June 1997

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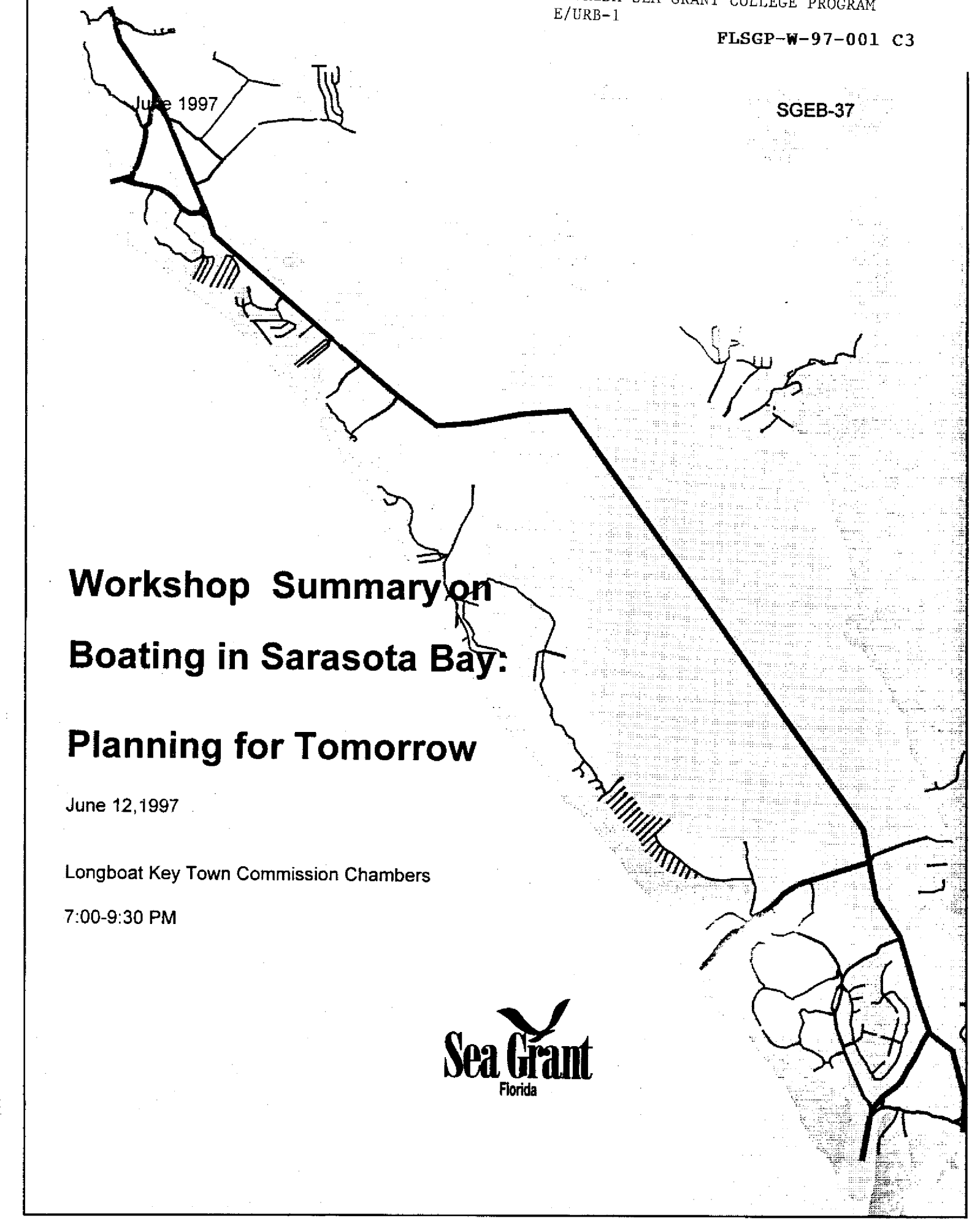


Workshop Summary on Boating in Sarasota Bay: Planning for Tomorrow

June 12,1997

Longboat Key Town Commission Chambers

7:00-9:30 PM

Sea Grant
Florida

Assessing Levels of Service for Boat Accessibility in Residential Canal Systems

by
Gustavo A. Antonini, University of Florida

This workshop has been designed to provide the recreational boating and shore resident communities of Sarasota Bay with knowledge of the results and potential local applications of a pilot waterway management study, carried out since 1991 by the University of Florida, Florida Sea Grant, the West Coast Inland Navigation District, along with Sarasota and Manatee Counties and the Town of Longboat Key as local sponsors.

The study offers an integrated, place-based approach to waterway management in Big Sarasota Bay, the 35 sq. mi. area from Cortez bridge (north) to Siesta Key bridge (south). There are 83 miles of waterways, 5,000 boats, 2,000+ facilities, 900+ signs, and 51 boat-source areas. The trafficsheds (boat-source areas) contain 95 percent of the berthed recreational boats and represent 64 percent of the waterway channels, canals and basin. A geographic information system (GIS) analysis provides detailed scientific results for regional and local applications. The analysis evaluates the relationship between boat draft and channel depth for each vessel in order to measure boat accessibility and channel restriction. Results provide a strategy for evaluating levels of service and prioritizing maintenance and remediation of channel conditions.

