

**IDENTIFYING AND IMPLEMENTING A REFINED MITIGATION APPROACH FOR
TRANSPORTATION PROJECTS IN COASTAL HABITATS**

Report Prepared by:

Brandon Howard, B.S.
Fishery Biologist

NOAA Fisheries Service
400 N Congress Ave, Suite 120
West Palm Beach, FL 33401
Phone: 561-616-8880 ext. 210
Brandon.Howard@noaa.gov

Garett G. Lips, B.S.
Biologist

U.S. Army Corps of Engineers
Palm Beach Gardens Regulatory Office
4400 PGA Blvd, Suite 500
Palm Beach Gardens, FL 33410
Phone: 561-472-3519
Garett.G.Lips@usace.army.mil

Report Prepared for:

International Conference on Ecology and Transportation 2013
Canyons, Crossroads, Connections
Scottsdale, AZ
June 2013

ABSTRACT

The Florida Department of Transportation (FDOT) identified mitigation needs for upcoming transportation projects that included seagrass beds, tidal freshwater, and mangrove wetlands that can be difficult to mitigate. By implementing mitigation projects up front, the federal permitting process is streamlined and money is saved due to reduced time lag and risk. The current practice is to design roadway plans, and submit a permit application that has a project specific mitigation plan. A refined approach is to consolidate the mitigation for several projects resulting in efficiencies and streamlining. This could be implemented as a statewide or nationwide programmatic approach to coastal mitigation.

The presentation will discuss the refined method. FDOT analyzes their work program on a year-to-year basis to identify region specific mitigation needs and presence of unique coastal habitats. FDOT solicits input from stakeholders and federal and state resource agencies early to collaborate on a programmatic mitigation approach. A single mitigation project is identified to offset similar impacts within the watershed with buy in from stakeholders. FDOT proceeds with concept, programs money, identifies site specific functions and services to be restored, prepares plans, and submits a permit application for the mitigation project. This may occur one to five years before a permit application is submitted for the construction projects.

FDOT identified mitigation needs for a suite of projects in Southeast Florida that includes new roads, new bridges, and roadway expansion. These projects span many ecotypes and watershed boundaries. For instance, FDOT identified five projects that included nine bridge replacements that could be mitigated with a single regional mitigation plan known as Snook Islands Phase II in Palm Beach County, Florida. In 2011, FDOT obtained an individual permit to construct the mitigation project. In the same year six bridges entered the construction phase, two of those bridges avoided all aquatic resource impacts, and four bridges required mitigation and utilized the functions provided by the authorized mitigation site. Of the remaining three bridges, one was permitted in the summer of 2012, and the two remaining are entering the permitting phase.

The implications of taking this programmatic approach to mitigation are that upfront planning, dedication of resources and staff time to investigate alternatives will be needed. In the specific example above, the planning and permitting of the mitigation site took five years. The benefit was that permitting of the individual bridge projects took relatively little time due to the advanced mitigation. The FDOT's ability to consolidate individual mitigation funds from multiple projects benefits the environment by having a contiguous aquatic ecosystem done in advance of the impacts. Surplus mitigation can be used for future projects. This regional approach has greater value for the habitat.

This approach results in FDOT meeting schedules, reducing cost, benefitting the environment, achieving watershed restoration goals, and meeting criteria of the Section 404 (B)(1) Guidelines and Section 373.4137, Florida Statutes. This approach removes the uncertainty from mitigating hard to replace coastal functions and expedites project delivery by introducing a statewide programmatic approach.

INTRODUCTION

The Florida Department of Transportation (FDOT) has begun to identify mitigation needs for upcoming transportation projects that impact hard to replace resources including seagrass beds, tidal freshwater, and mangrove wetlands. These resources can be difficult to mitigate and early planning is essential. There are currently very few mitigation banks available to offset impacts to these habitats. The mitigation banks that are available have limited service areas and cannot be used to compensate for impacts that occur in other parts of the State. FDOT's regional long-range mitigation planning approach with the Water Management Districts for freshwater wetland impacts typically cannot be used for coastal wetland mitigation due to the lack of these habitats. This presents a significant challenge to FDOT. A new mitigation plan must be developed for every project no matter how small the impact. These high quality habitats are often located in areas where the cost of real estate is prohibitive on a project by project basis. By having a pool of mitigation functional units available, the logistical environmental impact aspect of the project is simplified.

