

Monitoring Program Update

Board of Directors Meeting

March 2017





Objectives of the UNRBA Monitoring Program

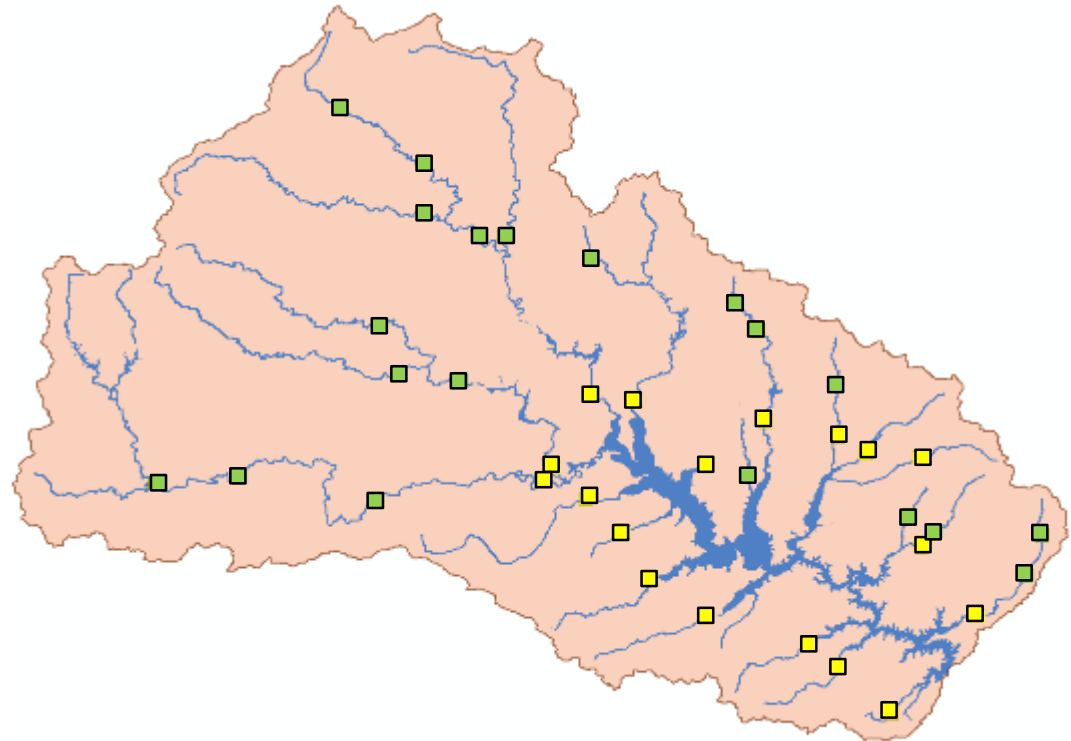
Provide data for:

- > Revisions to the watershed and lake response modeling to support Reexamination of Stage II of the Falls Lake Rules
 - Improve the model with additional data
 - Recalibrate/validate
 - Evaluate water quality response to nutrient management scenarios
- > Support of alternative regulatory options as needed
 - Link water quality to designated uses
- > Identify sources of nutrients and carbon in the watershed



UNRBA Monitoring Program – Routine Monitoring

- > 4-5 year program
- > Began in August 2014
- > Stations
 - 18 lake loading ■
 - 20 jurisdictional ■
 - 12 in-lake (DWR)
- > Sampled monthly
 - Nutrients
 - Carbon
 - Chlorophyll *a*
 - Field parameters





UNRBA Monitoring Program – Special Studies

- > Special studies address specific questions
 - Storm event sampling (automated samplers)
 - High flow event sampling (grab samples)
 - Lake bathymetry study
 - Lake constriction point monitoring (velocities and water quality)
 - Lake sediment evaluations (cores, mapping depths of sediment)



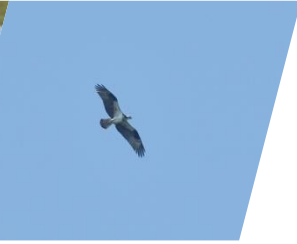


Monitoring Program Update



Routine Monitoring – Data generation status

Date	Sample Collection	Sample Analysis	Data Review	Posted to Database
Aug-Dec 2014	✓	✓	✓	✓
Jan-Dec 2015	✓	✓	✓	✓
Jan-Dec 2016	✓	✓	✓	✓
Jan-2017	✓	✓		
Feb-2017	✓	✓		
Mar-2017	✓			
Apr-2017				
May-2017				
Jun-2017				
Jul-2017				
Aug-2017				
Sep-2017				
Oct-2017				
Nov-2017				
Dec-2017				



High Flow Sampling

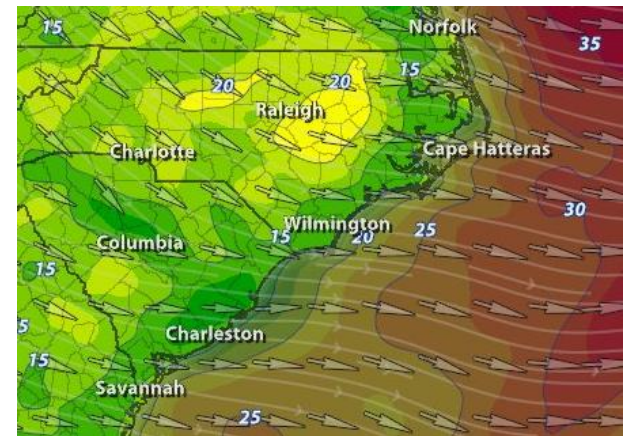
- > Collect water quality data when inflows to Falls Lake are high
- > No samples collected in February or March.
 - Below average rainfall
 - Precipitation has occurred in small amounts which do not produce significant runoff events





