

Project ID 1845 – Restoring Florida’s Shorebird and Seabird Populations

Project Description

This project seeks to restore and protect Florida’s shorebirds and seabirds (hereafter, shorebirds) that were affected by the Deepwater Horizon (DWH) Spill through management at important breeding, wintering, and migratory stopover sites.

Focal Species

There are 13 species that were impacted by DWH that will directly benefit from this project. These species include the following focal species: *Black Skimmer*, *Least Tern*, *American Oystercatcher*, *Wilson’s Plover* and *Snowy Plover*. The master list of species impacted by DWH that will benefit from this project include the following species that breed in Florida:

Bird Subgroup	Species
<i>Colonial Waterbirds</i>	Laughing gull
	Brown pelican
	Royal tern
	Black skimmer
	Least tern
	Sandwich tern
	Caspian tern
	Gull-billed tern
<i>Solitary Beach Nesting Birds</i>	American oystercatcher
	Killdeer
	Wilson's plover
	Snowy plover
	Willet

Table 1. Species impacted by DWH that will directly benefit from this project. Focal species are in bold.

Shorebirds and their habitats are management dependent, requiring attention on an annual basis to maintain gains. Physical restoration projects (e.g., island creation, erosion control, beach nourishment) are a valuable component of Florida’s shorebird recovery efforts, but restored habitat will require continual management attention. Habitat for breeding shorebirds cannot be considered high quality unless continual management is implemented at restored sites within an adaptive context. This proposal outlines the core staffing and funding components necessary to conduct this management in a scientifically sound, effective, and sustainable manner. Collectively, we refer to this effort as the Shorebird Program. The Shorebird Program is cost-effective compared to other restoration activities and on a dollar for dollar basis protects vastly more acreage and nesting birds than can be achieved through habitat restoration alone.

This effort has increased implementation of best management practices for breeding shorebirds and has standardized monitoring across the state. During this time, FWC has also improved our understanding of the conservation needs for shorebird and seabird species by addressing numerous data gaps outlined in Florida’s Imperiled Beach-Nesting Bird Plan (IBNB) (FWC 2013b) and in other conservation planning

efforts for non-breeding shorebirds and seabirds. Additionally, the development of FWC's IBNB Plan, the listing of the red knot as federally threatened, the Atlantic Flyway Shorebird Conservation Initiative (AFSI), and the development of a Florida Beach-Nesting Bird Plan (Schulte 2016) have resulted in an expansion of knowledge, interest, public awareness, and regulatory focus (4 state-listed and 2 federally listed species) on shorebirds and seabirds. Collectively, these efforts have built substantial momentum for shorebird and seabird conservation in Florida. With this momentum has come a sharp increase in workload without a concomitant increase in staffing. To date, almost all of FWC's shorebird work has been dependent on short-term funding of temporary positions, and full-time staff are consistently operating past capacity in an effort to meet our obligations to shorebird and seabird conservation and management. Furthermore, the majority of FWC's efforts have focused solely on beach-nesting birds with limited conservation attention paid to the numerous non-breeding shorebird species.

This proposal is built on a solid foundation and a proven track record with regard to shorebird and seabird conservation in Florida. It is designed to not only ensure the continuation of the ongoing work, but to provide the resources necessary to expand existing efforts in two regions of the state. It outlines the resources needed to build an effective Shorebird Program within FWC to address the highest priority monitoring, management, and adaptive management objectives identified in the IBNB Plan, Florida's Beach-nesting Bird Business Plan, and the Atlantic Shorebird Flyway Conservation Initiative to recover populations impacted by the oil spill. FWC will use the following strategies to address shorebird conservation:

1. **Reduce human disturbance:** Posting of nesting, brood-rearing, and sensitive feeding habitats with symbolic fencing and/or signage has been demonstrated to limit human disturbance. Nesting sites are posted with signs and twine to alert beachgoers to the presence of nests. Through the FSA we strive for comprehensive coverage and to post every nest that is vulnerable to human disturbance. FWC's designated Critical Wildlife Areas (CWAs), which support some of the most vulnerable beach-nesting bird sites, receive particular attention. The use of symbolic fencing to post nesting, brood-rearing, and sensitive feeding habitats has been shown to reduce disturbance and increase reproductive success for nesting wading birds and shorebirds (Carlson and McLean 1996, Bouton et al. 2005, Lafferty et al. 2006, Medeiros et al. 2007, Pruner et al. 2011). For example, posting a breeding site for snowy plovers increased the abundance of nesting birds, eliminated nest loss due to trampling, and significantly reduced nest losses from predation (Lafferty et al. 2006). Comparable results have been observed in Florida, where snowy plovers were approximately 4 times more likely to nest within versus outside of posted areas, and nests within posted areas were approximately 1.5 times more likely to hatch (Pruner et al. 2011). At Panhandle state parks where brood-rearing areas were also protected, broods were twice as likely to fledge compared to broods raised in unprotected areas (Pruner 2010). Outreach, stewarding, and coordination with Law Enforcement are also components of this strategy. Bird stewards educate beachgoers about nesting birds and their vulnerability to disturbance and ensure their compliance with posted areas. In Southwest Florida, Eckerd College's Dr. Beth Forsy found that unstewarded sites were nine times more likely to be disturbed by human entry than those with a steward present (Forsy 2011).
2. **Manage habitat:** One of the primary threats to seabirds and shorebirds in Florida is incompatible beach management. Practices such as mechanical beach cleaning, beach driving, incompatible recreation, organized events, and revegetation projects can cause abandonment or population reductions in otherwise suitable habitat. In the absence of major erosion or

accretion events, prime breeding habitat can quickly succumb to unsuitable conditions requiring vegetation management intervention. Although FWC has virtually no coastal shorebird habitat under its management authority, the agency has been able to successfully influence landowners, local governments, and resource management agencies by promoting best management practices. Staff do undertake vegetation management at several sites. Staff also work to secure funding and develop plans for future habitat restoration and creation efforts. Staff work to address activities on beaches that are incompatible with nesting shorebirds by establishing closed refuges, reducing mechanical beach cleaning, limiting beach driving, and addressing conflicts with feral cat colonies. Rooftops, where the majority of least terns nest in Florida, represent a habitat type with unique management requirements. Chicks can get trapped in gutters or fall off edges or down downspouts where they become trapped or killed. Staff and their volunteers improve rooftop success by providing outreach to business owners about conducting routine rooftop maintenance and “chick-proofing” roofs in the off-season (screening downspouts, edges, and gutters so chicks will not fall in them). Staff work with volunteers and partners to coordinate rooftop management, engage with building owners and managers to reduce conflict, and intervene using law enforcement when take is imminent or where it has occurred. In addition to all the conservation work being conducted on beaches, efforts to conserve beach-nesters using rooftops could be supported as a means of “off-site mitigation”.

3. **Manage predators:** Of the management actions included in this program, predation management is among the highest priorities but also among the most challenging. A systematic review of lethal (Coté and Sutherland 1997, Smith et al. 2010) and nonlethal (Smith et al. 2010, Smith et al. 2011) predation management suggests that both can be effective strategies for increasing productivity of nesting birds. Predation management in the panhandle of Florida has resulted in increased hatching success for nesting shorebirds (Pruner 2010) and is a potentially powerful management tool throughout Florida. Predation management must be carefully implemented, however, because it is expensive and time-consuming, is often controversial, and it does not always result in larger populations of breeding birds (Coté and Sutherland 1997). Program staff implement predation management at priority nesting sites and are developing an adaptive framework that will maximize the efficiency and efficacy of our efforts. Staff have identified priority sites where we think predation management is warranted and will be effective and are prioritizing sites throughout Florida that, based on data, have substantial numbers of nesting birds that are known to have low productivity as a result of high rates of egg and/or chick predation. Nesting sites where necessary data on productivity rates or cause-specific sources of nest loss are insufficient for prioritization are being targeted for increased monitoring. Staff will reprioritize nesting sites based on new data from increased monitoring, long-term changes in the abundance or distribution of nesting shorebirds, and other factors such as the ongoing evaluation of management efficacy at sites with active predation management. Predation management will include lethal (e.g., coyote trapping, crow shooting) and nonlethal (e.g., predator exclosures, trash management) approaches.
4. **Improve regulatory coordination:** Staff work closely with other regulatory agencies to address impacts of development, beach management practices, coastal engineering, and other beach modification projects. Staff provide comments on these projects, recommend permit conditions

to minimize and avoid impacts, and engage with project managers on implementation of permit conditions. For example, staff recently coordinated with the Florida Department of Environmental Protection to include legally-binding conditions to protect shorebirds and seabirds in a 15-year Joint Coastal Permit for beach nourishment at a nesting site in the Panhandle. The expertise and partnerships developed by staff were key to successful development and implementation of the permit conditions. Furthermore, staff oversight during execution of the project ensured compliance and prevented disruption of an active black skimmer nesting colony. Staff also issue incidental take permits where warranted and direct associated mitigation to meet conservation needs.

