



INCIDENTAL HARASSMENT AUTHORIZATION

The BNSF Railway (BNSF) and their designees are hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to incidentally harass marine mammals, under the following conditions:

1. This incidental harassment authorization (IHA) is valid July 16, 2024 to July 15, 2025.
2. This IHA authorizes take incidental to the Railway Bridge Heavy Maintenance Project in King County Washington, as specified in the BNSF's January 2022 IHA application. Hereafter (unless otherwise specified) the term "pile driving" is used to refer to both pile installation and pile removal.
3. General Conditions
 - (a) A copy of this IHA must be in the possession of the Holder of the Authorization (Holder), supervisory construction personnel, lead protected species observers (PSOs), and any other relevant designees of the Holder operating under the authority of this IHA at all times that activities subject to this IHA are being conducted.
 - (b) The species and/or stocks authorized for taking are listed in Table 1. Authorized take, by Level A and Level B harassment only, is limited to the species and numbers listed in Table 1.
 - (c) The taking by serious injury or death of any of the species listed in Table 1 or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA. Any taking exceeding the authorized amounts listed in Table 1 is prohibited and may result in the modification, suspension, or revocation of this IHA.
 - (d) The Holder must ensure that construction supervisors and crews, the monitoring team, and relevant BNSF staff are trained prior to the start of activities subject to this IHA, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work.



4. Mitigation Requirements

- (a) The Holder must employ PSOs and establish monitoring locations as described in section 5 of this IHA and the Marine Mammal Monitoring Plan (Monitoring Plan; attached). The Holder must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions.
- (b) Monitoring must take place from 30 minutes prior to initiation of pile driving activity (i.e., pre-start clearance monitoring) through 30 minutes post-completion of pile driving activity.
- (c) If a marine mammal is observed entering or within the shutdown zones indicated in Table 2, pile driving activity must be delayed or halted. Pile driving must be commenced or resumed as described in condition 4(e) of this IHA.
- (d) BNSF will shut down pile driving if a humpback or southern resident killer whale is observed approaching or within the specified Level B harassment zone
- (e) Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in Table 2 are clear of marine mammals. Pile driving may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals.
- (f) If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone indicated in Table 2 or 15 minutes have passed without re-detection of the animal.
- (g) The Holder must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

- (h) The Holder must use a bubble curtain during impact pile driving. The bubble curtain must be operated as necessary to achieve optimal performance. At a minimum, the Holder must adhere to the following performance standards:
 - (i) The bubble curtain must distribute air bubbles around 100 percent of the piling circumference for the full depth of the water column.
 - (ii) The lowest bubble ring must be in contact with the substrate for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent substrate contact. No parts of the ring or other objects shall prevent full substrate contact.
 - (iii) Air flow to the bubblers must be balanced around the circumference of the pile.
- (i) Pile driving activity must be halted (as described in condition 4(c) of this IHA) upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within the harassment zone (as shown in Table 2).
- (j) If the entirety of shutdown zones are not visible by PSOs (*e.g.*, fog, heavy rain), pile driving must be delayed until the PSO is confident marine mammals within the shutdown zone could be detected.
- (k) The Holder, construction supervisors and crews, PSOs, and relevant BNSF staff must avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 meters of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions, as necessary to avoid direct physical interaction.

5. Monitoring Requirements

- (a) Marine mammal monitoring must be conducted in accordance with the conditions in this section and the Monitoring Plan (attached) and this IHA.
- (b) Monitoring must be conducted by qualified, NMFS-approved PSOs, in accordance with the following conditions:

- (i) PSOs must be independent (i.e., not construction personnel) and have no other assigned tasks during monitoring periods.
 - (ii) At least one PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.
 - (iii) Other PSOs may substitute other relevant experience, education (degree in biological science or related field), or training for prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.
 - (iv) PSOs must be approved by NMFS prior to beginning any activity subject to this IHA.
- (c) The Holder must establish the following monitoring locations as described in the Monitoring Plan (attached): 1) At Construction site 2) At Bay Terrace Road 3) at Northwest 60th Street Viewpoint. For all pile driving activities, a minimum of one PSO must be assigned to each active pile driving location to monitor the shutdown zones.
- (d) A n additional PSO must be stationed on a boat positioned in Puget Sound whenever a wire saw is being utilized to monitor the extended Level B harassment zone associated with this equipment.
- (e) PSOs must record all observations of marine mammals, regardless of distance from the pile being driven, as well as the additional data indicated in section 6 of this IHA.
- (f) Acoustic monitoring must be conducted in accordance with the Acoustic Monitoring Plan (attached) and include the following:
- (i) A minimum of 15, 36-inch impact driven piles for the Project in the following subsets:
 - A. A minimum of 5 piles towards the beginning of pile driving activity;
 - B. A minimum of 5 piles towards the middle of pile driving activity;
 - C. A minimum of 5 piles towards the latter pile driving activity.

- (ii) A minimum of 4, 48-inch drilled shafts oscillated for the Project in the following subsets:
 - A. A minimum of 2 drilled shafts towards the beginning of the activity;
 - B. A minimum of 2 drilled shafts towards the end of the activity.
- (iii) A minimum of 2 48-inch drilled shafts will be monitored when cut with a wire saw.
- (g) The harassment and/or shutdown zones (Table 2), and PSO requirement in 5(d) above may be modified with NMFS' approval following NMFS' acceptance of an acoustic monitoring report.

6. Reporting

- (a) The Holder must submit its draft report(s) on all monitoring conducted under this IHA within 90 calendar days of the completion of monitoring or 60 calendar days prior to the requested issuance of any subsequent IHA for construction activity at the same location, whichever comes first. A final report must be prepared and submitted within 30 calendar days following receipt of any NMFS comments on the draft report. If no comments are received from NMFS within 30 calendar days of receipt of the draft report, the report shall be considered final.
- (b) All draft and final monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *ITP.Pauline@noaa.gov*.
- (c) The marine mammal report must contain the informational elements described in the Monitoring Plan and, at minimum, must include:
 - (i) Dates and times (begin and end) of all marine mammal monitoring;
 - (ii) Construction activities occurring during each daily observation period, including:
 - A. The number and type of piles that were driven and the method (e.g., impact, vibratory);
 - B. Total duration of driving time for each pile (vibratory driving) and number of strikes for each pile (impact driving); and

- (iii) PSO locations during marine mammal monitoring;
- (iv) Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;
- (v) Upon observation of a marine mammal, the following information:
 - A. Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;
 - B. Time of sighting;
 - C. Identification of the animal(s) (e.g., genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
 - D. Distance and location of each observed marine mammal relative to the pile being driven for each sighting;
 - E. Estimated number of animals (min/max/best estimate);
 - F. Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);
 - G. Animal's closest point of approach and estimated time spent within the harassment zone;
 - H. Description of any marine mammal behavioral observations (e.g., observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- (vi) Number of marine mammals detected within the harassment zones, by species; and

- (vii) Detailed information about implementation of any mitigation (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.
- (d) The Holder must submit all PSO datasheets and/or raw sighting data with the draft report, as specified in condition 6(b) of this IHA.
- (e) The acoustic monitoring report must contain the informational elements described in the Acoustic Monitoring Plan and, at minimum, must include:
 - (i) Hydrophone equipment and methods: recording device, sampling rate, distance (m) from the pile where recordings were made; depth of water and recording device(s);
 - (ii) Type and size of pile being driven or cut, substrate type, method of driving or cutting during recordings (e.g., hammer model and energy), and total pile driving or cutting duration;
 - (iii) Whether a sound attenuation device is used and, if so, a detailed description of the device used and the duration of its use per pile;
 - (iv) For impact pile driving (per pile): Number of strikes; depth of substrate to penetrate; pulse duration and mean, median, and maximum sound levels (dB re: 1 μ Pa): root mean square sound pressure level (SPL_{rms}); cumulative sound exposure level (SEL_{cum}), peak sound pressure level (SPL_{peak}), and single-strike sound exposure level (SEL_{s-s});
 - (v) For cutting (per pile): Duration of cutting per pile; mean, median, and maximum sound levels (dB re: 1 μ Pa): root mean square sound pressure level (SPL_{rms}), cumulative sound exposure level (SEL_{cum}) (and timeframe over which the sound is averaged); and
 - (vi) One-third octave band spectrum and power spectral density plot.
- (f) Reporting injured or dead marine mammals:

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Holder must report the incident to the Office of Protected Resources (OPR), NMFS (*PR.ITP.MonitoringReports@noaa.gov* and *Robertpauline@noaa.gov*) and to the West Coast Regional stranding network (866-767-6114) as soon as feasible. If the death or injury was clearly caused by

the specified activity, the Holder must immediately cease the activities until NMFS OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of this IHA. The Holder must not resume their activities until notified by NMFS.

The report must include the following information:

- (i) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- (ii) Species identification (if known) or description of the animal(s) involved;
- (iii) Condition of the animal(s) (including carcass condition if the animal is dead);
- (iv) Observed behaviors of the animal(s), if alive;
- (v) If available, photographs or video footage of the animal(s); and
- (vi) General circumstances under which the animal was discovered.

7. This Authorization may be modified, suspended or revoked if the Holder fails to abide by the conditions prescribed herein (including, but not limited to, failure to comply with monitoring or reporting requirements), or if NMFS determines: (1) the authorized taking is likely to have or is having more than a negligible impact on the species or stocks of affected marine mammals, or (2) the prescribed measures are likely not or are not effecting the least practicable adverse impact on the affected species or stocks and their habitat.

8. Renewals

On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical, or nearly identical, activities (or a subset of those activities) are planned or (2) the specified activities will not be completed by the time the IHA expires and a Renewal 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 the needed Renewal IHA effective date (note a Renewal IHA expiration date cannot extend beyond one year from expiration of this IHA).

- (b) The request for renewal must include the following:
- (i) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed for this IHA, are a subset of the activities, or include changes so minor (e.g., reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).
 - (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 will remain the same and appropriate, and the findings made in support of this IHA remain valid.

DAMON
RANDALL.KIMBERLY.BE
TH.1365821093

Digitally signed by DAMON
RANDALL.KIMBERLY.BETH.13658
21093
Date: 2023.09.28 13:18:38 -04'00'

Kimberly Damon-Randall
Director, Office of Protected Resources
National Marine Fisheries Service

Table 1. Authorized Incidental Take.

Common name	Scientific name	Stock	Level A harassment	Level B harassment
Minke whale	<i>Balaenoptera acutorostrata</i>	California/Oregon/Washington	--	1
Common bottlenose dolphin	<i>Tursiops truncatus</i>	California/Oregon/Washington offshore	--	3
Long-Beaked common dolphin	<i>Delphinus capensis</i>	California	--	20
Harbor porpoise	<i>Phocoena phocoena</i>	Washington Inland Waters	--	8
California Sea Lion	<i>Zalophus californianus</i>	United States	--	20
Steller sea lion	<i>Eumetopias jubatus monteriensis</i>	Eastern U.S.	--	1
Harbor seal	<i>Phoca vitulina</i>	Washington Northern Inland Waters	--	57

Table 2. Shutdown and Harassment Zones*

Pile Type, Size, and Pile Driving Method	LF	MF	HF	Phocid	Otariid	Level B Harassment zone (m)
Scenario 1. Single 36" Pipe - 185 dBrms Source Level	1,000	40	1,200	10	10	500
Scenario 2. 2 Concurrent 36" Pipe - 185 dBrms Source Level	1,600	60	1,900	10	10	500
14" H-Pile - 150 dBrms Source Level (12" steel H-pile proxy)	10	10	10	10	10	1,000
12" Timber Vibratory 152 dBrms	10	10	10	10	10	1,400
48" Drilled Shaft Oscillatory Installation 143.8 dBrms (12-foot proxy)	10	10	10	10	10	400
48" Concrete-lined Steel Shaft Diamond Wire Saw Removal 156.1 dBrms (66-inch proxy used)	10	10	10	10	10	5,900
12" Timber Pile Clipper 154 dBrms	10	10	10	10	10	1,900

*Shutdown zone for southern right killer whales is 500 m.