UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

MAY 31 2016

Erin Sedor
Quintillion Subsea Operations, LLC
201 E. 56th Avenue, #300
Anchorage, Alaska 99518

Dear Ms. Sedor:

Enclosed is an Incidental Harassment Authorization issued to the Quintillion Subsea Operations, LLC, under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*), to take small numbers of marine mammals by Level B harassment incidental to conducting subsea cable-laying operations in the U.S. Bering, Chukchi, and Beaufort seas.

You are required to comply with the conditions contained in this Authorization. In addition, you must cooperate with any Federal, State or local agency monitoring the impacts of your activities. The Authorization requires monitoring the presence of marine mammals, mitigating adverse impacts to the lowest level practicable, and reporting any behavioral modifications resulting from your activity as observed by qualified individuals.

If you have any questions concerning the Authorization or its requirements please contact Shane Guan, Office of Protected Resources, NMFS, at (301) 427-8401.

Sincerely,

Donna S. Wieting
Director
Office of Protected Resources

Enclosure

Printed on Recycled Paper

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

INCIDENTAL HARASSMENT AUTHORIZATION

Quintillion Subsea Operations, LLC (Quintillion), 201 E. 56th Avenue, #300, Anchorage, Alaska 99518, is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)), to harass marine mammals incidental to conducting subsea cable-laying operations in the U.S. Bering, Chukchi, and Beaufort seas, when adhering to the following terms and conditions.

1. This Incidental Harassment Authorization (IHA) is valid from June 1 through October 31, 2016.

2. This IHA is valid only for subsea cable-laying operations in the U.S. Bering, Chukchi, and Beaufort seas.

3. General Conditions

   (a) A copy of this IHA must be in the possession of the Quintillion, its designees, and work crew personnel operating under the authority of this IHA.

   (b) The species authorized for taking are:

      (i) Bowhead whale (*Balaena mysticetus*)

      (ii) Beluga whale (*Delphinapterus leucas*)

      (iii) Gray whale (*Eschrichtius robustus*)

      (iv) Fin whale (*Balaenoptera physalus*)

      (v) Minke whale (*B. acutorostrata*)

      (v) Humpback whale (*Megaptera novaeangliae*)

      (vi) Killer whale (*Orca Orcinus*)

      (vii) Harbor porpoise (*Phocoena phocoena*)

      (viii) Bearded seal (*Erigathus barbatus*)

      (ix) Ringed seal (*Phoca hispida*)

      (x) Spotted seal (*P. largha*)

      (xi) Ribbon seal (*Histriophoca fasciata*)

Printed on Recycled Paper

(c) The taking, by Level B harassment only, is limited to the species listed in condition 3(b). See Table 1 (attached) for numbers of take authorized.

(d) The taking by injury (Level A harassment), serious injury, or death of any of the species listed in condition 3(b) of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA.

(e) Quintillion shall conduct briefings between construction supervisors and crews, the marine mammal monitoring team, the acoustical monitoring team, and Quintillion staff prior to the start of all subsea cable-laying operations, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

(f) Quintillion may conduct a maximum of 153 days of subsea cable-laying operations.

4. Mitigation Measures

The holder of this Authorization is required to implement the following mitigation measures:

(a) Establishing Disturbance Zones

(i) Establish zones of influence (ZOIs) surrounding the cable-laying vessel where the received level would be 120 dB (rms) re 1 μPa. The size of the modeled distance to the 120 dB (rms) re 1 μPa is 2.3 km.

(ii) Immediately upon completion of data analysis of the field verification measurements required under condition 5(e)(i) below, the new 120 dB (rms) re 1 μPa ZOI shall be established based on the sound source verification.

(b) Vessel Movement Mitigation:

(i) When the cable-lay fleet is traveling in Alaskan waters to and from the project area (before and after completion of cable-laying), the fleet vessels would:

(A) Not approach within a 1.6 km (1 mi) distance from concentrations or groups of whales (aggregation of six or more whales).

(B) Take reasonable precautions to avoid potential interaction with any bowhead whales observed within 1.6 km (1 mi) of a vessel.

(C) Reduce speed to less than 5 knots when weather conditions require, such as when visibility drops, to avoid the likelihood of collision with whales.

(c) Mitigation Measures for Subsistence Activities:

(i) Quintillion will provide a daily report of all Quintillion activities and locations to the subsistence communities (see reporting below).

(ii) Quintillion will provide the Alaska Eskimo Whaling Association (Barrow), Kawerak, Inc, (Nome), and Maniilaq Association (Kotzebue) memberships with the Marine Exchange of Alaska so that subsistence communities can track all vessel operations via the vessels' autonomous information system.

