels below 160 dB re 1 μPa ²⁴. The Commission has noted in numerous letters²⁵ that chirps have temporal and spectral characteristics suggesting that a lower, more precautionary Level B harassment threshold of 120 dB re 1 μPa would be more

¹⁹ NMFS's user spreadsheet also only allows sources for impulsive, mobile sources to be referenced to 1 m. The source levels provided in the preamble and application for the 2D/3D seismic survey are referenced to 100 m. Based on spherical spreading, the source level would be 225 dB re 1 μPa^2 -sec at 1 m. The Level A harassment zones provided in Table 5 of the *Federal Register* notice are an order of magnitude less than those that would be calculated using 225 dB re 1 μPa^2 -sec at 1 m as the source level and the inputs noted in Table 4.

²⁰ Specifically for the water jet.

²¹ Furthermore, since NMFS did not provide the ensonified areas used to estimate the numbers of Level A or B harassment takes, crosschecking the numbers of takes is impossible.

²² Which would include the number and locations of protected species observers as well.

²³ This applies to Level B harassment zones and takes as well, particularly if NMFS chooses not to implement the Commission's recommendations in the subsequent section of this letter.

²⁴ See Watkins and Schevill 1975, Olesiuk et al. 1995, Kastelein et al. 1997, Kastelein et al. 2000, Morton 2000, Culik et al. 2001, Kastelein et al. 2001, Carlström et al. 2002, Johnston 2002, Morton and Symonds 2002, Kastelein et al. 2005, Barlow and Cameron 2003, Kastelein et al. 2006a and b, Carretta et al. 2008, Carlström et al. 2009, Götz and Janik 2010, Lurton and DeRuiter 2011, Brandt et al. 2012 and 2013, Götz and Janik 2013, Hastie et al. 2014, Kastelein et al. 2015a and b, and Tougaard et al. 2015.

²⁵ See the Commission's most recent [19 March 2019 letter](#) detailing this matter.

appropriate than the 160-dB re 1 μ Pa threshold. Since the current behavior thresholds do not reflect the best available science regarding the temporal and spectral characteristics of non-impulsive, intermittent sound sources and their impacts on marine mammals, the Commission recommends that, *until* the behavior thresholds are updated, NMFS require Hilcorp to use the 120- rather than 160-dB re 1 μ Pa threshold for intermittent, non-impulsive sources (such as chirps²⁶).

Density and take estimates

Density estimates—NMFS indicated that densities for marine mammals other than beluga whales were estimated by dividing the total number of individuals per species sighted each year during summer aerial surveys conducted from 2000 to 2016 by the distance flown on those surveys each year. In the footnote to Table 8 of the *Federal Register* notice, NMFS further indicated that the survey year with the greatest estimated density was used to estimate the numbers of takes. However, the densities provided in Table 8 are orders of magnitude lower than the densities estimated using NMFS's stated method and also are much lower than densities used for previously proposed authorizations, even though the aerial survey timeframe (2000 to 2016) was similar to the timeframe used for previously proposed authorizations (e.g., 83 Fed. Reg. 19244). NMFS provided the Commission with the spreadsheets that it used to estimate densities and numbers of takes yet the densities in those spreadsheets are not the same as those shown in Table 8²⁷. The Commission recommends that NMFS clarify what density estimates were actually used to determine the numbers of takes and ensure the density estimates for marine mammals other than beluga whales are consistent with its stated method²⁸ for calculating densities based on sightings from aerial surveys from 2000–2016.

