



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



February 11, 2005

Colonel Robert M. Carpenter
District Engineer
U.S. Army Corps of Engineers
701 San Marco Boulevard, Room 372
Jacksonville, Florida 32207-8175

Service Log No.: 4-1-05-F-10767

Date: January 13, 2005

Project: Palm Beach County Shore

Protection Project: Delray Segment

Sponsor: Palm Beach County Board of County
Commissioners

County: Palm Beach

Dear Colonel Carpenter:

The Fish and Wildlife Service (Service) has reviewed the plans submitted by the U.S. Army Corps of Engineers (Corps) for the project referenced above and its effects on the threatened loggerhead turtle (*Caretta caretta*), the endangered green turtle (*Chelonia mydas*), the endangered leatherback turtle (*Dermochelys coriacea*), the endangered hawksbill turtle (*Eretmochelys imbricata*), and the endangered West Indian manatee (*Trichechus manatus*). This letter serves to amend the Service's October 24, 1996, Biological Opinion (Service log number 4-1-96-F-268) for the Coast of Florida Erosion and Storm Effects Study, Region III (COF), which includes the federally authorized Palm Beach County Shore Protection Project, Delray Beach Segment, located in Palm Beach County, Florida. This letter is provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. 1531 *et seq.*). The Corps determined that the project "may affect" nesting sea turtles in an email received on January 13, 2005.

In the same email dated January 13, 2005, the Corps determined that the proposed renourishment of the Delray Beach segment of the Palm Beach County Shore Protection Project "may affect, but is not likely to adversely affect" the West Indian manatee. Since the Corps has agreed to include the *Standard Manatee Construction Conditions* into the project design, the Service concurs with the Corps' determination for the manatee.



PROJECT DESCRIPTION

In response to the significant coastal erosion event caused by Hurricanes Frances and Jeanne in September 2004, the Corps has proposed to fully restore the Delray Beach segment of the Palm Beach County Shore Protection Federal Project through the placement of 428,500 cubic yards (cy) of beach compatible material along 2.7 miles of the Delray Beach shoreline between Florida Department of Environmental Protection monuments R-175 and R-188 (Fig. 1). The September 2004 hurricanes caused the shoreline of Delray Beach in the 2.7-mile project area to recede an average of 31.7 feet between R-175 to R-179A and 70.5 feet between R-180 to R-188. In total, 428,500 cy of material was removed during the storms, which equates to a loss of 39 percent of the periodic renourishment volume of 1.1 million cy of material.

