

# Monitoring Program Status Update

Board of Directors Meeting  
June 2017





## Routine Monitoring – Data generation status

Date	Sample Collection	Sample Analysis	Data Review	Posted to Database
<b>Aug-Dec 2014</b>	✓	✓	✓	✓
<b>Jan-Dec 2015</b>	✓	✓	✓	✓
<b>Jan-Dec 2016</b>	✓	✓	✓	✓
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
  - > April 23 - 25
    - > 5 to 8 inches
    - > 13 locations
  - > May 23 - 25
    - > 1.5 to 3.5 inches
    - > 5 largest tributaries
  - > June 19 – 20
    - > 1 to 4 inches
    - > 17 locations

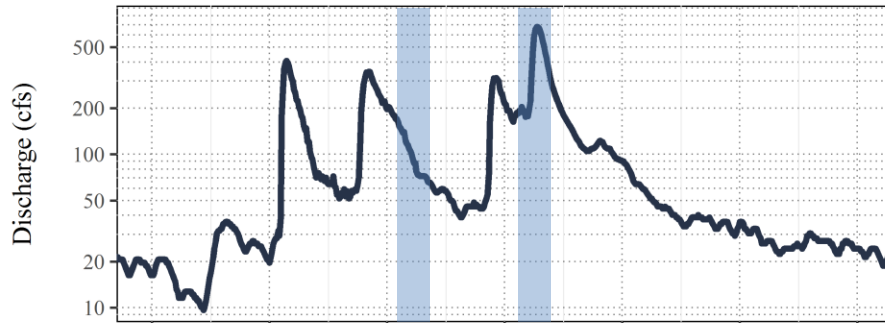




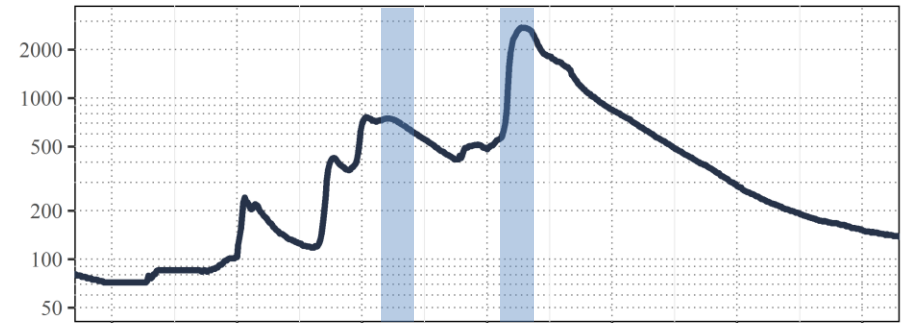


## Samples collected May 24-25 (at five largest tributaries)

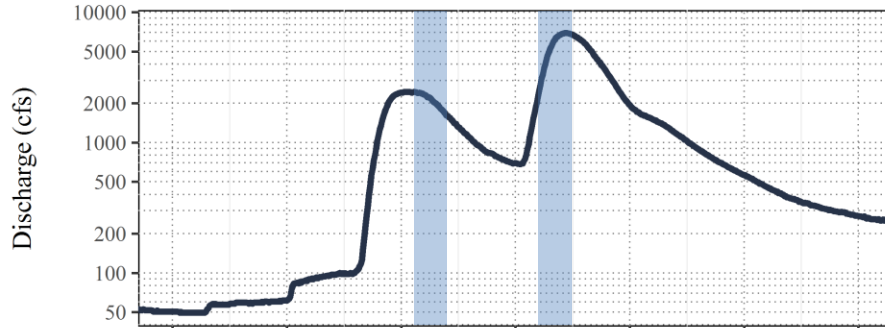
Ellerbe Creek



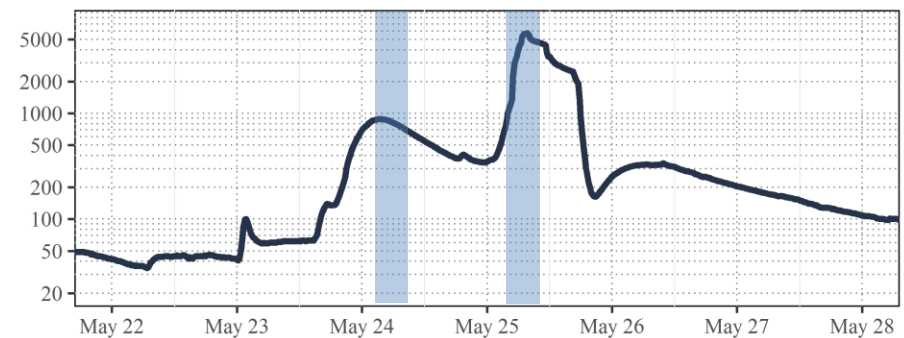
Eno River



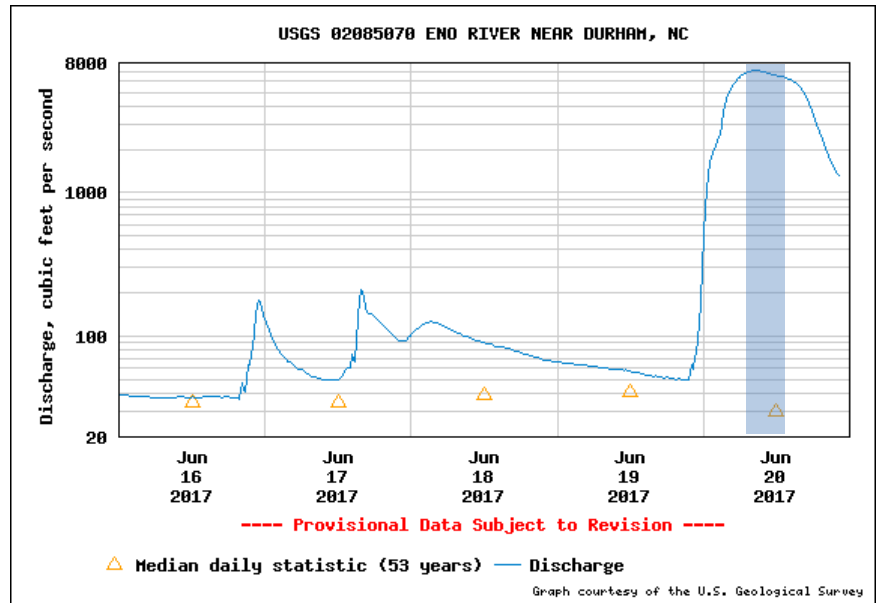
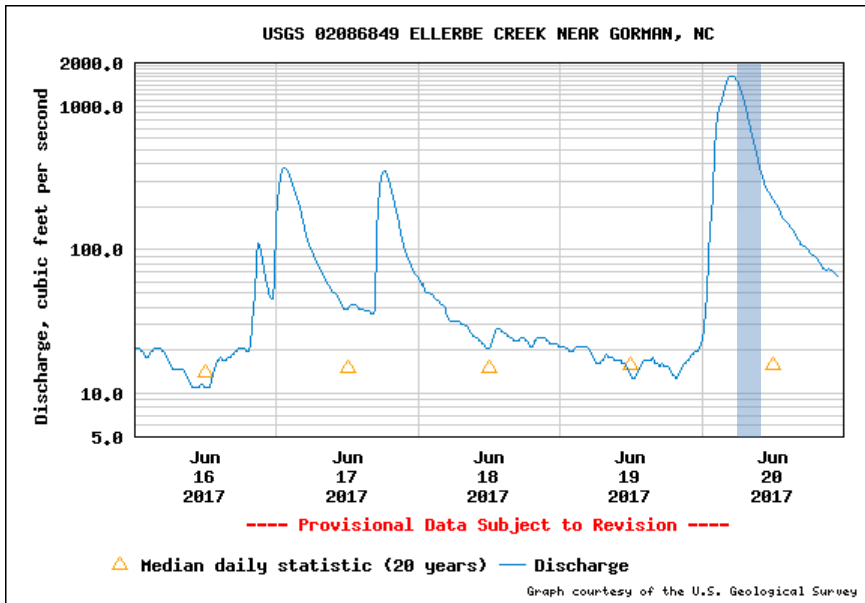
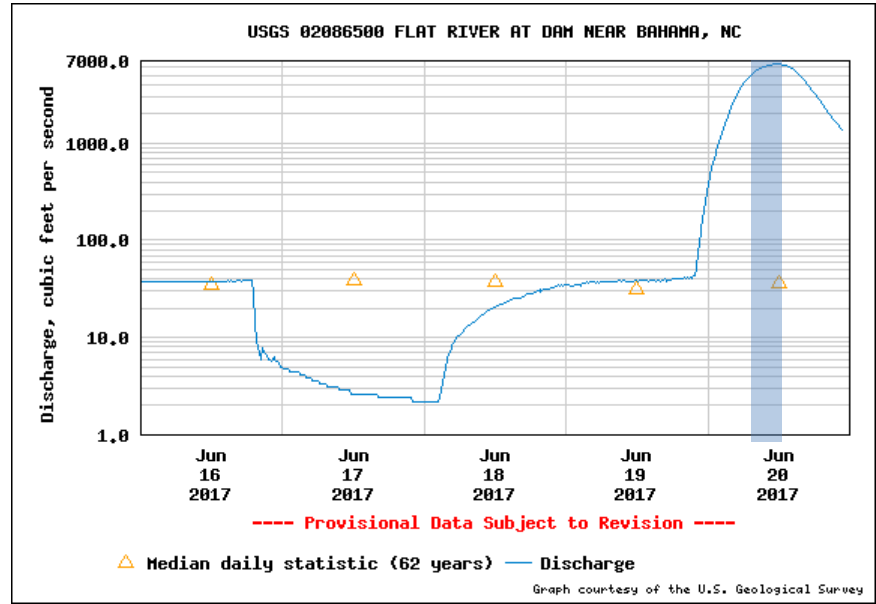
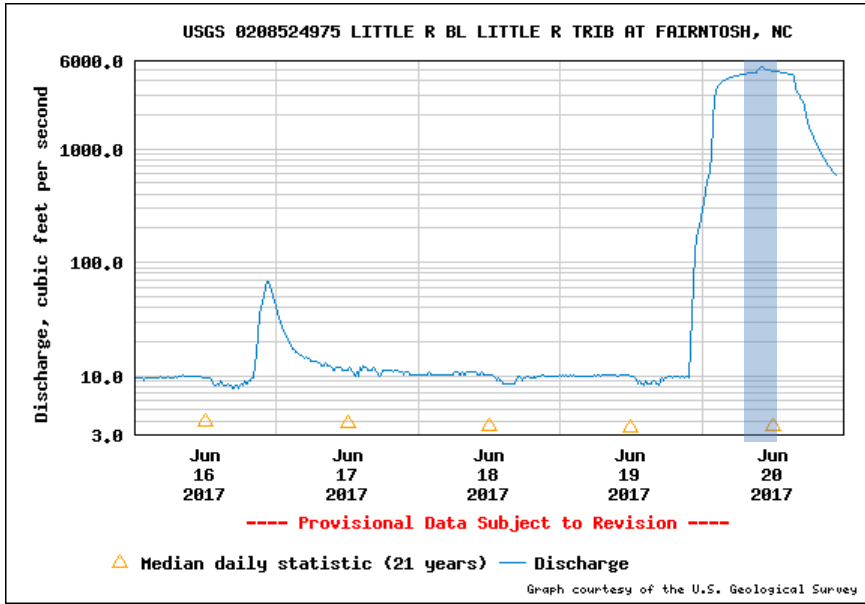
Flat River



