Port Manatee Seagrass Mitigation and Management Area

Submitted by:

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for the

AAPA 2006 Environmental Awards Competition, Mitigation Category

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June 1, 2006

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1.0 INTRODUCTION

Manatee County Port Authority (MCPA) has embarked on an ambitious expansion of Port Manatee that involves construction of 2,700 feet of new ship berths and a turning basin. The project involves the dredging of some 5 million cubic yards of material over 100 acres. The project involves unavoidable but minimized impacts to mangroves, shallow bay bottom, and 5.53 acres of seagrasses. The Port Authority adopted an ecosystem design approach to the mitigation of the impacts. The Department of Environmental Protection (DEP) and the U.S. Army Corps of Engineers (ACOE) authorized the Manatee County Port Authority's long-range navigation and berth improvements program and agreed with the proposed improvements and the implementation of a multi-facetted seagrass mitigation program. The program proposed by the Port Authority and approved by the environmental agencies combines several enhancements into a program that will provide a substantial net benefit to the local ecosystem and economy. The entire program has been constructed and has been very successful. In implementing the plan, the Port Authority used 90 acres of environmentally sensitive land purchased for enhancement and preservation. The first part of the plan was to mitigate the removal of the seagrass beds and the reduction of the aquatic habitat by transplanting 5.33 acres of seagrass located within the proposed turning basin and new berth construction impact sites. Seagrasses in the impact areas were transplanted prior to dredging. The mitigation plan has created over 20 acres of new successful seagrass meadows at densities comparable to natural meadows. The mitigation plan also included establishing a 480-acre Motorized Vessel Restriction Zone

(MVRZ) for the protection of the seagrasses and the West Indian Manatee. Additional beneficial environmental and economic uses of the newly acquired land provided for the creation of a bird habitat and the construction of a new public boat ramp benefiting the community. The boat ramp and landside park will provide a family environment and a venue for presenting public educational information stressing the value of the local environment and encouraging people using the facility to appreciate and better maintain their surroundings.

Table 1 and Figure 1 are provided for pictorial understanding of the magnitude of the mitigation project.

Table 1 Seagrass Mitigation Table (Included for site information only)

Seagrass Mitigation Sites	**Action**	**Area (Ac.)**
1-3	Plant	11.25
4B, 6B1, & 6B2	Install Breakwater & Plant	4.65
5	Remove Sand Spit & Plant	1.98
4A & 6A	Scrape-down & plant	4.86
7	Scrape-down & Plant	16.3
8	Repair Prop Scars (Via MVRZ)	107.00
9	Lift/Expansion	188.00
Totals:		**334.04**

