North Carolina
Department of Environmental Quality

Division of Water Resources

Algal Assessment Program

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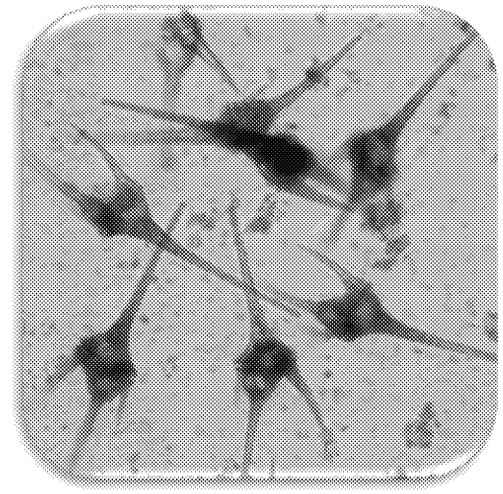
EPA Research Lab

September 2017

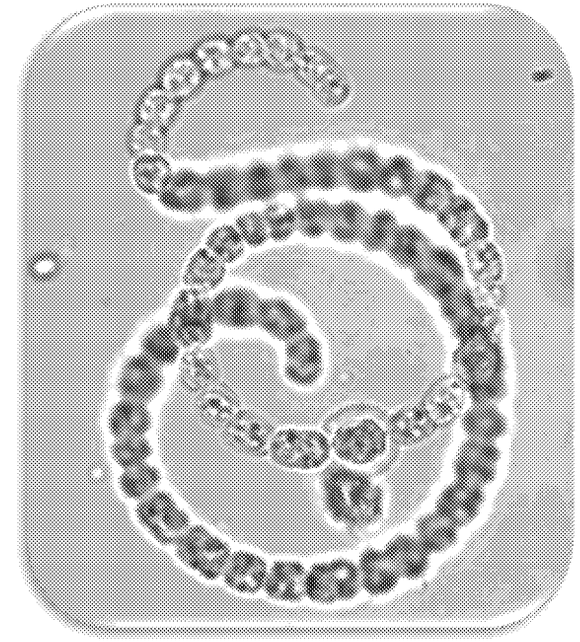
Algal Assessment Program

- Water Sciences Section, Ecosystems Branch
  - Three Phycologists (algal ecologists)
  - 50 years + combined experience
- Began 1980s
  - Clean Lakes Program, Chowan & Neuse Blooms, Red Tides
- Macro to microscopic
- Periphyton to phytoplankton
- Freshwater to estuarine
- Primary analyses
  - Assemblage composition (identification)
  - Densities (cells and units/ml) & biovolumes (how much)