Little River



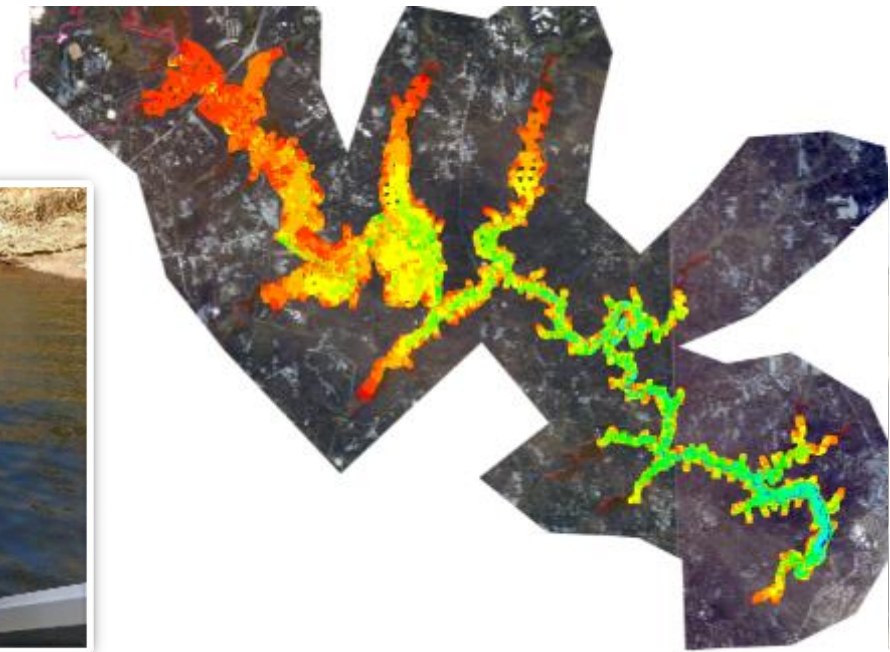
# Samples collected June 20 (at 17 out of 18 stations)





## Bathymetry and Sediment Mapping: Field Work Completed

- > Improve representation of the lake for models
- > Started on March 6 & completed April 14.
- > Digitization and mapping are now underway
- > Target completion by end of June





## Annual Report -

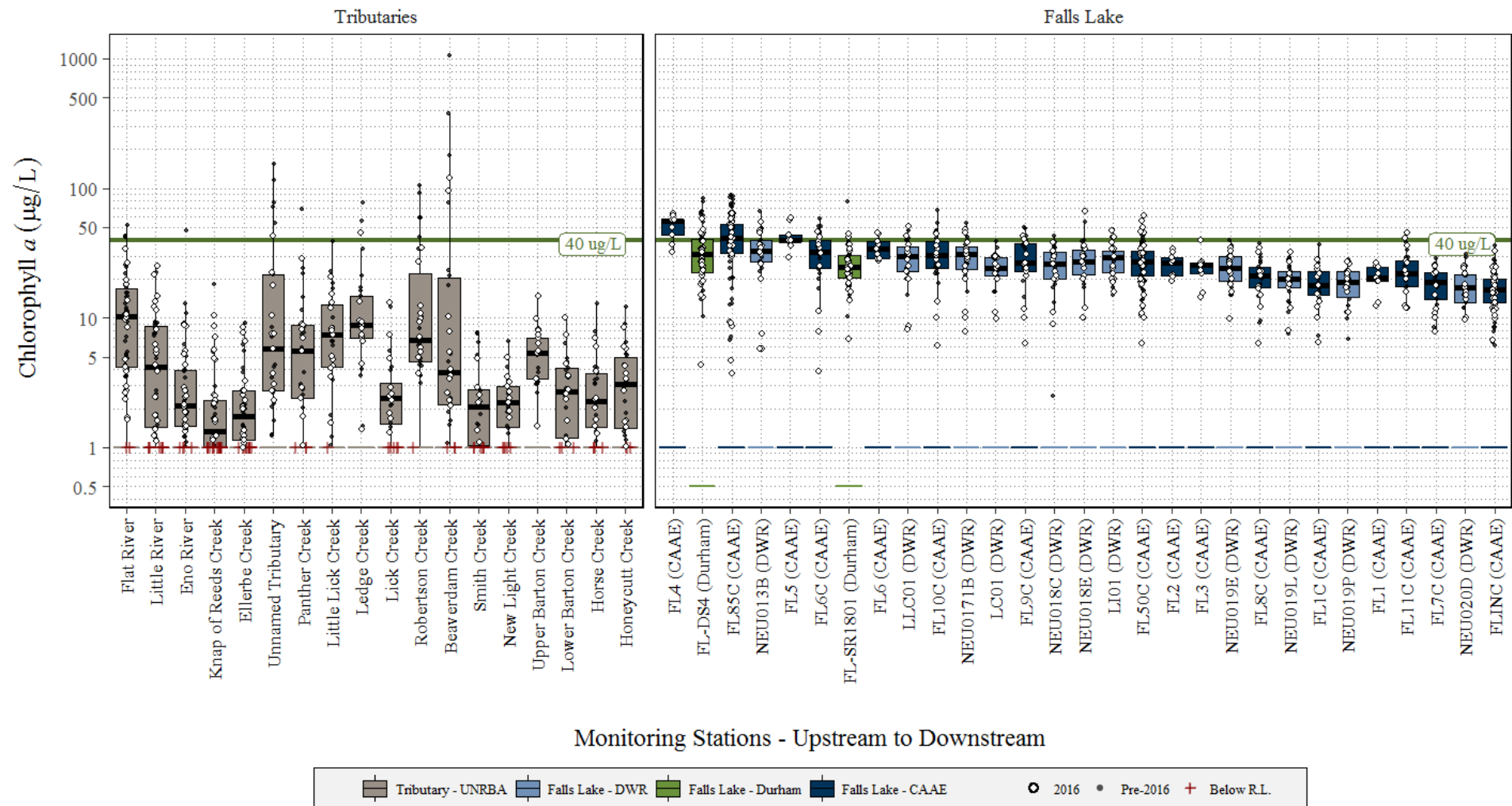
- > Data through December 2016
  - includes data from previous years
  
- > Lake data from several sources
  - DWR
  - City of Durham
  - CAAE
  - City of Raleigh will be included in next report (photic zone collection began October 2016)
  
- > Format follows last year's Annual Report
  - Status update
  - Visual representation of data





