

Indian River Lagoon Symposium 2015
Indian River Lagoon: Lessons, Challenges, and Opportunities

Program Schedule – Technical Sessions
Thursday, February 5, 2015

(Note: The presenting author of talks is the first author, unless indicated by underlining.)

- 0715 - 0815 Registration, Set Up Posters, and Coffee & Tea**
- 0815 - 0830 Welcome**
M. Dennis Hanisak, FAU Harbor Branch
- 0830 - 0900 Keynote Address**
Indian River Lagoon: Lessons, Challenges, and Opportunities
Mark Perry, Florida Oceanographic Society, Stuart, FL
- 0900 - 1000 Oral Session 1 – Challenges**
Session Chair:
- 0900 - 0915 **Seagrasses Guide to Surviving a Superbloom!**
Lori J. Morris and Robert H. Chamberlain
St. Johns River Water Management District, Palatka, FL
- 0915 - 0930 **The Effects of On-site Sewage Treatment and Disposal Systems on Urbanized Canals and the St. Sebastian River in Indian River County, FL**
Marie Tarnowski, Laura Herren, and Brian Lapointe
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 0930 - 0945 **Fine-grained, Organic-rich Sediments (a.k.a. Muck): A Major Source of Dissolved Nitrogen and Phosphorus to the Northern Indian River Lagoon**
Austin L. Fox, John H. Trefry, Robert P. Trocine, Yuchao Yan, and Stacey L. Fox
Florida Institute of Technology, Melbourne FL
- 0945 - 1000 **Pathogenic *Vibrio* Bacteria in the Indian River Lagoon and their Potential Threat to Human Health**
Gabby Barbarite and Peter J. McCarthy
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 1000 - 1015 **Presence of the Invasive Lionfish (*Pterois* spp.) in the Indian River Lagoon: Implications for Control and Management**
Emily Dark^{1,2} and Jeffrey Beal²
¹Antioch University New England, NH; ²Florida Fish and Wildlife Conservation Commission, Fort Pierce, FL
- 1015 - 1100 Break**

- 1100 - 1200 Oral Session 2 – Opportunities**
Session Chair:
- 1100 - 1115 **Oyster Reef Restoration in Mosquito Lagoon: 7 Years of Data and Success**
Linda Walters¹, Paul Sacks¹, and Jody Palmer²
¹University of Central Florida, Orlando, FL; ²Brevard Zoo, Melbourne, FL
- 1115 - 1130 **The Power of Partnerships: Working with Regional Partners and Local Citizens to Restore and Monitor the Northern Indian River Lagoon**
Annie Morgan¹, Jody Palmer², Linda Walters³, and Jessy Wayles¹
¹Marine Discovery Center, New Smyrna Beach, FL; ²Brevard Zoo, Melbourne, FL; ³University of Central Florida, Orlando, FL
- 1130 - 1145 **Examination of the Use of Floating Individuals of *Halodule wrightii* for Restoration**
Jacob J. Berninger
Harbor Branch Oceanographic Institution at Florida Atlantic University, Fort Pierce, FL
- 1145 - 1200 **Florida Atlantic Coast Terrapin Team: Diamondback Terrapin Conservation through Partnerships, Citizen Participation, and Educational Outreach**
Amy Reaume¹, Marc Virgilio², Michael Grace³, and Paul Haydt⁴
¹Brevard Zoo, Melbourne, FL; ²Florida Department of Environmental Protection, Sebastian, FL; ³Florida Institute of Technology, Melbourne, FL; ⁴St Johns River Water Management District, Palatka, FL
- Biology and Conservation Status of the Florida East Coast Diamondback Terrapin (*Malaclemys terrapin tequesta*) in the Indian River Lagoon System**
Michael S. Grace¹, Amy Reaume², and Marc Virgilio³
¹Florida Institute of Technology, Melbourne, FL; ²Brevard Zoo, Melbourne, FL; ³Florida Department of Environmental Protection, Sebastian, FL
- 1200 - 1230 Three Minutes, Three Slides**
Session Chair: M. Dennis Hanisak, FAU Harbor Branch
- My 7th Grade Science Project: The Effect of Nutrients on the IRL**
Robert Virnstein
Seagrass Ecosystems Analysts, East Palatka, FL, and Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- Water Quality and Algal Bloom Update for the Northern and Central Indian River Lagoon**
Margaret A. Lasi, Wendy A. Tweedale, and Charles Jacoby
St. Johns River Water Management District, Palatka, FL
- Effects of Land Use on Nitrogen and Phosphorus Inputs to the St Lucie Estuary**
Katelyn K. Lynch¹, Laura W. Herren¹, Brian E. Lapointe¹, Eric Noonburg²
¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ²Florida Atlantic University, Davie, FL
- The Use of Pulse Amplitude Modulated (PAM) Fluorometry to Measure Nutrient Limitation in Indian River Lagoon Macroalgae**
Brian Lapointe, Laura Herren, Marie Tarnowski, and Alison Feibel
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- $\delta^{13}\text{C}$ Evidence of Light-limited Growth of *Thalassia testudinum* in the Indian River Lagoon**

