2019 Habitat Restoration Needs Plan

CHARLOTTE HARBOR BASIN

Section 4: Results, Recommendations, and Conclusions

The Habitat Restoration Needs (HRN) Plan was developed to guide habitat preservation/conservation, connectivity, management, restoration, sustainability, and resiliency throughout the Coastal and Heartland National Estuary Partnership area.

The complete HRN report can be found online at: https://www.chnep.org/publications

Charlotte Harbor Basin

The Charlotte Harbor basin consists of 224,073 acres, and its major features include Charlotte Harbor, Charlotte Harbor State Park, and the western portions of Babcock/Webb Wildlife Management Area. The Peace and Myakka Rivers flow into this basin. The results for this basin area are presented in the following narrative and in Figures 25 through 27.

Preservation/Conservation Opportunities (PCO)

A total of 18,897 acres was identified as potential PCO, of which 22 percent (4,079 acres) were categorized as non-native and 78 percent (14,818 acres) as native habitat (Table 15; Figure 25). Overall, the acreages identified as potential PCO constitutes 8 percent of the total lands within this basin. The dominant native habitat community was classified as pine flatwoods (4,988 acres; 26%). Cropland and pastureland (1,627 acres; 9%) was identified as the major non-native classification within the overall basin (Appendix E).

Overall, the potential PCO were identified to the east of Charlotte Harbor's east wall and west of Interstate 75 within this basin (Figure 25). The native habitat communities were primarily found in association with Charlotte Harbor. In contrast, the majority of non-native (potential future RO or RT) habitat communities were identified farther from the Harbor.

Reservation Opportunities (RO)

A total of 69 acres was identified as potential RO (Table 15; Figure 26) within this basin. Overall, the acreage identified constitutes one percent of the total lands within this basin. The dominant habitat community was classified as other open lands (34 acres; Table 15). Potential RO were prominent along the East Wall of Charlotte Harbor (Figure 26).

The concept of reservation areas is to support potential tidal habitat migration caused by increased tidal flooding and inundation from projected sea level rise. As presented in Section 3 and Appendix B, a model was developed to project potential habitat migration in tidally influenced areas. The Charlotte Harbor basin HEM map (Figure 28) illustrates model Run 3 (Intermediate-High Sea Level Rise, Low Accretion) for Years 2016 and 2070. The results illustrate an expansion of open water created by projected sea level rise, as well as the loss of mangroves and their migration higher into the landscape.

Management/Enhancement Targets (MET)

A total of 60,801 acres was identified as MET and RT, of which 60,457 acres was categorized for MET (99%) (Table 15; Figure 27). Overall, the acreage identified for MET and RT constitutes 27 percent of the total lands within the Charlotte Harbor basin. The dominant native habitat community identified for MET was classified as pine flatwoods (18,059 acres; 30%) (Appendix E). MET were developed for the three major native habitat types: tidal wetlands, freshwater wetlands, and uplands, to distinguish the types of overall habitats that could be managed or enhanced (Table 15). The vast

majority of MET are associated with the western limits of Cecil B. Webb and Babcock Ranch Wildlife Management Area, Yucca Pens, and the West Wall of Charlotte Harbor within this basin (Figure 27).

Restoration Targets (RT)

A total of 60,801 acres was identified as RT and MET, of which 1,344 acres (1%) was categorized as RT (Table 15; Figure 27). Overall, the acreage identified for RT and MET constitutes 27 percent of the total lands within the Charlotte Harbor basin. The dominant native habitat community identified for Management was classified as pine flatwoods (18,059 acres; 30%) (Appendix E). RT were developed for the three major native habitat types: tidal wetlands, freshwater wetlands, and uplands, to distinguish the types of overall habitats that could be restored (Table 15). There are several instances in which areas identified as non-native (RT) are directly adjacent to native habitats. Identifying areas for strategic restoration could result in the further expansion of restored native habitat communities.

Habitat Status and Trends Analysis

A change analysis was completed for this basin to quantify the gains/losses of habitats between 1995 and 2009/2011 (Table 16). The objectives of this change analysis were to determine: which habitats may be in actual decline, or experiencing disproportionate losses; which habitats may be increasing; and what stressors may be driving these changes. Data limitations and mapping inconsistencies between the two time periods did not always support these objectives. For example, conversions between various classes of freshwater wetlands were often found to be ambiguous and unverifiable; however, conversions from native habitats to developed urban land uses were more easily discernable through a review of the aerial imagery. Those habitats changes that could be verified through the review of the aerial imagery were used to identify priority habitats.