5. **Adaptive Management:** Adaptive management, including monitoring and the associated management of data for purposes of directing management and restoration activities, is fundamental to conservation and recovery of these species. In the simplest of terms, we cannot protect, conserve, and grow these populations without documentation of where they occur and what management actions are needed. Monitoring and associated data management are key to appropriately targeting our management actions. These species are highly dynamic in their site selections and somewhat to extremely cryptic (depending on the species). Thus, our ability to locate nesting in real time is critical to our ability to prevent loss of nests from threats such as trampling, disturbance, and predation and requires a virtual dragnet of monitoring. Effectively managing shorebirds and seabirds in a state the size of Florida necessitates managing and transferring copious amounts of monitoring data in real-time. Our reliance on a high volume of volunteer-collected data dramatically increases the extent of our coverage but also requires extensive quality control and data and database management. Over 15,000 records are entered into the Florida Shorebird Database annually, requiring extensive quality control and data management. The database and the web-based interface require extensive maintenance and management. These functions were initially developed for beach-nesting birds but need to be expanded to support monitoring of non-breeding shorebirds.

Staffing Needs

A total of 22 full-time staff and 4 seasonal technicians are needed to effectively support this work. Following is a list of the positions and a brief description of their duties:

- ***Shorebird Program Administrative Assistant:*** This position will provide administrative support for the program including assisting with grant administration, record keeping, budget management, purchasing, accounting, contract development, and other administrative and organizational duties as needed.
- ***Florida Shorebird Alliance Coordinator*** Florida's coastline is too large for effective conservation by FWC staff alone. The Florida Shorebird Alliance (FSA) Partnership Coordinator marshals efforts of conservation partners and volunteers to locate and protect as many of the state's nests as possible. This includes maintaining regular communications with shorebird staff and external partners, providing assistance or leadership as necessary to maintain regional partnerships, developing and facilitating internal and external teams/work groups as needed to coordinate actions, and assisting in the development of shorebird products, guidelines, and standards. This position facilitates statewide communication among partners by maintaining an

FSA contact list, producing a monthly e-newsletter, and managing the group's social media page. Additionally, the FSA Coordinator works to ensure the standardization of protocol use, synchronicity of surveys, and identification of gaps in coverage. Other duties include coordination between Quality Control Specialists and partners, writing annual monitoring reports, grant writing and reporting, serving on the Team that guides the continued development of the FSD, and communicating the mission of the FSA internally and externally. This position is also key in maintaining inter-agency/NGO coordination on shorebird conservation issues.

- **Regional Shorebird Biologists (5):** The primary responsibility of these positions is implementing conservation actions locally, regionally, and in some cases, statewide. Regional Shorebird Biologists are key to ensuring that the state's shifting mosaic of shorebird habitat remains protected.
 - Serve as regional shorebird experts, providing technical assistance to affect conservation for these species including coordinating predation management, working with partners to problem-solve controversial regional issues, especially those with potential regulatory consequences (fireworks, beach driving, local landowners protesting posting of nesting areas); working with landowners and resource managers to promote stewardship of shorebirds (habitat management, predator management, posting); and participating in emergency response and response to die-offs.
 - Coordinate the identification and posting of shorebird nesting sites, ensuring all nest sites are located and protected in a timely manner;
 - Implement grant-funded habitat management, creation, and restoration projects;
 - Oversee the implementation of regional predation management;
 - Ensure the minimization of impacts to shorebirds by permitted activities such as beach nourishment, coastal engineering, and beach management practices by engaging in the permitting process (reviewing & commenting on permit applications, developing guidelines & conditions to be incorporated in permits, improving permit compliance, and participating in relevant environmental commenting);
 - Provide scientific support and aid in implementation of the Beaches HCP;
 - Improve the effectiveness of law enforcement efforts by developing and delivering law enforcement training, coordinating with law enforcement annually by providing information on high priority areas/issues;
- **Critical Wildlife Area Biologist** - Critical Wildlife Areas (CWAs) support some of the state's most productive beach-nesting bird sites. This position will work in the Northwest region of the state to reduce human disturbance and facilitate habitat management by monitoring CWAs for unauthorized entry, disturbance, or vandalism, particularly in posted areas; increasing posting efforts to protect nesting shorebirds and their habitat in high priority nesting areas; and performing outreach, education, and technical assistance activities and programs.
- **Predator Management Biologists (3):** Predator Management Biologists identify predator management needs at each site in their project area. These individuals conduct tracking surveys to determine the spatial use patterns of various predators in the beach/dune habitat and

