

Charlotte County
Manatee Protection Plan



Photo by: Jay Gorzelany

Prepared by:
Charlotte County Parks & Natural Resources Division
514 E, Grace Street
Punta Gorda, FL 33950

Florida Fish and Wildlife Conservation Commission
620 S. Meridian Street
Tallahassee, FL 32399-1600

April 2017

Executive Summary

This document represents a comprehensive Manatee Protection Plan for Charlotte County, Florida. It is designed to establish protection criteria, develop protection strategies, and initiate management actions aimed at reducing threats to manatees in Charlotte County. The Charlotte County Board of County Commissioners is initiating this effort in accordance with the Coastal Planning Element of the Charlotte 2050 Comprehensive Plan; working with appropriate state and federal agencies to develop a planning document that recognizes the need to balance manatee protection with recreational and commercial uses. The principal objective of the Charlotte County MPP is to provide predictable and expanded options for development, while aiding in the long-term viability of manatees in Charlotte County. The MPP establishes a guideline by which state wildlife and regulatory agencies, federal wildlife and regulatory agencies, local entities and applicants can utilize to review new or expanding slips or boat facilities in an expedited manner. Consistency with the suggested guidance is encouraged, but not mandated. However, at the federal level, boat facility applications that are consistent with this plan are covered by programmatic consultation with the U.S. Fish and Wildlife Service and are processed entirely by the Army Corps of Engineers. The information assembled in this document includes:

- The best available data on manatee use in Charlotte County, including aerial survey and telemetry data.
- The best available data on recreational boating activity in Charlotte County from both mail/respondent and observation surveys.
- Coastal habitat inventories, including warm water, fresh water, seagrasses, and foraging habitat for manatees in Charlotte County.
- Current inventories of all boat facilities in Charlotte County, including multi-slip docks, ramps, and marinas.
- A summary of current water-related law enforcement resources and activities in Charlotte County.
- A summary of all zoning, coastal planning, and future land use in Charlotte County.
- Current and proposed environmental education and awareness programs in Charlotte County.
- A summary of waterways classifications in Charlotte County, including aquatic preserves and Outstanding Florida Waters.
- Current manatee protection measures in Charlotte County, including boat speed regulations.

A primary component of this document was the development of boat facility siting criteria, which addresses future boat facility construction and expansion as it relates to manatees and other at-risk natural resources. The principal factors used in the determination of facility siting consideration were:

- The size of the proposed facility construction or expansion.
- The location of the proposed facility as it relates to documented manatee use.
- The location of the proposed facility as it relates to documented recreational boat use.

- The location of the proposed facility as it relates to existing conservation and protection measures.
- The location of the proposed facility as it relates to tidal inlets, open water, and/or known popular boating destinations.

The siting component of this document only applies to the creation of a boat facility with five (5) or more slips, or the expansion of an existing boat facility with a total of five (5) or more slips. Facilities with four (4) or less slips with transitory or repetitive uses will be reviewed and addressed by the state and federal agencies outside the purview of this plan, as needed. Residential single family docks with four (4) or less slips are exempt from the boat facility siting strategy component of the MPP, however must still conform to all applicable federal, state, and local regulations in place at the time of the permit application.

Based upon these siting criteria, coastal areas in Charlotte County were designated as Unrestricted, Preferred, Conditional, Non-Preferred, or Conservation Areas. Higher levels of restriction corresponded to areas with greater risk of interaction with manatees. Detailed maps depicting the distribution of each of these designated areas are provided in this document.

It is important to note that the number of slips for any facility may be limited for reasons other than this MPP due to other local, state or federal restrictions (such as zoning, Future Land Use classifications, potential adverse impacts to submerged aquatic vegetation and manatee foraging habitats, water quality, etc.). The recommendations in this plan do not pre-empt existing rules or ordinances. A presumption of this document is that zoning, future land use classification and present financial constraints may not be limiting factors for future facility development.

Along with guidance for future water-related development, the Charlotte County MPP also provides recommendations for future habitat protection measures, educational efforts, and law enforcement initiatives; including the pursuit of appropriations and grant funding. It also recognizes the need to update its scientific databases with the best available data through future research endeavors. An implementation and timeline for completion of these efforts is also provided. This document will be reviewed and updated, as needed, a minimum of every five years after it is formally approved by both Charlotte County Board of County Commissioners, the USFWS and FWC.

| | |
|--|------------|
| Executive Summary | 2 |
| List of Figures | 5 |
| List of Tables | 7 |
| Acronyms | 8 |
| Definitions | 9 |
| 1.0 Introduction | 15 |
| 2.0 General Setting | 16 |
| 2.1 Vacant Land for Future Development..... | 17 |
| 2.2 Demographics..... | 22 |
| 2.3 Waters of Charlotte County..... | 23 |
| 2.3.1 Outstanding Florida Waters..... | 23 |
| 2.3.2 Aquatic Preserves..... | 24 |
| 2.4 Existing Federal and State Manatee Protection Requirements..... | 26 |
| 2.4.1 Federal Protection..... | 26 |
| 2.4.2 State Protection..... | 28 |
| 2.5 Existing Local Permitting and Manatee Requirements..... | 34 |
| 2.5.1 Comprehensive Plan References..... | 34 |
| 2.5.2 Future Land Use Element..... | 34 |
| 2.5.3 Coastal Planning Element..... | 36 |
| 2.5.4 Natural Resources Element..... | 37 |
| 2.5.5 The City of Punta Gorda Manatee Protection Plan and other Municipalities.... | 37 |
| 3.0 Habitat and Resource Protection | 38 |
| 3.1 Submerged Aquatic Vegetation..... | 38 |
| 3.2 Fresh Water..... | 39 |
| 3.3 Warm Water..... | 42 |
| 3.4 Restoration..... | 44 |
| 3.5 Upland Preservation..... | 44 |
| 3.6 Habitat Protection Measures..... | 44 |
| 4.0 Information Assessment | 45 |
| 4.1 Manatees..... | 45 |
| 4.1.1 Manatee Aerial Surveys..... | 48 |
| 4.1.2 Telemetry Data..... | 67 |
| 4.1.3 Manatee Mortality Data..... | 72 |
| 4.1.4 Conclusions Based on Manatee Data..... | 84 |
| 4.2 Boating..... | 87 |
| 4.2.1 Boating Activity..... | 87 |
| 4.2.2 Boat Registrations..... | 98 |
| 4.2.3 Boat Facility Inventory..... | 101 |
| 4.2.4 Future Water Access Facilities..... | 111 |
| 5.0 Boat Facility Siting Strategy | 114 |
| 5.1 Facility Siting Categories..... | 114 |
| 5.1.1 Unrestricted..... | 115 |
| 5.1.2 Preferred..... | 115 |
| 5.1.3 Conditional..... | 116 |
| 5.1.4 Non-Preferred..... | 116 |
| 5.1.5 Conservation Area..... | 116 |

| | |
|---|------------|
| 5.2 Discussion and Maps..... | 116 |
| 5.3 Tier I and Tier II Facilities | 123 |
| 5.4 Proposals that may be inconsistent with the MPP | 124 |
| 5.5 Miscellaneous Clarifications | 124 |
| 5.5.1. Shoreline designations and calculation of slip density | 124 |
| 5.5.2 Single family docks and single family developments..... | 127 |
| 5.5.3 Proposals with Less than Five Slips | 127 |
| 5.5.4 Change in Use of a Boat Facility | 127 |
| 5.5.5 Permit Restrictions Existing Prior to Approval of MPP | 127 |
| 6.0 Manatee Educational Efforts | 128 |
| 7.0 Law Enforcement..... | 130 |
| 8.0 Implementation and Monitoring | 131 |
| 8.1 Implementation Action | 132 |
| 8.1.1 Adoption and Permitting..... | 132 |
| 8.1.2 Habitat Protection Measures | 132 |
| 8.1.3 Education | 133 |
| 8.1.4 Law Enforcement | 134 |
| 8.2 Periodic Review | 135 |
| 8.3. Future Data Needs | 137 |
| 8.4 Funding Provisions | 137 |
| 9.0 Literature Cited | 139 |
| 10.0 List of Appendices..... | 142 |

List of Figures

Section 2

- 2.1 Charlotte County Overview
- 2.2 Aquatic Preserves and Conservation Lands
- 2.3 Federal Manatee Zones in Charlotte County
- 2.4 State Manatee Zones in Charlotte County
- 2.4a State Manatee Zones in Charlotte County: Lemon Bay
- 2.4b State Manatee Zones in Charlotte County: Peace River
- 2.4c State Manatee Zones in Charlotte County: Turtle Bay
- 2.5 Future Land Use in the Coastal Protection Area

Section 3

- 3.1 Sea Grass Distribution
- 3.2 Sea Grass Scarring
- 3.3 Telemetry Data: Warm Water Movement February 2002-December 2002

Section 4

- 4.1 State-wide Regional Manatee Management Units
- 4.2 FWC Manatee Sightings (synoptic aerial survey flights) 1991-2011
- 4.3 MML Aerial Survey Sightings 1985-89
- 4.3a MML Survey Flight Path 1985-89
- 4.4 MML Aerial Survey Sightings 1990-93
- 4.4a MML Survey Flight Path 1990-93

- 4.5 MML Aerial Survey Sightings 2002-04
- 4.5a MML Survey Flight Path 2002-04
- 4.6 FWC Survey Sightings 1987-89
- 4.7 MML Aerial Survey Sightings 1997-99
- 4.7a MML Survey Flight Path 1997-99
- 4.8 Spatial Manatee Distribution from Mote Aerial Surveys 1997-99
- 4.9 Manatee Sightings per Month from Mote Aerial Surveys 1997-99
- 4.10 Seasonal Warm Weather Spatial Manatee Distribution from MML Aerial Surveys 1997-99
- 4.11 Seasonal Cold Weather Spatial Manatee Distribution from MML Aerial Surveys 1997-99
- 4.12 MML Aerial Survey Sightings with Calves 1997-99
- 4.13 Telemetry Data: Short-term Movement May 2008-July 2008
- 4.14 Telemetry Data: Short-term Movement May 2008-June 2008
- 4.15 Telemetry Data: Long-term Movement December 1991-April 1993
- 4.16 Telemetry Data: Long-term Movement August 1995-Janurary 1999
- 4.17 Charlotte County Manatee Mortality
- 4.18 Total Manatee Deaths Ranked by Florida Counties
- 4.19 Watercraft-related Manatee Deaths Ranked by Florida Counties
- 4.20 Total Manatee Deaths in Charlotte County
- 4.21 Watercraft-related Manatee Deaths in Charlotte County
- 4.22 Watercraft-related Manatee Deaths in Charlotte County by Month
- 4.23 Manatee Carcass Recovery Locations 1975-2010
- 4.24 Watercraft-related Manatee Carcass Recovery Locations 1975-2010
- 4.25 Watercraft-related Manatee Perinatal Death Carcass Recovery Locations 1975-2010
- 4.26 Designated Manatee Use Areas in Charlotte County
- 4.27 Vessel Locations identified from MML Aerial Surveys 2000-01
- 4.28 Vessel Density Distribution from MML Aerial Surveys 2000-01
- 4.29 Expert-defined Primary Fishing Areas in Charlotte Harbor
- 4.30 Mail Respondent-defined Primary Fishing Areas in Charlotte Harbor
- 4.31 Boat Use Areas Designated in Charlotte County
- 4.32 Boating Travel Corridors in Charlotte Harbor
- 4.33 Favorite Boating Destinations in Charlotte Harbor
- 4.34 Perceived Boating Congestion Areas in Charlotte Harbor
- 4.35 Annual Recreational Vessel Registration in Charlotte County and Statewide 1978–2010
- 4.36 Boat Facility: Slip Inventories
- 4.37 Boat Facility: Public Boat Ramps

Section 5

- 5.1 Facility Siting Category - Countywide
- 5.2 Facility Siting Category – West County
- 5.3 Facility Siting Category – Mid/East County

List of Tables

Section 2

- 2.1 Platted Lots
- 2.2 Existing Land Uses
- 2.3 Land Available for Development
- 2.4 Permanent Population Counts 1930-2010
- 2.5 Population Growth
- 2.6 Charlotte County Population Projections 2010-2050

Section 4

- 4.1 Average Monthly Boat Trips
- 4.2 Peak Season Boat Trips
- 4.3 Vessels Types
- 4.4 Marinas and Slip Inventory
- 4.5 Boat Ramp Inventory

Acronyms

Following are acronyms that occur throughout the Charlotte County Manatee Protection Plan:

| | |
|----------------|---|
| Charlotte 2050 | Charlotte County 2050 Comprehensive Plan |
| BIF | Boater Improvement Fund |
| BOCC | Board of County Commissioners |
| CHNEP | Charlotte Harbor National Estuary Program |
| CZMA | Coastal Zone Management Act |
| ESA | Endangered Species Act |
| FAC | Florida Administrative Code |
| FBIF | Florida Boater Improvement Fund |
| FDEP | Florida Department of Environmental Protection |
| FLU | Future Land Use |
| FLUM | Future Land Use Map |
| FWRI | Florida Wildlife Research Institute (FWC) |
| FWC | Florida Fish and Wildlife Conservation Commission |
| GPS | Global Positioning System |
| ICW | Intra-Coastal Waterway |
| MML | Mote Marine Lab/Mote Marine |
| MMPL | Marine Mammal Pathology Lab |
| MPH | Miles per Hour |
| MPP | Manatee Protection Plan |
| OFW | Outstanding Florida Waters |
| PTT | Platform Transmitting Terminals |
| SWFWMD | Southwest Florida Water Management District |
| SWIM | Surface Water Improvement Management |
| SWMU | Southwest Florida Management Unit |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| WCIND | West Coast Inland Navigation District |

Definitions

Following are the definitions for use in the Charlotte County MPP:

Additional Slip(s) – for the purposes of the boat facility siting strategy in this plan, an “additional slip” refers to any new slip that is in addition to those slips currently existing as defined in this plan. The number of slips considered “additional” is only counted once after the original approval date of this plan.

Aggregation Site – an area where manatees may be found in large numbers. These sites may include areas that are not traditional warm-water sites (natural spring or artificial warm-water discharge) such as areas and canals that serve as thermal basins or freshwater attractants.

Anchorage – in-water vessel storage either by anchor or fixed mooring device.

Aquatic vegetation – this includes plants that must complete part or all of their life cycle in or near the water. In-water plants can be either rooted in the mud or floating without attachment.

Boat (or vessel or watercraft) – a vehicle designed for operation as a watercraft propelled by sails, or one or more electric or internal combustion engine(s), including personal watercraft. For the purpose of this plan, the word “boat” does not include non-motorized personal vessels such as canoes and kayaks.

Boat Facility – a public or private structure or operation where boats are moored and/or launched, including commercial, recreational, private and residential marinas, and public boat ramps. Unless specified otherwise in this plan, the boat facility siting recommendations in this plan apply to any new, existing, or expanded boat facilities which have five (5) or more slips. The exception is for any operation including transitory slips, which require a case by case review by the wildlife agencies.

Boat Facility Siting Strategy – a component of a MPP which identifies the most appropriate locations and slip densities for boat facility development, based upon an evaluation of manatee protection needs, potential natural resource impacts, and zoning and future land use compatibility. The purpose of developing a boat facility siting strategy (or plan) is to reduce threats to manatees and other living resources, such as seagrasses, mangroves, wetlands, and oysters, from boating activities and infrastructure development impacts.

Boat Ramp – a sloped structural, man-made or altered natural feature with one or more lanes along a shoreline area that facilitates the launching and landing of boats into a water body.

Boat Slip - a boat slip is a space, mooring, or parking space which can accommodate one boat or vessel in the water or on land (examples include: boat lifts and hoists, davits, trailers,

platforms and docks, dry stacks, anchorage, mooring buoys, and space used to beach or block a boat). For the purposes of this plan and consistent with the definitions utilized by the appropriate state and federal agencies, a boat trailer parking space is a boat slip. Slips that do not contribute to boat traffic, such as temporary, courtesy slips for boat ramps and dry storage facilities, are exempt from the boat facility siting strategy. Structures authorized only for fishing or observation are not considered slips.

Boat Yard - a boat facility (wet or dry slips) used only for boat repair and/or boat building.

Compliance (compliant) – term used by Gorzelany (1996) to describe any vessel in use that maintains a speed that is consistent with the posted regulatory speed.

Comprehensive Plan (Charlotte 2050) – an official planning document adopted by the Board of County Commissioners (BOCC) that includes goals, objectives, policy direction, and decision making related to growth and physical development within Charlotte County.

Conditional – Specific areas designated in the boat facility siting strategy recommended at a level of three additional slips for every one hundred feet of shoreline owned by the applicant (3:100).

Conservation Area – Specific areas designated in the boat facility siting strategy that are reviewed on a case by case basis, are typically considered Non-Preferred, and are designated on the MPP's boat facility siting maps. These reviews would include all available data and information at the time of application submittal, including consideration of approved land management plans that have been reviewed and approved by FWC regarding potential impacts to manatees. Proposals for watercraft access are not expected in these areas, which are primarily owned by governmental entities for conservation purposes.

Dock – any structure constructed on the land, in or on the water to serve as a landing or mooring area for a boat or vessel of any size.

Dry Slip – an upland structure, parking lot or space designed for the storage of single watercraft in an upland location that is associated with a dry storage facility.

Dry Storage Facility – an upland structure, parking lot, or space used specifically for storing watercraft. Such as, but not limited to, in/out boat storage, boat repair, boat sales, or long term dry storage lots or facilities. For the purposes of this plan, a dry storage facility is considered a boat facility or part of a boat facility if the dry storage facility has the capability of launching vessels into adjacent waters or water access is provided adjacent to, or in close proximity to the facility.

Existing Boat Facility (or existing slip) – For the purposes of this plan, the definition of an existing boat facility is 1) a facility that has produced boat traffic at some point within 10 years prior to the submittal date of an active request for authorization to renovate, modify or expand the facility; that has all required authorizations that clearly and accurately specify the

number of slips; and has been constructed and operates with the type of use as authorized; or 2) a facility that has not been built but has all active, required authorizations that clearly and accurately specify the number of slips and the time period has not exceeded 10 years from the date of the original permit/authorization. A request to modify a boat facility that does not meet the above definitions will be evaluated on a case by case basis by the wildlife agencies (FWC and/or USFWS) to assess the number of slips that may be recognized as existing, and whether the boat facility (or slip) will be considered new or existing for the purposes of this plan.

Florida Manatee – (*Trichechus manatus latirostris*) A subspecies of the West Indian manatee, Florida manatees are large, native and herbivorous marine mammals inhabiting the coastal waters, rivers, and springs throughout Florida. They are listed as endangered throughout their range, primarily due to human-related impacts, habitat loss, and a low reproductive rate.

Florida Manatee Management Plan – a management plan developed by the State of Florida in 2007 that contains an overview of research programs, initiatives, and management strategies targeted toward the protection and conservation of Florida manatees.

Florida Manatee Recovery Plan – a management document developed by the USFWS, which contains a series of goals and objectives targeted at the down-listing and ultimate delisting of the endangered Florida manatee.

Florida Manatee Sanctuary Act – state legislation passed in 1978 that designated the entire State of Florida as a manatee sanctuary and authorized the creation of rules to enact boat speed regulatory zones in areas that were determined to be at high risk to manatees.

Intracoastal Waterway – all waters within the navigable channel of the Gulf of Mexico Intracoastal Waterway in Charlotte County, Florida, and part of the inland waterways, located by buoys or other markers placed by the U.S. Coast Guard (USCG) or West Coast Inland Navigation District (WCIND).

Lane – a part of a boat ramp that allows for the launching and landing of one boat at a time. A boat ramp can have more than one lane.

Linear Shoreline or Shoreline - the mean high water line in tidally influenced areas and the ordinary high water line along waterways that are not tidally influenced, or a seawall that existed at the time of the original approval of this plan. Shoreline created by dredging that increases the length of shoreline, after the original effective date of this plan shall not be used in a slip density calculation. Artificially created shorelines created before the effective date must have received the proper authorization required at that time. Shoreline along man-made ditches (such as mosquito control, flood control ditches, etc.) shall not qualify as linear shoreline, regardless of their date of construction unless there is documentation of regular navigational use. Linear shoreline shall be calculated using survey quality aerial photographs or by accurate field survey. The calculation of linear shoreline is based upon contiguous

shoreline that is owned or legally controlled by the applicant. Shorelines associated with islands are not included for the purposes of this plan; however, applicants may request that shoreline be considered by the County, FWC and USFWS for unique circumstances. For the purposes of slip density calculations utilizing this plan, the amount of shoreline should be rounded up to the nearest 100 feet. For example, if an applicant owns 102 feet of shoreline, it should be rounded up to 200 feet to determine the number of slips.

Long-term Dry Storage Lots or Facilities – facilities that only provide storage for vessels that will be stored for long periods of time (at least six months). Boats are typically stored in these facilities seasonally, and are not used during the storage period. The vessels are typically “winterized” and are typically moved to other facilities when brought out of storage to be used. For the purposes of this plan, a long-term dry storage facility is not considered a boat facility or part of a boat facility if it does not have the capability of launching vessels into adjacent waters or water access is not provided adjacent to, or is not in close proximity to the facility

Manatee Protection Plan (MPP) – a county-specific management plan developed, approved and used where applicable by federal, state and local governments to ensure the long term protection of manatees and their habitat within what is defined as the County boundaries.

Marina – a boat facility on and/or adjacent to a waterway that provides services available for recreational purposes and includes but is not limited to: rental of wet slips or dry storage space, where vessel mooring is clustered in a common area, associated boat lifting and/or launching, boat rentals, sale of marine fuel and lubricants, wastewater pump-out facilities, sale of fishing bait and equipment, and/or charter boat operations. Additional services may include the construction, reconstruction, repair, or maintenance of boats, marine engines and/or marine equipment; sale or lease of watercraft and seafood processing.

Mean High Waterline – the intersection of the tidal plain or mean high water with the shore, be it natural or constructed. Mean high water is the average height of high waters over a nineteen-year period.

Mooring – a location where one vessel is berthed or stored when not in use. Types of moorings include anchorage, mooring fields, beached or blocked, dry stack, hoist, ramp, seawall, trailer, or wet slip.

Non-Preferred – specific areas designated in the boat facility siting strategy recommended at a level of one additional slip for every 100 feet of shoreline owned or controlled by the applicant (1:100), as shown on the MPP’s boat facility siting maps. For example: A site has 442 feet of shoreline. In order to calculate the allowable number of slips, 442 is rounded up to the next 100-foot increment (500 feet), then divided by 100 which equals five (5). That number is multiplied by the slip to shoreline ratio one (1). In this example, five (5) would be the recommended number of additional (new) slips. If less than 400 feet of shoreline is owned, the allowable number of slips is four (4) and it would not fall under the MPP as the threshold of when this MPP is used is five or more slips.

Ownership – person, persons or group who possess rights of access, riparian rights, easements, covenants concerning development of land, or other rights in land.

Parcel/Lot – a designated parcel, tract, or area of land established by plat, subdivision, or as otherwise permitted by law, and recorded in the public records of Charlotte County, Florida, to be separately owned, used, developed, or built upon. For the purpose of this plan, a lot is created on such date that one of the following conditions occur:

(1) The date that a deed for the lot is lawfully first recorded in the public records of the County.

(2) The date that a plat has been lawfully recorded in the public records of the County and the lot is a part of the plat. The boat facility siting Strategy component of this MPP is implemented by lot or parcel, as recorded at the time of the first MPP approval. The amount of slips provided for in this plan will be for those recorded lots, and not lots or parcels divided after MPP approval. Parcels divided after MPP approval will need to be addressed individually by FWC and FWS on a case by case basis.

Personal Watercraft - a vessel less than 16 feet in length which uses an inboard motor powering a water jet pump as its primary source of motive power and which is designed to be operated by a person sitting, standing, or kneeling on the vessel, rather than in the conventional manner of sitting or standing inside the vessel.

Preferred – specific areas designated in the boat facility siting strategy recommended at a level of five additional slips for every one hundred feet of shoreline owned by the applicant (5:100) and shown on the MPP's boat facility siting maps.

Powerboat – a vehicle designed for operation as a watercraft propelled primarily by motor, (one or more electric or internal combustion engine(s)). Vessels that have two main propulsion systems (power and sail) shall be defined as powerboats. (Source: FWC)

Ramp Space – refers to the trailer parking capacity of a boat ramp facility as delineated by appropriately sized and marked trailer parking spaces and/or County approved parking plan.

Riparian Rights - those rights associated to lands bordering navigable waters, as recognized by the courts and common law. (Source: FAC)

Slip – see Boat Slip, above.

Single-Family Dock – a boat facility used for private recreational or leisure purposes that is located on a single-family riparian parcel with detached single family residences or that is shared by two adjacent single-family riparian owners if located on their common riparian property line. The boat facility may contain wet slips and/or dry slips, and provide mooring for the sole recreational use of the residents of a detached single-family home, adjacent to a coastal water body. This plan is not applicable to residential single family docks with four (4)

or less slips (but must conform to all applicable federal, state, and local regulations in place at the time of the permit application).

Telemetry – research involving the monitoring of tagged animals through remote radio or satellite tracking.

Temporary (or Courtesy) Slip – For the purposes of this plan, a slip that is used generally less than one day (but may include overnight), and does not contribute to boat traffic, such as courtesy slips for boat ramps and dry storage facilities that are used only to facilitate boat launching a retrieval, boat sale facilities and boat yards. Temporary slips are not counted when calculating slip densities.

Transitory (or Transient) Slip – For the purposes of this plan, a slip that is used generally less than one day (but may include overnight or multiple-day use) and contributes to boat traffic. Examples include, but are not limited to: slips at non-fee public facilities (e.g., public parks, etc.), slips at facilities used for water-dependent public transportation (e.g., water taxis), and slips designated day-use slips at restaurants and hotels. Transitory slips are counted when calculating slip densities.

Trailer – for the purposes of this plan, refers to a means of boat transportation and storage out of water; a trailer-type mooring of boats associated with a Boat facility.

Travel Corridor - a waterway through which manatees travel, either daily or seasonally, between feeding areas and sources of fresh or warm-water, resting or feeding locations, or other habitat areas.

Unrestricted – specific areas designated in the boat facility siting strategy where slip development is not restricted for the purpose of manatee protection.

Watercraft Access – a location that provides boat access into the waterways of Charlotte County such as docks, piers, marinas, boat ramps and associated trailer parking spaces, boat slips, boat lifts, floats, floating docks, pilings, boat davits, dry storage, etc.

Waters – navigable waters of the State of Florida

1.0 Introduction

The West Indian manatee (*Trichechus manatus*) is a marine mammal species found within the southeastern United States and the wider Caribbean basin. The Florida manatee (*Trichechus manatus latirostris*) is a subspecies of the West Indian manatee; which belongs to the scientific order Sirenia that also includes the Amazonian manatee, dugong, West African manatee, and Steller's sea cow (extinct).

Florida manatees are native to Florida with some individuals documented as far north as Massachusetts, as far west as Texas, and occasionally into the Caribbean (Lefebvre, Marmontel, Reid, Rathburn & Domning, 2001). Florida manatees start to aggregate at warm water refuges once water temperatures approach approximately 68° F, which significantly influences their geographic range. During the winter months, manatees typically seek warmer water in southern Florida, or aggregate at a number of natural or artificial warm-water refuge sites. (USFWS 2001, Laist & Reynolds 2005, Reynolds & Wilcox 1994). Manatees are typically found in shallow, slow-moving rivers, estuaries, saltwater bays, canals, and coastal areas. Their diet consists primarily of aquatic vegetation, particularly seagrasses.

Threats to the Florida manatee include both naturally-occurring and human-related causes. Conflicts in use between human-related activity and limited coastal resources are further affected by their low reproductive capacity. The adverse impacts of watercraft on manatees have been well documented. It has been demonstrated that there is a correlation between the number of registered vessels in Florida and the number of watercraft-related manatee mortalities (Wright et al., 1995). Manatee deaths resulting from human-related activity represent approximately 25 percent of the annual mortality. Habitat protection is also critical to conserving this species. Destruction of seagrass beds and additional habitat degradation due to human activity is generally accepted as a threat to the long-term survival of manatees (USFWS, 2001). Manatees are also susceptible to naturally-occurring phenomena such as red tide, which has resulted in large-scale mortality events, particularly in Southwest Florida.

The Florida manatee was listed as an endangered species by the U.S. Fish and Wildlife Service (USFWS) in 1967 and by the Florida Fish and Wildlife Conservation Commission (FWC) in 1979. The Florida manatee is protected by the Florida Manatee Sanctuary Act (1978) and is federally protected by both the Marine Mammal Protection Act of 1972 (as amended in 1996) and the Endangered Species Act of 1973. The Florida Manatee Sanctuary Act requires that "key" Florida counties adopt a Manatee Protection Plan (MPP) and incorporate the boat facility siting provisions into their Comprehensive Plan. The components of an MPP must be compatible with local policies and ordinances while addressing manatee concerns. MPP's are designed to provide a summary of available information on manatees, establish protection criteria, and provide strategies aimed at reducing manatee-related threats within a specific county.

While Charlotte County is not one of the original “key” counties identified in the Act, both manatee use and significant amounts of manatee habitat in Charlotte County have been well documented. The purpose of this MPP is to provide for countywide comprehensive management strategies for the conservation of manatees within Charlotte County. The plan will establish a partnership between the FWS, FWC and Charlotte County that will provide permitting recommendations that satisfy federal and state regulatory requirements for protected species. The primary purpose of the MPP is to develop long term strategies and policies to protect manatees and manatee habitat, including: increasing public awareness of manatees and their habitat, promoting safe boating, providing for future recreational and developmental planning, protecting environmentally sensitive marine and estuarine habitat; streamlining the permitting process, and allow for effective waterways management in Charlotte County.

2.0 General Setting

Charlotte County is located along the southwest Florida coast. The County has a total of 859 square miles, which includes 694 square miles of land area and 165 square miles of water area. The majority of the water area is composed of Charlotte Harbor, the Peace River, and the Myakka River. The county is 18 miles in length from north to south, yet has approximately 219 miles of coastline and 164 miles of canals. Punta Gorda is the only municipality in Charlotte County. The Peace River serves as the northern boundary to the municipality while Charlotte Harbor serves as the western boundary. The total area of the city is 18 square miles, which is comprised of 14 square miles of land and four square miles of water.

The County is divided into three distinct geographic regions (Figure 2.1) by the Peace and Myakka Rivers. The West County region includes the Cape Haze Peninsula, west of the Myakka River, which contains the communities of Englewood, Manasota Key, Grove City, Placida, Rotonda West, South Gulf Cove, and Cape Haze. This region also contains a chain of barrier islands, many of which are accessible only by boat. From north to south, these islands are Manasota Key, Sandpiper Key, Thornton Key, Knight Island, Palm Island, Don Pedro Island, Little Gasparilla Island, and Gasparilla Island. Manasota Key is partially in Sarasota County, and Gasparilla Island is partially in Lee County.

The Mid-County region contains the area between the Myakka River and the Peace River; this includes the communities of Port Charlotte, Charlotte Harbor, El Jobean, Riverwood, Deep Creek, and Harbour Heights. The Mid-County region contains most of Charlotte County’s population and commercial activity which has been heavily platted.

The South/East County region lies south of the Peace River. This region contains the City of Punta Gorda; the County’s only incorporated municipality, as well as the communities of Tropical Gulf Acres, Solana, Cleveland, and the Burnt Store area. Charlotte County Airport is located in the South County region. The East County portion of the region is not physically separated from the South County portion but is generally considered to lie east of range

line 23E/24E and Interstate 75. This region is predominantly rural, although it does contain some antiquated platted subdivisions. This area also contains the Babcock-Webb State Wildlife Management Area and the Babcock Ranch preserve. It is planned to contain a substantial mixed-use new town development which will be surrounded by the Babcock Ranch preserve.

2.1 Vacant Land for Future Development

Like many other areas of Florida, the County has experienced periods where the subdivision of land for development greatly exceeded the population growth within the community. As of April 20, 2010 there were 203,085 platted lots existing in the County and 131,718 were vacant. This is 64.8 percent of the total platted lots. Nearly two-thirds of all platted lots in the County, and well over half of the “urban” area of the County is vacant, as depicted in Table 2.1. Many neighborhoods consist of empty blocks of residential lots with paved streets, constructed in anticipation of development that did not occur as rapidly as expected.

| General Future Land Use | Within Urban Service Area | | Within Rural Service Area | | Total |
|---------------------------------------|---------------------------|---------------|---------------------------|--------------|----------------|
| | Vacant | Developed | Vacant | Developed | |
| Residential ⁽¹⁾ | 102,124 | 65,104 | 1,046 | 1,308 | 169,582 |
| Commercial ⁽²⁾ | 3,094 | 1,178 | 72 | 0 | 4,344 |
| Industrial ⁽³⁾ | 1,479 | 335 | 0 | 0 | 1,814 |
| Mixed Use ⁽⁴⁾ | 1,079 | 2,620 | 0 | 0 | 3,699 |
| Agricultural ⁽⁵⁾ | 166 | 201 | 17,173 | 333 | 17,873 |
| Conservation and Parks ⁽⁶⁾ | 265 | 250 | 5,171 | 12 | 5,698 |
| Other ⁽⁷⁾ | 48 | 26 | 1 | 0 | 75 |
| Total | 108,255 | 69,714 | 23,463 | 1,653 | 203,085 |

Source: Charlotte County Growth Management Department, 2010

(1) Includes Low Density, Medium Density, and High Density Residential, Coastal Residential, and RV Park

(2) Includes Commercial Center, Commercial Corridor, Commercial (Charlotte Harbor)

(3) Includes Low and Heavy Industrial, Industrial (Charlotte Harbor), and Enterprise Charlotte Airport Park

(4) Includes Compact Growth Mixed Use, DRI Mixed Use, US 41 Mixed Use, Neighborhood Business/Residential (Charlotte Harbor), Mixed Use (CH), Tourist (CH), Murdock Village Mixed Use, Babcock Mixed Use, and Village Residential

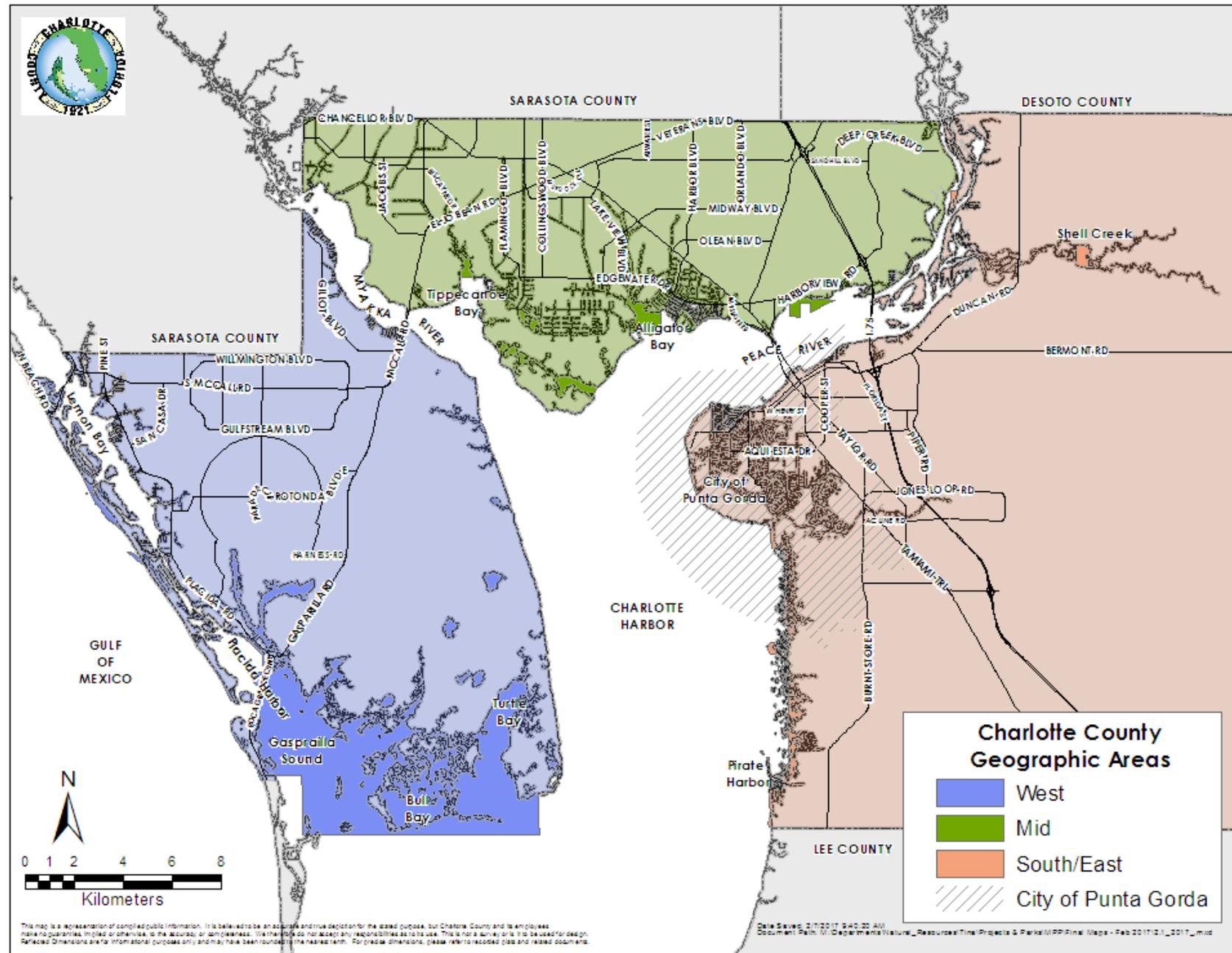
(5) Includes Agriculture, Limited Development, Mineral Resource Extraction, Rural Estate Residential

(6) Includes Preservation, Resource Conservation, and Parks & Recreation

(7) Includes Public Lands and Facilities

Figure 2.1: Charlotte County Overview

Data Source: Charlotte County GIS



This map is a representation of compiled public information. It is believed to be an accurate and true depiction for the stated purpose, but Charlotte County and its employees make no guarantee, implied or otherwise, as to the accuracy or completeness. We therefore do not accept any responsibility as to its use. This is not a survey or to be used for design. Reflected Dimensions are for informational purposes only and may have been rounded to the nearest tenth. For precise dimensions, please refer to recorded plans and related documents.

Date Saved: 2/1/2017 9:40:20 AM
 Document Path: \\M:\Department\Natural Resources\Time Projects & Parks\MPR\Final Maps - Feb 2017\2.1_2017_1.mxd

Table 2.2 shows existing land uses in the County and the amount of vacant land available. The table shows that slightly more than 11 percent of the County is identified as vacant land. Importantly, agricultural land is recognized as a legitimate land use and a generator of economic activity, even if the land is not being actively cultivated with crops or livestock, and it is not land merely waiting to be developed into a more intensive use.

Vacant lands are primarily those classified by the County’s Property Appraiser as such. In general, vacant lands do not contain any structures or use, although they may contain roads, other infrastructure, and stormwater ponds in anticipation of development, or agriculture in many cases.

Approximately seven percent of the County is used for residential uses of all types. Less than one percent of the County is used for commercial uses and less than one percent is used for industrial uses.

Excluding agriculture and conservation uses, residential land uses are by far the dominant use in the County. Furthermore, low density residential uses – between one and five dwelling units per acre – constitute the majority of the residential designation, at 12.47 percent. No other residential category exceeds two percent of the total.

| Table 2.2: Existing Land Uses | | |
|-------------------------------|---------|---------|
| Existing Land Use Category | Acreage | Percent |
| Residential use | 30,036 | 7.08 |
| Commercial use | 2,650 | 0.63 |
| Industrial use | 818 | 0.19 |
| Agricultural use | 130,082 | 30.69 |
| Recreational use | 2,875 | 0.68 |
| Conservation use | 177,927 | 41.98 |
| Educational use | 558 | 0.13 |
| Medical use | 26 | 0.01 |
| Institutional | 821 | 0.19 |
| Public buildings and grounds | 7,854 | 1.85 |
| Mining sites | 6,842 | 1.62 |
| Burial grounds | 100 | 0.01 |
| Marinas | 66 | 0.01 |

Table 2.2: Existing Land Uses

| Existing Land Use Category | Acreage | Percent |
|----------------------------|----------------|------------|
| Miscellaneous | 2,814 | 0.66 |
| Vacant lands | 60,451 | 14.27 |
| Total | 423,920 | 100 |

All other non-residential and mixed use FLUM designations combined amount to 9.8 percent of the County’s total area. This total includes the future land use of Mixed Use Development of Regional Impact which contains significant potential for residential development.

Table 2.3: Land Available for Development

| FLUM Designation | Total Acres | % of Total | Vacant Acres | % of Total Vacant | Vacant % of Total |
|--|-------------|------------|--------------|-------------------|-------------------|
| Agriculture | 111,600.44 | 25.99 | 83,295.51 | 29.61 | 19.40 |
| Babcock Mixed Use | 13,518.41 | 3.15 | 12,991.51 | 4.62 | 3.03 |
| Burnt Store Limited Development | 3,585.73 | 0.83 | 3,390.62 | 1.21 | 0.79 |
| Burnt Store Village Residential | 3,394.35 | 0.79 | 3,137.97 | 1.12 | 0.73 |
| Charlotte Harbor Coastal Residential | 126.31 | 0.03 | 68.69 | 0.02 | 0.02 |
| Charlotte Harbor Commercial | 127.48 | 0.03 | 11.93 | 0.00 | 0.00 |
| Charlotte Harbor Industrial | 111.71 | 0.03 | 33.79 | 0.01 | 0.01 |
| Charlotte Harbor Mixed Use | 82.41 | 0.02 | 17.46 | 0.01 | 0.00 |
| Charlotte Harbor Neighborhood Business Residential | 21.62 | 0.01 | 4.13 | 0.00 | 0.00 |
| Charlotte Harbor Tourist | 31.31 | 0.01 | 10.68 | 0.00 | 0.00 |
| City | 9,636.55 | 2.24 | 5,421.01 | 1.93 | 1.26 |
| Coastal Residential | 811.48 | 0.19 | 354.46 | 0.13 | 0.08 |

| | | | | | |
|-----------------------------------|------------------|------------|------------------|------------|-------------|
| Commercial | 4,665.59 | 1.09 | 2,908.10 | 1.03 | 0.68 |
| Compact Growth Mixed Use | 1,073.54 | 0.25 | 1,062.34 | 0.38 | 0.25 |
| DRI Mixed Use | 5,003.39 | 1.17 | 3,228.53 | 1.15 | 0.75 |
| Enterprise Charlotte Airport Park | 4,299.86 | 1.00 | 2,879.09 | 1.02 | 0.67 |
| High Density Residential | 2,687.57 | 0.63 | 1,401.93 | 0.50 | 0.33 |
| High Intensity Industrial | 567.64 | 0.13 | 474.60 | 0.17 | 0.11 |
| Low Density Residential | 5,3546.93 | 12.47 | 30,423.21 | 10.81 | 7.08 |
| Low Intensity Industrial | 1,296.73 | 0.30 | 658.47 | 0.23 | 0.15 |
| Medium Density Residential | 2,083.62 | 0.49 | 1,271.63 | 0.45 | 0.30 |
| Mineral Resource Extraction | 103.06 | 0.02 | 103.06 | 0.04 | 0.02 |
| Murdock Village Mixed Use* | 1,077.15 | 0.25 | 1,045.86 | 0.37 | 0.24 |
| Office & Institutional | 7.21 | 0.00 | 0.90 | 0.00 | 0.00 |
| Parks & Recreation | 3,012.62 | 0.70 | 804.76 | 0.29 | 0.19 |
| Preservation | 38,700.21 | 9.01 | 35,542.35 | 12.63 | 8.28 |
| Public Lands & Facilities | 4,376.49 | 1.02 | 944.94 | 0.34 | 0.22 |
| Recreational Vehicle Park | 54.96 | 0.01 | 10.09 | 0.00 | 0.00 |
| Resource Conservation | 154,608.49 | 36.00 | 84,480.79 | 30.03 | 19.67 |
| Rural Community Mixed Use | 2,238.08 | 0.52 | 1,669.54 | 0.59 | 0.39 |
| Rural Estate Residential | 6,947.64 | 1.62 | 3,675.98 | 1.31 | 0.86 |
| U.S. 41 Mixed Use | 49.10 | 0.01 | 9.21 | 0.00 | 0.00 |
| Total Acreage | 429,447.7 | - | 281,333.1 | - | - |
| Total Percentage | - | 100 | - | 100 | 65.5 |

Source: Community Development Department, October 30, 2013

2.2 Demographics

Like all of Florida, Charlotte County has seen tremendous population growth over the past 50 years. The County's population grew from 4,286 in 1950 to 141,627 in 2000, an increase of more than 3,300 percent.

Table 2.4: Permanent Population Counts, 1930-2010

| Year | Population |
|------|------------|
| 1930 | 4,013 |
| 1940 | 3,663 |
| 1950 | 4,286 |
| 1960 | 12,594 |
| 1970 | 27,559 |
| 1980 | 58,460 |
| 1990 | 110,975 |
| 2000 | 141,627 |
| 2010 | 159,978 |

Source: U.S. Census Bureau, 2012

Table 2.5: Population Growth

| Year | 1950 | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------|
| Population | | | | | | | |
| Estimates | 4,286 | 12,594 | 27,559 | 58,460 | 110,975 | 141,627 | 159,978 |
| Decade | 1950 – 1960 | 1960 – 1970 | 1970 – 1980 | 1980 – 1990 | 1990 – 2000 | 2000 – 2010 | |
| Percent Change | 193.8 | 118.8 | 112.1 | 89.8 | 27.6 | 12.9 | |

Source: US Census Bureau Population Division, released March 2012

Table 2.6: Population Projections, 2010-2050

| Year | Permanent Population | Seasonal Population | Hotel/Motel Population | Total Population |
|------|----------------------|---------------------|------------------------|------------------|
| 2010 | 159,978 | 15,615 | 3,224 | 178,817 |
| 2015 | 168,000 | 16,081 | 3,338 | 187,419 |
| 2020 | 176,500 | 16,538 | 3,444 | 196,482 |
| 2025 | 184,701 | 16,943 | 3,558 | 205,202 |

| | | | | |
|------|---------|--------|-------|---------|
| 2030 | 192,601 | 17,292 | 3,665 | 213,558 |
| 2040 | 206,701 | 17,776 | 3,885 | 228,362 |
| 2050 | 217,901 | 17,944 | 4,106 | 239,951 |

Source: Charlotte County Community Development Department, 2012

2.3 Waters of Charlotte County

The dominant water body in Charlotte County is Charlotte Harbor, the second largest open water marine estuary in Florida. Encompassing 270 square miles within Charlotte County, the Harbor is one of the most productive wetlands in Florida. The Harbor has a large watershed, including the Peace River, Caloosahatchee River and Myakka River basins.

All surface waters of the State of Florida have been classified according to designated uses; Charlotte County’s waters are all Class III (Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife), with certain water bodies classified as Class I (Potable Water Supplies) and Class II (Shellfish Propagation or Harvesting). Class I and Class II waters are more stringently regulated water bodies and require additional permitting consideration by Florida Department of Environmental Protection (FDEP) and the Southwest Florida Water Management District (SWFWMD). Charlotte County’s Class I and II waters are as follows:

CLASS I Waters

Portions of Alligator Creek - North and South Prongs from headwaters downstream to the water control structure

The portions of the Port Charlotte Canal System upstream of or connected to Fordham Waterway upstream of Conway Boulevard

Prairie Creek including the DeSoto County Line and headwaters to Shell Creek

Shell Creek - Headwaters to Hendrickson Dam

CLASS II Waters

Lemon Bay, Placida Harbor, and portions of their tributaries

Charlotte Harbor, Myakka River, and Gasparilla South not including portions of upstream Catfish Creek

Portions of Whidden Creek

[Locations of individual water bodies can be found through the Charlotte Harbor National Estuary Water Atlas or through Charlotte County’s GIS mapping site www.ccgis.com]

2.3.1 Outstanding Florida Waters

The State of Florida classifies certain water bodies as “Outstanding Florida Waters” (OFW) due to their exceptional natural qualities. These water bodies are more closely regulated for protection of their natural attributes and receive the highest protection of any water bodies in the State of Florida as they are held to higher permitting standards.

