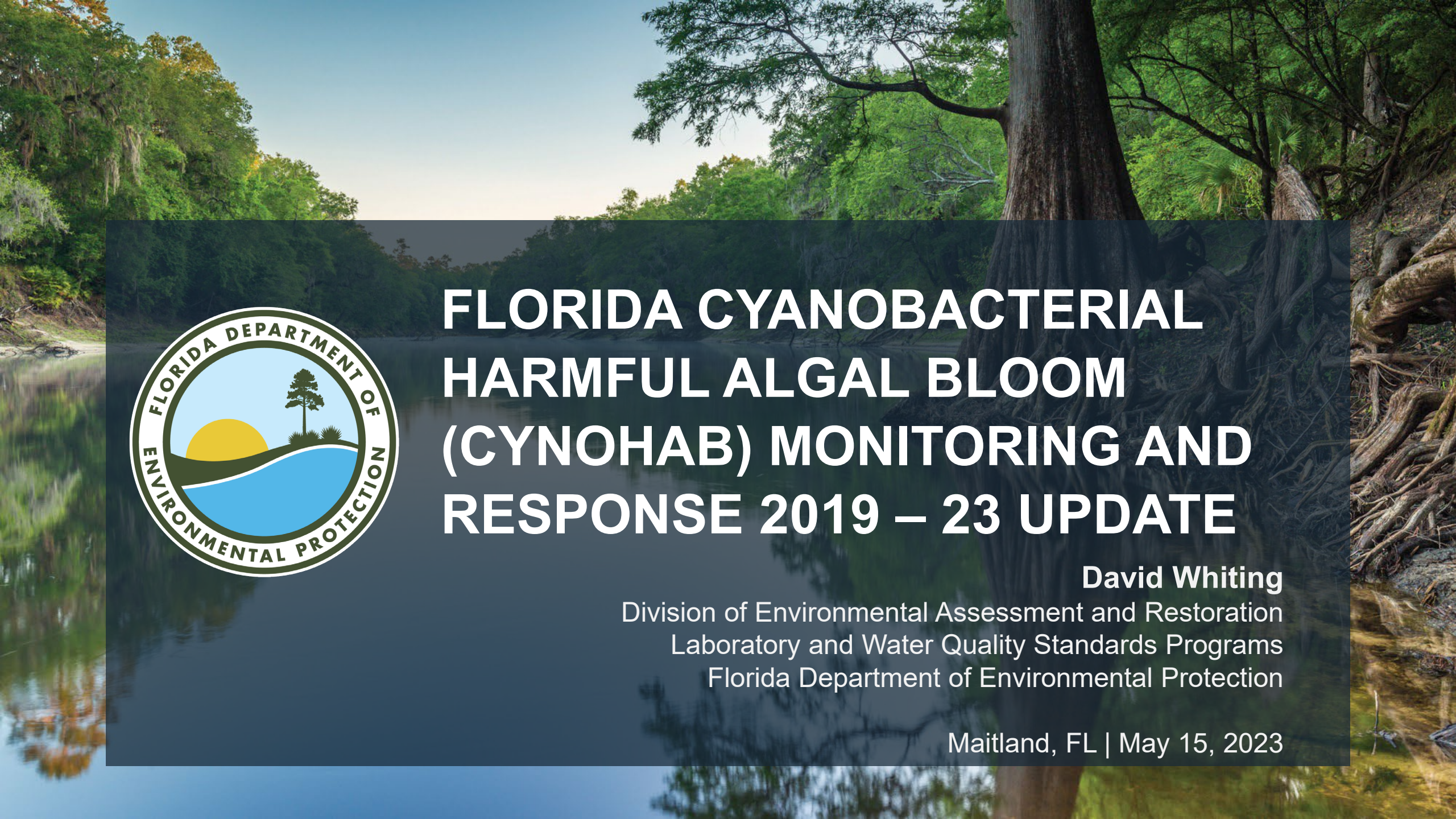

FLORIDA CYANOBACTERIAL HARMFUL ALGAL BLOOM (CYNOHAB) MONITORING AND RESPONSE 2019 – 23 UPDATE

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State of Florida's CyanoHAB Surveillance and Response - Summary

Purpose: To help limit the public's exposure to unsafe water conditions.

