

NOAA HAB Programs in Florida

Quay Dortch

Senior HAB Scientist

Competitive Research Program



Programs

Extramural

- National Centers of Coastal Ocean Science (NCCOS)
 - ECOHAB
 - PCMHAB
 - Event Response
 - FL Socioeconomic
- Sea Grant
 - National
 - Florida

Intramural

- NCCOS
 - FL HAB Bulletin → Every Beach/Every Day
 - Phytoplankton Monitoring Network (PMN)
 - Analytical Response Team (ART)
- National Marine Fisheries Service (NMFS)
Office of Protected Species
- NMFS & Ocean & Atmospheric Research (OAR)

Other

- NOS Disaster Preparedness Program



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ECOHAB and PCMHAB

- ECOHAB

- CIGUAHAB: Ciguatera Investigations in the Greater Caribbean Region: Ecophysiology Population Connectivity, Forecasting, and Toxigenesis 2011-2017, FGCU
- *Species and Strain Differences in the Toxicity of Caribbean Gambierdiscus species: Implications for ciguatera fish poisoning in the Caribbean 2011-2015, NCCOS
- CIGUATOX: A study of *Gambierdiscus* “super bugs” and ciguatoxin fate in coral reef food webs 2017-2020, FGCU
- Life and Death of a *Karenia Bloom*, 2017-2020, U.T. Port Aransas
- *Life and Death of *Karenia brevis* Blooms in the Eastern Gulf of Mexico 2019-2024, Mote

- PCMHAB

- Integration of alternative methods of analysis into the neurotoxic shellfish poisoning monitoring and management framework 2017-2020
- Seasonal forecasting of *Karenia brevis* blooms in the eastern Gulf of Mexico 2015-2018
- *Karenia tricorder*: introduction to coastal managers and technology upgrades 2015-2019

- 2020 MERHAB & PCMHAB



Event Response

- **2016**
 - Ecological and optical characterization of the 2016 *Aureoumbra* brown tide in the Indian River Lagoon, Harbor Branch Laboratory
 - Response St. Lucie Cyanobacterial Bloom, Martin County Board of Supervisors
- **2018**
 - Rapid Response and Investigations into HAB Event in SW Florida, FWRI
 - Use of Intravenous Lipid Emulsion Therapy as a Novel Treatment for Brevetoxicosis in Double-crested Cormorants (*Phalacrocorax auritus*), Clinic for the Rehabilitation of Wildlife
 - Do brevetoxin concentrations of gut contents of deceased Sanibel and Captiva sea turtles correlate with seagrass bed contamination?, Sanibel Captiva Conservation Foundation,
 - NOAA HAB Event Response funding for *R/V Walton Smith WS18285 Cruise* extension of 2-days to sample red tide impacts on Florida's west coast, SEFSC & AOML
 - Air Sampling of Particle-Associated Microcystins and BMAA Pilot Study in Lee County, Florida: Fall 2018 – Winter 2019, FGCU

FL Socioeconomic Through GCOOS

- From Bloom to Bust: Estimating Economic Losses and Impacts of Florida Red Tide (*Karenia brevis*), UCF, 2020-2022
- Assessment of the short- and long-term socioeconomic impacts of Florida's 2017-2019 Red Tide event, UF, 2020-2022





Sea Grant

- **National**

- PhytO-ARM, An Open-source Platform for Real-time Phytoplankton Monitoring, Data Sharing, and Automated Aquaculture Management, WHOI, 2018-??

- **Florida**

- Citizen Science Detection and Quantification of Florida Red Tides via Personal Smartphone-enabled PCR Technology, 2020-2033, Mote
- Depuration of brevetoxin from commercially produced shellfish after exposure Florida Red Tide (*Karenia brevis*), UF, 2019

- **Florida & NCCOS**

- State of the Science for HABs in FL Workshop, 2019
- 50% HAB Liaison



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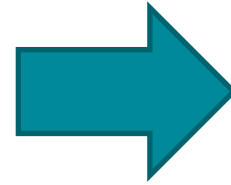
Other

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SEFSC-AOML collaborative red tide response

Participatory ecosystem-based
fishery management workshops

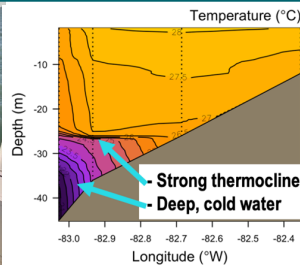


RED TIDE RESPONSE PLAN

- Document impacts
- Understand bloom ecology
- Prepare for the future



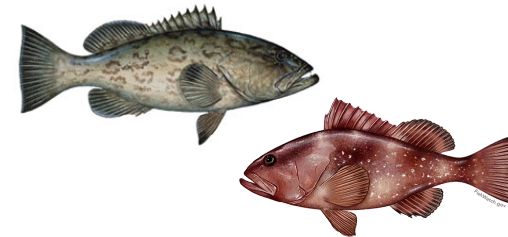
Citizen science monitoring



Local ecological knowledge assessment



Improved stock assessment



- Produce near real-time display of conditions to help fishermen with their operations
- Test hypotheses from local knowledge → forecasting of severe blooms
- Help coastal communities build resilience to acute stressors

Disaster Preparedness Program

Prepare NOS and **partners** to respond to and recover from pollution events and natural disasters.

Program Capabilities

- **Plan.** Ensuring NOS emergency plans for continuity of operations are up-to-date and feasible.
- **Organize/Equip.** Identify and resolve capacity needs to ensure NOS responders have the right resources, sufficient manpower, and adequate support to carry out mission essential work.
- **Train.** Emergency preparedness, response, and recovery training for NOAA field responders, federal partners, and **state and local emergency managers**.
- **Exercise.** **Annual exercises** ensure the plans, personnel, and training are coordinated to deliver the best possible preparedness and response posture
- **Evaluate/Improve.** A dedicated continuous improvement program

Future Planning Initiatives

- HAB MON
 - Plan for national HAB monitoring network
 - Led by IOOS Association
 - Builds on NOAA National HAB Monitoring Framework (coming soon)
- HAB Research and Response National Environmental Science Strategy (2005-1015) (HARRNESS) Update https://hab.whoi.edu/wp-content/uploads/2018/05/HARRNESS_low_res_24149.pdf
- Ocean Acidification/HAB Workshop—Research prioritization <https://oceanacidification.noaa.gov/HABOA2020.aspx>
- National HAB Socioeconomic Workshop—Research prioritization

