Panel 1

Observations Supporting Healthy Ecosystems

Moderator: Dr. Pat Hogan

Panelists: Dr. Beth Stauffer, Dr. Eric Milbrandt, Dr. Emily Hall and Dr. Sue Barbieri



Beth Stauffer
University of Louisiana at Lafayette
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GCOOS member

GCOOS Members Meeting, November 5, 2026

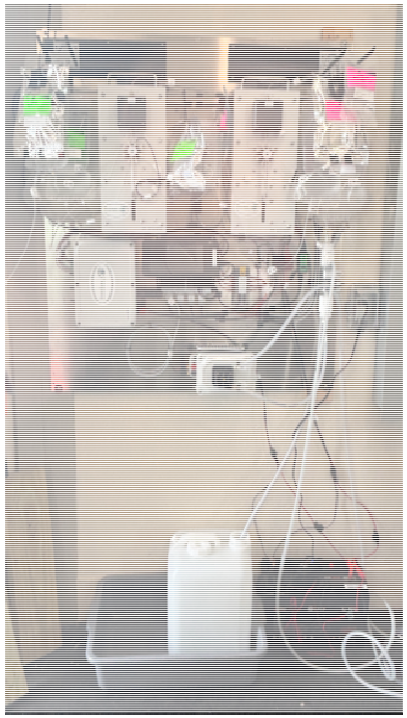
Help Guide GCOOS Priorities

- What is the primary mission of your organization?

UL Lafayette is an academic institution that strives to “develop citizens, leaders and innovators who create solutions to community and regional challenges, improving the world for future generations.”

- What is **your** project focus?

We have built a network of estuarine/coastal monitoring partners from FL to TX deploying high frequency nutrient sensors as part of their efforts. While we are generating high data on N (and P at two sites), we are also building a community of users and records of best practices for using these challenging instruments.



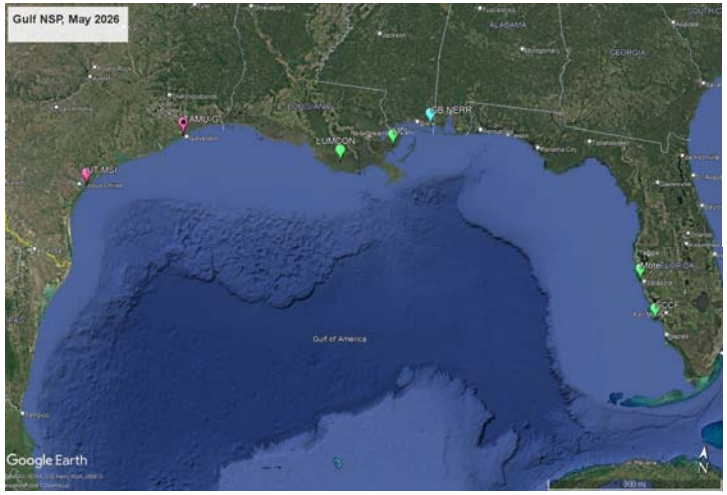
Pumped SeaPro Green Eyes setup at UTMSI

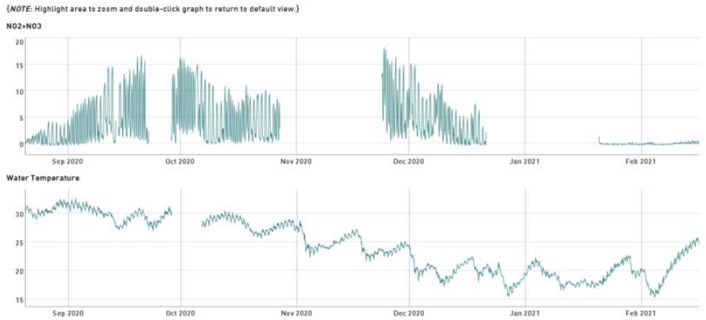
Help Guide GCOOS Priorities

What type(s) of data does your team generate?

