EXHIBIT B, ORDINANCE 4147
09/16/2020 CITY COUNCIL MEETING

August 15, 2020 Rev. #1

Clarence Sirmons, AICP
Director of Development Services
City of Riviera Beach
600 West Blue Heron Boulevard
Riviera Beach, Florida 33404

Re: Natural Resource Assessment
Lake Worth Lagoon - North of Pine Point Drive & West of North Ocean Drive/A1A
City of Riviera Beach
Palm Beach County, Florida

Dear Mr. Sirmons:

Cyriacks Environmental Consulting Services, Inc. (CECOS) is pleased to submit this Natural Resource Assessment Letter Report documenting the results of our desktop review for the Study Area shown in Exhibit 1. The Study Area is located within the limits of City of Riviera Beach, Palm Beach County, Florida. It is specifically located north of Pine Point Road and west of North Ocean Drive/State Road (SR) A1A, as illustrated on Exhibit 1. The Study Area is also located within the northern portion of Lake Worth Lagoon (LWL) and just south of John D. MacArthur Beach State Park. In order to identify the natural resources present within the Study Area, the following resources/agency databases were reviewed as part of this desktop review:

- Google Earth (Imagery Date: January 2019)
- Lake Worth Lagoon (LWL) Management Plan Revision (2008)
- Lake Worth Lagoon (LWL) Initiative Management Plan (2013)
- Palm Beach County (PBC) Environmental Resources Management (ERM)
- Florida Fish and Wildlife Conservation Commission (FWC) Seagrass and Mangrove Habitat GIS Databases (2020)
- Florida Department of Environmental Protection (FDEP) Map Direct (2020)
- FDEP Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR) Database Lake Worth Lagoon Seagrass Mapping Project (2013)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (iPaC) Tool (2020)
- USFWS Critical Habitat Map for the Florida Manatee (2000)
- Marine Biodiversity Observation Network (MBON) Data Portal Manatee Synoptic Survey Data (2015)
- National Marine Fisheries Service (NMFS) Essential Fish Habitat Mapper (2020)

Environmental Setting

The Study Area is a shallow water body within the LWL ranging in depth from less than five (5) feet to 12 feet in depth (see Exhibit 2 for a bathymetric map of the LWL). The LWL supports significant natural resources

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such as seagrass, mangroves, sea turtles, manatees, and other important fish and wildlife populations. A summary of the resources identified within the Study Area is included below.

John D. MacArthur Beach State Park, to the north, is surrounded by mangrove communities that abut the Study Area's north end and the Lake Worth Cove is located adjacent to the northern limit of the Study Area, within the boundaries of John D. MacArthur Beach State Park. Based on those survey efforts within the Lake Worth Cove discussed within the LWL Management Plan (2013), all seven (7) of Florida's seagrass species were observed within the area, including the federally-threatened Johnson's seagrass.

Benthic Resources

As shown in Exhibit 3 (FWC Seagrass Habitat in Florida Map), seagrass is present throughout the Study Area, with the majority designated as continuous coverage and small sections designated as patchy (discontinuous) coverage. Based on the most recent data from FWC and FDEP field surveys, conducted under the SEACAR Lake Worth Lagoon Seagrass Mapping Project (2013), the most common species in this section of LWL was manatee grass (*Syringodium filiforme*), followed in occurrence by shoalgrass (*Halodule wrightii*), paddlegrass (*Halophila decipiens*), Johnson's seagrass (*Halophila johnsonii*) and turtlegrass (*Thalassia testudinum*).

Mangroves

Mangroves were identified using Google Earth aerial imagery, the LWL Management Plan and the FWC Mangrove Habitat GIS database. Review of the Google Earth imagery revealed that a narrow fringe of mangroves are present along most of the shoreline within the Study Area. This is consistent with the LWL Management Plan Mangrove Map (see Exhibit 4).

Listed Species

The Study Area is located within the USFWS designated Critical Habitat for the West Indian Manatee (*Trichechus manatus),* as shown in Exhibit 5. Manatees are observed within the LWL year-round, including within the Study Area. The Marine Biodiversity Observation Network Map showing manatee observation data is included as Exhibit 6.

