

## SEA TURTLES

**Date: October 10, 2007**

### REASONABLE AND PRUDENT MEASURES

The Service has determined that the following reasonable and prudent measures are necessary and appropriate to minimize take of the loggerhead, green, leatherback, hawksbill, and Kemp's ridley sea turtles in the proposed beach nourishment or dredged channel material placement action area.

1. Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence must be used for beach nourishment and dredged channel material placement.
2. **For nourishment projects or dredged channel material placement in Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties, Florida**, work activities must not occur from May 1 through October 31, the period of the main sea turtle egg laying and egg hatching season, to reduce the possibility of sea turtle nest burial, crushing of eggs, or nest excavation.
3. **For nourishment projects or dredged channel material placement in Nassau, Duval, St. Johns, Flagler, Volusia, Miami-Dade, Monroe, Collier, Lee, Charlotte, Sarasota, Manatee, Hillsborough, Pinellas, Pasco, Franklin, Gulf, Bay, Walton, Okaloosa, Santa Rosa, and Escambia Counties, Florida**, work activities may occur during the nesting season. For higher density nesting beaches in Gulf, Franklin, and on Manasota Key located in Manatee, Sarasota and Charlotte counties, nourishment will not be allowed during the main part of the nesting season (June 1 through October 31).
4. All exposed concrete, metal debris and derelict coastal armoring must be removed from the beach prior to any sand placement.
5. The beach profile must be constructed with a berm slope ranging from 1:40 to 1:100, an upper slope ranging from 1:10 to 1:25 and a lower slope ranging from 1:30 to 1:50 except in areas with hard bottom structures offshore.
6. If a dune system is part of the project design, the placement and design of the dune must emulate the natural dune system to the maximum extent practicable, including the dune configuration and shape.
7. The Corps must explore options to include a dune system in the project design for existing projects and how it may modify the existing beach nourishment template.
8. The contractors performing the beach nourishment or dredged channel material placement work must fully understand the sea turtle protection measures detailed in this incidental take statement.

9. Daily early morning surveys for sea turtle nests must be conducted during the year the project is conducted and for at least two years following project completion.
10. If the beach nourishment project or dredged channel material placement will be conducted during the sea turtle nesting season but, outside the peak period, surveys for early and late nesting sea turtles must be conducted. If nests are constructed in the area of beach nourishment, the eggs must be relocated to minimize sea turtle nest burial, crushing of eggs, or nest excavation.
11. If the beach nourishment project will be conducted during the sea turtle nesting season, nighttime activities must be minimized to reduce the likelihood of impacting sea turtle nesting and hatching activities.
12. Immediately after completion of the beach nourishment project or dredged channel material placement and prior to the next three nesting seasons, beach compaction must be monitored and tilling must be conducted as needed to reduce the likelihood of impacting sea turtle nesting and hatching activities.
13. Immediately after completion of the beach nourishment project or dredged channel material placement and prior to the next three nesting seasons, monitoring must be conducted to determine if escarpments are present and if present must be leveled as required to reduce the likelihood of impacting sea turtle nesting and hatching activities.
14. During the sea turtle nesting season and including the early and late portions of the sea turtle nesting season, construction equipment and materials must be stored in a manner that will minimize impacts to sea turtles to the maximum extent practicable.
15. During the sea turtle nesting season, lighting associated with the project must be minimized to reduce the possibility of disrupting and disorienting nesting and/or hatchling sea turtles.
16. A survey of all artificial lighting visible from the nourished beach must be completed. This information must be provided to the Service, FWC and the county or municipality.
17. All dune restoration and planting must be designed and conducted to minimize impacts to sea turtles.
18. Sand fence installation must occur outside the sea turtle nesting season and utilize the design approved by the Service and FWC.
19. A report describing the actions taken to implement the terms and conditions of this incidental take statement must be submitted to the Service within 60 days of completion of the proposed work for each year when the activity has occurred.
20. Upon locating a sea turtle adult, hatchling, or egg harmed or destroyed as a direct or indirect result of the project, notification must be made to the Service and FWC.

**If the project includes groin or jetty repair or replacement, the following additional measures also apply:**

21. If the groin or jetty repair or replacement project will be conducted during the sea turtle nesting season, a barrier sufficient to prevent adult and hatchling sea turtles from accessing the project site must be placed around the perimeter of the groin or jetty repair or replacement work area.
22. If the groin or jetty repair or replacement project will be conducted during the sea turtle nesting season, surveys for early nesting sea turtles must be conducted. If nests are constructed in the work area, the nests must be relocated.
23. If the groin or jetty repair or replacement project will be conducted during the sea turtle nesting season, construction equipment and materials must be stored in a manner that will minimize impacts to sea turtles to the maximum extent practicable.
24. If the groin or jetty repair or replacement project will be conducted during the sea turtle nesting season, access to the project area and repairs to the groin or jetties will only take place during daylight hours.
25. After completion of the groin repair or replacement project and prior to the next three nesting seasons, monitoring must be conducted to determine if escarpments are present and escarpments must be leveled as needed to reduce the likelihood of impacting sea turtle nesting and hatching activities.
26. If the groin repair or replacement project will be conducted during the sea turtle nesting season, lighting associated with the project must be minimized to reduce the possibility of disrupting and misdirecting nesting and/or hatchling sea turtles.
27. The groin or jetty system must be removed if it is determined to not be effective or to be causing a significant adverse impact to the beach and dune system affecting nesting or hatchling sea turtles.

**TERMS AND CONDITIONS**

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

**Proposed work for all beaches**

1. Beach compatible fill must be placed on the beach or in any associated dune system. 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. Such material

must be predominately of carbonate, quartz or similar material with a particle size distribution ranging between 0.062mm (4.0Φ) and 4.76mm (-2.25Φ) (classified as sand by either the Unified Soils or the Wentworth classification), must be similar in color and grain size distribution (sand grain frequency, mean and median grain size and sorting coefficient) to the material in the historic beach sediment at the disposal site and must not contain:

- 1a. Greater than 5 percent, by weight, silt, clay or colloids passing the #230 sieve (4.0φ);
- 1b. Greater than 5 percent, by weight, fine gravel retained on the #4 sieve (- 2.25φ);
- 1c. Coarse gravel, cobbles or material retained on the 3/4 inch sieve in a percentage or size greater than found on the native beach;
- 1d. Construction debris, toxic material or other foreign matter; and
- 1e. Material that will result in cementation of the beach.

