

Indian River Lagoon Symposium 2017
An Estuary in Peril

Program Schedule – Technical Sessions
Thursday, February 9, 2017

(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**
Harmful Algal Blooms in the Indian River Lagoon: Past, Present and Future
da Atlantic U
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 0900 - 1000 Oral Session 1 – Lagoon in Peril?**
Session Chair:
- 0900 - 0915 **Pico and Nanophytoplankton Ecology in the Indian River Lagoon: An Understudied Component of an Estuary in Peril**
Malcolm McFarland, James Sullivan, Nicole Stockley, Dennis Hanisak, and Kristen Davis
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 0915 - 0930 **Changing Times: Abundance and Distribution of Manatees and Seagrass in the Waters Surrounding the Kennedy Space Center, Past, Present, and Future (?)**
Jane A. Provancha, Douglas M. Scheidt, Resa R. Cancro, Russell H. Lowers, Eric A. Reyier, Mark J. Provancha, and Carla M. Bourtis
Integrated Mission Support Services, Kennedy Space Center, FL
- 0930 - 0945 **Elasmobranchs in Peril? Shark and Ray Assessment in the Indian River Lagoon**
Matthew J. Ajemian¹, Michael P. McCallatister¹, Tyler J. Harrington¹, and Adam M. Schaefer¹
¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 0945 - 1000 **Detection of the HAB Toxins Saxitoxin and Brevetoxin in Indian River Lagoon Dolphins, 2002-2016**
Spencer Fire¹, Jeremy Browning¹, Wendy Noke Durden², Megan Stolen², Adam Schaefer³, and James Sullivan³
¹Florida Institute of Technology, Melbourne, FL; ²Hubbs-SeaWorld Research Institute, Melbourne Beach, FL; ³Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 1000 - 1030 Break**
- 1030 - 1145 Oral Session 2 – Water Quality**
Session Chair:
- 1030 - 1045 **Exploring the Unknown Microbiome of the Indian River Lagoon**
David J. Bradshaw II and Peter J. McCarthy
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL

- 1045 - 1100 **A GIS Approach for Determining the Potential Runoff Coefficient and Runoff Depth for the Mosquito Lagoon, FL**
Philip Bellamy and Hyun J. Cho
Bethune-Cookman University
- 1100 - 1115 **Stable Nitrogen Isotopes in Primary Producers Reveal Evidence of Sewage Pollution in the Indian River Lagoon**
Rachel A. Brewton, Laura W. Herren, and Brian E. Lapointe
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 1115 - 1130 **Water Quality Assessment of the St. Lucie River Watershed**
Gary Goforth
Gary Goforth, LLC, Stuart, FL
- 1130 - 1145 **Encouraging Stakeholder Participation in the Indian River Lagoon through Participatory GIS**
Timothy L. Hawthorne, Fernando Rivera, Linda Walters, Geoffrey S. Cook, Kelly Kibler, and Lisa Chambers
University of Central Florida, Orlando, FL
- 1145 - 1225 Three Minutes, Three Slides**
Session Chair: M. Dennis Hanisak, FAU Harbor Branch
- Oysters and Brown Tide in Mosquito Lagoon**
Linda Walters¹, Margaret Lasi², Pedro Quintana-Ascencio¹, and Edward Philips³
¹University of Central Florida, Orlando, FL; ²St. Johns River Water Management District, Palatka, FL; ³University of Florida, Gainesville, FL
- Excess Nutrients Can Impact the IRL through Various Pathways: Experimental Evidence**
Robert Virnstein
Seagrass Ecosystems Analysts, East Palatka, FL
- Living to the Extremes: Examining the Degree of Salinity Variability in Southern Indian River Lagoon as Related to Seagrass Distribution**
Amanda Kahn Dickens, Patricia Gorman, Beth Orlando, Rebecca Robbins, and Barbara Welch
South Florida Water Management District, West Palm Beach, FL
- Investigating Impacts of Estuarine Discharge within the St. Lucie Watershed Basin and IRL System on Local Coral Reef Ecosystems**
Danielle Dodge, Jeff Beal, and Joshua Voss
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- Nutrient Levels in St. Lucie West's Lakes: Implications to Reduce Lake Okeechobee Discharges to the St. Lucie River and Southern Indian River Lagoon**
Joseph L. Gilio
Sunergy Power Systems, Inc., Palm City, FL
- Hydraulic Impact on the St. Lucie Estuary from Lake Releases**
Detong Sun, Peter Doering, and Teresa Coley
South Florida Water Management District, West Palm Beach, FL
- A Short-term Change in Community Structure Due to a Large Meteorological Event in the Indian River Lagoon**
Ann Wassick, Kelli Hunsucker, Emily Ralston, Kody Lieberman, and Geoff Swain
Florida Institute of Technology, Melbourne, FL

