

## INCIDENTAL HARASSMENT AUTHORIZATION

South Fork Wind 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 construction of the South Fork Wind offshore wind project, when adhering to the following terms and conditions.

1. This Authorization is valid for one year from the date of effectiveness.
2. This Authorization is valid only for take incidental to South Fork Wind's specified construction activities in the Atlantic Ocean offshore from New York and Rhode Island and within the Wind Development Area of Lease Area OCS-A 0517.

### 3. General Conditions

- (a) A copy of this IHA must be in the possession of South Fork Wind, its designees, the lead protected species observer (PSO), and work crew personnel operating under the authority of this IHA.
- (b) The species authorized for taking are listed in Table 1. The taking, by Level A and Level B harassment only, is limited to the species and numbers listed in Table 1.
- (c) If South Fork Wind, LLC, fails to abide by the terms and conditions of this IHA, including by the prohibited taking of any species of marine mammal by serious injury or death, the taking of any species of marine mammal not listed in Table 1, or any taking exceeding the authorized amounts listed in Table 1, the IHA may be modified, suspended or revoked.

4. Mitigation Measures – The Holder of this Authorization is required to implement the following mitigation measures:

- (a) Seasonal Restriction: Impact pile driving must not occur from January 1 through April 30.
- (b) Impact Pile Driving Time Restrictions: Impact pile driving may commence only during daylight hours no earlier than one hour after (civil) sunrise. Impact pile driving may not be initiated any later than 1.5 hours before (civil) sunset. Pile driving may continue after dark only when the installation of the same pile began during daylight (1.5 hours before (civil) sunset), when clearance zones were fully

visible for at least 30 minutes (as described under condition 4(c)(ix)), and must proceed for human safety or installation feasibility reasons<sup>1</sup>.

- (c) Establishment of clearance zones for all activities:
- (i) South Fork Wind must deploy at least two PSOs on duty on the impact pile driving platform and at least two PSOs on duty on a dedicated PSO vessel at all times during impact pile driving to monitor for marine mammals. PSO requirements are described under condition 5(a).
  - (ii) Monitoring must take place from 60 minutes prior to initiation of impact pile driving through 30 minutes post-completion of impact pile driving activity.
  - (iii) South Fork Wind must deploy at least 2 PSOs on duty on the vibratory pile driving platform, or nearby construction vessel, at all times during vibratory pile driving to monitor for marine mammals. PSO requirements are described under condition 5(a).
  - (iv) Monitoring must take place from 30 minutes prior to initiation of vibratory pile driving through 30 minutes post-completion of vibratory pile driving.
  - (v) South Fork Wind must deploy a minimum of one PSO on duty during daytime high resolution geophysical (HRG) survey activities and two PSOs during nighttime HRG survey activities to monitor for marine mammals. PSO requirements are described under condition 5(a).
  - (vi) Monitoring must take place 30 minutes prior to initiation of HRG acoustic sources through 30 minutes post-termination of HRG acoustic sources.
  - (vii) For all impact pile driving, vibratory pile driving, and HRG survey activity, South Fork Wind must designate clearance and monitoring zones with radial distances as identified in Table 2.
  - (viii) Impact pile driving, vibratory pile driving, and HRG survey activity must only commence when all clearance zones are fully visible (i.e., are not obscured by darkness, rain, fog, etc.) for at least 30 minutes as determined by the lead PSO. If conditions (e.g., darkness, rain, fog, etc.) prevent the visual detection of marine mammals in the clearance zones, construction

---

<sup>1</sup> Installation feasibility refers to ensuring that the pile installation results in a usable foundation for the wind turbine generator (e.g., installed to the target penetration depth without refusal and with a horizontal foundation/tower interface flange).

activities must not be initiated until the full extent of all clearance zones are fully visible as determined by the lead PSO.