If rocks or other non-specified materials appear on the surface of the filled beach in excess of 50 percent of background in any 10,000 square foot area, then surface rock should be removed from those areas. These areas must also be tested for subsurface rock percentage and remediated as required. If the natural beach exceeds any of the limiting parameters listed above, then the fill material must not exceed the naturally occurring level for that parameter.

- 2. Pursuant to subsection 62B-41.005(15), Florida Administrative Code (F.A.C.), sandy sediment derived from the maintenance of coastal navigation channels must be deemed suitable for beach placement with up to 10 percent fine material passing the #230 sieve, provided that it meets the criteria contained in 1b to 1e above and water quality standards. If this material contains between 10 percent and 20 percent fine material passing the #230 sieve by weight, and it meets all other sediment and water quality standards, it must be considered suitable for placement in the nearshore portion of the beach.

These standards must not be exceeded in any 10,000 square foot section extending through the depth of the nourished beach. If the native beach exceeds any of the limiting parameters listed above, then the fill material must not exceed the naturally occurring level for that parameter.

- 3. Prior to any sand placement, all exposed concrete, metal debris and derelict coastal armoring must be removed from the beach to the maximum extent practicable. Debris removal activities must be conducted during daylight hours only according to the dates below and must not commence until completion of the sea turtle survey each day.

County project occurs	Sea Turtle Nesting Season Date
Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward	March 1 through November 30
Dade, Monroe	April 1 to November 30
Volusia, Flagler, St. John, Duval,	April 15 to November 30

Nassau	
Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier	May 1 to October 31

4. The beach profile must be constructed with a berm ranging from 1:40 to 1:100, an upper slope ranging from 1:10 to 1:25 and a lower slope ranging from 1:30 to 1:50 except in areas with hard bottom structures offshore. The berm is measured from the horizontal distance from the slope break at the seaward foot of dune to the next seaward slope break. The upper slope is measured from the slope break at the end of the berm section to the Mean High Water Line (MHWL). The lower slope is measured from the MHWL seaward to where the elevation of the profile is approximately -5 feet MHWL (Appendix x).
5. If the sand placement project includes a dune in the profile design, the dune must have a slope of 1.5:1 followed by a gradual slope of 4:1 for approximately 20 feet seaward.
6. A cost benefit analysis and the process to modify the beach nourishment profile design to include a dune system must be explored.
7. A meeting between representatives of the contractor, the Service, the FWC, and the permitted sea turtle surveyor prior to the commencement of work on this project must be held. At least 10 business days advance notice must be provided prior to conducting this meeting. This will provide an opportunity for explanation and/or clarification of the sea turtle protection measures as well as additional guidelines when construction occurs during the nesting season such as storing equipment, minimizing driving, and follow up meetings during construction.
8. Reports on all nesting activity shall be provided for the initial nesting season and for a minimum of two additional nesting seasons. Monitoring of nesting activity in the seasons following construction shall include daily surveys and any additional measures authorized by the Service and FWC.

### **Protection of sea turtles**

For nourishment or dredged channel material projects in Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties, Florida:

1. Beach nourishment or dredged channel material placement must be started after October 31 and be completed before May 1. During the May 1 through October 31 period, no construction equipment or pipes may be placed and/or stored on the beach.
2. If the beach nourishment project or dredged channel material placement will be conducted during the period from March 1 through April 30, early morning surveys for sea turtle nests must be conducted daily from March 1 through April 30 or until completion of the project (whichever is earliest). If the beach nourishment project or dredged channel material

placement will be conducted during the period from November 1 through November 30, daily early morning sea turtle nesting surveys must be conducted 65 days prior to project initiation and continue through September 30. From March 1 through April 30 and November 1 through November 30 and eggs must be relocated per the following requirements.

- 2a. Nesting surveys and egg relocations will only be conducted by persons with prior experience and training in these activities and who is duly authorized to conduct such activities through a valid permit issued by FWC, pursuant to F.A.C 68E-1. Nesting surveys must be conducted daily between sunrise and 9 a.m. (this is for all time zones). The contractor must not initiate work until daily notice has been received from the sea turtle permit holder that the morning survey has been completed. Surveys must be performed in such a manner so as to ensure that construction activity does not occur in any location prior to completion of the necessary sea turtle protection measures.
- 2b. Only those nests that may be affected by sand placement activities will be relocated. Nests requiring relocation must be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation. Relocated nests must not be placed in organized groupings; relocated nests must be randomly staggered along the length and width of the beach in settings that are not expected to experience daily inundation by high tides or known to routinely experience severe erosion and egg loss, or subject to artificial lighting. Nest relocations in association with construction activities must cease when construction activities no longer threaten nests.
- 2c. Nests deposited within areas where construction activities have ceased or will not occur for 65 days must be marked and left *in situ* unless other factors threaten the success of the nest. The turtle permit holder must install an on-beach marker at the nest site and/or a secondary marker at a point landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string must be installed to establish a 10-foot radius around the nest. No activity will occur within this area nor will any activities occur which could result in impacts to the nest. Nest sites must be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the restoration activity.
3. If the beach nourishment project or dredged channel material placement will be conducted in Indian River, St. Lucie, St. Martin, and/or Palm Beach Counties during the period from March 1 through April 30, daytime surveys for leatherback sea turtle nests must be conducted beginning March 1. Nighttime surveys for leatherback sea turtles must begin when the first leatherback crawl is recorded within the project area and through April 30 or until completion of the project (whichever is earliest). Nesting surveys must be conducted nightly from 9 p.m. until 6 a.m. The project area must be surveyed at 1-hour intervals (since leatherbacks require at least 1.5 hours to complete nesting, this will ensure all nesting leatherbacks are encountered) and eggs must be relocated per the preceding requirements.
4. Immediately after completion of the beach nourishment project or dredged channel material placement and prior to March 1 for three (3) subsequent years, sand compaction must be

monitored in the area of restoration in accordance with a protocol agreed to by the Service, FWC, and the applicant or local sponsor. At a minimum, the protocol provided under 4a and 4b below must be followed. If tilling is needed, the area must be tilled to a depth of 36 inches. Each pass of the tilling equipment must be overlapped to allow more thorough and even tilling. All tilling activity must be completed prior to March 1. A report on the results of the compaction monitoring must be submitted to the Service's field office prior to any tilling actions being taken. (NOTE: The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of post-construction compaction levels. Additionally, out-year compaction monitoring and remediation are not required if placed material no longer remains on the dry beach.)