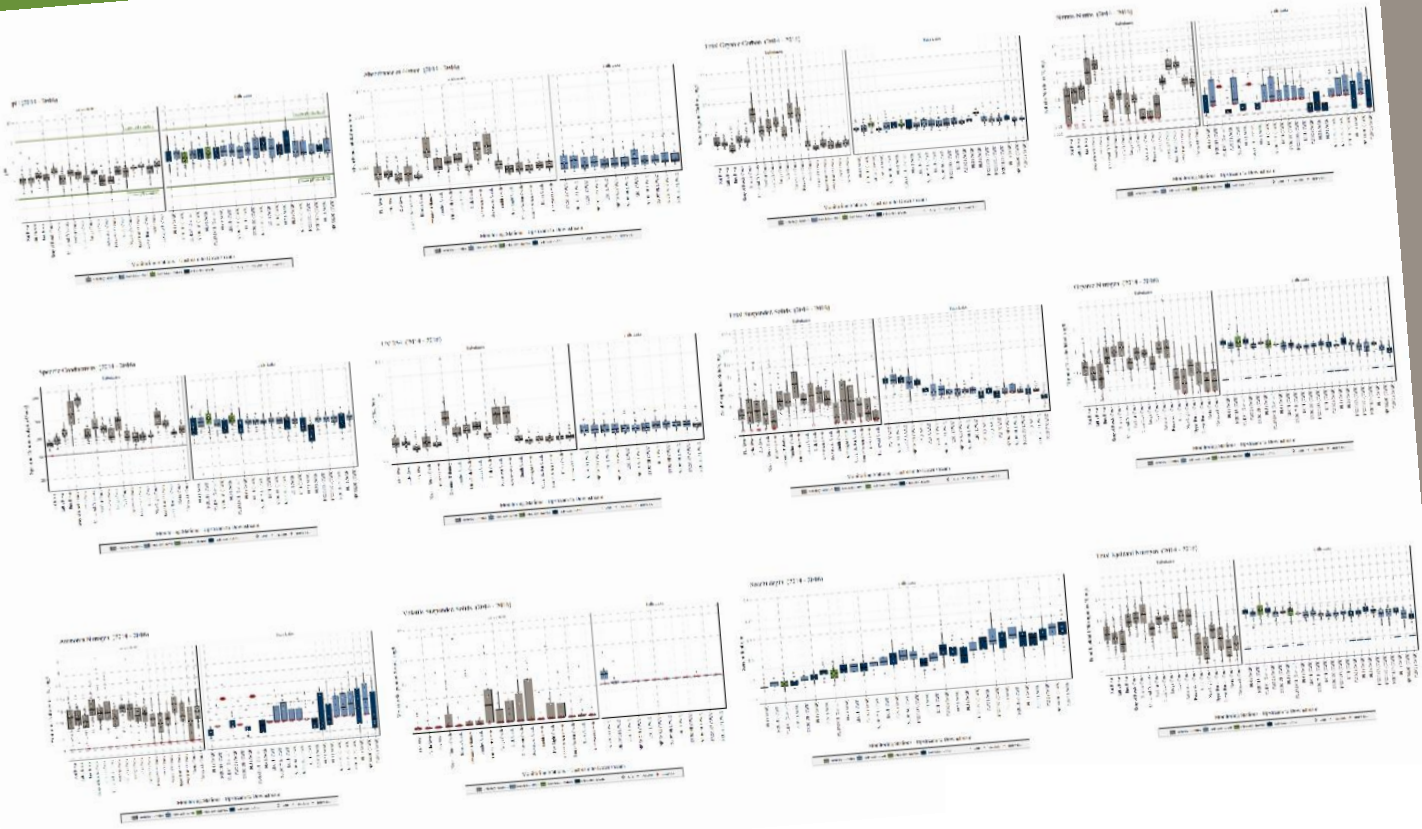


## Chlorophyll *a* (2014-2016)





# Additional parameters in the annual report...







## Recommendations for FY2018 Monitoring Program

- > Continue **routine monitoring** through fourth year
- > Focus **high flow** sampling on 5 largest tributaries
- > No additional special studies
- > Expand FY2018 **annual report**
  - Seasonal and inter-annual comparisons
  - Observed variability in data and ramifications
  - Recommendations regarding a 5<sup>th</sup> year of monitoring

