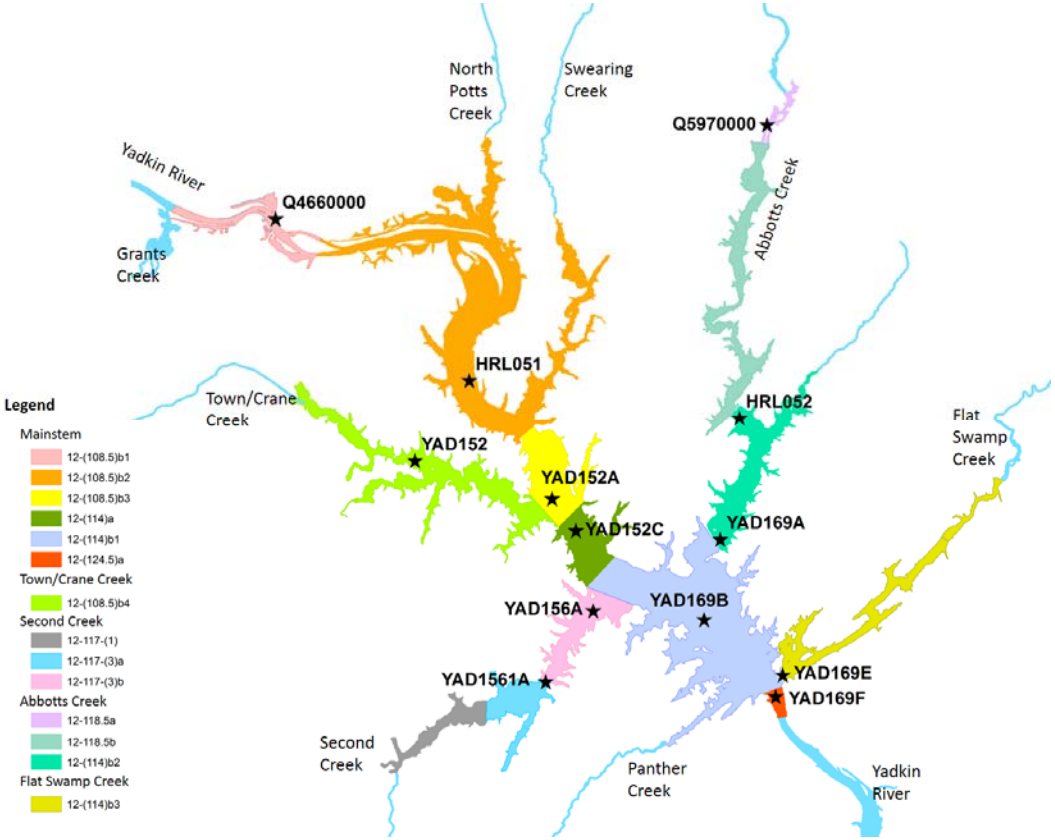
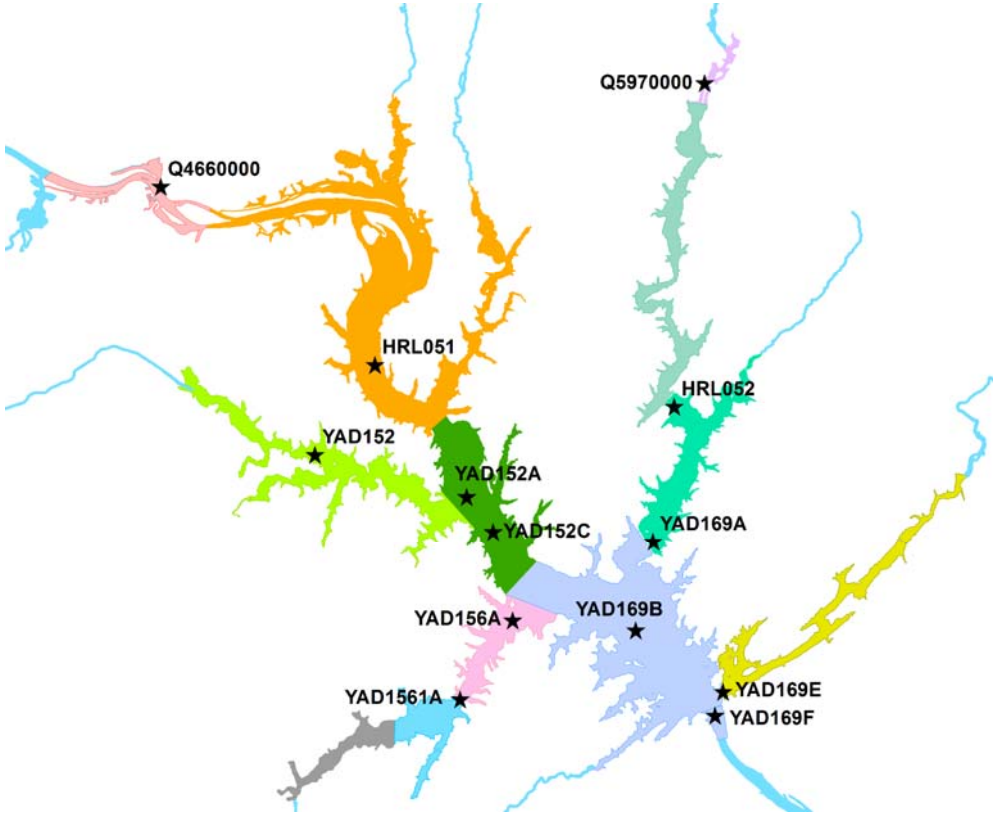
HRL Assessment Units

