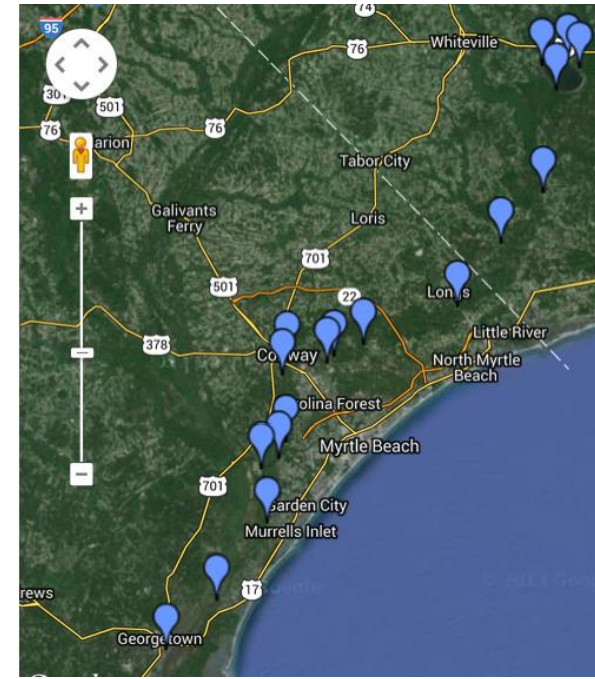# Current Water Quality Trends in the Waccamaw Watershed

NC Volunteer Recognition Luncheon

March 9, 2015

TODAY'S TOPICS:
- Data collected to date
- Comparison of Lake to River
- Notable trends

Team # 9:
Dick Crutchfield, Grant Egley, David Scott, Donna Scott, Steve Smith, Warren Stephens, Jo Wayman

Team # 8:
Dickie Long, Danny McNeill, Dottie Prostinak, Betty Slagle, Julie Stocks, Amanda Worley

Program staff:
Lake Waccamaw State Park – Toby Hall, Andy Buchanan, Rick Keenan
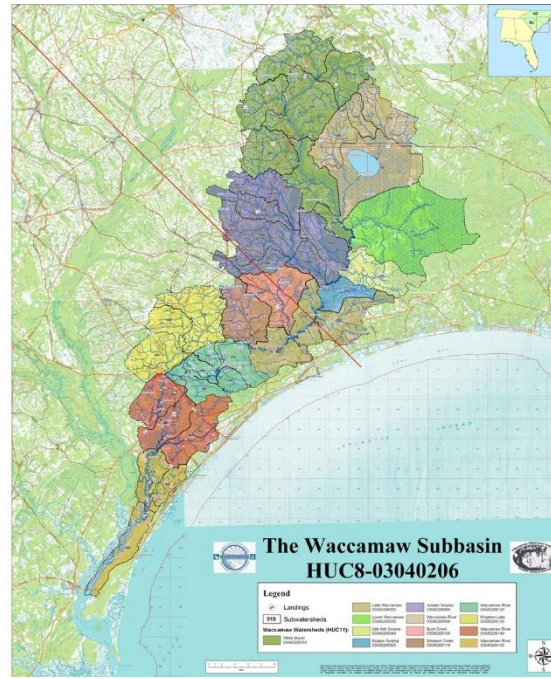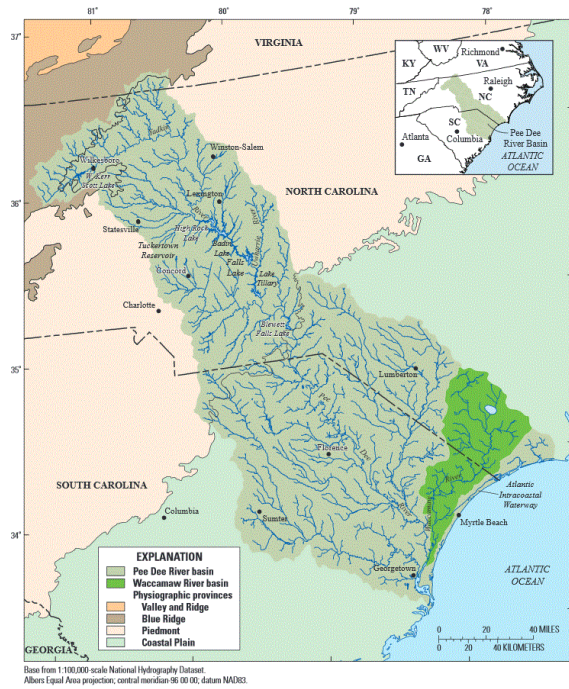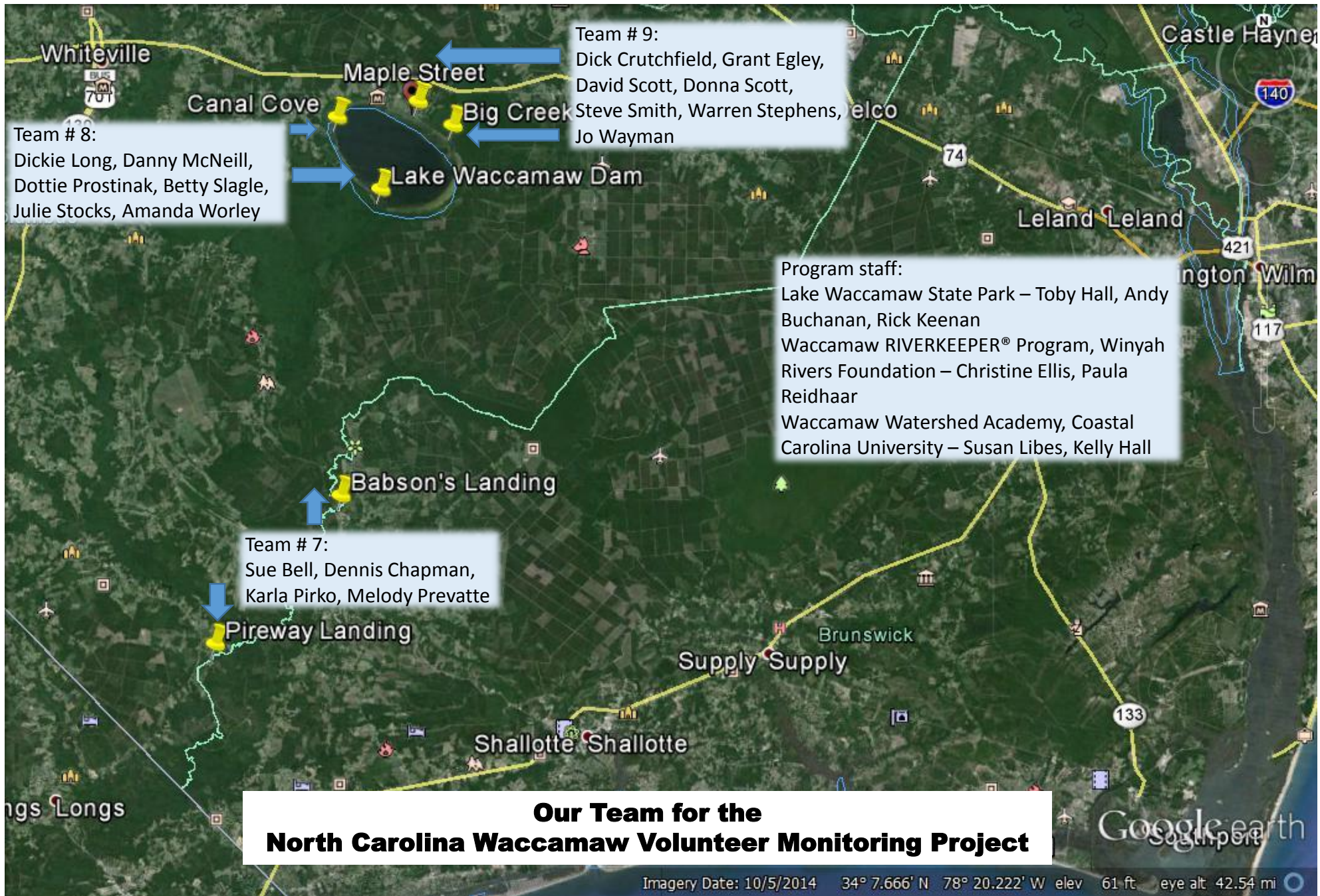Waccamaw RIVERKEEPER® Program, Winyah Rivers Foundation – Christine Ellis, Paula Reidhaar
Waccamaw Watershed Academy, Coastal Carolina University – Susan Libes, Kelly Hall

