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# PROGRAM

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MAY 15-17, 2012

Clearwater Beach Marriott Suites on Sand Key  
Clearwater Beach, FL

## Why Do We Need Stem to Stern II?

Florida's economic well-being is linked to its freshwater, coastal, and marine resources. Local and state governments face the difficult challenge of sustaining economic viability while maintaining the environmental integrity of their waterways. This challenge is driven by factors that include population growth and an increase in recreational boating and other water-related activity.

During Stem to Stern II, experts will present innovative technologies and methods designed to address the boating and waterways management issues that we all face. The conference also will provide a forum for planners, managers, and policy makers to share accomplishments, discuss ideas, and consider priorities for future action.

In a nutshell, the objectives of Stem to Stern II are:

- To provide state, regional, county, and local entities the opportunity to showcase innovative and timely efforts related to boating and waterways management.
- To provide attendees an opportunity to network with others who are involved in the same types of professional issues and, together, develop strategies, timelines, funding sources, and regional alliances to address them.
- To provide an opportunity for attendees to obtain training on topics of relevance.

Thank you for joining us!

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## Thank You

We would like to acknowledge and thank the following individuals who helped craft a conference agenda that reflects the issues and needs of Florida's counties and local communities.

- Matt Culver, Boating and Waterways Program Coordinator, Brevard County
- Richard Jones, Senior Administrator, Monroe County Marine Resources Office
- Justin McBride, Senior Environmental Specialist, Lee County Dept of Natural Resources
- Robert Turpin, Manager, Escambia County Marine Resources Division

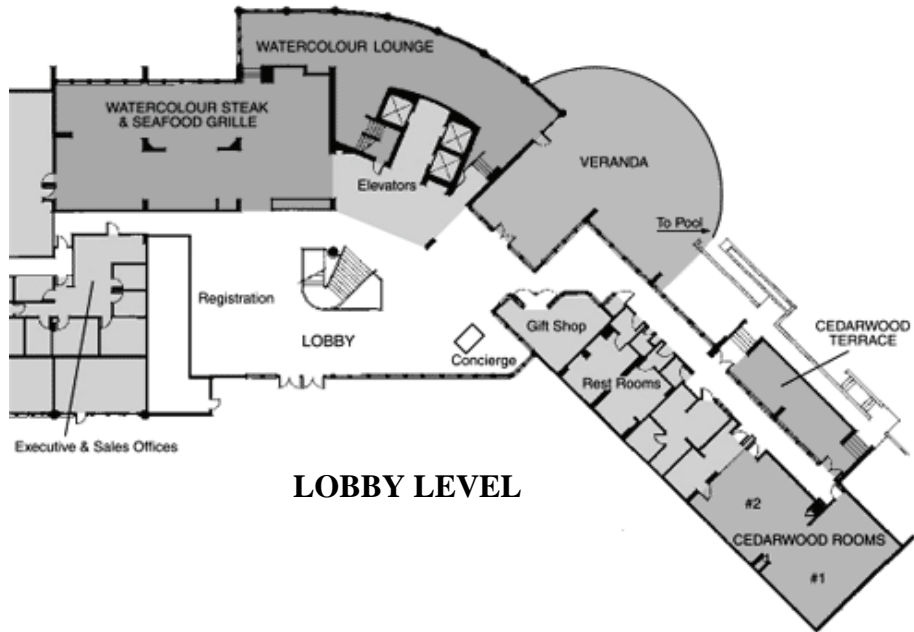
Visit **From Stem to Stern II** online at

[www.flseagrant.org/boating/StemtoStern/](http://www.flseagrant.org/boating/StemtoStern/).

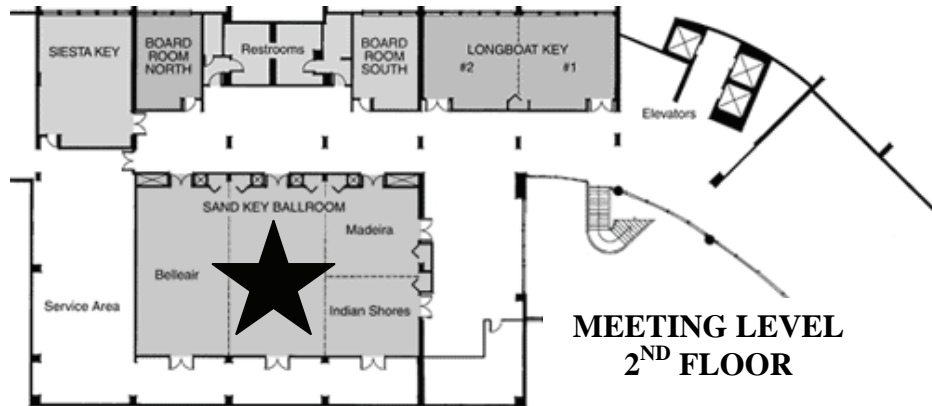
*You can download an electronic copy of this program book and view speaker biographies. Or, scan the QR code now for speaker biographies.*



# MAP OF CONFERENCE FACILITIES



**LOBBY LEVEL**



**MEETING LEVEL  
2<sup>ND</sup> FLOOR**



Main Conference Room (Sand Key Ballroom)



Florida Fish  
and Wildlife  
Conservation  
Commission

Commissioners

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Chairman  
Jacksonville

Kenneth W. Wright  
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Winter Park

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May 3, 2012

To All "From Stem to Stern II" Attendees:

Welcome to "From Stem to Stern II – Boating and Waterway Management in Florida." We at the FWC are pleased to once again be a co-sponsor of this important event, and we look forward to benefitting from the information sharing and collaboration that you will participate in over the next three days.

Regardless of your individual role in managing the waterways of this great state, I trust you will become even more aware of just how important those waterways really are to each of us. Undoubtedly, each Floridian and visitor to our state derives tremendous benefits from our surface waters. The water provides us opportunity for a wide variety of recreational and commercial activities, plays a significant role in our overall economic condition and, quite frankly, offers us a place to relax and enjoy the outdoors like nothing else can.

Like any other great resource, managing the proper use of our waterways has its challenges. We frequently find ourselves in a position of having to search for the right balance between the needs and desires of a constantly evolving base of users, our economic well-being and effective environmental stewardship. I trust that this conference will provide you insight into some innovative ways to find a balance that best serves our state for many generations to come.

We all have to make the best use of our resources, and I expect this conference will provide you the tools to be able to accomplish your goals in the most efficient and effective manner possible.

Welcome to Clearwater Beach!

Sincerely,

Colonel Jim Brown  
Director, Division of Law Enforcement

jb/rm



# Florida Department of Environmental Protection

Marjory Stoneman Douglas Building  
3900 Commonwealth Boulevard  
Tallahassee, Florida 32399-3000

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

Herschel T. Vinyard Jr.  
Secretary

May15, 2012

*Welcome Conference Attendees:*

On behalf of the Florida Department of Environmental Protection (DEP), welcome to "From Stem to Stern II" in Clearwater Beach. We are pleased to join the Florida Sea Grant Program and the Florida Fish and Wildlife Conservation Commission as co-organizers of this event.

With nearly one million registered boat owners in Florida and a recreational fishing industry that contributes \$5.7 billion to our economy each year, it's easy to see that the health of our waters is important to the future of our state. That's why one of DEP's top priorities is getting Florida's water right, in terms of water quality and water quantity.

Through our Clean Marina Program and the Clean Vessel Act, DEP is working to ensure healthy waterways for our boaters and anglers. To date, we have designated more than 250 Clean Marinas, 37 Clean Boatyards and 16 Clean Retailers throughout the state. These designations represent a commitment by the boating and fishing communities to continue working to preserve Florida's waterbodies and the species they support.

We appreciate your commitment to the protection of Florida's waterbodies and natural resources. By participating in voluntary initiatives like the Clean Marina Program and attending informative conferences such as this one, the members of Florida's boating and marine industries continue to make a difference, ensuring a healthy Florida for the future.

I hope you enjoy the conference and take away valuable information for further protecting Florida's fresh and saltwater resources.

Sincerely,

Herschel T. Vinyard Jr.  
Secretary

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***Florida Sea Grant College Program***

*A statewide university program for  
Coastal Research, Education and Extension*

1762 McCarty Drive, Building 803  
P O Box 110400  
Gainesville, FL 32611-0400 U.S.A.  
(352) 392-5870  
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Dear Friends and Colleagues,

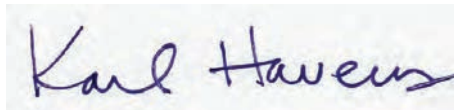
On behalf of the Florida Sea Grant College Program, welcome to “From Stem to Stern II.” This conference is a unique opportunity for Floridians with diverse interests in the coastal zone to discuss and learn about the effective management of our waterways. We are honored to be one of the partners of this event.

Florida’s economy is highly dependent on activities happening in the coastal zone, with considerable revenue, jobs and businesses that are intimately linked to the water. Currently, boating, fishing, wildlife observation, and water-based commerce all face serious and complex threats as traditional waterfronts change with population growth and development pressures. Long-term, all coastal water users may be affected by the ongoing rise in sea level that warrants discussion and action.

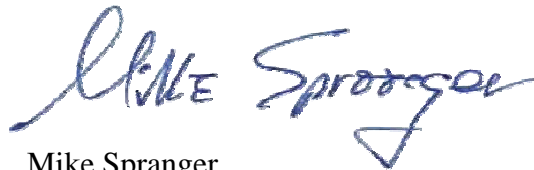
It has never been more important for groups like this to gather together in a community of practice to discuss these issues and rational solutions that can protect our coastal economy, environment and way of life.

We wish you the very best for a successful and productive conference.

