FLORIDA DEPARTMENT OF
Environmental Protection

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Shawn Hamilton
Secretary

Blue-Green Algae Task Force
Staff Minutes

Dec. 8, 2021
9:30 a.m.
FAU Harbor Branch Oceanographic Institute & GoTo Webinar

General subject matter considered: The Blue-Green Algae Task Force met to discuss water quality data collection and predictive modeling.

Attendee Name	Title	Status
Dr. Mark Rains	Facilitator	Present
Dr. Evelyn Gaiser	Member	Present (Virtual)
Dr. Wendy Graham	Member	Present
Dr. Michael Parsons	Member	Present (Virtual)
Dr. Valerie Paul	Member	Present
Dr. James Sullivan	Member	Present

1. Dr. Rains provided opening remarks and facilitated the meeting.

2. Jason Andreotta, DEP Southeast district director, gave an update on agency initiatives.

3. John Truitt, DEP deputy secretary of Regulatory Programs, gave an update on the stormwater rulemaking process. The technical advisory committee is in the process of finalizing its recommendations to provide to the department by the end of December. The rulemaking process, including public workshops, will begin in early 2022. The rule is anticipated to be finalized in 2023 and may require legislative ratification.

4. Dr. Blake Schaeffer, U.S. Environmental Protection Agency, gave a presentation on modeling freshwater harmful algal blooms, specifically his work on the Cyanobacteria Assessment Network (CyAN):
    a. There has been preliminary work on a forecasting model for the state of Florida. It is still in early stages of development.
    b. The CyAN application was developed to provide access to cyanobacterial bloom satellite data for over 2,000 of the largest lakes and reservoirs across the United States.

Meeting minutes are not intended to act as a transcript of the meeting. To watch a recording of the meeting or to see the recommendations of the Blue-Green Algae Task Force, please visit ProtectingFloridaTogether.gov.

c. Cell counts and reported toxin concentrations from field sampling are used to validate the results seen from the satellite imagery in the CyAN application.
d. The CyAN application does not directly detect toxins.
e. There are a few issues that arise with the readings when there is cloud cover and when trying to read next to land.
f. The application is updated daily and can provide weekly composites for water management purposes.
g. Able to quantify blooms over time and space, including:
    i. Looking over all the observations in a given timeframe and seeing how often there is a detection of cyanobacteria for those observations.
    ii. Getting an idea of a total area of a lake that may be involved with a particular bloom.
    iii. Being able to determine the average concentration over a given timeframe.
h. Data from 2016 onward can be provided.
i. Can provide a ranking of the water systems that can give a distribution of lakes in the state and can give an idea of what lakes have the highest frequency of observations of cyanobacteria versus the lowest frequency.
j. This ranking can also be provided for magnitude and the spatial extent of cyanobacteria.
k. These metrics will be publicly available within the next year.

5. Task force members discussed the following:
    a. A new satellite will be launched that may help improve algorithms used in the CyAN application.
    b. How states are utilizing the CyAN application – using the imagery on a weekly basis to identify where the priority areas may be for field sampling.
    c. As far as the forecasting work that has been done, EPA asked, "If we have the satellite imagery this week, what is the probability of the concentration exceeding 100,000 cells/mil next week?"
        i. Bayesian approach.
        ii. Once the forecasted week had passed, they compared their forecast with what was detected via satellite.
        iii. Included air temperature, precipitation and lake shape into the model.
        iv. The code for the model can be made available.
    d. The satellite will not pick up mixing that happens below the surface of the water.
    e. Inversely, the higher the concentration at the surface of the water, the less penetration the satellite can make to see below the surface.
    f. Economic benefits.

6. Lawrence Glenn, director of Water Resources Division at the South Florida Water Management District (SFWMD), gave a presentation on ongoing water quality monitoring as it relates to blue-green algae monitoring in the district.
    a. SFWMD has expanded water quality monitoring (both number of stations and number of analytes) in Lake Okeechobee and in the St. Lucie and Caloosahatchee rivers.

b. SFWMD is looking at doing statistical analyses with the expanded volume of data to determine if there are patterns that might help forecast blooms.

7. Task force members discussed the following:
    a. SFWMD taking speciation of nutrients into account.
    b. The fundamental mechanisms of why the blooms occur are still not clear to scientists. Additional data is needed to better understand those mechanisms.
    c. SFWMD is working on its own algal bloom dashboard.
    d. The need for collaboration across the state to tackle the forecasting question from multiple angles.
    e. Need to know what the data gaps are as well as what the resource gaps are in addressing those data gaps and how resource gaps might be addressed.
    f. The need to consider how acute events, e.g., hurricanes, would impact predictions of future blooms.

8. A broader discussion was held on monitoring and prediction. Task force members discussed:
    a. Data gaps
    b. The value of updating status and trends to improve understanding.
    c. Data collection in relation to producing more reliable forecast models and data simulations.
    d. The frequency of monitoring that could be needed and the ability to gather data.
    e. How to prioritize spending.
    f. The possibility of collaborating with national and international resources.
    g. The appropriate use of data models in triggering responses.
    h. The timeline of each BGA bloom occurrence and what precautions should be taken and when.

9. Public comment period included the following topics:
    a. The importance of public policy measures as related to the Legislature.
    b. Addressing the concerns of stakeholders in future meetings.
    c. Importance of interagency collaboration.
    d. How to effectively communicate with the public: signage, online and public education.

10. Dr. Rains provided closing remarks.