- (d) Clearance Measures: South Fork Wind must use PSOs to establish clearance zones around the impact pile driving, vibratory pile driving, and HRG equipment (Table 2) to ensure these zones are clear of marine mammals prior to the initiation of activities. Clearance requirements are as follows:
- (i) If a marine mammal is observed entering or within the relevant clearance zones (Table 2) prior to the initiation of impact pile driving, vibratory pile driving, or HRG survey equipment, all activity must be delayed.
  - (ii) Impact pile driving, vibratory pile driving, and HRG survey activity must be delayed upon observation of a North Atlantic right whale that is visually observed by PSOs at any distance from the pile or acoustic source.
  - (iii) Impact pile driving must be delayed upon a confirmed passive acoustic monitoring (PAM) detection of a North Atlantic right whale, if the detection is confirmed to have been located within the clearance zone (Table 2).
  - (iv) Impact pile driving, vibratory pile driving, and HRG survey activity must only commence after PSOs have confirmed all clearance zones (Table 2) are clear of marine mammals, as described in conditions 4(c)(ii)(iv)(vi).
  - (v) Any large whale sighted by a PSO within 1,000 m of the pile or HRG acoustic source that cannot be identified to species must be treated as if it were a North Atlantic right whale.
  - (vi) Pile driving and may commence and HRG acoustic sources may be activated when either the marine mammal(s) has voluntarily left the respective clearance zone and been visually confirmed beyond that clearance zone, or, when 30 minutes have elapsed without re-detection (for mysticetes, sperm whales, Risso's dolphins and pilot whales) or 15 minutes have elapsed without re-detection (in the case of all other marine mammals).
  - (viii) Requirements for real-time PAM during impact pile driving are as follows:

1. Real-time PAM must begin at least 60 minutes prior to pile driving.
2. The real-time PAM system must be designed and established such that detection capability extends to 5 km from the pile driving location, for all monopile installations.
3. The real-time PAM system must be configured to ensure that the PAM operator is able to review acoustic detections within approximately 15 minutes of the original detection in order to verify whether a right whale has been detected.
4. The PAM operator responsible for determining if the acoustic detection originated from a North Atlantic right whale must be trained in identification of mysticete vocalizations.
5. If the PAM operator has at least 75 percent confidence that a vocalization originated from a right whale located within 5 km of the pile driving location, the PAM operator must determine that a right whale has been detected and appropriate associated mitigation and monitoring measures must be implemented.
6. A record of the PAM operator's review of any acoustic detections must be reported to NMFS.

(e) Shutdown Measures for all activities:

- (i) If a marine mammal is observed entering or within the respective clearance zones (Table 2) after pile driving has commenced or HRG acoustic sources are activated, a shutdown of impact pile driving (when practicable as described under 4(e)(v)), vibratory pile driving, and HRG acoustic sources must be implemented.
- (ii) Pile driving must be halted (when practicable as described under 4(e)(v)) upon visual observation of a North Atlantic right whale observed by PSOs at any distance from the pile.
- (iii) Pile driving must be halted (when practicable as described under 4(e)(v)) upon a confirmed PAM detection of a North Atlantic right whale within the Level A harassment exclusion zone of the pile being driven.

- (iv) Following shutdown, pile driving may not commence and HRG acoustic sources may not be reactivated until either the animal has voluntarily left and been visually confirmed beyond the respective clearance zone or 15 minutes have elapsed without subsequent detection for delphinids and pinnipeds, or 30 minutes have elapsed without subsequent detection for all other marine mammals.
- (v) In cases where impact pile driving has commenced and a shutdown is called for due to a marine mammal entering or within an exclusion zone, the lead engineer on duty must evaluate the following to determine whether shutdown is practicable:
  - 1. Use site-specific soil data and real-time hammer log information to judge whether a stoppage would risk causing piling refusal at re-start of piling; and
  - 2. Check that the pile penetration is deep enough to secure pile stability in the interim situation, taking into account weather statistics for the relevant season and the current weather forecast.
  - 3. Determinations by the lead engineer on duty will be made for each pile as the installation progresses and not for the site as a whole.
- (vi) For impact pile driving, if shutdown is called for but South Fork Wind determines shutdown is not practicable due to an imminent risk of injury or loss of life to an individual, or risk of damage to a vessel that creates risk of injury or loss of life for individuals, reduced hammer energy must be implemented, when the lead engineer determines it is practicable.
- (vii) After a shutdown, impact pile driving must only be initiated once all clearance zones are confirmed by PSOs to be clear of marine mammals for the minimum species-specific and activity-specific time periods 4(c)(ii)(iv)(vi) or, if required to maintain installation practicability.
- (viii) If a delphinid(s) from the genera *Delphinus*, *Lagenorhynchus*, *Stenella*, or *Tursiops* is visually detected approaching the HRG vessel (e.g., to bow ride) or towed HRG survey equipment, shutdown is not required. If there is uncertainty regarding identification of a marine mammal species (i.e., whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), PSOs must use best professional judgment in making the decision to call for a shutdown.