Take estimates in general—In the preamble, NMFS did not provide either the ensonified areas for Level A and B harassment or the estimated number of days that were used for the various activities to estimate marine mammal takes. Hilcorp included that information in its application, but the take estimates cannot be recreated based on those data. For example, based on the application, the harbor seal density was 0.00655 seals/km² (Table 12), the ensonified area associated with Level B harassment during a 3D seismic survey was 754.23 km² (Table 15), and the survey would occur on 60 days (section 6.4.2.2), yielding 294 harbor seal takes. Yet, Hilcorp's application noted that 11,255 harbor seals would be taken during the 3D seismic survey (Table 18)²⁹. It is unclear how that number of takes was derived. There are similar issues for other species. As another example, the number of takes during water jetting were estimated to be less than 1 harbor seal in the application, 19.85 harbor seals in the *Federal Register* notice, and 12.14 harbor seals in NMFS's take spreadsheets. Given the lack of clarity regarding the information used to inform the numbers of marine mammal takes and what the numbers of authorized takes would be, the Commission recommends that NMFS specify the relevant densities, ensonified areas associated with both Level A and B harassment for the various proposed activities, the number of days each activity would occur, and finally the numbers of takes prior to issuing the final rule. Absent this information, it is unclear how NMFS can determine that only small numbers of marine mammals would be taken and the activities would have no more than a negligible impact on each species or stock.

²⁶ This also would apply to echosounders.

²⁷ There are also several incorrect sightings numbers in the spreadsheet.

²⁸ Based on the survey year with the greatest estimated density.

²⁹ Table 12 in the *Federal Register* notice also specified 11,255 harbor seal takes, which matches the take spreadsheets that NMFS provided.

Beluga whale takes—In addition to the issues noted in the previous section, NMFS arbitrarily reduced the numbers of Level B harassment takes to zero for multiple proposed activities in numerous take tables in the preamble. Interestingly, beluga whales were the only species that NMFS did not discuss within the ‘Take calculation and estimation’ section of the *Federal Register* notice. Although NMFS did not provide justification for reducing the number of beluga takes, the mitigation measures required to be implemented would not be sufficient to reduce these takes to zero—those measures are discussed in a subsequent section herein. The Commission recommends that, in the interest of transparency, NMFS provide the numbers of beluga whales that could be taken during the proposed activities and any assumptions made to reduce those takes.

Harbor seal takes—It is unclear exactly how many harbor seals could be taken during the proposed activities, but the estimated number of takes included in the preamble appears to be incorrect. Errors aside, NMFS attempted to justify reducing the total number of estimated harbor seal takes of 13,041³⁰ based on various assumptions and scenarios (84 Fed. Reg. 12364). The first scenario used incorrect abundances³¹ and inaccurate haul-out correction factors³². NMFS also used its assumed 1.65 haul-out correction factor³³ incorrectly. It assumed that 61 percent of the animals would be in the water, rather than hauled out at a given time. In addition, NMFS assumed 160 days of activities rather than the 180 days of activity as indicated in Table 1 of the *Federal Register* for 2019³⁴. It is unclear where 160 days originated and its applicability. Thus, NMFS’s first scenario is inaccurate and questionable.

NMFS’s second scenario scaled the number of harbor seals sighted at sea by observers³⁵ to the assumed 160 days, yielding 310 harbor seals. NMFS noted that not all of the harbor seals likely were sighted, which is an understatement. Harbor seals generally are observed only within 1 km of a vessel—the Level B harassment zone extends beyond 7.3 km and is similar in size to the Level B harassment zone during Apache Alaska’s 2012 seismic survey. And, although $g(0)$ values are not readily available for harbor seals, $g(0)$ from other cryptic species range from 0.013 to 0.323 in Beaufort sea states of 2³⁶ (Barlow 2015). Extrapolating the sightings to the actual extent of the Level B harassment zone and accounting for $g(0)$, the estimated number of more than 13,000 harbor seals takes is not unrealistic or unreasonable. However, NMFS’s second scenario is overly simplified and unrealistic.

³⁰ This is the total number of takes for the entire five-year period rather than a one-year period. It is unclear why NMFS did not assess the numbers of takes on an annual basis consistent with all other proposed rules.

³¹ NMFS indicated that 2,474 harbor seals were observed in June 2012 during Apache Alaska’s 2012 seismic survey, based on Lomac-McNair et al. (2013)—that report specified 2,496 harbor seals were observed in June 2012 (Table 16).

³² NMFS noted that, after reviewing the literature, haul-out correction factors for harbor seals range from 1.2 to 1.65 based on Harvey and Goley (2011). Those data apply to harbor seals in California. Simpkins et al. (2003) determined haul-out correction factors ranging from 1.17 to 1.23 in Alaska; while Withrow and Loughlin (1995) determined a haul-out correction factor of 1.74 in a similar area of Alaska. Following NMFS’s method of using the maximum haul-out correction factor, 1.74 would have been more appropriate.