Mitigation is first considered during the Project Development & Environment (PD&E) study and is further refined during permitting and design. This however can be difficult for projects with coastal wetland impacts as mitigation sites or credits are limited. This limitation often requires the mitigation plan to be developed late in project development during Design and permitting. This approach can lead to delays in obtaining permits due to the requirements of developing a complex mitigation plans. The mitigation plan requires land acquisition, developing agreements with partners, and coordination with various state and federal agencies. In instances where hard to replace resources are to be impacted and several projects will cause impacts in the same watershed, it's important to proactively pursue an advanced mitigation concept.

This paper focuses on the mitigation aspect of the federal permitting process. Applicants must avoid and minimize pursuant to federal laws such as Section 404 of the Clean Water Act (CWA), the essential fish habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Fish and Wildlife Coordination Act, and the Federal Highway Administration's (FHWA) National Environmental Policy Act (NEPA) requirements.

The FDOT has implemented the Efficient Transportation Decision Making (ETDM) process statewide. This process is used to expedite project delivery times and helps facilitate this refined approach to coastal mitigation. In July 1999, Congress passed the Transportation Equity Act for the 21st Century (TEA-21). FDOT seized the opportunity to implement the ETDM process and its streamlining initiatives. From when a transportation need is first identified until the project is constructed often takes 10 to 15 years or more. Furthermore, departments of transportation, agencies, citizens, and non-governmental organizations saw inefficiencies in implementation of NEPA reviews. Gaps of 5 to 10 years or more were occurring between NEPA steps, and significant changes were occurring throughout study corridors during this time.

The ETDM process includes two screening events: the Planning screen and the Programming screen. The screening events help inform and provide scoping for the Project Development and Environment (PD&E) Phase. Part of the ETDM process includes the use of FDOT's Environmental Screening Tool (EST). This is an online application that allows participants in ETDM to provide technical assistance and initiate dispute resolution. Not all projects go through every stage of the ETDM process. Whether the project goes through a Planning and/or

Programming screen depends on its complexity, environmental consequences, and level of controversy. Many agencies participate in ETDM. Therefore, the trigger for a planning or programming action can be things other than impacts to the natural environment.

DISCUSSION

A better way to approach these projects that impact hard to replace resources is to prepare mitigation plans early in the process. FDOT has begun to do this. FDOT analyzes their work program on a year-to-year basis to identify region specific mitigation needs and presence of unique coastal habitats. FDOT solicits input from stakeholders and federal and state resource agencies early to collaborate on a programmatic mitigation approach. A single mitigation project is identified to offset similar impacts within the watershed with input from stakeholders. FDOT proceeds with concept, programs money, identifies site specific functions and services to be restored, prepares plans, and submits a permit application for the mitigation project. This may occur one to five years before a permit application is submitted for the construction projects being mitigated at the site.

Timing and Scheduling

Roadway capacity improvement projects or bridge replacement (those not qualifying as Programmatic or Type I Categorical Exclusion Classes of Action) projects require a PD&E study. Projects may require 8-10 years from the Planning Phase to the Construction Phase; however, complicated or controversial projects may require substantially more time. However, Florida also has the "Bridge Replacement Program" where bridges that have been identified to be replaced must be under construction within six years. Furthermore, bridges in Florida oftentimes span estuaries or other riverine systems that may have sensitive habitats or special aquatic sites including but not limited to: seagrass, mudflats, riverine or estuarine forested wetland complexes. Studying multiple PD&E projects within a watershed or particular resource waterbody, overlapping in time, allows accurate assessments of the anticipated direct, indirect and cumulative impacts associated with each project as well as the effects within the watershed. The PD&E for each project can include commitments to mitigate the anticipated adverse effects at a common mitigation site situated within the watershed that will serve each of the individual roadway or bridge improvement projects. In this scenario, a "programmatic" approach to utilizing a single mitigation project to cover all the needs for multiple projects. The PD&E process involves, in part, early coordination and stakeholder involvement with regulatory and resource agencies, as well as other interested parties that are focused on minimizing environmental harm but also ensuring projects are not contrary to the public's interest and comply with each agencies specified laws and regulations. For some projects, focused coordination with resource agencies is critical for high value resources within the projects affected area in order to reduce the uncertainty and risk associated with unknown variables that could potentially cause substantial delays and/or budget exceedance. This point where both the high-value resource impacts have tentatively been identified and a mitigation proposal has been conceptualized is the keystone point in the process where FDOT is committing to pursue the mitigation concept and also requires conceptual approval by the stakeholders to implement the measures to avoid or offset the impacts. Additionally, the coordination among the stakeholders oftentimes results in further streamlining the regulatory process once the project enters the permit application phase through introduction of commitments to avoid, minimize and/or mitigate adverse effects. Commitments and mitigation strategies to offset resource impacts are

identified and assessed during the PD&E phase since the level of regulatory involvement for the construction of the compensatory mitigation project(s) can require substantial review time.

