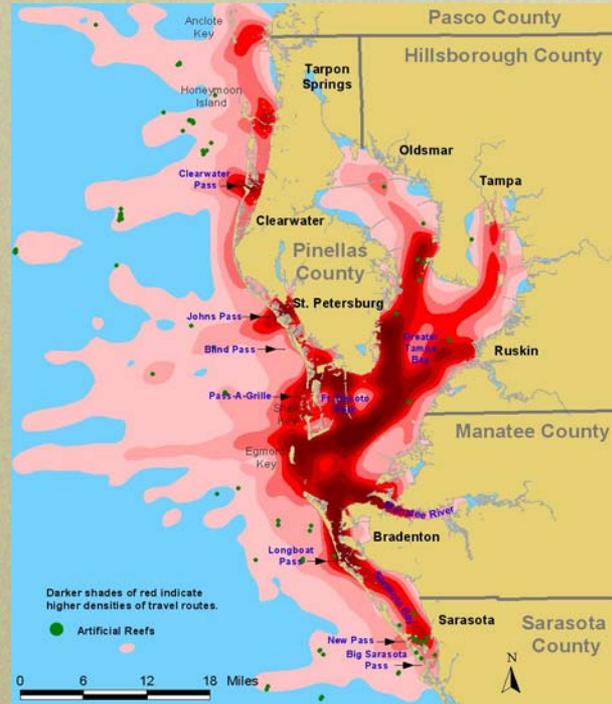


Characterizing Recreational Boating in Florida's Coastal and Marine Waters



Coastal GeoTools, March 4, 2009

By

Henry Norris and Bill Sargent

Fish & Wildlife Research Institute – Office of Boating & Waterways



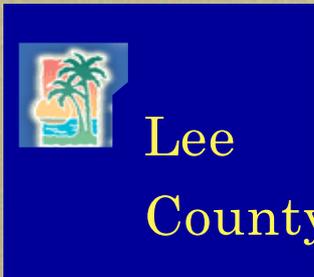
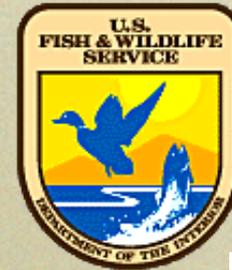
Funding Support



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Collaboration / Sponsorship

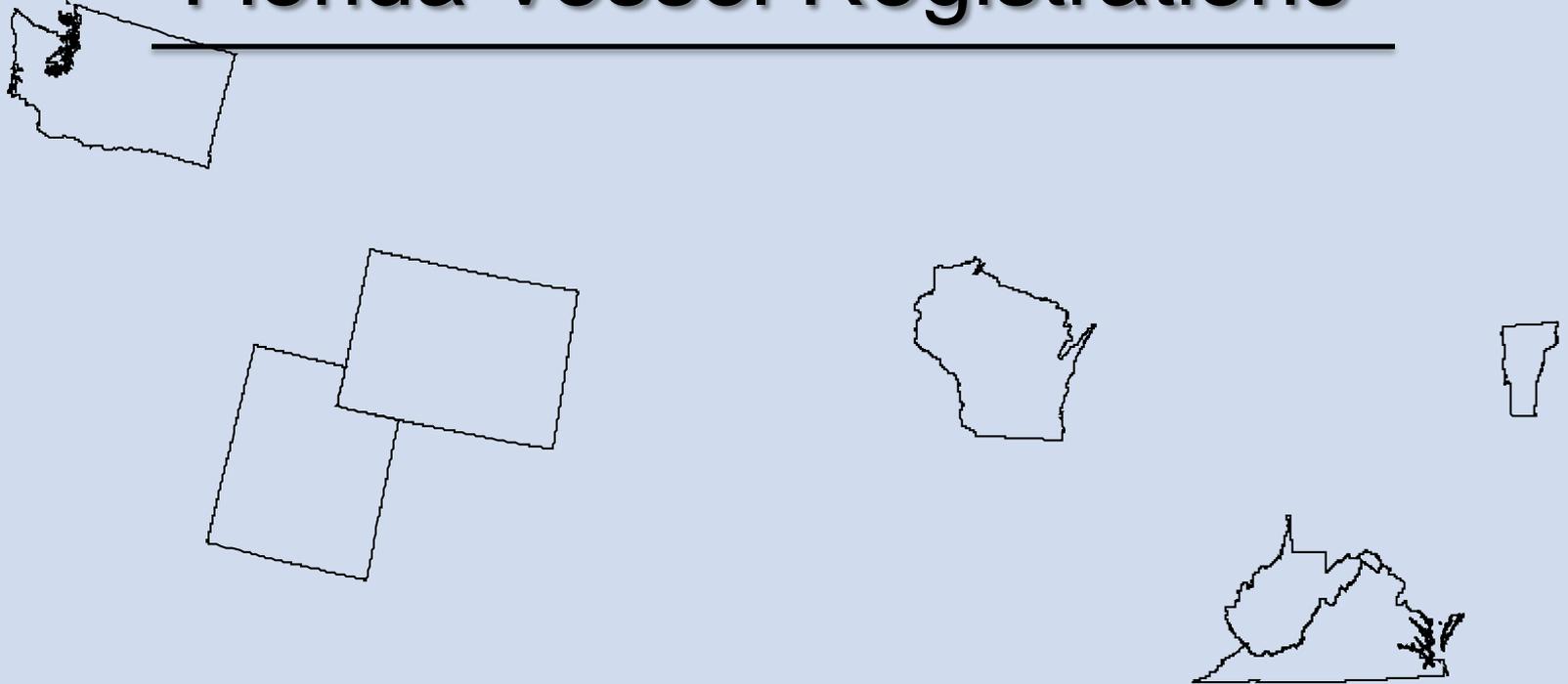


Boating is Big Business in Florida

- **Employs One Quarter of a Million People.**
- **Total Economic Output of \$18.4 Billion.**
- **Economic Impact is Larger than Citrus and Cruise Ship Industries Combined.**



Florida Vessel Registrations



Boat Registrations by Zip Code

-  More than 10 registrations
-  5 to 10 registrations
-  2 to 5 registrations
-  1 registrations

Source: DHSMV, 2001 Summary



**Over 1 Million Boats
Registered in Florida**

**Estimated Additional
300,000 Visiting Boats**

Why is Boating Information Needed?

- . Document and Understand Current Situations**
- . Scenario Modeling to Predict Impacts of Potential Management Options**
- . Long Range Planning to Avoid Problems**

Effective management of our resources requires sound, science based information. Proper management must balance protection of natural resources with the public's right to appropriately use the resources.



Overall Goals

- **Characterize the preferences, activities, and use patterns of the boating population to provide information for proactive waterway management.**
- **Develop scientifically sound methodology, with consistency and repeatability across regions.**
- **Provide baseline information to understand the overall system rather than focusing on a single specific issue.**



Boating Characterization

- **Ask Boaters Themselves What is Important**
- **Represent Boaters Actually Using the Area**
 - Local Residents
 - “Visiting” Boaters
- **Represent All Types of Boaters**
 - Marina
 - Dry Storage Facility
 - Boat Ramp
 - Residential Dock



What Type of Information is Useful?

