CHAPTER 14: MONITORING AND MANAGEMENT OF LISTED SPECIES

Biological Goal

The beaches of Walton County provide important nesting habitat for four species of sea turtles, year-round habitat for CBM, and foraging and resting habitat for wintering piping plovers. It is the intent of this HCP to facilitate State and Federal recovery efforts for these species by maintaining the quality of the County's coastal (beach/dune) system and identifying and reducing impacts from human activities that harm them. This will be accomplished through the following programs, as described below and elsewhere within the HCP:

- Countywide sea turtle nesting survey to document temporal and spatial nesting patterns and identify factors that reduce hatchling productivity (e.g., artificial lighting, predation, erosion, etc.);
- Development and maintenance of a Countywide protected species database (GIS) so available resources can be effectively directed to alleviate those conditions that are having the greatest adverse impact on listed species;
- Permitting and regulation of emergency shoreline protection projects;
- Management and oversight of activities such as beach driving, vendors, and special events; and
- Management of artificial beachfront lighting.

Choctawhatchee Beach Mouse

The FWC and USFWS have conducted surveys for beach mice in and around the three State parks in Walton County and have reintroduced this species to suitable unoccupied public and private lands (see Chapter 6). Under this HCP, the County will rely on the FWC and USFWS to continue this monitoring and recovery effort. CBM data provided by the FWC or USFWS will be incorporated into the County's protected species database, and the USFWS will be consulted on issues related to emergency shoreline protection potentially affecting beach mouse habitat.

Piping Plover

In conjunction with its voluntary non-breeding shorebird surveys (see Chapter 13), the County will conduct twice monthly piping plover surveys every five years over the life of the ITP. During these surveys, the County will obtain important information on piping plover utilization of beaches within the Plan Area. This data will be incorporated into the protected species database. Additionally, the database will be supplemented with piping plover sighting reports received from the USFWS and other reliable sources (e.g., U.S. Geological Survey, 5-year piping plover census data). County staff and sea turtle monitoring personnel with practical experience in bird identifications will report any

sightings of piping plovers to the HCP Coordinator. All piping plover records will include the date and location of the sighting, the number of birds sighted, the activity of the birds (e.g., foraging in wrack line, resting near dune, etc.), presence or absence of leg bands, and the name and affiliation of the observer.

Sea Turtles

All sea turtle monitoring programs in Florida are conducted under the authority of FWC's Imperiled Species Management Section, which issues permits to qualified individuals to perform specific activities in support of the State's sea turtle protection programs (subsection 379.2431 (1), FS). These individuals are referred to as Principal Permit Holders (PPHs). At present, monitoring for sea turtle nesting in Walton County is performed under the auspices of a non-profit organization, the South Walton Turtle Watch, and Florida Park Service personnel. Under the direction of the group's PPH, SWTW volunteers monitor all beaches outside the State Parks, while Park Service staff monitor within the boundaries of the three State parks. Thus, the SWTW is responsible for collecting sea turtle data throughout that portion of the Plan Area managed by the County.

The SWTW conducts early morning surveys of County beaches on foot. Every observed crawl is interpreted to determine which species of turtle came ashore and whether or not it nested. Nests are marked and monitored throughout their incubation period. After hatchlings emerge or an appropriate period, the nests are excavated and their contents examined to estimate how many eggs were laid and how many hatchlings emerged from the nest.

Review and Coordination of Monitoring Activities

A systematic program to protect sea turtles and enhance their nesting habitat throughout Walton County is predicated on reliable scientific information obtained through a coordinated monitoring effort. It is not the County's intent to supplant the existing programs but rather to: (a) augment the SWTW program with logistical support, if needed; (b) review and amend monitoring activities, as needed, to ensure that the County can fulfill its objectives and obligations under this HCP and the ITP; (c) provide expert training to SWTW volunteers engaged in monitoring activities, and (d) establish effective lines of communication with Park Service staff to ensure that all protected species data within the County are incorporated into a comprehensive database and that issues related to HCP implementation and ITP compliance within the parks are identified and dealt with in a timely manner.