Charlotte County has eight OFW designated water bodies:

Waters within Island Bay National Wildlife Refuge

Waters within Don Pedro Island State Recreation Area

Waters within Port Charlotte Beach State Recreation Area

Waters within Charlotte Harbor State Reserve

Waters within Cape Haze

Waters within Gasparilla Sound-Charlotte Harbor

Waters within Lemon Bay

Waters of the Myakka River between State Road 771 (El Jobean Bridge) and the Charlotte-Sarasota County line

2.3.2 Aquatic Preserves

In some cases the Florida Legislature has designated water bodies as “Aquatic Preserves.” These bodies of water are defined as “an exceptional area of submerged lands and its associated waters set aside for being maintained essentially in its natural or existing condition.”

Aquatic Preserves have specific management policies, standards, and criteria for activities on sovereignty lands include strict limitations on those activities. Charlotte County contains three Aquatic Preserves (Figure 2.2).

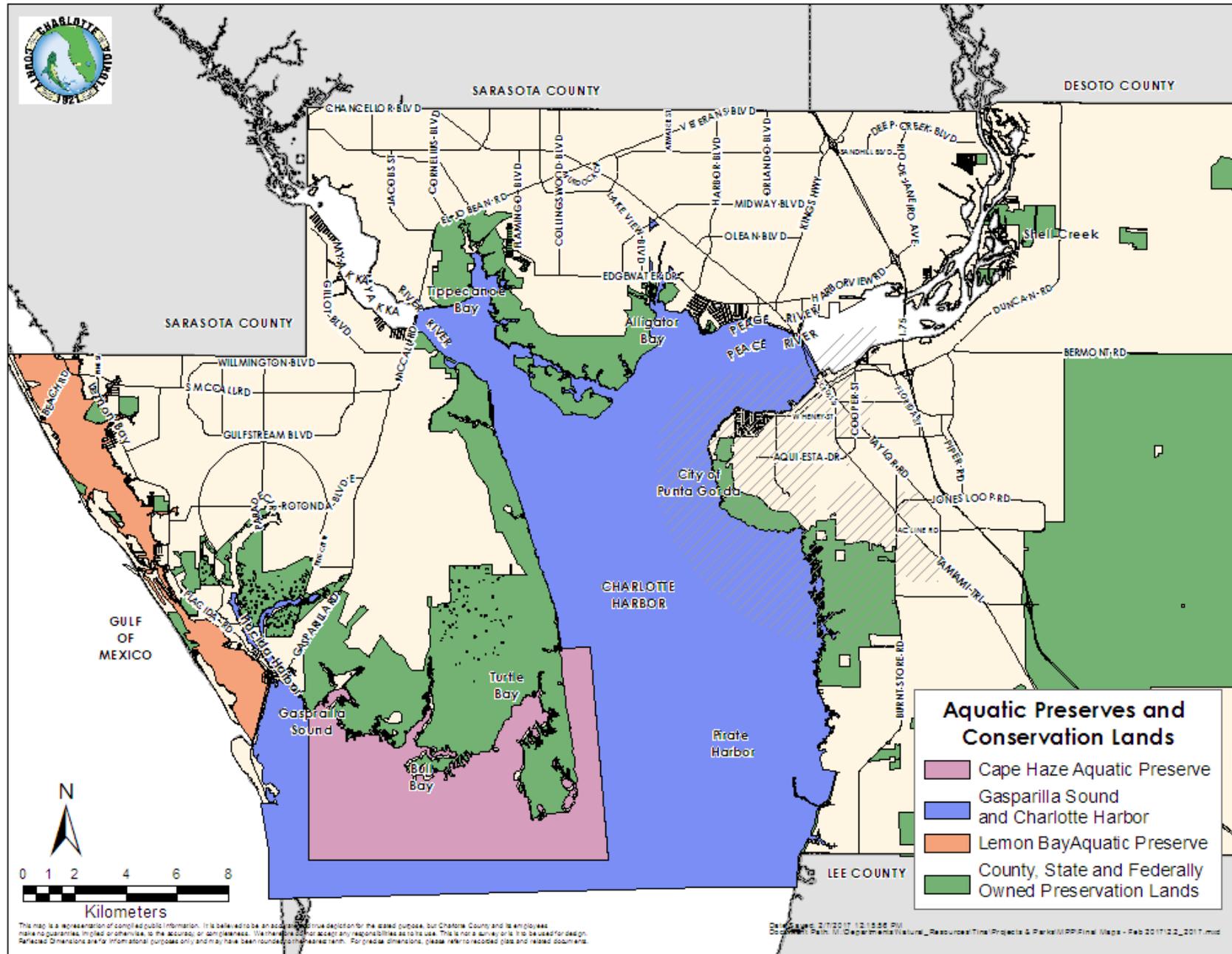
The Lemon Bay Aquatic Preserve is located in both western Charlotte County and southwest Sarasota County. The Aquatic Preserve is long and narrow situated between the barrier islands and mainland; it contains 8,000 acres of sovereign submerged lands.

The Cape Haze Aquatic Preserve is located in western Charlotte County surrounding the southern tip of the Cape Haze Peninsula and contains 11,000 acres of sovereign submerged lands.

The Gasparilla Sound/Charlotte Harbor Aquatic Preserve is located in central Charlotte County and northern Lee County. Within Charlotte County the Gasparilla Sound/Charlotte Harbor Aquatic Preserve contains all of the Harbor and much of the area surrounding the Cape Haze Aquatic Preserve. The Gasparilla Sound/Charlotte Harbor Aquatic Preserve contains over 80,000 acres of sovereign submerged lands.

Figure 2.2: Aquatic Preserves and Conservation Lands

Data Source: Florida Department of Environmental Protection



2.4 Existing Federal and State Manatee Protection Requirements

2.4.1 Federal Protection

Manatees were first listed as an endangered species by the Endangered Species Preservation Act of 1966 (16 U.S.C. 668aa(c)). Further protection was implemented under the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361 et seq.) and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (ESA). These laws prohibit the harassment, hunting, capture or killing of manatees. Harassment is defined as “...an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering”. The USFWS is responsible for the federal management of manatees, and maintains the Florida Manatee Recovery Plan, first produced in 1980.

Federal Permitting

The federal agency for permitting authorization is the U.S. Army Corps of Engineers (USACE), except for some projects where the State acts on behalf of the USACE pursuant to a Memorandum of Agreement. The federal authority for wetland projects is found in Section 10 of the Rivers and Harbors Act 1899 (33 USC 403) and Section 404 of the Clean Water Act, 1972 (33 USC 1344).

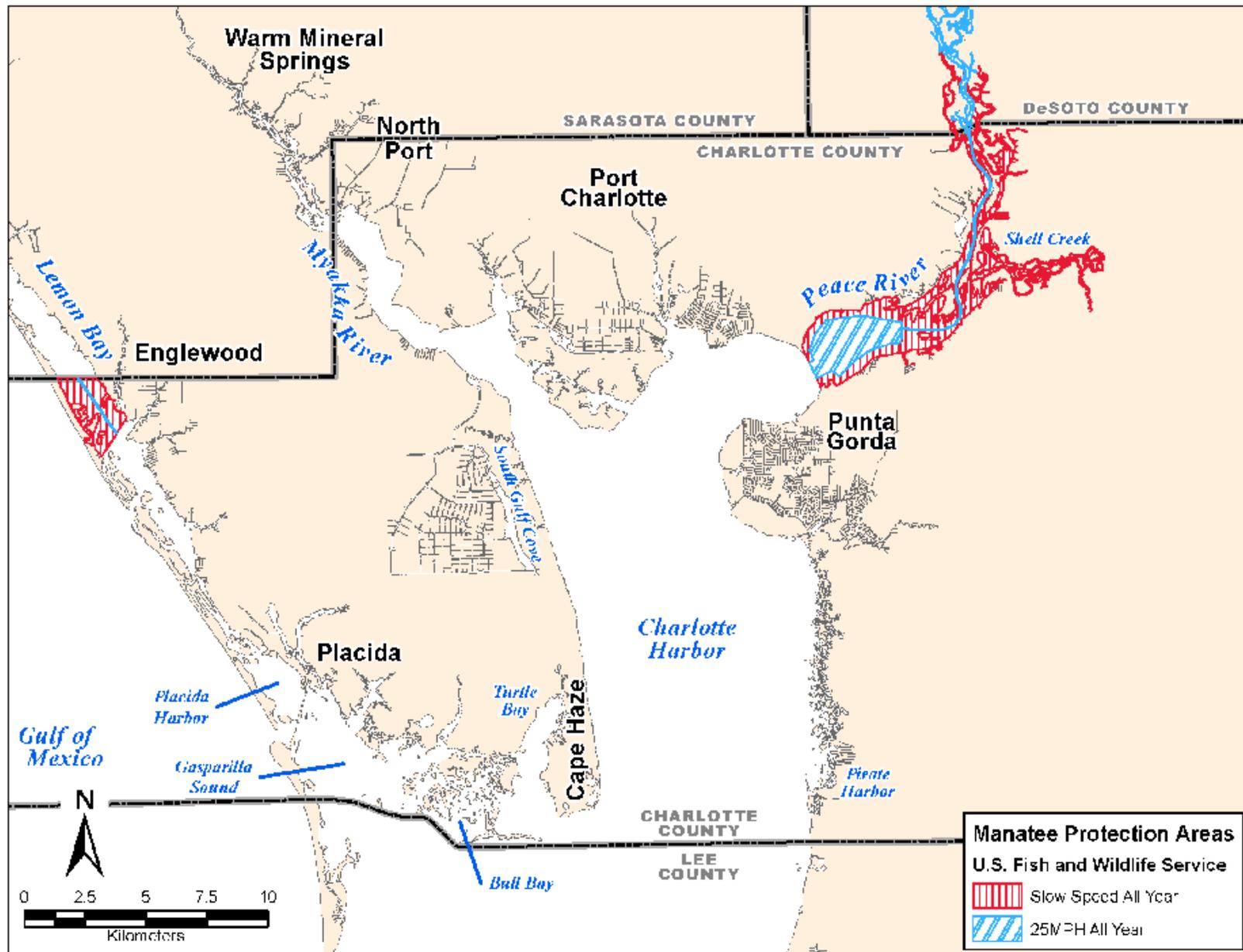
The USACE issues permits under Section 10 of the Rivers and Harbors Act of 1899 for projects located in navigable waters and structures that would alter or modify the condition, capacity, or channel of any navigable water. Under section 7 of the ESA, the USACE consults with the USFWS when a permit application is received to ensure that the proposal is not likely to jeopardize the continued existence of a federally-listed species or result in the destruction or adverse modification of designated critical habitat. Section 7 of the ESA outlines the procedures for federal interagency cooperation to conserve federally-listed species and designated critical habitats. It is through these consultation procedures that the USFWS can consider and implement the provisions of county MPPs at the federal level.

Federal Manatee Protection Boat Speed Zones

Charlotte County has two federal manatee protection zones (otherwise known as “manatee refuges”). Figure 2.3 shows the location of the Lemon Bay Manatee Refuge (slow speed year-round with 25 MPH in channel year round) and the Peace River Manatee Refuge (slow speed year round, 25 MPH year round and in channel). The Lemon Bay Manatee Refuge is comprised of the waters of Lemon Bay lying south of the Sarasota/Charlotte County line containing approximately 948.06 acres. The Peace River Manatee Refuge contains all waters of the Peace River and associated water bodies north and east of the US 41 consisting of approximately 4,196.11 acres.

Figure 2.3: Federal Manatee Zones in Charlotte County

Map Source: Florida Fish and Wildlife Conservation Commission and U.S. Fish and Wildlife Service



Date Saved: 2/7/2017 12:18:21 PM
Document Path: M:\Department\Natural Resources\Tide Projects & Parks\WPP\Final Maps - Feb 2017\23_2017.mxd

2.4.2 State Protection

Manatee protection in Florida began in 1893 when state law prohibiting the hunting of manatees was established. In 1907, Florida state law (Chapter 370.12) imposed a fine of \$500 and/or six months imprisonment for killing or molesting a manatee. Manatees were first added to Florida's imperiled species list as "threatened" in 1974 and later changed to "endangered" status in 1979. Enacted in 1978, the Florida Manatee Sanctuary Act (now Chapter 379.2431) provides manatee protection by declaring the State of Florida a "refuge and sanctuary for the manatee, the Florida State Marine Mammal. It also provides for protection against harassment, direction for the development of MPPs, and authority to make rules to regulate watercraft use. The FWC regulates watercraft in Florida Waters to protect manatees through Chapter 68C-22 F.A.C. The FWC is responsible for the State's management of manatees, and in 2007, the State Florida Manatee Management Plan was adopted, providing a framework for conserving and managing manatees in Florida.

Permitting

The authority for State regulation of wetland activities is found in Chapter 373 and 403 of the Florida Statutes (FS). Authority also exists for regulating activities over the State's sovereignty of submerged lands and related regulations in the Florida Administrative Code (FAC) (Ch. 18-21, FAC). The Aquatic Preserve Rule (Ch. 18-20, FAC) and Chapter 258, FS, discuss additional management policies, standards, and criteria that apply to sovereignty submerged lands in Aquatic Preserves. Pursuant to the Florida Statutes concerning the Environmental Resource Permitting program, either the FDEP or the SWFWMD regulates the construction, alteration, maintenance, removal, modification, and operation of all activities in uplands, wetlands, and other surface waters that will alter, divert, impede, or otherwise change the flow of surface waters, including but not limited to, coastal dredge and fill activities and the construction of dockage facilities. The regulation of these activities ensures that water quality is not degraded, and that wetlands and other surface waters continue to provide healthy levels of wildlife habitat, including those of threatened and endangered species.

The FWC provides recommendations to the State's regulatory agencies, the FDEP or SWFWMD, concerning a project's potential adverse impact to manatees and offers conservation measures that may offset adverse impacts. FWC provides expertise for the regulatory agencies to consider when they determine whether a project is consistent with their statutes and rules, as well as provides consistency with FWC's statutes and rules through the Coastal Zone Management Program and the Coastal Zone Management Act (CZMA). It is through this partnership with the State regulatory agencies that FWC, as a commenting agency, can consider and implement the provisions of county MPPs at the state level.

State Manatee Protection Boat Speed Zones

Charlotte County has three geographic areas containing manatee protection zones (Figure 2.4(a)(b)(c)) that encompass two idle speed zones, six slow speed zones and seven 25 MPH zones enforced by local, state and federal law enforcement (See Section 7.0).

The Lemon Bay Aquatic Preserve (Figure 2.4(a)); from the Sarasota County line down to the Boca Grande Causeway is a slow speed manatee protection zone year round; within the Aquatic Preserve the Intracoastal Waterway is a 25 MPH manatee protection zone, as well as the Placida Harbor Area.

Within the Cape Haze Aquatic Preserve, Turtle Bay is a 25 MPH manatee protection zone (Figure 2.4(c)); within Turtle Bay the southeast entrance and the mid-bay Area are idle speed manatee protection zones.

The shoreline of the Peace River from the US 41 Bridge to the I-75 Peace River Bridge (Figure 2.4(b)) is a slow speed year round manatee protection zone. The central part of the river between the bridges is a 25 MPH manatee protection zone. North of the I-75 Bridge to the Harbor Heights area is slow speed year round zone while the channel through this area is a 25 MPH manatee protection zone; north of the Harbor Heights area is a 25 MPH manatee protection zone. Hunter Creek, Deep Creek and the majority of Shell Creek is a slow speed manatee protection zone; and the portion of Shell Creek that meets Peace River is a 25 MPH manatee protection zone.

Figure 2.4a: State Manatee Zones in Charlotte County

Data Source: Florida Fish and Wildlife Conservation Commission

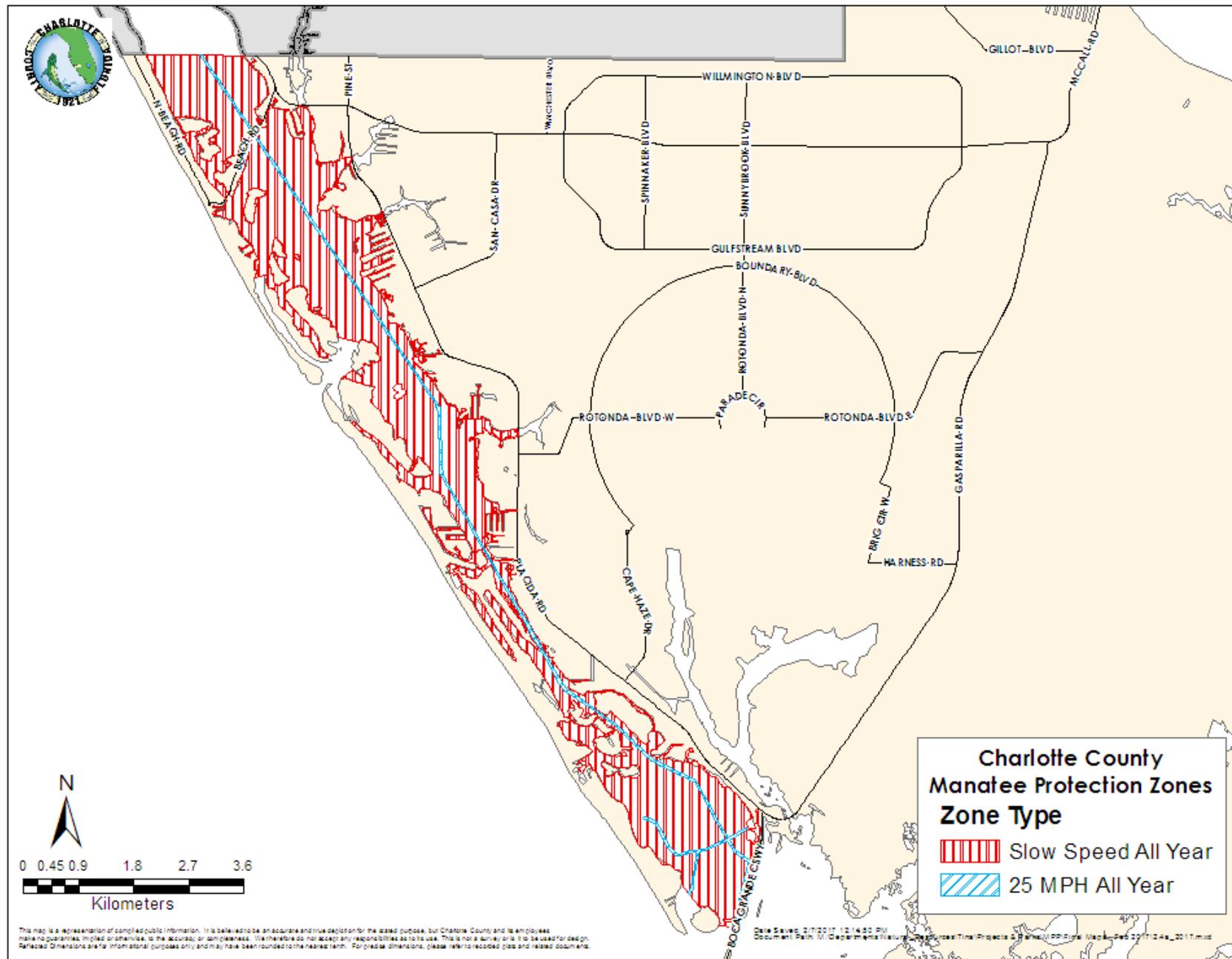


Figure 2.4b: State Manatee Zones in Charlotte County

Data Source: Florida Fish and Wildlife Conservation Commission

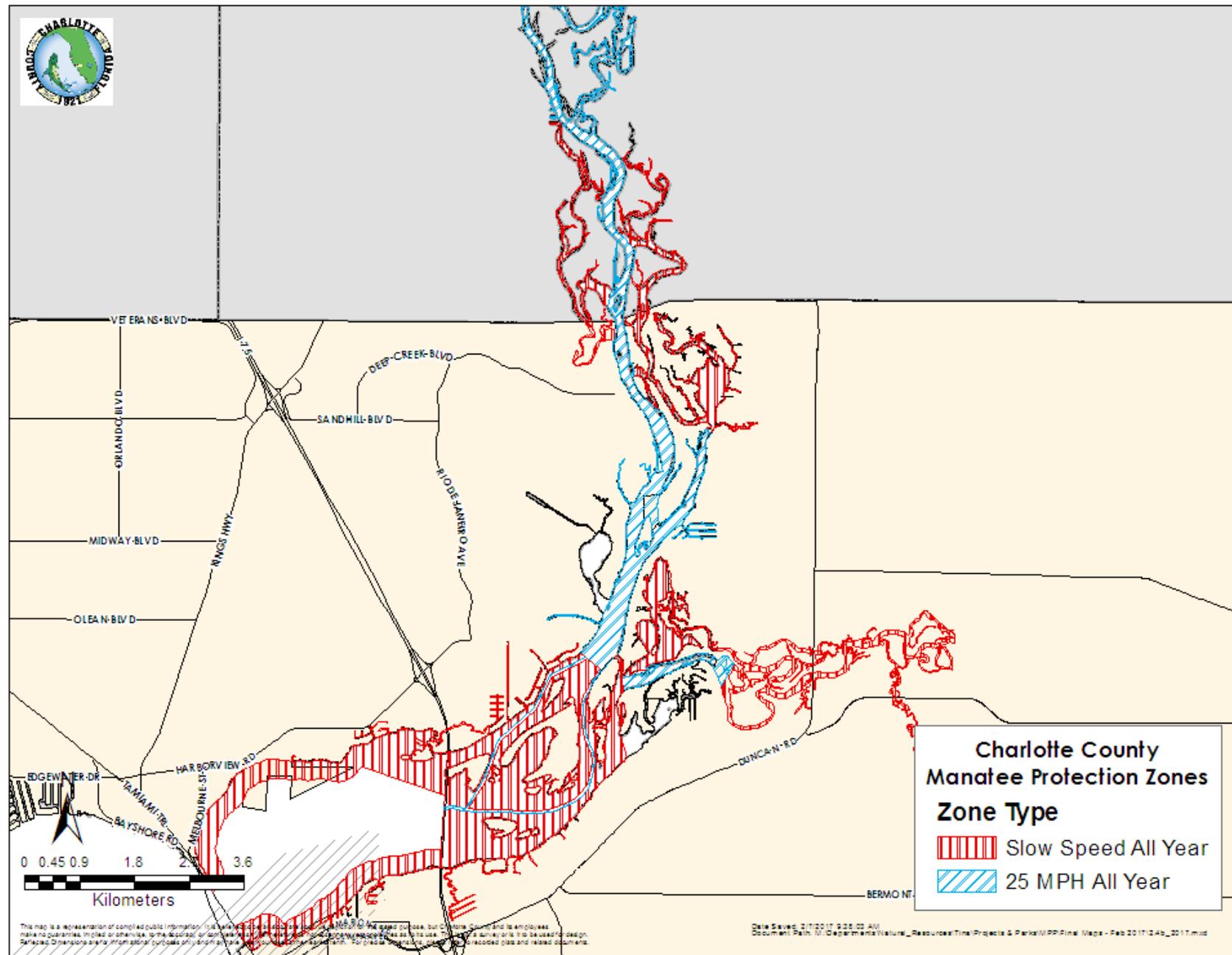
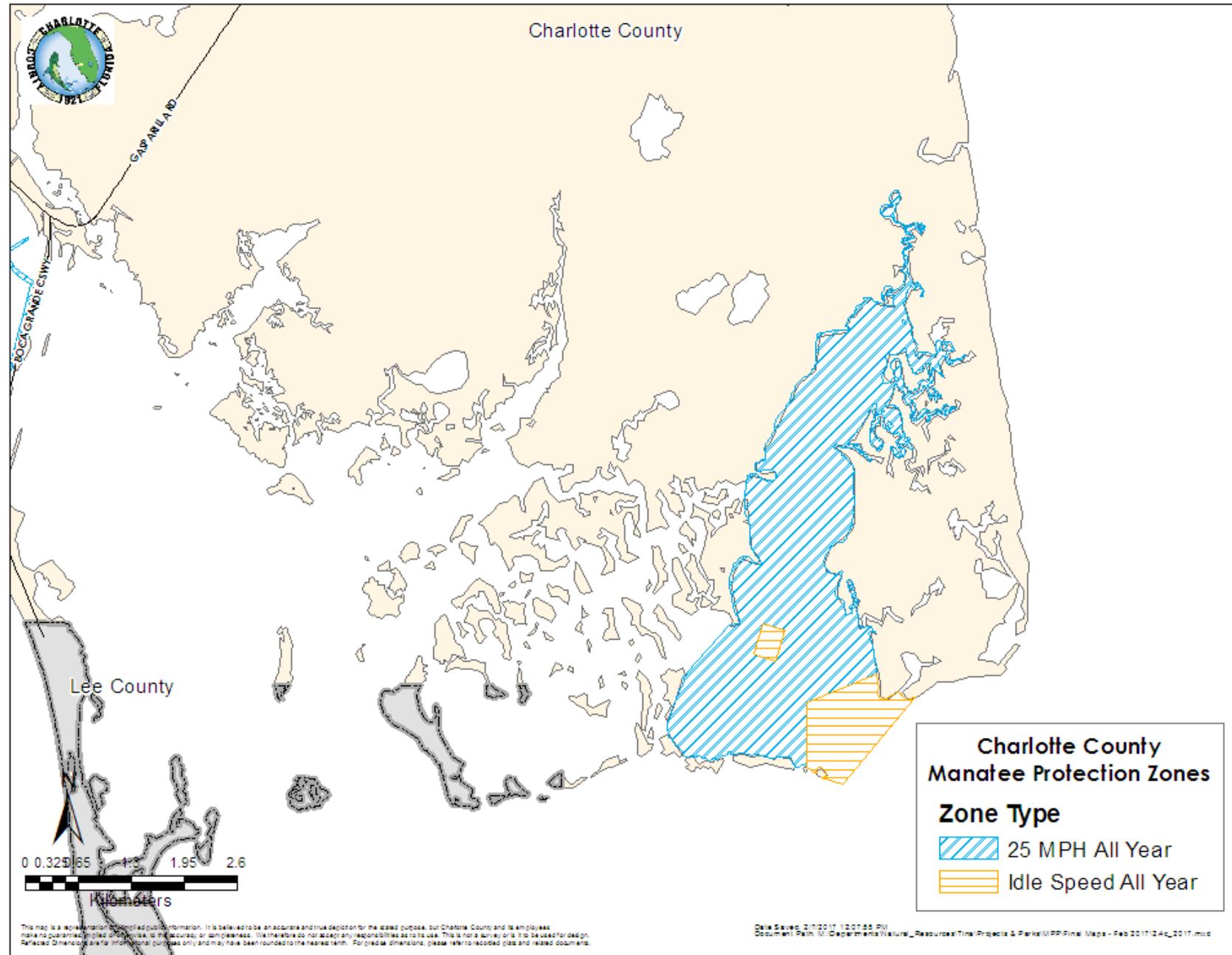


Figure 2.4c: State Manatee Zones in Charlotte County

Data Source: Florida Fish and Wildlife Conservation Commission



2.5 Existing Local Permitting and Manatee Requirements

Charlotte County Community Development is responsible for issuing local government authorization through vegetation mulching, clearing, building, rip rap, and dock facility permits. Charlotte County Government defers to the federal and state agencies, including but not limited to USFWS, USACOE, FWC, DEP and SWFWMD, with regard to manatee protection requirements. The County will review all dock permits for either compliance with the MPP alternatively, if the applicant chooses not to follow the provisions of the MPP, Charlotte County will request proof of approval and compliance from all applicable federal and state agencies with regards to manatee protection.

2.5.1 Comprehensive Plan References

The Charlotte 2050 comprehensive plan (Charlotte 2050), which was adopted by the Board of County Commissioners on July 20, 2010, contains several sections applicable to water quality and quantity and public access to water and marine activities that will have potential impacts on manatees. While the policies referenced in this section as well as those provided in Appendix A are related to manatee conservation, other sections of the Charlotte 2050 are intended to be used together and development activities must conform to all relevant sections of the Charlotte 2050. A summary of the most pertinent goals and objectives from the applicable elements follows; additional goals and objectives from the County's Charlotte 2050 that affect coastal and marine resources can be found in Appendix A.

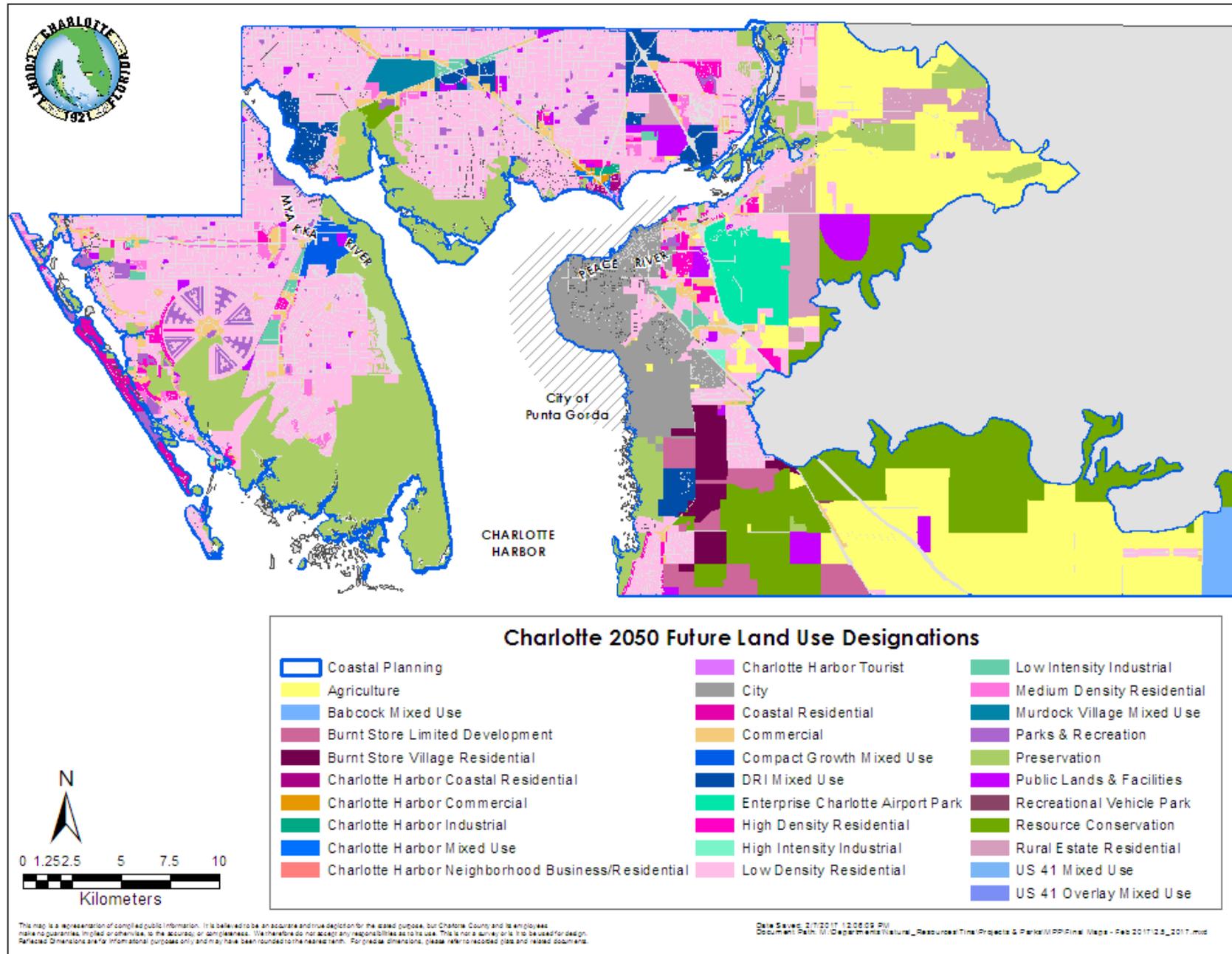
2.5.2 Future Land Use Element

FLU Objective 2.3 explains the County's objectives as they relate to the protection of water quality and water quantity. Specifically, it requires the County to implement the recommendations of the Charlotte Harbor National Estuary Program (Charlotte 2050 FLU Policy 2.3.1) and requires that all development approvals must be consistent with the intent of the Charlotte Harbor Aquatic Preserves Management Plan (May 1983), the Charlotte Harbor Surface Water Improvement and Management (SWIM) Plan (January 15, 1993), and the Lemon Bay Aquatic Reserve Management Plan (June 1991) (Charlotte 2050 FLU Policy 2.3.2).

FLU Objective 5.6 explains the County's objectives as they relate to the Working Waterfronts legislation, in which the Florida Legislature addressed the significance of public access to the navigable waters of the state. Specifically, Charlotte 2050 FLU Policies 5.6.1, 5.6.2, 5.6.3, and 5.6.4 aim to preserve recreational and commercial working waterfronts and public access to water with expedited permitting, tax deferrals for water-dependent uses, by encouraging public marina use, and by completing and implementing a County-wide boat facility siting plan. In addition, Charlotte 2050 FLU Policy 6.3.13 reaffirms this goal by encouraging creation of additional watercraft access points along the Peace River, Shell Creek, and Prairie Creek.

Figure 2.5: Future Land Use in the Coastal Planning Area

Data Source: Charlotte Community Development, FEMA



2.5.3 Coastal Planning Element

The Coastal Planning element provides policies to guide Charlotte County's decisions and to plan for, where appropriate, restricting development where such activities would damage or destroy coastal resources. It also has an inventory and analysis of natural resources and land use concerns specific to the County's coastal area; including beach and coastal systems, beach erosion, public access to the shoreline and coastal waters, development and maintenance of infrastructure in the coastal area, existing and future land use activities (Figure 2.5) in the coastal area, and hurricane evacuation times and shelter capacity.

Charlotte 2050 CST Policies 1.1.8, 1.2.6 and 1.2.7 explain that the County shall develop strategies to protect, maintain, and, where feasible, restore native submerged aquatic vegetation, benthic communities and water quality in the County, develop strategies to preserve recreational and commercial working waterfronts, and significantly limits the location of new boat ramps based on available water depth and protection of natural resources.

Charlotte 2050 CST goals and objectives include protection, conservation, maintenance and improvement of barrier islands, beaches, coastal wetlands, coastal surface and ground water quality, wildlife habitats and living marine resources (Charlotte 2050 CST Policy 1.1.8). It includes minimizing adverse impacts to resources associated with water-dependent uses (Charlotte 2050 CST Goal 1), protection of listed vegetation, fish and wildlife species that depend on healthy coastal habitat conditions, and the maintenance or enhancement of existing population numbers and distributions of listed species (Charlotte 2050 CST Objective 1.4). It also continues policies supporting FWC and USFWS designations of endangered, threatened, or species of special concern (Charlotte 2050 CST Policy 1.4.1).

The following Charlotte 2050 Policies directly address the protection of manatees, manatee habitat, and the development of a MPP:

CST Policy 1.2.6: Development of Coastal, Water-dependent Uses

The County shall develop strategies to preserve recreational and commercial working waterfronts; continue to identify reasonable and appropriate public access to beach and shoreline areas; and shall address the need for water-dependent uses and related facilities including marinas and shoreline facilities. Siting of access shall be in compliance with a Charlotte County public boating access study, Charlotte County MPP and FWC and USFWS regulations and guidelines.

CST Policy 1.4.7: Manatee Protection Plan

The County shall continue to work with the appropriate State and Federal agencies to develop a Manatee Protection Plan which balances the need for manatee protection and the need for recreational and commercial uses.

CST Policy 1.4.8: Manatee Protection Zones

The County shall continue to work with State and Federal agencies to evaluate the appropriateness of vessel regulations and ensure adequate signage is installed for reducing manatee injuries and mortality. The County shall also continue to identify, map and designate areas of optimal manatee habitat and high manatee usage as "Slow-Speed, Manatee Protection Zones" (including but not limited to the vicinity of Bull Bay, Turtle Bay, Hog Island, Lemon Bay, the Myakka River, the Burnt Store area, the Peace River, Shell Creek, Deep Creek, and Harbor Heights).

CST Policy 1.4.9: Manatee Monitoring and Impact Analysis

The County shall continue to identify and evaluate potential threats to manatees and important manatee habitats and consider management alternatives to reduce threats and protect such habitats.

CST Policy 1.4.10: Manatee Protection Public Education

The County shall partner with appropriate public and private organizations to develop and distribute educational materials regarding manatees to boaters and other water resources users and support the placement of signs where both humans and manatees may congregate. Boater education programs shall be targeted at both adults (current water users) and school-age children (future users).

2.5.4 Natural Resources Element

ENV Objective 2.1 aims to protect marine and estuarine habitats to ensure long-term viability and productivity of finfish, shellfish, other aquatic communities, seagrass and oyster bed resources. Specifically, EVN Policy 2.1.1 mandates that the County shall implement protections to marine and estuarine resources as identified in the objectives and policies of the Coastal Planning Element.

In conclusion, with goals, objectives, and policies as set forth in Charlotte 2050, Charlotte 2050 not only encourages a wide array of marine activities, but also constrains where and how marine activities and related land-side activities can be added, and requires protection of coastal resources such as manatees.

2.5.5 The City of Punta Gorda Manatee Protection Plan and other Municipalities

In April of 1995, a manatee protection plan for the City of Punta Gorda was approved by the State, in conjunction with the review of a Laishley Park Development of Regional Impact development. During subsequent reviews for other applications, it became apparent to the State that the plan had issues, and for the most part the plan did not make recommendations that were consistent with manatee data analysis. This plan is no longer used in the review process to evaluate potential impacts to manatees for proposed projects within the City.

While the City of Punta Gorda and other municipalities may not be within the County's jurisdiction to review projects, the federal and state wildlife agencies (USFWS and FWC) will use this MPP for guidance during the permit review process for all projects within the county boundaries.

3.0 Habitat and Resource Protection

Manatees may be found in a variety of coastal habitats, ranging from urban residential canals, marinas, and man-made waterways, to more natural environments including freshwater rivers, springs, tidal inlets, and coastal embayments. Waterways used regularly by manatees often have features that are beneficial to manatees including, warm-water, adequate depth, submerged aquatic vegetation, and sources of freshwater. Manatees can be found throughout a variety of habitat types, including seagrass beds, dredged basins and channels, shoals/bars, tidal inlets, and open bays (Koelsch, 1997). Habitat may also include quiet, protected areas or travel corridors. This section describes the availability of the three main habitat features, submerged aquatic vegetation, fresh water and warm water in winter months (Reynolds, 1992), within the County, and discusses the existing and ongoing measures that have been implemented to protect manatee habitat.

3.1 Submerged Aquatic Vegetation

Manatees are herbivores, consuming a variety of submerged, emergent, and floating vegetation. In marine and estuarine habitats, manatees most often consume seagrasses (Etheridge et al, 1985). Seagrasses are rooted flowering plants found in shallow coastal marine and estuarine waters. The range and growth of seagrasses are limited by the depth of light penetration, salinity, and temperature. Seagrasses are a vital part of the marine ecosystem; providing food and habitat for other organisms, nursery areas, and stabilization of the sea bottom. They also help to maintain water quality and nutrient cycling capabilities.

Six of the seven known seagrass species in Florida occur in Charlotte County; shoal grass (*Halodule wrightii*), turtle grass (*Thalassia testudinum*) manatee grass (*Syringodium filiforme*), Widegon grass (*Ruppia maritima*), Star grass (*Halophila engelmannii*), and Paddle grass (*Halophila decipiens*). Seagrass beds occurring in Charlotte County are shown in Figure 3.1. The distribution of seagrass is concentrated in western Charlotte County, though they occur throughout the County. The distribution of seagrasses in Charlotte County is consistent with the confirmed aerial sightings of manatees exhibiting feeding behavior as well as high numbers of manatee sightings overall. Seagrasses occur along both the east and west walls of Charlotte Harbor, much of the uplands adjacent to these seagrasses are part of the Charlotte Harbor Buffer State Park and are therefore protected from the impacts of coastal development; these seagrasses range from continuous swaths to patchy areas. Higher numbers of manatees observed along the southeastern portion of Charlotte Harbor may be food-related, based upon the availability of seagrasses in that area. Significantly less seagrass habitat occurs within the Myakka River and the Peace River. Based upon the relatively limited amount of available seagrasses and other submerged aquatic vegetation

within the Myakka and Peace Rivers, the presence of manatees in these areas is probably not food-related.

Further west in Charlotte County, Lemon Bay and Cape Haze comprise the most abundant areas of continuous seagrasses. The majority of seagrasses throughout Charlotte County have moderate to severe scarring (Figure 3.2, FWRI 2012), with a few areas in western Charlotte County having light to no scarring. A study by Harris, et al. (1983) documented a 29 percent harbor-wide decrease in seagrass coverage from the 1940s to 1982. Some of the loss is due to seagrasses receding from deeper depths due to decreasing water clarity; resulting from hydrologic changes and increased pollutant loads (CHNEP, 2008). Over the last 10 years, however, seagrass acreage has been either stable or increasing, with increases in acreage since 2004/2005 hurricanes (Yarbro and Carlson, 2011). Increases in seagrass stressors, particularly propeller scarring, were also noted. Seagrasses in both the Myakka and Peace Rivers have shown declines of -12.8% and -5.1% respectively. However Lemon Bay, Cape Haze and Charlotte Harbor have all showed positive growth with a combined growth of 16.3%. It was estimated in 2010, that approximately 20,188 acres of seagrass habitat exists within Charlotte County, up from 19,554 acres in 1999. (Seagrass data provided by the FWRI 2012)

3.2 Fresh Water

Manatees are able to inhabit a wide range of salinity, although they appear to prefer habitats where salinity is lower or where freshwater is periodically available (Ortiz et al., 1998). Unlike many other south Florida counties, especially those on the east coast, Charlotte County has very limited freshwater sources into its estuarine waters; however this does not appear to be a limiting factor for manatees in Charlotte County. Both the Myakka and Peace Rivers and their associated creeks are tidally influenced and only the northern extents of each remain relatively fresh during significant portions of the year, but can still reach up to 25.2 ppt in the upper portions of the Myakka River, near the Charlotte/Sarasota County line. Manatees often take advantage of the stratification of freshwater and saltwater in these riverine areas by skimming freshwater off the surface in estuarine, rivers and coastal canals (Marsh, 2012). Other sources of freshwater in Charlotte County include the 175 miles of canals that are estuarine with a freshwater component, which have limited access, stormwater outfalls, and freshwater discharges from individual homeowners or businesses, as well as Shell and Prairie Creeks in Eastern Charlotte County.

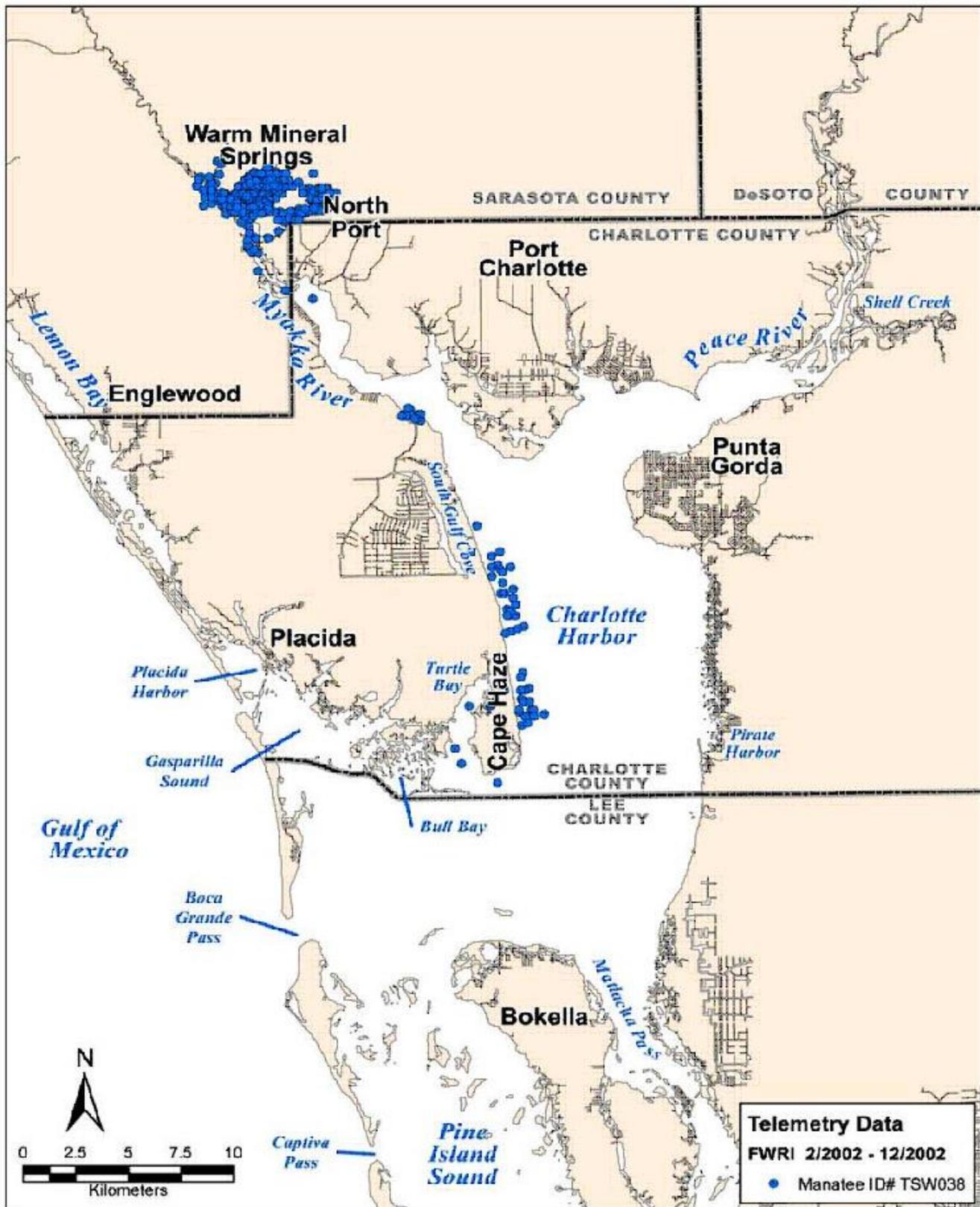
3.3 Warm Water

As a result of a physiological intolerance to cold temperatures, manatees typically exhibit seasonal north-south migrations in Florida (USFWS, 2001). When ambient temperatures drop below approximately 20°C (68°F) manatees seek out either natural or artificial warm-water refugia such as natural springs or industrial warm water outfalls. There are no primary or secondary warm water refuges in Charlotte County, although water temperatures in the Myakka and Peace Rivers may be slightly above other portions of the county during winter months. The areas where water temperature may be warmer during the winter months are the freshwater canal system throughout developed central Charlotte County, and an area in Little Alligator Creek with slightly higher water temperatures. During the colder months, (December through March), the temperatures in the Myakka and Peace Rivers range from 53-70 degrees with the Peace River maintaining a slightly warmer temperature than the Myakka River. During those same months, Charlotte Harbor, Lemon Bay and Cape Haze have temperatures ranging from 55-59°F (CHNEP Water Atlas 2012).

Because there are no primary warm-water refugia in Charlotte County, there is an overall decrease in manatee abundance during the winter. A primary winter aggregation site is located, however, within the Sarasota County portion of the Myakka River (Warm Mineral Springs). This likely impacts the cold weather distribution of manatees in Charlotte County as animals transition to and from Warm Mineral Springs into Charlotte County through the lower Myakka River and Charlotte Harbor. This has been documented by telemetry studies and an example is shown in Figure 3.3. Animal ID# TSW0038 demonstrated extensive use of Warm Mineral Springs and the upper Myakka River while also traveling south into Charlotte County along the western portion of Charlotte Harbor, Cape Haze, and Turtle Bay. High winter use at Warm Mineral Springs by manatees was also documented from synoptic aerial survey data (Figure 4.2). While Charlotte County does not have an established warm water refuge for manatees, the county serves as a travel corridor and forage site for manatees wintering at Warm Mineral Springs, or an interim location for many animals transitioning to other primary winter aggregation sites to the north and south.