- . Who are Boaters? (Demographics)**
- . Where are Boaters Coming From?**
- . Where and How do they Access Water?**
- . Where do they Travel on the Water?**
- . What are Preferred Destinations?**
- . What Activities are Conducted?**



Boat and Trip Information

- **Types of vessels owned**
- **Average departure times**
- **Average time on the water**
- **Monthly counts of trips—seasonal**
- **Reasons for selecting travel routes**
- **Reasons for selecting departure site**
- **Reasons for selecting favorite destination**
- **Categorization of boating activities**
- **Boater experiences**



MARINA SAMPLE

5,317 vessels at 75 marinas
3,075 in wet-slips
2,242 vessels in dry storage facilities

Logged vessel registration number or vessel name and hailing port. Owner names and addresses from VTRS or USCG databases.



RAMP SAMPLE

TAMPA BAY

FWRI surveyed 19 Tampa Bay ramps over 1 year period.

Collected tag numbers from 1,991 boat trailers.

SARASOTA BAY

FSG surveyed 10 popular Sarasota Bay ramps.

Collected tag numbers from 1,733 boat trailers.

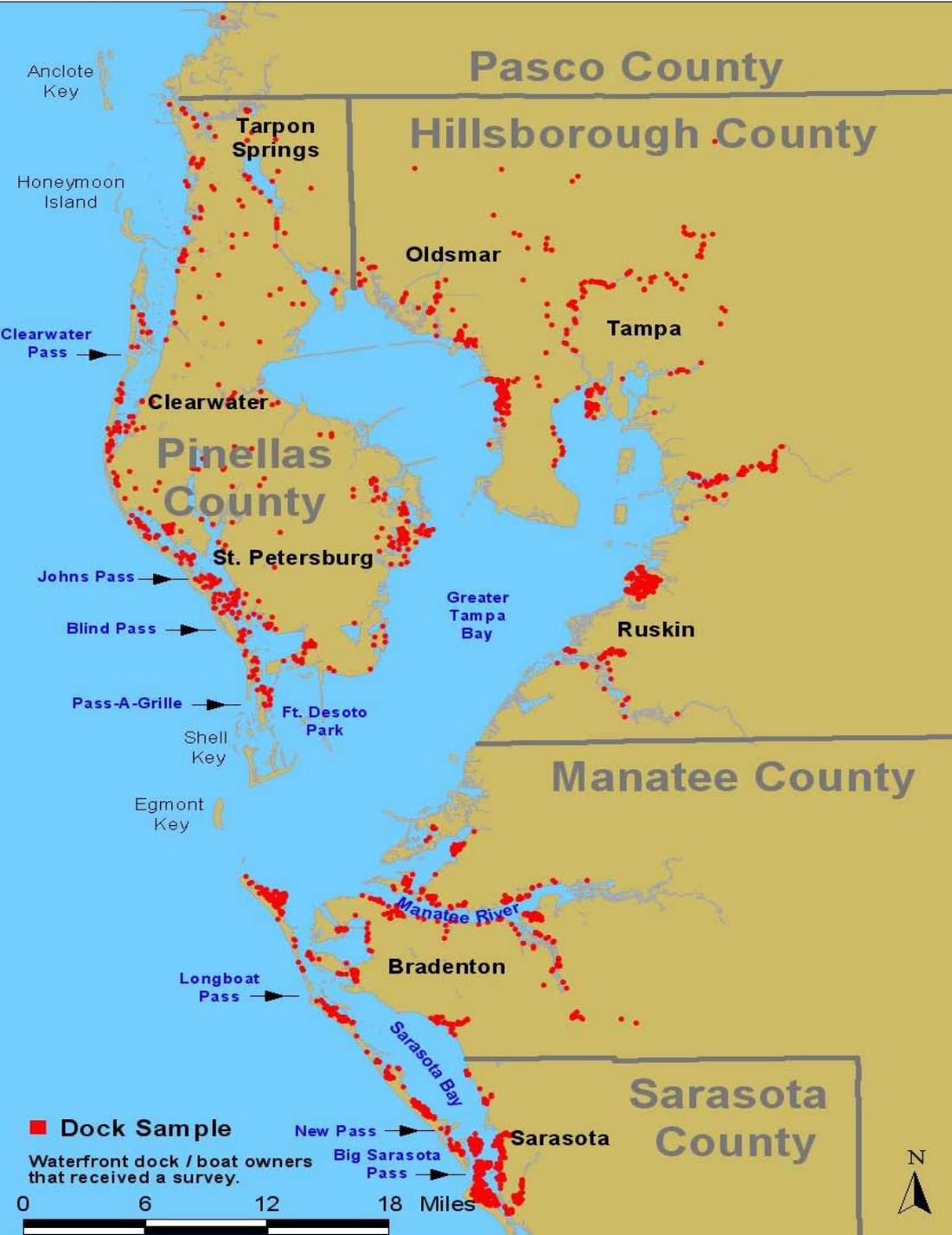


DOCK SAMPLE

Shoreline data used to select waterfront parcels.

Match VTRS name & address to parcel owner name & address.

Systematic sample- 500 for each county.



Survey Returns (Tampa/Sarasota Bays)

Region	Trip Origin Type	Surveys Mailed		Returns	% Returned
		Gross	Net		
Sarasota Bay	1. Marina (Wet)	586	561	177	32
	2. Marina (Dry)	505	486	133	27
	3. Public Ramp	722	670	170	25
	4. Private Dock	1000	984	329	33
Tampa Bay	5. Marina (Wet)	1000	961	295	31
	6. Marina (Dry)	1000	976	256	26
	7. Public Ramp	1000	952	269	28
	8. Private Dock	1000	995	279	28
TOTALS		6,813	6,585	1,908	AVG = 29



Spatial Patterns

Boaters Identify:

