



**Johnson Education Center, HBOI-FAU  
Fort Pierce, Florida  
February 9, 2012**

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Generous sponsorship under the auspices of the Harbor Branch Oceanographic Institute Foundation has helped to underwrite the cost of this symposium and *Love Our Lagoon*, a dinner event on February 10 at HBOI to raise funds to support research on the Indian River Lagoon. We thank all of our donors:

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We also thank Janet Alford, Executive Director of the HBOI Foundation, for all of her support.

**IRLS 2012 Logo**

We thank HBOI-FAU doctoral student Gabby Barbarite for design of this year's logo.



**Indian River Lagoon Symposium 2012**  
***The Indian River Lagoon – Looking Forward***

**Johnson Education Center**  
**HBOI-FAU**  
**Fort Pierce, Florida**  
**February 9, 2012**

**Program Schedule**

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

**0730 - 0830 Registration and Set Up Posters**

**0830 - 0900 Welcome and Keynote Address**

Welcome: M. Dennis Hanisak, HBOI-FAU

Key Note Address:

**Historical Biodiversity of the Indian River Lagoon: A Restoration Goal**

R. Grant Gilmore, Estuarine, Coastal and Ocean Science, Inc., Vero Beach, FL

**0900 - 1015 Oral Session 1 – Oyster Restoration**

Session Chair: Vincent Encomio, Florida Oceanographic Society

**0900 - 0915 Restoring Oyster Reefs in the Mosquito Lagoon I: Why and How of Restoration**

Anne Birch<sup>1</sup>, Stephanie Garvis<sup>2</sup>, Jody Palmer<sup>3</sup>, Linda Walters<sup>2</sup>, and Paul Sacks<sup>2</sup>

<sup>1</sup>The Nature Conservancy, Indialantic FL; <sup>2</sup>University of Central Florida, Orlando FL; <sup>3</sup>Brevard Zoo, Melbourne FL

**0915 - 0930 Restoring Oyster Reefs in the Mosquito Lagoon II: Results and the Future**

Anne Birch<sup>1</sup>, Stephanie Garvis<sup>2</sup>, Jody Palmer<sup>3</sup>, Linda Walters<sup>2</sup>, and Paul Sacks<sup>2</sup>

<sup>1</sup>The Nature Conservancy, Indialantic FL; <sup>2</sup>University of Central Florida, Orlando FL; <sup>3</sup>Brevard Zoo, Melbourne FL

**0930 - 0945 Assessing the Outcome of Small- and Large-Scale Oyster Reef Restoration in the Loxahatchee River Using Baselines Derived from Long-Term Monitoring of Benthic Community Structure at Natural Oyster Reefs**

Zachary R. Jud and Craig A. Layman

Florida International University, North Miami, FL

**0945 - 1000 Oyster Colonization and Growth on Created Reefs in the St. Lucie River**

C. Edward Proffitt and Elizabeth Salewski

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

**1000 - 1015 Macroinvertebrate Community Development on Restored Oyster Reefs in the St. Lucie Estuary, Florida**

Elizabeth Salewski and C. Edward Proffitt

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

**1015 - 1115 Poster Session 1 and Break - See page 7 for list of posters.**

**1115 - 1230 Oral Session 2 – Wetlands Restoration**

Session Chair: Jeff Beal, Florida Fish and Wildlife Conservation Commission

**1115 - 1130 A Look at Sixteen Years of Mangrove Restoration along the Indian River Lagoon**  
Jacqueline Owen

Florida Department of Environmental Protection, Fort Pierce, FL

**1130 - 1145 Hydrological Restoration of Mosquito Impoundments in Mosquito Lagoon**

Melinda Donnelly<sup>1</sup>, William Greening<sup>2</sup>, Linda Walters<sup>1</sup>, and Ronald E. Brockmeyer<sup>3</sup>

<sup>1</sup>University of Central Florida, Orlando, FL; <sup>2</sup>Volusia County Mosquito Control, New Smyrna Beach; <sup>3</sup>St. Johns River Water Management District, Palatka, FL

