NORTH CAROLINA
STATEWIDE PROGRAMMATIC BIOLOGICAL OPINION (SPBO)
BEACH SAND PLACEMENT
August 28, 2017

INTRODUCTION

A biological opinion (BO) is the document that states the opinion of the U.S. Fish and Wildlife Service (Service) as to whether a federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat. This BO addresses piping plover (*Charadrius melodus melodus*), red knot (*Calidris canutus rufa*), seabeach amaranth (*Amaranthus pumilus*), and the loggerhead (*Caretta caretta*), leatherback (*Dermochelys coriacea*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), and Kemp's ridley sea turtles (*Lepidochelys kempii*). Designated critical habitat for wintering piping plovers and terrestrial critical habitat for loggerhead sea turtles is also addressed. The BO evaluates the effects of the Action along with those resulting from interrelated and interdependent actions, and from non-federal actions unrelated to the proposed Action (cumulative effects), relative to the status of the species and the status of the critical habitat to arrive at a Service opinion that the proposed action is or isn't likely to jeopardize species or adversely modify critical habitat. Jeopardize the continued existence of means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR §402.02). Destruction or adverse modification of designated critical habitat means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features (50 CFR §402.02). The entire SPBO can be accessed at https://www.fws.gov/raleigh/pdfs/spbo.pdf .

Below are the following Reasonable and Prudent Measures and Terms *and* Conditions of the SPBO:

REASONABLE AND PRUDENT MEASURES *AND* TERMS AND CONDITIONS

The Service believes the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize take of piping plovers, red knots, seabeach amaranth, and sea turtles in the Action Area for the following sand placement activities:

A. Sand placement from beach nourishment activities

If unable to comply with the RPMs and Terms and Conditions, the Corps, as the regulatory authority or construction agent may:

1. Inform the Service why the RPM or Term and Condition is not reasonable and prudent for the specific project or activity and request exception under the SPBO; or
2. Initiate consultation with the Service for the specific project or activity.

The Service may respond by either of the following:

1. Allowing an exception to the Terms and Conditions under the SPBO; or
2. Recommending or accepting initiation of consultation (if initiated by the Corps) for the specific project or activity.

REASONABLE AND PRUDENT MEASURES for:

A. Projects that include sand placement from beach nourishment activities, primarily for shore protection (these projects are usually larger scaled) shall include the following measures:

Post-construction requirements are listed in Reasonable and Prudent Measures A.13, A.16, A.17, A.18, A.19, and A.21. These post-construction requirements may be subject to congressional authorization and the allocation of funds. If the Corps or Permittee cannot fulfill these Reasonable and Prudent Measures, the Corps must reinitiate consultation.

RPMs – All Species

A.1. Conservation Measures included in the Corps' Programmatic Biological Assessment (PBA) that address protection of nesting sea turtles, piping plovers, red knots, and seabeach amaranth shall be implemented in the Corps federally authorized project or regulated activity. If a RPM and Term and Condition address the same requirement, the requirements of the RPM and Term and Condition take precedence over the Conservation Measure.

A.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.

A.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).

A.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.

A.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.

A.6. Pipeline placement must be coordinated with NCDCM, the Corps, the Service, and the NCWRC. Pipeline placement coordination may be accomplished through the permit

application or Corps' contract processes utilizing appropriate GIS tools.

A.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.

A.8. A meeting between representatives of the Permittee or Corps, the Service, NCWRC, and NCDCM, must be held prior to the commencement of work on each project.

A.9. The Corps shall facilitate an annual meeting with the Service to assess the effectiveness of the protection and minimization measures outlined in this SPBO.

RPMs - Piping Plovers and Red Knots

A.10. All personnel involved in the construction or sand placement process along the beach shall be aware of the potential presence of piping plovers and red knots. Before start of work each morning, a visual survey must be conducted in the area of work for that day, to determine if piping plovers and red knots are present.

A.11. If project-related activities will potentially adversely affect nesting shorebirds or active nesting habitat, the Corps or Permittee must coordinate with the Service and NCWRC prior to proceeding. If the project is ongoing and shorebirds begin territorial or other nesting behaviors within the project area, then the Corps or Permittee must contact the Service and NCWRC as soon as possible.

A.12. If project activities will be conducted in Optimal Piping Plover Areas (defined in Terms and Conditions A.13 and A.14), the Corps or the Permittee shall clearly delineate work areas within the Optimal Piping Plover Area such as pipeline corridors, travel corridors, and access points. Disturbance outside those delineated work areas must be limited to the maximum extent possible, thereby minimizing effects to sandy unvegetated habitat within the project footprint.