Within this basin, substantial acreage gains in native habitats could not be verified through a review of the aerial imagery. However, discernable habitat losses and changes are noted below:

- Upland habitats being converted to development, agriculture, and mining; and
- Salt marshes transitioning to mangroves.

Mapping inconsistencies observed in the change analysis included the following:

- FLUCCS 3000 (Upland Non-Forested) Series Level 2 (Dry Prairie, Shrub and Brushland, Mixed Rangeland) codes were often interchangeably used for the same aerial signature between 1995 and 2009/2011, so gains/losses in the 3000 series may not all be real changes;
- Some pre-platted lands were mapped as FLUCSS 3100 dry prairie codes for 2009/2011; however, these lands may be developable and future HRN studies should look at updating these classifications;
- Slough Waters classification was not used in 2009/2011;

- Increases in intermittent pond classification occurred from development between 1995 and 2009/2011. Also, open water ponds that became shallow ponds were remapped to intermittent ponds in 2009/2011; and
- Salt flats were mapped in 2009/2011 within Charlotte Harbor State Park (at the southern limits of the Cape Haze Peninsula, around Cattle Dock Point and the "West Wall"), where they had previously not been mapped.

Charlotte Harbor Basin Summary

With just 9% of the basin classified as existing development, the Charlotte Harbor basin contains a large proportion of publically owned lands. The habitat status and trends analysis for this basin showed losses in wetland hardwood forest and mixed wetland forested mixed. However, changes in these, and other upland and freshwater wetland habitats were difficult to discern due to mapping inconsistencies; and therefore priority habitats for restoration could not be identified. Future studies may verify habitat changes and the specific assemblage of habitats for restoration.

Similar to other coastal basins, the change analysis showed an increase in mangrove swamps, which is consistent with HEM projections that salt marshes will transition to mangroves. There are no primary or secondary Florida panther habitat areas located in this basin, however, CHNEP stakeholders identified publicly owned areas along the West Wall and East Wall of Charlotte Harbor as important wildlife corridors; as well as a small portion of the far eastern edge of the basin (Figure 8).

PCO are primarily located in the eastern portion of the basin for connectivity with Yucca Pens and Babcock/Webb Wildlife Management Areas. RO were limited, and occurred on both the West Wall and East Wall of Charlotte Harbor, and provide the opportunity to connect with existing publicly owned lands. MET areas along the West Wall and East Wall of Charlotte Harbor are part of Charlotte Harbor State Park, and can accommodate projected sea level rise and provide coastal protection.

The HRN results reflect priorities outlined from the HRN project methodology and are based on the best available data at the time of development. There may be other habitats of importance; and current and future research and analysis may support additional opportunities and targets not currently represented here. The CHNEP Management Conference noted the update presented below:

- The area east of Winegourd Creek along Charlotte Harbor's East Wall was partially mapped as non-native PCO based on existing mapping FLUCCS codes. However, this area is now under development and should be reclassified as existing development in future HRN studies.

- SFWMD and Lee Conservation 20/20 worked with landowners to identify the Stolle ranch property (2,064 acres in Charlotte County and 691 acres in Lee County) as important for preservation and eventually hydrological restoration as part of the Charlotte Harbor Flatwoods Initiative, a multi-phased regional hydrologic restoration effort coordinated by

the SFWMD, CHNEP, and Florida Fish and Wildlife Conservation Commission (FWC). Portions of this area are included as PCO (Figure 25), and as additional lands are acquired these may be included in future HRN studies.

The results presented in the tables and maps below can form the foundation for future studies.