Table #. Service's Field Offices and Address

<b>County project occurs</b>	<b>Service Field Office</b>	<b>Address</b>
Brevard	North Florida Ecological Service Office	6620 Southpoint Dr. South # 310, Jacksonville, FL 32216
Indian River, St. Lucie, Martin, Palm Beach, Broward	South Florida Ecological Service Office	1339 20 <sup>th</sup> Street Vero Beach, FL 32960

- 4a. Compaction sampling stations must be located at 500-foot intervals along the project area. One station must be at the seaward edge of the dune/bulkhead line (when material is placed in this area), and one station must be midway between the dune line and the high water line (normal wrack line). At each station, the cone penetrometer must be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lay over less compact layers. Replicates must be located as close to each other as possible, without interacting with the previous hole and/or disturbed sediments. The three replicate compaction values for each depth must be averaged to produce final values for each depth at each station. Reports must include all 18 values for each transect line, and the final 6 averaged compaction values.
- 4b. If the average value for any depth exceeds 500 pounds per square inch (psi) for any two or more adjacent stations, then that area must be tilled prior to March 1. If values exceeding 500 psi are distributed throughout the project area, but in no case do those values exist at two adjacent stations at the same depth, then consultation with the Service will be required to determine if tilling is required. If a few values exceeding 500 psi are present randomly within the project area, tilling will not be required.
- 4c. Tilling must occur landward of the wrack line and avoid all vegetated areas three square feet or greater with a 3 square foot buffer around the vegetated areas.
5. Visual surveys for escarpments along the project area must be made immediately after completion of the beach nourishment project or dredged channel material placement and

prior to March 1 for 3 subsequent years. 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 March 1. If the project is completed during the early part of the sea turtle nesting and hatching season (March 1 through April 30), escarpments may be required to be leveled immediately, while protecting nests that have been relocated or left in place. Surveys for escarpments must be conducted weekly. Results of the surveys must be submitted within one month to the Service's appropriate Field Office prior to any action being taken during the nesting season. 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 FWC will provide a brief written authorization 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's Field Office (Table #). (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the dry beach).

6. From March 1 through April 30 and November 1 through November 30, staging areas for construction equipment must be located off the beach, if these areas are available. Nighttime storage of construction equipment not in use must be off the beach to minimize disturbance to sea turtle nesting and hatching activities. In addition, all construction pipes that are placed on the beach must be located as far landward as possible without compromising the integrity of the existing or reconstructed dune system. Temporary storage of pipes must be off the beach to the maximum extent possible. If the pipes must be on the beach it must be in such a manner to minimize the impact to nesting habitat and must not compromise the integrity of the dune systems. Pipes placed parallel to the dune must be five to ten feet away from the toe of the dune.
7. From March 1 through April 30 and November 1 through November 30, direct lighting of the beach and nearshore waters must be limited to the immediate construction area and must comply with safety requirements. Lighting on offshore or onshore equipment must be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the waters surface and nesting beach while meeting all Coast Guard, EM 385-1-1, and OSHA requirements. Light intensity of lighting plants must be reduced to the minimum standard required by OSHA for General Construction areas, in order not to misdirect sea turtles. Shields must be affixed to the light housing and be large enough to block light from all lamps from being transmitted outside the construction area (see Figure #).

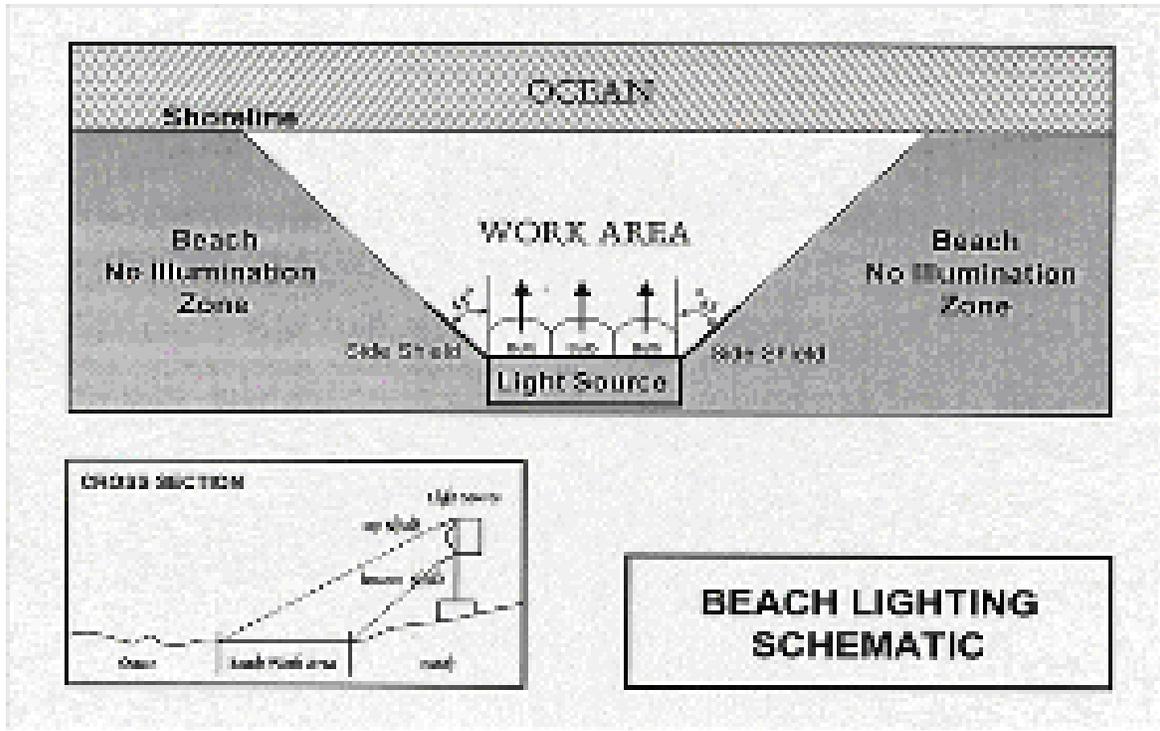


Figure #. Beach lighting schematic.

