

# Allegan County

**Carp**

**Fenner Lake**

**Alleghan County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	2	20.7	na	20.7	23.2
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	2	0.115		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	2	20.7	na	20.7	23.2
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	2	0.203		--	--	
DDT	2	0.035		--	--	
Chlordane	2	0.004		--	--	
Toxaphene	2	ND		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>					--	

**Existing Advisory:** Women and children should eat no more than one meal per week of Fenner Lake carp less than 22 inches in length and no more than one meal per month of Fenner Lake carp greater than 22 inches in length due to PCBs.

**Recommendation:** There are insufficient data available to develop specific advice for Fenner Lake carp. The statewide consumption guideline for carp recommends that no one eat more than 2 meals per month of carp due to PCBs.

**Largemouth Bass**

**Fenner Lake**

**Alleghan County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	6	11.6	14	15.4	20.1
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	2	0.595		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.963	0.871				

**Organics Analysis:**

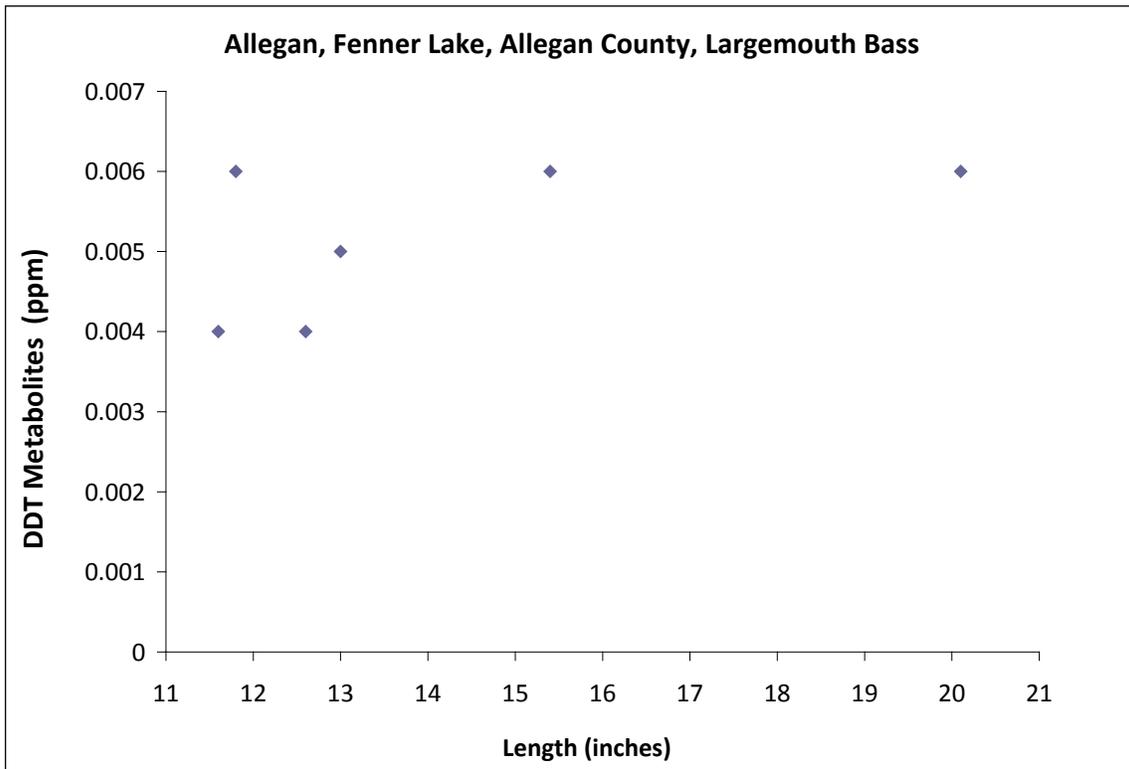
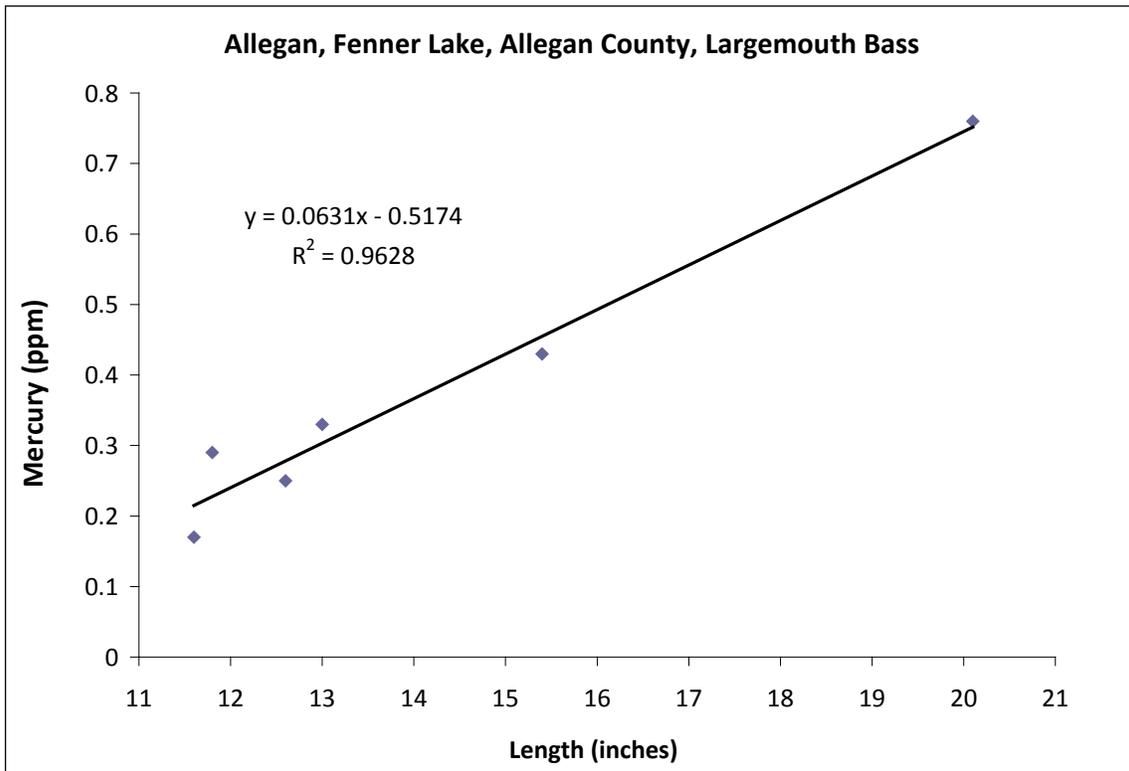
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	6	11.6	14	15.4	20.1
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	2	ND		--	--	
DDT	2	0.006		--	--	
Chlordane	2	ND		--	--	
Toxaphene	2	ND		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.319	0.313				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						--

**Existing Advisory:** Fenner Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of Fenner Lake largemouth or smallmouth bass less than 16 inches or more than 1 meal per month of those fish larger than 16 inches due to mercury. PCBs would cause an advisory.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
14	0.366	2
15	0.429	2
16	0.492	2
17	0.555	1
18	0.618	1
19	0.682	1
20	0.745	1
21	0.808	1
22	0.871	1

*Shaded area denotes extrapolated estimates*



**Northern Pike**

**Hutchins Lake**

**Alleghan County**

**Hg Analysis:**

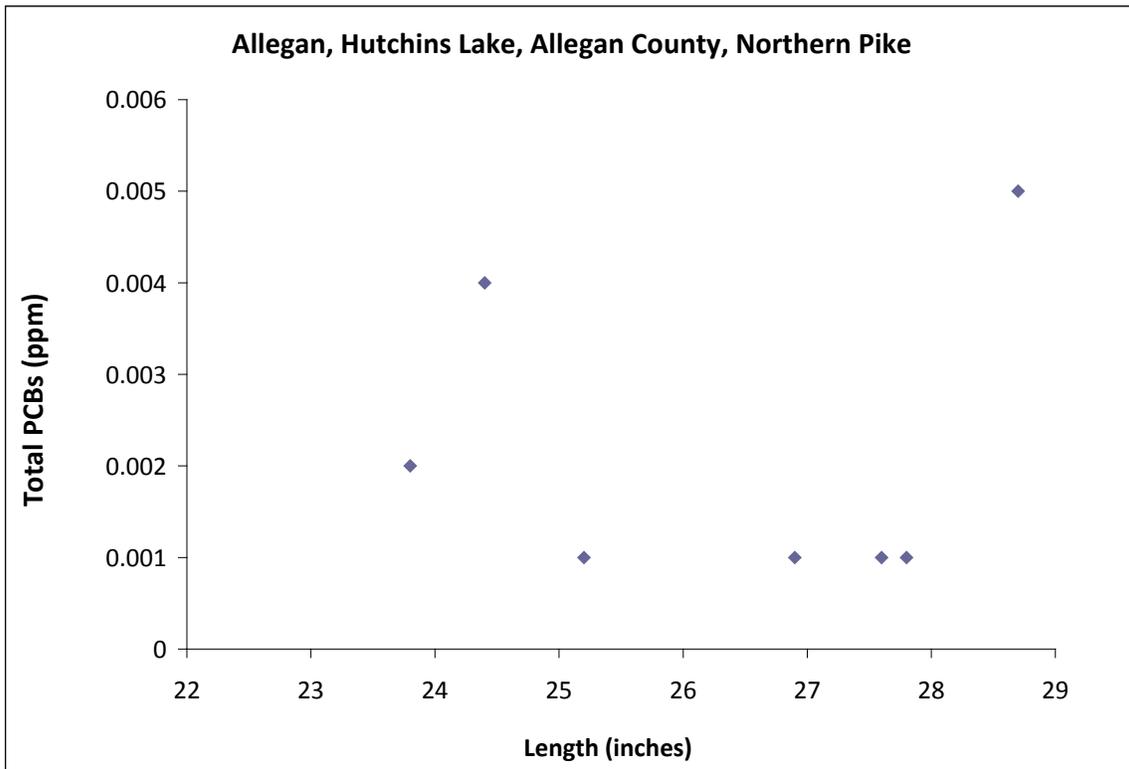
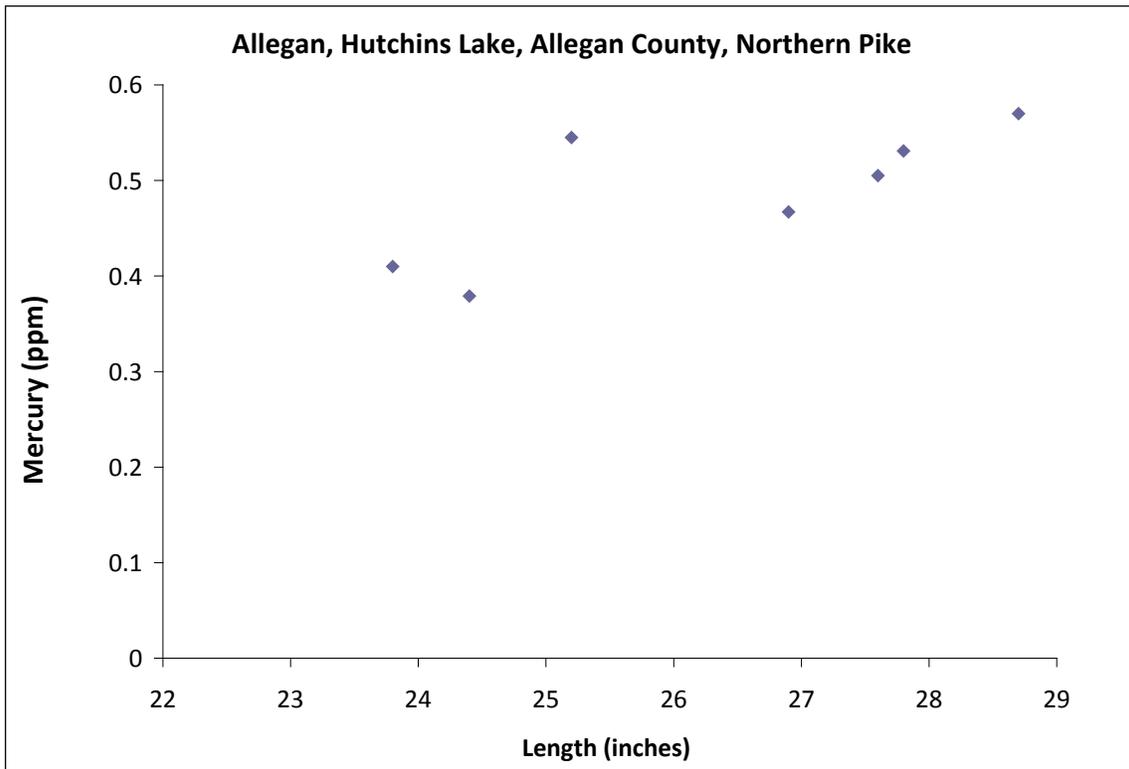
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2007	2007	10	22.8	24	23.8	28.7
Datasets available: 2007						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	7	0.487		0.55	1	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.055	0.060				

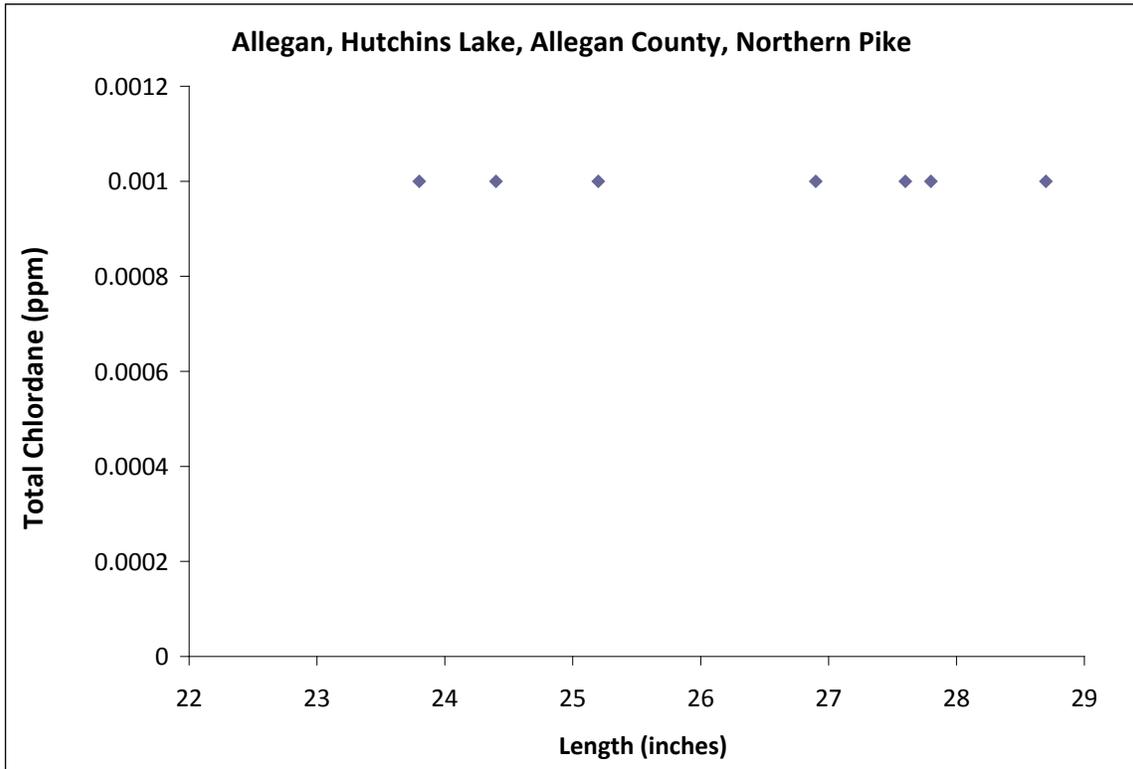
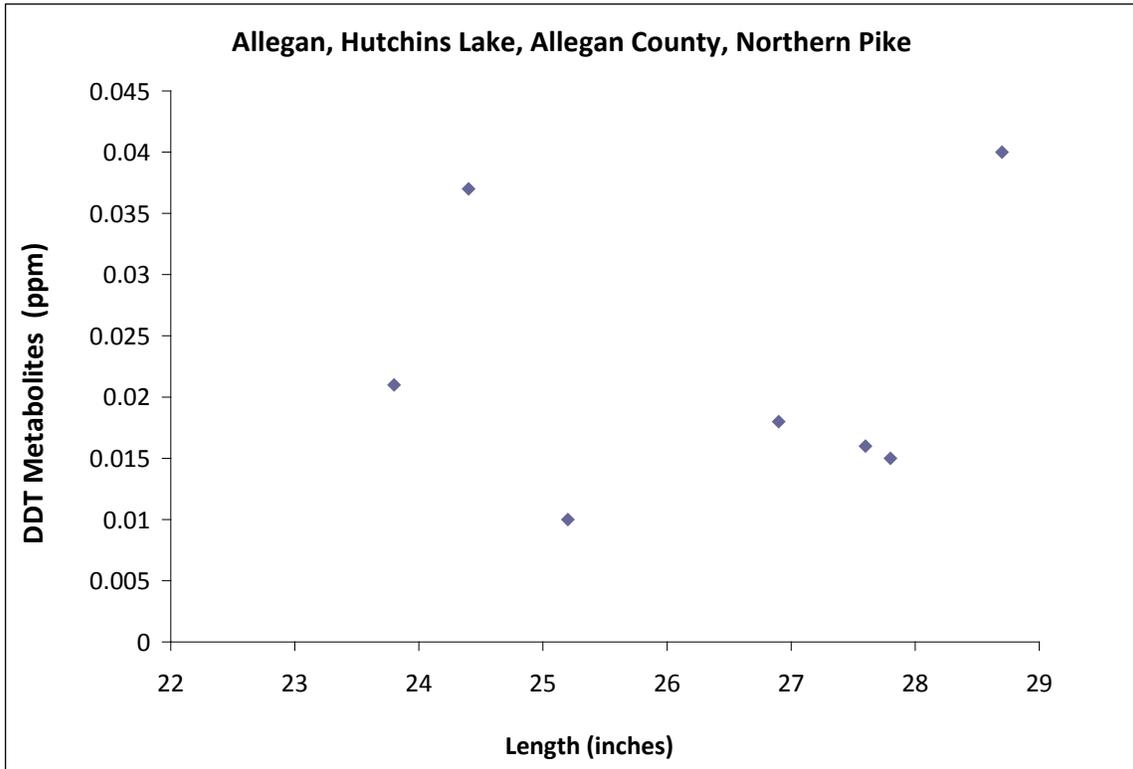
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2007	2007	10	22.8	24	23.8	28.7
Datasets available: 2007						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	7	0.002		0.003	16	
DDT	7	0.022		0.03	16	
Chlordane	7	0.001		0.003	--	
Toxaphene	7	ND		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.145	0.119				
DDT	0.096	0.044				
Chlordane	0.120	0.120				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>					<b>1</b>	

**Existing Advisory:** Hutchins Lake northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of Hutchins Lake northern pike less than 30 inches, or more than six meals per year greater than 30 inches due to mercury. Statewide length break was applied.





**Largemouth Bass**

**Osterhout Lake**

**Allegan County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2007	2007	10	12.8	14	13.6	16.3
Datasets available: 2007						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	7	0.315		0.400	2	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.796	0.755				

**Organics Analysis:**

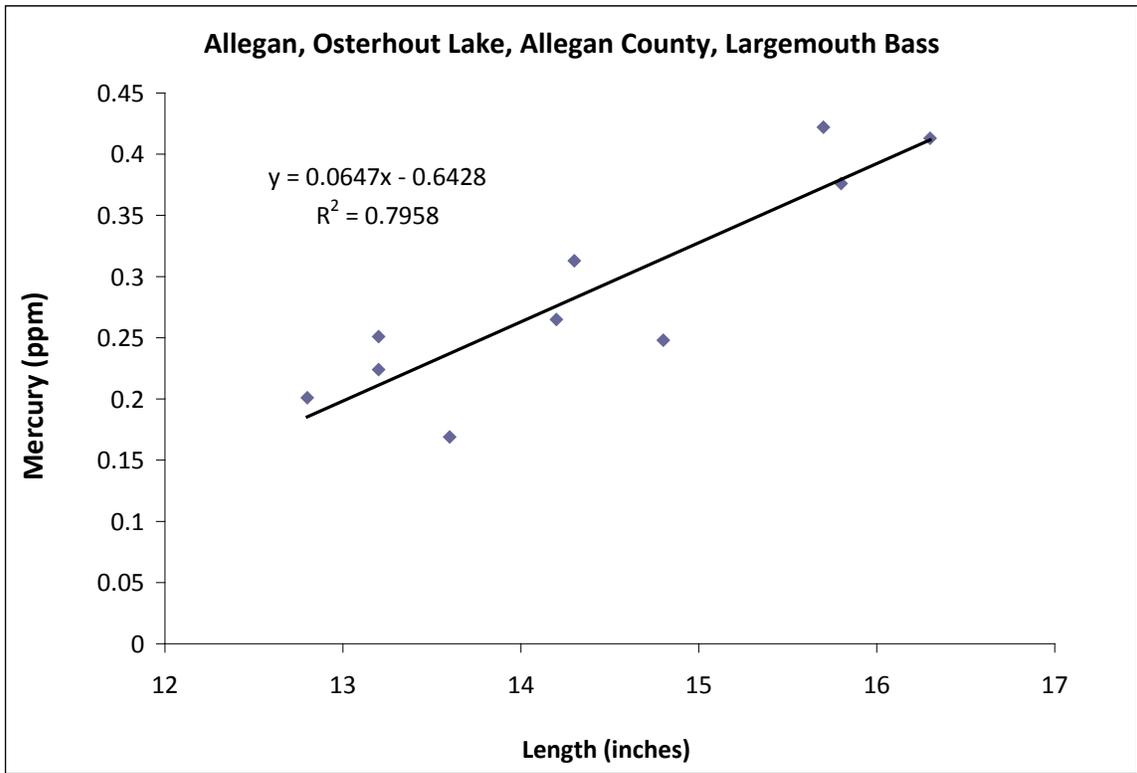
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	0	NA		--	--	
DDT	0	NA		--	--	
Chlordane	0	NA		--	--	
Toxaphene	0	NA		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>					<b>2</b>	

**Existing Advisory:** Osterhout Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of legal size Osterhout Lake largemouth bass or smallmouth bass under 18 inches or more than 1 meal per month of those fish larger than 18 inches due to mercury. Robust linear regression (R<sup>2</sup>=0.8) supports using statewide length break.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
14	0.263	4
15	0.328	2
16	0.392	2
17	0.457	2
18	0.522	2
19	0.587	1
20	0.651	1
21	0.716	1
22	0.781	1

*Shaded area denotes extrapolated estimates*



**Largemouth Bass**

**Selkirk Lake**

**Allegan County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1993	1993	9	12.4	14	14	20.3
Datasets available: 1993						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	7	0.479	0.27	0.69	0.610	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.774	0.658				

**Organics Analysis:**

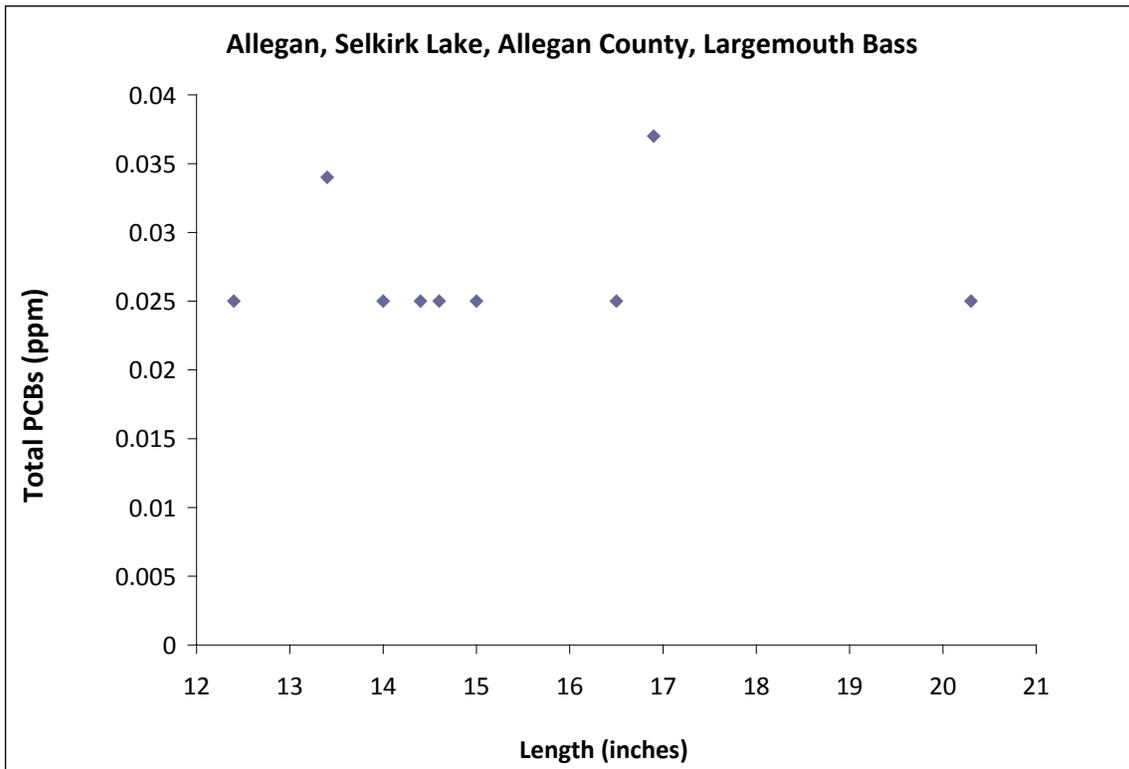
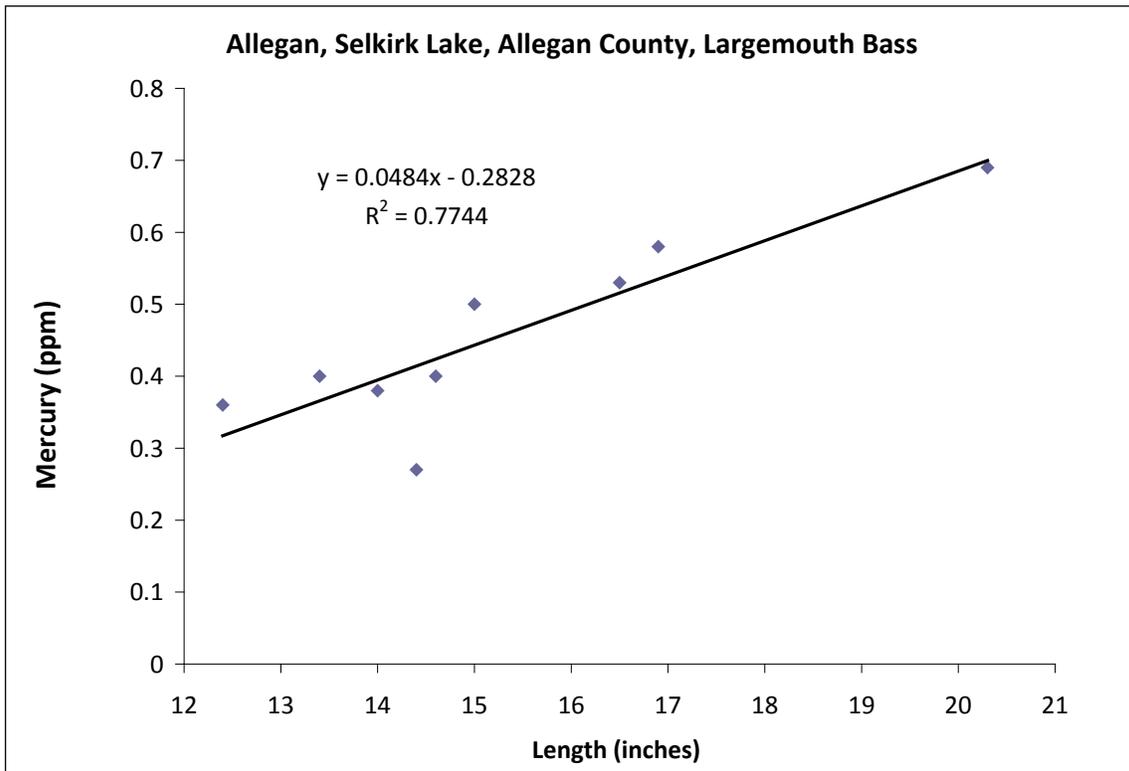
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1993	1993	9	12.4	14	14	20.3
Datasets available: 1993						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	7	0.027	0.025	0.037	0.030	8
DDT	7	0.071	0.034	0.162	0.110	16
Chlordane	7	0.005	0.003	0.014	0.010	--
Toxaphene	7	ND				
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.001	0.000				
DDT	0.374	0.439				
Chlordane	0.081	0.161				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

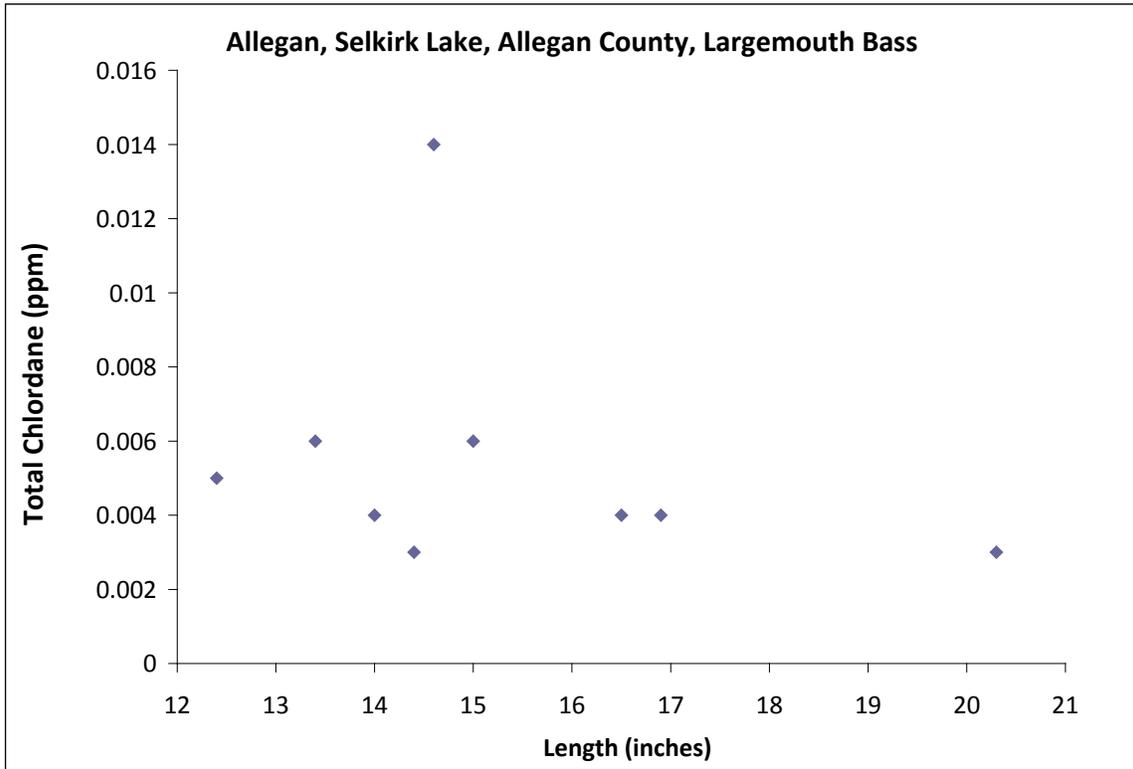
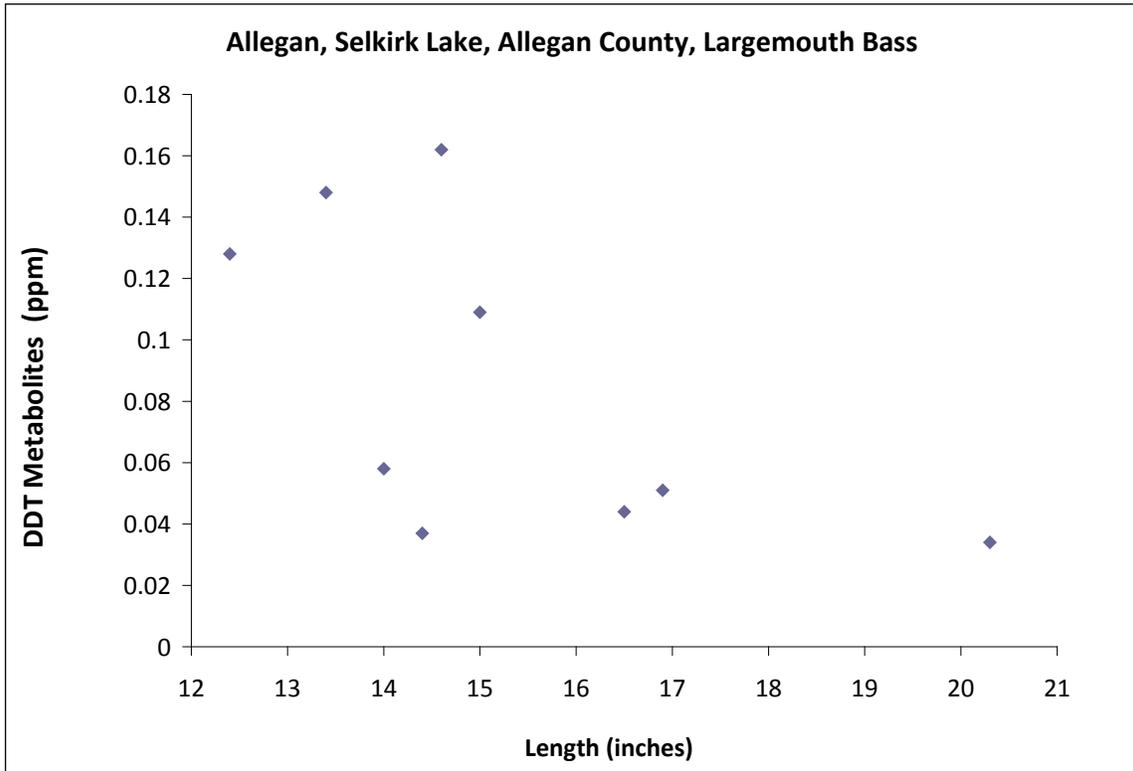
**Existing Advisory:** Selkirk Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of Selkirk Lake largemouth or smallmouth bass less than 16 inches or more than 1 meal per month of those fish larger than 16 inches due to mercury. PCBs would cause an advisory.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
14	0.395	2
15	0.443	2
16	0.492	2
17	0.540	1
18	0.588	1
19	0.637	1
20	0.685	1
21	0.734	1
22	0.782	1