Laura Herren, Margaret Vogel, Marie Tarnowski, and Brian Lapointe
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL

Dolphin-Vessel Collisions: What Have We Learned and What Can We Do to Minimize Future Impacts?

Amy L. Brossard, Marilyn S. Mazzoil, and Elisabeth M. Howells
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL

Seahorse Roundup: Establishing a Genetic Baseline for the Lined Seahorse through Citizen Science

Nancy Kim Pham Ho, Adeljean L.F.C. Ho, Griffin Fairchok, and Junda Lin
Vero Beach Marine Laboratory at Florida Institute of Technology

Community-based Oyster Gardening, Monitoring and Restoration in the Indian River Lagoon, Florida

Samantha Anderson¹, Jody Palmer¹, Virginia Barker², Holly Abeels³, and Linda Walters⁴
¹Brevard Zoo, Melbourne, FL; ²Brevard County Natural Resources Management, Melbourne, FL; ³Brevard County IFAS Extension Office, Cocoa, FL; ⁴University of Central Florida, Orlando, FL

1230 - 1345 **Lunch (provided)**

1345 - 1445 **Oral Session 3 – Benthic Ecology**

Session Chair: Valerie Paul, Smithsonian Marine Station

1345 - 1415 **General Survey and Grazing Characteristics of Infauna and Epifauna in the Northern Indian River Lagoon System**

Valerie Paul, Dean Janiak, Jessica Lunt, Christopher Freeman, Richard Osman, Michelle Stephens, Erin Fryauff, Katrina Bayliss, Sherry Reed, and Seabird McKeon
Smithsonian Marine Station, Fort Pierce, FL

Infaunal Communities within the Northern Indian River Lagoon

Jessica Lunt, Seabird McKeon, and Valerie Paul
Smithsonian Marine Station, Fort Pierce, FL

Epifaunal Communities within the Northern Indian River Lagoon: Methodology, Initial Trends, and Future Directions

Dean S. Janiak¹, Richard Osman², and Valerie Paul¹
¹Smithsonian Marine Station, Fort Pierce, FL, ²Smithsonian Environmental Research Center, Edgewater, MD

Sources and Fate of Particulate Organic Matter within the Indian River Lagoon: Using Stable Isotopes to Investigate the Role of Epifaunal Communities in Particulate Removal

Christopher J. Freeman¹, Dean S. Janiak¹, Richard Osman², Seabird McKeon¹, and Valerie Paul¹
¹Smithsonian Marine Station, Fort Pierce, FL; ²Smithsonian Environmental Research Center, Edgewater, MD

Temporal and Spatial Variation in the Recruitment of Epifauna in the Indian River Lagoon