Bathymetry and Sediment Mapping

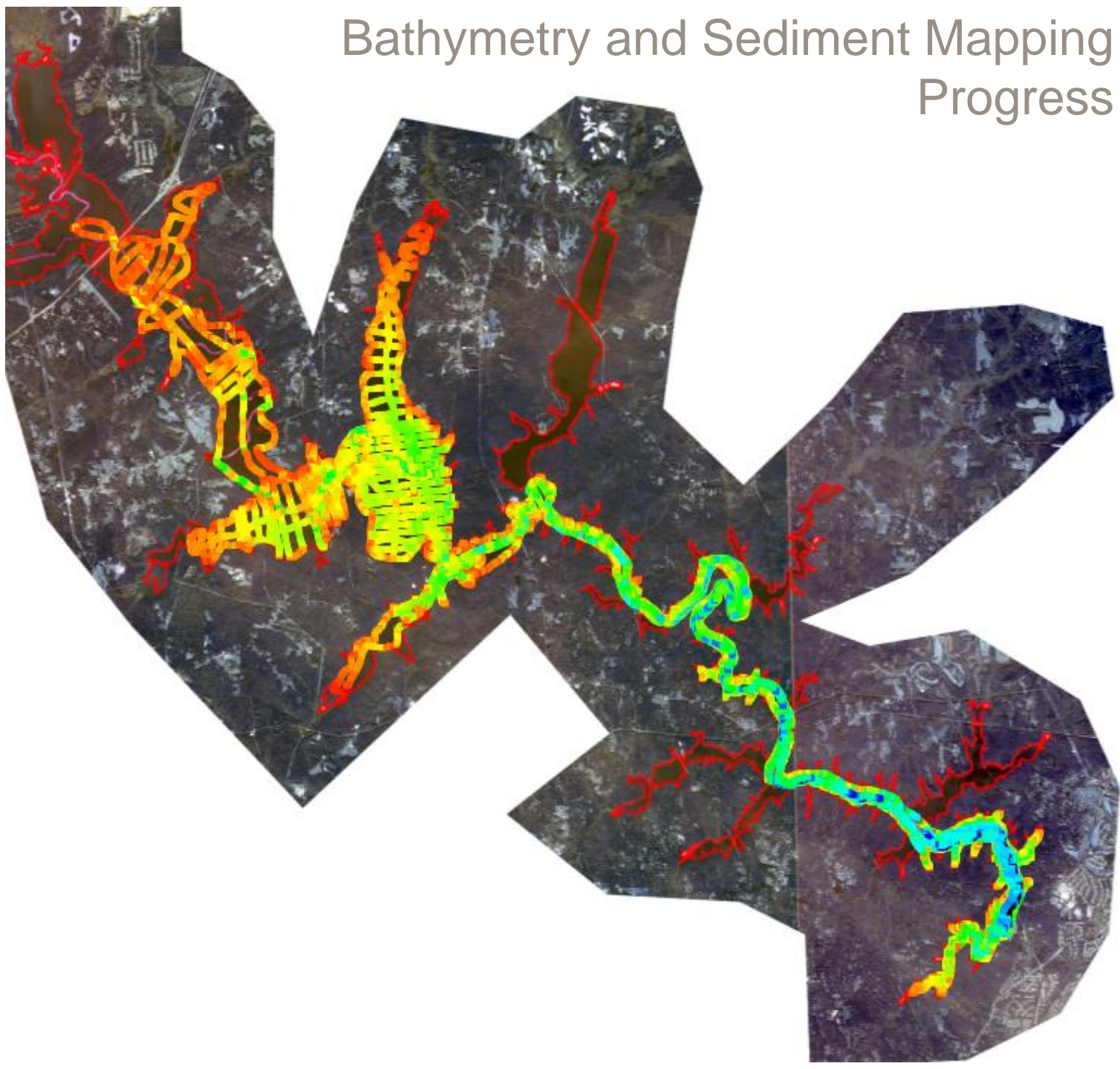
- > Map the underwater topography of the lake
- > Improve representation of the lake in the modeling
- > Started survey last week and expect to finish next week



Depth (meters)

Red	0.00	0.50
Red-Orange	0.50	1.00
Orange	1.00	1.50
Light Orange	1.50	2.00
Yellow-Orange	2.00	2.50
Yellow	2.50	3.00
Light Yellow	3.00	3.50
Yellow-Green	3.50	4.00
Light Green	4.00	4.50
Green	4.50	5.00
Light Green	5.00	5.50
Green	5.50	6.00
Light Green	6.00	6.50
Green	6.50	7.00
Light Green	7.00	7.50
Green	7.50	8.00
Light Green	8.00	8.50
Green	8.50	9.00
Light Green	9.00	9.50
Light Cyan	9.50	10.00
Cyan	10.00	10.50
Light Blue	10.50	11.00
Blue	11.00	11.50
Light Blue	11.50	12.00
Blue	12.00	12.50
Light Blue	12.50	13.00
Blue	13.00	13.50
Light Blue	13.50	14.00
Blue	14.00	14.50
Dark Blue	14.50	15.00

Bathymetry and Sediment Mapping Progress





Annual Report: May 2017

Compiling data sources for inclusion in 2016 annual report:

- NCSU - CAAE Lake Stations – **received**
- DWR Lake Stations – **received**
- DWR Algae – **received**
- City of Durham – **received**
- City of Raleigh – **in preparation**
- DWR Stream Stations - **not yet available**