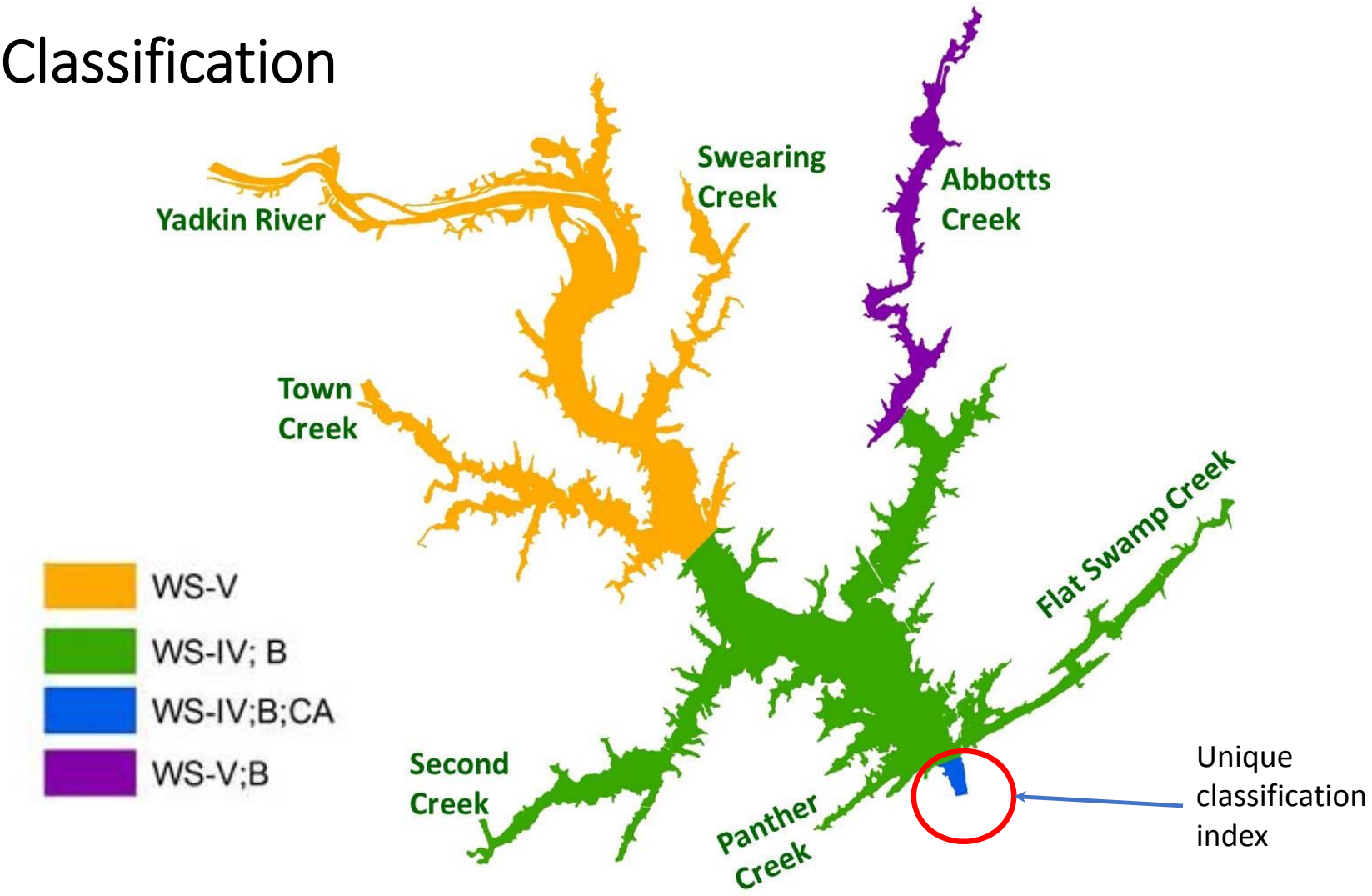




2014 IR

Merging Select AU's

Classification



2016 Data Summary – May - October

		chlorophyll-a (photic zone composite)			
	# of samples	# exceed	average (ug/L)	geomean (ug/L)	range (ug/L)
Mainstem					
HRL051	10	2	26	19	6.5 - 64
YAD152A	10	8	55	52	20 - 80
YAD152C	11	9	59	57	33 - 74
YAD169B	10	8	46	44	24 - 57
YAD169F	10	4	38	36	19 - 55
Arms					
YAD156A	10	8	53	51	34 - 72
YAD169A	11	3	39	39	31 - 52
YAD169E	10	2	32	31	20 - 48

2016 Data Summary – May - September

		chlorophyll-a (photic zone composite)			
	# of samples	# exceed	average (ug/L)	geomean (ug/L)	range (ug/L)
Mainstem					
HRL051	9	2	28	20	6.5 – 64
YAD152A	9	7	54	50	20 – 80
YAD152C	10	8	57	56	33 – 71
YAD169B	9	7	46	44	24 – 57
YAD169F	9	4	40	39	22 – 55
Arms					
YAD156A	9	7	52	34	34 – 72
YAD169A	10	3	39	31	31 – 52
YAD169E	9	2	33	26	26 - 48

