Regional Waterway Management System
For North Manatee County

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Acronyms

DGPS  Differential Global Positioning Systems
DOQQ  Digital Orthophoto Quarter Quadrangles
ESRI  Environmental Systems Research Institute, Inc.
FDEP  Florida Department of Environmental Protection
FSG   Florida Sea Grant
GIS   Geographic Information System
ICW   Intracoastal Waterway
MLLW  Mean Lower Low Water
MOA   Memorandum of Agreement
NOAA  National Oceanic and Atmospheric Administration
PIN   Parcel Identification Number
SWFWMD Southwest Florida Water Management District
USACE U.S. Army Corps of Engineers
USGS  U.S. Geological Survey
WCIND West Coast Inland Navigation District
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Executive Summary

This Regional Waterway Management System for northern Manatee County provides the scientific base and information necessary to meet the waterway management needs of waterfront neighborhoods, extending from the Cortez bridge north to the Hillsborough County line, and including the water bodies of Palma Sola Bay, Holmes Beach, Bimini Bay, Anna Maria Sound, Manatee River (upstream to the I-75 bridge), Snead Island Cutoff, and Terra Ceia Bay.

Information is presented in tables and maps on approximately 153 miles of navigable waterways, 4,478 boats, 7,663 moorings, 2,965 shore facilities, and 1,148 boating-related signs. The report is based on regional (1:24,000) and large-scale (1:2,400) mapping of water depth, boat and facility characteristics, signage, and habitat (sea grass, mangrove). The detailed analysis delineates and quantifies, at a 0.5 ft resolution, levels of boat accessibility to the open bay, and the location and extent of channel depth restrictions.

The methodology and objective of the North Manatee County Project stem from a Pilot Study conducted by Florida Sea Grant (FSG) and the West Coast Inland Navigation District (WCIND). The Pilot Study created the design and implemented a test application of a management system for southwest Florida waterways that is consistent with municipal, county, Florida Department of Environmental Protection (FDEP), and WCIND goals, of facilitating safe boating and reducing boating impacts on natural resources. The design criteria are: (a) fit channel maintenance to boat draft needs; (b) minimize impacts on bay habitats; (c) prioritize and evaluate management alternatives on a regional scale; and (d) identify information products, for boaters and shore residents, that encourage environmental awareness by users of neighborhood waterways and boat access channels.

The waterway management needs of northern Manatee County are uniquely defined by the geography of boat source areas (trafficsheds); there are waterways with many boats, and areas with few boats. The relations of concentrations of boats to access channel length, and of boat draft to controlling channel depth determine the degree of boat accessibility and channel restrictions. An understanding of these relations is fundamental to developing and implementing rational waterway management policy. The results of this study argue in favor of prioritizing channel improvements based on greatest need; they also highlight conditions within north county waters that should guide region-wide bay water use policies.

The results indicate that the greatest problems of boat access and channel restrictions occur in a relatively few trafficsheds. The trafficsheds which contain the
greatest numbers of restricted boats are: Sea Grape Harbor, Bimini Bay/Key Royale, and Regatta Pointe; they account for 42.0 percent of the boat access problems and 15.3 percent of the channel restrictions. Manatee County should concentrate initial waterway management efforts at these locations. Another eight waterways (Palma Sola Estates, Golf and Bay Estates I, Fisherman Village, Warners Bayou, Braden Castle Park/Carleton Arms, Tropic Isles, San Remo Shores, and Cuts Edge Marina) account for an additional 23.5 percent of the boat access problems and 29.0 percent of the channel restrictions. In some cases, such as Sea Grape Harbor, Regatta Pointe, Braden Castle Park/Carleton Arms, and Golf and Bay Estates I, relatively short segments of channel restrictions impede relatively large numbers of boats: the high benefit-to-cost is an incentive to make channel improvements at these locations.

There are several secondary access channels, serving numerous trafficsheds, which are heavily used by boaters to gain entry to the Intracoastal Waterway and the Manatee River or Terra Ceia Bay. They are the Palma Sola Bay entrance and the Cutoff, both of which have relatively short lengths of restricted channel segments. The high volume of boat traffic traversing these arteries makes them strong candidates for maintenance dredging.

A large number (104) of trafficsheds (46.6 percent of all boat source areas) have relatively short access channels and few boats. There are access problems at some of these locations but the low numbers of boats and channel lengths per waterway mean that the per unit channel improvement cost will be high relative to the improved access for each boat. Many of these small trafficsheds are situated on the Manatee River where channels link one or two single-family residence boat docks to the main river channel.

The waterway inventory information in the project’s Geographic Information System (GIS) database has value and application beyond the bay water planning and management results presented in this report. This information should be reformatted and provided to shorefront residents and boaters in the trafficsheds targeted for waterway improvements, as Waterway Maps, showing channel center-line depths, boat facilities, and natural resource conditions. (The WCIND and FSG have produced similar maps of anchorages.) This information can sensitize users to the environmental conditions of the waterways and provide a basis for instilling stewardship and responsible boating practices.

Manatee County should consider implementing these recommendations under the Memorandum of Agreement (MOA) for Regional Waterway Systems Management. This MOA is designed to offer local governments and local waterfront community organizations with a mechanism to effect regional waterway improvements within an ecosystem, place-based management approach. The MOA provides an avenue for pursuing region-wide permit review and project applications. A proposal for needed maintenance dredging should be submitted to the FDEP that is county-wide in
coverage and comprehensive in scope, based on the results of this Project covering north county waters, and the Sarasota Bay Pilot Study which covers south county waters.

Manatee County and the WCIND have an investment in this Regional Waterway Management System. This system should be maintained and enhanced in order to respond to the county’s growing needs for rapid assessment and comprehensive geographic analysis of its bay water resources.

The Regional Waterway Management System can be strengthened by linking it to the county’s upland databases. This will facilitate responding to more complex issues which transcend land-water boundaries, such as identifying sources of sedimentation and allocating maintenance dredging costs based on sediment-source contributors and waterway users.

The Regional Waterway Management System database should be updated periodically with county-wide boat information. The WCIND has developed a preliminary plan based on revising the annual Vessel Registration Form. This plan, to incorporate information on boat type, draft and location onto the form, offers a systematic updating method which should be pursued through the County Tax Collector’s Office and the State Bureau of Vessel Titles and Registrations.

The bathymetric surveys should be updated, as needed, to identify shoaling conditions of the waterways. The WCIND is collaborating through Florida Sea Grant with the National Oceanic and Atmospheric Administration (NOAA) Marine Chart Division in a program to redesign coastal charts for recreational waterway users. There are opportunities for Manatee County to partner with this federal charting agency and thereby share survey information on a periodic basis.

The appropriate County department should be provided with the GIS equipment, software and training to carry out waterway inventory and analysis, in order to respond to routine customer requests for information and technical services. The Florida Cooperative Extension Service and State University System should continue to provide institutional and professional support.