The seagrass beds found within, and adjacent to, the Study Area also support important developmental habitat for juvenile green turtles. As noted in the Lake Worth Lagoon Management Plan, studies conducted by PBC ERM report an abundance of juvenile green sea turtles (*Chelonia mydas)* present within the Study Area. Juvenile loggerhead sea turtles (*Caretta caretta)* were also been reported within the Study Area, however, they were much less prevalent than the green turtle. The LWL Management Plan Sea Turtle Observations Map (2013) is included as Exhibit 7.

The Study Area also provides nursery habitats for breeding fish and refuge for juvenile fish species and invertebrates, including the federally-threatened smalltooth sawfish (*Pristis pectinata*). While the Study Area is not within the designated critical habitat or typical range of the sawfish, suitable habitat is present and juveniles may occur within the Study Area.

Essential Fish Habitat

Essential Fish Habitat (EFH), describes all waters and substrate necessary for fish to spawn, breed, feed, or grow to maturity. As shown in Exhibit 8, the NMFS Essential Fish Habitat Mapper indicates that the Study Area is within EFH for snapper/grouper and spiny lobster species. Mangrove and seagrass habitats are

designated EFH by the South Atlantic Fishery Management Council (SAFMC), as well as Habitat Areas of Particular Concern (HAPC). HAPC's are subsets of EFH that are rare, ecologically important, susceptible to human-induced degradation, or located in an environmentally stressed area. Mangroves and seagrass beds provide nursery, foraging, and refuge habitat for federally managed fishery species (e.g. snapper/grouper species), as well as for other commercially and recreationally important fish.

Conclusion

Based on the results of this assessment, the natural resources/wetlands present within the Study Area include extensive seagrass beds with adjacent fringe mangroves. These wetlands are significant habitat and are used by state and federally protected species, including the federally protected manatee, smalltooth sawfish and green sea turtle, as well as many other wildlife species. They are also EFH a significant resource protected by NMFS.

Species specific data is not available for the Study Area, however, it is reasonable that the high biodiversity found within the Lake Worth Cove, as described above, could extend into the Study Area due to its close proximity. The horizontal extent of this biodiversity, as well as the acreage of seagrass habitat and quality of habitat can be determined with future, targeted, in-water surveys. Additionally, mangrove surveys would be necessary to determine the areal extent (acreage) of mangrove habitat and quality of habitat within the Study Area.

Sincerely,
Cyriacks Environmental Consulting Services, Inc.

Wendy Cyriacks

Wendy Cyriacks
President

Attachments:

Exhibit 1 - Project Location Map
Exhibit 2 - Palm Beach County Lake Worth Lagoon Bathymetry Map (2008)
Exhibit 3 - FWC Seagrass Habitat Map (2020)
Exhibit 4 - Palm Beach County Lake Worth Lagoon Mangroves Map (2013)
Exhibit 5 - USFWS Manatee Critical Habitat Map (2000)
Exhibit 6 - Marine Biodiversity Observation Network Manatee Observation Map (2015)
Exhibit 7 - Palm Beach County Lake Worth Lagoon Sea Turtle Observations Map (2013)
Exhibit 8 - NMFS EFH-Habitat Areas of Particular Concern Map