Figure 3.3: Telemetry Data: Warm Water Movement 2/2002 - 12/2002

Map Source: Florida Wildlife Research Institute



3.4 Restoration

There have been no major restoration efforts for seagrasses in Charlotte County outside of regulatory enforcement, permitting requirements or prop-scar restoration. The majority of marsh lands bordering Charlotte Harbor are owned and managed by the FDEP (shown as preservation land in Figure 2.2), resulting in little need for restoration events above and beyond typical environmental land management.

Charlotte County's artificial reef program began in July 1981. Charlotte County conducts bottom surveys of the entire area proposed for reef development to ensure that the bottom is suitable (hard sand or rock base), and without biological (seagrass, coral reef, shellfish or other hard bottom communities) or historical resources. Charlotte County has placed 8 artificial reefs in the greater Charlotte Harbor area.

3.5 Upland Preservation

Charlotte County features over 20 environmental parks, preserves and recreational areas (identified in green as preservation land in Figure 2.2). Approximately 38% of the county is in conservation; State owned conservation lands, including the Charlotte Harbor Preserve State Park totals 168,615 acres. Preserving upland coastal property for conservation greatly reduces the impact on the Harbor from intensive development, as well as providing for more effective and efficient nutrient filtering of runoff before it enters the County's waters. It also helps protect water quality, sea grasses, and other habitats that are important to fish and wildlife.

In 2006 Charlotte County citizens voted to tax themselves for the purchase of environmentally sensitive lands through the Conservation Charlotte Program. The Conservation Charlotte Program aims to protect environmentally sensitive lands to help balance the impacts of future growth while buffering sensitive areas from encroachment. The acquisition criteria adopted by the County Commission for Conservation Charlotte includes wetlands, rare or high-quality uplands, wildlife corridors (lands that link existing preserves), and other lands that provide habitat for rare or endangered species. By acquiring lands meeting these criteria, the program protects local native wildlife including the Florida panther, bald eagle, Florida black bear and manatee and helps to buffer vital coastal areas such as Charlotte Harbor, the Peace River, Lemon Bay and Shell Creek.

3.6 Habitat Protection Measures

Boat facilities and dredging projects can have significant potential adverse impacts on seagrass and seagrass habitat. During construction, the substrate is disturbed by installation of pilings and water clarity declines due to siltation. Once completed, boat facilities and docks create shade that has the potential to adversely affect existing seagrass beds or prevent the establishment of new seagrass beds. Boat facilities can also have significant indirect adverse effects. Dredging immediately adjacent to docks and the associated travel corridors to and from docks may significantly affect seagrass beds if

appropriate turbidity controls are not used or if water depths are not adequate. Direct and indirect impacts to seagrass should be completely avoided when possible, which can be accomplished by designing projects to avoid and minimize their potential impacts. Adverse impacts to manatee foraging habitat should not occur. Proposed impacts must be minimized to the greatest extent practicable as required by state and federal permitting regulations and considered insignificant to manatee conservation. All MPP provisions, including slip density recommendations, are only allowable as long as impacts to habitat have been addressed as per all applicable federal, state and local regulatory requirements in place at the time of permit application are met.

4.0 Information Assessment

4.1 Manatees

In December 2007, the FWC developed the Florida Manatee Management Plan as a framework for conserving and managing manatees in Florida (FWC, 2007). For both management and research purposes, manatees in Florida have been subdivided into four relatively distinct regional management units (Figure 4.1), originally termed subpopulations in the Florida Manatee Recovery Plan (USFWS 2001). Manatees in Charlotte County are considered to be part of the Southwest Florida Management Unit (SWMU). The SWMU includes the coastal waters of Pasco County southward through Collier County, including Everglades National Park. The other management units were identified as Northwest Florida, Atlantic, and Upper St. Johns River. While these management units currently appear to have healthy, stable populations, the status of the SWMU is less certain and may be declining by as much as -5.4% or growing by as much as +2.4% annually (Runge et al. 2004, 2007). Reasons for the relatively large confidence interval and the level of uncertainty of the SWMU population include periodic unusual mortality events, such as red tide blooms, and recent cold stress mortality events stemming from recent prolonged and unusually cold winters. During 2013, as many as 272 manatee deaths may have been attributed to red tide in Southwest Florida. Significant human-related threats are an additional factor both in Southwest Florida and statewide.

Anecdotal reports suggest that Charlotte County waterways have been frequented by manatees and have been locally known as an important area for manatees since the early 1940's (Moore, 1951). Scientific data on manatee use in Charlotte County have been collected since the mid-1980s, and three primary scientific databases of information on manatees in Charlotte County were reviewed for this document:

Manatee Aerial Surveys

Low-level aerial surveys have been documented as the most reliable data collection technique for the determination of relative manatee abundance and distribution (Ackerman, 1995, Irvine & Campbell, 1978, Hartman, 1979; Packard, Siniff, & Cornell, 1986). Aerial survey studies have demonstrated that manatees may occur in almost any accessible coastal water body in Florida. Because aerial survey methodologies are unable to account

for certain biases that are inherent in many wildlife management studies, such as animal availability bias (whether an animal is near the surface of the water and/or available for the observers to record) and observer bias (whether the observer is able to see an available animal and accurately identify it as a manatee); these surveys are designed to report a minimum level of use, act as indices of manatee abundance at the time of the survey, and describe general trends in relative abundance. Numerous aerial survey projects have been conducted in Charlotte County since 1985. These data were used to examine spatial and temporal trends in manatee use in Charlotte County, including the identification of high-use areas on a countywide basis.

Telemetry Studies

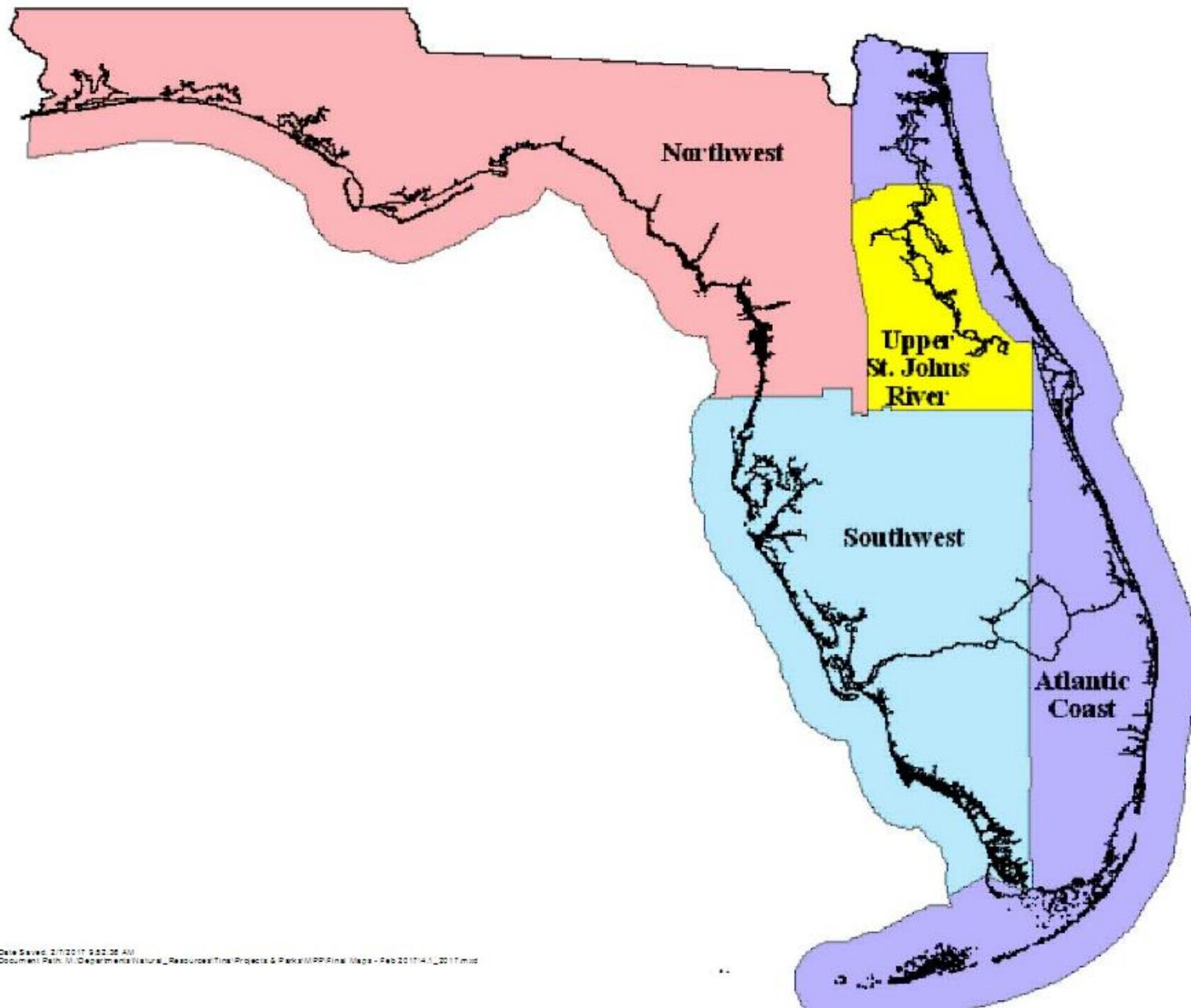
Manatee use in Charlotte County has been further documented from satellite tracking and telemetry studies which have been conducted since 1991. Satellite telemetry projects involving the use of Argos-linked geo-locator tags have been conducted by FWC biologists with FWRI (Deutsch et al., 1998, 2003, 2006). In these studies, researchers fit buoyant geo-locator tags onto manatees that are either being released from rehabilitation or captured and released for these scientific studies. Whenever the geo-locator tags are available to transmit a signal (e.g. on or within 2 meters of the water's surface with good satellite reception), the location information is recorded in a database, potentially with other environmental data.

Manatee Mortality Database

Data on manatee mortality in Charlotte County has been compiled continuously since the first carcass was recovered in 1975, and a coordinated effort to recover and examine manatee carcasses by state and federal agencies has been ongoing since 1974. The Manatee Carcass Salvage Program was transferred to the FWC in 1985. In 1992, a dedicated laboratory and necropsy facility was constructed to perform post-mortem examinations. Currently, staff from four field stations collect carcasses from the southeastern United States and transport them to FWC's Marine Mammal Pathobiology Laboratory (MMPL) in St. Petersburg, Florida.

Figure 4.1: State-wide Regional Manatee Management Units

Map Source: Florida Fish and Wildlife Conservation Commission



4.1.1 Manatee Aerial Surveys

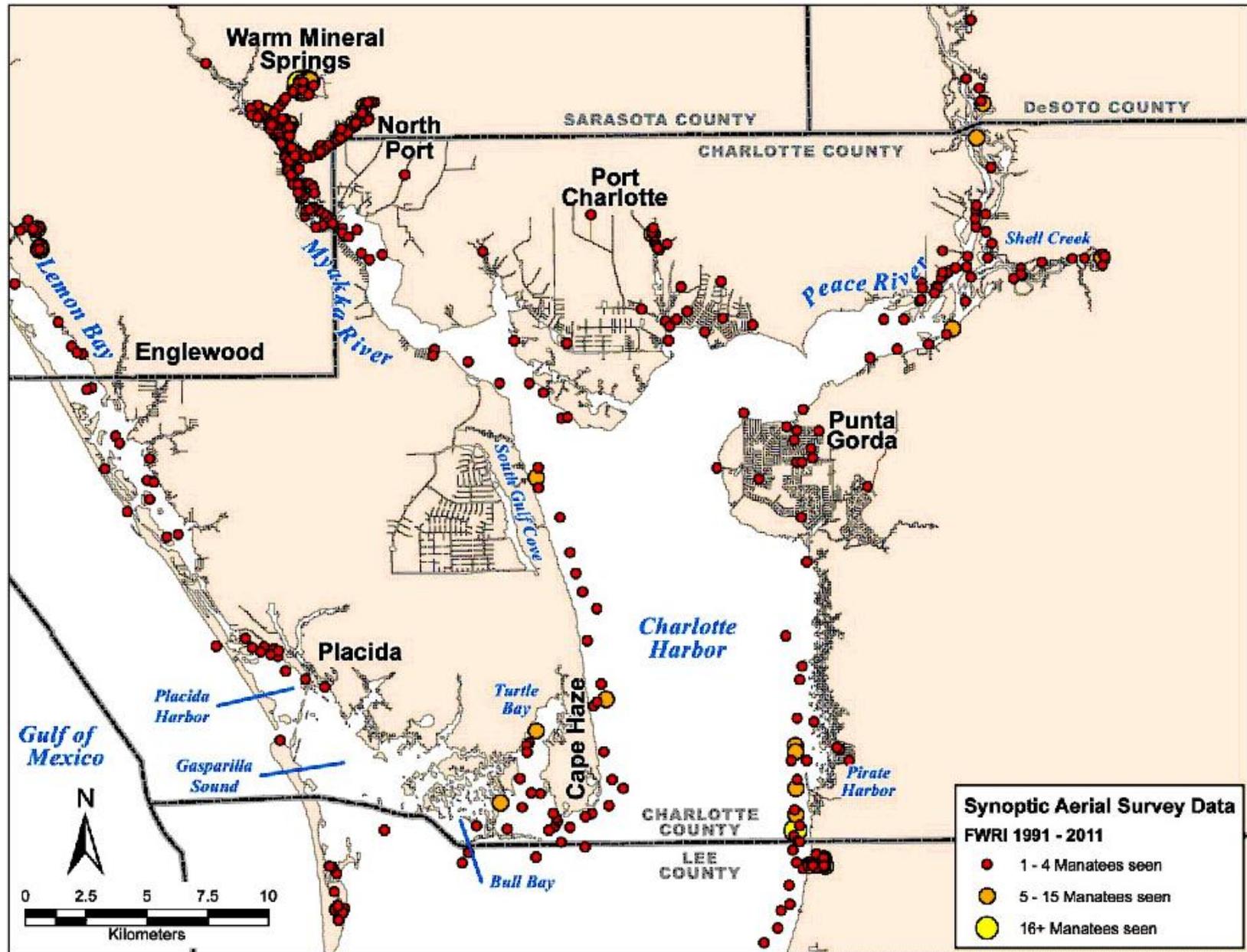
Synoptic Surveys

Synoptic aerial surveys are low-level aerial surveys which are typically flown throughout Florida during the coldest part of the winter. Because of their intolerance of colder water temperatures, manatees typically aggregate to both natural and man-made warm water areas, seeking refuge from the cold ambient water temperatures. Synoptic aerial surveys were implemented in order to allow researchers to establish a minimum statewide manatee population estimate. FWC has been flying synoptic aerial surveys since 1991, and continues to do so whenever the minimum conditions for the survey are met. Over the last 20 years, twenty-seven manatee synoptic surveys have been flown. Researchers have observed manatees using Charlotte County waters during 22 of the 27 synoptic survey flights, with the number of animals observed in County waters ranging from a low of one animal in 2003 and 2006, to a high of 86 animals in 1999. The variability in manatee counts among surveys can be attributed to the wide range of physical conditions encountered during individual survey flights, including the level and intensity of cold fronts that are typically associated with synoptic surveys.

While there are no designated primary or secondary warm water aggregation sites in Charlotte County, areas of recurrent use by manatees during the colder months of the year have been documented from synoptic survey flights. These areas include Cape Haze (including Turtle Bay), southeastern Charlotte Harbor in proximity to Pirate Harbor, and both the Myakka and Peace Rivers. Additional manatee sightings were also documented throughout the County (Figure 4.2). Another site of intermittent recurrent use includes West Spring Lake in Port Charlotte. The use of these areas is probably dependent upon the severity of the cold weather. Manatees likely utilize Charlotte County during milder winter conditions in areas where the water remains slightly above ambient temperature. The animals then migrate to more established warm water aggregation sites to the north and south during more severe cold weather.

Figure 4.2: Manatee Aerial Survey Sightings 1991-2011

Map Source: Florida Wildlife Research Institute



Date Saved: 2/7/2017 12:04:17 PM
 Document Path: M:\Departments\Natural_Resources\Tina Projects & Reports\MPR\Final Maps - Feb 2017\4_2_2011.mxd

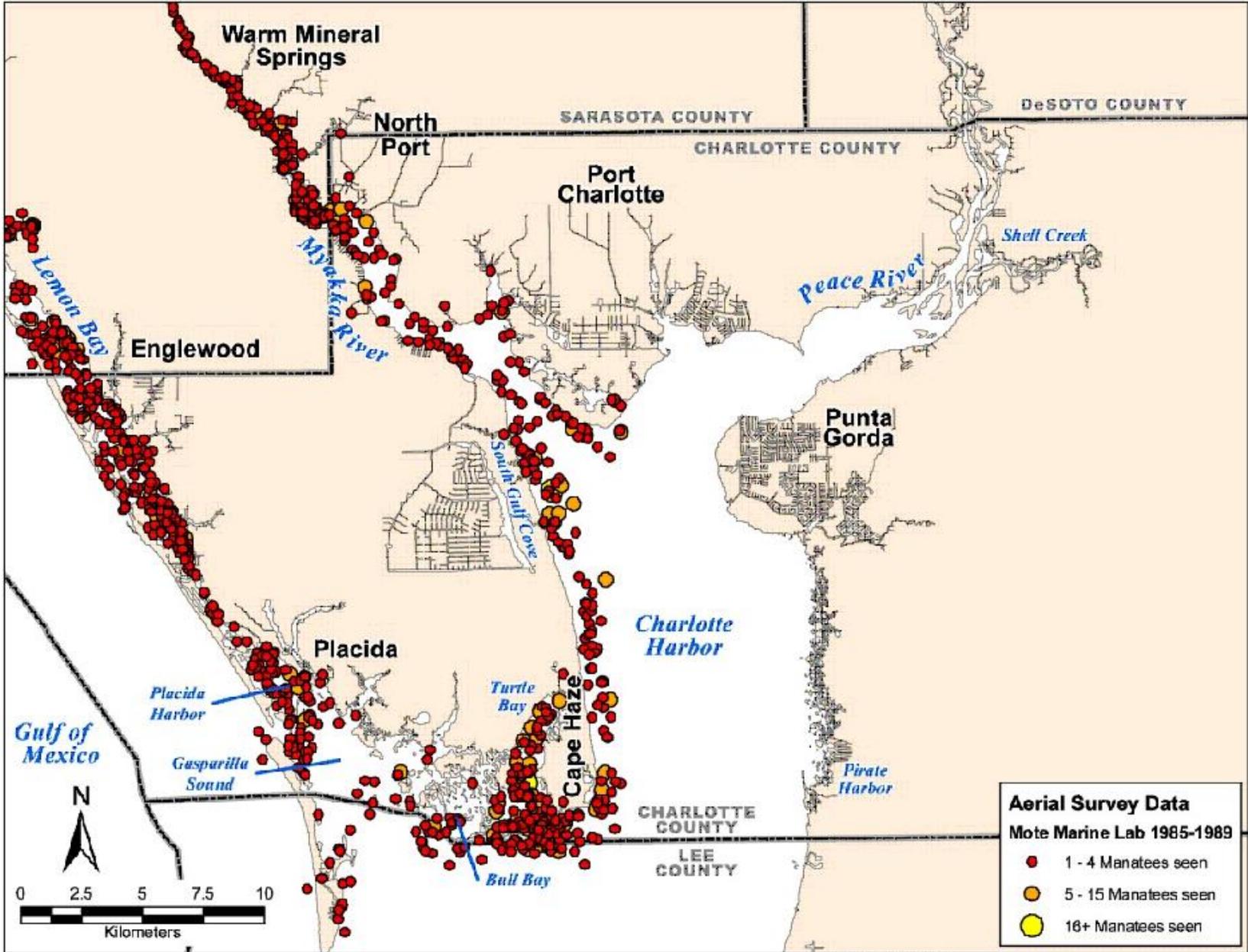
Distribution Aerial Surveys

Several manatee aerial survey studies have been conducted in Charlotte County dating back to 1985, including multiple studies by Mote Marine Laboratory (MML) from 1985-1989, 1990-1993, 1997-1999, and 2002-2004, and an aerial survey study conducted by the FWRI from 1987-89. The extent of aerial survey coverage for each study was dependent upon the level of available funding. MML surveys conducted from 1985-89 and from 1990-93, for instance, surveyed the western portions of Charlotte County but did not include Port Charlotte, the Peace River, Punta Gorda, or eastern shoreline of Charlotte Harbor (Figures 4.3, 4.3a, 4.4 and 4.4a). The 2002-04 MML survey effort extended countywide, but did not include the Myakka River, the Peace River, or most inland waterways (Figures 4.5 and 4.5a). Surveys conducted by FWRI from 1987-89 included the Myakka River, Peace River, and Charlotte Harbor, but did not include Lemon Bay, Placida Harbor, or Gasparilla Sound (Figures 4.6 and 4.6a). Survey frequency also varied, however aerial flights were typically conducted either once or twice per month. An additional manatee aerial survey was also conducted by Wildlife Trust from 2002 to 2004. This study, however, did not involve countywide aerial surveys and instead focused on manatee-boat interactions and manatee use, including distribution, within Lemon Bay, Placida Harbor, and Gasparilla Sound-only (Taylor, Powell, and Frisch, 2005). The project did, however, further document extensive manatee use in these areas.

The most comprehensive countywide manatee surveys in Charlotte County were conducted by MML from 1997 to 1999 (Figures 4.7 and 4.7a). These survey flights extended throughout the county, including Lemon Bay, Placida Harbor, Gasparilla Sound, Bull Bay, Turtle Bay, Charlotte Harbor, the Myakka River, Peace River, and the inland waterways within Port Charlotte and Punta Gorda. As was the case with other aerial survey studies, the deeper, open water portions of Charlotte Harbor were typically not surveyed due to poor sighting conditions. During the 1997-99 MML survey, a total of 3,505 manatee sightings were documented, with at least one manatee observed during each of the 47 survey flights. The number of animals observed per survey flight ranged from one manatee to 258 manatees; and group sizes ranged from one to 33 individuals.

Figure 4.3: MML Manatee Survey Data 1985-1989

Map Source: Mote Marine Lab



Date Saved: 2/12/2011 9:55:22 AM
 Document Path: M:\Departments\Natural Resources\Tina\Projects & Reports\MPF\Final Maps - Feb 2011\F4_2011.mxd

Figure 4.3a: MML Survey Flight Path 1985-1989

Map Source: Mote Marine Lab

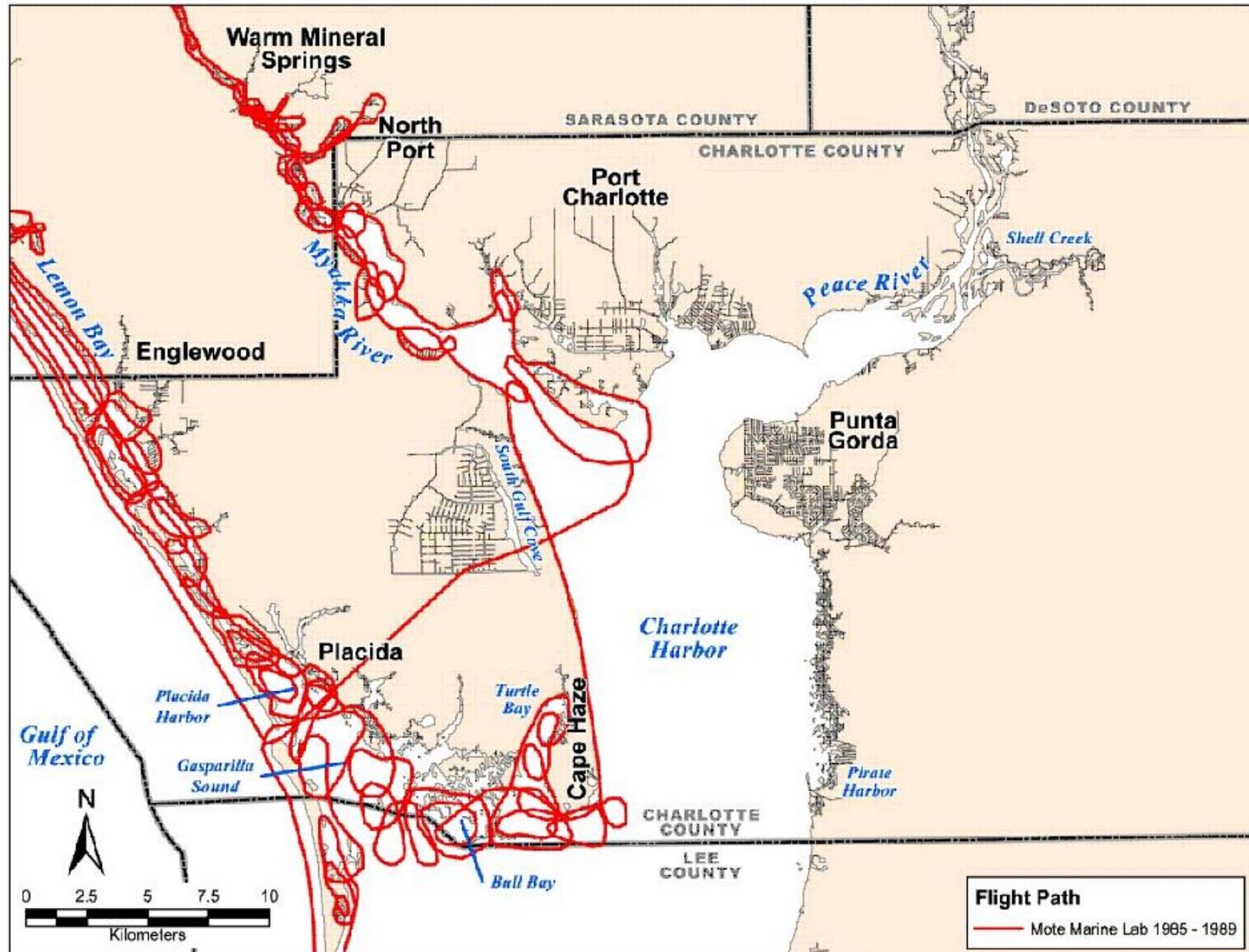


Figure 4.4: MML Manatee Survey Data 1990-1993

Map Source: Mote Marine Lab

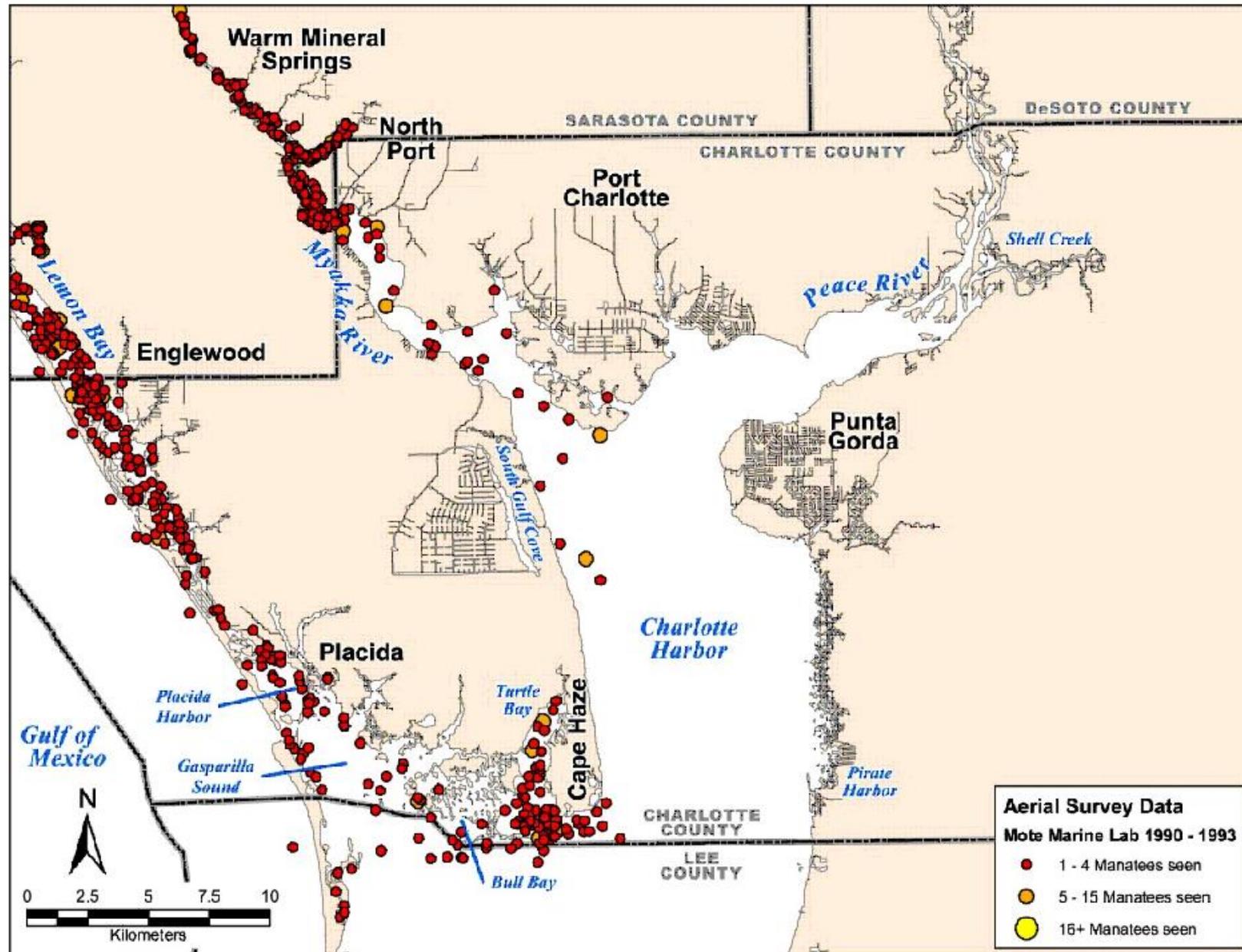
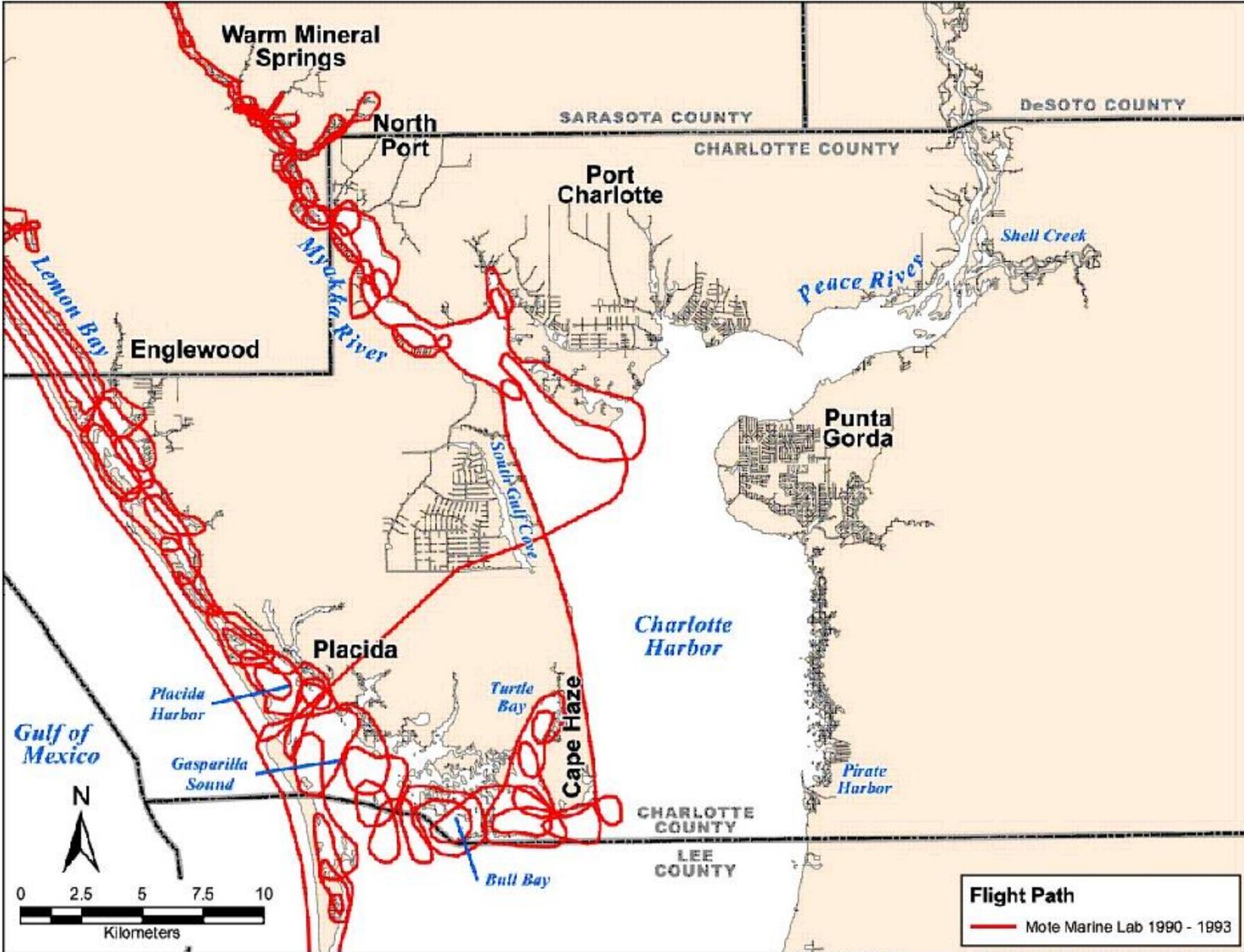


Figure 4.4a: MML Survey Flight Path 1990-1993

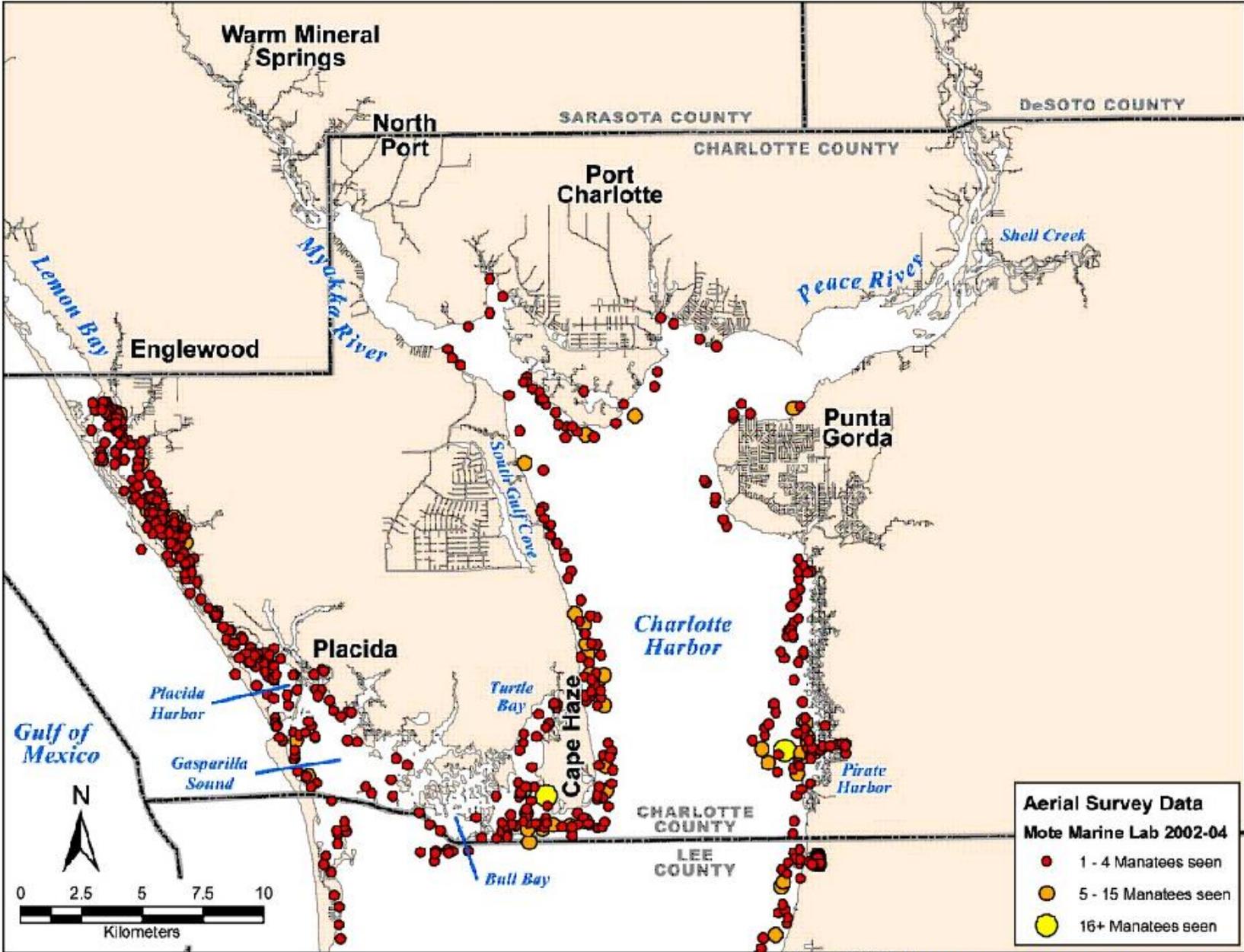
Map Source: Mote Marine Lab



Date Saved: 2/12/11 9:59:29 AM
Document Path: \\C:\Programs\Visum\Resources\Time\Projects & Parks\WPP\Final Maps - Feb 2011\4a_2011.mxd

Figure 4.5: MML Manatee Survey Data 2002-04

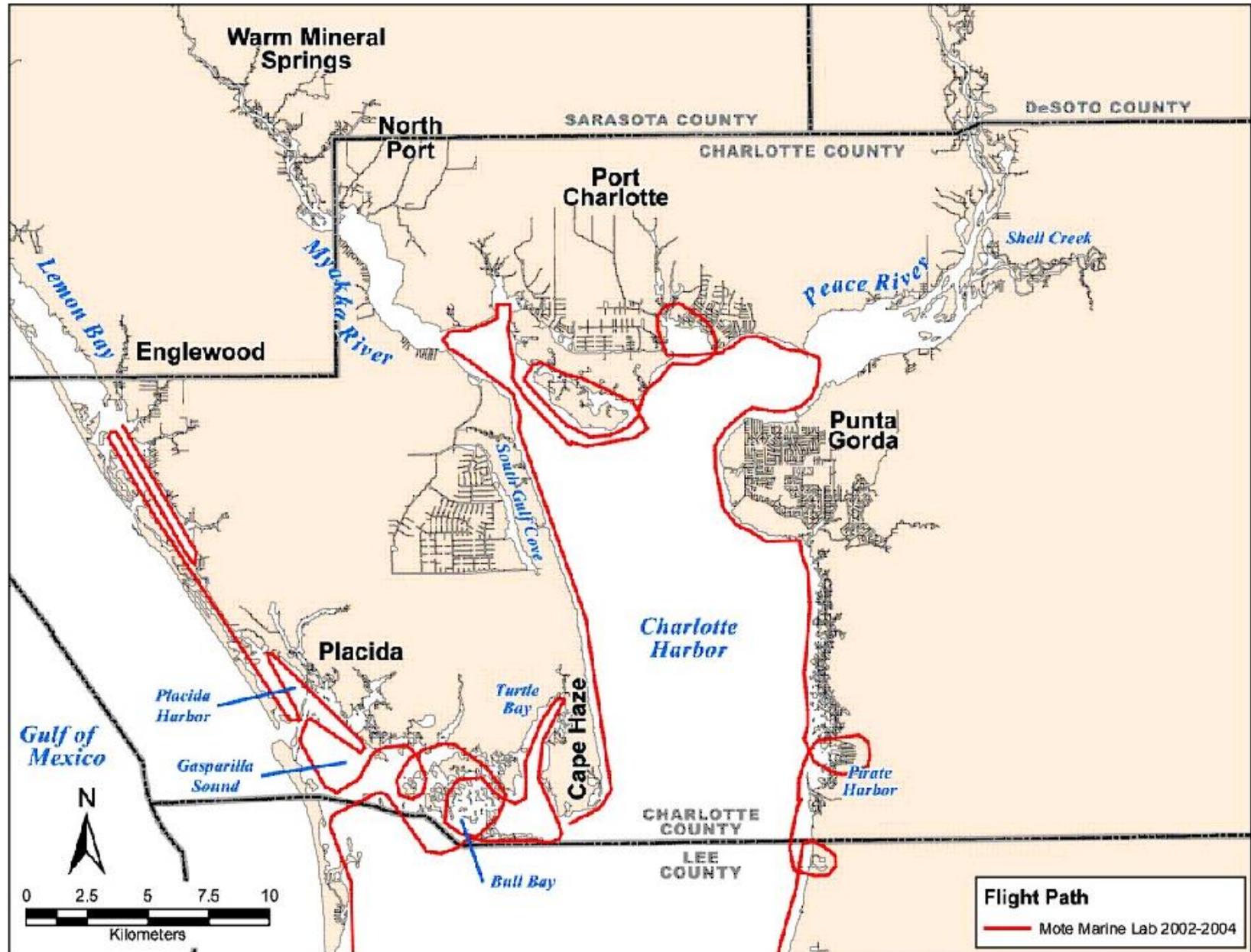
Map Source: Mote Marine Lab



Date Saved: 2/7/2017 10:00:00 AM
 Document Path: M:\Departments\Natural_Resources\Tina_Peterson\Projects & Reports\WPP\Final_Maps - Feb 2017\4_5_2011.mxd

Figure 4.5a: MML Survey Flight Path 2002-04

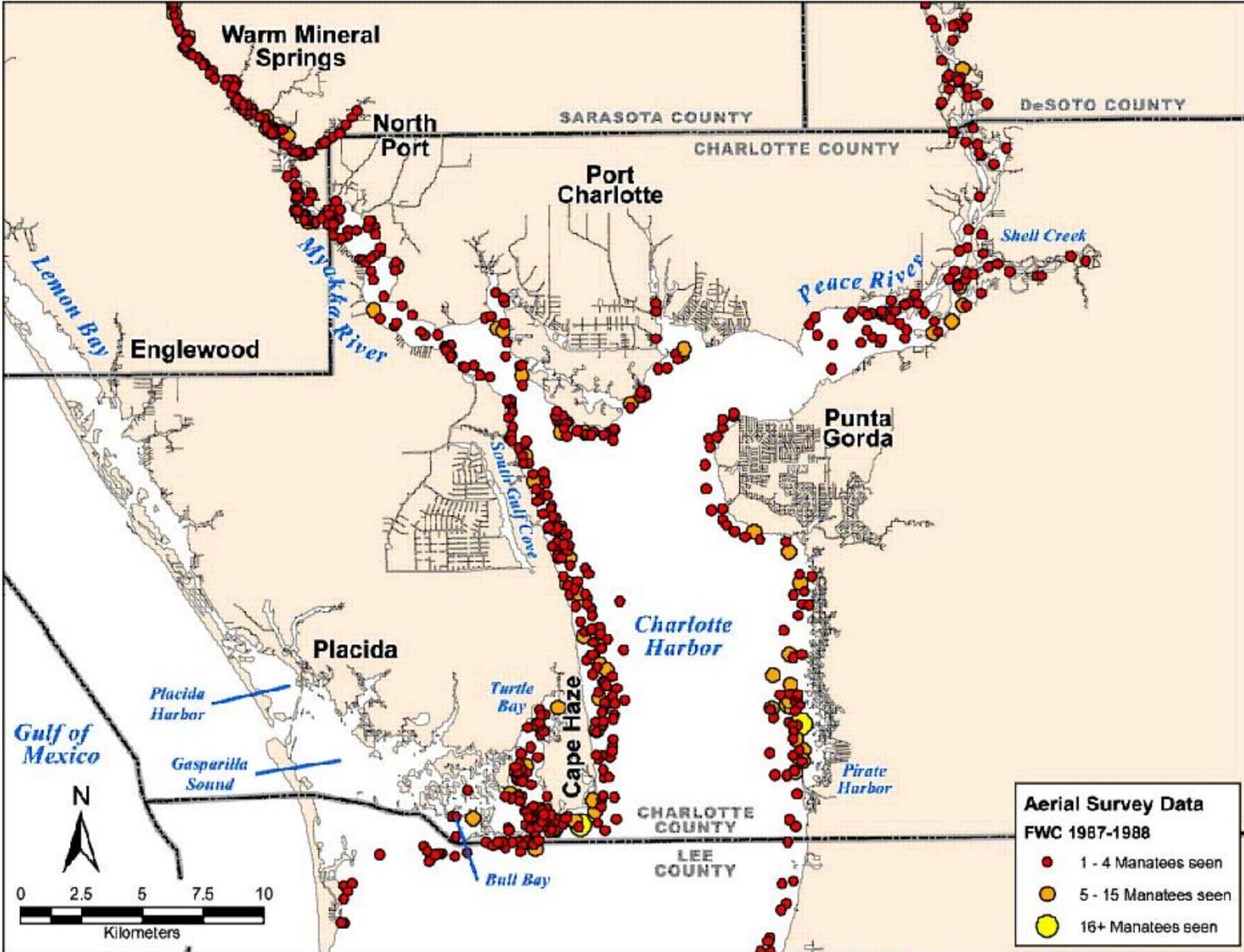
Map Source: Mote Marine Lab



Date Saved: 2/17/2011 10:02:02 AM
Document Path: M:\Department\Natural_Resources\Time Projects & Parks\MPR\Final Maps - Feb 2011\4.5a_2011.mxd

Figure 4.6: FWC Manatee Survey Data 1987-1989

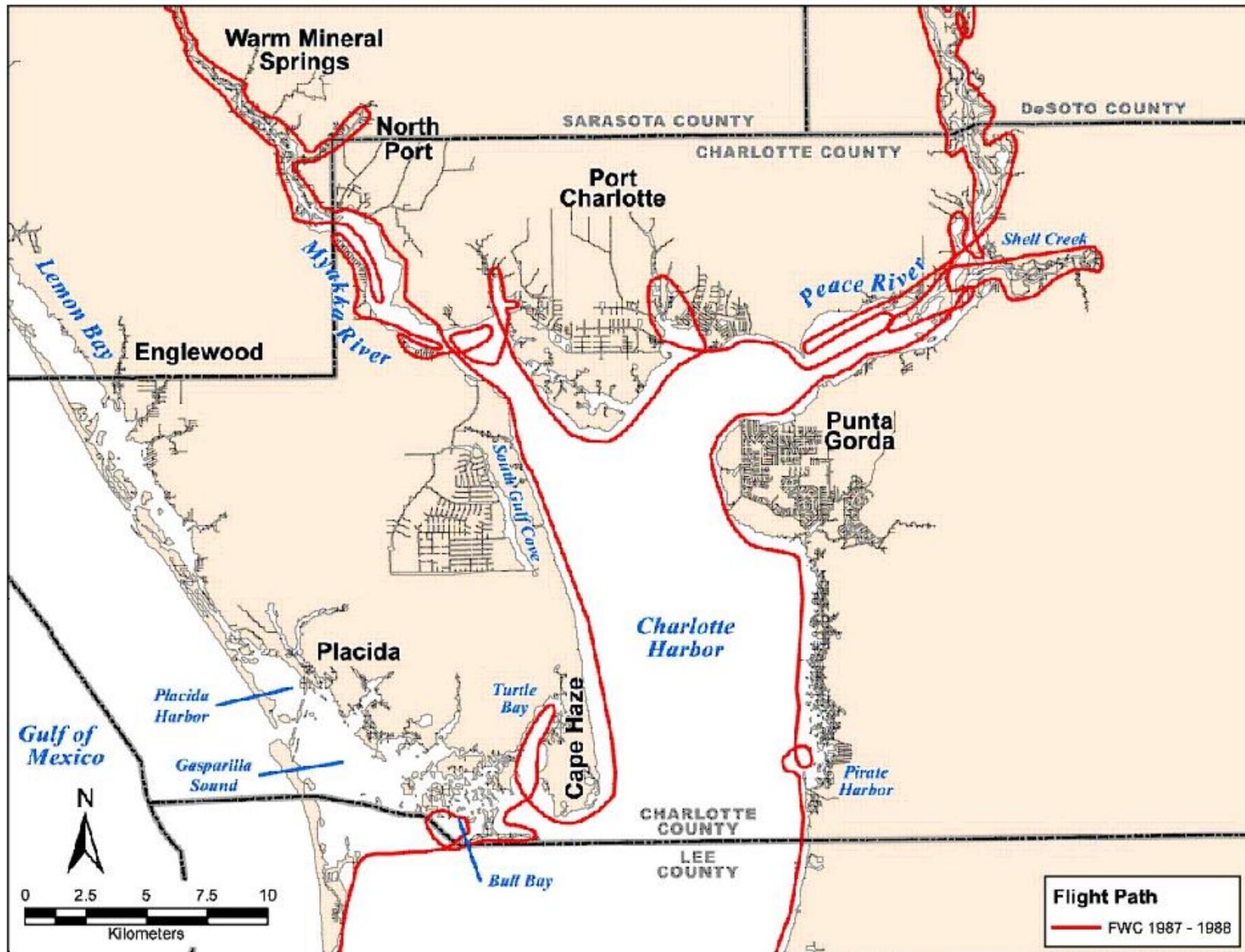
Map Source: Florida Fish and Wildlife Conservation Commission



