



2019 Habitat Restoration Needs Plan

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LEMON BAY 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>

Lemon Bay Basin

At 84,557 acres, the Lemon Bay basin is the smallest basin within the overall CHNEP area. The largest feature within this basin is Lemon Bay, with other significant aquatic features including Ainger and Gottfried Creeks. The southern limits of this basin support portions of the Charlotte Harbor Preserve State Park, the western limits of Myakka River State Forest, and Stump Pass Beach State Park. The results for this basin area are presented in the following narrative and in Figures 13 through 15.

Preservation/Conservation Opportunities (PCO)

A total of 4,474 acres was identified as potential PCO, of which 27 percent (1,227 acres) were categorized as non-native and 73 percent (3,247 acres) as native habitat (Table 9; Figure 13). Overall, the acreage identified as PCO constitutes 5 percent of the total lands within the overall Lemon Bay basin. The dominant native habitat community was classified as shrub and brushland constituting 30 percent (1,347 acres) of all potential PCO acreages. Cropland and pastureland was identified as the major non-native habitat classification with 14 percent (604 acres) classified within the overall basin (Appendix E).

Overall, the potential PCO occurred primarily around the upper limits of Ainger and Gottfried Creeks within this basin (Figure 13). Native habitat communities were primarily found in proximity of the two noted creeks, as well as in the Big Slough area and barrier islands.

Reservation Opportunities (RO)

A total of 150 acres was identified as potential RO (Table 9; Figure 14). Overall, the acreage identified for RO constitutes less than one percent of the total lands within the Lemon Bay basin. The dominant habitat community was classified as Recreational which consists of parks and trails (80 acres; Table 9). Potential RO were prominent near the estuarine complex within Lemon Bay (Figure 14).

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 Lemon Bay Basin HEM map (Figure 16) 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 mangrove swamp with limited migration higher into the landscape due to constraints with existing development.

Management/Enhancement Targets (MET)

A total of 7,845 acres was identified for MET and RT, of which 95 percent (7,464 acres) was identified for MET (Figure 15; Table 9). Overall, the acreage identified for MET and RT constitutes 9 percent of the total lands within the overall Lemon Bay basin. The dominant native habitat

community identified for MET was classified as pine flatwoods which comprised 33 percent (2,616 acres) of all MET and RT acreages (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 9). The vast majority of MET were distributed in the eastern portion of this basin and associated with Myakka State Forest, and the southern limits in Big Slough (Figure 15).

Restoration Targets (RT)

A total of 7,845 acres was identified for RT and MET, of which 5 percent (381 acres) was identified as RT (Figure 15; Table 9). Overall, the acreage identified for RT and MET constitutes 9 percent of the total lands within the overall Lemon Bay basin. 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 9). 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 10). 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 and agriculture
- 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;
- Outer zones of freshwater marshes were mapped as lakes classification in 1995, but were correctly remapped as vegetated non-forested wetlands in 2009/2011;
- 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 re-mapped to intermittent ponds classification in 2009/2011; and
- Salt flats were mapped in 2009/2011 at the north end of Don Pedro Island, where they had not previously been mapped.

Lemon Bay Basin Summary

Lemon Bay basin is the smallest basin within the overall CHNEP area, with 21 percent of the basin classified as existing development. The habitat status and trends analysis showed losses in upland habitats. These habitats may be considered a priority for restoration in this basin, and future studies can further identify the assemblage of specific habitat types. Freshwater wetland and changes in other upland and freshwater wetland habitats were difficult to discern due to mapping inconsistencies. 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. Similar to neighboring Dona and Roberts Bays basin, there are no primary or secondary Florida panther habitat areas located in this basin, and CHNEP stakeholders did not identify any wildlife corridors specific to the basin.

PCO are primarily located in the upper basin near Ainger and Gottfried Creeks. RO are distributed throughout the coastal portion of the basin, with a small area identified in Rotunda area. MET are primarily located in the east-central and southwestern areas of the basin. The HEM projects salt marsh moving into this area in the future and since these lands are already protected and identified as MET, if combined with the RO, can provide enhanced coastal protection and accommodate habitat migration from projected sea level rise impacts.

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 these updates presented below:

- Don Pedro Island State Park lands that are landward of the intracoastal waterway were partially mapped as RO based on existing mapping FLUCCS codes; however, the entirety of the park is under the ownership of the State of Florida and should be reclassified in future HRN studies as MET.
- Wildflower Preserve is included in the RO acreage based on existing mapping FLUCCS codes; however, this 80-acre preserve is now owned by Lemon Bay Conservancy, and should be reclassified Restoration in future HRN studies.
- Coral Creek Peninsula is currently mapped as PCO based on 2009/2011 mapping data, however 56 acres was acquired by the State of Florida during the project period and should be assessed in future HRN studies as potential MET or RT.

