# Harmful Algal Bloom Task Force Meeting

January 13, 2021 Quarterly Meeting (9:00 a.m.- 2:38 p.m. EST)
Virtual Meeting Location (open to the public): fwc.adobeconnect.com/hab

**In Attendance, Task Force members:** Donald Anderson (from 10 a.m.), Rick Clark, Duane De Freese, Quay Dortch, Jill Fleiger, Leanne Flewelling, Charles Jacoby, Barbara Kirkpatrick, Sherry Larkin, Andrew Reich, Rhonda Watkins, David Whiting

**Guests and presenters**: Meghan Abbott, FWRI; Mike Parsons, GCCCR, FGCU; Kate Hubbard, FWRI

**Public participants:** 12 in virtual meeting room, also live streamed by Florida Channel

**Minutes:**

9:00-9:13 a.m. Welcome and introductions

Leanne Flewelling welcomed attendees and noted the public comment period is scheduled for 1:00 p.m. with a dial-in number posted at that time.

Flewelling introduced new member Rick Clark from FDOH. She conducted rollcall of Task Force members, Don Anderson absent (joined at 10 a.m.), and put forward motion to amend quorum to accommodate changes in membership size. Proposed quorum of 3/4ths of members with motions passed by 3/4th of total membership. No objections. Passed.

Flewelling provided an update on the current red tide bloom. Rhonda Watkins provided additional specifics for the bloom impacts in Lee/Collier County.

9:13-9:27 a.m. Updates

Flewelling provided updates on various initiatives ongoing related to priority items identified in the consensus document Initial recommendations regarding red tide (*Karenia brevis*) blooms:

- The 2nd edition of the Resource guide for public health response to HABs in Florida, TR-14, is on track for a May digital publication date.
- The HAB Communications Working Group continues to meet bimonthly to address contributing to developing a statewide HAB communication plan and other education initiatives.
- The three projects funded through the FWC HAB grant program in 2020-21 are progressing. 1) UF/Sea Grant red tide communications project has established science and communication advisory committees, is compiling an inventory of red tide communication and outreach tools and is evaluating usability of key resources. They conducted initial focus groups with resource managers and public health officials and will be deploying larger statewide stakeholder survey this month. 2) FAU holographic imaging project is working closely with USF and FWC conducting lab tests

and collecting field samples to build the database, and to design a customized field tow for the AUTOHOLO. 3) UF aerosolized brevetoxins project is working towards developing the assay and will be reporting on progress later this month.

Barb Kirkpatrick provided an update on the respiratory forecast project which provides 3hr updates during blooms, visit https://habforecast.gcoos.org/ or the FWC-FWRI Tools for tracking red tides webpage, https://myfwc.com/research/redtide/tools/

Flewelling provided an update on planning the coastal ocean monitoring workshop to be hosted by IOOS. A potential list of participants has been developed. A steering committee needs to be established to plan the workshop for next year.

ACTION: Members interested in serving on, or have recommendations for, the steering committee for planning the coastal ocean monitoring workshop hosted by IOOS should reach out to Leanne directly.

Flewelling provided update on state funding for Center for Red Tide Research.

Center Funding has or is being used to:

- enhance FWRIs long-standing partnerships with Mote Marine Laboratory (MML), the University of South Florida (USF) as well as National Oceanic and Atmospheric Administration (NOAA), and the Gulf of Mexico Coastal Ocean Observing System (GCOOS),
- expand routine ship-based surveys both offshore and in estuaries.
- expand the ocean glider programs of both MML and USF allowing collaborative deployments of gliders offshore to provide early warning of bloom events and track blooms
- integrate sensors for nutrient detection into existing platforms including an offshore buoy and ocean gliders (Center-funded efforts led by USF)
- integrate IFCBs into routine monitoring aboard ships and dockside deployments during blooms (new projects with FSU and GCOOS will help further develop this technology)

Data from these efforts along with other field and lab observations are being integrated with new modeling tools under development by both USF and NOAA to improve forecasts of bloom conditions – including transport and respiratory effects.

A number of new partnerships have been established with Florida State University (FSU), University of Central Florida (UCF), Florida Gulf Coast University (FGCU), Harbor Branch/Florida Atlantic University (HBOI/FAU), University of Florida (UF), Eckerd College, and Florida Sea Grant.

Flewelling reviewed agenda and asked for member additions. None.