Date Saved: 2/7/2011 10:06:10 AM
 Document Path: M:\Departments\Natural_Resources\Time\Projects & Parks\WPP\Final_Maps - Feb 2011\4_6_2011.mxd

Figure 4.6a: FWC Survey Flight Path 1987-1989

Source: Florida Fish and Wildlife Conservation Commission



Date Saved: 2/12/11 10:02:41 AM
Document Path: W:\Department\Visual_Resources\Time Projects & Parks\WPP\Final Maps - Feb 2011\4.6a_2011.mxd

Figure 4.7: MML Manatee Survey Data 1997-1999

Map Source: Mote Marine Lab

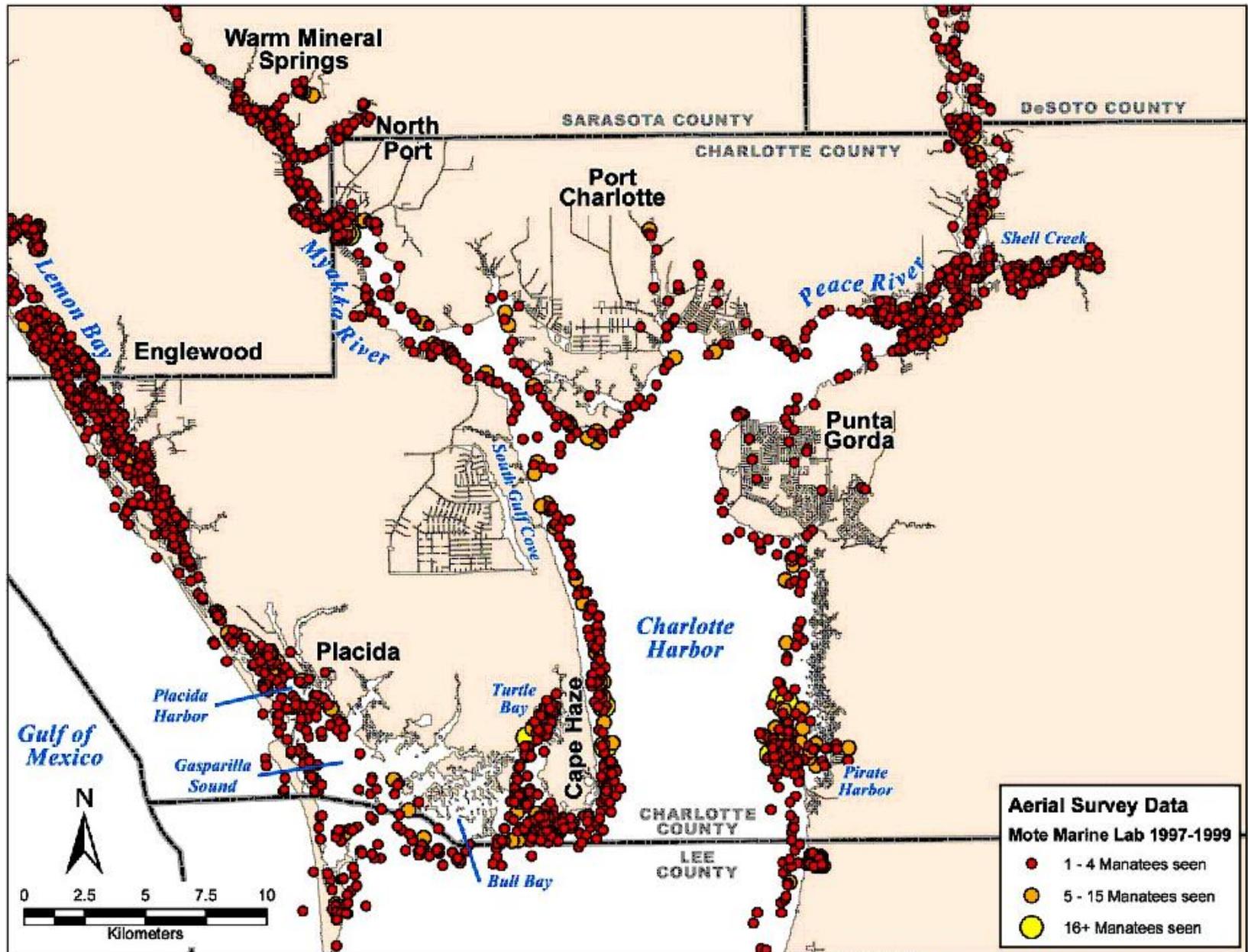
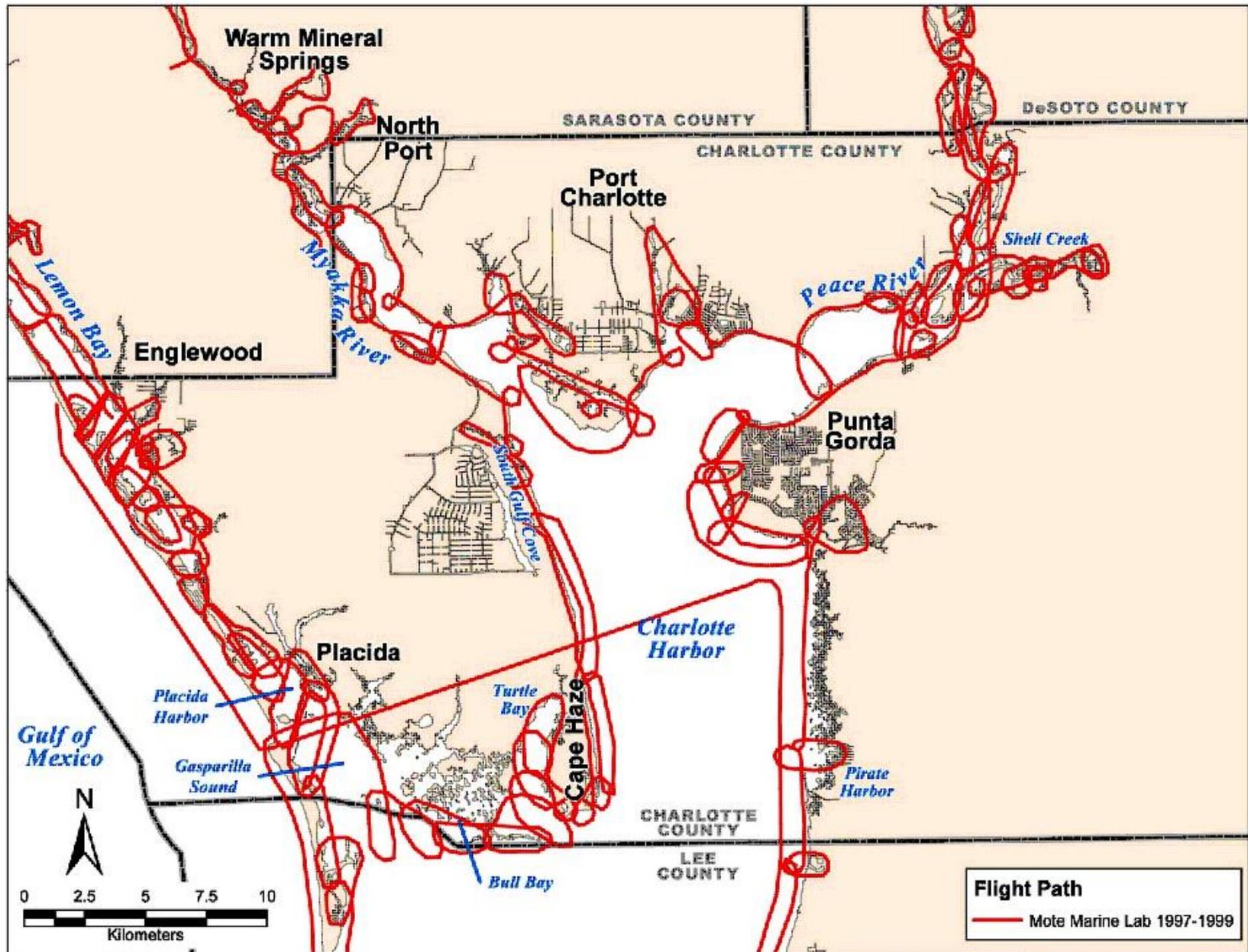


Figure 4.7a: MML Survey Flight Path 1997-1999

Map Source: Mote Marine Lab



Date Saved: 2/17/2017 10:14:02 AM
Document Path: M:\Desktop\GIS\Natural_Resources\Time Projects & Parks\WPP\Final Maps - Feb 2017\4.7a_2017.mxd

While survey frequency and flight paths varied among the various aerial surveys in Charlotte County, the general findings were relatively consistent. Surveys which included the western portions of Charlotte County found a relatively high abundance of manatees in Lemon Bay and Placida Harbor, Cape Haze, and the Myakka River. Surveys which included the eastern portions of Charlotte Harbor found a relatively high abundance of manatees within the Peace River and along the southeastern portion of Charlotte Harbor near Pirate Harbor. Lower abundances of animals were typically found in northern Charlotte Harbor near Port Charlotte and Punta Gorda. Limited manatee sightings were also reported along the deeper portions of Charlotte Harbor; however poor water clarity, survey conditions and limited survey effort were likely a contributing factor.

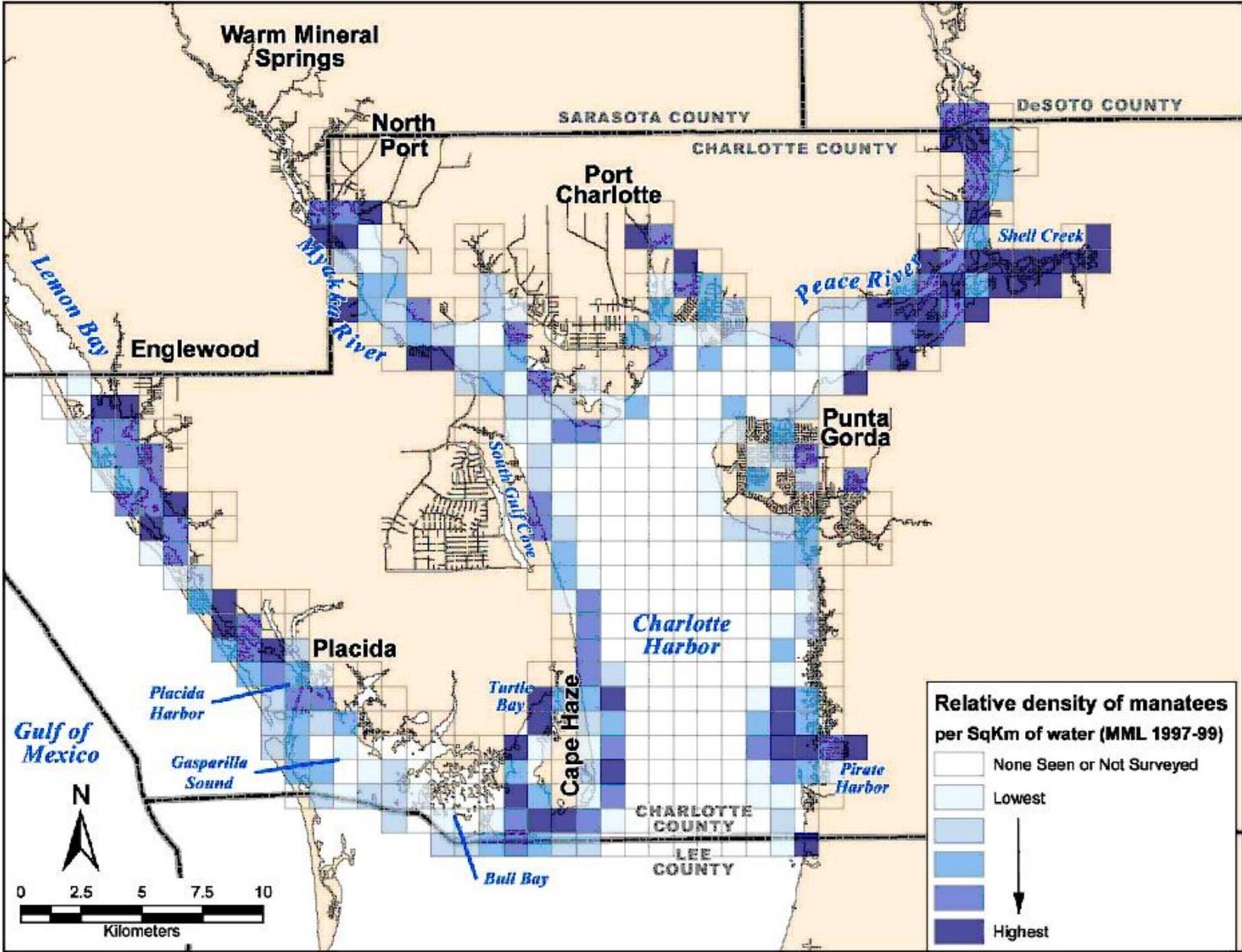
Because the 1997-99 aerial survey conducted by MML included the most detailed and extensive flight path and provided the most comprehensive dataset, these data were used to examine overall trends in manatee abundance and distribution in Charlotte County. In order to quantitatively determine the relative abundance of manatees throughout Charlotte County, the entire county was subdivided into a series of 1km x 1km grids. The numbers of manatees sighted within each grid were determined, and a final density calculation was expressed as the number of manatees per square kilometer within each grid. Using 1997-99 MML aerial survey data, the results are displayed in Figure 4.8. The areas of most frequent use and/or highest relative abundance were observed in the Peace River, Lemon Bay / Placida Harbor, Cape Haze (including Turtle Bay), the Myakka River, and the southeastern portion of Charlotte Harbor near Pirate Cove. Lower relative abundances were seen in Gasparilla Sound, Punta Gorda, and along the western shoreline of Charlotte Harbor near South Gulf Cove. Lower relative abundance was also observed throughout the deeper, open waters of Charlotte Harbor, however these areas were typically not surveyed due to poor sighting conditions (poor water clarity and sea surface conditions).

Because coastal water temperatures typically fall below 65°F during winter, manatee use within Charlotte County varies seasonally. In spite of seasonal variations in abundance, however, manatees appear to utilize Charlotte County throughout the year. Figure 4.9 displays monthly manatee sightings in Charlotte County based upon 1997-1999 MML aerial survey data. Highest levels of manatee use occurred in mid to late spring (greater than 100 individuals sighted per survey), with the numbers of animals observed decreasing through the summer. Manatee use remained relatively low and consistent (less than 50 animals sighted per survey flight) during the fall and winter. While fewer manatees utilize Charlotte County in the winter, aerial survey data show similar countywide distribution patterns during the colder and warmer months of the year (Figures 4.10 and 4.11).

Manatee calf dependency lasts up to two years (Hartman, 1979; Rathbun et al., 1995; Reid et al, 1995), and groups with dependent calves have been frequently observed throughout Charlotte County. Groups with calves were most commonly seen in Lemon Bay, Cape Haze (Turtle Bay), the Peace River, and along southwestern Charlotte Harbor near Pirate Harbor. A relatively large number of groups with calves were also documented within the Sarasota County portion of the Myakka River (Figure 4.12). These animals presumably transition to / from this area through Charlotte County.

Figure 4.8: Spatial Manatee Distribution MML Survey 1997-1999

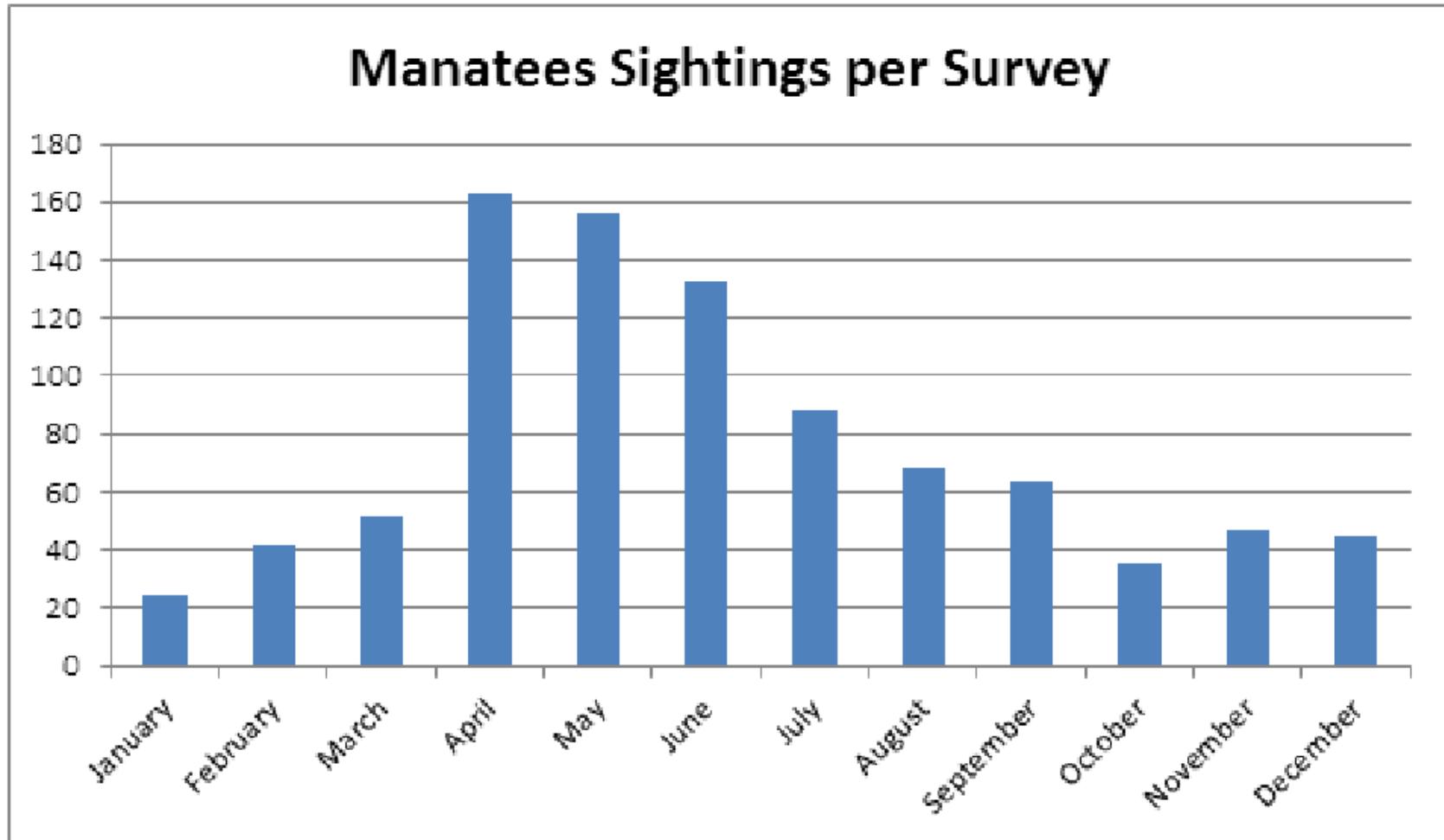
Map Source: Mote Marine Lab



Data Saved: 2/7/2011 10:15:11 AM
 Document Path: M:\Departments\Natural_Resources\Tina\Projects & Parks\WPP\Final_Maps - Feb 2011\4_8_2011.mxd

Figure 4.9: Manatee Sightings per Month MML Survey 1997-1999

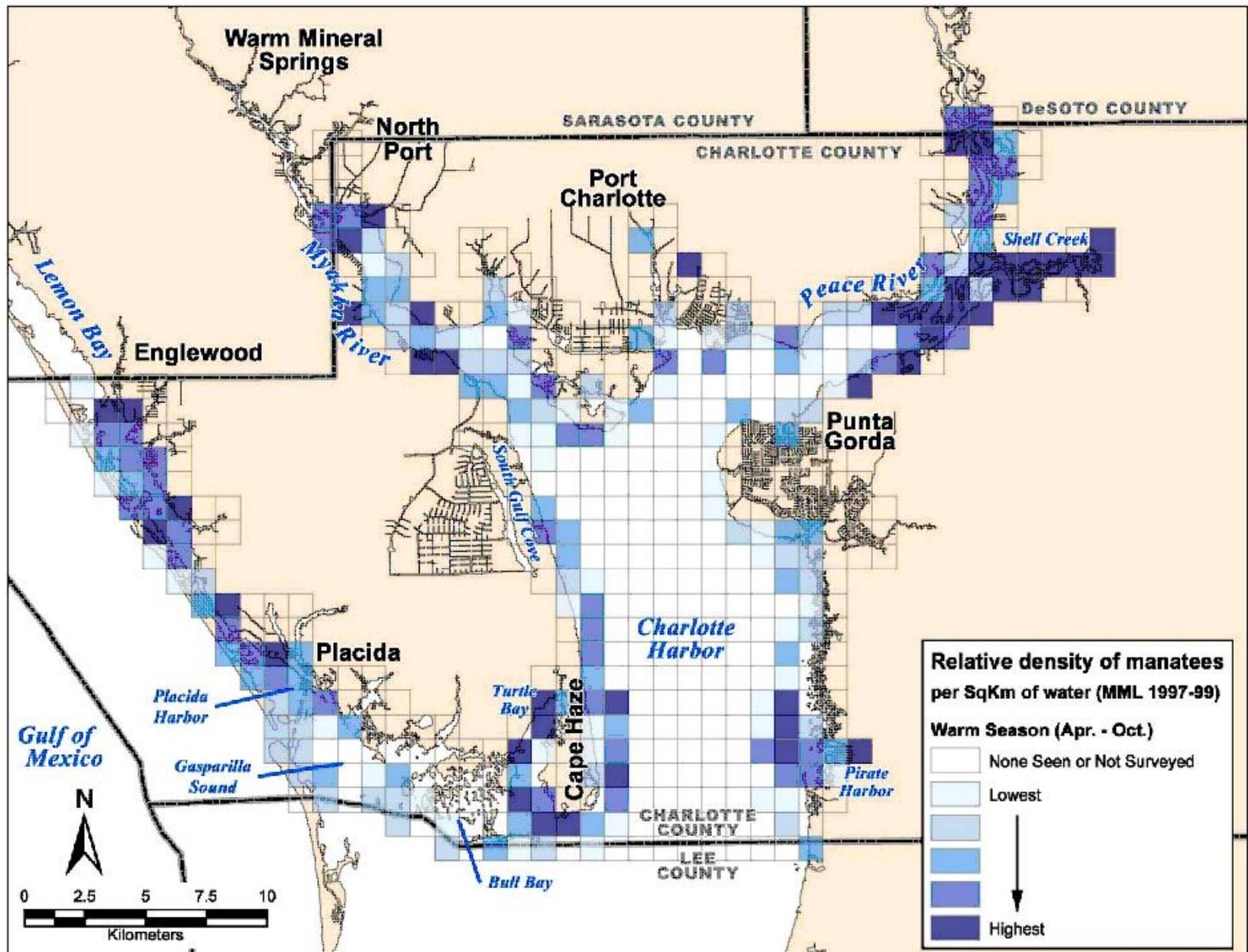
Source: Mote Marine Lab



File Saved: 2/7/2017 10:15:29 AM
Source Path: \\C:\ProgramData\NaturalResource\Time Projects & Parks\MP\Final Maps - Feb 2017\49_2017.mxd

Figure 4.10: Seasonal Warm Distribution MML Survey 1997-1999

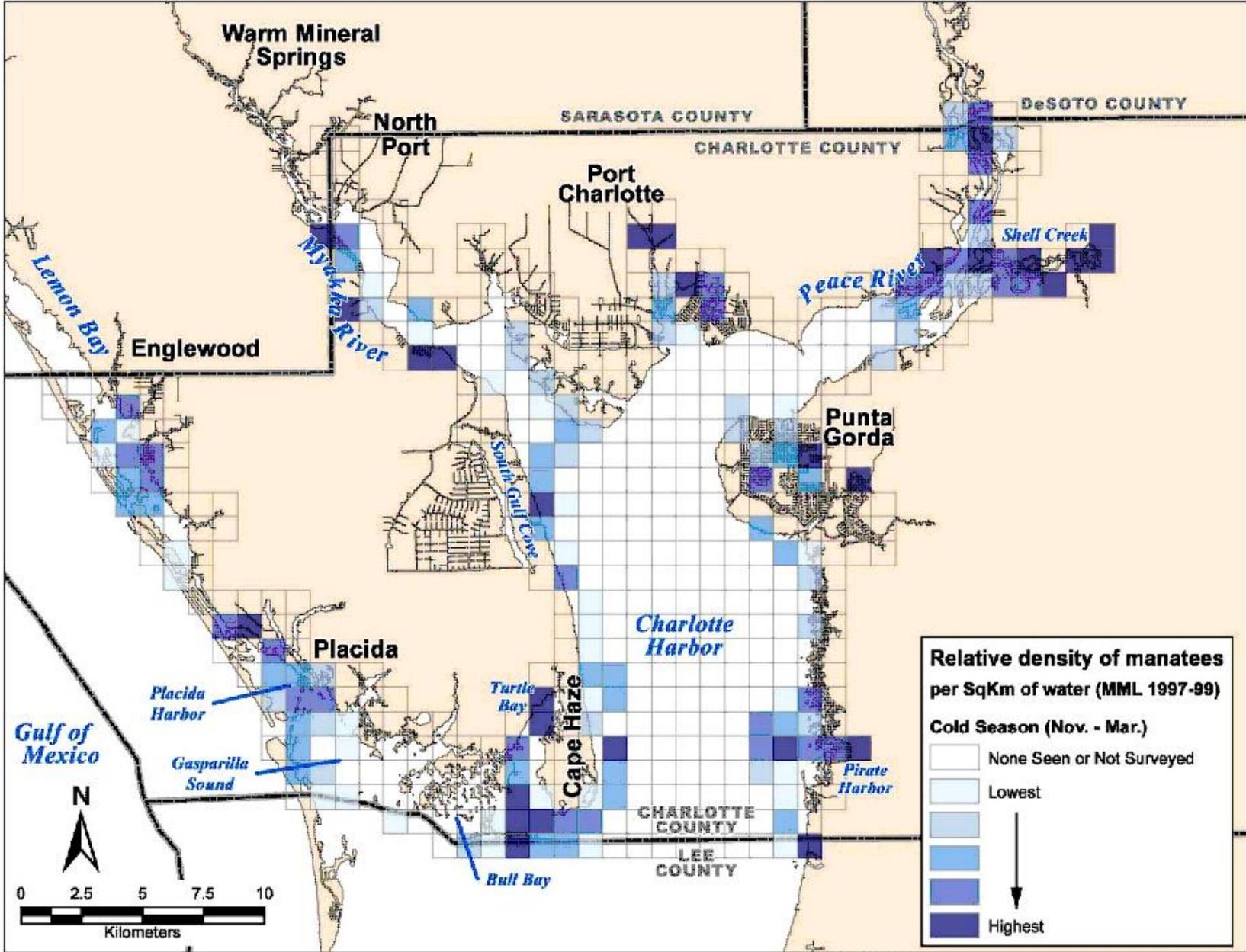
Map Source: Mote Marine Lab



Data Saved: 2/1/2017 12:09:08 PM
Document Path: M:\Departments\Nature_Resource\Fine Projects & Parks\MPF\Final Maps - Feb 2017\4.10_2017.mxd

Figure 4.11: Seasonal Cold Distribution MML Survey 1997-1999

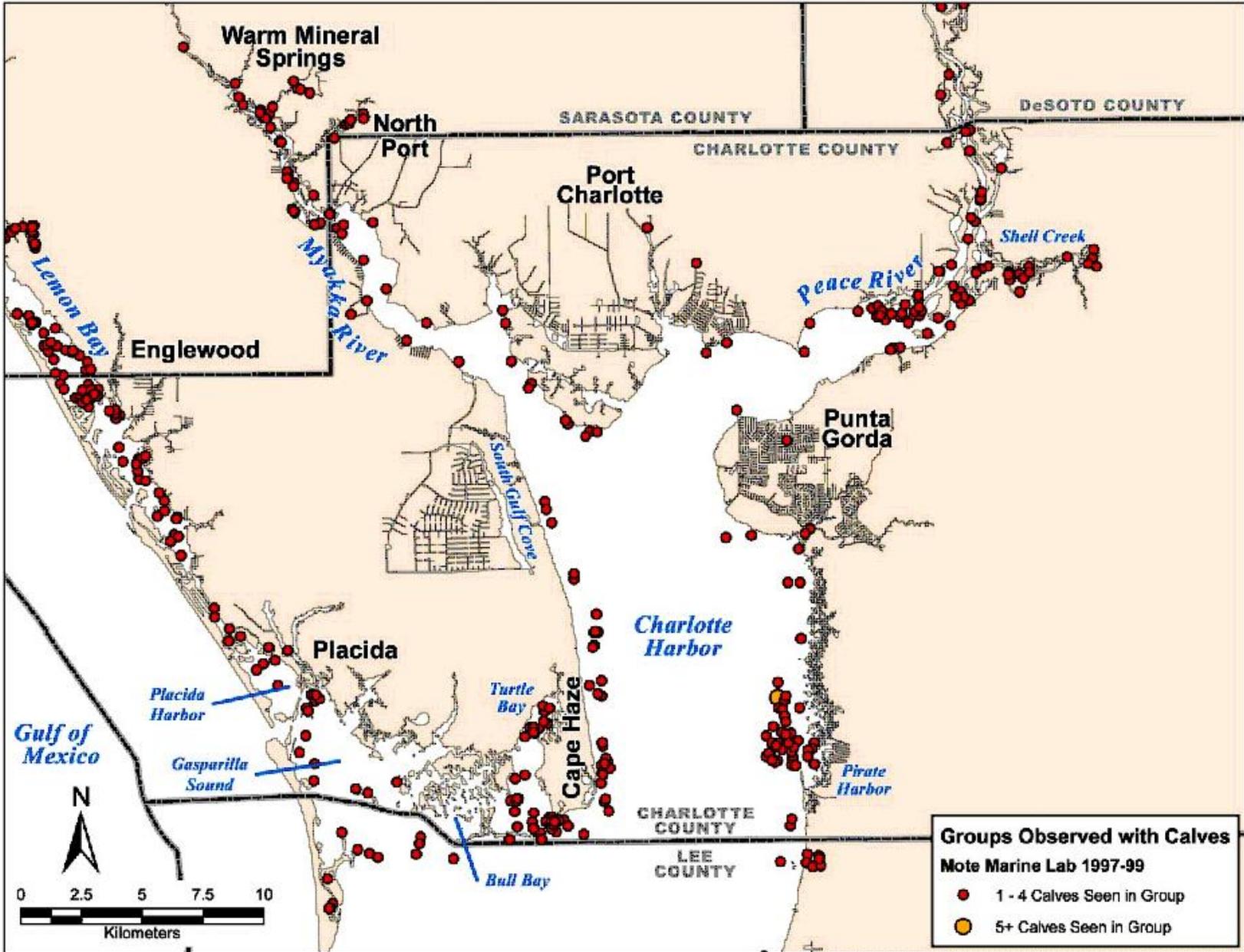
Map Source: Mote Marine Lab



Date Saved: 2/12/07 10:22:08 AM
 Document Path: \\C:\Department\Nature_Resources\Time\Projects & Parks\PP\Final_Maps - Feb 2011\4.11_2011.mxd

Figure 4.12: MML Survey Data with Calves 1997-1999

Map Source: Mote Marine Lab



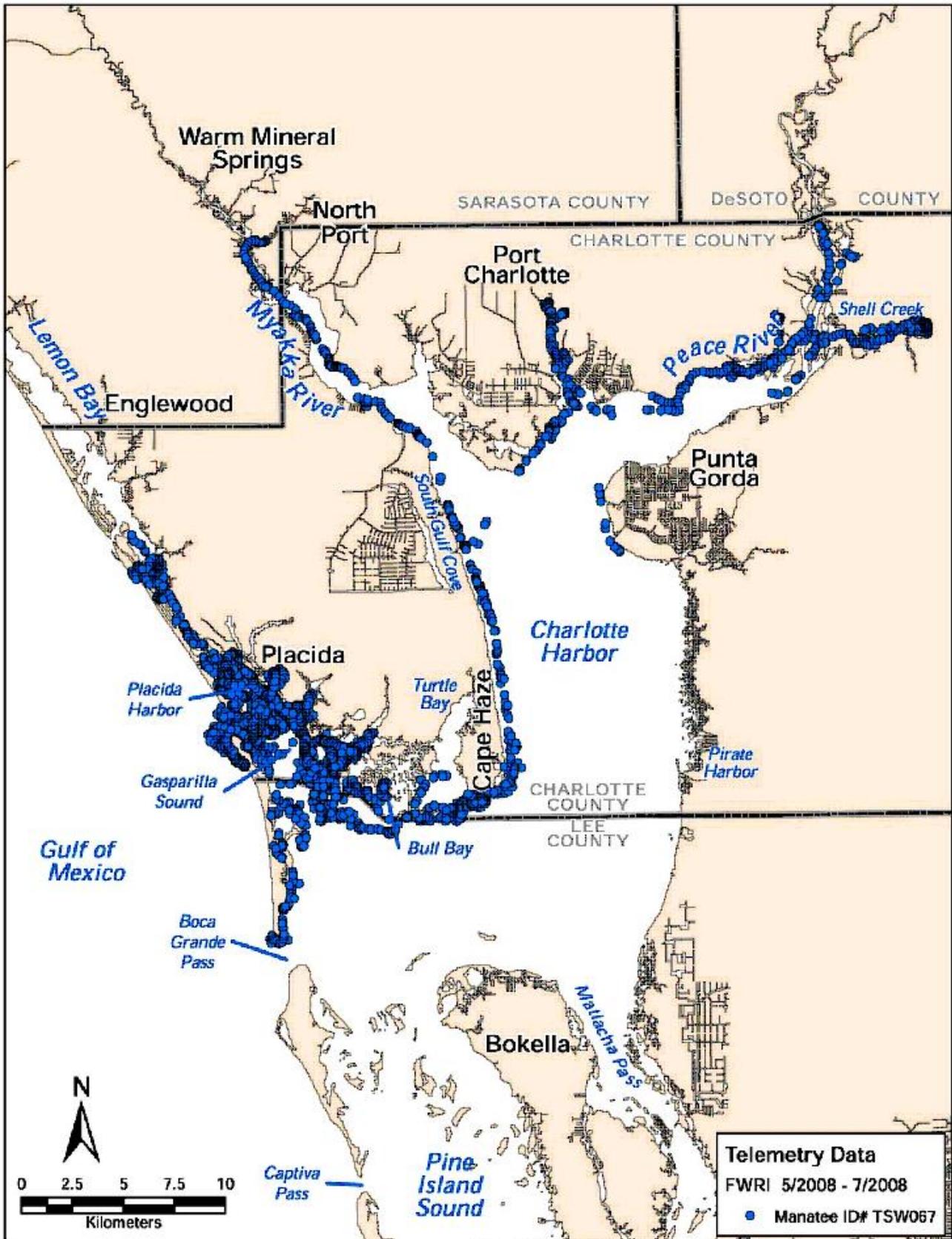
Date Saved: 2/17/2010 10:22:55 AM
 Document Path: \\01:\Department\Natural Resources\Tide Projects & Parks\MPP\Final Maps - Feb 2011\412_2011.mxd

4.1.2 Telemetry Data

Recent satellite telemetry studies involving the use of Argos-linked GPS/PTT tags have been conducted by FWC biologists with the FWRI (Deutsch e. al., 1998, 2003, 2006). A total of 128 manatees were tagged with Platform Transmitting Terminals (PTT) tags between 1991 and 2006; 38 of which were documented utilizing Charlotte County waters. During 2007 and 2008, twenty additional animals were captured and equipped with tags using both PTT tags and Geographic Positioning Systems (GPS) technology. Examples of telemetry data from selected individual manatees are provided in Figures 4.13 – 4.16. Examples of short-term movement patterns are shown in Figures 4.13 and 4.14, documenting extensive movement and use within Charlotte County by certain individuals. Animal TSW068, for example, essentially traveled throughout coastal Charlotte County within a two-month period, utilizing Gasparilla Sound, Cape Haze, Port Charlotte, Punta Gorda, and both the Myakka and the Peace Rivers. Figures 4.15 and 4.16 demonstrate longer-term movement patterns, indicating that Charlotte County is also an important component of a wider habitat range for some animals along the Southwest Florida coast. Animal TTBO49 was tracked through seven Florida west coast counties over a two-year period, including extensive use of Charlotte County (Figure 4.16). Similar plots can be created for other tagged animals in order to identify areas of regular use and/or travel corridors. Habitat use and movement patterns of individual manatees are fairly unique, however, and do not necessarily define trends for the entire Southwest Florida manatee population.

Figure 4.13: Telemetry Data: Short-term Movement 5/2008 - 7/2008

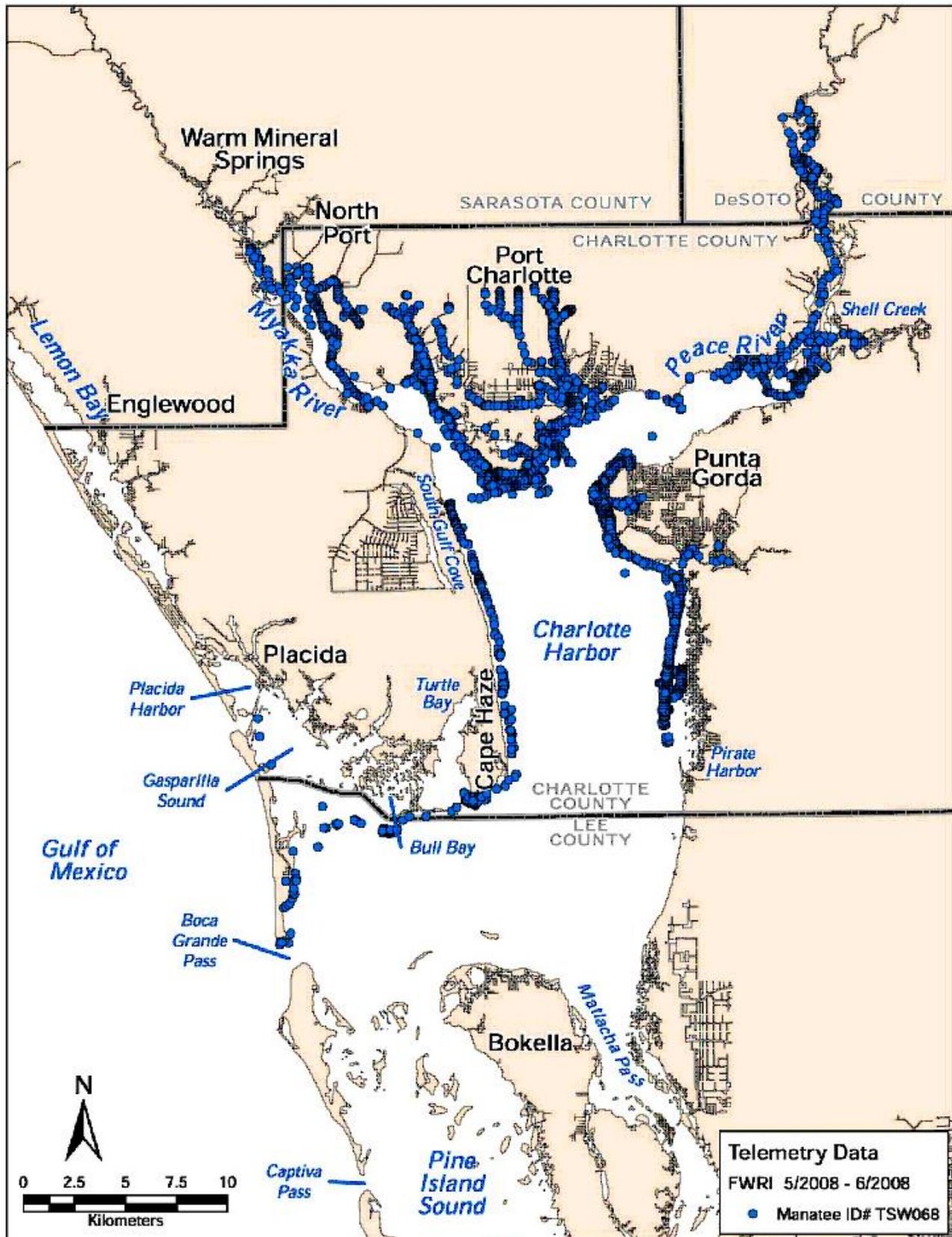
Map Source: Florida Wildlife Research Institute



Date Saved: 2/17/2017 10:27:45 AM
Document Path: M:\Department\Nature\Resources\Tribal\Projects & Parks\NPP\Final Maps - Feb 2017\4.13_2017.mxd

Figure 4.14: Telemetry Data: Short-term Movement 5/2008 - 6/2008

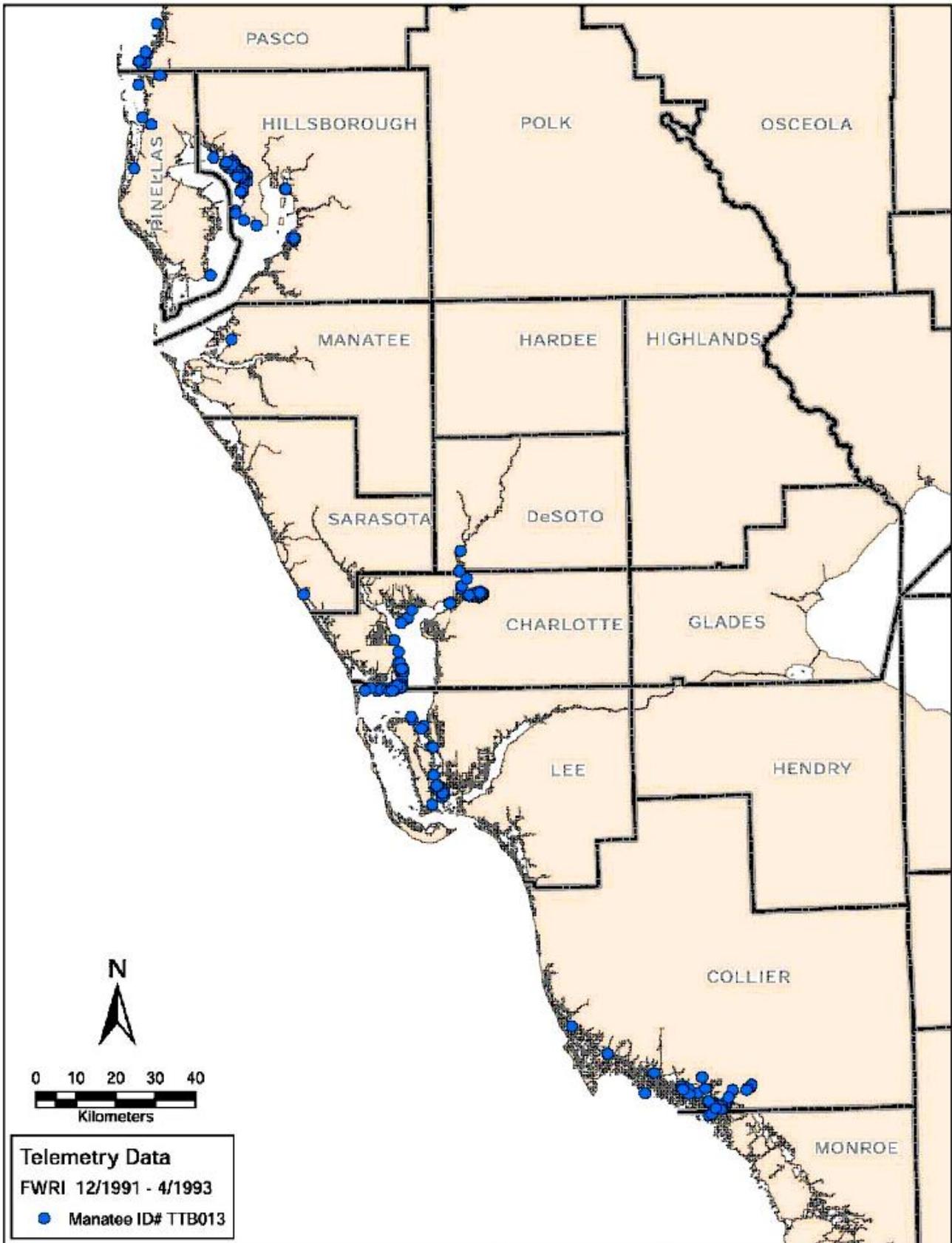
Map Source: Florida Wildlife Research Institute



File Saved: 5/12/08 10:21:02 AM
Document Path: M:\Department\Natural_Resources\Tide Projects & Parks\WPP\Final Maps - Feb 2011\4.14_2011.mxd