3,508 trip origins

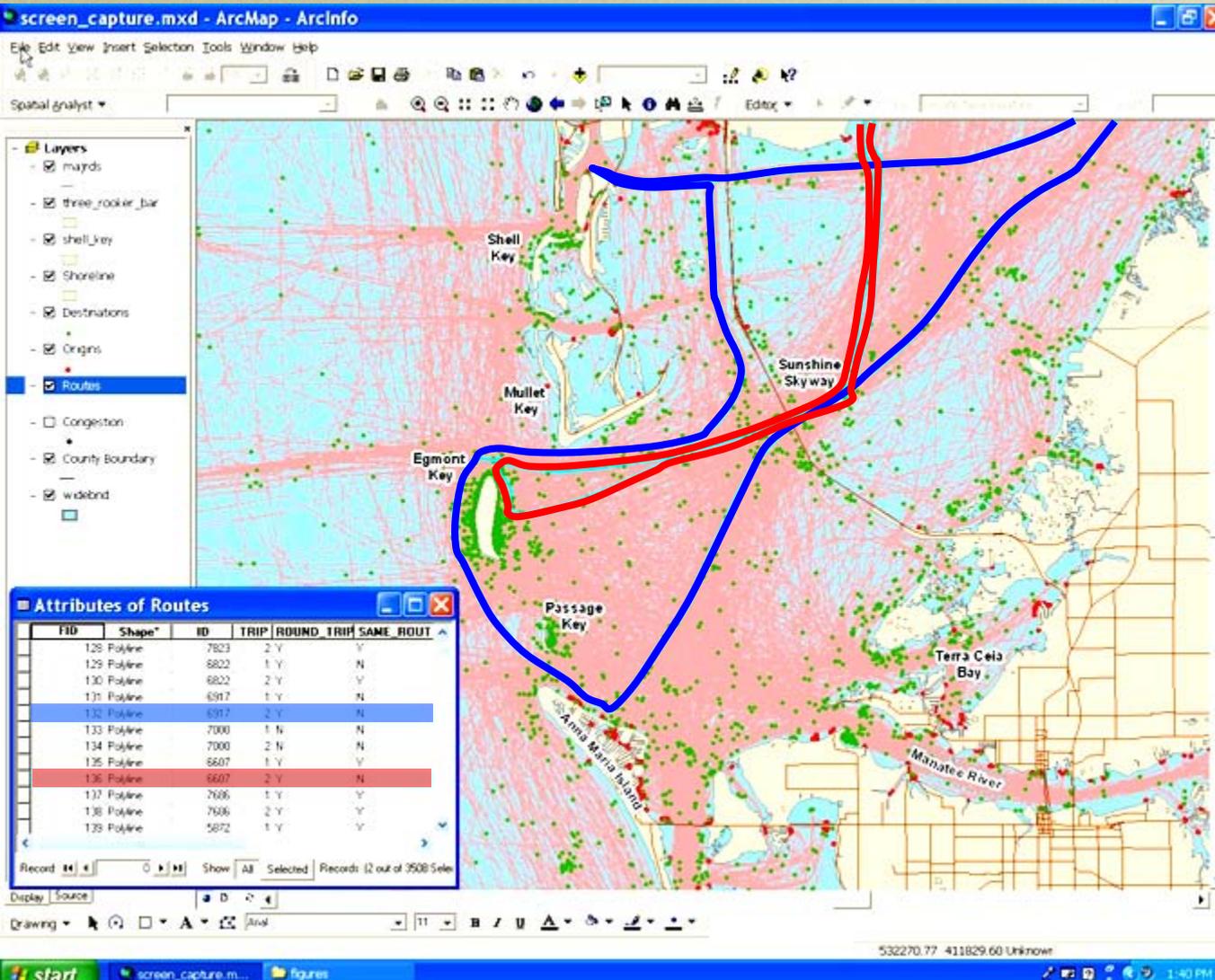
3,508 travel routes

5,212 destinations

1,635 congested areas



Travel Routes



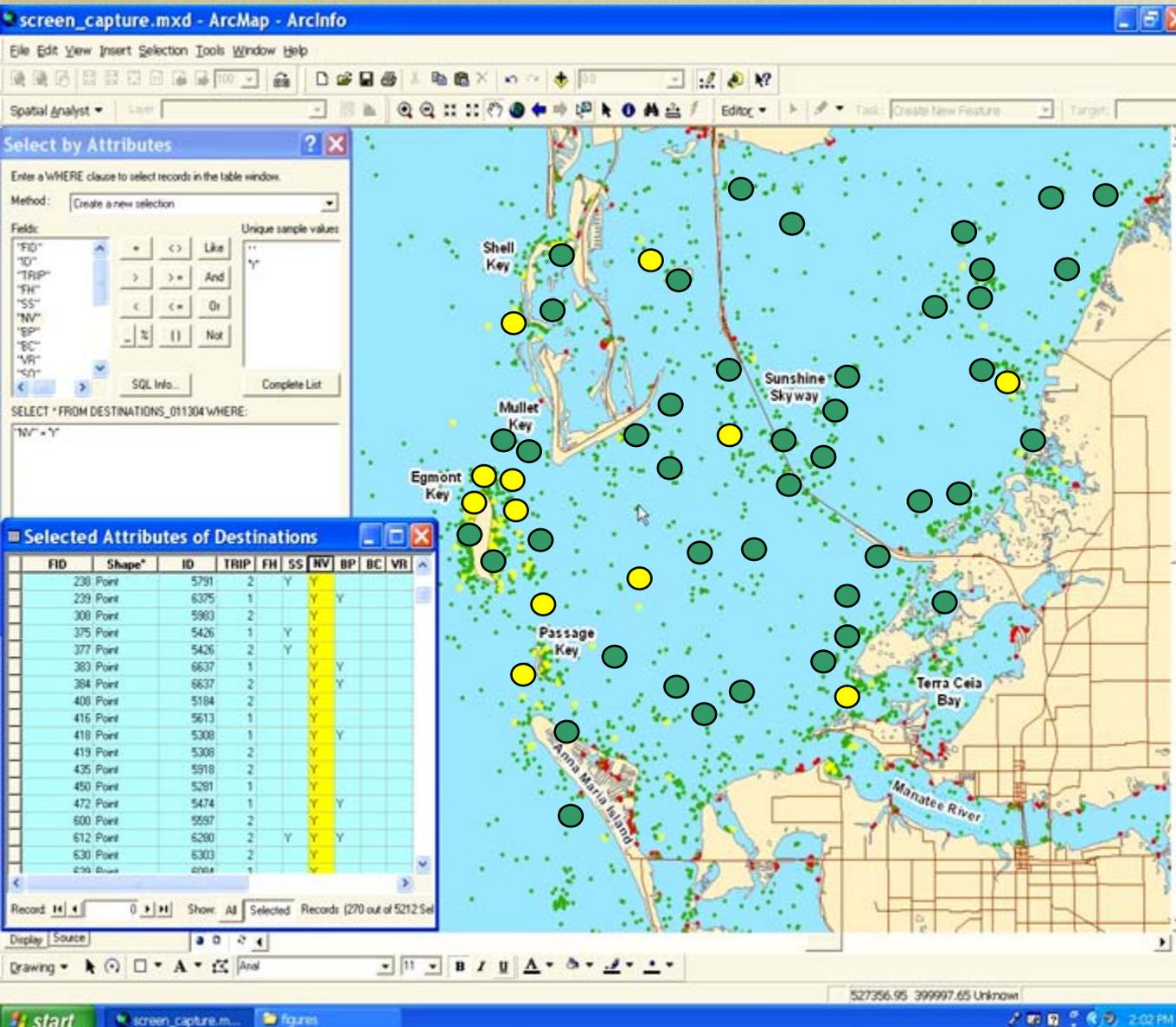
Travel routes are hand drawn on the questionnaire map and digitized into a GIS.

Pink lines are routes of numerous boaters.

Red & Blue lines are two individual routes highlighted in the database table.

All descriptive data provided by boaters are associated with these spatial data.

