



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

## INCIDENTAL HARASSMENT AUTHORIZATION

Orsted/US Wind Power/Bay State Wind (Bay State Wind) is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1371(a)(5)(D)) and 50 CFR 216.107, to harass marine mammals incidental to high-resolution geophysical (HRG) survey investigations associated with marine site characterization activities off the coast of Massachusetts in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0500) and coastal waters where one or more cable route corridors will be established (the Lease Area) when adhering to the following terms and conditions.

1. This incidental harassment authorization (IHA) is valid for a period of one year from the date of issuance.
2. This IHA is valid only for marine site characterization survey activity, as specified in the IHA application, in the Atlantic Ocean.
3. General Conditions
  - (a) A copy of this IHA must be in the possession of Bay State Wind, the vessel operator and other relevant personnel, the lead protected species observer (PSO), and any other relevant designees of Bay State Wind operating under the authority of this IHA.
  - (b) The species authorized for taking are listed in Table 1. The taking, by level B harassment only, is limited to the species and numbers listed in Table 1. Any taking of species not listed in Table 1, or exceeding the authorized amounts listed in Table 1, is prohibited and may result in the modification, suspension, or revocation of this IHA.
  - (c) The taking by serious injury or death of any species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA.
  - (d) Bay State Wind must ensure that the vessel operator and other relevant vessel personnel are briefed on all responsibilities, communication procedures, marine mammal monitoring protocols, operational procedures, and IHA requirements prior to the start of survey activity, and when relevant new personnel join the survey operations.
4. Mitigation Requirements – the holder of this Authorization is required to implement the following mitigation measures:
  - (a) Bay State Wind must use at least four (4) NMFS-approved PSOs during HRG surveys. The PSOs must have no tasks other than to conduct observational effort, record observational data, and communicate with and instruct relevant vessel



crew with regard to the presence of marine mammals and mitigation requirements.

- (b) Visual monitoring must begin no less than 30 minutes prior to initiation of survey equipment and must continue until 30 minutes after use of survey equipment ceases.
- (c) Monitoring Zone, Harassment Zone, and Exclusion Zone – PSOs must begin observation of the monitoring zone during all HRG survey activities, which must encompass the maximum sight distance possible to include harassment zones and exclusion zones. Distances to Exclusion Zones must be from any survey equipment, not the distance from the vessel. The Exclusion Zones are as follows:
  - (i) a 100-m Exclusion Zone for large whales including sperm whales and mysticetes (except North Atlantic right whales);
  - (ii) a 500-m Exclusion Zone for North Atlantic right whales;
- (d) Shutdown requirements – If a marine mammal is observed within, entering, or approaching the relevant Exclusion Zones as described under 4(c) while geophysical survey equipment is operational, the geophysical survey equipment must be immediately shut down.
  - (i) Any PSO on duty has the authority to call for shutdown of survey equipment. When there is certainty regarding the need for mitigation action on the basis of visual detection, the relevant PSO(s) must call for such action immediately.
  - (ii) When a shutdown is called for by a PSO, the shutdown must occur and any dispute resolved only following shutdown.
  - (iii) Shutdown of HRG survey equipment is also required upon confirmed passive acoustic monitoring (PAM) detection of a North Atlantic right whale at night, except in instances when the PAM detection of a North Atlantic right whale can be localized and the whale is confirmed as being beyond the 500 m EZ for right whales. The PAM operator on duty has the authority to call for shutdown of survey equipment based on confirmed acoustic detection of a North Atlantic right whale at night even in the absence of visual confirmation. When shutdown occurs based on confirmed PAM detection of a North Atlantic right whale at night, survey equipment may be re-started no sooner than 30 minutes after the last confirmed acoustic detection.
  - (iv) Upon implementation of a shutdown, survey equipment may be reactivated when all marine mammals have been confirmed by visual observation to have exited the relevant Exclusion Zone or an additional time period has elapsed with no further sighting of the animal that triggered the shutdown (15 minutes for small delphinoid cetaceans (harbor porpoises and dolphins) and pinnipeds and 30 minutes for all other species).
  - (v) If geophysical equipment shuts down for reasons other than mitigation

(i.e., mechanical or electronic failure) resulting in the cessation of the survey equipment for a period of less than 20 minutes, the equipment may be restarted as soon as practicable if visual surveys were continued diligently throughout the silent period and the relevant Exclusion Zones are confirmed by PSOs to have remained clear of marine mammals during the entire 20 minute period. If visual surveys were not continued diligently during the pause of 20 minutes or less, a 30 minute pre-clearance period must precede the restart of the geophysical survey equipment as described in 4(e). If the period of shutdown for reasons other than mitigation is greater than 20 minutes, a pre-clearance period must precede the restart of the geophysical survey equipment as described in 4(e).