**1145 - 1200 The Impact of Salt Marsh Presence on Mangrove Growth as Mitigated by Intertidal Depth in a Restored Site**

Glenn Coldren, C. Edward Proffitt, Donna Devlin, and Kathryn Tiling

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

**1200 - 1215 Competition and Facilitation Interactions between Red Mangrove (*Rhizophora mangle*) and *Spartina alterniflora* in a Restored Site: Do Below Ground Responses Mirror Above Ground Responses?**

Donna J. Devlin and C. Edward Proffitt

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

**1215 - 1230 Community Development of an Intertidal Wetland Created from a Restored Spoil Island**

Kathryn Tiling, C. Edward Proffitt, and Glenn Coldren

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

**1230 - 1300 Three Minutes, Three Slides**

Session Chair: M. Dennis Hanisak, HBOI-FAU

**FL.O.O.R. – Florida Oceanographic Oyster Restoration**

Vincent Encomio

Florida Oceanographic Society, Stuart, FL

**Environmental and Recreational Enhancement of SL-3, a Spoil Island in St. Lucie County**

Brian Sharpe<sup>1</sup>, Marc Virgilio<sup>1</sup>, John Tucker<sup>2</sup>, and James David<sup>2</sup>

<sup>1</sup>Florida Department of Environmental Protection, Fort Pierce, FL; <sup>2</sup>St. Lucie County Mosquito Control and Coastal Management Services Department, Fort Pierce, FL

**Plankton Ecology of the Indian River Lagoon**

Nikki Dix

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

**Environmental Correlates of Habitat Use by Manatees in the HBOI Channel Using Advanced Technologies**

Greg O’Corry-Crowe, Marilyn Mazzoil, Bill Baxley, Dan Boggess, Anni Dalglish, Fraser Dalglish, Jim Masterson, and Bing Ouyang

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

**Caffeine and Estrone Had No Effect on Fertilization and Development of *Lytechinus variegatus* (Variegated Sea Urchin)**

Michael Kaiser<sup>1</sup> and Nicole G. Fogarty<sup>2</sup>

<sup>1</sup>St. Edward's High School, Vero Beach, FL; <sup>2</sup>Smithsonian Marine Station, Fort Pierce, FL

**Need for Updating the TMDL for the IRL**

Virginia Barker

Brevard County Office of Natural Resource Management, Viera, FL

**A Crossroad of Needs – Indian River Lagoon Restoration and East Coast Water Supply**

Lewis Hornung<sup>1</sup> and Anwar Khan<sup>2</sup>

<sup>1</sup>L Hornung Consulting, Inc., Jupiter, FL; <sup>2</sup>HDR Engineering, Inc., West Palm Beach, FL

**Dolphins as Sentinels of Ocean and Human Health – An Overview of the Indian River Lagoon Dolphin Health and Environmental Risk Assessment Project**

Stephen D. McCulloch<sup>1</sup>, Gregory D. Bossart<sup>1,2</sup>, Patricia A. Fair<sup>3</sup>, John S. Reif<sup>4</sup>, and Juli D. Goldstein<sup>1</sup>

<sup>1</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL;

<sup>2</sup>Georgia Aquarium, Atlanta, GA; <sup>3</sup>NOAA Center for Coastal Environmental Health and Biomolecular Research, Charleston, SC; <sup>4</sup>Colorado State University, Fort Collins, CO

**The Creation of Volusia County's Adopt-An-Estuary Program**

Tonya Long<sup>1</sup>, Louise Chapman<sup>2</sup>, and Georgia Zern<sup>3</sup>

<sup>1</sup>Volusia County Environmental Management, DeLand, FL; <sup>2</sup>Volusia County Schools, DeLand, FL; <sup>3</sup>Volusia County Environmental Management, DeLand, FL

**It's Your Lagoon**

Chuck Jacoby

Indian River Lagoon National Estuary Program and St. Johns River Water Management District, Palatka, FL