Destinations

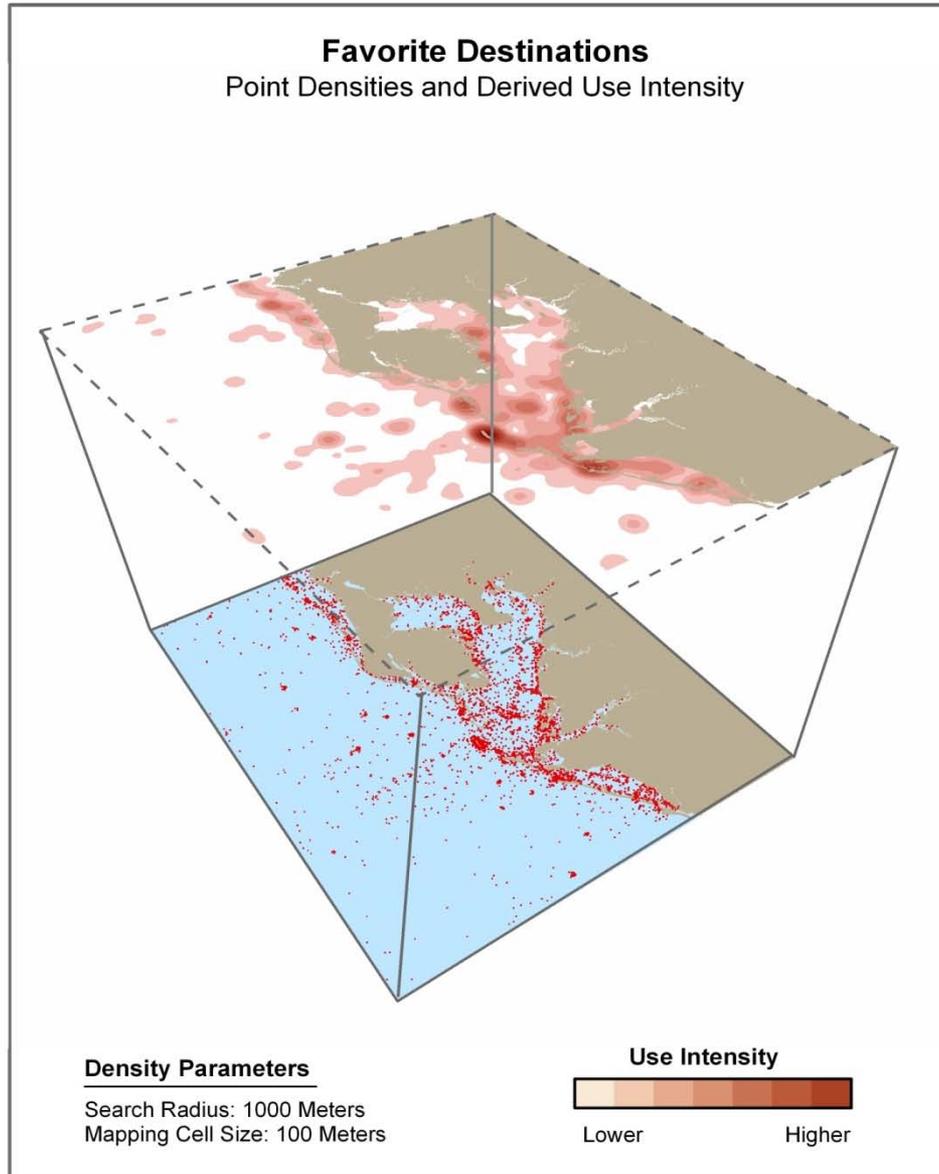


Boater responses are transferred from survey forms to a GIS database.

Green dots are locations boaters reported as preferred destinations.

Database table records type of activities and boaters associated with each location.

Mapping Spatial Patterns



Use-Intensity
Surfaces
derived from
the point and
line data

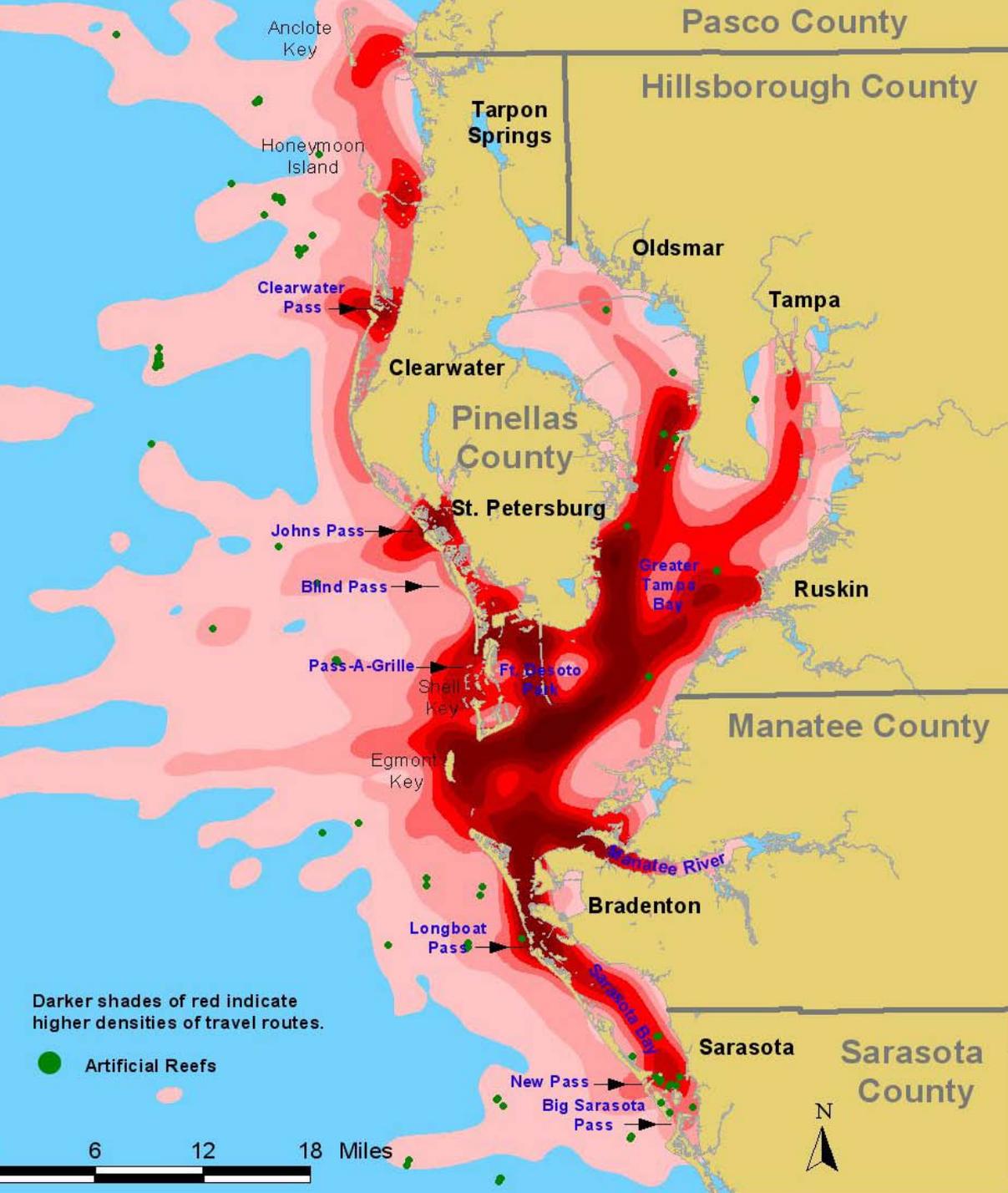
TRIP ORIGINS

Trip information aggregated in GIS and presented as 'density of occurrence.'

Places where the largest numbers of boaters typically begin trip.