8. Artificial beachfront lighting in the beach nourishment project or dredged material placement area must be managed by the applicant or local sponsor. A survey of all lighting visible from the nourished beach by May 15 following the nourishment work must be completed, using standard techniques for such a survey (attachment 1). Additional lighting surveys must be conducted by June 15, July 15, August 15, and September 15 of that nesting season. For each light source visible, the applicant or local sponsor must provide documentation that the property owner(s) has been notified of the problem light with recommendations for correcting the light. Recommendations must be in accordance with the county's or municipalities' specific lighting ordinance. For counties or municipalities with no lighting ordinance, recommendations must be in accordance with the Florida Model Lighting Ordinance for Marine Turtle Protection FAC 62B55. A summary report of each survey including documentation of property owner notification must be submitted to the Service (Table #) by the 1st of the following month; and a final summary report provided by December 15 of that year. After the final report is completed, a meeting must be set up with the local sponsor or applicant, county or municipality, FWC and the Service to discuss the sea turtle disorientations.

For nourishment projects in Nassau, Duval, St. Johns, Flagler, Volusia, Miami-Dade, Monroe, Collier, Lee, Charlotte, Sarasota, Manatee, Hillsborough, Pinellas, Pasco, Franklin, Gulf, Bay, Walton, Okaloosa, Santa Rosa and Escambia counties, Florida

1. For higher density nesting beaches in Gulf and Franklin counties and on Manasota Key located in Manatee, Sarasota and Charlotte counties, nourishment will not be allowed during the main part of the nesting season (June 1 through October 31). For nourishment projects or

dredged channel material placement in Nassau, Duval, St. Johns, Flagler, Volusia, Miami-Dade, Monroe, Collier, Lee, Charlotte, Sarasota, Manatee, Hillsborough, Pinellas, Pasco, Franklin, Gulf, Bay, Walton, Okaloosa, Santa Rosa, and Escambia counties, Florida, beach nourishment or dredged channel material placement activities may occur during the nesting season if not prohibited by local land use codes.

2. If any portion of the beach nourishment project or dredged channel material placement occurs in the following counties:

For Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin and Pasco, nesting surveys must be initiated 70 days prior to nourishment or dredged channel material placement activities or by May 1 whichever is later. Nesting surveys must continue through the end of the project or through October 31 whichever is earlier. If nests are constructed in areas where they may be affected by construction activities, eggs must be relocated per the requirements listed below;

For Dade, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier, and Monroe, nesting surveys must be initiated 65 days prior to nourishment or dredged channel material placement activities or by April 1 whichever is later. Nesting surveys must continue through the end of the project or through November 30 whichever is earlier. If nests are constructed in areas where they may be affected by construction activities, eggs must be relocated per the requirement listed below;

For Volusia, Flagler, St. John, Duval and Nassau Counties, nesting surveys must be initiated 65 days prior to nourishment or dredged channel material placement activities or by April 15 whichever is later. Nesting surveys must continue through the end of the project or through November 30 whichever is earlier. If nests are constructed in areas where they may be affected by construction activities, eggs must be relocated per the requirements listed below;

- 2a. Nesting surveys and egg relocations will only be conducted by persons with prior experience and training in these activities and who is duly authorized to conduct such activities through a valid permit issued by FWC, pursuant to FAC 68E-1. Nesting surveys must be conducted daily between sunrise and 9 a.m. (this is for all time zones). The contractor must not initiate work until daily notice has been received from the sea turtle permit holder that the morning survey has been completed. Surveys must be performed in such a manner so as to ensure that construction activity does not occur in any location prior to completion of the necessary sea turtle protection measures.
- 2b. Only those nests that may be affected by construction activities will be relocated. Nests requiring relocation must be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation. Relocated nests must not be placed in organized groupings; relocated nests must be randomly staggered along the length and width of the beach in settings that are not expected to experience daily inundation by high tides or known to routinely experience severe erosion and egg loss, or subject to artificial lighting. Nest relocations in association with construction activities must cease when

construction activities no longer threaten nests.

- 2c. Nests deposited within areas where construction activities have ceased or will not occur for 65 days (70 days for Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, and Pasco) must be marked and left *in situ* unless other factors threaten the success of the nest. The turtle permit holder must install an on-beach marker at the nest site and/or a secondary marker at a point landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string must be installed to establish a 10-foot radius around the nest. No activity will occur within this area nor will any activities occur which could result in impacts to the nest. Nest sites must be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the restoration activity.
3. During the sea turtle nesting season, the contractor must not extend the beach fill more than 500 feet along the shoreline between dusk and the following day until the daily nesting survey has been completed and the beach cleared for fill advancement. If the 500 feet is not feasible for the project, an agreed upon distance will be decided on during the preconstruction meeting. Once the beach has been cleared and the necessary nest relocations have been completed, the contractor is allowed to proceed with the placement of fill during daylight hours until dusk at which time the 500-foot length limitation must apply.
4. Immediately after completion of the project and prior to the following dates:

Date	County project occurs
April 15	Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco, Volusia, Flagler, St. John, Duval, Nassau, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier
April 1	Dade, Monroe

for 3 subsequent years, sand compaction must be monitored in the area of restoration in accordance with a protocol agreed to by the Service, the State regulatory agency, and the applicant or local sponsor. At a minimum, the protocol provided under 4a and 4b below must be followed. If tilling is required, the area must be tilled to a depth of 36 inches. All tilling activity must be completed prior to those dates listed above.

Each pass of the tilling equipment must be overlapped to allow more thorough and even tilling. If the project is completed during the nesting season, tilling will not be performed in areas where nests have been left in place or relocated. (NOTE: The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of post-construction compaction levels. Additionally, out-year compaction monitoring and remediation are not required if placed material no longer remains on the dry beach.) A report on the results of the compaction monitoring must be submitted to the Service's field office prior to any tilling actions being taken (Table #).

