13 June 2017

Ms. Kimberly Klein
U.S. Fish and Wildlife Service
Office of Marine Mammals Management
1011 East Tudor Road
Anchorage, Alaska 99503

Dear Ms. Klein:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by Quintillion Subsea Operation, LLC, (Quintillion) seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) to take small numbers of walruses and polar bears by harassment incidental to subsea cable-laying activities in the Bering, Chukchi and Beaufort Seas, Alaska, during the 2017 open-water season. The Commission also has reviewed the U.S. Fish and Wildlife Service's (FWS) 1 June 2017 notice (82 Fed. Reg. 25304) requesting comments on its proposal to issue the authorization, subject to certain conditions. The Commission provided comments in its 18 May 2017 letter to the National Marine Fisheries Service (NMFS) regarding the authorization of incidental takes for marine mammal species under NMFS jurisdiction for the same activities.

Background

Quintillion installed a portion of a subsea fiber-optic cable network[1] between Nome and Oliktok Point, Alaska, in 2016. It plans to finish laying the remaining cable and repair any areas that do not meet testing requirements in 2017. Approximately 76 km of cable would be laid using a cable-laying barge or vessel. Use of a dynamic positioning system (DPS), vibro plow, and anchor-handling tug would be the main sources of sound. Ice-management activities also were included. The proposed activities are expected to occur from 1 July to 15 November.

FWS preliminarily has determined that the proposed activities could modify temporarily the behavior of small numbers of walruses and polar bears, but that the total taking would have a negligible impact on the affected species or stocks. FWS does not anticipate any take of marine mammals by death or serious injury. It believes that the potential for temporary or permanent hearing impairment will be at the least practicable level because of Quintillion's proposed mitigation measures. The mitigation, monitoring, and reporting measures include—

- beginning activities after 1 July to allow walruses to disperse from the confines of the spring lead system and minimize impacts on hunting activities;

[1] For internet services.

- using trained protected species observers (including Inupiat observers) to monitor the Level B harassment zone during daylight hours from when the vessel leaves to when the vessel returns to port at the end of the project;
- using various avoidance measures and speed restrictions in proximity to walruses and polar bears and in poor visibility conditions;
- reporting injured and dead marine mammals to FWS using its phased approach; and
- submitting a final report.

Availability of marine mammals for subsistence

Quintillion has coordinated with numerous Native Alaska communities[2] and developed a plan of cooperation outlining measures that it would implement to minimize any adverse impacts on the availability of marine mammals for subsistence use. That plan includes requirements for Quintillion to maintain the minimum approach distances and operational requirements outlined in the previous section, as well as (1) providing real-time vessel information via the automatic identification system and daily reports to the communities and communication centers, (2) monitoring the position of its vessels and avoiding subsistence activity, and (3) implementing vessel transit and routing schemes. Based on the proposed activities and mitigation measures, FWS has preliminarily determined that the proposed taking would not have an unmitigable adverse impact on the availability of walruses or polar bears for subsistence use by Alaska Natives.

Proposed activity inconsistencies

In review of FWS's and NMFS's *Federal Register* notices and Quintillion's associated applications, the Commission noticed some inconsistencies. First, ice-management activities, and associated taking of marine mammals, were removed from Quintillion's NMFS application (Owl Ridge Natural Resource Consultants, Inc. 2017b) but were retained in Quintillion's FWS application (Owl Ridge Natural Resource Consultants, Inc. 2017a). NMFS did not propose to authorize ice-management activities because the Alaska Beaufort Sea shoreline has become ice-free earlier than in the past. For FWS, Quintillion indicated it would charter a mid-class tug to clear a path, if necessary, for the cable ship to travel through the ice field around Point Barrow, mainly by pushing individual ice floes aside[3].

Second, the proxy source levels, propagation loss, and associated route lengths for the various activities differ between Quintillion's FWS and NMFS applications (see section 1.2 and Table 1-2 in both applications) and the associated *Federal Register* notices. In the FWS application, generally proxy source levels and propagation loss measured during last year's activities near Nome[4] were used to determine range to effects. The NMFS application used in-situ measurements and, in one instance, proxy source levels and practical spreading loss to determine range to effects. Third, FWS indicated in the *Federal Register* notice that Quintillion would not be conducting sound source

[2] Including the Eskimo Walrus Commission, Utqiagvik Whaling Captains Association members and board, the Community of Wainwright, Wainwright Whaling Captains, Point Hope Community, Tikigaq Whaling Captains, the Northwest Arctic Borough, Kotzebue City Management, the Community of Kotzebue, Maniilaq Association, Kawerak Inc., the Nome Community, and Kuukpik Corporation.
[3] Actual breaking of ice would occur only in the event of an unexpected safety concern.
[4] 17.32 based on Illingworth and Rodkin (2016).

verification (SSV) studies during the 2017 activities. However, NMFS specified that Quintillion would be conducting SSV studies for the vibroplow during the 2017 activities.