Within 90 days of issuance of the ITP, the County will meet with the State's PPH(s) in Walton County and FWC staff to review current monitoring objectives and practices and amend monitoring programs, as necessary, to allow the County to fulfill its HCP responsibilities. Within those portions of the Plan Area managed by the County, the monitoring program will consist of the following principal components:

- Establishment of boundary markers to allow segregation of nesting data by specific sections of beach relative to FDEP monuments, existing and planned beach nourishment projects, areas of critical erosion, and/or other coastal features to make the data more meaningful to analyses of temporal and spatial patterns;
- Standardization of field data sheets and data recording protocols to facilitate data entry into a Countywide protected species database;
- A uniform nest marking protocol;
- Collection of GPS data at every nest site;
- Development of a standard methodology for monitoring construction areas, buffer zones, equipment access points, and/or equipment travel corridors, as applicable, at emergency shoreline protection project sites; and
- Protocols for the efficient and timely transfer of monitoring data and information germane to implementation of this HCP.

Description of Monitoring Activities

The Countywide monitoring program will consist of: (a) daily nesting surveys; (b) marking and monitoring of all sea turtle nests; (c) and documentation of natural and anthropogenic impacts to sea turtle nests, adults and hatchlings.

Daily Surveys

The entire 20.0 mi (32.2 km) of County-managed beaches will be partitioned into individual survey segments that will be conspicuously marked with standard posts and/or signs developed, purchased/constructed, and installed by the County. By recording nesting information by discrete survey segments, the County will be better able to isolate natural and/or anthropogenic factors affecting nesting and hatchling productivity. The GPS data obtained at nest sites will also allow the HCP Coordinator to quickly determine if nests are present in the general vicinity of a site for which an emergency permit has been requested. Additionally, the information and data collected through the sea turtle monitoring program will support the planning, design and permitting of the County's future beach restoration and nourishment projects.

Daily monitoring will commence each year on May 1 and will continue uninterrupted through August 31. Thereafter, periodic monitoring will continue at a schedule deemed appropriate by the PPH until the last marked nest has been evaluated.

Monitoring will commence each day at or shortly after sunrise. The surveys will be conducted on foot or by all-terrain vehicle (ATV) or similar light-weight vehicle having wide, low-pressure tires, unless otherwise agreed to by Walton County and authorized by the FWC. The numbers of nesting and non-nesting emergences (crawls) will be enumerated by species within each marked survey segment. Unless otherwise stipulated in this HCP, crawl interpretation and all other aspects of monitoring will be conducted in accordance with the most recent FWC Marine Turtle Conservation Guidelines.

Documenting Anthropogenic Impacts to Nesting Turtles

If during the course of daily nesting surveys, there is any evidence of impacts to nesting sea turtles, the nature of the incident will be recorded on the field data sheet. Impacts include but are not limited to:

- Turtles contacting or being stuck in recreational beach equipment;
- Turtles contacting or being trapped by armoring structures;
- Turtles encountering scarps or unable to scale steep slopes at constructed dunes associated with armoring structures;
- Turtles disoriented by artificial light;
- Turtles prevented or impeded from nesting because of coastal construction activities; and
- Turtles impeded from reaching otherwise suitable nesting areas because of escarpments on the beach.

If there is any indication of impacts to nesting turtles causally related to activities regulated under this HCP, the PPH will contact the HCP Coordinator the same day and provide documentation of the incident. The HCP Coordinator will provide the PPH with primary and alternate contact numbers so reports can be received outside of normal business hours.

Marking and Monitoring Nests

There will be four primary reasons for marking nests along County beaches:

- To conspicuously identify the location of nests for avoidance by vehicular and foot traffic;
- To create a protective barrier around *in situ* nests in emergency shoreline protection project areas;
- To monitor for natural (e.g., wave overwash, predation, etc.) and anthropogenic (e.g., poaching, vandalism, etc.) events affecting nest fate; and
- To determine the reproductive success of nests.

Nest Marking

The clutch of each nest will be located and marked in a manner mutually agreed upon by the HCP Coordinator and PPH. The nest barrier will be inscribed with a unique identification number that will permit determination of the species and nest date. This number will be used to reference all related GIS and database information. Nest barriers will be sufficiently large and conspicuous to ensure avoidance by pedestrian and vehicular traffic and posted with sea turtle protection signs provided by the FWC, if available.

GPS data will be collected at all marked nest sites by County staff. The GPS used will be of sufficient precision to allow for the reestablishment of nest barriers should they be

washed out by tides or vandalized. GPS data will be collected in a timely manner and entered into the County's protected species and GIS databases. All data will be referenced to the nest identification number inscribed on the nest barrier. Nest locations will be mapped using available GIS software programs. Maps and data will be provided to the USFWS, FWC, and other agencies upon request and will be used as needed to help manage HCP activities.