³³ The reciprocal of the mean haul-out correction factor of 1.65 is 0.61, which is the proportion of seals hauled out. Therefore, 0.39 would be the proportion of seals in the water.

³⁴ Further, Lomac-McNair et al. (2013) indicated that activities occurred from 6 May to 30 September 2012, which is 147 days.

³⁵ 247 harbor seals were sighted during 147 days of activities, which appears to have been based on Lomac-McNair et al. (2013).

³⁶ Based on conditions observed in Lomac-McNair et al. (2013).

Based on those two scenarios, NMFS then rationalized that only 25 percent³⁷ of the harbor seal stock³⁸ would be taken during the five-year period rather than 44 percent³⁹ that would be estimated based on the number of calculated takes⁴⁰. The Commission does not believe that 44 percent of the stock would be taken, particularly since the survey would occur within a specific area in lower Cook Inlet, the range of the stock is more than 1,000 km, and the harbor seal is a resident species that remains within 50 km of its haul-out site. Rather, the Commission maintains that individuals would be taken multiple times during the survey rather than only once. NMFS should have used the aerial survey data to determine the percentage of the sightings that originate in Hilcorp's 3D seismic survey area and relate those to the estimated number of takes.

An additional confounding factor is that NMFS assessed its 25-percent cap based on the five years of the proposed rule rather than a single year of activities. Instead of authorizing 6,847 harbor seal takes in given year, NMFS proposed to authorize only 6,000 harbor seal takes in a given year, which would be during the first year of activities (see Tables 17 and 18 of the *Federal Register* notice). The remaining 847 harbor seal takes are less than the 977 takes estimated to occur in years two through five of the proposed activities (see Tables 13 to 16 in the notice). For all these reasons, the Commission recommends that NMFS authorize the total estimated number of harbor seal takes *in a given year* for each year from 2019–2024 rather than presuming only 25 percent of the population would be taken during the course of the five years of activities.

Mitigation and monitoring measures

Sound source verification and establishment of harassment zones—The preamble indicated that Hilcorp plans to conduct sound source verification (SSV) for the 3D seismic and sub-bottom profiler surveys in lower Cook Inlet and will work with NMFS to determine if an SSV is needed for other activities occurring in the project area (84 Fed. Reg. 12368). However, NMFS did not include that requirement in the proposed rule. The Commission recommends that, in the final rule, NMFS explicitly require Hilcorp to conduct SSVs at the beginning of the proposed activities for 3D seismic and sub-bottom profiler surveys and use those measurements to verify and adjust, if necessary, the extents of the Level A and B harassment zones.

Clearance measures for beluga whales—Hilcorp would be required to shut down seismic operations if a beluga is observed within an exclusion or safety zone. Unfortunately, the majority of the safety zones are less than the actual Level B harassment zones. The Level B harassment zone for 3D/2D seismic surveys is 7,330 m and the safety zone is only 1,000 m. Similarly, the Level B harassment zone for sheet pile driving is 4,642 m and the safety zone is 2,500 m. The Commission is not convinced that the proposed safety zones are sufficient to reduce the number of beluga whale takes to 35 during the entire five-year period. The Commission also is not convinced that Hilcorp can adequately enumerate the numbers of beluga whales taken within the various extents of the Level B harassment zones. It is not clear how Hilcorp plans to extrapolate the numbers of takes to those areas not able to be observed for beluga whales (or any other species). However, takes should be

³⁷ Resulting in 6,847 harbor seals.

³⁸ The Cook Inlet/Shelikof Strait stock of harbor seals ranges from the southwest tip of Unimak Island east along the southern coast of the Alaska Peninsula to Elizabeth Island off the southwest tip of the Kenai Peninsula, including Cook Inlet, Knik Arm, and Turnagain Arm.

³⁹ With no more than 41 percent taken in a given year.