Yours sincerely,



Karl Havens  
Professor and Director  
Florida Sea Grant College Program



Mike Spranger  
Associate Director for Extension and Education  
Florida Sea Grant College Program

May15, 2012

The Conservation Clinic at the University of Florida Levin College of Law is pleased to join the Florida Sea Grant Boating and Waterways Program, the Florida Fish and Wildlife Conservation Commission and the Florida Department of Environmental Protection as a co-sponsor of *From Stem to Stern II*. The Levin College of Law, through its Center for Governmental Responsibility and Conservation Clinic have worked with Florida Sea Grant for more than fifteen years to provide legal support to Sea Grant's efforts to bring high quality information to marine and coastal stakeholders and decision makers. We recognize that outreach and extension in Florida increasingly requires specialized knowledge of legal and policy issues and we are committed to providing access to this knowledge through the Conservation Clinic's unique form of service learning. Through the Clinic, our law students gain firsthand experience working with coastal communities as well as extension personnel to deliver legal information in a timely yet thorough manner. Participation in the planning and organization of an event like "From Stem to Stern II" provides added value.

We thank those of you attending "From Stem to Stern II" for your commitment to the sound management of Florida's waterways and we look forward to continuing our own commitment to ensuring that stakeholders and decision makers receive the best available information to guide their participation in the issues that confront our waterways.

Sincerely,



Thomas T. Ankersen  
Legal Skills Professor and Director



## Program Committee

*Holly Abeels*

Florida Sea Grant – Extension  
University of Florida/IFAS, Brevard County

*Thomas Ankersen*

Director, Conservation Clinic  
Florida Sea Grant Legal Specialist  
University of Florida/Levin College of Law

*Staci Biondini*

Florida Sea Grant – Communications  
University of Florida/IFAS

*Libby Carnahan*

Florida Sea Grant – Extension  
University of Florida/IFAS, Pinellas County

*Garin Davidson*

Boating and Waterway Planning Program  
Florida Sea Grant  
University of Florida/IFAS

*Major Jack Daugherty*

Section Leader, Boating and Waterways  
Florida Fish and Wildlife Conservation  
Commission

*Bryan Fluech*

Florida Sea Grant – Extension  
University of Florida/IFAS, Collier County

*Corina Guevara*

Boating and Waterway Planning Program  
Florida Sea Grant  
University of Florida/IFAS

*Pat Harrell*

Boating Access Coordinator  
Florida Fish and Wildlife Conservation  
Commission

*Joy Hazell*

Florida Sea Grant – Extension  
University of Florida/IFAS, Lee County

*Lisa Krimsky*

Florida Sea Grant – Extension  
University of Florida/IFAS, Miami-Dade County

*Jeff Littlejohn*

Deputy Secretary, Regulatory Program  
Florida Department of Environmental  
Protection

*Captain Richard Moore*

Boating Law Administrator  
Florida Fish and Wildlife Conservation  
Commission

*Captain Thomas Shipp*

Boating and Waterways Section  
Florida Fish and Wildlife Conservation  
Commission

*Brad Stombock*

Director, Office of Sustainable Initiatives  
Florida Department of Environmental  
Protection

*Betty Staugler*

Florida Sea Grant – Extension  
University of Florida/IFAS, Charlotte County

*Bob Swett*

Coordinator, Florida Sea Grant  
Boating and Waterway Planning Program  
University of Florida/IFAS

*Chris Verlinde*

Florida Sea Grant – Extension  
University of Florida/IFAS, Santa Rosa County

*Fred Vose*

Florida Sea Grant – Extension  
University of Florida/IFAS, Taylor County

*Dorothy Zimmerman*

Florida Sea Grant – Communications  
University of Florida/IFAS

# Program Agenda

**Tuesday, May 15<sup>th</sup>**

**10:00 am** Registration Opens (2<sup>nd</sup> floor)

## Welcome and Keynote Addresses

- 12:15 pm**  
Sand Key Ballroom
- FWC Honor Guard
  - Welcome – *Mayor George Cretekos*, City of Clearwater
  - Conference Keynote – *Herschel T. Vinyard Jr.*, Secretary of the Florida Department of Environmental Protection

## OPENING PLENARY: The State of Boating and Waterways in Florida

Moderator: Major Jack Daugherty, Leader, Boating and Waterways Section, FWC

- 1:30 pm**
- Boating and the Marine Industry  
*Dusty McCoy*, President and CEO, Brunswick Corporation
  - The Status of Florida's Ports  
*Jennifer Krell*, Vice President of Public Affairs, Florida Ports Council
  - Anchoring Away, Local Government Regulation and Rights of Navigation in Florida  
*Byron Flagg, Esq.*, The Flagg Firm
  - A Synopsis of Feedback from Four Regional Boating and Waterways Workshops in Florida  
*Bob Swett*, Coordinator, Florida Sea Grant Boating and Waterways Program

BREAK (light refreshments – 2<sup>nd</sup> Floor Foyer)

## PANEL SESSION 1: Anchoring and Mooring Fields

Moderator: Richard Jones, Senior Administrator, Monroe County Marine Resources Office

- 3:20 pm**
- Florida's Anchoring and Mooring Pilot Program Overview  
*Captain Thomas Shipp*, Boating and Waterways, FWC
  - Good Mooring to You: Jensen Beach Managed Mooring Field  
*Penny Cutt*, Environmental Permitting Regional Manager, Coastal Systems International
  - Recommendations for Mooring Field Development  
*Mark Leslie*, Marina Manager, City of Titusville
  - Managed Mooring Field Permitting, Submerged Lands Leases, and the Board of Trustees... "How Can I Speed Up the Process?"  
*Timothy Rach*, Bureau Chief, Bureau of Submerged Lands and Environmental Resources, Florida Department of Environmental Protection
  - 2020 Vision — Managing Anchored Vessels on Waters of the State  
*Janet Luce*, Senior Technical Coordinator, Atkins North America

**6:00 pm**

CONFERENCE WELCOME RECEPTION (Poolside)

**Wednesday, May 16<sup>th</sup>**

**Welcome**

**7:00 am**

**CONTINENTAL BREAKFAST (2<sup>nd</sup> Floor Foyer)**

**PANEL SESSION 2: Ports and Commercial Access**

**Moderator:** Tom Ankersen, Sea Grant Legal Specialist, University of Florida Levin College of Law

**8:00 am**

- Will Deep Waters Still Run: The Law and Policy of Ports and Working Waterfronts in Florida  
*Meagan Standard*, Conservation Clinic Associate, University of Florida Levin College of Law  
*Andrew Dickman*, Land Use Attorney, Miami River Marine Group  
*Spencer Crowley*, Miami-Dade County Commissioner, Florida Inland Navigation District

**BREAK**

**PANEL SESSION 3: Navigating the Permitting Process**

**Moderator:** Brad Stombock, Director, Office of Sustainable Initiatives, Florida Dept of Environmental Protection

**9:35 am**

- Intracoastal Waterway and Other Federal Shallow Draft Inlets  
*Shelley Trulock*, Project Manager, U.S. Army Corps of Engineers
- Navigating the U.S. Army Corps of Engineers Regulatory Process  
*Angela Ryan*, Biologist, U.S. Army Corps of Engineers
- Permitting Issues for Boating and Waterway Infrastructure  
*Virginia Dailey*, Attorney, Hopping Green and Sams, P.A.

**BREAK**

**PANEL SESSION 4: Boating Access, Safety and Resource Protection**

**Moderator:** Captain Richard Moore, Boating Law Administrator, Florida Fish and Wildlife Conservation Commission

**11:10 am**

- The Legal Requirements for Establishing Boating Restricted Areas  
*Shaun Davis*, Boating and Waterways, Florida Fish and Wildlife Conservation Commission
- On-Water Access  
*Peggy Mathews*, Florida Representative, American Watercraft Association
- Uniform Mitigation Assessment Method and Seagrass Restoration/Mitigation  
*Althea Hotaling*, Doctoral Candidate, School of Natural Resources and Environment, University of Florida

**12:30 pm**

**LUNCH (Watercolour Grille)**

## Wednesday, May 16<sup>th</sup> (continued)

### PANEL SESSION 5: Innovative Non-Regulatory Approaches

Moderator: Chris Verlinde, Santa Rosa County Sea Grant Extension Agent

- 1:50 pm**
- How Can a Community-Based Social Marketing Approach Help Us Understand Boater Behavior?  
*Paul Monaghan*, Assistant Professor, Department of Agricultural Education and Communication, University of Florida  
*Joy Hazell*, Sea Grant Extension Agent, University of Florida/IFAS, Lee County
  - Team O.C.E.A.N. (Ocean Conservation Action Network): On-the-Water Education and Outreach in the Rookery Bay National Estuarine Research Reserve  
*Kyle Yurewitch*, Coordinator, Team O.C.E.A.N.
  - Florida Clean Vessel Act Program and the Florida Clean Marina Program  
*Brenda Leonard*, Clean Marina Program Manager, Florida Department of Environmental Protection
  - Florida's At-Risk Vessel Program  
*Phil Horning*, Derelict Vessel Planner, Florida Fish and Wildlife Conservation Commission

BREAK (light refreshments – 2<sup>nd</sup> Floor Foyer)

### PANEL SESSION 6: Project Planning and Considerations for the Future

Moderator: Matt Culver, Boating and Waterways Program Coordinator, Brevard County

- 3:50 pm**
- Charting a Course for Waterway Projects Statewide  
*Bryan Flynn, P.E.*, Project Manager, Atkins North America
  - Climate Change Effects on Boating in Florida's Coastal and Inland Waterways  
*Randall Parkinson*, Administrator, Space Coast Climate Change Initiative
  - Sebastian Inlet Channel Dredging, Resource Protection and Safety Improvements  
*Martin Smithson*, Executive Director, Sebastian Inlet District
  - Charlotte County Marine Access Study  
*Elizabeth Staugler*, Sea Grant Extension Agent, University of Florida/IFAS, Charlotte County

