Hazel Creek Lake

Site 1

2011 DATA

Adair County
Latitude: 40.2985 Longitude: -92.628

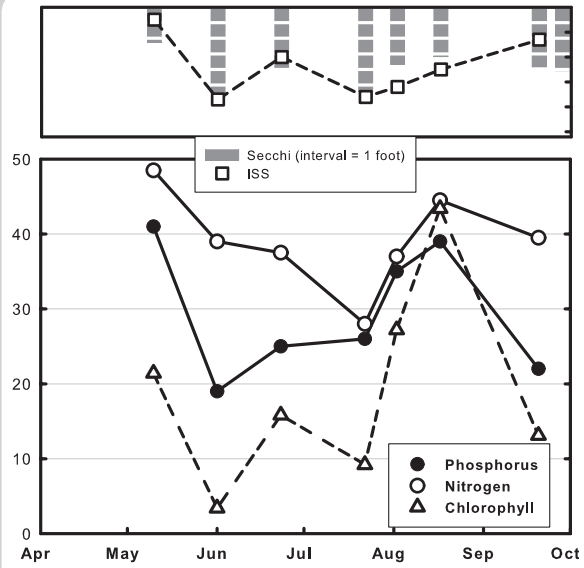
Date	5/10	6/1	6/23	7/22	8/2	8/17	9/20	9/28	Mean
Secchi (inches)	27	66	48	65	44	38	46	49	46
TP (µg/L)	41	19	25	26	35	39	22		28
TN (µg/L)	970	780	750	560	740	890	790		773
CHL (µg/L)	21.4	3.4	15.8	9.2	27.2	43.4	13.1		14.9
ISS (mg/L)	4.5	1.3	3.0	1.4	1.8	2.5	3.7		2.4

Water clarity in Hazel Creek Lake was pretty good in 2011, averaging nearly 4 feet, with a high of over 5 feet.

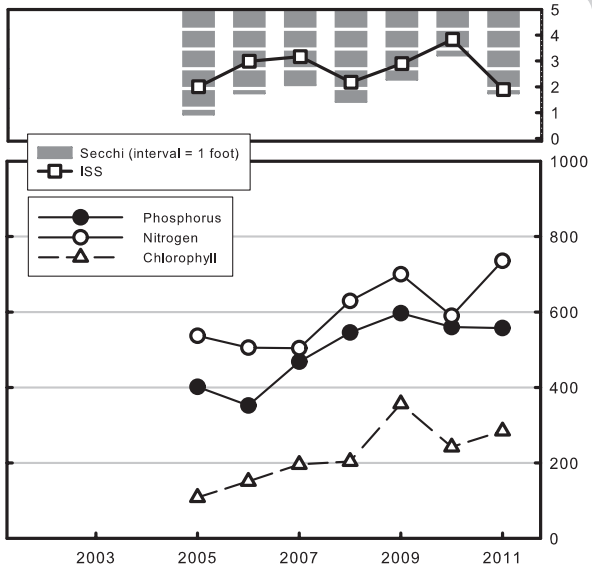
An algae bloom apparently was occurring during the August 17 sampling. Chlorophyll concentrations on that day were 3 times higher than the mean, and nearly double the previous maximum. The ratio of chlorophyll to phosphorus was 1.1, meaning there was more chlorophyll than phosphorus in the water. A more typical ratio is 0.5, or half as much chlorophyll as phosphorus in the water.

Over the long-term, nutrient and chlorophyll concentrations appear to be trending upward. Nitrogen and phosphorus have increased by about 50% and chlorophyll concentrations have nearly doubled since monitoring began in 2005.

2011 GRAPHS



TREND GRAPHS



See page 3 for help interpreting graphs

Hazel Creek Lake

Site 2

2011 DATA

AdairCounty
Latitude: 40.2805 Longitude: -92.6045

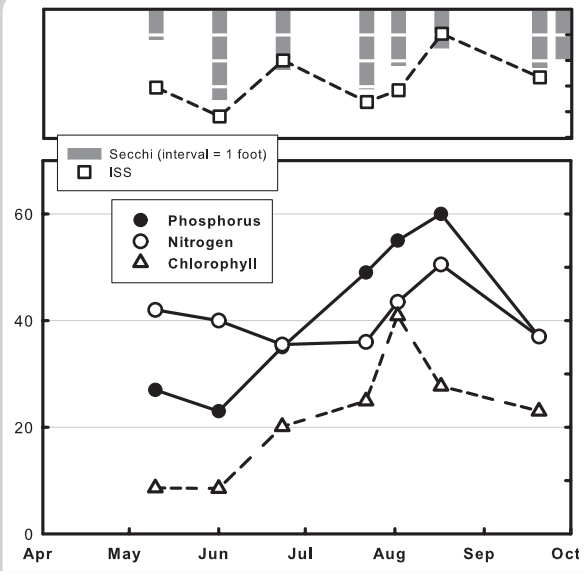
Date	5/10	6/1	6/23	7/22	8/2	8/17	9/20	9/28	Mean
Secchi (inches)	14	42	28	37	26	18	27	24	26
TP (µg/L)	27	23	35	49	55	60	37		39
TN (µg/L)	840	800	710	720	870	1010	740		807
CHL (µg/L)	8.6	8.5	20.1	24.9	40.9	27.7	23.0		19.2
ISS (mg/L)	9.7	4.1	15.0	6.9	9.2	20.2	11.7		9.8

Site 2 is located in a cove near the inflow end of Hazel Creek Lake.

