



# Department of Environmental Protection

Jeb Bush  
Governor

Rookery Bay National Estuarine Research Reserve  
300 Tower Road  
Naples, Florida 34113  
(239) 417-6310 Fax (239) 417-6315

Colleen Castille  
Secretary

April 24, 2006

To: Hal Herbst, Senior Environmental Analyst  
South Florida Water Management District

Project Description: Tarpon Bay Hydrologic Restoration Project

Standard General Permit No. 11-02063-P

Project Location: Collier County

Project: Mangrove replanting and monitoring

Dear Mr. Herbst:

This is the second of three required reports for permit no. 11-02063-P; mangrove monitoring at the 10'X 10' culvert located between Tarpon Bay and Johnson Bay in Isles of Capri, Florida.

Rookery Bay National Estuarine Research Reserve, as part of the Florida Department of Environmental Protection, finished construction of this culvert in April 2004. As outlined in the above named permit, South Florida Water Management District requires a maintenance and monitoring program for mangroves at this site for three consecutive years. The requirements of this permit state that planted or naturally recruited mangroves must have at least 80% coverage, and exotic and nuisance vegetation should be less than 5% coverage.

Please find attached the monitoring report and photo points.

Sincerely,

Cheryl J. Metzger  
Project Manager, Tarpon Bay Hydrologic Restoration Project  
Rookery Bay National Estuarine Research Reserve

cc: Keith Laakkonen, Resource Management Coordinator, Rookery Bay NERR

Tarpon Bay Hydrologic Restoration Project  
Mangrove monitoring  
Standard General Permit No. 11-02063-P

Four photo points are located at each corner of the culvert and labeled “NW”, “SW”, “SE” and “NE” to identify the referenced corner. Each photo point is directed looking from the edge of the culvert out toward each bay. In the photo point description, the number of mangroves is indicated in parenthesis. For example; “*The planted red mangroves (19) and the naturally recruiting red mangroves (86) can be seen in the riprap*” indicates that there are 19-planted red mangrove and 86 naturally recruited red mangrove in the riprap.

As of 4/21/06, there are 27 surviving planted red mangroves (*Rhizophora mangle*), 548 red mangroves that have naturally recruited, 22 surviving planted white mangroves (*Laguncularia racemosa*), and 186 white mangroves that have naturally recruited (figure 1).

The mortality of the planted red mangrove, planted white mangrove and naturally recruited white mangrove is high due to hurricanes and pedestrian traffic. Since the last reporting period, many of the planted red and white mangroves have washed away with the high tides associated with the near miss of two hurricanes and the direct hit of one hurricane. The additional high mortality of white mangroves is due to pedestrian traffic associated with fishing at the culvert. These mangroves will continue to be severely impacted from pedestrians. Exotic vegetation is not present on the culvert bank.

Along with the red and white mangroves, sea purslane (*Sesuvium portulacastrum*), seashore saltgrass (*Distichlis spicata*) and spartina (*Spartina bakeri*) is providing additional stabilization on the culvert banks.

**YEARLY COMPARISON OF MANGROVE SURVIVAL**

	<b>2004</b>	<b>2005</b>	<b>2006</b>
<b><u>NW photo point</u></b>			
Planted red mangrove	36	19	13
Naturally recruited red mangrove	0	86	167
Planted white mangrove	0	29	7
Naturally recruited white mangrove	0	55	30
<b><u>SW photo point</u></b>			
Planted red mangrove	34	15	6
Naturally recruited red mangrove	0	160	185
Planted white mangrove	0	25	8
Naturally recruited white mangrove	0	116	48
<b><u>SE photo point</u></b>			
Planted red mangrove	25	15	6
Naturally recruited red mangrove	0	147	149
Planted white mangrove	0	3	3
Naturally recruited white mangrove	0	64	94
<b><u>NE photo point</u></b>			
Planted red mangrove	24	8	2
Naturally recruited red mangrove	0	110	47
Planted white mangrove	0	5	4
Naturally recruited white mangrove	0	18	12

**Figure 1**

**Photo point NW**

Taken from the northwest corner of the  
culvert looking toward Johnson Bay  
April 2006



The surviving planted red mangroves (13) and the naturally recruiting red mangroves (167) can be seen in the riprap. The planted white mangroves (7) now measure 1 ½ - 2 ft and can be seen in the sandy area between the riprap edge and the grass. Naturally recruiting white mangroves (30) are found along the grass edge and rip rap edge and measure 1" – 3". Planted spartina is spreading and purslane is starting to fill in the sandy areas.

**Close-up photo of NW photo point site**  
April 2006



Planted white mangrove, naturally recruited white mangrove and purslane are filling in the bank.  
Planted and naturally recruited red mangroves are filling in the riprap area.

**Close-up photo of NW photo point site**  
April 2006



Close-up photo of planted and naturally recruited red mangrove near channel mouth

**Photo point SW**

Taken from the southwest corner of the  
culvert looking toward Johnson Bay  
April 2006



The surviving planted red mangroves (6) and the naturally recruiting red mangroves (185) can be seen in the riprap. The planted white mangroves (8) now measure 12" – 24" and can be seen in the sandy area between the riprap edge and the grass. Naturally recruiting white mangroves (48) are found along the grass edge and riprap edge and measure 1" – 12". Planted spartina is spreading and purslane and seashore saltgrass continues to fill in the sandy area.