2008-2010 Data Summary – May - October

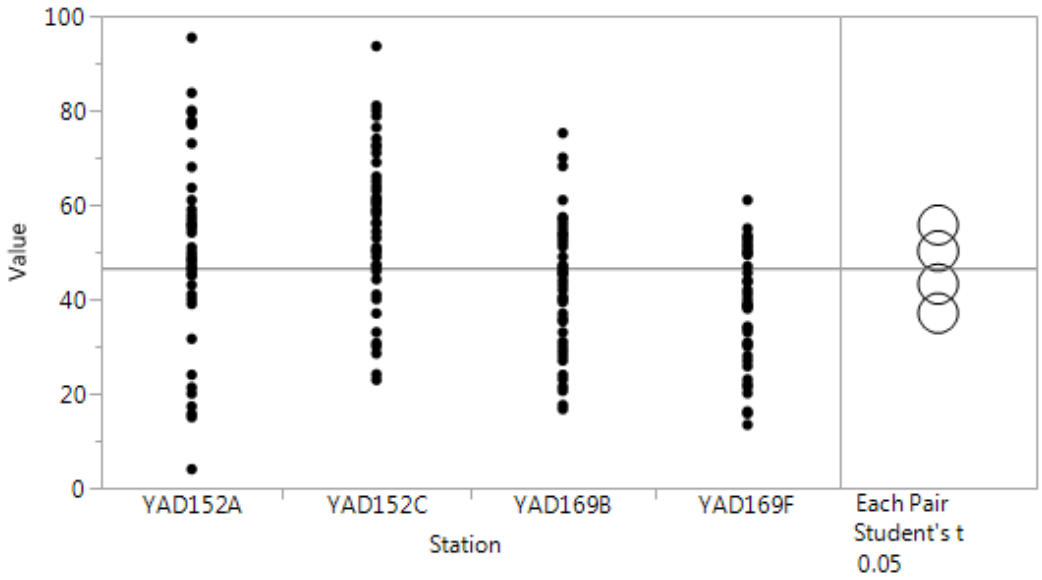
		chlorophyll-a (photic zone composite)			
	# of samples	# exceed	average (ug/L)	geomean (ug/L)	range (ug/L)
Mainstem					
HRL051	29	10	31	24	4 – 82
YAD152A	32	25	51	46	16 – 95
YAD152C	29	25	56	53	23 – 94
YAD169B	29	19	44	42	17 – 75
YAD169F	29	13	37	37	15 – 61
Arms					
YAD156A					
YAD169A	28	13	39	25	4 – 64
YAD169E	29	8	36	34	20 -61

Question: Is there a statistical difference in mean growing season Chlorophyll-a between Stations?

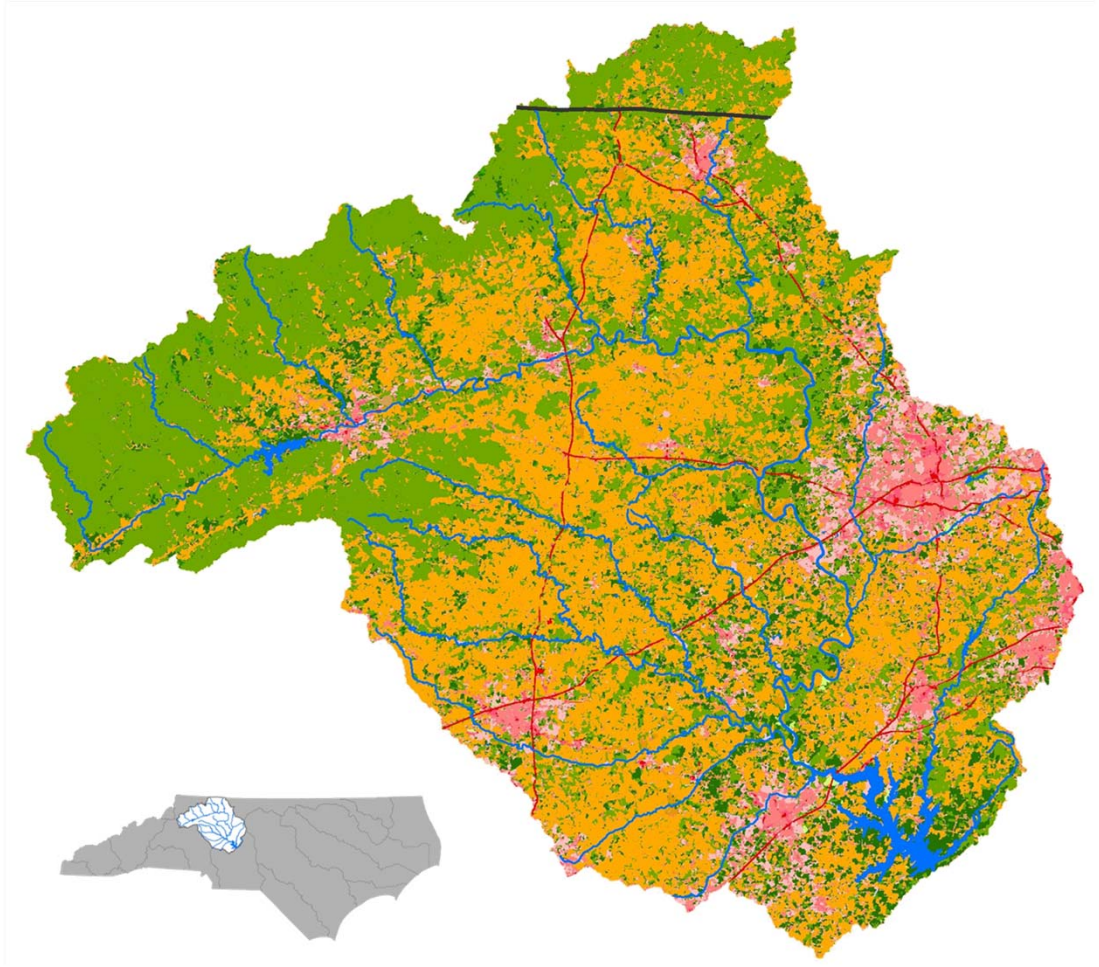
Test: Student's t test on Growing Season Average

Data: 2001-2016 (May – Sep), stations YAD152A, YAD152C, YAD169B, YAD169F

Results: Mean Chl *a* concentrations at Stations YAD152A and YAD152C are **not significantly** different at alpha of 0.05, while mean Chl a levels between stations YAD169B and YAD169F **are significantly** different.