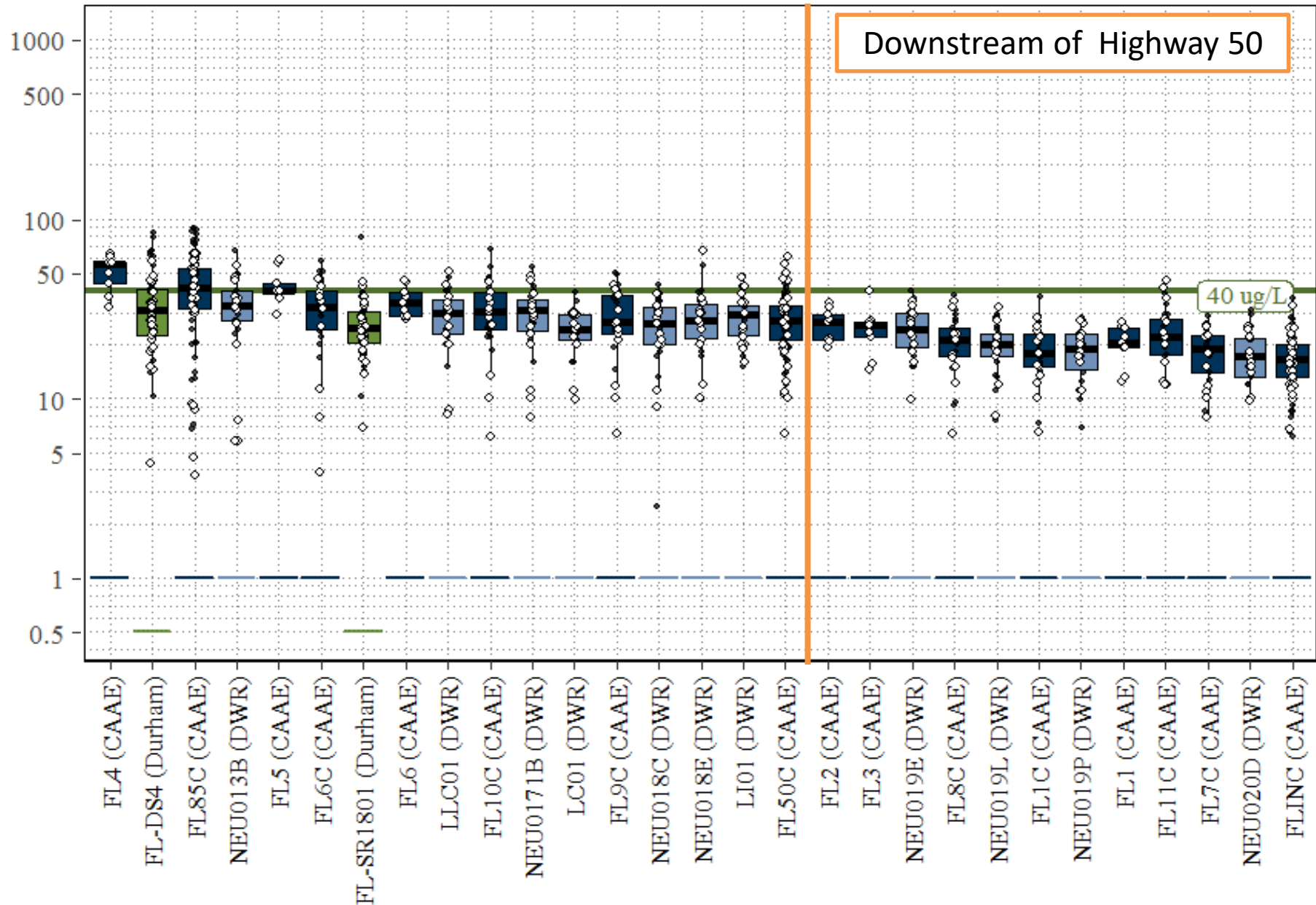




# Chlorophyll *a* (2014-2016)

Falls Lake

Chlorophyll *a* ( $\mu\text{g/L}$ )





## Recommended Adjustments to Monitoring Program

### **Residual Funding from Prior Years**

- > Close out contracts from FY2015, 2016 and 2017 and make unspent budget available to supplement FY2018 budget (\$800,000)
  - \$10,300 from FY2015
  - \$12,500 from FY2016
  - At least \$60,000 from FY2017
    - (to be finalized following end of contract term)



## Recommended Budget Allocation for FY2018

Reexamination Component	Source of Funding				Total Proposed Budget
	FY2018	FY2015	FY2016	FY2017	
Routine Monitoring	\$ 485,000				\$ 485,000
High Flow Sampling	\$ 67,800				\$ 67,800
Modeling and Reg. Support	\$ 207,200	\$ 10,300	\$ 12,500	\$ 50,000	\$ 280,000
Subject Matter Experts	<u>\$ 40,000</u>			<u>\$ 10,000</u>	<u>\$ 50,000</u>
<b>Totals</b>	<b>\$ 800,000</b>	<b>\$ 10,300</b>	<b>\$ 12,500</b>	<b>\$ 60,000</b>	<b>\$ 882,800</b>

Relative to FY2017, this allocation provides:

- \$137,727 **less** for Monitoring Program
- \$195,000 **more** for Modeling and Regulatory Support
- \$10,000 **more** for Subject Matter Experts

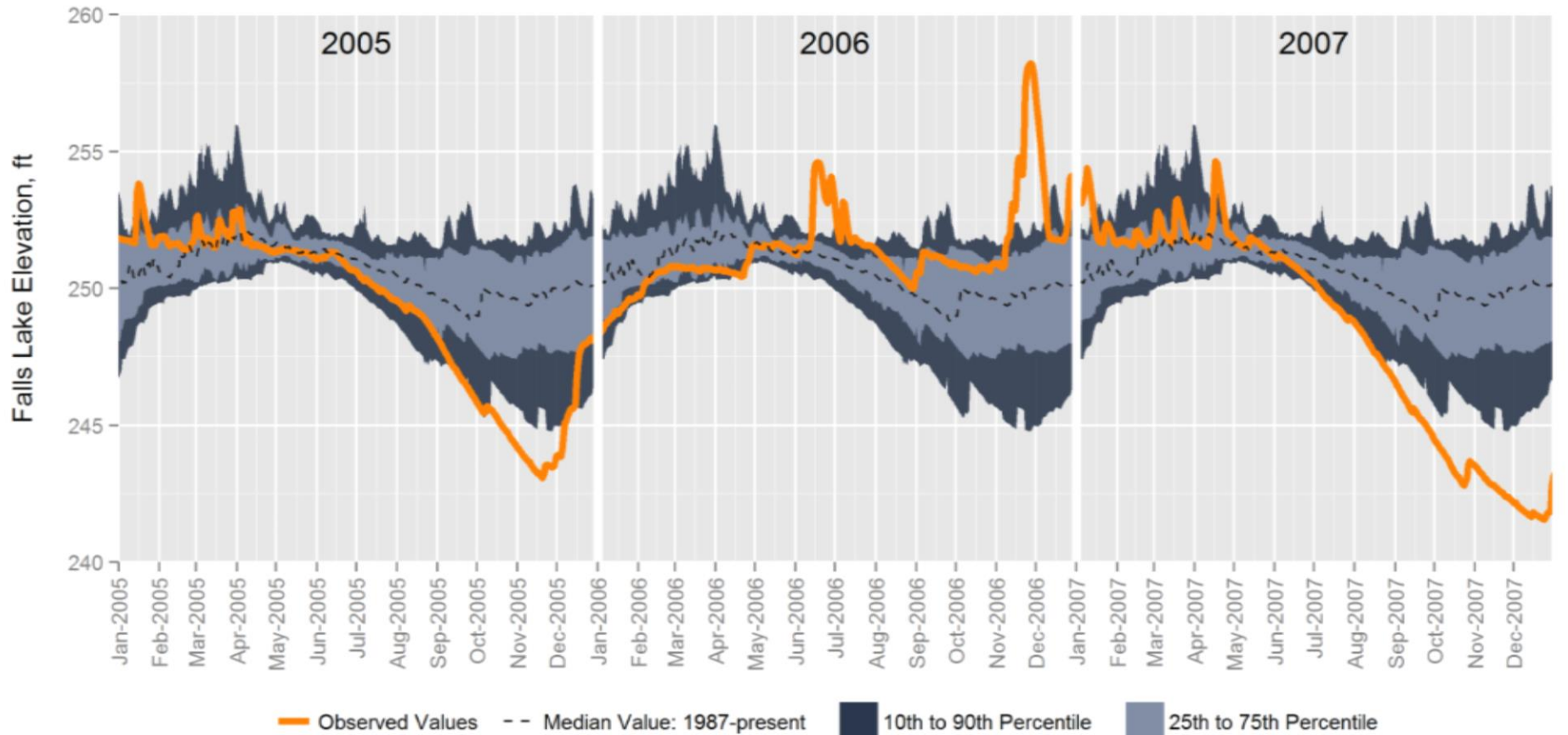
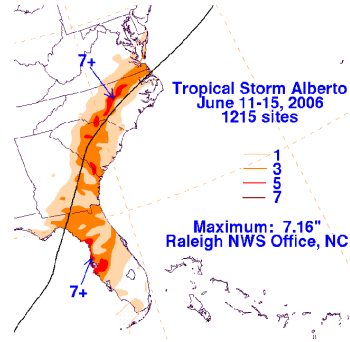