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Project Location Map

City of Riviera Beach Preliminary Resource Assessment

Exhibit 1

City of Riviera Beach Preliminary Resource Assessment



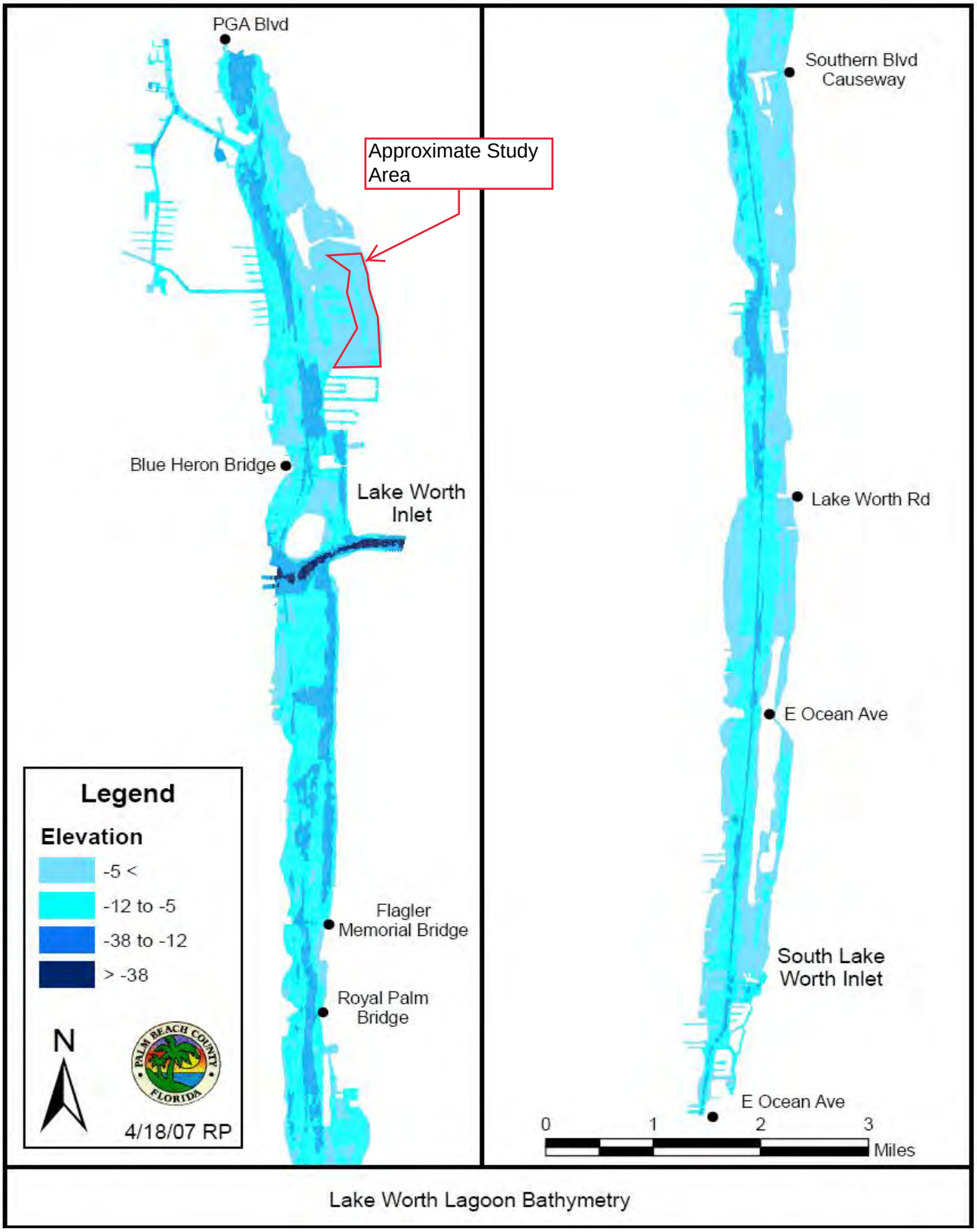


Figure 16. Lake Worth Lagoon Bathymetry Map

Source: Lake Worth Lagoon Management Plan Revision (2008)

Exhibit 3

City of Riviera Beach Preliminary Resource Assessment



Source: FWC Seagrass Mapper (Data from 2013 LWL Survey Study)

Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, FDEP, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA | Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute



Figure 7. Mangrove Communities in LWL

Source: Lake Worth Lagoon Management Plan (2013)