~ every 2 hours

- High frequency concentrations of NO3+NO2 (5 sites + 1 onboarding)
- High frequency concentrations of PO4/SRP (2 sites)
- N and P concentrations from discrete reference samples (~weekly/monthly)
- + “regular” water quality variables at sites





WIZ N+N & temperature data from SCCF

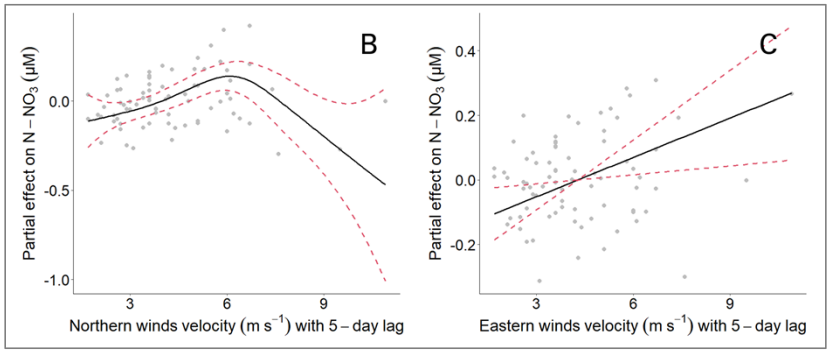
Help Guide GCOOS Priorities

- How are the data applied/who are the primary users of the information?

Right now, the data generators are the main users as we continue to beta test and build best practices.

- Do you have an example you can share of a measurable outcome from use of the information you provide?

Deployment of optical N+N sensor in LA estuary provided new insights into strong role of winds on biogeochemistry (Piwowarski, et al., in prep)



But also, sharing among sensor users on biofouling prevention, pre/post-cal procedures, QA/QC approaches, etc.

Data Products and Information

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems) priorities in the near-term (1-2 yrs)?

- Better ways to push/pull data across datalogger compatibilities, institutional firewalls
- Efficient ways to deliver provisional data and easily (for all of us) replace following full QA/QC

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems) priorities in the longer term (3-5 yrs)?*

- Funding more high frequency nutrient sensing as part of "regular" variables that we measure
- Continuing to work with sensor developers and manufacturers to improve usability and robustness of instruments (not necessarily information-related, but needed)

**Honestly, I'm not sure… Our project funding is ending in 2027, so it's hard to think beyond the next year or so.*

How does/can collaboration with GCOOS help you achieve your organization's mission?

- With continued funding challenges, maintaining regular coastal monitoring beyond 3-year grant cycles is essential.
- Continue to connect what our network has generated with future users of nutrient sensors to maximize impact
- Expand opportunities for students, early career scientists to get involved with GCOOS

Thank you for being a Panelist at the GCOOS Members Meeting to be held November 5, 2026, at the Mote Science Education Aquarium, Sarasota, FL

Here are some guidelines to help you prepare and maximize productivity during each panel.

- Purpose: To improve understanding of current and emerging stakeholder data applications, challenges, and needs for ocean observing to inform updates to the GCOOS Strategic Plan.
- Format
  - Each panelist will be given ~6-8 minutes to present information indicated on the slides provided here.
  - We are aiming for 15 min Q/A following each set of three panelist presentations.
  - The slides with requested information should be sent to Chris.Simoniello@GCOOS.org by November 2, 2026 so that, in the interest of time, presentations can be collated for each panel.

Have questions? Don't hesitate to ask!

Note: Please focus the information you provide on the category for which you are serving as a panelist. Thank you!

1:30-2:10: **Observations Supporting Healthy Ecosystems**

Panelists: Beth Stauffer, Eric Milbrandt, Emily Hall

2:10-2:50: **Observations Supporting Public Health - IFCB Network**

Panelists: Darren Henrichs, Antonietta Quigg, Michael Wetz, (Mike Parsons)

3:20-4:00: **Observations Supporting Community Resilience**

Panelists: Brian Dzwonkowski, Catherine Hancock, Jason Rider

ERIC MILBRANDT
SANIBEL CAPTIVA CONSERVATION FOUNDATION
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GCOOS member