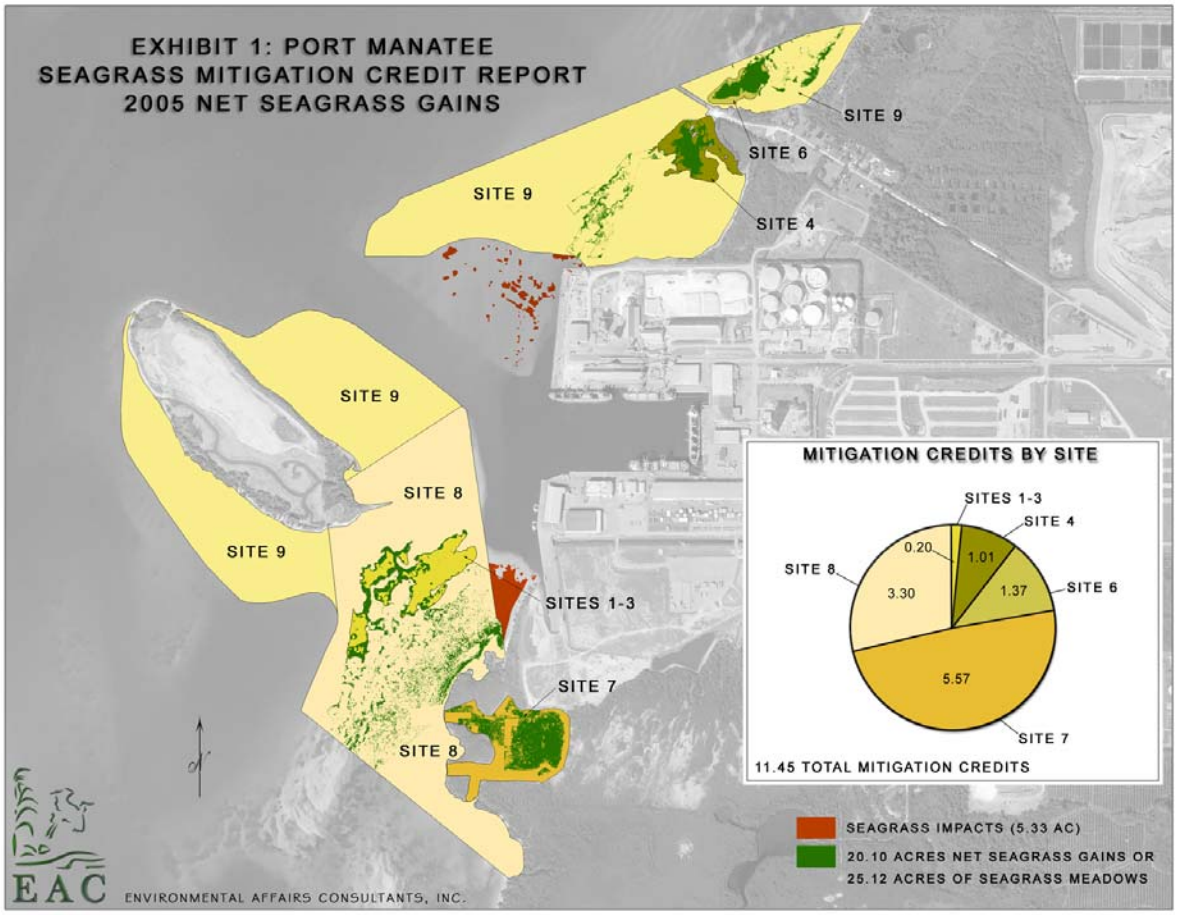
EXHIBIT 1: PORT MANATEE
SEAGRASS MITIGATION CREDIT REPORT
2005 NET SEAGRASS GAINS
SITE 9
SITE 6
SITE 4
SITE 9
SITE 9
SITE 8
SITE 9
SITES 1-3
SITE 7
SITE 8
MITIGATION CREDITS BY SITE
SITES 1-3
SITE 4
SITE 8
SITE 6
SITE 7
0.20
1.01
3.30
1.37
5.57
11.45 TOTAL MITIGATION CREDITS
SEAGRASS IMPACTS (5.33 AC)
20.10 ACRES NET SEAGRASS GAINS OR
25.12 ACRES OF SEAGRASS MEADOWS
EAC
ENVIRONMENTAL AFFAIRS CONSULTANTS, INC.

Figure 1

2.0 Goals and Objectives

The Manatee County Port Authority chose the Navigation and Berth Improvement program and the Seagrass Mitigation program to fulfill the following goals and Objectives:

> Goal: Expand the Port facilities while satisfying public interest and regulatory requirements

Objective: To provide more modern facilities and greater capacity at the Port while satisfying the requirement of regulatory permitting programs that specify *the project must serve the public interest* from an environmental standpoint.

> Goal: Demonstrate and Practice environmental stewardship

Objective: To enhance the quality of the local ecosystem and demonstrate the ability to protecting manatees and seagrasses while conducting normal Port business.

> Goal: Provide education opportunities, environmental improvement and recognizable benefit to the community

Objective: Creating a bird nesting area and building a community facility that includes a boat ramp, a park, and a facility to educate people as to their environmental responsibility.