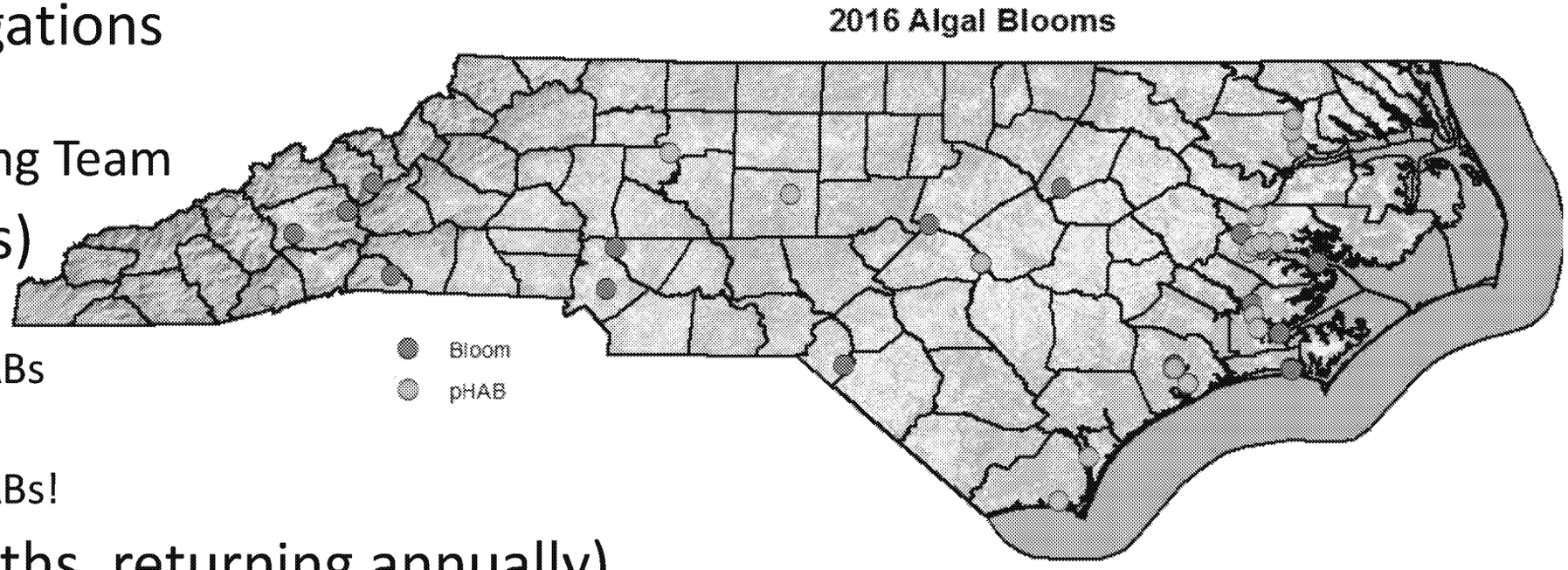
Recent Algal Studies

- Basinwide & Ambient Monitoring Programs
  - Lakes, rivers and estuaries
  - 400-500 samples processed annually
- Special Studies
  - Nutrient Management Strategies 2004-2007
    - Jordan & Falls Lakes
  - Jordan Lake (SolarBees) 2014-2015
  - High Rock Lake Nutrient Criteria Plan Development 2016
    - Included Cyanotoxin assessments with NCSU