Table #: Service's Field Offices

<b>County project occurs</b>	<b>Service Field Office</b>	<b>Address</b>
Nassau, Duval, St. Johns, Flagler, Volusia, Manatee, Pinellas and Hillsborough	North Florida Ecological Service Office	6620 Southpoint Dr. South # 310, Jacksonville, FL 32216
Charlotte, Collier, Lee, Martin, Miami-Dade, Monroe and Sarasota	South Florida Ecological Service Office	1339 20 <sup>th</sup> Street Vero Beach, FL 32960
Bay, Escambia, Franklin, Gulf, Okaloosa, Santa Rosa and Walton	Panama City Ecological Service Office	1601 Balboa Avenue Panama City, FL 32405

- 4a. Compaction sampling stations must be located at 500-foot intervals along the project area. One station must be at the seaward edge of the dune/bulkhead line (when material is placed in this area), and one station must be midway between the dune line and the high water line (normal wrack line).
- 4b. At each station, the cone penetrometer must be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lie over less compact layers. Replicates must be located as close to each other as possible, without interacting with the previous hole and/or disturbed sediments. The three replicate compaction values for each depth must be averaged to produce final values for each depth at each station. Reports will include all 18 values for each transect line, and the final 6 averaged compaction values.
- 4c. If the average value for any depth exceeds 500 pounds per square inch (psi) for any two or more adjacent stations, then that area must be tilled immediately prior to the following dates listed above.
- 4d. If values exceeding 500 psi are distributed throughout the project area but in no case do those values exist at two adjacent stations at the same depth, then consultation with the Service will be required to determine if tilling is required. If a few values exceeding 500 psi are present randomly within the project area, tilling will not be required.
- 4e. Tilling must occur landward of the wrack line and avoid all vegetated areas three (3) square feet or greater with a three (3) square foot buffer around the vegetated areas.
5. Visual surveys for escarpments along the project area must be made immediately after completion of the project and prior to the following dates:

<b>Date</b>	<b>County project occurs</b>
April 15	Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco, Volusia, Flagler, St. John, Duval, Nassau, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier

April 1	Dade, Monroe
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for 3 subsequent years. 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.

If the project is completed during the sea turtle nesting and hatching season, escarpments may be required to be leveled immediately, while protecting nests that have been relocated or left in place. Surveys for escarpments must be conducted weekly. Results of the surveys must be submitted within one month to the Service's appropriate Field Office prior to any action being taken during the nesting season. 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 will provide a brief written authorization 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 (Table #). (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the beach).

6. Staging areas for construction equipment must be located off the beach to the maximum extent practicable. During the following time periods:

Date	County project occurs
April 1 to November 30	Dade, Monroe
April 15 to November 30	Volusia, Flagler, St. John, Duval, Nassau
May 1 to October 31	Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier

Nighttime storage of construction equipment not in use must be off the beach to minimize disturbance to sea turtle nesting and hatching activities. In addition, all construction pipes that are placed on the beach must be located as far landward as possible without compromising the integrity of the existing or reconstructed dune system. Temporary storage of pipes must be off the beach to the maximum extent possible. Temporary storage of pipes on the beach must be in such a manner so as to impact the least amount of nesting habitat and must not compromise the integrity of the dune systems. Pipes placed parallel to the dune must be five to ten feet away from the toe of the dune.

7. Direct lighting of the beach and nearshore waters must be limited to the immediate construction area and must comply with safety requirements. During the following time periods:

Date	County project occurs
April 1 to November 30	Dade, Monroe

April 15 to November 30	Volusia, Flagler, St. John, Duval, Nassau, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier
May 1 to October 31	Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco

Lighting on offshore or onshore equipment must be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the waters surface and nesting beach while meeting all Coast Guard, EM 385-1-1, and OSHA requirements. Light intensity of lighting plants must be reduced to the minimum standard required by OSHA for General Construction areas, in order not to misdirect sea turtles. Shields must be affixed to the light housing and be large enough to block light from all lamps from being transmitted outside the construction area (Figure #).

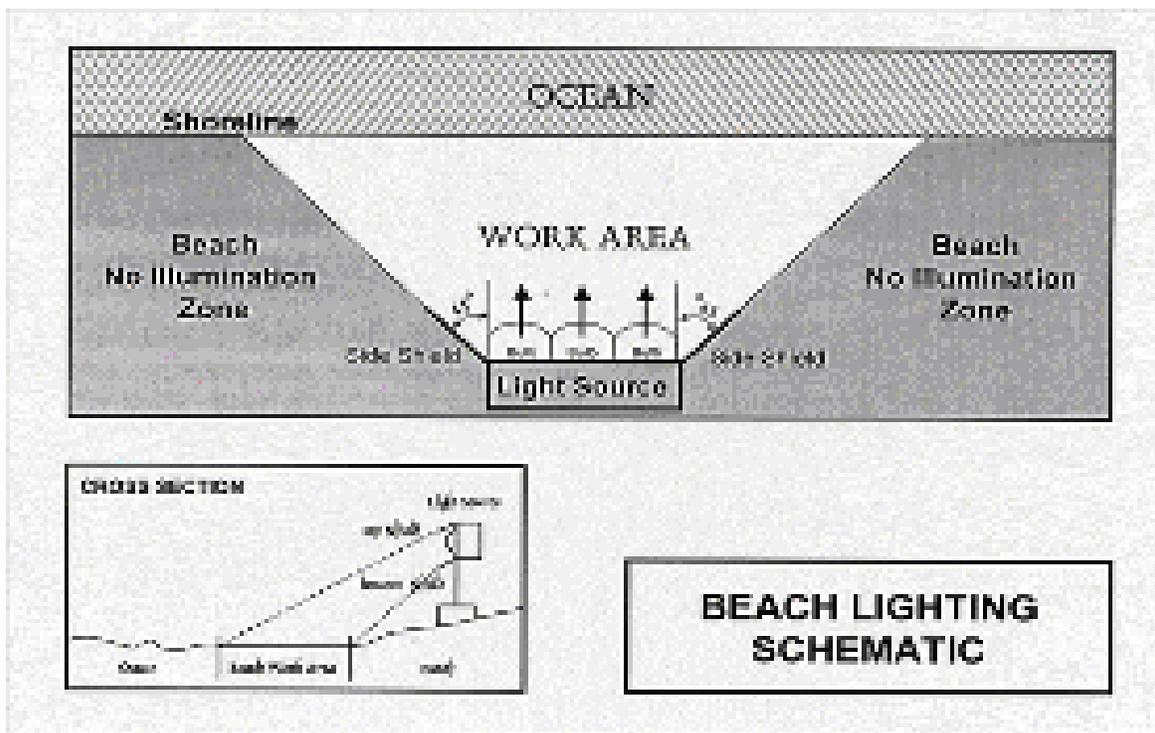


Figure #. Beach lighting schematic.