Restricted boats are evaluated under normal (Option A) and below normal (Option B) tide conditions (normal = mllw, below normal -1 ft. mllw). Most boats have unrestricted access (87% under A, 73% under B). Restricted boats are clustered: 3 areas account for 38%, 8 areas represent another 40%, under Options A and B (Figure 1). Restricted channels also are evaluated under Options A and B (Figure 2). Ten percent of the waterways restrict boat traffic under Option A and 40% under B. Relatively few canals require improvements under Option A, while many more locations do so under B. Maintenance dredging under Options A and B reflect relative amounts of material that must be removed to provide unrestricted access. Under Option A, a 1 ft. cut will satisfy 70% of the dredging requirement; under Option B, a 1 ft. cut satisfies only 23%. (There were only 16 daily occurrences of Option B (below normal) tidal conditions during 1995.)

The waterway analysis provides waterfront communities with an inventory and assessment of current boating conditions. Eighty maps are presented as:

(1) Regional Characterization, 1:24,000 scale (1" = 2,000'), 5 maps, characterizing bathymetry (color-shaded zones at 1' intervals), seagrass, mangrove, boats, facilities, signs;
(2) Detailed Inventory, 1:2,400 scale (1" = 200'), 25 maps, including color-shaded bathymetry (1' interval), supplemental 3' contours, center-line controlling depth, boat and facility locations, signage, seagrass, mangrove;
(3) Neighborhood Boat Accessibility, 1:4,800 scale (1" = 400'), 25 maps, showing level

of boat accessibility to open bay;
(4) Neighborhood Channel Restrictions, 1:4,800 scale (1" = 400'), 25 maps, showing location and extent of channel depth restrictions at 1' intervals.

Information and analysis are available for each of the 51 boat-source areas (Figure 3, Table 1). An example of the study products are the detailed inventory (Figure 4), boat accessibility (Figure 5), channel restrictions (Figure 6) maps, and data inventory (Table 2) for the Tarawitt waterfront community on north Longboat Key.

Maintainable navigation access is a valuable and high priority objective for canal-front communities. The study offers the following methods to achieve this end: (1) fit channel maintenance to boat draft requirements; (2) minimize impacts on surrounding bay habitats; (3) prioritize and evaluate management alternatives on a regional basis; (4) develop map products for boaters and shore residents to encourage environmental awareness and stewardship; and (5) empower waterway communities to take an active role in managing their waterways. The study also provides rationale for considering regional permit review of multiple local channel maintenance and habitat restoration projects, where rigorous waterway management systems criteria are used.

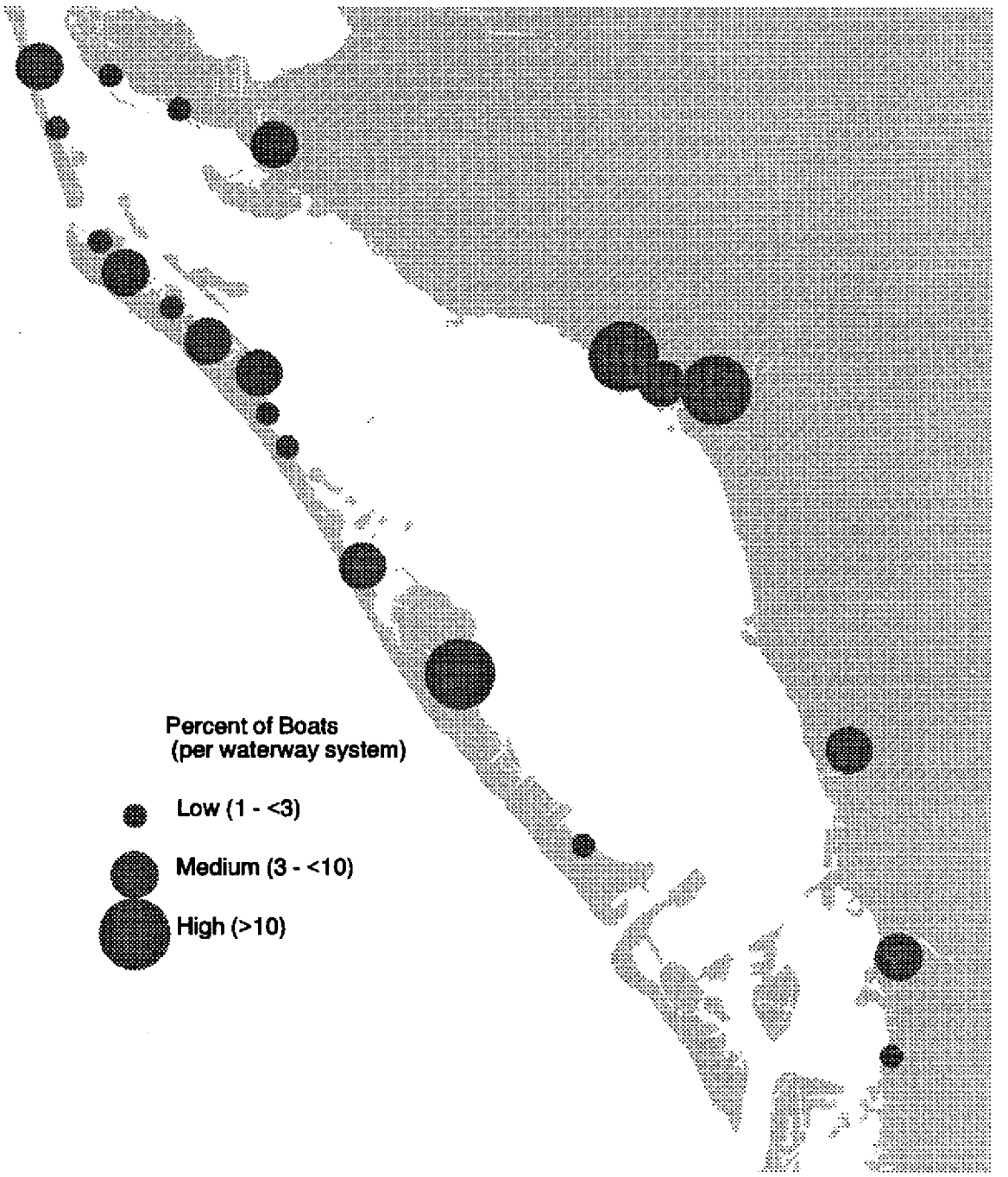


Figure 1. .General distribution of restricted boats.

