Florida Estuary and Coastal Monitoring - Looking Ahead to 2030

April 12-14, 2023

FAU Harbor Branch Oceanographic Institute

J. Seward Johnson Education Center

Fort Pierce, Florida

PROGRAM OF SPEAKERS

Revision E Revision 3/17/2023

WEDNESDAY, April 12

17:30-20:00 **Icebreaker Reception** – Johnson Education Center (Gallery), Appetizers with complimentary drinks
TechSurge Registration Desk Open – Pick up your TechSurge badges

THURSDAY, April 13

8:00-9:00 Coffee, Juice, Continental Breakfast – Johnson Education Center (Gallery)
8:00-9:00 TechSurge Registration Desk Open – Johnson Education Center (Gallery)
8:30-16:30 Exhibits Open – Marine Education Annex

Please plan to view exhibits during breaks & lunch only

8:45-9:00 **WELCOME, ANNOUNCEMENTS, and HOUSEKEEPING:**

John Flynn, Co-Chair, *Flynn Technical Solutions, LLC* (MTS FL Section Chair)
Rick Cole, Co-Chair, *RDSEA International, Inc.* (MTS FL Section Vice-Chair)
Donna Kocak, Co-Chair, *L3Harris Technologies* **,** *MTS Past President, Liaison to the UN Ocean Decade*

Kristina Norman, *MTS Deputy Executive Director,* **Monica Ostrander,** *MTS Director of Programs*

Partner Support
Dr. Duane De Freese, *IRL Council*
Dr. Dennis Hanisak, *FAU Harbor Branch*
Millicent Pitts, *Ocean Exchange*
Dr. Mitch Roffer, *Fishing Oceanography Consultants*
Dr. Jim Sullivan, *FAU Harbor Branch*
Dr. William Venezia, *South Florida Ocean Measurement Facility*
Susan Zellers, *Ocean Exchange*

9:00-9:30 **KEYNOTE SPEAKER:**
Dr. Mark Rains, *Chief Science Officer, State of Florida*

Group 1	**Autonomous Monitoring Technologies for Coastal Waters Part I** - Session Chair: *Donna Kocak*
9:30-9:45	Rick Cole, **RDSEA**, Scott Duncan, **Navocean**: *Developing a Coastal Warning and Rapid Response Data Density System: "SeaWARRDD"*
9:45-9:50	Questions and Answers/Speaker Transition
9:50-10:05	John Fajans, **Xylem**: *Efficient Coastal Monitoring with Light Weight Autonomous Vehicles*
10:05-10:10	Questions and Answers/Transition to Break
10:10-11:00	**Break**
	Autonomous Monitoring Technologies for Coastal Waters Part II - Session Chair: *Donna Kocak*
11:00-11:15	Robert Currier, **Texas A&M Univ./GCOOS**: *GANDALF: A Piloting Portal for AUV Operators*
11:15-11:20	Questions and Answers/Speaker Transition
11:20-11:35	Luc Simon, **SEABER**: *YUCO micro-AUV revolutionary solution for Physico-chemical monitoring of Coastal waters*
11:35-11:40	Questions and Answers/Speaker Transition
11:40-11:55	Kristof Richmond, **Sunfish, Inc.**: *Autonomous Exploration of the Upper Florida Aquifer: The SUNFISH Wakulla 3 Project*
11:55-12:00	Questions and Answers/Transition to Lunch
12:00-13:15	**Lunch**
Group 2	**Harmful Algal Blooms (HABs) Monitoring and Management -** Session Chair: *Rick Cole*
13:15-13:30	Kate Hubbard, **FWC-FWRI**: *Insights into Observing Florida's Harmful Algal Blooms with a Focus on Karenia Brevis*
13:30-13:35	Questions and Answers/Speaker Transition
13:35-13:50	Barbara Kirkpatrick, **GCOOS**: *Increasing the spatial and temporal observations of Karenia brevis red tides in the Gulf of Mexico to improve the respiratory impact forecast: HABscope*
13:50-13:55	Questions and Answers/Speaker Transition
13:55-14:10	Jessica Frost, **BlueGreen Water Technologies**: *Innovative Technologies and Machine Learning to Overcome Reactionary Responses to HAB Management*
14:10-14:15	Questions and Answers/Speaker Transition
14:15-14:30	Aditya Nayak, **FAU Dept. of Ocean & Mechanical Engineering and HBOI**: *An in situ digital holographic imaging system for particle and plankton characterization studies in long-term aquatic applications*
14:30-14:35	Questions and Answers/Speaker Transition
14:35-14:50	Malcolm McFarland, **FAU-HBOI:** *Machine learning algorithms applied to flow cytometry data for monitoring pico- and nano-phytoplankton*
14:50-14:55	Questions and Answers/Transition to Break
14:55-15:40	**Break**