- (ix) If an individual from a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized take number has been met, is observed entering or within the clearance zone, impact pile driving (when practicable as described under 4(e)(v)), vibratory pile driving, and HRG survey activities must shut down immediately. Activities must not resume until the animal has been confirmed to have left the clearance zone or the observation time period, as indicated in conditions 4(ii)(iv)(vi), has elapsed with no further sightings.
- (x) For in-water construction, heavy machinery activities other than pile driving, if a marine mammal comes within 10 meters of equipment, South Fork Wind must cease operations (when practicable as described under 4(e)(v)).
- (f) Soft Start for impact pile driving:
  - (i) South Fork Wind must implement soft start techniques for all impact pile driving, both at the beginning of a monopile installation and at any time following the cessation of impact pile driving of 30 minutes or longer. The soft start procedure must include a minimum of 20 minutes of 4-6 strikes/minute at 10-20 percent of the maximum hammer energy.
- (g) Ramp-up for HRG acoustic sources:
  - (i) When practicable, acoustic sources must be ramped up at the start or restart of survey activities. Ramp-up must begin with the power of the smallest acoustic source at its lowest practical power output. The power must then be increased and other acoustic sources added in a way such that the source level would increase gradually.
- (h) Noise Mitigation for impact pile driving:
  - (i) South Fork Wind must employ a noise mitigation device(s) during all impact pile driving.
  - (ii) The noise mitigation device(s) must perform such that measured ranges to the Level B harassment threshold is consistent with those modeled assuming 10 dB attenuation, determined via sound source verification (described under condition 5(e)).
  - (iii) If a bubble curtain is used, the following requirements apply:

1. The bubble curtain(s) must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column.
  2. The lowest bubble ring must be in contact with the seafloor for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100 percent seafloor contact.
  3. No parts of the ring or other objects may prevent full seafloor contact.
  4. Construction contractors must train personnel in the proper balancing of air flow to the bubblers. Construction contractors must submit an inspection/performance report for approval by South Fork Wind within 72 hours following the performance test. Corrections to the attenuation device to meet the performance standards must occur prior to impact driving.
- (i) Vessel Strike Avoidance Measures. Vessel operators and crews must maintain a vigilant watch for all marine mammals and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (distances stated below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (i.e., PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to distinguish marine mammals from other phenomena and broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammal. South Fork Wind must adhere to the following measures:
- (i) All vessels greater than or equal to 65 ft (19.8 m) in overall length must comply with the 10 knot speed restriction in any Seasonal Management Area (SMA) per the NOAA ship strike reduction rule (73 FR 60173; October 10, 2008).
  - (ii) Vessels of all sizes will operate port to port at 10 knots or less between November 1 and April 30, except for vessels transiting inside Narragansett Bay or Long Island Sound.

- (iii) A trained, dedicated visual observer and alternative visual detection system (e.g., thermal cameras) will be stationed on all transiting vessels that intend to operate at greater than 10 knots from November 1 through April 30. The primary role of the visual observer is to alert the vessel navigation crew to the presence of marine mammals and to report transit activities and marine mammal sightings to the designated South Fork Wind information system.
- (iv) Vessels of all sizes will operate at 10 knots or less in any North Atlantic right whale Dynamic Management Area (DMA).
- (v) Outside of DMAs, SMAs, and the November 1 through April 30 time period, localized detections of North Atlantic right whales, using passive acoustics, would trigger a slow-down to 10 knots or less in the area of detection (zone) for the following 12 hours (hrs). Each subsequent detection would trigger a 12-hr reset. A slow-down in that zone expires when there has been no further visual or acoustic detection in the past 12-hr within the triggered zone.
- (vi) For all vessels greater than or equal to 65 ft (19.8 m) in overall length, vessel speeds must be reduced to 10 knots or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel.
- (vii) All vessels must maintain a minimum separation distance of 500 m from North Atlantic right whales. If a whale is observed but cannot be confirmed as a species other than a right whale, the vessel operator must assume that it is a right whale and take appropriate action.
- (viii) All vessels must maintain a minimum separation distance of 100 m from sperm whales and all other baleen whales.
- (ix) All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an exception made for those that approach the vessel.
- (x) When marine mammals are sighted while a vessel is underway, the vessel must take action as necessary to avoid violating the relevant separation distance, e.g., attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area. If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not

engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

- (xi) These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.
- (xii) When not on active watch duty, members of the monitoring team must consult NMFS' North Atlantic right whale reporting systems for the presence of North Atlantic right whales in the project area.
- (xiii) Project-specific training must be conducted for all vessel crew prior to the start of in-water construction activities. Confirmation of the training and understanding of the requirements must be documented on a training course log sheet.