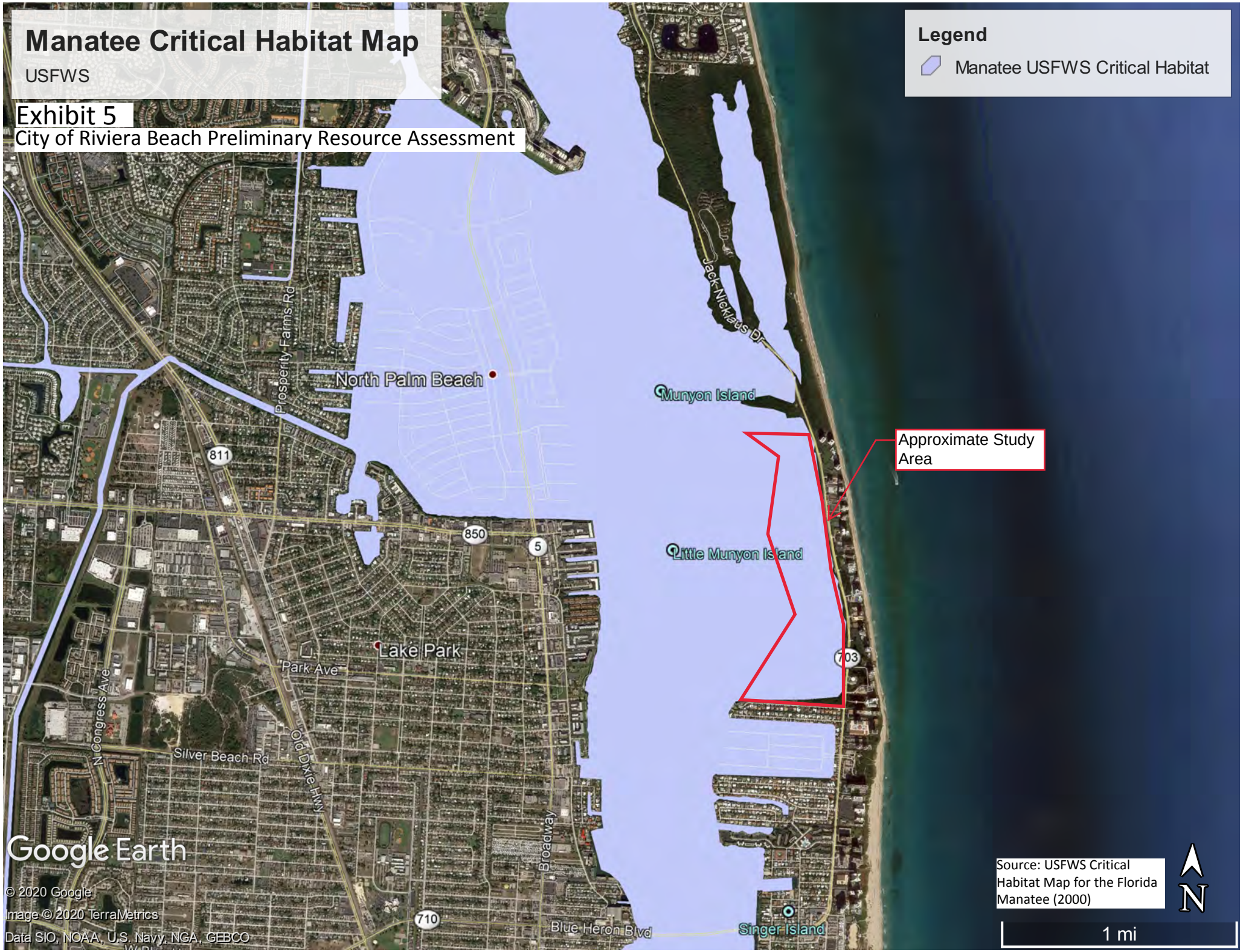