Links between Dissolved Nutrients, Environmental Variables, and Acidification in the Indian River Lagoon

Bret Kaiser and Brian Lapointe

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

Blood Mercury Concentrations in Common Bottlenose Dolphins from the Indian River Lagoon, Florida: Patterns of Social Distribution

Elizabeth Murdoch Titcomb¹, John S. Reif², Patricia A. Fair³, Hui-Chen W. Stavros^{2,4}, Marilyn Mazzoil¹, Gregory D. Bossart^{5,6}, and Adam M. Schaefer¹

¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL;

²Colorado State University, Fort Collins, CO; ³NOAA/National Ocean Service,

Charleston, SC; ⁴O2Si Smart Solutions, Charleston, SC; ⁵Georgia Aquarium, Atlanta,

GA; ⁶University of Miami, Miami, FL

Effectiveness of Public Education at Controlling Nonpoint Source Pollution along the Mosquito Lagoon

Andrea Orozco, Hyun Jung Cho, Adeljean Ho, and Philip Bellamy

Bethune-Cookman University, Daytona Beach, FL

Engaging Children (and Adults) to Care about the IRL through Oyster Yoga

Violette Gibbs and Linda Walters

University of Central Florida, Orlando, FL

1225 - 1330 Lunch (provided)

1330 - 1500 Oral Session 3 – Ecology

Session Chair:

1330 - 1345 Fishing to Survive: Britain's Smyrnéa Settlement along the Northern Indian River Lagoon, 1766-1777

Arlene Fradkin

Florida Atlantic University, Boca Raton, FL

1345 - 1400 A Tale of Two Ports: Comparing Distributions of Microbes and Macrofoulers from Indian River Lagoon Inlets

L. Holly Sweat and Kevin B. Johnson

Florida Institute of Technology, Melbourne, FL

1400 - 1415 Benthic Foraminiferal Distributions in the Indian River Lagoon and the Influence of Environmental Factors

Angelica Zamora-Duran, Anthony Cox, Daniel Hope, and Kevin B. Johnson

Florida Institute of Technology, Melbourne, FL

1415 - 1430 The Role of Biotic and Environmental Factors in Spatial and Temporal Variability of Indian River Lagoon Copepod Communities

H.G. Kolb¹, L.H. Sweat¹, X. Ma¹, C. Jacoby², and K.B. Johnson¹

¹Florida Institute of Technology, Melbourne, FL; ²St. John's River Water Management District, Palatka, FL

1430 - 1445 Freshwater Inflow and Sediment Type Influence Infaunal Community Assemblages in the St. Lucie Estuary