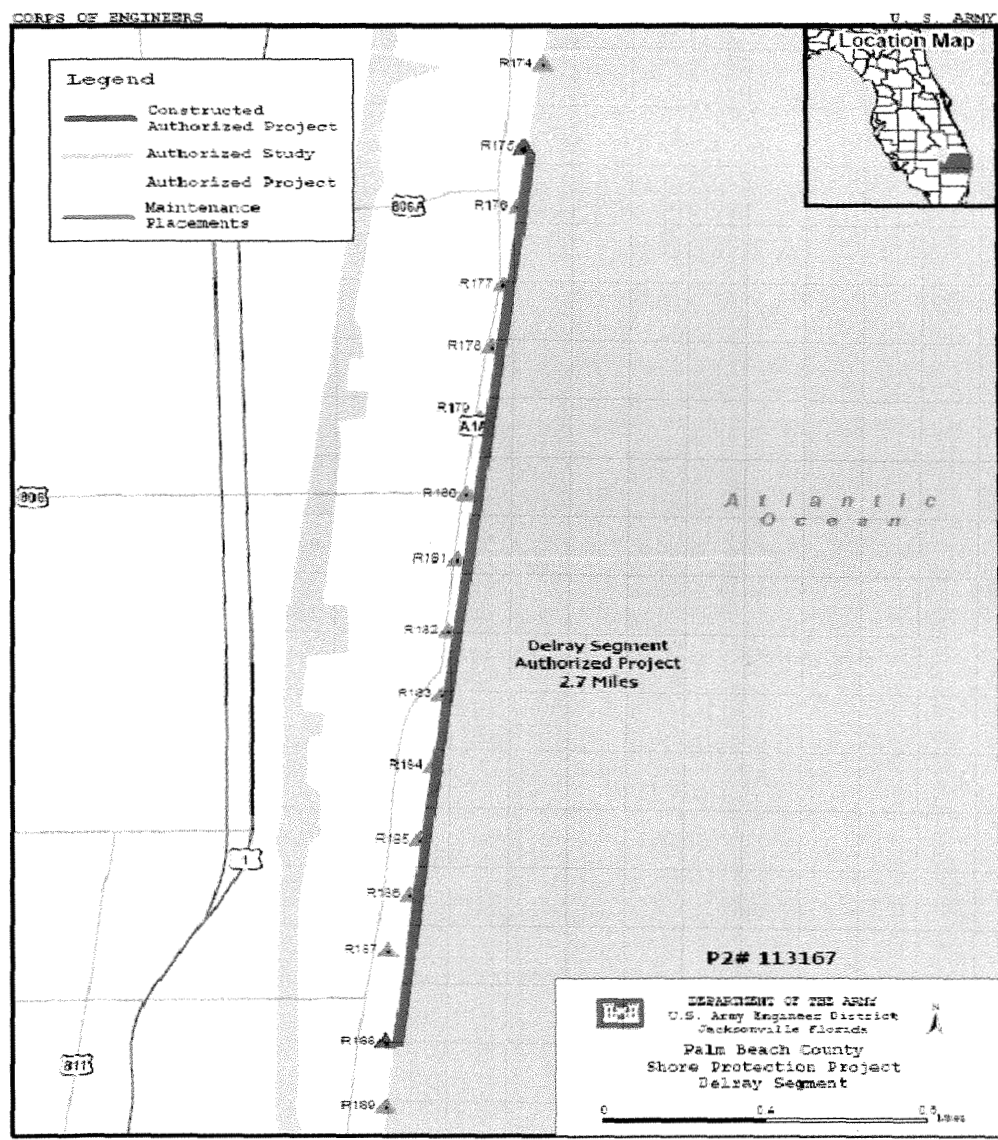


Figure 1. Project location, Delray Beach, Palm Beach County, Florida.

The berm will be constructed to a width of approximately 100 feet and an elevation of plus 9 feet above mean low water with a slope of 1V:15H (Vertical to Horizontal). Construction of the proposed project will be completed by May 1, 2005. An 8-year renourishment interval is anticipated.

The material will be obtained by hopper dredge from two sites identified as Borrow Area I and Borrow Area II, which are located approximately 1,200 feet and 3,000 feet offshore of the project, respectively, at depths that range from minus 66 feet to minus 32.0 National Geodetic Vertical Datum (NGVD) (Figs. 2 and 3). The materials within the borrow areas consists primarily of poorly graded, fine grained quartz sand with a trace of shell hash (0-5 percent) and 1.5 percent silt/clay present. Borrow Area I has a mean grain size of 0.24 millimeter (mm) (2.03 phi) and Borrow Area II has a mean grain size of 0.26 mm (1.93 phi). There is approximately 1.2 and 1.1 million cy of material currently available in Borrow Areas I and II, respectively.

