Harmful Algal Bloom Task Force Meeting
July 14, 2021 (9:00am EST)

Purpose: To review the HAB Task Force initial recommendations regarding red tide (Karenia brevis) blooms in order to develop an updated and revised recommendations report for this calendar year. Review will include capturing progress to date for each recommendation and determining whether they need to be revised or removed, identifying any missed priorities within initial topic areas, and discussing identifying focal areas not yet addressed to develop additional recommendations as appropriate.

In Attendance, Task Force members: Leanne Flewelling, Chair; Donald Anderson, Rick Clark, Duane De Freese, Jill Fleiger, Charles Jacoby, Sherry Larkin, Andrew Reich, Rhonda Watkins, David Whiting; Virtual: Barbara Kirkpatrick, Quay Dortch,

Guests: Gil McRae, Director FWRI; Eric Sutton, Executive Director FWC; Mark Rains, Chief Science Officer; Perran Ross, Facilitator; Kate Hubbard, Director Center for Red Tide Research, FWRI

Public participants: Live streamed on FWC Research YouTube channel (video available at https://www.youtube.com/user/FWCResearch)

Abbreviated Minutes – visit link above to view full meeting

9:00-9:51 a.m. Welcome and introductions

Flewelling, welcomed members of the HAB task force and the public joining virtually. She introduced guests, gave an overview of the meeting purpose and plan, and invited participants to speak.

HAB Task Force members gave self-introductions and guests, McRae, Sutton and Rains, provided opening remarks about harmful algal blooms, recent events, and water quality in Florida. Rains additionally spoke of opportunities for a joint meeting of the HAB Task Force and the Blue-green Algae Task Force.

Hubbard gave an overview of this year’s red tide blooms and the current bloom prominent in Tampa Bay. She noted the complexity and uniqueness of the bloom due to various factors such as drought creating high salinity. She added, historic records show the last time blooms at this level happened in Tampa Bay was in 1971 and that event was also preceded by a drought, it ended in mid-August when rain and storm seasons picked-up.

Hubbard responded to questions from the HAB Task Force related to nutrients following the Piney Point event, increased sampling in Pinellas County due to the current bloom and how that impacts the experimental red tide respiratory forecast tool, and importance of removal of dead fish not just as they are unsightly but fish kills play a role in providing bloom nutrient sources and impact environmental conditions

Leadership guests responded to questions about permit exceptions for mitigation strategies allowed previously under emergency executive order.

9:51 a.m. Facilitator overview

- Ross introduced himself and gave an over of his role as facilitator, guidelines for meeting discussion, and meeting purpose/expected outcomes. He stressed the meeting is a key points discussion and not final action on language, which will be done at a future meeting.
The HAB Task Force reviewed the four research recommendations bullets from their January 2020 consensus document.

1) FWC, with existing and new partners, should establish and sustain cross-shelf (coastal and offshore) surveys until our understanding of the factors that initiate red tides and control bloom dynamics is sufficient to develop effective management.

HAB Task Force discussion:
Members noted work towards this goal is ongoing and continuing need for data collection so there is still a need for this recommendation to remain. Members noted it could be improved with clarifying language such as:

- ensuring it is not limited by an end point i.e., “until our understanding”
- explicit language on type of support being sought e.g., funding, scientific, collaboration and partnerships etc.
- improving wording:
  - e.g., “surveys” might not capture the true efforts and process
  - suggested adding “large scale” and “process” to differentiate from routine transects
  - adding “large-scale” and “long-term” to ensure “sustain” is stressed i.e., funding and time required to make progress, can’t be met year-to-year

2) FWC, with existing and new partners, should identify projects that address multiple stakeholder needs by developing a suite of models to better predict short-term (days) and long-term (seasonal) bloom dynamics, onshore and inland transport of brevetoxins in air, and the roles of nutrient inputs and climate change in exacerbating K. brevis blooms and their impacts.

HAB Task Force discussion:
Members noted pending information is needed to determine how to address this goal e.g., results of UF communications project and input from participants such as modelers at next year’s GOM modeling and observation network workshop to help identify “stakeholder needs” and wants. Members noted it could be modified for improvements, suggestions included:

- adding public health to the list of impacts
- add nutrient cycling
- ensure models are not all clumped together but also not so separate that they don’t speak to each other
- improve subsection titles to be more specific e.g., environmental vs. human health,

Other section comments:
- Add health thresholds/modeling to health section

Clarification was made:
- Document recommendations are for broader Florida not just FWC e.g., state, government, researcher etc. and should focus on overall needs i.e., specify the “what”. The “how” of accomplishing the HAB Task Force recommendations can determined later by various stakeholders.