*Shaded area denotes extrapolated estimates*





**Yellow Bullhead**

**Selkirk Lake**

**Allegan County**

**Hg Analysis:**

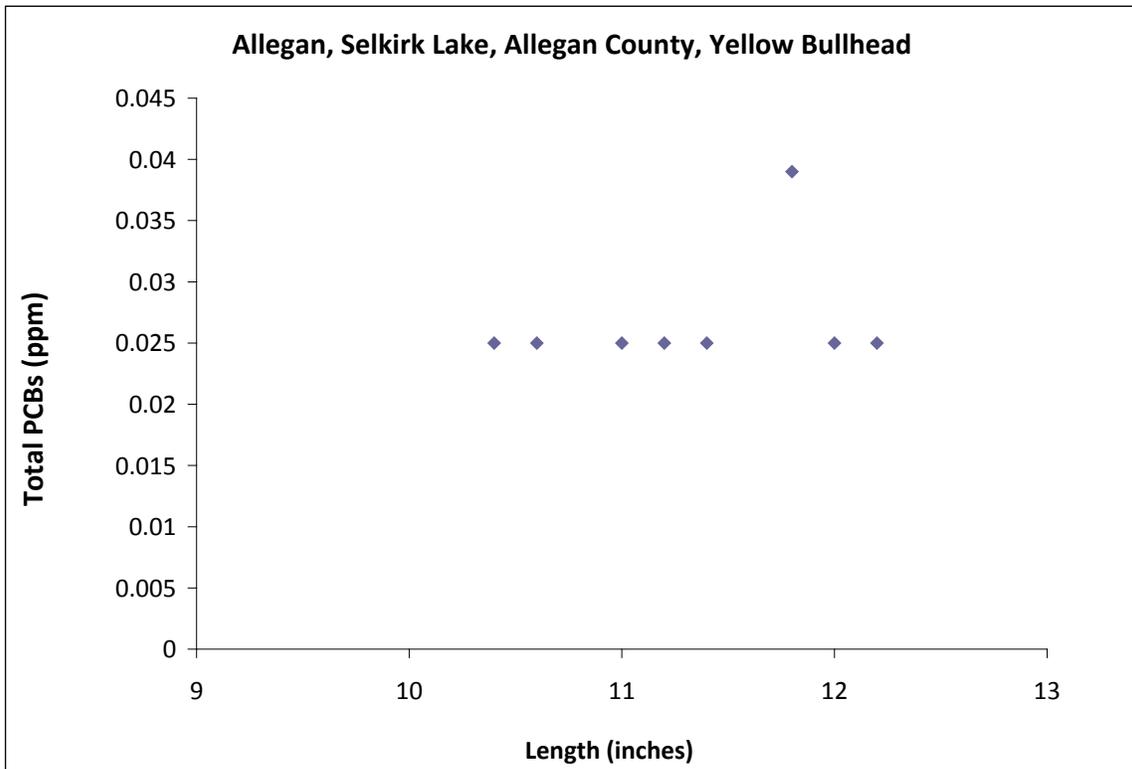
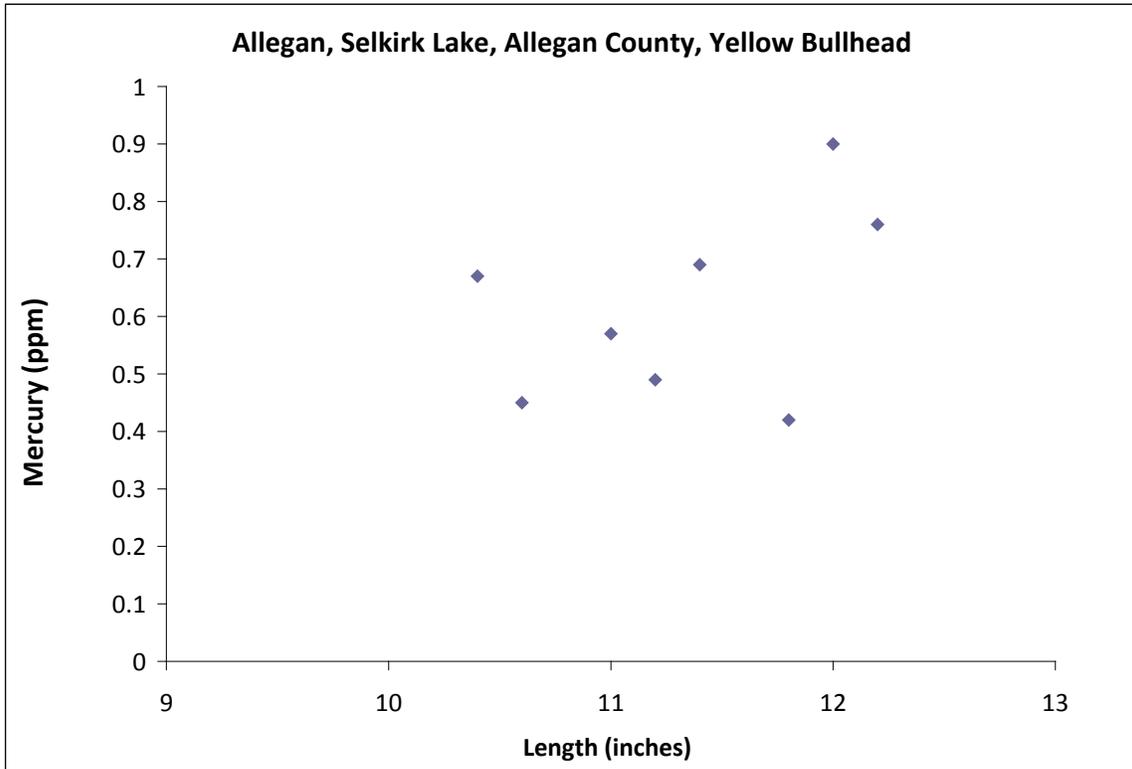
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1993	1993	8	10.4	na	10.4	12.2
Datasets available: 1993						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	8	0.619	0.42	0.90	0.760	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.192	0.148				

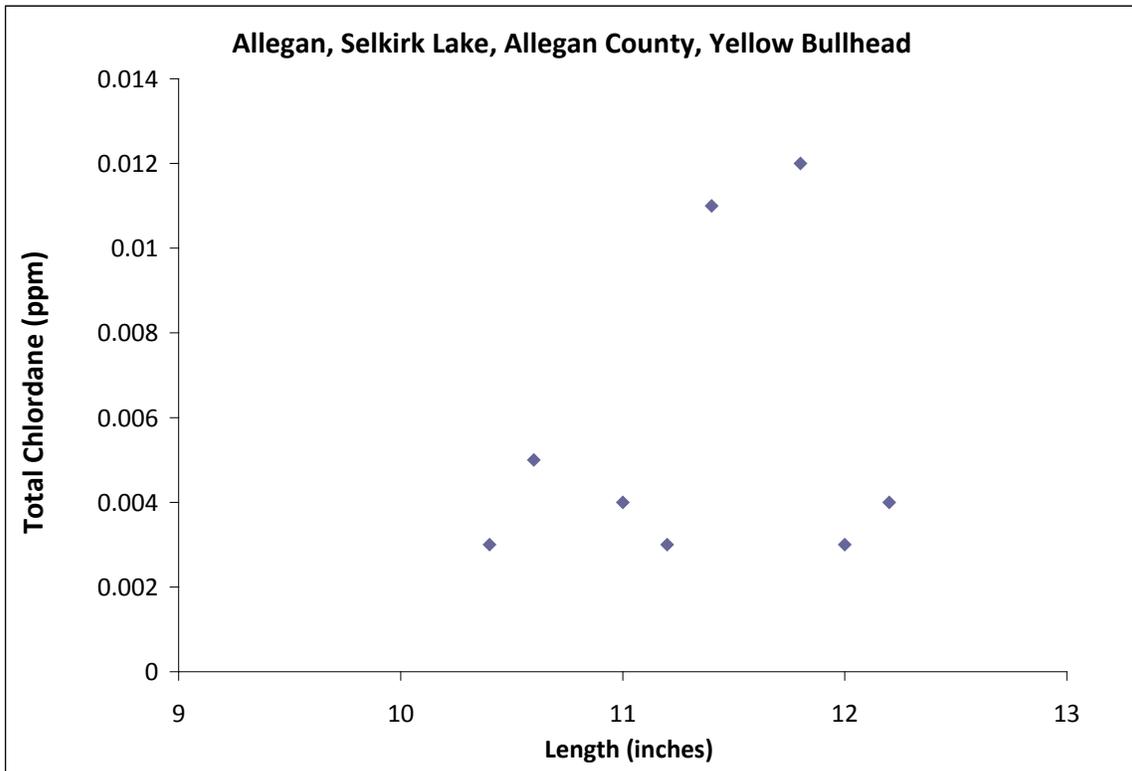
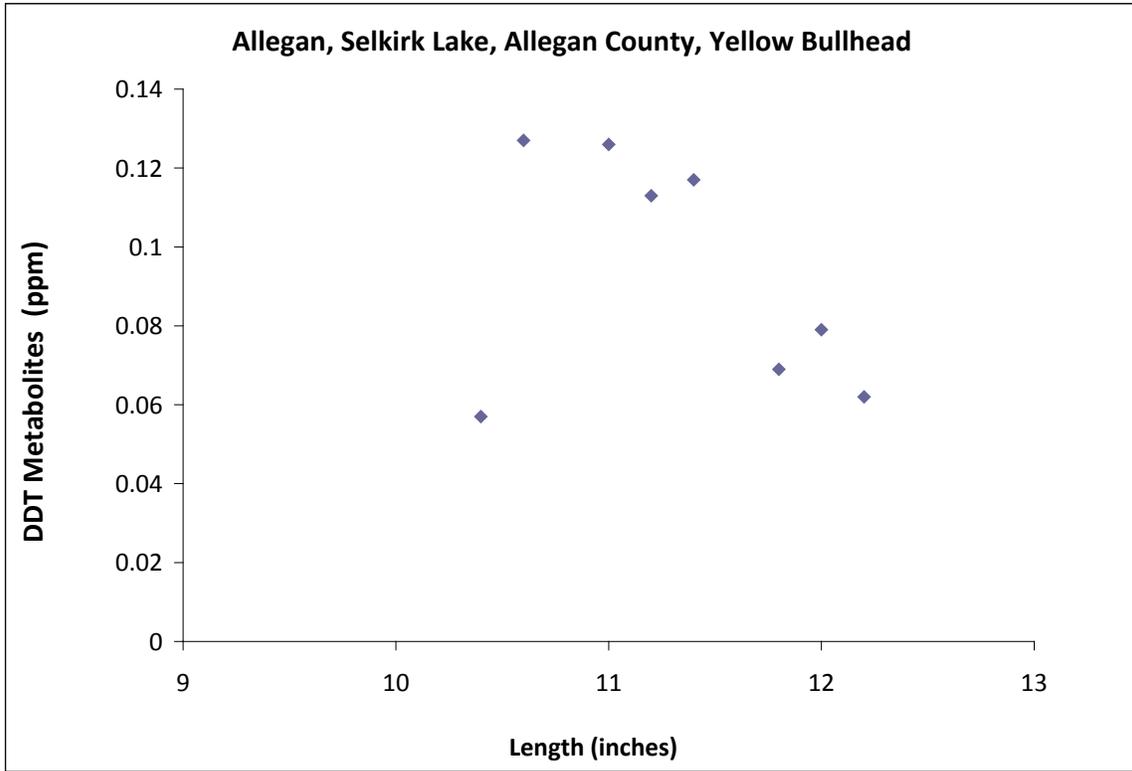
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1993	1993	8	10.4	na	10.4	12.2
Datasets available: 1993						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	8	0.027	0.025	0.039	0.030	8
DDT	8	0.094	0.057	0.127	0.120	12
Chlordane	8	0.006	0.003	0.012	0.010	--
Toxaphene	8	ND				
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.087	0.087				
DDT	0.140	0.101				
Chlordane	0.056	0.044				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Due to elevated levels of mercury; women and children should eat no more than one meal per month of Selkirk Lake yellow bullhead between 10 and 18 inches in length.

**Recommendation:** No one should eat more than 1 meal per month of Selkirk Lake bullhead due to mercury. PCBs and DDT would cause advisories.





# Bad River

## Gratiot and Saginaw Counties

**Carp**

**Bad River**

**Gratiot & Saginaw Counties**

**Hg Analysis:**

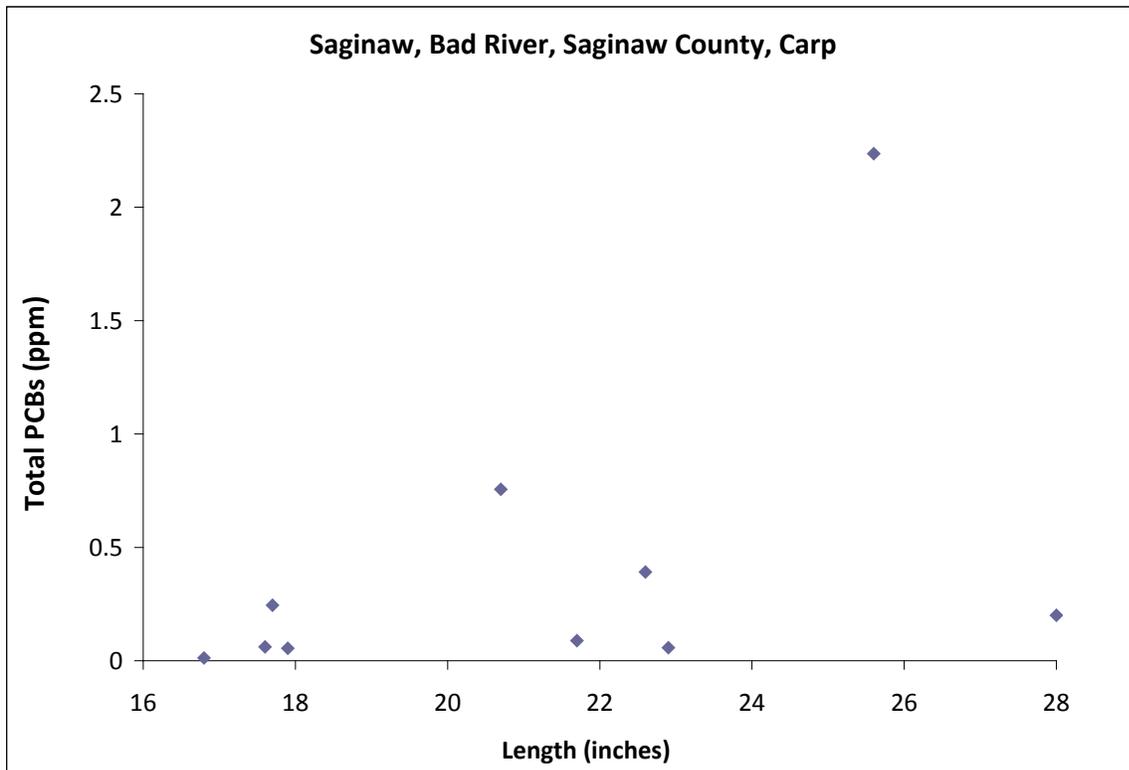
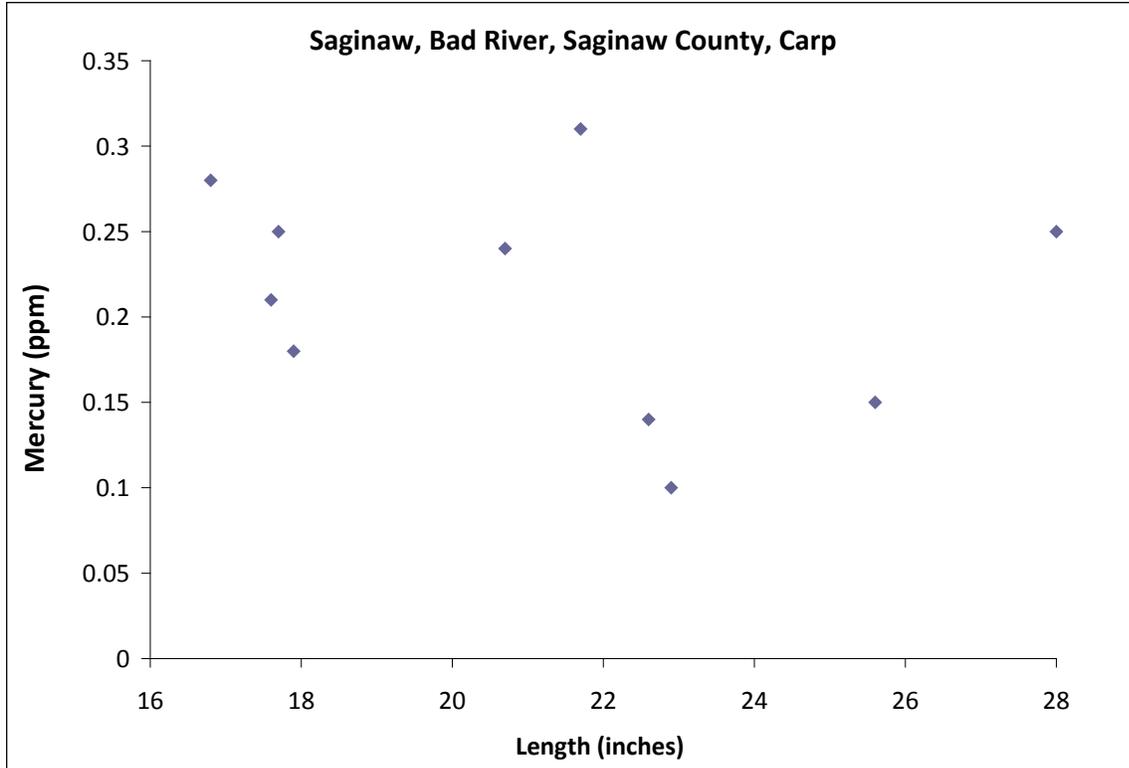
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2004	2004	10	16.8	na	16.8	28
Datasets available: 2004						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
Mercury	10	0.211			0.260	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.068	0.079				

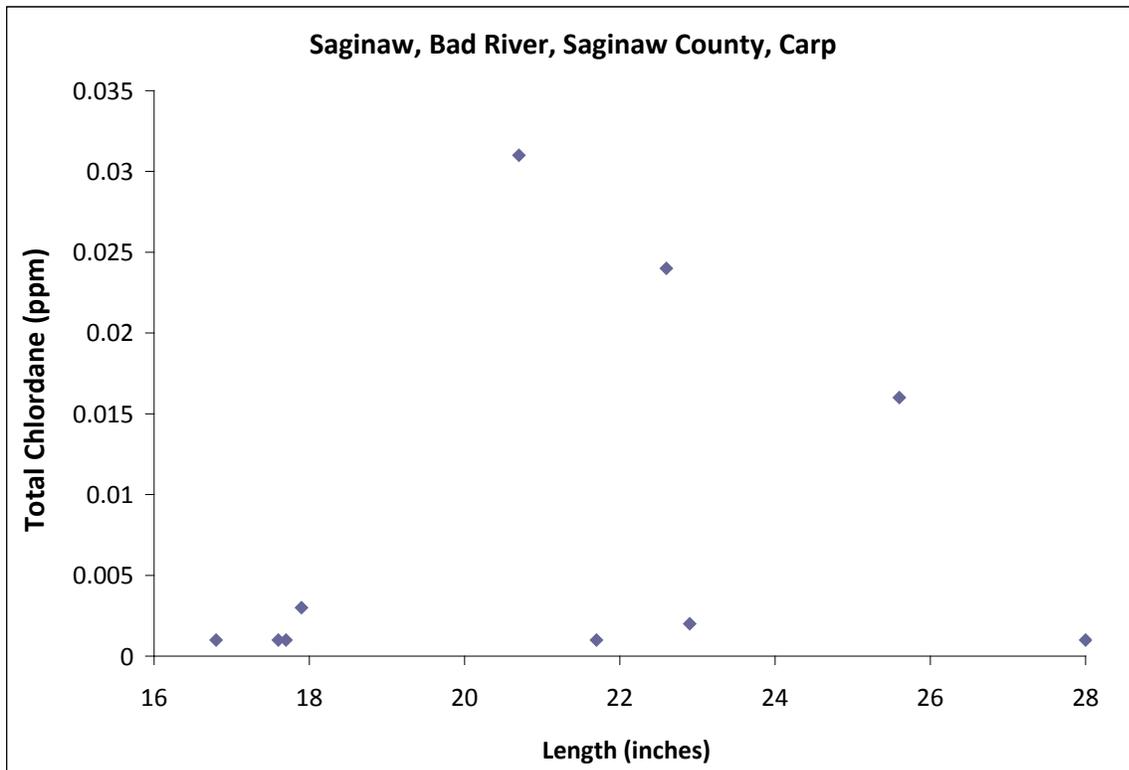
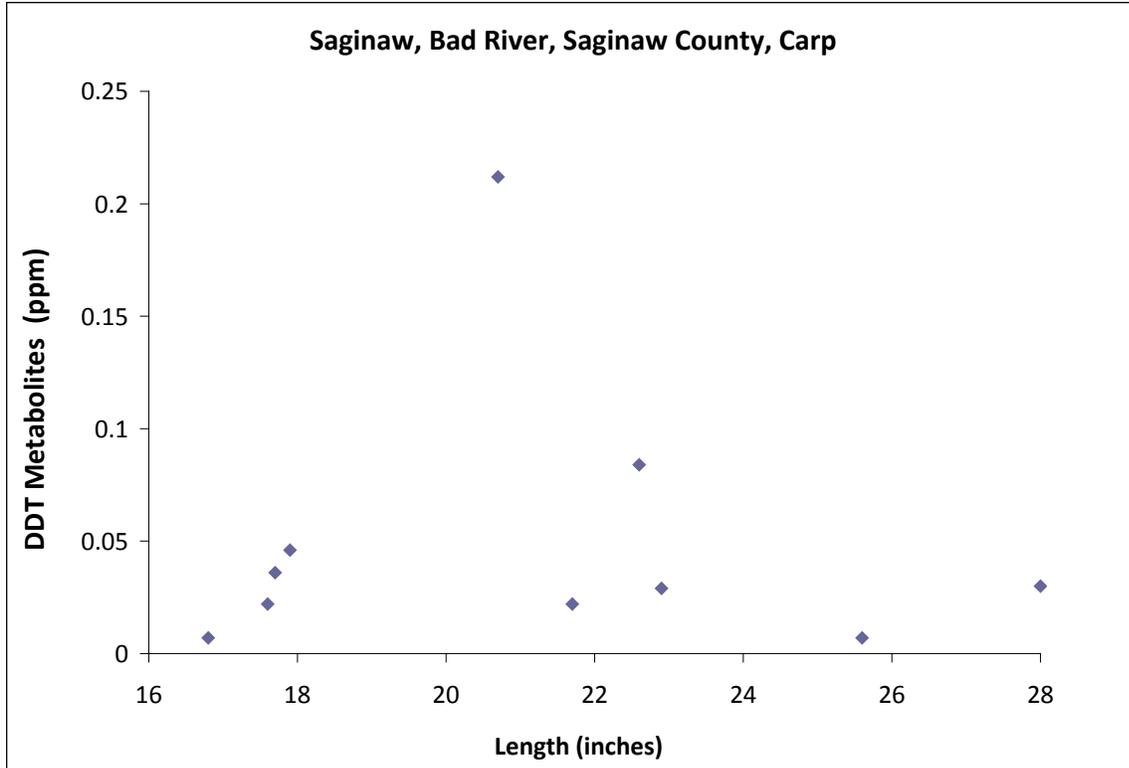
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2004	2004	10	16.8	na	16.8	28
Datasets available: 2004						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
PCB	10	0.410			0.900	Limited
DDT	10	0.050			0.090	16
Chlordane	10	0.008			0.020	--
Toxaphene	10	ND			--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.206	0.313				
DDT	0.001	0.000				
Chlordane	0.046	0.072				
Toxaphene						
<b>Final meal category based on UCL:</b>						<b>Limited</b>

**Existing Advisory:** Women and children should eat no more than one meal per week of Bad River carp less than 18 inches in length and no more than 1 meal per month of carp larger than 18 inches. The general population should eat no more than one meal per week of Bad River carp greater than 22 inches in length due to elevated levels of PCBs.

**Recommendation:** Sensitive populations should not eat these fish. For healthy adults, limit consumption to no more than 1 or 2 meals per year of Bad River carp due to PCBs. Mercury would cause an advisory.





**Channel Catfish**

**Bad River**

**Gratiot & Saginaw Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1994	2004	20	12	12	22.4	
Datasets available: 1994, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
Mercury	20	0.276			0.350	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.341	0.424				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2004	2004	10	12	12	22.4	
Datasets available: 2004						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
PCB	10	0.202			0.300	0.5
DDT	10	0.035			0.050	16
Chlordane	10	0.006			0.010	--
Toxaphene	10	ND			--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.685	0.731				
DDT	0.564	0.458				
Chlordane	0.377	0.304				
Toxaphene						
<b>Final meal category based on UCL:</b>						<b>0.5</b>

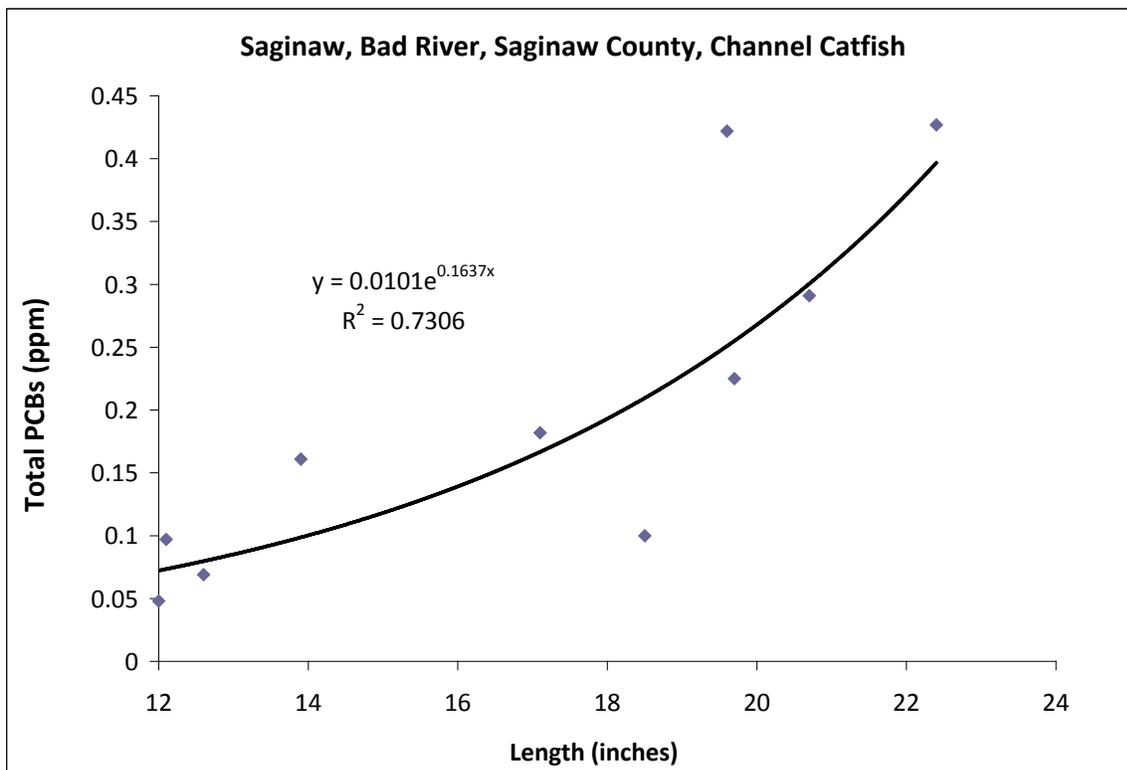
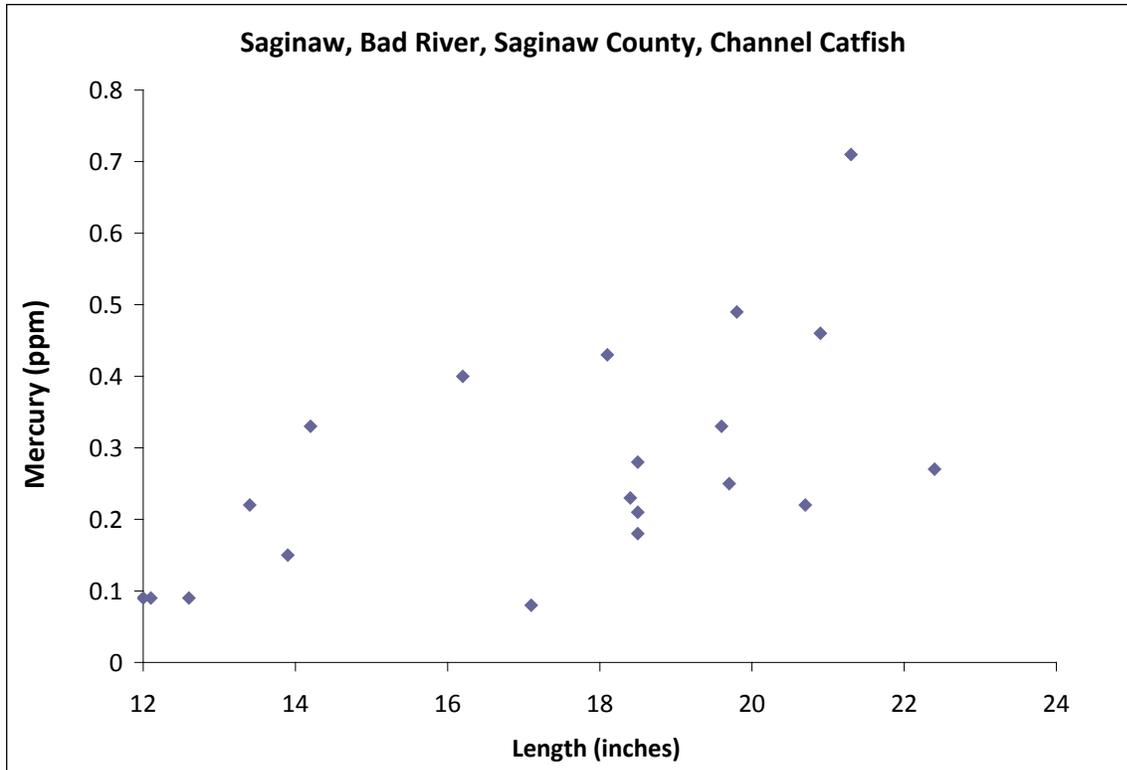
**Existing Advisory:** Women and children should eat no more than one meal per week of Bad River channel catfish less than 18 inches in length, no more than one meal per month of channel catfish between 18 and 22 inches in length, and should not eat any Bad River channel catfish greater than 22 inches in length due to elevated levels of PCBs.