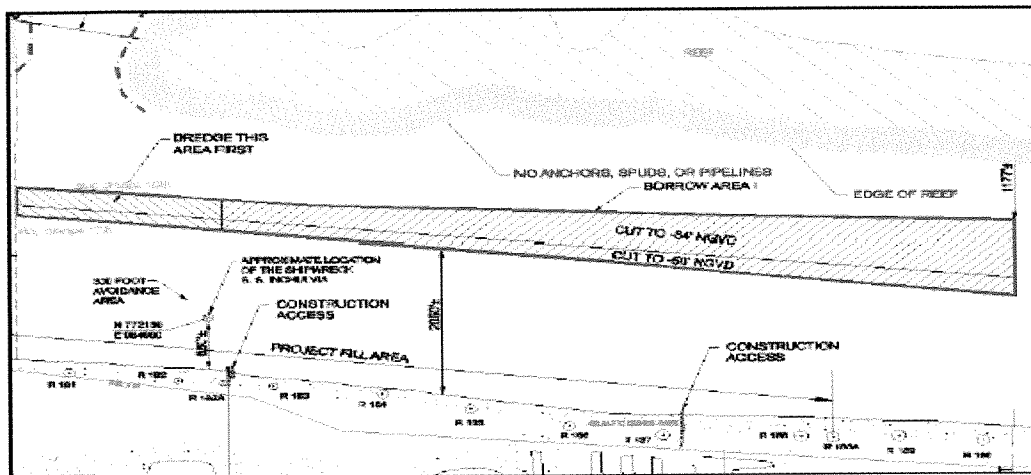


Figure 2. Delray Beach Borrow Area I (Corps Project Implementation Report, Delray Beach, 2004)

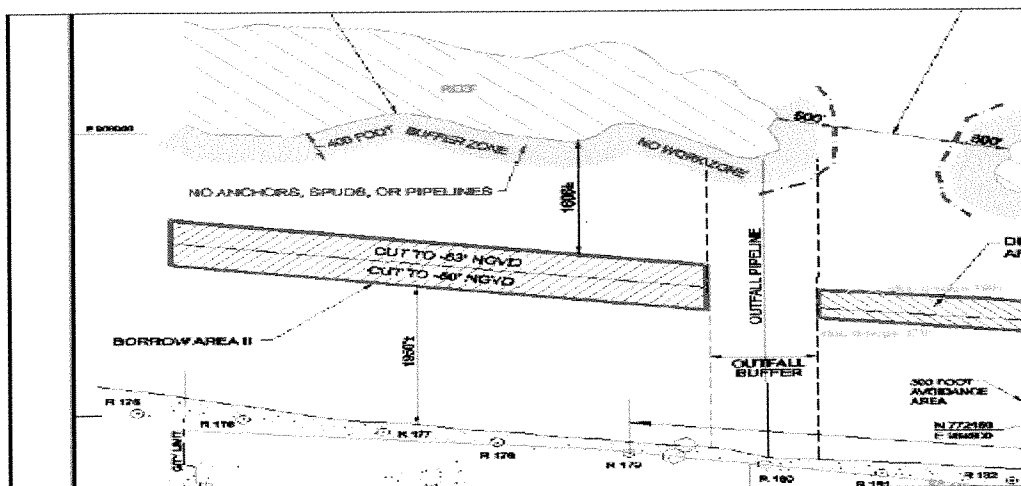


Figure 3. Delray Beach Borrow Area II (Corps Project Implementation Report, Delray Beach, 2004)

THREATENED AND ENDANGERED SPECIES

Palm Beach County is located within the peak nesting range for the three species of sea turtles: loggerhead sea turtle, green sea turtle, and leatherback sea turtle that regularly nest along the beaches of southeast Florida. Between 1998 and 2003, Palm Beach County beaches supported approximately 18 percent of the overall sea turtle nesting in Florida. Only one other Florida county, Brevard, supports a greater percentage of sea turtle nesting. In total, 15,032 and 14,036 sea turtle nests were recorded in 2002 and 2003, respectively, along the 42 miles of Palm Beach County beach included in the Florida Fish and Wildlife Conservation Commission's (FWC) Florida Statewide Nesting Beach Survey. The distribution of nests among species in 2002 included 13,032 loggerhead sea turtles; 2,339 green sea turtles; and 250 leatherback sea turtles, and in 2003 the distribution included 12,963 loggerhead sea turtles; 767 green sea turtles; and 306 leatherback sea turtles. The affects to nesting sea turtles as a result of coastal erosion during the September 2004 hurricanes is currently under evaluation by resource agencies. However, anecdotal information would suggest that a significant number of incubating sea turtle nests were inundated or washed out during Hurricanes Frances and Jeanne.