Group 3	**Innovation and Emerging Technology** - Session Chair: *John Flynn*
15:40-15:55	Donna Kocak, **L3Harris**, Millicent Pitts, **Ocean Exchange**: *Accelerate Innovation: Science, Technology Development, Funding, Deployment – Getting it Done!*
15:55-16:00	Questions and Answers/Speaker Transition
16:00-16:15	Carl DeSalvo, **PIMIC**: *Analog AI for coastal and marine monitoring applications*
16:15-16:20	Questions and Answers/Speaker Transition
16:20-16:35	Haley Stumvoll, **L3Harris**: *Quantum Sensor Technology for Marine and Coastal Systems, part 1*
16:35-16:40	Questions and Answers/Speaker Transition
16:40-16:55	Ben Thayer, **L3Harris**: *Quantum Sensor Technology for Marine and Coastal Systems, part 2*
16:55-17:00	Questions and Answers/Speaker Transition
Group 4	**Coastal Engineering and Restoration** - Session Chair: *Donna Kocak*
17:00-17:15	Mark Fonseca, **CSA Ocean Sciences**: *Use of a Novel GIS-based Risk Assessment to Manage Unknowable Environmental Influences on Restoration*
17:15-17:20	Questions and Answers/Speaker Transition
17:20-17:35	Rob Baker, **RMBAKER, LLC**: *BioBase - Cloud Based Automated Aquatic Mapping for Coastal Habitats*
17:35-17:40	Questions and Answers/Speaker Transition
17:40-17:55	Steve Chamberland, **Water Warriors**: *Novel adsorption media for phosphate removal in water*
17:55-18:00	Questions and Answers/Speaker Transition
	Lightning Talks - Session Chair: *Rick Cole*
18:00-18:03	Eric Muhlbach, **FWC-FWRI**: *Implementing the Imaging FlowCytobot (IFCB) within Florida's Harmful Algal Bloom Observation Network to evaluate estuarine dynamics during Karenia brevis blooms*
18:03-18:06	Benjamin Komita, **Florida Tech (FIT)**: *Restoring Lagoon Inflow - Engineering Design*
18:06-18:09	Emilee Wissmach, **Florida Tech (FIT)**: *Biomimicry of Natural Reef Hydrodynamics in an Artificial Spur and Groove Reef Formation*
18:09-18:12	Hank Lobe, **Severn Marine Technologies**: *Biofouling Protection and Considerations for Undersea Instruments for 2023 and Beyond*
18:12-18:15	John Kluge, **Nova Southeastern University**: *Slocum G3 Glider LADCP Data Comparisons to Bottom Moorings in the Straights of Florida*
18:15-18:18	Roger Hickman, **Guide Star Engineering, LLC**: *Listening to the IRL Through the Ears of Students*
18:18-18:21	Bing Ouyang, **Florida Atlantic University**: *Low-cost and Energy-Efficient Underwater Inflatable Structure*
18:21-18:30	Closing Remarks and Adjournment
	Day 1 Adjourned!