Monitoring to Determine Nest Fate and Reproductive Success

It is imperative that marked nests be monitored daily so that if nest barriers are washed out or vandalized, the barrier can be reestablished to protect it from pedestrian and vehicular traffic. The PPH will maintain an inventory of all marked nests. The inventory will be updated regularly as new nests are marked and nest barriers are removed from existing nests that have hatched. The County will work with the PPH to develop methods and materials to assist monitoring personnel in determining the precise locations of nests.

Every morning, all nests listed on the inventory will be checked to ensure that nest barriers are present. Damaged barriers will be repaired as necessary to ensure their visibility to the public. Missing barriers will be reported immediately to the HCP Coordinator and the approximate nest location determined using GPS data or alternative methods established by the PPH. The PPH will assess the nest site to determine if viable eggs are likely to be present (e.g., nest barriers may be lost due to high tides and/or storm activity). If it is determined that viable eggs may be present, the nest barrier will be reestablished.

Each marked nest will be monitored throughout its incubation period to determine nest fate. Nest fate will be assigned to one of the following categories:

- Hatched (evidenced by hatchling tracks emerging from the nest barrier);
- Depredated (evidenced by an exposed egg chamber and broken eggs) prior to first hatchling emergence or 70 days of incubation;
- Washed out (evidenced by the loss of all nest stakes following a period of excessive high tides, wave overwash, and/or erosion);
- Vandalized (evidenced by the loss of nest stakes in the absence of overwash during high tides);
- Scavenged (predator disturbance to clutch contents after first hatchling emergence); or
- Unknown (no apparent damage to the nest or nest barrier, but no signs of hatchling emergence).

If hatchling emergence is noted at a marked nest, the following information will be recorded, as applicable:

- Date of first hatchling emergence (used to calculate incubation period);
- Hatchlings safely reached the ocean;
- Hatchlings trapped or impeded by vehicle ruts;

- Hatchlings disoriented by artificial beachfront lighting; and
- Hatchlings trapped or impeded by beach furniture, construction debris, natural debris, or other obstacles.

Marked nests will be excavated to determine reproductive success in accordance with the most recent FWC Marine Turtle Conservation Guidelines. Clutch contents will be assigned to the following categories: hatched eggs, whole unhatched eggs, damaged unhatched eggs, pipped eggs with live hatchlings, pipped eggs with dead hatchlings, live hatchlings, and dead hatchlings. Data will be recorded on standard field data sheets for subsequent entry into the County's protected species database. These data will be used to estimate clutch size, hatching success (percentage of eggs that hatched), and hatchling emerging success (percentage of eggs that produced hatchlings that successfully emerged from the nest).

If a nest or hatchlings are impacted by activities regulated under this HCP, the PPH will contact the HCP Coordinator the same day and provide documentation of the incident. The HCP Coordinator will provide the PPH with primary and alternate contact numbers so reports can be received outside of normal business hours. Similarly, whenever a hatchling disorientation is documented, monitoring personnel will complete a standard FWC disorientation reporting form and provide copies of the form to both the FWC and HCP Coordinator within 24 hours.

Missed Nests

Missed nests are evidenced by signs of hatchling emergences in areas where no nest barriers are present. Once discovered, missed nests will be marked and monitored in a manner consistent with procedures described for *in situ* nests. If the percentage of missed nests is higher than seven percent, the HCP Coordinator will meet with the PPH and FWC to discuss potential reasons for missing nests and will develop appropriate measures to reduce future incidences.

Nests in Construction Zones

At those locations where an emergency shoreline protection project has been initiated, the Coastal Engineer will visit the site prior to construction and will coordinate with the FWC to assess the suitability of nesting habitat. If any marked nests are present, the Coastal Engineer in coordination with the FWC will make a determination as to whether or not the nests are likely to interfere with authorized construction activities. If the nests cannot be safely left in place, they will be relocated to a nearby in-beach location following consultation with the FWC. All activities associated with the relocation of eggs from a project shall be performed in accordance with the most current FWC Marine Turtle Conservation Guidelines except that nest relocation for emergency armoring may be authorized by the FWC, provided the County's emergency authorizations conform to the requirements of this HCP and comply with the terms and conditions of its ITP.

Nests that can be safely left in place will be surrounded by a series of stakes having a radius of at least 10 ft (3.0 m) around the clutch. The stakes will be connected with brightly colored surveyor's tape. The County may coordinate with the FWC on alternative methods of marking *in situ* nests, as long as the barriers are conspicuous and provide an equivalent buffer around the clutch.