(iii) Quintillion will prepare a daily report of project activities, sea conditions, and subsistence interactions, and send to all community leaders in the area.

(iv) The daily reports will include a contact address and phone number where interested community leaders can convey any subsistence concerns.

(v) Quintillion shall monitor the positions of all of its vessels and will schedule timing and location of cable-laying segments to avoid any areas where subsistence activity is planned.

(vi) Barge and ship transiting to and from the project area:

(A) Vessels transiting in the Beaufort Sea east of Bullen Point to the Canadian border shall remain at least 5 miles offshore during transit along the coast, provided ice and sea conditions allow. During transit in the Chukchi Sea, vessels shall remain as far offshore as weather and ice conditions allow, and at all times at least 5 miles offshore.

(B) From August 31 to October 31, transiting vessels in the Chukchi Sea or Beaufort Sea shall remain at least 20 miles offshore of the coast of Alaska from Icy Cape in the Chukchi Sea to Pitt Point on the east side of Smith Bay in the Beaufort Sea, unless ice conditions or an emergency that threatens the safety of the vessel or crew prevents compliance with this requirement. This condition shall not apply to vessels actively engaged in transit to or from a coastal community to conduct crew changes or logistical support operations.

(C) Vessels shall be operated at speeds necessary to ensure no physical contact with whales occurs, and to make any other potential conflicts with bowheads or whalers unlikely. Vessel speeds shall be less than 10 knots when within 1.6 kilometers (1 mile) of feeding whales or whale aggregations (6 or more whales in a group).

(D) If any vessel inadvertently approaches within 1.6 kilometers (1 mile) of observed bowhead whales, except when providing emergency assistance to whalers or in other emergency situations, the vessel operator will take reasonable precautions to avoid potential interaction with the

bowhead whales by taking one or more of the following actions, as appropriate:

- Reducing vessel speed to less than 5 knots within 900 feet of the whale(s);
- Steering around the whale(s) if possible;
- Operating the vessel(s) in such a way as to avoid separating members of a group of whales from other members of the group;
- Operating the vessel(s) to avoid causing a whale to make multiple changes in direction; and
- Checking the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged.

(vii) Quintillion shall complete operations in time to ensure that vessels associated with the project complete transit through the Bering Strait to a point south of 59 degrees North latitude no later than November 15, 2016. Any vessel that encounters weather or ice that will prevent compliance with this date shall coordinate its transit through the Bering Strait to a point south of 59 degrees North latitude with the appropriate Com-Centers. Quintillion vessels shall, weather and ice permitting, transit east of St. Lawrence Island and no closer than 10 miles from the shore of St. Lawrence Island.

5. Monitoring

The holder of this Authorization is required to conduct marine mammal monitoring during subsea cable-laying operations and to conduct sound source verification measurements.

(a) Vessel-based Visual Monitoring:

(i) Vessel-based visual monitoring for marine mammals shall be conducted by NMFS-approved protected species observers (PSOs) throughout the period of survey activities.

(ii) PSOs shall be stationed aboard the cable-laying vessels and the Oliktok cable-laying barge through the duration of the subsea cable-laying operation. PSOs will not be aboard the smaller barge in waters of depths less than 12 m.

(iii) A sufficient number of PSOs shall be onboard the survey vessel to meet the following criteria:

(A) 100% monitoring coverage during all periods of cable-laying operations in daylight;

(B) Maximum of 4 consecutive hours on watch per PSO, with a minimum 1-hour break between shifts; and

(C) Maximum of 12 hours of watch time in any 24-hour period per PSO.

(iv) The vessel-based marine mammal monitoring shall provide the basis for real-time mitigation measures as described in 4(b) above.

(b) Protected Species Observers and Training

(i) PSO teams shall consist of Inupiat observers capable of carrying out requirements of the IHA and NMFS-approved field biologists.

(ii) Experienced field crew leaders shall supervise the PSO teams in the field. New PSOs shall be paired with experienced observers to avoid situations where lack of experience impairs the quality of observations.

(iii) Crew leaders and most other biologists serving as observers in 2016 shall be individuals with experience as observers during recent marine mammal monitoring projects in Alaska, the Canadian Beaufort, or other offshore areas in recent years.

(iv) Resumes for PSO candidates shall be provided to NMFS for review and acceptance of their qualifications. Inupiat observers shall be experienced (as hunters or have previous PSO experience) in the region and familiar with the marine mammals of the area.