- Identify waters where cyanobacteria bloom conditions exist:
  - Collect samples to determine what is blooming and whether cyanotoxins are being produced.
  - Post the analytical results online to inform the public and public health agencies.
  - Prioritize waters for HAB mitigation and excess nutrient restoration efforts.
- Protect the State's aquatic resources.
- Produce data that can be used to better understand the factors that contribute to cyanobacteria bloom formation, maintenance and decline.

State of Florida's CyanoHAB Surveillance and Response – Significant Updates

- Increased coordination and transparency on how the Florida Department of Environmental Protection (DEP), the Florida Department of Health (DOH) and local county health departments interact on cyanoHAB response.

  - 2021document describes:
    - ✓ Agency roles.
    - ✓ Sample collection and analysis.
    - ✓ Interagency coordination.
    - ✓ Public health notification thresholds.
    - ✓ Public outreach efforts and requirements.

- Increased public outreach on cyanoHABs.
  - New educational signage and materials developed (https://protectingfloridatogether.gov/education-center/blue-green-algae).

State of Florida's CyanoHAB Surveillance and Response – Significant Updates

- Increased role of NOAA satellite imagery in cyanoHAB response sampling.
  - DEP reviewing NOAA satellite imagery and initiating sampling efforts prior to cyanoHABs being reported by public.

- Additional cyanotoxins now being analyzed:
  - Cyanotoxins:
  - Microcystins (LR, RR, YR, LA, LF, LY, **LW, WR, desmethyl LR, HilR and HtyR**).
  - **Nodularin.**
  - Anatoxin-a.
  - Cylindrospermopsin.
  - **Saxitoxins.**

State of Florida's CyanoHAB Surveillance and Response – Significant Updates

- Instituted CyanoHAB monitoring efforts in addition to response-based sampling:
  - Added cyanotoxin to list of analytes to DEP's Status Monitoring Network (stratified-random sampling design).
  - DEP provides funding to South Florida Water Management District (SFWMD) and the St. Johns River Water Management District (SJRWMD) to perform routine HAB monitoring at fixed stations:
    - ✓ **SFWMD:** 2 times per month at 28 stations (May – Oct.) and monthly at 8 stations (Nov. – April) on Lake Okeechobee.
    - ✓ **SJRWMD:** 2 times per month at 10 stations (May – Oct.) and monthly (Nov. – April) on the St. Johns River and several surrounding lakes .

State of Florida's CyanoHAB Surveillance and Response – Significant Updates

- Enhanced CyanoHAB mitigation efforts, coordination and innovative technologies.
    - DEP has invested nearly $20 million dollars in Innovative Technology Grants since 2021.
- DEP, SFWMD and USACE coordinate on HAB treatment when toxic blooms are present near Lake Okeechobee structures and releases are planned.
- DEP has provided SFWMD with a stockpile of sodium percarbonate product.
- DEP provides funding to SFWMD and SJRWMD to perform sampling, analysis and HAB treatment.

State of Florida's CyanoHAB Surveillance and Response – Management Priorities

The State of Florida's CyanoHAB surveillance and response efforts support the following research/management priorities identified in 2019:

- Enhance blue-green algae monitoring, including time series (longitudinal) as another data point.
- Determine if and what role environmental conditions have on cyanotoxin levels.
- Evaluate if and what relationship exists between biomass and toxin levels.
- Develop sampling plans to meet existing recommendations and use (e.g.,WHO, EPA).

State of Florida's CyanoHAB Surveillance and Response – New Data Gaps

- It is reasonably easy to determine which waterbodies will have algal blooms, but it is much more difficult to determine, with a reasonable level of accuracy, when the blooms will occur and whether they will produce unsafe levels of cyanotoxins.

- We do not have a good understanding of the factors that modulate cyanotoxin production. A waterbody may have high cyanotoxin production one year and low cyanotoxin production another year, while cyanobacteria biomass remains similar across years.

State of Florida's CyanoHAB Surveillance and Response – Acknowledgements

The State of Florida's cyanoHAB surveillance and response effort is a group effort involving many people from a wide variety of government agencies and the public.

- National Oceanographic and Atmospheric Administration.
- United States Army Corps of Engineers.
- Florida Fish and Wildlife Conservation Commission.
- Florida Department of Health.
- South Florida Water Management District.
- St. Johns River Water Management District.
- Southwest Florida Water Management District.
- Numerous county and city environmental offices.
- The residents and visitors that report blooms.
- DEP Regional Operation Centers, Laboratory, Office of Water Policy and Ecosystems Restoration, Communications Office and Ombudsman's Office.

THANK YOU

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