**6:30 pm** NETWORKING RECEPTION AND POSTER SESSION (Longboat Key Room)

**Thursday, May 17<sup>th</sup>**

**Welcome**

**7:00 am**

**CONTINENTAL BREAKFAST (2<sup>nd</sup> Floor Foyer)**

**PANEL SESSION 7: Innovative Solutions to Data and Information Needs**

**Moderator:** Robert Turpin, Manager, Escambia County Marine Resources Division

**8:00 am**

- Online GIS Applications for Easy Access to Waterway Information  
*Alexandra Carvalho, Ph.D., CMar Consulting, LLC*
- Comprehensive Boat Ramp Inventory and Web Applications for Planning, Waterway Management and Public Information  
*Bill Sargent, Research Analyst, Florida Fish and Wildlife Conservation Commission*
- The Florida Boating and Angling Guide Series: In Print and On the Web  
*Chris Anderson, Research Associate, Florida Fish and Wildlife Conservation Commission*
- National Working Waterfronts and Waterways Network  
*Jack Wiggan, Urban Harbors Institute, University of Massachusetts*

**BREAK**

**PANEL SESSION 8: Exemplary Public Waterway Access Projects**

**Moderator:** Pat Harrell, Boating Access Coordinator, Florida Fish and Wildlife Conservation Commission

**10:00 am**

- Enhancing Public Access – Examples of Innovative Partnerships and Funding by the City of Clearwater, Florida  
*William Morris, Harbormaster, City of Clearwater*
- Waterway Access Planning in a Rural Florida Coastal Community Supports Efforts to Promote Tourism  
*Jack Brown, County Administrator, Taylor County*
- Pioneering ‘ADA-Friendly’ Blue Trail Water Access Design  
*Jenna Vogt-Phillips, Coastal Engineer/Project Manager, Coastal Technology Corporation*
- Inlet Specific and Seasonal Variation in Vessel Use Patterns: The Case of the Northeast Florida Region  
*Nancy Montes, University of Florida*

**Conference Summary and Closing Remarks**

**12:00 pm**

- Conference Summary by Rapporteur  
*Thomas Murray, Program Leader, Virginia Sea Grant Extension Program*
- Closing Remarks  
*Major Jack Daugherty, Section Leader Boating and Waterways, Florida Fish and Wildlife Conservation Commission*

## Presentation Abstracts

(listed in order of presentation)

\*indicates presenting author

### **Anchoring Away, Local Government Regulation and the Rights of Navigation in Florida**

Flagg, B., Esq.\*

The Flagg Firm

Based on a summary of the third edition of a Florida Sea Grant sponsored publication, co-author Byron Flagg, will give a brief overview of federal legal authority to regulate navigation and anchoring, a short history of Florida statutory changes to state jurisdiction over navigation and anchoring as well as the current state of the law in Florida. While there has been little change in the federal law since the first edition in 1999, Florida law, particularly statutory law, has undergone two significant revisions, first in 2006 and again, more comprehensively, in 2009. In both cases the Florida legislature has modified the key provision that includes the term “navigation” for purposes of local regulation of anchoring. The legislature has sought to reconcile the conflicting state, local, and boater interest in that basic attribute of navigation – anchoring.

Electronic PDF copy of publication is available at: <http://nsgl.gso.uri.edu/flsgp/flsgpt11001.pdf>

### **A Synopsis of Feedback from Four Regional Boating and Waterways Workshops in Florida**

Swett, R.\*

Coordinator, Florida Sea Grant Boating and Waterway Planning Program

Leading up to *Stem to Stern II*, the Florida Sea Grant Boating and Waterways Work Action Group and the Florida Fish and Wildlife Conservation Commission’s Boating and Waterways Section organized and facilitated four regional workshops. The events occurred in Punta Gorda (SW), West Palm Beach (SE), Milton (NW), and St. Augustine (NE), and nearly 300 people attended from government agencies, private businesses, marine industry associations, academia, citizen groups, and local advisory committees. The first day of each workshop consisted of presentations by local and state experts who discussed management and policy tools to balance economic vitality with ecologically sound management practices along the region’s waterways. The second day was a half day facilitated session designed to allow participants to conduct region-specific strategic planning for boating and waterways based on their expertise and information gathered from the previous day’s presentations. The results of the four strategic planning sessions helped guide the development of the *From Stem to Stern II* agenda. This talk will present a synthesis of the four sessions, highlighting differences, similarities, and resulting priorities.

### **Florida’s Anchoring and Mooring Pilot Program Overview**

Shipp, T.\*

Florida Fish and Wildlife Conservation Commission, Boating and Waterways Section

This presentation will provide a brief overview of the Florida’s anchoring and mooring pilot program statute language. This presentation will then move into an update of where each of the program participants are in the development process or enforcement of their ordinances and how each participant is dealing with the problems in their individual areas.

## **Good Mooring to You: Jensen Beach Managed Mooring Field**

Cutt, P.<sup>1\*</sup>, Barrett, C.<sup>1</sup>, and Fitzpatrick, K.<sup>2</sup>

<sup>1</sup>Coastal Systems International

<sup>2</sup>Martin County

The authors will present regulations that enable boaters in Florida to anchor in almost any open water location. Unmanaged ad hoc anchoring areas can lead to abandoned derelict vessels which become navigational hazards and create environmental damage such as marine resource shading and scouring. Other issues include degraded water quality through illegal dumping and incidental discharges associated with on water vessel maintenance. A well planned and managed mooring field can be a benefit to residents, boaters and the environment. Martin County plans to address these issues in an area currently being used as an ad hoc anchorage located just south of the Jensen Beach Causeway in the Indian River Lagoon in Martin County. The presentation discusses the current Jensen Beach ad hoc anchoring site (derelict vessels, environmental concerns), reasons that the site is an ideal location for creation of a managed mooring field (naturally protected area, accessibility, hydrology, nearby amenities, sparse seagrass), and how the Jensen Beach managed mooring field, to be constructed in February 2013, will provide needed infrastructure to boaters in Martin County, manage boaters and in turn protect marine resources and enhance the aquatic environment. The Martin County Mooring Field will provide 51 mooring buoys, a dinghy dock and will be delineated by four navigational buoys. The County has established a website (<http://www.jbmoorings.com/>) to provide information on the proposed Project to the public. Funds are being sought from FIND, FWC, and IRLNEP, as well as matching funds and in-kind support from Martin County. Additionally, the Project has been accepted into the FWC Anchoring and Mooring Pilot Program.

## **Recommendations for Mooring Field Development**

Leslie, M.\*

Titusville Municipal Marina, Titusville, Florida

At the beginning of the mooring field planning process, Titusville planned to install 220 moorings. Once into the permitting process, it became apparent that there were seagrasses covering nearly half of the area of the planned mooring field. Ultimately, the City ended up with a permit for 119 moorings and a Sovereignty Submerged Land Lease for over 120 acres, including the seagrass area.

Upon implementation and seeing the decrease in demand due to the economy, the City opted to install 75 of the permitted 119 mooring anchors. Although completely unanticipated, the City ended up with a built-in buffer area between the vessels moored inside the mooring field boundaries and the vessels at anchor outside the boundaries. Thus, a potential strategy for cities and counties when space is available may be to request boundary marker permits from the US Coast Guard that allow for a cushion between anchored boats and those on mooring balls. Many agree that helical-type moorings imbedded in seagrass areas as an alternative to anchoring will protect seagrasses. Moorings are used worldwide to protect sensitive marine habitats from the destruction of anchors and chains. Studies by regulatory agencies are needed to scientifically prove that moorings are detrimental to submerged aquatic vegetation, especially when compared to open anchoring. Presently, rule prohibits the Florida Department of Agriculture and Consumer Services from approving the installation of moorings in or near approved shellfish harvesting areas. However, NOTHING in rule restricts numerous vessels from anchoring in those same areas. Managed Mooring Fields are required to have pumpout boats and are governed by mandatory management plans which do not allow any type of discharge. Unmanaged anchorages are just that, unmanaged.

## **Managed Mooring Field Permitting, Submerged Lands Leases, and the Board of Trustees...How Can I Speed Up the Process?**

Rach, T.\*

Bureau Chief, Florida Department of Environmental Protection, Bureau of Submerged Lands and Environmental Resources

The Department has been working on several permit streamlining initiatives over the past few years in an effort to speed up the permitting process. Pre-application meetings are being emphasized as a way to specifically inform applicants what information is necessary in order for the Department to process the application for a permit. An analysis done in 2009 revealed that it took on average, over two years for mooring fields to be permitted and approved by the Department and the Board of Trustees. Fifty percent of that time the Department was waiting on the applicant to respond with some information that would make the file complete. It is the Department's hope that through robust pre-application meetings and discussions about "lessons learned" the application process can at least be cut in half. One of the Department's goals this year is to process permit applications within 6 months. There are approximately twenty permitted managed mooring fields within the State of Florida. At least half of those also required a sovereign submerged lands lease and approval from the Board of Trustees.

## **2020 Vision – Managing Anchored Vessels on Waters of the State**

Luce, J.\*

Atkins North America

Jump ahead to the year 2020. Boating in Florida continues to be a vibrant industry. Florida's state and local governments have made great strides in waterway management, with continued efforts to strike a balance between the protection of natural resources and promoting the recreational and commercial use of the waterways. Through the years, the incidence of derelict vessels manifesting from neglected anchored boats on state waters has continued. In this hypothetical look ahead at 2020, a blend of technology, public awareness, and interagency coordination have become essential in supporting the effective management of boats at anchor on waters of the state, and ultimately, a resulting direct reduction in the number of derelict vessels. The concepts of this look ahead in the not-so-distant future combine the use of mobile-GIS technology (including smart phones), cloud computing, an automated process for owner identification and notification, and vessel tracking that doesn't take away from marine law enforcements' duties while on the water. It is an illustrated look at how anchored vessel management works with a simplified, seamless and systematic process resulting in increased efficiencies, reduced government costs, and heightened public awareness and buy-in.