surrounding area to identify effective management approaches. They then design and implement predation management strategies including lethal and non-lethal approaches.

- **Project Managers (2):** These positions address high-priority information needs, particularly regarding strategies to increase populations of state-listed species. They help assess predation impacts and solutions, particularly as they impact multiple beach-dependent taxa, and provide the science necessary to inform management practices. They target specific information or habitat restoration needs, direct monitoring to inform management and conservation actions, revise and develop monitoring protocols, direct and prioritize data collection and analyses, and report results through manuscripts and presentations to stakeholders and partners.
- **Coastal Biologists (4):** These positions assist Shorebird Project Managers with their duties as well as expand FWC's current capacity to address management information needs. They work with a team to target specific information or habitat restoration needs and to revise and develop monitoring protocols. They work with Regional Shorebird Biologists to conduct management and protection actions, and direct and prioritize data collection and analyses. They also collect data to inform the timing of predation management activities and to track outcomes of predation management.
- **Field Technician:** This position will expand FWC's current capacity to address knowledge gaps by providing field support to the Project Managers and Field Operations Biologists. This position also assists with the prioritization of sites for posting and monitoring and with identification of local level threats and conservation actions to address those threats.
- **Seasonal Technicians (4):** Two seasonal technicians are needed to assist the Field Operations Biologists on specific research projects. These positions may be stationed anywhere in the state where there is a current research project that needs seasonal staff. These positions could be hired for breeding or non-breeding projects.
- **Systems Programmer:** Two systems programmers are needed to develop, update and manage the FSD data application. The Application Developers are responsible for the continued development and improvement of the FSD and maintaining the functionality of the web-based FSD. Without the Application Developer, the FSD would be rendered inoperable and monitoring data would no longer be contributed to a centralized repository, essentially eliminating the monitoring function of the FSA. The FSD is currently managed by a single programmer, assisted by a part-time programmer. This is proving to not be sufficient to keep up with the growth and needed modifications.
- **Data Quality Specialist:** FWC currently lacks an individual who is responsible for the QA/QC activities required for the FSD. Currently, staff resources are being diverted from other critical functions and FWC lacks the capacity to efficiently complete these important tasks. The workload of these tasks requires this position and a full-time assistant. Delegating this crucial aspect to a full-time position will allow other staff to focus on their duties while enhancing the shorebird program and its outputs. In addition to QA/QC activities, this person will also serve on

inter- and intra-agency teams and address data issues that arise as a result of interpretation of the breeding or non-breeding protocol or the functionality of the data entry application. This communication is critical for the program to streamline the QA/QC process and continue to be as efficient as possible.

- **Data Engineer:** This position will improve information management by assisting all shorebird program staff with database creation, management, archiving, and distribution. This position will provide programming and database support for the Systems Programmer and will ensure compatibility between the Florida Shorebird Database (FSD) and project-specific databases.
- **Quantitative Analyst:** The Data Analyst is responsible for analyzing the data contributed to the FSD and providing the results back to contributors and resource managers so that the findings can be incorporated into adaptive management and conservation activities. These individuals are also responsible for responding to requests for shorebird data that are necessary for conservation planning, impact assessment, permitting, grant reports, and emergency response. The loss of the Data Analyst would mean that the data being contributed to the FSD would not be summarized, analyzed, or readily available in a user-friendly format. Furthermore, we would be unable to fulfill the reporting responsibilities associated with this and the multiple other grants supporting the FSA.