The Service has reviewed our 2001 and 1996 Biological Opinions for this project area, assessed the sea turtle nesting data for the area and current status of the available sea turtle nesting habitat, and considered the cumulative effects of the project. Our December 17, 2001, letter to the Corps revised the 1996 COF Biological Opinion through the inclusion of specific refinements to several Reasonable and Prudent Measures and Terms and Conditions. Since 2001, the Service has further revised and clarified the Terms and Conditions, as well as, included an additional requirement for nighttime leatherback sea turtle monitoring.

Because leatherback turtle nests occur within the project vicinity, and are difficult to detect and identify using State of Florida monitoring standards, we have modified our Reasonable and Prudent Measures and Terms and Conditions. Our October 24, 1996, Biological Opinion is now amended with these Reasonable and Prudent Measures and Terms and Conditions; all other parts of the biological opinion are applicable to the proposed Delray Beach renourishment project.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of federally threatened loggerhead sea turtles, endangered green sea turtles, endangered leatherback sea turtles, and endangered hawksbill sea turtles:

1. Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence must be used on the project site;
2. Beach nourishment activities must not occur from May 1 through October 31, the period of peak sea turtle egg laying and egg hatching, to reduce the possibility of sea turtle nest burial, crushing of eggs, or nest excavation;

3. If the beach nourishment project will be conducted during the period from March 1 through April 30, surveys for early nesting sea turtles must be conducted. If nests are constructed in the area of beach nourishment, the eggs must be relocated;
4. If the beach nourishment project will be conducted during the period from March 1 through April 30, nighttime surveys for nesting leatherback sea turtles must be conducted. If the nests are constructed in the area of the beach nourishment, the eggs must be relocated;
5. If the beach nourishment project will be conducted during the period from November 1 through November 30, surveys for late nesting sea turtles must be conducted. If nests are constructed in the area of beach nourishment, the eggs must be relocated;
6. Immediately after completion of the beach nourishment project and prior to the next three nesting seasons, beach compaction must be monitored and tilling must be conducted as required by March 1 to reduce the likelihood of impacting sea turtle nesting and hatching activities. The March 1 deadline is required to reduce impacts to leatherbacks that nest in greater frequency along the South Atlantic coast of Florida than elsewhere in the continental United States;
7. Immediately after completion of the beach nourishment 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 required to reduce the likelihood of impacting sea turtle nesting and hatching activities;
8. The applicant must ensure that contractors doing the beach nourishment work fully understand the sea turtle protection measures detailed in this incidental take statement;
9. During the early and late portions of the nesting season, construction equipment and materials must be stored in a manner that will minimize impacts to sea turtles to the maximum extent practicable; and
10. During the early and late portions of the nesting season, lighting associated with the project must be minimized to reduce the possibility of disrupting and misdirecting nesting and/or hatchling sea turtles.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the ESA, 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:

1. All fill material placed must be sand that is similar to a native beach in the vicinity of the site that has not been affected by prior renourishment activities. The fill material must be similar in both coloration and grain size distribution to the native beach. All such fill material must be free of construction debris, rocks, or other foreign matter and must not contain, on average, greater than 10 percent fines (*i.e.*, silt and clay) (passing the #200 sieve) and must not contain, on average, greater than 5 percent coarse gravel or cobbles, exclusive of shell material (retained by the #4 sieve).
2. Beach nourishment 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 will be stored on the beach.
3. If the beach nourishment project will be conducted during the period from March 1 through April 30, daily early morning surveys for loggerhead and green sea turtle nests must be conducted from March 1 through April 30 or until completion of the project (whichever is earliest), and eggs must be relocated per the following requirements:
 - 3a. 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. 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; and
 - 3b. 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. Nests deposited within areas where construction activities have ceased or will not occur for 65 days must be marked and left in place unless other factors threaten the success of the nest. Any nests left in the active construction zone must be clearly marked, and all mechanical equipment must avoid nests by at least 10 feet;
4. If the beach nourishment project will be conducted during the period from March 1 through April 30, nighttime surveys for leatherback sea turtle nests must be conducted from March 1 through April 30 or until completion of the project (whichever is earliest), and eggs must be relocated per the following requirements:
 - 4a. 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 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 that all nesting leatherbacks are encountered); and