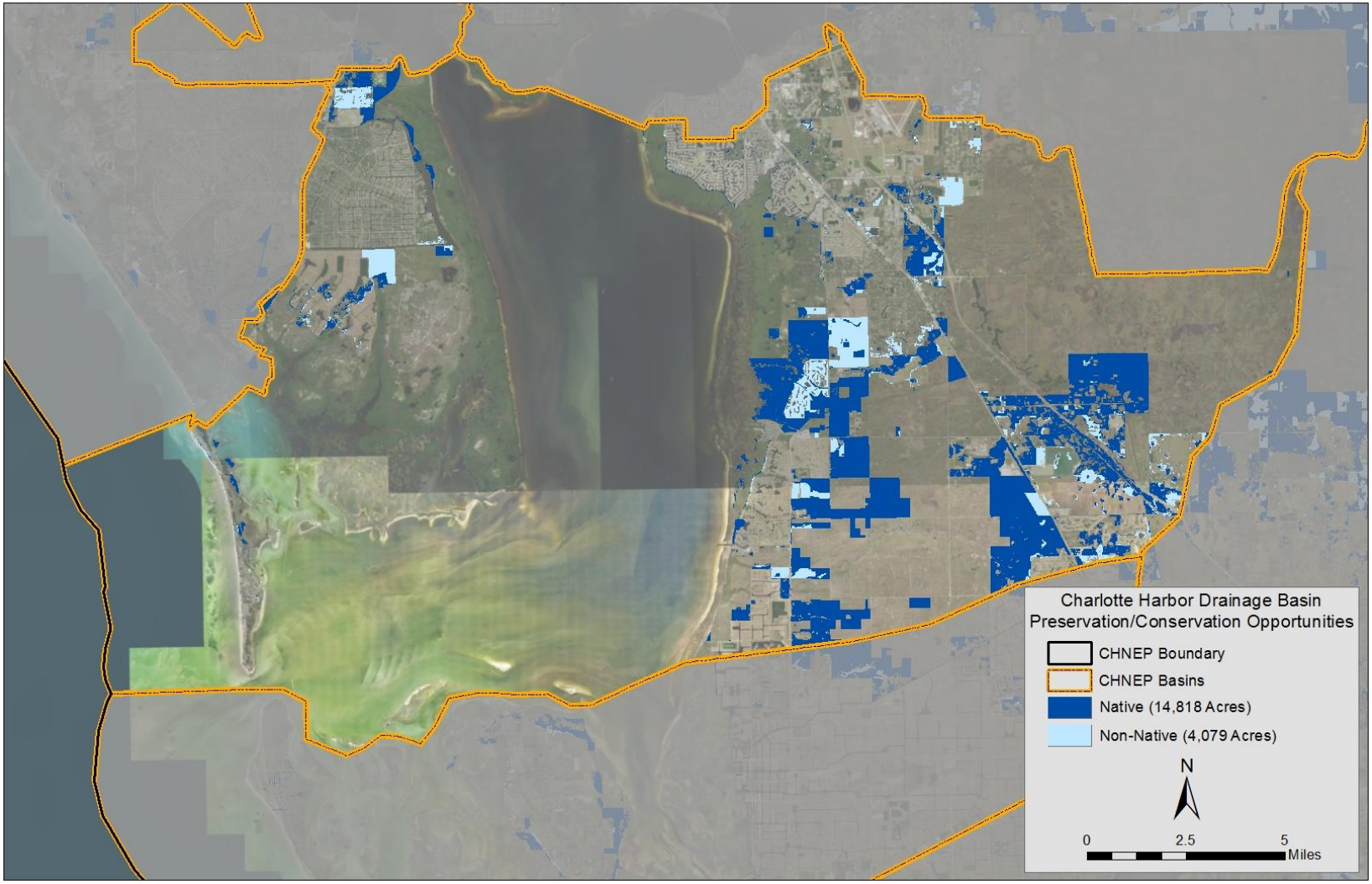
TABLE 15. HRN OPPORTUNITIES AND TARGETS FOR THE CHARLOTTE HARBOR BASIN BY MAJOR HABITAT TYPE

Major Habitat Type	Opportunities		Targets	
	PCO	RO	MET	RT
Uplands	8,746	N/A	26,171	642
Freshwater Wetlands	4,888	N/A	16,538	701
Tidal Wetlands	1,184	N/A	17,748	1
Non-Native	4,079	69	N/A	N/A
Total	18,897	69	60,457	1,344

TABLE 16. HRN CHANGE ANALYSIS GAINS/LOSSES FOR THE CHARLOTTE HARBOR BASIN BY HABITAT CLASSIFICATION TYPE.