Team # 7:
Sue Bell, Dennis Chapman, Karla Pirko, Melody Prevatte

**Our Team for the
North Carolina Waccamaw Volunteer Monitoring Project**
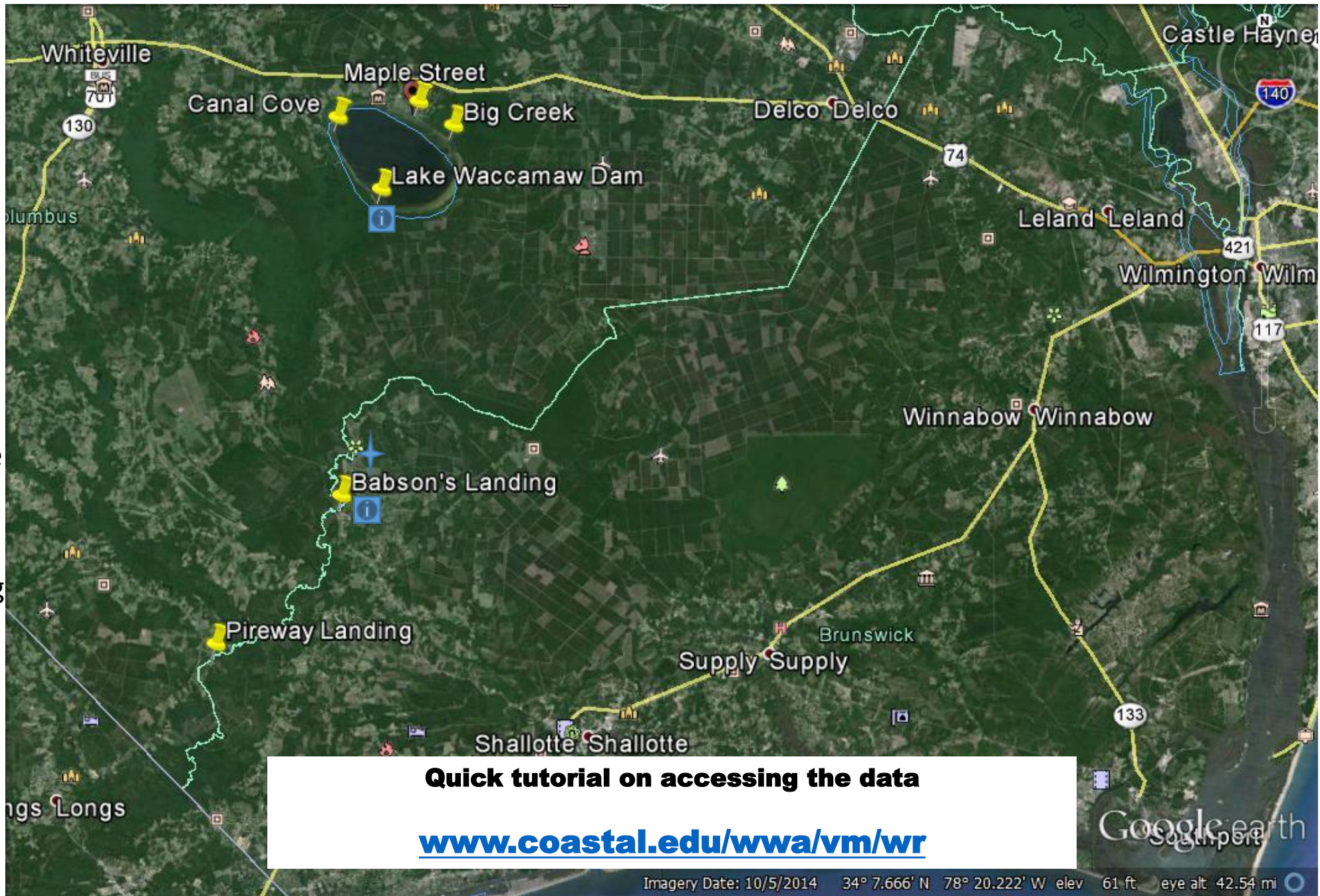
Data from our awesome volunteers!

Lake Waccamaw Team #9 (2 sites)
73 data sets/site

Lake Waccamaw Team #8 (2 sites)
73 data sets/site

Waccamaw River Team #7 (2 sites)
40 data sets/site

Waccamaw River Teams #1-6 (12 sites)
>200 data sets/site

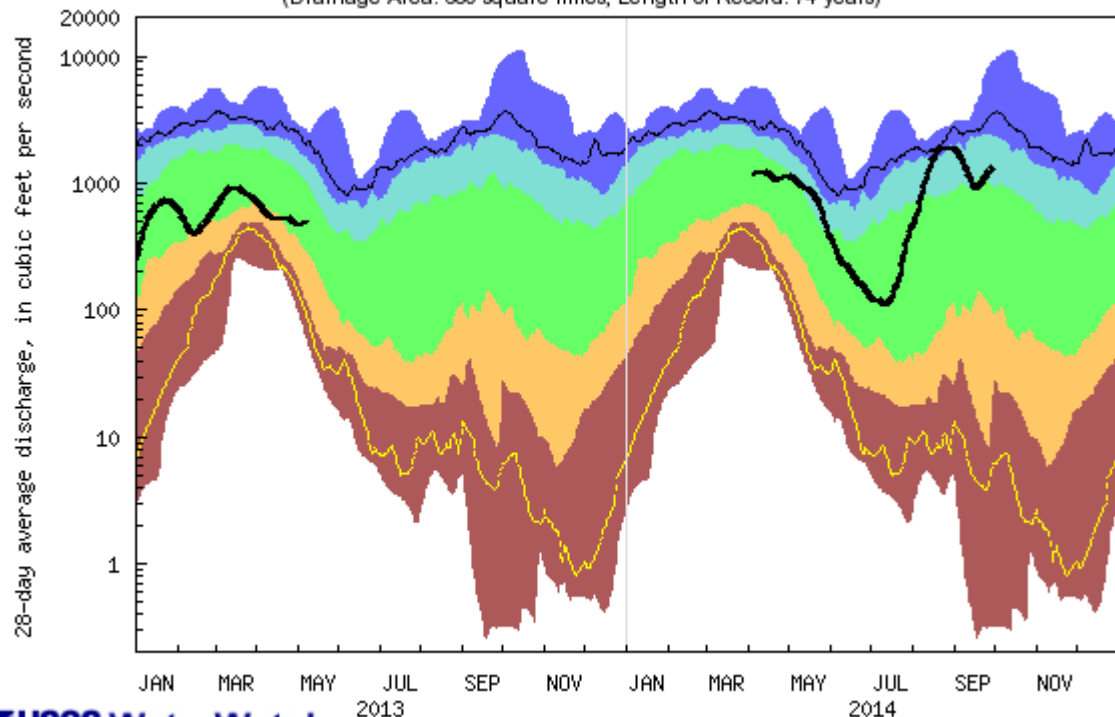*Honorable mention – Murrells Landing (Susan Libes' site) 2910 data sets since 1998!*

USGS Gage

NCDENR Ambient Monitoring

Quick tutorial on accessing the data

www.coastal.edu/wwa/vm/wr

United States Geological Survey (USGS) Streamflow Duration Hydrograph

USGS Gage at Babson's Landing

USGS Gage at Highway 9

USGS 02109500 WACCAMAW RIVER AT FREELAND, NC
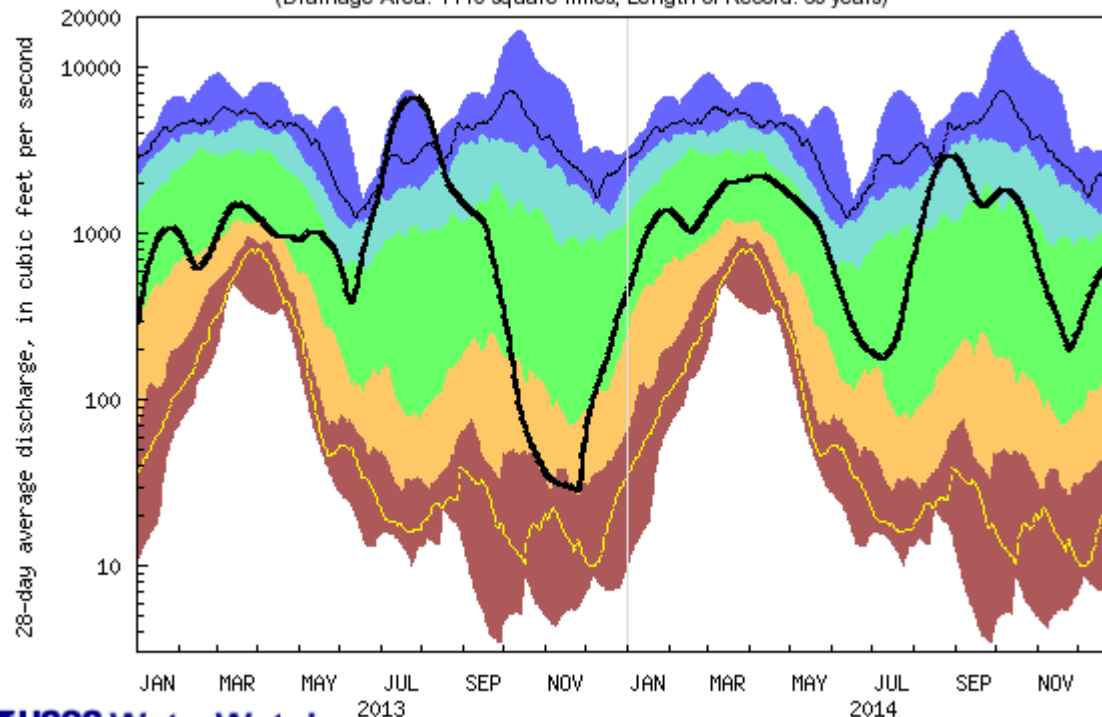(Drainage Area: 680 square miles, Length of Record: 74 years)