## **Will Deep Waters Still Run: The Law and Policy of Ports and Working Waterfronts in Florida**

Ankersen, T.<sup>1</sup>, Standard, M.<sup>1\*</sup>, Dickman, A.<sup>2\*</sup>, and Crowley, S.<sup>3\*</sup>

<sup>1</sup>Conservation Clinic, University of Florida Levin College of Law

<sup>2</sup>Land use attorney, Miami River Marine Group

<sup>3</sup>Commissioner, Florida Inland Navigation District

Florida's lengthy coastline provides numerous deep-water access opportunities for commercial and recreational use, but only a small number of these are specially designated under Florida's statute governing the promotion and development of ports. The legal framework establishing Florida's statutory ports confer a number of advantages on those ports, including streamlined permitting and matching funds. Ports must also prepare a special element for the comprehensive plan of the local government they reside in. These advantages strengthen local resolve to maintain water dependent uses in the face of competing land and water use interests. Non-statutory ports and commercial working waterfronts do not enjoy the same advantages, though efforts to address land use change through comprehensive planning emerged during the real estate bubble of the mid-2000s. This panel discussion will provide an overview of Florida's approach to



deep-water access, including the state's efforts to prepare port infrastructure for the widening of the Panama Canal. Case studies will discuss specific deep water access challenges, including the Port of the Miami River land use litigation and legal and resource issues associated with improving the Port of Miami entrance channel in order to accommodate Panamax shipping.

### **Intracoastal Waterway and Other Federal Shallow Draft Inlets**

Trulock, S.\*

U.S. Army Corps of Engineers

The Corps of Engineers involvement in navigation projects dates to the early days of the United States, when rivers and waterways were the primary paths of commerce in the new country. The question was raised as to whether transportation was, under the Constitution, a legitimate Federal activity. This question was resolved when the Supreme Court ruled that the Commerce Clause of the Constitution granted the Federal Government the authority, not only to regulate navigation and commerce, but also to make necessary navigation improvements. The system of harbors and waterways maintained by the Corps of Engineers remains one of the most important parts of the Nation's transportation system. This includes both large rivers and ports as well as smaller shallow draft inlets and waterways. The Corps maintains the Nation's waterways as a safe, reliable, and economically efficient navigation system. The 12,000 miles of inland waterways maintained by the Corps carry one sixth of the nation's inter-city cargo. The importance of the Corps mission in maintaining congressionally authorized depths at more than 500 harbors, mean-while, is underscored by an estimated one job in five in the United States being dependent, to some extent on the commerce handled by these ports. This presentation will focus on the Intracoastal Waterway in Florida and other Federally authorized shallow draft inlets.

### **Navigating the U.S. Army Corps of Engineers Regulatory Process**

Ryan, A.\*

Biologist, Tampa Permits Section, U.S. Army Corps of Engineers

This presentation is to provide an overview of the U.S. Army Corps of Engineers Regulatory program in accordance with Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act of 1977. Due to the nature of the conference, an emphasis will be placed on Section 10 permit reviews. The presentation will include an introduction to Jurisdictional issues, endangered species and essential fish habitat concerns, and the 2012 Nation Wide permits. Other topics include a discussion on the National Environmental Policy Act, the Federal permits process, and Public Interest concerns. Case studies will be utilized to provide scenarios for evaluating the Federal review framework and to provide the audience with the ability to understand the complex permitting processes. The presentation will conclude by providing guidelines on how to expedite the Federal permit process.

### **Permitting Issues for Boating and Waterway Infrastructure**

Brightman, R. and Dailey, V.\*

Hopping Green and Sams, P.A.

Boating and enjoyment of Florida's waterways have always been an integral part of life in Florida. Water regulatory issues and permitting, in one way or another, are often a critical factor in the development, operation and maintenance of boating and waterway infrastructure. Permits for boating and waterway infrastructure may be hotly contested if care is not taken to craft the project in a manner that meets all environmental criteria and addresses concerns when possible. This presentation will outline the permitting processes, helping participants learn to avoid the shoals and rocks that might otherwise sink their projects. The issues can include: environmental resource permitting, approvals for sovereign submerged lands, and riparian rights, among others. Our firm has represented a variety of clients on water-related issues, including developers, industry, utilities, cities, ports, shipyards, and individual users, among other interests. We have

wide-ranging experience – going back thirty years and continuing to recent and ongoing projects – in the many issues involving water resources, including storm water management, sovereign submerged lands, water withdrawals, domestic and industrial wastewater discharges, water quality, and potable water use. This presentation will outline many of those issues from the perspective of permit applicants, providing an overview of what to expect in the permitting process.

### **The Legal Requirements for Establishing Boating Restricted Areas**

Davis, S.\*

Florida Fish and Wildlife Conservation Commission, Boating and Waterways Section

Chapter 2009-86, Laws of Florida was passed by the Legislature to clarify the types of boating safety restrictions which local governments could implement. The FWC provided further clarification with the creation of Chapter 68D-21 Florida Administrative Code (F.A.C.), which detailed the criteria and procedures which would be used to evaluate local government boating safety zone ordinances. Chapter 2009-86 modified 327.46, Florida Statutes (F.S.) to create two tiers of local government ordinance reviews. The first tier found in 327.46(1)(b) F.S. gives local governments the authority to create boating safety zones in the vicinity of bridges, public launching and landing facilities, public fuel docks, navigation locks, small water bodies, swim areas and flood control structures. The second tier found in 327.46(1)(c) F.S. requires that local governments provide specific evidence of a boating safety hazard. Approval by FWC is required in areas subject to traffic congestion, hazardous water levels or currents, visibility obstructions or other boating safety hazard. FWC is required to review the local government's evidence and either approve or deny the ordinance according to the criteria in 68D-21 F.A.C.

### **On-Water Access**

Mathews, P.\*

American Watercraft Association

This presentation will look at boating on-water access. With the proliferation of federal, state, and local government boating management areas, access is becoming more restricted with each passing year. Surveying the waters surrounding the southern portion of Florida, managing agencies include the National Park Service, Federal Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration, in addition to the Florida Fish and Wildlife Conservation Commission and local governments that have jurisdiction of adjacent waters. These entities implement boating management areas ranging from slow speed zones to no entry zones. Additional boating restricted zones continually are being proposed, however zones are rarely, if ever removed. Some management regulations target specific types of vessels. The National Park Service (NPS) has banned Personal Watercraft (PWC) use of the Intracoastal Waterway (ICW) through Biscayne National Park. This regulation endangers the safety of PWC operators who must now navigate open-ocean beyond the reef tract to access the Florida Keys. Overly restricting on-water access results in negative economic consequences to the boating industry and infringes on the rights to enjoy the waters by recreational boaters. This presentation will investigate overlapping management jurisdictions, types of access management areas and the economic impact on the boating community. This presentation will conclude with recommendations, such as the need for monitoring and collection of scientific data to support proposed regulations and periodic reviews of existing management areas.

## **Uniform Mitigation Assessment Method and Seagrass Restoration/Mitigation**

Hotaling, A.\*<sup>1</sup>, Lingle, B.<sup>2</sup>, Ankersen, T.<sup>2</sup>, Swett, R.<sup>3</sup>, and Listowski, C.<sup>4</sup>

<sup>1</sup>University of Florida School of Natural Resources and Environment

<sup>2</sup>University of Florida Levin College of Law

<sup>3</sup>University of Florida School of Forest Resources and Conservation

<sup>4</sup>West Coast Inland Navigation District

In coastal Florida, the development and maintenance of docks, marinas, and channels frequently cause destruction of seagrass beds. Seagrass loss is accompanied by a loss of the ecosystem services the beds provide, such as sediment stabilization, water filtration, protection from storms, and habitat and nursery grounds for fish species. The current legal framework for seagrass protection and the implementation of mitigation for seagrass loss could be improved. Seagrass is located on sovereign submerged land that is held in trust by the state for the citizens of Florida. The state protects the public's interest in navigation, boating, and fishing as well as the natural resources that make boating and fishing enjoyable. Therefore, the Uniform Mitigation Assessment Method (UMAM) is used to determine the amount of mitigation necessary when seagrass beds have or will be impacted. UMAM has typically been used to mitigate for the destruction of wetlands in a terrestrial landscape. In this presentation, the authors argue that policymakers could revise UMAM to include more assessments related specifically to the ecology of seagrass beds and their ecosystem services. These additional assessments would greatly improve the use of UMAM in mitigating for lost seagrass. In addition, seagrass mitigation is currently carried out by the permittee that applied to create or maintain the seagrass-impacting development. In comparison, wetland mitigation is typically carried out by publicly or privately operated mitigation banks. The creation of mitigation banks for seagrass restoration would streamline the process of seagrass mitigation and promote the public's interest in seagrass restoration. There would also be an opportunity to take what has been learned from wetland mitigation banking and use it to improve the legislation created for seagrass mitigation banking.