These two authorizations are for the same proposed activities and should include the same associated source levels, propagation loss, in-situ measurements, and route lengths of the various activities irrespective of which of the two agencies is issuing the authorization. The activities, and thus the sound that the sources emit and areas the sources transverse, should be the same. Therefore, the Commission recommends that FWS consult with NMFS regarding Quintillion's activities to ensure the same activities and parameters[5] are being used to inform the final incidental harassment authorizations. To minimize future inconsistencies, the Commission recommends that FWS and NMFS consult with one another on all future incidental harassment authorizations that would authorize taking of marine mammals for the exact same proposed activities prior to publication in the *Federal Register* notice.

Appropriateness of the Level B harassment threshold

As with numerous FWS authorizations issued in previous years for activities occurring in Alaska, FWS has used the 160- rather than 120-dB re 1 μPa threshold for continuous sounds[6]—that is, sounds from vessels/tugs, plows, dynamic positioning systems, and ice-management activities. The Commission questions, as it has for previous authorizations, FWS's assumption that disruption of behavioral patterns occurs at levels that *exceed* 160 dB re 1 μPa. FWS did not provide justification or scientific substantiation for the apparent arbitrary use of the 160-dB re 1 μPa threshold. The *Federal Register* notice did indicate that for pinnipeds, NMFS has traditionally adopted a 160-dB re 1 μPa threshold for exposure to impulsive sound and a 120-dB re 1 μPa threshold for continuous sound. The notice also indicated that Southall et al. (2007) assessed relevant studies, found considerable variability among pinnipeds, and determined that exposures between approximately 90–140 dB re 1 μPa generally do not appear to induce strong behavioral responses in pinnipeds in water, but an increasing probability of avoidance and other behavioral effects exists in the range between 120–160 dB re 1 μPa. This statement alone contradicts FWS use of the 160-dB re 1 μPa threshold.

Several other aspects raise concerns about this application. In its 2016 application, Quintillion, rather than FWS, recognized and used the appropriate threshold. In addition, FWS claimed in the recent *Federal Register* notice that, in the absence of empirical information, it is applying a precautionary approach and indicated that exposures above 160 dB re 1 μPa are more likely to elicit behavioral responses than lower level exposures. The Commission believes this approach is neither consistent with, nor more precautionary, than the thresholds used by NMFS for other pinniped species. While FWS indicated that the threshold is based on being 'more likely to elicit behavioral responses', the statutory standard in the MMPA is whether the sound source has 'the potential to disturb...by causing disruption of behavioral patterns', which is a much lower bar.

[5] Source levels, propagation loss, in-situ measurements, and route lengths.
[6] FWS however did indicate that it used NMFS's user spreadsheet to determine the range to effects for *non-impulsive, continuous* stationary sources. Thus, the appropriate Level A harassment thresholds were used but not the Level B harassment thresholds.

In its response to the Commission's previous recommendation regarding the appropriateness of the Level B harassment threshold for the 2016 Quintillion authorization, FWS indicated that walruses and otariids have similar hearing sensitivities and that otariids appear to be less sensitive to underwater sound than phocids. The Commission disagrees given that the available walrus audiogram shows its hearing is relatively sensitive, especially in the low-frequency range, similar to phocids (Figure 3; Kastelein et al. 2002). Kastelein et al. (2002) further surmised that, due to those low-frequency sensitivities, walruses are likely to be susceptible to anthropogenic noise. More recently, Finneran (2016), as incorporated in NMFS (2016), compiled all available audiogram data for marine mammals. The walrus was more sensitive than the vast majority (6 of 7) of otariids tested in the low-frequency range and considerably more sensitive than the sea otter[7]. Figure A4 in NMFS (2016) shows that the walrus is more sensitive than the composite otariid audiogram below 1 kHz and appears to be more comparable to phocids below 1 kHz as depicted in Figure A5. All such data indicate that walruses are sensitive to low-frequency sounds, including those sound sources proposed for use by Quintillion that emit the majority of the sound at frequencies below 1 kHz[8].