Help Guide GCOOS Priorities

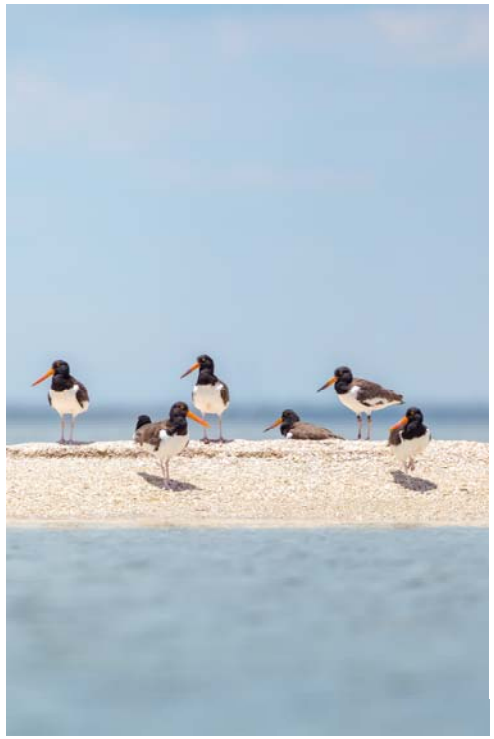


- What is the primary mission of your organization?

To protect and care for southwest Florida's ecosystems

- What is **your** project focus?

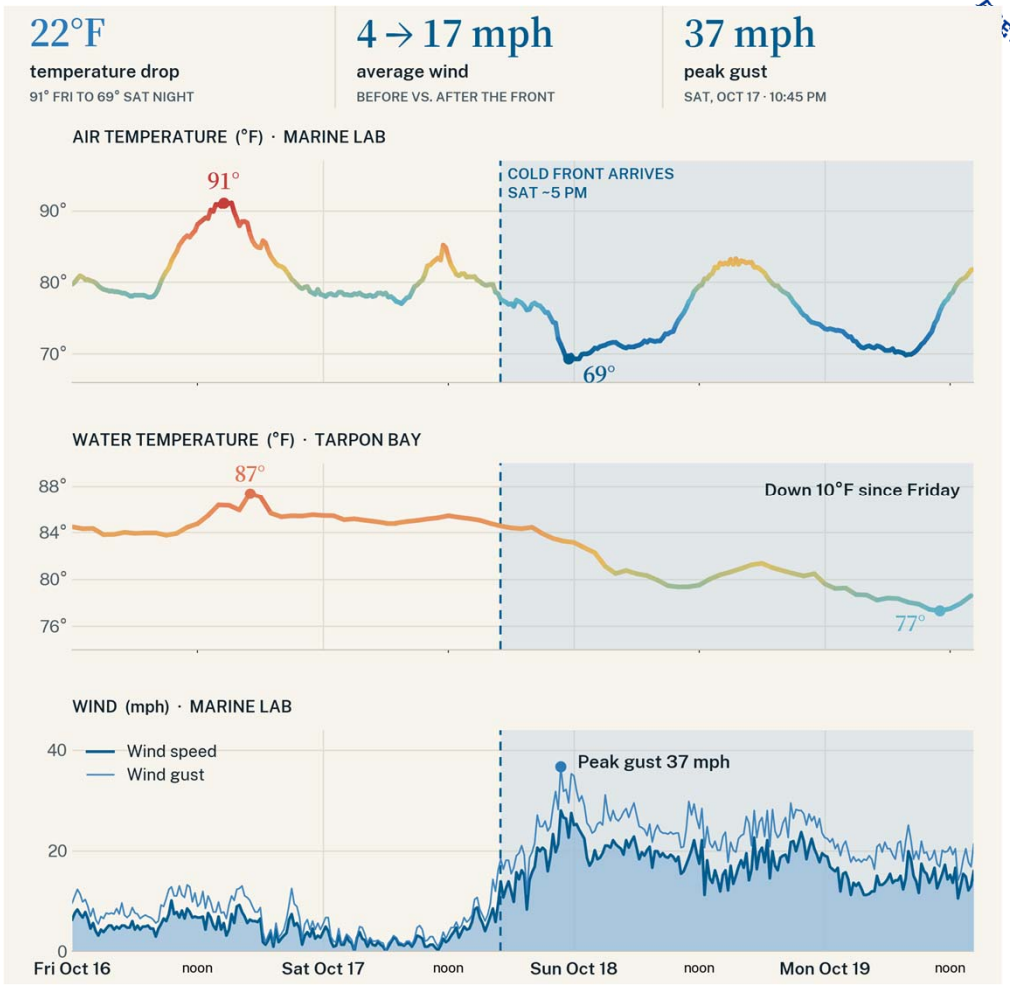
Monitor water quality of the coastal and estuarine ecosystems to maintain healthy ecosystems



What type(s) of data does your team generate?