Lower (higher) densities shown in lighter (darker) shades of red





TRAVEL ROUTES

Primary Boating Node—
Lower Tampa Bay area (Ft. DeSoto Park, Egmont Key, the Sunshine Skyway, and Anna Maria Sound)

High traffic volume also at major passes—Longboat Pass, Blind Pass, John's Pass, and Clearwater Pass

Beyond barrier islands, flow of traffic follows radial pattern to and from prominent artificial reefs in the Gulf of Mexico

FAVORITE DESTINATIONS

1. Egmont Key
2. Longbeach/Longboat Pass
3. Terra Ceia Bay
4. South Sarasota Bay
5. Sunshine Skyway



CONGESTION

Where boaters experience congestion—“more boats than you prefer.”

At favorite destinations and certain passes: Egmont Key, Longbeach/Longboat Pass, Clearwater Pass, John’s Pass.



Spatial Profile by Boater-Group

Destination "Hot-Spots"



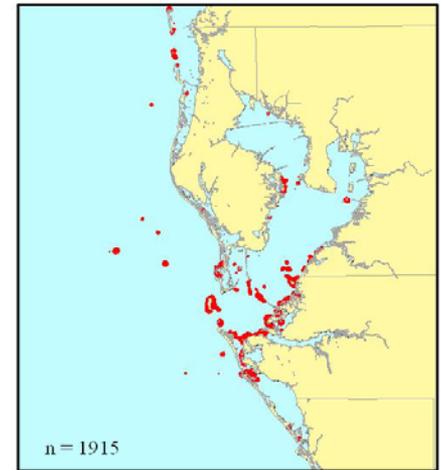
Marina Wet Slip Users



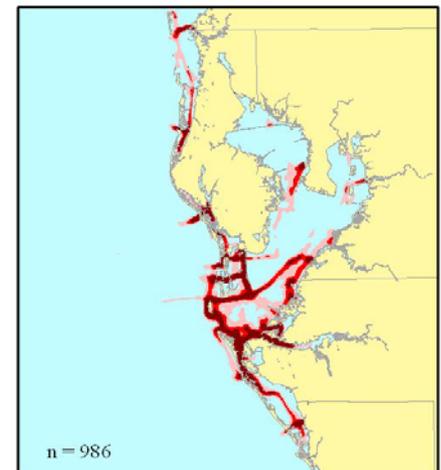
Marina Dry Storage Users



Private Dock Users



Public Ramp Users



Primary Travel Corridors

Spatial Profile by Activity

Destination "Hot Spots"



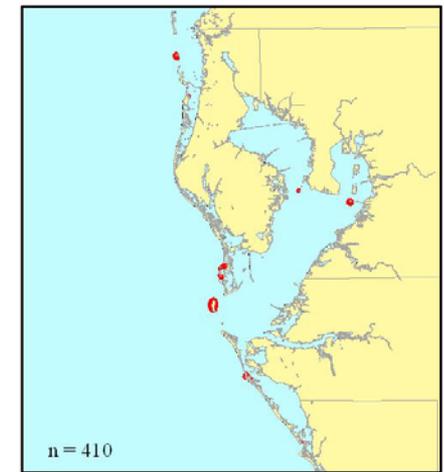
Overnight Anchoring



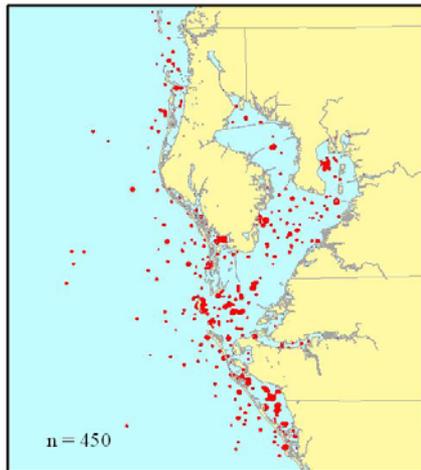
Visiting Restaurants



Beach Camping



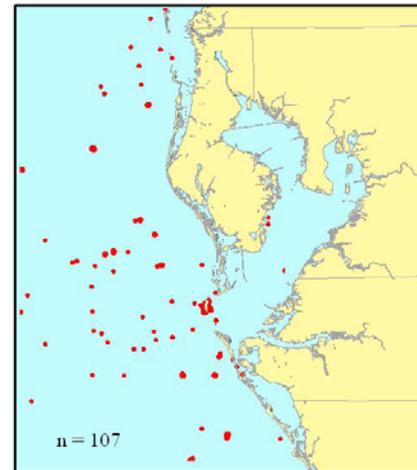
Beach Picnicking



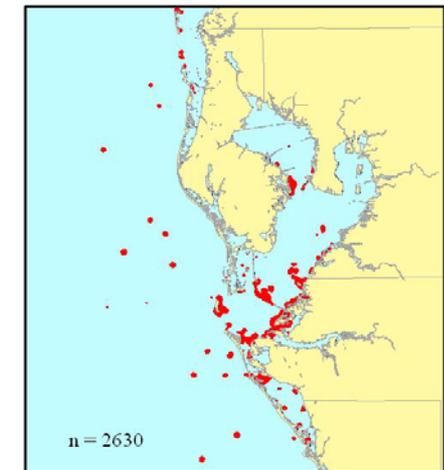
Sailing and Cruising



Sightseeing and Nature Viewing



Diving



Fishing

Spatial Profile by Vessel Type

Destination "Hot-Spots"