USGS 02110500 WACCAMAW RIVER NEAR LONGS, SC
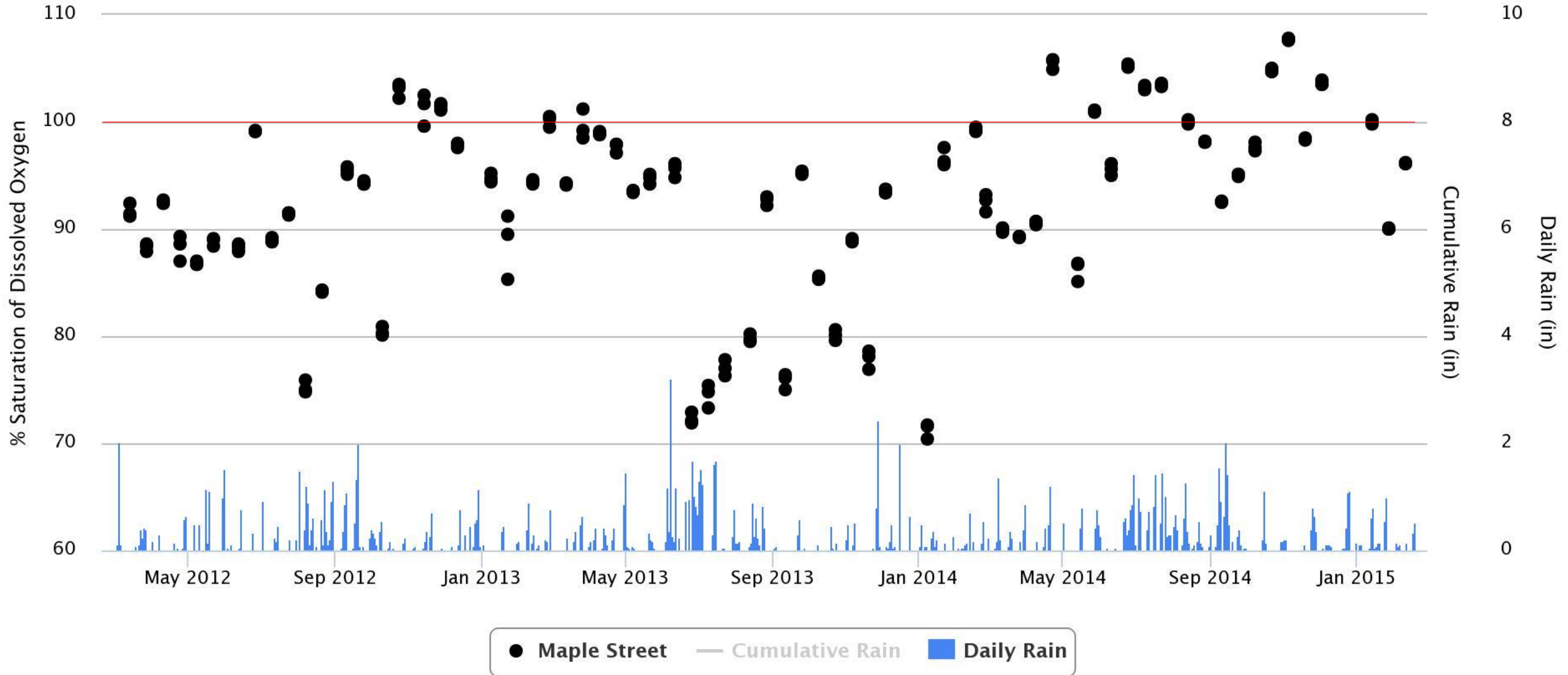(Drainage Area: 1110 square miles, Length of Record: 63 years)

Last updated: 2015-03-06

Last updated: 2015-03-06
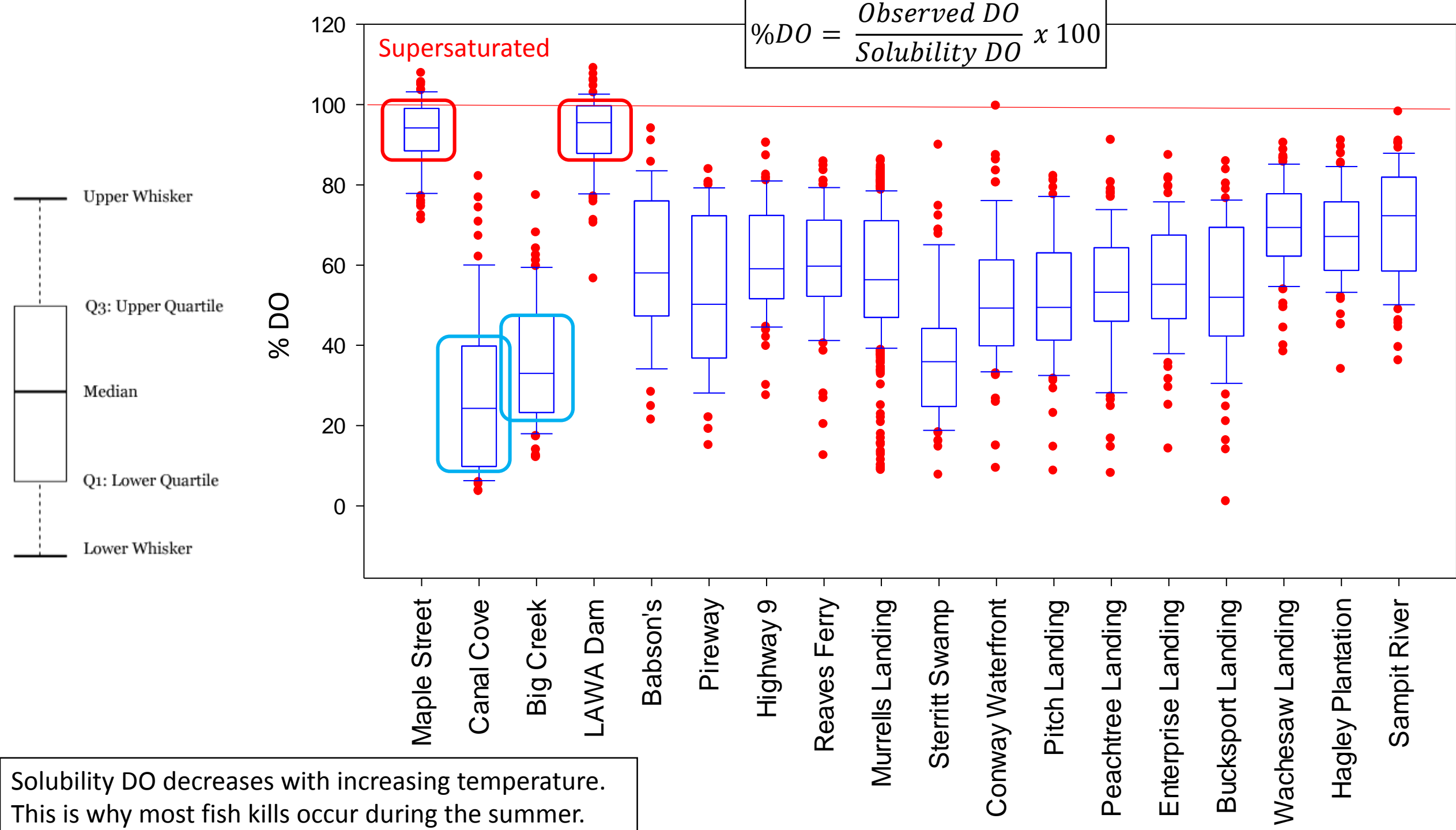
Explanation - Percentile classes