## **How Can a Community-Based Social Marketing (CBSM) Approach Help Us Understand Boater Behavior?**

Monaghan, P.<sup>1\*</sup> and Hazell, J.<sup>1,2</sup>

<sup>1</sup>University of Florida, IFAS

<sup>2</sup>Lee County Sea Grant

Combining the tools and principles of social marketing in partnership with engaged communities has proven to be an effective way to promote behavior change. Social marketing is evaluated by the adoption of new behaviors, modifying existing behaviors or convincing citizens to stop doing something that has negative consequences for society or the environment. This is the only measure of success. We have been conducting formative research (one of the key tools of CBSM) among users of a public boat ramp in Lee County in order to understand stakeholder perspectives on seagrass protection in Pine Island Sound. There are a number of unique user groups, from kayakers and conservationists to commercial fishermen, sports fishermen and even contractors who use the ramp to shuttle workers to jobs on the bridgeless barrier islands. Before it became a public ramp, this location was a major fish house for commercial fishermen up until the net ban took effect. All of these user groups have differing perspectives on seagrass protection but they all have a stake in preserving the natural resources of the estuary. We will report on our research findings and offer an example of how CBSM can define target audiences, guide in the selection of appropriate behaviors for campaigns and successfully promote their adoption. Among our conclusions we will show that establishing the partnerships with diverse communities is the key to a successful CBSM campaign.

**Team O.C.E.A.N. (Ocean Conservation Action Network): On-the-water Education and Outreach in the Rookery Bay National Estuarine Research Reserve**

Yurewitch, K.\*

Florida Department of Environmental Protection / Rookery Bay NERR

Team OCEAN is an outreach and resource stewardship program that is being implemented at Rookery Bay National Estuarine Research Reserve (RBNERR) through a partnership between RBNERR, Florida Sea Grant, and the U.S. Fish and Wildlife Foundation. Its objective is to provide information and interpretation in order to help visitors to the RBNERR enjoy the reserve by using its resources responsibly and understanding the plants, animals, and ecosystems found within it. The program aims to reach visitors to RBNERR in their element, including on the water, on islands, at boat ramps, and at other access points. Volunteers provide outreach, education, and interpretation in the RBNERR itself. Volunteers increase awareness of good stewardship practices, resource conservation issues, and natural history among RBNERR visitors who may not choose to attend educational resources such as libraries or learning centers. They accomplish this by talking one-on-one or to small groups of visitors in high-use areas such as Keewaydin Island, providing information, and setting a good example for others on the water. Volunteers may also take on other roles—trash pick-ups, boundary stewardship, boat and boater surveys, and species monitoring activities—as the Team OCEAN program develops and expands. Topics volunteers will talk about with visitors to the RBNERR include: Good stewardship practices, such as leave no trace, Safe boating, Fishing rules and regulations, as well as other, rules and regulations that apply to areas within RBNERR, natural history of plants and animals found within Rookery Bay, ecology of estuaries and their significance to visitors and the local community. Team OCEAN is organized locally by a coordinator who works within the Resource Management division of RBNERR and is stationed at the Rookery Bay NERR administration office in Naples, Florida.

**Florida Clean Vessel Act Program and the Florida Clean Marina Program**

Leonard, B.\* and Stombock, B.

Florida Department of Environmental Protection

The Florida Clean Vessel Act Program and the Florida Clean Marina Program are administered by the Department of Environmental Protection in partnership with The Clean Boating Partnership. The Clean Vessel Act (CVA) Program is a federal and state funded program to provide grants for the construction, renovation, operation and maintenance of pumpout stations for the disposal of sewage generated by recreational boaters. The goal of the CVA Program is to reduce overboard sewage discharge from boats by providing convenient pumpout locations for boaters and to provide education on the effects of human waste in our marine and freshwater environments. Grant funded pumpout stations have collected millions of gallons of waste that may have otherwise been discharged into the state's waterways. Florida's marine industry is a multi-billion dollar industry and is fueled in large by recreational boaters as people come to Florida to enjoy sun and clean water for swimming or cruising. If the waters are not clean, boaters and tourism will go elsewhere. The Clean Marina Program is a voluntary program aimed at encouraging Florida's marinas, boatyards, retailers, and boaters to become better environmental stewards. It is based on three components: education, technical assistance, and recognition. These components work to achieve a deeper commitment by the marine industry and the boating public. To become designated as a Clean Marina, facilities must implement a set of environmental measures designed to protect Florida's waterways. These measures address critical environmental issues such as sensitive habitat, waste management, stormwater control, spill prevention, and emergency preparedness. The Clean Boater Program addresses clean practices in which the boater takes the pledge to practice boating in an environmentally friendly way. The pollution prevention practices in marine operations and boating have resulted in greater environmental protection.

## **Florida's At-Risk Vessel Program**

Horning, P.\*

Florida Fish and Wildlife Conservation Commission, Division of Law Enforcement, Derelict Vessel Program

The Florida At-Risk Program is a non-regulatory option to be used by law enforcement with the intent of establishing positive contact with vessel owners. Vessels in this category meet the following definition: An "at-risk vessel" is defined as "a vessel exhibiting conditions known to precede a derelict condition, causing a law enforcement officer to have just concern for its welfare." When a vessel is determined by law enforcement personnel to be derelict, there are criminal implications which set forth a series of legal options. Since these are forced on the owner, a confrontational relationship is established from the start. With the At-Risk Program, the officer has an opportunity to establish non-confrontational dialog with the vessel owner. It has been determined that this approach is highly effective and reduces the occurrence of derelict vessels. The program is also a law enforcement tool used to gather information prior to information being lost either by fraud or evasion. This is a form of community policing for the marine environment and is both a cost and time saving program. The program consists of sworn law enforcement officers noting deficiencies in vessel conditions that are stored upon the waters of the state. By written and posted notification, the owner of the vessel is urged to do the right thing. If the vessel is not brought into compliance and slips into the Derelict category, the investigation will continue. So far this program is showing a 60-70% success ratio. This Statewide At-Risk and Derelict Vessel Database and the At-Risk Program is open to all State of Florida Law Enforcement Agencies. Training along with technical and material support is provided at no charge by the Florida Fish and Wildlife Conservation Commission.

## **Charting a Course for Waterway Projects Statewide**

Flynn, B.\*, Yarbrough, M., Patanio, J., and Tabar, J.

Atkins North America, Inc.

With almost every waterway project, we address issues such as data collection, funding, regulatory constraints, multiple user interests and construction access. Successful data collection requires timely, accurate, consistent survey, mapping and geotechnical information, and is the foundation on which the project is built. Gathering enough of the right kind of information with the money available requires carefully selecting the instruments and analytical methods. Funding sources have become limited and require partnerships with multiple stakeholders, grants, or municipal benefit units to generate the necessary budget to complete waterway projects. Opportunities must be identified early in the process to get applications submitted on time with community and political support. Federal, state and local regulatory agencies have specific water quality, mitigation and endangered species criteria endemic to the project area and surrounding waterbody. The ability of the client, community and consultant to establish a rapport with the agencies and work within the regulatory boundaries is key. Waterways have multiple-user groups and management of the resource for sailboats, powerboats, personal watercraft, kayakers to name a few, and still limit the environmental impact, is a large undertaking. Public involvement through charettes and project websites/teamsites give the community up-to-date project information, allow for interaction with the project management team and generate a consensus among the stakeholders during the process. During construction of the project, limited waterfront access and nearby areas available for staging, dewatering and disposing of dredge material are needed. Beneficial re-use of dredged material for beach re-nourishment, shoreline stabilization, or habitat islands are always preferred, but not always available. Having access to client-owned or publically managed lands to dewater and/or dispose of material is a crucial step in the success of the project. Identifying these issues early in a project will help navigating through them and keep the project on course.

## **Climate Change Effects on Boating in Florida's Coastal and Inland Waterways**

Parkinson, R.W.<sup>1\*</sup> and Titus, J.<sup>2</sup>

<sup>1</sup>Space Coast Climate Change Initiative

<sup>2</sup>Climate Change Division, U.S. Environmental Protection Agency

This presentation will provide an overview of the effects of climate change on boating in Florida's coastal and inland waterways including: (1) predicted environmental changes, (2) specific vulnerabilities, (3) adaptation strategies, and (4) recommended actions. Much of the impact to coastal and inland boating will be associated with accelerated sea level rise including an increase in the frequency and intensity of coastal flooding and erosion associated with extreme weather events and storm surges. Florida's recreational and commercial boaters may be the most vulnerable segment of the coastal economy since virtually every ramp, dock, marina and the required infrastructure is located in an area of potential inundation or erosion. Many other changes are expected including rising atmosphere and ocean temperatures and a reduction in estuarine water quality. These will alter the behavior and distribution of a broad range of marine and freshwater fin- and shell-fish species, including those targeted by recreational boaters or harvested by commercial fisherman. The development of an effective adaptation strategy should include the following major components:

1. A vulnerability assessment to (a) identify areas potentially impacted by sea level rise and (b) develop inventories of resources at risk.
2. Development of a framework for coordination between Federal, State, and local stakeholders and decision makers.
3. Development of a strategic plan periodically updated to reflect new information.
4. Outreach and education programs to promote public awareness of these issues.

The discussion of recommended actions will be based on an examination of successful efforts undertaken by coastal communities throughout the United States. Likely to be included in this discussion will be the use of Florida's newly defined adaptation action area Comprehensive Plan designation and (2) a Boating Task Force analogous to that convened by Pinellas County in 2005.