Funding

Funding requirements for construction of the roadway or bridge project and the mitigation are identified in conjunction with the conceptual mitigation plan. If multiple projects within a region with similar habitat impacts are anticipated, then funding from each roadway or bridge project can provide a proportionate share in the cost of the overall mitigation project. The important factor is that mitigation costs are identified and included in the projects estimated cost. Costs associated with permitting, design, construction, and monitoring and maintenance can be quantified and assigned as needed. Funding sources can be provided from either a single project or partially funded from each of the roadway or bridge projects, or from other funding sources.

Agreements

Agreements are needed in some cases for utilizing privately-owned land and to construct the mitigation project. Local governmental agencies, as part of their mission, are often times keenly aware of watershed needs, and have previously accomplished similar large scale restoration activities. This combination provides assurances to the regulatory and resources agencies that the projects risks and associated beneficial/detrimental effects on the environment are reasonably understood, as well as a realistic understanding of the anticipated goals and benefits.

Agreements between FDOT and local entities entrusted to design or be responsible for the creation of mitigation projects may require internal legal reviews or require local government governing board approvals that may require several months for approval. The U.S. Army Corps of Engineers (USACE) can consider the expertise of the entity responsible for the restoration through evaluation of previously restored or constructed projects. In the case of the Snook Island seagrass restoration (discussed in detail later), the FDOT established an agreement between the FDOT and the Environmental Resource Management (ERM) section of Palm Beach County who has multiple successful restoration projects within Lake Worth Lagoon including mangroves, oysters, and seagrass.

Ecological Benefits

During consideration of this discussion, it is important to remember the sequencing of avoidance, minimization and finally mitigation for unavoidable impacts required by federal laws such as the CWA and EFH provisions of the MSA. None of the ideas put forth in this paper would preempt those requirements.

The need for transportation projects change due to factors such as population and the economy. Situations like this could result in the construction of an upfront mitigation project that isn't used within the timeframe considered. While this is positive for the environment, this would result in spending on mitigation by transportation agencies unnecessarily. Good planning is essential to ensure that spending on mitigation is tied to projects that have a high degree of certainty for being constructed.

By implementing mitigation projects up front, the federal permitting process is streamlined and money is saved by FDOT due to reduced time lag and risk associated with the mitigation project. An issue with the current approach for coastal wetland mitigation includes the amount of time

necessary for the mitigation project to reach a point where impacts are being offset. This is known as time lag in functional assessments such as the State of Florida's Uniform Mitigation Assessment Method (UMAM) and Wetlands Rapid Assessment Procedure (WRAP). When time lag is factored into the equations used to calculate the acreage of mitigation necessary to offset an impact, the acreage of mitigation needed is increased. The mitigation has already been deemed successful using the upfront approach many times, and the multiplier for increased mitigation acreage is not used. This reduces the overall cost of the mitigation project and the amount of mitigation necessary.

Risk is factored into functional assessments such as UMAM and WRAP. Like time lag, the risk factor can be eliminated or minimized if the mitigation is completed up front. If the mitigation has been deemed successful, there is very little risk. This will allow for additional credit availability to offset impacts stemming from other projects.

Consolidating coastal wetland mitigation into large tracts of land can have many ecological benefits. Mitigation provided in one place eliminates "postage stamp" coastal wetlands surrounded by development. This is especially true if the mitigation parcel can be positioned in an area where the surrounding lands are in public ownership. Good planning can lead to the development of wildlife and fishery corridors. This could be of great benefit to anadromous fisheries and wide ranging animals.

Federal Laws

The National Environmental Policy Act (NEPA) established a national environmental policy focused on federal activities and the desire for a sustainable environment balanced with other essential needs of present and future generations of Americans. While NEPA established the basic framework for integrating environmental considerations into federal decision making, it did not provide the details of the process for which it would be accomplished. Federal implementation of NEPA was the charge of the Council on Environmental Quality (CEQ), which interpreted the law and addressed NEPA's action forcing provisions in the form of regulations and guidance. The FHWA requires departments of transportation to comply with NEPA before approving the final NEPA documents and progressing to design. FHWA promotes the inclusion of mitigation plans in the NEPA decision. This could include providing up front mitigation.