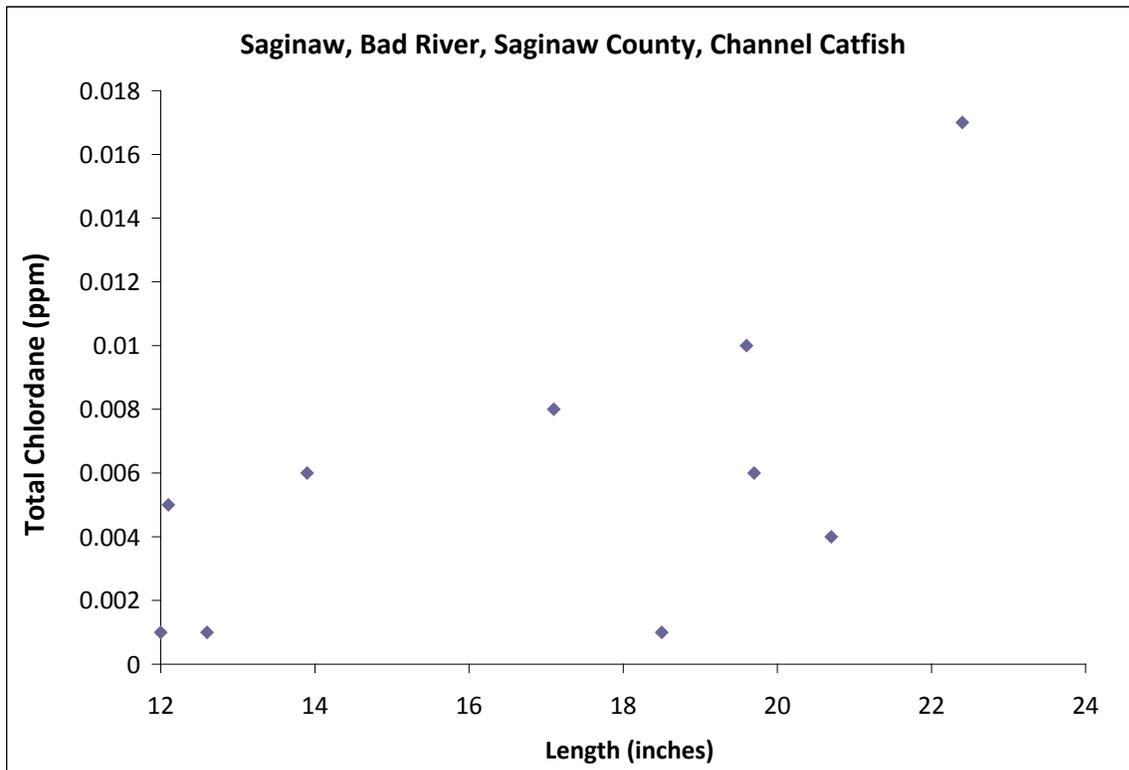
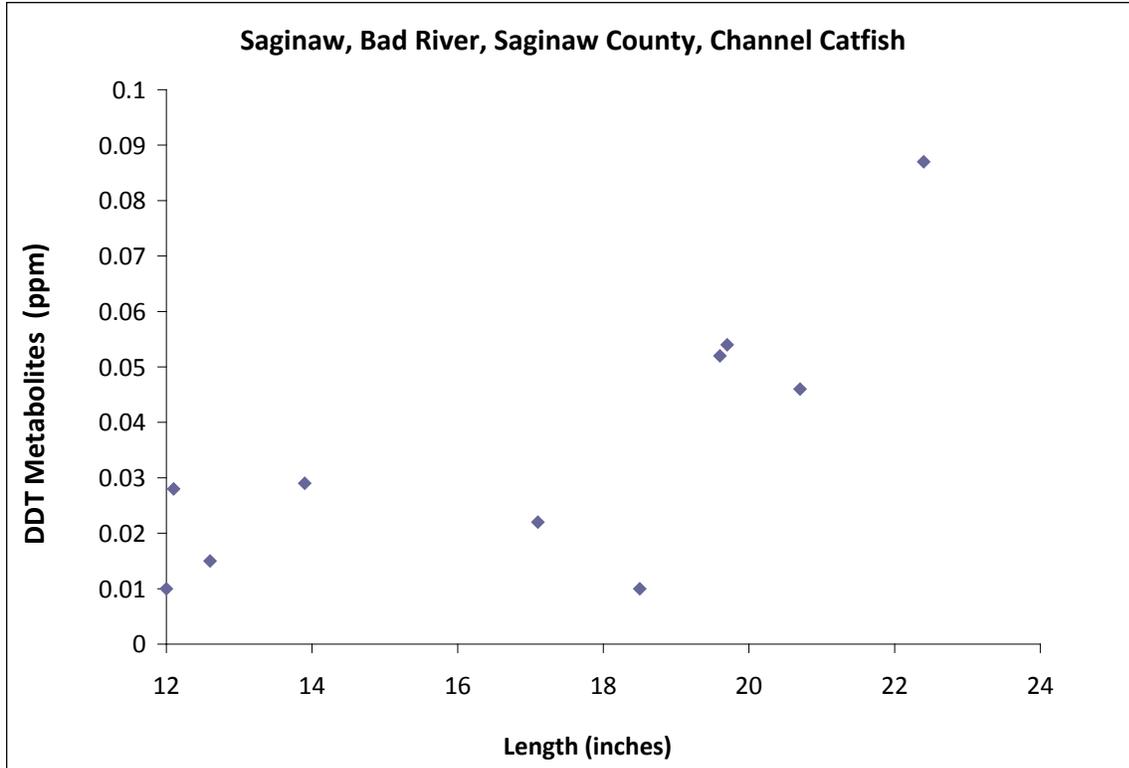
**Recommendation:** No one should eat more than 1 meal per month of Bad River channel catfish less than 18 inches in length or more than 6 meals per year of channel catfish greater than 18 inches due to elevated concentrations of PCBs. Mercury would cause an advisory.

Length (Inches)	PCB Regression Estimate (ppm)	Meal Category
12	0.072	2
14	0.100	2
16	0.139	1
18	0.192	1
20	0.267	0.5
22	0.370	0.5
24	0.514	0
26	0.712	0
28	0.988	0

*Shaded area denotes extrapolated estimates*







**Northern Pike**

**Bad River**

**Gratiot & Saginaw Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1994	2008	20	15.5	24	24	33.1
Datasets available: 1994, 2004, 2008						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
Mercury	8	0.310			0.410	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.605	0.620				

**Organics Analysis:**

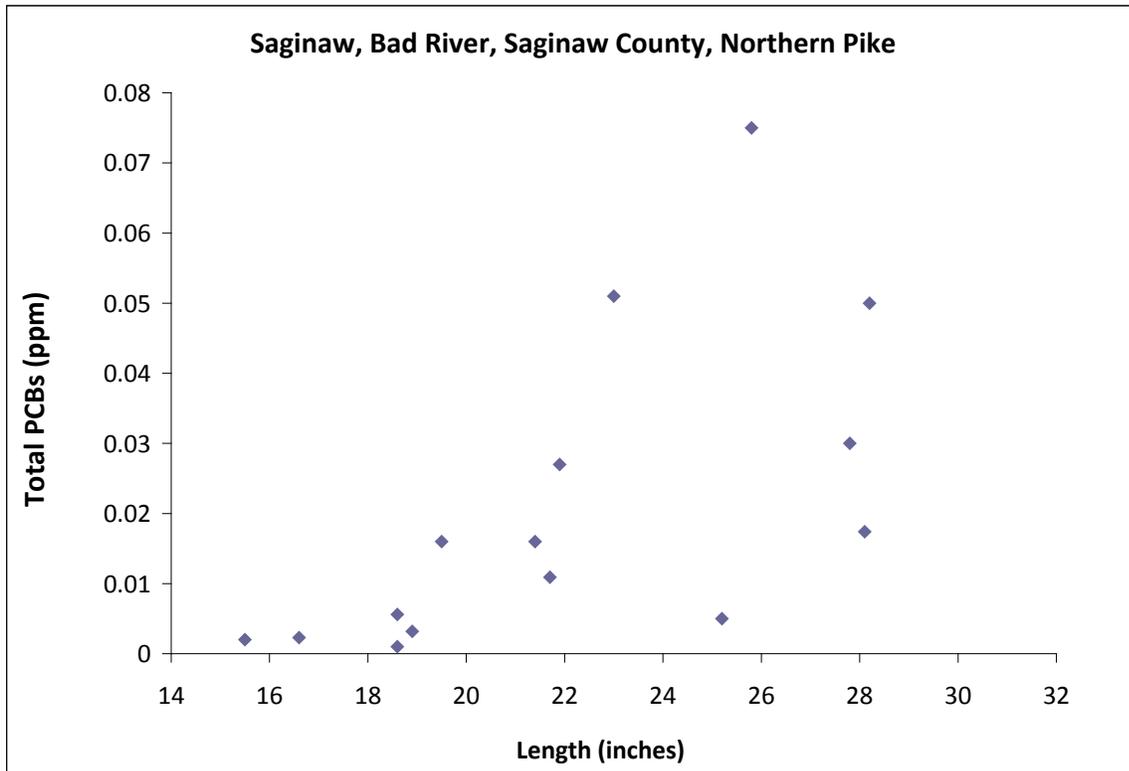
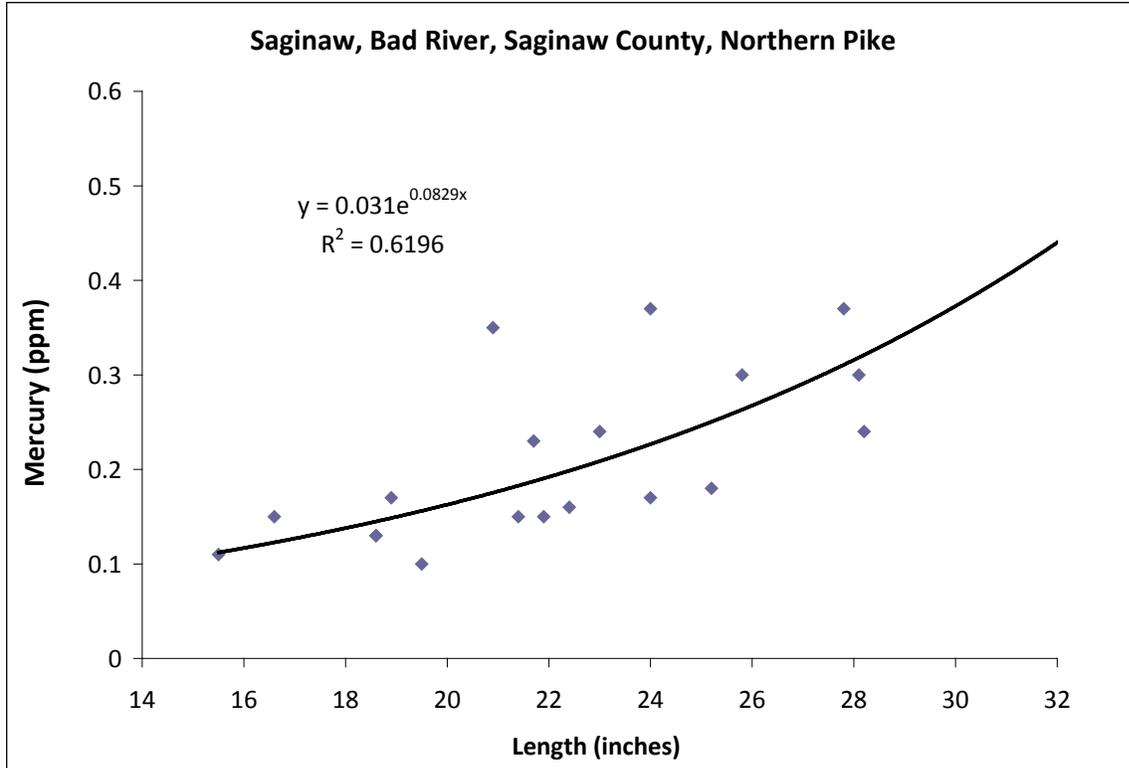
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2004	2008	15	15.5	24	25.2	28.2
Datasets available: 2004, 2008						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
PCB	5	0.035			0.070	2
DDT	5	0.014			0.030	16
Chlordane	5	0.001			0.000	--
Toxaphene	5	ND			--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.391	0.541				
DDT	0.204	0.461				
Chlordane	0.000	0.000				
Toxaphene						
<b>Final meal category based on UCL:</b>						<b>2</b>

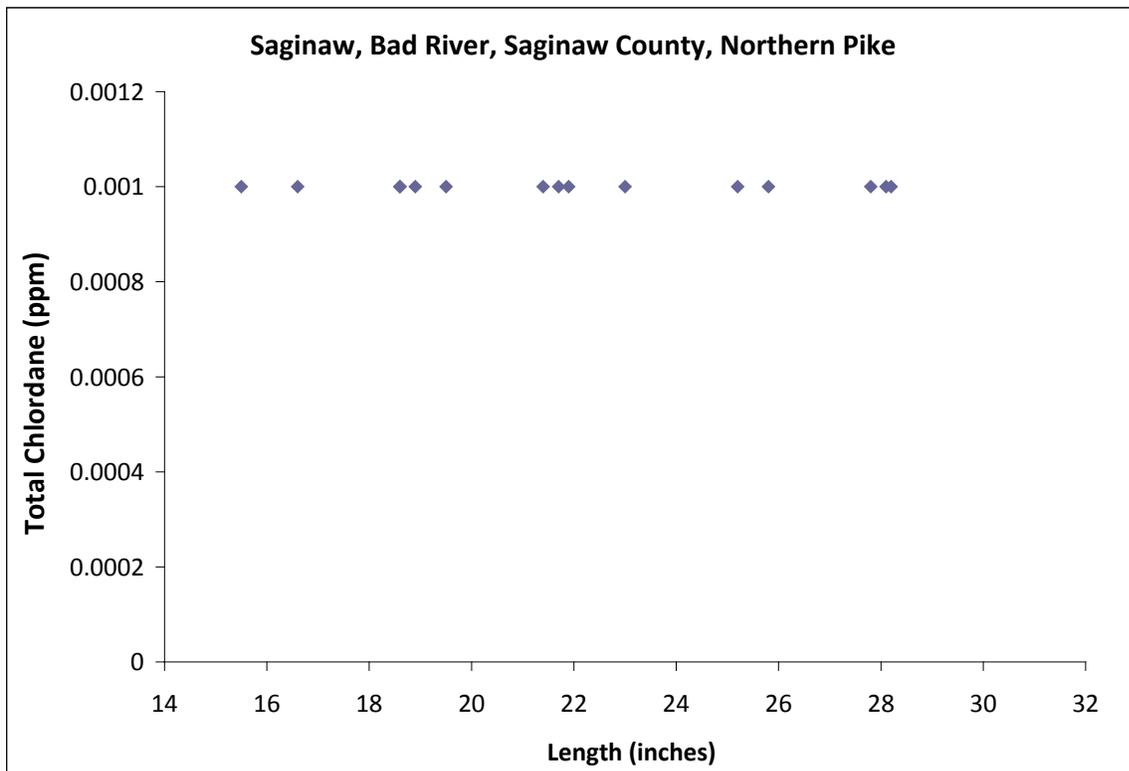
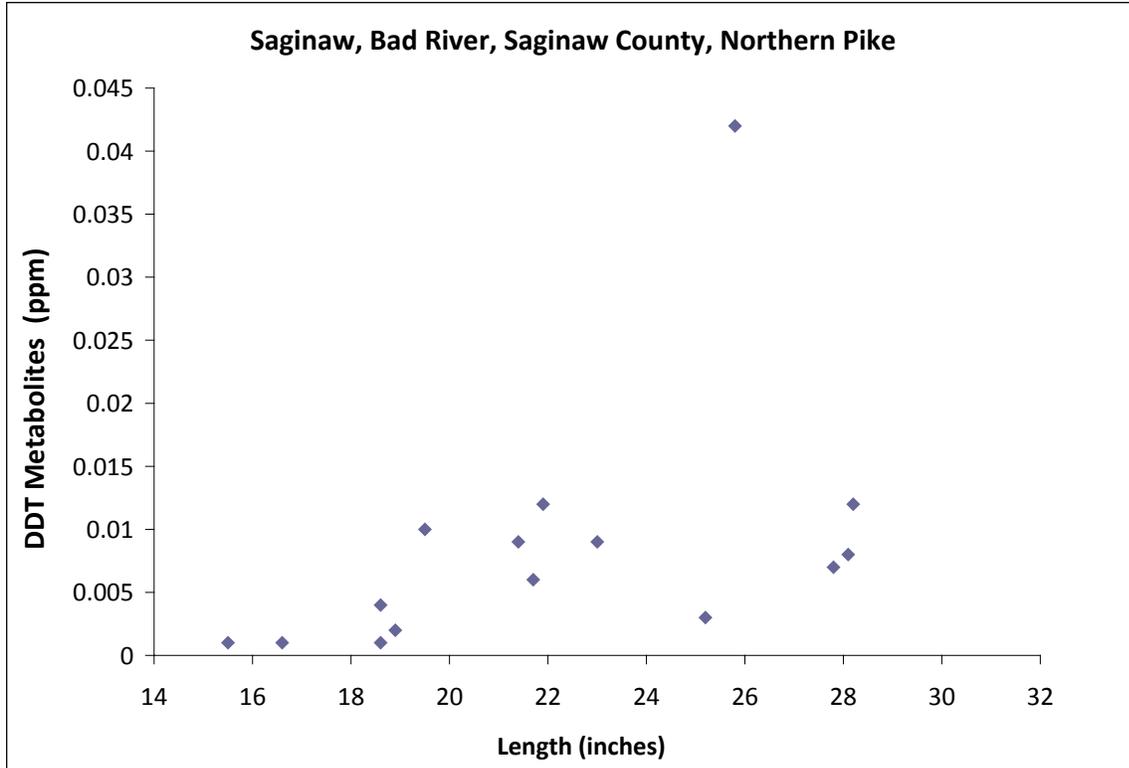
**Existing Advisory:** Women and children should eat no more than one meal per week of Bad River northern pike due to elevated concentrations of PCBs.

**Recommendation:** No one should eat more than 2 meals per month of Bad River northern pike due to elevated concentrations of PCBs and mercury.

Length (Inches)	Hg Regression Estimate (ppm)	Meal Category
24	0.227	4
26	0.268	4
28	0.316	2
30	0.373	2
32	0.440	2
34	0.519	2
36	0.613	1
38	0.724	1
40	0.854	1

*Shaded area denotes extrapolated estimates*





# Barry County

**Largemouth Bass**

**Bristol Lake**

**Barry County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2002	2002	5	10.4	14	14.5	15.7
Datasets available: 2002						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	2	0.435	0.44	0.43	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.679	0.609				

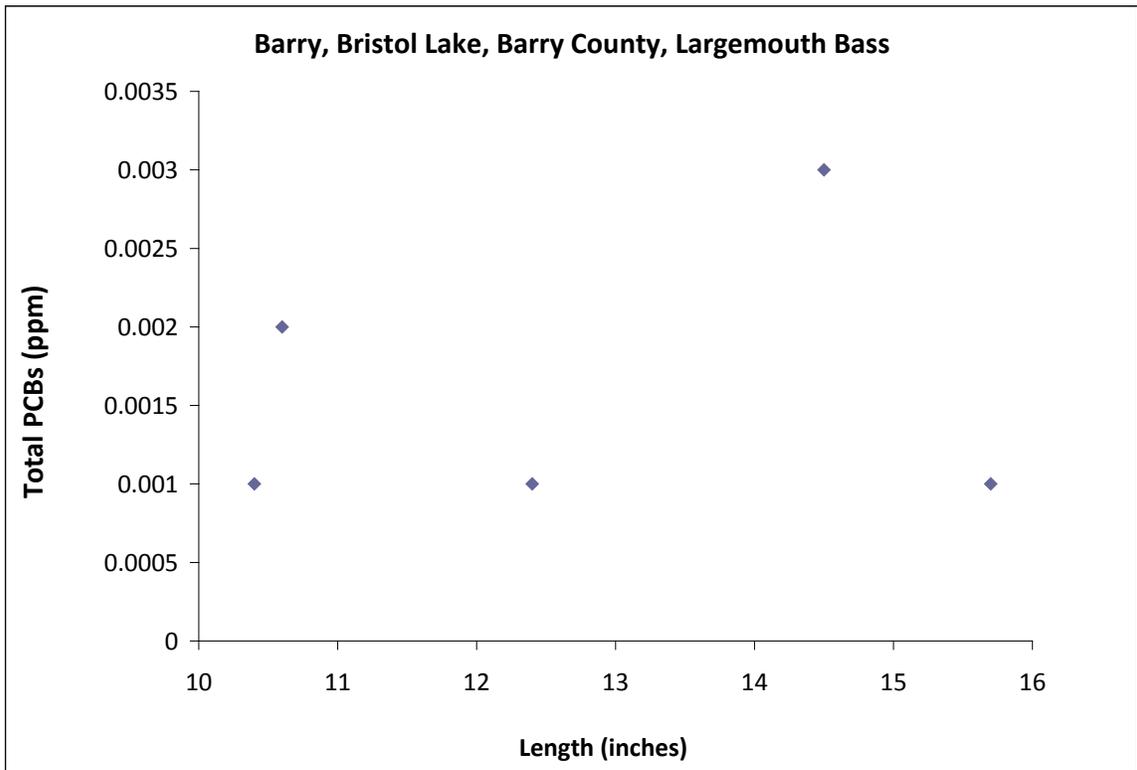
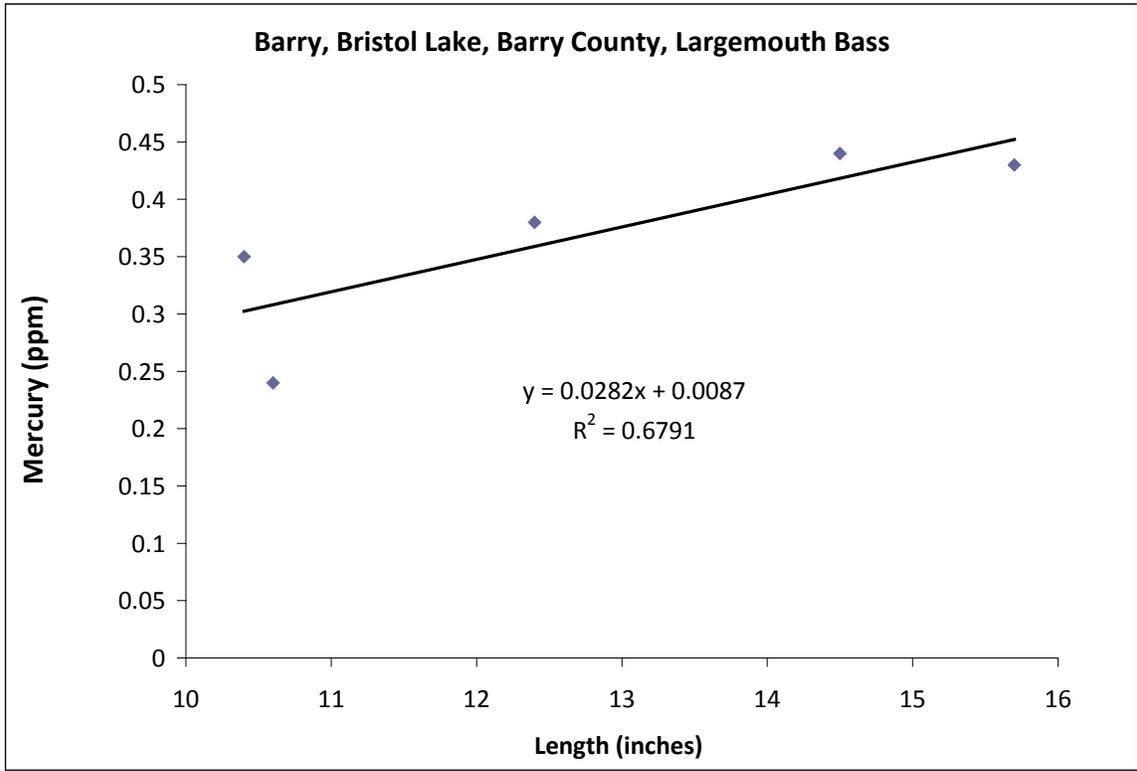
**Organics Analysis:**

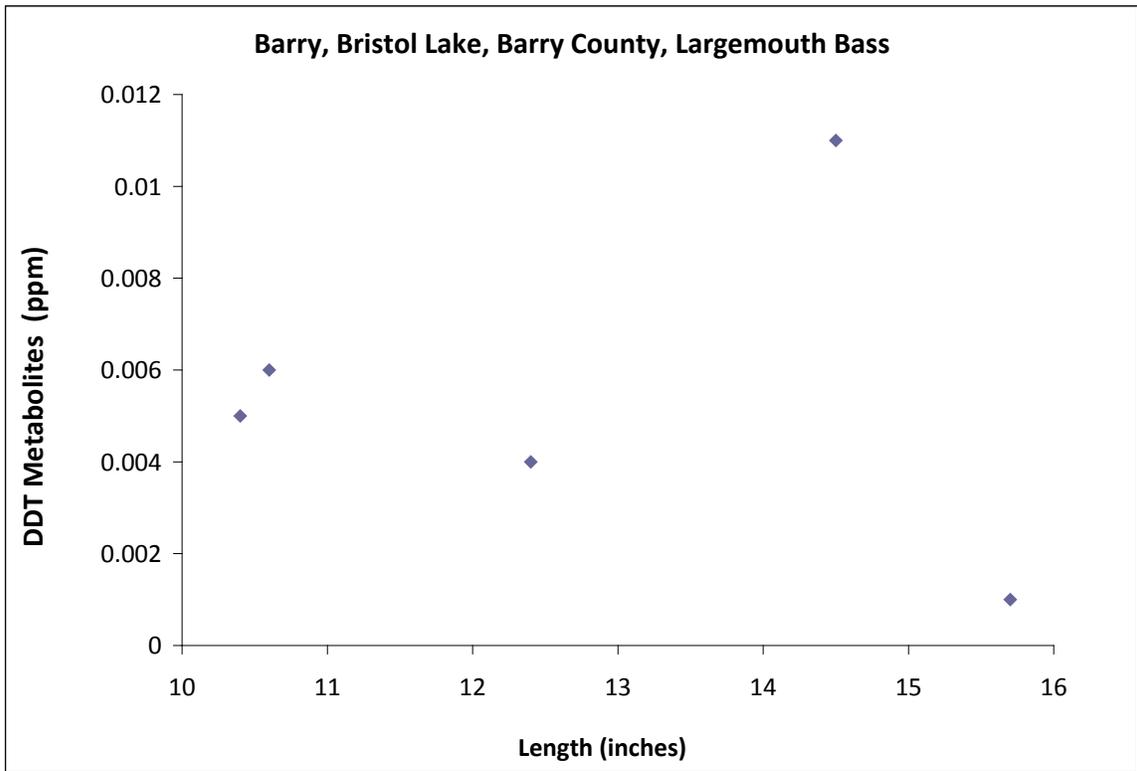
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2002	2002	5	10.4	14	14.5	15.7
Datasets available: 2002						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2	0.002	0.001	0.003	--	--
DDT	2	0.006	0.001	0.011	--	--
Chlordane	2	ND	--	--	--	--
Toxaphene	2	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.029	0.010				
DDT	0.008	0.198				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						--

**Existing Advisory:** Bristol Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Bristol Lake largemouth bass (excessive extrapolation necessary). The statewide consumption guidelines apply, which recommend no one eat more than 2 meals per month of legal size largemouth bass under 18 inches or more than 1 meal per month of those fish larger than 18 inches.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
14	0.404	2
15	0.432	2
16	0.460	2
17	0.488	2
18	0.516	2
19	0.545	1
20	0.573	1
21	0.601	1
22	0.629	1
<i>Shaded area denotes extrapolated estimates</i>		





**White Sucker**

**Bristol Lake**

**Barry County**

**Hg Analysis:**

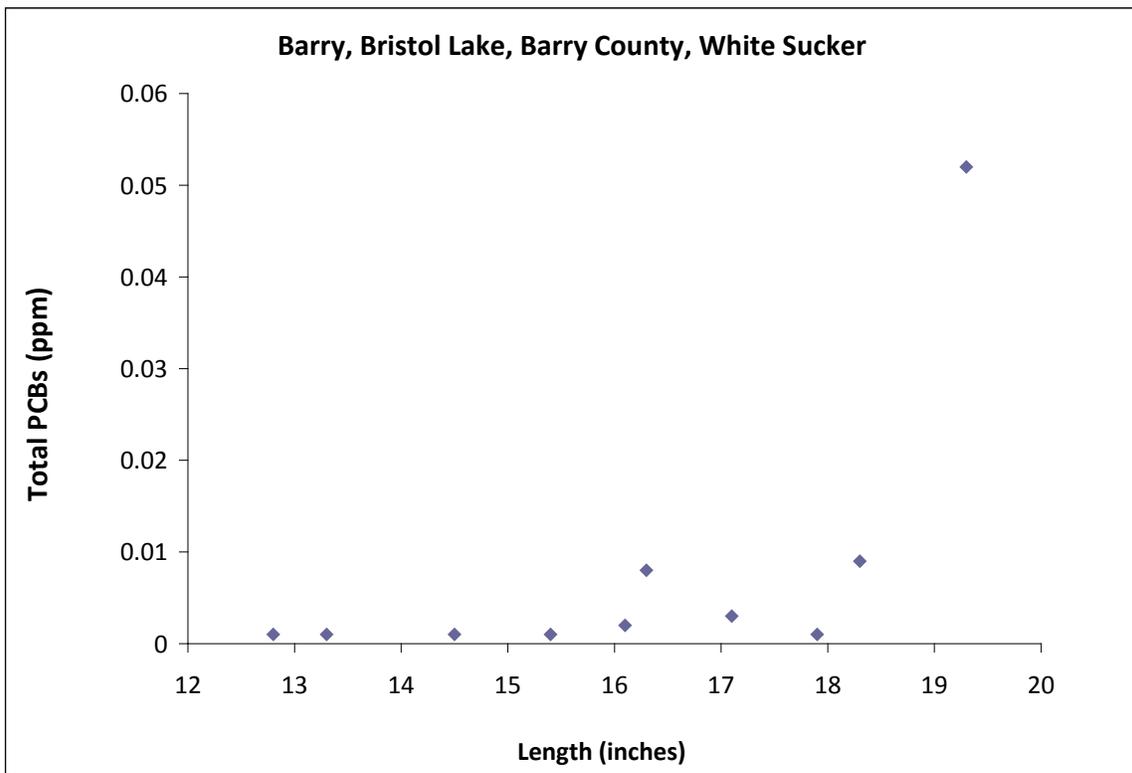
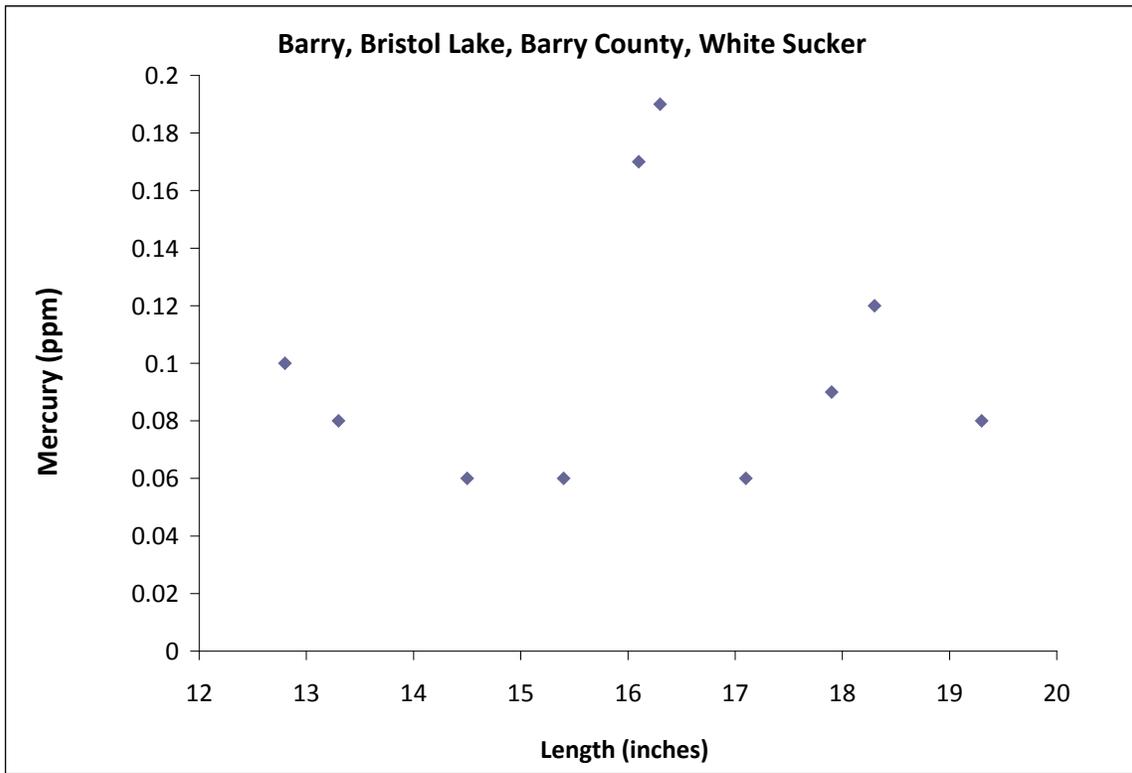
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2002	2002	10	12.8	na	12.8	19.3
Datasets available: 2002						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.101	0.06	0.19	0.130	8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.010	0.013				

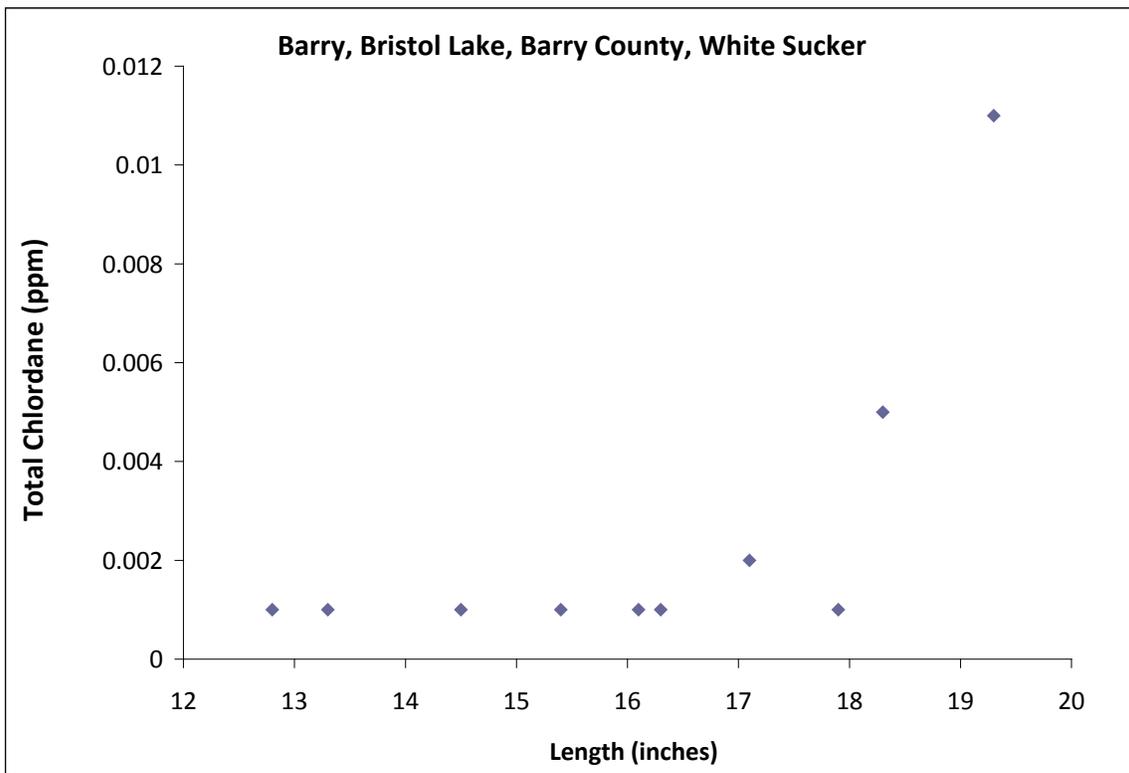
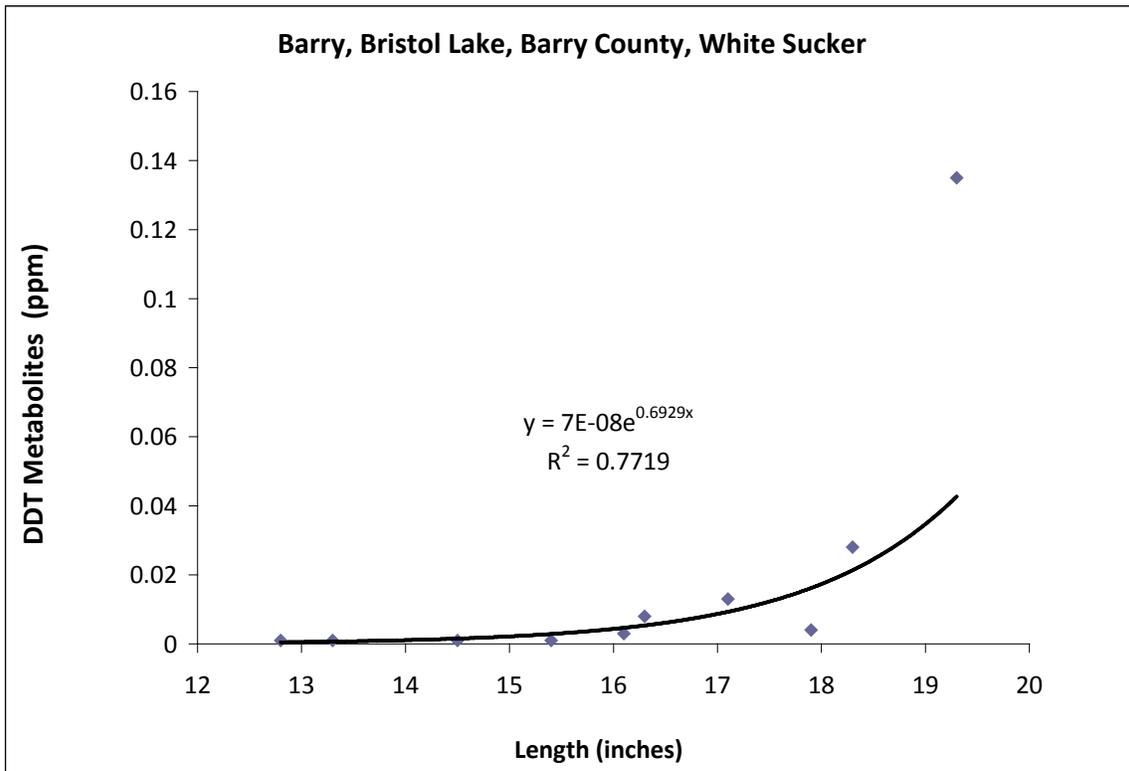
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2002	2002	10	12.8	na	12.8	19.3
Datasets available: 2002						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.008	0.001	0.052	0.020	12
DDT	10	0.020	0.001	0.135	0.050	16
Chlordane	10	0.003	0.001	0.011	0.000	--
Toxaphene	10	ND				
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.368	0.534				
DDT	0.404	0.772				
Chlordane	0.449	0.521				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>8</b>

**Existing Advisory:** There are no current consumption advisories for Bristol Lake white sucker.

**Recommendation:** No one should eat more than 8 meals per month of Bristol Lake sucker due to mercury. PCBs would cause an advisory.