**Why Should Policymakers Continue to “Invest” in Grants?**

Amy Adams

Cape Canaveral Scientific, Inc., Melbourne Beach, FL

**1300 - 1400 Lunch (provided)**

**1400 - 1500 Oral Session 3**

Session Chair: Lauren Hall, St. Johns River Water Management District

**1400 - 1415 Marine Turtles of the Indian River Lagoon System: History and Current Status**

Llewellyn Ehrhart, William Redfoot, and Dean Bagley

University of Central Florida, Orlando, FL

**1415 - 1430 Biodiversity within the *Oculina* Coral Habitat in the Region of the Indian River Lagoon**

John Reed

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

- 1430 - 1445 ***Phascolion cryptum*: A Model for Molecular Studies of Life History Diversity in the IRL**  
Michael J. Boyle and Mary E. Rice  
Smithsonian Marine Station, Fort Pierce, FL
- 1445 - 1500 **The Effects of Temperature on the Feeding Kinematics and Behavior in Two Trophically Distinct Species of Invasive Fishes: The Specialist *Belonesox belizanus* and the Generalist *Cichlasoma urophthalmus***  
Tyler J. Sloan and Ralph G. Turingan  
Florida Institute of Technology, Melbourne, FL
- 1500 - 1600 Poster Session 2 and Break** - See page 7 for list of posters.
- 1600 - 1715 Oral Session 4**  
Session Chair: Michael J. Boyle, Smithsonian Marine Station
- 1600 - 1615 **Ecology of Harmful Cyanobacterial Blooms (*Lyngbya* spp.) in the Indian River Lagoon**  
Jennifer Sneed, Valerie Paul, Theresa Meickle, Kathleen Semon, Sherry Reed, and Sarath Gunasekera  
Smithsonian Marine Station, Fort Pierce, FL
- 1615 - 1630 **Use of Hyperspectral Data for Improved Mapping of Water Column Chlorophyll and Seagrass Beds**  
Andrew Kameronosky, Joseph White, and Hyun Jung Cho  
Bethune-Cookman University, Daytona Beach, FL
- 1630 - 1645 **Seasonal Changes in Water Quality and Fouling Communities at a Static Immersion Site on the Indian River Lagoon, Florida**  
Kelli Zargiel<sup>1</sup>, Kody Lieberman<sup>1</sup>, Patrick Connelly<sup>1</sup>, Geoff Swain<sup>1</sup>, and John McDonald<sup>2</sup>  
<sup>1</sup>Florida Institute of Technology, Melbourne, FL; <sup>2</sup>Yellow Springs Instruments, Yellow Springs, OH
- 1645-1700 **Nutrient Pollution in the Indian River Lagoon: Getting at the Sources**  
Laura W. Herren, Brian E. Lapointe, and David D. Debortoli  
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 1700 - 1715 **Septic Tanks: Are They Significant Sources of Nutrient and Bacterial Loading to the IRL?**  
Thomas V. Belanger<sup>1</sup> and T. L. Price, Jr.<sup>2</sup>  
<sup>1</sup>Florida Institute of Technology, Melbourne, FL; <sup>2</sup>Innovative Health Applications, Kennedy Space Center, FL

### **1715 - 1815 Panel Discussion: Looking Forward – Restoration Policy**

This session will review the restoration research presented today and discuss the interface of this research with policy in the Indian River Lagoon. What are our successes? What are our perceived resource needs? Is science driving restoration policy? How can we all do more with the resources we have?

#### Panel Members:

Amy Adams, President, Cape Canaveral Scientific, Inc. Melbourne Beach, FL

Albrey Arrington, Executive Director, Loxahatchee River District, Jupiter, FL

Douglas Bournique, Executive Vice President, Indian River Citrus League, Vero Beach, and Secretary, St. Johns River Water Management District Governing Board, Paltaka, FL

Paul S. Millar, Ombudsman/Constituent Relations Director, South Florida Water Management District, West Palm Beach, FL

Mark Perry, Executive Director, Florida Oceanographic Society, Stuart, FL

Troy Rice, Director, Indian River National Estuarine Program, Palm Bay, FL

John Windsor, Professor and Program Chair, Oceanography and Environmental Science, Florida Institute of Technology, Melbourne, FL

### **1815 - 1930 Closing Comments and Reception**

## Poster Presentations

Posters will be displayed all day.

Posters 1-31 will be in the Education Annex; posters 32- 41 will be in the East/West Seminar Rooms  
Presenters of odd-numbered posters will be at their posters during the a.m. poster session; presenters of even-numbered posters will be at their posters during the p.m. poster session.