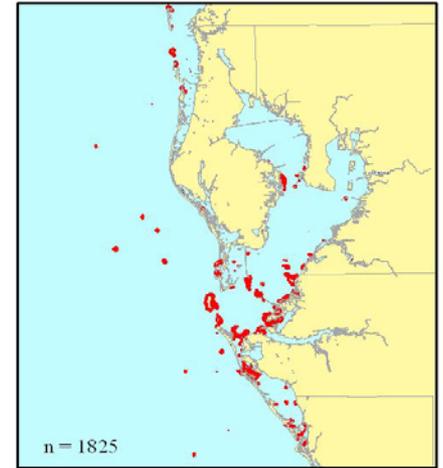
Small Speedboat



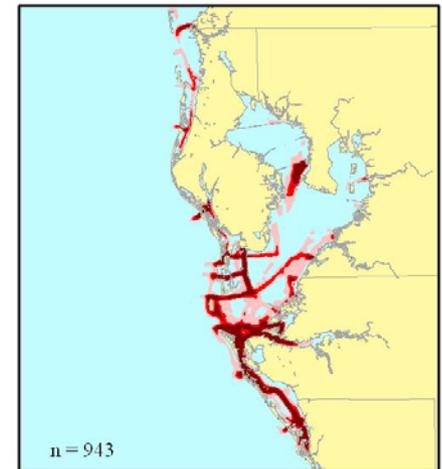
Sailboat



Power Cabin Cruiser

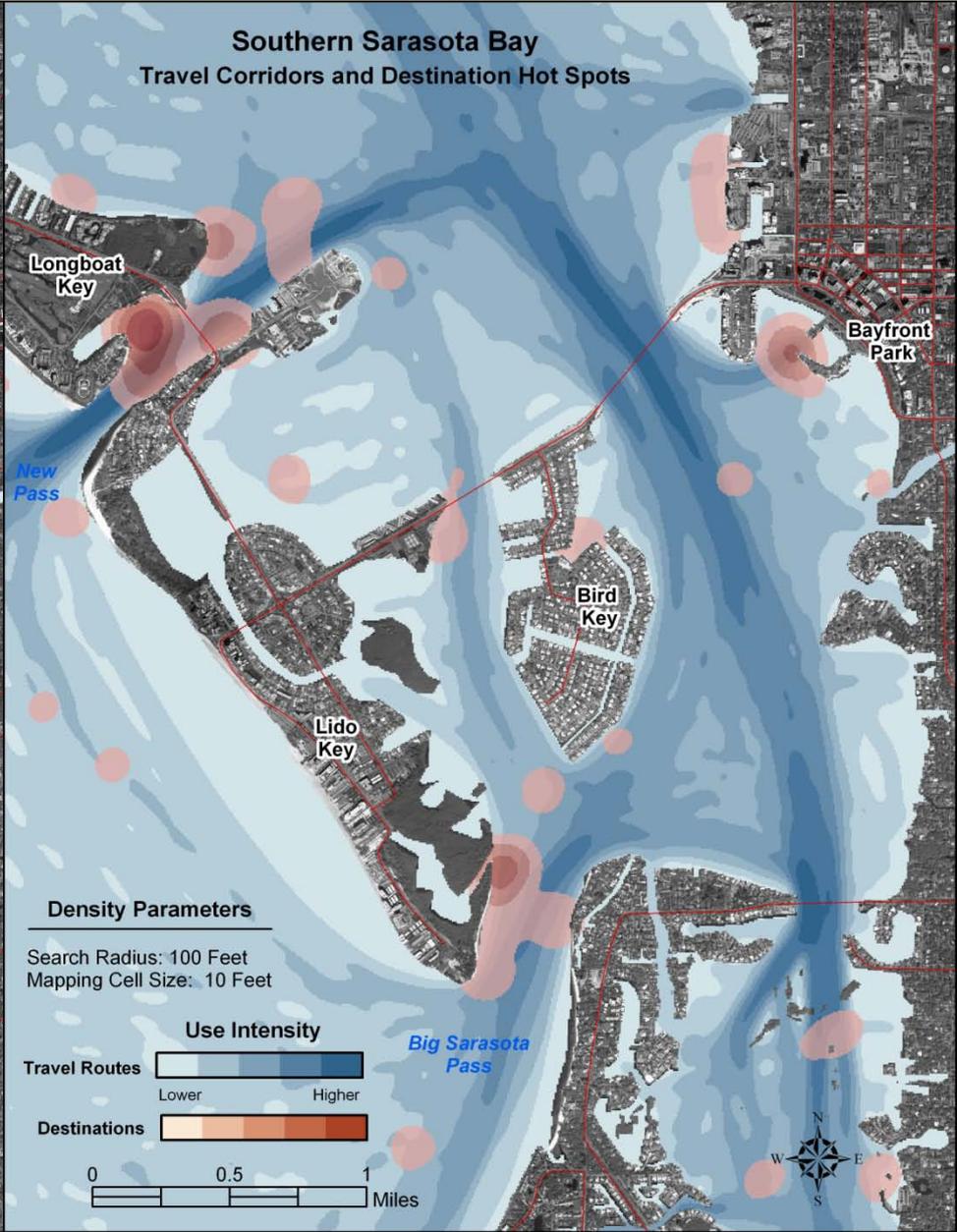
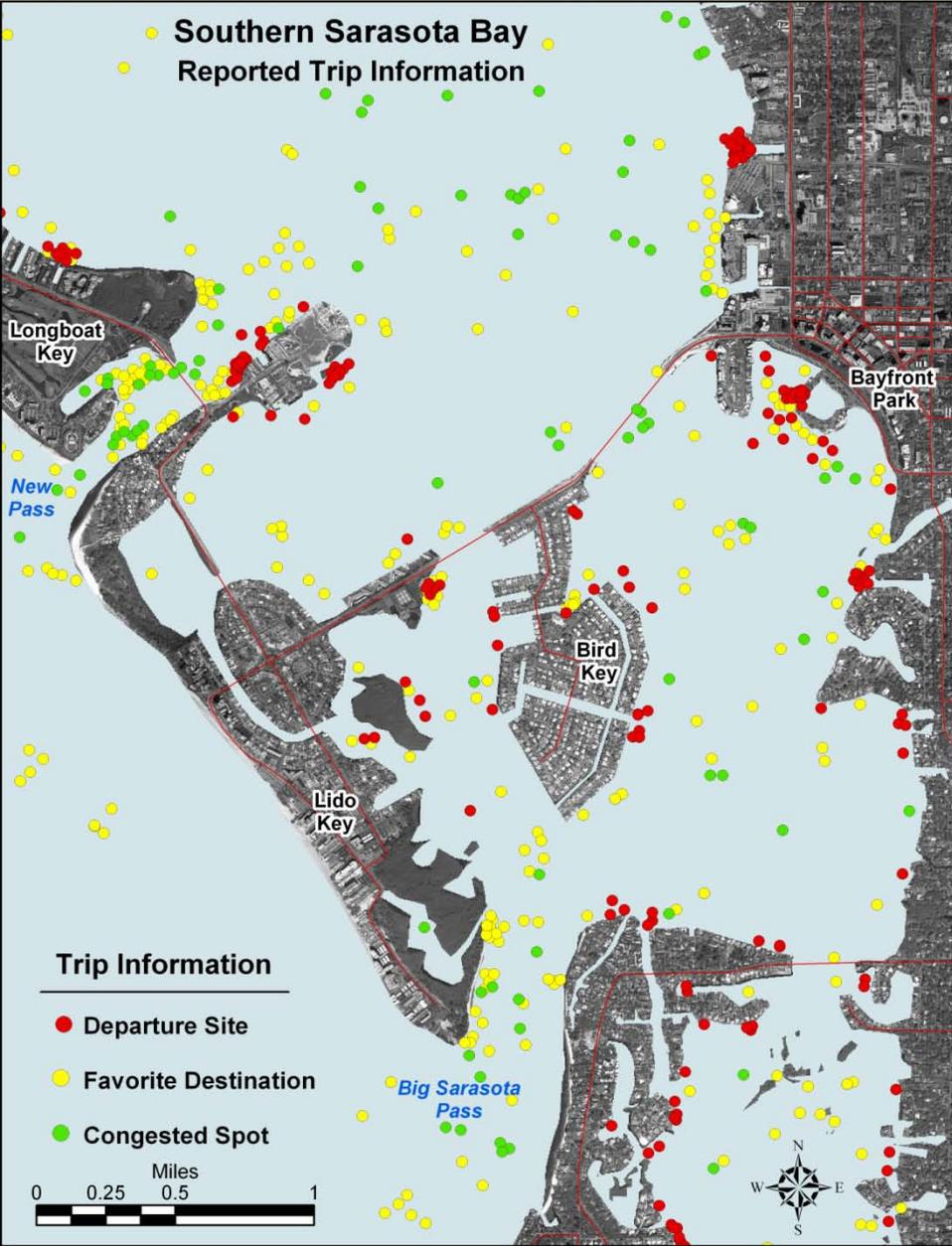