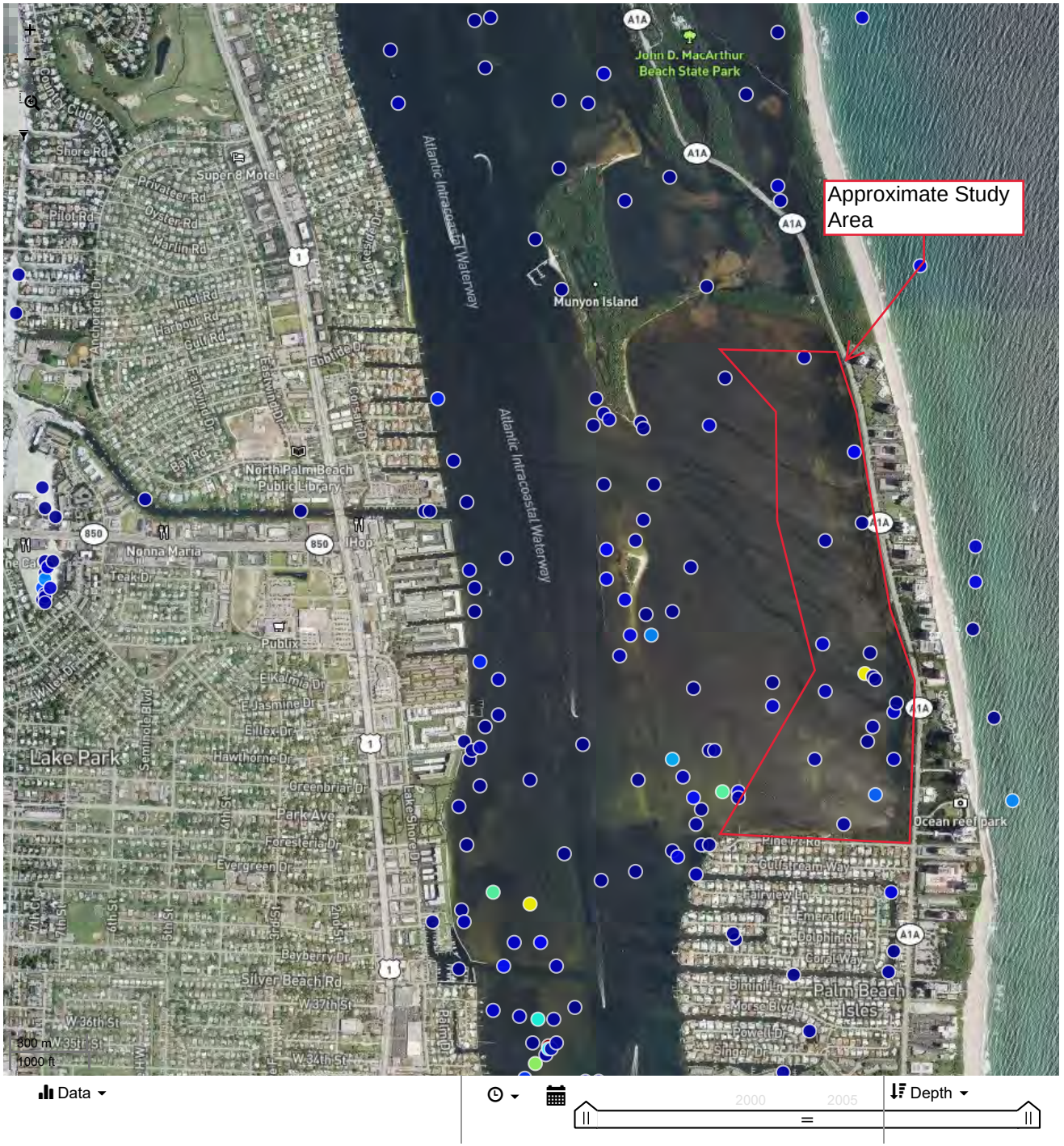