**1. Bull Sharks in the Indian River Lagoon: A 30-Year Synthesis**

Douglas H. Adams<sup>1</sup> and Tobey H. Curtis<sup>2</sup>

<sup>1</sup>Florida Fish and Wildlife Conservation Commission, Melbourne, FL; <sup>2</sup>National Marine Fisheries Service, Gloucester, MA

**2. Effects of Mercury on Florida Marine Fishes: Current Research and Future Directions**

Douglas H. Adams<sup>1</sup>, Christian Sonne<sup>2</sup>, and Nil Basu<sup>3</sup>

<sup>1</sup>Florida Fish and Wildlife Conservation Commission, Melbourne, FL; <sup>2</sup>Aarhus University, Roskilde, Denmark; <sup>3</sup>University of Michigan, Ann Arbor, MI

**3. Electro sensory Capabilities of the Bull Shark, *Carcharhinus leucas***

Gabby Barbarite<sup>1</sup> and Stephen Kajiura<sup>2</sup>

<sup>1</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; <sup>2</sup>Florida Atlantic University, Boca Raton, FL

**4. Genetic Analysis of Bottlenose Dolphin (*Tursiops truncatus*) Community Structure within Estuarine and Coastal Communities of Eastern Florida**

Sarah E. Bechdel<sup>1</sup>, Marthajane Caldwell<sup>2</sup>, Marilyn Mazzoil<sup>1</sup>, Megan Stolen<sup>3</sup>, Wendy Noke Durden<sup>3</sup>, Teresa Mazza<sup>3</sup>, Stephen D. McCulloch<sup>1</sup>, Gregory D. Bossart<sup>4</sup>, and Greg O’Corry-Crowe<sup>1</sup>

<sup>1</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; <sup>2</sup>Marine Mammal Behavioral Ecology Studies, Inc., Savannah, GA; <sup>3</sup>Hubbs-SeaWorld Research Institute, Melbourne Beach, FL; <sup>4</sup>Georgia Aquarium, Atlanta, GA

**5. Phase-Shift in the Density of Co-occurring Native and Non-native Fish Species in the Indian River Lagoon: Evidence for Species Interactions?**

Jesse R. Blanchard<sup>1</sup>, Ralph G. Turingan<sup>1</sup>, and Richard Paperno<sup>2</sup>

<sup>1</sup>Florida Institute of Technology, Melbourne, FL; <sup>2</sup>Florida Fish and Wildlife Conservation Commission, Melbourne, FL

**6. Use of Proven Capture and Release Methods to Disentangle a Dolphin Calf from Recreational Fishing Gear**

Steve P. Burton, Juli D. Goldstein, and Stephen D. McCulloch

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

**7. The 2011 Indian River Lagoon “Superbloom” and Research Approach for Evaluation**

Robert Chamberlain<sup>1</sup>, Joel Steward<sup>1</sup>, Charles Jacoby<sup>1</sup>, Margaret Lasi<sup>1</sup>, Whitney Green<sup>1</sup>, and Robert Virnstein<sup>2</sup>

<sup>1</sup>St. Johns River Water Management District, Palatka, FL; <sup>2</sup>Seagrass Ecosystems Analysts, Palatka, FL