## **Sebastian Inlet Channel Dredging, Resource Protection and Safety Improvements**

Smithson, M.\*

Sebastian Inlet District

After many years, the Sebastian Inlet District received State and Federal permits to complete a public safety navigation channel connecting the Sebastian Inlet to the Intracoastal Waterway (ICW). The first documented discussion of the project was in 1938 and continued over the years; efforts were stepped up in 1990 to obtain the necessary permits. Dredging of the new completion channel was completed July 19, 2007. The project provides a safe channel through the inlet flood shoal and connects the existing maintained inlet channel to the ICW, a federally maintained project. Dredging of the new completion channel resulted in a 3,120 linear foot channel with 100-ft bottom width at -9 ft depth with 5H:1V side slopes to the existing grade. The channel dredging required removal of approximately 50,000 cubic yards of material and resulted in seagrass habitat impacts totaling 3.08 acres. To compensate for seagrass impacts from the channel dredging, the Inlet District implemented a multifaceted mitigation plan that included prop scar repairs on the flood shoal, boating education and posting of sensitive seagrass areas, and stormwater treatment in the region. The completion of the Navigation Channel is not only a matter of public safety; it will greatly benefit the environmental resources of the Indian River Lagoon. In the past, boats ran aground due to shoaling and with no clearly marked navigation channel; boaters unknowingly ran over sensitive seagrass beds in order to access the Inlet. A clearly marked, deeper navigation channel will allow the seagrass beds to flourish without the threat of propeller scarring. The channel will allow a better flow of saltwater to the Indian River Lagoon, increasing the salinity levels which will ensure better health of the estuary.

### **Charlotte County Marine Access Study**

Staugler, E.<sup>1,3\*</sup>, Swett, R.<sup>2,3</sup>, Ruppert, T.<sup>3</sup>, and Fik, T.<sup>4</sup>

<sup>1</sup>UF/IFAS Charlotte County Sea Grant Extension

<sup>2</sup>University of Florida, Florida Sea Grant Boating and Waterway Planning Program

<sup>3</sup>Florida Sea Grant

<sup>4</sup>University of Florida Department of Geography

The study provides Charlotte County with a planning instrument that specifies the type, quantity, and location of public shore access and boating facilities needed to meet anticipated demand through 2050 while minimizing environmental impacts on sensitive marine habitat. The project consisted of six main tasks: (1) inventory of existing boat registrations, boat docks, ramps, and marina facilities; (2) assessment of the future need for boat docks, ramps, managed moorings, and marina facilities; (3) identification of suitable locations for boat docks, ramps, and marina facilities in the county (4) evaluation of Charlotte County's compliance with Florida's working waterfront legislation; (5) outlining the development of a Charlotte County manatee protection plan; and (6) updating a 1996 Marine Use Regulatory Study for Charlotte County. The results will assist Charlotte County in determining how to achieve sustainable coastal development; how to guide future uses along its shoreline; and how to prioritize water-dependent and water-related activities.

### **Online GIS Applications for Easy Access to Waterway Information**

Carvalho, A.<sup>1\*</sup> and Fitzpatrick, K.<sup>2</sup>

<sup>1</sup>GISP, CMar Consulting, LLC

<sup>2</sup>Engineering Department, Martin County, Florida

As GIS internet and mobile technology progresses towards web services, mobile applications, and data storage in the "cloud", it is now much easier for managers, planners, and the public to access coastal, marine, and waterway spatial information without the use of costly desktop systems and GIS software. Whether available with access restrictions or cleared for public use, spatial data is now accessible from any gadget with an internet connection. Although, the amount of information handled efficiently through mobile and internet technology is still limited, in most cases it is more than enough for the managerial, planning, or public use of that information. This presentation will show three applications currently being developed for Martin County, Florida which grant waterway managers and the public easy access to spatial information through Google Maps and ESRI ArcGIS Online, using Google's "kml" format and ArcGIS Mobile technologies. These applications access the information stored in the Martin County engineering department Coastal Geodatabase, a GIS geodatabase which currently stores almost 15 years of the County's coastal data.

### **Comprehensive Boat Ramp Inventory and Web Applications for Planning, Waterway Management and Public Information**

Sargent, B.\* , Dahl, J., Harrell, P., and Collier, S.

Florida Fish and Wildlife Conservation Commission

Enhancing public boating access to Florida waterways is a responsibility long taken to heart by the Florida Fish and Wildlife Conservation Commission. Since the mid 1950's the Commission has constructed public boat ramps and actively built partnerships with other agencies to enhance boating access. The Commission's actions to facilitate boating access include: identification of potential sites and partnerships for new boating access facilities; identification of facilities in need of renovation or expansion; construction, renovation and maintenance of boating access facilities on State-owned lands; and administration of grant programs to provide municipalities with financial assistance for boating access related activities. In addition to serving as a public information tool, a comprehensive, up-to-date inventory of the location, capacity and condition of boat ramps is critical for effective planning efforts. Historically, maintaining an accurate inventory of boat

ramps was problematic. Across Florida there are 5 Federal agencies, 12 state and regional agencies, 67 counties, 109 municipalities and 315 commercial operators that maintain approximately 1,700 publicly accessible boat ramps. There are an additional 2,000 plus boat ramps that are not available to the general public. Boat ramps are constantly renovated, abandoned, or converted to other uses. Fortunately new boat ramps are also being constructed. Maintaining an accurate boat ramp inventory for large geographic regions was an arduous if not impossible endeavor, until now. The online Florida Boat Ramp Inventory serves as a central repository for information describing thousands of boat ramps (both public and private) that provide access to Florida's public waterways. This centralized database system allows professionals throughout Florida to contribute their individual knowledge to a comprehensive understanding of the current status of public access to Florida's waterways. A companion website allows the general public to find information, maps and photographs about any public boat ramp in Florida. Visit the website at [MyFWC.com/boating/boat-ramp-access](http://MyFWC.com/boating/boat-ramp-access).

### **The Florida Boating and Angling Guide Series: In Print and On the Web**

Anderson, C.\*

Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute

Since 1992, the Fish and Wildlife Research Institute (FWRI) has produced a statewide series of educational Boating and Angling Guides (BAGs) that target anglers and boaters to inform them about Florida's coastal and marine ecosystems. Each of the regionally divided guides describes a major bay or estuary system. Every BAG contains a map or several maps, produced at the best scale to best display environmental information. The format is designed to appeal to boaters and anglers by informing them about boating and fishing facilities. The maps display the distribution of natural marine resources; text explains the role of the marine habitat in the health of the marine ecosystem and how boating and angling behavior can influence the environment. FWRI develops the BAGs in cooperation with many groups. FWRI provides technical support in the form of data and cartographic layout. Partner groups provide local information and text in addition to securing joint funding for their printing. Even though the guides are all part of a single series, each one is unique in that it shows the important areas as defined by the local community. To date, almost 2.6 million guides have been printed. The online interactive BAGs provide more information than is found on the printed Guides for their respective areas. Additional information not provided on the printed guides, such as paddling trails, local fishing regulations, native habitats and animals and managed areas, are included on these sites. Moreover, the Resource Directory is enhanced to include Web links for listed organizations. In addition to offering factual information, maps of various scales and sizes are available for download or viewing on screen. These maps focus on popular areas and contain more detailed information than what is shown on the printed Guides covering the same area.

### **National Working Waterfronts and Waterways Network**

Wiggin, J.<sup>1\*</sup> and Swett, B.<sup>2</sup>

<sup>1</sup>Urban Harbors Institute, University of Massachusetts Boston

<sup>2</sup>Florida Sea Grant Boating and Waterway Planning Program, University of Florida

Following the Second National Working Waterways and Waterfronts National Symposium on Water Access held in Portland Maine in September 2010, participants agreed to establish and launch a National Working Waterfronts and Waterways Network (NWWN). The NWWN is envisioned to be a nationwide network of businesses, industry associations, nonprofits, municipalities, state and federal agencies, universities, Sea Grant programs, and individuals dedicated to supporting and enhancing our nation's working waterfronts and waterways. The mission of the network is to increase the capacity of coastal communities and stakeholders to make informed decisions, balance diverse uses, ensure access, and plan for the future of their working waterfronts and waterways. The network will do this by collecting, creating, and making available historical, economic, financial, and policy information and resources needed to address issues



confronting working waterfronts and waterways at the local, state, regional, and national levels. Initial efforts center around research on community and economic development models, legal tools, and creating outreach and education strategies. Information will be disseminated through a web-based clearinghouse and biennial symposiums as took place in Norfolk, Virginia in 2007 and Portland, Maine in 2010. In September, 2011 nine organizations participating in the NWWN were awarded funding from the U.S. Department of Commerce's Economic Development Administration to create a toolkit for community and economic development practitioners on sustainable working waterfronts.

### **Enhancing Public Access - Examples of Innovative Partnerships and Funding by the City of Clearwater, Florida**

Morris, W.\*

Harbormaster, City of Clearwater, Florida

William Morris, the Harbormaster for the City of Clearwater, will present on the City's successful efforts to enhance public access to its waterways by establishing innovative partnerships and funding sources. During Mr. Morris' tenure, the City has completed many projects and forged a diversity of partnerships. His presentation will outline select examples that other cities and municipalities in Florida can emulate in seeking to expand public access to their own waterways. A simple premise that underlies much of Clearwater's success is "why say no when you can say yes!" and then pulling together a diversity of resources to provide as many boater friendly/boater access facilities as possible. Stakeholder input is vital to the process. For example, a project often starts after a resident or tenant (and, sometimes, a tourist) asks why we (the City) don't do something about a particular issue. Examples that resulted in the establishment of facilities or programs include requests for free daytime public access docks, improvements to boat ramps, establishment of "blue trails," expansion of the community sailing program(s), and installing a downtown marina. In each case, once the request was made, the follow-up steps included gathering available resources (including funding and partnerships), marshaling necessary staff and equipment, and, importantly, garnering public support. Nine times out of ten, if the community supports a project, Mr. Bill Morris and his colleagues are able to obtain the support of City Hall. A lesson that Clearwater has learned over the years is that their projects are not just about boater access. Rather, they are about the relationship that access has on surrounding businesses and neighborhoods.