2007 Land Cover



47% Forest
30% Pasture/Crop
18 % Developed

Legend

NC State Border

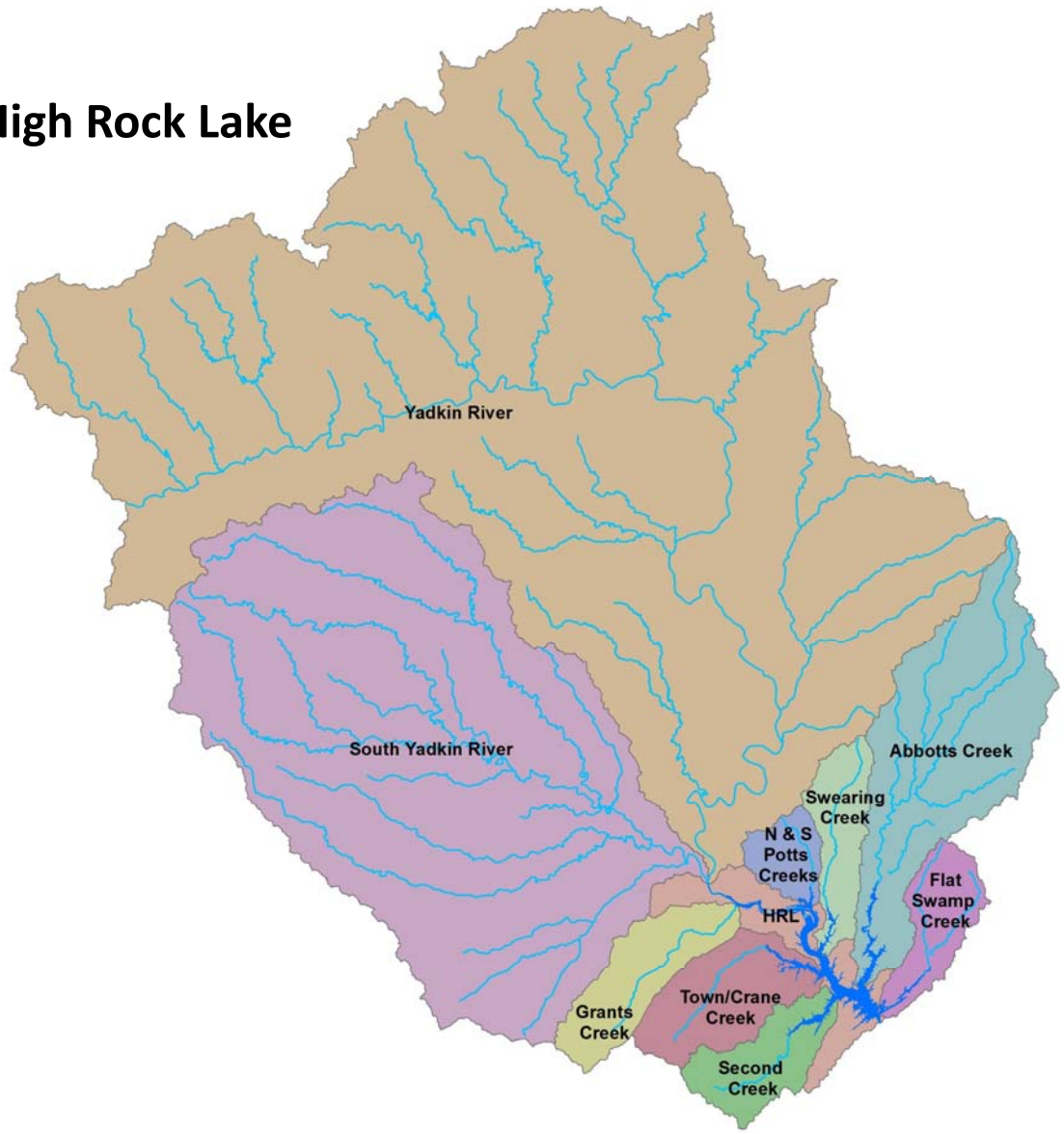
2007 Land Cover

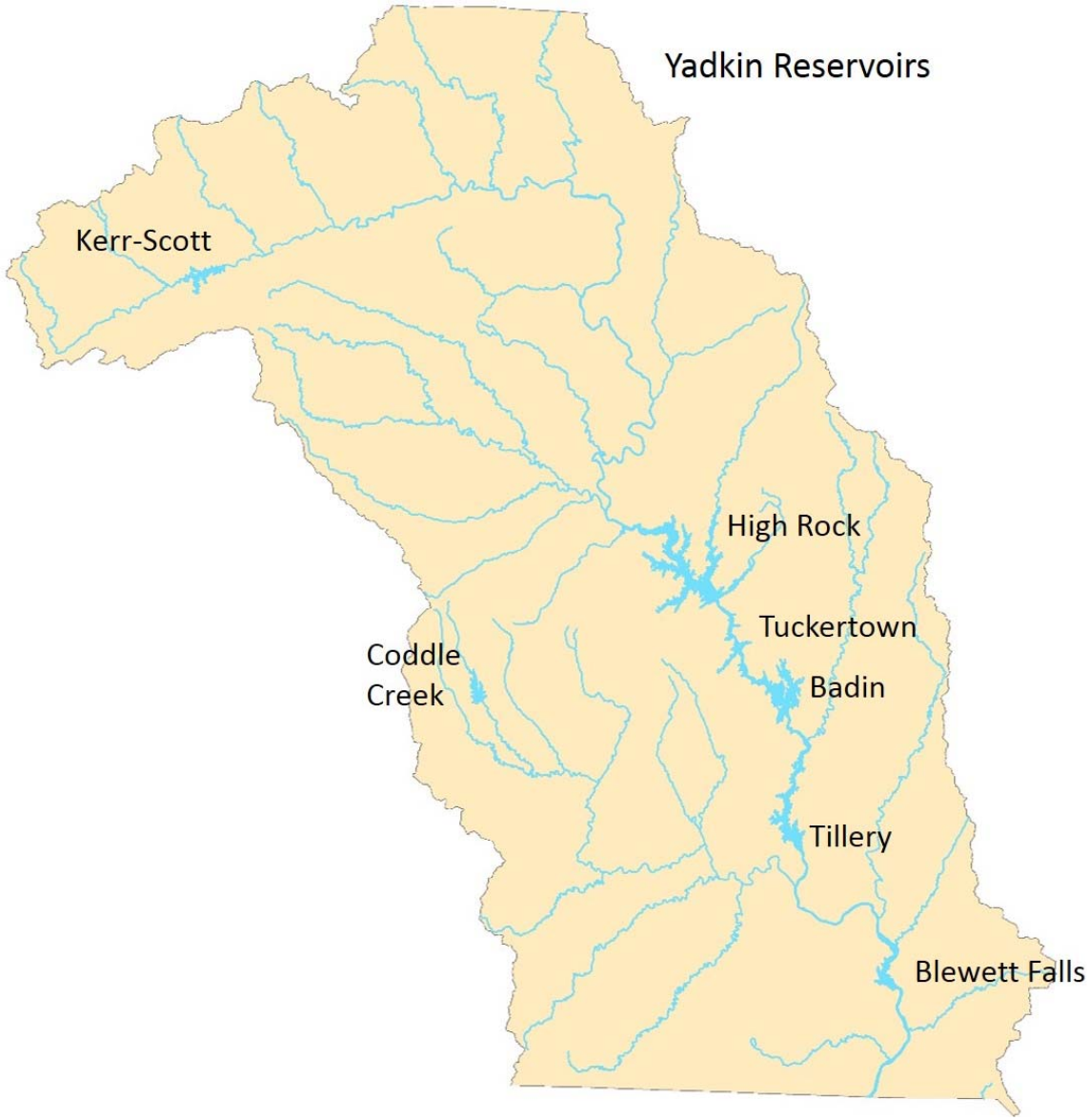
GRIDCODE

- 11 Open Water
- 21 Developed, Open Space
- 22 Developed, Low Intensity
- 23 Developed, Medium Intensity
- 24 Developed, High Intensity
- 31 Barren Land