(v) All observers shall complete an observer training course designed to familiarize individuals with monitoring and data collection procedures. The training course shall be completed before the anticipated start of the 2016 open-water season. The training session(s) shall be conducted by qualified marine mammalogists with extensive crew-leader experience during previous vessel-based monitoring programs.

(vi) Training for both Alaska native PSOs and biologist PSOs shall be conducted at the same time in the same room. There shall not be separate training courses for the different PSOs.

(vii) If crew members are to be used in addition to PSOs, they shall go through some basic training consistent with the functions they will be asked to perform.

(viii) PSOs shall be trained using visual aids (e.g., videos, photos), to help them identify the species that they are likely to encounter in the conditions under which the animals will likely be seen.

(ix) Quintillion shall train its PSOs to follow a scanning schedule that consistently distributes scanning effort appropriate for each type of activity being monitored. All PSOs should follow the same schedule to ensure consistency in their scanning efforts.

(x) PSOs shall be trained in documenting the behaviors of marine mammals. PSOs should record the primary behavioral state (i.e., traveling, socializing, feeding, resting, approaching or moving away from vessels) and relative location of the observed marine mammals.

(c) Marine Mammal Observation Protocol

(i) PSOs shall watch for marine mammals from the best available vantage point on the survey vessels, typically the bridge.

(ii) PSOs shall scan systematically with the unaided eye and 7 x 50 reticle binoculars, and night-vision and infra-red equipment when needed.

(iii) Personnel on the bridge shall assist the marine mammal observer(s) in watching for marine mammals; however, bridge crew observations will not be used in lieu of PSO observation efforts.

(iv) Monitoring shall consist of recording of the following information:

(A) The species, group size, age/size/sex categories (if determinable), the general behavioral activity, heading (if consistent), bearing and distance from vessel, sighting cue, behavioral pace, and apparent reaction of all marine mammals seen near the vessel (e.g., none, avoidance, approach, paralleling, etc.);

(B) The time, location, heading, speed, and activity of the vessel, along with sea state, visibility, cloud cover and sun glare at (I) any time a marine mammal is sighted, (II) at the start and end of each watch, and (III) during a watch (whenever there is a change in one or more variable);

(C) The identification of all vessels that are visible within 5 km of the vessel from which observation is conducted whenever a marine mammal is sighted and the time observed;

(D) Any identifiable marine mammal behavioral response (sighting data should be collected in a manner that will not detract from the PSO's ability to detect marine mammals);

(E) Any adjustments made to operating procedures; and

(F) Visibility during observation periods so that total estimates of take can be corrected accordingly.

(v) Distances to nearby marine mammals will be estimated with binoculars (7 x 50 binoculars) containing a reticle to measure the vertical angle of the line of sight to the animal relative to the horizon. Observers may use a laser rangefinder to test and improve their abilities for visually estimating distances to objects in the water.

(vi) PSOs shall understand the importance of classifying marine mammals as "unknown" or "unidentified" if they cannot identify the animals to species with confidence. In those cases, they shall note any information that might aid in the identification of the marine mammal sighted. For example, for an unidentified mysticete whale, the observers should record whether the animal had a dorsal fin.

(vii) Additional details about unidentified marine mammal sightings, such as "blow only," "mysticete with (or without) a dorsal fin," "seal splash," etc., shall be recorded.

(viii) Quintillion shall use the best available technology to improve detection capability during periods of fog and other types of inclement weather. Such technology might include night-vision goggles or binoculars as well as other instruments that incorporate infrared technology.

(d) Field Data-Recording and Verification

(i) PSOs shall utilize a standardized format to record all marine mammal observations.

(ii) Information collected during marine mammal observations shall include the following:

(A) Vessel speed, position, and activity

(B) Date, time, and location of each marine mammal sighting

(C) Marine mammal information under (c)(iv)(A)

(D) Observer's name and contact information

(E) Weather, visibility, and ice conditions at the time of observation

(F) Estimated distance of marine mammals at closest approach

(G) Activity at the time of observation, including possible attractants present

(H) Animal behavior

(I) Description of the encounter

(J) Duration of encounter

(K) Mitigation action taken

(iii) Data shall be recorded directly into handheld computers or as a back-up, transferred from hard-copy data sheets into an electronic database.

(iv) A system for quality control and verification of data shall be facilitated by the pre-season training, supervision by the lead PSOs, and in-season data checks, and shall be built into the software.

(v) Computerized data validity checks shall also be conducted, and the data shall be managed in such a way that it is easily summarized during and after the field program and transferred into statistical, graphical, or other programs for further processing.