The MSA requires federal agencies to consult with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) when an action would result in a substantial adverse impact on EFH. When it comes to transportation projects, this action is most often the issuance of a permit by the USACE acting on behalf of the Department of the Army (DA) or the funding of the project by the FHWA. This consultation process typically takes place within the USACE's permitting process, but can be a stumbling block for transportation agencies. Many times the problem is with the mitigation plan. The benefit of upfront mitigation would alleviate this concern. This is because the mitigation project would have gone through EFH consultation during its permitting.

Section 7 of the Endangered Species Act (ESA) requires consultation between federal agencies when an action has the potential to adversely affect federally listed species or modify their critical habitat. The U.S. Fish and Wildlife Service and NMFS are charged with implementing the ESA. Which agency performs the consultation depends on the listed species that could

potentially be affected. While mitigation is encouraged, Section 7 focuses on project impacts. Both the mitigation site and the individual permits issued by the USACE would likely require consultation if listed species are present in the area or could be affected by the project. Therefore, the upfront approach may result in having to perform two consultations instead of one. If mitigation is provided on a project by project basis, any adverse effects of the mitigation project are considered with the impacts to environmental resources.

It's important to note that federal and State laws do not always align. In Florida for example, the State and federal wetland definition, and the method for delineating wetlands is quite different. There are many situation where the wetland or resource boundary do not match, and in some cases, even if the State agrees that an area is a wetland, mitigation may not be required if it is under 0.50 acre. In practice, this means that mitigation provided by the upfront project may use some of its functional lift during federal permitting, but it may not be required by the State. Another difference is that federal mitigation is usually performed within the same watershed that the impact occurs. The State breaks down watersheds into regulatory basins. Mitigation is required to be performed within the same basin as the impacts. There are exceptions that can be made for impacts to low quality resources, but these exceptions are unlikely for hard to replace coastal resources. The State of Florida has forty one aquatic preserves (Chapter 18-18 FAC). To further complicate where mitigation must be performed, impacts that occur within an aquatic preserve must also be mitigated there. This may shrink the area that the upfront mitigation project may be used in.

When considering the options in the Federal Mitigation Rule of 2008, § 332.3(b)(2)–(6) [§ 230.93(b)(2)–(6)], the USACE District Engineers have the discretion to modify the hierarchy in order to approve the use of the environmentally preferable compensatory mitigation. Another example is when a permittee with a proven track record and access to appropriate scientific expertise proposes a high-value mitigation project.

The District Engineer will issue an individual CWA section 404 permit only upon a determination that the proposed discharge complies with applicable provisions of 40 CFR part 230, including those which require the permit applicant to take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the United States. Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. Compensatory mitigation for unavoidable impacts may be required to ensure that an activity requiring a section 404 permit complies with the Section 404(b)(1) Guidelines. The project must go through the avoidance and minimization sequential analysis and be satisfactorily addressed prior to serious consideration of compensatory mitigation. The applicant's preferred alternative must also be the least environmentally damaging practicable alternative (LEDPA), meaning that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences".

Watershed approach means an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic

resource functions and services caused by activities authorized by DA permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for DA permits.

The watershed approach method considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of aquatic resource functions within the watershed. Such an approach considers how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape. It also considers the habitat requirements of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or habitat conservation programs (such as PBC ERM and the Lake Worth Lagoon Initiative). Compensatory mitigation requirements determined through the watershed approach should not focus exclusively on specific functions (e.g., water quality or habitat for certain species), but should provide, where practicable, the suite of functions typically provided by the affected aquatic resource.

A watershed approach to compensatory mitigation should include, to the extent practicable, inventories of historic and existing aquatic resources, including identification of degraded aquatic resources, and identification of immediate and long-term aquatic resource needs within watersheds that can be met through permittee-responsible mitigation projects, mitigation banks, or in-lieu fee programs. Planning efforts should identify and prioritize aquatic resource restoration, establishment, and enhancement activities, and preservation of existing aquatic resources that are important for maintaining or improving ecological functions of the watershed. The identification and prioritization of resource needs should be as specific as possible, to enhance the usefulness of the approach in determining compensatory mitigation requirements.