Water clarity (Secchi) at this site was roughly half that of Site 1 near the dam. Nutrient (TP and TN) and chlorophyll (CHL) concentrations were somewhat higher at Site 2, but sediment concentrations (ISS) were 4 times higher. This is not surprising, given the shallow water depth at this site and the site's proximity to the inflow. Sediment will wash in, off the watershed, during storm events and be resuspended from the bottom with wave action.

Long-term trend graphs are similar to the graphs from Site 1. Nutrient and chlorophyll concentrations are trending upward, while water clarity and suspended sediment concentrations remain comparatively stable.

2011 GRAPHS



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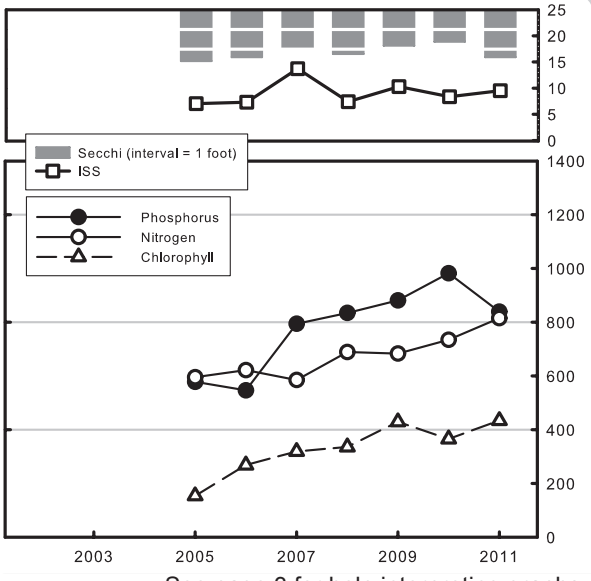


See page 3 for help interpreting graphs

Hazel Creek Lake

Site 3

2011 DATA

Adair County
Latitude: 40.2772 Longitude: -92.6092

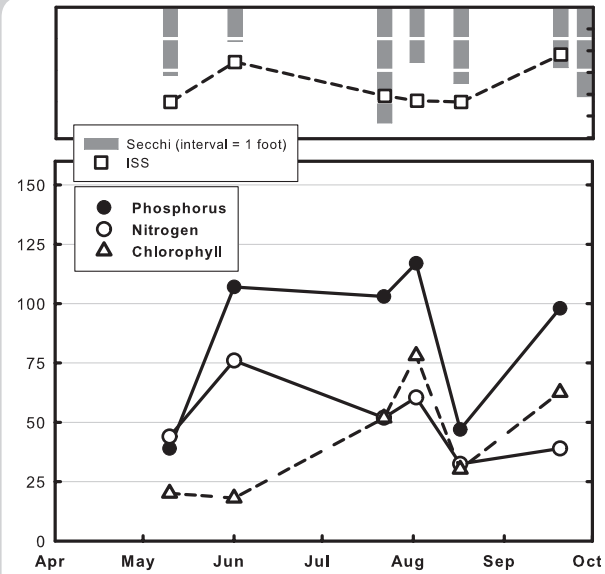
Date	5/10	6/1	X	7/22	8/2	8/17	9/20	9/28	Mean
Secchi (inches)	26	13		44	21	29	23	34	26
TP (µg/L)	39	107		103	117	47	98		78
TN (µg/L)	880	1520		1040	1210	650	780		974
CHL (µg/L)	20.1	18.1		51.8	78.1	30.2	62.6		55.0
ISS (mg/L)	8.2	17.4		9.6	8.5	8.2	19.1		11.1

Like Site 2, Site 3 is located in a cove on the inflowing end of Hazel Creek Lake. Site 3 differs in that a road separates the cove from the main lake, and all water exchange happens via culvert pipes. In effect, the road isolates Site 3 from the main lake, creating a small, shallow, sediment settling basin.

The water quality at Site 3 differs considerably from the main lake. Site 3 water clarity was, on average, identical to Site 2. This is odd, considering Site 3 had twice the phosphorus, nearly 3 times the chlorophyll, and sightly more suspended sediment.

Phosphorus and nitrogen concentrations were lower in 2011 than in the previous 2 years, possibly due to dry conditions. Nevertheless, while the scale differs, long-term data suggest the same trends at Site 3 as observed at Site 1 and Site 2.

2011 GRAPHS



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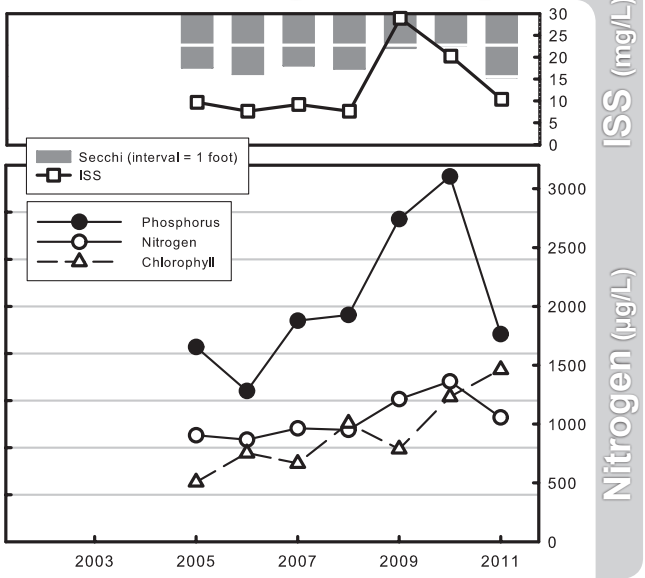

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