3.0 DISCUSSION:

Background

Port Manatee is a valuable economic engine for the citizens of Manatee County, whose County Commissioners serve concurrently as officers and members of the State-

chartered and independent Manatee County Port Authority. Interested in growing the Port to increase its value to the citizens of Manatee County, the Port Authority put into motion ambitious plans to expand berthing capacity and increase the maximum size of vessels that may access the Port.

The Port is situated in an environmentally sensitive area, sandwiched between two State Aquatic Preserves on the shores of one of the State's premier estuaries. The Tampa Bay ecosystem is zealously defended by a multitude of environmental interests groups with varying interests and substantial resources at their disposal. The citizens of Manatee County place a high value on environmental preservation and improvement. In keeping with these priorities, their commissioners, acting as the Port Authority, have pledged environmental stewardship through adoption of Goals, Objectives and Policies in the Port's Master Plan.

Objectives

> Goal: Expand the Port facilities while satisfying public interest and regulatory requirements

Objective: To provide more modern facilities and greater capacity at the Port while satisfying the requirement of regulatory permitting programs that specify *the project must serve the public interest* from an environmental standpoint is especially critical. Due to the level of scrutiny that the Port expansion projects receive, the Port Authority presented the expansion proposal coupled with the mitigation program to environmental interest groups and the regulatory agencies. The Seagrass Mitigation Program served as a focal point in the campaign. The public-interest appeal of the project is related to the significant need for this type of environmental improvement and the interest in revitalizing a closed boat launch facility for the community.

> Goal: Demonstrate and practice environmental stewardship

Objective: To enhance the quality of the local ecosystem and demonstrate the ability to protect manatees and seagrasses while conducting normal Port business. An ecosystem approach to mitigation design is one of considering how best to benefit the

local ecosystem. Environmental agencies, environmental professionals and interest groups were consulted regarding ecosystem needs and opportunities. Though the restoration plans provided an improved bird habitat, the Port expansion does not impact these types of habitat.

> Goal: Provide education opportunities, environmental improvement and recognizable benefit to the community

Objective: Creating a bird nesting area and building a community facility that includes a boat ramp, a park, and an educational facility to educate people as to their environmental responsibility. The more public appeal that an environmental improvement project has, the more valuable a tool it is for demonstrating and fostering environmental stewardship in the community. This factored into the seagrass mitigation program with the creation of a bird habitat and the reconstructing of the boat launch and associated park.

Methodology

Seagrass mitigation activities were initiated on July 2001 and consisted of transplanting the 5.33 acres of seagrasses from the impact areas, to mitigation sites 1-7. An additional 1.92 acres of seagrass was transplanted from the three flushing channels associated with construction of Mitigation Site 7 to Mitigation Sites 4 and 6. Following this event, small areas of incidental seagrass re-growth from the Berth 12 permit impact sites were transplanted into mitigation site 7 with approval from DEP. All initial transplanting activities were completed by January 2002. Refer to Figure 1-1 depicting the location of the mitigation sites and the MVRZ.

Following the completion of these activities, the MCPA submitted the First Annual Progress and Mitigation Success Report on December 31, 2002 to DEP pursuant to specific condition of the permit as well as the monitoring requirements described in the Seagrass Mitigation Plan appended to the permit. In the Mitigation Success Report, the MCPA provided documentation that 10 acres of seagrass coverage, equating to 8 acres of dredging success by the permit formulas had been achieved. In conjunction with this report, the MCPA requested a determination of seagrass mitigation success, particularly

in regards to achieving specific conditions of the permit related to dredging authorization. Confirmation for authorization of “dredging success” was obtained from the DEP and COE in January 2003, indicating that at least 5.66 acres (>105% of the 5.33 acres impacted) of seagrass success had been achieved.