**White Sucker**

**Coldwater River  
Brown Road**

**Barry County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	2*	9.8	na	9.8	13.4
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	2*	0.090	0.09	0.09	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.000	0.000				

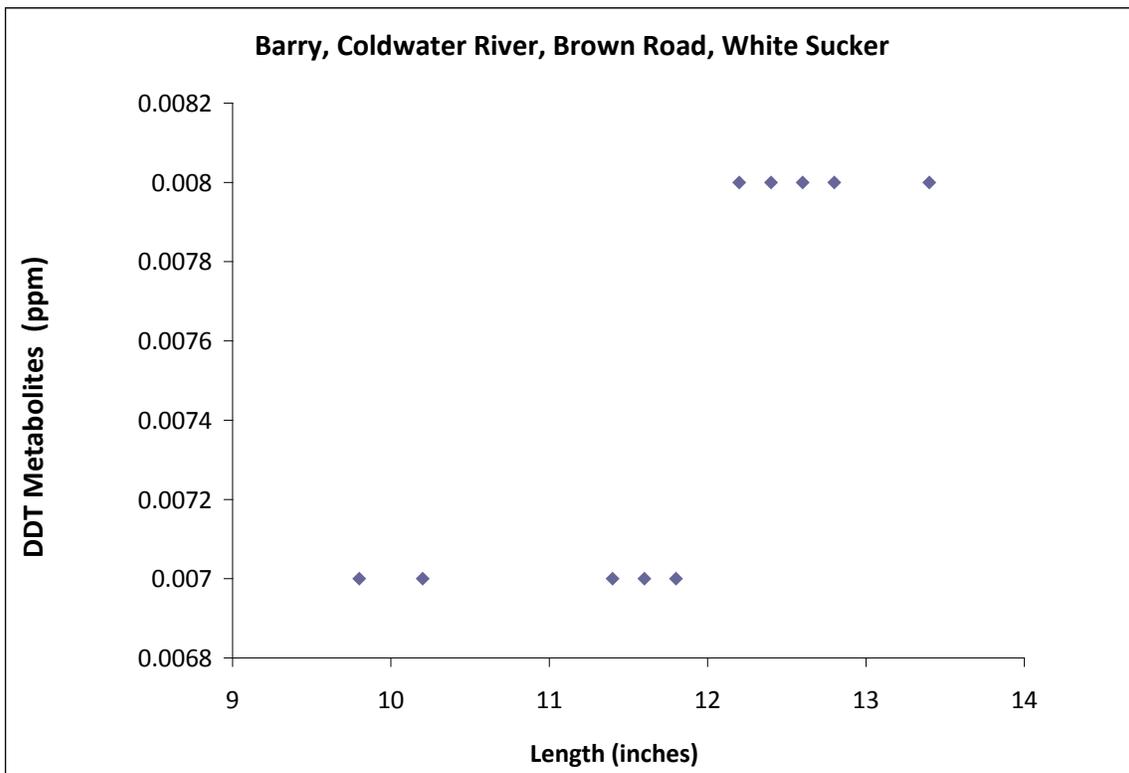
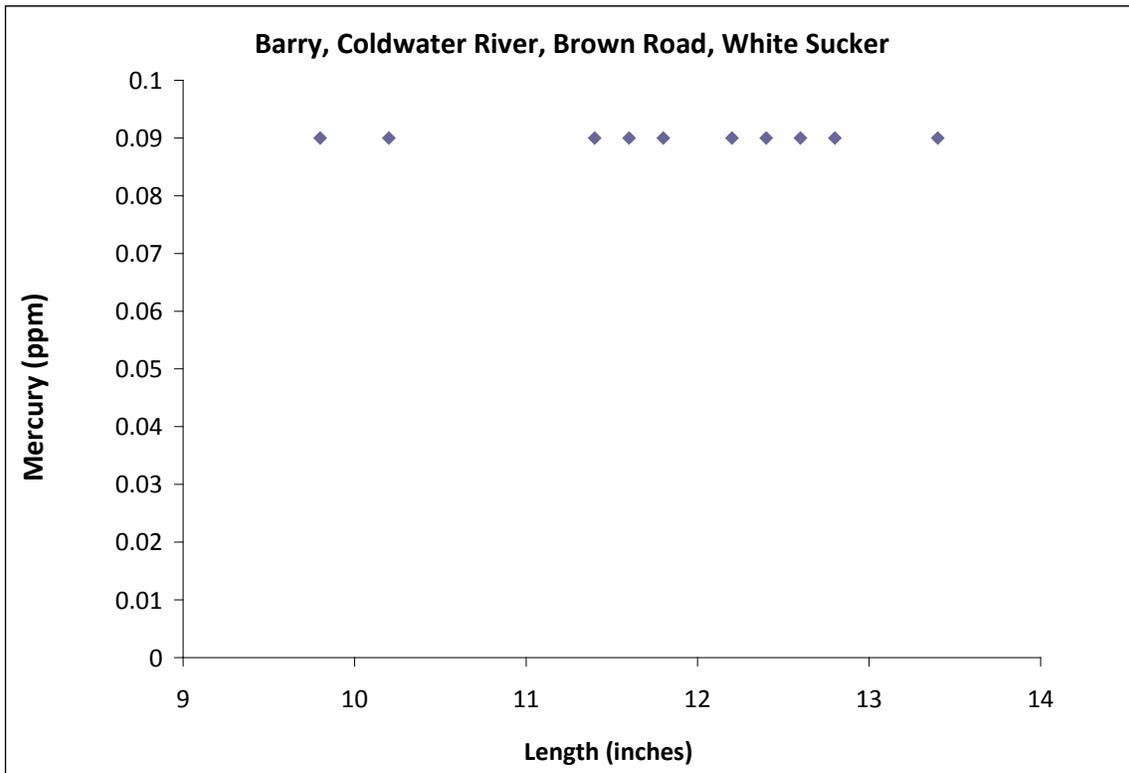
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	2*	9.8	na	9.8	13.4
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2	ND	--	--	--	--
DDT	2	0.008	0.007	0.008	--	--
Chlordane	2	ND	--	--	--	--
Toxaphene	2	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

\* - 2 composite samples of 5 fish each

**Existing Advisory:** There are no current consumption advisories for Coldwater River white sucker.

**Recommendation:** There are insufficient data available to develop specific advice for Coldwater River sucker. The statewide consumption guidelines apply, which recommend that no one should eat more than 8 meals per month of sucker from inland waters.



**Brown Bullhead**

**Crooked Lake**

**Barry County**

**Hg Analysis:**

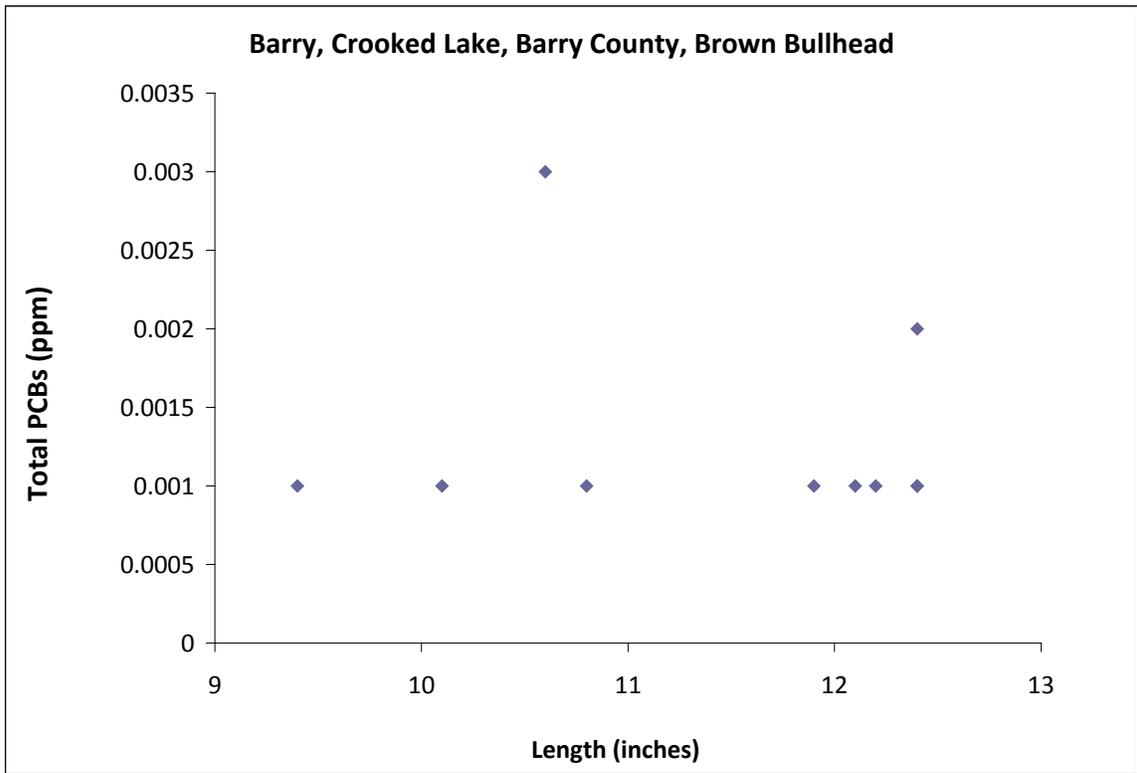
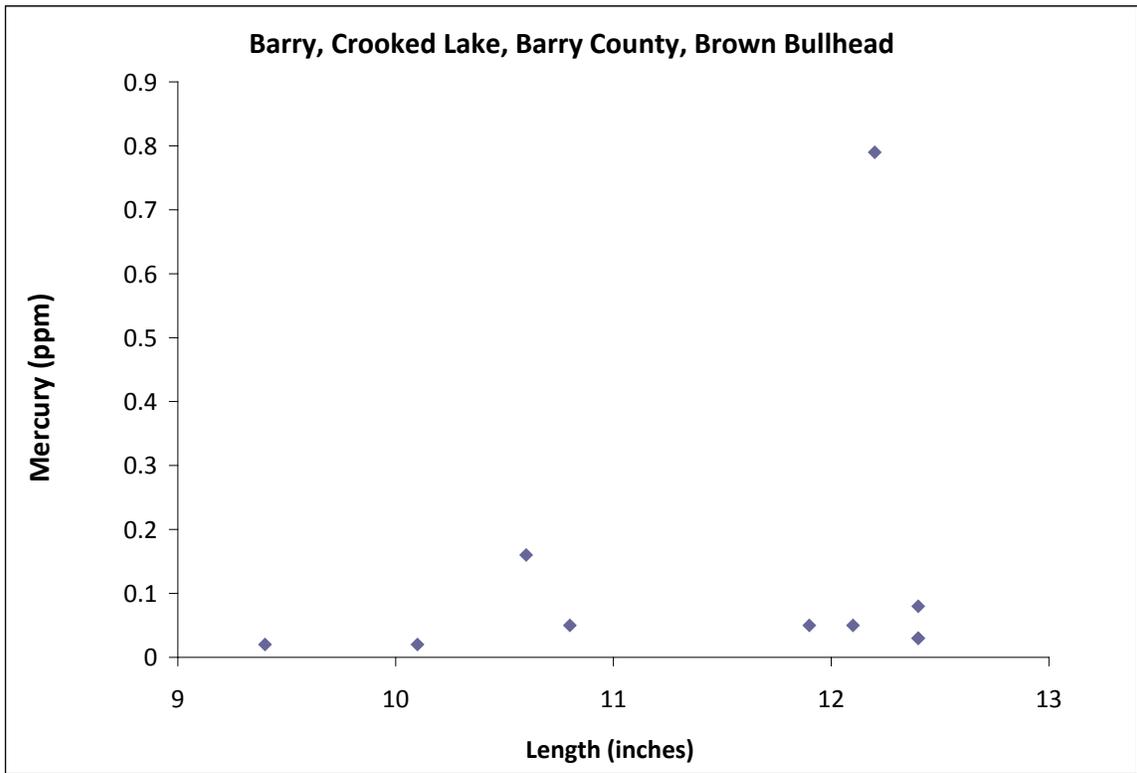
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	9.4	na	9.4	12.4
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.128	0.02	0.79	0.300	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.058	0.111				

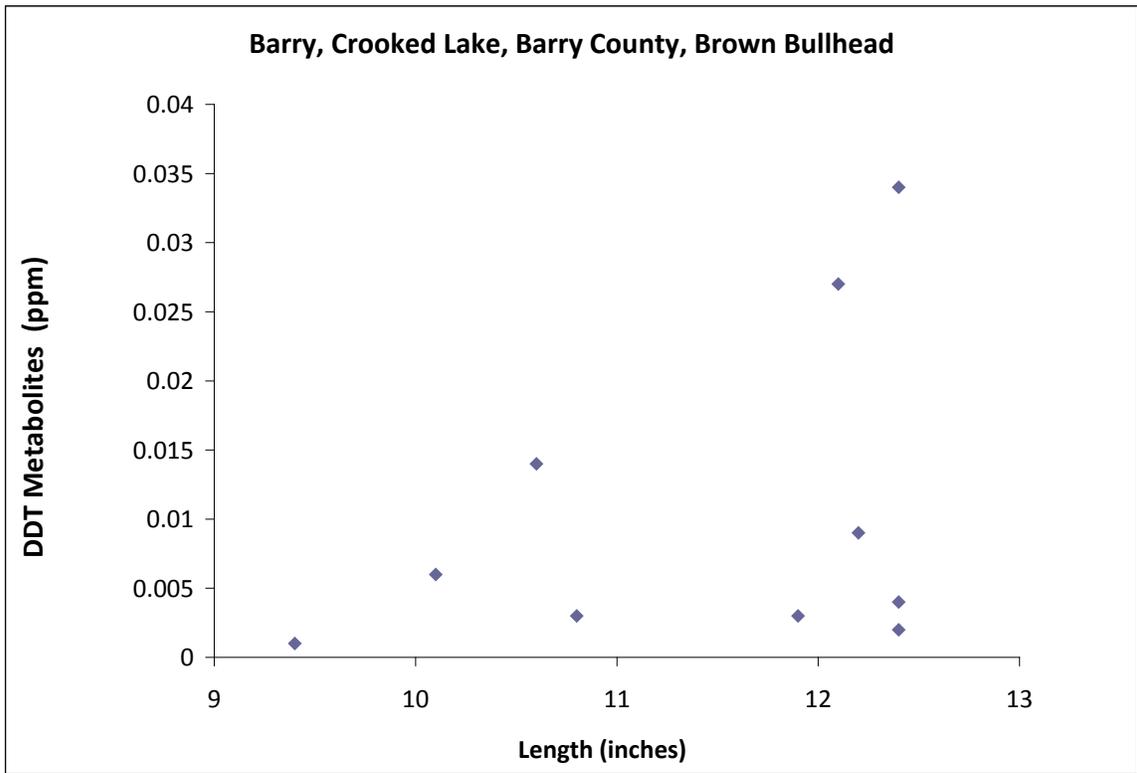
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	9.4	na	9.4	12.4
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.001	0.001	0.003	0.000	16
DDT	10	0.010	0.001	0.034	0.020	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.010	0.004				
DDT	0.134	0.163				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** There are no current consumption advisories for Crooked Lake brown bullhead.

**Recommendation:** No one should eat more than 2 meals per month of Crooked Lake bullhead due to mercury.





**Largemouth Bass**

**Crooked Lake**

**Barry County**

**Hg Analysis:**

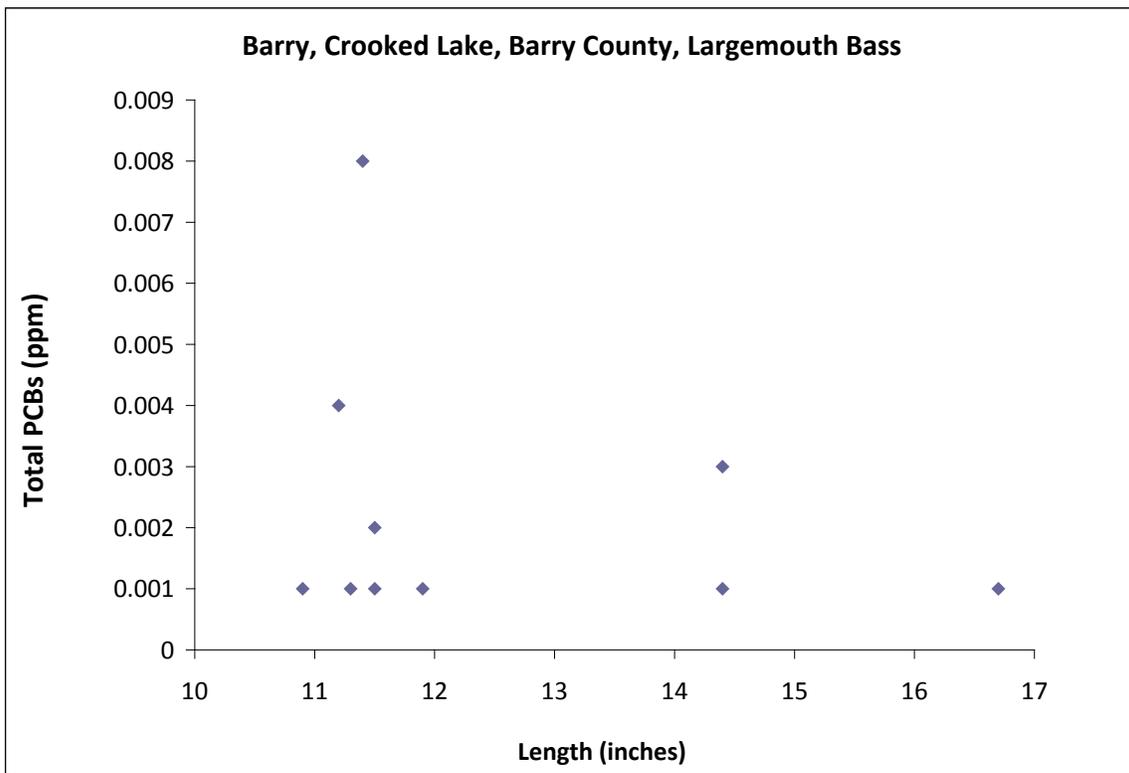
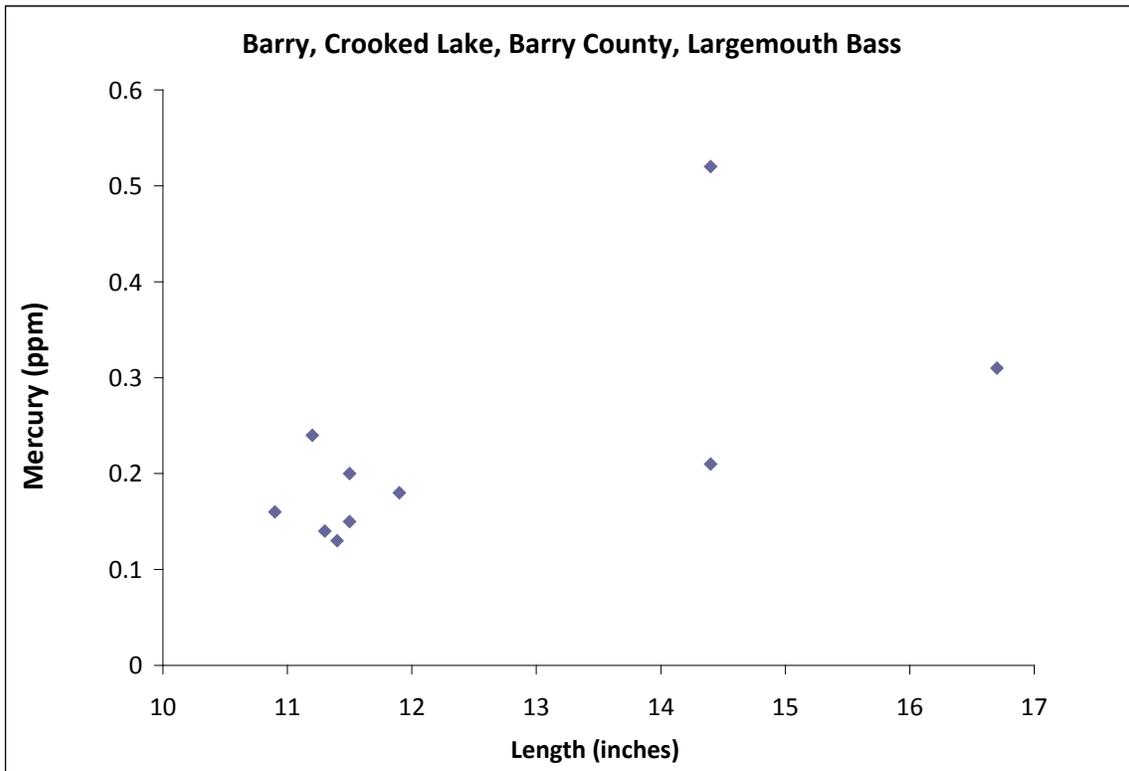
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	10.9	14	14.4	16.7
Datasets available: 2003						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.22	0.13	0.52	0.31	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.406	0.482				

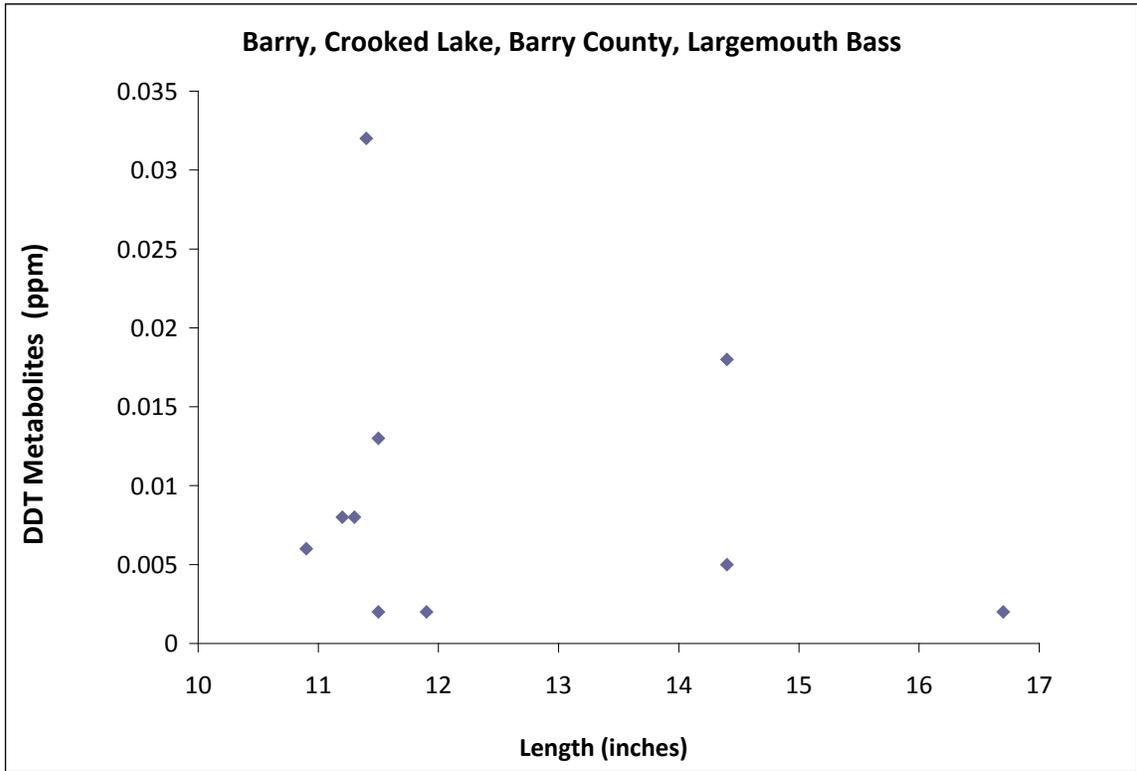
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	10.9	14	14.4	16.7
Datasets available: 2003						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.002	0.001	0.008	0.004	16
DDT	10	0.01	0.002	0.032	0.02	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	16
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.052	0.044				
DDT	0.035	0.070				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Crooked Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one eat more than 2 meals per month of legal size largemouth bass under 18 inches or more than 1 meal per month of those fish larger than 18 inches. Sublegal length samples are included in the UCL calculations. Statewide length break was applied as the length range was limited.





**Northern Pike**

**Fine Lake**

**Barry County**

**Hg Analysis:**

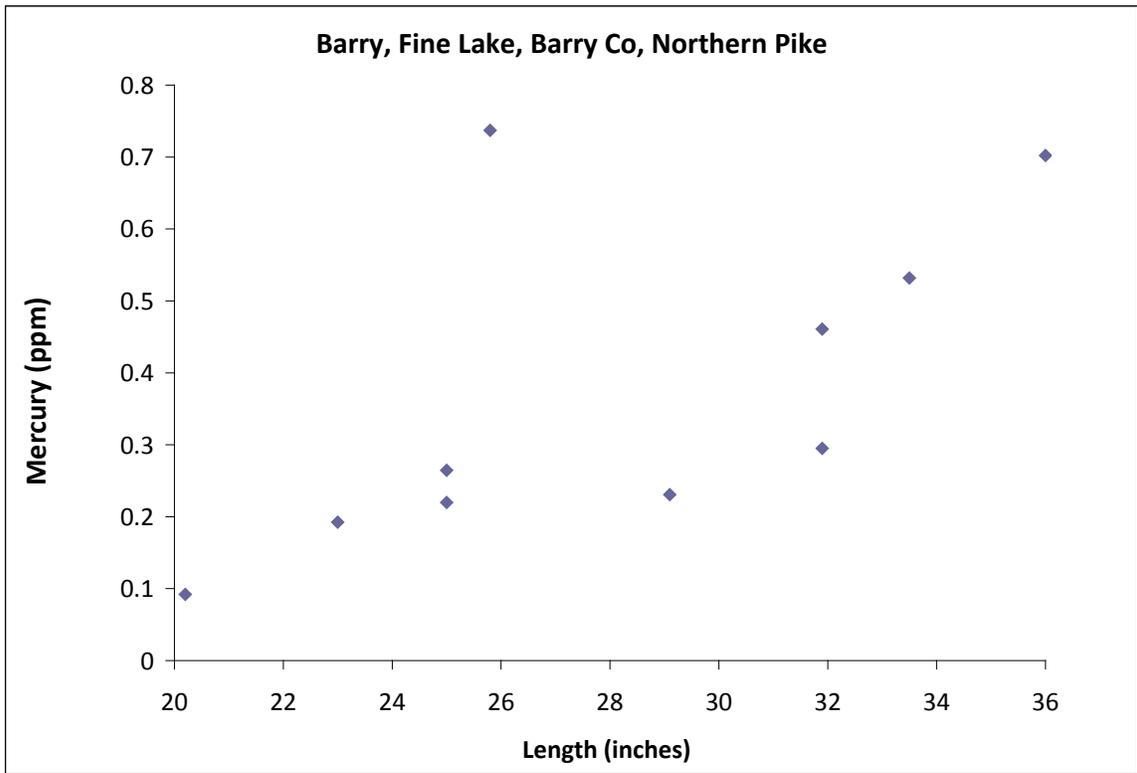
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2008	2008	10	20.2	24	25	36
Datasets available: 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	8	0.430	0.220	0.737	0.610	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.399	0.542				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Fine Lake northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of Fine Lake northern pike due to mercury.