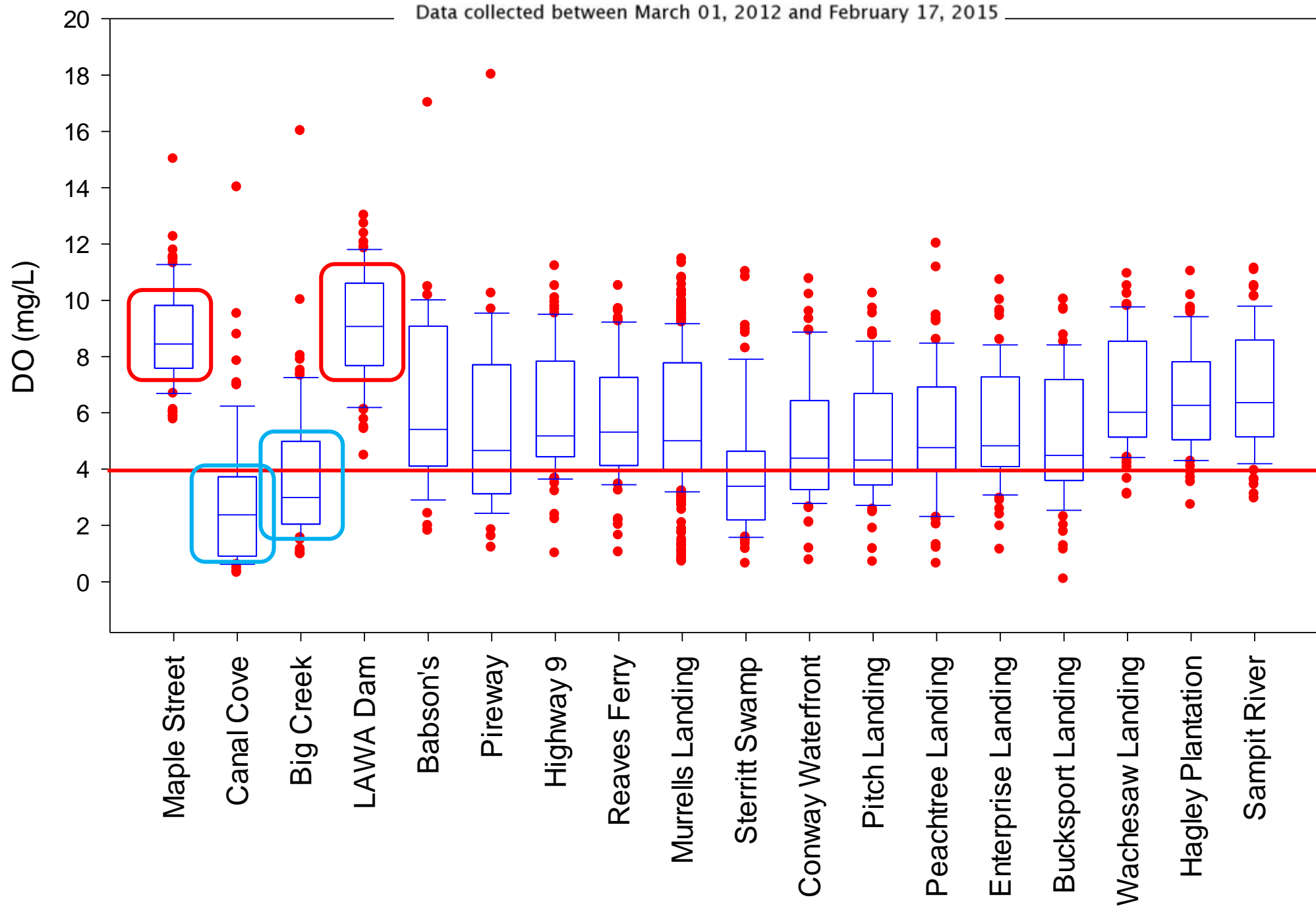| lowest-10th percentile	10-24	25-75	76-90	90th percentile -highest	Flow
Much below normal	Below normal	Normal	Above normal	Much above normal	

% Saturation of Dissolved Oxygen for Maple Street

Data collected between March 01, 2012 and February 17, 2015

Hold down shift key to pan

Legend: ● Maple Street — Cumulative Rain ■ Daily Rain

Highcharts.com

$$\%DO = \frac{Observed\ DO}{Solubility\ DO}\ x\ 100$$

Supersaturated

% DO

Upper Whisker

Q3: Upper Quartile

Median

Q1: Lower Quartile

Lower Whisker

Maple Street
Canal Cove
Big Creek
LAWA Dam
Babson's
Pireway
Highway 9
Reaves Ferry
Murrells Landing
Sterritt Swamp
Conway Waterfront
Pitch Landing
Peachtree Landing
Enterprise Landing
Bucksport Landing
Wachesaw Landing
Hagley Plantation
Sampit River

Solubility DO decreases with increasing temperature.
This is why most fish kills occur during the summer.

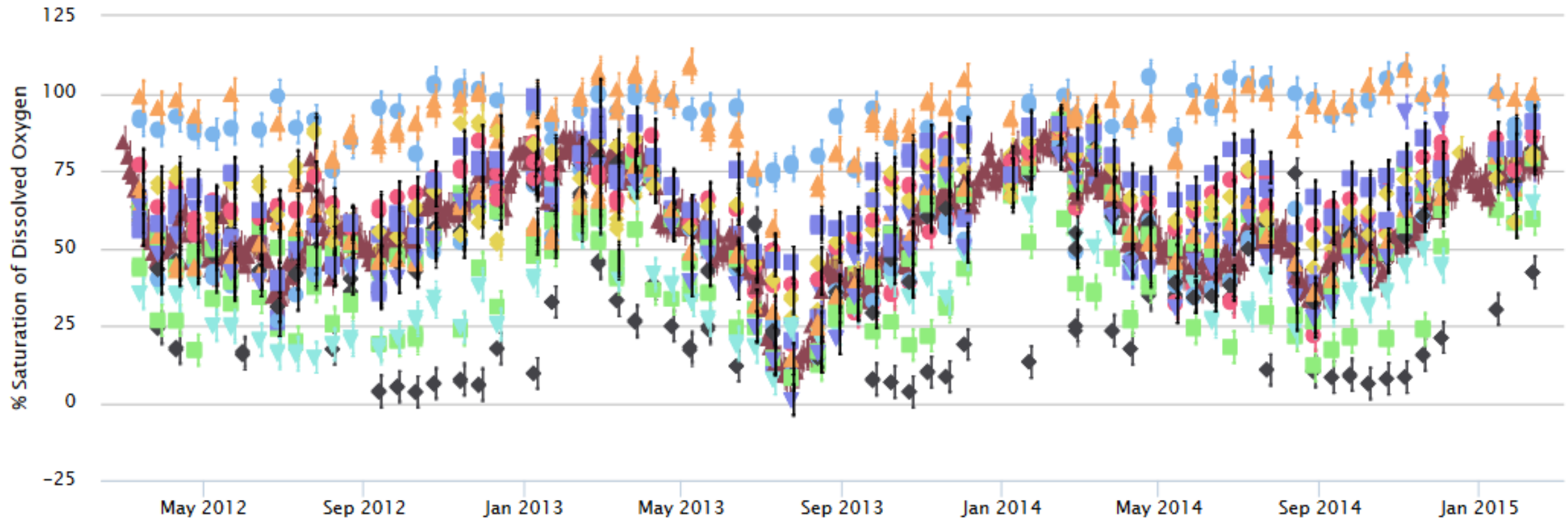Data collected between March 01, 2012 and February 17, 2015
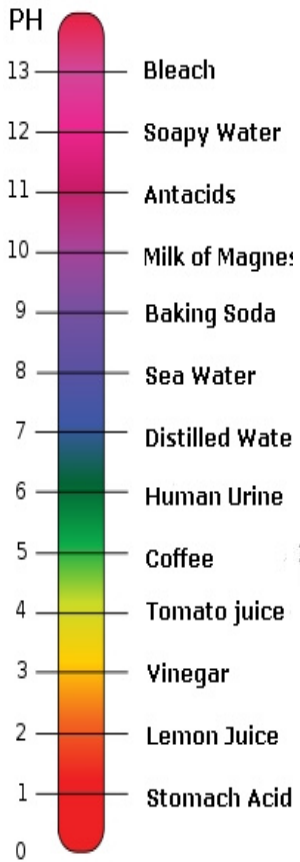
% Saturation of Dissolved Oxygen