# Recommended Monitoring Program Distribution for FY2018

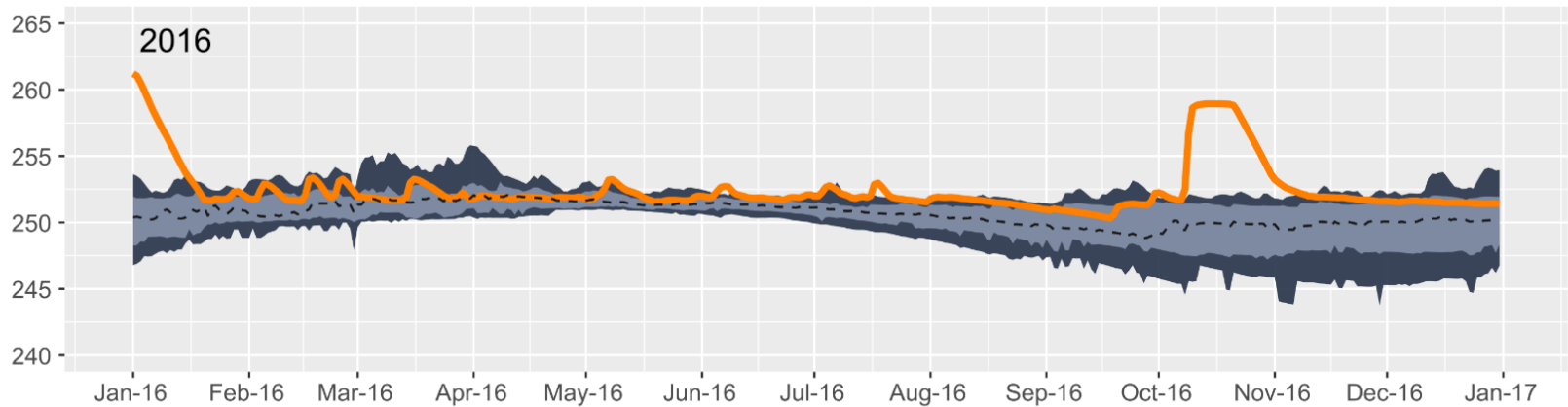
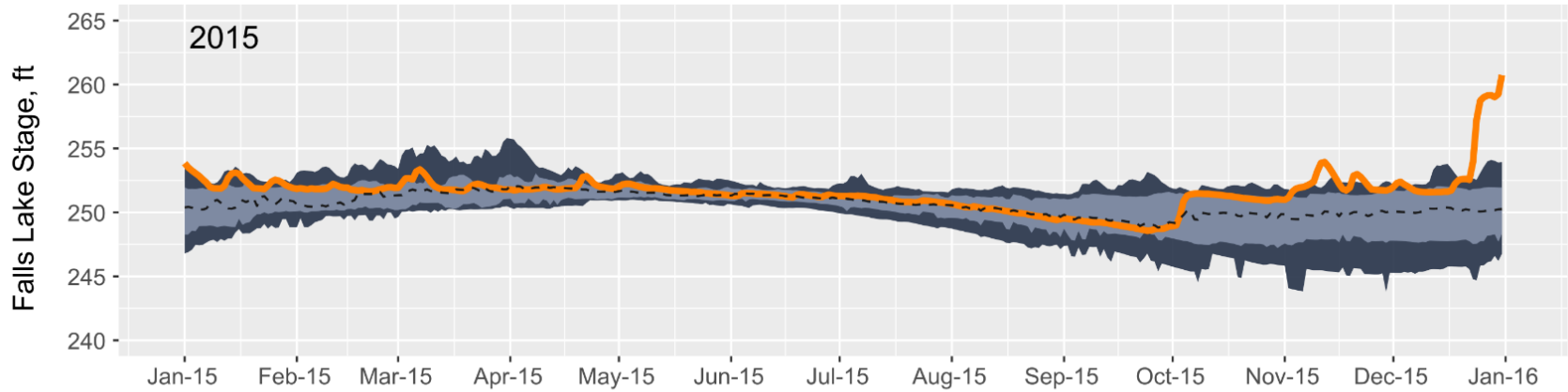
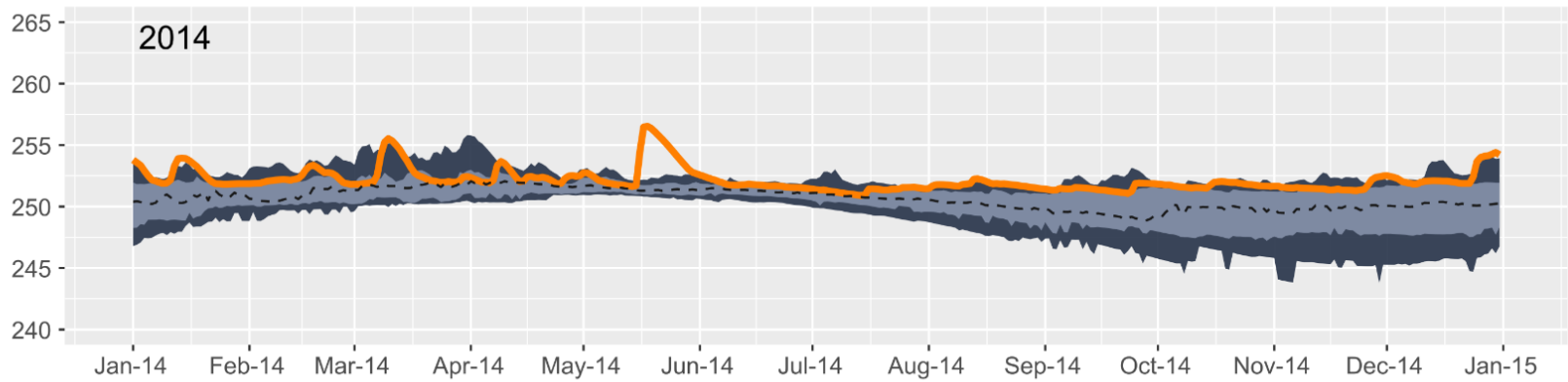
Phase and Task	Consultant Labor	Subcontractor Invoices	Miscellaneous Expenses	Total
<b>Routine Tributary Monitoring</b>				
Lake Loading Stations	\$23,300	\$124,400	\$-	<b>\$147,700</b>
Jurisdictional Stations	\$11,200	\$49,800	\$-	<b>\$61,000</b>
<b>Routine Lake Monitoring</b>				
Routine Lake Monitoring	\$4,800	\$8,400	\$-	<b>\$13,200</b>
<b>Data Management</b>				
Data Management	\$30,900	\$-	\$-	<b>\$30,900</b>
<b>Analysis, Reporting, Communication, Meetings</b>				
Data Analysis	\$57,600	\$-	\$-	<b>\$57,600</b>
Annual Report and Presentations	\$49,900	\$-	\$-	<b>\$49,900</b>
Client Communication, Management, ad hoc	\$42,600	\$-	\$2,700	<b>\$45,300</b>
Meeting Attendance. PFC, BOD, etc.	\$25,300	\$-	\$600	<b>\$25,900</b>
<b>Monitoring Plan Management and QA/QC</b>				
QA/QC of contract lab activities	\$19,200	\$-	\$900	<b>\$20,100</b>
QAPP Updates and Internal QA/QC Review	\$10,200	\$-	\$-	<b>\$10,200</b>
Plan updates; correspondence with PFC, DWR, etc.	\$23,200	\$-	\$-	<b>\$23,200</b>
<b>Special Studies</b>				
High Flow Sampling	<u>\$38,000</u>	<u>\$27,000</u>	<u>\$2,800</u>	<b><u>\$67,800</u></b>
<b>Total for the FY2018 Monitoring Program</b>	<b>\$336,200</b>	<b>\$209,600</b>	<b>\$7,000</b>	<b>\$552,800</b>



