

Piping Plover and Red Knot

- 1) All sand placement activities will be completed between 16 November and 30 April; thereby avoiding the majority of the piping plover breeding season, a portion of the piping plover migration period, and the peak red knot migration period in NC.
- 2) As a means of minimizing the extent and/or duration of adverse effects on habitats and benthic prey resources, all material placed on the beach and in associated dune systems will consist of beach compatible sediment. Beach compatible material will consist of sediments that are similar in composition, grain size distribution, and color to the native sediments of the recipient beaches.
- 3) Construction staging areas and pipeline routes will be located to avoid high-value inlet complex habitats for piping plovers and red knots to the maximum extent practicable.
- 4) Temporary storage areas for construction equipment and pipelines will be located off the beach to the maximum extent practicable.

Sea Turtles

- 1) All sand placement activities will be completed between 16 November and 30 April; thereby avoiding the sea turtle nesting and hatching season in NC.
- 2) All material placed on the beach and in associated dune systems will consist of beach compatible sediment that is suitable for sea turtle nesting. Beach compatible material will consist of sediments that are similar in composition, grain size distribution, and color to the native sediments of the recipient beaches.
- 3) Immediately after construction and to the maximum extent practicable prior to 1 May, surveys for escarpments will be conducted within the limits of construction areas. Identified escarpments that may interfere with sea turtle nesting (>18 inches in height and \geq 100 ft in length) will be leveled to the natural beach profile. If it is determined that escarpment leveling is required during the nesting season, leveling activities would be coordinated with the USFWS or NCWRC.
- 4) Immediately after construction and to the maximum extent practicable prior to 1 May, the limits of construction areas will be evaluated for compaction in coordination with the USFWS and NCWRC. If it is determined that tilling is required for sea turtle nesting habitat suitability, the construction areas will be tilled to a depth of 36 inches. All tilling activity shall be completed prior to 1 May to the maximum extent practicable. In the case of projects that run until the 30 April nesting window cutoff, any tilling activities required after 1 May would be coordinated with the USFWS or NCWRC.
- 5) Post-construction monitoring of sea turtle nesting activities will be conducted in sand placement areas to assess effects on nesting. Monitoring will include daily surveys from 1 May until 15 September. Nesting data will be included in annual monitoring reports to be provided to the NCWRC.

August 28, 2017
NC SPBO
Executive Summary

Seabeach Amaranth

- 1) All sand placement activities will be completed between 16 November and 30 April; thereby avoiding the majority of the seabeach amaranth growing season in NC.

REASONABLE AND PRUDENT MEASURES for:

B. Projects that are navigation maintenance dredging with beach placement shall include the following measures:

Historically, sand placement events associated with navigation maintenance dredging projects have no local sponsor, are smaller-scaled, conducted at closer time intervals, and the sand often does not remain on the beach for an extended period of time.

Post-construction requirements are listed in Reasonable and Prudent Measures B.11, B.12, B.13, B.15, and B.16. These post-construction requirements may be subject to congressional authorization and the allocation of funds. If the Corps or Permittee cannot fulfill these Terms and Conditions, the Corps must reinitiate consultation.

- B.1. Conservation Measures included in the Corps' PBA that address protection of piping plovers, red knots, nesting sea turtles, and seabeach amaranth shall be implemented in the Corps' federally authorized project or regulated activity.
- B.2. The Corps will notify the Service of the commencement of projects that utilize this SPBO for the purposes of tracking incidental take of all species.
- B.3. For the life of the project, all sand placement activities above MHW must be conducted within the winter work window (November 16 to April 30).
- B.4. Prior to sand placement, all derelict material, large amounts of rock, or other debris must be removed from the beach to the maximum extent possible.