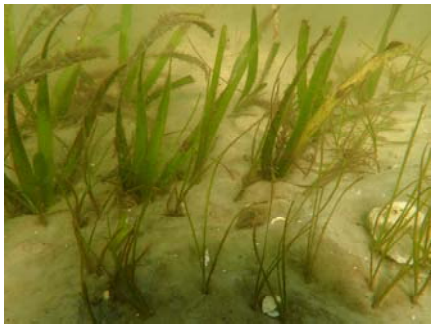
Hourly data at 9 sites (freshwater, estuary and marine) for temperature, salinity, depth, dissolved oxygen, turbidity, FDOM, chlorophyll

At 3 sites every 15 minutes wind speed and direction



Data Products and Information





- How are the data applied/who are the primary users of the information?

Visualize water quality status and trends weekly, monthly, and annually (managers, general public)

Calibrate hydrodynamic and water quality models (researchers)

Social media posts, articles for our members and the general public (general public, TV/print news media

Weekly condition reports (water managers)

Researchers studying indicator species (scientists)

Conditions for Boating and fishing (general public)

Water levels (emergency managers, general public)

- Measurable outcomes from use of the information you provide?

Water management decisions, Lake Okeechobee regulation schedule, hurricane after action, scientific publications, HAB bulletins to residents and tourists





Data Products and Informationc



What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the near-term (1-2 yrs)?

Healthy ecosystems, Coastal Resilience

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the longer term (3-5 yrs)?

Healthy Ecosystems, Coastal Resilience



How does/can collaboration with GCOOS help you achieve your organization's mission?

- Regional and Gulf wide Context for our work
- Collaboration
- Funding for maintenance, data management, and research
- Opportunities for communicating with our legislators
- Improving water quality and habitats
- Public Engagement
- Workshops



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Emily R. Hall, Ph.D.
Mote Marine Laboratory
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Mote Marine Laboratory is a GCOOS member.
*GCOOS board member.

www.mote.org

The advancement of marine and environmental sciences leading to new discoveries, revitalization, sustainability and greater public understanding of our oceans through innovative research, education and outreach.

















1 • Mote Marine Laboratory & Aquarium

2 • Mote Science Education Aquarium

3 • Mote Aquaculture Research Park

4 • Mote's Key Largo Coral Nursery at Reefhouse Resort & Marina

5 • Mote's Islamorada Coral Nursery at Bud N' Mary's Marina

6 • Mote's Coral Reef Exploration Exhibit at the Florida Keys History & Discovery Center

7 • Mote's Elizabeth Moore International Center for Coral Reef Research & Restoration

8 • Mote's Coral Research Exhibit at the Florida Keys National Marine Sanctuary's Eco-Discovery Center



Mote Locations

MOTE MARINE LABORATORY & AQUARIUM

Help Guide GCOOS Priorities

Project Focus:

Monitor and study physical/chemical parameters from freshwater, estuarine, coastal, and full marine systems. Mostly nutrients and carbonate chemistry in relation to Harmful Algal Blooms, coral reefs, and climate change.

Support education and outreach on ocean and coastal acidification through the Coastal Acidification Networks.