Richard Osman¹, Dean Janiak², and John Hamilton³
¹Smithsonian Environmental Research Center, Edgewater, MD; ²Smithsonian Marine Station, Fort Pierce, FL; ³University of Connecticut, Groton, CT

- 1415 - 1430 **Responses of Tropical Seagrass Meadows (*Thalassia testudinum*) to Experimental Manipulations of Nutrient Supply and Grazer Abundance**
Justin Campbell¹, Valerie Paul¹, Andrew Altieri², and Emmett Duffy³
¹Smithsonian Marine Station, Fort Pierce, FL; ²Smithsonian Tropical Research Institute, Panama City, Panama; ³Smithsonian Institution, Washington, DC
- 1430 - 1445 **Genetic Diversity of the Red Mangrove (*Rhizophora mangle* L.) in Florida: Contrasting Patterns in the Northern and Southern Indian River Lagoon**
John Paul Kennedy^{1,2}, Donna J. Devlin¹, Nathan K. Truelove², Stephen J. Box², and Ilka C. Feller³
¹Florida Atlantic University, Fort Pierce, FL; ²Smithsonian Marine Station, Fort Pierce, FL; ³Smithsonian Environmental Research Center, Edgewater, MD
- 1445 - 1500 **Bacterial Biofilms in the IRL: Invisible Influencers of Ecosystem Structure**
L. Holly Sweat and Kevin B. Johnson
Florida Institute of Technology, Melbourne, FL
- 1500 - 1530 Break**
- 1530 - 1615 Oral Session 4**
Session Chair: Hyun J. Cho, Bethune-Cookman University
- 1530 - 1545 **Constructing a High-Resolution Fetch Map of the Indian River Lagoon to Verify the Accuracy of Relative Exposure Index over the Lagoon**
Bryan P. Holman, Steven M. Lazarus, Michael E. Splitt, and Jeffrey A. Colvin
Florida Institute of Technology, Melbourne, FL
- 1545 - 1600 **Fetch Climatology over the Indian River Lagoon: An Investigation of the Frequency of Significant Wind Exposure Events since 1979**
Jeffrey A. Colvin, Steven M. Lazarus, Michael E. Splitt, and Bryan P. Holman
Florida Institute of Technology, Melbourne, FL
- 1600 - 1615 **Spectral Photoresponses of Four Copepods with Consideration of Ancestry and Modern Habitat**
Xiao Ma and Kevin B. Johnson
Florida Institute of Technology, Melbourne, FL
- 1615 - 1630 **Morphological diversity of *Halodule wrightii* genotypes of the Indian River Lagoon, Florida**
Kathryn A. Tiling and C. Edward Proffitt
Florida Atlantic University, Fort Pierce, FL
- 1630 - 1700 Three Minutes, Three Slides**
Session Chair: Seabird McKeon, Smithsonian Marine Station, Fort Pierce, FL
- Demersal Copepod Survival in the Immediate Proximity of IRL Muck Sediments**
Anthony Cox, Daniel Hope, Angelica Zamora-Duran, and Kevin B. Johnson
Florida Institute of Technology, Melbourne, FL
- Do Irregular Sample Sizes Affect Benthic Species Abundance in Field Samples?**
Fabio Filla, Jessica Lunt, and Seabird McKeon
Smithsonian Marine Station, Fort Pierce, FL

Benthic Habitat Mapping in Indian River Lagoon Using Hyperspectral Imager for the Coastal Oceans (HICO) Data

Shizhen Huang^{1,2}, Rachael N. Isphording^{1,2}, and Hyun Jung Cho¹

¹Bethune-Cookman University, Daytona Beach, ²FL; Embry-Riddle Aeronautical University, Daytona Beach, FL

Harmful Algal Bloom Detection Methods for the Indian River Lagoon through the Hyperspectral Imager for the Coastal Oceans (HICO)