9:27 a.m. – 11: a.m. Presentations

Presentations were given on Florida's seafood safety and biotoxin management, and ciguatera poisoning.

Jill Fleiger, FDACS, presented "Florida's Biotoxin Management Plan"

Leanne Flewelling, FWC-FWRI, presented "HAB Toxins in Seafood"

Question and answer period followed.

Members asked why whole scallops were tested. Flewelling noted this is due to recreational harvest. To be conservative, the whole scallop is tested and if above 20ppm the area will be closed to recreational harvest. If this were commercial harvest where the only muscle was sold, just the muscle could be tested but this is not possible for recreational harvest.

Members asked if there was any monitoring of blue crab. Flewelling confirmed while there is data, there is no routine monitoring.

Members noted roe fish is another product being consumed that concentrates HAB toxins, that the state should consider monitoring or advisory changes. Flewelling noted that for these and other species, along with recreational harvesting, improvements could be made to broaden messaging to increase education and awareness. Not too much can be done from the management perspective, but communication opportunities exist.

Members asked if there were any documented cases of ASP in Florida. Flewelling confirmed there are no documented cases of ASP or PSP in Florida. And, any cases of NSP have been recreational and not in managed shellfish areas. The biotoxin management plan has evolved over years and is very effective both for consumption safety as well as limiting impacts on commercial operations, ensuring closures reopen as quickly as possible.

Members asked about toxin testing. Flewelling confirmed Neogen is a rapid test and NSP analytical methods are continually being improved but traditional testing methods are still required in many cases.

Members noted that data presented focuses on acute exposures, in other regions long-term chronic exposure to domoic acid (DA) is a problem with memory. While the data suggests DA is not a concern in Florida, members asked if there is any related information for chronic brevetoxin exposure. Flewelling confirmed chronic DA exposure is not currently a concern in Florida but chronic brevetoxin exposure impacts is an important question that the Task Force identified last year in its initial priority recommendations document. Reich noted chronic brevetoxin exposure was part of the RFP FDOH issued so hopefully there will be more data in the future. He added we still know very little about what brevetoxin does once it enters the body.

10:11-11:09 a.m.

Mike Parsons, GCCCR and FGCU, presented "Ciguatera Poisoning in Florida"

Question and answer period followed.

Members inquired with the changes in climate and shifts in ecosystems and so forth that might promote more Ciguatera Poisoning (CP), do we know anything about how changes in nutrients promote toxin production. Parsons noted that nutrients are very complicated when it comes to CP, and very site specific with reefs 500 yards apart having different results. As well, the question remains related to how much is due to algae itself and how much due to grazers. In Florida, we do not have a good handle on nutrient contribution to algal biomass, or coral disease. Also, historically we have lumped all *Gambierdiscus* species together which limits ability to determine nutrient impacts on a specific species.

Members inquired if lionfish have been tested in addition to hogfish. Parsons noted that the Robertson study looked at lionfish in the Caribbean, not Florida, and determined larger lionfish had higher levels of ciguatoxin, suggesting this is due to their ability to eat larger prey that retain more toxin. He added the hogfish test study was in the Virgin Islands, not Florida. While hogfish have been collected in Florida, the extraction method is being refined first to better identify precursors to extract molecules of interest, prior to testing.

Members inquired if it is too early to issue fish advisories for these species similar to those done for mercury. Parson confirmed yes.

Rick Clark and Andy Reich confirmed the FDOH has not yet seen CP linked to lionfish in Florida. But, there are upwards of 40 confirmed cases of CP in Florida annually from other species.

Members inquired if any studies were being done related to community response, similar to the NOAA fishermen project presented at the last meeting, that would inform forecasts or advisories in the future. Parsons noted that the work in St. Thomas has been including and working closely with fishermen communities. Researchers collected fish from regions fishermen suspected of ciguatoxins, and their suspicions were confirmed, the involved helped to create strong community relationships. In Florida, discussions have begun on how to initiate community engagement, balancing awareness and risk concerns of stakeholders effectively. This includes some requests related to studying community disparity issues for types of fish purchased in regions around Miami. Engaging fishermen, guides, restaurants, fish mongers, etc is expected to improve community participation.

Members asked if a dockside test kit is being developed for Caribbean fish that the current ciguatoxin test on the market does not work well for these species of fish. Parsons noted the RBA test is the closest test currently available with good levels of specificity, however, detection is still above threshold limits set by FDA and WHO. Hopefully this can be refined. Otherwise, the only method is a lab test not functional for dockside screening.