Help Guide GCOOS Priorities

Data:

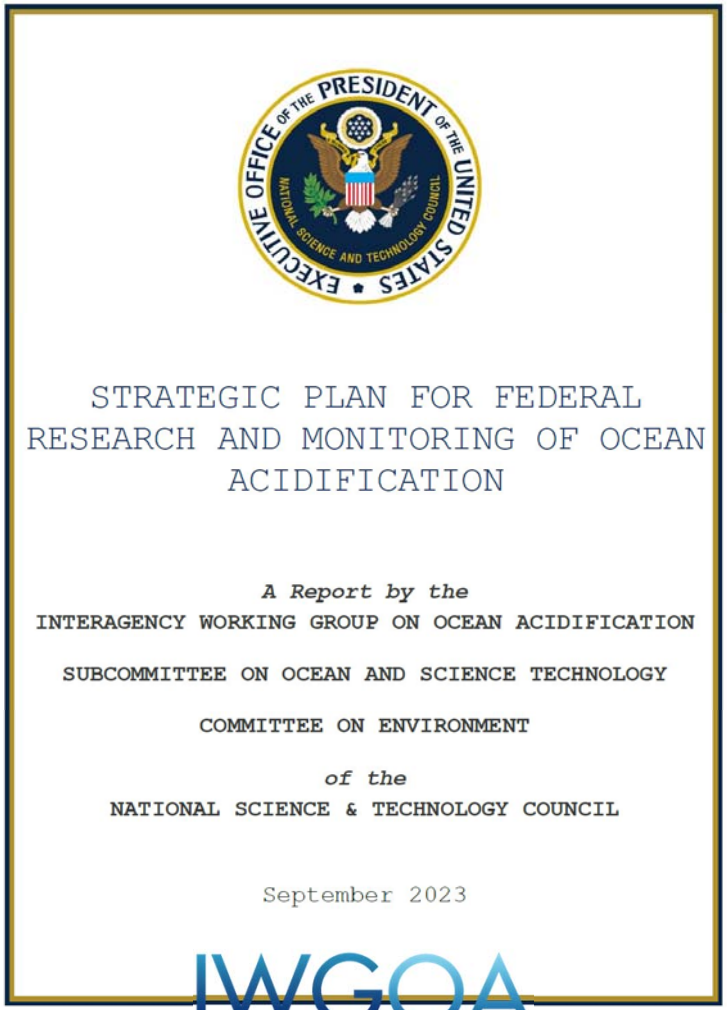
- Carbonate chemistry – measured (DOC/TOC, DIC, TA, pH_T, pCO_2), calculated (DIC, TA, pH_T, pCO_2, and remainder of carbon parameters via CO2SYS).

- Nutrients (particulate, dissolved, inorganic, organic and total) – NOx, NO_2, NO_3, NH_4, PO_4, SiO_2, Sulfide, Sulfate, Chlorine, Fluoride, Urea, TKN, DIN, DIP, TN, TP, PP, PN, PC, TON, TOP.

- Other parameters – temperature, salinity, conductivity, dissolved oxygen, pH_{NBS}, depth, CDOM, chlorophyll *a* (and others), BOD, CBOD, Radium isotopes, %org, grain size, TSS, TDS, VSS, turbidity, color (true and apparent)

Help … es

- **How are the data … information?**
  - FWRI (Florida Re…
  - Sarasota County …
  - City of North Por… …oring)
  - EPA (Water Chen… …e, and Lower Keys; Groundwater Im…
  - SECOORA/IOOS (…
  - FL DEP (HAB miti…



STRATEGIC PLAN FOR FEDERAL RESEARCH AND MONITORING OF OCEAN ACIDIFICATION

A Report by the
INTERAGENCY WORKING GROUP ON OCEAN ACIDIFICATION

SUBCOMMITTEE ON OCEAN AND SCIENCE TECHNOLOGY

COMMITTEE ON ENVIRONMENT

of the
NATIONAL SCIENCE & TECHNOLOGY COUNCIL

September 2023

IWGOA
INTERAGENCY WORKING GROUP ON OCEAN ACIDIFICATION

Data Products and Information

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the near-term (1-2 yrs)?

Water quality and climate data on spatial gaps throughout the Gulf (including coastal/estuarine environments).

Near-real time data – in-situ instrumentation for this data.

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the longer term (3-5 yrs)?

Models and tools that move from describing current conditions to anticipating future states.

Policy-makers/regulatory agencies to adopt some of these parameters/models (e.g. carbonate chemistry into water quality regulations).

How does/can collaboration with GCOOS help you achieve your organization's mission?