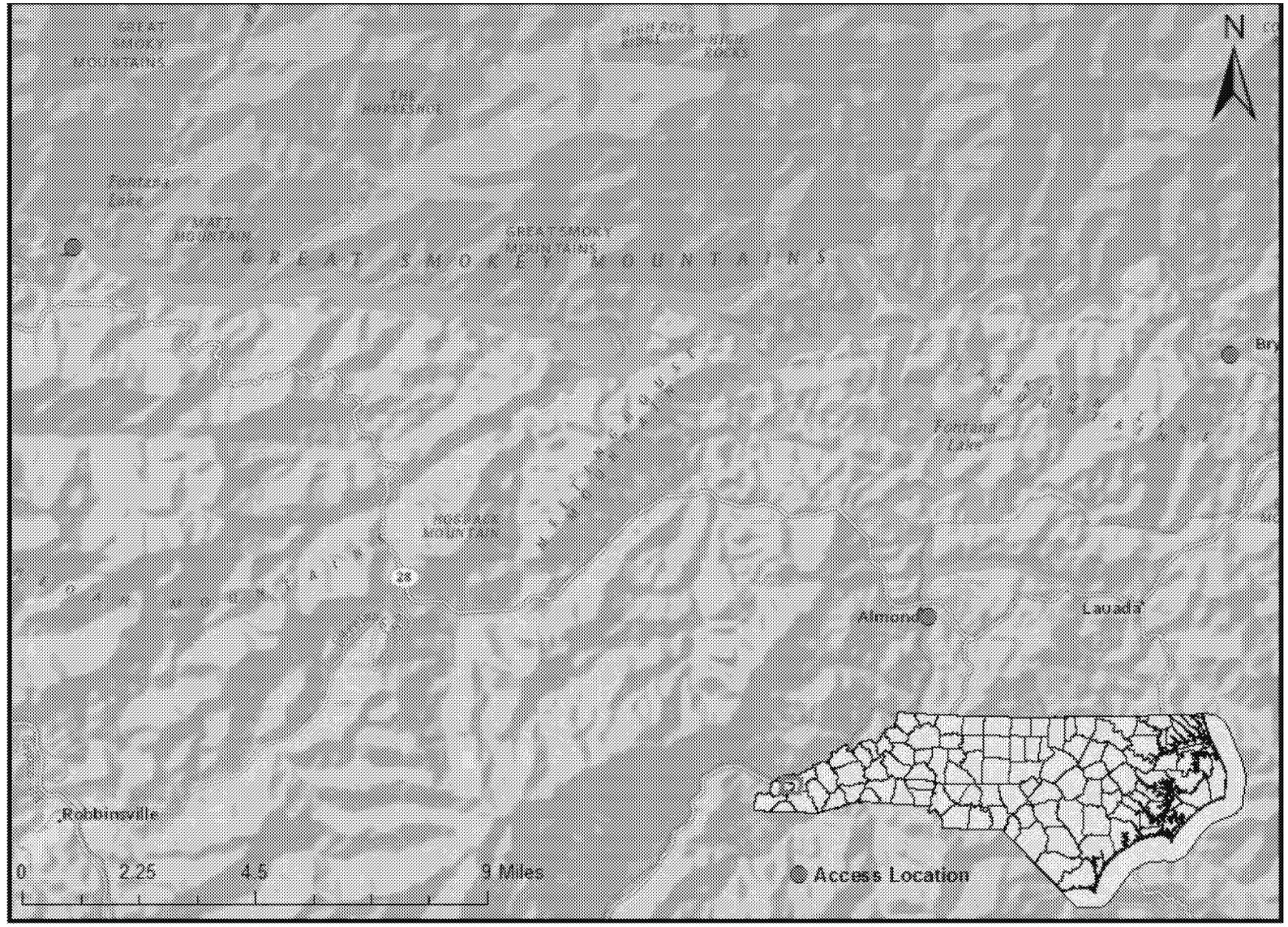


Potential Harmful Algal Blooms (pHABs)

- Algal bloom investigations
  - Regional Offices
  - Estuarine Monitoring Team
- Episodic (1 to 7 days)
  - 50 in 2016
    - 20 considered pHABs
  - 27 in 2017 (so far)
    - 18 considered pHABs!
- Chronic (1 to 3 months, returning annually)
  - Fontana Lake > 2015
  - Chowan River/Albemarle Sound > 2015