Jessica Lunt, Michelle Stephens, and Sherry Reed

Smithsonian Marine Station, Fort Pierce, FL

- 1445 - 1500 **It Takes a Community: The Role of Epifaunal Diversity in Particle Removal in the IRL**
Christopher J. Freeman, Dean S. Janiak, Jay Houk, Malcolm Mossop, and Valerie Paul
Smithsonian Marine Station, Fort Pierce, FL
- 1500 - 1530 Break**
- 1530 - 1645 Oral Session 4 – Restoration**
Session Chair:
- 1530 - 1545 **Removal of Nutrients from Dredged Muck Residuals Utilizing High-Valence Iron (FeO₄²⁻)**
Thomas D. Waite
Florida Institute of Technology, Melbourne, FL
- 1545 - 1600 **Research-Based Lagoon Protection and Restoration**
James David
St. Lucie County Mosquito Control and Coastal Management Services (retired), Fort
Pierce, FL
- 1600 - 1615 **Oyster Restoration Efforts in the Southern Indian River Lagoon – Incorporating Resiliency to Future Discharges**
Vincent Encomio, Kathryn Tiling, Pam Hopkins, and Mark Perry
Florida Oceanographic Society, Stuart, FL
- 1615 - 1630 **How Well Do Restored Oyster Reefs Support Key Biogeochemical Functions in the Indian River Lagoon?**
Lisa G. Chambers¹, Stephanie Gaspar¹, Christian Pilato¹, Havalend Steinmuller¹, Kevin McCarthy¹, Paul Sacks², and Linda J. Walters¹
¹University of Central Florida, Orlando, FL; ²Winter Springs High School, Winter Spring, FL
- 1630 - 1645 **An Opportunistic Test of Living Shoreline Resistance to Hurricanes in the Indian River Lagoon**
Melinda Donnelly and Linda Walters
University of Central Florida, Orlando, FL
- 1645 - 1725 Three Minutes, Three Slides**
Session Chair:
- Is the South Central Indian River Lagoon the IRL’s Ark?**
M. Dennis Hanisak
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- Ciliates of the IRL Muck Layer: A Novel Thriving Community**
Hunter N. Hines^{1,2}, Peter J. McCarthy², and Genoveva F. Esteban¹
¹Bournemouth University, Dorset, UK; ²Harbor Branch Oceanographic Institute at
Florida Atlantic University, Fort Pierce, FL
- Maintenance Dredging of KSC Navigational Channels and Muck Removal**
Thomas L. Price Jr.¹, Douglas C. Durham², and Robert A. Kline²
¹KEMCON, Kennedy Space Center, FL; ²Environmental Assurance Branch, Kennedy
Space Center, FL

Status of the Florida Atlantic Coast Telemetry (FACT) Array: Expanding Coverage and Collaboration

Eric Reyier¹, Joy Young², and Douglas Scheidt¹

¹Integrated Mission Support Services, Kennedy Space Center, FL; ²Florida Fish & Wildlife Conservation Commission, Tequesta, FL

Carbon Stocks in a Shifting Ecosystem: Climate Induced Migration of Mangroves into Salt Marsh

L.T. Simpson^{1,2,3}, T.Z. Osborne^{2,3}, L.J. Duckett¹, and I.C. Feller¹

¹Smithsonian Environmental Research Center, Edgewater, MD; ²Whitney Laboratory for Marine Bioscience, University of Florida, St. Augustine, FL; ³University of Florida, Gainesville, FL

Observations of Copper Tolerant Species in the IRL: A Story of Invasion

Hannah Briant, Kelli Z. Hunsucker, Emily Ralston, and Geoffrey Swain

Florida Institute of Technology, Melbourne FL

Selective Avoidance by Copepods Grazing on Bloom-Forming Algal Species in the Indian River Lagoon

Xiao Ma, Kevin B. Johnson, L. Holly Sweat, and Hannah G. Kolb

Florida Institute of Technology, Melbourne, FL

Investigation into the Health of Oysters (*Crassostrea virginica*) in Natural and Restored Reefs across a Latitudinal Gradient in the Indian River Lagoon (IRL), Florida

Jeffrey Beal¹, Susan Laramore², Emily Dark³, and Matthew R. Anderson³

¹Florida Fish and Wildlife Conservation Commission, Fort Pierce, FL; ² Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ³Florida Department of Environmental Protection-Indian River Lagoon Aquatic Preserves, Fort Pierce, FL

Ventilation Rates of the Indian River Lagoon through Its Inlets

Laurent Chérubin

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

The Indian River Lagoon Shoreline Restoration Project: Combatting Erosion and Maintaining Natural Lagoon Processes through Implementation of Living Shoreline Methods

Kirk Fusco

Florida Department of Environmental Protection, Indian River Lagoon Aquatic Preserves, Fellsmere, FL

Coastal Restoration: A Florida Master Naturalist Special Topic Program

R. LeRoy Creswell¹ and Marty Main²

¹University of Florida Sea Grant, Fort Pierce, FL; ²University of Florida Sea Grant, Gainesville, FL

Living Shorelines as Tools for Citizen Science and Runoff Mitigation

Adeljean L.F.C. Ho, Andrea Orozco, Phillip Bellamy, and Hyun J. Cho

Bethune-Cookman University, Daytona Beach, FL

1725

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 #1-31) and the Gallery (Posters #32-43). 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 students to be at their posters during the second half of lunch break.