- Provide funding for in-situ instrumentation and/or sampling in gap regions.
- Stressor monitoring (HABs, carbonate chemistry, nutrients, etc.).
- Visualizations of this data for the public/policy makers/managers.
- Convening with policy makers (e.g. DEP, Local Governments), scientists, public to evaluate needs, changes, etc.
- Modeling efforts/data platforms/visualizations.
- Information on how this data applies to actions.

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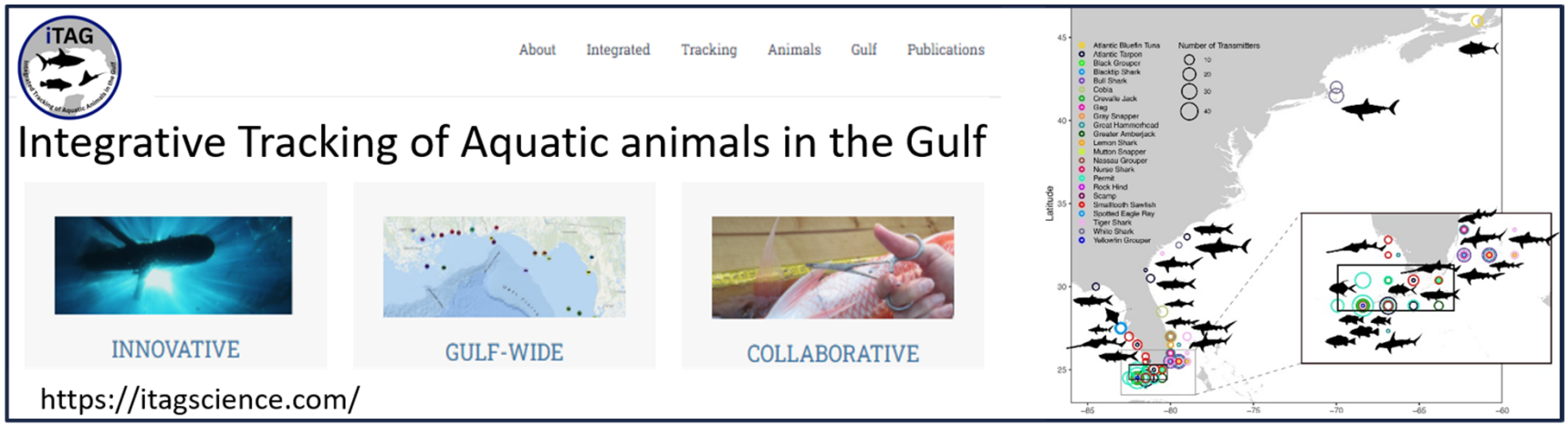


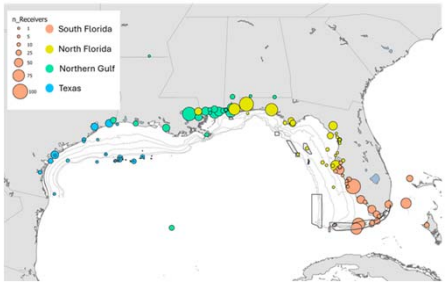
@iTAG_science iTAG_science iTAG

Help Guide GCOOS Priorities

- Our primary mission is to increase the spatial scale that aquatic animals can be tracked throughout the Gulf to provide movement data important to management and conservation







- What is **your** project focus?

  Conducting proof of concept studies

Help Guide GCOOS Priorities

Detection data from all of the iTAG members' arrays is pushed through our plone site, uploaded to the ocean tracking network to assign animals to the tag IDs and then rerouted back to the tag owners



Help Guide GCOOS Priorities

- The primary users of the information are tag owners
- Measurable outcomes are typically publications, such as:



RESEARCH ARTICLE

WILEY

Commercial fishery bycatch risk for large juvenile and adult smalltooth sawfish (*Pristis pectinata*) in Florida waters

Jasmin Graham | Andrea M. Kroetz | Gregg R. Poulakis | Rachel M. Scharer | John K. Carlson | Susan K. Lowerre-Barbieri | Danielle Morley | Eric A. Reyier | R. Dean Grubbs