Figure 4.15: Telemetry Data: Long-term Movement 12/1991 - 4/1993

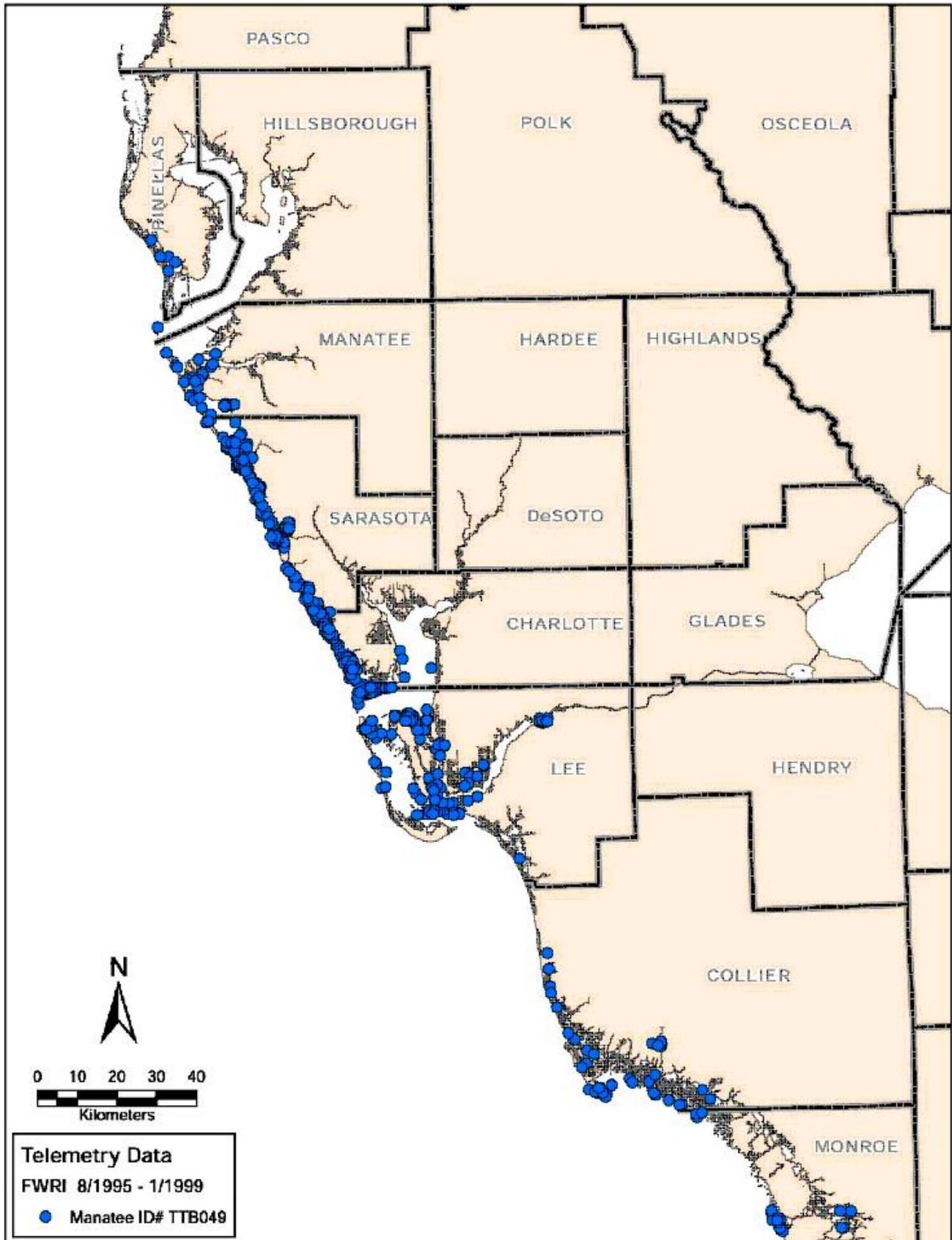
Map Source: Florida Wildlife Research Institute



Data Saved: 2/7/2017 10:29:15 AM
Document Path: M:\Department\Natural_Resources\Fine Projects & Parks\WPP\Fine Maps - Feb 2017\4-15-2017.mxd

Figure 4.16: Telemetry Data: Long-term Movement 8/1995 - 1/1999

Map Source: Florida Wildlife Research Institute



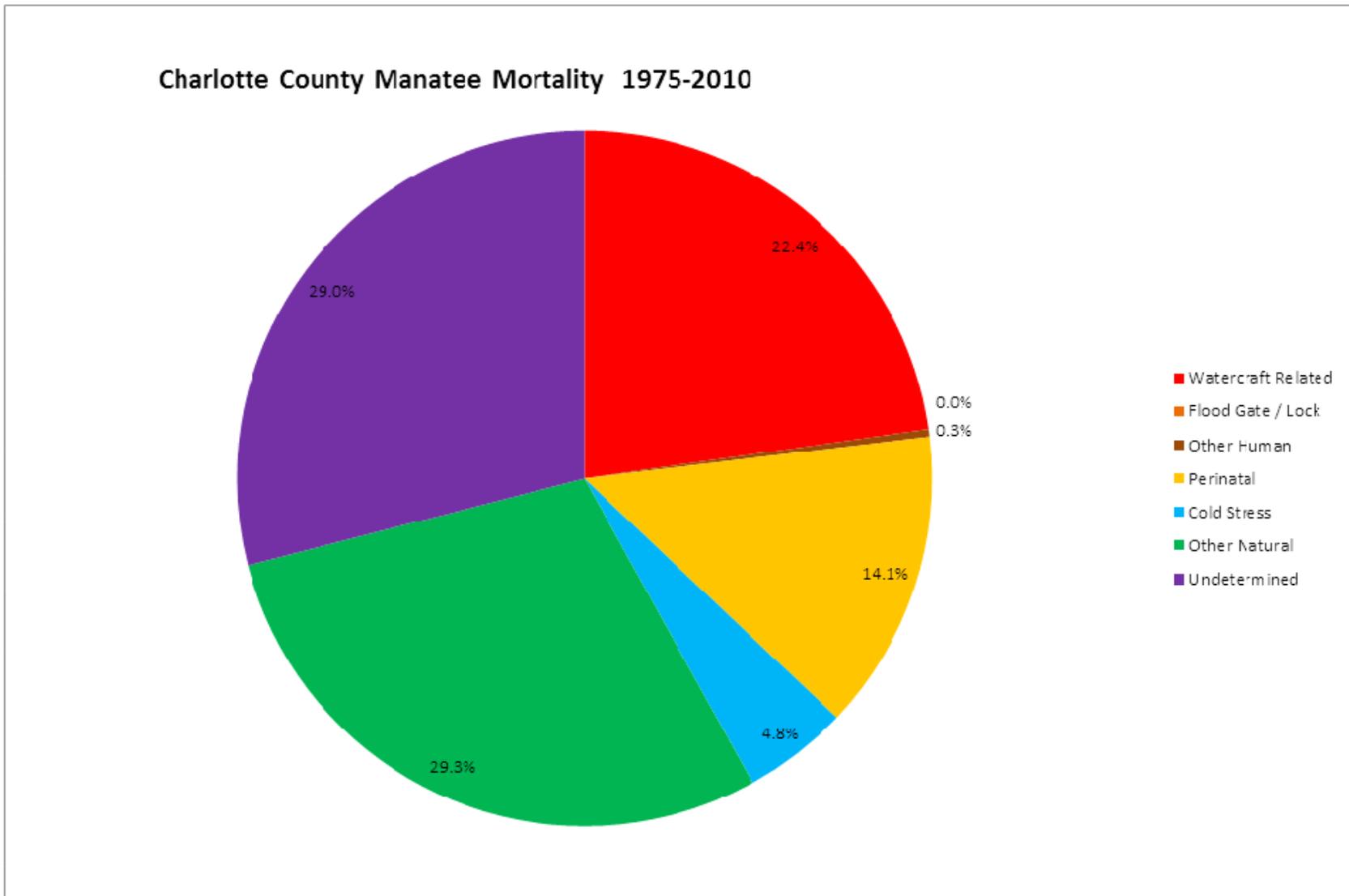
Data Saved: 2/7/2017 10:22:06 AM
Document Path: M:\Department\Natural_Resources\Tina_Peterson\Projects & Parks\WPP\Final_Maps - Feb 2017\4.16_2017.mxd

4.1.3 Manatee Mortality Data

From 1975 to 2010, a total of 290 manatee carcasses have been recovered in Charlotte County. A distribution by cause of death is provided in (Figure 4.17). A total of 65 carcasses (22.4%) were determined to be watercraft-related deaths. Both the total number of manatee deaths and watercraft-related deaths in Charlotte County are comparable to the numbers found in several other key manatee protection counties. Charlotte County currently ranks eighth in total manatee deaths and ninth in watercraft-related manatee deaths statewide (Figures 4.18 and 4.19). In addition, the number of manatee deaths in Charlotte County has significantly increased through time (Figures 4.20 and 4.21). Since 2000, there have been more watercraft-related manatee deaths in Charlotte County than in the previous 25 years. Of the 65 manatee deaths in Charlotte County which were attributed to watercraft-related injuries, 51 (78%) have occurred since 1995. This rate of increase in watercraft-related manatee deaths over the past 15 years exceeds that of all other key manatee protection counties. Manatee deaths attributed to watercraft-related injuries occur throughout the year in Charlotte County, though the number of carcass recoveries has varied seasonally. A higher number of watercraft-related deaths have occurred in the spring and summer, with fewer deaths occurring in the fall and winter (Figure 4.22). This is consistent with the overall seasonal trends in manatee abundance determined from aerial survey data.

Figure 4.17: Charlotte County Manatee Mortality

Map Source: Florida Fish and Wildlife Conservation Commission



Date Saved: 2/1/2017 12:12:45 PM
Document Path: M:\Departments\Natural_Resource\Tina\Projects & Parks\WPP\Final Maps - Feb 2017\4_17_2017.mxd

Figure 4.18: Total Manatee Deaths Ranked by Florida Counties

Map Source: Florida Fish and Wildlife Conservation Commission

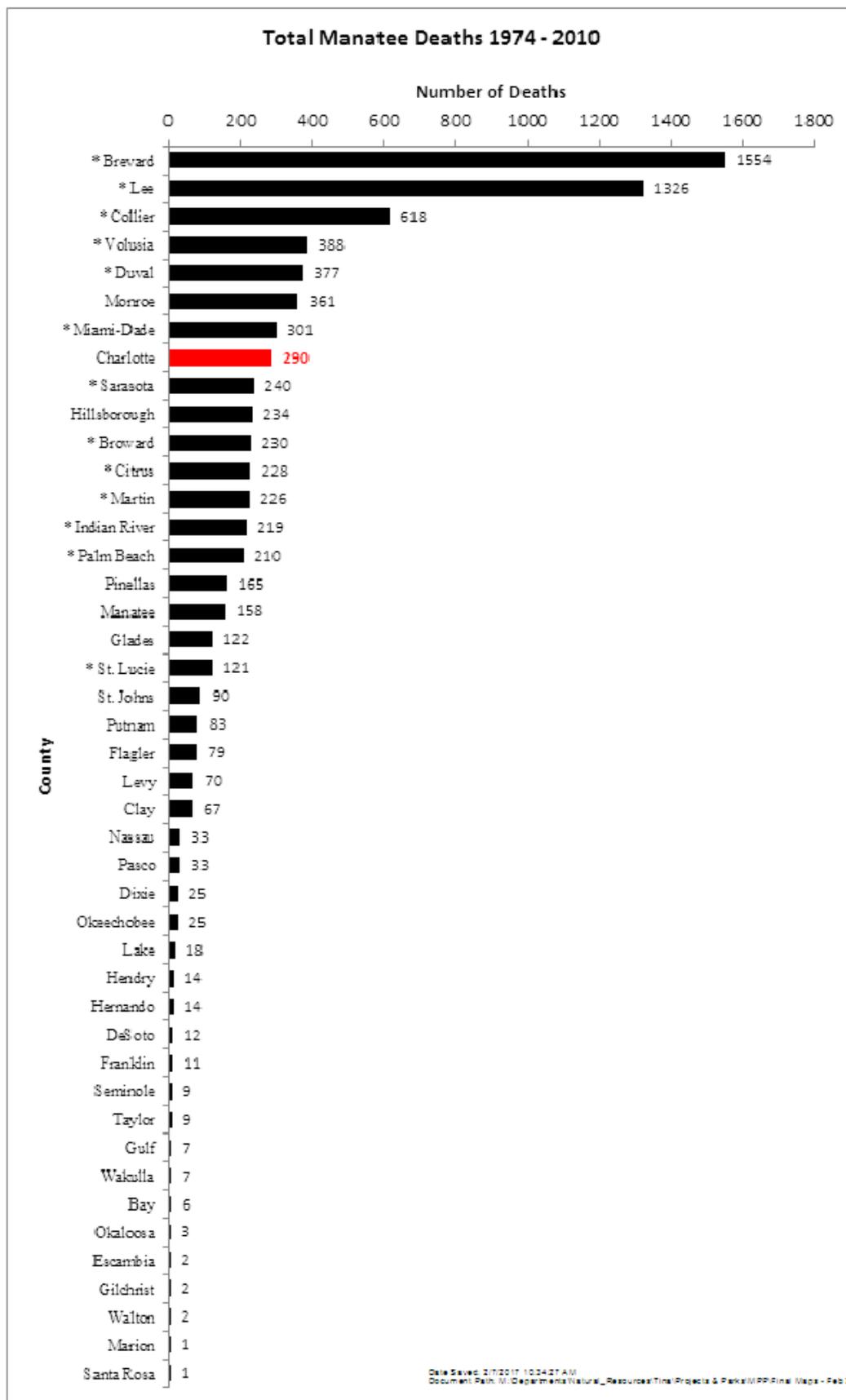
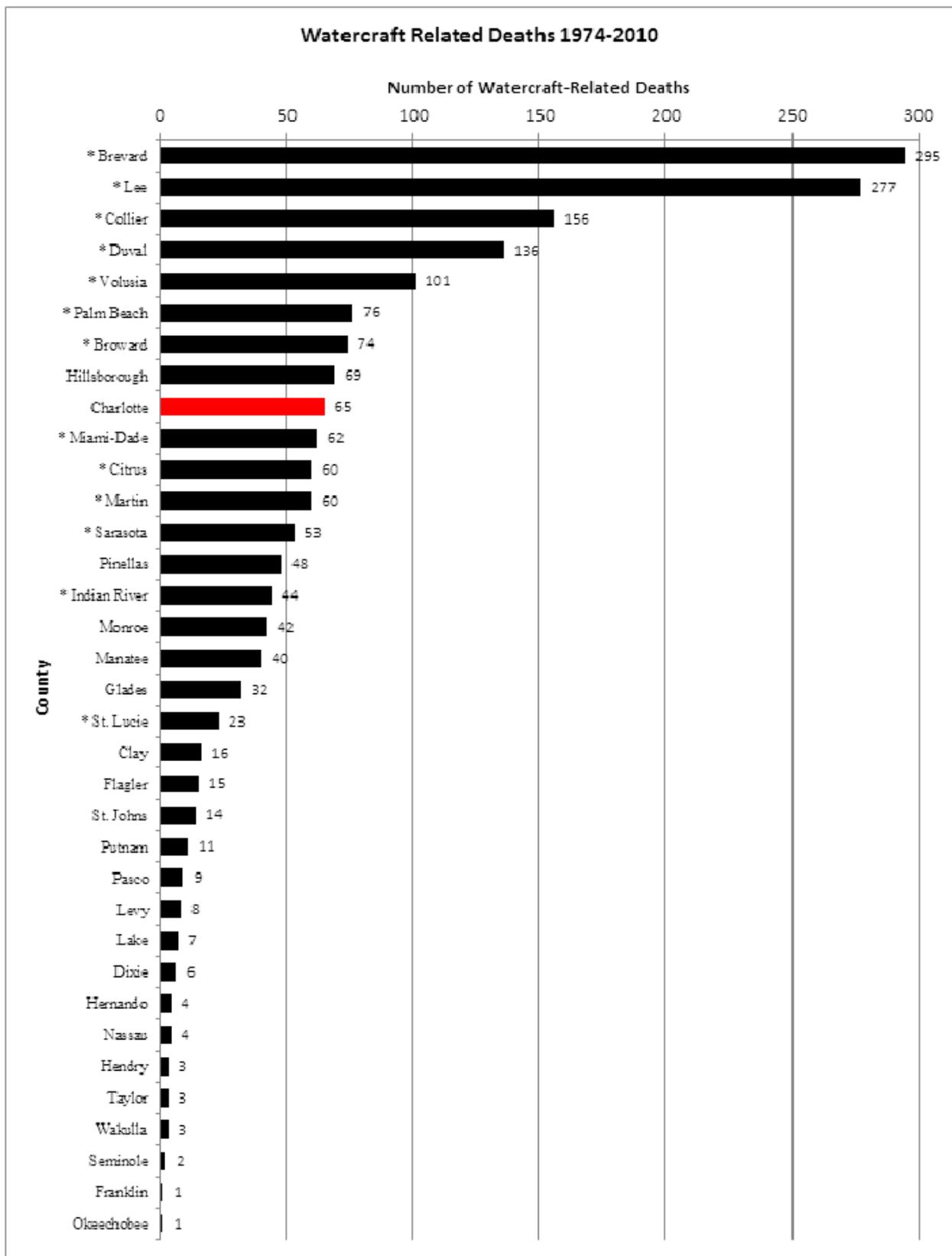


Figure 4.19: Watercraft-related Deaths Ranked by Florida Counties

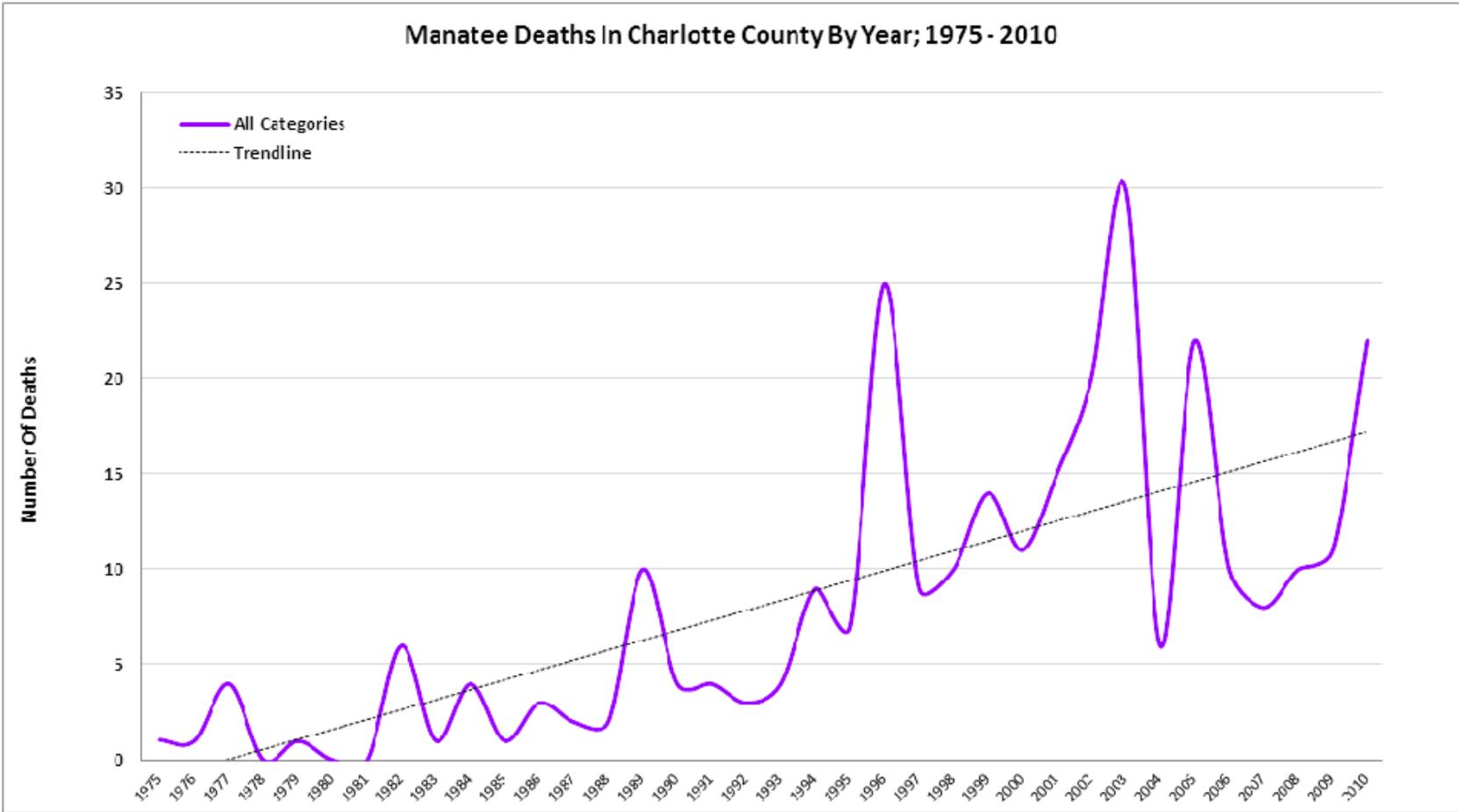
Map Source: Florida Fish and Wildlife Conservation Commission



Date Saved: 2/7/2017 10:25:20 AM
 Document Path: \\:\Department\Natural Resources\Time Projects & Parks\WPP\Final Maps - Feb 2017\4.19_2017.mxd

Figure 4.20: Total Manatee Deaths in Charlotte County

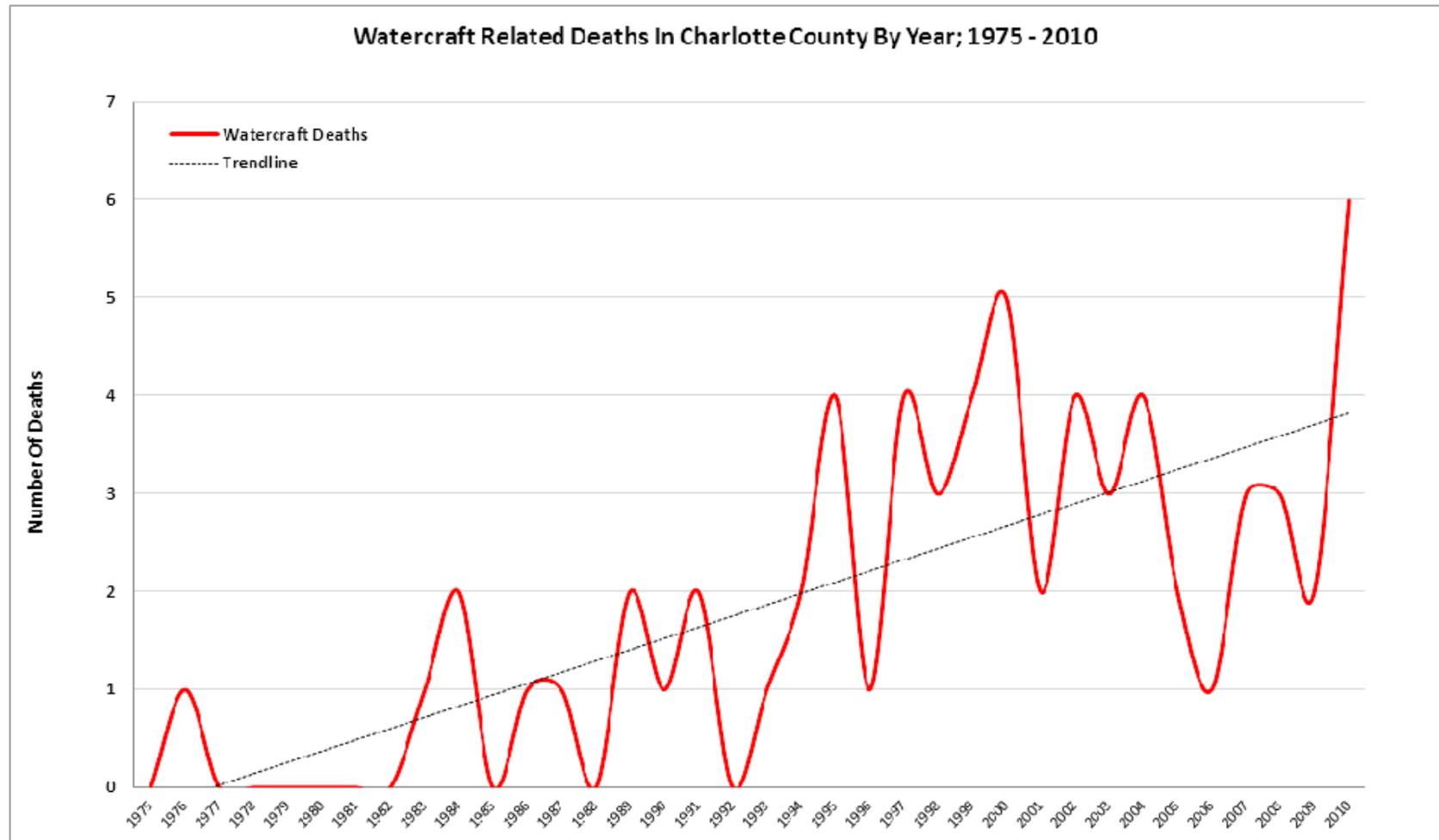
Map Source: Florida Fish and Wildlife Conservation Commission



Date Saved: 2/1/2011 10:26:52 AM
Document Path: M:\Departmental\Natural Resources\Time Projects & Plans\WPP\Final Maps - Feb 2011\4.20_2011.mxd

Figure 4.21: Watercraft-related Manatee Deaths in Charlotte County

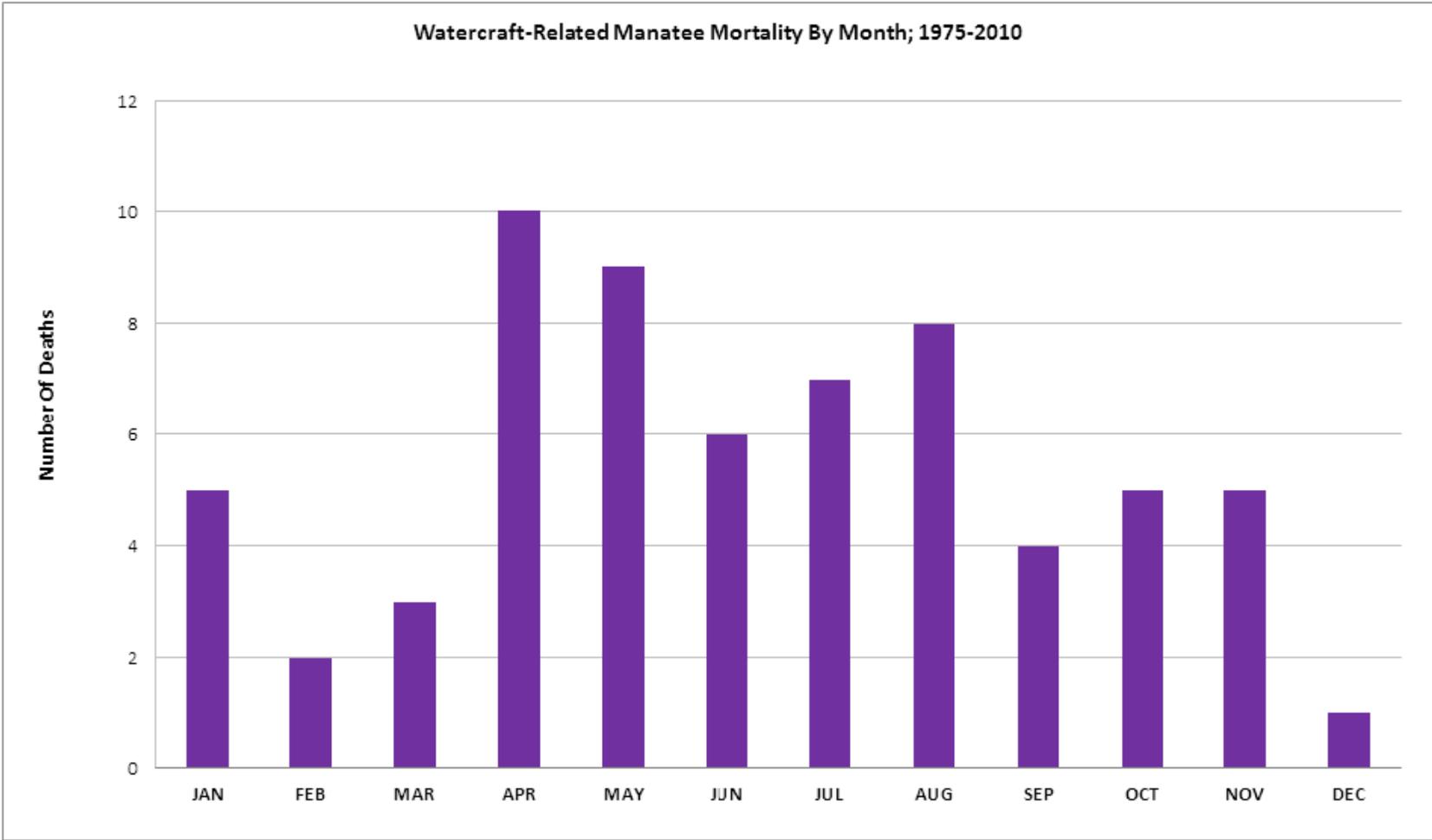
Map Source: Florida Fish and Wildlife Conservation Commission



Data Saved: 2/7/2011 10:37:42 AM
Document Path: W:\Department\Nature_Resources\Time Projects & Parks\WPP\Final Maps - Feb 2011\4.21_2011.mxd

Figure 4.22: Watercraft-related Deaths in Charlotte County by Month

Map Source: Florida Fish and Wildlife Conservation Commission



Doc Save: 2/2011 10:22:23 AM
Document Path: \\Department\Natural_Resources\Tina\Projects & Parks\WPP\Final_Maps - Feb 2011\4.22_2011.mxd

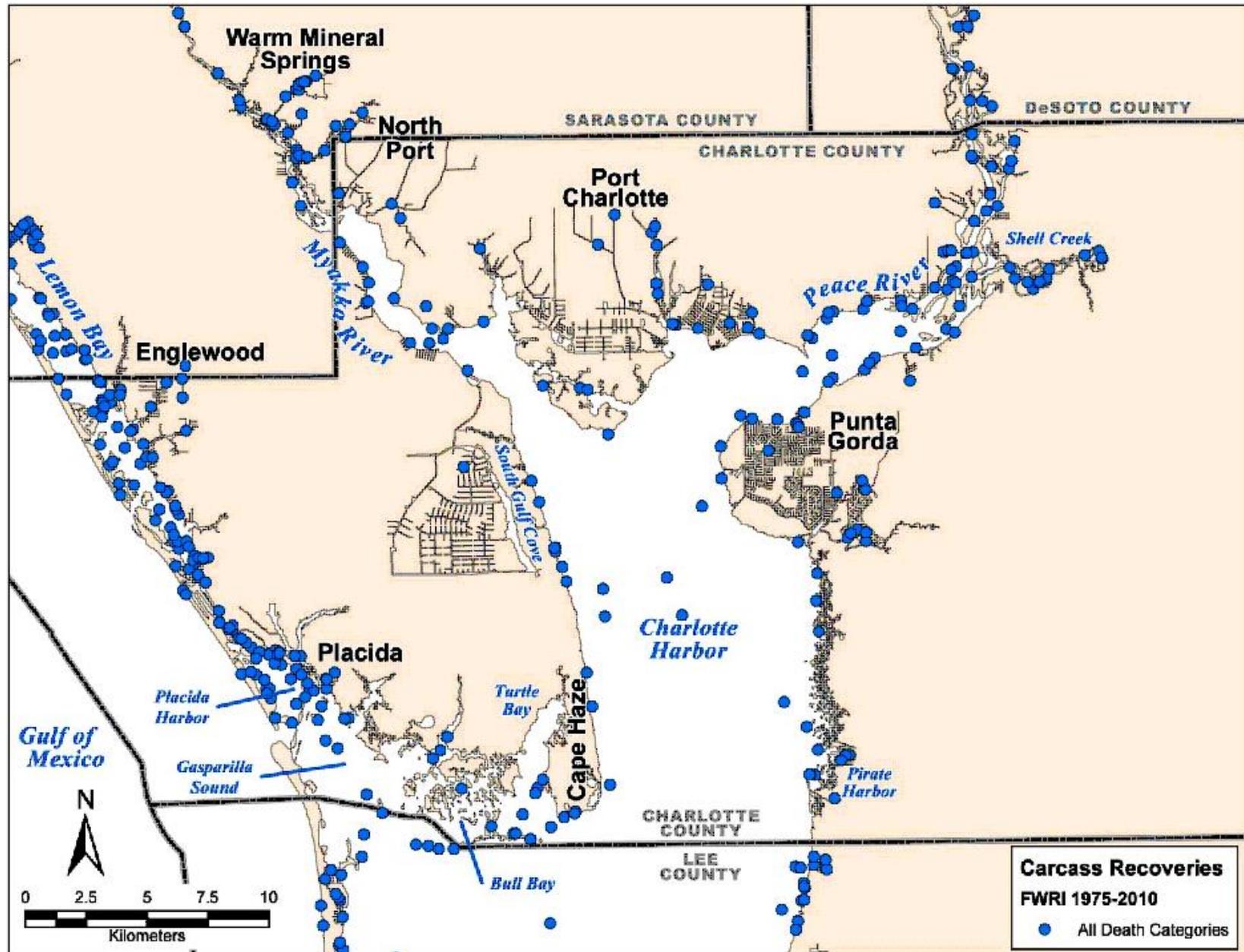
Figure 4.23 displays the locations of all manatee carcasses recovered in Charlotte County from 1975 to 2010. Manatee carcasses have been recovered throughout the county, and the spatial distribution of carcass locations somewhat resembles the locations of manatee sightings from aerial survey data. Watercraft-related deaths have also occurred throughout the county, though the highest numbers of carcasses have been recovered from Lemon Bay, Placida Harbor, and the Peace River (Figure 4.24).

While manatee mortality data provides important supplemental information for management decisions, the data should be approached with some caution. The mapped locations associated with manatee deaths are recovery points, and are not necessarily the location where the animal was injured or expired. With a watercraft collision, for example, it is feasible that an animal may have been struck by a boat and traveled for several days or even weeks before expiring, far removed from the original point of injury. The manatee mortality database also does not necessarily account for all manatee deaths – only carcasses that have been reported and verified. As a result, some carcasses may go undiscovered or unreported, particularly in remote or sparsely populated portions of Charlotte County.

Death is only the most extreme example of harm that a manatee may endure from an encounter with a watercraft. Many surviving manatees bear the scars from multiple collisions with powerboats (Wright et al. 1995). More than 1,000 identifiable manatees have been scarred from boat collisions statewide, with 97 percent bearing scar patterns from multiple boat strikes (Beck and Reid 1995). Sub-lethal injuries may reduce breeding success and remove some animals from the breeding population (Reynolds, 1999). Animals may also be forced to abandon areas of refuge due to increased boat traffic or other human activities (Powell, 1981, O'Shea, 1995).

Figure 4.23: Manatee Carcass Locations 1975-2010

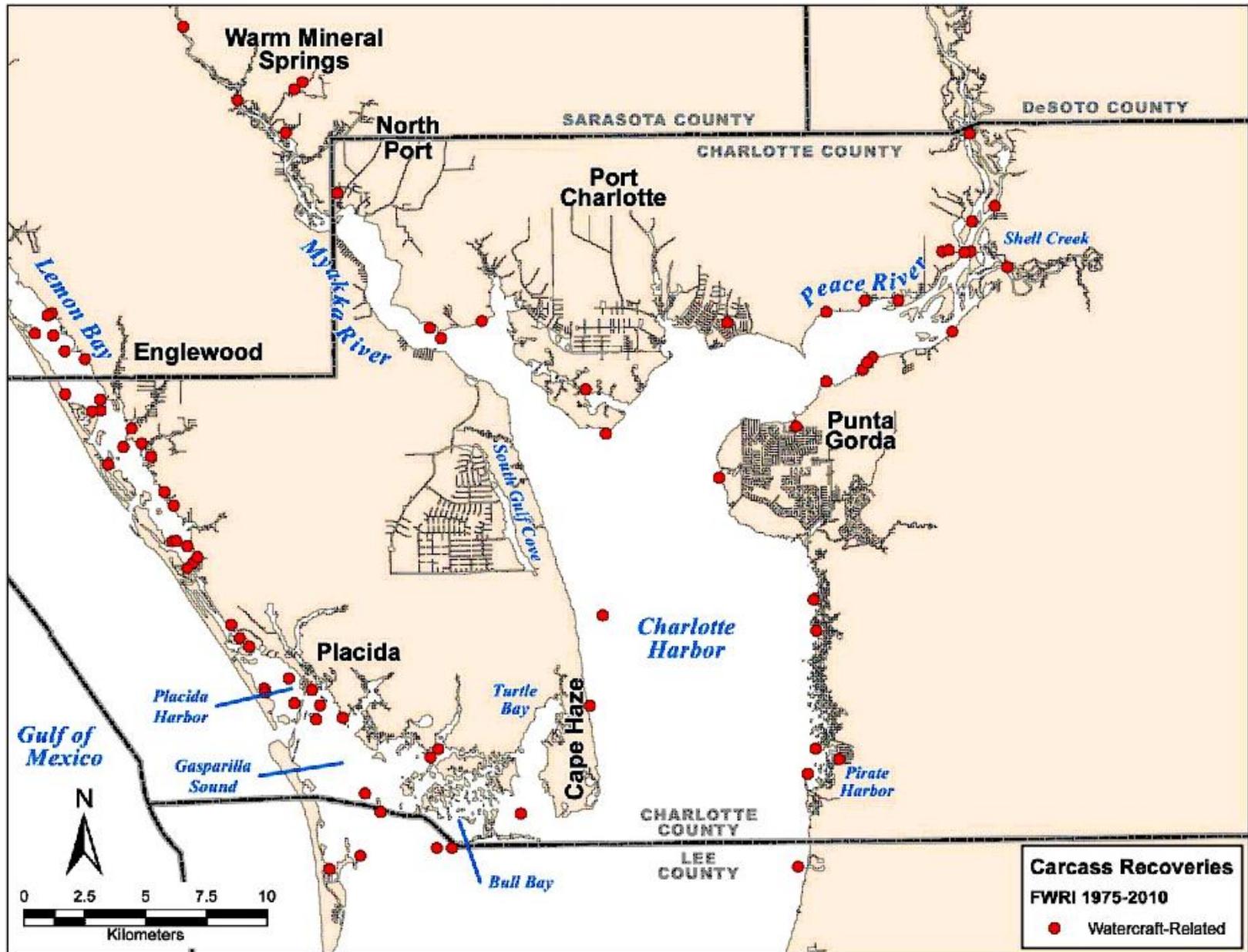
Map Source: Florida Wildlife Research Institute



Date Saved: 2/12/2011 10:40:01 AM
 Document Path: M:\Department\Natural_Resources\Time Projects & Plans\WPP\Final Maps - Feb 2011\4.23_2011.mxd

Figure 4.24: Watercraft-related Manatee Carcass Locations 1975-2010

Map Source: Florida Wildlife Research Institute



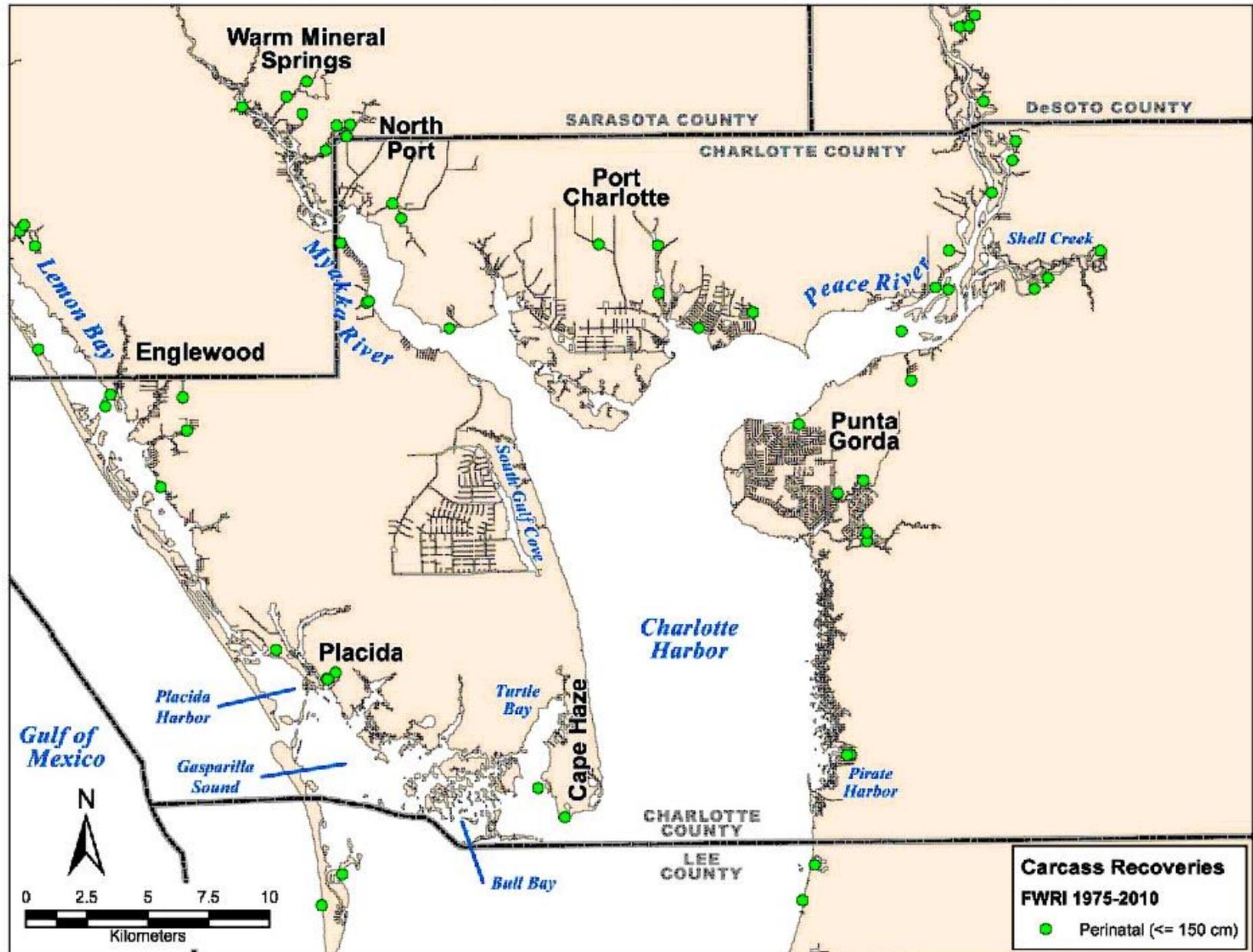
Date Saved: 2/1/2017 10:42:09 AM
 Document Path: G:\Department\Nature_Resources\Tide Projects & Parks\WPP\Final Maps - Feb 2017\4_24_2017.mxd

While watercraft-related mortality data may provide an indication of the most severe and direct threat, numerous other factors including the future loss of warm water habitat, reductions in spring flows, and catastrophic natural events (including red tide) may also significantly impact the long-term survival of the Florida manatee population (FWC, 2007). The significant increases in the numbers of manatee deaths that occurred during 1996, 2003, and 2005 (Figure 4.20) were largely attributed to red tide events. Another significant red tide mortality event occurred in 2013, with data still being compiled. Perinatal mortality (carcasses less than 150 cm in length) also represents a significant cause of death. These deaths may include aborted or stillborn fetuses, or very young animals which die of natural causes shortly after birth. While most perinatal deaths are due to natural causes, watercraft – related injuries or other human-related factors affecting pregnant or nursing mothers may also be a factor. The distribution of carcasses in Charlotte County which were determined to be perinatal deaths is provided in Figure 4.25. While carcasses identified as perinatal deaths have been found throughout the county, the largest numbers of carcasses have been recovered from the Myakka River and the Peace River.

The unusual manatee mortality events of 2010 (extremely cold winter) and 2013 (significant red tide event) resulted in a backlog for processing and entering data into the FWC manatee mortality database. In addition, due to the length of time it takes to develop an MPP, the analysis was performed with the best data available when originally drafting this plan. As is typical of Manatee Protection Plan development, it can take several years to complete the plan resulting in new information being available after completing the final draft. In an effort to ensure that there have been no significant changes in manatee mortality in Charlotte County that should be addressed this plan, FWC staff performed a cursory review of the most recent available manatee mortality data (2010 – 2014). Based on this review, no major revisions were deemed necessary to the plan’s recommendations. A summary of this data is provided in Appendix D. Any new data available in the future will be incorporated into the MPP via appendix if no revisions are needed based on a review of the data.

Figure 4.25: Manatee Perinatal Death Carcass Locations 1975-2010

Map Source: Florida Wildlife Research Institute



Data Source: 2/12/2011 10:42:17 AM
 Document Path: W:\Department\Nature_Resource\Time Projects & Parks\PP\Final Maps - Feb 2011\425_2011.mxd

4.1.4 Conclusions Based on Manatee Data

Both aerial survey data and telemetry data suggest that Charlotte County supports a significant year-round manatee population, although the abundance and distribution of animals varies both temporally and spatially. Seasonal variation is due in part to the influence of Warm Mineral Springs (Sarasota County); a secondary warm water refuge site that is accessed by manatees through the Charlotte County portion of the Myakka River. Countywide aerial survey data have not been collected in Charlotte County since 1999; however various portions of the county have been flown by different organizations since 1987. Similar spatial patterns have been documented in all surveys, and are generally consistent with both telemetry and mortality data.

Because a relatively limited amount of manatee aerial survey data has been collected over the past decade, the overall manatee abundance in Charlotte County is unclear. Manatee mortality (including watercraft-related manatee mortality), however, has increased significantly over past two decades. This may be due to a combination of several factors, including an increased utilization of Charlotte County by manatees in Southwest Florida, an overall increase in the size of the Southwest Florida manatee population, and/or increasing human-related threats to manatees in Charlotte County. A disproportionately large number of manatee deaths, including watercraft-related deaths, occur in both the Sarasota County and Charlotte County portions of Lemon Bay.

Based upon a review of available data, areas of relative importance to manatees in Charlotte County were identified (Figure 4.26) and are described as follows:

High-Use Manatee Areas – these areas include portions of the county with well-documented recurrent use by manatees, including areas that may serve as important travel corridors and / or include significant manatee habitat. These areas include Lemon Bay, Turtle Bay, Cape Haze, the lower Myakka River, the upper Peace River, and the southeastern portion of Charlotte Harbor in proximity to Pirate Harbor.

Moderate-Use Manatee Areas – these areas include portions of the county with documented manatee use but lower relative abundance and/or less frequent use. This also includes travel corridors to and from higher-use areas. These areas include Gasparilla Sound, Bull Bay, coastal Charlotte Harbor near Port Charlotte and South Gulf Cove, and portions of southeastern Charlotte Harbor south of Punta Gorda

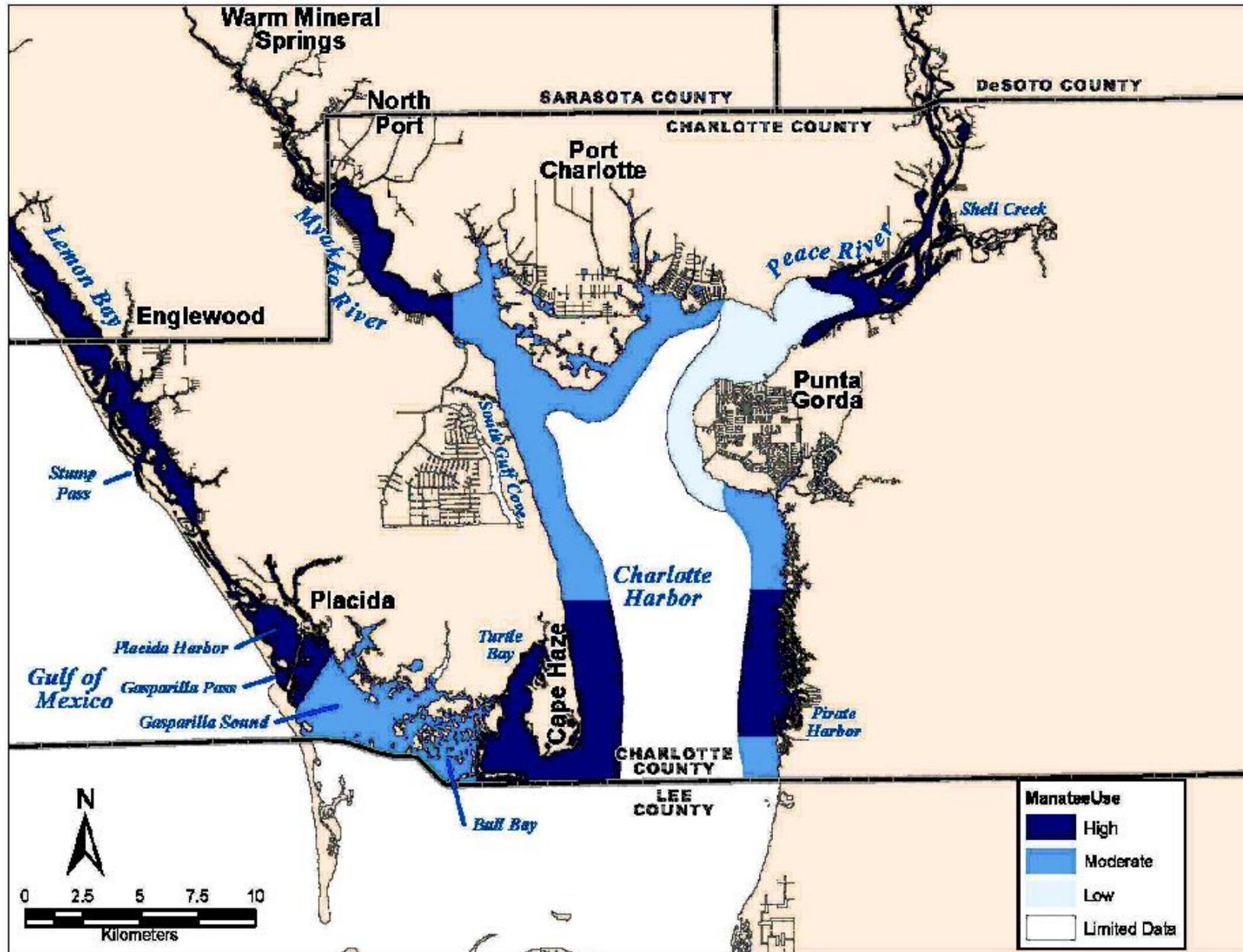
Low-Use Manatee Areas – These are areas in Charlotte County with lower levels of documented manatee use and/or limited manatee habitat. These areas include coastal Charlotte Harbor near Punta Gorda, and the lower Peace River (primarily downstream of the US-41 Bridge).