**8. Use of a Spoil Island for Seagrass and Mangrove Mitigation in the Indian River Lagoon**

Dave R. Clark, L.R. Ellis, T.Z. Osborne, A.G. Rozin, and J. Beal

Inwater Research Group, Jensen Beach, FL



- 9. Characterization of Sea Turtles in the Southern Indian River Lagoon**  
Dave R. Clark, Cody R. Mott, Steve T. Weege, Jeffrey Guertin, Jeffrey A. Gomas, Michael J. Bresette, and Jonathan C. Gorham  
Inwater Research Group, Jensen Beach, FL
- 10. The Indian River County “Quality of Life” Indicators Project**  
Graham L. Cox and Richard Baker  
Pelican Island Audubon Society, Vero Beach, FL
- 11. Seagrass Status along a Water Quality Gradient in the Central Indian River Lagoon, FL**  
Kristen S. Davis and M. Dennis Hanisak  
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 12. Macroalgae as Indicators of Phosphorus Limitation in the Indian River Lagoon, FL**  
David D. Debortoli, Ian R. Macleod, Laura W. Herren, and Brian E. Lapointe  
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 13. Observational Study and Environmental Impact of *Lyngbya majuscula* in the Indian River Lagoon**  
Kimberly Lewis Demet, Lisa A. Kelly, Theresa Meickle, Jennifer Sneed, and Valerie Paul  
Smithsonian Marine Station, Fort Pierce, FL
- 14. A Two-Step Approach to Sediment Toxicity Testing**  
Beth Falls<sup>1</sup>, Bjorn Tunberg<sup>2</sup>, Edith Widder<sup>1</sup>, Scott Jones<sup>2</sup>, and Jerry Corsaut<sup>1</sup>  
<sup>1</sup>Ocean Research & Conservation Association, Fort Pierce, FL; <sup>2</sup>Smithsonian Marine Station, Fort Pierce, FL
- 15. Nutrient Enrichment Intensifies Hurricane Damage and Prolongs Recovery in Indian River Lagoon Mangrove Ecosystems**  
Ilka C. Feller<sup>1</sup>, Anne H. Chamberlain<sup>1</sup>, Donna J. Devlin<sup>2</sup>, Catherine E. Lovelock<sup>3</sup>, C. Edward Proffitt<sup>2</sup>, and Wilfrid Rodrigez<sup>1</sup>  
<sup>1</sup>Smithsonian Environmental Research Center, Smithsonian Institution, Edgewater, MD;  
<sup>2</sup>Department of Biological Sciences, Florida Atlantic University, Boca Raton FL; <sup>3</sup>University of Queensland, Australia
- 16. Development of Non-Lethal Methods for Health Assessment of Free-Ranging Fish Populations**  
Carla M. Garreau<sup>1</sup> and Ruth Francis-Floyd<sup>2</sup>  
<sup>1</sup>Innovative Health Applications, Kennedy Space Center, FL; <sup>2</sup>University of Florida, Gainesville, FL
- 17. Seagrass Mapping IS Management of the Indian River Lagoon, FL**  
Lauren M. Hall and Joel S. Steward  
St. Johns River Water Management District, Palatka, FL
- 18. The Indian River Lagoon Observatory (IRLO): Biodiversity and Ecosystem Function of an Estuary in Transition**  
M. Dennis Hanisak, Anni Dalglish, Fraser Dalglish, Juli Goldstein, Brian Lapointe, Susan Laramore, Marilyn Mazzoil, Steve McCulloch, Peter McCarthy, Gregory O’Corry-Crowe, Bing Ouyang, John Scarpa, Adam Schaefer, Joshua Voss, Paul Wills, and Amy Wright  
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL

- 19. Foraging Ecology Patterns of the Mosquito Lagoon Juvenile Green Turtle (*Chelonia mydas*) Population from 1978 to Present**  
Karen G. Holloway-Adkins<sup>1,2</sup> and Jane A. Provancha<sup>1</sup>  
<sup>1</sup>Innovative Health Applications, Kennedy Space Center, FL; <sup>2</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 20. Recent Invasion of the Loxahatchee River Estuary by Lionfish, *Pterois volitans/P. miles***  
Zachary R. Jud<sup>1</sup>, Craig A. Layman<sup>1</sup>, Jessica A. Lee<sup>1</sup>, and D. Albrey Arrington<sup>2</sup>  
<sup>1</sup>Florida International University, North Miami, FL; <sup>2</sup>Loxahatchee River District, Jupiter, FL
- 21. Prevalence of the Haplosporidian Parasite *Bonamia* in Bivalves in Florida's Indian River Lagoon**  
Susan Laramore<sup>1</sup>, William Krebs<sup>1</sup>, Ashley Lave<sup>2</sup>, and Kiersten Miller<sup>3</sup>  
<sup>1</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL, <sup>2</sup>Jacksonville University, Jacksonville, FL, <sup>3</sup>Rollins College, Orlando, FL
- 22. Water Quality in the Indian River Lagoon (1996-2011)**  
Margaret Lasi, Joel Steward, and Wendy Tweedale  
St. Johns River Water Management District, Palatka, FL
- 23. Saving History: Stabilizing Turtle Mound with Living Shorelines**  
Jennifer Manis<sup>1</sup>, Melinda Donnelly<sup>1</sup>, Linda Walters<sup>1</sup>, Paul Sacks<sup>1</sup>, John Stiner<sup>2</sup>, and Margo Schwadron<sup>3</sup>  
<sup>1</sup>University of Central Florida, Orlando, FL; <sup>2</sup>Canaveral National Seashore, Titusville, FL; <sup>3</sup>Southeast Archeological Center, Tallahassee, FL
- 24. Life History Inference from Carcass Recovery in Bottlenose Dolphins (*Tursiops truncatus*) in the Indian River Lagoon, Florida, U.S.**  
Marilyn Mazzoil<sup>1</sup>, Megan K. Stolen<sup>2</sup>, Wendy Noke Durden<sup>2</sup>, Teresa Mazza<sup>2</sup>, Elisabeth Howells<sup>1</sup>, M. Elizabeth Murdoch<sup>1</sup>, Sarah Rodgers<sup>1</sup> and Greg O'Corry-Crowe<sup>1</sup>  
<sup>1</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; <sup>2</sup>Hubbs SeaWorld Research Institute, Melbourne Beach, FL.
- 25. (Canceled)**
- 26. 17 Years of Seagrass Monitoring in the Indian River Lagoon, FL**  
Lori J. Morris, Lauren M. Hall and Robert H. Chamberlain  
St. Johns River Water Management District, Palatka, FL
- 27. A Preliminary Study of Group Size and Social Affiliations of Atlantic Bottlenose Dolphins in the St. Lucie River Estuary**  
Elisabeth Murdoch, Marilyn Mazzoil, Elisabeth Howells, Sarah Bechdel and Greg O'Corry-Crowe  
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 28. Implications of Fine-Scale Regional Differentiation of Stable Isotope and Fatty Acid Signatures of Putative Prey on Interpreting Feeding Habits of Bottlenose Dolphins in the Indian River Lagoon, Florida**  
Jennifer Fletcher Odom<sup>1</sup>, Graham A.J. Worthy<sup>1</sup>, and Richard Paperno<sup>2</sup>  
<sup>1</sup>University of Central Florida, Orlando, FL; <sup>2</sup>Florida Fish and Wildlife Conservation Commission, Melbourne, FL