3) FWC, with existing and new partners, should identify projects that will improve or develop and implement capabilities for real-time detection of K. brevis in water and brevetoxins in both water and air.
HAB Task Force discussion:

Members noted some progress has been made toward this recommendation, but continued support is needed, however, does not necessarily need to be FWC leading the priority. Suggestions for revisions included:

- adding “detection networks”, not just the tools
- broaden detection beyond air and water e.g., seafood
- broaden beyond real-time
- Kirkpatrick noted “integration” but captured in other area

Other section comments:

- Add biomarker detection for animals and humans in health section
- Move research from its own section to a subheading in all other sections to clarify for readers applied work versus ongoing research to address information gaps

Break 10:45 - 11:00 a.m.

11:00 a.m. - 12:00 p.m. Continue review

Review of 4th research bullets

4) The Red Tide Mitigation and Technology Development and other partners should receive sustained funding to test strategies and approaches for mitigating and controlling blooms at multiple spatial scales.

HAB Task Force discussion:

Members discussed possible revisions including:

- broadening impact beyond just blooms
- specifying this as strategies for bloom control, separate mitigation
- HAB Task Force discussion:

HAB Task Force discussed other possible research priorities to include, such as:

- add a 5th bullet for mitigation, may address:
  o Nutrient both research (develop and test tools and strategies) and management (apply tools and strategies) components;
- consider need to improve understanding of Karenia life cycle and long-term bloom dynamics
- specific techniques for fish removal
- add a 6th bullet about coastal resiliency
  o impacts on fish and wildlife
  o wildlife as sentinels
  o impacts on fisheries, while monitoring and detection methods are in place is anything missing, community science role
  o trophic level interactions
  o climate change
  o nutrient input
  o economies

Other comments for improvements to other sections or document in general:

- add integrated nutrient monitoring component to management section
- add brief outcome/goal to each bullet to clarify why it is a priority need i.e., where we are to where it gets us

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

1:00 p.m. Welcome back, continue review

The HAB Task Force reviewed the **four management and response recommendations** bullets from their January 2020 consensus document.

1) FWC and DEP, working together with DOH, DACS, and other state partners and stakeholders, should review current practices and develop a comprehensive, statewide response plan that 1) incorporates a tiered approach for routine and event-driven monitoring; 2) identifies triggers for actions; 3) outlines a coordinated, interagency strategy for communication during emergencies; and 4) includes a best practice guide for local communities that defines roles and responsibilities. *(also reviewed at April 2021 meeting, see minutes for additional remarks)*

HAB Task Force discussion:

Members recalled updates provided at the previous meeting and noted work that continues to be done on the various recommendation pieces so need for priority to remain was identified. No suggestions for revisions.

HAB Task Force discussion:

Members recalled updates provided at the previous meeting by the steering committee for a 2022 workshop. Recognized the need to keep priority as it continues to be addressed. No suggestions for revisions.

HAB Task Force discussion:

Whiting provided an update to members of progress of the DEP developing a blanket/generic HAB permit similar to the permit used for pesticide applications which outlines general condition etc. A draft of the permit for use in HAB management (non-pesticide discharges) in state governed waters is in circulation for comment.

Members noted as work is still in progress the need for this priority remains. Suggested improvements/revisions could include:

- adding language related to federal requirements i.e., outside of DEP in Federal waters
- adding progress of DEP to date

HAB Task Force review:

FWC and DEP, working together with DOH, DACS, Department of Economic Opportunity, other partners, and relevant stakeholders, should engage with health and economic specialists to assess and guide development of tools and metrics to estimate the broad economic impacts of red tides from year to year.
HAB Task Force discussion:

Kirkpatrick gave an update on NCOS GCOOS funded economic studies focused on the 2017-19 blooms. She noted projects are now entering year 2 and are each looking at different components so will provide broad results. Following studies PIs should have suggestions of metrics to used for consistency in capturing economic impacts and comparing from bloom to blooms.

Members noted as the bullet is still in progress it is still a priority and should remain. Suggestions for revisions included:
- amending to be a two-part priority i.e., 1) develop tools 2) collect data
- adding the need for not just metrics but application of a standard methodology to ensure reports and studies are comparable
- including forthcoming metrics to define HABs of national significance for response funding

Other comments:
- consider a follow-up action of hosting a Florida-centric economic workshop to set foundational methodologies and metrics that includes knowledgeable stakeholders beyond “health and economic specialists” mentioned here e.g., Ocean Coastal Alliance, ecosystem services, etc.

The HAB Task Force re-reviewed the two communication recommendations bullets from their January 2020 consensus document (also reviewed at April 2021 meeting, see minutes for additional remarks)

1) FWC and DEP, working together with DOH, DACS, and other state partners and stakeholders, should establish a working group representing scientists, resource managers, and communications specialists to 1) review current communication and outreach strategies and tools that address red tides; 2) conduct focus groups and social science studies to identify information needed by the public and the most effective models for messaging and disseminations; 3) develop a plan to accurately and appropriately communicate risks, hazards, and other key information to all stakeholders during red tides; 4) create a long-term educational campaign that engenders a better-informed public across all age groups and demographics; and 5) establish and maintain a repository of shared resources to promote accurate and consistent messaging.