- B.5. During construction, trash and food items shall be disposed of properly either in predator-proof receptacles, or in receptacles that are emptied each night to minimize the potential for attracting predators of piping plovers, red knots, and sea turtles.
- B.6. Pipeline placement must be coordinated with NCDCM, the Corps, the Service, and the NCWRC.
- B.7. Access points for construction vehicles should be as close to the project site as possible. Construction vehicle travel down the beach should be limited to the maximum extent possible.
- B.8. Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence shall be used for sand placement.
- B.9. A meeting between representatives of the Corps, Service, NCWRC, and NCDCM shall be held prior to the commencement of work on this project.
- B.10. During dredging operations, material placed on the beach shall be inspected daily to ensure compatibility. If the inspection process finds that non-beach compatible material, including large amounts of shell or rock, is or has been placed on the beach, all work shall stop immediately and the NCDCM and the Corps will be notified by the permittee and/or its contractors to determine the appropriate plan of action.
- B.11. For navigation projects with placement of at least 200,000 cubic yards of sand on the beach, sea turtle nesting surveys must be conducted within the project area between May 1 and November 15 of each year, for at least two consecutive nesting seasons after completion, if the sand remains on the beach. Acquisition of readily available sea turtle nesting data from qualified sources (volunteer organization, other agencies, etc.) is acceptable.
- B.12. Sand compaction shall be monitored and tilling shall be conducted if needed to reduce the likelihood of impacting sea turtle nesting and hatching activities.
- B.13. Escarpment formation shall be monitored and leveling shall be conducted if needed to reduce the likelihood of impacting nesting and hatchling sea turtles.
- B.14. Construction equipment and materials shall be stored in a manner that will minimize impacts to piping plovers, red knots, and nesting shorebirds.
- B.15. A report describing the actions taken shall be submitted to the Service work for each year when the activity has occurred.

B.16. The Corps Civil Works Program shall continue its annual seabeach amaranth monitoring program.

TERMS AND CONDITIONS for:

B. Projects that are navigation maintenance dredging with beach placement, or Corps civil works project shall include the following measures:

Historically, sand placement events associated with navigation maintenance dredging projects have no local sponsor, are smaller-scaled, conducted at closer time intervals, and the sand often does not remain on the beach for an extended period of time.

All conservation measures described in the Corps' Programmatic Biological Assessment are hereby incorporated by reference as Terms and Conditions within this document pursuant to 50 CFR §402.14(I) with the addition of the following Terms and Conditions. In order to be exempt from the prohibitions of section 9 of the Act, the Corps shall comply with the following Terms and Conditions, which implement the Reasonable and Prudent Measures, described above and outline reporting/monitoring requirements. These terms and conditions are non-discretionary.

Post-construction requirements are listed in Terms and Conditions B.11, B.12, B.13, B.15, B.16, B.17, B.18, and B.19. These post-construction requirements may be subject to congressional authorization and the allocation of funds. If the Corps or Permittee cannot fulfill these Terms and Conditions, the Corps must reinitiate consultation.

- B.1. Conservation Measures included in the Corps' PBA that address protection of nesting sea turtles, piping plover, red knot, and seabeach amaranth listed on pages 10-11 of the SPBO shall be implemented in the Corps federally authorized project or regulated activity.
- B.2. The Corps or the Permittee must provide the following information to the Service at least 10 business days prior to the commencement of work:
 - a) Project location (include latitude and longitude coordinates, as well as mile markers, cross streets, or street addresses if available);
 - b) Project description (including linear feet of beach, actual fill template, access points, and borrow areas);
 - c) Anticipated date of commencement and anticipated duration of construction
- B.3. For the life of the permit/project, all sand placement activities above MHW must be conducted within the winter work window (November 16 to April 30), unless allowed after additional consultation with the Service.