Seagrass mitigation success monitoring for year 2 was initiated on September 21, 2003 and completed on December 4, 2003 under the supervision of the seagrass mitigation supervisor, Scheda Ecological Associates, Inc. (SEA). The 2003 monitoring results and data analysis, along with a request for a determination of interim seagrass mitigation success credit was summarized in the 2003 Seagrass Mitigation Credit/Success Confirmation Report prepared by Environmental Audit & Compliance, Inc. (EAC) and submitted to DEP and the ACOE on January 26, 2003. The subsequent Second Annual Progress Report was later prepared and submitted by SEA on May 6, 2004. The monitoring protocol utilized to produce the results summarized in the 2003 submittals were consistent with the permits of the previously submitted Report Claim for Dredging Authorization, and agreements made with the DEP in 2002 and 2003.

Following the submittal of these reports, meetings were held with the DEP to discuss the 2003 results and to confirm the MCPA’s determination of mitigation success/ credit achieved. As of September 2004, a consensus had not been reached between the DEP and the MCPA regarding a formal determination and/or approval of the requested mitigation credits. However, in accordance with agreements made between the DEP and the MCPA during the January 28, 2005 meeting, the data and subsequent analyses submitted as part of the 2003 Second Annual Progress Report and the Credit/Success Confirmation Report have been re-assessed and combined with the 2004 monitoring results to form the Third Annual Progress and Mitigation Success/Credit Confirmation Report.

The consolidated report represented a post-three year assessment of the MCPA seagrass mitigation project and summarized the results of the 2003-2004 monitoring efforts, including the MCPA’s request for mitigation success/credit determination. Subsequent to the submittal of the consolidated report on March 4, 2005, the DEP

granted approval of 60% of the total mitigation credits requested. This represents a post-four year assessment of the MCPA seagrass mitigation project and summarized results of the 2005 monitoring efforts.

The mitigation plan also included establishing a 480-acre Motorized Vessel Restriction Zone (MVRZ) for the perpetual protection of the seagrasses and the West Indian Manatee. The goal of the Motorized Vessel Restriction Zone (MVRZ) is to enhance the quality of the local ecosystem by protecting manatees and seagrasses. The endangered, indigenous manatee is vulnerable to injury and death by the propellers of fast moving internal combustion engine-powered boats, especially in shallow water where it is difficult for the manatee to escape. Seagrass is a vital component of the ecological health of Tampa Bay as a fish nursery, a habitat, and a food source for sea life. It is a resource that is depleted as a result of prop scarring by internal combustion engine-powered boats running in the shallow waters of the management area. The objective of the management area is to protect manatees and seagrasses by eliminating the threat of internal combustion engines.

4.0 AWARD CRITERIA

A. Benefits to Environmental Quality, Beautification and Community Involvement

Seagrass is a vital component of the ecological health of Tampa Bay as a fish nursery, a habitat, and food source for marine life. In terms of benefits to *environmental quality*, the restoration of the 5.33 acres of seagrass with the addition of 20 acres to the seagrass to the Tampa Bay inventory is resulting in greater aquatic habitat. Ongoing management involves patrolling and policing the established a 480-acre Motorized Vessel Restriction Zone (MVRZ) for the perpetual protection of the seagrasses and the West Indian Manatee, two vital components of the ecosystem, in an area where they are particularly vulnerable.

Beautification is coming in the form of seagrass growth assisting in the expansion of the

fish population and the return of rare birds to a habitat created for their continued safety and population growth.

Community involvement is coming through environmental education. Through this project the Port is restoring the public boat ramp on acquired property and developing a new park associated with the boat launch facility. The boat ramp and landside park will provide a family environment and a venue for presenting public educational information stressing the value of the local environment and educating the families using the facility on the wonders of nature and the importance of environmental stewardship.