**Walleye**

**Fine Lake**

**Barry County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2008	2008	10	14.6	15	14.6	20.1
Datasets available: 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.159	0.109	0.514	0.250	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.707	0.693				

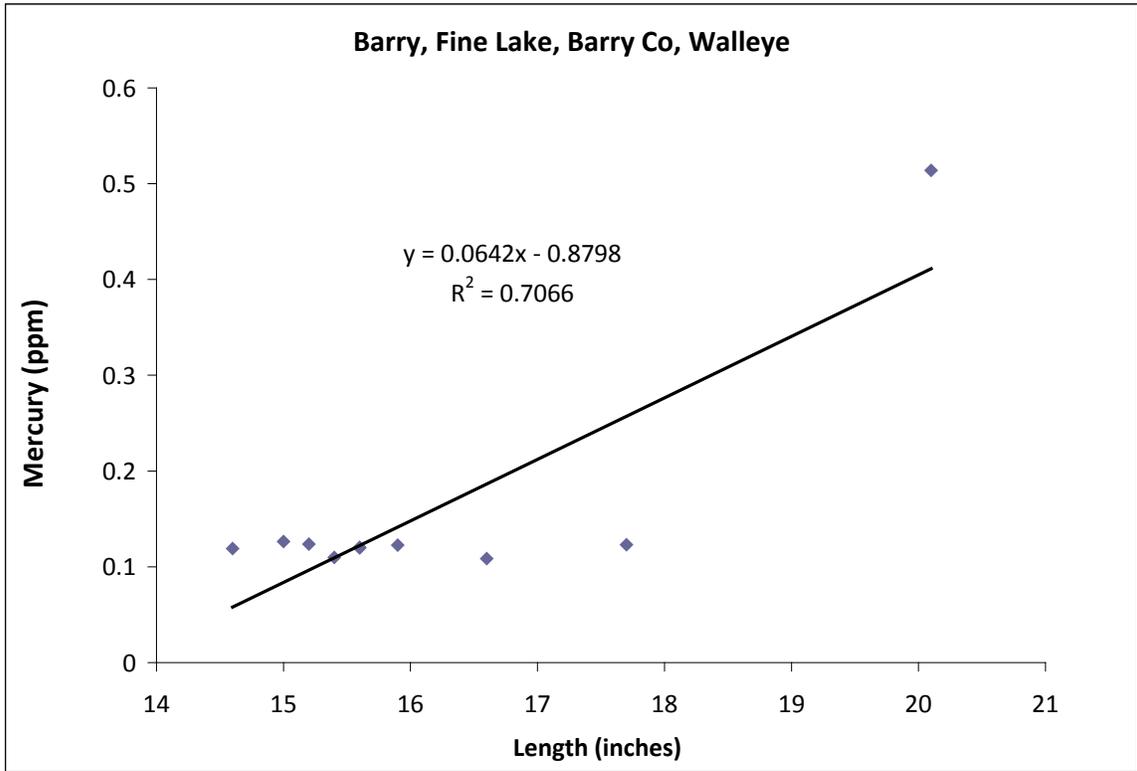
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>4</b>

**Existing Advisory:** Fine Lake walleye are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meal per month of Fine Lake walleye over 20 inches in length or more than 4 meals per month of legal size walleye under 20 inches in length due to mercury. Guideline is based on the 95%UCL because the regression is driven by one data point. The statewide guideline length break was applied.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
15	0.083	12
16	0.147	4
17	0.212	4
18	0.276	2
19	0.340	2
20	0.404	2
21	0.468	2
22	0.533	1
23	0.597	1
<i>Shaded area denotes extrapolated estimates</i>		



**Largemouth Bass**

**Fish Lake**

**Barry County**

**Hg Analysis:**

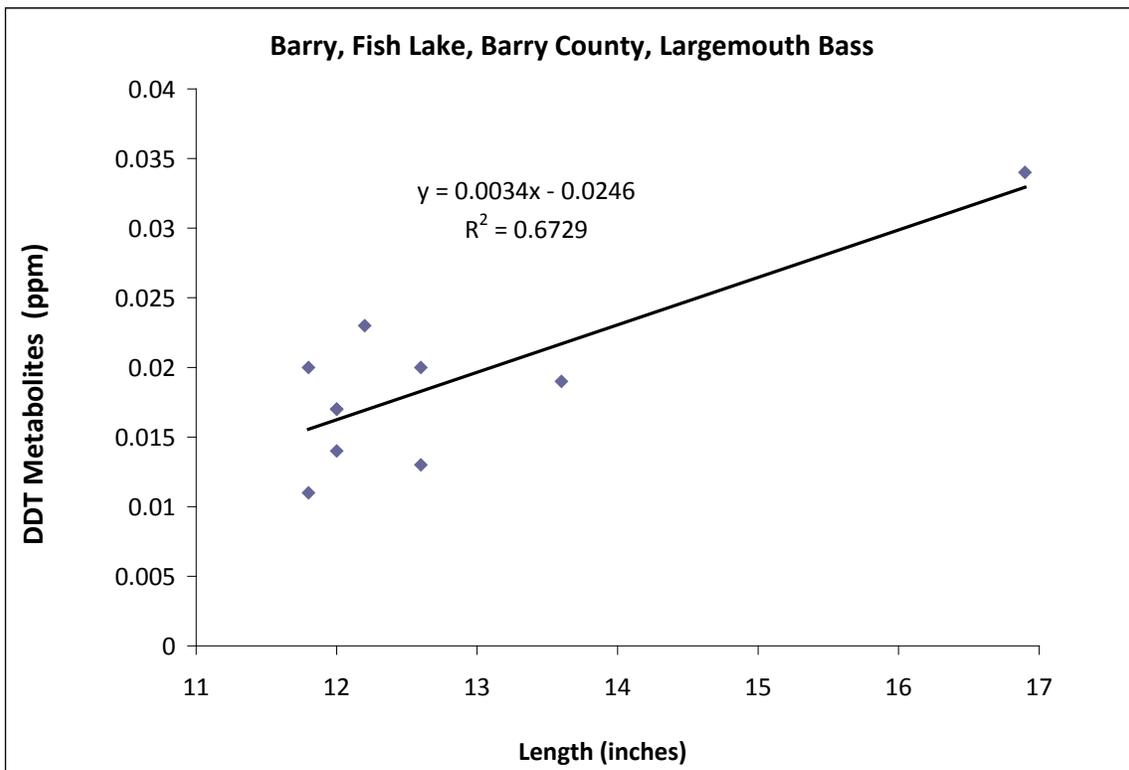
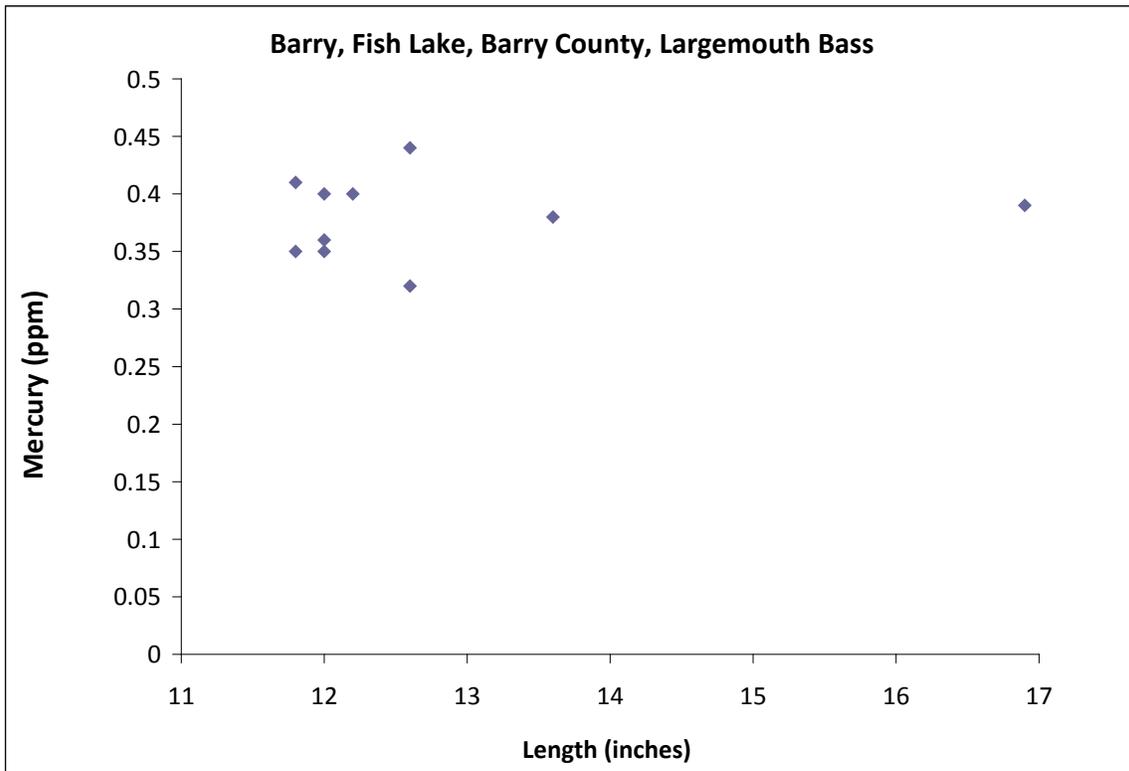
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1999	1999	10	11.8	14	13.6	16.9
Datasets available: 1999						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	2	0.385	0.38	0.39	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.012	0.014				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1999	1999	10	11.8	14	13.6	16.9
Datasets available: 1999						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2	ND	--	--	--	--
DDT	2	0.027	0.019	0.034	--	--
Chlordane	2	ND	--	--	--	--
Toxaphene	2	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.673	0.526				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Fish Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Fish Lake largemouth bass. The statewide consumption guidelines apply and recommend that no one eat more than 2 meals per month of legal size largemouth bass under 18 inches or more than 1 meal per month of those fish larger than 18 inches.



**Northern Pike**

**Fish Lake**

**Barry County**

**Hg Analysis:**

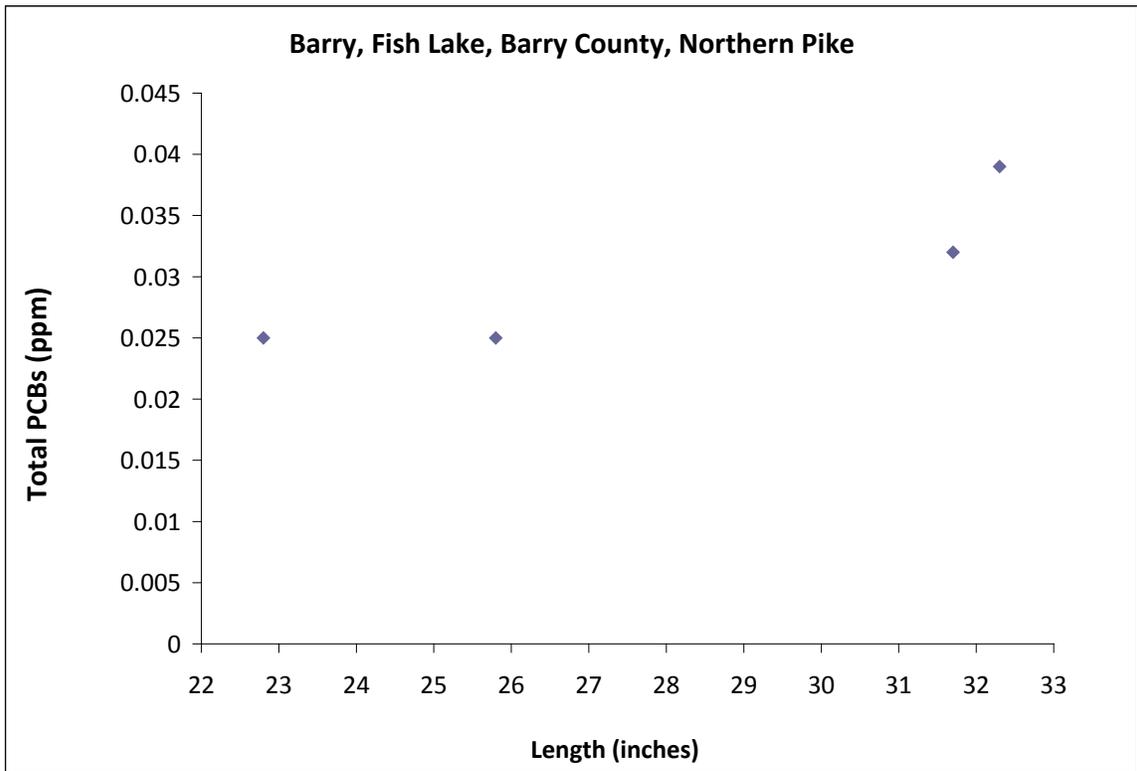
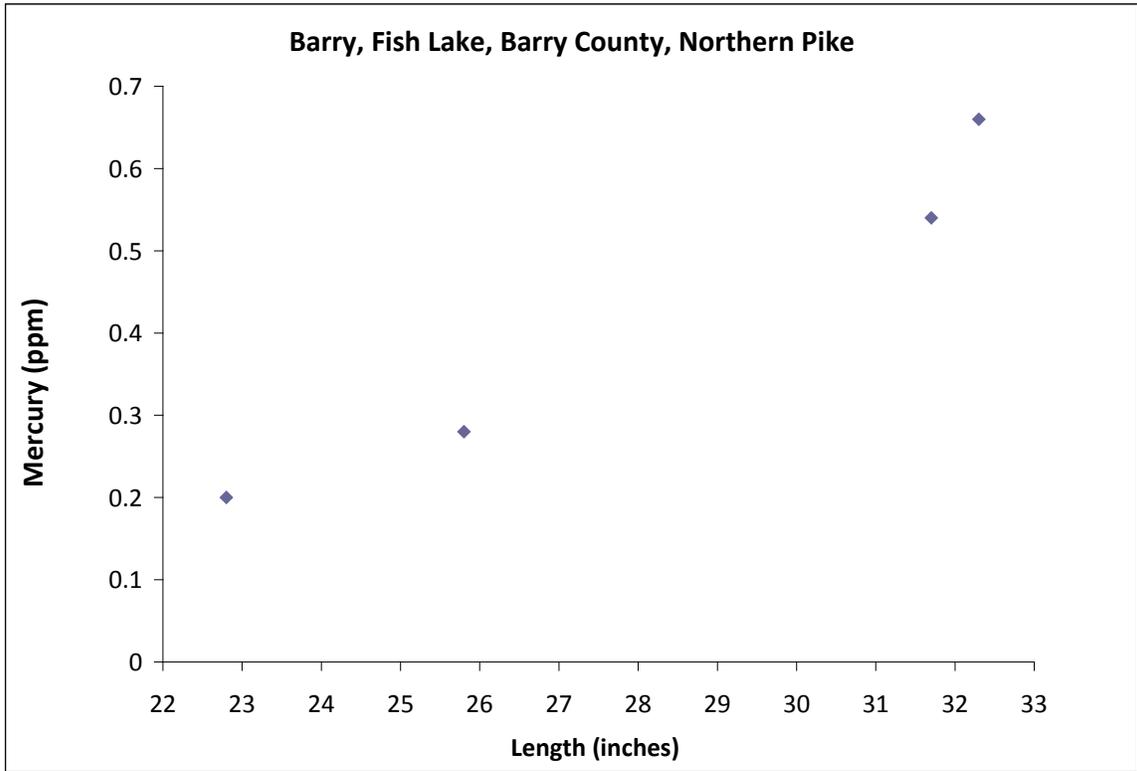
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1991	1991	4	22.8	24	25.8	32.3
Datasets available: 1991						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	3	0.493	0.28	0.66	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.957	0.991				

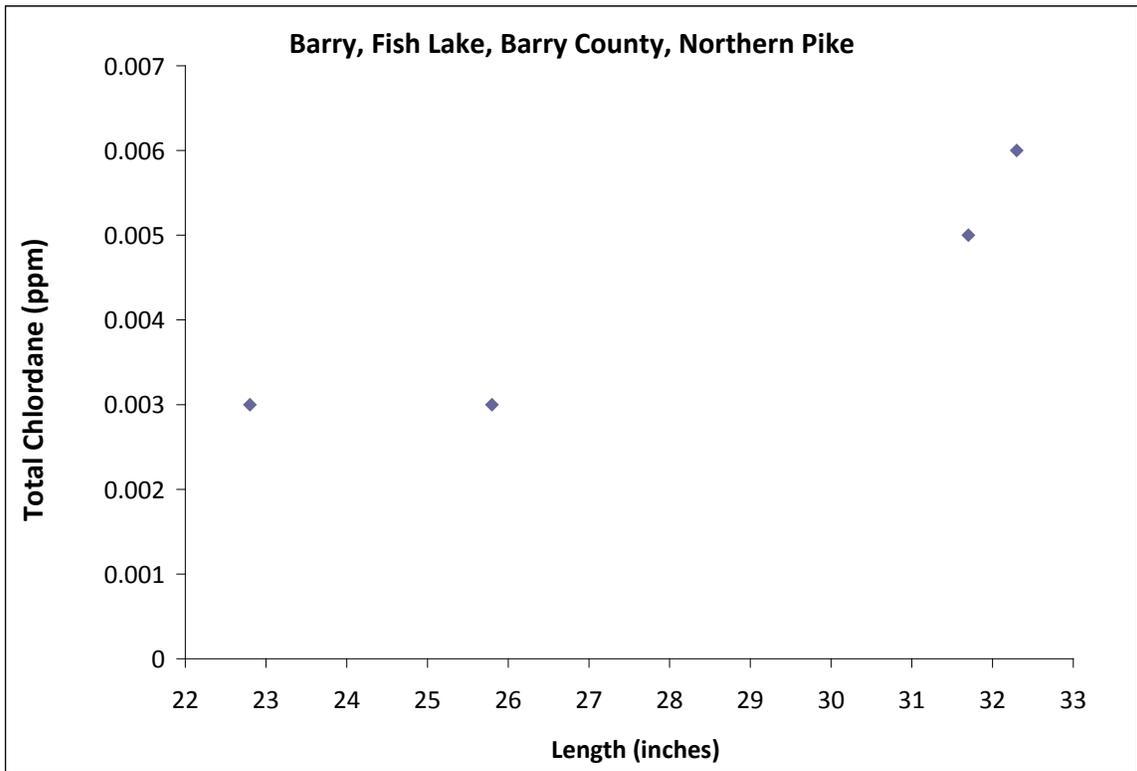
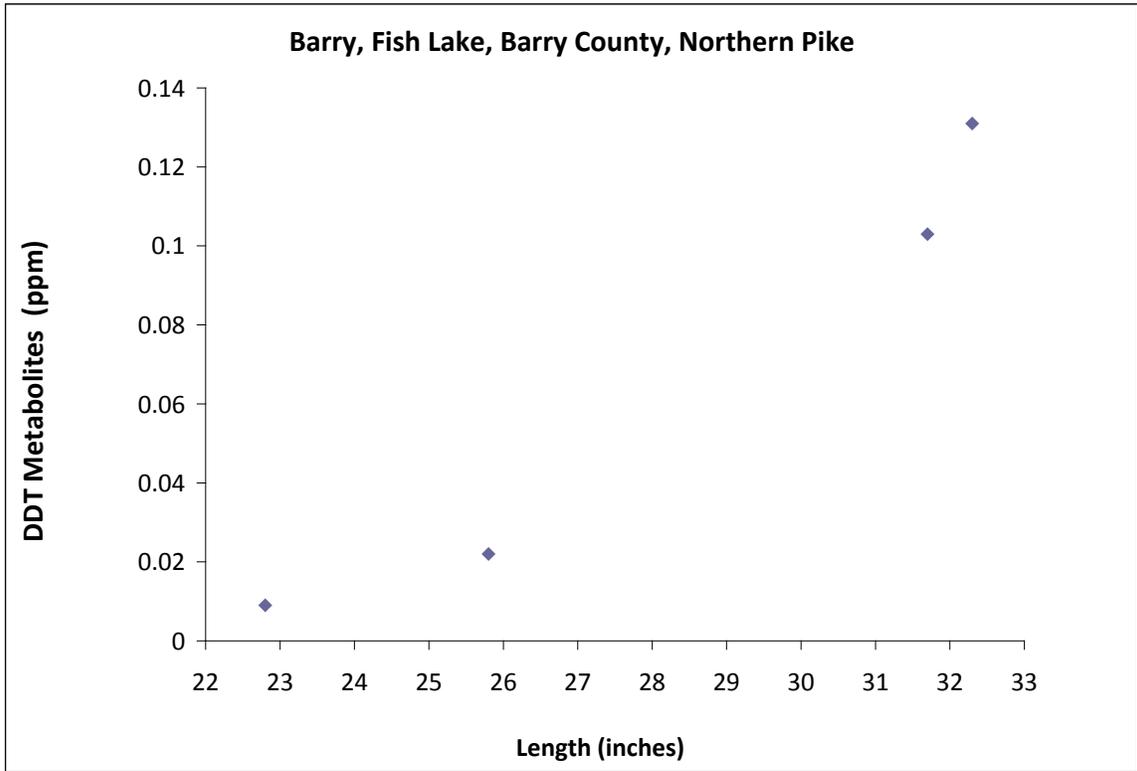
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1991	1991	4	22.8	24	25.8	32.3
Datasets available: 1991						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	3	0.032	0.025	0.039	--	--
DDT	3	0.085	0.009	0.131	--	--
Chlordane	3	0.005	0.003	0.006	--	--
Toxaphene	3	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.798	0.832				
DDT	0.950	0.999				
Chlordane	0.885	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Fish Lake northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Fish Lake northern pike. The statewide consumption guidelines recommend that no one eat more than 1 meal per month of northern pike over 30 inches or more than 2 meals per month of northern pike under 30 inches in length.





**Largemouth Bass**

**Gun Lake**

**Barry County**

**Hg Analysis:**

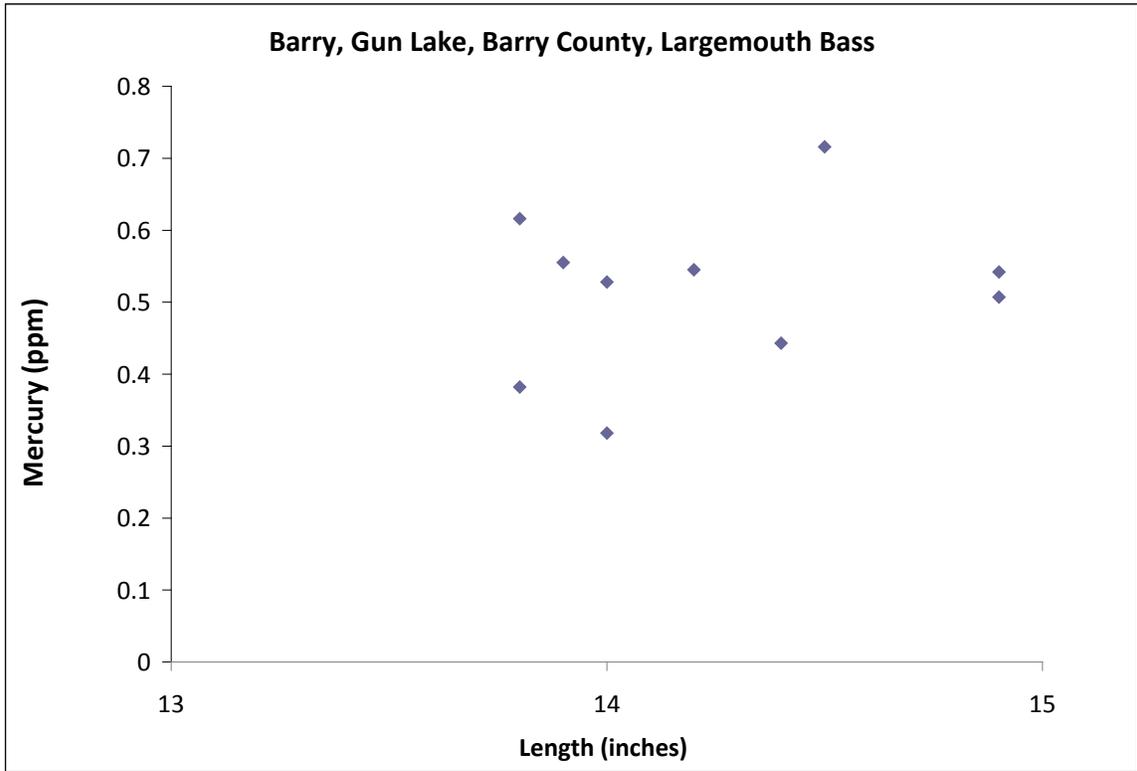
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2006	2006	10	13.8	14	13.8	14.9
Datasets available: 2006						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.515	0.318	0.716	0.600	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.051	0.062				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Gun Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of Gun Lake largemouth or smallmouth bass less than 18 inches or 6 meals per year of largemouth bass greater than 18 inches due to mercury. The 95% UCL was used to establish the guideline for less than 18 inch bass. The statewide guideline length break was applied.



**Northern Pike**

**Payne Lake**

**Barry County**

**Hg Analysis:**

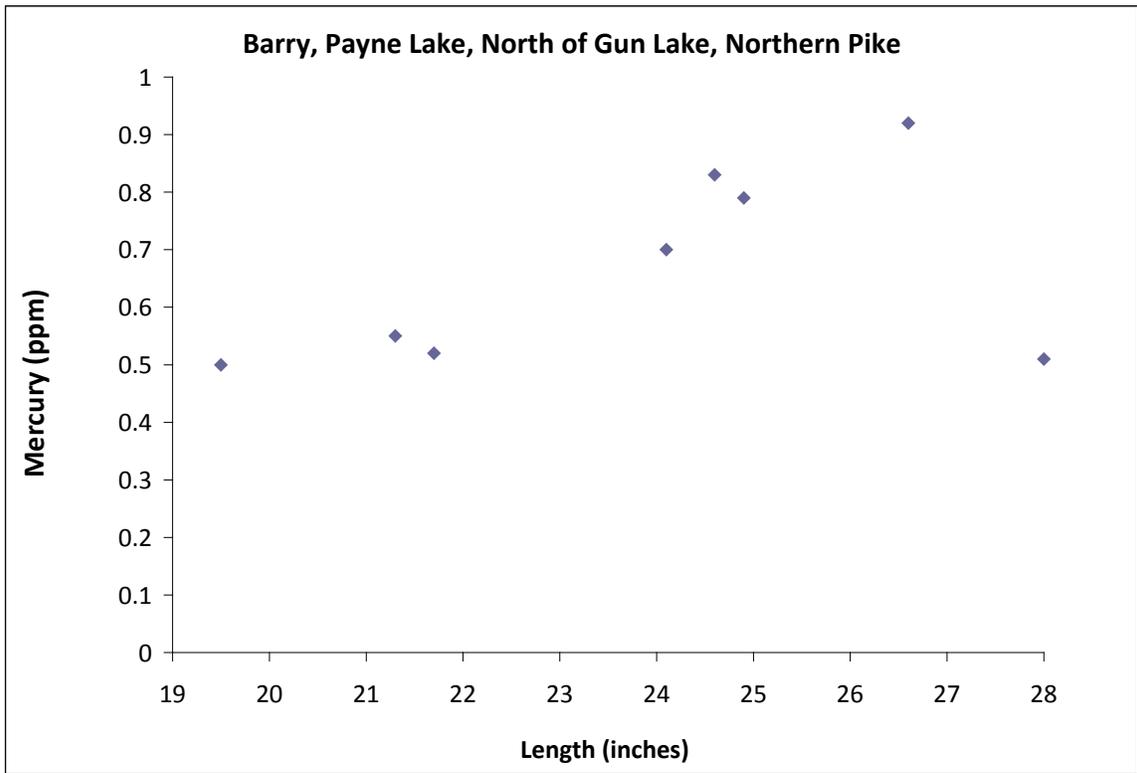
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2009	2009	8	19.5	24	24.1	28
Datasets available: 2009						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	5	0.750	0.51	0.92	0.940	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.246	0.238				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	na	--	--	--	--
DDT	0	na	--	--	--	--
Chlordane	0	na	--	--	--	--
Toxaphene	0	na	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Payne Lake northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than one meal per month of Payne Lake northern pike less than 30 inches, or more than six meals per year greater than 30 inches due to mercury. Statewide length break was applied.



**Black Crappie**

**Pine Lake**

**Barry County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1995	1995	10	9.1	na	9.1	12.4
Datasets available: 1995						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.296	0.19	0.43	0.360	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.728	0.675				

**Organics Analysis:**

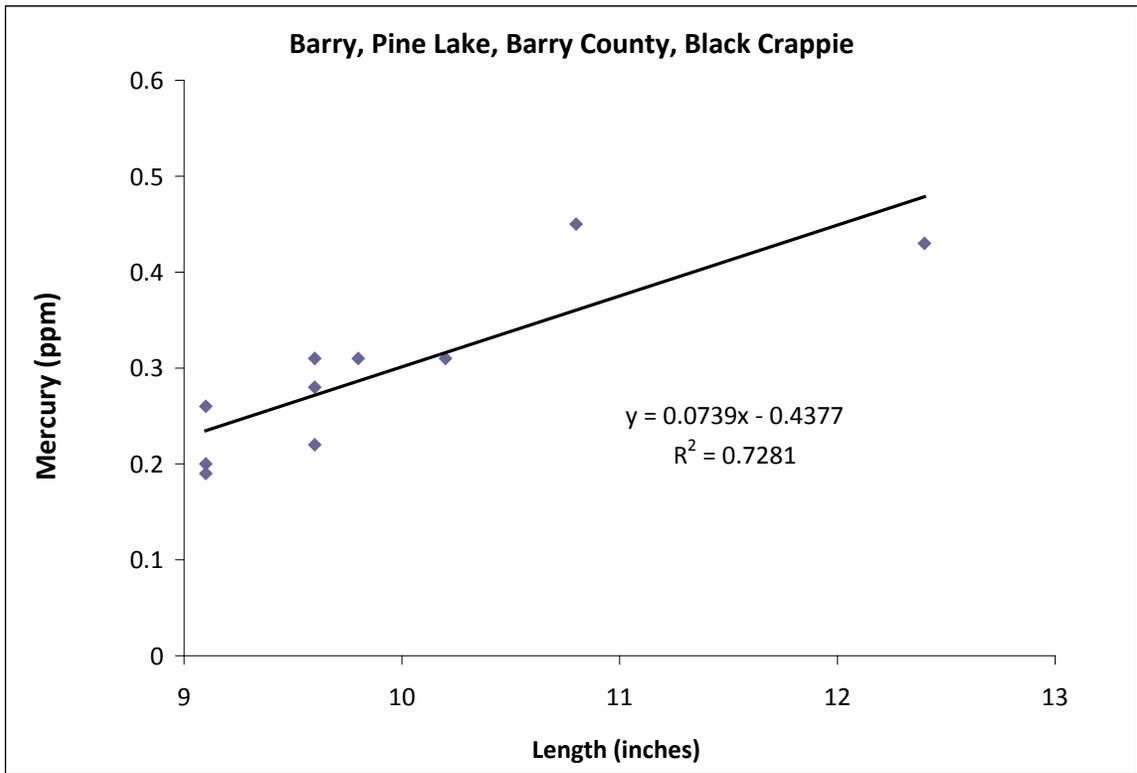
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	na	--	--	--	--
DDT	0	na	--	--	--	--
Chlordane	0	na	--	--	--	--
Toxaphene	0	na	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Pine Lake black crappie are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 4 meals per month of Pine Lake crappie smaller than 9 inches or more than 2 meals per month of those fish larger than 9 inches due to mercury.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
8	0.154	4
9	0.227	4
10	0.301	2
11	0.375	2
12	0.449	2
13	0.523	2
14	0.597	1
15	0.671	1
16	0.745	1

*Shaded area denotes extrapolated estimates*



**Northern Pike**

**Pine Lake**

**Barry County**

**Hg Analysis:**

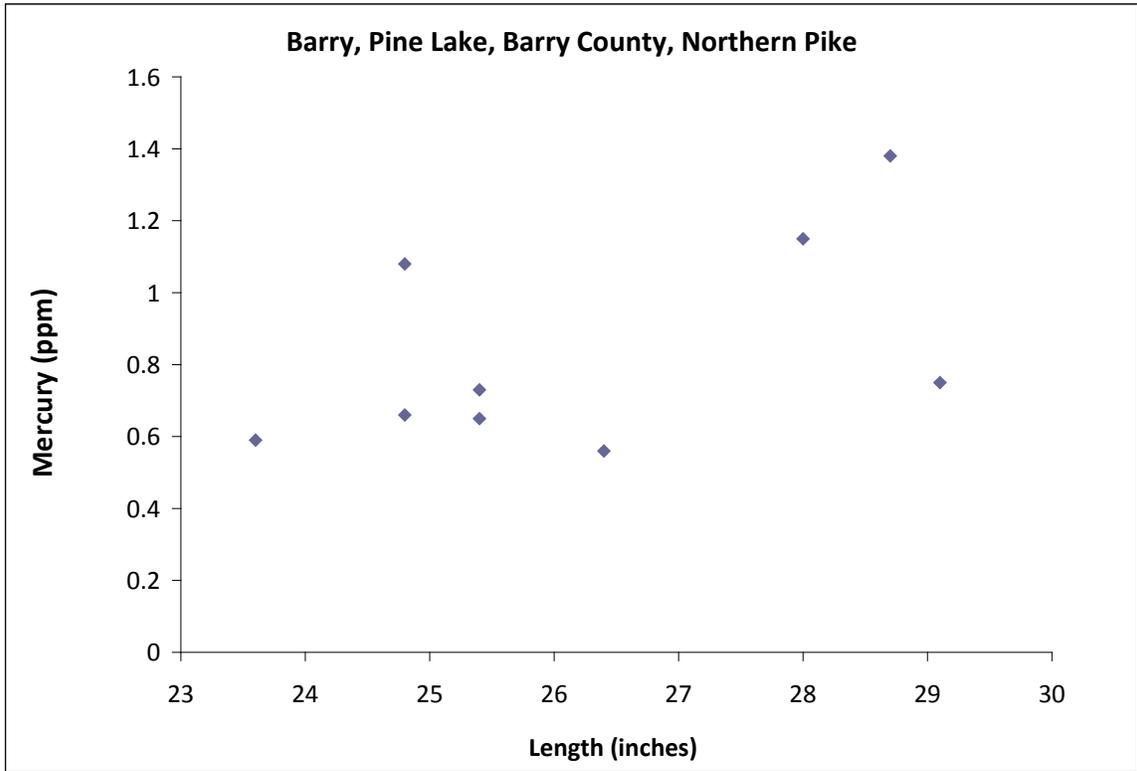
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1995	1995	10	23.4	24	23.6	29.1
Datasets available: 1995						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	9	0.839	0.56	1.38	1.060	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.339	0.343				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--		0	--	--	--	--
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	na	--	--	--	--
DDT	0	na	--	--	--	--
Chlordane	0	na	--	--	--	--
Toxaphene	0	na	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Pine Lake northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of Pine Lake northern pike less than 30 inches, or more than six meals per year greater than 30 inches due to mercury. Statewide length break was applied.