- B.4. Prior to sand placement, all derelict material, large amounts of rock, or other debris must be removed from the beach to the maximum extent possible. If debris removal activities take place during shorebird breeding season (April 1– August 31), the work shall be conducted during daylight hours only.
- B.5. During construction, trash and food items shall be disposed of properly either in predator-proof receptacles, or in receptacles that are emptied each night to minimize the potential for attracting predators of piping plovers, red knots, and sea turtles.
- B.6. Pipeline placement must be coordinated with NCDCM, the Corps, the Service, and the NCWRC.
- B.7. Access points for construction vehicles should be as close to the project site as possible. Construction vehicle travel down the beach should be limited to the maximum extent possible.
- B.8. Only beach compatible fill shall be placed on the beach or in any associated dune system. Beach compatible fill must be sand that is similar to a native beach in the vicinity of the site that has not been affected by prior sand placement activity. Beach compatible fill must be sand comprised solely of natural sediment and shell material, containing no construction debris, toxic material, large amounts of rock, or other foreign matter. The beach compatible fill must be similar in both color and grain size distribution (sand grain frequency, mean and median grain size and sorting coefficient) to the native material in the Action Area. Beach compatible fill is material that maintains the general character and functionality of the material occurring on the beach and in the adjacent dune and coastal system. In general, fill material that meets the requirements of the most recent version of the North Carolina Technical Standards for Beach Fill (15A NCAC 07H .0312) is considered compatible.
- B.9. The Service must be invited to any pre-construction meetings held prior to the commencement of work. Advance notice (of at least 5 business days) must be provided prior to conducting this meeting. The meeting will provide an opportunity for explanation and/or clarification of the Conservation Measures and Terms and Conditions, and will include the following:
 - a) Staging locations, storing equipment including fuel stations;
 - b) Coordination with the surveyors on required species surveys;
 - c) Pipeline placement (between 5 to 10 feet from dune);
 - d) Minimizing driving;
 - e) Follow up coordination during construction and post construction;
 - f) Direction of the project including progression of sand placement along the beach;
 - g) Plans for compaction monitoring;

- h) Plans for escarpment surveys; and
- i) Names and qualifications of personnel involved in any required surveys.

B.10. During dredging operations, material placed on the beach shall be inspected daily to ensure compatibility. If the inspection process finds that non-beach compatible material, including large amounts of shell or rock exceeding the state sediment criteria (15A NCAC 07H .0312), is or has been placed on the beach, all work shall stop immediately, and the NCDCM and the Corps will be notified by the permittee and/or its contractors to determine the appropriate plan of action.

B.11. For navigation projects with placement of at least 200,000 cubic yards of sand on the beach, sea turtle nesting surveys must be conducted within the project area between May 1 and November 15 of each year, for at least two consecutive nesting seasons after completion of sand placement (2 years post-construction monitoring). Acquisition of readily available sea turtle nesting data from qualified sources (volunteer organizations, other agencies, etc.) is acceptable. Data collected for each nest should include, at a minimum, the information in the table, below. This information will be provided to the Raleigh Field Office in the annual report, and will be used to periodically assess the cumulative effects of these projects on sea turtle nesting and hatchling production and monitor suitability of post construction beaches for nesting. Please see REPORTING REQUIREMENTS, below.

Parameter	Measurement	Variable
Number of False Crawls	Visual Assessment of all false crawls	Number/location of false crawls in nourished areas; any interaction of turtles with obstructions, such as sand bags or scarps, should be noted.
False Crawl Type	Categorization of the stage at which nesting was abandoned	Number in each of the following categories: a) Emergence - no digging; b) Preliminary body pit; c) Abandoned egg chamber.
Nests	Number	The number of sea turtle nests in nourished areas should be noted. If possible, the location of all sea turtle nests should be marked on a project map, and approximate distance to scarps or sandbags measured in meters. Any abnormal cavity morphologies should be reported as well as whether turtle touched sandbags or scarps during nest excavation.
Nests	Lost Nests	The number of nests lost to inundation or erosion or the number with lost markers.

Nests	Relocated nests	The number of nests relocated and a map of the relocation area(s). The number of successfully hatched eggs per relocated nest.
Lighting Impacts	Disoriented sea turtles	The number of disoriented hatchlings and adults.

B.12. Sand compaction must be qualitatively evaluated at least twice after each sand placement event, once in the project area immediately after completion of any sand placement event and once after project completion between October 1 and May 1. Compaction monitoring and remediation are not required if the placed material no longer remains on the beach. Within 14 days of completion of sand placement and prior to any tilling (if needed), a field meeting shall be held with the Service, NCWRC, and the Corps to inspect the project area for compaction and determine whether tilling is needed.