Manatee Critical Habitat Map
USFWS
Exhibit 5
City of Riviera Beach Preliminary Resource Assessment
Legend
Manatee USFWS Critical Habitat
Approximate Study Area
North Palm Beach
Munyon Island
Little Munyon Island
Lake Park
Singer Island
Prosperity Farms Rd
Jack Nicklaus Dr
Park Ave
N Congress Ave
Silver Beach Rd
Old Dixie Hwy
Broadway
Blue Heron Blvd
811
850
5
703
710
Google Earth
© 2020 Google
Image © 2020 TerraMetrics
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Source: USFWS Critical Habitat Map for the Florida Manatee (2000)
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Exhibit 6

City of Riviera Beach Preliminary Resource Assessment

Manatee Observation Map



Source: Marine Biodiversity Observation Network Manatee Synoptic Survey Data (2015)

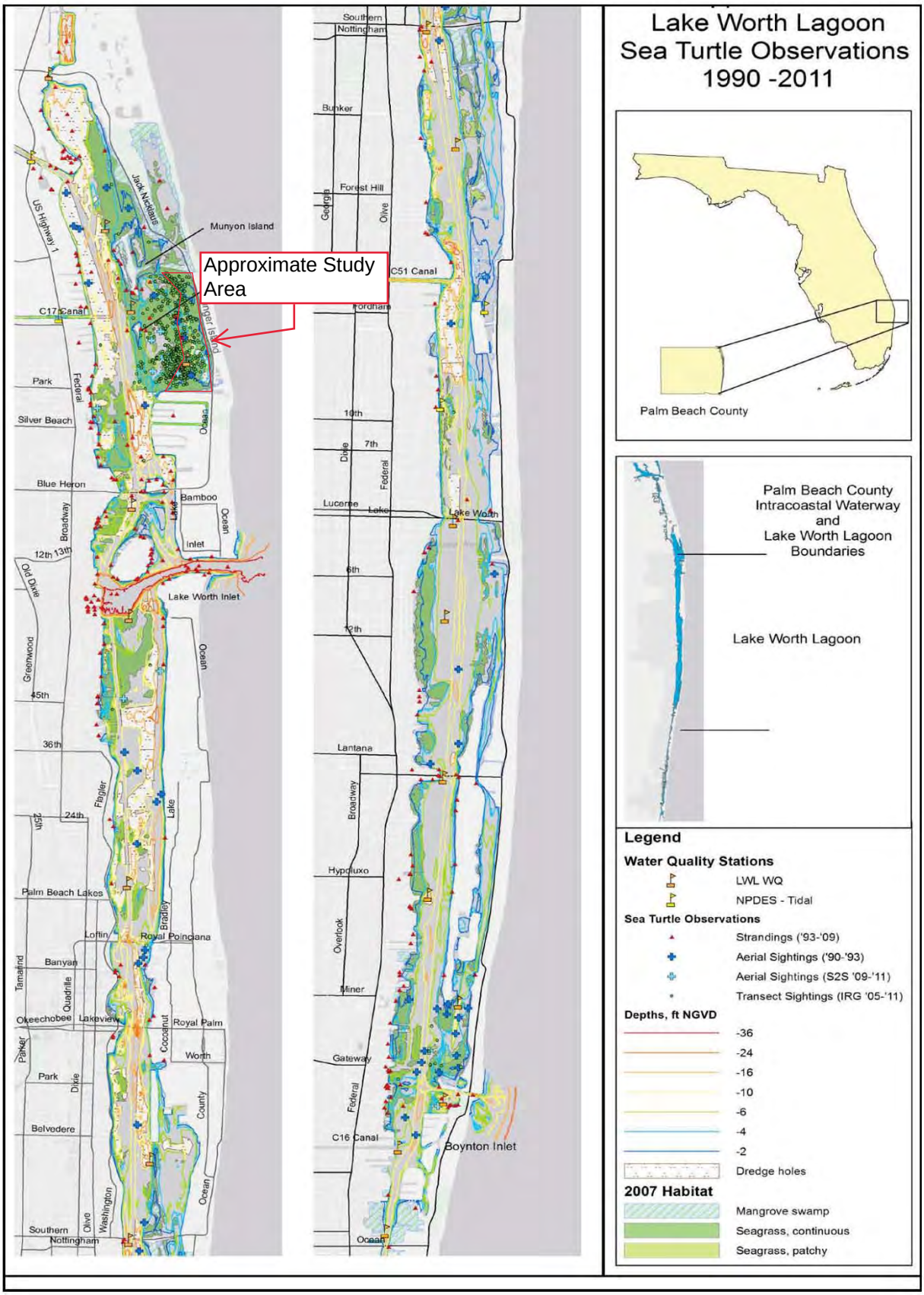
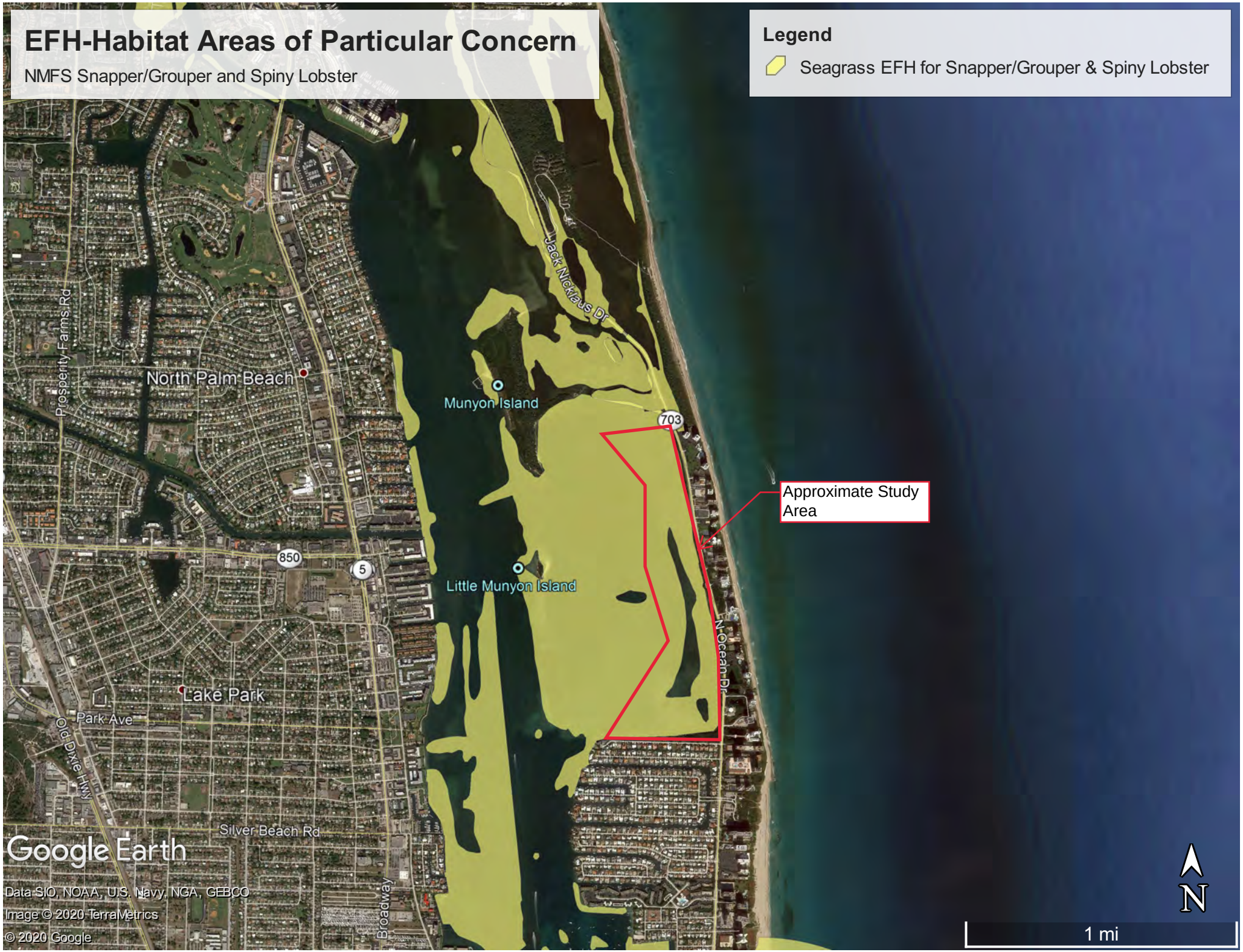


Figure 25. Map of locations of all sea turtle observations

Source: Lake Worth Lagoon Management Plan (2013)


EFH-Habitat Areas of Particular Concern
NMFS Snapper/Grouper and Spiny Lobster
Legend
Seagrass EFH for Snapper/Grouper & Spiny Lobster
Approximate Study Area
Jack Nicklaus Dr
Prosperity Farms Rd
North Palm Beach
Munyon Island
703
Little Munyon Island
N Ocean Dr
850
5
Lake Park
Park Ave
Old Dixie Hwy
Silver Beach Rd
Broadway
Google Earth
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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