# Berrien County

**Carp**

**Galien River  
New Buffalo**

**Berrien County**

**Hg Analysis:**

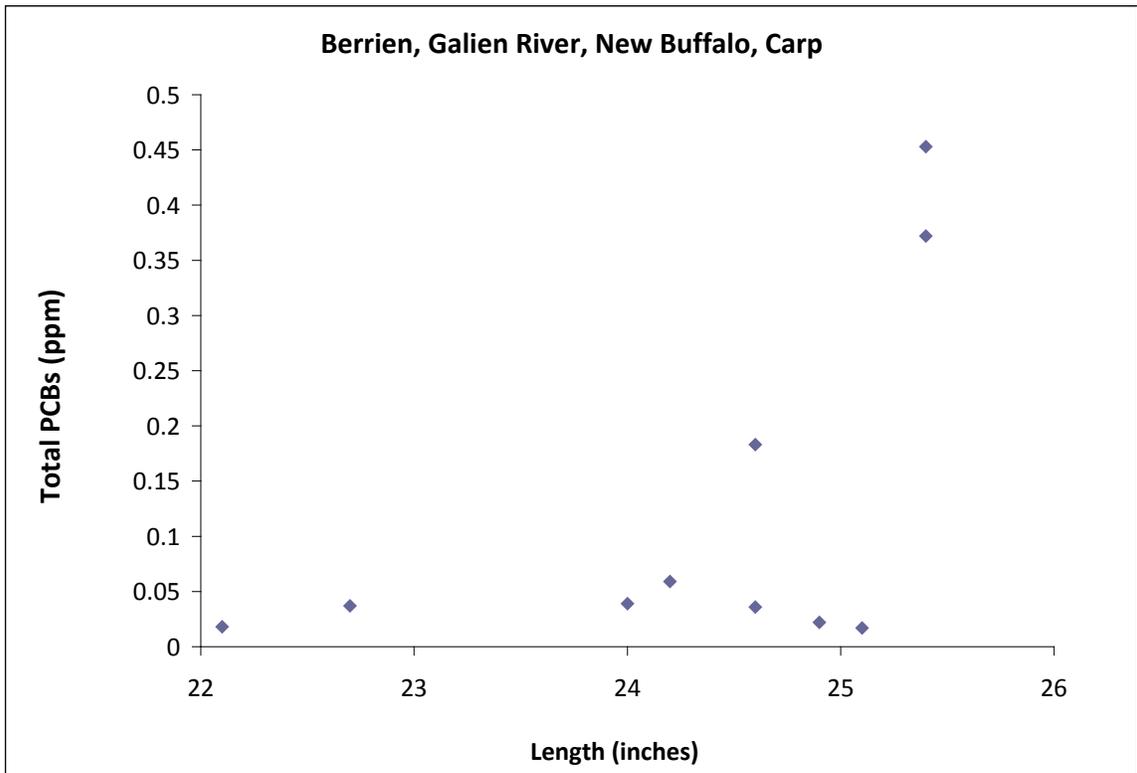
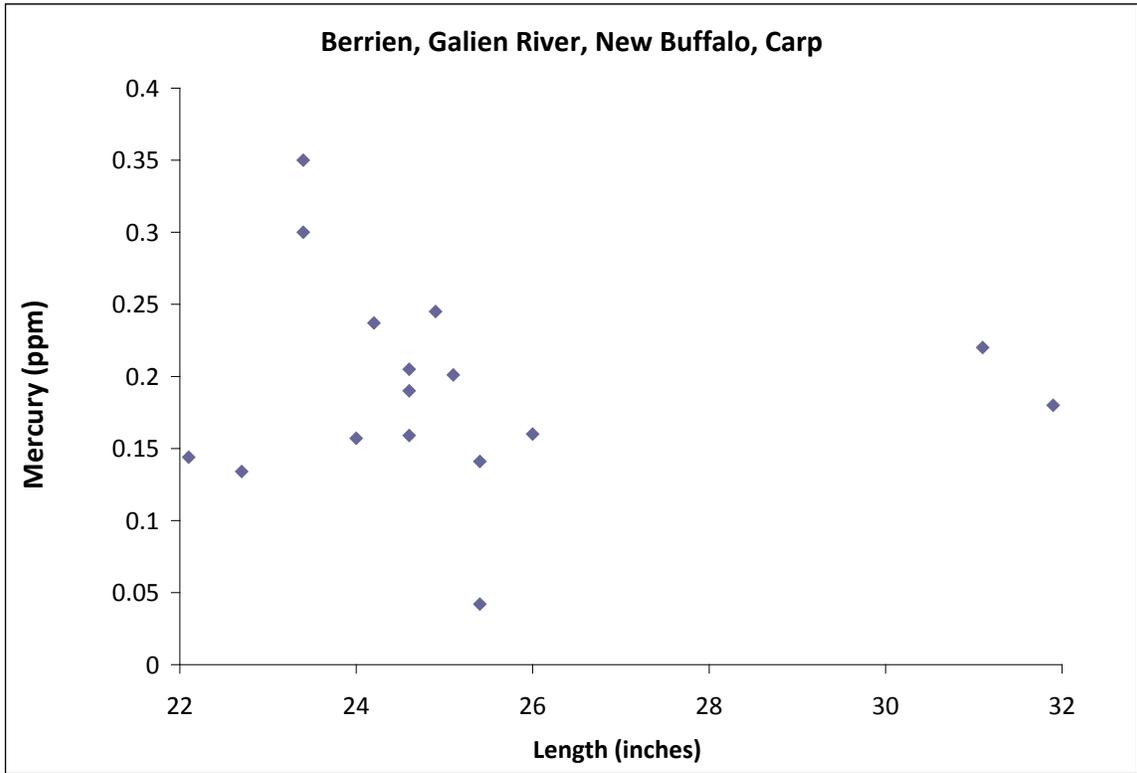
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	2007	16	22.1	na	22.1	31.9
Datasets available: 1992, 2007						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	16	0.192	0.042	0.332	0.230	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.004	0.000				

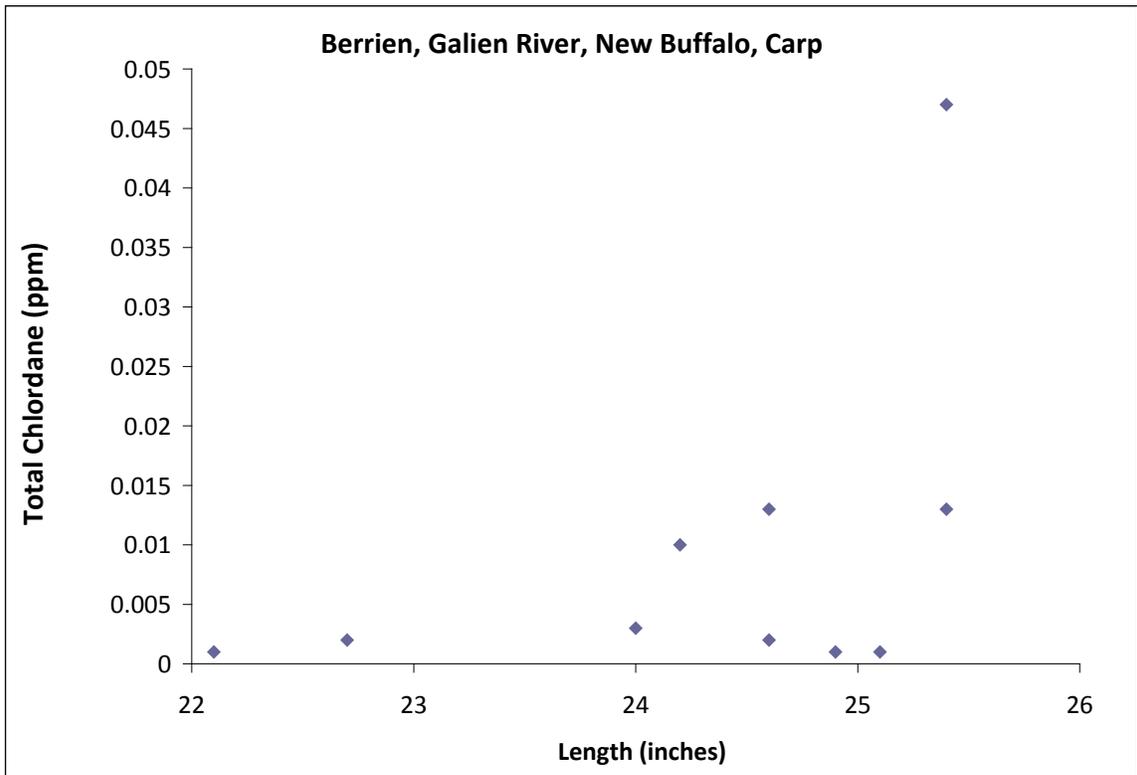
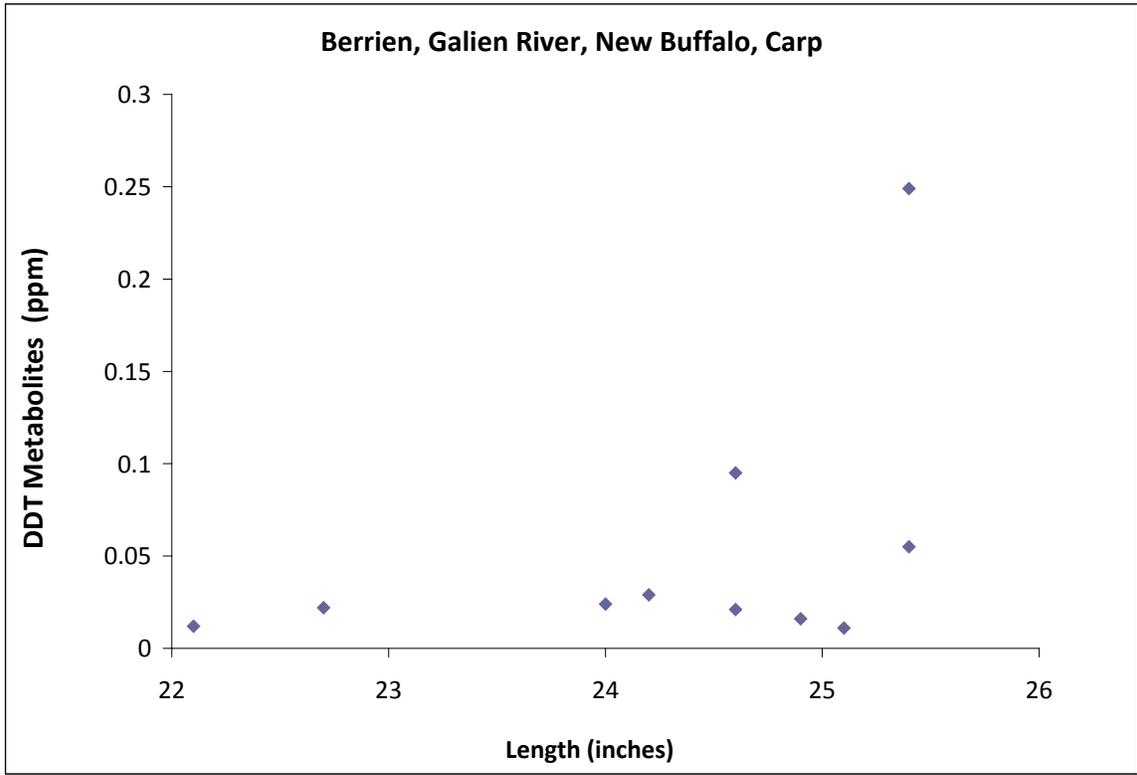
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2007	2007	10	22.1	na	22.1	25.4
Datasets available: 1992, 2007						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.124	0.017	0.453	0.240	0.5
DDT	10	0.053	0.011	0.249	0.110	16
Chlordane	10	0.009	0.001	0.047	0.020	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.302	0.272				
DDT	0.186	0.223				
Chlordane	0.209	0.221				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>0.5</b>

**Existing Advisory:** Women and children should eat no more than one meal per week of Galien River carp between 12 and 14 inches in length, no more than one meal per month of Galien River carp between 14 and 22 inches in length and no more than six meals per year of Galien River carp greater than 22 inches in length due to PCBs.

**Recommendation:** No one should eat more than 6 meals per year of Galien River carp due to PCBs. Mercury would cause an advisory.





**Largemouth Bass**

**Galien River  
New Buffalo**

**Berrien County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	1	14.8	14	14.8	14.8
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	1	0.490	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	1	14.8	14	14.8	14.8
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	1	0.129	--	--	--	--
DDT	1	0.065	--	--	--	--
Chlordane	1	0.014	--	--	--	--
Toxaphene	1	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>na</b>

**Existing Advisory:** Galien River largemouth bass are not covered by a consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Galien River largemouth bass. Statewide guidelines apply. No one should eat more than 2 meals per month of legal size largemouth or smallmouth bass under 18 inches or more than 1 meal per month of largemouth or smallmouth bass over 18 inches.

**Rock Bass**

**Galien River  
New Buffalo**

**Berrien County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	1	8.9	na	8.9	8.9
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	1	0.320	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1992	1992	1	8.9	na	8.9	8.9
Datasets available: 1992						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	1	ND	--	--	--	--
DDT	1	0.006	--	--	--	--
Chlordane	1	ND	--	--	--	--
Toxaphene	1	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>na</b>

**Existing Advisory:** Galien River rock bass are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Galien River rock bass. Statewide guidelines apply. No one should eat more than 4 meals per month of rock bass from inland waters.

# Branch County

**Largemouth Bass**

**Cary Lake**

**Branch County**

**Hg Analysis:**

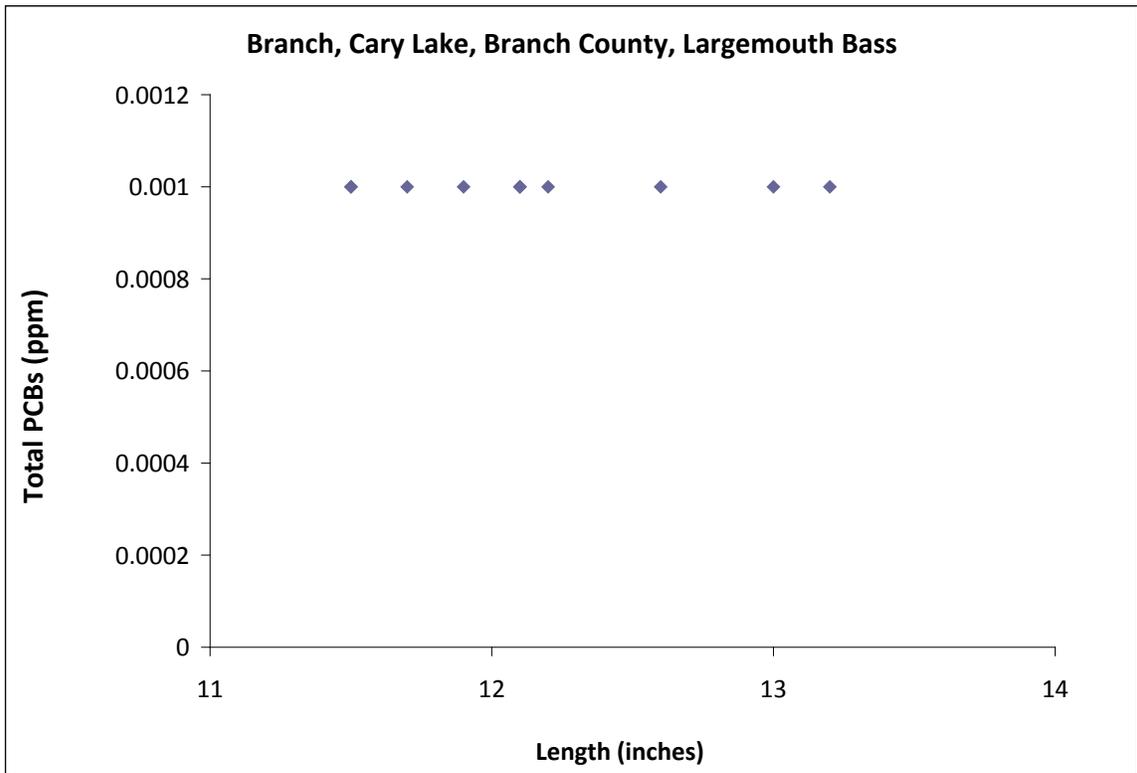
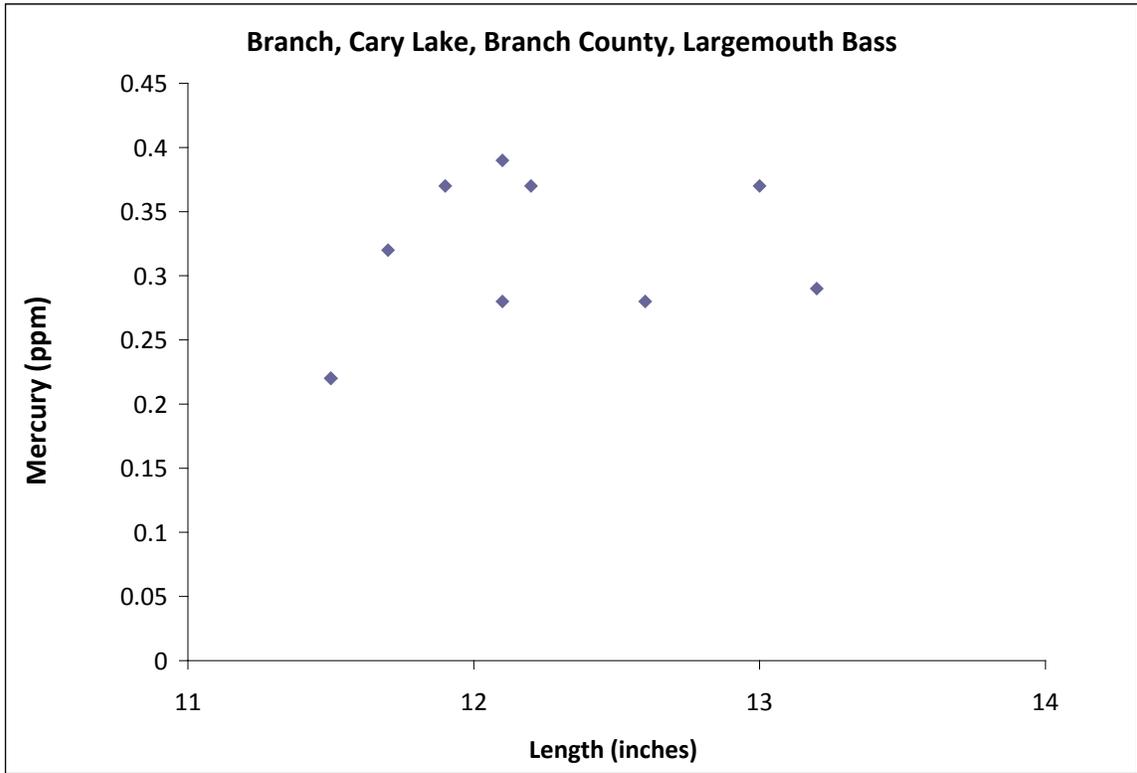
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	11.5	14	11.5	13.2
Datasets available: 2001						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.311	0.22	0.39	0.360	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.117	0.145				

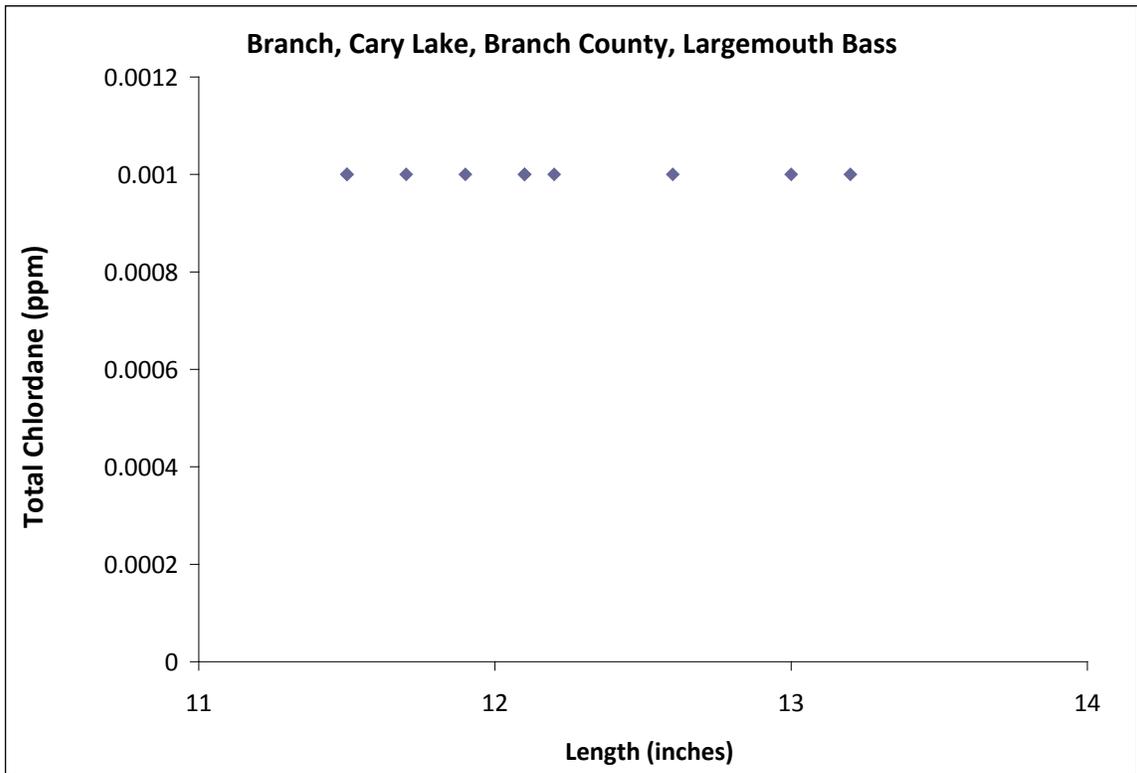
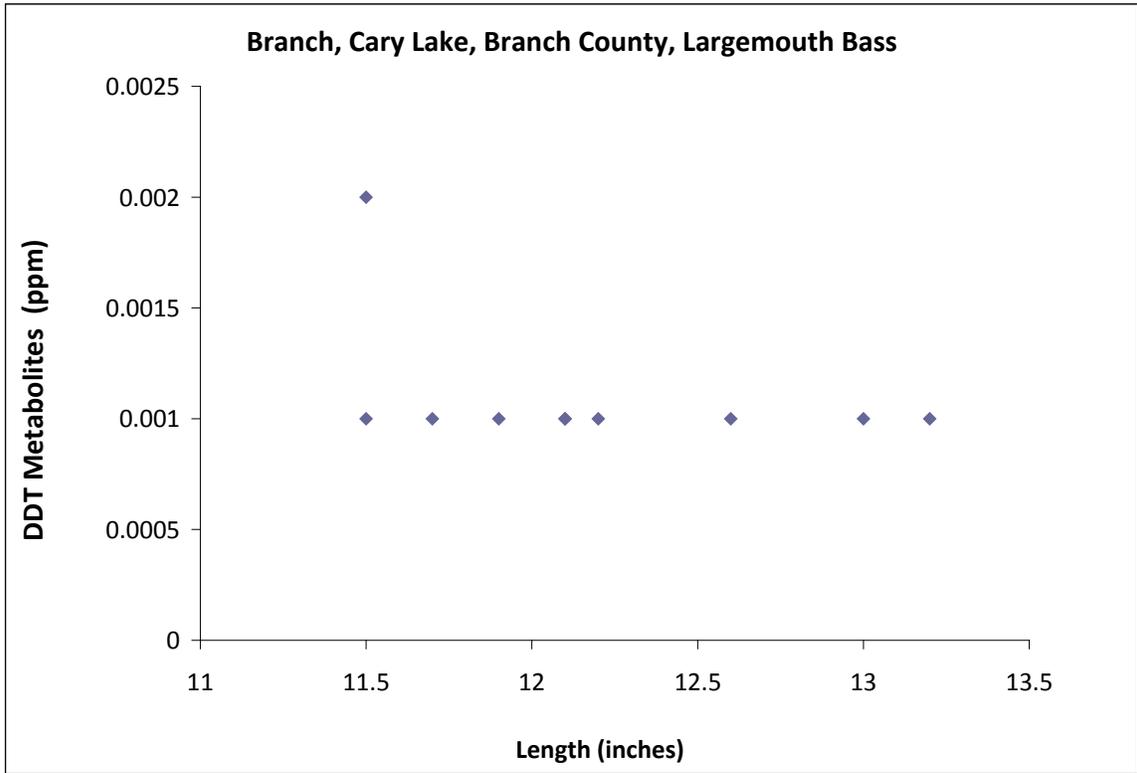
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	11.5	14	11.5	13.2
Datasets available: 2001						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.001	0.001	0.001	0.000	16
DDT	10	0.001	0.001	0.002	0.001	16
Chlordane	10	0.001	0.001	0.001	0.001	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.000	--				
DDT	0.164	0.164				
Chlordane	0.000	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Cary Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of Cary Lake largemouth or smallmouth bass under 18 inches or 1 meal per month larger than 18 inches due to mercury. The statewide length break was used as the size range of the fish was limited.





**White Sucker**

**Cary Lake**

**Branch County**

**Hg Analysis:**

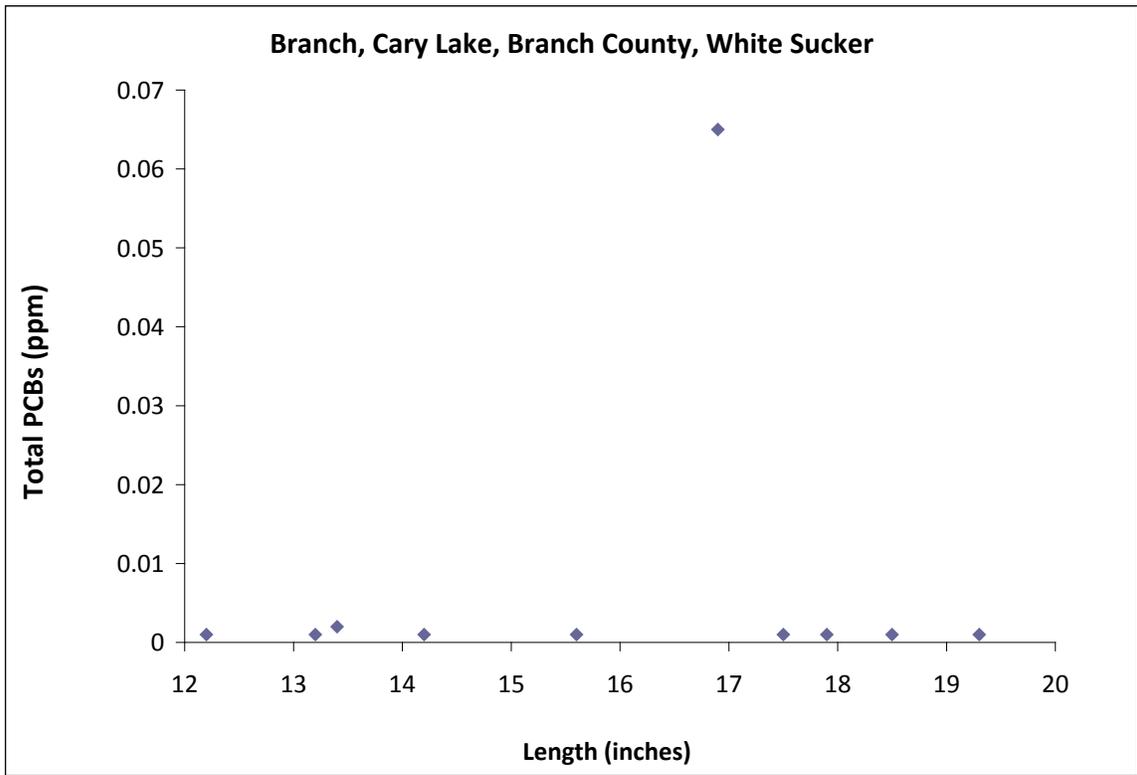
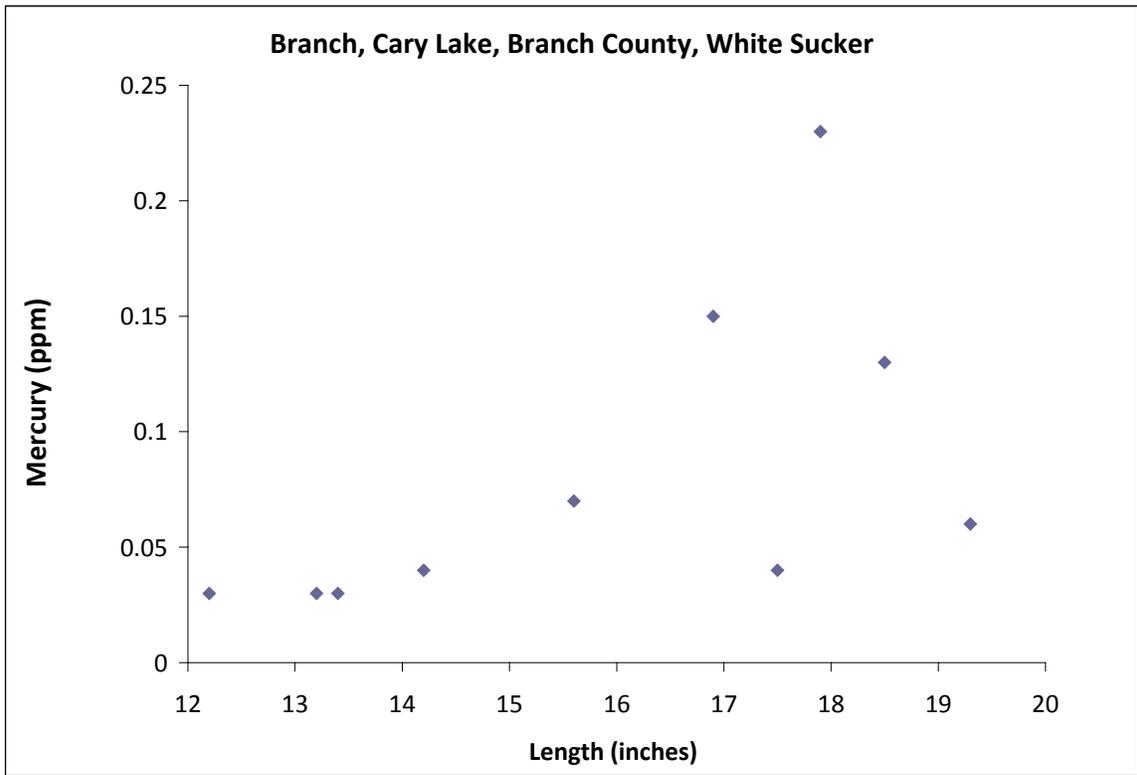
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	12.2	na	12.2	19.3
Datasets available: 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.081	0.03	0.23	0.130	8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.339	0.493				

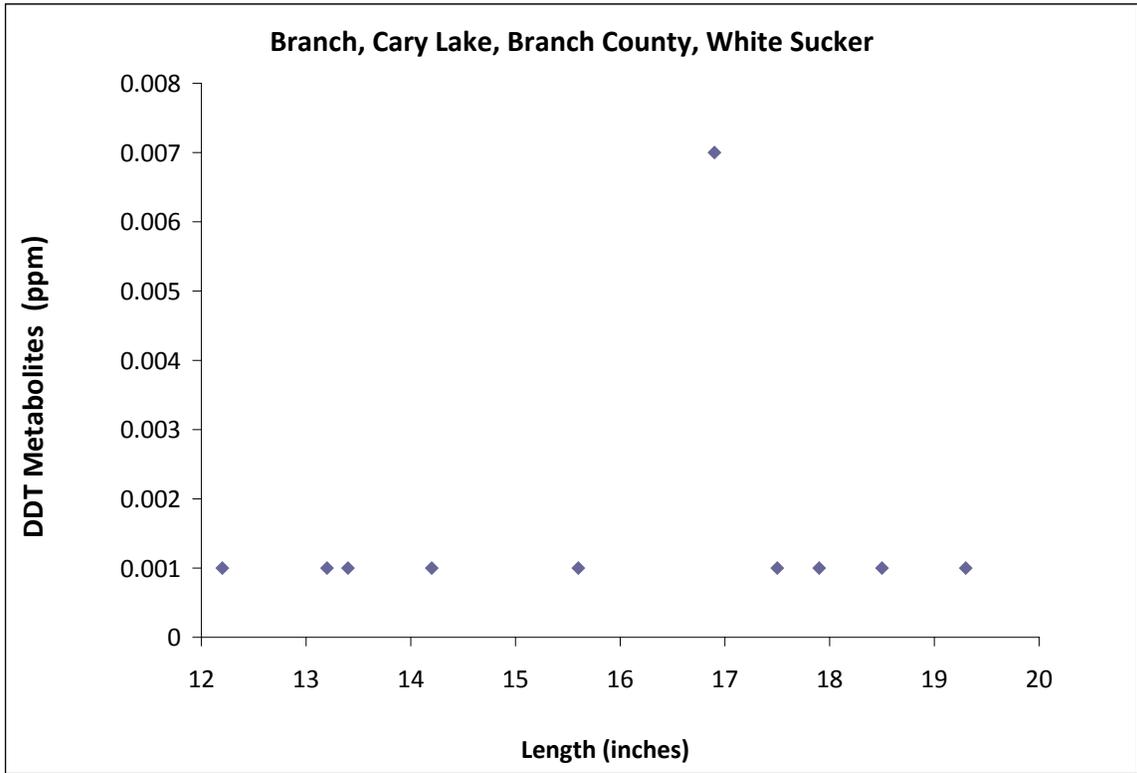
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	12.2	na	12.2	19.3
Datasets available: 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.008	0.001	0.065	0.020	12
DDT	10	0.002	0.001	0.007	0.003	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.020	0.008				
DDT	0.021	0.021				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>8</b>

**Existing Advisory:** There are no current consumption advisories for Cary Lake white sucker.

**Recommendation:** No one should eat more than 8 meals per month of Cary Lake white sucker due to mercury. PCBs would cause an advisory.





**Bluegill**

**Coldwater Lake**

**Branch County**

**Hg Analysis:**

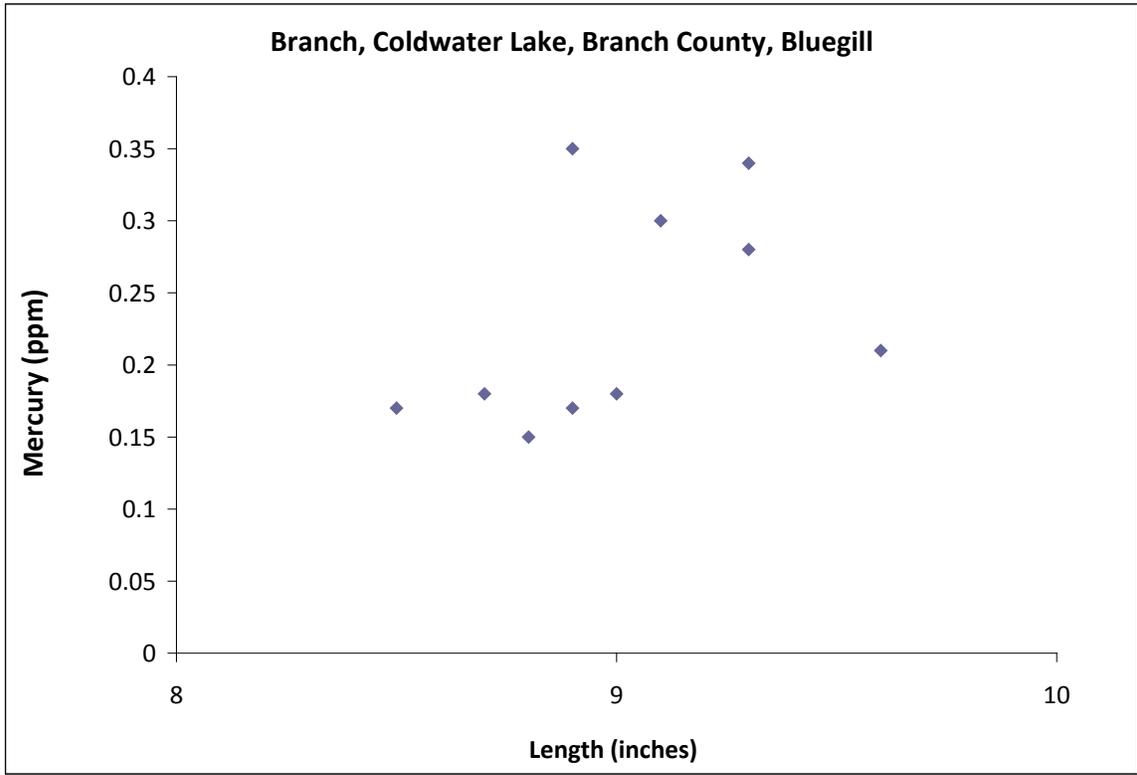
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1994	1994	10	8.5	na	8.5	9.6
Datasets available: 1994						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.233	0.15	0.35	0.290	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.190	0.232				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** There are no current consumption advisories for Coldwater Lake bluegill.