1. Laboratory Scale Modeling of Living Shorelines to Determine Design Parameters

Ashley Allen¹, Nathan Bonanno¹, Robert J. Weaver¹, Jacob Zehnder², Jody B. Palmer², Samantha Anderson², and Virginia Barker³

¹Florida Institute of Technology, Melbourne, FL; ²Brevard Zoo, Melbourne, FL; ³Brevard County Natural Resources Management, Melbourne, FL

2. Red Mangrove, *Rhizophora mangle*, Prop Root Communities Are Shaped by the Presence of Secondary Foundation Species

Jessene Aquino-Thomas¹ and C. Edward Proffitt²

¹Florida Atlantic University, Boca Raton, FL; ²Texas A&M University-Corpus Christi, Corpus Christi, TX

3. Little Animals, Big Insight: Using Soft-Sediment Communities as a Proxy for Environmental Health

Katrina Bayliss, Sherry Reed, Jessica Lunt, and Valerie Paul

Smithsonian Marine Station, Fort Pierce, FL

4. Comparing Techniques Used to Determine Biodiversity on the Prop Roots

Andrea Carmona and Jessene Aquino-Thomas

Florida Atlantic University, Boca Raton, FL

5. Determining the Source of Fecal Indicator Bacteria in the DOT Canal of the Coastal Oaks Preserve

Nicholas Cassera^{1,3}, Armand Ercoli^{1,3}, Shania Maza^{1,3}, and Tatyana Udell^{2,3}

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

6. Developing a GIS-based Habitat Suitability Index Model for Eastern Oyster in the St. Lucie Estuary, Florida

Zhiqiang Chen and Barbara Welch

South Florida Water Management District, West Palm Beach, FL

7. Emigration of Juvenile Snook and Tarpon from a Mosquito Control Impoundment Is Enhanced through a Draw-Down of Water Level in Summer

Anthony Cianciotto¹, Jonathan Shenker¹, Aaron Adams¹, and David Heuberger²

¹Florida Institute of Technology, Melbourne FL; ²Indian River Land Trust, Vero Beach, FL

8. A Novel Interaction: The Thin Stripe Hermit Crab, *C. vittatus*, Kills the Florida Crown Conch, *M. corona*, for Its Shell

Jennifer Cutter¹ and Donna Devlin²

¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ²Texas A&M University-Corpus Christi, Corpus Christi, TX

9. Dolphin Abundance in the Vicinity of Land/Ocean Biogeochemical Observatories (LOBOs): Relationship to Water Quality

Mackenzie Daniel¹, Tyler Harrington¹, Marilyn Mazzoil¹, Adam Schaefer¹, John Reif², and M. Dennis Hanisak¹

¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ²Colorado State University, Fort Collins, CO