FRIDAY, April 14

8:00-9:00	Coffee, Juice, Continental Breakfast – Johnson Education Center (Gallery)
8:00-9:00	TechSurge Registration Desk Open – Johnson Education Center (Gallery)
8:30-16:30	Exhibits Open – Marine Education Annex

8:45-9:00	**Day 2 Welcome Address**: Dr. Jim Sullivan, **FAU-HBOI**
Group 5	**Coastal Circulation and Sediment Transport** - Session Chair: *Donna Kocak*
9:00-9:15	Alfredo Quezada, **Nova Southeastern University**: *Comparison of Coastal Circulation Measurements in a Strong Western Boundary Current Using Robotic Instrumentation*
9:15-9:20	Questions and Answers/Speaker Transition
9:20-9:35	Caroline Hoch, **Florida Tech (FIT)**: *Predicting Near-Bed Sediment Transport through Particle Image Velocimetry*
9:35-9:40	Questions and Answers/Speaker Transition
9:40-9:55	Megan Miller, **Nova Southeastern University**: *Computational Fluid Dynamics Modeling of Internal Waves Breaking on Conch Reef, Florida Keys*
9:55-10:00	Questions and Answers/Transition to Break
10:00-10:45	**Break**
Group 6	**Environmental Monitoring and Modeling Part I** - Session Chair: *John Flynn*
10:45-11:00	Tracy Mincer, **FAU-HBOI**: *Marine plastic debris size fractions and fates in the open ocean water column*
11:00-11:05	Questions and Answers/Speaker Transition
11:05-11:20	Michelle Gaither, **University of Central Florida**, Jeff Eble, **Hubbs SeaWorld Research Institute**, Iris Segura-Garcia, **HBOI**, Holly Sweat, **Smithsonian Marine Station**: *Environmental DNA and applications to estuary and coastal monitoring*
11:20-11:25	Questions and Answers/Speaker Transition
11:25-11:40	Jason Law and Sam D'Angelo, **USF College of Marine Science**: *USF-COMPS: A High-Resolution Circulation Model and Real-Time Water Quality Observations System for Tampa Bay*
11:40-11:45	Questions and Answers/Speaker Transition
11:45-12:00	William Baxley, **FAU-National Marine Renewable Energy Center (SNMREC)**: *Measuring The Effects of Hurricanes on Major Ocean Currents And Implications for Ocean Energy Devices*
12:00-12:05	Questions and Answers/Transition to Lunch
12:05-13:20	**Lunch**
	Environmental Monitoring and Modeling Part II - Session Chair: *John Flynn*
13:20-13:35	Ann Wassick, **Florida Tech (FIT)**: *Back to basics: interfacing biology to remote sensing*
13:35-13:40	Questions and Answers/Speaker Transition

13:40-13:55	Dennis Hanisak, **FAU-HBOI**: *The Indian River Lagoon Observatory Network of Environmental Sensors (IRLON): Addressing Emerging Environmental Issues in Florida's Estuaries*
13:55-14:00	Questions and Answers/Speaker Transition
14:00-14:15	Roger Hickman, **Guide Star Engineering, LLC**: *Becoming Familiar with Vector Hydrophones*
14:15-14:20	Questions and Answers/Speaker Transition
14:20-14:35	Robert Weaver, **Florida Tech (FIT)**: *Long-Term Monitoring of Water Levels in the IRL 2014- present*
14:35-14:40	Questions and Answers/Transition to Break
14:40-15:25	**Break**
Group 7	**Data Management and Telemetry** - Session Chair: *Rick Cole*
15:25-15:40	Kristen Davis, **FAU-HBOI**: *Data Acquisition and Management for the Indian River Lagoon Observatory Network of Environmental Sensors (IRLON)*
15:40-15:45	Questions and Answers/Speaker Transition
15:45-16:00	Merrie Neely, **Global Science and Technology, Inc./NOAA**: *GEO AquaWatch and CEOS COAST: Use cases of open source earth observation to benefit society*
16:00-16:05	Questions and Answers/Speaker Transition
16:05-16:20	Alex Soloviev, **Nova Southeastern University**: *Magnetic signature of small-scale and submesoscale oceanographic processes*
16:20-16:25	Questions and Answers
16:25-16:40	Closing Remarks and Adjournment

TechSurge Exhibitors

Florida Institute of Oceanography	Flynn Technical Solutions, LLC
High Tech, Inc.	IRL Council
Marine Research Hub	Ocean Exchange
Nortek USA	PIMIC, Inc.
Sequoia Scientific	Seabird
Teledyne Marine	Survtech Solutions
Xylem, Inv.	Water Warriors

The Florida TechSurge is Adjourned
Thank you all for Coming and Participating!

Thank You to Our Hosts, Exhibitors, Speakers, and Sponsors,
We Appreciate Your Support !!

HOSTS

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