Data collected between March 01, 2012 and February 17, 2015

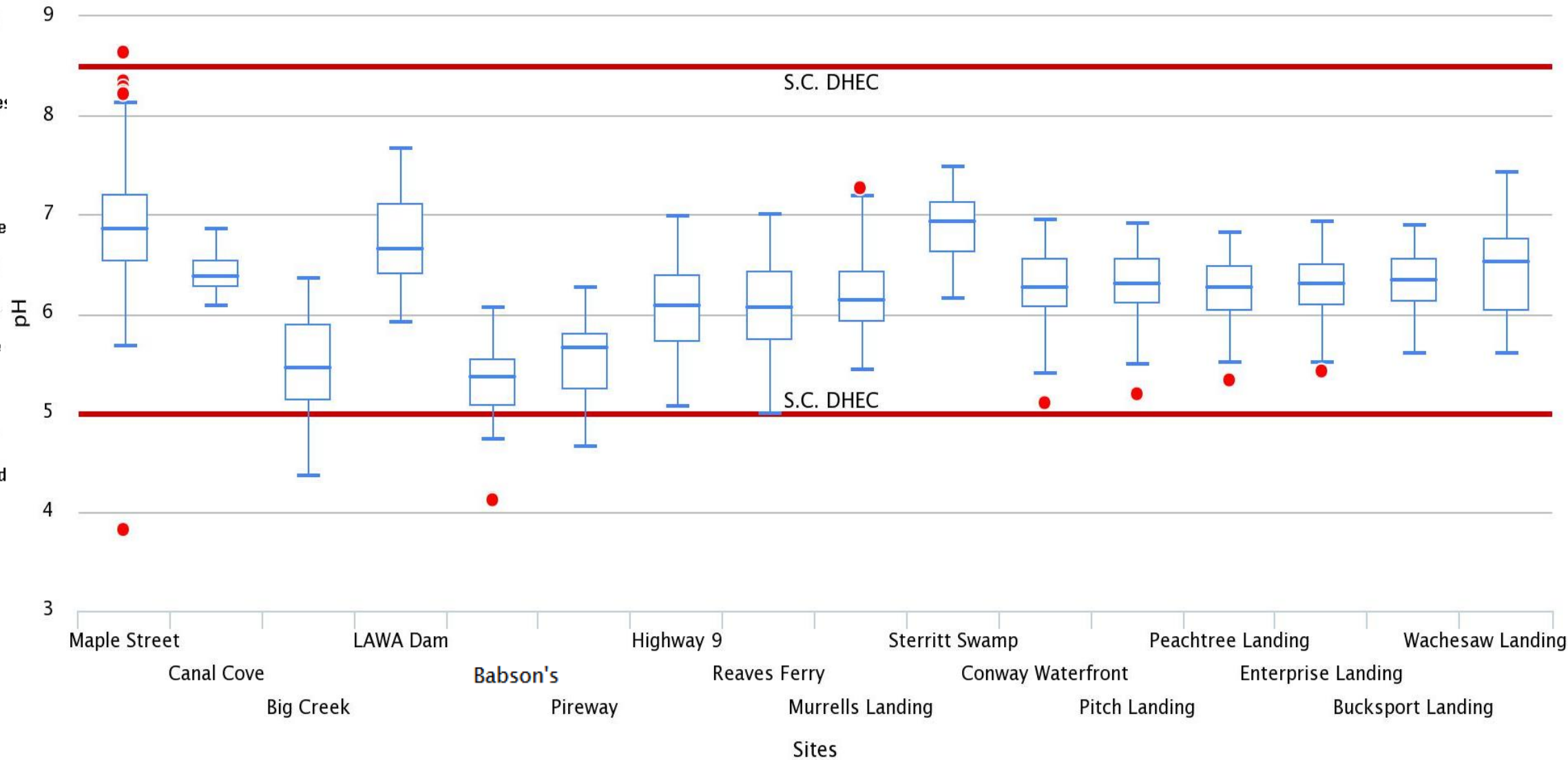**Click and drag to zoom in. Hold down shift key to pan.**

Legend:
- Maple Street
- Canal Cove
- Big Creek
- LAWA Dam
- Babson's
- Pireway
- Highway 9
- Reaves Ferry
- Murrells Landing
- Sterritt Swamp
- Conway Waterfront
- Pitch Landing
- Peachtree Landing
- Enterprise Landing
- Bucksport Landing
- Wachesaw Landing
- Hagley Plantation
- Sampit River

Acidity

PH

PH	
13	Bleach
12	Soapy Water
11	Antacids
10	Milk of Magnes
9	Baking Soda
8	Sea Water
7	Distilled Wate
6	Human Urine
5	Coffee
4	Tomato juice
3	Vinegar
2	Lemon Juice
1	Stomach Acid
0	

pH

Data collected between March 01, 2012 and February 17, 2015

S.C. DHEC

S.C. DHEC

pH

Sites: Maple Street, Canal Cove, Big Creek, LAWA Dam, Babson's, Pireway, Highway 9, Reaves Ferry, Murrells Landing, Sterritt Swamp, Conway Waterfront, Pitch Landing, Peachtree Landing, Enterprise Landing, Wachesaw Landing, Bucksport Landing

Highcharts.com

Dissolved Salts

Conductivity (µS/cm)

Data collected between March 01, 2012 and February 17, 2015

500 times lower than seawater

Turbidity (NTU)

Data collected between March 01, 2012 and February 17, 2015

EPA (2000)

Sites

Maple Street

Canal Cove

Big Creek

LAWA Dam

Babson's

Pireway

Highcharts.com
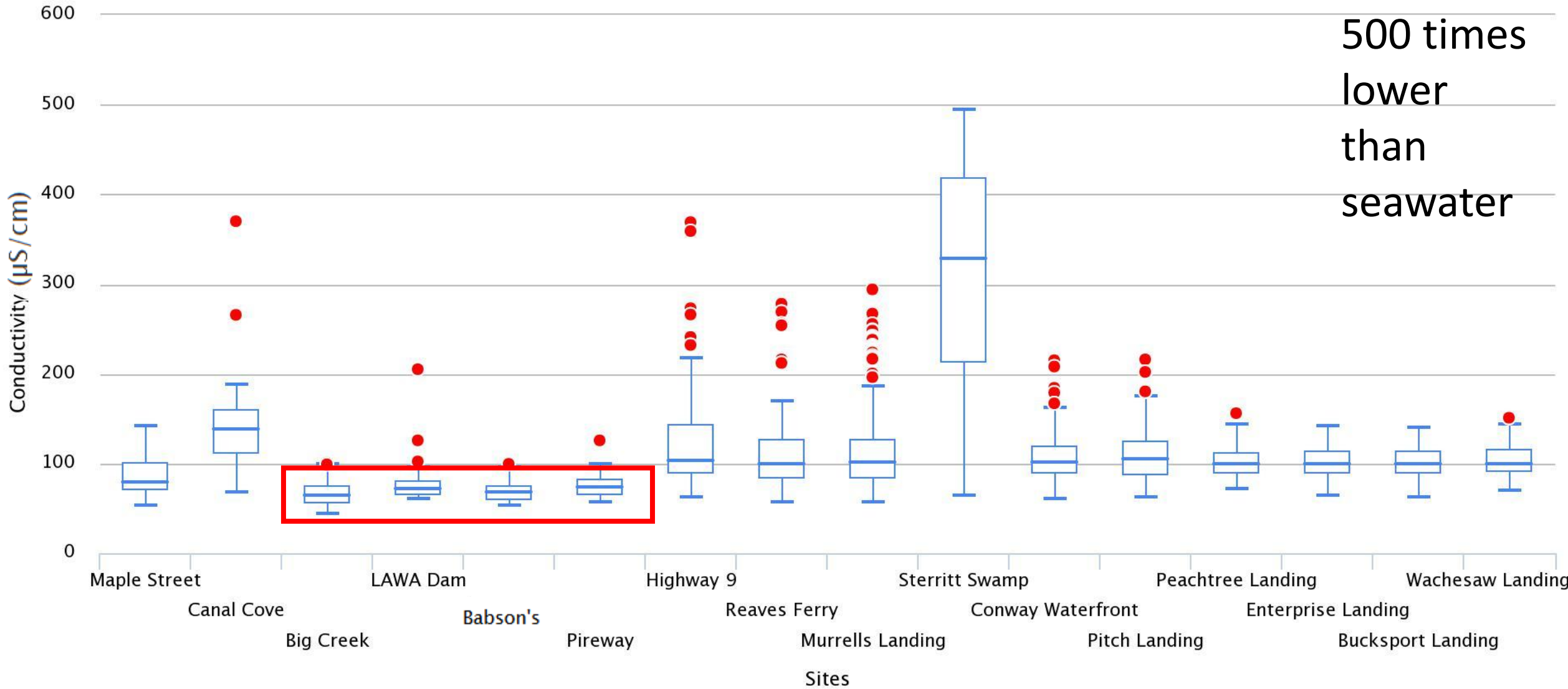
Turbidity (NTU)

Data collected between March 01, 2012 and February 17, 2015
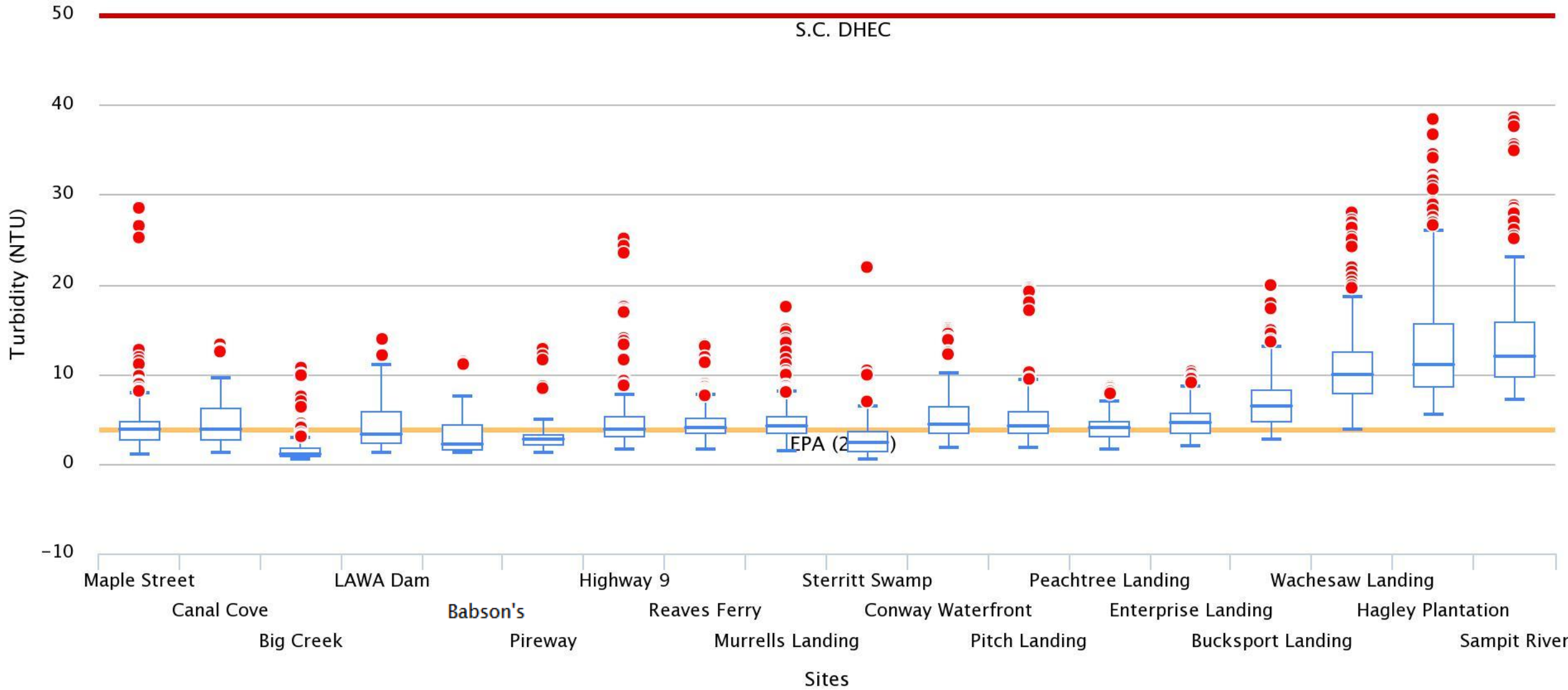
Turbidity (NTU) for Maple Street