- 4b. 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;
5. If the beach nourishment project will be conducted during the period from November 1 through November 30, daily early morning surveys for loggerhead and green sea turtle nests must be conducted 65 days prior to project initiation and continue through September 30, and eggs must be relocated per the preceding requirements;
6. Immediately after completion of the beach nourishment project and prior to March 1 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. At a minimum, the protocol provided under 6a and 6b below must be followed. If required, the area must be tilled to a depth of 36 inches and 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. An annual summary of compaction surveys and the actions taken must be submitted to the Service. (NOTE: The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of post-construction compaction levels. Also, out-year compaction monitoring and remediation are not required if placed material no longer remains on the beach);
- 6a. 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 or 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 will be pushed to a depth of 6, 12, and 18 inches 3 times (3 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 will 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 will 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; and
- 6b. 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;

7. Visual surveys for escarpments along the project area must be made immediately after completion of the beach nourishment project 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 to the natural beach contour 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. 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. (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the dry beach);
8. The applicant must arrange a meeting between representatives of the contractor, the Service, the FWC, and the permitted person responsible for egg relocation at least 30 days prior to the commencement of work on this project. At least 10 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;
9. From March 1 through April 30 and November 1 through November 30, 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. 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 likewise not compromise the integrity of the dune systems (placement of pipes perpendicular to the shoreline is recommended as the method of storage);
10. From March 1 through April 30 and November 1 through November 30, direct lighting of the beach and near shore 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 U.S. Coast Guard, EM 385-1-1, and Occupational Safety and Health Administration (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 (Fig. 4);