Limited Data Areas – These are portions of the county with limited available survey data due to water depth and/or water turbidity-related issues. These areas are primarily limited to the deeper, central portions of Charlotte Harbor.

While the spatial distribution of manatees in Charlotte County varies significantly, telemetry data in particular suggests that animals move freely among preferred areas and may be found throughout the county.

Figure 4.26: Designated Manatee Use Areas in Charlotte County

Map Source: Florida Fish and Wildlife Conservation Commission



4.2 Boating

4.2.1 Boating Activity

Recreational boating activity in Florida has changed considerably over the past 50 years, resulting primarily from increased development, recreational use, and waterway access along the coast of Florida. Assessments of recreational boating activity and boater compliance have been identified as important tools for both waterway management and protection of the Florida manatee (USFWS, 2001). As a result, the evaluation of levels of human activity on Florida waterways is becoming increasingly important.

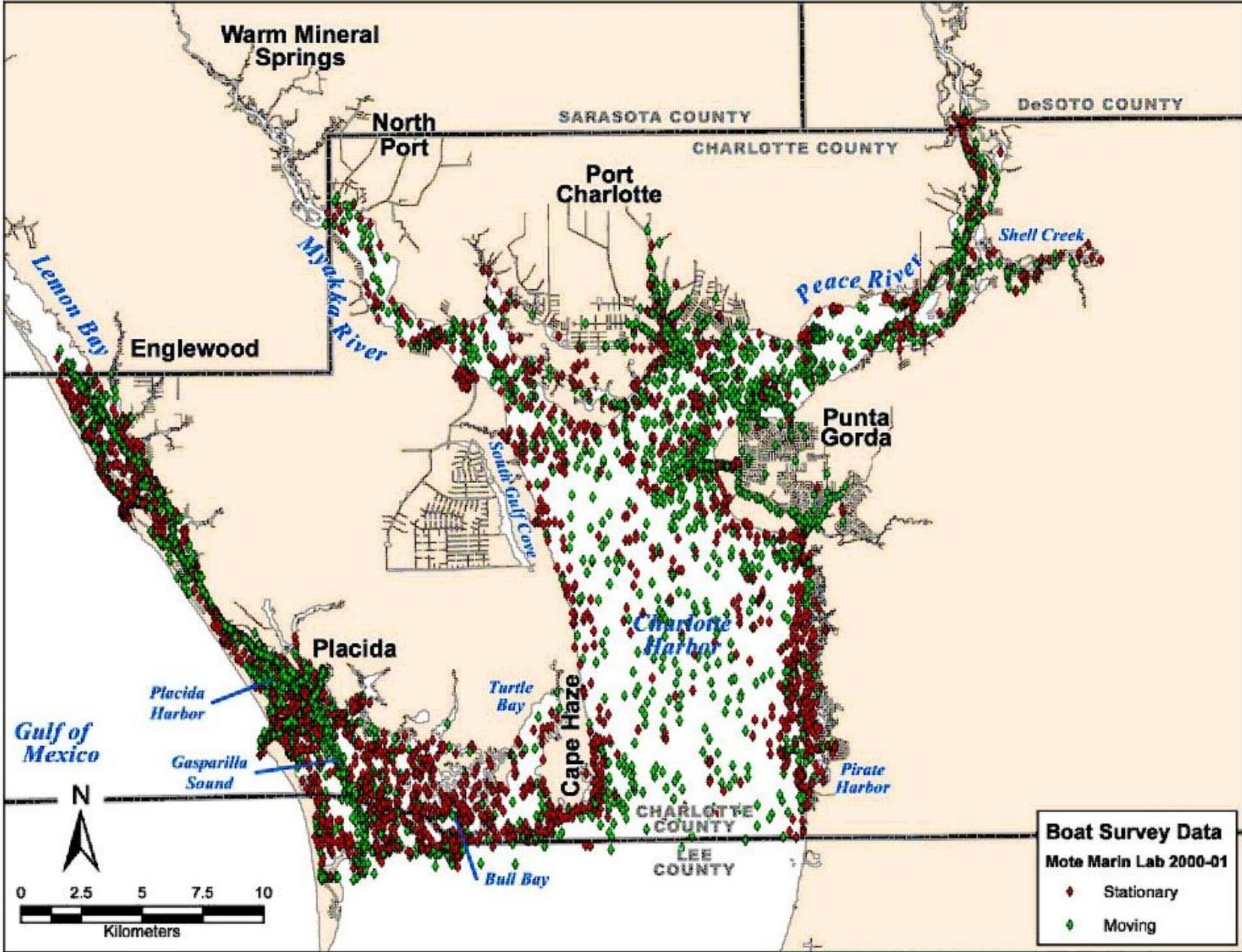
A series of aerial surveys designed to characterize boat traffic patterns in Charlotte County were conducted by MML during 2000 and 2001. Surveys were conducted throughout the county, including Lemon Bay, Placida Harbor, Gasparilla Sound, the Myakka River, the Peace River, and the entire Charlotte County portion of Charlotte Harbor. A total of 6,516 vessels in-use were surveyed from 20 flights. The lowest countywide single-day vessel counts were observed on August 28, 2000, totaling 127 vessels. The highest countywide single-day vessel counts were observed over Memorial Day weekend, totaling 734 vessels. While there was a great deal of variability among flights, higher vessel counts were typically observed from late winter through spring, and lower vessel counts were typically observed from late summer through fall. Mean countywide vessel counts during weekday and weekend surveys were 208 and 375 respectively. Surveys indicated that small powerboats (less than 26 feet in length) comprised 84% of all vessel traffic and larger powerboats (26 feet and larger) comprised 7% of all vessel traffic. Sailboats comprised 6% of all vessel traffic. All other vessel types, including personal watercraft, comprised less than 2% of all vessels observed.

Figure 4.27 displays the locations of all vessels in use identified from aerial surveys. Both moving vessels and stationary vessels in-use (anchored, drifting, or fishing) were observed throughout the county. Higher proportions of stationary vessels, indicating popular boating destinations, were observed closer to shore; particularly along the western portions of the county including Stump Pass, Gasparilla Pass, Gasparilla Sound, Bull Bay, and Turtle Bay. Higher numbers of stationary vessels were also observed along the southeastern shoreline of Charlotte Harbor south of Punta Gorda. Fewer stationary vessels were observed throughout the open-water portions of Charlotte Harbor. A larger volume of moving vessels, indicative of higher traffic corridors, were observed along the western portion of Charlotte County, where the north-south travel corridor along the Intracoastal Waterway (ICW) can be seen. A higher proportion of moving vessels were also seen along the lower Peace River, particularly between Port Charlotte and Punta Gorda. Figure 4.28 displays the calculated spatial distribution of all surveyed vessels throughout the county. Highest overall concentrations of vessels were observed along the western portions of the county (Lemon Bay, Placida Harbor, and Gasparilla Sound), particularly in proximity to Stump Pass and Gasparilla Pass. Some higher densities of boat traffic were also observed along the upper Peace River and within the inland portions of Port Charlotte and Punta Gorda. Higher concentrations of boat traffic were generally observed along both the lower Peace River

and the lower Myakka River. Lower concentrations of vessels were typically observed throughout the open water portions of Charlotte Harbor. A portion of the data from this aerial survey study was published by Florida Sea Grant in 2001 (Sidman and Flamm, 2001), who also examined comparisons among various survey methodologies (aerial surveys, mail / respondent surveys, and expert workshops). Results were generally consistent among both survey methods. Locations which were identified as “expert-defined primary fishing areas” in Charlotte County were similar to popular boating areas identified from aerial survey data. These areas included Gasparilla Sound, Bull Bay, Turtle Bay, and southeastern Charlotte Harbor (Figure 4.29). Similar areas were also identified from mail survey respondents (Figure 4.30). Based upon both observational and mail respondent survey data, a summary map of recreational boating use in Charlotte County is shown in Figure 4.31.

Figure 4.27: Vessel Locations MML Boat Survey Data 2000-2001

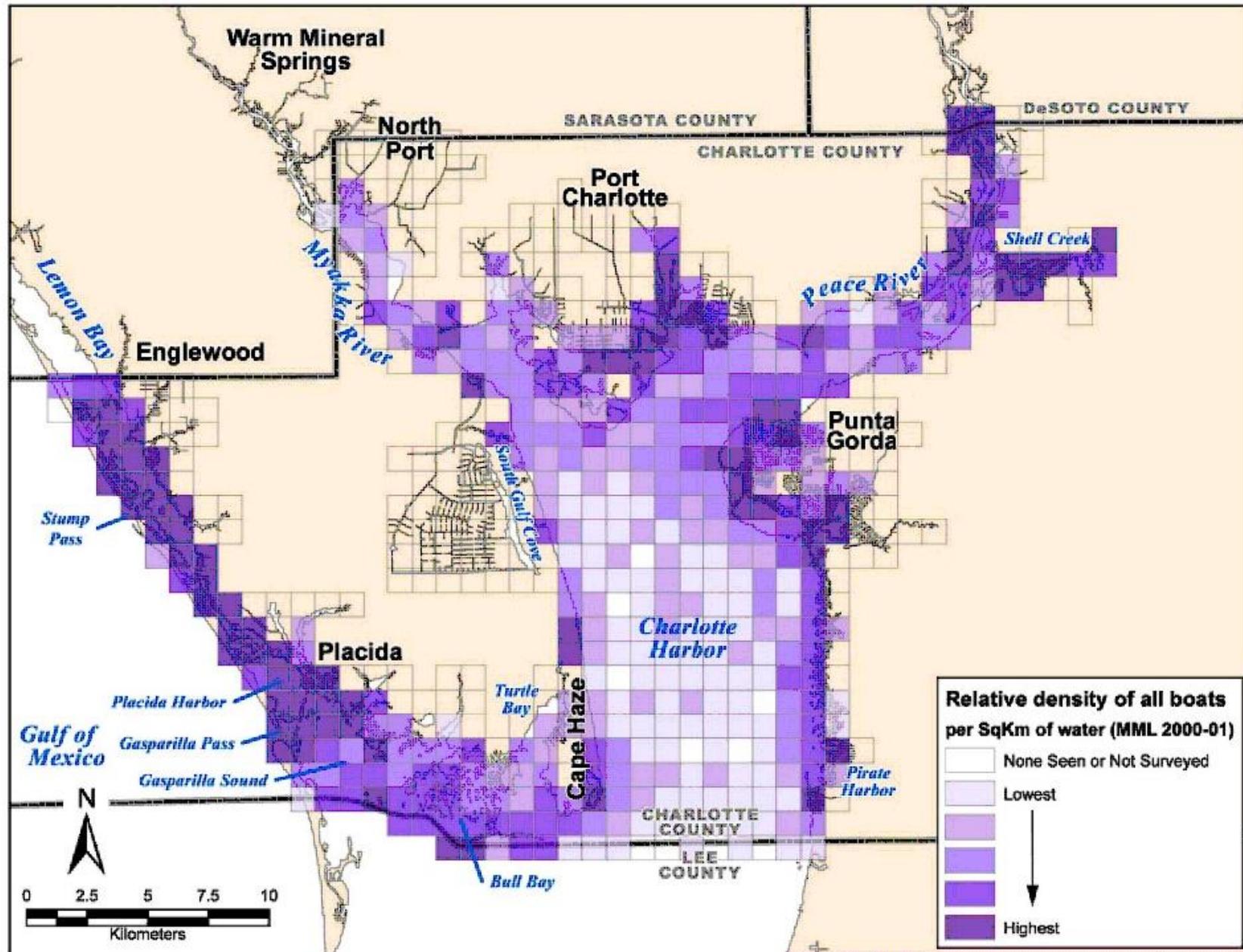
Map Source: Mote Marine Lab



Date Saved: 2/17/2011 10:41:42 AM
Document Path: W:\Department\Natural_Resources\Time Projects & Parks\MP\Final Maps - Feb 2011\427_2011.mxd

Figure 4.28: Vessel Density Distribution MML Boat Survey 2000-2001

Map Source: Mote Marine Lab



Date Saved: 2/1/2017 10:00:24 AM
Document Path: M:\Department\Natural_Resources\Time\Projects & Parks\MPP\Final_Maps - Feb 2017\428_2011.mxd

Figure 4.29: Expert-defined Primary Fishing Areas

Map Source: Florida SeaGrant

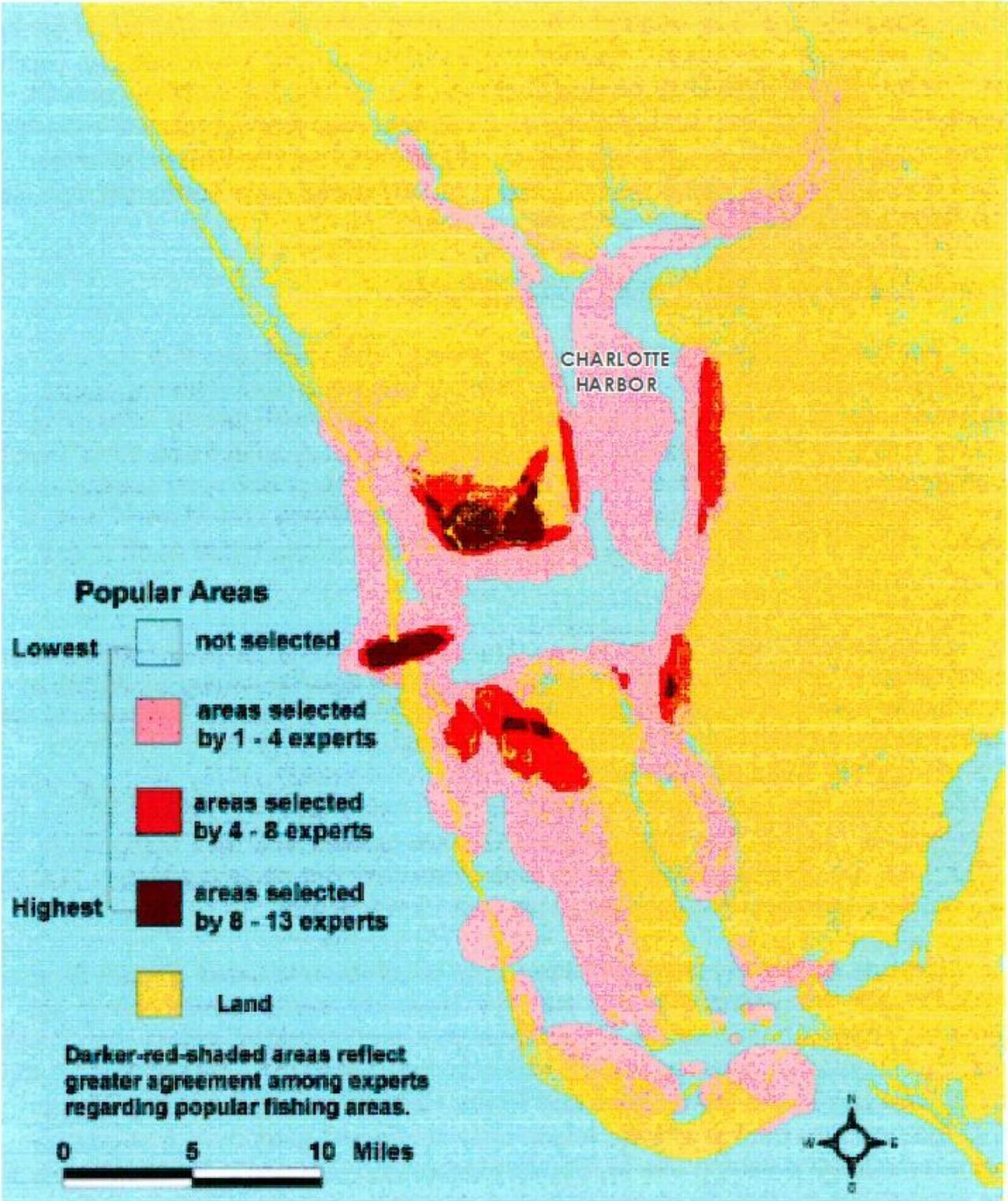
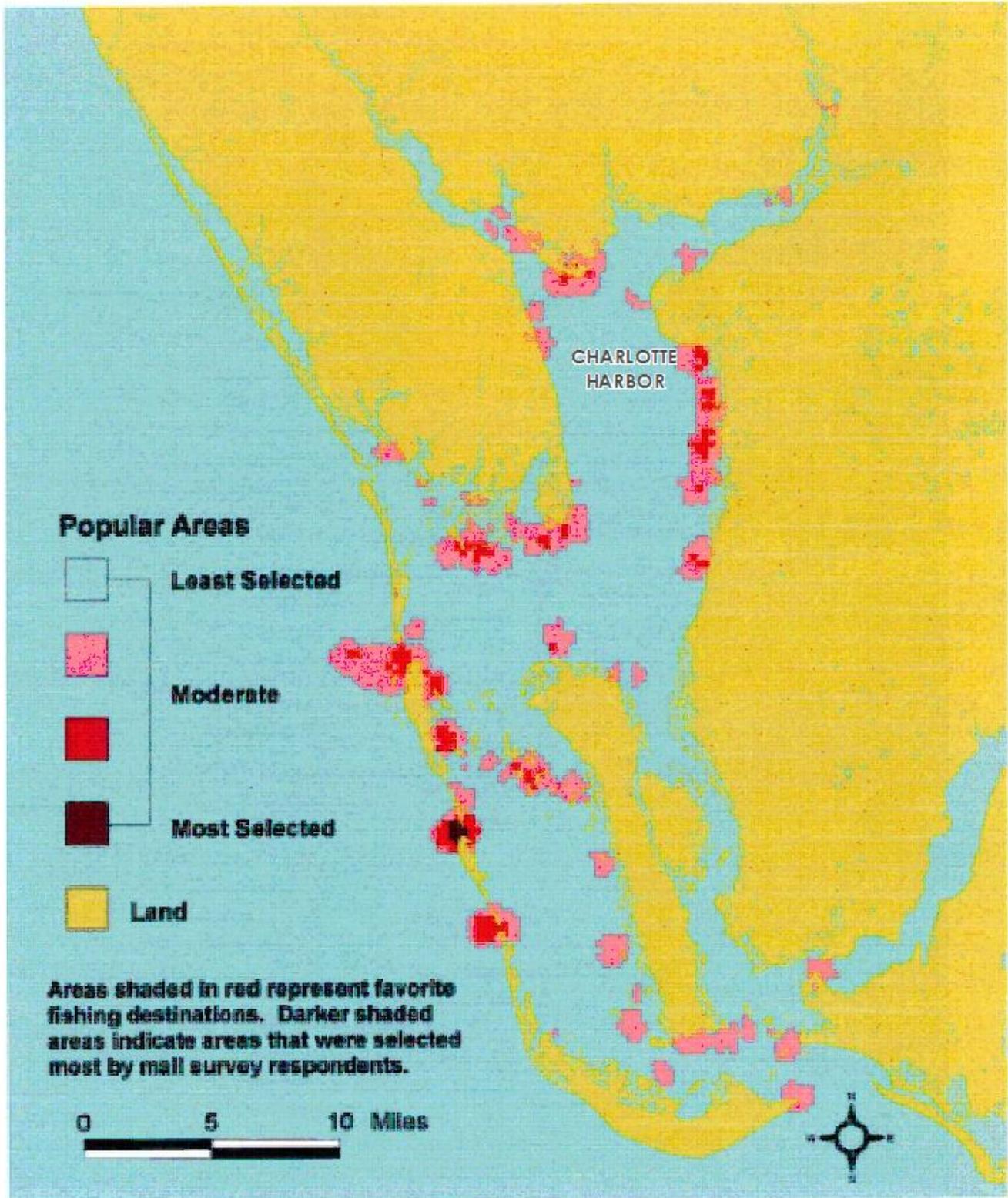


Figure 4.30: Mail Respondent-defined Primary Fishing Areas

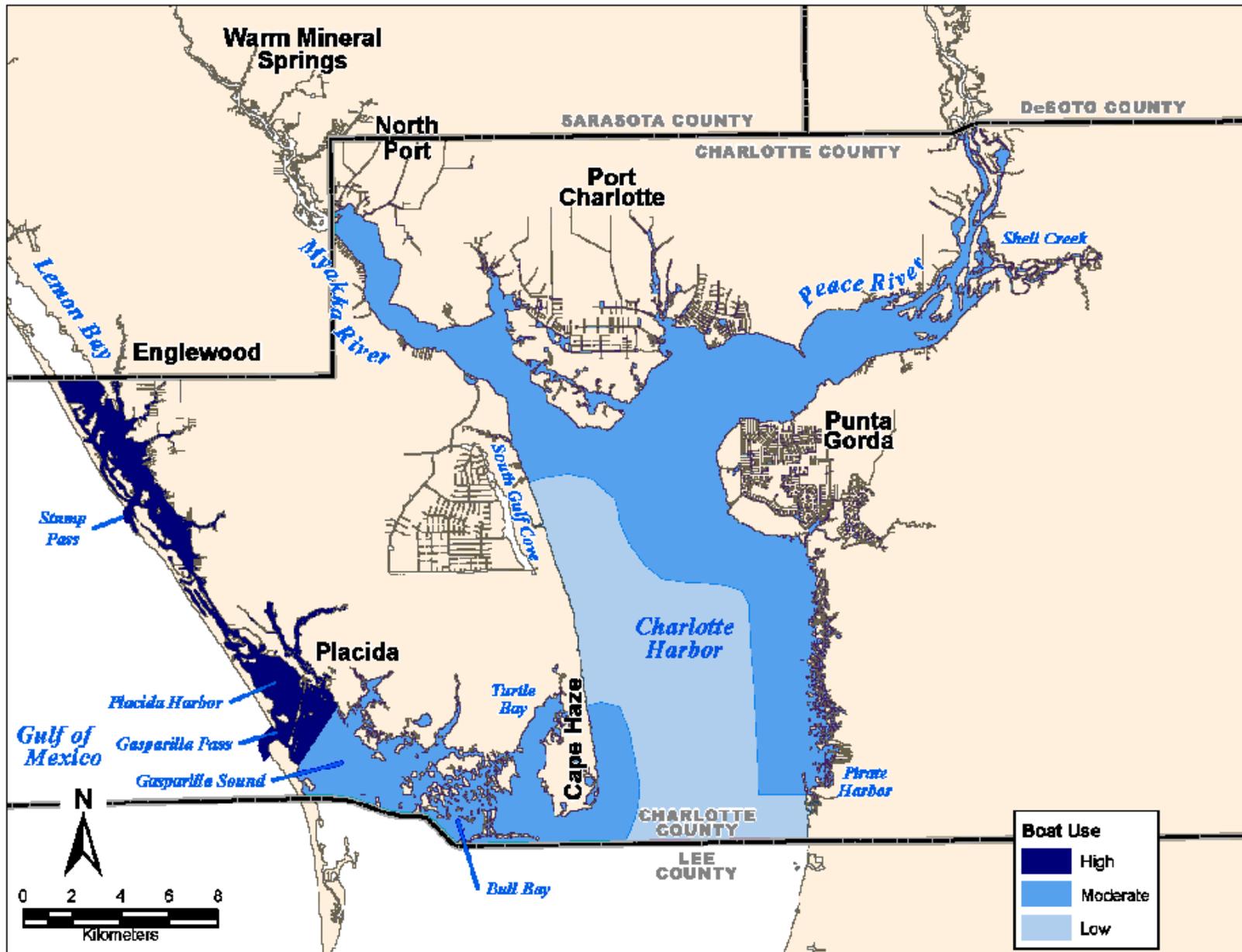
Map Source: Florida SeaGrant



Date Saved: 2/1/2011 10:50:24 AM
Document Path: M:\Department\Natural_Resources\Fine Projects & Reports\MPR\Fine Maps - Feb 2011\430_2011.mxd

Figure 4.31: Boat Use Areas Designated in Charlotte County

Map Source: Florida Fish and Wildlife Conservation Commission



Data Saved: 2/22/2017 10:24:22 AM
 Source: FWC, MDC, Department of Natural Resources, Time Projects & Parks (MPP) Final Maps - Feb 2017/4/21/2017.mxd

In 2005, a series of mail/respondent surveys were conducted by Florida Sea Grant, the University of Florida and The Florida Fish and Wildlife Conservation Commission (Sidman et al, 2005) in order to characterize boaters who recreate in the Greater Charlotte Harbor region (Charlotte and Lee County waterways). Surveys were evaluated on the basis of trip departure (marina wet slip, marina dry storage, public ramp, and private dock). Findings were generally consistent with 2000-01 MML aerial survey data. The most highly utilized boating areas in Charlotte County for boater activity were the Lemon Bay corridor, Boca Grande corridor, central Charlotte Harbor into the Peace River and southern Cape Haze. Waterways were accessed most often from home docks (32%), followed by marina dry (24.7%), public boat ramps (24.5%) and marina wet slips (16.3%). The average departure time for trips was affected by the waterway access point. The frequency of boat trips suggest that the boating season in the Greater Charlotte Harbor is year-round, with a peak-use period from roughly March through June and an off-peak period from December through January (Table 4.1 and 4.2).

Table 4.1 Average monthly trips

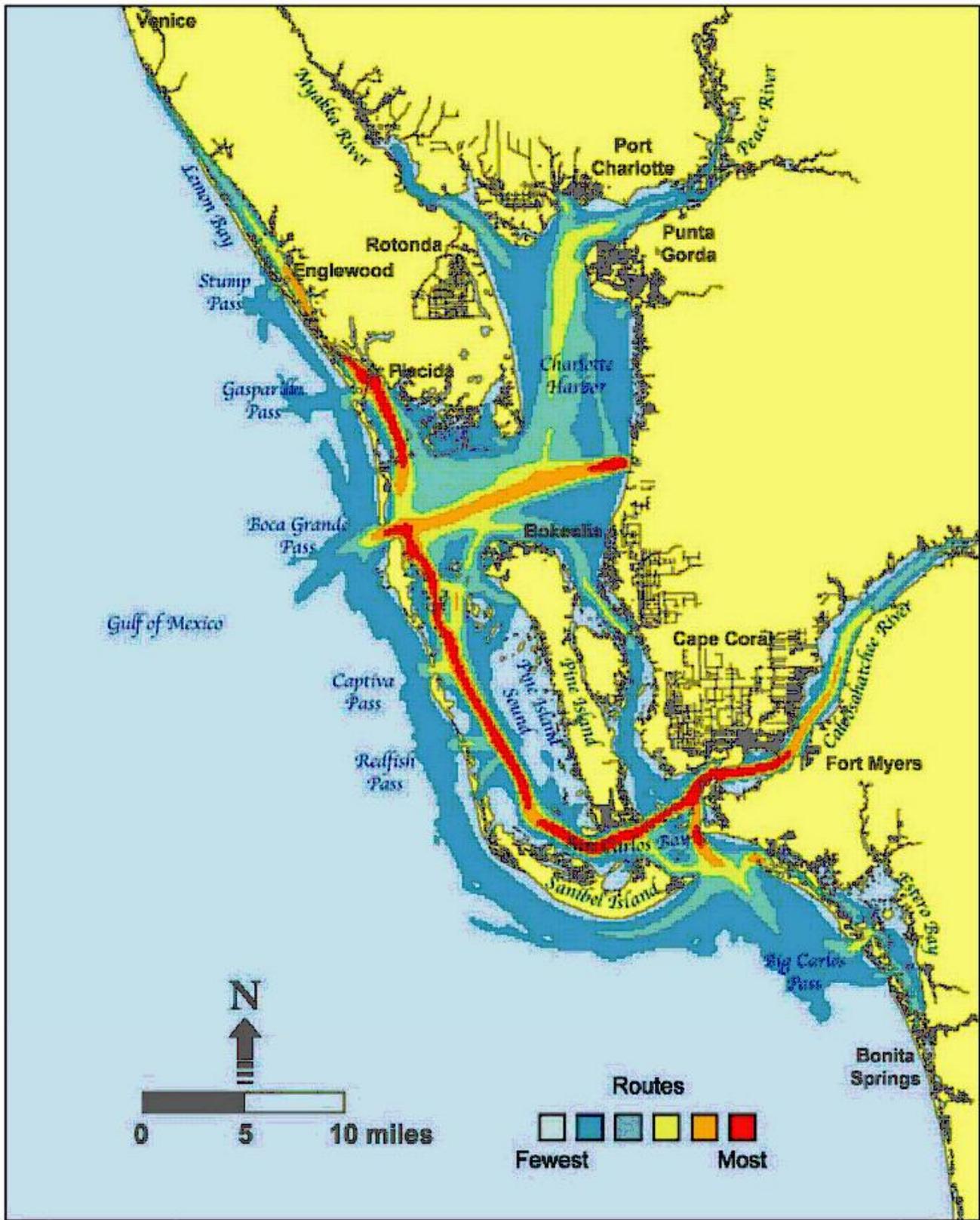
| Month | No. of Trips |
|-----------|--------------|
| January | 5,064 |
| February | 5,558 |
| March | 6,615 |
| April | 7,053 |
| May | 6,743 |
| June | 6,142 |
| July | 5,578 |
| August | 5,145 |
| September | 5,084 |
| October | 5,555 |
| November | 5,576 |
| December | 4,734 |

Source: 2005 Sea Grant/UF/FWC mail/survey data

This was also generally consistent with aerial survey data. Density of occurrence maps depicting travel corridors, favorite destinations and perceived congested areas, are provided in Figures 4.32-4.34. Survey respondents indicated that the primary detractors to their boating experience were 1) lack of courtesy and/or seamanship in other boaters, 2) excessive regulation, and 3) boating congestion and altered environment perception. Infrastructure improvement and increased access were considered to be the highest ranked boating needs among survey respondents. While 18% of survey respondents indicated that less overall regulation was needed, 23% of respondents indicated that either more regulation and/or environmental protection were needed.

Figure 4.32: Boating Travel Corridors in Charlotte Harbor

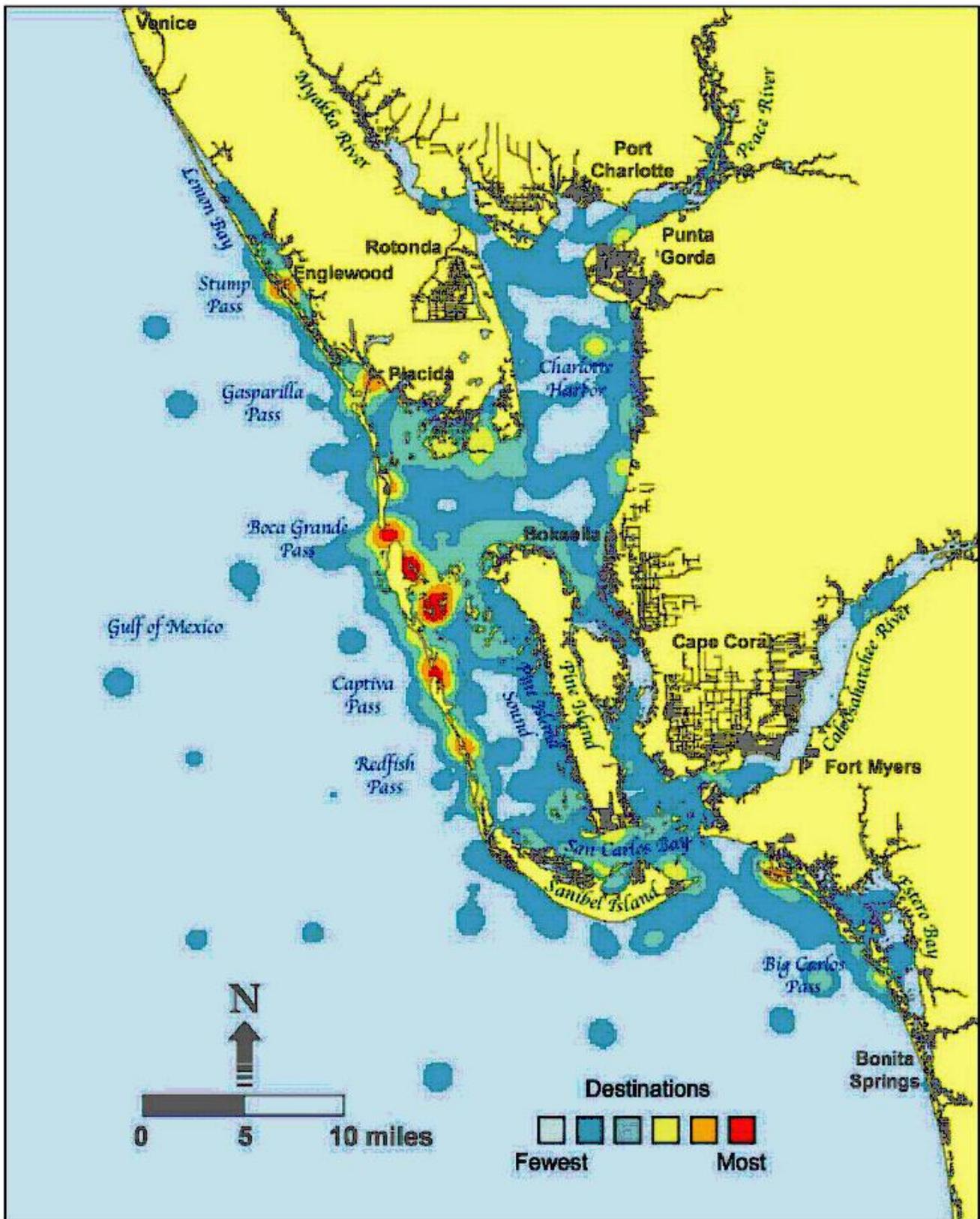
Map Source: Florida SeaGrant; University of Florida; Florida Fish and Wildlife Conservation Commission



Date Saved: 2/7/2017 10:56:18 AM
 Document Path: M:\Departments\Natural Resources\Tina Projects & Reports\MPF\Nov2016\422_2017.mxd

Figure 4.33: Favorite Boating Destinations in Charlotte Harbor

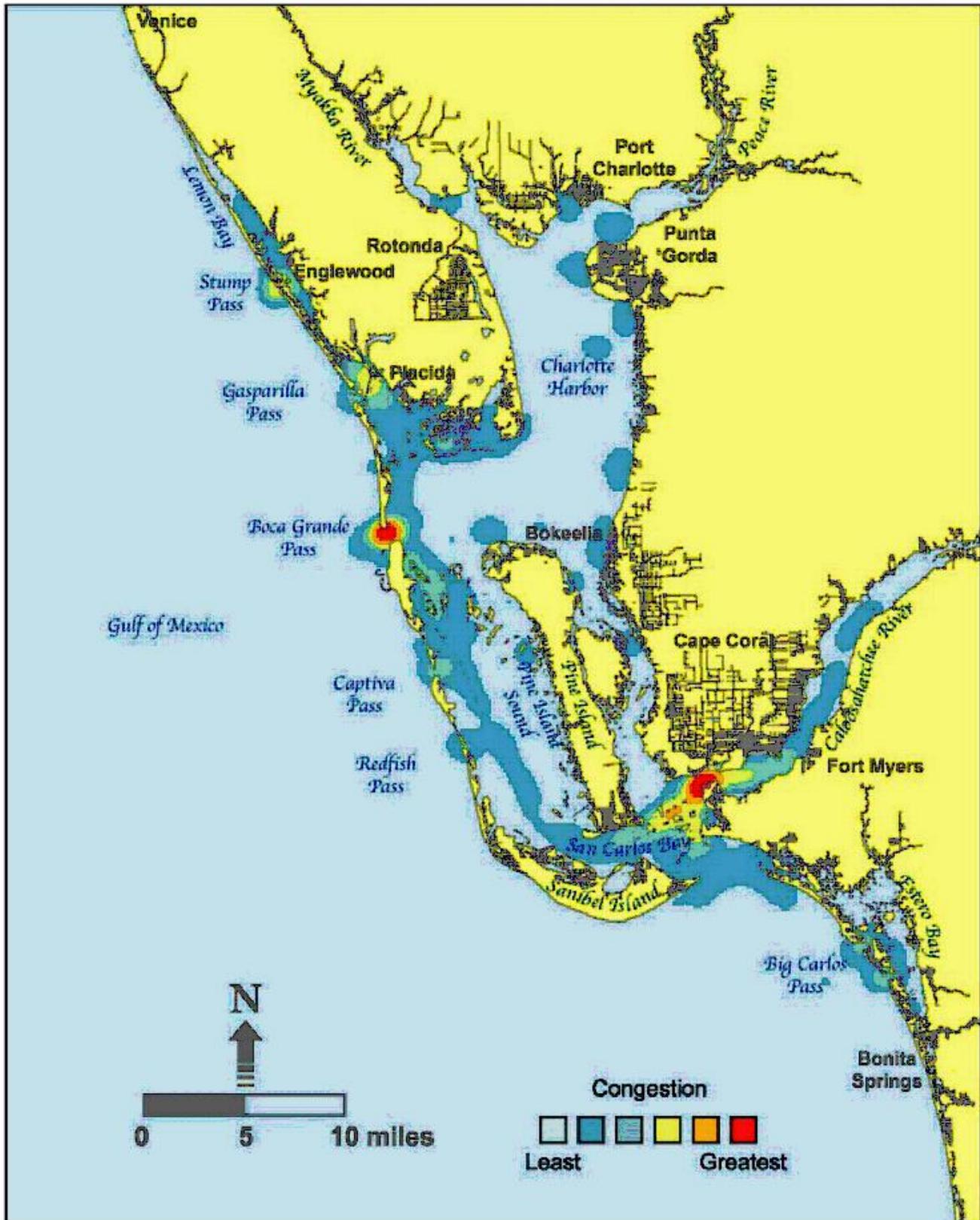
Map Source: Florida SeaGrant; University of Florida; Florida Fish and Wildlife Conservation Commission



Date Saved: 2/7/2017 1:02:00 AM
 Document Path: M:\Departments\Natural_Resources\Tina Projects & Parks\NRP Final Maps - Feb 2017\423_2017.mxd

Figure 4.34: Perceived Boating Congestion in Charlotte Harbor

Map Source: Florida SeaGrant; University of Florida; Florida Fish and Wildlife Conservation Commission



Date Saved: 2/7/2017 10:55:11 AM
 Document Path: M:\Department\Natural_Resources\Tide Projects & Parks\MPR\Final Maps - Feb 2017\424_2017.mxd

Table 4.2 “Peak” Season Trips by Waterway Access Trips/boater (March – June)

| Access Type | No. of Trips |
|--------------------|--------------|
| Ramp | 6,555 |
| Marina Wet Slip | 4,521 |
| Marina Dry Storage | 6,343 |
| Home Dock | 8,463 |
| Condo Dock | 460 |

Source: 2005 Sea Grant/UF/FWC mail/survey data

A comparison of aerial and mail respondent surveys conducted in Charlotte County and Lee County waterways was also conducted in 2005 (Sidman et al, 2006). Both survey methods captured similar high-use proportions in Placida Harbor, Bull Bay, Boca Grande Pass, and southeastern Charlotte Harbor.

The only studies of boater compliance in association with regulatory zones in Charlotte County were conducted by MML (Gorzelany 2002, 2006). These studies examined changes in recreational boating after the establishment of new speed zones in Lemon Bay. Results indicated that boating patterns remained essentially the same before and after the placement of new regulatory zones. Vessel speeds along the ICW ranged from 4-58 mph, with a mean vessel speed of 26.30 mph. Vessel speeds were similar both before and after new regulatory zones were established. The proportion of boaters evaluated as “compliant” with the newly posted slow speed zone outside of the ICW channel was relatively low (41%); with 50% of all vessels observed identified as blatantly non-compliant. Additional findings can be found in Gorzelany (2006). No other waterways in Charlotte County have been studied for speed zone compliance to date.

4.2.2 Boat Registrations

Table 4.3 Vessel type

| Type | Percent |
|---------------------------------|---------|
| Recreational Fishing | 39.9% |
| Open Utility/Skiff/Bass/Pontoon | 19.6% |
| Power Cruiser/Trawler | 14.1% |
| Sailboat | 11.1 |
| Speed Boat | 5.6 |
| Kayak/Row/Canoe | 5.4% |
| Jet ski/Personal Watercraft | 3.1% |
| Other | 1.2% |

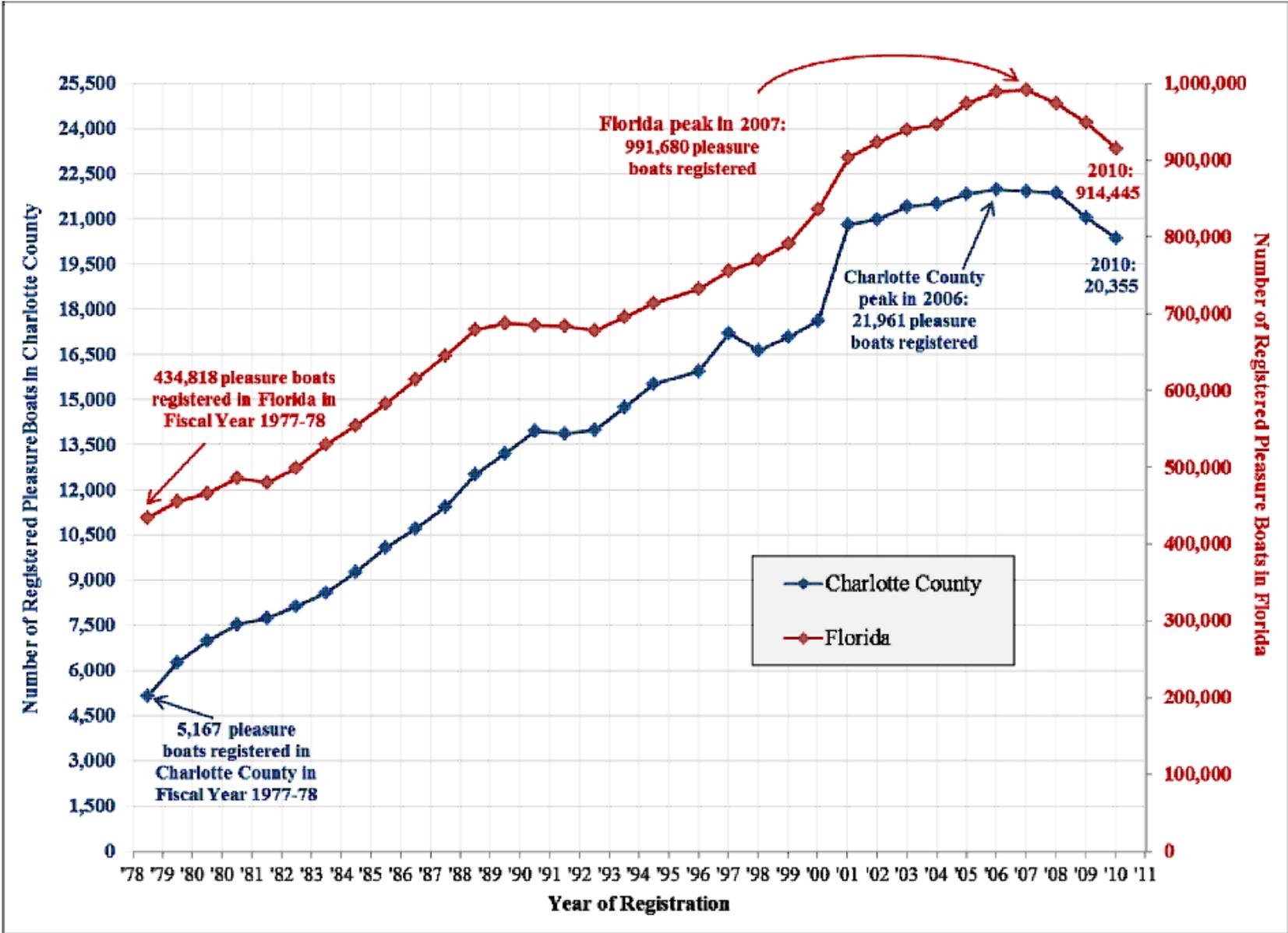
Source: Swett et. al (2012a)

Charlotte County currently ranks 16th out of 67 Florida counties in numbers of registered vessels. A total of 20,602 vessels, including 19,983 recreational vessels, were registered in Charlotte County in 2011. This represents a 286% increase in since 1978. This increase is significantly greater than the rate of increase experienced by the State of Florida as a whole (105%). The number of registered vessels in Charlotte County peaked in 2006 with 21,961 vessels and has decreased slightly over the past several years, primarily due to the recent economic downturn (Figure 4.35). Periods of relatively strong growth in vessel registrations occurred from 1983 to 1991 (+6.8% per year), and from 1994 to 2001 (+5.2% per year).

Vessel registration data compiled by Swett et. al (2012a) from 1996-2010 found that pleasure boats less than 40 feet in length (comprising 4 length classes) accounted for 94% of all boats that were registered in Charlotte County (Table 4.3). The most common vessel size class was 16 – 26 feet in length, comprising 54% of all registered vessels. Vessels less than 12 feet in length comprised an average of 13% of all registered vessels. Over the 15-year period, the number of registered vessels less than 12 feet in length increased by 70% in Charlotte County and 41% for Florida in general. This may be due to the increased popularity of personal watercraft. Recent forecast models described by Swett et. al (2012a) predict a 38% increase in the number of registered vessels in Charlotte County by the year 2050. By 2050, Charlotte County is expected to be home to 2.1% of the state's pleasure boats, a lower overall percentage than the observed percentage of 2.2% in 2010. This suggests that the growth of pleasure boats in Charlotte County will be slightly lower than the overall statewide trend (Swett et al, 2012a).

Figure 4.35: Recreational Vessel Registration - Charlotte County 1978-2010

Map Source: Florida SeaGrant



Date Saved: 2/1/2011 11:02:15 AM
Document Path: \\M:\Department\Natural_Resources\Tide\Projects & Parks\00\Final Maps - Feb 2011\435_2011.mxd

4.2.3 Boat Facility Inventory

The most current inventory of boat facilities and moorings in Charlotte County was developed for a recent report entitled, “Planning for the Future of Recreational Boating Access to Charlotte County Waterways: 2010–2050” by Swett et. al (2012a). Data from the Regional Waterway Management System Study for Charlotte County (Swett et. al., 2012b), Charlotte 2050 along with FWC permit records and aerial photograph verifications were also utilized. This data includes information on marina wet slip and dry slip spaces, boat ramps, mooring fields, and all marine facilities, commercial and residential, with more than five slips. An analysis for future demand on the use of Charlotte County’s waterways was done as part of the Planning for the Future of Recreational Boating Access to Charlotte County Waterways: 2010 – 2050 Report. The following sections will summarize current use and future demands on boater access in Charlotte County as detailed in this report, along with supplemental data from FWC.

Tables 4.4 and 4.5 depict the inventories based on best available data by local and state agencies, including permit data and aerial reviews. As individual projects are reviewed in the future, additional evaluations and information will be utilized. Therefore, the slip inventory in as depicted in Table 4.4 should not automatically be considered the baseline for a given site/facility.