(e) Passive Acoustic Monitoring

(i) Sound Source Measurements:

(A) Using a hydrophone system, the holder of this Authorization is required to conduct sound source verification tests on all noise sources, including noise from the cable ship during plowing operations, and noise from the nearshore barge during winching, anchor-handling, and remote operating vehicle (ROV) operations.

(B) The test results shall be reported to NMFS within 5 days of completing the test.

(ii) Marine Mammal Passive Acoustic Monitoring

(A) Quintillion shall support the 2016 joint Arctic Whale Ecology Study (ARCWEST)/Chukchi Acoustics, Oceanography, and Zooplankton Study-extension (CHAOZ-X) ($90,000).

(B) Quintillion shall support additional PAM in nearshore waters near Kotzebue, and contribute funding to assist in the analysis of existing data from passive acoustic monitors deployed in 2013-2015 near Kotzebue ($20,000).

6. Reporting

(a) Sound Source Verification Report: A report on the preliminary results of the sound source verification measurements, including the measured source level, shall be submitted within 14 days after collection of those measurements at the start of the field season. This report will specify the distances of the ZOI that were adopted for the survey.

(b) Technical Report (90-day Report): A draft report will be submitted to the Director, Office of Protected Resources, NMFS, within 90 days after the end of Quintillion's subsea cable-laying operation in the Bering, Chukchi, and Beaufort seas. The report will describe in detail:

(i) Summaries of monitoring effort (e.g., total hours, total distances, and marine mammal distribution through the project period, accounting for sea state and other factors affecting visibility and detectability of marine mammals);

(ii) Summaries that represent an initial level of interpretation of the efficacy, measurements, and observations;

(iii) Analyses of the effects of various factors influencing detectability of marine mammals (e.g., sea state, number of observers, and fog/glare);

(iv) Species composition, occurrence, and distribution of marine mammal sightings, including date, water depth, numbers, age/size/gender categories (if determinable), group sizes, and ice cover;

(v) Estimates of uncertainty in all take estimates, with uncertainty expressed by the presentation of confidence limits, a minimum-maximum, posterior probability distribution, or another applicable method, with the exact approach to be selected based on the sampling method and data available; and

(vi) A clear comparison of authorized takes and the level of actual estimated takes.

(c) The draft report shall be subject to review and comment by NMFS. Any recommendations made by NMFS must be addressed in the final report prior to acceptance by NMFS. The draft report will be considered the final report for this activity under this Authorization if NMFS has not provided comments and recommendations within 90 days of receipt of the draft report.

(d) Reporting injured or dead marine mammals:

(i) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this IHA, such as an injury (Level A harassment), serious injury, or mortality, Quintillion shall immediately cease the specified activities and report the incident to the Office of Protected Resources (301-427-8401), NMFS, and the Alaska Stranding Coordinator (1-877-925-7773), NMFS. The report must include the following information:

1. Time and date of the incident;

2. Description of the incident;

3. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);

4. Description of all marine mammal observations and active sound source use in the 24 hours preceding the incident;

5. Species identification or description of the animal(s) involved;

6. Fate of the animal(s); and

7. Photographs or video footage of the animal(s).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with Quintillion to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Quintillion may not resume their activities until notified by NMFS.

(ii) In the event that Quintillion discovers an injured or dead marine mammal, and the lead observer determines that the cause of the injury or death is unknown and the death is relatively recent (e.g., in less than a moderate state of decomposition), Quintillion shall immediately report the incident to the Office of Protected Resources, NMFS, and the Alaska Stranding Coordinator, NMFS.

The report must include the same information identified in 6(d)(i) of this IHA. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with Quintillion to determine whether additional mitigation measures or modifications to the activities are appropriate.

(iii) In the event that Quintillion discovers an injured or dead marine mammal, and the lead observer determines that the injury or death is not associated with or related to the activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Quintillion shall report the incident to the Office of Protected Resources, NMFS, and the Alaska Stranding Coordinator, NMFS, within 24 hours of the discovery. Quintillion shall provide photographs or video footage or other documentation of the stranded animal sighting to NMFS.

7. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein, or if NMFS determines the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

Donna S. Wieting

MAY 31 2016

Donna S. Wieting,
Director, Office of Protected Resources,
National Marine Fisheries Service.

Date

Table 1. Authorized Level B take numbers, by species

Species	Authorized Level B Take
Bowhead whale	130
Beluga whale	669
Gray whale	572
Humpback whale	15
Fin whale	15
Minke whale	5
Killer whale	5
Harbor porpoise	16
Ringed seal	992
Spotted seal	325
Bearded seal	470
Ribbon seal	5