Kwanza C. Johnson and Hyun J. Cho

Bethune-Cookman University, Daytona Beach, FL

Application of Molecular and Flow-Cytometric Tools for Characterizing Pico- and Nano-Plankton Communities in the Indian River Lagoon

Eric Muhlbach, Katherine Hubbard, and Alina A. Corcoran

Florida Fish and Wildlife Conservation Commission, St. Petersburg, FL

My Brevard Yard: Creating Beautiful Lawns and Protecting Our Waterways

Matthew Lenhardt, Sally Scalera, and Linda Seals, UF/IFAS Extension Brevard County, Cocoa, FL

“Tiger Stripe” Phenomena in Indian River Lagoon Dolphins

Jessie Stevens¹, Bryanna Lum¹, Cameron Blocker¹, Molly Ferch¹, Marilyn S. Mazzoil², John S. Reif³ and Elizabeth Murdoch Titcomb²

¹Florida Atlantic University, Boca Raton, FL; ²Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ³Colorado State University, Colorado Springs, CO

1700

Closing Comments and Transition to Poster Session & Reception

1730 - 1900 Poster Session & Reception (Open to the public, too!)

Posters will be displayed all day in the Education Annex (Posters #1-26) and the Gallery (Posters #27-36). During the poster session, presenters of odd-numbered posters will be at their posters between 1730 and 1815; presenters of even-numbered posters will be at their posters between 1815 and 1900.

There will be a coffee station at both locations during breaks. We also encourage all students to be at their posters during the morning coffee break and the second half of lunch break.

1. Pilot Oyster Reefs in Brevard County – From Oyster Gardening to Reef Deployment

Lacie Anderson¹, Sammy Anderson², Virginia Barker³, Paul Sacks¹, Jody Palmer², and Linda Walters¹

¹University of Central Florida, Orlando, FL; ²Brevard Zoo, Melbourne, FL; ³Brevard County Natural Resources Management, Melbourne, FL

2. Interactions between Foundation Species and Their Critical Role in Structuring Mangrove Ecosystems

Jessene Aquino-Thomas and C. Edward Proffitt
Florida Atlantic University, Fort Pierce, FL

3. Effect of Invasive Species on the Soil Chemistry of the Coastal Oaks Preserve

Deanna Bowman^{1,3} and Keeshia Escobar^{2,3}

¹Sebastian River High School, Sebastian, FL; ²Vero Beach High School, Vero Beach, FL; ³Scientist Fellows Program

4. The Impact of Crown Conch, *Melongena corona*, on the Eastern Oyster, *Crassostrea virginica*, in Mosquito Lagoon, Florida

Courtney Buck, Casey Craig, Jordan Filipponi, and Chelsea Landau
University of Central Florida, Orlando, FL

5. Utilizing Volunteers to Rescue a Dolphin Trapped in a Shallow Water Lagoon

Steve P. Burton

Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL

6. Quantifying the Effects of Boat Wakes on Intertidal Oyster Reefs in Mosquito Lagoon

Donna Campbell¹, Steven Jachec², Pedro Quintana-Ascencio¹, and Linda Walters¹

¹University of Central Florida, Orlando, FL; ²Florida Institute of Technology, Melbourne, FL

7. A Two-Season Experiment Determining Effective Cultivation Methods for the Marsh Cordgrass *Spartina alterniflora* for Transplantation Success

Steven A. Carrion, Ellis D. Hartley, Keith M. Brinsko, Peter C. Gonzalez, and Linda J. Walters
University of Central Florida, Orlando, FL

8. Lurking Nutrients: The Unaccounted Reality Learned from the 2011 Superbloom

Robert H. Chamberlain, Lori J. Morris, and Whitney Green
St. Johns River Water Management District, Palatka, FL

9. Oyster Restoration Programming in the Indian River Lagoon Estuary, Florida: A Multi-faceted Initiative Focused on Community-based Environmental Stewardship