**Recommendation:** No one should eat more than 2 meals per month of Coldwater Lake bluegill and other sunfish due to mercury.



**Largemouth Bass**

**Coldwater Lake**

**Branch County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1988	1994	30	10.6	14	13.5	13.6
Datasets available: 1988, 1993, 1994						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	30^	0.41	0.23	0.65	0.45	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.038	0.062				

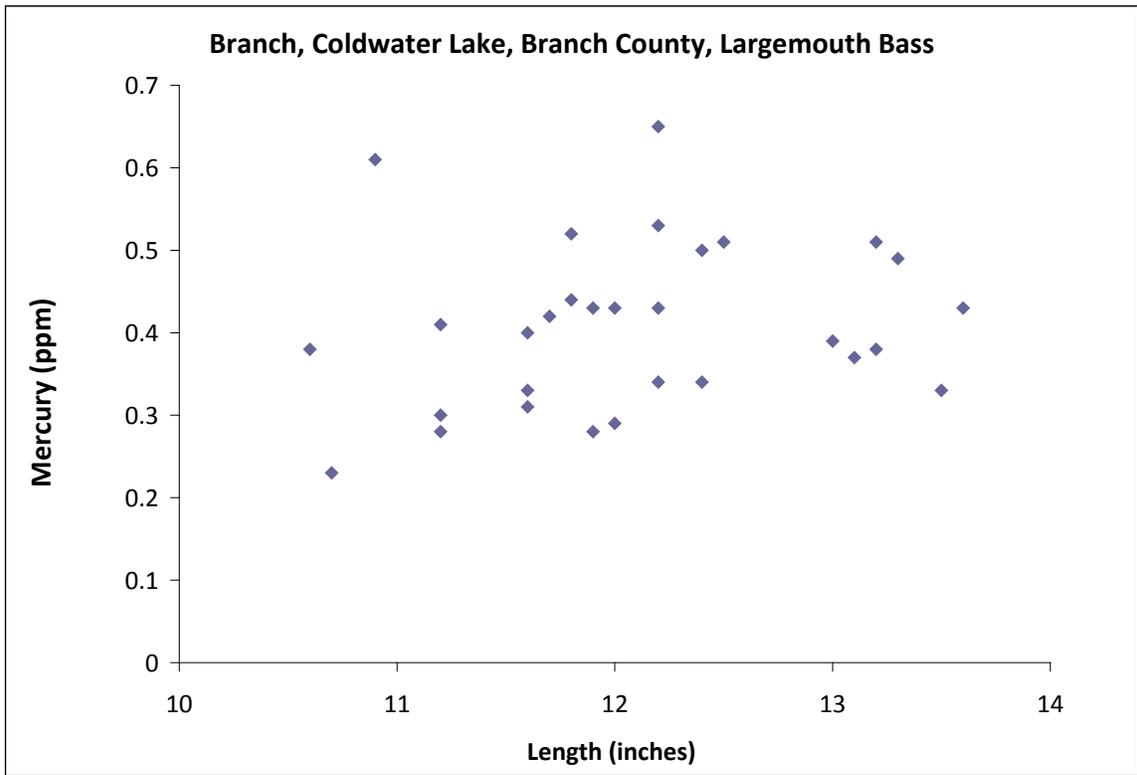
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		na				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

^Sublegal samples included.

**Existing Advisory:** Coldwater Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one eat more than 2 meals per month of largemouth bass under 18 inches or more than 1 meal per month of those fish larger than 18 inches. The dataset is limited due to the large number of sublegal samples.



**Northern Pike**

**Coldwater Lake**

**Branch County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1988	2014	42	15.9	24	23.6	31.9
Datasets available: 1988, 1993, 1994, 2006, 2014						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	23	0.74	0.24	1.6	0.87	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.505	0.474				
Mercury	0.703	0.637	legal size only			

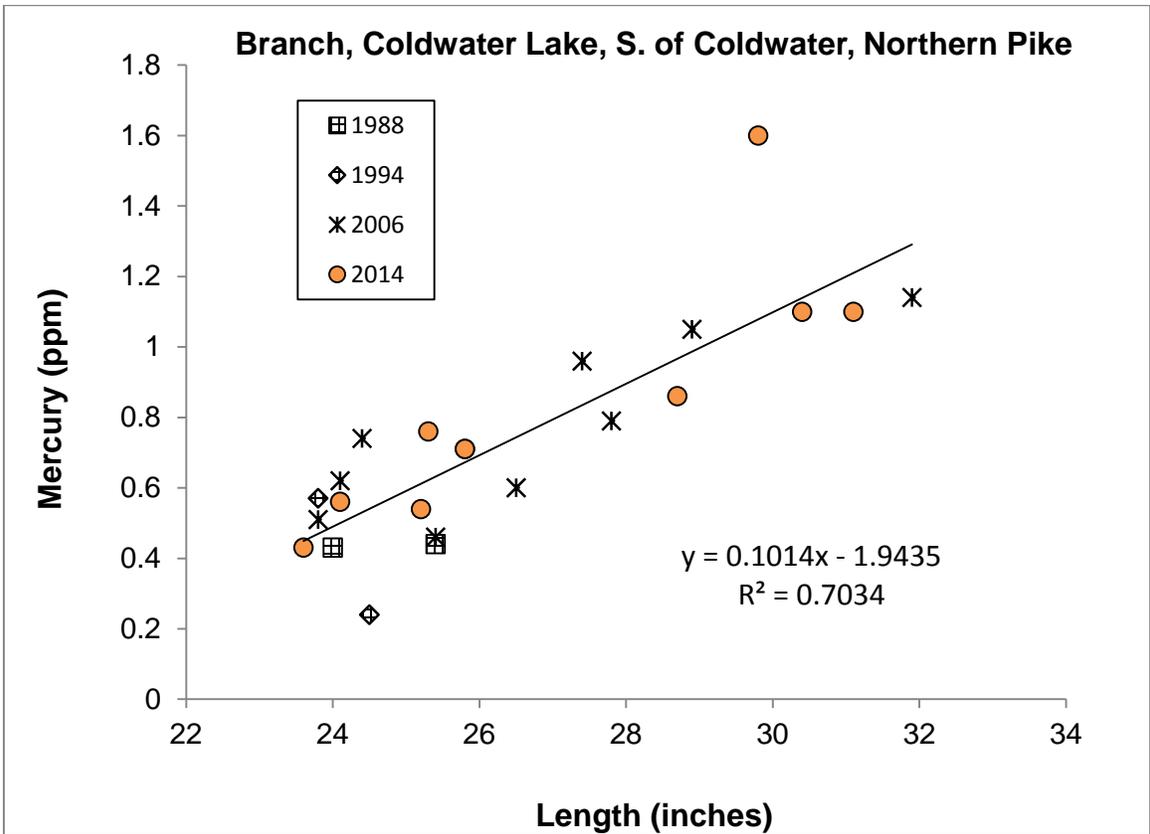
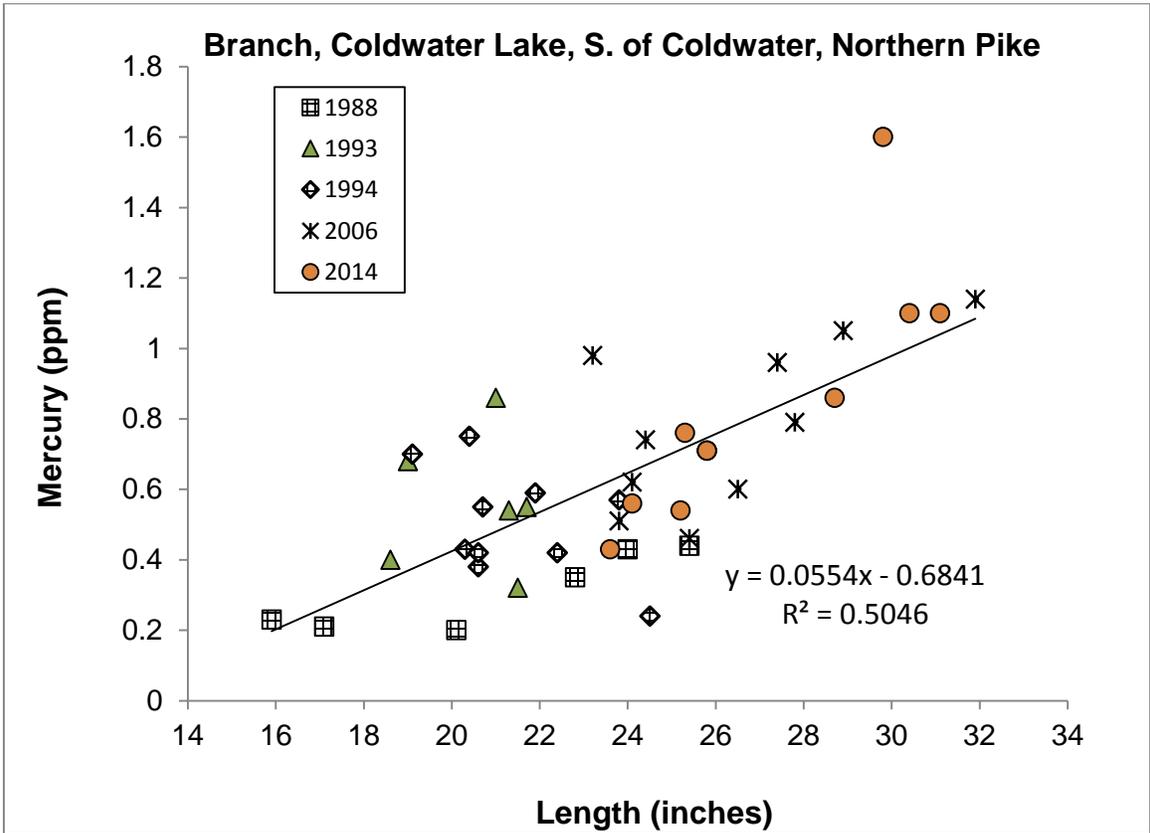
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0				
Datasets available: --						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
TEQ	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
TEQ	--	--				
<b>Final meal category based on UCL:</b>						

Length (Inches)	Hg Regression Equation* Estimate (ppm)	Meal Category
24	0.49	2
26	0.69	1
28	0.9	1
30	1.1	1
32	1.3	0.5
34	1.5	0.5
36	1.71	0.5
* - based on fish of legal size only		

**Existing Advisory:** No one should eat more than 1 meal per month of Coldwater Lake northern pike less than 30 inches or more than 6 meals per year of those fish larger than 30 inches due to mercury.

**Recommendation:** No change is recommended.



**Rock Bass**

**Coldwater Lake**

**Branch County**

**Hg Analysis:**

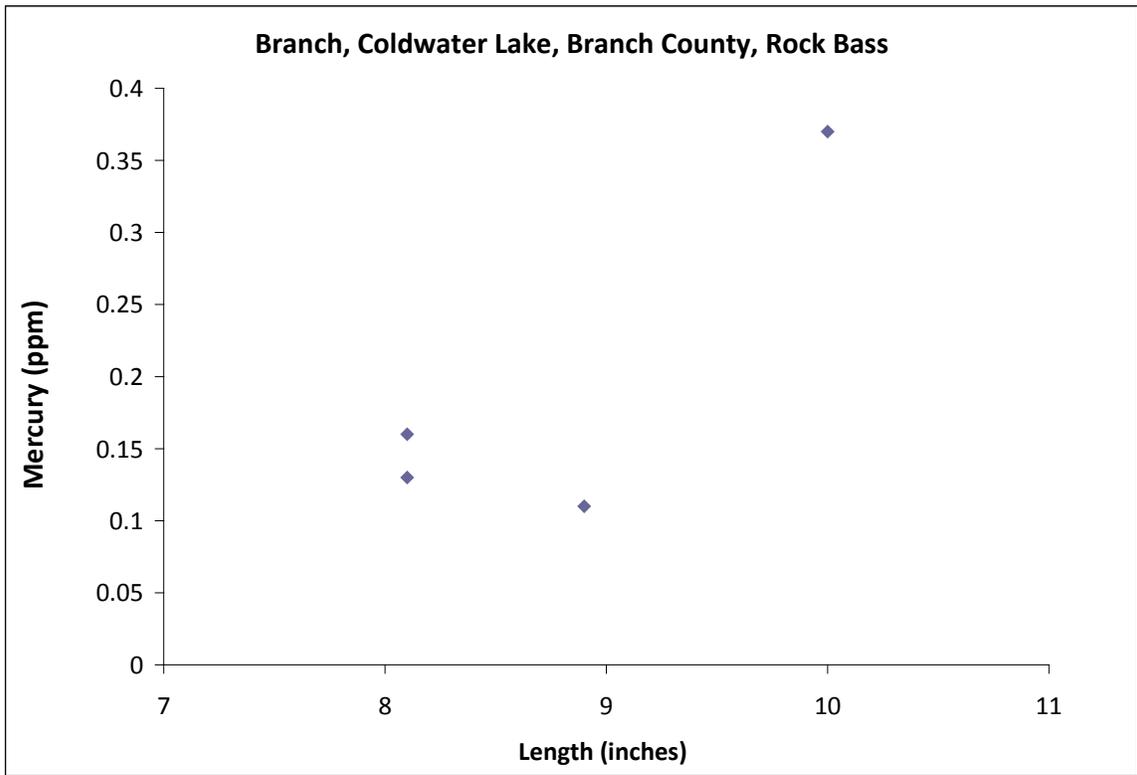
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1988	1988	4	8.1	na	8.1	10
Datasets available: 1988						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	4	0.193	0.11	0.37	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.000	0.000				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	--	--	--	--	--
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				

**Existing Advisory:** Coldwater Lake rock bass are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Coldwater Lake rock bass. The statewide consumption guidelines recommend that no one should eat more than 4 meals per month of rock bass from inland waters.



**Northern Pike**

**Lake Lavine**

**Branch County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2013	2013	10	24.4	24	24.4	36.3
Datasets available: 2013						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.37	0.26	0.68	0.47	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.242	0.290				

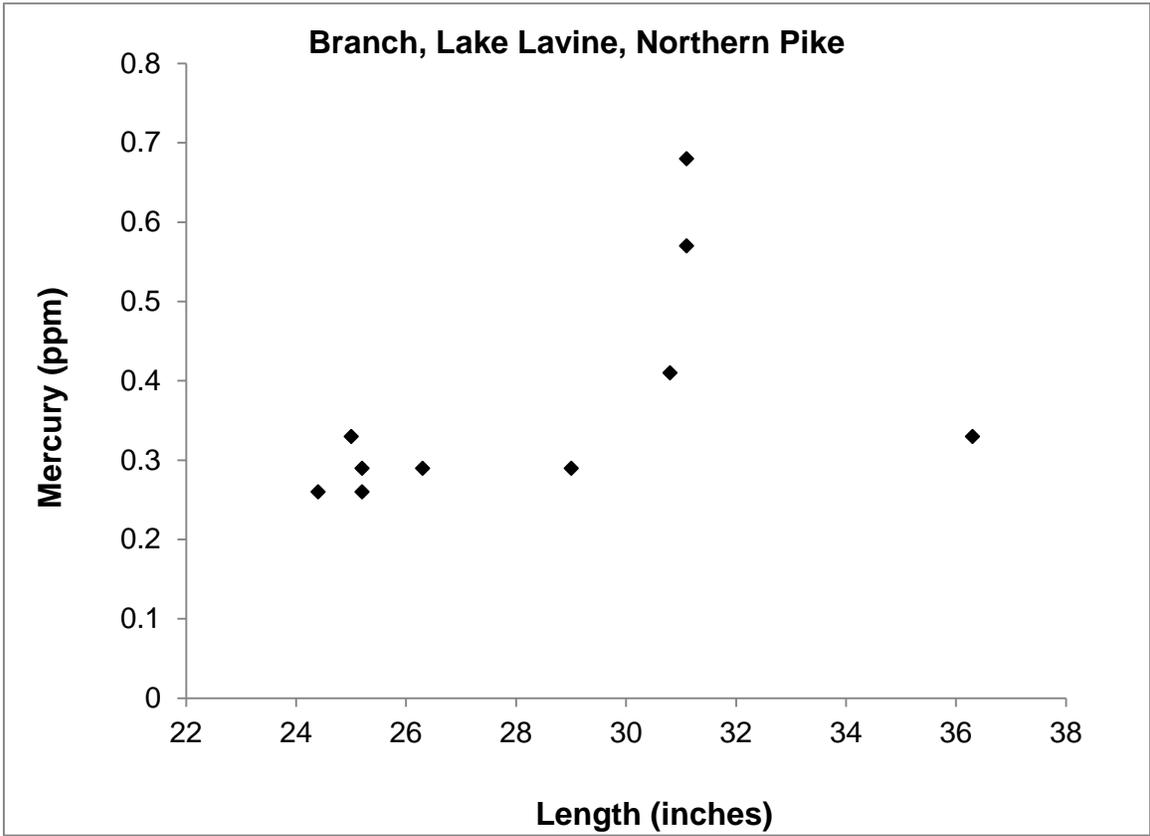
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available: --						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	--	--	--	--	--
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Lake Lavine northern pike are covered by the statewide advisory: No one should eat more than 2 meals of per month of northern pike smaller than 30 inches or more than 1 meal per month of northern pike larger than 30 inches.

**Recommendation:** No one should eat more than 2 meals of per month of Lake Lavine northern pike smaller than 30 inches or more than 1 meal per month of northern pike larger than 30 inches.

Note: 95% UCL for the 4 fish over 30 inches = 0.75 ppm (1 meal per month range)



**Northern Pike**

**East Long Lake**

**Branch County**

**Hg Analysis:**

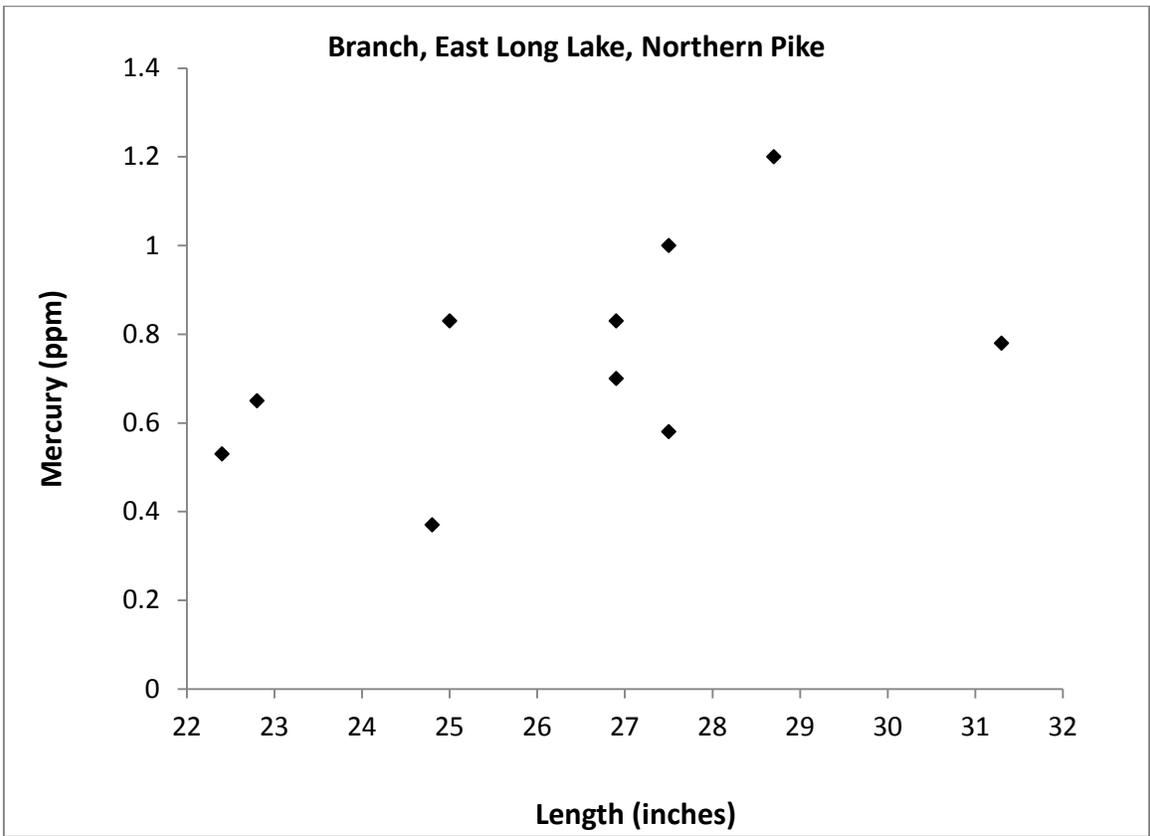
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2011	2011	10	22.4	24	24.8	31.3
Datasets available: 2011						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	8	0.79	0.37	1.20	1.00	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.271	0.267				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available: --						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	--	--	--	--	--
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--	<b>1</b>			

**Existing Advisory:** East Long Lake northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of East Long Lake northern pike smaller than 30 inches or more than 6 meals per year of those fish larger than 30 inches due to mercury. The statewide length break was applied as the size range of fish was limited.



**Black Crappie**

**Randall Lake Chain  
Morrison, Randall, and Craig**

**Branch County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	1990	5	10.1	na	10.1	11.3
Datasets available: 1990						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	5	0.404	0.22	0.51	0.560	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.910	0.853				

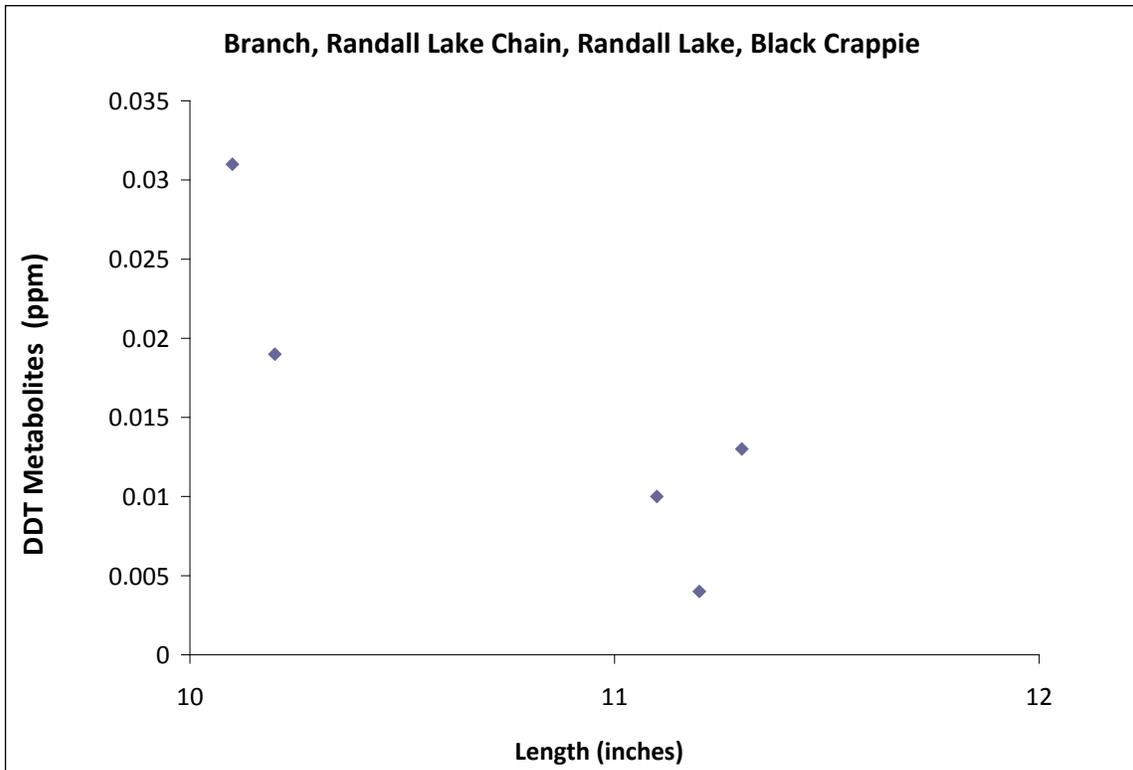
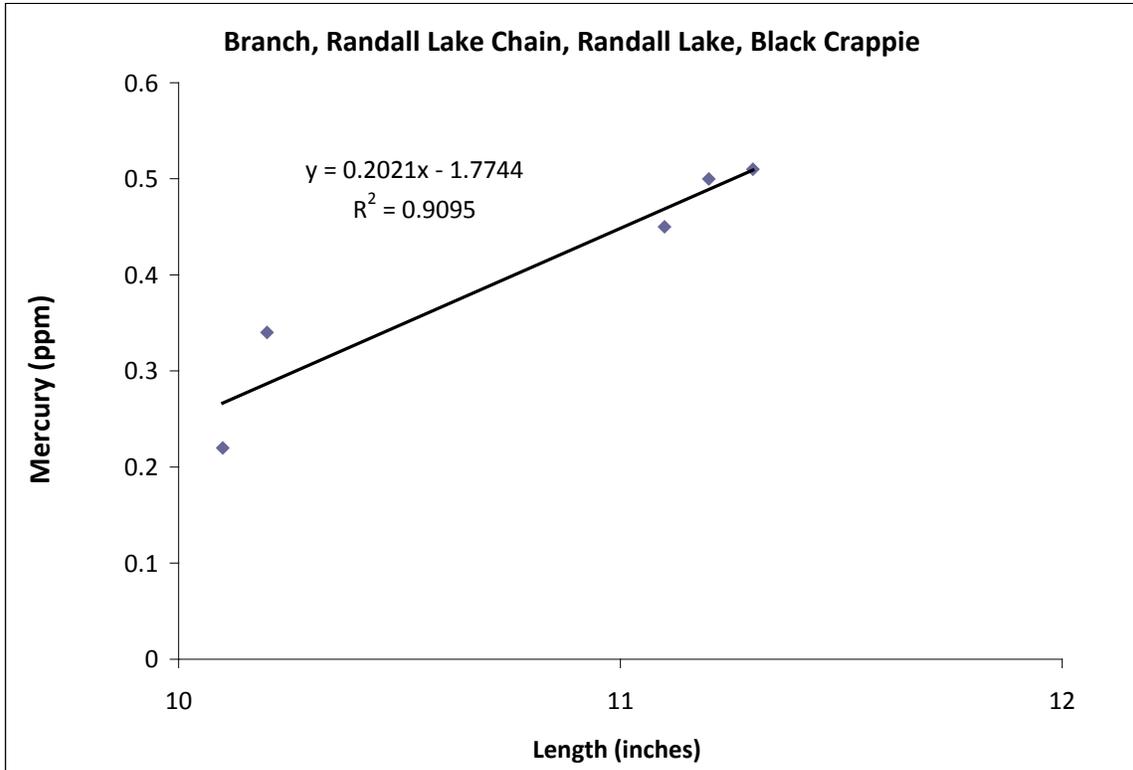
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	1990	5	10.1	na	10.1	11.3
Datasets available: 1990						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	5	ND	--	--	--	--
DDT	5	0.015	0.004	0.031	0.030	16
Chlordane	5	ND	--	--	--	--
Toxaphene	5	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.737	0.610				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Randall Lake Chain black crappie are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of Randall Lake Chain black or white crappie smaller than 10 inches or more than 1 meal per month of those fish larger than 10 inches due to mercury. Sample size is limited below 10 inches, length range is limited making the regression not useful for predicting concentrations. The UCL is used to set the guideline for fish longer than 10 inches, and a more relaxed guideline is set for smaller sizes.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
6	0	16
7	0	16
8	0	16
9	0.045	16
10	0.247	4
11	0.449	2
12	0.651	1
13	0.853	1
14	1.055	1
<i>Shaded area denotes extrapolated estimates</i>		



**Largemouth Bass**

**Randall Lake Chain  
Morrison, Randall, and Craig**

**Branch County**

**Hg Analysis:**

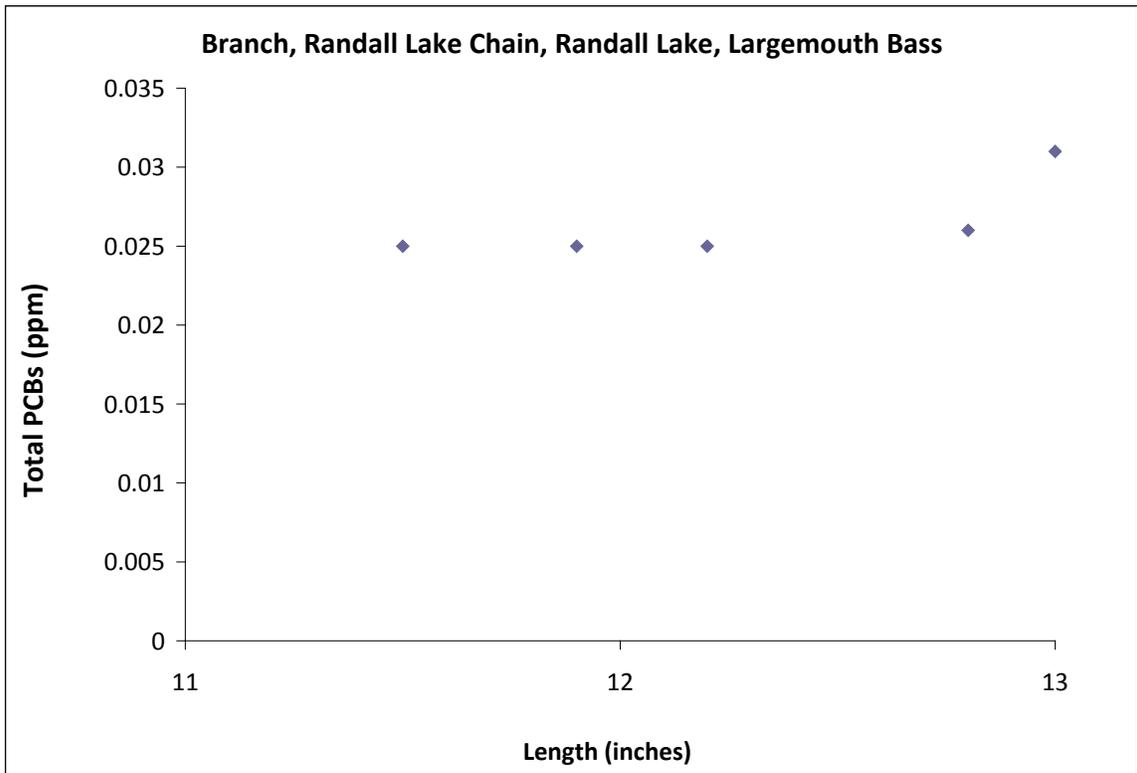
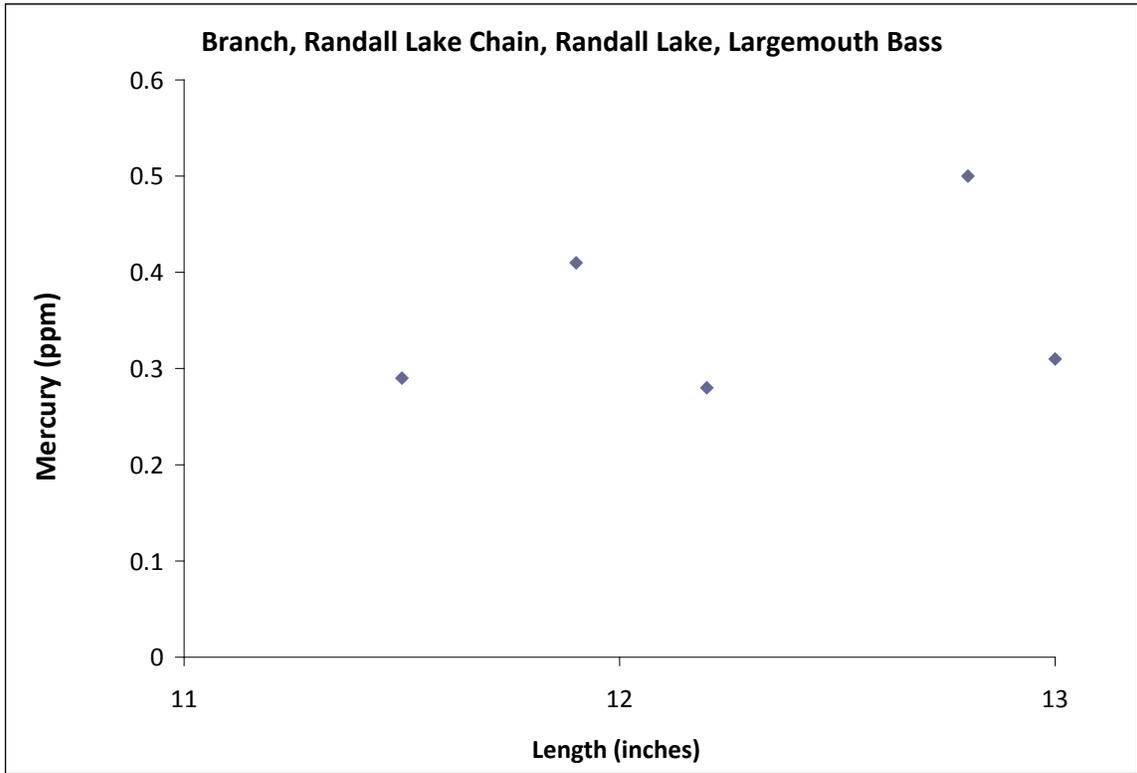
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	1990	5	11.5	14	11.5	13
Datasets available: 1990						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	5	0.358	0.28	0.50	0.480	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.112	0.105				

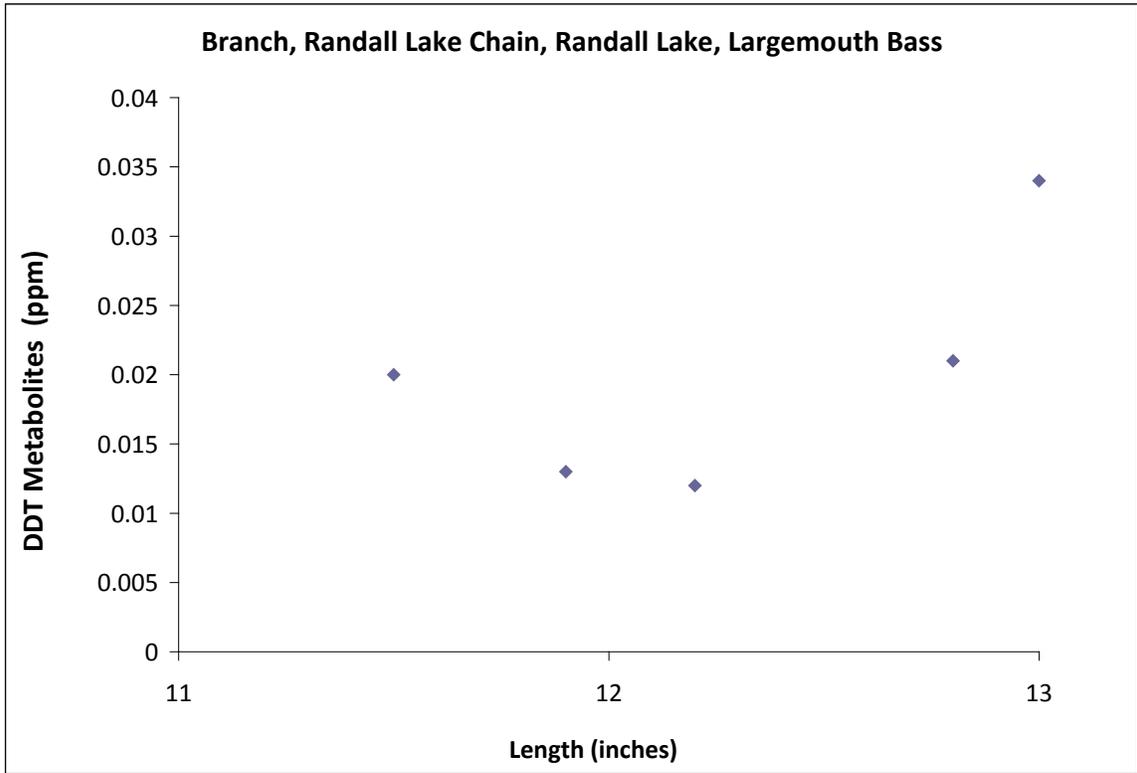
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	1990	5	11.5	14	11.5	13
Datasets available: 1990						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	5	0.026	0.025	0.031	0.030	8
DDT	5	0.020	0.012	0.034	0.030	16
Chlordane	5	ND	--	--	--	--
Toxaphene	5	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.556	0.569				
DDT	0.403	0.344				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Randall Lake Chain largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of Randall Lake Chain largemouth or smallmouth bass under 18 inches or 1 meal per month larger than 18 inches due to mercury. The statewide length break was used as the size range of the fish was limited.