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

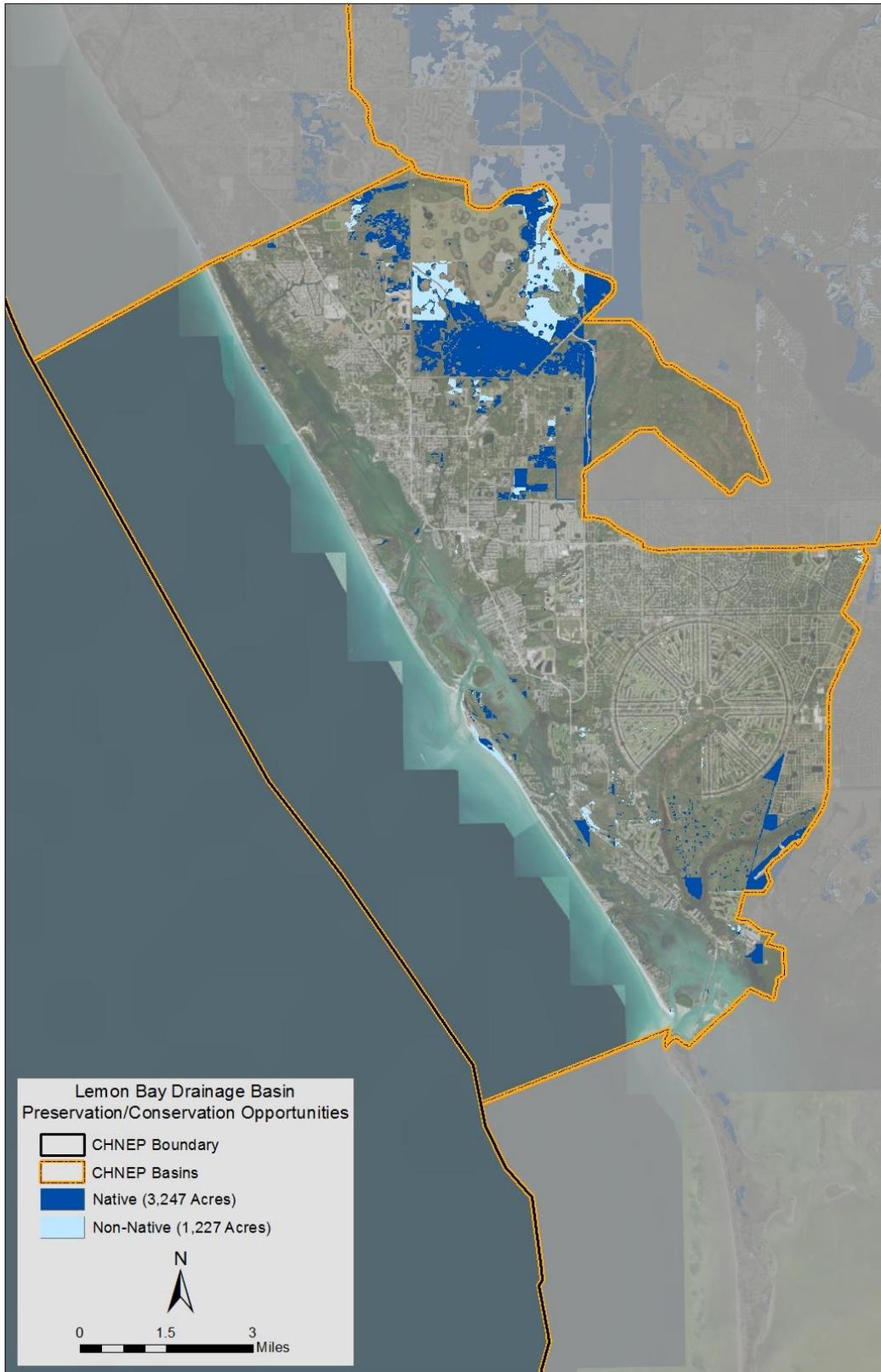
TABLE 9. HRN OPPORTUNITIES AND TARGETS FOR THE LEMON BAY BASIN BY MAJOR HABITAT TYPE

Major Habitat Type	Opportunities		Targets	
	PCO	RO	MET	RT
Uplands	2,319	N/A	4,954	263
Freshwater Wetlands	822	N/A	1,453	74
Tidal Wetlands	105	N/A	1,058	44
Non-Native	1,227	150	N/A	N/A
Total	4,474	150	7,464	381

TABLE 10. HRN CHANGE ANALYSIS GAINS AND LOSSES FOR THE LEMON BAY BASIN BY HABITAT CLASSIFICATION TYPE.