5. Monitoring and Reporting – The holder of this Authorization is required to implement the following monitoring and reporting requirements:

- (a) South Fork Wind must employ qualified, trained PSOs to conduct marine mammal monitoring during pile driving activity. PSO requirements are as follows:
  - (i) A minimum of two PSOs must be on active duty on the impact pile driving vessel from 60 minutes before, during, and for 30 minutes after all monopile installation activity.
  - (ii) A minimum of two PSOs must be on active duty on a dedicated PSO vessel from 60 minutes before, during, and for 30 minutes after all monopile installation activity. The dedicated PSO vessel must be located at the best vantage in order to observe and document marine mammal sightings in proximity to the clearance zones.
  - (iii) A minimum of two PSOs must be on active duty on the vibratory pile driving platform, or nearby construction vessel, from 30 minutes before, during, and 30 minutes after all vibratory pile driving.
  - (iv) A minimum of one PSO (daytime) and two PSOs (nighttime) must be on active duty on the HRG survey vessel from 30 minutes before, during, and 30 minutes after use of active acoustic sources.

- (v) PSOs must not exceed four consecutive watch hours on duty at any time, must have a minimum two hour break between watches, and must not exceed a combined watch schedule of more than 12 hours in a 24-hour period.
  - (vi) PSOs must observe and collect standard survey data and data on marine mammals in and around the project area as described under 5(b)(vii) and 5(b)(viii).
  - (vii) PSOs must be independent observers (i.e., not construction personnel).
  - (viii) At least one PSO on active duty on the impact pile driving platform and at least one PSO on active duty on the associated dedicated PSO vessel must have prior experience working as a PSO in offshore environments.
  - (ix) At least one PSO on active duty on the vibratory pile driving platform must have prior experience working as a PSO in offshore environments.
  - (x) The PSO on active duty on the HRG survey vessel must have prior experience working as a PSO in offshore environments.
  - (xi) Other PSOs may substitute education (i.e., degree in biological science or related field) or training for experience.
  - (xii) One PSO must be designated as lead observer or monitoring coordinator. The lead observer must demonstrate prior experience working as a PSO in offshore environments. .
  - (xiii) PSOs must be approved by NMFS. South Fork Wind must submit PSO CVs to NMFS for approval at least 60 days prior to the first day of pile driving activity.
- (b) South Fork Wind is required to adhere to visual monitoring protocols as follows:
- (i) South Fork Wind must conduct briefings between construction supervisors and crews and the PSO team prior to the start of all pile driving and HRG survey activities, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures. An informal guide must be included with the monitoring plan to aid in identifying species if they are observed in the vicinity of the project area.

- (ii) PSOs must be located at best vantage point(s) in order to observe the entire clearance zones.
- (iii) PSOs must record all incidents of marine mammal occurrence, regardless of distance from the construction activity.
- (iv) For impact and vibratory pile driving, PSOs must document any behavioral reactions in concert with distance from the pile being driven. For HRG surveys, PSOs must document any behavioral reactions in concert with distance from the active acoustic source.
- (v) During all observation periods during pile driving and HRG surveys, PSOs must use high-magnification (25X), as well as standard handheld (7X) binoculars, and the naked eye to search continuously for marine mammals. During periods of low visibility (e.g., darkness, rain, fog, etc.), PSOs must use alternative technology to monitor clearance zones (e.g., night vision devices, IR/Thermal camera).
- (vi) Monitoring distances must be measured with range finders or reticule binoculars. Distances to marine mammals observed must be based on the best estimate of the PSO, relative to known distances to objects in the vicinity of the PSO. Bearings to animals shall be determined using a compass.
- (vii) Data on all 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:
  - 1. PSO names and affiliations
  - 2. Dates of departures and returns to port, including port name
  - 3. Dates and times (Greenwich Mean Time) of survey effort and times corresponding to PSO marine mammal monitoring effort
  - 4. Vessels location (latitude/longitude) when survey effort begins and ends; vessel location at beginning and end of visual PSO shifts
  - 5. 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, swell

height, weather conditions, percent cloud cover, sun glare strength, and overall visibility distance relative to the horizon