### **Waterway Access Planning in a Rural Florida Coastal Community Supports Efforts to Promote Tourism**

Brown, J.<sup>1\*</sup>, Vose, F.<sup>2</sup>, Sidman, C.<sup>3</sup>, and Davidson, G.<sup>4</sup>

<sup>1</sup>County Administrator, Taylor County

<sup>2</sup>Marine Agent, Taylor County Extension Service

<sup>3</sup>Associate Director, Florida Sea Grant

<sup>4</sup>Lab Manager, Florida Sea Grant Boating and Waterway Planning Program

Taylor County, located in north central Florida's coastal region known as the "nature coast," is representative of many coastal areas suffering from limited employment opportunities, exacerbated by a decline in water-dependent businesses and public access. According to a coastal advisory committee established by the Taylor County Board of County Commissioners, the County's limited supply of deep-water public access facilities is a source of frustration for many recreational users and visitors, and may be limiting tourism-based economic growth. In an effort to support planning initiatives to increase public access to the county's waterways, Taylor County partnered with the University of Florida's Sea Grant Program to implement a study designed to address an aspect of coastal communities that is closely linked to their economic well-being: the provision of adequate public access to coasts and waterways, to sustain nature-based recreation, such as fishing. Surveys of boat ramp facilities, residents, and visitors were implemented to gauge public support for access improvements, to determine what and where improvements should be made, and to quantify the economic benefits to Taylor County from these facilities. The public input process

implemented for Taylor County showed broad support, from residents and visitors alike, for improvements to public waterway access facilities, particularly at the Steinhatchee and Keaton Beach locales. The resulting economic analysis estimated that the provision of public waterway access facilities sustains 158 jobs and contributes more than \$10 million to Taylor County's economy. Information from this study was helpful in obtaining funding to support the development of a new ramp in the town of Steinhatchee, and the planned expansion of a parking lot at the popular Keaton Beach boat ramp.

### **Pioneering 'ADA-Friendly' Blue Trail Water Access Design**

Phillips, J.\*, Truitt, C., and Sellers, J.  
Coastal Technology Corporation

Increased growth in eco-tourism and less-intrusive recreation has led to growing popularity of non-motorized boating, include kayaking, stand-up paddle-boarding, canoeing, and windsurfing. However, the number of facilities supporting such activities is limited. A 2010 FWC survey found non-motorized water access was limited, existing access sites are poorly designed, and many existing launch sites coexist with motorized vessel launches. Focus has been on implementing improvements by: preventing loss of access, providing design guidelines, agency coordination, and addressing issues through grant programs. In 2009, the City of Sarasota initiated planning for City-wide non-motorized vessel facilities, known as the 'Kayak Blue Trail.' Inspiration for the 'Blue Trail' stemmed from the existing Multi-Use Recreational Trail, which ties multiple City parks together via bike/pedestrian path. Coastal Tech was asked to provide engineering services for the waterfront along Bird Key Park on Sarasota Bay, including the design and permitting of shoreline stabilization, non-motorized vessel ramps, and if possible, an ADA-friendly facility. Successful design relies on stakeholder input. The City held public outreach meetings as design alternatives evolved, to continuously engaging the public. The resulting design criteria included: improve access-ways, increase parking, create offload areas, minimize offload distances, create landing/rigging spaces, and incorporate upland amenities. These elements became even more critical when addressing the ADA-friendly portion. Other challenges included the presence of oyster beds, seagrasses, and debris from an old bridge. As the project advanced, research revealed limited resources and 'design standards' for non-motorized vessel access, especially 'ADA accessibility.' Dynamic water-levels presented challenges in satisfying conventional 'ADA compliant' design, such as access-ramp slopes. Typical Building Code standards were conservatively modified and adapted for marine application to ensure ADA 'friendliness' for dock size, ramp transitioning, and structure orientation. Sound engineering principals and focus on what could be done rather than what could not, resulted in a Park with improved water access and the City's first ADA-friendly kayak facility.

### **Inlet Specific and Seasonal Variation in Vessel Use Patterns: The Case of the Northeast Florida Region**

Montes, N.<sup>1\*</sup> and Swett, R.<sup>2</sup>

<sup>1</sup>University of Florida, School of Natural Resources and Environment

<sup>2</sup>Florida Sea Grant Boating and Waterway Planning Program, University of Florida

An objective of this study was to investigate the frequency and characteristics of vessels transiting three principal inlets (St. Mary's, St. Johns, and St. Augustine inlets) of Northeast Florida. Vessel information was extracted from over 30,000 photographs (events) that were taken at the three inlets over a period of 1 year (49 sampling days). St. Johns Inlet recorded the greatest number of vessels observed (47%) followed by St. Augustine (30%), and St. Mary's Inlet (23%). Every category (type) of vessel was observed at the three inlets; however, their frequencies of occurrence varied significantly (ChiSq  $p < 0.0001$ ). Fifty-two percent of all boats observed were classified as open fisherman followed by runabouts (13%). Among vessel types, there was a significantly higher frequency of cabin cruisers and sailing boats observed at the St. Mary's and St. Augustine inlets. Furthermore, a higher number of "offshore" vessel types were observed at St. Augustine than a hypothesis of independence would predict. The highest frequency of inlet use by vessels occurred during the summer months (May, June, and July) and on Saturdays. The relationship between the frequency of

observed vessels with respect to study site (inlet), vessel type, weather condition (wind speed and sea surface temperature), and season was analyzed using a negative binomial time series modeling technique. Even though, the three inlets are relatively close to each other (2 hours driving distance), they differ significantly in the abundance and composition of vessels that use them. Therefore, an understanding of vessel frequency and characteristics can help managers and policy makers to target management and outreach initiatives that improve the sustainability of the waterways in the Northeast Florida region.

## Poster Abstracts

(listed in alphabetical order by author)

### **A Community-Based Social Marketing Plan for Ecosystem Protection in the Indian River Lagoon**

DeLorme, D. E.<sup>1\*</sup>, Walters, L. J.<sup>1</sup>, Swett, R. A.<sup>2</sup>, and Hill, K. M.<sup>3</sup>

<sup>1</sup>University of Central Florida

<sup>2</sup>University of Florida

<sup>3</sup>Indian River Lagoon National Estuary Program

The Indian River Lagoon system on the east coast of central Florida is one of the most biologically diverse waterways in North America. However, growing urbanization and human behaviors, especially recreational motorized boating, threatens its multitude of organisms and their habitats. Our presentation focuses on a community-based social marketing (CBSM) plan to increase voluntary environmentally-responsible recreational boating and help protect ecosystems and native keystone species (oysters, seagrasses, marshgrass, mangroves) in the Indian River Lagoon. CBSM is an innovative social marketing approach which has been found more effective at producing desired behavior change than traditional information-intensive social marketing practices. Theoretically-based and empirically supported, CBSM follows standard marketing principles but is distinctive in its concentration on behavior change by reducing barriers and enhancing benefits regarding the desired behavior and by incorporating community considerations into the design. We will provide ongoing examples of CBSM in action and then highlight our newly-funded CBSM project plan to enhance ecosystem protection by boaters. Each of the core elements of the plan (campaign objectives, formative research methods, target market identification, stakeholder consultation committee, cohesive branded combination of CBSM strategic tools and tactics, evaluative research) will be explained, along with rationale for decisions. The presentation will include description of the characteristics and strengths of our selected CBSM strategic tools and tactics and how they will be integrated. We welcome conversations with the boating community on how to best achieve our project goals.

### **2010 Massachusetts Recreational Boater Survey and Planned Northeast Regional Survey**

Hellin, D.<sup>1</sup>, Starbuck, K.<sup>2</sup>, Wiggin, J.<sup>1\*</sup>, Uiterwyk, K.<sup>1</sup>, Napoli, N.<sup>2</sup>, Terkla, D.<sup>3</sup>, Watson, C.<sup>3</sup>, Roman, A.<sup>4</sup>, Roach, L.<sup>5</sup>, and Welch, T.<sup>6</sup>

<sup>1</sup>Urban Harbors Institute, University of Massachusetts Boston

<sup>2</sup>SeaPlan (formerly Massachusetts Ocean Partnership)

<sup>3</sup>Department of Environmental Earth and Ocean Sciences, University of Massachusetts Boston

<sup>4</sup>Center for Survey Research, University of Massachusetts Boston

<sup>5</sup>Marine Consulting Services

<sup>6</sup>Ecotrust

The Massachusetts Ocean Management Plan adopted in 2009 recognizes recreational boating as an activity with “significant actual and prospective conflicts among multiple waterway uses” and identified the economic value of recreational boating as a key socio-economic indicator to inform ocean and coastal management. That planning process identified the need for statistically-based spatial and economic data on recreational boating to support comprehensive ocean planning and decision making. To fill this data gap, a survey was designed and implemented to gather spatial and economic data relating to recreational boating trips in Massachusetts’s coastal and ocean waters during the 2010 boating season. A stratified random sample of 10,000 owners of registered and documented vessels was asked to participate in the six-month study. Over 22% responded to monthly surveys between May and October providing detailed information about their boating trips. An innovative online open-source mapping tool designed specifically for this survey enabled boaters to plot individual trips. The demographic and economic information from the sample of boaters was generalized to the population of Massachusetts boaters using statistical methods and economic models. Based on the data gathered during this study, the contribution of coastal and ocean

recreational boating expenditures to the Massachusetts economy was estimated at \$806 million in 2010. Spatial data was compiled into comprehensive maps depicting recreational boating patterns and density and other responses were used to better characterize the recreational boating community. The research findings are being incorporated into the implementation of the Massachusetts Ocean Management Plan and used by the boating industry to establish its importance as an ocean use and to the economy. Currently, a collaborative effort is underway to explore the possibility of employing the survey on a regional basis covering the coastal and ocean waters off the six northeast states.