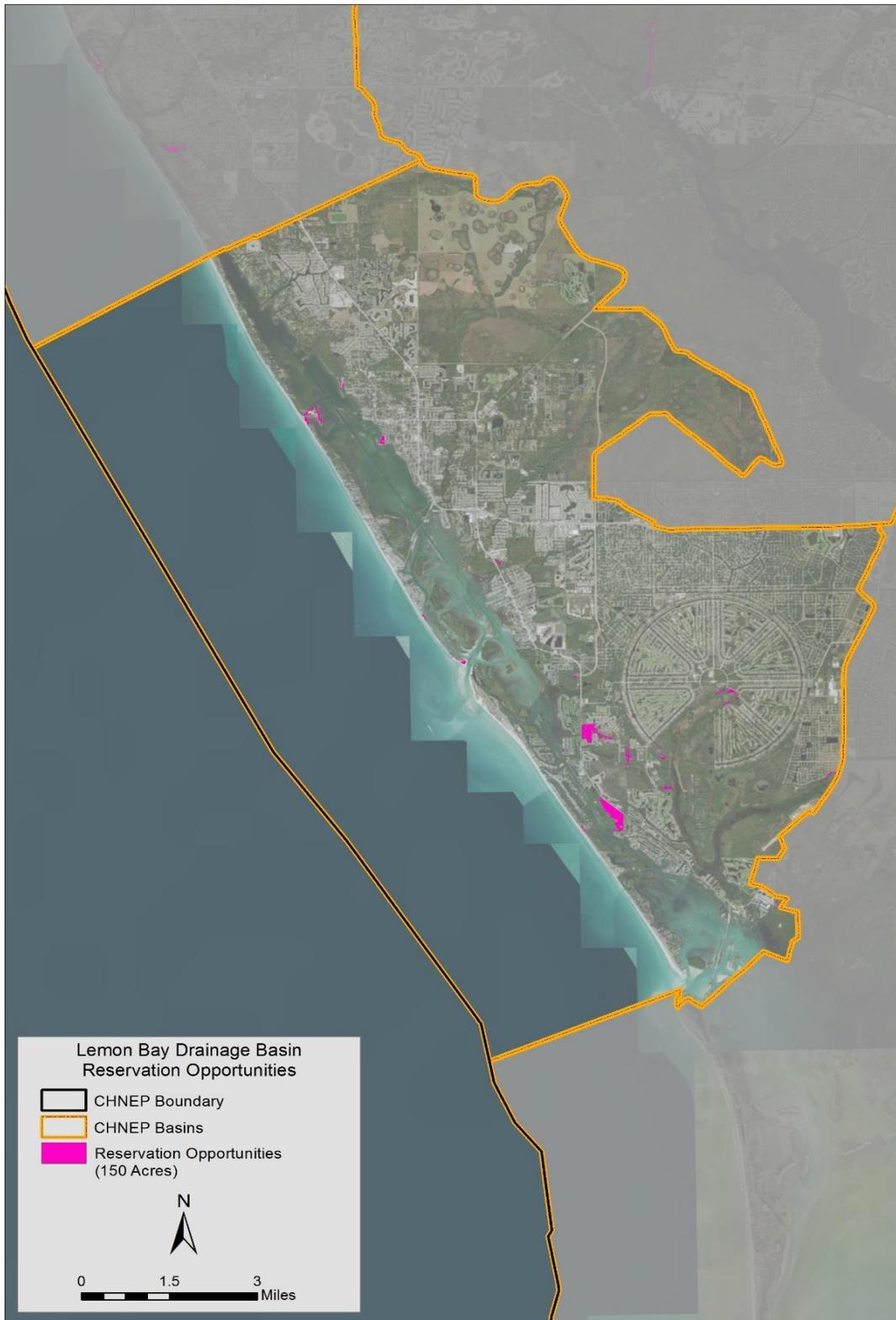
FLUCCS Codes	Primary Classifications	Acres		Change Analysis	
		1995	2009/2011	Acres	Percent
3100	Dry Prairie	N/A	236	236	*
3200	Shrub and Brushlands	4,243	3,243	-999	-24%
3300	Mixed Rangelands	17	402	385	*
4100	Upland Coniferous Forest	5,688	4,438	-1,250	-22%
4200/4300	Upland Hardwood Forest	2,840	1,917	-923	-32%
5100	Streams and Waterways	301	298	-3	-1%
5200	Lakes	491	63	-428	-87%
5600	Slough Waters	N/A	N/A	N/A	N/A
6100	Wetland Hardwood Forest	1,235	932	-302	-24%
6120	Mangrove Swamp	1,125	1,262	137	12%
6200	Wetland Coniferous Forest	40	35	-4	-11%
6300	Wetland Forested Mixed	211	136	-75	-36%
6400	Vegetated Non-Forested Wetlands	2,438	2,897	460	*
6420	Saltwater Marsh	271	332	61	*
6530	Intermittent Ponds	N/A	5	5	*
6600	Salt Flats	N/A	28	28	*