FLUCCS Codes	Primary Classifications	Acres		Change Analysis	
		1995	2009/2011	Acres	Percent
3100	Dry Prairie	509	1,959	1,450	*
3200	Shrub and Brushlands	12,372	9,422	-2,941	-24%
3300	Mixed Rangelands	1,311	1,111	-200	-15%
4100	Upland Coniferous Forest	28,976	25,365	-3,611	-12%
4200/4300	Upland Hardwood Forest	1,068	1,600	532	50%
5100	Streams and Waterways	1,927	1,951	24	1%
5200	Lakes	53	94	41	77%
5600	Slough Waters	N/A	N/A	N/A	N/A
6100	Wetland Hardwood Forest	3,404	1,809	-1,595	-47%
6120	Mangrove Swamp	14,266	15,981	1,715	12%
6200	Wetland Coniferous Forest	5,960	5,860	-100	-2%
6300	Wetland Forested Mixed	448	171	-277	-62%
6400	Vegetated Non-Forested Wetlands	12,550	15,385	2,835	23%
6420	Saltwater Marsh	4,361	3,184	-1,177	-27%
6530	Intermittent Ponds	5	17	12	2%
6600	Salt Flats	N/A	484	484	*

*Difference in mapping methodologies between periods may account for some anomalies in the data.



***See narrative for note on mapping classifications.**

Figure 25. Charlotte Harbor Basin PCO.