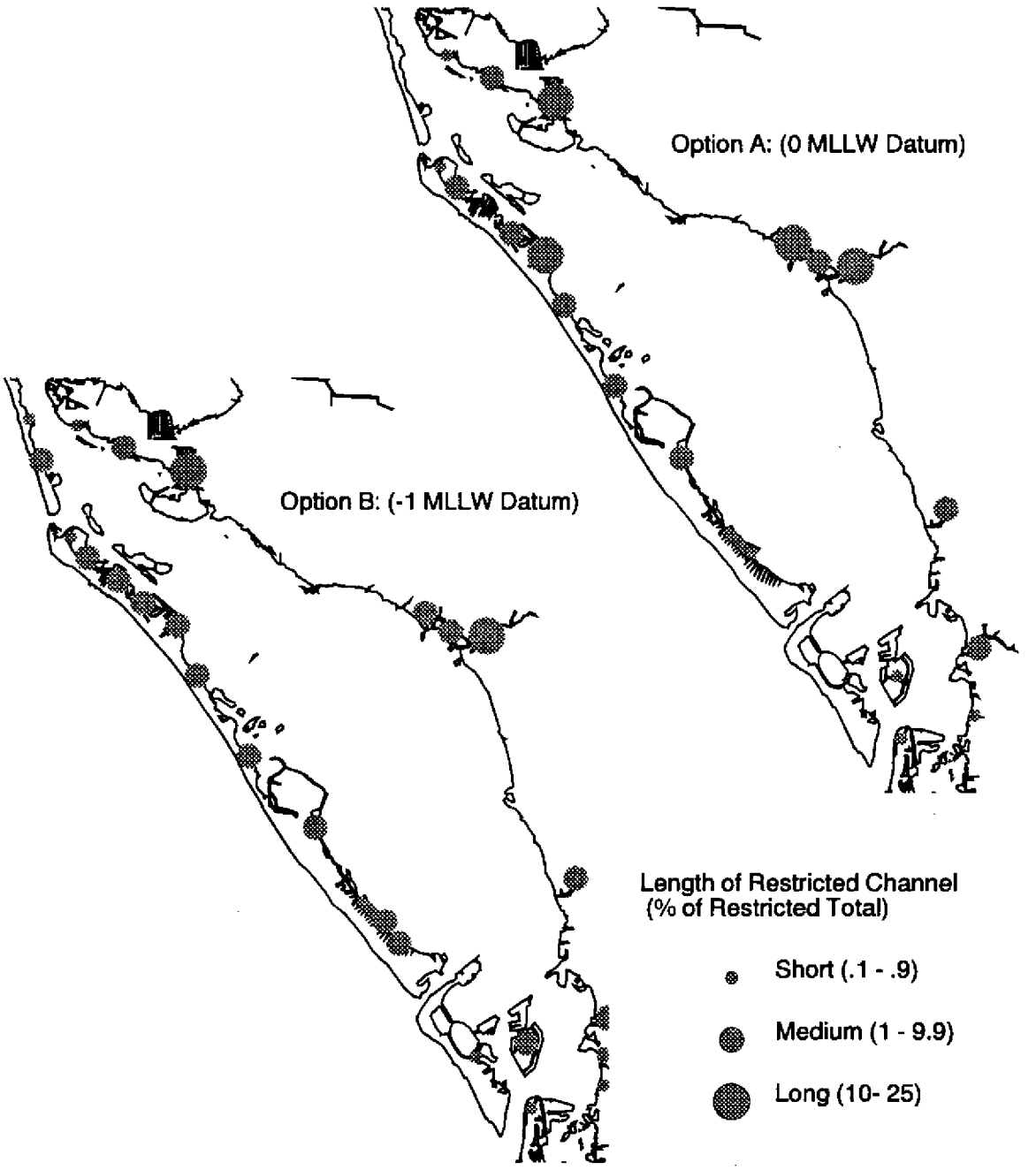


Figure 2. Distribution of restricted waterways.