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



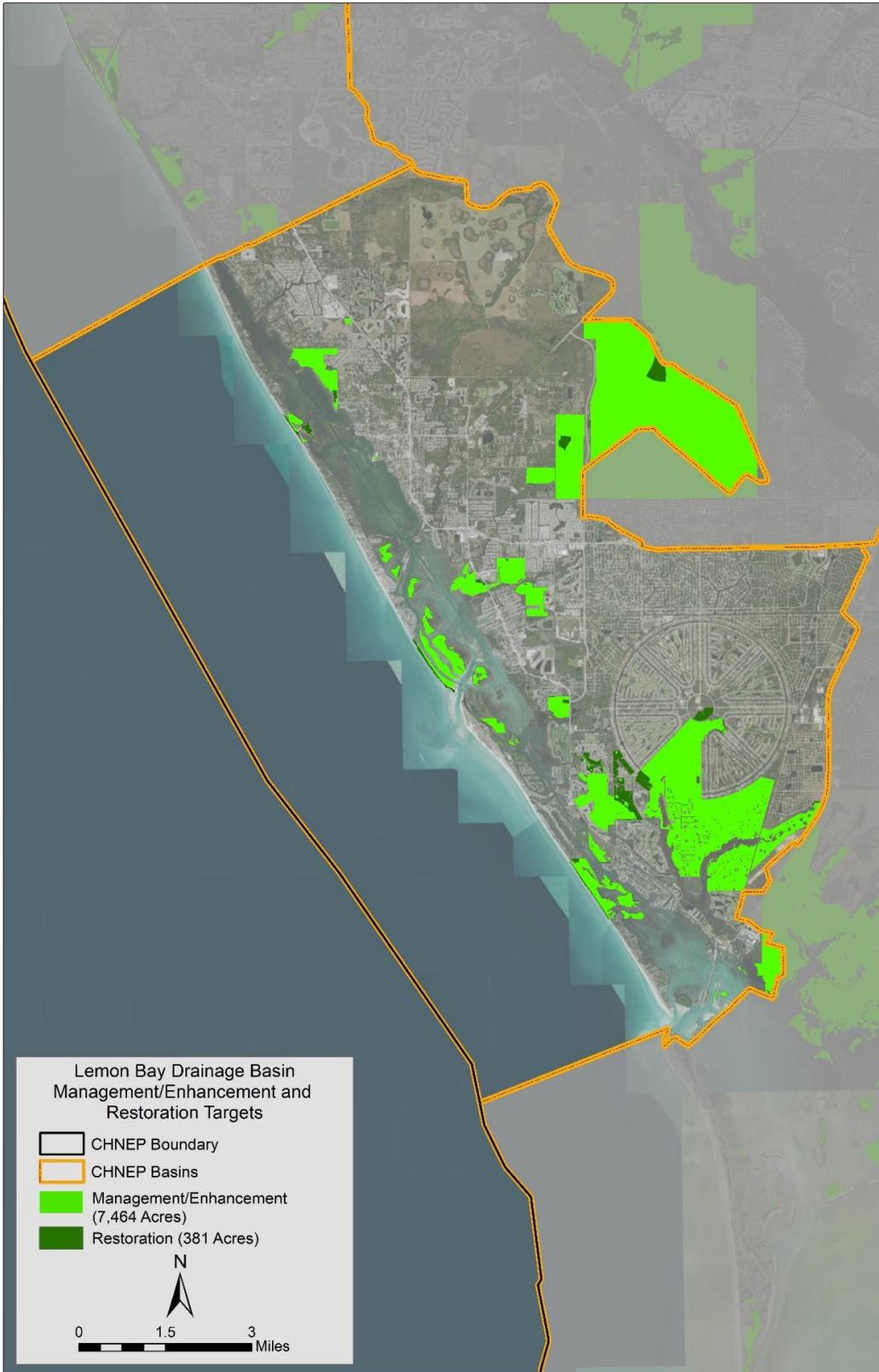
***See narrative for note on mapping classifications.**

Figure 13. Lemon Bay Basin PCO.