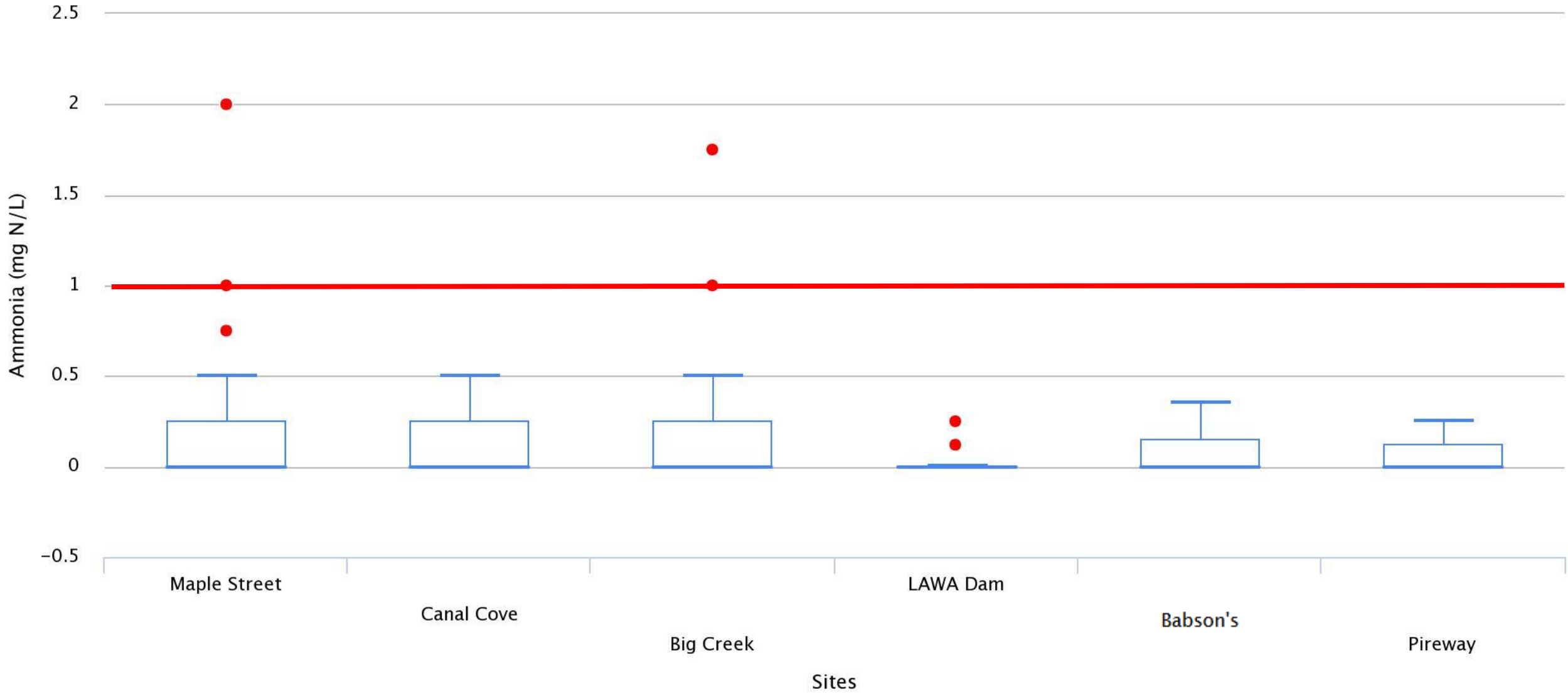Data collected between March 01, 2012 and February 17, 2015

Hold down shift key to pan

Legend: ● Maple Street — Cumulative Rain ▮ Daily Rain
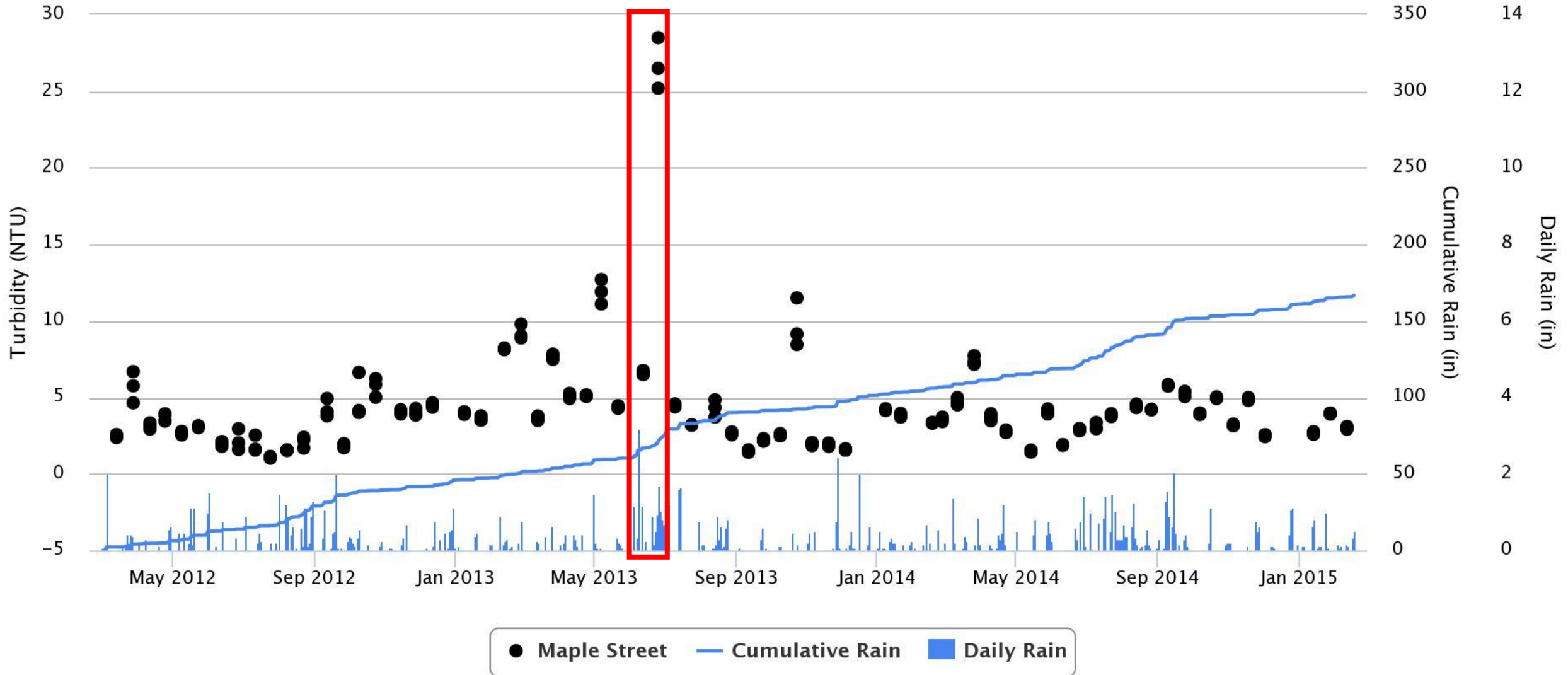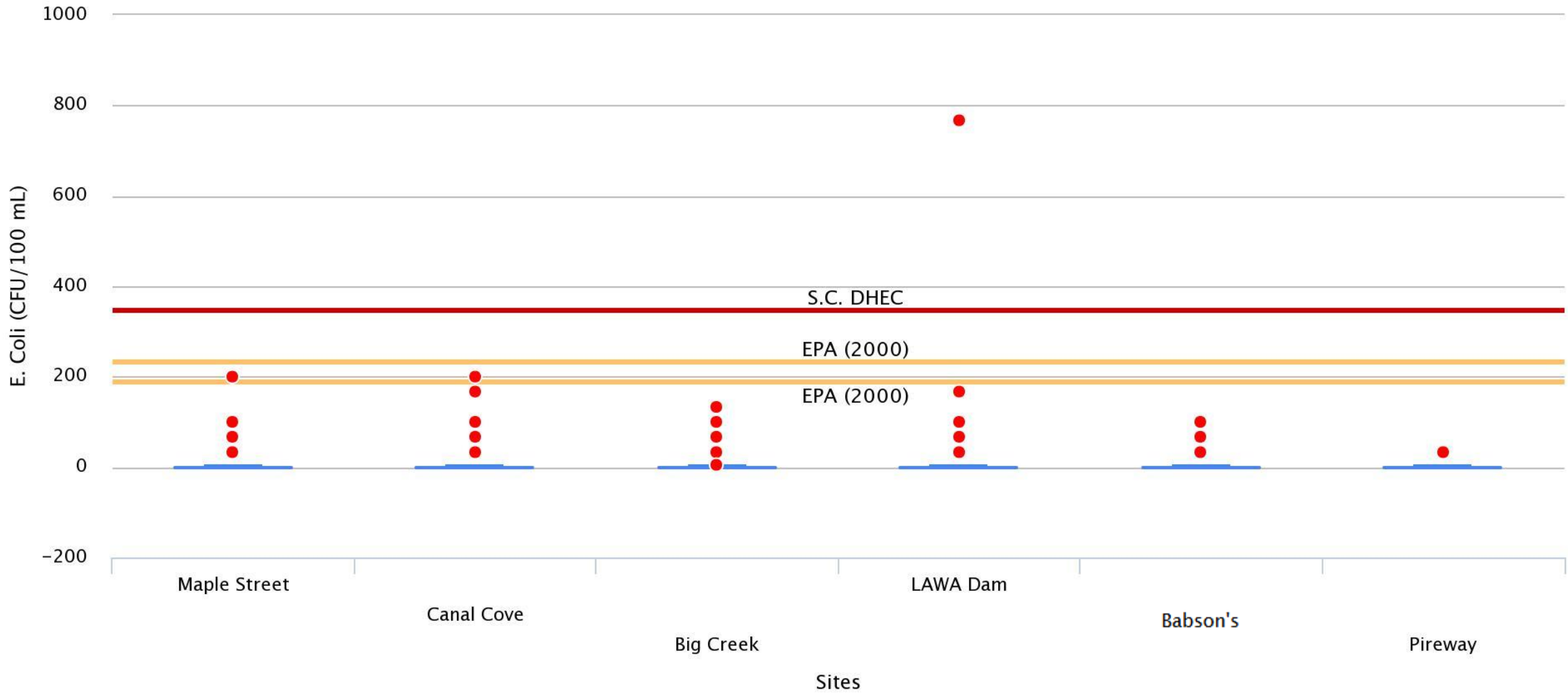
2 in rain 9-10 days prior