- 41 Deciduous Forest
- 42 Evergreen Forest
- 43 Mixed Forest
- 52 Shrub/Scrub
- 71 Grassland
- 81 Pasture/Hay
- 82 Crops
- 90 Woody Wetlands
- 95 Emergent Herbaceous Wetlands

EXTRAS

Major Subwatersheds of High Rock Lake

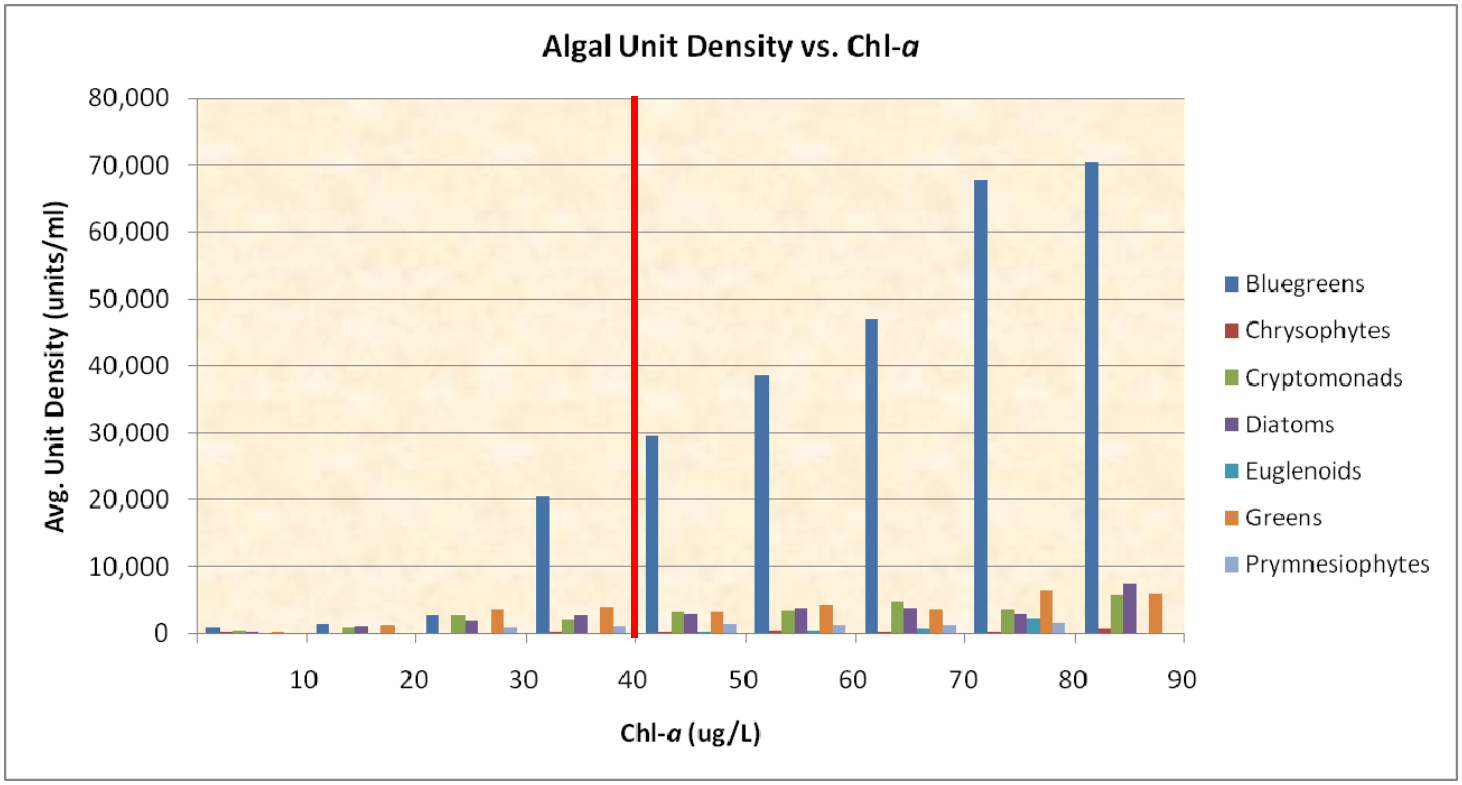



Yadkin Reservoirs
Kerr-Scott
High Rock
Tuckertown
Coddle
Creek
Badin
Tillery
Blewett Falls