Reich commented on caution when reviewing data from the Rake paper to be aware these are self-reported cases, so some conclusions may not be in line with the data. He also noted that there are often preferential eating habits based on resident location and culture, so outreach can be improved with this knowledge such as developed multilingual awareness materials.

Flewelling thanked presenters and paused for a 10-minute break.

Break 11:09-11:20 a.m.

11:20 a.m.-12:08 p.m. Presentations continued

Presentations were given on the Indian River Lagoon HABs and management.

Charles Jacoby, SJRWMD, and Kate Hubbard, FWC-FWRI, presented "Indian River Lagoon"

Question and answer period followed.

Members inquired if the models for chlorophyll predictions are based primarily on nutrient conditions. Jacoby noted it is a system model including loading and water quality models.

Members inquired if the model is for each area e.g., Mosquito Lagoon, Banana River and IRL. Jacoby noted it is a single model for the entire system.

Members asked what guidance Jacoby could provide for developing a project on an ECOHAB scale, would he recommend developing as a project for a single system or as separate parts for each region. Jacoby noted that recent work emphasizes a north-south break. The southern driver is quite well detailed but how it interacts with the northern shift needs further investigation. The inlets concentrated in the south also have shorter resident times. So, the system is best looked at in pieces. Duane De Freese agreed, noting it is important to understand how all the pieces link. He added there are natural segments/boundaries for analysis, not just the north-south boundary change but also the significant differences in bordering land-use related to population density for example. Quay Dortch commented from the ECOHAB point of view, looking at the whole system would be appropriate and include comparative investigation of the various parts. She added NOAA has more funding to support regional ECOHABs (normally $1m in funding for 5 years) so there is a greater likelihood of success for an IRL ECOHAB-scale proposal. De Freese added the recent nanocyano bloom and the increased sensitivity, social and economic, following the superbloom of 2011, also raises significant regional issues that need to be investigated.

- Members recommended with new data available, IRL managers develop a team of experts to prepare a response to an ECOHAB call.

Lunch 12:08-1:00 p.m.

1:00-1:06 p.m. Public Comment Period

The public comment dial-in number with instructions were posted, and phone lines were opened for comment. One call was received.

Eve Samples, Friends of Everglades, provided public comment. She encouraged the HAB Task Force to communicate and collaborate with the Blue-Green Algae Task Force to prioritize understanding of Lake Okeechobee discharges impacts and bloom dynamics between blue-green algae and red tide and their toxins.

1:06–1:44 p.m. Presentations continued

Duane DeFreese, IRL Council/IRL NEP, presented "Expanding Role of the IRLNEP in HAB Research and Monitoring"

Question and answer period followed.

Dave Whiting commented that the DEP Protecting Florida Together website could be merged or migrated with what is being developed in the IRL to increase public effectiveness of outreach. De Freese agreed and stressed synergizing efforts is important and a priority as the project moves forward.

Fleiger commented that FDACS is developing some framework and rule stemming from various growers and interest in aquaculture leases for restoration rather than commercial uses or harvesting. Interested members should reach out to her for right contacts at FDACS.

Jacoby noted the scale of the types of investigations they want to do in the IRL has been challenging from permitting perspective. Permitting was developed traditionally developed for management, which can be limiting spatially for projects requiring broader allowances.

1:44-2:38 p.m. HAB Task Force Discussion

Flewelling opened the discussion of HAB Task Force member for determining our next steps, beginning with discussion of the IRL. Flewelling asked Jacoby and De Freese if there were specific IRL issues the HAB Task Force could provide support for.

De Freese noted various items in progress would benefit from HAB Task Force peer review including the draft comprehensive monitoring plan being developed, the DEP grant, and the Stormware software project as they are available.

De Freese added the IRL is well positioned for monitoring of HABs but there are significant research gaps in understanding events, drivers, etc. He noted the IRLNEP distributes approximately $1m a year in grants, appropriated annually by congress, and would benefit from communication with the HAB Task Force and BGA Task Force for guidance and to improve collaborations.

Jacoby agreed improve communications and the ability to bring management together for response would be beneficial. He added there are various gaps in knowledge that need to be addressed that will inform developing strategic projects as data is gathered.