Highcharts.com

Ammonia (mg N/L)

Data collected between March 01, 2012 and February 17, 2015

Ammonia (mg N/L)
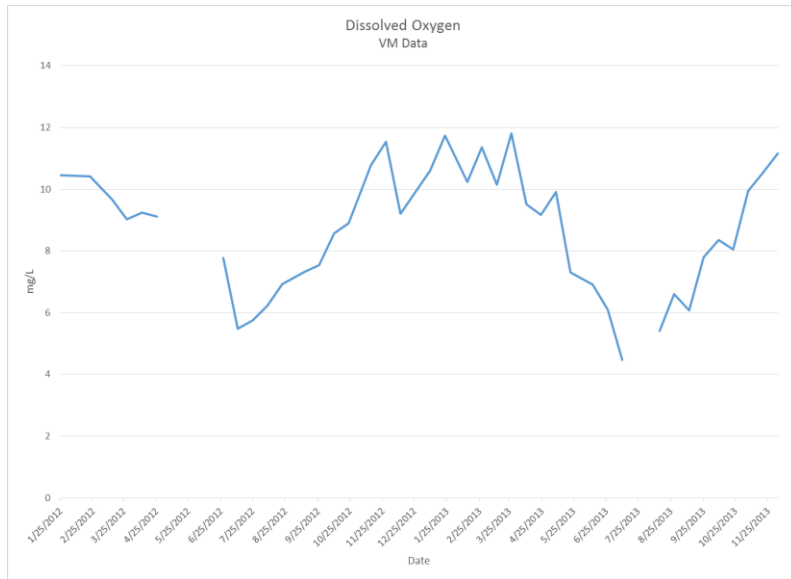
2.5

2

1.5

1

0.5

0

−0.5

Maple Street

Canal Cove
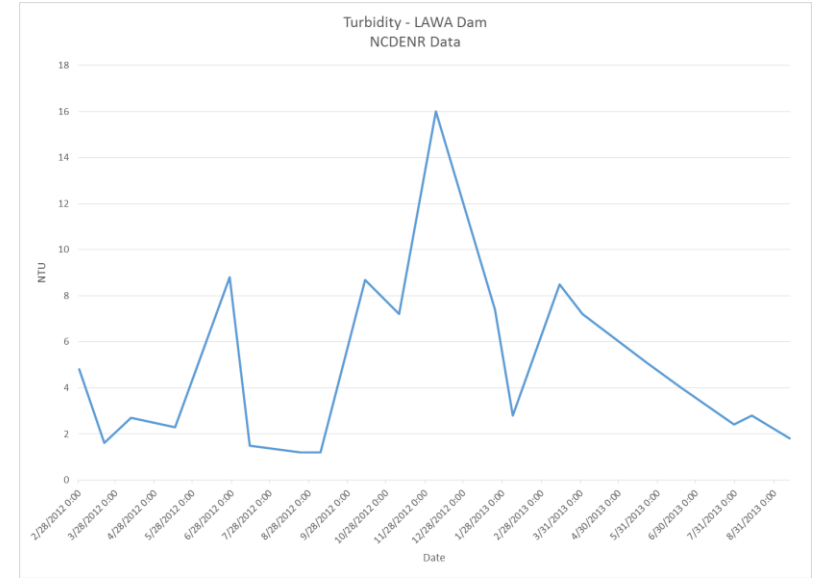
Big Creek

LAWA Dam
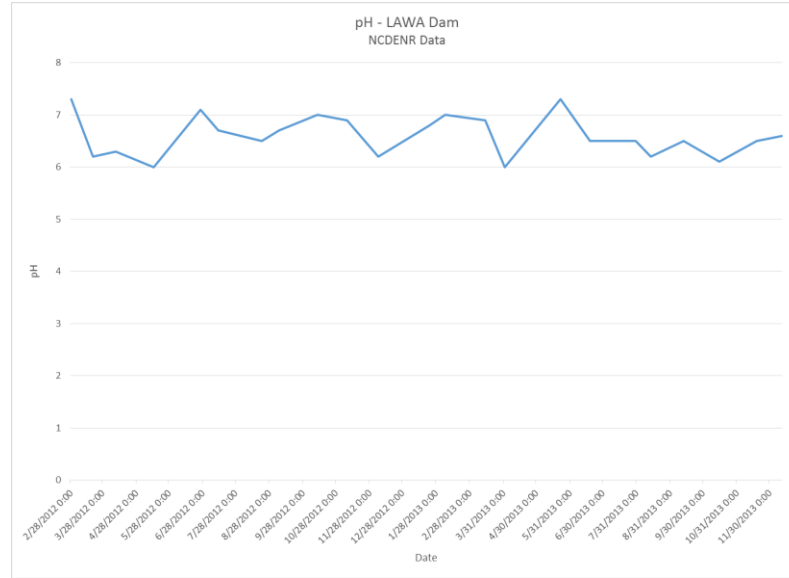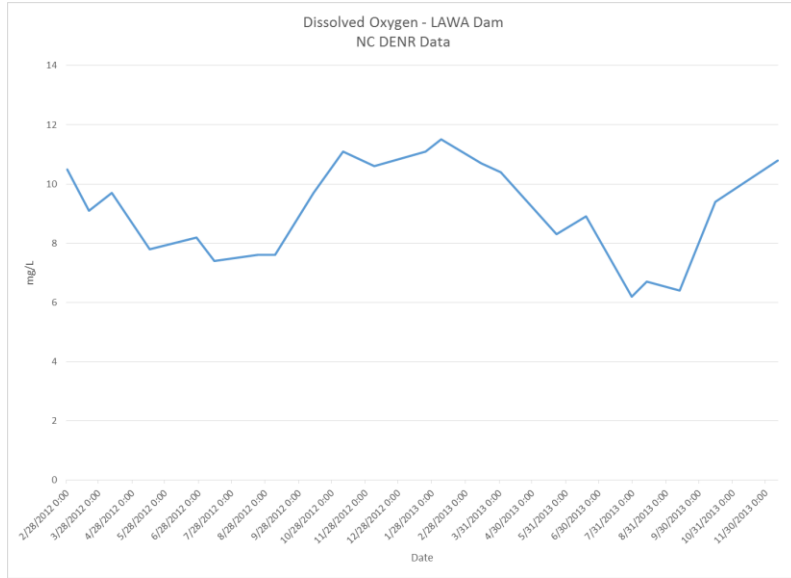
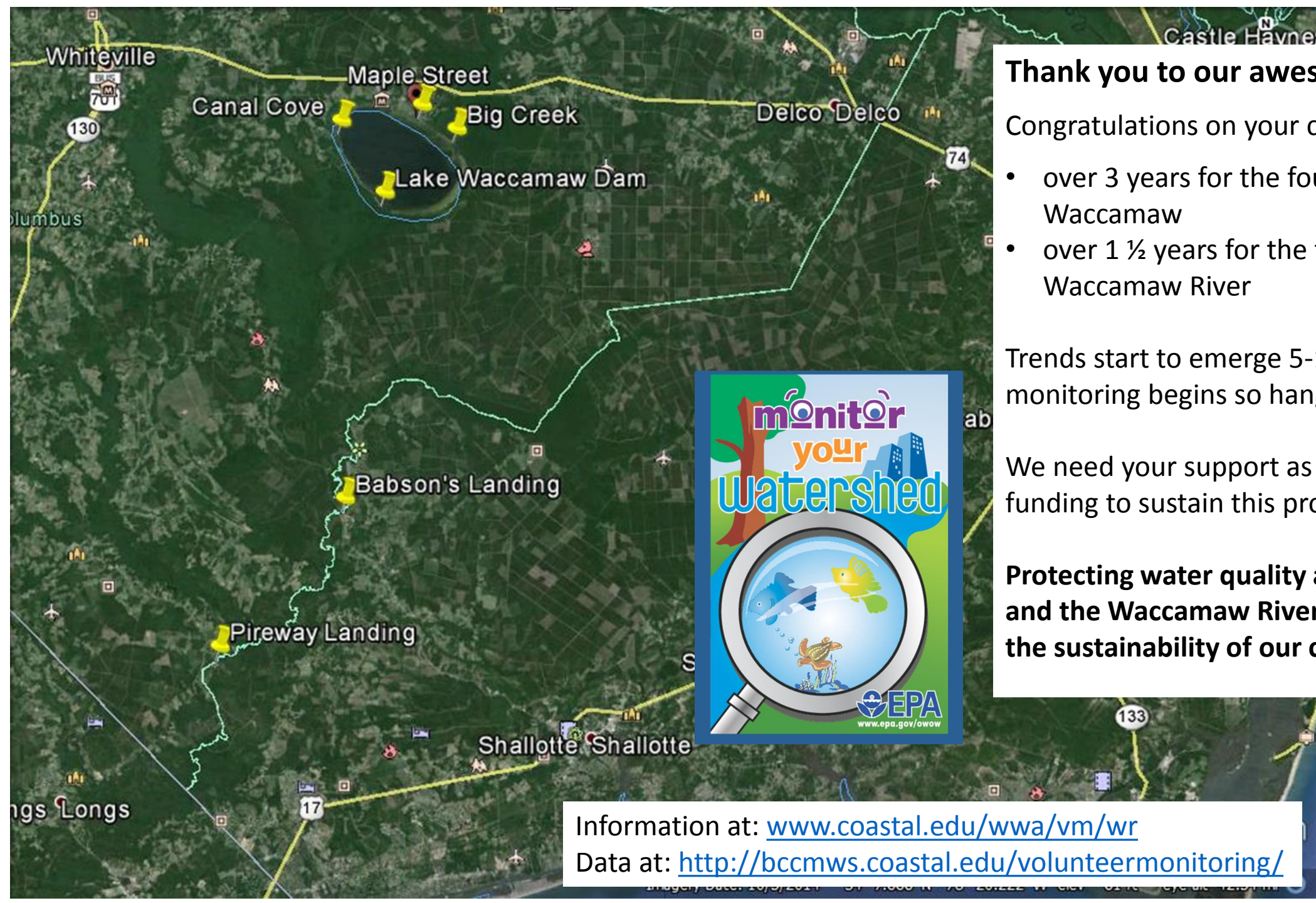Babson's

Pireway

Sites

Highcharts.com

E. Coli (CFU/100 mL)

Data collected between March 01, 2012 and February 17, 2015

Highcharts.com

Comparison of VM Data to NCDENR Data (2012-2013)