- 29. Assessment of Sebastian River Dredging on Fish**  
Richard Paperno and Douglas H. Adams  
Florida Fish and Wildlife Conservation Commission, Melbourne, FL
- 30. An Integrated Approach to the Study of Mercury in the Indian River Lagoon: Dolphins, Fish, and Humans**  
Adam Schaefer<sup>1</sup>, Emily Jensen<sup>2</sup>, Derek Tremain<sup>3</sup>, Greg Bossart<sup>4</sup>, and John S. Reif<sup>5</sup>  
<sup>1</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; <sup>2</sup>Colorado State University, Fort Collins, CO; <sup>3</sup>Florida Fish and Wildlife Conservation Commission, Melbourne, FL; <sup>4</sup>Georgia Aquarium, Atlanta, GA; <sup>5</sup>Colorado State University, Fort Collins, CO
- 31. Quantitative Assessment of Seagrass Scarring in Southern Mosquito Lagoon and Northern Indian River, East Central Florida.**  
Ron Schaub, Douglas M. Scheidt, Carla M. Garreau, and Carlton R. Hall. Innovative Health Applications, Kennedy Space Center, FL
- 32. Interacting Effects of Sea Level Rise, Nitrogen Enrichment and Competition in the Mangrove-Salt Marsh Community**  
Lorae T. Simpson<sup>1</sup>, I. Candy Feller<sup>2</sup>, and Samantha K. Chapman<sup>3</sup>  
<sup>1</sup>Smithsonian Marine Station, Fort Pierce, FL; <sup>2</sup>Smithsonian Environmental Research Center, Edgewater, MD; <sup>3</sup>Villanova University, Villanova, PA
- 33. Salinity Tolerance of Juvenile Sunray Venus Clams, *Macrocallista nimbosa***  
Christopher Tolliver<sup>1</sup>, Rebecca Wayne<sup>1</sup>, and John Scarpa<sup>2</sup>  
<sup>1</sup>Indian River State College, Fort Pierce, FL; <sup>2</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 34. The High Variability of Seagrass Biomass Makes Prediction Difficult**  
Robert Virnstein  
Seagrass Ecosystems Analysts, East Palatka, FL
- 35. Estuarine Impacts on St. Lucie Reef: Determining the Effects of Changing Resource Management on Florida's Northernmost Coral Reef**  
Joshua Voss<sup>1</sup>, Jeff Beal<sup>2</sup>, Sara Edge<sup>1</sup>, Lisa Cohen<sup>1</sup>, and M. Dennis Hanisak<sup>1</sup>  
<sup>1</sup>Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; <sup>2</sup>Florida Fish and Wildlife Conservation Commission, Fort Pierce, FL
- 36. Water Quality Monitoring with the ORCA Kilroy Network**  
Edith Widder, Eric Thostenson, Tony Cimaglia, John Taylor, and Ben Burns  
Ocean Research & Conservation Association, Fort Pierce, FL
- 37. Nitrate Removal from Contaminated Surface Water using a Microbial-based Bioremediation System**  
P. Chris Wilson<sup>1</sup> and Joseph P. Albano<sup>2</sup>  
<sup>1</sup>University of Florida/IFAS Indian River Research and Education Center, Fort Pierce, FL  
<sup>2</sup>USDA/ARS-U.S. Horticultural Research Laboratory, Fort Pierce, FL
- 38. Contamination of Surface Water within Residential-use Areas with Fipronil, Fipronil Sulfide, and Fipronil Sulfone**  
Jun Wu, Jian Lu, Youjian Lin, and Chris Wilson  
University of Florida/IFAS Indian River Research and Education Center, Fort Pierce, FL

**39. An Introduction to the Florida Atlantic Coast Telemetry (FACT) Array**

Joy Young<sup>1</sup>, Debra Abercrombie<sup>2</sup>, Erick Ault<sup>1</sup>, George Burgess<sup>3</sup>, Demian Chapman<sup>2</sup>, Jynessa Dutka-Gianelli<sup>1</sup>, Bryan Franks<sup>4</sup>, Samuel Gruber<sup>4</sup>, Joseph Iafrate<sup>5</sup>, Johanna Imhoff<sup>3</sup>, Zack Jud<sup>6</sup>, Chris Kalinowsky<sup>7</sup>, Steve Kessel<sup>4</sup>, Chris Koenig<sup>8</sup>, Craig Layman<sup>6</sup>, Janet Ley<sup>1</sup>, Jane Provancha<sup>9</sup>, Eric Reyier<sup>9</sup>, Doug Scheidt<sup>9</sup>, Ron Taylor<sup>1</sup>, and Jim Whittington<sup>1</sup>

<sup>1</sup>Florida Fish and Wildlife Conservation Commission, Tequesta, FL; <sup>2</sup>Stony Brook University, Stony Brook, NY; <sup>3</sup>University of Florida, Gainesville, FL; <sup>4</sup>Bimini Biological Field Station, Bimini, Bahamas; <sup>5</sup>Naval Undersea Warfare Center, Newport, RI; <sup>6</sup>Florida International University, Miami, FL; <sup>7</sup>Georgia Department of Natural Resources, Brunswick, GA; <sup>8</sup>Florida State University, Tallahassee, FL; Innovative Health Applications, Kennedy Space Center, FL

**40. The Effect of Invasive *Perna viridis* and *Megabalanus coccopoma* on Settlement of Larvae of *Crassostrea virginica***

Wei Yuan, Linda Walters, and Eric Hoffman  
University of Central Florida, Orlando, FL

**41. Passive Acoustics as a Monitoring Tool for Evaluating Oyster Reef Restoration**

Hilde Zenil<sup>1</sup>, Vincent Encomio<sup>1</sup>, and Grant Gilmore<sup>2</sup>

<sup>1</sup>Florida Oceanographic Society, Stuart, FL; <sup>2</sup> Estuarine, Coastal and Ocean Science, Inc., Vero Beach, FL