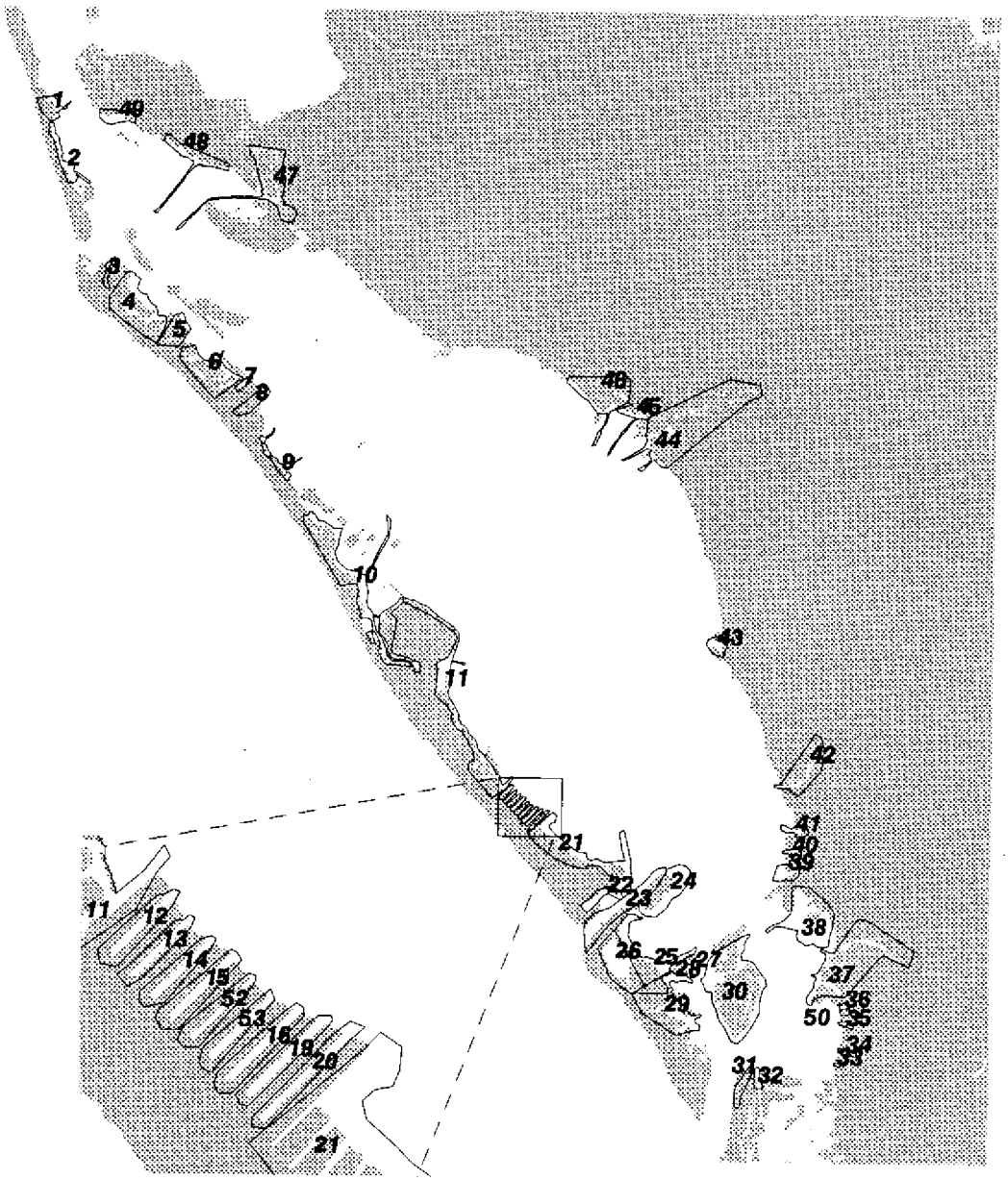
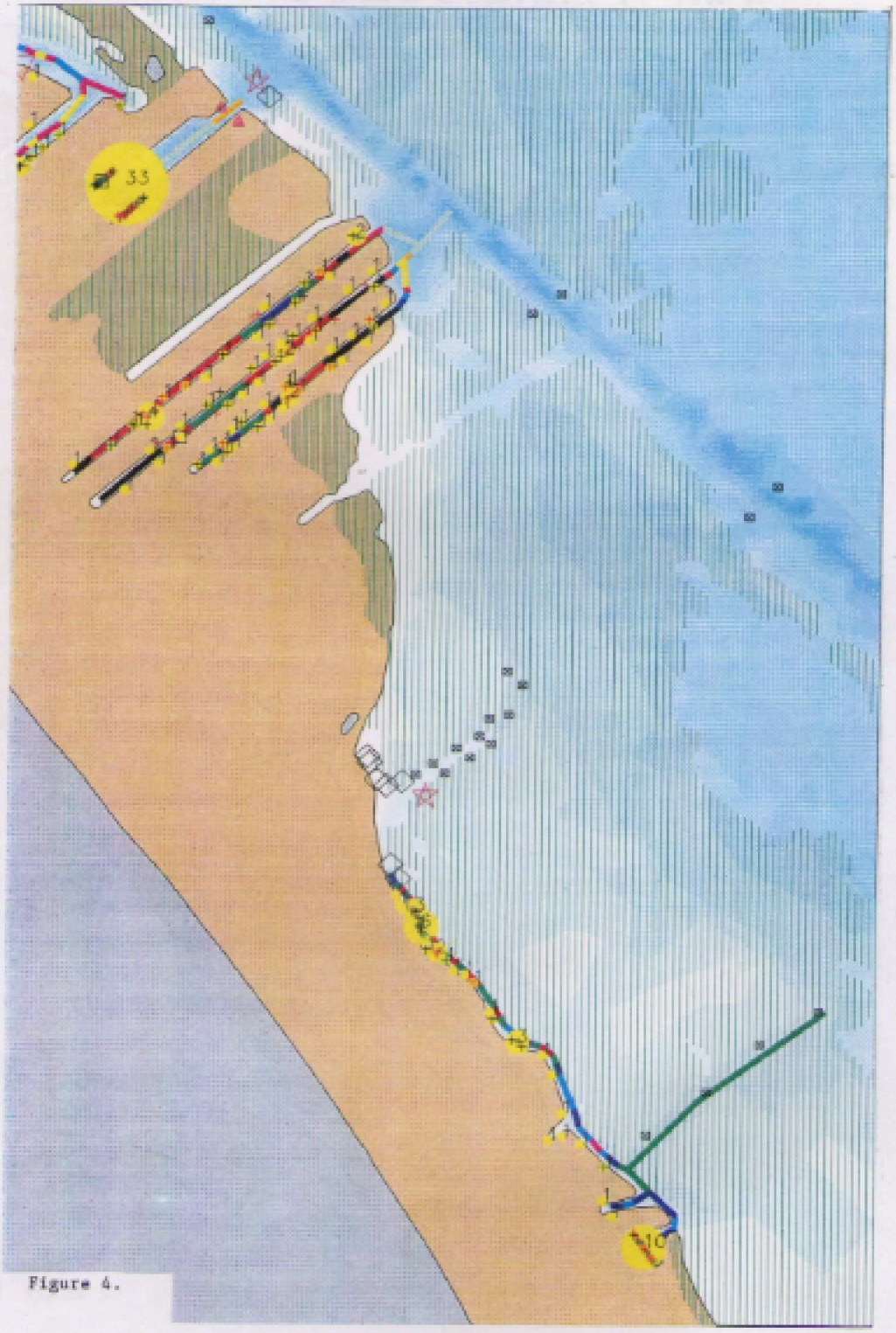