HAB Task Force discussion:

Members noted items 1 and 2 are near complete but as work is in progress priority remains. Suggestions for revisions included:
- Rolling in mitigation piece better

2) DEP and FWC, along with other partners involved in response to red tide, should build on the “Protecting Florida Together” water quality dashboard and continue the ongoing effort to provide the public with a single web-based portal for timely information on the multiple HABs that affect Florida, as well as develop a data portal to be shared among state agencies and partners addressing water quality.

HAB Task Force discussion:

Members noted that it is important to work within existing platforms and not create a new one. However, suggestions for having layers on sites with simpler public facing data and more detailed layers for managers and researchers with detailed data have been made. Members noted this was not feasible in a single facing portal but improving coordination and data sharing efforts, as well as system communications is important to realize this priority. Suggestions for revisions included:
- breaking into two separate priorities for public facing data and manager data needs
- adding language related to data systems “speaking” to one another
- including language related to other trusted network sources

Break 2:00-2:15 p.m.

The HAB Task Force re-reviewed the **two public health recommendations** bullets from their January 2020 consensus document and suggestion for a third from the review at the April 2021 meeting (**see April minutes for additional remarks**).

1) **The DOH should identify specific research needs regarding the short-term and long-term health impacts from exposures to brevetoxins (via dermal contact, ingestion, or inhalation) and prioritize research projects and epidemiological studies that address these needs.**

HAB Task Force discussion:

Clark provided an overview of the FDOH-led HAB health working group, as well as research projects funded in the past two years.

Members suggested revisions could include:

- extend acute and chronic,
- include modeling for public health using parallel language/construction to the research bullet on bloom modeling
- add parallel/harmonized language on a health bullet similar to research priority on “establish and sustain” for conducting health research
- include need for a detailed surveillance mechanism to capture the effects that aren’t NSP e.g., respiratory syndrome that does not require medical attention i.e., can be self-managed or managed with over the counter medications

2) **DOH, with professional health associations, should develop a more aggressive training program for the state’s health care professionals to improve diagnosis and reporting of HAB-related illnesses.**

HAB Task Force discussion:

Clark provided an update on work DOH has done over the last year for medical and veterinary professionals, mostly focused on vets and blue-greens. DOH is working on extending now for human health but has not begun so bullet remains a priority to be addressed.

3) **Add a recommendation that the DOH develop guidelines for occupational health and workforce training for those who work in close proximity to blooms.** (from April 2021)

HAB Task Force discussion:

Members discussed the continued value of adding this priority.

Other comments:

Members restated possible items to include raised in other sections such as need for biomarkers.

2:34 - 3:30 p.m. HAB Task Force discussion

Members discussed other priority recommendations or areas that could be added, as well as overall improvements, suggestions included:

- no recommendations for new priority areas, keep as is with the exception of moving research as a subheading
- under Management and Response, need for funding for clean-up and other mitigation to counties/local municipalities.
- under Research possible priority related to atmospheric deposition, climate change, ocean acidification
- under Research related to clean-ups, nutrient contributions, economic ROI of clean-ups
- reorganization with 3 priority areas and research as a subheading in each area
- consider appendices or narratives for broader issues and research needs
- add note for each priority bullet about reason for or goal/outcome of getting that information
- add language to better explain/define headings e.g., one liners that explain in this context meanings of what is management, what is response, what is communication (public vs. interagency etc.), what is public health (domestic animals and humans),…..
- Consider ways to translate times and costs of these e.g., public health studies are extremely costly and lengthy, fish clean-ups depend on county and event
- add boxes e.g., telling stories such as not what you gain from investing in these but what you lose if you don’t invest, examples of the 2017-19 bloom, what is a bloom of national significance listing the measures
- include lessons learned that drive these priorities, how did we get here to know what is needed next
- include a timeline of the current HAB task force activities and priorities progress since August 2019
- include appendices with brief summary overviews of projects similar to those provided by communications working group, Mote red tide technology and mitigation initiative, etc.
- include specific connections to the Blue-green Algae Task Force beyond general support statement

3:30 p.m. Recap and review

Members wrapped up the meeting with review, oversight and tasks for the next meeting and draft recommendations, including:

- include a recap of Piney Point event, specifically nutrients, at the October or a future meeting
- Flewelling and Abbott to work on update, redraft, reorg for review
- DeFreese to update “looking beyond…” close to include infrastructure and other bigger picture items
- Whiting to work on lessons learned overviews
- Abbott to set a half-day virtual meeting for September to review draft document
- Reminder October 6 meeting is expected to be in person full-day with broader scope
- Flewelling and Rains to receive feedback on members for topics/goals of a joint meeting with the BGA task force, current suggestions include:
  - Communications
  - Nutrients
  - Set of recommendations for state investment in water quality for nutrient control (for beginning of calendar year for legislature)

Flewelling thanked members, guests and others, and closed the meeting.

4:00 p.m. Adjourned