Watershed plan means a plan developed by federal, tribal, state, and/or local government agencies or appropriate non-governmental organizations, in consultation with relevant stakeholders, for the specific goal of aquatic resource restoration, establishment, enhancement, and preservation. A watershed plan addresses aquatic resource conditions in the watershed, multiple stakeholder interests, and land uses. Watershed plans may also identify priority sites for aquatic resource restoration and protection. Examples of watershed plans include special area management plans, advance identification programs, and wetland management plans.

Permittee-responsible mitigation under a watershed approach is required where permitted impacts are not in the service area of an approved mitigation bank or in-lieu fee program that has the appropriate number and resource type of credits available. Where practicable and likely to be successful and sustainable, the resource type and location for the required permittee-responsible compensatory mitigation should be determined using the principles of a watershed approach. Proposed compensation sites are preferably sited adjacent to existing aquatic resources or where aquatic resources previously existed.

Hazards

Risks associated with forecasting mitigation requirements do have some potential for over mitigating through overestimation of impacts and subsequent reduction in mitigation needs. As a project progresses through design refinement, opportunities are presented that allow reductions in project footprints or other design avoidance and minimization measures are incorporated that ultimately reduce the extent of resource impacts. The result is an unnecessary increase in project costs, but the potential functional lift could potentially be evaluated on a case-by-case basis to offset other impacts associated with unknown future projects in the watershed as determined appropriate by the federal and State agencies. However, when an advance mitigation site is evaluated, the negative effect of over estimating the amount of mitigation required may be partially offset through the absence of a time lag factor in calculating the potential functional lift of the advance mitigation as previously discussed. The functional units could potentially be viable for as long as the site maintains the performance standards and compliance with the permit terms and conditions; however, the FDOT would be the only entity authorized to utilize the functional units.

Programmatic Approach

Perhaps one of the greatest benefits to the upfront mitigation approach is the potential for programmatic agreements and consultations. Permitting processes such as EFH consultation and ESA consultation could be completed upfront along with the mitigation project. These programmatic consultations would have to consider cumulative impacts, avoidance, minimization, watershed health, and other statutory and environmental factors. However, programmatic consultations and agreements are not new to the federal regulatory programs. For example, every five years Regional General Permits (RGP) and Nationwide Permits are approved and implemented by the USACE. At the time of the renewal, programmatic consultations are completed for Section 7 of the ESA with FWS and NMFS. EFH consultation is completed at this time as well in most cases. These programmatic consultations and permits typically cover categories of work and sometimes even specify mitigation. This is especially true for RGPs. It seems that this upfront mitigation would naturally lend itself to this process.

Having these processes completed upfront could save an extraordinary amount of time. The timeframes for some of these consultations are as follows: 45 days for an ESA concurrence letter; 135 days for an ESA biological opinion; 30 days for EFH consultation; and 120 days for an individual permit from the USACE. These timeframes are based on having complete information from the applicant. In practice, it often takes much longer due to these individual processes not running concurrently or having one of these processes become convoluted. If the Section 7 consultation, EFH consultation, and Section 404 (b)(1) guideline reviews could be completed along with the permitting of the upfront mitigation, the USACE could feasibly issue an RGP for projects that could be mitigated at the upfront mitigation site. RGPs are confirmed within 60 days of receipt of a complete application by the USACE.

EXAMPLES

Current Approach

SL-15

The Boynton Beach Boulevard Bridge (Permit date November 10, 2002), Jensen Beach Causeway Bridge (Permit date October 3, 2001), and Ernest Lyons Bridge (August 2, 2004) were designed, permitted, and under construction prior to construction of the SL-15 mitigation project that was completed December 2005, which was approved to offset the impacts associated with the three bridge projects. The impacts included both seagrass and mangroves, temporary and permanent. The mitigation included restoration of seagrass by scraping down a spoil island within the Indian River lagoon (IRL). The SL-15 spoil island scrape down was a complicated project since it was surrounded by the vast seagrass meadows and the open waters of the IRL. The restoration project had to be conceived, analyzed and designed with a high level of detail of the anticipated ecological benefits and potential detrimental consequences in a relatively short period of time. The project included removing approximately 90,000 cubic yards of sand from state owned lands, utilization of a temporary trestle over seagrass, barge transport of the excavated material, EFH, and ESA issues that had to be resolved prior to authorization from both the State and USACE. A detailed mitigation monitoring and maintenance program also had to be developed. Additionally, a design-build contract had to be prepared, solicited for bid, let, and executed prior to commencement of the restoration activities.