LeRoy Creswell

University of Florida Sea Grant Program, Fort Pierce, FL

10. **The Distribution of Seagrass Species Adjacent to the Coastal Oaks Preserve**
 Ian Debus^{1,3}, Valerie dos Santos^{1,3}, Lauryn Pedreira^{2,3}, and Jackson Oberlink^{1,3}
¹Vero Beach High School, Vero Beach, FL; ²Indian River Charter High School, Vero Beach, FL;
³Junior Scientist Fellows Program
11. **Biodiversity of Natural and Altered Shorelines in Mosquito Lagoon**
 Melinda Donnelly, Michelle Shaffer, and Linda Walters
 University of Central Florida, Orlando, FL
12. **Paleoenvironmental Reconstruction at the Jupiter Inlet I Site: An Archaeomalacological Approach**
 Jennifer Green
 Florida Atlantic University, Boca Raton, FL
13. **Continuous Water Quality Monitoring in the Indian River Lagoon**
 Lauren M. Hall¹, Ashley Parks¹, Whit Green², Melissa Adams¹, and Matthew Badolato¹
¹St. Johns River Water Management District, Palm Bay, FL; ²St. Johns River Water Management District, Palatka, FL
14. **Indian River Lagoon Observatory: Real-time Water Quality Data Network for Research, Education, and Outreach**
 M. Dennis Hanisak, Kristen S. Davis, and Ben Metzger
 Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
15. **On the Biogeography of the Giant Free-living Ciliated Protozoan *Loxodes rex*, an Alleged Endemic Ciliate, with First Recording in the Americas**
 Hunter N. Hines^{1,2}, Peter J. McCarthy², and Genoveva F. Esteban¹
¹Bournemouth University, Bournemouth, England; ²Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
16. **Tunicates as a Potential Bioremediator of the Brown Tide Alga *Aureoumbra lagunensis* in the Indian River Lagoon**
 Phyllis A. Klarmann
 Florida Atlantic University, Boca Raton, FL
17. **Microscopic Meat-Eaters and Voracious Vegetarians: Temporal and Spatial Changes in Indian River Lagoon Mesozooplankton Communities**
 Hannah G. Kolb¹, L.Holly Sweat¹, Kevin B. Johnson¹, and Chuck Jacoby²
¹Florida Institute of Technology, Melbourne, FL; ²St. John's River Water Management District, Palatka, FL
18. **Manatee Grazing Impacts on a Mixed Species Seagrass Bed in the Indian River Lagoon**
 Lynn W. Lefebvre¹, Jane A. Provanca², Daniel S. Slone¹, and W. Judson Kenworthy³
¹US Geological Survey, Gainesville, FL; ²InoMedic Health Applications, Inc., Kennedy Space Center, FL; ³NOAA (Retired)
19. **The Effect of the Impoundments on the Flow of Fish into the Coastal Oaks Preserve**
 Andrew Lovelady^{1,3}, Guilia Grumblis^{1,3}, Sammy Loutfi^{1,3}, Pedro Tellez^{2,3}, Kamelya Kizar^{1,3}, and Hannah Binford^{1,3}
¹Vero Beach High School, Vero Beach, FL; ²Indian River Charter High School, Vero Beach, FL;
³Junior Scientist Fellows Program