- (e) Pre-clearance observation – 30 minutes of pre-clearance observation must be conducted prior to initiation of geophysical survey equipment. If a marine mammal is observed within or approaching the pre-clearance zones described below during the pre-clearance period, geophysical survey equipment must not be initiated until the animal(s) is confirmed by visual observation to have exited the relevant pre-clearance zone, or, until an additional time period has elapsed with no further sighting of the animal (15 minutes for small delphinoid cetaceans and pinnipeds and 30 minutes for all other species). Geophysical survey equipment must not be initiated if:
  - (i) a North Atlantic right whale is observed within a 500 m radius of geophysical survey equipment during the pre-clearance period; or
  - (ii) any marine mammals are observed within a 200 m radius of geophysical survey equipment during the pre-clearance period.
- (f) Ramp-up – when technically feasible, survey equipment must be ramped up at the start or re-start of survey activities. Ramp-up must begin with the power of the smallest acoustic equipment at its lowest practical power output appropriate for the survey. When technically feasible the power will then be gradually turned up and other acoustic sources added in a way such that the source level would increase gradually.
- (g) Vessel Strike Avoidance – Vessel operator and crew must maintain a vigilant watch for all marine mammals and slow down or stop the vessel or alter course, as appropriate, to avoid striking any marine mammal, unless such action represents a human safety concern. Survey vessel crew members responsible for navigation duties must receive site-specific training on marine mammal sighting/reporting and vessel strike avoidance measures. Vessel strike avoidance measures must include the following, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk:
  - (i) The vessel operator and crew must maintain vigilant watch for cetaceans and pinnipeds, and slow down or stop the vessel to avoid striking marine mammals;
  - (ii) The vessel operator must reduce vessel speed to 10 knots (18.5 km/hr) or less when any large whale, any mother/calf pairs, whale or dolphin pods,

or larger assemblages of non-delphinoid cetaceans are observed near (within 100 m (330 ft)) an underway vessel;

- (iii) The survey vessel must maintain a separation distance of 500 m (1640 ft) or greater from any sighted North Atlantic right whale;
- (iv) If underway, the vessel must steer a course away from any sighted North Atlantic right whale at 10 knots (18.5 km/hr) or less until the 500 m (1640 ft) minimum separation distance has been established. If a North Atlantic right whale is sighted in a vessel's path, or within 500 m (330 ft) to an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. Engines must not be engaged until the North Atlantic right whale has moved outside of the vessel's path and beyond 500 m. If stationary, the vessel must not engage engines until the North Atlantic right whale has moved beyond 500 m;
- (v) The vessel must maintain a separation distance of 100 m (330 ft) or greater from any sighted non-delphinoid cetacean. If sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the non-delphinoid cetacean has moved outside of the vessel's path and beyond 100 m. If a survey vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean has moved out of the vessel's path and beyond 100 m;
- (vi) The vessel must maintain a separation distance of 50 m (164 ft) or greater from any sighted delphinoid cetacean. Any vessel underway must remain parallel to a sighted delphinoid cetacean's course whenever possible, and avoid excessive speed or abrupt changes in direction. Any vessel underway must reduce vessel speed to 10 knots (18.5 km/hr) or less when pods (including mother/calf pairs) or large assemblages of delphinoid cetaceans are observed. Vessels may not adjust course and speed until the delphinoid cetaceans have moved beyond 50 m and/or the abeam of the underway vessel;
- (vii) All vessels underway must not divert or alter course in order to approach any whale, delphinoid cetacean, or pinniped. Any vessel underway must avoid excessive speed or abrupt changes in direction to avoid injury to the sighted cetacean or pinniped; and
- (viii) All vessels must maintain a separation distance of 50 m (164 ft) or greater from any sighted pinniped.
- (ix) The vessel operator must comply with 10 knot (18.5 km/hr) or less speed restrictions in any Seasonal Management Area per NMFS guidance.
- (x) If NMFS should establish a Dynamic Management Area (DMA) in the area of the survey, within 24 hours of the establishment of the DMA Bay State Wind survey vessels must abide by established restrictions per the lease conditions.

5. Monitoring Requirements – The Holder of this Authorization is required to conduct marine mammal visual monitoring and PAM during geophysical survey activity.