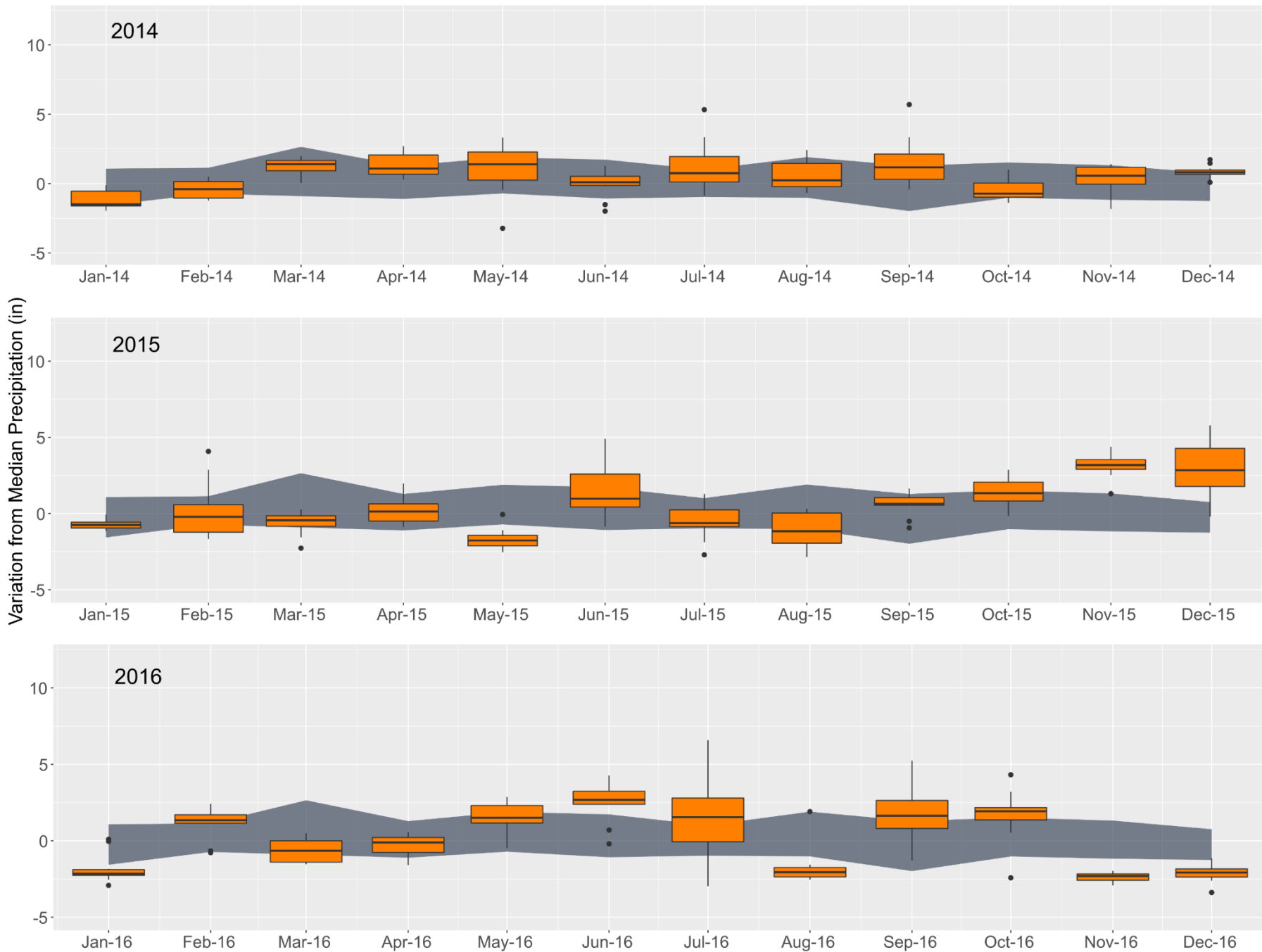
# Falls Lake Water Level (2005-2007)