North Roosevelt Boulevard Expansion

The FDOT and the City of Key West proposed to expand North Roosevelt Boulevard along the northern side of Key West. There is a large promenade and coconut palm planters along the northern side of the road adjacent to Florida Bay. The City wanted to add a sidewalk to the southern side of the road and to expand the width of travel lanes. These changes would result in the roadway shifting 3 to 13 feet into Florida Bay. There are extensive turtle grass (*Thalassia testudinum*) beds and mature mangroves adjacent to the wall. The City of Key West was not willing to avoid impacts by eliminating the coconut palm planters or reducing the width of the 20-foot-wide sidewalk. This project was under consideration for nearly ten years with a consistent message from the federal and State regulatory agencies indicating that impacts to seagrass and mangrove need to be avoided and an adequate mitigation plan provided.

The result of these long negotiations is that FDOT avoided the highest functioning seagrasses along the roadway by expanding to the south (away from the water). This required right-of-way acquisition. The final result was 0.54 acre of impacts to mangroves and 1.18 acres of impacts to seagrasses. Avoidance resulted in a reduction of impact and saved approximately 2.00 acres of seagrass.

The lower Keys have limited opportunities for mitigation. Therefore, the mangrove mitigation took place in the northern Keys. FDOT scraped down and planted mangroves on a 1.4 acre mitigation site called Dove Creek. The seagrass mitigation took place at an area known as Houseboat Row. This is a dredged boat basin along South Roosevelt Boulevard. FDOT filled the basin to match the surrounding grades where expansive seagrasses exist. In addition, seagrasses that were to be impacted by the expansion were transplanted to the area.

Seagrass mitigation is risky. There were no assurances that the mitigation would be successful. The FDOT, State and federal agencies spent an extraordinary amount of time trying to come to a resolution on the project. It wasn't until 2009 when the science of seagrass mitigation caught up to the uncertainties about potential success that the project built steam and began to take shape. Dr. L. Richard (Rex) Ellis with the University of Florida has been instrumental in this research. Dr. Ellis' research focuses on marine sediments and their capability for supporting seagrass communities. The project received final USACE approval on April 20, 2010. At this time, the mitigation is trending towards success.

This project took nearly ten years to come to fruition. Much of the hesitation by the agencies stemmed from the lack of confidence in the mitigation plan. Had FDOT been able to provide upfront mitigation, the project could have been streamlined.

Refined Approach

Snook Islands Phase II

FDOT identified upfront five projects that include nine bridge replacements in Palm Beach County, Florida. The mitigation is being provided with a single regional mitigation plan known as Snook Islands Phase II in Palm Beach County, Florida. These bridges include: the U.S. Highway 1 bridges at Burt Reynolds Park; the Flagler Memorial Bridge over Lake Worth; the Little Blue Heron Bridge over Lake Worth; the Little Lake Worth Bridge; and the Southern Boulevard Bridges over Lake Worth. Prior to the planning of this project, Palm Beach County's ERM constructed a 100 acre restoration project known as the Snook Islands Natural Area (SINA). This natural area consisted of filling dredged holes in the Lake Worth Lagoon with 1.2 million cubic yards of fill material to a level that supported seagrass, salt marsh, mangrove wetlands and oyster reef. The project has been a great success resulting in 40 acres of shallow water seagrass habitat, 11 acres of mangrove wetland creation, 1.7 acres of mangrove wetland restoration, 3.8 acres of salt marsh and 2.2 acres of oyster reef. This project was the foundation for the mitigation project. It clearly demonstrated that a successful mitigation project was possible. In 2011, FDOT obtained an individual permit to construct the mitigation project adjacent to the existing SINA. In the same year six bridges entered the construction phase. Two of the bridges avoided all aquatic resource impacts, and four bridges required mitigation and utilized the functions provided by the authorized mitigation site. Of the remaining three bridges, one was permitted in the summer of 2012, and the two remaining are entering the permitting phase.

The Snook Islands Phase II mitigation project will result in 7.17 acres of seagrass habitat, 0.74 acre of red mangrove wetlands, and 0.45 acre of oyster reef. A joint agreement between FDOT and Palm Beach County was struck to implement the project. FDOT will provide the funding and the County will construct the project. A functional unit ledger was created based on UMAM. At this time it appears that there will be a surplus of mitigation functional units that can be used for future FDOT projects that occur in the Lake Worth Lagoon.