20. **Does *Aureoumbra lagunensis* (Brown Tide) Negatively Affect Eastern Oysters (*Crassostrea virginica*)?**
Panayiota Makris and Linda J. Walters
University of Central Florida, Orlando, FL
21. **Engaging Our Future Generations through Service Learning by Adopting Mangroves for the Indian River Lagoon Shoreline Restoration Project**
Dana Maira
Florida Department of Environmental Protection, Fort Pierce, FL
22. **Body Condition Indices in Stranded Bottlenose Dolphins from the Indian River Lagoon, FL**
Wendy Marks¹, Steve Burton¹, John S. Reif², and Adam M. Schaefer¹
¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ²Colorado State University, Colorado Springs, CO
23. **Blue Crab Population in Peril in the Indian River Lagoon: Trends in the Population (Abundance and Diversity) of *Callinectes* Crabs in the Goat Creek Region**
Jesse Martin, Odyssey Charter School Junior Senior High, Palm Bay, FL
24. **The “Best Places for Dolphins to Live” Index: Creating a Metric for Local Citizen and Government Involvement in Protecting IRL Dolphins**
Marilyn Mazzoil
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
25. **The Manatee Project at Harbor Branch, a Five-Year Summary**
Jon A. Moore^{1,2}, Susan L. Richardson^{1,2}, Claire F. Robinson¹, Lauren Nys³, and Marilyn S. Mazzoil²
¹Wilkes Honors College, FAU, Jupiter, FL; ² Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ³Virginia Institute of Marine Science, Gloucester Point, VA
26. **Restoring Habitat for the Selfless Shellfish: Community-Based Restoration, Research and Monitoring of Intertidal Oyster Reefs in Mosquito Lagoon, FL**
Jody B. Palmer¹, Kathryn Brown¹, and Linda Walters²
¹Brevard Zoo, Melbourne, FL; ²University of Central Florida, Orlando, FL
27. **Moving Oysters to Save the Indian River Lagoon: Assessing Growth Rate and Survival of *Crassostrea virginica* in New Location**
Antony Papadia, Wei Samantha Yuan, and Linda Walters
University of Central Florida, Orlando, FL.
28. **Modeling the Flushing Response to the Construction of a Low Crested Weir in the Banana River**
Atousa Saberi and Robert J. Weaver
Florida Institute of Technology, Melbourne, FL
29. **Chronic Interstitial Pneumonia and Lobomycosis in a Stranded Indian River Lagoon Bottlenose Dolphin: A Case Study**
Adam M. Schaefer¹, David Kilpatrick¹, Sushan Han¹, Wendy Marks¹, Steve Burton¹, and John S.Reif²
¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ²Colorado State University, Colorado Springs, CO
30. **Propagule Trapping: A Field Study to Determine if Shoreline Restoration Facilitates Additional Recruitment of the Red Mangrove, *Rhizophora mangle***
Michelle Shaffer, Melinda Donnelly, and Linda Walters
University of Central Florida, Orlando

- 31. Effects of St. Lucie Estuarine Discharge Water and Temperature on Corals and their Symbionts**
 Alycia Shatters¹, Joshua Voss¹, and Jeff Beal²
¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ²Florida Fish and Wildlife Conservation Commission, Fort Pierce, FL
- 32. Variation in Growth and Biomass Partitioning of *Rhizophora mangle* in Response to Flotation Time and Light Availability**
 Lorae' T. Simpson^{1,2} and Ilka C. Feller¹
¹Smithsonian Environmental Research Center, Edgewater, MD; ²Smithsonian Marine Station, Fort Pierce FL
- 33. Do Porcelain Crabs Prefer Flow Generating Substrate from Oysters?**
Janis Spanier, Katherine Skura, Jessica Lunt, and C. Seabird McKeon
 Smithsonian Marine Station, Fort Pierce, FL
- 34. Ecological Disturbances in the St. Lucie Estuary and the Southern Indian River Lagoon, Elucidated Through Macrobenthic Monitoring**
 Michelle Stephens, Katrina Bayliss, and Erin Fryauff
 Smithsonian Marine Station, Fort Pierce, FL
- 35. Model Based Estimate of Nutrient Budget for the St. Lucie Estuary**
 Detong Sun and Yongshan Wan
 South Florida Water Management District, West Palm Beach, FL
- 36. Water Quality in the Coastal Oaks Preserve's DOT Canal and Neighboring Impoundments**
 Van Williamson^{1,3}, James Chorma^{1,3}, Gerald Mansell^{2,3}, and Melvin Baker^{1,3}
¹Sebastian River High School, Sebastian, FL; ²Vero Beach High School, Vero Beach, FL; ³Junior Scientist Fellows Program