- Artificial beachfront lighting in the beach nourishment project or dredged material placement area must be managed by the applicant or local sponsor. The applicant or local sponsor must complete a survey of all lighting visible from the nourished beach by May 15 following the nourishment work, using standard techniques for such a survey (attachment 1). Additional lighting surveys must be conducted by June 15, July 15, August 15, and September 15 of that nesting season. For each light source visible, the applicant or local sponsor must provide documentation that the property owner(s) has been notified of the problem light with recommendations for correcting the light. Recommendations must be in accordance with the

county's or municipalities' specific lighting ordinance. For counties or municipalities with no lighting ordinance, recommendations must be in accordance with the Florida Model Lighting Ordinance for Marine Turtle Protection FAC 62B55. A summary report of each survey including documentation of property owner notification must be submitted to the Service (Table #) by the 1st of the following month; and a final summary report provided by December 15 of that year. After the final report is completed, a meeting must be set up with the local sponsor or applicant, county or municipality, FWC and the Service to discuss the sea turtle disorientations.

## **Dune Planting**

9. Dune vegetation planting may occur during the sea turtle nesting season (May 1 through October 31) and planting must be by hand with the following conditions implemented.
  - 9a. Daily early morning sea turtle nesting surveys must be conducted during the period from May 1 through October 31. If the planting is conducted in Brevard, Indian River, Martin, Palm Beach, St. Lucie and Broward Counties, daily early morning sea turtle nesting surveys are required and must include March 1 to April 30 and November 1 to November 30. Nest surveys must only be conducted by personnel with prior experience and training in nest surveys. Surveyors must have a valid FWC permit. Nest surveys must be conducted daily between sunrise and 9 a.m. (all times). No dune planting activity must occur until after the daily turtle survey and nest conservation and protection efforts have been completed.
  - 9b. Nesting surveys must be initiated 65 days prior to dune planting activities or by May 1, whichever is later and by March 1, if the planting occurs in Brevard, Indian River, Martin, Palm Beach, St. Lucie or Broward Counties. Nesting surveys must continue through the end of the project or through September 1, whichever is earlier. Hatching and emerging success monitoring will involve checking nests beyond the completion date of the daily early morning nesting surveys.
  - 9c. Any nests deposited in the dune planting area not requiring relocation for conservation purposes must be left *in situ*. The turtle permit holder must install an on-beach marker at the nest site and a secondary marker at a point as far landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string must be installed to establish an area of 3-foot radius surrounding the nest. No planting or other activity must occur within this area nor will any activities occur which could result in impacts to the nest. Nest sites must be inspected daily to assure nest markers remain in place and the nest has not been disturbed by the planting activity.
  - 9d. If a nest is disturbed or uncovered during planting activity, the permittee or their contractors must cease all work and immediately contact the responsible turtle permit holder. If a nest(s) cannot be safely avoided during planting, all activity within the affected project site must be delayed until hatching and emerging success monitoring of

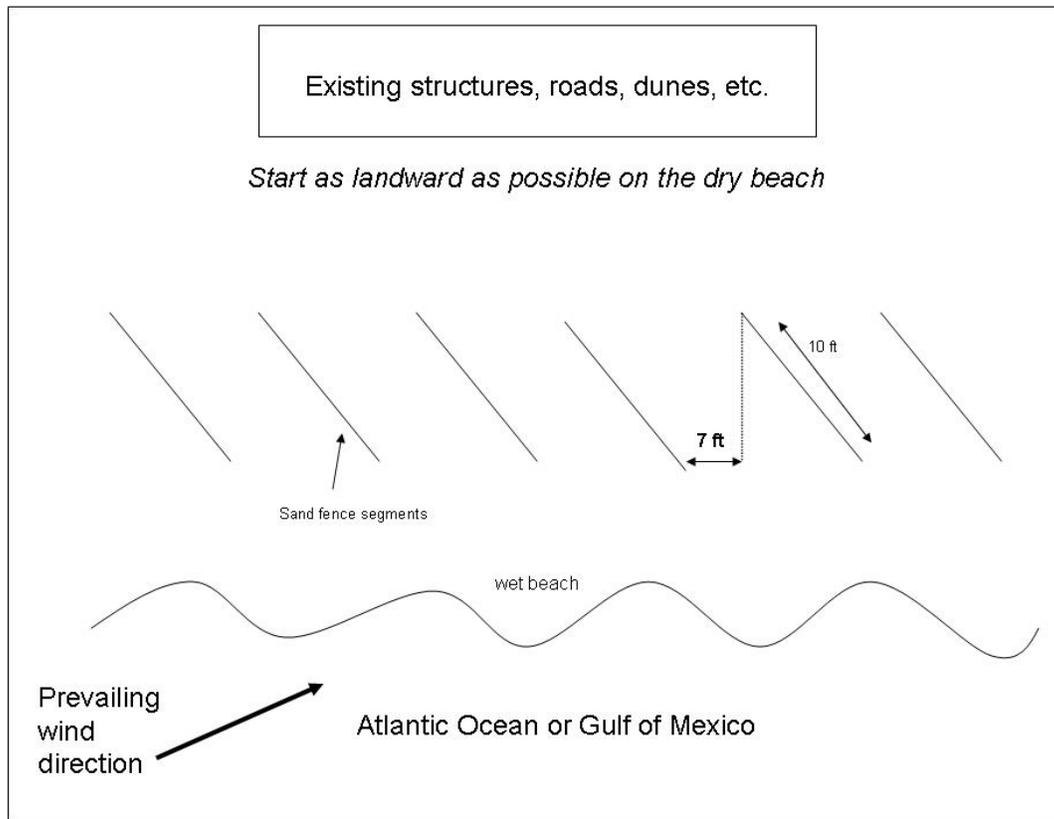
the nest is completed.