The Coastal Engineer in consultation with the FWC will mark the construction site, buffer zones, equipment access point, and equipment travel corridor, as applicable. Any new nests laid in the project area during the period of construction will be relocated or left in place in accordance with specific authorizations provided by the FWC for that particular project site. Those left *in situ* will be barricaded as indicated above. Following construction, all nests deposited in emergency shoreline protection project areas will be marked and monitored *in situ* to determine nest fate and reproductive success.

Monitoring of Temporary and Permanent Structures

Monitoring of effects to sea turtles from emergency shoreline protection project areas shall be performed by the SWTW or contracted biologists authorized by the FWC in accordance with the guidelines set forth in Chapter 11 of this HCP. Any evidence of impacts to turtles associated with the project will be adequately documented and furnished to the HCP Coordinator.

Monitoring Responsibilities

Walton County is ultimately responsible for ensuring that all 20.0 mi (32.2 km) of the beaches it manages are monitored in accordance with the provisions of this HCP. Although the SWTW is currently responsible for this requisite monitoring, there may be occasions over the 25-year term of the ITP that additional or alternative monitoring personnel are required, particularly with regard to permit-compliance monitoring needed to support the County's beach restoration and nourishment projects. If the County identifies any deficiencies in monitoring effort or anticipates any gaps in coverage, the FWC will be contacted and all affected parties cooperatively engaged to determine how best to affect the needed changes.

Reporting

The PPHs will provide copies of all data collected under the sea turtle program to the HCP Coordinator. This information will be submitted at a schedule(s) mutually agreed upon to ensure that the County is able to abide by the conditions of its ITP. Data to be provided include:

- Copies of daily field data sheets;
- Documentation of impacts to sea turtles causally related to activities managed under the HCP;
- Inventories of marked nests; and
- Results of nest fate and/or reproductive success determinations.

Organization and Training of Monitoring Personnel

The PPH(s) responsible for sea turtle monitoring pursuant to this HCP shall ensure that all listed personnel have sufficient training and practical experience to conduct requisite monitoring activities in accordance with FWC Marine Turtle Conservation Guidelines and/or requirements of this HCP. Any discrepancies between FWC guidelines and the HCP shall be brought to the immediate attention of the HCP Coordinator. Until such time as those discrepancies are resolved, procedures required by the FWC as part of the Marine Turtle Permit shall prevail. The HCP Coordinator shall communicate with the FWC, as necessary, to resolve conflicts between the State's sea turtle guidelines and HCP requirements.

Upon issuance of the ITP, all PPHs in Walton County will be provided a copy of the HCP. Within 90 days of issuance of the ITP, the HCP Coordinator will meet with the PPHs and FWC to review HCP programs and related monitoring requirements. Thereafter, recurrent HCP training sessions will be held at a frequency deemed appropriate by the HCP Coordinator. PPHs will be notified in writing of any substantive changes to monitoring requirements or procedures that may occur over the life of the ITP.

Initiation of Monitoring Activities and Coverage for Take

Walton County will initiate its monitoring program within six (6) months of issuance of the ITP or the first May 1 following issuance of the ITP, whichever occurs later. Under this HCP, no emergency permits will be issued for projects during the sea turtle nesting season unless a monitoring and nest marking program, as described in Chapter 11, has been in effect at the affected property for at least 65 days prior to the date that the emergency permit is requested or since May 1, whichever period is shorter.

Data Management

Walton County will be issuing emergency permits for shoreline protection pursuant to the terms and conditions of this HCP and the ITP. Germane to these activities is the establishment of a Countywide protected species database upon which sound beach management decisions can be based. Complete and reliable data are needed to ensure that emergency shoreline protection projects are designed, constructed, and maintained in a manner that minimizes impacts to covered species and enhances the quality of the County's beaches.

The County will receive data collected by the PPHs (sea turtles), contractors (shorebirds), and the FWC and USFWS (beach mice) within the Plan Area and enter this data into an Access or comparable electronic database. Data will be compiled and analyzed in such a manner as to:

- Depict temporal and spatial patterns of protected species habitat utilization;

- Identify areas of the County's coastline where natural (e.g., predation and erosion) and anthropogenic factors (e.g., artificial lighting, coastal construction, etc.) are impacting protected species; and
- Display all shoreline protection structures installed as the result of the County's emergency permitting program.