Cyanotoxins on the CCL (contaminant candidate list) since 1998. Making regulatory determinations requires adequate data on:

- Toxin occurrence
- Health effects & prevention
- Control
- Mitigation of HABs

- **Toxin occurrence** – data currently inadequate
  - Cyanotoxins prioritized in 2001 (Myc, Cyn, Anat-a)
  - Cyanotoxins on UCMR (unregulated contaminant monitoring rule) since 2001
  - Proposed for monitoring in 2015, during 2018-2020
    - Total Myc, 5 Myc congeners, Anat-a, Cyn, Nod
    - 4 agency satellite monitoring system
EPA MOVEMENT TOWARD CYANOBACTERIA REGULATION

- Health effects – data currently adequate
  - 10-day drinking water health advisory levels set in 2015
  - Microcystins
    - Preschool children ≤ 0.3 ug/L
    - Everyone else ≤ 1.6 ug/L
  - Cylindrospermopsin
    - Preschool children ≤ 0.7 ug/L
    - Everyone else ≤ 3.0 ug/L
- Health effects data - inadequate for anatoxin-a, other
- EPA developing guideline water quality criteria for recreational waters
Prevention, control, and mitigation – strategy developing

- Compile inventory of approaches & rationales for near-term alternative approaches to TMDL
- Identify factors or tools to aid decision making
- Compile examples of TMDL alternative approaches
- Hold workshop and make blueprint showing how adaptive management can be used with TMDL and non-TMDL approaches
- Develop tracking method for non-TMDL projects
EPA MOVEMENT TOWARD CYANOBACTERIA REGULATION

- Prevention, control, and mitigation – strategy developing

EPA actions taken subsequent to development of the *Long-Term Vision*

- May 2014 – webinar on Adaptive Systems Approach
- September 2014 – webpage on WBM treatments
- June 2015 - *Recommendations for Public Water Systems to Manage Cyanotoxins in Drinking Water*
- September 2015 – public input on strategic plan
- November 2015 – submitted to Congress

*Algal Toxin Risk Assessment and Management Strategic Plan for Drinking Water*
EPA MOVEMENT TOWARD CYANOBACTERIA REGULATION

- **Conclusions**
  - The health advisories + UCMR4 cyanotoxin occurrence data + strategic plan for protecting source & drinking water = EPA able to make regulatory determinations by 2020
  - Recent EPA actions, and the Administrator’s statement “harmful algal blooms [HABs] are among America’s most serious and growing environmental challenges,”

  - **indicate the Agency is likely to regulate cyanotoxins**
    - The regulatory process is likely to take several years. Many states have guidelines, and some are likely to make regulations before EPA
EPA MOVEMENT TOWARD FRESHWATER MANAGEMENT POLICY CHANGE

- 3 recent EPA documents related to prevention, control, and mitigation of cyanotoxins indicate that the Agency is shifting policy to complement WSM with WBM - ASA
  - The *Long-Term Vision* enables states to use non-TMDL adaptive management approaches
  - The *Algal Toxin Strategic Plan* focuses on “a multi-barrier approach as well as adaptive management.”
  - The *Recommendations for Public Water Systems* reviews WBM treatments of source waters

- Multi-barrier HAB management: WSM nutrient input reduction; WBM treatments to prevent and control HABs - ASA; & utility treatment of cyanotoxins
EPA, CYANOBACTERIA & FRESHWATER MANAGEMENT

Current status

- Cyanobacteria HABs & cyanotoxin occurrence are getting much more frequent
- We’re spending $Bs to reduce nutrient inputs to lakes (EPA-WSM), but it is not reducing HAB occurrence
  - NC legislators suspended a $2B WSM plan because it would only reduce phosphorus input by 5%, & no one thought that would stop the HABs
- There is already so much nutrient in many freshwaters that HABs would continue for the foreseeable future even if we stopped all new nutrient inputs now
- The GAO says it will take more than 1000 years to restore freshwaters with WSM & current funding levels
Cyanotoxin regulations

- There are not any federal cyanotoxin regulations
- Many states have guidelines. OH will regulate in June
- EPA has had cyanotoxins on the CCL for 18 years
  - Need adequate occurrence, health effects, and prevention, control, and mitigation data to regulate
  - Planning to use the UCMR to get occurrence data by requiring utilities to monitor 2018-2020
- Issued health advisories for microcystins and cylindrospermopsin in 2015
- Published utility recommendations and strategic plan in 2015
- EPA likely to propose regulations in early 2020s
EPA, CYANOBACTERIA & FRESHWATER MANAGEMENT

- Freshwater management
  - The CWA calls for WSM and WBM
  - EPA discontinued WBM early 1990s to focus on WSM
  - WBM plays a big part in EPA’s recommendations for utilities to prevent, control & mitigate cyanobacteria
    - WSM is not stopping HABs, so EPA recommends treating source water to prevent HABs (WBM) & drinking water to remove toxins when needed
    - Treating source water is much more cost effective
    - EPA’s long-term vision allows states to use WBM instead of, or with, TMDL (WSM) if thought best
  - EPA seems to realize that WSM is not adequate to stop HABs, and is putting new emphasis on needing WBM