Monitoring must be conducted in accordance with the following requirements:

- (a) A minimum of four NMFS-approved PSOs and a minimum of two certified PAM operator(s), operating in shifts, must be employed by Bay State Wind during geophysical surveys.
- (b) Observations must take place from the highest available vantage point on the survey vessel. General 360-degree scanning must occur during the monitoring periods, and target scanning by PSOs must occur when alerted of a marine mammal presence.
- (c) For monitoring around the autonomous surface vessel (ASV), a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction so as to provide a field of view ahead of the vessel and around the ASV. PSOs must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be installed in the bridge displaying the real-time images from the thermal/HD camera installed on the front of the ASV itself, providing a further forward view of the craft. In addition, night-vision goggles with thermal clip-ons and a hand-held spotlight must be provided and used such that PSOs can focus observations in any direction around the mother vessel and/or the ASV.
- (d) PSOs must be equipped with binoculars and have the ability to estimate distances to marine mammals located in proximity to the vessel and/or Exclusion Zones using range finders. Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine species.
- (e) PAM must be used during nighttime geophysical survey operations. The PAM system must consist of an array of hydrophones with both broadband (sampling mid-range frequencies of 2 kHz to 200 kHz) and at least one low-frequency hydrophone (sampling range frequencies of 75 Hz to 30 kHz). PAM operators must communicate detections or vocalizations to the Lead PSO on duty who must ensure the implementation of the appropriate mitigation measure.
- (f) During night surveys, night-vision equipment and infrared technology (as described in 5 (c) above) must be used in addition to PAM.
- (g) PSOs and PAM operators must work in shifts such that no one monitor must work more than 4 consecutive hours without a 2 hour break or longer than 12 hours during any 24-hour period. During daylight hours the PSOs must rotate in shifts of 1 on and 3 off, and during nighttime operations PSOs must work in pairs.
- (h) PAM operators must also be on call as necessary during daytime operations should visual observations become impaired.
- (i) Position data must be recorded using hand-held or vessel global positioning system (GPS) units for each sighting.
- (j) A briefing must be conducted between survey supervisors and crews, PSOs, and Bay State Wind to establish responsibilities of each party, define chains of

command, discuss communication procedures, provide an overview of monitoring purposes, and review operational procedures.

- (k) PSO qualifications must include direct field experience on a marine mammal observation vessel and/or aerial surveys.
- (l) Data on all PAM/PSO observations must be recorded based on standard PSO collection requirements. PSOs must use standardized data forms, whether hard copy or electronic. The following information must be reported:
  - (i) PSO names and affiliations
  - (ii) Dates of departures and returns to port with port name
  - (iii) Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort
  - (iv) Vessel location (latitude/longitude) when survey effort begins and ends; vessel location at beginning and end of visual PSO duty shifts
  - (v) Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change
  - (vi) Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including wind speed and direction, Beaufort sea state, Beaufort wind force, swell height, weather conditions, cloud cover, sun glare, and overall visibility to the horizon
  - (vii) Factors that may be contributing to impaired observations during each PSO shift change or as needed as environmental conditions change (e.g., vessel traffic, equipment malfunctions)
  - (viii) Survey activity information, such as type of survey equipment in operation, acoustic source power output while in operation, and any other notes of significance (i.e., pre-clearance survey, ramp-up, shutdown, end of operations, etc.)
  - (ix) If a marine mammal is sighted, the following information should be recorded:
    - (x) Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
    - (xi) PSO who sighted the animal;
    - (xii) Time of sighting;
    - (xiii) Vessel location at time of sighting;
    - (xiv) Water depth;
    - (xv) Direction of vessel's travel (compass direction);
    - (xvi) Direction of animal's travel relative to the vessel;
    - (xvii) Pace of the animal;

- (xviii) Estimated distance to the animal and its heading relative to vessel at initial sighting;
- (xix) Identification of the animal (e.g., genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;
- (xx) Estimated number of animals (high/low/best) ;
- (xxi) Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
- (xxii) Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
- (xxiii) Detailed behavior observations (e.g., number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
- (xxiv) Animal's closest point of approach and/or closest distance from the center point of the acoustic source;
- (xxv) Platform activity at time of sighting (e.g., deploying, recovering, testing, data acquisition, other); and
- (xxvi) Description of any actions implemented in response to the sighting (e.g., delays, shutdown, ramp-up, speed or course alteration, etc.) and time and location of the action.