Wet and Dry Slips

Charlotte County has an existing inventory of 5,334 wet slips (including 42 moorings) and 3,687 dry slips totaling an inventory of 9,024 slips (Figure 4.36 and Table 4.4). Table 4.4 lists the number of slips by facility in Charlotte County; data was collected from FWC permit information and the Regional Waterway Management System Study for Charlotte County (Swett et. al., 2012b) [where slips numbers were in conflict, FWC data was utilized] and were categorized by geographic region and type (being marina, condo/residential and public). Current resident and non-resident marina wet and dry slips in Charlotte County ranges from 1,881 to 2,412 depending on the potential boaters that utilize their boats in a 12-month period (78% vs. 100%) (Swett et. al 2012a). Demand is estimated to increase by 25% between 2010 and 2030; and an additional 8% by 2050 (Swett et. al 2012a). The Regional Waterway Management System Study took into account commercial/publicly available slips and did not include residential slips. With an existing available inventory of 2,997 wet and dry slips, the supply of slips exceeds demand by 9% to 16%. If capacity remains the same, demand will exceed supply by 392 to 1,348 slips by 2030 for marina slips. Source: Swett et. al (2012a)

| Map No. | Name | Region | Type | Wet | Dry | Total |
|---------|---------------------------|--------|--------|-----|-----|-------|
| 1 | 14001 Gasparilla Rd | West | Marina | 8 | 0 | 8 |
| 2 | Admirals Landing | South | Condo | 10 | 0 | 10 |
| 3 | Admirals Point | South | Condo | 11 | 0 | 11 |
| 4 | Ainger Creek Marina | West | Marina | 17 | 13 | 30 |
| 5 | All American Boat Storage | West | Marina | 14 | 175 | 189 |

| | | | | | | |
|----|-----------------------------|-------|--------|-----|-----|-----|
| 6 | Admiralty Villas | West | Condo | 7 | 0 | 7 |
| 7 | Anglers Resort | West | Marina | 5 | 0 | 5 |
| 8 | Bal Harbor Blvd | South | Condo | 10 | 0 | 10 |
| 9 | Bal Harbor Place | South | Condo | 19 | 0 | 19 |
| 10 | Banana Bay Motel | Mid | Marina | 7 | 0 | 7 |
| 11 | Banyan Point | South | Condo | 45 | 0 | 45 |
| 12 | Barrier Island Adventures | West | Marina | 14 | 0 | 14 |
| 13 | Bass Harbor Condos | South | Condo | 8 | 0 | 8 |
| 14 | Bass Inlet | South | Condo | 9 | 0 | 9 |
| 15 | Bay Shore Marine | Mid | Marina | 0 | 50 | 50 |
| 16 | Bay Street | West | Condo | 37 | 0 | 37 |
| 17 | Bay View East Condo | West | Condo | 21 | 0 | 21 |
| 18 | Beach Rd Water Sports | West | Marina | 7 | 0 | 7 |
| 19 | Bella Laguna Condos | South | Condo | 6 | 0 | 6 |
| 20 | Best Western Hotel | South | Marina | 8 | 0 | 8 |
| 21 | Boca Boats | West | Marina | 60 | 0 | 60 |
| 22 | Boca Grande North Marina | West | Marina | 146 | 235 | 381 |
| 23 | Boca Norte | West | Condo | 8 | 0 | 8 |
| 24 | Boca Vista Harbor | West | Condo | 36 | 0 | 36 |
| 25 | Bridge Point | South | Condo | 59 | 0 | 59 |
| 26 | BSI Mariner Villas | South | Condo | 4 | 0 | 4 |
| 27 | Cape Haze Marina Bay | West | Marina | 105 | 225 | 330 |
| 28 | Capitan's Landing | South | Condo | 10 | 0 | 10 |
| 29 | Chadwick Cove Marina | West | Marina | 18 | 0 | 18 |
| 30 | Charleston South Condos | South | Condo | 12 | 0 | 12 |
| 31 | Charlotte Harbor Yacht Club | Mid | Marina | 23 | 15 | 38 |
| 32 | City of PG Mooring Field | South | Marina | 182 | 0 | 182 |
| 33 | Clipper Cove Village | South | Condo | 77 | 0 | 77 |
| 34 | Coconut Palm | West | Condo | 34 | 0 | 34 |
| 35 | Coldway Condos | South | Condo | 16 | 0 | 16 |
| 36 | Colony at Don Pedro | West | Condo | 7 | 0 | 7 |
| 37 | Colony Point Condo | South | Condo | 21 | 0 | 21 |
| 38 | Conquistador Landing | South | Condo | 21 | 0 | 21 |
| 39 | Coral Cove | West | Condo | 42 | 0 | 42 |
| 40 | Coral Creek Anglers | West | Condo | 12 | 0 | 12 |
| 41 | Coral Creek Club | West | Condo | 9 | 0 | 9 |
| 42 | Costa Bella Condos | South | Condo | 27 | 0 | 27 |
| 43 | Cottage at Redfish Cove | West | Condo | 12 | 0 | 12 |
| 44 | CS Ventures | South | Condo | 12 | 0 | 12 |
| 45 | Dockside | South | Condo | 30 | 0 | 30 |
| 46 | Dolphin Club Condo | South | Condo | 10 | 0 | 10 |
| 47 | Don Pedro Park | West | Public | 5 | 0 | 5 |
| 48 | Dumont | West | Marina | 8 | 0 | 8 |
| 49 | El Galleon Condo | West | Condo | 41 | 0 | 41 |
| 50 | Eldred's Marina | West | Marina | 77 | 15 | 92 |
| 51 | Emerald Pointe Condo | South | Condo | 153 | 57 | 210 |
| 52 | Englewood Bait House | West | Marina | 37 | 0 | 37 |

| | | | | | | |
|----|---------------------------------|-------|--------|-----|-----|------|
| 53 | Englewood Beach & Yacht Club | West | Condo | 21 | 0 | 21 |
| 54 | Estuary @ PG Isles | South | Condo | 12 | 0 | 12 |
| 55 | Fantasy Island | West | Condo | 10 | 0 | 10 |
| 56 | Fisherman's Village Yacht Basin | South | Marina | 142 | 0 | 142 |
| 57 | Fourth Street Wharf | Mid | Marina | 6 | 0 | 6 |
| 58 | Gasparilla Fishery | West | Condo | 43 | 0 | 43 |
| 59 | Gasparilla Marina | West | Marina | 204 | 881 | 1085 |
| 60 | Gasparilla Mobile Estates | West | Condo | 13 | 52 | 65 |
| 61 | Gateway Pointe | South | Condo | 59 | 0 | 59 |
| 62 | Gator Creek Marine | South | Marina | 7 | 90 | 97 |
| 63 | Golden Sands | South | Condo | 14 | 0 | 14 |
| 64 | Grand Quay HOA | West | Condo | 10 | 0 | 10 |
| 65 | Grande Cove Estates East | South | Condo | 12 | 0 | 12 |
| 66 | Grande Cove Estates South | South | Condo | 25 | 0 | 25 |
| 67 | Grande Cove Estates West | South | Condo | 12 | 0 | 12 |
| 68 | Grassy Point Yacht Club | Mid | Condo | 72 | 0 | 72 |
| 69 | Grove City 1 | West | Condo | 7 | 7 | 14 |
| 70 | Grove City 2 | West | Condo | 12 | 0 | 12 |
| 71 | Gulf Aire | West | Condo | 14 | 0 | 14 |
| 72 | Gulf and Palms Estates | West | Condo | 12 | 0 | 12 |
| 73 | Gulf Bay Co-op | West | Condo | 9 | 0 | 9 |
| 74 | Gulf Coast Marine Center | Mid | Marina | 20 | 175 | 195 |
| 75 | Gulf St | West | Condo | 44 | 0 | 44 |
| 76 | Gulf Wind at Palm Island | West | Marina | 9 | 0 | 30 |
| 77 | Gulfwind Villas | West | Condo | 6 | 0 | 9 |
| 78 | Guthrie Properties | West | Condo | 8 | 0 | 8 |
| 79 | Hacienda Del Mar | West | Condo | 35 | 0 | 35 |
| 80 | Harbor Heights Park | Mid | Marina | 16 | 0 | 16 |
| 81 | Harbor Landing | South | Condo | 26 | 0 | 26 |
| 82 | Harbor at Lemon Bay | West | Marina | 20 | 182 | 202 |
| 83 | Harbor Point | South | Condo | 20 | 0 | 20 |
| 84 | Heise Port Charlotte Prop | Mid | Marina | 18 | 0 | 18 |
| 85 | Hibiscus 1 | South | Condo | 10 | 0 | 10 |
| 86 | Hideaway Beach Club | West | Condo | 3 | 0 | 3 |
| 87 | Howard Johnson | South | Marina | 95 | 0 | 95 |
| 88 | Hyde Away Marina | West | Condo | 8 | 0 | 8 |
| 89 | Hydeaway Marina Dolphin Club | West | Condo | 26 | 0 | 26 |
| 90 | Islander Point | South | Condo | 24 | 0 | 24 |
| 91 | Isles Cove Condo | South | Condo | 24 | 0 | 24 |
| 92 | Isles Garden Villas | South | Condo | 10 | 0 | 10 |
| 93 | Isles Yacht Club | South | Marina | 45 | 0 | 45 |
| 94 | Island Court | West | Marina | 6 | 6 | 12 |
| 95 | Island Harbor Beach Club | West | Condo | 76 | 0 | 76 |
| 96 | John Gentis | Mid | Assoc. | 10 | 0 | 10 |
| 97 | La Porta Boca | South | Condo | 4 | 0 | 4 |
| 98 | La Romana Condos | South | Condo | 7 | 0 | 7 |
| 99 | Lagoon | South | Condo | 7 | 0 | 7 |

| | | | | | | |
|-----|------------------------------------|-------|--------|-----|-----|-----|
| 100 | Laishley Park | South | Marina | 136 | 0 | 136 |
| 101 | Las Brisas | South | Condo | 6 | 0 | 6 |
| 102 | Lazy Lagoon HOA | South | Condo | 12 | 0 | 12 |
| 103 | Lemon Bay Breeze Condo | West | Condo | 15 | 0 | 15 |
| 104 | Lemon Bay View Villas | West | Condo | 12 | 0 | 12 |
| 105 | Lemon Bay Resort/Ships Lantern | West | Condo | 19 | 0 | 19 |
| 106 | Lewis Apartments | West | Condo | 5 | 0 | 5 |
| 107 | Little Gasparilla St | West | Condo | 8 | 0 | 8 |
| 108 | Little Harbor at Punta Gorda Isles | South | Condo | 10 | 0 | 10 |
| 109 | Live Oak Landings | West | Condo | 12 | 0 | 12 |
| 110 | Lyme Terrace | South | Condo | 18 | 0 | 18 |
| 111 | Magdalena Estates Condo | South | Condo | 6 | 0 | 6 |
| 112 | Magdalena Terrace | South | Condo | 5 | 0 | 5 |
| 113 | Marine Dynamics | West | Marina | 21 | 416 | 437 |
| 114 | MarineMAX | West | Marina | 2 | 100 | 102 |
| 115 | Mariners Cove | South | Condo | 42 | 0 | 42 |
| 116 | Marion Bay | South | Condo | 31 | 0 | 31 |
| 117 | Marsh Street | West | Condo | 18 | 0 | 18 |
| 118 | Mary Sabatelli | West | Marina | 5 | 7 | 12 |
| 119 | Mediterranean Court | South | Condo | 12 | 0 | 12 |
| 120 | Mediterranean Landing | South | Condo | 10 | 0 | 10 |
| 121 | Mercury Enviro Research Center | West | Marina | 6 | 6 | 12 |
| 122 | Miramare | South | Condo | 7 | 0 | 7 |
| 123 | Mobile Gardens East | West | Condo | 15 | 0 | 15 |
| 124 | Mobile Gardens West | West | Condo | 16 | 0 | 16 |
| 125 | Mondovi Bay Villas | South | Condo | 48 | 0 | 48 |
| 126 | Northern Lights | South | Condo | 6 | 0 | 6 |
| 127 | Oak Shores at Lemon Bay | West | Condo | 10 | 0 | 10 |
| 128 | Outlook Cove Condos | South | Condo | 14 | 0 | 14 |
| 129 | Oyster Creek HOA | West | Condo | 16 | 6 | 22 |
| 130 | Oyster Creek Mobile Home Park | West | Condo | 0 | 20 | 20 |
| 131 | Palm Bay | South | Condo | 4 | 0 | 4 |
| 132 | Palm Bay Condo/Palm Island Estates | West | Condo | 12 | 0 | 12 |
| 133 | Palm Estates | South | Condo | 8 | 0 | 8 |
| 134 | Palm Island Ferry mainland | West | Marina | 1 | 0 | 1 |
| 135 | Palm Island Marina | West | Marina | 93 | 193 | 286 |
| 136 | Palm Island Resort | West | Condo | 42 | 0 | 42 |
| 137 | Palm Pines Mobile Home | South | Assoc. | 7 | 0 | 7 |
| 138 | Paradise Garden | South | Condo | 18 | 0 | 18 |
| 139 | Park Hill Manor North | South | Assoc. | 13 | 0 | 13 |
| 140 | Park Hill Manor South | South | Assoc. | 6 | 0 | 6 |
| 141 | Park Pointe Mobile Home Village | West | Condo | 24 | 30 | 54 |
| 142 | Paul Collum | West | Condo | 18 | 0 | 18 |
| 143 | Peace Harbor Condo | South | Condo | 13 | 0 | 13 |
| 144 | Pelican Landing Condo | West | Condo | 6 | 0 | 6 |
| 145 | Pelican Shores Ass | West | Condo | 6 | 0 | 6 |
| 146 | PG RV Resort North | South | Assoc. | 28 | 0 | 28 |

| | | | | | | |
|-----|-----------------------------------|-------|--------|----|-----|-----|
| 147 | PG RV Resort South | South | Assoc. | 0 | 70 | 70 |
| 148 | Pine Cove East | West | Condo | 26 | 0 | 26 |
| 149 | Pine Cove West | West | Condo | 30 | 0 | 30 |
| 150 | Placida Harbor Condo Association | West | Condo | 66 | 0 | 66 |
| 151 | Placida Marina | West | Marina | 8 | 0 | 8 |
| 152 | Pointe on Lemon Bay Condo/Estates | West | Condo | 25 | 0 | 25 |
| 153 | Punta Gorda Marina | South | Marina | 12 | 50 | 62 |
| 154 | Punta Gorda Boat Club | South | Marina | 0 | 0 | 0 |
| 155 | Purple Martin | South | Condo | 6 | 0 | 6 |
| 156 | Redfish Key Villas | West | Condo | 34 | 0 | 34 |
| 157 | River Haven | South | Assoc. | 12 | 0 | 12 |
| 158 | Riverside Boat | West | Condo | 26 | 0 | 26 |
| 159 | Riviera Marina | South | Marina | 46 | 64 | 110 |
| 160 | Rock Dove | South | Condo | 30 | 0 | 30 |
| 161 | Rock Dove Events | South | Condo | 31 | 0 | 31 |
| 162 | Rocks Edge HOA | Mid | Assoc. | 6 | 0 | 6 |
| 163 | Rocky Creek Marina | West | Marina | 19 | 66 | 85 |
| 164 | Rolls Landing Condo | Mid | Condo | 24 | 20 | 44 |
| 165 | Rotonda Community Marina | West | Condo | 30 | 0 | 30 |
| 166 | Sabal Palm HOA | West | Condo | 30 | 0 | 30 |
| 167 | Safe Harbor | South | Condo | 30 | 0 | 30 |
| 168 | Sandpiper Cove | West | Condo | 5 | 0 | 5 |
| 169 | Sandpiper Key Yacht Club | West | Condo | 88 | 0 | 88 |
| 170 | Savanna Bay Condos | South | Condo | 4 | 0 | 4 |
| 171 | Schooner Cove Villas | South | Condo | 14 | 0 | 14 |
| 172 | Sea Gate Condos | South | Condo | 4 | 0 | 4 |
| 173 | Sea Horse Marina | Mid | Condo | 12 | 0 | 12 |
| 174 | Sea Isles | South | Condo | 44 | 0 | 44 |
| 175 | Seamens Sunset | South | Condo | 6 | 0 | 6 |
| 176 | Sea Oats by the Bay Condos | West | Condo | 9 | 0 | 9 |
| 177 | Seagrape Lane | West | Condo | 13 | 0 | 13 |
| 178 | Seagull Moorings | West | Condo | 38 | 0 | 38 |
| 179 | Siesta Cove | South | Condo | 4 | 0 | 4 |
| 180 | Silver Cove | South | Condo | 9 | 0 | 9 |
| 181 | Silversands | South | Condo | 4 | 0 | 4 |
| 182 | Spanish Cay Villas | South | Condo | 4 | 0 | 4 |
| 183 | Spinnaker Point | South | Condo | 54 | 0 | 54 |
| 184 | Starboard Point | South | Condo | 32 | 0 | 32 |
| 185 | Stump Pass Marina | West | Marina | 30 | 316 | 346 |
| 186 | Sunrise Pointe Condo | West | Condo | 7 | 0 | 7 |
| 187 | Surfside Styling | West | Marina | 5 | 0 | 5 |
| 188 | Tamarind Gulf Condo | West | Condo | 30 | 0 | 30 |
| 189 | Tarpon Cove Condo | South | Condo | 31 | 0 | 31 |
| 190 | The Peace River Preserve | Mid | Condo | 40 | 0 | 40 |
| 191 | The Rookery | South | Condo | 12 | 0 | 12 |
| 192 | The Villas of Cedar Key | South | Condo | 12 | 0 | 12 |

| | | | | | | |
|-----|-------------------------------|-------|--------|------|------|------|
| 193 | The Villages on Oyster Creek | West | Condo | 12 | 20 | 32 |
| 194 | Uncle Henry's Marina | West | Marina | 58 | 0 | 58 |
| 195 | Unnamed streets 1-14 | West | Condo | 136 | 0 | 136 |
| 196 | Venetian Isles | South | Condo | 34 | 0 | 34 |
| 197 | Villa Dolphin | South | Condo | 18 | 0 | 18 |
| 198 | Village of Holiday Lakes Ramp | West | Condo | 20 | 0 | 20 |
| 199 | Villas at Harbour Village | Mid | Condo | 30 | 0 | 30 |
| 200 | Villas of Bal Harbor | South | Condo | 5 | 0 | 5 |
| 201 | Water Gardens Condo | South | Condo | 27 | 0 | 27 |
| 202 | Water's Edge Estates | West | Condo | 6 | 0 | 6 |
| 203 | Water's Edge of Englewood | West | Condo | 25 | 20 | 45 |
| 204 | Wesley Park Condo | South | Condo | 3 | 0 | 3 |
| 205 | Weston's Resort | West | Condo | 58 | 0 | 58 |
| 206 | Wharf | West | Condo | 12 | 0 | 12 |
| 207 | White Elephant | West | Marina | 10 | 0 | 10 |
| 208 | White Ibis | South | Condo | 3 | 0 | 3 |
| 209 | Wilshire | South | Condo | 4 | 0 | 4 |
| 210 | Win-Quist Townhouse | South | Condo | 8 | 0 | 8 |
| 211 | Windmill Village North | South | Assoc. | 6 | 0 | 6 |
| 212 | Windmill Village South | South | Assoc. | 50 | 105 | 155 |
| 213 | Windjammer Point | South | Condo | 70 | 0 | 70 |
| | Total Slips | | | 5309 | 3687 | 8990 |

Source: Swett et. al (2012a); FWC GIS data (201504)

Public Boat Ramps

Current resident utilization of public saltwater boat ramps (Figure 4.37 and Table 4.5) in Charlotte County is 5,531 boat owners, calculated on active boat users (78%); utilization from non-residents adds an additional 1,279 boat users. Demand for public saltwater boat ramps by residents and non-residents is projected to increase by 25% to 8,485 between 2010 and 2030; and an additional 8% to 9,031 by 2050. Public boat ramp supply was calculated by Swett et. al (2012a) based on lane capacity and three scenarios to launch/retrieve (20 minutes, 30 minutes and 40 minutes); then adjusted for peak use and seasonality and then broken down geographically. Boat ramp demand, current and future, was calculated based on current patterns of ramp use and includes the same scenarios and parameters as the ramp supply calculations. Supply results are shown in Table 4.5.

| Map Number | Name | Geographic Region | Existing Lanes | Trailer Parking Spaces |
|------------|-----------------------|-------------------|----------------|------------------------|
| 1 | Ainger Creek Park | West | 1 | 38 |
| 2 | Bay Heights Boat Ramp | West | 1 | 20 |
| 3 | Butterford Waterway | West | 1 | 6 |
| 4 | Cattledock Boat Ramp* | Mid | 2 | 70 |
| 5 | Darst Park | South | 1 | 10 |
| 6 | El Jobean Boat Ramp | Mid | 1 | 18 |
| 7 | Eldred's Marina | West | 2 | 115 |

| | | | | |
|----|------------------------------|-------|----|-----|
| 8 | Harbour Heights Park | Mid | 2 | 13 |
| 9 | Hathaway Park | South | 1 | 12 |
| 10 | Lashley Park | South | 2 | 46 |
| 11 | Placida Boat Ramp | West | 3 | 113 |
| 12 | Ponce de Leon Park | South | 2 | 30 |
| 13 | Port Charlotte Beach Complex | Mid | 2 | 35 |
| 14 | Riverside Park Boat Ramp | South | 1 | 4 |
| 15 | South Gulf Cove Park | West | 1 | 20 |
| 16 | Spring Lake Park | Mid | 1 | 30 |
| | Total | | 24 | 580 |

*this site is proposed; no lanes exist

Source: Swett et. al (2012a)

Figure 4.36a Boat Facility Slip Inventory

Data Source: Florida Fish and Wildlife Conservation Commission and Charlotte County

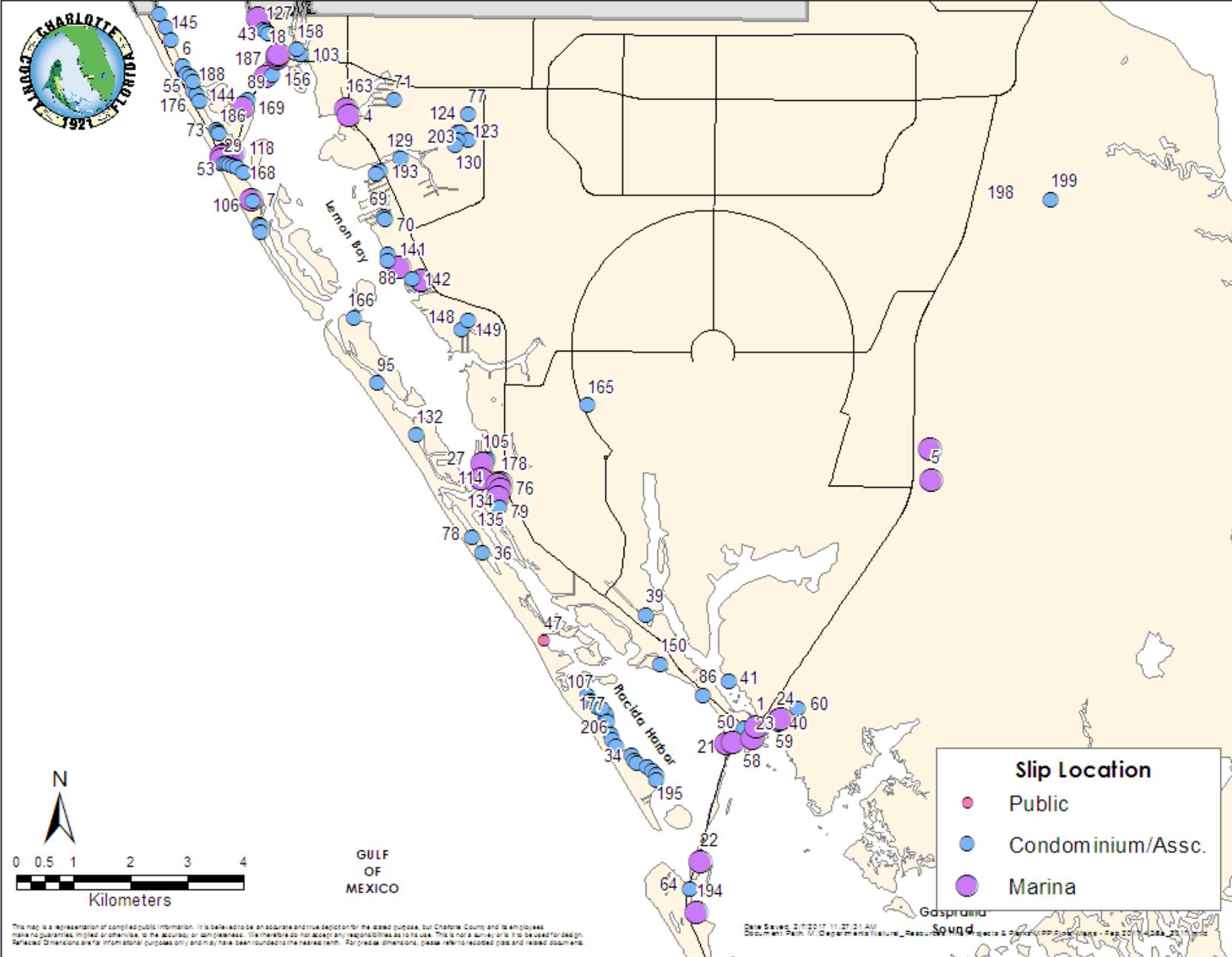


Figure 4.36b Boat Facility Slip Inventory

Data Source: Florida Fish and Wildlife Conservation Commission and Charlotte County

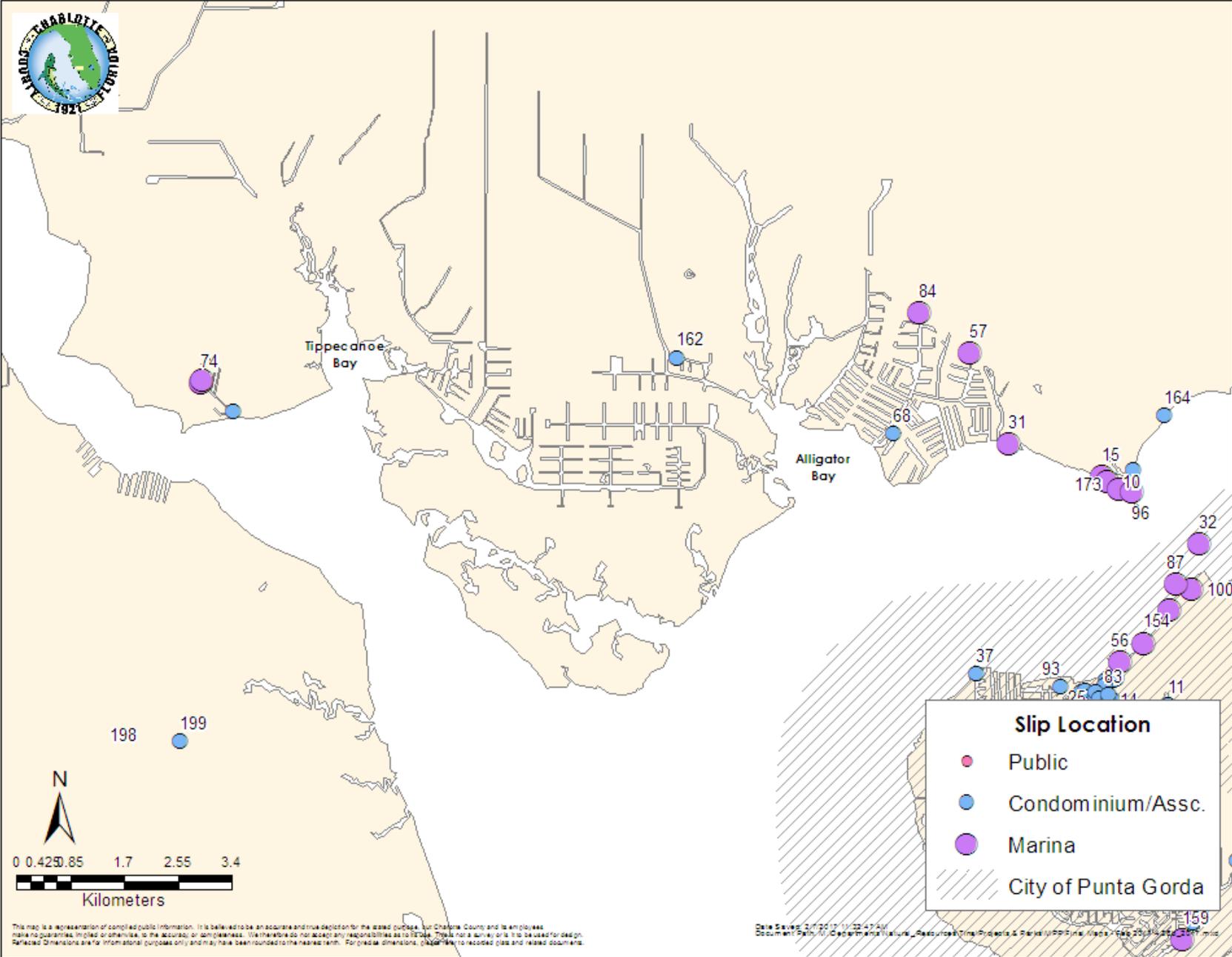
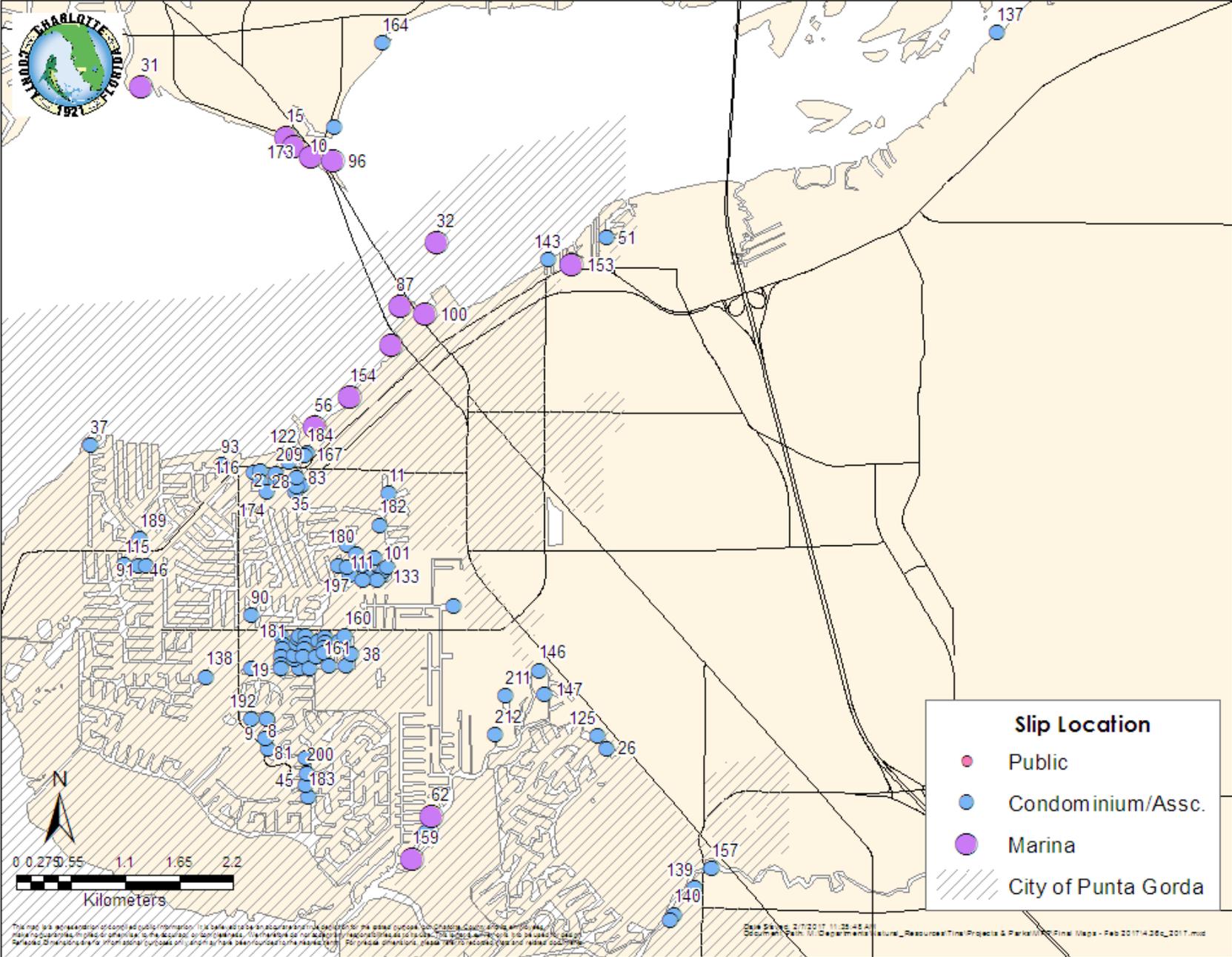


Figure 4.36c Boat Facility Slip Inventory

Data Source: Florida Fish and Wildlife Conservation Commission Charlotte County



4.2.4 Future Water Access Facilities

In assessing secondary and cumulative impacts to manatees, the 2012 SeaGrant study was utilized to determine the most likely locations for future expansion and future water access to meet projected future demand. This section does not prohibit construction or expansion in areas not specifically identified in the study. To determine potential locations for future ramps and/or marinas, Swett et. al. (2012) identified 33 parcels out of the 9,696 undeveloped saltwater accessible parcels in Charlotte County utilizing criteria including size, water/sewer service, distance to major roads, water access, and distance to aquatic preserves. Of those 33 parcels, 30 fall into the first tier, making them the most feasible for new water access facilities based on the above criteria. The majority of the sites identified are located in the South Gulf Cove area of western Charlotte County.

Residential Docks

Analysis from the SeaGrant Study (Swett et. al, 2012a) shows that current resident demand for saltwater accessible docks in Charlotte County is 10,614 boat owners and represents 67% of the current supply of developed residential parcels that are saltwater accessible (Swett et. al, 2012a). Demand for saltwater accessible docks is projected to increase by 25% to 13,223 between 2010 and 2030; and an additional 8% to 14,074 by 2050. Please note however that this plan is not applicable to residential single family docks with four (4) or less slips (but they must conform to all applicable federal, state, and local regulations in place at the time of the permit application).

Marinas

Existing marinas (Table 4.4) were evaluated to determine their expansion potential based on environmental and developmental criteria and grouped into tiers for the feasibility of expansion (Swett et. al, 2012a). The environmental criteria used to evaluate the expansion potential includes adjacency to: wetlands, seagrasses, aquatic preserves, manatee protection areas, small tooth sawfish habitat, shellfish harvesting areas, as well as the effect of sea level rise; development criteria include: water access, water depth, water service line availability, sewer availability, road access, vacant adjacent parcels and acres of vacant adjacent parcels. Four existing boat facilities fell into the first tier, making them the most feasible for expansion, these include: Gulf Coast Marine Center, Isles Yacht Club, Marine Dynamics and Marine Max. The second tier includes sixteen facilities, but the range in assessment makes only a portion of them most feasible for expansion; the most feasible for expansion in the second tier includes Laishley Marina, Chadwick Cove Marina, Fisherman's Village Yacht Basin, Cape Haze Marina Bay and Charlotte Harbor Yacht Club. The remaining eleven in the second tier and seven additional marinas in the third tier do not appear to be most feasible for expansion according to the SeaGrant Study (Swett et. al, 2012a).

Public Boat Ramps

Existing public boat ramps were evaluated to determine their expansion potential based on environmental and developmental criteria (detailed above) and grouped into tiers for the feasibility of expansion (Swett et. al, 2012a). Four existing ramps fell into the first tier, making them the most feasible for expansion, these include: Butterford Waterway, South

Gulf Cove Park, El Jobean Boat Ramp and Spring Lake Park. The second tier includes eight ramps, but the range in assessment makes only a portion of them most feasible for expansion; the most feasible for expansion in the second tier includes Port Charlotte Beach, Laishley Park, Placida Boat Ramp and Ainger Creek. Ainger Creek was permitted for expansion in 2009. The remaining four in the second tier and four additional ramps in the third tier do not appear to be feasible for expansion according to the SeaGrant Study (Swett et. al, 2012a). Bay Heights (west-county) boat ramp was permitted in 2014 and is currently (May 2016) under construction, and Cattledock (mid-county) boat ramp was permitted in 2011 and no construction has occurred to date (May 2016).

Mooring Fields

There is one existing permitted mooring field in Charlotte County located in Punta Gorda at Laishley Park consisting of 42 moorings (Figure 4.37). Swett et. al, (2012a) assess the potential locations in Charlotte County for new mooring fields based on a number of factors, including those identified in the Charlotte County Marine Regulatory Study, water depths using bathymetry data and the spatial relationship to aquatic preserves. Ten potential sites were identified; six in the Lower Peace River region, three in Upper Lemon Bay, and one in the Stump Pass / Gasparilla region. Some of the criteria used to assess the sites will immediately preclude a location for a mooring field, while other factors will not preclude a mooring field, but may make it more difficult to do so. For practical permitting reasons, this may further reduce the ten potential sites; however the SeaGrant Study (Swett et. al, 2012a) does not prohibit construction or expansion in areas not specifically identified in that study.

5.0 Boat Facility Siting Strategy

This section describes the criteria that contribute to boat and manatee interactions and how these criteria are examined to understand the risk to manatees if additional boat trips are generated from a given location. The goal of an MPP boat facility siting strategy is to reduce both the potential for adverse manatee/watercraft interaction and the degradation of important manatee habitat. It is not the intent of the boat facility siting strategy to prohibit development of boat facilities, rather it is to identify, facilitate and promote new facility siting and/or expansion of existing facilities in a manner consistent with the protection of manatees and their habitat. Applicants for an expansion or new facility are not bound by the contents of this plan and can choose to consult with FWC and USFWS on the project and perform a case by case analysis.

It is important to note that the number of slips for any facility may be limited for reasons other than this MPP due to other local, state or federal restrictions (such as zoning, Future Land Use classification, potential adverse impacts to submerged aquatic vegetation and foraging habitats, water quality, etc.). The recommendations in this plan do not pre-empt existing rules or ordinances. A presumption of this document is that zoning, future land use classification, and present financial constraints may not be limiting factors in the future for facility development.

For the purposes of this siting strategy, one wet slip, dry slip, mooring buoy, or parking space designated for a boat trailer is considered to be numerically equivalent (see definition of “Boat Slip” on page 7). The plan addresses new boat facilities with five or more slips and expansions of existing boat facilities with five or more slips, and does not affect the construction or permitting of single family docks with four or less slips.

5.1 Facility Siting Categories

Based upon the best available data for Charlotte County as described in the earlier chapters of this plan, outcomes for boat facility siting were divided into categories and determined based primarily on these criteria:

- Size of the proposed facility construction or expansion. The larger the facility, the greater the number of vessels the facility will accommodate, resulting in more boat traffic and an increased potential risk to manatees.
- The location of the proposed facility as it relates to known manatee use. Areas with high levels of known manatee use would be less favorable for facility creation or expansion. Manatee areas throughout Charlotte County were designated as “high-use”, “moderate-use”, “low-use”, and “limited data” as discussed in Section 4.1.4 (Figure 4.26).
- The location of the proposed facility as it relates to known recreational boating use. Areas with high levels of known boat traffic would be less favorable for future facility

creation or expansion (unless adequately offset by additional protection zones). Boating areas were designated as “high-use”, “moderate-use”, and “low-use” as discussed in Section 4.2 (Figure 4.31).

- The location of the proposed facility as it relates to the presence of existing conservation measures (such as manatee protection speed zones).
- The location of the proposed facility as it relates to its proximity to boating and fishing destination areas, passes, or direct access to open water such as Charlotte Harbor.

The recommended outcomes for siting boat facilities were divided into the following categories: Unrestricted, Preferred, Conditional, Non-Preferred, and Conservation Area. Conservation areas were identified using existing land use databases. The remaining shorelines were categorized into the other four categories, with each having a recommendation for the appropriate number of new slips, based on the factors described in this plan.

Under this plan, the following facility siting categories represent the maximum additional slip density for each site. These slip densities as outlined in the facility siting criteria relate only to manatee protection, meaning that the final slip density for a given site will also have to take into account other development factors, such as zoning or future land use classifications. Facilities and slips considered “existing” under the definition of this plan and as reviewed by the wildlife agencies are not counted in the recommended number of slips. This potentially allows for multiple slip requests as long as the original recommended number of slips calculated since the adoption of the original plan is not exceeded. This methodology was considered appropriate for Charlotte County due to the large amount of shoreline that is owned by the public and in conservation, as well as the relatively few areas remaining in the County where new boat facilities and the expansion of existing facilities are feasible. All of these categories are designated on the color-coded maps which follow in section 5.2.

5.1.1 Unrestricted

Unrestricted – Designated areas of shoreline where the number of recommended slips is not restricted for the purposes of manatee protection.

5.1.2 Preferred

Preferred – Designated areas of shoreline where additional slips are recommended at a level of no more than five (5) slips (in addition to existing number of slips onsite) for every 100 feet of shoreline owned by the applicant (5:100).

5.1.3 Conditional

Conditional – Designated areas of shoreline where additional slips are recommended at a level of no more than three (3) slips (in addition to existing number of slips onsite) for every 100 feet of shoreline owned by the applicant (3:100).

5.1.4 Non-Preferred

Non-Preferred – Designated areas of shoreline where additional slips are recommended at a level of no more than one (1) slip (in addition to existing number of slips onsite) for every 100 feet of shoreline owned by the applicant (1:100).

5.1.5 Conservation Area

Conservation Area – Designated shoreline areas that are in conservation as of the adoption of this MPP which are reviewed on a case by case basis. These reviews would include all available data and information at the time of application submittal, including consideration of approved land management plans that have been reviewed and approved by FWC regarding potential impacts to manatees. Designated categories in areas immediately adjacent to conservation areas should also be considered. Proposals for watercraft access are not expected in these areas, which are primarily owned by governmental entities for conservation purposes.

Note: Projects proposing more slips than determined by this section are considered inconsistent and outside the scope of the MPP. In these cases, the applicant will fall under the regular local, state and federal permitting processes; see details in Section 5.4 “Proposals that may be inconsistent with the MPP”.

5.2 Discussion and Maps

Areas of manatee and boat use were examined geographically and sites where this data overlapped were identified. Reviews of this information provide insights into long-term manatee protection needs, and summaries are provided below by major areas within the County.

Lemon Bay

As depicted in Figures 4.31 (boat use summary) and 4.26 (manatee use summary), Lemon Bay has relatively high boat use and relatively high manatee use as compared to the rest of the County. Conservation areas exist in this area. The Non-Preferred boat facility siting category is considered appropriate in the northern portion of Lemon Bay, because of high boat/high manatee use and its distance away from the inlet. This category is consistent with the boat facility siting recommendations for Lemon Bay in the Sarasota County MPP. While all of Lemon Bay could be categorized as Non-Preferred due to the high boat/high manatee use, siting preference (in the form of designation as Conditional rather than Non-

Preferred) is given for shoreline near speed-regulated areas near the passes, since the ocean is a major boater destination.

Most of Charlotte County's commercial marinas with dry storage facilities are found in Lemon Bay, likely due to the ease of ocean access. This plan has given additional consideration specifically for dry storage facilities in Lemon Bay. This allowance is warranted to accommodate for future dry storage in Charlotte County, and Lemon Bay would be the best location for limited increases. Facilities that are located near preferred destinations (such as access to the ocean) reduce the potential travel time for boaters on the water, which reduce the potential for boat/manatee collisions. Additional discussion and the criteria for the allowance for increased dry storage slip densities in Lemon Bay can be found in section 5.4 Tier I and Tier II Facilities.

Gasparilla Sound/Bull Bay/Cape Haze

These areas have moderate boat use and moderate manatee use. Due to open access to Charlotte Harbor and proximity to the ocean, areas not designated as Conservation are designated as Conditional.

Myakka River/South Gulf Cove

These areas mostly experience moderate boat use. Within the Myakka River itself, manatee use is moderate south of El Jobean Road bridge, and higher in the northern portions of the River. The upper Myakka River has high manatee use, and has moderate boat use. As the river narrows and goes into Sarasota County, risks for manatees increase due to the presence of Warm Mineral Springs. Manatees are attracted to this area because the spring flow from Warm Mineral Springs creates warm-water habitat in its tributaries (Warm Mineral Springs Creek and Salt Creek). The Non-Preferred siting category is appropriate for these upper areas of the river. As manatee use decreases in the lower portions of the Myakka River, the siting category appropriately changes to Conditional. There is a small amount of manatee use documented in the South Gulf Cove canal system. Thus, this area, and several other areas south/southeast of the bridge have been designated as Preferred. These areas have also been identified as appropriate areas for new marinas in the 2012 SeaGrant study. Much of the surrounding shoreline in this Preferred area is not available for development due to the Conservation designation.

Port Charlotte

As depicted in the boat/manatee use Figures, Port Charlotte has relatively moderate boat use and relatively moderate manatee use as compared to the rest of the County. Conservation areas exist in this area. There is not much manatee use documented in the Port Charlotte canal systems. Due to the relatively close access to Charlotte Harbor, most of these canals are designated as Preferred. The exception is a waterway referred to as Little Alligator Creek, which has been categorized as Non-Preferred. This category reflects the high manatee use at the upper reaches of this system. Based on aerial survey information, this area appears to be a minor aggregation area for manatees in the wintertime. The travel corridor to and from the Non-Preferred area is designated as

Conditional, reflecting the manatee travel corridor function of this area to aggregation areas.

Peace River/Shell Creek

This entire area is considered moderate boat use. Manatee use is relatively low in the lower reaches of the Peace River (south of the I75 bridge, closer to Punta Gorda) and is categorized as Preferred. Manatee use is high in the upper reaches and in Shell Creek. Shell Creek, a tributary of Peace River, has a water control structure in the upper portions and appears to attract manatees (pers. comm. FWRI). While it is unclear if the water is warmer than ambient temperatures, the fresh water appears to attract manatees. Because Shell Creek is a winding, narrow, and shallow waterway, manatee rescues are common in this area. Due to these factors, Shell Creek is categorized as Non-Preferred.

Punta Gorda

This entire area is considered moderate boat use. There is low manatee use along the Harbor for most of the city, with the use becoming moderate in the southern portion. There is not much manatee use documented in the Punta Gorda canal systems. Most areas in the city are categorized as Conservation or Preferred.

In the immediate downtown area of Punta Gorda and at the Ponce de Leon Park Boat ramp the boat facility recommendations are categorized as Unrestricted. Past authorizations in the downtown area of the City include proposals for large marinas; the downtown area, including the existing boat ramp is identified in the 2012 SeaGrant study as likely appropriate areas for expansion. These Unrestricted areas are provided to accommodate potential development within the County boundaries, and the close proximity to Charlotte Harbor combined with low manatee use indicates the potential for less boat/manatee collisions compared to other parts of the County.

Pirate Harbor

The Pirate Harbor area and canal system has high manatee use and moderate boat use, so the potential for boat/manatee collisions is higher compared to other parts of the County. Abundant seagrasses along with the potential for slightly warmer waters in the canals attract manatees to this area. Conservation areas exist in this area. While the areas in the canals and surrounding Pirate Harbor could typically be categorized as Non-Preferred due to the high manatee use, siting preference (in the form of designation as Conditional rather than Non-Preferred) is given because of the direct access to the Harbor.