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

Figure 14. Lemon Bay Basin RO.



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

Figure 15. Lemon Bay Basin MET and RT.

Lemon Bay - Run 3, Intermediate-High SLR, Low Accretion

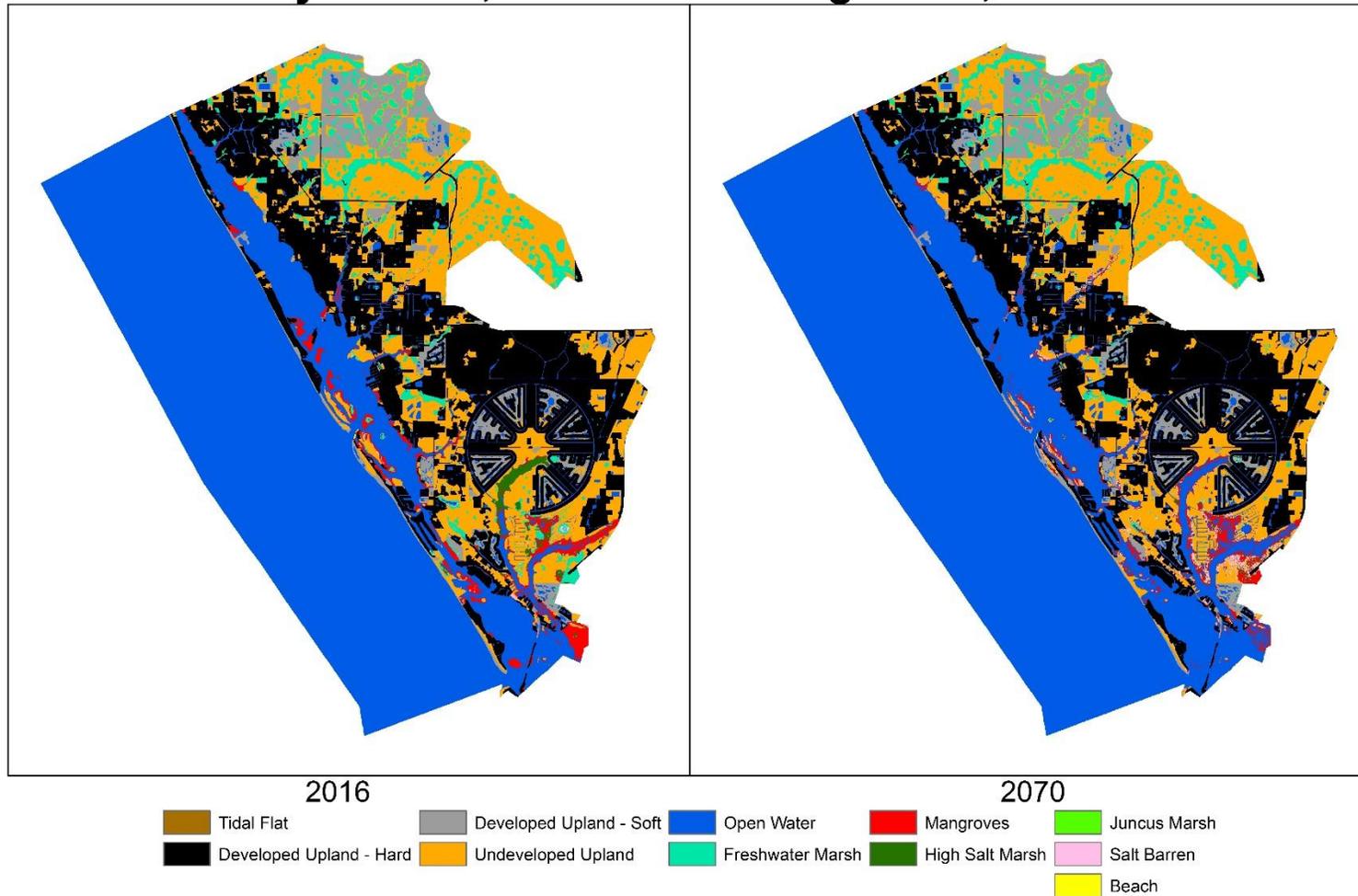


Figure 16. HEM Model Results for the Lemon Bay basin