Most telling are the results from Quintillion's 2016 monitoring report (Owl Ridge Natural Resource Consultants, Inc. 2017c). Walruses were observed to increase their swim speed at distances of 75–976 m and change directions at 50–300 m from project vessels that were transiting. Walruses also were observed to change direction and swim away[9] at 393–576 m from the cable-laying vessel that was conducting plowing activities and at 200 m from the cable-laying vessel during use of the dynamic positioning system. All such distances are much greater than FWS's presumed maximum Level B harassment zone of 41 m based on the 160-dB re 1 μPa threshold.

Until such time that FWS has a defensible scientific basis for using 160 dB re 1 μPa as the threshold for continuous sound or develops its own thresholds for use, the Commission recommends that FWS use the 120-dB re 1 μPa threshold for continuous sound sources in the final authorization. The Commission again strongly suggests that FWS coordinate with NMFS regarding any questions it may have regarding the appropriateness of the various thresholds.

Finally, the *Federal Register* notice indicated that protected species observers would 'monitor the 120-dB re 1 μPa Level B harassment zone' for approaching walruses but made no mention of monitoring polar bears. The Commission assumes this was an oversight and recommends that FWS require Quintillion to monitor and report any polar bears that are observed approaching or within the 120-dB re 1 μPa Level B harassment zone as well.

Monitoring reports

FWS has not made Quintillion's 2016 monitoring report publically available, but the Commission was able to locate the report on NMFS's website[10]. The Commission strongly believes that FWS should adopt the same practice of posting such reports on FWS's website. Those reports

[7] FWS routinely uses the 120-dB re 1 μPa threshold to estimate the impacts from continuous sources on sea otters. FWS repeatedly indicated that, in light of evidence suggesting that the hearing sensitivities of sea lions and sea otters are generally comparable (although underwater, sea otter hearing appears to be less sensitive than sea lion hearing), it plans to use the thresholds, guidelines, and criteria applicable to sea lions as proxies (82 Fed. Reg. 6631; 79 Fed. Reg. 58798).
[8] Figures 6 and 10 in Illingworth and Rodkin, Inc. (2016).
[9] One animal was resting when this occurred.
[10] Due to the report addressing both NMFS and FWS species.

could inform research associated with responses of FWS species to various sound sources, data which are scant, and inform future incidental take authorizations. Therefore, the Commission recommends that FWS make available to the public all past and future monitoring reports associated with incidental harassment authorizations and letters of authorization for marine mammal species under FWS jurisdiction.

Timing of authorization issuance

Both Quintillion's application and FWS's *Federal Register* notice indicated that the proposed activities would occur from 1 July–15 November 2017. However, the public comment period for FWS's proposed incidental harassment authorization does not close until 3 July (82 Fed. Reg. 25305) —the resulting authorization cannot be issued until 5 July[11] at the earliest. A similar situation occurred in 2016, in which FWS did not issue the authorization until after activities had begun, even though FWS received Quintillion's application in October 2015[12]. The Commission commented on this issue last year, specifically that Quintillion would have to assume the risk of liability for take should any result due to FWS's deficiencies. Thus, Quintillion was put in an untenable position through no fault of its own last year and again this year.

FWS indicated in the Federal Register notice that it received Quintillion's application in November 2016[13] well before activities were proposed to begin again this year. In response to the Commission's previous recommendation regarding timeliness of authorization issuances, FWS stated that it would endeavor to process incidental harassment authorization requests and publish and finalize proposed authorizations as expeditiously as possible given staff resources and workload priorities. Given that the proposed authorization is essentially a repeat of last year's authorization, it is unclear why this authorization could not be published in a more timely manner. Therefore, the Commission again recommends that, in the future, FWS take all necessary steps to ensure that it publishes and finalizes proposed incidental take authorizations *before* the planned start date of the proposed activities. If FWS is unable to adhere to the statutory time frames for processing incidental take authorizations on a routine basis, the Commission suggests systematic changes to the manner in which these authorizations are handled.

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

Sincerely,

Rebecca J. Lent

Rebecca J. Lent, Ph.D.
Executive Director

cc: Diane Bowen, FWS
Jolie Harrison, NMFS, Office of Protected Resources

[11] Since 4 July is a federal holiday.
[12] With a revision received on 2 February.
[13] With a revision received in January and additional information provided in February.

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