A.13. If project activities will be conducted in Optimal Piping Plover Areas (defined in Term and ConditionsA.13 and A.14), the Corps, the Permittee, or the local sponsor shall provide the mechanisms necessary to monitor impacts to the piping plovers from the project for two years post-construction.

RPMs – Loggerhead, Green, Leatherback, Hawksbill, and Kemp's Ridley Sea Turtles

A.14. Only beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence (defined in Term and Condition A.18) shall be used for sand placement.

A.15. During dredging operations, material placed on the beach shall be qualitatively inspected daily to ensure compatibility. If the inspection process finds that a significant amount of non-beach compatible material is on or has been placed on the beach, all work shall stop immediately and the NCDCM and the Corps will be notified by the Permittee or Corps to determine the appropriate plan of action.

A.16. 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 organizations, other agencies, etc.) is acceptable.

A.17. 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.

A.18. Sand compaction must be qualitatively evaluated at least twice after each sand placement event. Sand compaction must be inspected in the project area immediately after completion of any sand placement event and one time after project completion between October 1 and May 1.

A.19. 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 work for each year when a sand placement activity has occurred.

A.20. If a dune system is part of the project design, the placement and design of the dune must be coordinated with the Service.

RPMs – Seabeach Amaranth

A.21. The Corps Civil Works Program shall continue its annual seabeach amaranth monitoring program.

TERMS AND CONDITIONS FOR:

A. Sand placement from beach nourishment activities

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 A.13, A.14, A.17, A.18, A.19, A.20, A.22, A.23, A.24, A.25, and A.26. 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.

Terms and Conditions – All Species

A.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.

A.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); and
c) Anticipated date of commencement and anticipated duration of construction.

A.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 a variance is approved after additional consultation with the Service.

A.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.

A.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.

A.6. Pipeline placement must be coordinated with NCDCM, the Corps, the Service, and the NCWRC. This may be accomplished through the permit application or Corps' contract processes utilizing appropriate GIS tools.

A.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.

A.8. A meeting between representatives of the contractor(s), the Corps, the Service, the NCWRC, and NCDCM, must be 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, and storing of equipment, including fuel stations;
b) Coordination with the surveyors on required species surveys;
c) Pipeline placement;
d) Minimization of driving within and around the Action Area;
e) Follow up coordination during construction and post construction;
f) Direction of the work 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 species surveys.

A.9. Following the preconstruction meeting, the Corps shall provide the Service with specific anticipated shoreline lengths and anticipated duration of the project, using the form on the following web link: <https://www.fws.gov/northflorida/SeaTurtles/Docs/Corp%20of%20Engineers%20Sea%20Turtle%20Permit%20Information.pdf>. Only the following information should be filled out: Corps permit number, FWS Log Number, Project Location, Construction Activity, Duration of Project, and Actual Take (linear feet of beach). This form shall be emailed to the Service at <seaturtle@fws.gov>. The form should be filled out using information from the permit application or authorization. This form is in addition to the annual report, listed below.

A.10. The Corps shall meet with the Service, NCDCM, and NCWRC (and cooperating agencies such as BOEM, as appropriate) annually to discuss the effectiveness of the avoidance measures and additional measures to include for future projects. The agencies will also review the projects utilizing this SPBO the previous year to ensure that the reporting requirements for calculating the extent of take are adequate. This meeting will also explore:

a) The possibility of using dredged materials to enhance potential or existing piping plover habitat within and adjacent to the project area;
b) Methods for funding beneficial use opportunities for dredged materials that are not least-cost disposal to benefit piping plovers and their habitat;
c) The development of shore protection design guidelines that can be utilized during future project planning to protect and/or enhance piping plover habitat; and
d) Incorporating artificial lagoons or ephemeral pools into project designs adjacent to inlets where sand placement is proposed.

Terms and Conditions – Piping Plovers and Red Knots

A.11. All personnel involved in the construction or sand placement process along the beach shall be aware of the potential presence of piping plovers and red knots. Before start of work each morning, a visual survey must be conducted in the area of work for that day, to determine if piping plovers and red knots are present. If shorebirds are present in the work area, careful movement of equipment in the early morning hours should allow those individuals to move out of the area. Construction operations shall be carried out at all

times in a manner as to avoid negatively impacting shorebirds and allowing them to exit the area.

A.12. If project-related activities will potentially adversely affect nesting shorebirds or active nesting habitat, the Corps or Permittee must coordinate with the Service and NCWRC prior to proceeding. If the project is ongoing and shorebirds begin territorial or other nesting behaviors within the project area, then the Corps or Permittee must contact the Service and NCWRC as soon as possible.