Open Fishing Boat



Primary Travel Corridors

Big Sarasota Pass



Most-important Reason for Selecting a Favorite Departure Site

<u>Category / Description</u>	<u>Count</u>	<u>Percent</u>	
• Close to home	298	35.7%	(1)
• Close to favorite boating spots	183	21.9%	(2)
• There is no parking or launching fee	14	1.7%	
• There is adequate parking	29	3.5%	
• Don't have to wait too long to launch	33	4.0%	(5)
• The parking is safe and secure	18	2.2%	
• Prefer deep water access	61	7.3%	(4) tie
• Nearby amenities (restaurant, etc.)	20	2.4%	
• Well-marked channel access	13	1.6%	
• Ease of launching and retrieving boat	88	10.5%	(3)
• Gas, pump-out, or maintenance services	12	1.4%	
• Availability of restrooms	2	0.2%	
• Availability of fishing gear, including bait	3	0.3%	
• other reason	61	7.3%	(4) tie

N = 835



Most-important Reason for Selecting a Favorite Boating Route

<u>Category / Description</u>	<u>Count</u>	<u>Percent</u>	
• Easy access to favorite boating spots	481	35.9%	(1)
• Scenic beauty	282	21.1%	(2)
• Avoid shallow water	110	8.2%	(4)
• Prefer calm waters	72	5.4%	
• Avoid congested areas	100	7.5%	(5)
• Avoid manatee zones	8	0.6%	
• Easy access to supplies or marina	26	1.9%	
• Avoid speed zones	12	0.9%	
• Prefer well-marked channels	78	5.8%	
• None are important (I just cruise around)	55	4.1%	
• other	115	8.6%	(3)

N = 1,339



Most-important Reason for Selecting Favorite Boating Destination

<u>Category / Description</u>	<u>Count</u>	<u>Percent</u>
• Prefer calm protected waters	168	11.3% (3)
• Enjoy scenic beauty	191	12.8% (2)
• Prefer a natural/undeveloped shoreline	88	5.9% (5)
• Preference to observe wildlife	35	2.3%
• Fishing opportunities are important	531	35.6% (1)
• Swimming / shelling opportunities	70	4.7%
• Avoid crowds	76	5.1%
• Availability of shore entertainment/restaurants	105	7.0% (4)
• Availability of fuel or fishing supplies	15	1.0%
• Beaches for picnicking / socializing	56	3.8%
• To socialize with other boater	51	3.4%
• I have no favorite spots. I just cruise around	74	5.0%
• Other reason	33	2.2%

N = 1,493



Boaters' Activities by Category

<u>Activity/Category</u>	<u>Count</u>	<u>N</u>	<u>Percentage of respondents</u>
• Beach Picnicking	502	1,648	30.5%
• Nature Viewing	706	1,648	42.8% (3)
• Sightseeing	672	1,648	40.8% (5)
• Beach Camping	681	1,648	41.3% (4)
• Daytime Anchoring	501	1,647	30.4%
• Socializing	658	1,648	39.9%
• Cruising	968	1,648	58.7% (2)
• Overnight Anchoring	308	1,648	18.7%
• Visit Restaurant	644	1,648	39.1%
• Diving	212	1,648	12.9%
• Sailing	302	1,648	18.3%
• Swimming	649	1,648	39.4%
• Fishing	1,055	1,648	64.0% (1)
• Other	112	1,648	6.8%



“Typical” Boater in Region

- Year-round resident and 54 years of age.
- Has, on average, 18 years of boating experience.
- Has taken a boating safety or seamanship course.
- Owns one boat; power, cabin or open fishing.
- Begins their trip at about 8 am and spends about 7 hours on the water (wet-slip users- average of 67 hours - spend considerably more time on the water – but not necessarily in the study areas.
- Takes 3 or 4 boating trips per month.
- Perceives that lack of seamanship/boating knowledge or “common courtesy” detracts most from their boating experiences.
- Believes that improved education (including mandatory licensing), better channel marking, more ramps with better facilities are most needed to improve their boating experiences.
- Would like more and better enforcement of existing regulations, including ticketing for speeding, wakes, and “bad behavior.”
- Cited need for better information on weather (wind, tide, lightning), and “accurate” “up-to-date” charts that depict in greater detail shallow water hazards, shoaling, and waterway markers.



Study Areas



Management Uses

- Bay County – Master Water Access Plan as part of the County Comprehensive Plan.
- Brevard County – Comprehensive Waterway Management Plan. Mooring fields and anchorage areas are important issue.
- Sarasota County – Manatee Protection Plan and Boat Ramp study identifying where to place new ramps.
- Collier County – Ramp Improvement Study to prioritize which ramps to improve.