6. Factors that may be contributing to impaired observations as conditions change (e.g., vessel traffic, equipment malfunction, rain, fog)
  7. Construction activity occurring during daily observation period (i.e., vibratory or impact pile driving, HRG survey), including any notes of significance (e.g., pre-clearance survey, ramp-up, soft start, shutdown, end of operations) and, if pile driving is occurring, how many and what type of piles were driven, by what method (i.e., impact and/or vibratory), and the duration of pile driving for each pile
- (viii) For each marine mammal sighting, the following information must be recorded:
1. Identification of the animal(s) (e.g., genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;
  2. Pace of the animal(s);
  3. Estimated number of animals (high/low/best);
  4. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
  5. 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);
  6. Detailed behavior observations (e.g., number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling, direction of travel; as explicit and detailed as possible, including an assessment of behavioral responses to the activity (e.g., changes in behavioral state such as ceases feeding, changing direction, or breaching));

7. Animal's closest point of approach and/or closest distance from the center point of the pile, bearing, and estimated time spent within the harassment zones;
  8. Construction activity at time of sighting (e.g., vibratory installation/removal, impact pile driving, HRG survey) and specific phase of activity (e.g., ramp-up for HRG survey, HRG acoustic source on/off, soft start for pile driving, active pile driving, etc.);
  9. Description of any mitigation-related actions implemented in response to the sighting (e.g., delay, shutdown, etc.) and time and location of the action;
  10. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
  11. PSO who sighted the animal;
  12. Time of sighting;
  13. Location of sighting;
  14. Water depth, wind speed and direction, Beaufort sea state, swell height, weather conditions, percent cloud cover, sun glare strength, and overall visibility distance relative to the horizon; and
  15. Marine mammal occurrence within relevant Level A or Level B harassment zones must be documented.
- (c) South Fork Wind must adhere to Passive Acoustic Monitoring protocols for impact pile driving as follows:
- (i) Acoustic monitoring must be conducted during all pile driving.
  - (ii) Acoustic monitoring must begin at least 60 minutes prior to initiation of pile driving, continue throughout monopile installation, and extend at least 30 minutes following completion of monopile installation.
  - (iii) Acoustic monitoring must be conducted by at least one dedicated acoustic PSO. The acoustic PSO(s) must demonstrate that they have completed specialized training for operating PAM systems.

- (iv) Acoustic PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches.
  - (v) The acoustic PSO(s) must immediately communicate all detections of marine mammals to visual PSOs, including any determination regarding species identification, distance, and bearing and the degree of confidence in the determination.
  - (vi) Confirmed PAM detections of North Atlantic right whales within the Level A harassment exclusion zone of the pile being driven requires further mitigation action as described under 4(d)(iii).
  - (vii) The PAM system must not be located on the impact pile driving vessel.
  - (viii) A Passive Acoustic Monitoring Plan must be submitted to NMFS and BOEM for review and approval at least 90 days prior to the planned start of pile driving. The Plan must describe all proposed PAM equipment, procedures, and protocols.
- (d) Sound Field Verification for impact pile driving
1. Sound field measurements must be conducted during pile driving of the first monopile installed over the course of the project, with noise attenuation activated.
  2. A Sound Field Verification Plan must be submitted to NMFS for review and approval at least 90 days prior to planned start of pile driving. This plan must describe how South Fork Wind will ensure that the location selected is representative of the rest of the piles of that type to be installed and, in the case that it is not, how additional sites will be selected for sound field verification, or how the results from the first pile can be used to predict actual installation noise propagation for subsequent piles. The plan must describe how the effectiveness of the sound attenuation methodology will be evaluated based on the results.
  3. Sound field measurements must be conducted at distances approximately 750 m, 1,500 m, 3,000 m, and 6,000 m from the pile being driven.
  4. South Fork Wind must provide the initial results of the field measurements to NMFS as soon as they are available.