Figure 3. Trafficsheds. See table 1 for location names.

Trafficshed #	Name (Location)	Jurisdiction
0	Open Bay	All
1	Bradenton Beach North	Manatee
2	Bradenton Beach South	Manatee
3	Whitney Beach North	Longboat Key
4	Whitney Beach South	Longboat Key
5	General Harris	Longboat Key
6	Emerald Harbour	Longboat Key
7	Gulf Bay Basin	Longboat Key
8	Tarawitt	Longboat Key
9	No Name	Longboat Key
10	Buttonwood Harbor	Longboat Key
11	Bay Isles/Longboat Key Moorings	Longboat Key
12	Golf Links	Longboat Key
13	Chipping	Longboat Key
14	Wedge	Longboat Key
15	Birdie	Longboat Key
16	Bowsprit	Longboat Key
19	Ranger	Longboat Key
20	Halyard	Longboat Key
21	Boat Name Lanes	Longboat Key
22	New Pass Lagoon	Longboat Key
23	City Island New Pass Channel	Sarasota City
24	City Island Southeast	Sarasota City
25	St. Armands/Coon Key North	Sarasota City
26	North Lido Lagoon	Sarasota City
28	Coon Key South	Sarasota City
29	Otter Key	Sarasota City
30	Bird Key	Sarasota City
31	Louise Bayou	Sarasota City
32	Hanson Bayou	Sarasota City
34	Cherokee Park	Sarasota City
35	Blue Heron (McClellan Park)	Sarasota City
36	Hyde Park (McClellan Park)	Sarasota City
37	Hudson Bayou/Harbor Acres	Sarasota City
39	Quay	Sarasota City
40	Library Channel	Sarasota City
41	Centennial Park	Sarasota City
42	Whitaker Bayou	Sarasota City
43	Stephens Point	Sarasota City
44	Bowlees Creek	Manatee County
45	Trailer Estates East	Manatee County
46	Trailer Estates West	Manatee County
47	Mt. Vernon/Coral Shores	Manatee County
48	Paradise Bay	Manatee County
49	Cortez	Manatee County
50	Mallard Lane (McClellan Park)	Sarasota City
51	No-Name North	Sarasota City
52	Putting Green	Longboat Key
53	Yardarm	Longboat Key
88	Trafficshed Totals	All
99	Study Area Totals	All

Table 1: Trafficsheds in Sarasota Bay

LONGBOAT KEY
DETAILED INVENTORY MAP



Number of Slips per Facility (wet and dry berths)

1 5 10 50 100 250

Boat Drafts

- 1 foot
- 2 feet
- 3 feet
- 4 feet
- 5 feet
- 6 feet
- 7 feet

SIGNAGE

- Channel marker
- Bridge
- Cable
- Danger
- Artificial Reef
- Seagrass
- Manatee - Slow
- Manatee - No Entry
- Manatee Fact Sheet
- Slow, No Wake
- Water Sports
- Business
- Crime Watch
- Pollution Prevention
- Piling

Bathymetry

- 1 foot
- 2 feet
- 3 feet
- 4 feet
- 5 feet
- 6 feet
- 7 feet
- 8 feet
- 9 feet
- 10 feet
- 11 feet
- 12 feet
- 13 feet
- 14 feet
- 15+ feet

Water Depth

- 1 foot
- 2
- 3
- 4
- 5 feet
- 6
- 7
- 8
- 9 feet
- 10
- 11
- 12
- 13
- 14
- 15+ feet

- Seagrass
- Mangrove
- Land

Figure 4.