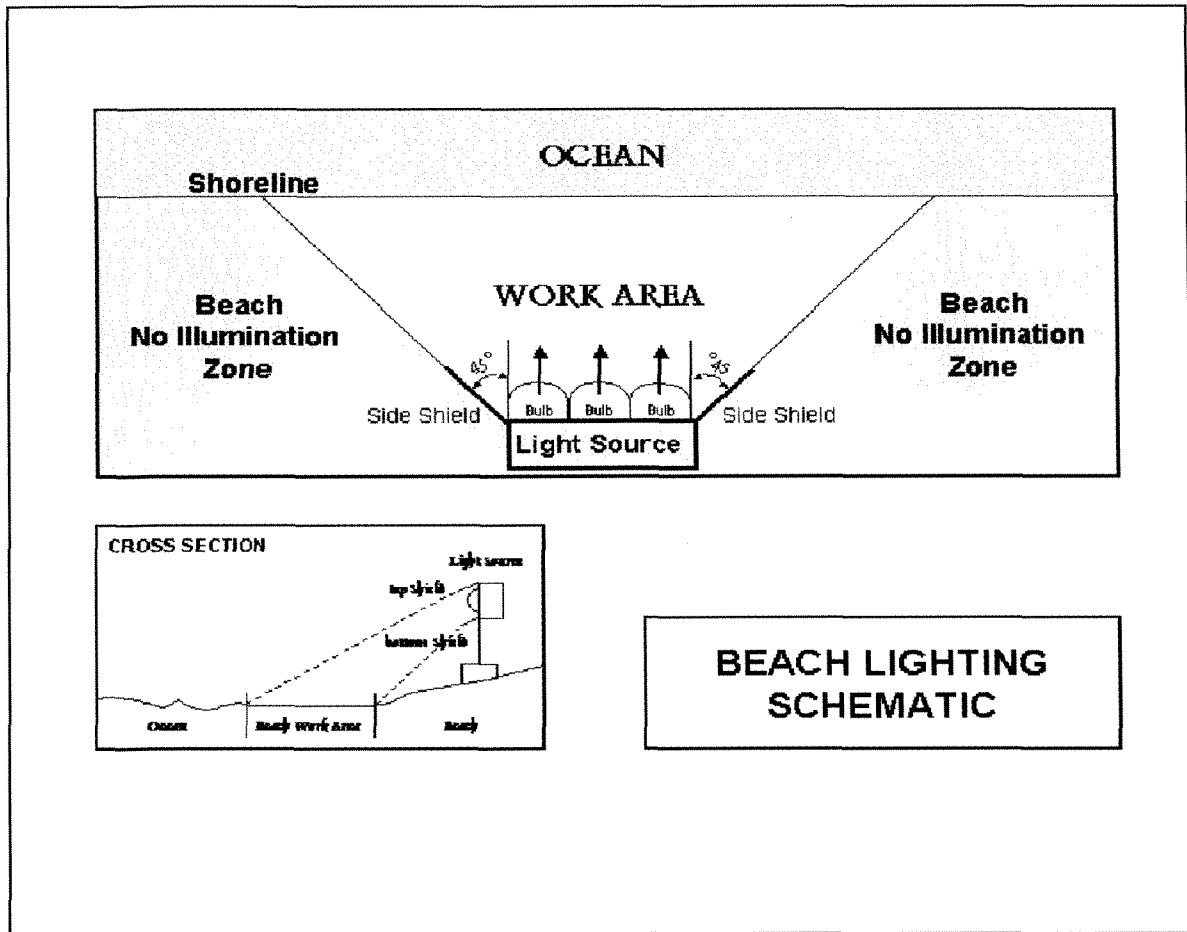


Figure 4. Lighting diagram.

11. A report describing the actions taken to implement the terms and conditions of this incidental take statement must be submitted to the South Florida Ecological Services Office, Vero Beach, Florida within 60 days of completion of 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 nest surveys and relocation activities, descriptions and locations of self-release beach sites, nest survey and relocation results, and hatching success of nests;
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; and

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, Division of Law Enforcement at 888-404-3922, and the Service's South Florida Ecological Services Office, Vero Beach at 772-562-3909. Care should 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.

The Service believes that incidental take will be limited to the 2.7 miles of beach that have been identified for sand placement. 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 the following types of incidental take will result from the proposed action: (1) destruction of all nests that may be constructed and eggs that may be deposited and missed by a nest survey and egg relocation program within the boundaries of the proposed project; (2) destruction of all nests deposited during the period when a nest survey and egg relocation program is not required to be in place within the boundaries of the proposed project; (3) reduced hatching success due to egg mortality during relocation and adverse conditions at the relocation site; (4) harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities; (5) disorientation of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting; (6) behavior modification of nesting females due to escarpment formation within the project area during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; and (7) destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Service. The amount or extent of incidental take for sea turtles will be considered exceeded if the project results in more than a **one-time placement of sand** on the 2.7 miles of beach that have been identified for sand placement. If during the course of the action this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation 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 ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA 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. Educational signs should be placed where appropriate at beach access points explaining the importance of the area to sea turtles and the life history of sea turtle species that nest in the area; and

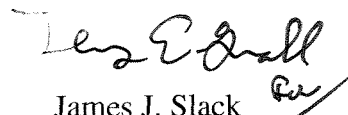
2. Since the hurricane events of 2004 were unprecedented, as was the response to restore eroded beaches, a summary report should be generated to assess the impacts to fish and wildlife resources and listed species as a result of the efforts to concurrently restore federally authorized shore protection projects in Florida.

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.

This concludes formal consultation on the action outlined in the reinitiation request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation of formal consultation.

Thank you for your cooperation and effort in protecting fish and wildlife resources. Should you have any questions regarding the findings and recommendations contained in this document, please contact Trish Adams at 772-562-3909, extension 232.

Sincerely yours,



James J. Slack
Field Supervisor
South Florida Ecological Services Office

cc:

DEP, Bureau of Beaches and Wetland Resources, Tallahassee, Florida (Marty Seeling)
EPA, West Palm Beach, Florida
FWC, Bureau of Protected Species Management, Tallahassee, Florida (Robbin Trindell)
NOAA Fisheries, Miami, Florida (Jocelyn Karazsia)
Service, Jacksonville, Florida (Sandy MacPherson)