Watkins noted some things might get refined by the waterways act, but a huge unknown is atmospheric deposition and asked if that something that could be highlighted? Jacoby noted atmospheric deposition tracking in the northern part of the lagoon is a fairly large component that may be impacting it. He added some modelling has been done over larger scales but remains limited. Jacoby noted TMDL is a larger capture, but we are starting to understand more detailed elements such as storm water to start focusing on the specifics of these smaller pieces.

> ACTION: Jacoby and De Freese to develop a list of items for the HAB Task Force to possibly address and bring forward at future meetings as they culminate data.

General

Flewelling sought input from the HAB Task Force for recommendations of possible competitive project priorities should funding become available. She noted a number of items from the initial priorities document are in progress and moving forward without need for additional funding, other items that should have continued support include the IOOS workshop in late 2021 or early 2022, co-supporting FDOH funded projects related to red tide, and year 2 of current projects as determined by project outcomes this year. Flewelling asked the HAB Task Force if they would like to see more funding for innovation on red tide priorities, or new areas not yet addressed, or other.

Dortch gave an overview of the federal HAB appropriations which includes language supportive of the planned IOOS workshop where Florida could partner to develop a more robust system. Kirkpatrick confirmed these funds would go through GCOOS and supported the previous action to develop a steering committee for workshop planning.

Flewelling asked members if a call for more technology should be considered or focus on current efforts showing promise. Members expressed support for continuing with current efforts and waiting for results before soliciting more.

Flewelling noted the initial recommendations document guided state funds and program efforts this year, and asked the HAB Task Force for ideas on the next committee action for calendar year 2021 to advise future efforts.

Members expressed interest in revisiting the Initial recommendations regarding red tide (*Karenia brevis*) blooms consensus document to update actions/progress on recommended priority items as well as identify gaps or key items missed that should be added as priority items. Additional comments supported this review to include identifying existing resources and with consideration for stability and sustainable funding of efforts.

Watkins expressed interest in actual data related to discharges, coastal nutrient and potential impacts on red tide blooms to inform actions such as the waterways act to ensure measures actually have positive outcomes on bloom occurrence, intensity or toxicity.

> ACTION: Invite Cindy Heil, Mote, to present in April on ECOHAB project investigating coastal nutrients.

Flewelling asked member if there was interest in seafood safety. Members agreed this is an important area to consider in the future but should prioritize progress on initial recommendations and identify red tide gaps that were potentially missed.

> ACTION: Invite Kevin Claridge, Mote, to present in April on red tide mitigation technology development initiative progress with specific on project selection, goals, outcomes and funding allocations.

Watkins asked for input on Collier County red tide signage language. Members recommended keeping it direct and simple, avoiding potentially sensitive information that distracts from key message. She additionally provided information on volunteer pilot network that has assisted with flyovers to identify red tide patches and sampling areas, available to other regions and waterways.

Flewelling thanked members for their contributions and confirmed focus for this calendar year will be to update the initial recommendations document and identify additional priority needs for red tide.

> ACTION: Members forward Meghan agenda items including potential speakers for April meeting to inform discussion on progress on red tide priority actions and identify information gaps.

<u>Summary action items for next meeting:</u>

> ACTION: Members interested in serving on, or have recommendations for, the steering committee for planning the coastal ocean monitoring workshop hosted by IOOS should reach out to Leanne directly.
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> ACTION: Invite Cindy Heil, Mote, to present in April on ECOHAB project investigating coastal nutrients.
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> ACTION: Invite Kevin Claridge, Mote, to present in April on red tide mitigation technology development initiative progress with specific on project selection, goals, outcomes and funding allocations.
>
> ACTION: Members forward Meghan agenda items including potential speakers for April meeting to inform discussion on progress on red tide priority actions and identify information gaps.

Other actions for future discussion:

- Jacoby and De Freese to develop a list of items for the HAB Task Force to possibly address and bring forward at future meetings as they culminate data.
- Develop potential agenda for hosting a joint meeting of the HAB Task Force and Blue-Green Algae Task Force.
- Protecting Florida Together Website, how can we ensure it has timely information and updates related to what has been done and what is being done by the Task Forces in an easy way for the public to access.

Closing Remarks

Flewelling noted the current quarterly meeting dates in 2021 for the HAB Task Force have been revised to accommodate conflicts with international meetings. Three more meetings this calendar year, dates are:

April 6, July 14, October 6

2:38 p.m. Meeting adjourned