- a) If tilling is needed for sand suitability, the area must be tilled to a depth of 36 inches. All tilling activities shall be completed prior to May 1 of any year.
- b) Tilling must occur landward of the wrack line and avoid all vegetated areas that are 3 square feet or greater, with a 3-foot buffer around all vegetation.
- c) If tilling occurs during the shorebird nesting season or seabeach amaranth growing season (after April 1), shorebird surveys and/or seabeach amaranth surveys are required prior to tilling.
- d) A summary of the compaction assessments and the actions taken shall be included in the annual report to NCDCEM, the Corps, and the Service.
- e) These conditions will be evaluated and may be modified if necessary to address and identify sand compaction problems.

B.13. Visual surveys for escarpments along the Action Area must be made immediately after completion of sand placement, and within 30 days prior to May 1, for two subsequent years after any construction or sand placement event. Escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet must be leveled and the beach profile must be reconfigured to minimize scarp formation by the dates listed above. Any escarpment removal must be reported by location. The Service must be contacted immediately if subsequent reformation of escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet occurs during the nesting and hatching season to determine the appropriate action to be taken. If it is determined that escarpment leveling is required during the nesting or hatching season, the Service or NCWRC will provide a brief written authorization within 30 days that describes methods to be used to reduce the likelihood of impacting existing nests. An annual summary of escarpment surveys and actions taken must be submitted to the Service.

- B.14. Piping plover habitat (sandy unvegetated habitat along inlet shoulders) shall be avoided to the maximum extent practicable when staging equipment, establishing travel corridors, and aligning pipeline.
- B.15. A report describing the fate of observed sea turtle nests and hatchlings and any actions taken, must be submitted to the Service following completion of the proposed work for each year when a sand placement activity has occurred. Please see REPORTING REQUIREMENTS, below.
- B.16. The Corps' annual seabeach amaranth monitoring program shall continue in accordance with April 19, 1993 Biological Opinion for various U.S. Army Corps of Engineers' projects.
- B.17. The Corps should survey beach sand placement areas for at least five years following each placement event, to determine the status of the seabeach amaranth populations in the project areas and the effects that beach disposal has on this species. Surveys should be conducted in August or September so that the number of plants reaching reproductive age can be determined.
- B.18. Suitable habitat along shoreline reaches that have received sand within the previous five years should be surveyed for the occurrence of seabeach amaranth. Documentation for each seabeach amaranth plant should include location (using a handheld GPS unit), unique features, abnormalities, or other relevant information. If multiple plants are observed in an area, a single representative GPS point may be logged with accompanying notes describing total plants associated with that point.
- B.19. A Corps report describing the seabeach amaranth survey and results should be submitted to Service, the North Carolina Natural Heritage Program, and the North Carolina Plant Conservation Program, by December 31 of each year. The report should include a map showing locations of seabeach amaranth populations and the numbers of plants, with separate figures for those in flower or fruit, found in the sand placement areas.

REPORTING REQUIREMENTS

An annual report detailing the monitoring and survey data collected during the preceding year (required in the above Terms and Conditions) and summarizing all piping plover, red knot, shorebird, and sea turtle data must be provided to the Service's Raleigh Field Office by January 31 of each year for review and comment. In addition, any information or data related to a conservation measure or recommendation that is implemented should be included in the annual report. As in the past, the Corps should submit a separate annual monitoring report detailing seabeach amaranth monitoring and survey data for the preceding year. The contact for these reporting requirements is:

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U.S. Fish and Wildlife Service
Post Office Box 33726
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Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the Service's Law Enforcement Office below. Additional notification must be made to the Raleigh Ecological Services Field Office identified above and to the NCWRC at (252) 241-7367. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

Jason Keith
U.S. Fish and Wildlife Service
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Raleigh, NC 27606