- 9e. All dune planting activities must be conducted by hand and only during daylight hours.
- 9f. All dune vegetation must consist of coastal dune species native to the local area; (i.e., native to coastal dunes in the respective county and grown from plant stock from that region of Florida). Seedlings must be at least 1 inch by 1 inch with a 2.5-inch pot. Planting must be on 18-inch centers throughout the created dune; however, 24-inch centers may be acceptable depending on the acreage of the area to be planted and the size of the plants. Vegetation must be planted with an appropriate amount of fertilizer and anti-desiccant material, as appropriate, for the plant size.
- 9g. No use of heavy equipment (trucks) must occur on the dunes or seaward for planting purposes. A lightweight (ATV type) vehicle, with tire pressures of 10 psi or less may be operated on the beach.
- 9h. All irrigation equipment must be authorized under a FDEP permit.

### **Sand Fencing**

Due to the limited benefits and the potential for impacts in high density marine turtle nesting beaches, sand fencing shall only be permitted in the following areas; **Southeast Coast:** Brevard County through Monroe County and the **Southwest Coast:** Manatee County through Collier County.

- 10. Any sand fencing or other dune restoration material placed in the project area must be installed outside of the sea turtle nesting season (May 1 through October 31) in accordance with the following conditions are implemented:
  - 10a. Sand fencing located seaward of the crest of the primary dune must be designed and installed with a maximum of ten (10) foot long spurs of sand fencing spaced at a minimum of seven (7) feet on a diagonal alignment (facing the predominate wind direction) for the shore parallel coverage of the subject property (Figure 1).
  - 10b. Once a sand fence becomes buried it must be removed and repositioned prior to the fence becoming 50% buried to maximize sand buildup.
  - 10c. Upon site inspection by the Service, Florida Department of Environmental Protection, Bureau of Beaches and Coastal Systems, or the FWC, Bureau of Imperiled Species Management, if it is determined that the fence adversely impacts nesting or hatchling turtles, the fence must be removed or repositioned, as appropriate.



**Figure 1. Dune restoration fence alignment.**

## Reporting

11. A report describing the actions taken to implement the terms and conditions of this incidental take statement must be submitted to the Service (Table #) by January 15 of the following year of completing the proposed work for each year when the activity has occurred. This report will include the dates of actual construction activities, names and qualifications of personnel involved in sea turtle nest surveys and relocation activities (separate the nests surveys for nourished and non-nourished areas), descriptions and locations of self-release beach sites, nest survey and relocation results and the information outlined in Table #.
12. In the event a sea turtle nest is excavated during construction activities, the permitted person responsible for egg relocation for the project must be notified so the eggs can be moved to a suitable relocation site.
13. Upon locating a sea turtle adult, hatchling, or egg harmed or destroyed as a direct or indirect result of the project, notification must be made to the FWC at 1-888-404-3922 and the Service (Table #).

Table #: Service's Field Offices

<b>County project occurs</b>	<b>Service Field Office</b>	<b>Address</b>
Nassau, Duval, St. Johns, Flagler, Volusia, Brevard, Manatee, Pinellas and Hillsborough	North Florida Ecological Service Office	(904) 232-2580
Indian River, Broward, Charlotte, Collier, Lee, Martin, Miami-Dade, Monroe, Palm Beach, Sarasota and St. Lucie	South Florida Ecological Service Office	(772) 562-3909
Bay, Escambia, Franklin, Gulf, Okaloosa, Santa Rosa and Walton	Panama City Ecological Service Office	(850) 769-0552

Care must be taken in handling injured turtles or eggs to ensure effective treatment or disposition, and in handling dead specimens to preserve biological materials in the best possible state for later analysis.

Table #: Sea Turtle Monitoring for Beach Nourishment or Dredged Material Placement

<b>CHARACTERISTIC</b>	<b>PARAMETER</b>	<b>MEASUREMENT</b>	<b>VARIABLE</b>
Nesting Success	False crawls - number	Visual assessment of all false crawls	Number and location of false crawls in nourished areas and non nourished areas: any interaction of the turtle with obstructions, such as groins, seawalls, or scarps, should be noted.
	False crawl - type	Categorization of the stage at which nesting was abandoned	Number in each of the following categories: emergence-no digging, preliminary body pit, abandoned egg chamber.
	Nests	Number	The number of sea turtle nests in nourished and non nourished areas should be noted. If possible, the location of all sea turtle nests must be marked on map of project, and approximate distance to sea walls or scarps measured using a meter tape. Any abnormal cavity morphologies should be reported as well as whether turtle touched groins, seawalls, or scarps during nest excavation
		Lost Nests	The number of nests lost to inundation, erosion or the number with lost markers that could not be found.
	Lighting Impacts	Disoriented sea turtles	The number of disoriented hatchlings and adults must be documented and reported in accordance with existing FWC protocol for disorientation events.
Reproductive Success	Emergence & hatching success	Standard survey protocol	Numbers of the following: unhatched eggs, depredated nests and eggs, live pipped eggs, dead pipped eggs, live hatchlings in nest, dead hatchlings in nest, hatchlings emerged, disoriented hatchlings, depredated hatchlings

### Groin or Jetty Repair or Replacement

14. If maintenance of a groin or jetty is required during the period from May to October 31, no work must be initiated without prior coordination with the Service's Field Office (Table #). If the groin or jetty repair construction must be conducted during the sea turtle nesting season, a barrier sufficient to prevent adult and hatchling sea turtles from accessing the project site must be in place around the perimeter of the project site (*e.g.*, hay bales, silt screens). The barrier must be placed shore-parallel and shore perpendicular to the project site, at MHW, as close to the jetty as practicable, particularly during the period from sunset to sunrise;
15. If the groin or jetty repair construction will be conducted during the sea turtle nesting season, daily early morning surveys for sea turtle nests must be conducted. The barrier must be installed to prevent turtles from nesting in the project area (*i.e.*, from 200 feet north of the north jetty to 200 feet south of the south jetty). However, if turtles do manage to access the project area, nests must be relocated per the following requirements:
  - 15a. Nesting surveys and egg relocations will only be conducted by personnel with prior experience and training in nesting survey and egg relocation procedures. Surveyors must have a valid FWC permit. Nesting surveys must be conducted daily between sunrise and 9 a.m. (for all time zones). The contractor must not initiate work until daily notice has been received from the sea turtle permit holder that the morning survey has been completed. Surveys must be performed in such a manner so as to ensure that construction activity does not occur in any location prior to completion of the necessary sea turtle protection measures.
  - 15b. Only those nests that may be affected by construction activities will be relocated. Nests requiring relocation must be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation. Nest relocations in association with construction activities must cease when construction activities no longer threaten nests. GPS locations must be obtained for the relocated nests.
  - 15c. Nests deposited within areas where construction activities have ceased or will not occur for 65 days must be marked and left *in situ* unless other factors threaten the success of the nest. The turtle permit holder must install an on-beach marker at the nest site and/or a secondary marker at a point landward as possible to assure that future location of the nest will be possible should the on-beach marker be lost. A series of stakes and highly visible survey ribbon or string must be installed to establish a 10-foot radius around the nest. No activity must occur within this area nor will any activity occur which could result in impacts to the nest. Nest sites must be inspected daily to assure nest markers remain in place and that the nest has not been disturbed by the restoration activity.
  - 15d. To the maximum extent practicable, all excavations and temporary alteration of beach topography must be filled or leveled to the natural beach profile prior to 9 p.m. each day. During any periods when excavated trenches must remain on the beach at night, nighttime sea turtle monitoring by the sea turtle permit holder must be conducted in the