Algae /Chlorophyll-*a*

2008-2010

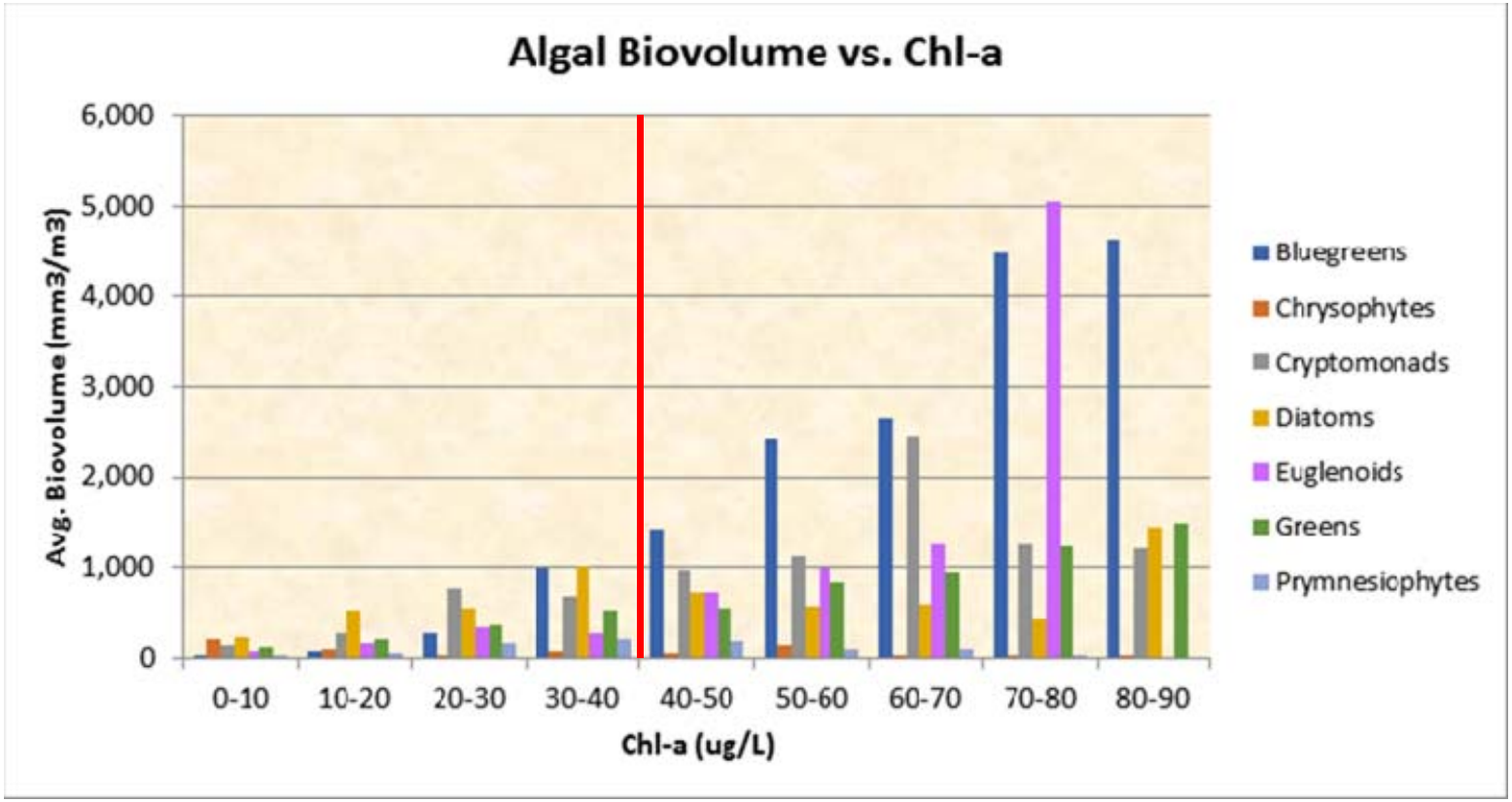
Average across HRL052, YAD152C, YAD1561A, and YAD169B