- (e) Level B Harassment Zone Distance Verification for impact pile driving
1. South Fork Wind must empirically determine the distances to the isopleths corresponding to the Level B harassment isopleth, either by extrapolating from in situ measurements conducted at distances approximately 750 m, 1,500 m, 3,000 m, and 6,000 m from the pile being driven, or by direct measurements to locate the distance where the received levels reach the relevant thresholds or below. Initial results of acoustic field measurements to NMFS soon as they are available. For extent of Level B harassment zone verification, South Fork Wind must report the measured or extrapolated distances where the received levels SPLrms decay to 160-dB, as well as integration time for such SPLrms.
  2. If initial acoustic field measurements indicate distances to the isopleths corresponding to Level B harassment thresholds are greater than the distances predicted by modeling (as presented in the IHA application), South Fork Wind must implement additional sound attenuation measures prior to conducting additional pile driving. Initial additional measures may include improving the efficacy of the implemented noise attenuation technology and/or modifying the piling schedule to reduce the sound source. If modeled zones cannot be achieved by these corrective actions, South Fork Wind would install a second noise attenuation system to achieve the modelled ranges. Each sequential modification would be evaluated empirically by acoustic field measurements.
  3. If acoustic field measurements indicate distances to the isopleths corresponding to the Level B harassment threshold are less than the distances predicted by modeling (as presented in the IHA application), South Fork Wind may request a modification of the clearance and exclusion zones for impact pile driving. If modifications are approved by NMFS, each sequential modification would be evaluated empirically by acoustic field measurements.
- (f) Reporting Measures: The holder of this IHA is required to submit a draft report on all monitoring conducted under the IHA within ninety calendar days of the completion of marine mammal monitoring or sixty days prior to the issuance of any subsequent IHA for this project, whichever comes first. A final report must be prepared and submitted within thirty days following resolution of comments on the draft report from NMFS. This report must contain the following:
- (i) Information required in vii(1-7).

- (ii) Information required in viii(1-15).
- (iii) Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).
- (iv) Detailed information about any mitigation actions (e.g., shutdowns or delays) implemented in response to visual or acoustic detections of marine mammals, a description of specific actions that ensued, and resulting behavior of the animal, if any.
- (v) Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
- (vi) For all acoustic detections of marine mammals, the following must be reported:
  - (a) Identification, location and depth of recording unit
  - (b) Time zone for sound files and recorded date/times in data and metadata
  - (c) Duration of recording (start/end dates and times)
  - (d) Type of recording (continuous/duty cycled)
  - (e) Species identification (if possible)
  - (f) Call type (if known)
  - (g) Temporal aspects of vocalization (date, time, duration, etc.)
  - (h) Comparison with any visual sightings
  - (i) Name of observer/data collector/analyst
  - (j) A record of the PAM operator's review of any acoustic detections.
  - (k) Location (if geometry/density of bottom-mounted or sonobuoy array allows) or directionality (directional hydrophones and/or lateral information from towed array) of detected calls including references to location of coincident human sound-producing activities.
- (vii) Results of sound field verification of pile driving must be reported, including the following:
  - (A) Peak sound pressure level (SPL<sub>pk</sub>), root-mean-square sound pressure level that contains 90% of the acoustic energy (SPL<sub>rms</sub>), single strike sound exposure level (SEL<sub>ss</sub>), integration time for SPL<sub>rms</sub>, SEL<sub>ss</sub> spectrum, and 24-hour cumulative SEL extrapolated from measurements. All these levels must be reported in the form of (1) median, (2) mean, (3) maximum, and (4) minimum.

- (B) The sound levels reported must be in median and linear average (i.e., taking averages of sound intensity before converting to dB).
- (C) A description of depth and sediment type at the recording location.
- (D) Number of strikes per pile measured, one-third octave band spectrum and/or power spectral density.
- (E) Hydrophone equipment and methods: recording device, sampling rate, distance from the pile where recordings were made; depth of recording device(s).
- (F) Description of the PAM hardware and software, including software version used, calibration data, bandwidth capability of hydrophone(s), any filters used in hardware or software, any limitations with the equipment, and other information.
- (G) Local environmental conditions, such as references to visibility metrics, transmission loss data collected on-site (or the sound velocity profile), baseline pre- and post-activity ambient noise levels (broad-band and/or within frequencies of concern).
- (H) Spatial configuration of the noise attenuation device(s) relative to the pile.
- (I) The extents of the Level B harassment zones.