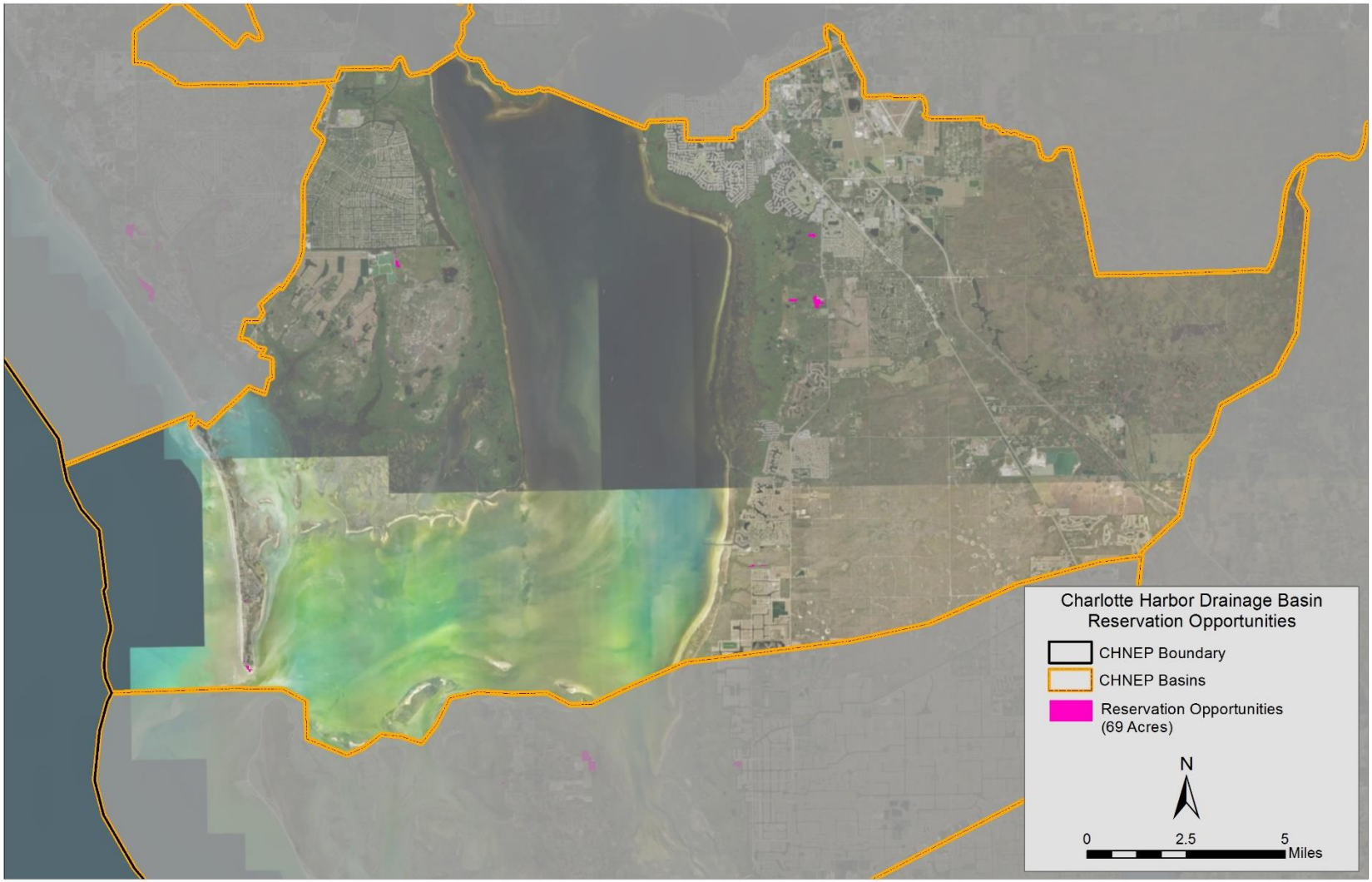


Figure 26. Charlotte Harbor Basin RO.

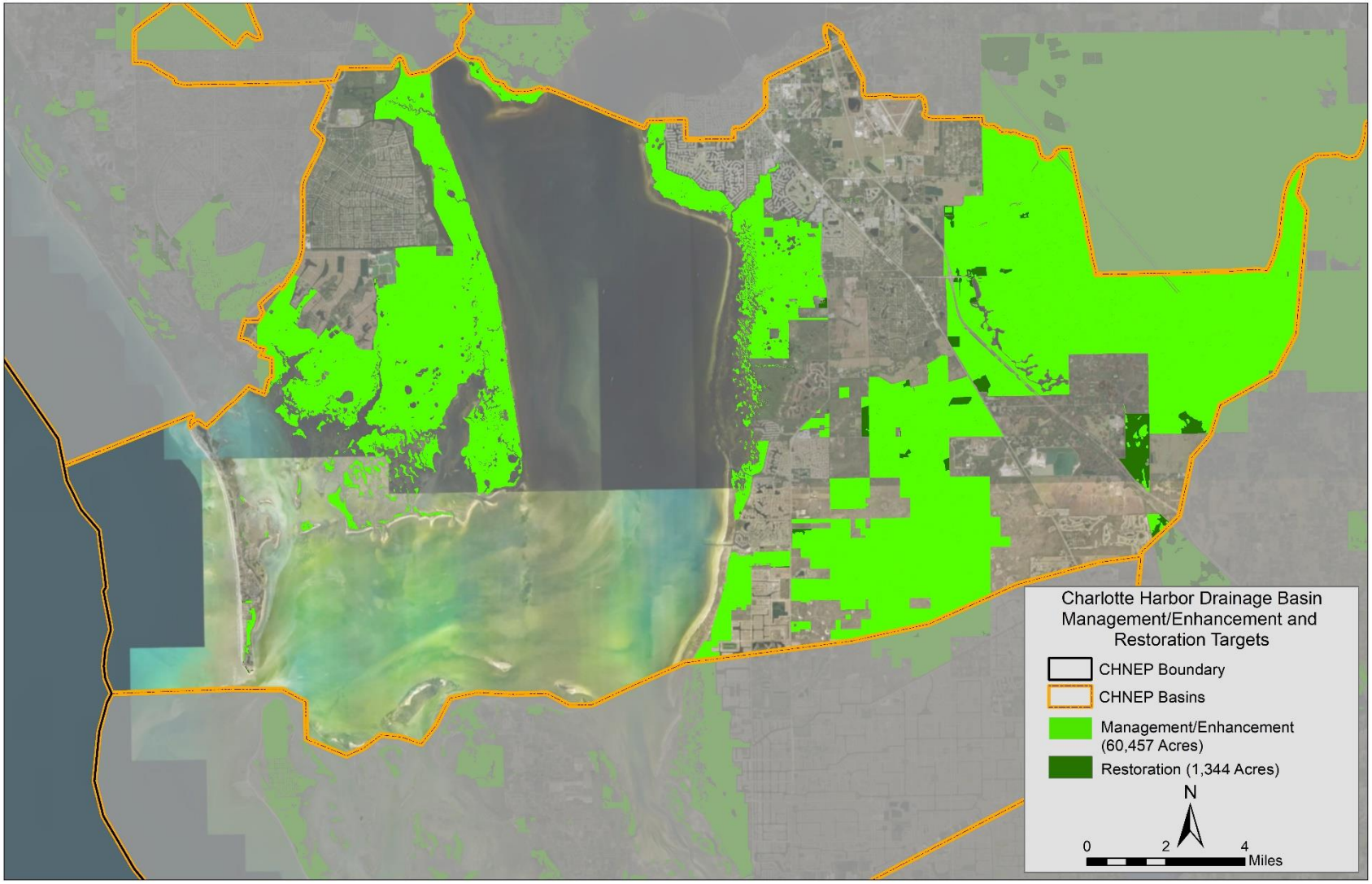


Figure 27. Charlotte Harbor Basin MET and RT.