Fontana Lake 2015 -2017

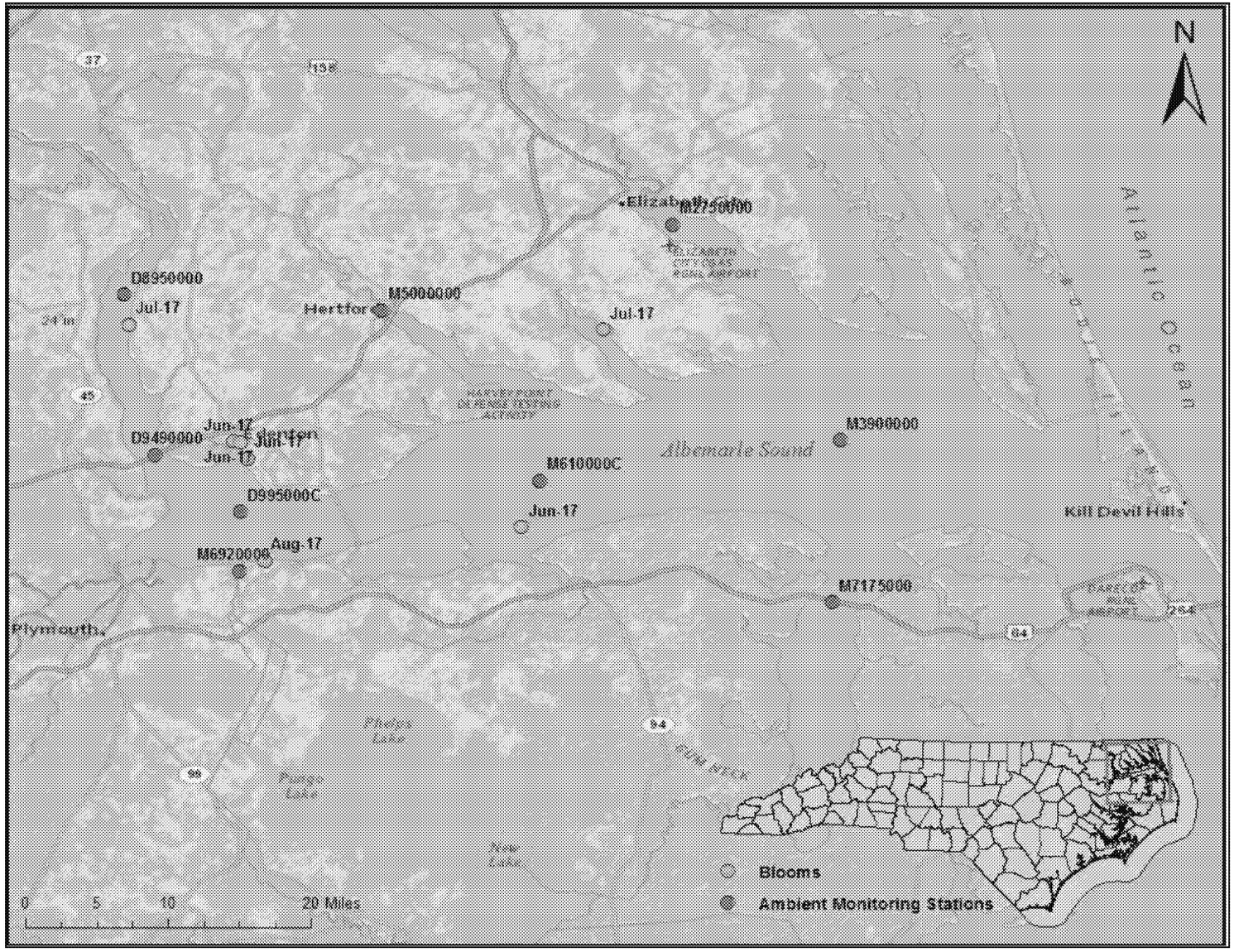


Fontana Lake 2015-2017

Bright green discolored water

Blueish white decomposing mess

Chowan River/Albemarle Sound 2015-2017



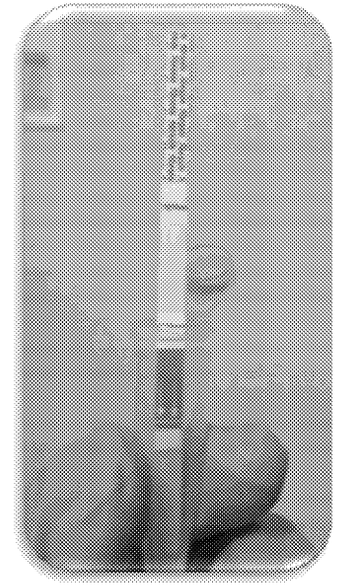
Chowan River/Albemarle Sound 2015-2017

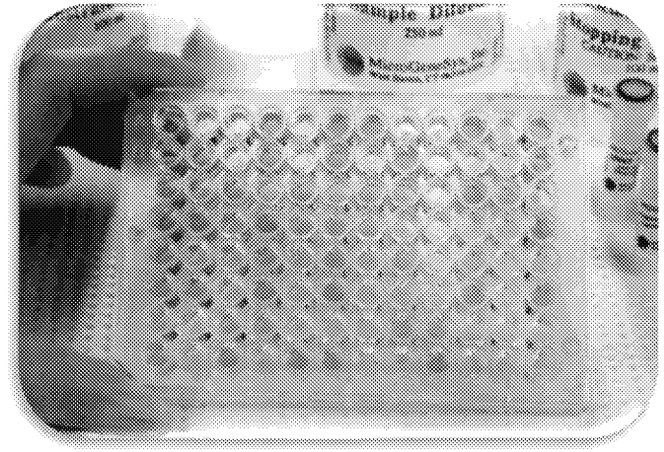
Bright green discolored water

Blueish white decomposing mess

Current Challenges

- Cyanotoxin Testing Development
  - Goal: provide in-house analysis
  - Abraxis cyanotoxin test strips (Fall 2016)
    - Rapid assessment
    - Field or office use
    - Limited results (no verification procedures)
  - Abraxis Cyanotoxin Automated Assay System (June 2017)
    - ELIZA instrument
    - Quality assurance testing phase
    - Developing sample collection, handling & processing procedures
  - Future Testing Capabilities: Marine and Shellfish





Contact Information

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