B. Independent Involvement and Effort by the Port

Port staff were integral to the development of the ecosystem approach, development of the project concept, acquisition of Audubon involvement, development and negotiation of the mitigation plan and the permit authorizations, conceptual design of the project, securing of contractual arrangements and the ongoing management of the seagrass bed. Each aspect has involved either Port staff performance or Port staff direction of the performance of technical consultants. The Port Authority solely and independently proposed the prohibition of internal combustion engines, affected passage of the ordinance, purchased land within the management area for construction and operation of the boat ramp with educational facilities, purchased and installed the boundary markers, monitor and maintain the buoys marking the seagrass beds and finances and operates the patrolling of the Motorized Vessel Restriction Zone (MVRZ).

C. Creativity of the Solution

The Port Manatee Seagrass Mitigation Project was creative from a number of different perspectives: The project was born out of an ecosystem approach to mitigation design and was used to maximize the benefit to the local ecosystem resulting in new and increased habitats. Improvement and expansion needs were

combined with public relations and a public education program through the refurbishment of the public boat ramp, and the construction of a park at the boat launch facility. The program is extremely creative in that it is designed for maximum effectiveness by utilizing the principles of human nature whereby people absorb information from their environment and subconsciously alter their misconceptions about their environment.

D. Project Results

The project is still in progress and has already proven successful. We are currently half way through the dredging project and completed transplanting over 5 acres of seagrass, added more than 20 acres of seagrass achieving a mitigation ratio of better than 4:1, established the Motorized Vessel Restriction Zone (MVRZ) and the internal combustion engine prohibition ordinance has been passed. Boundary markers have been installed. The management plan is in operation, including patrolling of the area. Management of the area has already resulted in a significant increase in seagrass coverage due to recovery of seagrass within previous prop scar areas. Documentation of mitigation monitoring and quantifying improvements are currently being reviewed by the environmental agencies.

E. Cost Effectiveness

Development costs are effectively higher than the costs of the transplant method but arranging for credit for prop scar recovery in protected areas eliminates the planting cost. This program is cost-effective and takes advantage of natural seagrass expansion to achieve mitigation goals. By heavy patrolling and working to minimize seagrass bed damage from prop scaring, it is much less expensive to eliminate impacts to seagrasses allowing nature to handle the recovery, than it is to transplant seagrasses or develop

new seagrass beds. The cost effectiveness of the improvements to the community facilities are as yet unmeasured, but with one local area boat launch scheduled to be closed by the county and the only other local public facility overburdened, it is felt that the community will greatly appreciate the refurbished and expanded facility and its environmental education venue will be invaluable to the environmental stewardship in the area.

F. Transferability of the Idea to the Port Industry

The concept of this project is transferable to the Port industry in very important ways: The ecosystem approach to mitigation design is viable in terms of mitigation value. The proximity of a mitigation site to impact areas so often is an important consideration in mitigation valuation. This concept is particularly valuable to Ports with limited opportunities for in-kind mitigation on site. The principle of managing an area for protection of natural resources is applicable anywhere there are natural resources that need to be protected. Other Ports conducting similar permitting can cite proof of seagrass mitigation success. Convincing environmental agencies that it can be done on this large a scale is half the battle. The following formula is simple enough to be adapted to many other situations: identify the cause of environmental impact, utilize Port influence to eliminate the cause of the impact and to protect the natural resource, obtain environmental credit for the work, and provide a community asset that can produce goodwill and subtle environmental education.

5.0 CONCLUSION

The Port Manatee Seagrass Mitigation Project has provided a number of invaluable benefits. The project has fulfilled a major part of the mitigation requirements for Port expansion; it has filled an important need in the Tampa Bay ecosystem; it has demonstrated the Port's commitment to environmental stewardship; it has provided

assets and services back to the community and it illustrates opportunities for other Ports. The impact of this type of program to prevent losses of natural resources is far greater than the impact of spending the same amount of money on creation of new environmental resources. Highlighting the benefits of Port Manatee's Seagrass mitigation program with an environmental award is an excellent way to show other Ports how they can achieve substantial environmental benefits while at the same time meeting their need to expand and increase their productivity.