A.13. If project activities will be conducted in Optimal Piping Plover Areas, piping plover habitat (sandy unvegetated habitat) within the Optimal Piping Plover Area shall be avoided to the maximum extent practicable when staging equipment, establishing travel corridors, and aligning pipeline. The Corps or the Permittee, to the maximum extent practicable, shall clearly delineate work areas within the Optimal Piping Plover Area such as pipeline corridors, travel corridors, and access points. Disturbance outside those delineated work areas must be limited, thereby minimizing effects to sandy unvegetated habitat. Driving on the beach for construction shall be limited to the minimum necessary within the designated travel corridor. The delineation of work corridors and work areas in authorized project plans will be sufficient to meet this term and condition.
Optimal Piping Plover Areas are defined as having documented use by piping plovers, and they include coastal habitat features that function mostly unimpeded. Optimal Piping Plover Areas include:

a) Designated piping plover Critical Habitat Units (see **Appendix B**);
b) All Federal, State, and County publicly owned land where coastal processes are allowed to function, mostly unimpeded*, that have any of the following features in the Action Area:
    i. Located within 1 mile of an inlet;
    ii. Emergent nearshore sand bars;
    iii. Washover fans;
    iv. Emergent soundside and Ocean shoals and sand bars;
    v. Soundside mudflats, sand flats, and algal flats; or
    vi. Soundside shorelines.

[*Publicly owned land where coastal processes are allowed to function, mostly unimpeded, generally does not include public lands that are solely state-owned water bottoms, street ends, parking lots, piers, beach accesses, heavily-developed or highly-manipulated parks, or shoreline developed for commercial or residential purposes. It generally does include public lands consisting of undeveloped parks, preserves, and other natural undeveloped shoreline and dunes.]

A.14. If project related activities will be conducted in Optimal Piping Plover Areas, then the piping plover and red knot survey protocol in **Appendix D** must be followed. Two full years of post-construction monitoring is required. Optimal Piping Plover Areas include:

a) Designated piping plover Critical Habitat Units (see **Appendix B**);

b) All Federal, State, and County publicly owned land where coastal processes are allowed to function, mostly unimpeded*, that have any of the following features in the Action Area:
   i. Located within 1 mile of an inlet;
   ii. Emergent nearshore sand bars;
   iii. Washover fans;
   iv. Emergent soundside and Ocean shoals and sand bars;
   v. Soundside mudflats, sand flats, and algal flats; or
   vi. Soundside shorelines.

[*Publicly owned land where coastal processes are allowed to function, mostly unimpeded, generally does not include public lands that are solely state-owned water bottoms, street ends, parking lots, piers, beach accesses, heavily-developed or highly-manipulated parks, or shoreline developed for commercial or residential purposes. It generally does include public lands consisting of undeveloped parks, preserves, and other natural undeveloped shoreline and dunes.]

Terms and Conditions – Sea Turtles

A.15. 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.

A.16. During dredging operations, material placed on the beach shall be qualitatively inspected daily to ensure compatibility. If the inspection process finds that a significant amount of non-beach compatible material is on or has been placed on the beach, all work shall stop immediately, and the NCDCM, Corps, and BOEM (as appropriate) will be notified by the permittee and/or its contractors to determine the appropriate plan of action. Required actions may include immediate removal of material and/or long-term remediation activities.

A.17. Daily 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. However, in the event that data from other sources cannot be acquired, the Corps or permittee will be responsible to collect the data. Data

collected for each nest should include, at a minimum, the information in the table, below. This information will be provided to the Service 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.

A.18. 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.

A.19. 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 NCDCM, the Corps, and the Service.
e) These conditions will be evaluated and may be modified if necessary to address and identify sand compaction problems.

A.20. 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.

A.21. If a dune system is part of the project design, the placement and design of the dune must be coordinated with the Service.

Terms and Conditions – Seabeach Amaranth

A.22. The Corps Civil Works Program shall continue its annual seabeach amaranth monitoring program in accordance with April 19, 1993 Biological Opinion for various U.S. Army Corps of Engineers' projects and Terms and Conditions A.23 to A.26, below..

A.23. 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.

A.24. 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.

A.25. 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.

A.26. If tilling of the beach is required due to high compaction levels resulting from beach disposal, surveys should be conducted in advance of the tilling for seabeach amaranth (see sea turtle section - Reasonable and Prudent Measures). No tilling should be conducted in the immediate areas where seabeach amaranth plants are growing.