project area to further reduce possible impacts to nesting and hatchling sea turtles. Nighttime monitors will record data on false crawls, successful nesting, and any additional activities of nesting or hatchling sea turtles in the project area;

16. If the groin or jetty repair construction must be conducted during the sea turtle nesting season, beach access to the construction site will be restricted to the wet sand below mean high water. Travel corridors on the beach to the mean high water will be delineated. Nests laid within the travel corridor will be marked and avoided with a 10-foot buffer. Staging areas for construction equipment must be located off the beach to the maximum extent practicable. Nighttime storage of construction equipment not in use must be off the beach to minimize disturbance to sea turtle nesting and hatching activities during this period;
17. If the groin or jetty repair construction must be conducted during the sea turtle nesting season, construction activities must be conducted during daylight hours only to avoid encountering nesting females and emerging hatchling sea turtles during the following time periods:

Sea Turtle Nesting Season Date	County project occurs
March 1 to November 30	Brevard, Indian River, Martin, St. Lucie, Palm Beach
April 1 to November 30	Dade, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier, Monroe
April 15 to November 30	Volusia, Flagler, St. John, Duval, Nassau
May 1 to October 31	Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco

Material stockpiled on the beach must only occur within the 400 foot barrier. Construction activities must not occur in any location prior to completion of the necessary sea turtle protection measures outlined below. If any nesting turtles are sighted on the beach during daylight hours, construction activities must cease immediately until the turtle has returned to the water, and the sea turtle permit holder responsible for nest monitoring has marked the nest. All activities must avoid the marked nest area.

18. Visual surveys for escarpments along the project area must be made immediately after completion of the sand placement and 2 weeks prior to the following dates:

Date	County project occurs
April 1	Dade, Monroe
April 15	Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco, Volusia, Flagler, St. John, Duval, Nassau, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier

for 3 subsequent years. 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.

If the groin or jetty repair construction is completed during the sea turtle nesting and hatching season, escarpments may be required to be leveled immediately, while protecting nests that have been relocated or left in place. Surveys for escarpments must be conducted weekly. Results of the surveys must be submitted monthly to the Service's appropriate Field Office (Table #) and prior to any action being taken during the nesting season. 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 will provide a brief written authorization 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 (Table #). (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the beach).

19. No permanent exterior lighting will be installed in association with the project. No temporary lighting of the construction area is authorized at anytime during the sea turtle nesting season for the following time periods:

Date	County project occurs
March 1 to November 30	Brevard, Indian River, Martin, St. Lucie, Palm Beach
April 1 to November 30	Dade, Pinellas, Manatee, Sarasota, Charlotte, Lee, Collier, Monroe
April 15 to November 30	Volusia, Flagler, St. John, Duval, Nassau
May 1 to October 31	Escambia, Santa Rosa, Okaloosa, Walton, Bay, Gulf, Franklin, Pasco

Lighting will be allowed if safety lighting is required at any excavated trenches that must remain on the beach at night and must be authorized by the Service or FWC. Lighting must be limited to the immediate construction area only and must be the minimal lighting necessary to comply with safety requirements.

Lighting on offshore equipment must be minimized through reduction, shielding, lowering, and appropriate placement of lights to avoid excessive illumination of the water, while meeting all U.S. Coast Guard and OSHA requirements.

20. In the event a groin structure fails or begins to disintegrate, all debris and structural material must be removed from the nesting beach area and deposited off-beach immediately.

The groins must be removed if hatchlings are reported as being trapped in the corners of the T-heads portions.

The reasonable and prudent measures, with their implementing terms and conditions are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than (number or extent) of nesting loggerhead, green, leatherback, Kemp's ridley, and Hawksbill sea turtles will be incidentally taken. If during the course of the action, this level is exceeded; such incidental take represents new information requiring initiation of consultation and review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking and review with the service the need for possible modification of the reasonable and prudent measures.

## **CONSERVATION RECOMMENDATIONS**

Section 7(a) (1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. If public beach driving is allowed on the nourished beach, the local sponsor or applicant should have authorization from the Service for incidental take of sea turtles, their nests, and hatchlings due to such driving or provide written documentation from the Service that no such incidental take authorization is required. If required, the incidental take authorization for beach driving must be obtained prior to any subsequent sand placement events.
2. For nourishment projects in Nassau, Duval, St. Johns, Flagler, Volusia, Miami-Dade, Monroe, Collier, Lee, Charlotte, Sarasota, Manatee, Hillsborough, Pinellas, Pasco, Franklin, Gulf, Bay, Walton, Okaloosa, Santa Rosa and Escambia Counties, Florida, construction activities for this project and similar future projects should be planned to take place outside the main part of the sea turtle nesting and hatching season.
3. Appropriate native salt-resistant dune vegetation should be established on the nourished dunes.
4. If a lighting ordinance has not been adopted by the local municipality within the project area, and lighting is shown to be an issue from the nourished beach an ordinance should be adopted prior to any subsequent sand placement events.
5. Beach nourishment should not occur on publicly owned conservation lands during the sea turtle nesting season.
6. To increase public awareness about sea turtles, informational signs should be placed at beach access points where appropriate. The signs should explain the importance of the beach to sea turtles and/or the life history of sea turtle species that nest in the area.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or

benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