6. Reporting – a technical report must be provided to NMFS within 90 days after completion of survey activities that fully documents the methods and monitoring protocols, summarizes the data recorded during monitoring, estimates the number of marine mammals that may have been taken during survey activities, describes the effectiveness of the various mitigation techniques (*i.e.* visual observations during day and night compared to PAM detections/operations), provides an interpretation of the results and effectiveness of all monitoring tasks, and includes an assessment of the effectiveness of night vision equipment used during nighttime surveys, including comparisons of relative effectiveness among the different types of night vision equipment used. Any recommendations made by NMFS must be addressed in the final report prior to acceptance by NMFS.

(a) Reporting injured or dead marine mammals:

(i) In the event that the specified activity clearly causes the take of a marine mammal in a manner not authorized by this IHA, such as serious injury or mortality, Bay State Wind must immediately cease the specified activities and immediately report the incident to the NMFS Office of Protected Resources ((301) 427-8400) and the NMFS Northeast Stranding Coordinator ((866) 755-6622). The report must include the following information:

(A) Time, date, and location (latitude/longitude) of the incident;

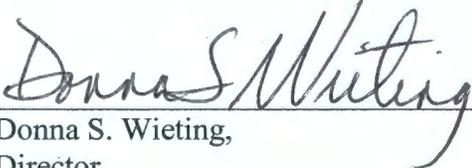
- (B) Vessel's speed during and leading up to the incident;
- (C) Description of the incident;
- (D) Status of all sound source use in the 24 hours preceding the incident;
- (E) Water depth;
- (F) Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- (G) Description of all marine mammal observations in the 24 hours preceding the incident;
- (H) Species identification or description of the animal(s) involved;
- (I) Fate of the animal(s); and
- (J) Photographs or video footage of the animal(s).

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

- (ii) In the event that Bay State Wind discovers an injured or dead marine mammal, and the lead PSO 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), Bay State Wind must immediately report the incident to the NMFS Office of Protected Resources ((301) 427-8400) and the NMFS Northeast Stranding Coordinator ((866) 755-6622). The report must include the same information identified in condition 6(b)(i) of this IHA. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with Bay State Wind to determine whether additional mitigation measures or modifications to the activities are appropriate.
- (iii) In the event that Bay State Wind discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the specified activities (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Bay State Wind must report the incident to the NMFS Office of Protected Resources ((301) 427-8400) and the NMFS Northeast Stranding Coordinator ((866) 755-6622), within 24 hours of the discovery. Bay State Wind must provide photographs or video footage or other documentation of the 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.

8. On a case-by-case basis, NMFS may issue a second one-year IHA when 1) another year of identical or nearly identical activities is planned or 2) the activities would not be completed by the time the IHA expires and a second IHA would allow for completion of the activities, provided all of the following conditions are met:
- (a) A request for renewal is received no later than 60 days prior to expiration of the current IHA.
  - (b) The request for renewal must include the following:
    - (i) An explanation that the activities to be conducted beyond the initial dates either are identical to the previously analyzed activities or include changes so minor (e.g., reduction in pile size) that the changes do not affect the previous analyses, take estimates, or mitigation and monitoring requirements.
    - (ii) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.
  - (c) Upon review of the request for renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures remain the same and appropriate, and the original findings remain valid.



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

JUL 24 2018

Date

## Attachment 1

**Table 1. Numbers of Level B Incidental Take of Marine Mammals Authorized**

| Species                      |                                   | Level B<br>Takes<br>Authorized |
|------------------------------|-----------------------------------|--------------------------------|
| Humpback whale               | <i>Megaptera novaeangliae</i>     | 17                             |
| Fin whale                    | <i>Balaenoptera physalus</i>      | 31                             |
| Sperm whale                  | <i>Physeter macrocephalus</i>     | 5                              |
| Minke whale                  | <i>Balaenoptera acutorostrata</i> | 20                             |
| Bottlenose dolphin           | <i>Tursiops truncatus</i>         | 1,000                          |
| Risso's dolphin              | <i>Grampus griseus</i>            | 30                             |
| Atlantic spotted dolphin     | <i>Stenella frontalis</i>         | 50                             |
| Long-finned pilot whale      | <i>Globicephala melas</i>         | 3                              |
| Common dolphin               | <i>Delphinus delphis</i>          | 2,000                          |
| Atlantic white-sided dolphin | <i>Lagenorhynchus acutus</i>      | 500                            |
| Harbor porpoise              | <i>Phocoena phocoena</i>          | 871                            |
| Harbor seal                  | <i>Phoca vitulina</i>             | 1,636                          |
| Gray seal                    | <i>Halichoerus grypus</i>         | 2,371                          |