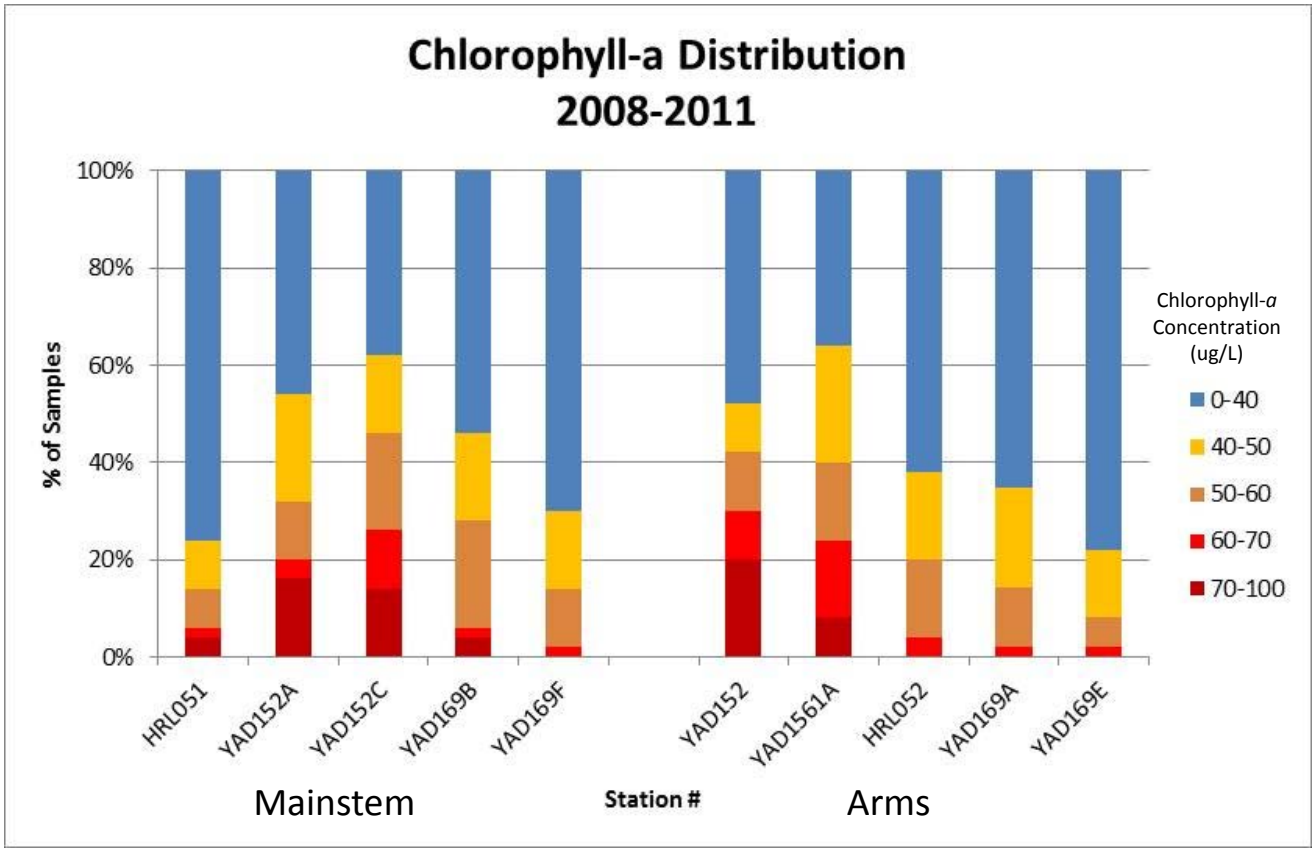
Algae /Chlorophyll-*a*

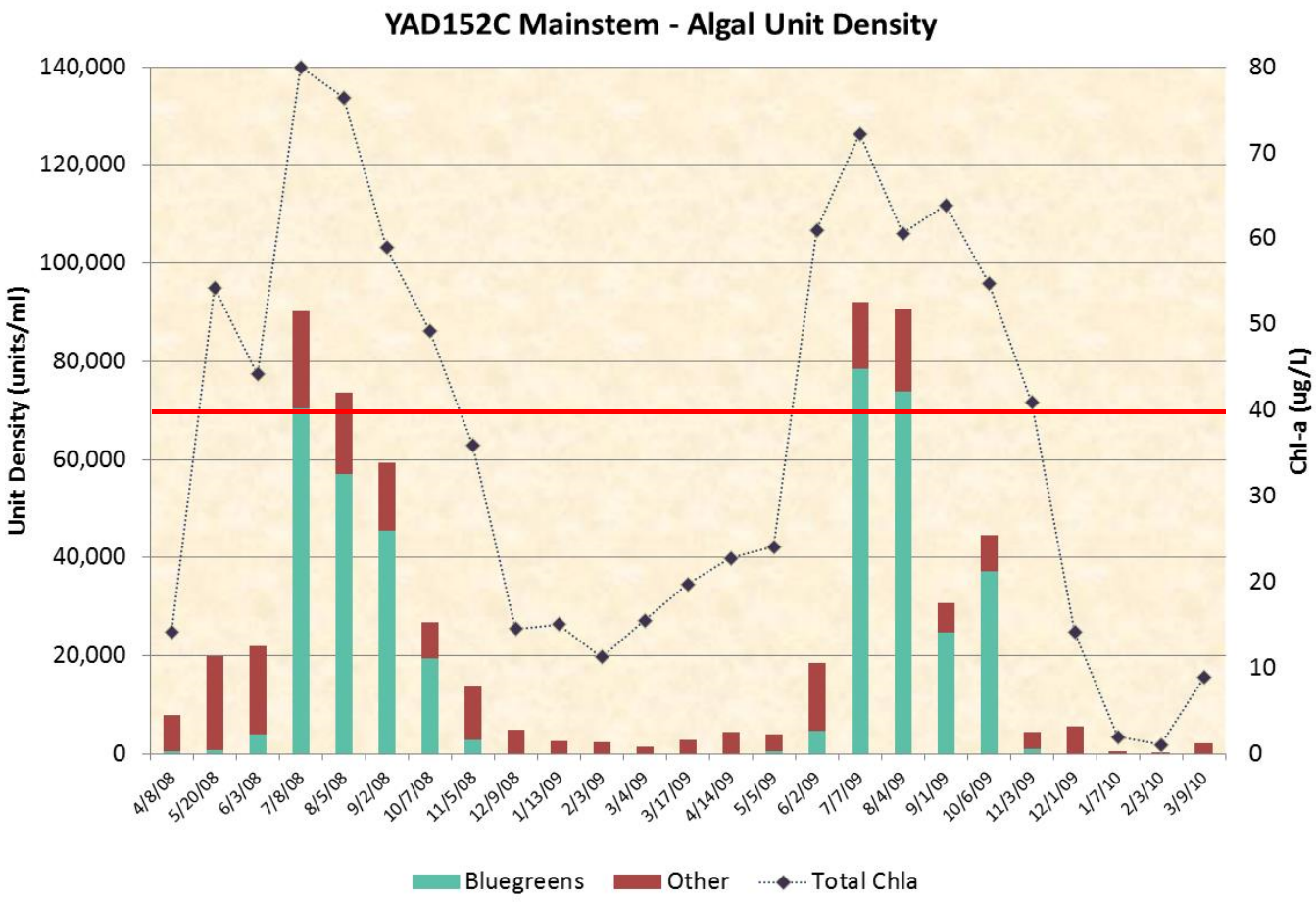
2008-2010

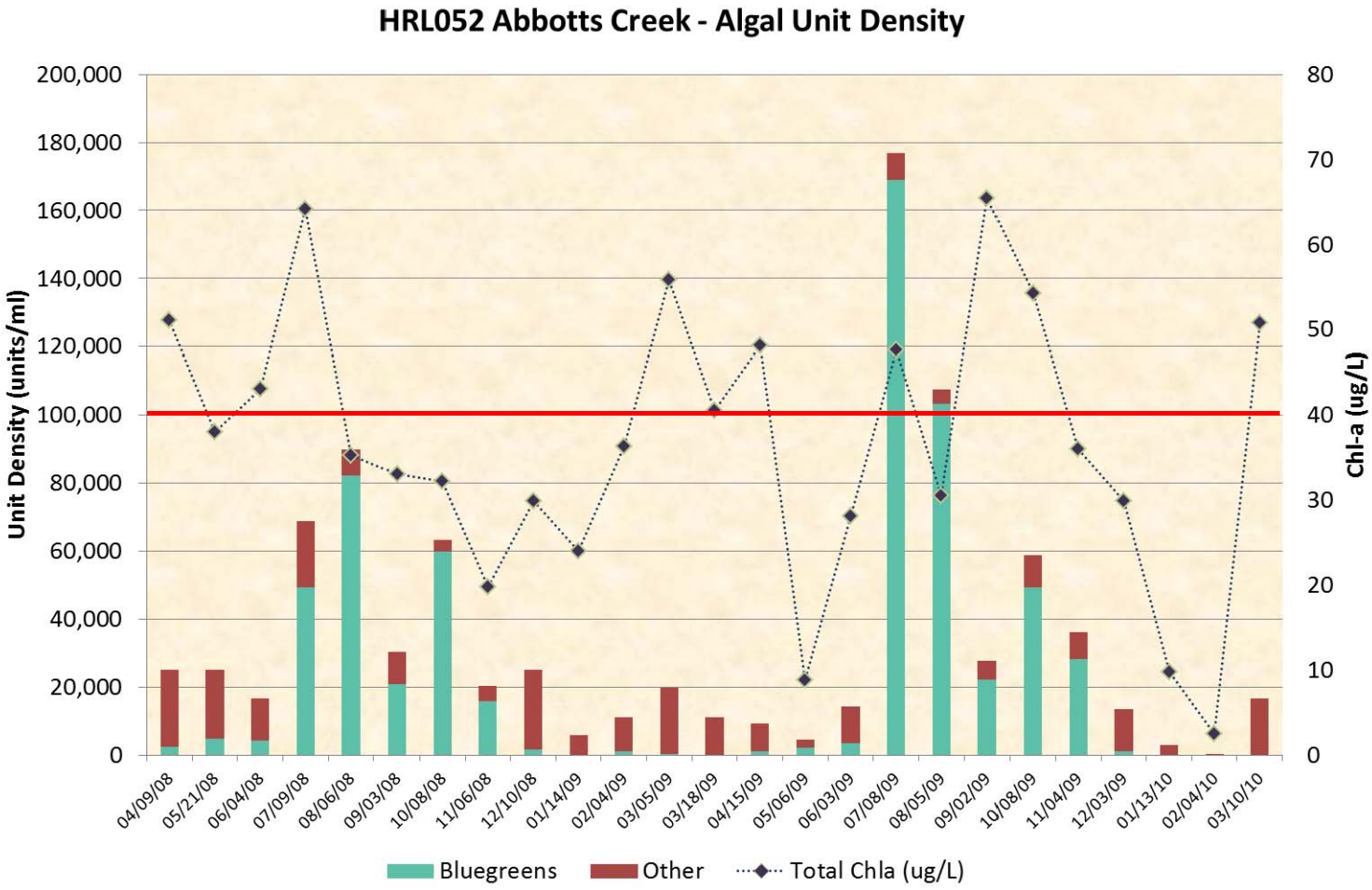
Average across HRL052, YAD152C, YAD1561A, and YAD169B



Distribution of Chlorophyll-*a* Data




YAD152C Mainstem - Algal Unit Density
Unit Density (units/ml)
Chl-a (ug/L)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
80
70
60
50
40
30
20
10
0
4/8/08
5/20/08
6/3/08
7/8/08
8/5/08
9/2/08
10/7/08
11/5/08
12/9/08
1/13/09
2/3/09
3/4/09
3/17/09
4/14/09
5/5/09
6/2/09
7/7/09
8/4/09
9/1/09
10/6/09
11/3/09
12/1/09
1/7/10
2/3/10
3/9/10
Bluegreens
Other
Total Chla


HRL052 Abbotts Creek - Algal Unit Density
Unit Density (units/ml)
Chl-a (ug/L)
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
80
70
60
50
40
30
20
10
0
04/09/08
05/21/08
06/04/08
07/09/08
08/06/08
09/03/08
10/08/08
11/06/08
12/10/08
01/14/09
02/04/09
03/05/09
03/18/09
04/15/09
05/06/09
06/03/09
07/08/09
08/05/09
09/02/09
10/08/09
11/04/09
12/03/09
01/13/10
02/04/10
03/10/10
Bluegreens
Other
Total Chla (ug/L)

NPDES Discharges in HRL Watershed
Average nutrient concentrations in discharge (2001-2010)

Class	Parameter	Min	Max	Avg	Units
Major	Nitrogen Total (as N)	0.10	95.6	13.2	mg/L
Major	Phosphorus Total (as P)	0.01	38.1	3.0	mg/L
Minor	Nitrogen Total (as N)	0.05	458.8	27.2	mg/L
Minor	Phosphorus Total (as P)	0.03	112	5.3	mg/L

Note: Major = >1MGD, Minor = <1MGD