Crosstown Parkway Extension

In the early 1980's the City of Port St. Lucie, Florida identified the need for a new bridge across the North Fork of the St. Lucie River. In 1989 a study was conducted to determine project

alignment. In 2001 the City met with federal and State agencies to discuss permitting requirements. In 2006, the City began its study of the project and initiated coordination with the agencies. The class of action pursuant to the NEPA was determined to require an Environmental Impact Statement (EIS) in 2008. The draft EIS was issued in 2011. During this time, formal consultation for EFH and ESA listed species was commenced. Further, a mitigation plan was developed for the project. While the project will impact mangrove wetlands, freshwater wetlands and tidal freshwater wetlands; the tidal freshwater wetlands proved to be the most difficult to mitigate. The project impacts occur within the service area of Bear Point Mitigation Bank. Impacts to mangroves were mitigated there. The City in conjunction with St. Lucie County plans to use a 63-acre property known as Platt's Creek Mitigation Area to replace the ecological functions lost due to the project's impacts to tidal freshwater wetlands. The project will result in the restoration of 36.64 acres of freshwater wetlands, 12.7 acres of tidal freshwater wetlands, and 13.65 acres of mesic upland buffer. While all of the functional units generated by this project will not be used to offset impact resulting from the Crosstown Parkway Extension, the City and County determined that there would be a need to offset impacts from future projects in the area. This Platt's Creek site will serve as mitigation for these future projects. This is an example where the environment will benefit from this restoration for many years before the impacts that will be offset there have occurred. The ESA consultations as well as the EFH consultation were completed before permitting and in advance of the final EIS.

CONCLUSION

The current approach for transportation projects is to provide mitigation for coastal wetland impacts on a project by project basis. This includes the development of a complete mitigation plan including: property acquisition; construction plans for the mitigation site; planting plans; monitoring plans; long-term stewardship and financial assurances; the development of a functional assessment; and conservation easements or fee simple transfer of the property. This requires a substantial commitment of resources including staff time and finances. The refined approach would only require that this be done once per watershed for a given habitat type, and in some cases, the mitigation project could be designed to replace lost functions for several habitats. On the other hand, a separate permitting process must be undertaken for the mitigation site. However, time spent on that permit is usually recouped in time savings on the individual permits for impacts.

This refined approach results in FDOT meeting schedules, reducing cost, benefitting the environment, achieving watershed restoration goals, and meeting criteria of the Section 404 (B)(1) Guidelines, Section 373.4137, Florida Statutes, and other State and federal laws. This approach removes the uncertainty from mitigating hard to replace coastal functions and expedites project delivery by introducing a statewide programmatic approach.

Biographical Sketch of the Authors

Brandon Howard has worked as a Fishery Biologist with NOAA's National Marine Fisheries Service, Southeast Region, since 2006. He is with the Habitat Conservation Division and works in the West Palm Beach, Florida field office. His responsibilities are focused on marine and estuarine habitat protection along the East Coast of Florida and the Florida Keys through implementing the Essential Fish Habitat provisions of the Magnuson-Stevens Act and Section 7 of the Endangered Species Act. Brandon has been a member of the Florida Department of Transportation's Efficient Transportation Advisory Team since 2006. He works closely with partners from both federal and State agencies to implement the Efficient Transportation Decision Making program. He earned a Bachelor of Science Degree from the University of Southern Mississippi. Previously, Brandon was a Biologist with the U.S. Army Corps of Engineers in the Palm Beach Gardens Field Office.

Garett Lips has worked as a Biologist with the U.S. Army Corps of Engineers, Jacksonville District, since 2008. He is with the Regulatory Division and works in the Palm Beach Gardens Field Office. His responsibilities include reviewing all types of projects affecting the diverse array of aquatic resource habitats throughout Florida and the Florida Keys with regards to Section 404 Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Garett has represented the Corps since 2009 as a member of the Florida Department of Transportation's Efficient Transportation Advisory Team. He earned a Bachelor of Science Degree from Florida Atlantic University. Previously, Garett worked with the Florida Department of Transportation District 4 as a Biologist in the Ft. Lauderdale office and as a consultant project manager for freshwater and estuarine habitat restoration and mitigation projects.