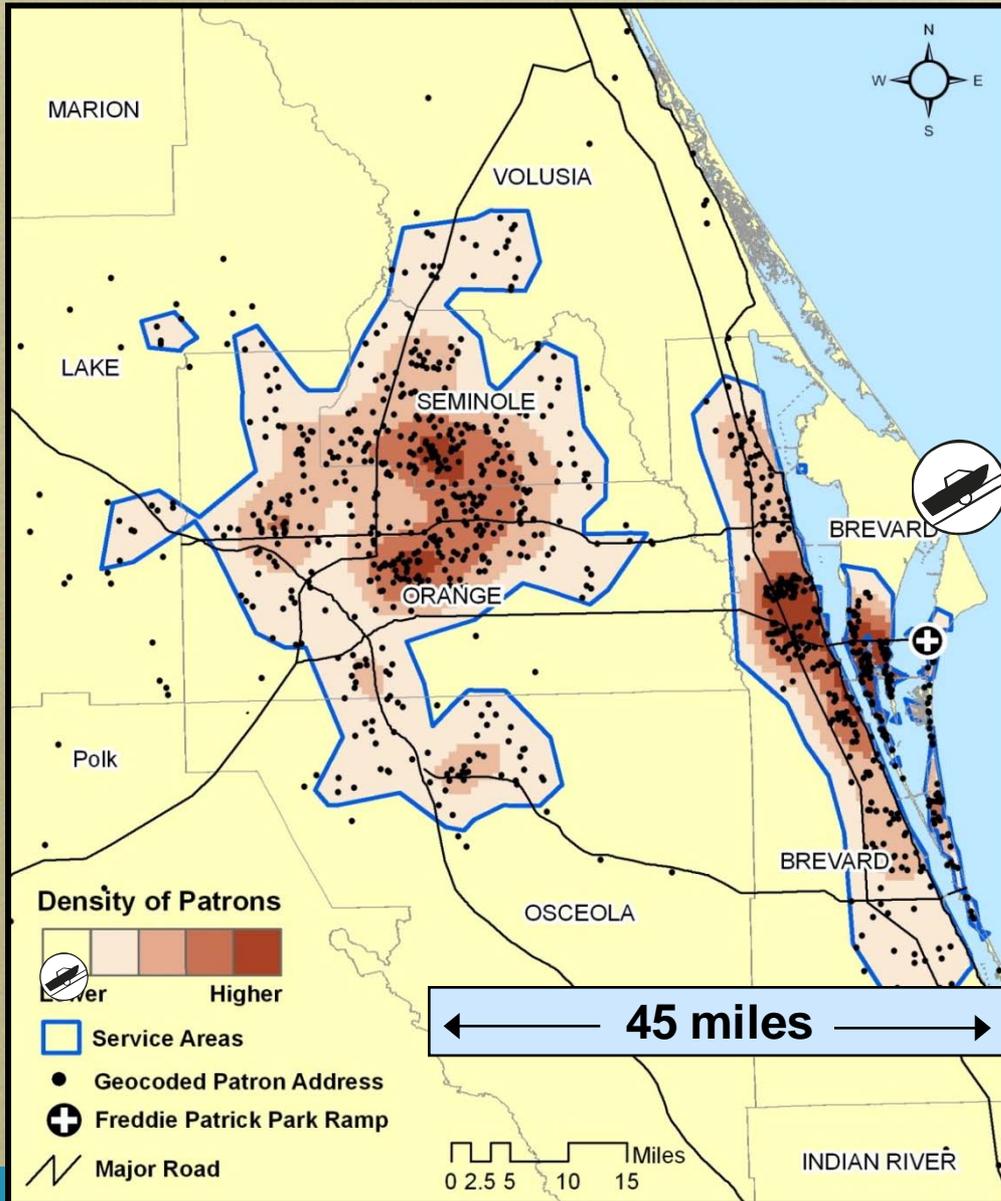


Complementary Studies

- **Service Area Analysis**
- **Statewide Marine Facilities Inventory**
- **Statewide Boating Economic Study**
 - **Economic Impact**
 - **Economic Value**
- **Recreational Boating Accident Analysis**
- **“Geo-Regs”, Spatially Referenced Local Boating Regulations**



Single Ramp Service Area



Ramp Located on coast near Canaveral Inlet.

Darker shade represents higher density of ramp patrons.

80% of patrons reside inside shaded areas.

40% of patrons reside 30 to 60 miles away from coast.

Coastal Resource Information System

The screenshot displays the Florida Blueways Viewer interface within a Microsoft Internet Explorer browser window. The address bar shows the URL: <http://ocean.floridamarine.org/bw/viewer.aspx>. The page features a navigation menu with tabs for Home, Intro, Overview, Credits, Links, Help, Imagery, and NOAA Radar. A toolbar contains various map interaction tools such as Zoom, Pan, Select Features, Draw Features, Identify, Query Down-load, Email, Print, Measure, and Overview. The map scale is set to 1:40000.

The map itself shows a coastal area with several labeled features and layers. A legend on the left side of the interface lists various categories, including Boating, Bathymetry, Transportation, Geography, Boundaries, ESI, Fishery Management, Marine Mammals, Natural Resource Manager, Ocean Bottom Habitat, Gulf of Mexico Bottom Types, Federal / State Jurisdictional, Statewide Seagrass Scars, Statewide Seagrass Areas, South Florida Benthic Habitat, and Reef Distribution (Martin Dale). The 'Statewide Seagrass Scars' layer is currently selected and highlighted in red on the map.

Four white arrows point to specific features on the map, each labeled in a white box with black text: 'Ramps' points to a cluster of white anchor icons along the coast; 'Seagrass' points to a red-shaded area in the upper right; 'Prop Scars' points to a red-shaded area in the center; and 'Channel' points to a blue-shaded area on the right side of the map. Other map elements include a compass rose, a scale bar (0 to 0.6576 miles), and a coordinate display (x:0.0 y:0.0) at the bottom left.

Google Earth

Google Earth

File Edit View Tools Add Help

Search

Fly To Find Businesses Directions

Florida Boat Ramps with Photographs

Fly to e.g., 94043

Florida Boat Ramps

Places Add Content

- Boat Ramps in Florida with Attribute Data and Photos - 2006
 - FEE
 - Big Lagoon State Park
 - FACILITY = Big Lagoon State Park
 - ADDRESS = 12301 Gulf Beach Hwy
 - Bay Point Marina
 - FACILITY = Bay Point Marina
 - ADDRESS = 3824 Hatteras Ln.
 - St. Andrews State Park
 - FACILITY = St. Andrews State Park
 - ADDRESS = end of SR 392, on State Park Cir.
 - Bayside Marina
 - FACILITY = Bayside Marina
 - ADDRESS = 6327 Big Daddy Dr.
 - Grayton Beach State Park
 - FACILITY = Grayton Beach State Park
 - ADDRESS = 357 Main Park Rd., off SR 30A
 - Nick's Fishing Lodge Restaurant
 - FACILITY = Nick's Fishing Lodge Restaurant
 - ADDRESS = 7585 Hwy 20 W, at Basin Bayou

Layers View: Core

- Primary Database
- Terrain
- Geographic Web
- Featured Content
- Global Awareness
- roads
- 3D Buildings
- borders
- Populated Places
- Alternative Place Names

Pointer 28°12'26.17" N 80°39'43.23" W elev 1 ft Streaming 100%

© 2007 Europa Technologies
Image © 2007 DigitalGlobe

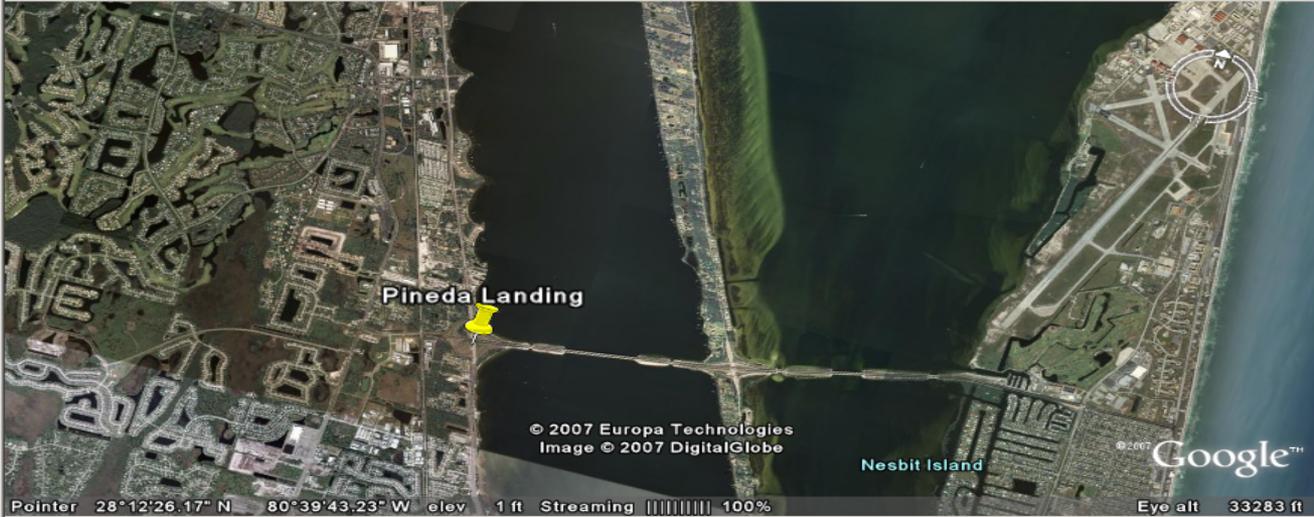
Nesbit Island

Google™

Eye alt 33283 ft

URL: http://ocean.floridamarine.org/waterphotos/ramp_photos/photo_id/3825/index.htm

Boat Ramp at Pineda Landing



Boat Ramp at Pineda Landing

Start Google Earth

4:36 PM

An aerial photograph of a large group of motorboats on a body of water. The boats are scattered across the frame, with some leaving white wakes behind them. The water is a deep blue-green color. The text "Thank You" is overlaid in the center of the image in a blue, sans-serif font.

Thank You

Questions?

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Henry.norris@myfwc.com