(g) Reporting visual or PAM detections of North Atlantic right whales

- (i) If a North Atlantic right whale is observed at any time by PSOs or personnel on any project vessels, during any project-related activity or during vessel transit, South Fork Wind must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System: (866) 755-6622. North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16.
- (ii) If a North Atlantic right whale detected via PAM, a report of the detection must be submitted to the NMFS North Atlantic right whale Passive Acoustic Reporting System at: *sofie.vanparijs@noaa.gov*.

(h) Reporting injured or dead marine mammals:

- (i) In the event that personnel involved in the activities covered by the authorization discover an injured or dead marine mammal, South Fork Wind must report the incident to the NOAA Fisheries Office of Protected Resources (301-427-8401), and to the NOAA Fisheries New England/Mid-Atlantic Regional Stranding Coordinator (978-282-8478) as soon as practicable. The report must include the following information:
- (A) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
  - (B) Species identification (if known) or description of the animal(s) involved;
  - (C) Condition of the animal(s) (including carcass condition if the animal is dead);
  - (D) Observed behaviors of the animal(s), if alive;
  - (E) If available, photographs or video footage of the animal(s); and
  - (F) General circumstances under which the animal was discovered.
- (i) In the event of a vessel strike of a marine mammal by any vessel involved in the activities covered by the authorization, South Fork Wind must report the incident to the NOAA Fisheries Office of Protected Resources (301-427-8401) and to the NOAA Fisheries New England/Mid-Atlantic Regional Stranding Coordinator (978-282-8478) as soon as practicable. The report must include the following information:
- (A) Time, date, and location (latitude/longitude) of the incident;
  - (B) Species identification (if known) or description of the animal(s) involved;
  - (C) Vessel's speed during and leading up to the incident;
  - (D) Vessel's course/heading and what operations were being conducted (if applicable);
  - (E) Status of all sound sources in use;
  - (F) Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;

- (G) Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
- (H) Estimated size and length of animal that was struck;
- (I) Description of the behavior of the marine mammal immediately preceding and following the strike;
- (J) If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- (K) Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
- (L) To the extent practicable, 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 South Fork Wind to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. South Fork Wind may not resume their activities until notified by NMFS.

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

7. Renewals — On a case-by-case basis, NMFS may issue a one-time one-year IHA renewal with an expedited public comment period (15 days) when 1) another year of identical or nearly identical activities as described in the Specified Activities section 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 beyond that described in the Dates and Duration section, 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

Date

**Table 1. Proposed Numbers of Take by Level A harassment and Level B harassment.**

Species	Impact pile driving		Vibratory pile driving	HRG surveys	Total takes proposed for authorization
	Takes by Level A harassment	Takes by Level B harassment	Takes by Level B harassment	Takes by Level B harassment	
Blue whale	0	1	0	0	1
Fin whale	1	6	2	3	12
Sei Whale	1	1	0	1	3
Minke whale	1	10	3	19	33
Humpback whale	4	8	1	1	14
North Atlantic right whale	0	4	6	3	13
Sperm whale	0	3	0	3	6
Long-finned pilot whale	0	12	0	4	16
Atlantic spotted dolphin	0	2	0	13	15
Atlantic white-sided dolphin	0	107	1	26	133
Common dolphin	0	197	4	1,175	1,372
Risso's dolphin	0	30	0	30	60
Bottlenose dolphin	0	43	2,007	28	2,078
Harbor porpoise	0	78	11	43	132
Gray seal	0	60	1,305	14	1,379
Harbor seal	0	54	1,305	14	1,373

**Table 2. Proposed Clearance Zones**

<b>Species</b>	<b>Clearance Zone (m)</b>
Impact pile driving	
North Atlantic right whale	5,000
All other mysticete whales (including blue, fin, sei, minke, and humpback whale) and sperm whale	2,200
Harbor porpoise	450
Seals	150
All dolphins and pilot whale	100
Vibratory pile driving	
All mysticete whales and sperm whale	1,500
Seals	150
Harbor porpoise	100
All dolphins and pilot whale	50
HRG Surveys	
North Atlantic right whale	500
All other marine mammals	100