⁴⁰ Based on 13,041 harbor seal takes and a stock size of 27,386.

extrapolated out to the extent of the Level B harassment zone based on the number of beluga whales observed at any given distance⁴¹. Furthermore, the requirement for Hilcorp to report weekly on the numbers of beluga whales taken and to alert NMFS when the authorized numbers of takes are close to being met was not included in the proposed rule (similar to 81 Fed. Reg. 6376). The Commission recommends that NMFS (1) specify how Hilcorp should enumerate the numbers of animals taken when observers are only monitoring a portion of the Level B harassment zones and (2) require Hilcorp to keep a tally of the numbers of marine mammals taken, alert NMFS when 28 beluga whales have been taken, and follow any guidance provided.

Power downs as an alternative to shutdowns—NMFS has proposed that Hilcorp use power-down procedures⁴² during seismic survey activities as an alternative to implementing a full shutdown when an animal is detected within or approaching the Level A harassment zone, which would necessitate a ramp up of the full array. Power downs also may be used at the operators' discretion to reduce the likelihood of a Level B harassment take. Contrary to NMFS's current proposed measure, it has stated that industry representatives have indicated that power downs may ultimately increase sound input to the marine environment due to the need to subsequently re-shoot the trackline to prevent gaps in data acquisition (unpublished workshop report, 2012; 82 Fed. 26255). For that reason and because a power down may not actually be useful, NMFS has prohibited the use of power-downs in its issuance of incidental harassment authorizations for taking of marine mammals associated with geophysical surveys in the Atlantic Ocean (83 Fed. Reg. 63350), which the Commission has supported. The Commission therefore recommends that NMFS prohibit Hilcorp from using power-down procedures as a mitigation measure for seismic surveys in Cook Inlet.

Use of a "mitigation gun"—NMFS also would allow the use of a 10-in³ mitigation gun for up to three hours to avoid requiring operators to ramp up after the full array has not been in use (e.g., during a power down, line turn, low visibility conditions, or other short-term interruption of seismic survey activities). In its issuance of incidental harassment authorizations for taking of marine mammals associated with geophysical surveys in the Atlantic Ocean, NMFS required that the acoustic source be deactivated when not acquiring or preparing to acquire data, except as necessary for testing, and that unnecessary use of the acoustic source be avoided (83 Fed. Reg. 63351). The Commission supports that requirement for the reasons previously stated and recommends that NMFS prohibit the use of a mitigation gun to avoid implementing ramp-up procedures.

Placement of observers for mitigation and monitoring purposes—The preamble indicated that observers would be on the source vessels (and potentially other vessels) for the seismic and geohazard surveys and on the drilling rig for VSP and pile/pipe driving activities to monitor the Level A and B harassment zones. However, the proposed rule does not specify the location of observers for any of the proposed activities, only that observers must be placed at the best vantage point(s) practicable to monitor for marine mammals. The Commission recommends that NMFS specify in the final rule that observers be placed on the source vessel (for seismic and geohazard surveys) or on the drilling

⁴¹ That is, if 2 belugas were observed within 1 km of the source, then the total number in the Level B harassment zone of 7 km would have been 14.

⁴² Power down refers to reducing the seismic array to a single element or airgun.

rig (for pile/pip driving and VSP) to monitor the Level A and B harassment zones for the proposed sound-generating activities.

Revise and republish

Based on the numerous inconsistencies, ambiguities, and incorrect information and assumptions identified in the preamble to the proposed rule, and more significantly, the errors associated with the estimation of the Level A harassment zones and numbers of Level A and B harassment takes, the Commission is unable to determine whether NMFS's negligible impact and small numbers determinations are valid and whether the mitigation measures would effect the least practicable adverse impact on beluga whales and other marine mammals. As such, neither the Commission nor the public were afforded an opportunity to provide informed and meaningful comments. Therefore, the Commission recommends that NMFS (1) consult with Hilcorp regarding the numerous issues raised in this letter and direct the applicant to revise the application accordingly and (2) publish a revised proposed rule prior to issuance of a final rule.

I trust these comments will be helpful. Please let me know if you or your staff have questions with regard to the Commission's recommendations.

Sincerely,



Peter O. Thomas, Ph.D.,
Executive Director

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