LONGBOAT KEY

BOAT ACCESSIBILITY MAP

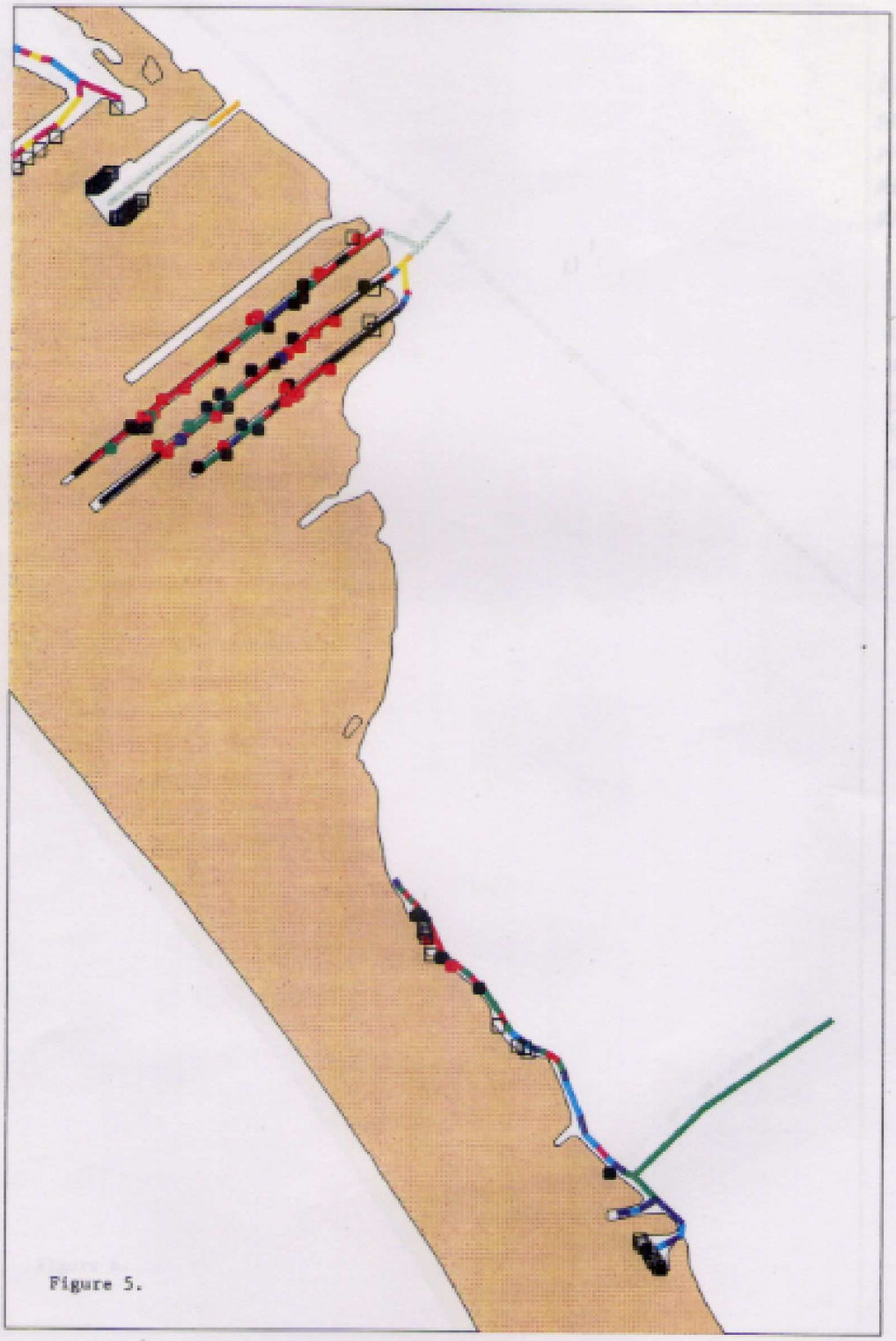


Figure 5.