### **Identifying Seagrass Restoration Sites Using Geostatistics**

Hotaling, A.<sup>1\*</sup>, Swett, R.<sup>2</sup>, Frazer, T.<sup>2</sup>, and Listowski, C.<sup>3</sup>

<sup>1</sup>University of Florida School of Natural Resources and Environment

<sup>2</sup>University of Florida School of Forest Resources and Conservation

<sup>3</sup>West Coast Inland Navigation District

A monitoring and data collection program is being developed for Estero Bay in Southwest Florida. Fifty points were randomly chosen throughout the bay and photosynthetically active radiation, salinity, water temperature, and depth data are collected every 3 weeks. Using this data a preliminary map has been created locating the sites that are ideal from an ecological standpoint for seagrass restoration. Geostatistical Kriging was used to interpolate habitat conditions throughout the bay. Data collection is continuing and the map will be updated with additional data as it becomes available. Light, salinity and temperature data will be collected for at least a year so that annual cycles can be examined and reflected in the model. Light is the most critical or limiting factor to seagrass growth in Southwest Florida and this work will also help to elucidate what light levels are required on an annual basis for seagrass in the bay to be healthy. Salinity and water temperature will also be recorded at light sampling points to locate areas with salinity regimes that can support at least one seagrass species throughout the year. Many sites with more than 25% surface irradiance do not currently have seagrass. We hope to add predicted locations where seagrass could be restored in the future by adding in projected sea level rise. This approach to identifying areas ideal for seagrass restoration can be applied to many other areas in need of seagrass restoration and also to other ecosystems.

### **Completion of the Regional Waterway Management System in the Four-County West Coast Inland Navigation District**

Listowski, C.<sup>1</sup>, Swett, R.<sup>2\*</sup>, Fann, D.<sup>3</sup>, and Staugler, E.<sup>4</sup>

<sup>1</sup>West Coast Inland Navigation District

<sup>2</sup>University of Florida, Florida Sea Grant Boating and Waterway Planning Program

<sup>3</sup>Florida Sea Grant, University of Florida

<sup>4</sup>UF/IFAS Charlotte County Extension

The Regional Waterway Management System (RWMS) was recently completed in the fourth and final member county of the West Coast Inland Navigation District. The RWMS is a GIS-based planning framework that applies the latest science and technology to achieve municipal, county, and state goals of safe navigation and reduced impacts on aquatic habitats. The system begins with the collection and analysis of field data and results in regional waterway management policy implemented by the state. Compared with traditional approaches to waterway management, the science-based RWMS is objective, transparent, ecologically sound, and fiscally prudent. Since its inception, this state-approved approach to waterway planning and permitting has resulted in two innovative state administrative rules and has saved taxpayers over \$3 million dollars. The RWMS is the result of collaboration among the West Coast Inland Navigation District and its member counties, the Florida Department of Environmental Protection, and Florida Sea Grant to institutionalize science-based principles of waterway planning and management. The RWMS procedures, tools, database model, management approach, and legislative permitting instrument—

developed and demonstrated in the WCIND's four counties—are mature and ready for promotion and dissemination in other regions. Overall benefits of the RWMS include: (1) state policy based on “best available science,” (2) better efficiency and effectiveness in dredging and waterway maintenance, (3) savings in dollars and staff time, and (4) better public policy through holistic, ecologically based decision-making that is predictable, fair, and cost effective. The adoption of the RWMS by the State of Florida and implementation of the state administrative code demonstrate the ability of sound science and extension to guide state waterway management activities.

### **Tracking Seagrass Coverage and Propeller Scarring at Sebastian Inlet Flood Tidal Shoal**

Manzello, L.<sup>1\*</sup>, Deis, D.<sup>1</sup>, Hazra, A.<sup>1</sup>, and Smithson, M.<sup>2</sup>

<sup>1</sup>Atkins North America, Inc.

<sup>2</sup>Sebastian Inlet District

Sebastian Inlet is located on the east coast of Central Florida, connecting the Atlantic Ocean with the Indian River Lagoon (IRL). Historically, the terminus of navigation was a large and growing flood tidal shoal, resulting in frequent vessel groundings and related damages to the Inlet's expansive seagrass meadows. During the summer of 2007, the Sebastian Inlet District (SID) obtained the required permits and began construction of a clearly defined, navigable channel aimed at connecting the Inlet to the Atlantic Intracoastal Waterway (AIW). The construction impacted between 1.65 and 3.07 acres of seagrass habitat in and around the flood shoal. To mitigate for these impacts, the SID implemented a comprehensive mitigation package, which included the manual restoration of propeller scars, the deployment of protective signage, the financial support of a stormwater pollution control project, and a community-wide education program. The mitigation package also included an annual monitoring program within six designated mitigation zones on the flood tidal shoal at Sebastian Inlet. Monitoring tasks included an annual quantification of seagrass coverage as well as an annual inventory of anthropogenic damage (i.e., propeller scarring) from 2007 (prior to channel construction) to 2011. Results of the monitoring program revealed slow, steady gains in seagrass acreage and a reduction in propeller scarring through 2010. In an effort to describe propeller scar dynamics on the shoal and to assist with future management strategies, geospatial tools and analysis techniques were also used to calculate areas of highest propeller scarring incidence and areas with significant clustering of propeller scars or “hot spots.”

### **Spatial and Seasonal Distribution of Marine Recreational Boaters in Northeast Florida and Implications for the North Atlantic Right Whale**

Montes, N.<sup>1\*</sup> and Swett, R.<sup>2</sup>

<sup>1</sup>University of Florida School of Natural Resources and Environment

<sup>2</sup>University of Florida School of Forest Resources and Conservation; Florida Sea Grant

Florida is the number one destination for marine recreation in the United States and this demand impacts coastal ecosystems and wildlife. Consequently, there is a need for better information and analyses to support management actions and conservation programs. The main objectives of this project are: 1) to use boater surveys and oceanographic variables (e.g., sea surface temperature, chlorophyll-a concentrations, distance to shore) to model the spatial distribution of recreational boating in the calving ground of the North Atlantic Right Whale (*Eubalaena glacialis*) off the coast of northeast Florida; 2) to analyze the influence of recreational boating on the distribution of the North Atlantic Right Whale; and 3) to characterize recreational boaters' experience, knowledge and attitudes toward the North Atlantic Right Whale and other marine wildlife. A map-based survey sent to boaters observed transiting area inlets over a one year period is being used to determine the spatial distribution of boat routes and activities, as well as demographic and other information about the boaters. Aerial surveys in the calving ground will complement the map-based survey by providing point locations for both whales and boats. Spatial analyses comparing the distribution of whales and boats will be used to map risk levels of whale/boat interactions. The information resulting from

this project will be used to design management strategies and to develop targeted education and outreach initiatives aimed at maintaining a high-quality boating environment that is safe both for boaters and for marine wildlife.

### **Measuring Manatee Speed Zone Effectiveness: Do They Work? How Well? Can They Work Better?**

Webster, S.<sup>1\*</sup> and Atkins, B.<sup>2</sup>

<sup>1</sup>Past-president, Citizens for Florida's Waterways

<sup>2</sup>Vice president, Citizens for Florida's Waterways

For the past thirty years, a central tenet of manatee management policies has been that protective measures such as slow speed zones can reduce the threat caused to manatees by boat strikes. While the risk posed by boats has been extensively investigated, very little has been done to define, measure, or verify the effectiveness of speed zones. An axiom is that slow speed zones have not reduced the proportion of manatee deaths caused by vessel strikes. However, policymakers believe that without speed zones, the proportion of deaths caused by boats would have risen, as the number of boats increased. Many voices also have opined that increased enforcement of zones would produce higher rates of compliance, thus reducing the proportion of mortality caused by watercraft. This presentation establishes a baseline comparison of mortality rates between counties that have FWC (Florida Fish and Wildlife Conservation Commission) speed zones and/or MPPs (Manatee Protection Plans), versus those that do not. The presentation also reviews the relationship between mortality rates and manatee speed zone enforcement. The results, which show a long-term decline in vessel mortality rates in counties without FWC protections, and produced no relationship between enforcement and rates of vessel mortality, call into question the reliance of policymakers on speed zones as an effective management tool. The presentation does not recommend the abandonment of speed zones; rather, it proposes reasonable steps to identify and evaluate those aspects of slow speed zones that could constitute an effective and measurable use of this management tool.

### **Geographic Information Systems (GIS) in Waterway Project Planning**

Yarbrough, S.\*, Flynn, B., and Tabar, J.

Atkins North America

GIS provides an integrated tool to analyze geospatial information, data referenced to a specific location, for greater success in waterway management projects. Data from private and public sources is centralized into a composite map that provides the framework for visualization in multiple aspects of project planning and future development that ultimately leads to better informed decisions. Waterway project planning is made more efficient through the use of GIS. Physical features, such as topography, bathymetry, sediment composition, and mean high water level, are made readily available in data layers that provide a comprehensive picture. The presence of sensitive environmental resources, such as oyster habitat, actual and potential seagrasses, and water classification, is studied to determine the best project footprint to reduce impacts. Avoiding environmental resources simplifies the permitting process and cost savings through reduced mitigation. GIS was used in this capacity to plan the East Naples Bay Dredging Project in Collier County and the Coconut Point Shoreline Stabilization Project in Indian River County. Upland planning for waterway projects also benefit by spatially viewing the full project area. One possible outcome is connection of separate projects to work together in unison for better waterway management. As an example, beneficial use of dredged material is often incorporated into nearby projects for reduced costs. Several projects located at Sebastian Inlet State Park were combined, as well as the Sawgrass Lake Restoration Project in Pinellas County. GIS is also used to identify vacant areas for staging and waterway access needed during the construction phase, as well as designating dewatering and material disposal sites. Finally, planning for future development can benefit from GIS to identify staging areas, waterway access, and material disposal sites to reserve these areas for future use. In addition, installations of commercial bulkheads present an opportunity to generate income.

## Notes



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