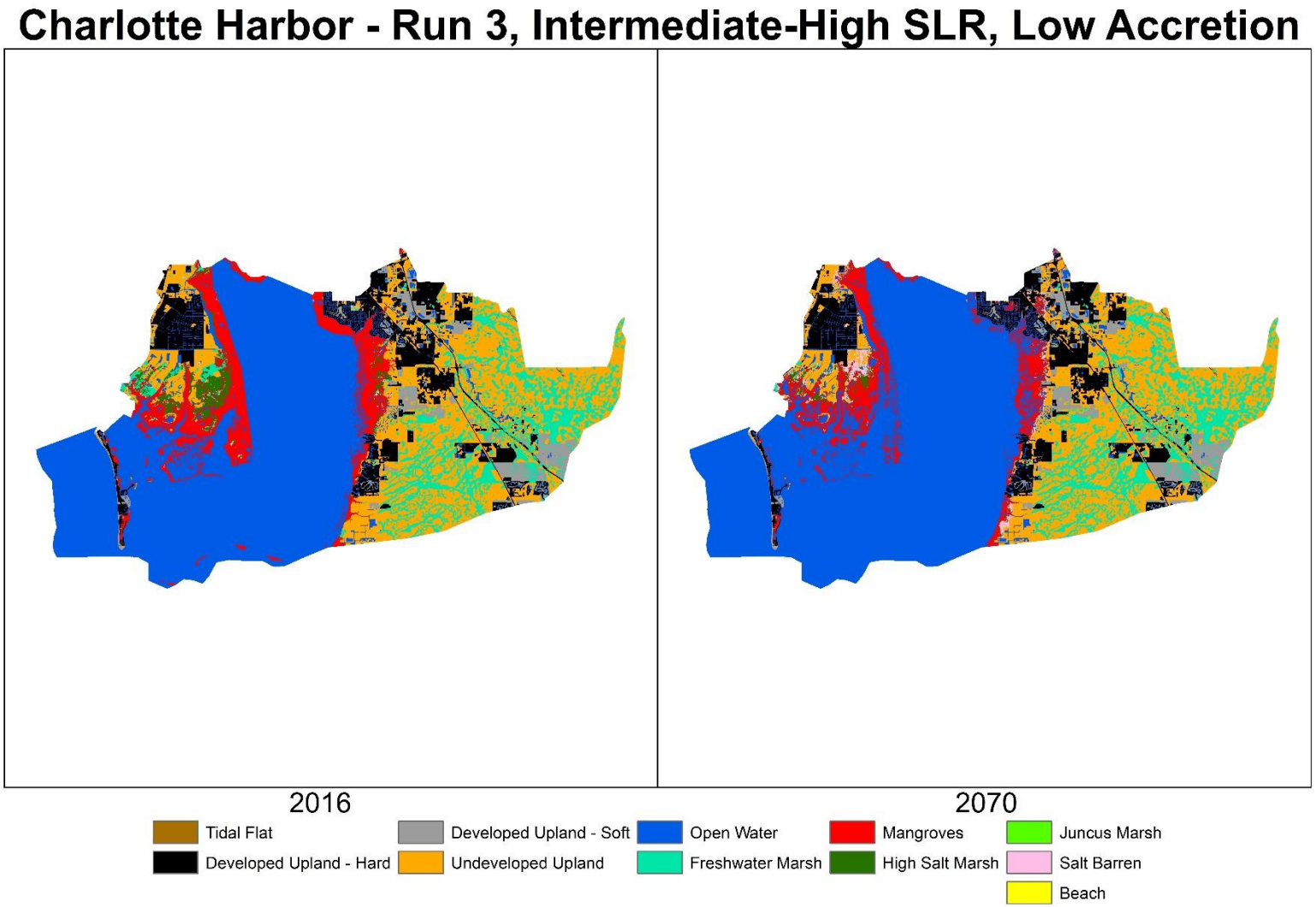


Figure 28. HEM Model Results for the Charlotte Harbor basin.