10. **Implementation of CUAHSI ODM2 Information Model for Data Management of the Indian River Lagoon Observatory Network of Environmental Sensors**
Kristen S. Davis, Bryan Botson, and M. Dennis Hanisak
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
11. **Source of Freshwater Inflow and Water Quality at the Roosevelt Bridge, St. Lucie Estuary FL**
Peter H. Doering and Zhiqiang Chen
South Florida Water Management District, West Palm Beach, FL
12. **Breakpoint: Understanding How Bioeroders Impact Intertidal Oyster Restoration**
Iris J. Fang and Linda J. Walters
University of Central Florida, Orlando, FL
13. **Assessing Genetic Diversity within Natural Populations of Smooth Cordgrass to Ensure Effective Restoration Efforts**
Michelle Gaynor, Linda Walters, and Eric Hoffman
University of Central Florida, Orlando, FL
14. **Heritage Monitoring Scouts (HMS Florida): A Program Engaging the Public to Monitor Florida's At-Risk Heritage**
Kevin Gidusko and Sarah Miller
Florida Public Archaeology Network, Merritt Island, FL
15. **Eight-Year Manatee Survey Looking at Seasonal Patterns of Frequently Observed Individuals in the Harbor Branch Channel Using Photo-Identification Techniques**
Lauren Goldsworthy and Jon Moore
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
16. **Modeling Seagrass Effects on the Hydrodynamics in the Southern Indian River Lagoon**
Md Ahsan Habib¹, Mingshun Jiang¹, Laurent Cherubin¹, Dennis Hanisak¹, and Lori Morris²
¹Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ²St. Johns River Water Management District, Palatka, FL
17. **Observations and Modeling of Water Quality and Carbon Cycle in St. Lucie Estuary and Nearshore Coral Reefs**
Mingshun Jiang, Brian Lapointe, Ahsan Habib, Dennis Hanisak, and Laura Herren
Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
18. **Land Crab Population in the Coastal Oaks Preserve**
Kyle Juarez^{1,3}, Yasmin Ortiz^{1,3}, Treyton McLeod^{1,3}, and Pedro Tellez^{2,3}
¹Vero Beach High School, Vero Beach, FL; ²Indian River Charter High School, Vero Beach, FL; ³Junior Scientist Fellows Program
19. **Wetland Preservation and Mosquito Control: An Integrated Approach**
Kendall Karcher
Florida Gulf Coast University, Fort Myers, FL
20. **Genetic and Functional Trait Variation of Black Mangrove (*Avicennia germinans*) in the Indian River Lagoon, FL**
John Paul Kennedy¹ and Ilka C. Feller²
¹Smithsonian Marine Station, Fort Pierce, FL; ²Smithsonian Environmental Research Center, Edgewater, MD
21. **Changes in Salinity in St. Lucie in Response to High Pulse Discharges from Lake Okeechobee**
Lauren Kircher¹, Joy Young², Jessica Noble¹, Matia Gingras¹, Lissette Geubelle¹, and John Baldwin¹
¹Florida Atlantic University, Boca Raton, FL; ²Florida Wildlife Research Institute, Tequesta, FL

- 22. Blue Crab Population in Peril in the IRL: Does Polluted Water Habitats Raise Serum Glucose Levels in *Callinectes* Species?**
 Jesse Martin
 Bayside High School, Palm Bay, FL
- 23. The Presence of Pathogenic *Vibrio* spp. along Florida's East Coast Beaches and Their Physiological Response to Salinity Fluctuations**
 Brandon McHenry, Gabby Barbarite and Peter McCarthy
 Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 24. Quantifying Movement Patterns and Nursery Habitat Use of Endangered Scalloped Hammerhead Sharks along the Canaveral Bight**
 Olivia Myers¹, Eric Reyier², Bonnie Ahr², and Geoffrey Cook¹
¹University of Central Florida, Orlando, FL; ²Kennedy Space Center Ecological Program, Kennedy Space Center, FL
- 25. Digital Holography: A Unique Approach to Studying Planktonic Species Distributions, Harmful Algal Blooms and Biophysical Interactions in the Indian River Lagoon**
 Aditya R. Nayak, Malcolm N. McFarland, James M. Sullivan, Michael S. Twardowski, and Nicole D. Stockley
 Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 26. Wrack Diversity, Abundance, and Nutrient Levels in Mosquito Lagoon**
 Jessica Needham, Linda Walters, and Lisa Chambers
 University of Central Florida, Orlando, FL
- 27. Did a Disturbance Event Impact the Overwintering Home Range of Common Snook?**
 Jessica Noble¹, Joy Young², Lauren Kircher¹, Matia Gringas¹, Lissette Geubelle¹, and John Baldwin¹
¹Florida Atlantic University, Boca Raton, FL; ²Florida Wildlife Research Institute, Tequesta, FL
- 28. Investigating the Diet of the Invasive Lionfish off Florida's Treasure Coast through DNA Barcoding**
 Shannon Ofner¹, Nancy Pham-Ho², and Jeff Bush¹
¹Vero Beach High School, Vero Beach, FL; ²Florida Institute of Technology, Melbourne, FL
- 29. The Development of a Standardized Sampling Program to Enhance Monitoring of Age-1 Common Snook in Florida Estuaries – What Else Is in the Bag?**
 R. Paperno¹, B. Winner², R. H. McMichael², R. E. Matheson², T. MacDonald², D. Leffler², D. Blewett³, P. Stevens², G. Onorato², K. Fischer², K. Flaherty-Walia², and C. Saari³
¹Florida Fish & Wildlife Conservation Commission, Melbourne FL; ²Florida Fish & Wildlife Conservation Commission, St. Petersburg, FL; ³Florida Fish & Wildlife Conservation Commission, Port Charlotte, FL
- 30. Validation of a Human-Associated qPCR Assay Used to Assess Fecal Pollution in Environmental Waters**
 Carlie S. Perricone and Peter J. McCarthy
 Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 31. What Our Eyes Can't See: Distribution of Microplastic Pollution within Mosquito Lagoon and the Eastern Coast of Central Florida**
 Christian Pilato, Victoria Brodie, Jennifer Griffith, Aliris Loperena, Meagan Minadie, Phyllis Klarmann, and Linda Walters
 University of Central Florida, Orlando, FL