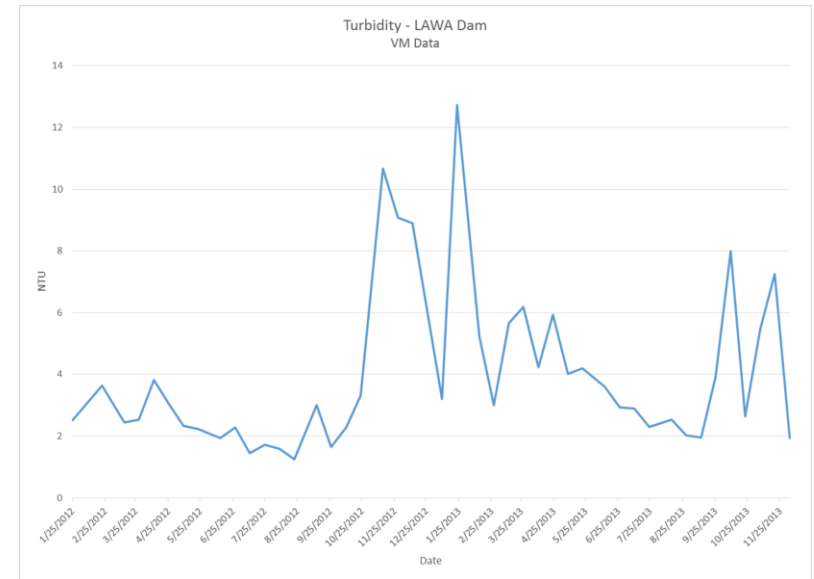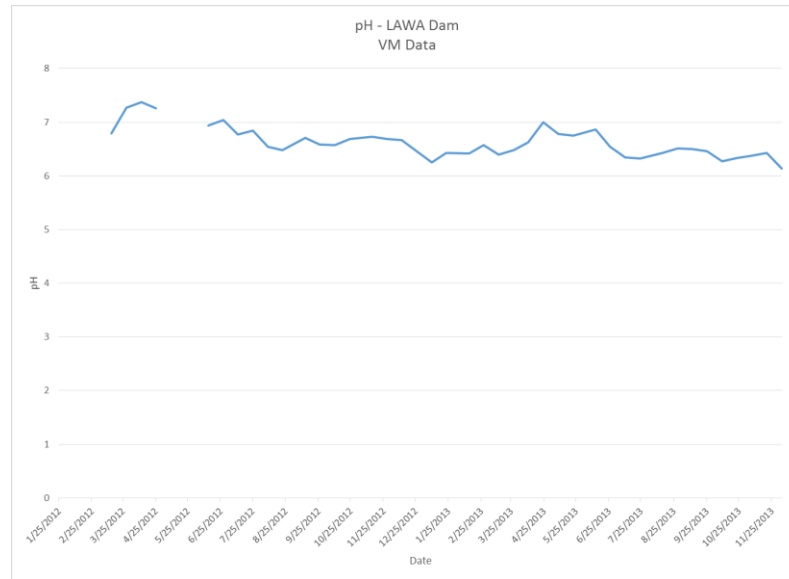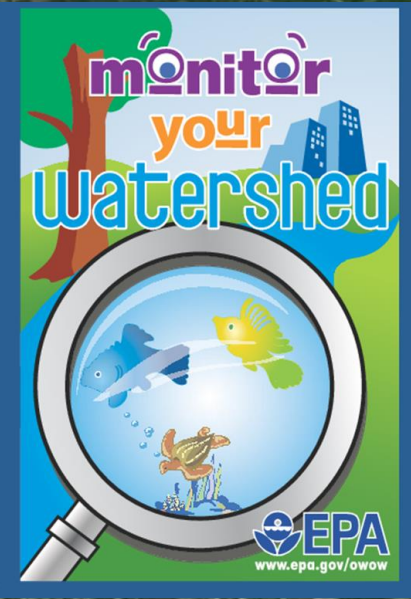
Thank you to our awesome volunteers!

Congratulations on your commitment:

- over 3 years for the four sites at Lake Waccamaw
- over 1 ½ years for the two sites on the Waccamaw River

Trends start to emerge 5-10 years after monitoring begins so hang in there!

We need your support as we continue to seek funding to sustain this project long term.

Protecting water quality at Lake Waccamaw and the Waccamaw River is a commitment to the sustainability of our community.

Information at: www.coastal.edu/wwa/vm/wr
Data at: http://bccmws.coastal.edu/volunteermonitoring/