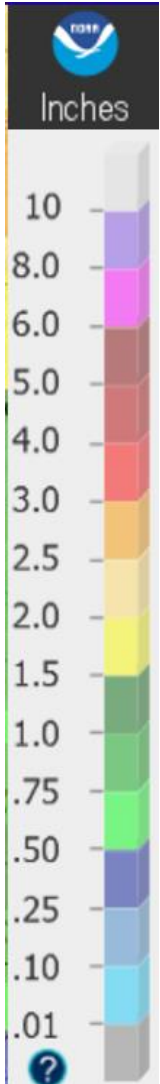
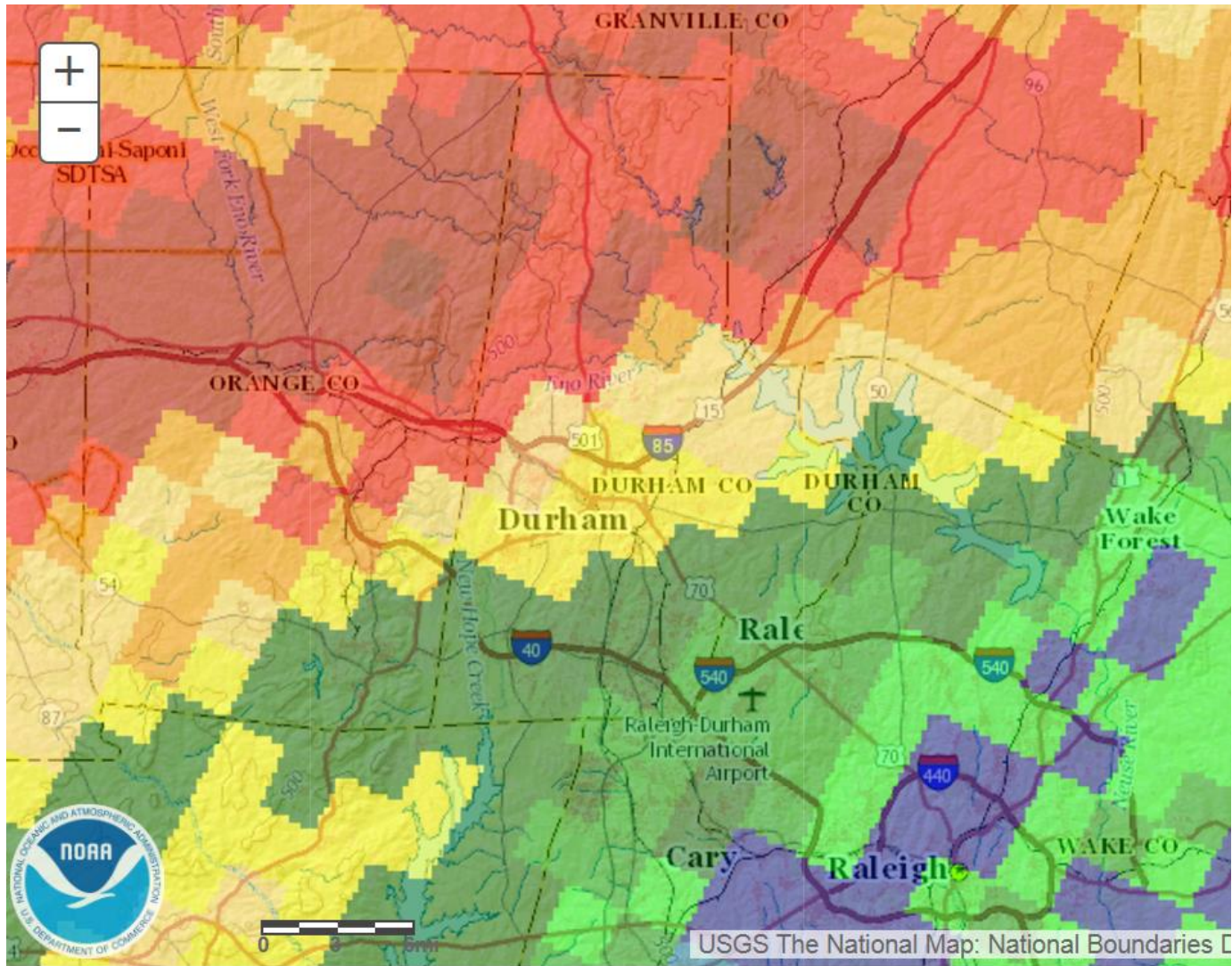
# Observed Falls Lake Stage Compared to Values from 1987 to the Present



# Precipitation across the Upper Neuse Watershed Compared to Previous 30 Years







USGS The National Map: National Boundaries S





# High Flow Sampling: April 24-25, 2017