**Close-up photo of SW photo point site**  
April 2006



Planted white mangrove now measure up to 20" high. Naturally recruiting white mangrove, purslane and seashore saltgrass continues to grow in the sandy area

**Close-up photo of SW photo point site**  
April 2006



Looking back toward the photo point, red and white mangroves can be seen in the riprap and sandy bank.

**Photo point SE**  
Taken from the southeast corner of the  
culvert looking toward Tarpon Bay  
April 2006



The surviving planted red mangroves (6) and the naturally recruiting red mangroves (149) can be seen in the riprap. The planted white mangroves (3) now measure ~ 10" and can be seen in the sandy area between the riprap and the grass. Naturally recruiting white mangroves (94) are clustered near the culvert mouth and found along the riprap and grass edge and measure 1" – 4".

**Close-up photo of SE photo point site**  
April 2006



Planted and natural recruited red mangrove in the rip rap

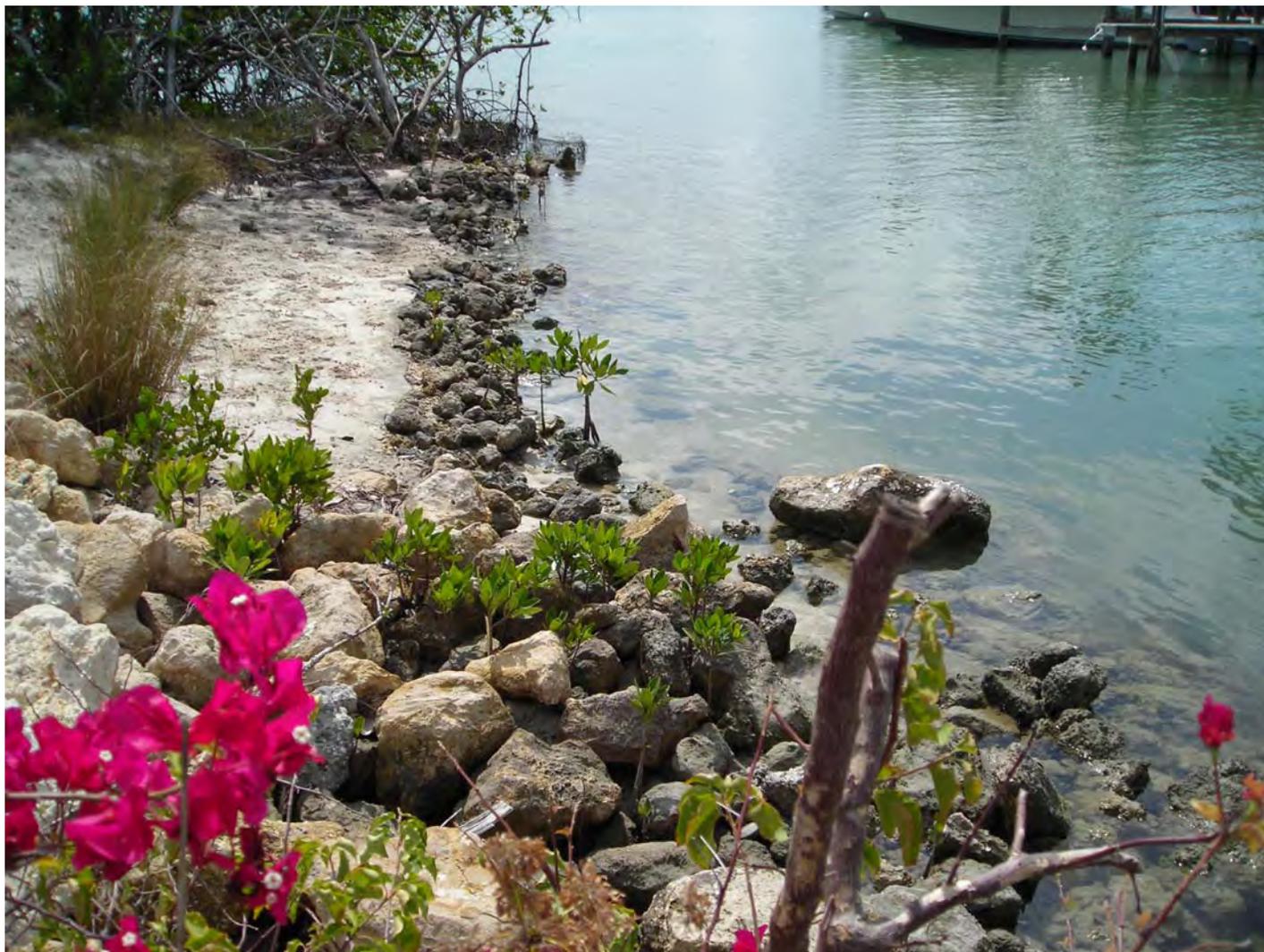
**Close-up photo of SE photo point site**  
April 2006



Planted and naturally recruited red mangroves in the riprap. Planted and naturally recruited white mangroves along the riprap edge and sandy area.

**Photo point NE**

Taken from the northeast corner of the  
culvert looking toward Tarpon Bay  
April 2006



The surviving planted red mangroves (2) and the naturally recruiting red mangroves (47) can be seen in the riprap. The planted white mangroves (4) now measure 6" – 10" and can be seen in the sandy area between the riprap edge and the grass. Naturally recruiting white mangroves (12) are found along the grass edge and riprap edge and measure 1" – 3". Planted spartina is spreading.

**Close-up photo of NE photo point site**  
April 2006



Red and white mangrove naturally recruiting in riprap at culvert mouth