- 32. Assessing Damage of *Sphaeroma terebrans* on *Rhizophora mangle* Prop Root Fouling Communities**
 Krystyna Powell, Jessene Aquino-Thomas, C. Edward Proffitt, and Erik Noonburg
 Florida Atlantic University, Boca Raton, FL
- 33. Mapping and Trend Analysis of Seagrass Beds along the Coastal Oaks Preserve**
Katherine Riley^{1,3}, Alexandra Knudson^{1,3}, Daniel Colbert^{2,3}, Sarah Haluch^{1,3}, and Dylan Ruggieri^{1,3}
¹Vero Beach High School, Vero Beach, FL; ²Sebastian River High School, Sebastian, FL; ³Junior Scientist Fellows Program
- 34. Determining Physical and Ecological Factors Affecting Abundances of Juvenile Indicator Species**
 Adam Searles and Geoffrey Cook
 University of Central Florida, Orlando, FL
- 35. Following the Oyster Restoration Footprint: Does Oyster Restoration in Mosquito Lagoon Positively Impact Local Bird Communities?**
 Michelle Shaffer, Melinda Donnelly, and Linda Walters
 University of Central Florida, Orlando, FL
- 36. Ecosystem Health and Environmental Influences on Innate Immune Function in the Green Sea Turtle (*Chelonia mydas*)**
 Patricia Sposato and Sarah L. Milton
 Florida Atlantic University, Boca Raton, FL
- 37. Ecological Disturbances in the St. Lucie Estuary and the Southern Indian River Lagoon, Elucidated through Macrobenthic Monitoring**
 Michelle Stephens, Katrina Bayliss, Sherry Reed, Bjorn Tunberg, and Jessica Lunt
 Smithsonian Marine Station, Fort Pierce, FL
- 38. Examining the Spatial Variability of the Indian River Lagoon**
 Nicole Stockley, James Sullivan, Malcolm McFarland, and Dennis Hanisak
 Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL
- 39. From Fragments to Meadows: Seagrass Restoration in the Indian River Lagoon from Nursery Grown Seagrass Fragments**
 Kathryn A. Tiling and Vincent Encomio
 Florida Oceanographic Society, Stuart, FL
- 40. Assessing Fish Community Diversity in the Indian River Lagoon**
 Brittany Troast¹, Richard Paperno², and Geoffrey Cook¹
¹University of Central Florida, Orlando, FL; ²Florida Fish and Wildlife Conservation Commission, Melbourne, FL
- 41. Indian River Lagoon through a Microscope: Microplastics in the Organic Tissues of Oysters and Crabs**
 Heidi Waite and Linda Walters
 University of Central Florida, Orlando, FL
- 42. Florida's Fish Kill Hotline: Reporting Sick or Dead Fish for Science**
 Beau G. Yeiser, Catalina Brown, and Douglas H. Adams
 Florida Fish and Wildlife Conservation Commission, Tequesta, FL

43. Health of Oyster (*Crassostrea Virginica*) Populations in Natural and Restored Reefs along a North to South Gradient in the Indian River Lagoon (IRL), Florida

Reika Yu¹, Susan Laramore², Elizabeth Urban², Carolyn Sinacore², Emily Davidson², Erica Rose², Nicholas Brandimarte², Jeffrey Beal³, Emily Dark⁴, and Matthew R. Anderson⁴

¹Boston University, Boston, MA; ²Harbor Branch Oceanographic Institute at Florida Atlantic University, Fort Pierce, FL; ³Florida Fish and Wildlife Conservation Commission, Fort Pierce, FL; ⁴Florida Department of Environmental Protection-Indian River Lagoon Aquatic Preserves, Fort Pierce, FL