Assessing the potential for red tide (*Karenia brevis*) algal bloom impacts on Atlantic tarpon (*Megalops atlanticus*) along the southwestern coast of Florida

Lucas P. Griffin · Claudia Friess · Micah D. Bakenhaster · Kim Bassos-Hull · Sarah Walters Burnsed · Jacob W. Brownscombe · Steven J. Cooke · Robert D. Ellis · Jayne M. Gardiner · James Locascio · Susan Lowerre-Barbieri · Gregg R. Poulakis · Tonya R. Wiley · Krystan A. Wilkinson · JoEllen K. Wilson · Andrew K. Wooley · Aaron J. Adams · Andy J. Danylchuk



ICES Journal of Marine Science

ICES CIEM

ICES Journal of Marine Science (2019), doi:10.1093/icesjms/fsy211

The ocean's movescape: fisheries management in the bio-logging decade (2018–2028)

Susan K. Lowerre-Barbieri, Roland Kays, James T. Thorson, and Martin Wikelski



ENDANGERED SPECIES RESEARCH

Endang Species Res

Published January 28

OPEN ACCESS

Large-scale space use of large juvenile and adult smalltooth sawfish *Pristis pectinata*: implications for management

Jasmin Graham, Andrea M. Kroetz, Gregg R. Poulakis, Rachel M. Scharer, John K. Carlson, Susan Lowerre-Barbieri, Danielle Morley, Eric A. Reyier, R. Dean Grubbs



scientific reports

OPEN

Movement traits important to conservation and fisheries management: an example with red snapper

Susan K. Lowerre-Barbieri, Kara Wall, Claudia Friess, Sean Keenan, Chad Lembke, Joseph Tarnecki, Laura Jay Williams-Grove & William F. Patterson III

Data Products and Information

Top emerging information needs (1-2 years) for iTAG and Healthy Ecosystems:

(1) Develop long-term arrays in key locations and ID and regularly tag priority species.

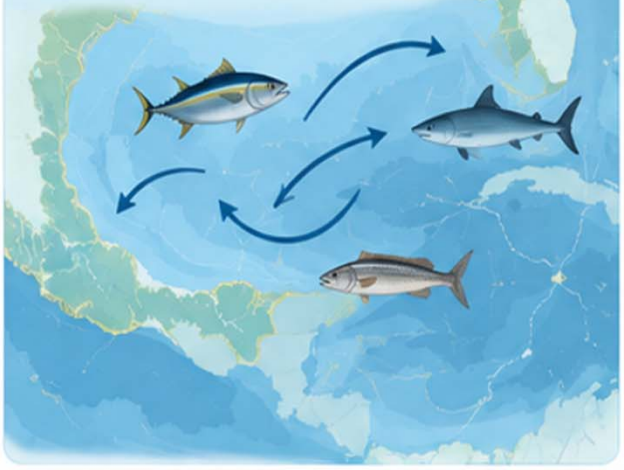
(2) Increased cross talk/workshops with GCOOS personnel to identify synergies, such as providing bottom temperature data collected with arrays to oceanographers, getting receivers on gliders and any other platforms of opportunity.

Top emerging information needs (3-5 years) for iTAG and Healthy Ecosystems

(1) Develop the means to integrate environmental and detection data to improve our understanding of movement cues.

(2) Standardize best practices for developing the inference power needed to address specific fisheries management needs.

How does/can collaboration with GCOOS help you achieve your organization's mission?

Knowledge needed	Why this matters	Relevant EOVs (Ocean observing) *Physical, biogeochemical, and biological observations to understand environmental drivers and context*
Movement drivers to predict shifts in migratory routes and species' distributions 	Affects estimates of abundance Affects availability to capture Affects estimates of biodiversity Can affect ecosystem services Affects regional management (e.g., black seabass moving north)	Fish abundance and distribution Plankton biomass Physical and biogeochemistry EOVs that monitor ocean state (e.g., temperature, oxygen, nutrients, currents) Seabirds abundance and distribution Phytoplankton biomass and diversity Marine mammal abundance and distribution Benthic invertebrate abundance and distribution Coral cover and composition Seagrass cover and composition Macroalgal canopy cover and composition Mangrove cover and composition