LONGBOAT KEY
CHANNEL RESTRICTIONS MAP

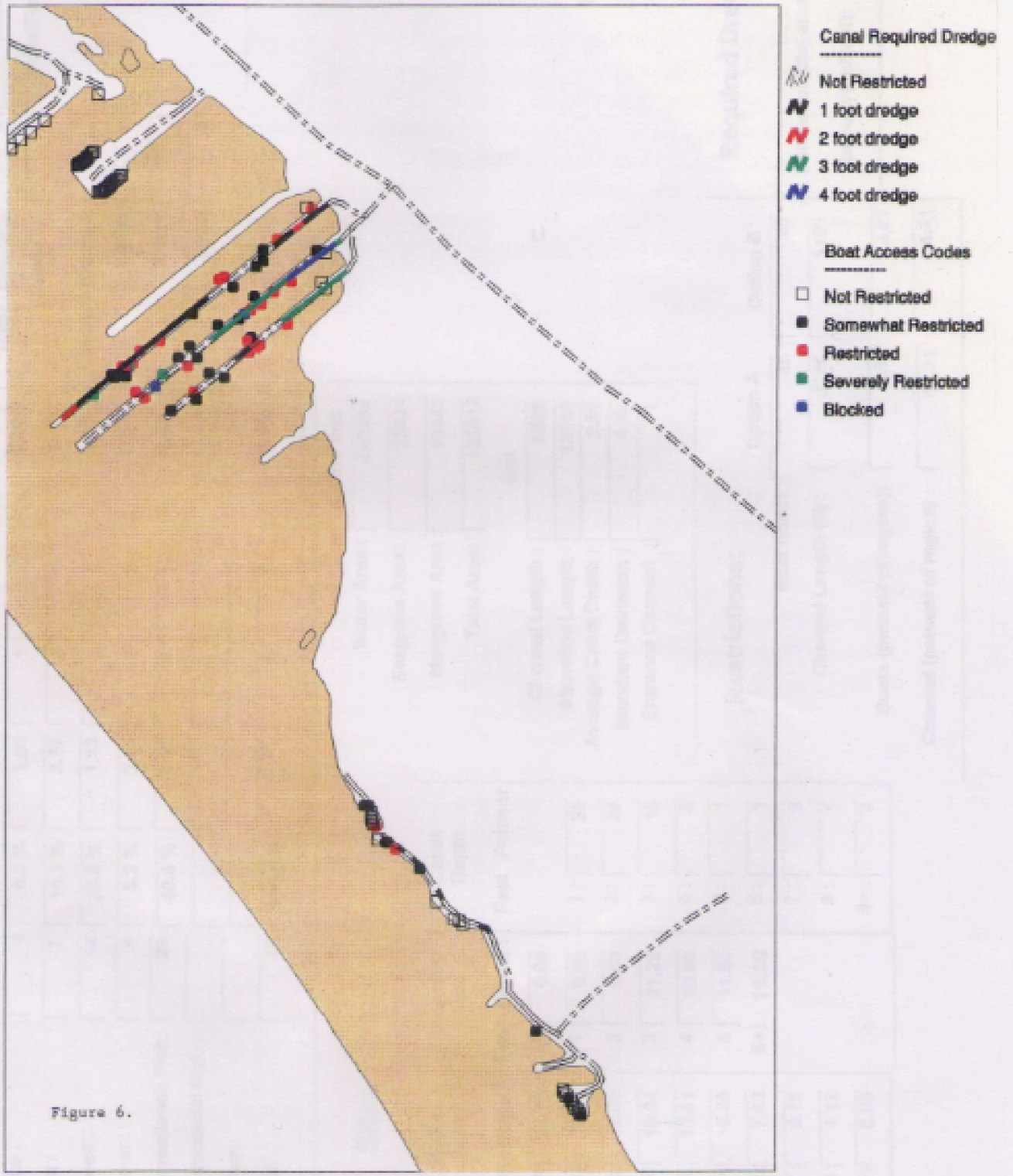


Figure 6.

Table 2.

Location: Tarawitt Jurisdiction: Longboat Key Trafficshed : 8

Boats
(excluding dinghies)

	Number	Percent	Draft (ft.) Average	Max	Min	Std. Dev.
Row :	4	8.2 %	1.00	1	1	0.00
Sail :	7	14.3 %	2.57	5	1	1.40
Speed :	14	28.6 %	1.93	3	1	0.47
Power :	4	8.2 %	2.25	3	2	0.50
Recreational Fish:	20	40.8 %	1.45	3	1	0.69
Commercial Fish :						
Other:						
Total:	49	100.0 %	1.75	5	1	0.84

Moorings

Wet Slips:	44
Hoist / Drystack:	21
Seawall:	15
Beached/Blocked:	0
Trailer:	
Ramp:	1
Total:	81

Facilities

Residential:	63
Marina/Yard/Club :	
Motel/Restaurant/Shop:	
Anchorage:	
Other	0
Unclassified:	
Total:	63

Signage

Commercial:	
Manatee:	
Navigation:	
Piling :	
Recreational:	
Seagrass :	
Other:	
Total Signage:	

Site:

	square feet
Water Area :	492964
Seagrass Area:	25424
Mangrove Area :	10443
Tidal Area:	126817

	feet
Channel Length :	6502
Shoreline Length :	12040
Average Canal Depth :	2.80
Standard Deviation :	4.93
Entrance Channel :	1

Water Area Feet	Percent	Seagrass Area Feet	Percent	Canal Depth Feet	Percent
0:	25.73	0	0.00		
1:	17.54	1	0.00	1 :	25
2:	12.80	2	0.00	2 :	39
3:	10.04	3	31.29	3 :	15
4:	10.61	4	40.86	4 :	6
5	9.36	5	11.56	5 :	1
6	7.63	6+:	16.30	6 :	1
7	5.18			7 :	3
8	1.12			8 :	1
9+:	0.00			9+ :	7

Restrictions:

	Option A	Option B
Boat count:	46	47
Channel Length (ft) :	3245	5193
Boats (percent of region):	8.65	3.87
Channel (percent of region) :	11.31	4.41

Required Dredge:

	Option A	Option B
Percent of total area:	19.71	4.41
Amount (cubic ft):	137354	289989

Education and Community Outreach to Promote Sustainable Boating

by
John Stevely, Florida Sea Grant

Boaters in Sarasota Bay enjoy year-round fishing, cruising, and anchoring in a beautiful sub-tropical setting. It should be no surprise that the number of boaters has grown in tandem with Florida's population increase. Now, more than ever, it is necessary for boaters and waterfront property owners to minimize their environmental impacts on bay waters. Otherwise there is the danger of decreasing the quality bay environment that drew us to the area in the first place. The most effective way of enhancing enjoyment of the bay, while at the same time protecting it, is to learn more about it and to actively participate in managing this precious local resource. Education and community involvement are essential ways in which we can promote sustainable boating and shorefront living. This workshop will explore a number of ways in which you can participate in this process.

Dr. Gus Antonini has described the results of a regional bay management research project. Can results of the research be transformed into implementable action projects? Can the application of such research results offer meaningful benefits at the community level? How can Florida Sea Grant serve as a facilitator in the implementation process? How can we help you create **community-based waterway management**? Here are a few suggestions. There are many residential communities situated along the shores of Sarasota Bay. This is a sample case. Ask yourselves ... "am I facing similar issues?"