Outcomes

As discussed in Chapter 4, an October 2012 document titled "Planning for the Future of Recreational Boating Access to Charlotte County Waterways: 2010-2050" provides a variety of information that evaluates characteristics and needs of Charlotte County's boating population, including anticipated demand through 2050. This planning document was drafted to assist the County in achieving sustainable coastal development while minimizing environmental impacts on marine habitat. In assessing the potential for the expansion of existing marina parcels, parcels were scored and rated in tiers, with Tier 1 being the most

appropriate location for expansion (p.67). Of the four parcels identified as Tier 1, one is located within a Conditional area, two are within Preferred areas, and one is within an Unrestricted area. This document also assesses the potential for expansion of existing boat ramp parcels (p.62). Of the five parcels identified as Tier 1, four are located in Preferred areas and one is located in a Conditional area. Potential sites for new saltwater access (ramps or marinas) were also assessed (p.86-75). Thirty-three (33) parcels were most appropriate for consideration as a new marina site, with table 5-18 listing the tiers and Figure 5-4 showing the location of each parcel. All of these potential sites fall within the Preferred category areas of this plan.

Facility outcomes are shown graphically in Figures 5.1-5.3. Because of limitations in the resolution of the shoreline maps, all tidal creeks, accessory channels, residential canals, and spoil islands may not be displayed. These boat facility recommendations are specific only to the parcels that are categorized and color-coded. Boat slip development on shoreline that has not been categorized and color-coded will be evaluated on a case by case basis. An ArcGIS shapefile and Google Earth layer for the boat facility siting strategy categories are available from the County or FWC.

Figure 5.1: Facility Siting Outcomes

Data Source: Florida Fish and Wildlife Conservation Commission

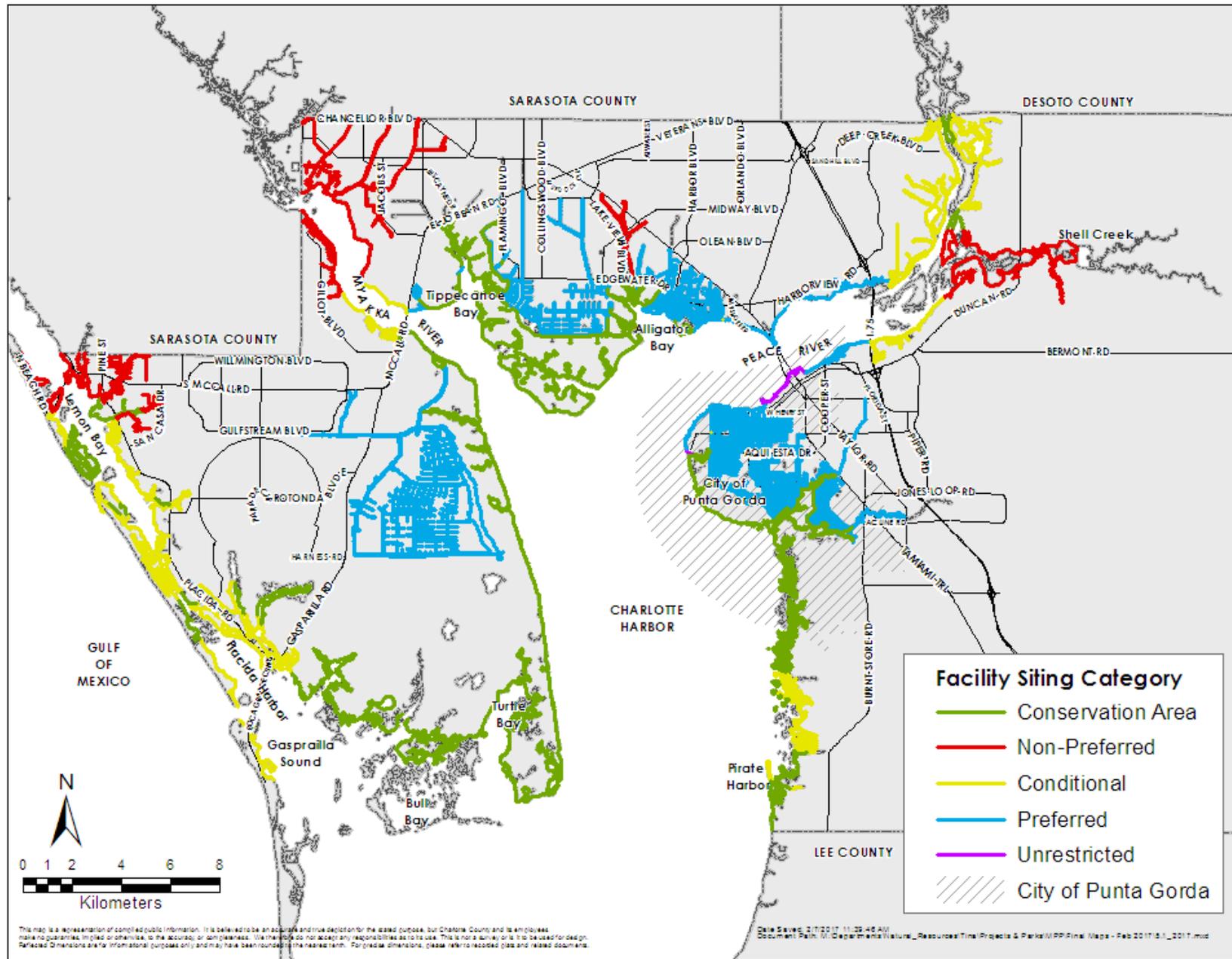


Figure 5.2: Facility Siting Outcomes West County

Data Source: Florida Fish and Wildlife Conservation Commission

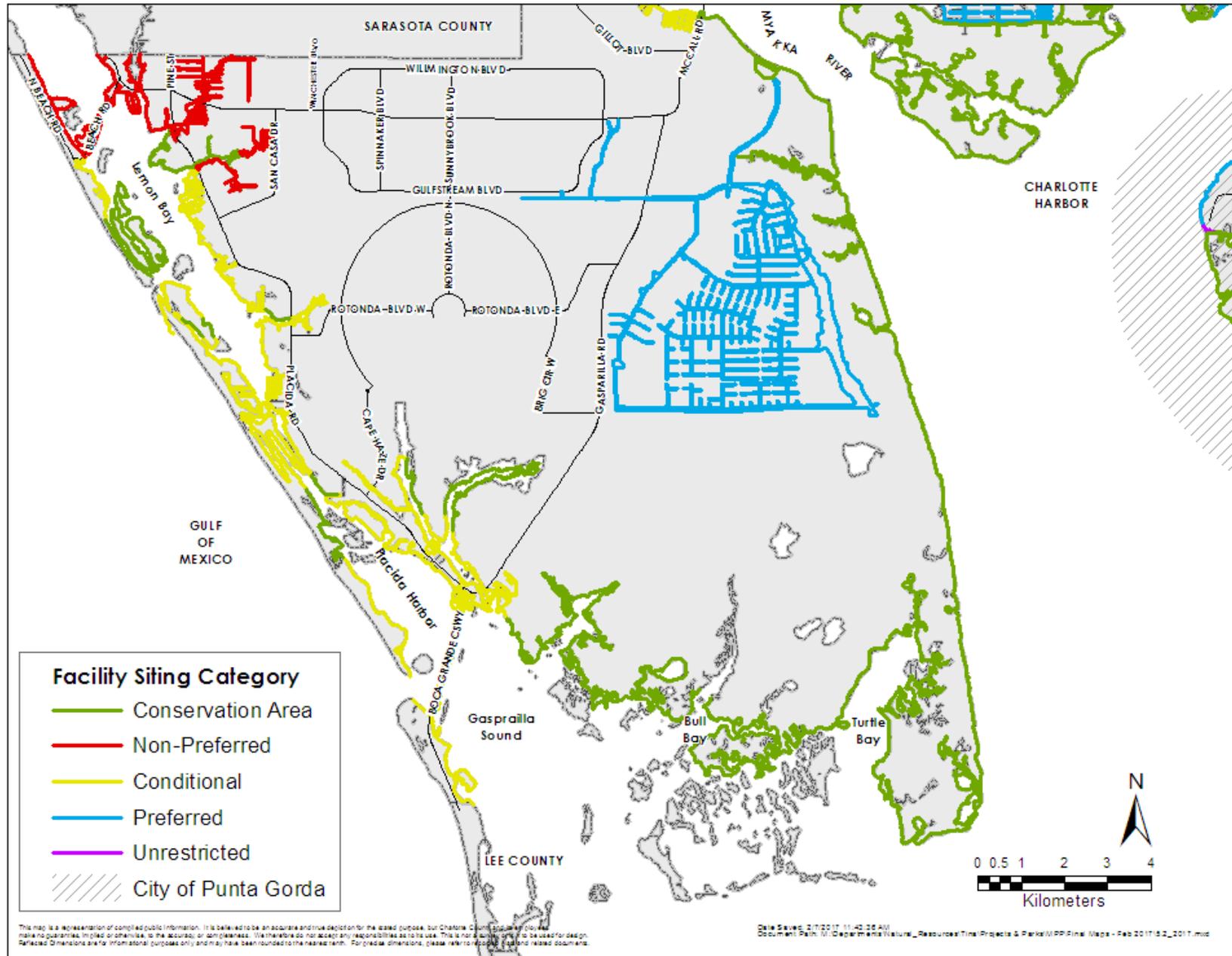
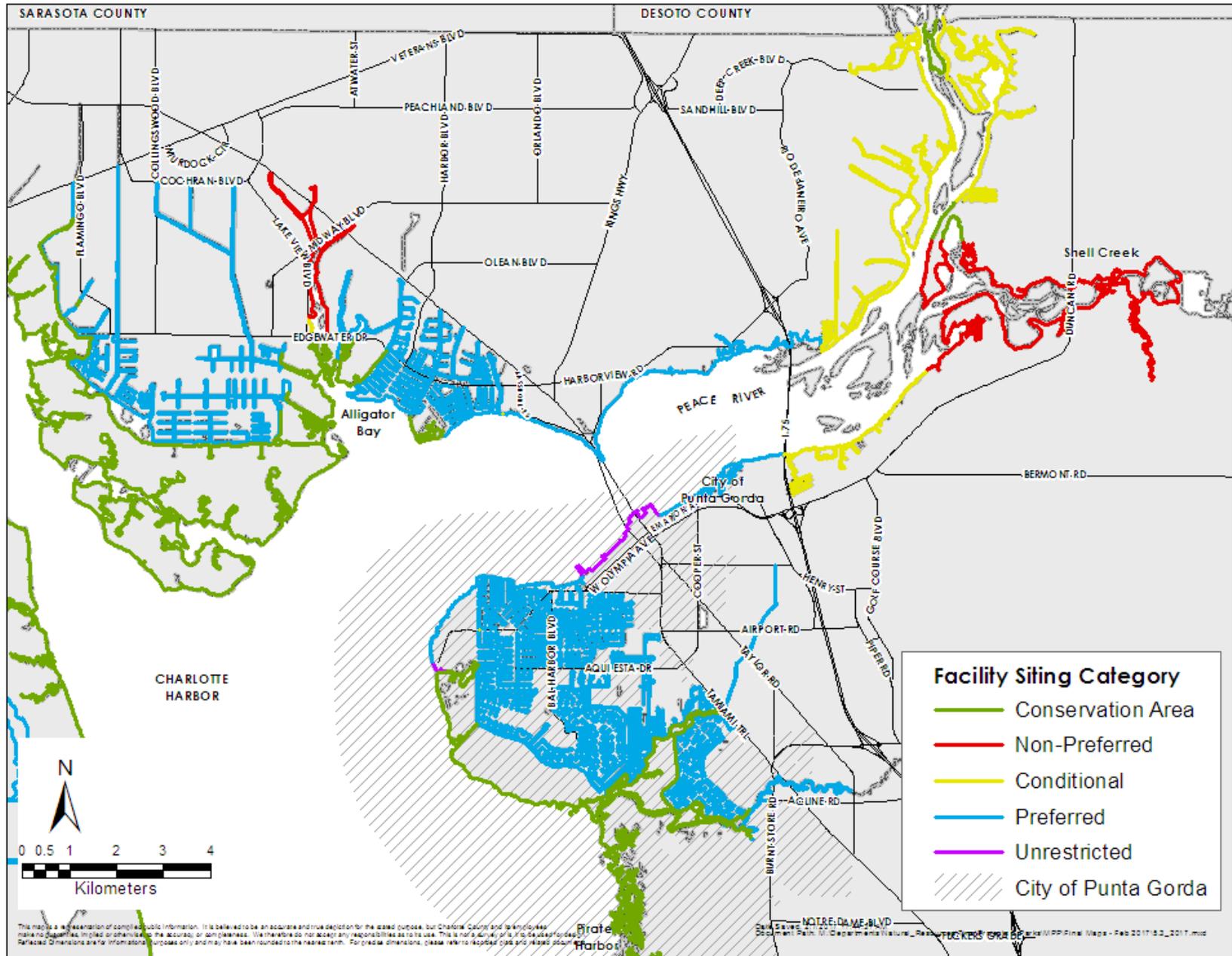


Figure 5.3: Facility Siting Outcomes Mid/East County

Source: Florida Fish and Wildlife Conservation Commission



5.3 Tier I and Tier II Facilities

As discussed in 5.1, a document was written in October 2012 as part of a SeaGrant Study entitled “Planning for the Future of Recreational Boating Access to Charlotte County Waterways: 2010-2050”. The SeaGrant Study provides Charlotte County with planning information regarding boat facility demand through 2050, while minimizing environmental impact to sensitive habitat. Using a scoring system, the study identified existing locations of relative feasibility (or ease) of expanding boat facilities. The 28 possible locations were divided into four tiers, with the first and second tiers identified as most likely feasible for expansion. A full scoring can be found in Table 5-13 of the SeaGrant Study. During the development of this MPP, the potential influence of the SeaGrant Study’s boat facility siting recommendations on boating access was considered.

Because this MPP’s recommendations for slips are added to the number of existing slips, the MPP will likely meet the expansion needs of many of the top scoring sites identified in the SeaGrant Study. However, these siting recommendations under this MPP model, may not allow for large increases in the number of slips (such as a dry storage facility) even in areas designated as Preferred. In consideration of future demand for dry storage facilities while balancing the long term protection of manatees, a limited number of Tier I and Tier II facilities have been identified as appropriate for future expansion for dry storage.

The criteria used to determine which facilities may expand dry storage under this MPP model include, but are not limited to:

- 1) It must be an existing facility with dry storage;
- 2) It must have been deemed appropriate for expansion (Tier I or Tier II) by the 2012 SeaGrant study;
- 3) It must be located in Lemon Bay (see discussion in Section 5.2);
- 4) It must be located within 3 miles of a regulated pass (*i.e.*, Stump Pass);
- 5) New slips must be open to the public on a first come, first served basis;
- 6) It must be located outside of a Non-Preferred or Conservation area;
- 7) The manatee protection speed zones existing as of the date of this plan’s original approval must still remain in place; and
- 8) No significant adverse direct impacts to submerged aquatic vegetation will occur as a result of the expansion.

Based on the information above, two existing boat facilities currently have been identified to meet these criteria; they are located at 6950 Placida Road in Englewood and 7080 Placida Road in Cape Haze. Additional offsetting measures (such as comprehensive marina/manatee education, etc.) needed to compensate for any increases in slips for these two sites may still be required during the permitting process. Any proposed expansion of wet slips at these sites will need to be consistent with the boat facility designation for the shoreline (Conditional). If other facilities are identified that meet the same criteria in the future, additional dry storage should be considered appropriate.

5.4 Proposals that may be inconsistent with the MPP

Projects that are consistent with FWC-approved and USFWS-approved County MPP recommendations provide reasonable assurances to these state and federal agencies that adverse impacts to manatees have been adequately minimized and incidental take will not occur. When reviewing state and federal permit applications, statements of MPP consistency by the FWC and the USFWS to their respective regulatory agencies, on a county-wide scale addresses the requirement to minimize secondary and cumulative impacts.

This protection is provided by the MPP's long-term planning and implementation of comprehensive conservation measures, which are typically not measures that an individual applicant can easily accomplish. However, an applicant may request a case by case review by FWC and USFWS for their proposal and submit alternative manatee protection measures for consideration to FWC and USFWS for review on a case by case basis. Examples of potential alternative manatee protection measures include, but are not limited to: additional boating speed zones; posting of zones or enforcement of zones, if warranted; substantial conservation of submerged lands, particularly with habitat resources in the form of conservation easements or deeds to the State; and/or suggestions that provide a clear net benefit to manatee protection such as contributing to regional manatee conservation education, etc. Any proposed alternative protection measures submitted under these circumstances will need to provide reasonable assurance that adverse impacts, including secondary and cumulative impacts, as well as incidental take to manatees will not occur.

As the MPP is a planning tool and not regulatory, Charlotte County will accept any approval from FWC and USFWS, regardless of consistency with this MPP, as long as that determination is in writing.

5.5 Miscellaneous Clarifications

5.5.1. Shoreline designations and calculation of slip density

For the purpose of calculating shoreline slip densities with designated categories, the contiguous, linear shoreline used for these calculations is shoreline that existed as of the original date of approval of this plan, as shown on the color-coded boat facility siting maps (figure 5.1-5.3). These boat facility recommendations are specific only to the parcels that are categorized and color-coded. Boat slip development on shoreline that has not been categorized and color-coded on these maps will be evaluated on a case by case basis, along with parcels divided after MPP approval.

The following theoretical example is included to explain how the boat facility siting category recommendations are applied. The theoretical project includes an existing facility that currently has 20 wet slips and 30 dry slips for a total of 50 slips. The shoreline associated

with the property is 1,740 feet, and the project is located in a Preferred category area. The facility would like to increase by another 50 slips.

The shoreline is rounded up to the nearest hundred, in this example that becomes 1,800 feet of shoreline. The Preferred category allows five slips for every 100 feet of shoreline owned. For 1,800 feet of shoreline owned, this facility qualifies for 90 new slips ($18 * 5 = 90$). These are in addition to the 50 slips that existed at time the MPP was adopted. This, this facility's total maximum slip count is 140 slips. If the facility is permitted with another 50 slips for a total of 100 slips, any future expansions would be limited to the remaining number of slips (40).

The creation of new basins or the enlargement or widening of existing basins along the categorized shoreline is not restricted by this plan. However, the shoreline used to calculate the number of slips is the shoreline that existed prior to the original approval date of this plan. This plan does not generally recommend the development of boat facilities or boat docks (including single family) in land locked lakes, basins, canals or mosquito ditches where dredging, the removal of earthen berms, or the use of boat lifts, etc. is required in order for boats to access manatee accessible waterways. Development of new areas for boat facility development in this way was not specifically addressed during the development of this plan. Applicants for this type of development would be required to apply utilizing the regular local, state and federal permitting processes and would be reviewed on a case by case basis. Questions concerning manatee accessibility or navigability of waterways are also outside the scope of the MPP and will be reviewed on a case by case basis by the state and federal wildlife agencies.

5.5.2 Single family docks and single family developments

The boat facility siting strategy component of the MPP is not applicable to residential single family docks with four (4) or less slips, (but the dock must conform to all applicable federal, state, and local regulations in place at the time of the permit application). Single family docks with 5 or more slips must be consistent with the recommendations in this plan. Large single family developments proposed on parcels with color-coded and categorized shoreline which propose five or more single family docks should be reviewed under this MPP. Parcels divided after MPP approval will need to be addressed on a case by case basis through FWC and FWS.

5.5.3 Proposals with Less than Five Slips

Unless specified otherwise, the boat facility siting recommendations in this plan apply to any boat facility with five (5) or more slips, or an expansion into a boat facility with five (5) or more slips. The exception is any boat facility development proposals with less than five slips that include transitory ships which will generate frequent trips and are expected to significantly increase boat traffic; these are reviewed on a case-by-case basis by the state and federal regulatory and wildlife agencies.

5.5.4 Change in Use of a Boat Facility

Changes in the nature of the use of a facility that generates more frequent trips or increases boat traffic intensity are reviewed on a case-by-case basis by the state and federal regulatory and wildlife agencies. For example, the redevelopment of a residential dock to a commercial dock with transitory boat slips (such as restaurants, hotels, etc.) may result in greater intensity of use, necessitating such a review even if the total number of slips were to remain the same.

5.5.5 Permit Restrictions Existing Prior to Approval of MPP

Prior to the development and approval of this plan, some boat facility permits may have existing restrictions related to manatee protection. In these instances, if the existing permit(s) allows for more slips than the MPP recommends, the permit(s) is still valid if all permit restrictions are met (and all needed authorizations are still active). If the MPP recommends a higher number of slips than the prior permit approval, the permit can be modified to be consistent with the plan.

In addition to the plan's boat facility siting recommendations, other manatee conservation measures may be required by the FWC or USFWS during the permitting of boat facilities. Examples include, but are not limited to: the Standard Manatee In-Water Construction Conditions (most current version), potential construction prohibition windows, observers, manatee educational signs, manatee educational programs, etc.

6.0 Manatee Educational Efforts

Education is an essential part of conservation and protection efforts of the manatee in Charlotte County. Education material and activities are centered on highlighting manatee biology and helping to prevent manatee/human interaction problems and boat/manatee interactions.

Various organizations throughout the State and within Charlotte County participate in providing manatee education and conservation. These resources include federal agencies, state agencies, local governments, non-profit groups and commercial businesses. The activities of these groups vary and may be outside the control of the County; Charlotte County supports and encourages the efforts to educate the public on manatees and their conservation.

These groups include:

- Charlotte County Government
- Charlotte Harbor Environmental Center
- Charlotte Harbor National Estuary Program
- Florida Department of Environmental Protection
- U.S. Fish and Wildlife Service
- Florida Fish and Wildlife Conservation Commission
- Save the Manatee Club
- West Coast Inland Navigation District

There are various manatee educational efforts that are currently ongoing in Charlotte County. Charlotte County, in collaboration with Florida Sea Grant and the FWC, developed the Charlotte Harbor Boater's Guide in 1994 (Appendix C). To date over 500,000 guides have been distributed through marinas and boat facilities, public facilities, chambers of commerce, tourism bureaus, and bait and tackle shops. The boater's guide provides a resources directory, navigational information, location information for speed zones, boat ramps, artificial reefs, marinas, and other waterside facilities, as well as information on manatees, environmentally sensitive areas, and conservation. This guide is regularly updated to show the latest information on manatee protection and vessel speed regulations in Charlotte County; the most recent update occurred in 2011. It is the intent of Charlotte County to increase awareness to the target boater audience and distribution of the boater's guide through the Charlotte County Tax Collector's Office with direct mailings with new water vessel registrations. Funding for continuous development and printing of updated versions is secured through Charlotte County, grant funds from the West Coast Inland Navigation District (WCIND), the Florida Boating Improvement Trust Fund and the CHNEP.

Currently manatee awareness signs are posted at most of Charlotte County's public boat ramps. These signs provide basic manatee information to boaters throughout Charlotte

County. Charlotte County will be developing new boater access signage for all of the County's public boat ramps. These signs will include manatee information excerpted from the Boater's Guide and augmented with additional manatee information, maps depicting speed zones, as well as other pertinent information relating to wildlife and habitat safety and protection.

Monofilament fishing line is not biodegradable and presents hazards to both marine life and birds through entanglement and ingestion. In partnership with volunteers and Florida Sea Grant, Charlotte County has an active and successful Monofilament Line Recycling Program in place at all Charlotte County boat ramps and fishing piers; helping to remove this waste product from our waters, improving environmental health. Additional educational opportunities exist around monofilament and entanglement by incorporating FWC entanglement signage at some or all of the collection locations. Charlotte County supports and participates in the annual International Coastal Cleanup and the Great American Cleanup organized by Keep Charlotte Beautiful; who organizes diving excursions for in water cleanup as part of these events. These events help to remove trash and other pollutants from local waterways that have potential to injure manatees through ingestion or entanglement.

In addition to these ongoing activities, Charlotte County would like to implement additional manatee awareness programs to augment what is currently being done and to increase educational opportunities for the public. Charlotte County will develop a single sheet educational pamphlet that can be disseminated through advisory committees, bait shops, marinas, boat ramp parking permits and boater registrations; but that can also serve as an insert to augment existing publications such as the Charlotte County Visitor's Guide, Charlotte County Blueways Guide, and the Charlotte Harbor Boater's Guide. This pamphlet will also be provided to law enforcement to disseminate.

Charlotte County will develop a web page dedicated to manatee information, including biology, habitat needs, threats, and conservation measures. The web page will also include maps depicting manatee speed zones within Charlotte County. The link to the manatee awareness page will be placed throughout Charlotte County's website, from the Natural Resources page, boat ramp page and the online Boater's Guide.

Charlotte County anticipates partnering with local non-profit groups, the FWC and CHNEP to develop a video educating new boaters and visitors to Charlotte about manatee protection, conservation, speed zones and boater safety. This video would play on Charlotte County Government channel, CCTV, be available on the County's website and be available to various groups for presentations.

Charlotte County will create an educational packet and/or utilize FWC's educational packets directing manatee education to youth and school age children. This packet would be available to public schools, and disseminated at public outreach events such as the Charlotte Harbor Nature Festival and possibly incorporated into Charlotte County recreational events such as summer camp.

Charlotte County would like to seek funding to implement a cooperative project with the Charlotte Harbor Education Center, a local nonprofit organization, to create a manatee educational exhibit at the Cedar Point Environmental Park's environmental center and possibly the Charlotte Harbor Education Center's Alligator Creek offices. This exhibit would focus on manatee history, biology, threats, and conservation efforts. The Cedar Point Environmental Park's environmental center receives over 7,200 visitors per year and provides educational displays and events such as hands on wading trips in the sea grasses of Lemon Bay.

7.0 Law Enforcement

Charlotte County has three geographic areas of manatee protection zones that require law enforcement patrols and enforcement. Enforcement of manatee zones in Charlotte County are administered locally by the Charlotte County Sheriff's Office, at the state level by the FWC and at the federal level by the United States Coast Guard and the USFWS. Current law enforcement activity in Charlotte County is as follows:

Charlotte County Sheriff

Number of on-water officers: 3

Number of vessels: 2

Patrol area: Charlotte Harbor, Peace River, Myakka River, Lemon Bay, ICW

Officers are not assigned to specific areas; patrol areas are determined by "calls".

Florida Fish and Wildlife Conservation Commission

Number of on-water officers: 5/day*

Number of vessels: 8

Patrol area: Charlotte Harbor, Peace River, Myakka River, Lemon Bay, ICW

Officers are not assigned to specific areas; patrol areas are determined by boat volume.

*Note: These officers can be called off the water at any time for other wildlife related issues.

U.S. Fish and Wildlife Service

Number of on-water officers: variable

Number of vessels: variable

Patrol area: Peace River, Lemon Bay, ICW

Officers are not assigned to Charlotte County waters as a regular patrol, but provide special details within Charlotte County related to manatee speed zone enforcement.

United States Coast Guard

Number of on-water officers: variable

Number of vessels: variable

Areas patrolled: Tampa Bay to Charlotte Harbor

Officers are not assigned to Charlotte County waters as a regular patrol. Select waters of Charlotte County are patrolled by Coast Guard Station Cortez, (Manatee, Sarasota, and portions of Charlotte and Hillsborough Counties). The amount of time that USCG spends in Charlotte County varies from week to week.

Enforcement of manatee speed zones plays a critical role in managing manatee habitats. Enforcement efforts in Charlotte County are an ongoing collaboration between multiple agencies. Local and state enforcement agencies are overburdened by the amount of waterways that need to be monitored and patrolled. Although Charlotte County only has two idle speed zones, six slow speed zones and seven 25 MPH manatee speed zones (Figure 2.3 and 2.4 (a)(b)(c)), there are 315 miles of waterways throughout the County where boating safety is a more immediate concern.

The primary obstacle for boosting marine enforcement of manatee speed zones is allocation of funds for personnel and resources. One objective of the MPP is to aid in the request for appropriations to further marine enforcement such as funding special patrols or equipment needs, through outside funding sources such as West Cost Inland Navigational District (WCIND). WCIND is a multi-county special taxing district that plays a vital role in waterway projects by promoting safe navigation, boating, fishing and beach-oriented projects. Though there is currently no long-term commitment to fiscal resources, Charlotte County will be looking for alternative funding to fund special patrols through WCIND and Boater Improvement Fund (BIF) funding. These patrols would take place during peak boating use such as holidays and months where watercraft-related manatee mortalities have historically been high.

Additionally, improved communication and coordination between local and state law enforcement agencies with regards to marine patrols could improve the effectiveness of implementing regulations relating to marine safety and manatees. Currently coordination between local and state enforcement agencies is limited to event specific coordination and the Marine Law Enforcement Task Force. As part of this plan, the County would like to evaluate the ability for local and state marine law enforcement to share citation information that would reduce redundancy and potentially streamline enforcement actions.

8.0 Implementation and Monitoring

This section describes activities, programs, strategies, research and the need for additional data to be considered as a means of implementing the MPP and for ensuring its relevancy into the future. The mechanism for revision of the MPP is also included in this section.

8.1 Implementation Action

8.1.1 Adoption and Permitting

Action Item: The County will incorporate the MPP and a corresponding amendment to CST Policy 1.4.7: Manatee Protection Plan of the Charlotte 2050 Comprehensive Plan within 6-months after acceptance of the plan. This proposed amendment shall be substantially in the following format:

CST Policy 1.4.7: Manatee Protection Plan

The County accepts the Manatee Protection Plan which has been developed in coordination with and approved by the Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service. The MPP has been determined to balance the need for manatee protection and the need for recreational and commercial uses and was accepted by the BCC on February 14, 2017.

Funding: Staff time; no anticipated additional costs

Anticipated Schedule: Staff will initiate a plan amendment to amend CST Policy 1.4.7 and transmit it to the Department of Economic Opportunity and other state agencies for review within 6 months after approval of this MPP by state and federal agencies.

8.1.2 Habitat Protection Measures

Action Item: Continue efforts to protect manatee habitat from degradation by protecting seagrasses from dredge and fill activities through the regulatory permitting process.

Charlotte County shall continue to require all Federal and State permits be obtained prior to commencement of construction. Implementation of the MPP will be done by Charlotte County Natural Resources Division by ensuring that building permits, waterway permits, dock permits, rezone petitions, and land development proposals, at minimum, will be evaluated for consistency with manatee protection regulations and the Boat Facility Siting Strategy as described in Section 5.0.

Funding: Staff time; no anticipated additional costs

Schedule: Implementation of the MPP will occur immediately after the MPP being formally acceptance by the County, FWC and USFWS.

Action Item: Continue to acquire and protect sensitive manatee habitat through land acquisition grants.

Charlotte County has pursued and been awarded land acquisition grants in the past.

Funding: Grants as available

Schedule: Unknown, acquisitions of lands will be dependent on availability of lands and if available lands meet the ranking criteria of the Conservation Charlotte County program

Action Item: Continue to support water quality improvement programs such as the CHNEP through staff time and partnering opportunities.

Funding: Approximately \$15,000/year plus staff time

Schedule: Funding ongoing and staff time as requested by CHNEP

Action Item: Continue to appropriately manage upland County preservation lands to treat runoff prior to discharge to tidal waters.

Charlotte County manages approximately 4,500 acres of preservation land throughout the County. Ongoing management activities include: invasive exotic vegetation treatments, mechanical vegetation reduction, prescribed burning and hydrologic restoration.

Funding: Existing ad valorem funding; no new funding is expected

Schedule: Ongoing

8.1.3 Education

Charlotte County is committed to implementing the educational awareness plans identified; however, it is not a state funded program and implementation of this program is dependent on funding levels. As funding becomes available Charlotte County will implement the following action items.

Action Item: Development of a manatee informational web page.

The purpose of the County's manatee website will be to provide manatee information, including biology, habitat needs, threats, and conservation measures, along with the County's MPP, speed zone maps, and related permitting information.

Funding: Staff time; no anticipated additional costs.

Anticipated Schedule: Development of manatee website within two years of the MPP implementation.

Action Item: Development and/or disbursement of a single sheet supplemental educational pamphlet with the purchase of parking permits at County facilities.

Charlotte County will develop or disseminate existing educational pamphlets, such as those developed by FWC or Save the Manatee group. These will be provided with the purchase of a parking pass in Charlotte County, which is required for all County boat ramp locations. Staff will also work with the Tax Collector's office to distribute these with boat registrations.

Funding: Initial development/printing will be through Charlotte County Natural Resources; grants utilized for future funding when available.

Anticipated Schedule: Initial development/printing is anticipated to occur within three years of the MPP implantation.

Action Item: Development of a manatee educational video.

Charlotte County anticipates partnering with FWC and local non-profit groups to develop a video educating new boaters and visitors to Charlotte about manatee protection, conservation, speed zones and boater safety.

Funding: No dedicated funding at this time; will pursue grant funding.

Anticipated Schedule: Partnering, grant funding and development is anticipated to begin within the first four years of the MPP implementation.

Action Item: Installation of manatee educational signage and speed zone map kiosks at County boat ramps.

Charlotte County Community Services operates 11 boat ramps throughout the County and will work with FWC on the design and develop a schedule to post manatee information signs at these facilities.

Funding: Community Services Parks and Natural Resources Division operating budget.

Anticipated Schedule: Sign development is anticipated to begin within the first two years of the MPP implementation.

Action Item: Creation of a manatee educational exhibit at Cedar Point Environmental Park.

Charlotte County would like to partner with the Charlotte Harbor Education Center to create a manatee educational exhibit at the Cedar Point Environmental Park's environmental center to focus on manatee history, biology, threats, and conservation efforts.

Funding: No dedicated funding at this time; will pursue grant funding.

Anticipated Schedule: Partnering, grant funding and development is anticipated to within the first four years of the MPP implementation.

8.1.4 Law Enforcement

Action Item: Assist in Boater Revolving grant funding and appropriations for Charlotte County Sherriff's Department for equipment needs.

Funding: Staff time to develop grant applications.

Schedule: Pursue grant funding in County Fiscal Year 2018/2019

Action Item: Assist in Boater Revolving grant funding and appropriations to fund special patrols.

Special patrols would take place during peak boating use such as holidays and months where watercraft-related manatee mortalities have historically been high.

Funding: Staff time to develop grant applications.

Schedule: Pursue grant or WCIND funding in County Fiscal Year 2018/2019

Action Item: Evaluate the ability for local and state law enforcement to easily share citation information.

Funding: Staff time to meet with local and state agencies to determine the feasibility of information sharing within the confines of both agencies data systems.

Schedule: Start communications with law enforcement agencies within two years of the implementation of the MPP.

Action Item: Evaluate the ability to establish a local Marine Task Force to meet annually or semi-annually to include local and state law enforcement, as well as local and state biologists to help promote communication, efficiency and improve manatee conservation.

Funding: Staff time to meet with local and state agencies to determine the feasibility of establishing a task force.

Schedule: Start communications with law enforcement agencies within two years of the implementation of the MPP.

8.2 Periodic Review

The Charlotte County MPP will be reviewed a minimum of every five years after it is formally approved by both Charlotte County Board of County Commissioners, the USFWS and FWC. The clock for revision for these routine reviews will start once the MPP has been officially approved by the County, FWC and USFWS, and using the date of the Charlotte County Board of County Commissioner approval of the plan/revisions.

Charlotte County will provide FWC and USFWS with a five-year MPP assessment report that will summarize the status of educational efforts, law enforcement activities, funding efforts, and permitting issues that may impact manatees. This report will also include updates on action items in the implementation portion of the plan, as well as any issues, concerns or successes regarding implementation. Assessments of additional information since the original approval will also be included in this report. This report on the status of the implementation of the MPP will include the County's recommendation as to whether or not revisions are needed to the plan, and (what if any) additional data may need to be collected.

The MPP will be revised as needed if determined by any one of the parties (County, FWC and USFWS) and revisions must be approved by the Commissioners, the USFWS and FWC. At the end of the 5-year cycle and review of the County's 5-year assessment report, FWC

and USFWS will determine if the plan still addresses their regulatory manatee conservation and protection requirements. If at least one of the partner agencies has determined that a major MPP revision is required in order to meet their requirements, the agency will notify the other partner agencies in writing of the need for revision and discussion about how to proceed. Efforts will be made by all agencies to revise and approve revisions within one (1) year of the date it is determined that major revisions are needed. If major delays occur and the needs of the concerned agency are not being met in a timely fashion, boat facility siting may revert to case by case reviews (including but not limited to conclusions such as Non-Preferred category in areas of high manatee use). It may also be determined that only minor revisions are required and that the MPP still meets the state and federal conservation and protection requirements. Such revisions will be accomplished as soon as possible, ideally within one (1) year of the date it is determined the minor revisions are needed.

Major and minor revisions to the MPP will incorporate any newly-available data and information. This type of data and information may include, but is not limited to: data on manatee use, distribution, and mortality, boating use, including boating activity patterns and registration data, demographic information, updated information in the marine facilities inventory, and/or studies or information indicating future needs for research. In addition, the boat facility siting recommendations, law enforcement, habitat protection and manatee educational effort may require revision.

Other information to be considered during the routine review of the MPP includes, but is not limited to: state or federal assessment of the adequacy of manatee zones, if available (any changes in the zones will be reflected in the revised MPP), and state or federal assessment of the southwest management unit of the Florida Manatee if available.

Charlotte County recognizes that some instances may exist where the routine review cycle must be abbreviated. In the event that an exceptional re-evaluation of the plan is required, the next routine review will be scheduled five years from that revision date. The following is a list of such exceptional circumstances. Any failure to conduct the review and revisions according to the stated schedule shall not invalidate the plan nor any provisions of the county code associated with it. Thus, failure to conduct the update on schedule in no way affects the implementation of this plan.

- State or Federal delisting of the Florida Manatee – upon promulgation and implementation
- Significant change in legal requirements – as required by law
- Manatee Unusual Mortality Event as defined by FWC – immediate review if requested by FWC
- Special review initiated by the Board of County Commissioners
- The provisions and recommendations in the plan no longer address the manatee conservation and protection requirements of FWC or USFWS¹.

¹If at least one of the partner agencies (Charlotte County, FWC, or USFWS) has determined

that a major MPP revision is required, the agency will notify the other partner agencies in writing of the need for revision and discussion about how to proceed, similar to the process described in the 5-year review. However, every effort will be made to address issues in the 5-year interval, if possible.

The partnership between Charlotte County, FWC, and USFWS formed to implement and revise this MPP can be re-evaluated by these parties at any time. If one or more of the partner agencies has issues with the continued implementation of the MPP, they will contact the other partner agencies to discuss these issues. If the concerns cannot be resolved one or more of the partner agencies chooses to withdraw from MPP participation. The partner agency wishing to withdraw will send written notice to the other partners that the MPP will no longer be implemented by their agency. At the County level, the Board of County Commissioners must approve any initiation by the County to withdrawal from MPP participation. If and one or more of the partner agencies chooses to no longer participate in MPP implementation the MPP will no longer be considered approved guidance for use in Federal, State or local planning and permitting processes. Should that occur, the review process will then revert back to a case-by-case review of projects to determine impacts to manatees and their habitat.

8.3. Future Data Needs

Charlotte County will aim to keep the MPP current with the best available data and management practices. Prior to the next MPP review and revision, the data collection efforts, dependent on funding, may include:

- A boater speed zone compliance study to determine current levels of compliance with boating speed zones and to identify times and locations of greatest non-compliance.
- An updated boater use study.
- Updated countywide manatee aerial surveys, ideally twice a month for 24 months for at least two years prior to the next plan review (as funding permits).
- An updated boat facility inventory.
- Summary reports of law enforcement special operations (as funding permits).

These needs will be addressed as funding is available; Charlotte County will pursue cost share opportunities with FWC when possible.

8.4 Funding Provisions

Charlotte County will attempt to utilize funds from the WCIND, Florida Boating Improvement Program (FBIP), Boater Improvement Fund (BIF), sponsors when available, and grant funding to implement the educational component as well as other aspects of the MPP as needed. The FBIP also grants funds for boating studies, boating educational programs as well as improvements to governmental boating facilities.

The Save the Manatee Trust Fund, which funds the FWC manatee management program, is comprised of proceeds from the sale of manatee automobile license plates and decals, vessel registration and donations. The County will partner with FWC to share resources in order to accomplish some of the future data needs and studies discussed above, when possible.

9.0 Literature Cited

- Ackerman, B.B. 1995. Aerial surveys of manatees: A summary and progress report, pp 13-33 In: The Population Biology Of The Florida Manatee. U.S. Dept. of The Interior Information and Technology Report 1.
- Beck, C.A., and J.P. Reid 1995. An automated photo-identification catalog for studies of the life history of the Florida manatee. Pp 120-134 in T.J. O'Shea, B.B. Ackerman, and H.F. Percival, eds. Population biology of the Florida manatee. National Biological Service Information and Technology Report 1. Washington, DC. 289 pp.
- Charlotte County. 2010. Charlotte 2050 Comprehensive Plan.
- Charlotte Harbor National Estuary Program. 2008. Comprehensive conservation and management plan. Adopted April 2000. Updated March 2008. 170pp.
- Charlotte Harbor National Estuary Program Water Atlas 2012
- Deutsch, C. J., H. H. Edwards, and Margaret E. Barlas. 2006. Florida manatee foraging behavior around a winter warm-water refuge. Final Report to the Wildlife Foundation of Florida. Grant No. CWTO405-12. FWC/FWRI file FCWTO405-12-F. 42 pp.
- Deutsch, C.J., J.P. Reid, R.K. Bonde, D.E. Easton, H.I. Kochman, and T.J. O'Shea. 2003. Seasonal movements, migratory behavior, and site fidelity of West Indian manatees along the Atlantic coast of the United States. Wildlife Monographs 67(1). January 2003.
- Deutsch, C.J., J.P. Reid, R.K. Bonde. 1998. Radio-tracking manatees from land and space: Tag design, implementation, and lessons learned from long-term study. Marine Technology Society Journal 32(1) 18-29.
- Etheridge, K., G.B. Rathbun, J.A. Powell, and I.J. Kochman 1985. Consumption of aquatic plants by the West Indian manatee. Journal of Aquatic Plant Management 23:21-25.
- Florida Fish and Wildlife Conservation Commission. 2007. Florida Manatee Management Plan. September 2007. 178pp + app.
- Gorzelay, J.F. 2002. A characterization of recreational boat traffic patterns prior to the establishment of speed restrictions in Lemon Bay, Florida. Final report submitted to the U.S. Fish and Wildlife Service. MML Laboratory Technical Report 966. 62pp.
- Gorzelay, J.F. 2006. An assessment of changes in recreational boat traffic resulting from the placement of new speed zones in Lemon Bay, Florida. Final report submitted to the National Fish and Wildlife Federation. MML Laboratory Technical Report 1118. 51pp.
- Hartman, D.S. 1979. Ecology and behavior of the manatee (*Trichechus manatus*) in Florida. The American Society of Mammalogists Special Publication No. 5. 153 pp.

Irvine, A.B., and H.W. Campbell. 1978. Aerial census of the West Indian manatee, *Trichechus manatus*, in the southeastern United States. *Journal of Mammalogy* 59:613-617.

Laist, D.W., and J.E. Reynolds III. 2005. Florida manatees, warm water refuges, and an uncertain future. *Coastal Management*, 33:279–295,

Lefebvre, L.W., M. Marmontel, J.P. Reid, G.B. Rathbun, and D.P. Domning. 2001. Status and biogeography of the West Indian manatee. Pp 425-474 in C.A. Woods and F.E. Sergile, editors. *Biogeography of the West Indies; new patterns and perspectives*. CRC Press LLC, Boca Raton, Florida, USA.

Marsh, H., T.J. O'Shea and J. E. Reynolds III. 2012. *Ecology and Conservation of the Sirenia: Dugongs and Manatees*. *Conservation Biology* 18, Cambridge University Press. Pp. 1–521.

O'Shea, 1995. Waterborne recreation and the Florida manatee. Pp 297-311 in R.L. Knight and K.J. Gutzwiller, eds. *Wildlife and recreationists: coexistence through management and research*. Island Press, Washington, DC.

Packard, J.M., D.B. Siniff, and J.A. Cornell. 1986. Use of replicate counts to improve indices of trends in manatee abundance. *Wildlife Society Bulletin* 14:265-275.

Powell, J.A., 1981. The manatee population in Crystal River, Citrus County, Florida. Pp 33-40 in R.L. Brownell Jr., and K. Ralls, eds. *The West Indian manatee in Florida*. Proceedings of a workshop held in Orlando, Florida.

Rathbun, G.B., J.P. Reid, R.K. Bonde, and J.A. Powell. 1995. *Reproduction in free-ranging Florida manatees*. Federal Government Series: Information and Technology Report 1 – Population biology of the Florida manatee.

Reid, J.P., R.K. Bonde, and T.J. O'Shea. 1995. *Reproduction and mortality of radio-tagged and recognizable manatees on the Atlantic Coast of Florida*. Federal Government Series: Information and Technology Report 1 – Population biology of the Florida manatee.

Reynolds, J.E. III. 1999. Efforts to conserve the manatees. Pp 267-295 in J.R. Twiss Jr., and R.R. Reeves eds. *Conservation and management of marine mammals*. Smithsonian Institution Press. Washington, DC.

Reynolds III, J.E., and J.R. Wilcox. 1994. Observations of Florida manatees (*Trichechus manatus latirostris*) around selected power plants in winter. *Marine Mammal Science* 10(2): 163-177.

Runge M.C., C.A. Sanders-Reed, and C.J. Fonnesebeck. 2007a. A core stochastic population projection model for Florida manatees (*Trichechus manatus latirostris*). Final report. U.S. Geological Survey, Patuxent Wildlife Research Center, Laurel, MD.

Runge, M., C. Langtimm, and W. Kendall. 2004. A stage-based model of manatee population dynamics. *Marine Mammal Science*, 20(3):361–385, 2004.

Ruppert, T. Marine regulatory study for Charlotte County Florida. Final report submitted to the Charlotte County Natural Resources Program. 57pp.

Sidman, C., T. Fik, J. Gorzelany, and B. Sargent. 2006. Greater Charlotte Harbor. A comparative spatial analysis of mail and aerial survey derived boating data. Florida Sea Grant Publication (Draft). 26 pp.

Sidman, C., R. Swett, T. Fik, S. Fann, D. Fann, and B. Sargent. 2005. A recreational boating characterization for greater Charlotte Harbor. Florida Sea Grant Publication TP-150. 83pp.

Sidman, C, and R. Flamm. 2001. A survey of methods for characterizing recreational boating in Charlotte Harbor, FL. Florida Sea Grant Publication TP-109. 57pp.

Swett, R., T. Fik, T. Ruppert, G. Davidson, C. Guevara, and B Staugler. 2012a. Planning for future recreational boating access to Charlotte County Waterways 2010 – 2050. Florida Sea Grant Publication TP-186. https://www.flseagrant.org/wp-content/uploads/tp186_charlotte_marine_access_study1.pdf

Swett, R., D. Fann, and B. Staugler. 2012b. Regional waterway management system for Charlotte County, Florida. Florida Sea Grant Publication TP-181.

Taylor C.R., Powell J.A., Frisch K.J. 2005. Evaluation of manatee boat speed zones. Final Programmatic Report to the National Fish and Wildlife Foundation, Washington, DC. Contract No. 1999–0273–002

U.S. Fish and Wildlife Service. 2001. Florida Manatee Recovery Plan (*Trichechus manatus latirostris*). Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 144pp.

Wright, D.D., B.B. Ackerman, R.K. Bonde, C.A. Beck, and D.J. Banowetz. 1995. Analysis of watercraft-related mortality of manatees in Florida, 1979-1991. Pp 259-268 in T.J. O’Shea, B.B. Ackerman, and H.F. Percival, eds. Population biology of the Florida manatee. National Biological Service Information and Technology Report 1. Washington, DC.

Yarbro, L.A., and P.R. Carlson Jr. (eds.) 2011. Seagrass Integrated Monitoring and Mapping for The State of Florida. Mapping and Monitoring Report No. 1. Florida Fish and Wildlife Conservation Commission. 202pp.

10.0 List of Appendices

Appendix A – Charlotte County Charlotte 2050 Plan Excerpts

Appendix B – Standard Manatee Protection Measures

Appendix C – Charlotte Harbor Boaters Guide

Appendix D – Manatee Data Review 2010-2014

Appendix E – Supplemental Maps: Aerial Data overlaid with Manatee Mortality

Appendix F – Florida Sea Grant: Planning for future recreational boating access to Charlotte County Waterways 2010 – 2050