Community X includes single-family homes and condos along a network of canals and basins that were dredged 20 years ago. There are mangrove islands along the shore and seagrass on either side of the access channel extending out to the bay. There is substantial boat traffic throughout this waterway. In part, this is due to its natural attractiveness: boaters enjoy the locale and, besides, the fishing is good. The mangrove shoreline is being eroded by storm action from the bayside and boat wake from the canal side. Community X is concerned about re-establishing the mangrove habitat as a "first-line of defense" to protect property. Channel siltation and depletion of the mangroves are two critically important problems facing this waterway community.

Pressures from landslide development along with increased boat traffic have created additional problems that are reflected in water quality and habitat conditions in this water-side community. Boat wake is washing away soil and sand which support the roots of mangroves. Boat traffic imperils manatees which congregate and calve in the waterway. Contaminants from boats -- discharging of bilges, exhaust from 2-cycle marine engines, head pumping -- accumulate because of the low tidal exchange within the canal system. The management needs are multi-faceted, and a plan to address them must include: (1) habitat restoration; (2)

channel maintenance; (3) traffic management (signage); and (4) public education. Do these problems sound familiar? Can you relate to them? Let me proceed.

Florida Sea Grant can provide Community X with project data and offer technical support. This includes holding workshops and inspecting the field sites in order to develop solution strategies and network the community with permitting agencies. **Habitat restoration**, in the case of Community X, probably would be the major focus of its waterway management plan since it is the most pervasive issue. The project maps provide a basis for evaluating present conditions. This evaluation ought to define where wave scour has deepened the nearshore profile and where mangrove planting should take place to re-establish natural storm protection. Community X could prepare a project to deal with this issue.

The research maps identify areas where **maintenance dredging** is needed to accommodate the residents' boat access to Sarasota Bay. The channel restrictions analysis provides data on the extent and location of required dredging. Restoration of the mangrove buffer will make maintaining the canal portion of the community's waterway system feasible.

The research has identified the number, type and location of boats in the waterway. This information enables Community X to request assistance from the county in designating and posting the waterway as an "idle speed, no wake zone. The research maps, furthermore, identify numerous unofficial, unmaintained and uncharted signs and pilings. The community has a basis to request a permit from a federal or state agency to mark the channel with private daybeacons for navigation, and to remove unwanted signs. These steps are important elements of a **boat traffic plan**.

Community X recognizes that education benefits could be achieved by publishing and distributing a map of its waterway, based on project information, to its residents, which would advise them of channel depths, seagrass areas, signs, and shore facilities. Community leaders also recognize that something needs to be done to promote better boating behavior, in other words, to make its boaters more aware of such things as fuel management, boat care, engine maintenance, sewage, marine debris, and recycling. The Community wants to promote **public education**.

Sea Grant research indicates that boaters care about the environment and will adopt responsible behavior practices when provided with the right kind of information However, the information that boaters rely on -- the NOAA small-craft chart -- oftentimes, has too little detailed information, too small a scale, or is out-of-date. This lack of information in the hands of the boaters frustrates efforts to promote stewardship, respect for shore community concerns, and adequate protection of marine resources. The research maps provide large-scale, high-resolution, up-to-date information on bathymetry, channel-controlling depth, boat and facility locations, signs, seagrasses, and mangroves. In addition to the planning and decision-making applications, the maps also have inherent public education value; they can be transformed into aerial photomaps which would provide boaters with easily interpretable and useable information. For the many individuals who boat

in the area, these maps would convey an understanding of the boating geography and appreciation of bay resources, and would help to develop a boating **stewardship** ethic.

In conclusion, a community-based approach to waterway management -- one that includes providing for habitat restoration, maintenance dredging, boat traffic planning, public education and stewardship -- can lead to sustainable boating in Sarasota Bay. Florida Sea Grant can assist you in this effort.

Developing and Implementing a Waterway Management System

by
Charles Listowski, West Coast Inland Navigation District

The West Coast Inland Navigation District (WCIND), as local sponsor of the Gulf Intracoastal Waterway System, provides required services to the U.S. Army Corps of Engineers in relation to the operation and maintenance of this 150-mile segment of our nation's "navigation highway" network. The WCIND also provides resources to member counties -- Manatee, Sarasota, Charlotte, Lee - as they struggle with a wide range of waterway management issues. Of the approximately 750,000 registered boaters in the state, around 20 percent of the total, not including seasonal transients, can be tracked to the southwest Florida coastal region.

The need to develop strategies for improving the deteriorating waterway infrastructure between rapidly growing residential and commercial areas of the bay systems and the ICW, has inspired a cooperative initiative called the "waterway management system approach". The compilation of a comprehensive data base involving the study of what conditions are, and what conditions need to be to accommodate existing boating activity, is the goal of this system. The transposition of the research data into planning instruments and "guide maps", necessary ingredients of implementable projects, provides the blue-print for our management strategy.

Presentations have been made to state permitting officials who recognize the value of this regional comprehensive approach and the usefulness of the definitive knowledge that can now be incorporated into the permit review process. Also, WCIND funding can be applied to needed construction activities at the local community level, based on information reported from the research results.

The WCIND and member counties are experiencing a dramatic transition from long-standing traditional management mechanisms, to a more scientifically-based approach which can now rely on suitable standards for decision-making and the expenditure of public funds.

The WCIND has been working closely with Sarasota County to ensure that a comprehensive waterway management plan includes features such as: channel markers, traffic signage, spoil management strategies, appropriate ordinance markers, traffic signage, spoil management strategies, appropriate ordinance enforcement, and boater education. The regional plan will soon be expanded to Charlotte, Lee and Manatee counties, where navigation improvement projects, predicated on the Florida Sea Grant data base compilation, may be implemented.s

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