**Northern Pike**

**Randall Lake Chain  
Morrison, Randall, and Craig**

**Branch County**

**Hg Analysis:**

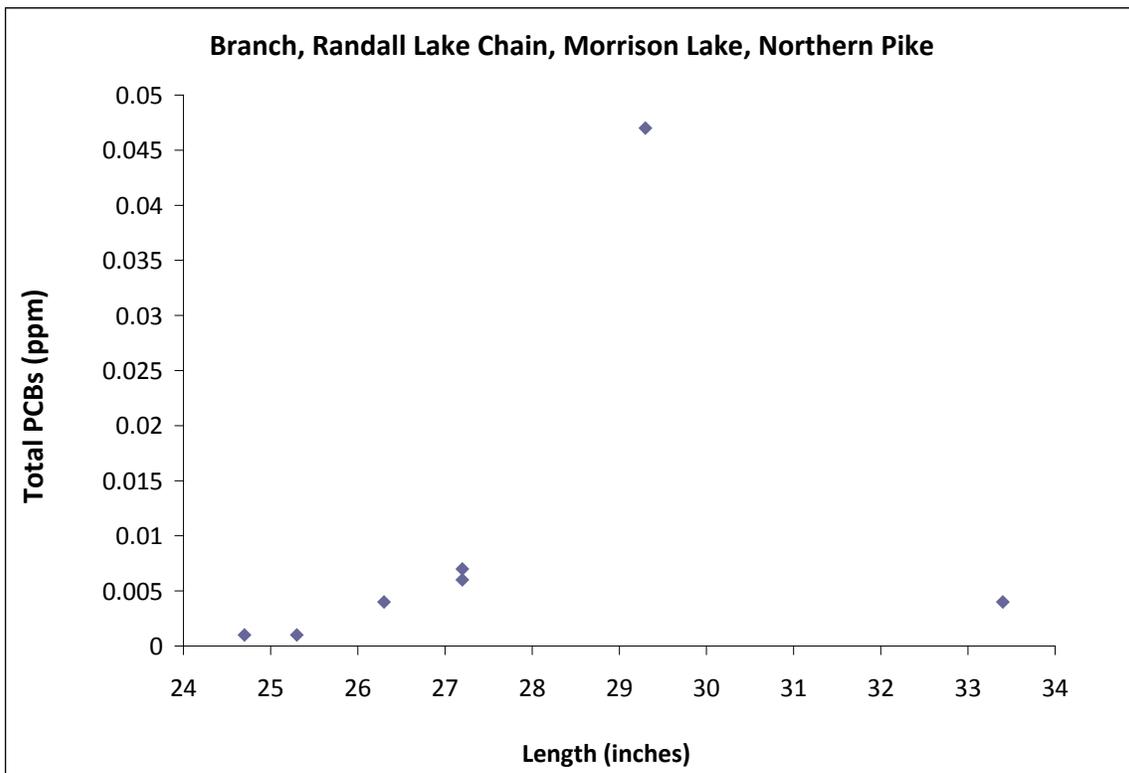
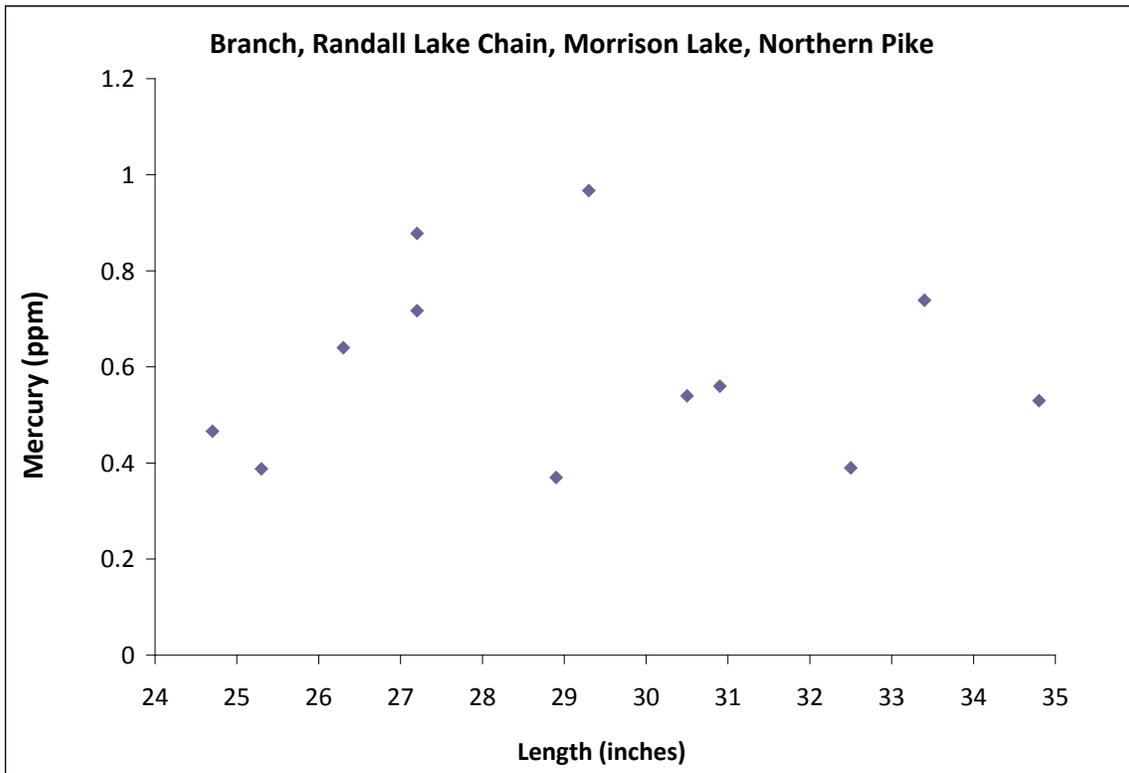
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	2007	18	20.8	24	24.7	34.8
Datasets available: 1990, 2007						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	12	0.599	0.370	0.967	0.720	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.138	0.175				

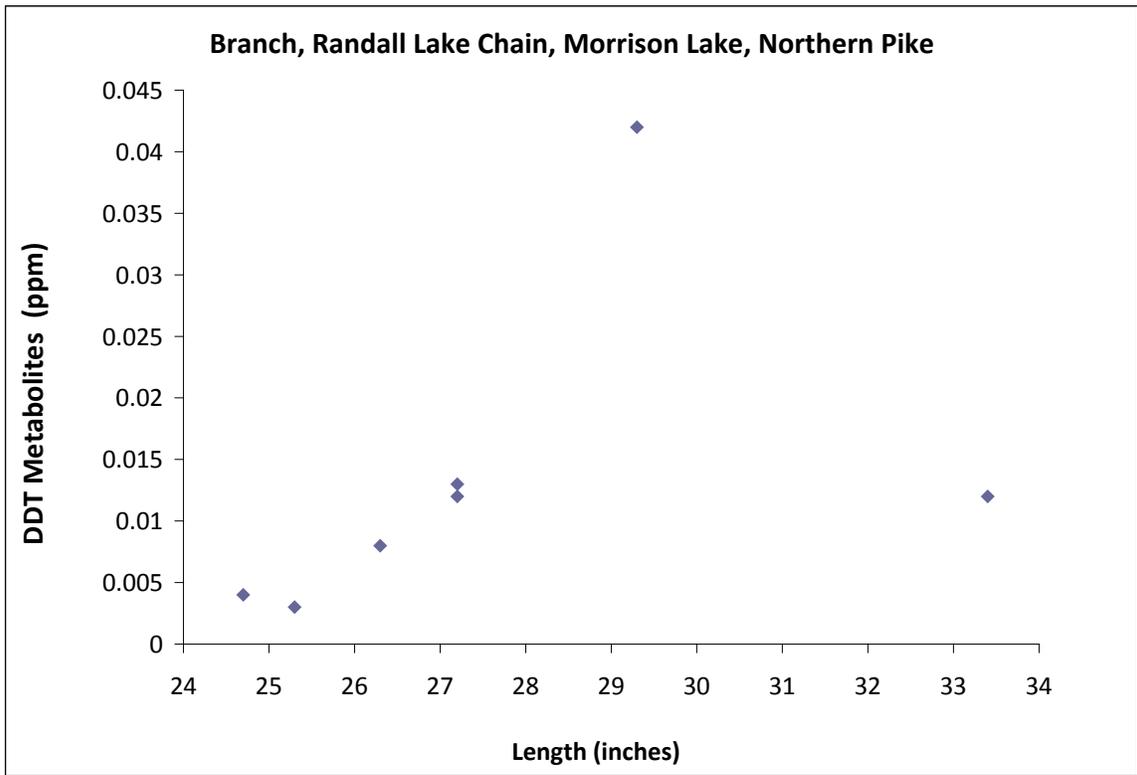
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2007	2007	10	20.8	24	24.7	33.4
Datasets available: 1990, 2007						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	7	0.010	0.001	0.047	0.030	8
DDT	7	0.013	0.003	0.042	0.030	16
Chlordane	7	ND	--	--	--	--
Toxaphene	7	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.123	0.163				
DDT	0.173	0.217				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Randall Lake Chain northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of Randall Lake Chain northern pike due to mercury. PCBs would cause an advisory.





# Calhoun County

**Carp**

**Battle Creek River  
Battle Creek**

**Calhoun County**

**Hg Analysis:**

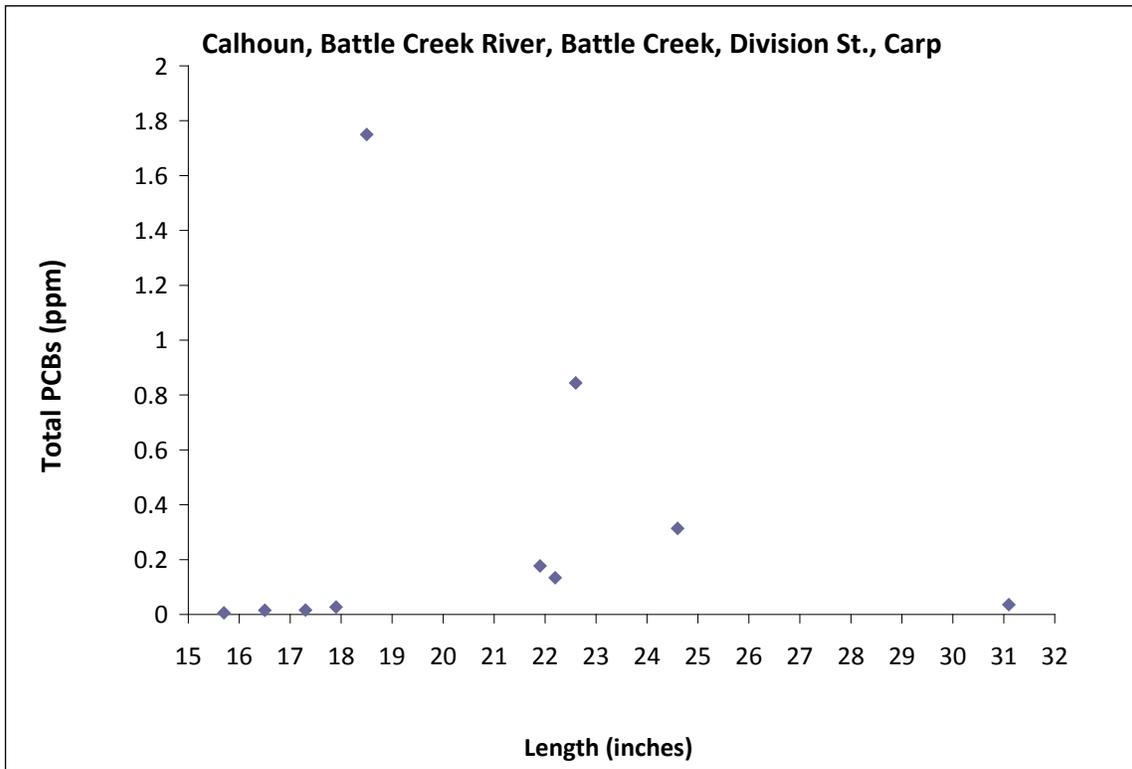
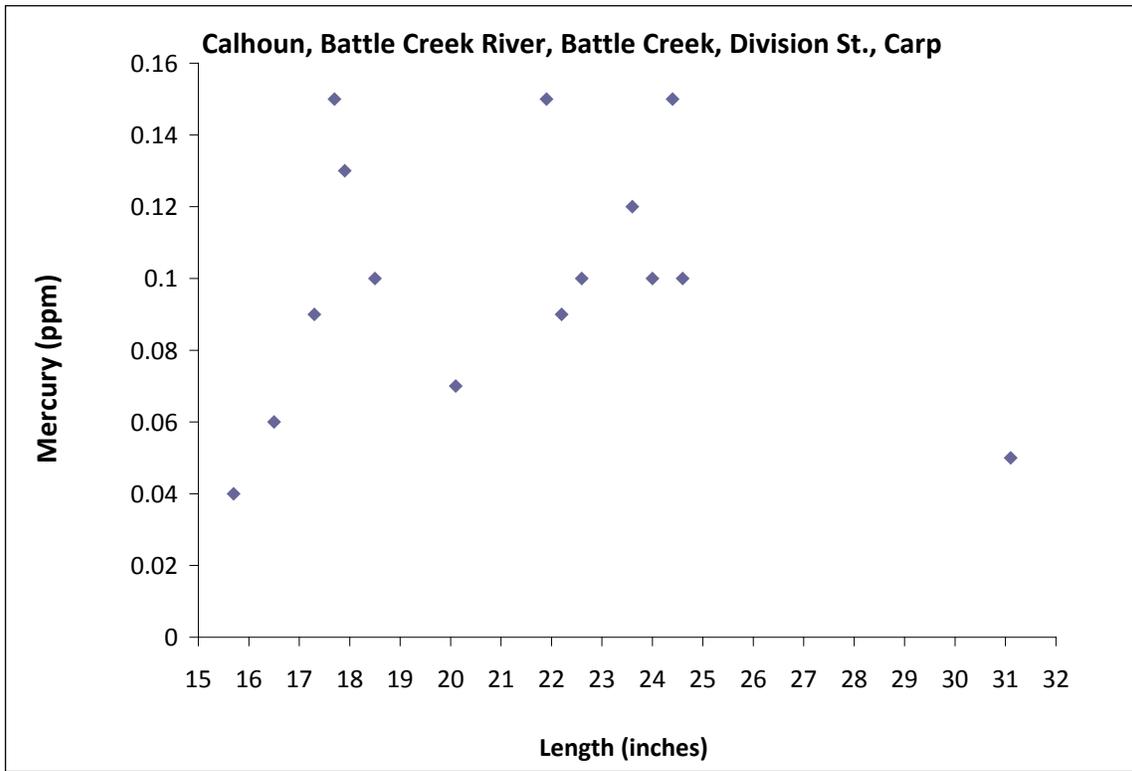
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1991	2004	15	15.7	NA	15.7	31.1
Datasets available: 1991, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
Mercury	15	0.100		0.120		8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.001	0.002				

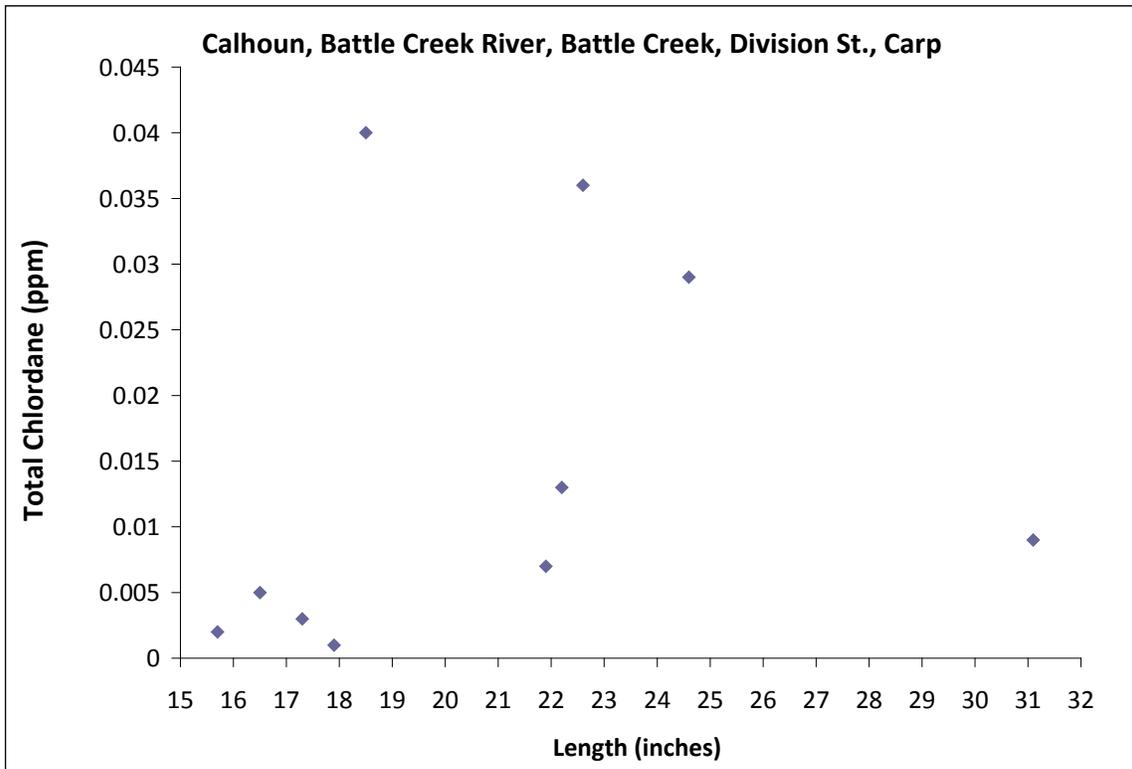
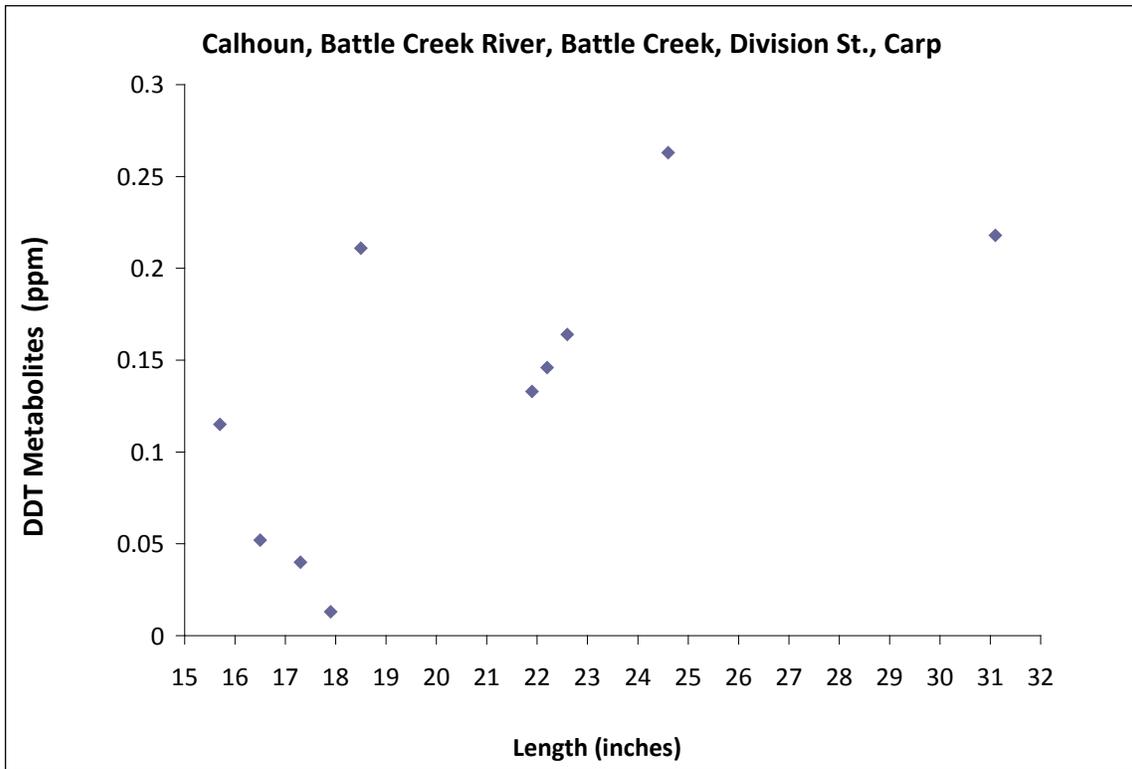
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2004	2004	10	15.7	NA	15.7	31.1
Datasets available: 1991, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
PCB	10	0.332		0.730		Limited
DDT	10	0.136		0.190		8
Chlordane	10	0.015		0.030		--
Toxaphene	10	ND		--		--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.001	0.099				
DDT	0.468	0.333				
Chlordane	0.059	0.209				
Toxaphene	--	--		<b>Final meal category based on UCL: Limited</b>		

**Existing Advisory:** Women and children should not eat more than one meal per week of Battle Creek River carp less than 22 inches in length and no more than one meal per month of Battle Creek River carp greater than 22 inches in length.

**Recommendation:** Sensitive populations should not eat these fish. Healthy adults should not eat more than 1 or 2 meals per year of Battle Creek River carp due to PCBs. Mercury and DDT would cause advisories.





**Smallmouth Bass**

**Battle Creek River  
Battle Creek**

**Calhoun County**

**Hg Analysis:**

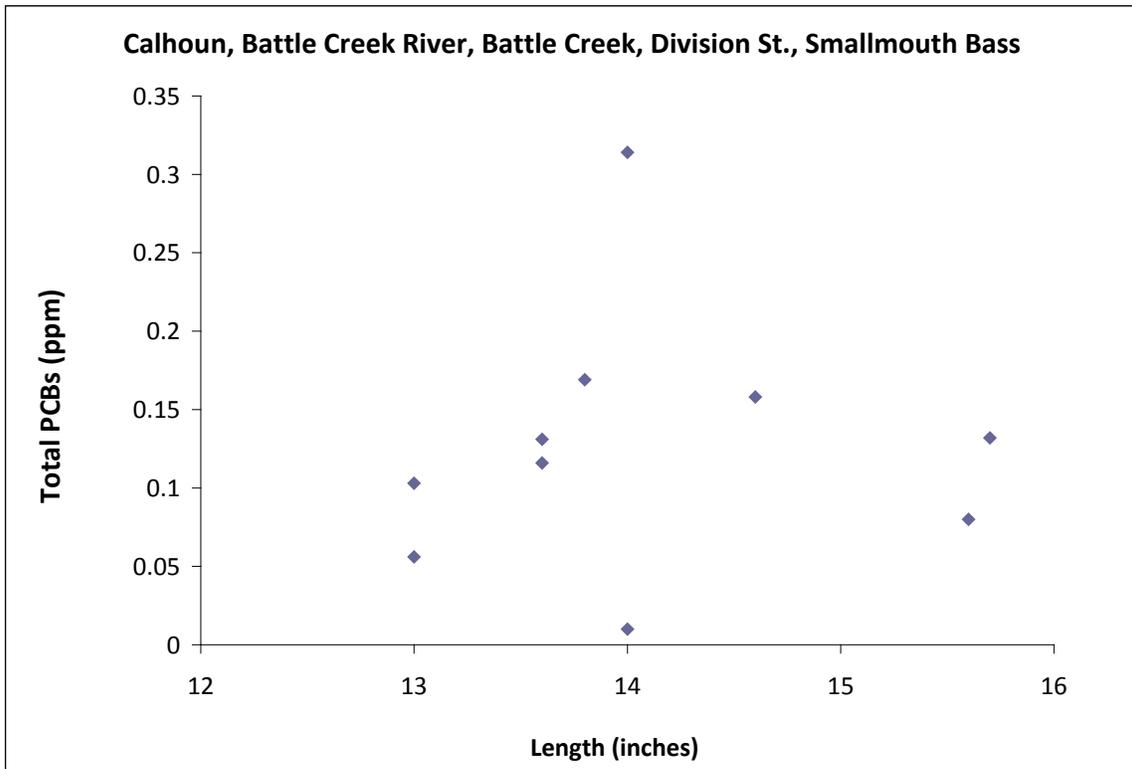
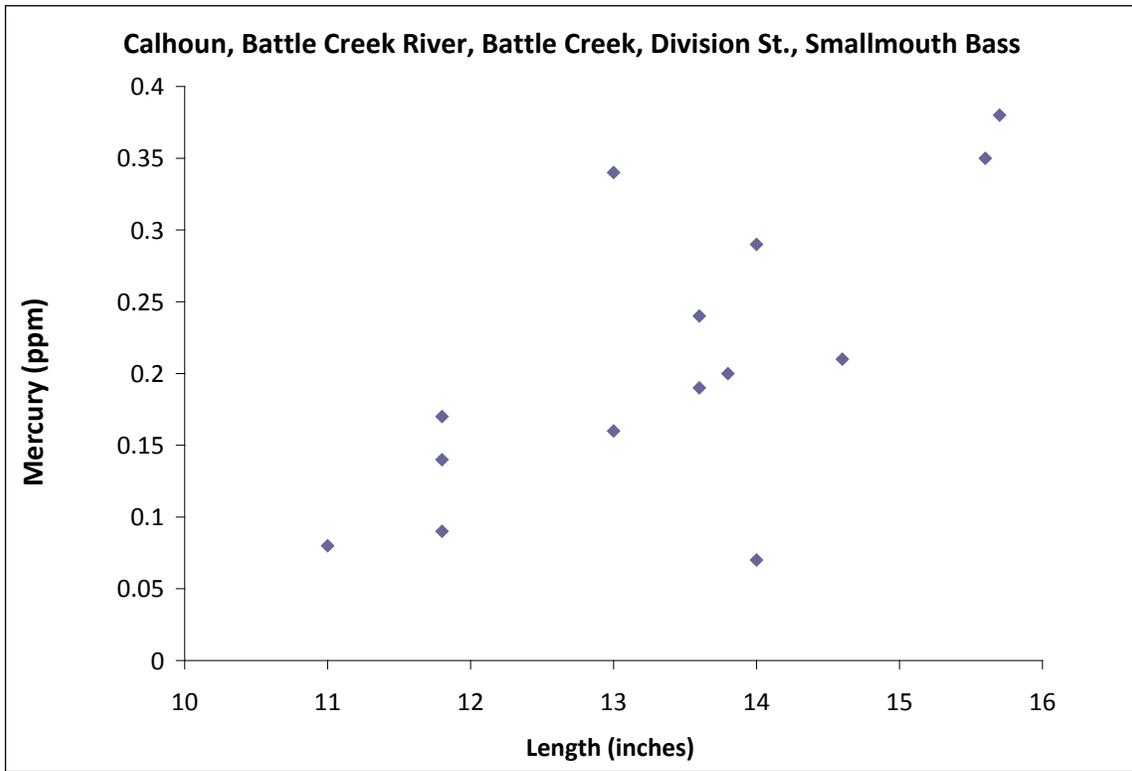
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1991	2004	14	11	14	13.6	15.7
Datasets available: 1991, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	8	0.241		0.320	2	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.490	0.422				

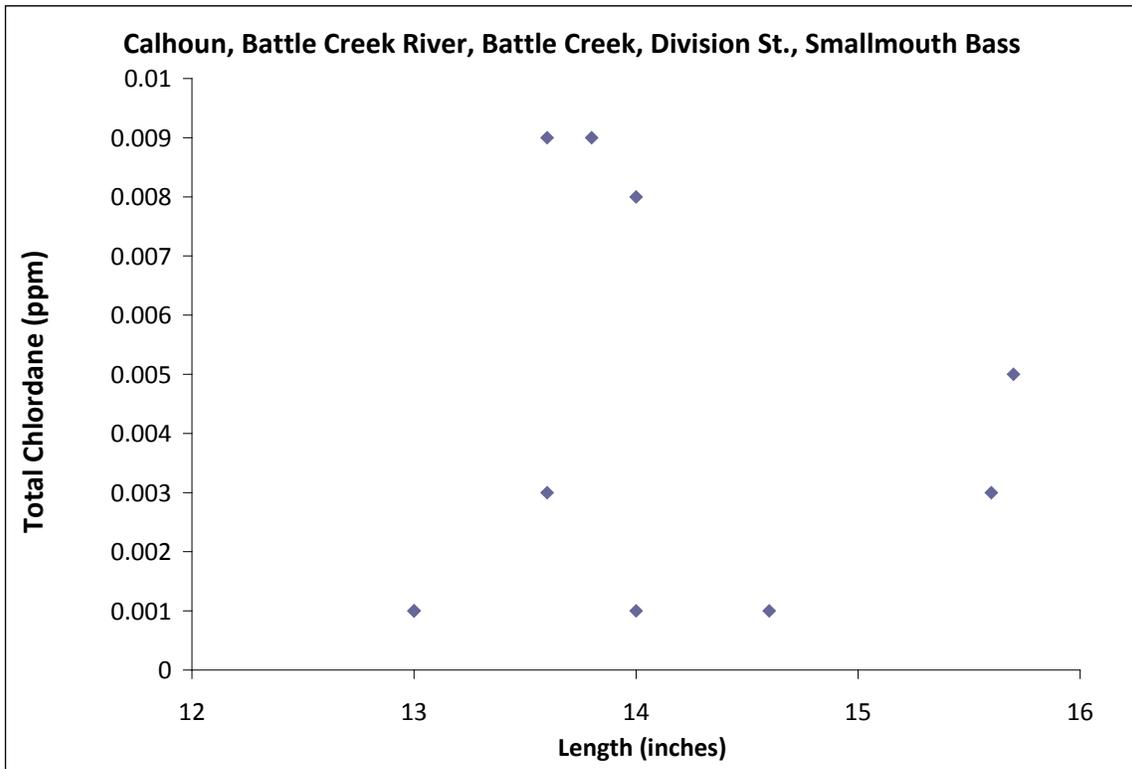
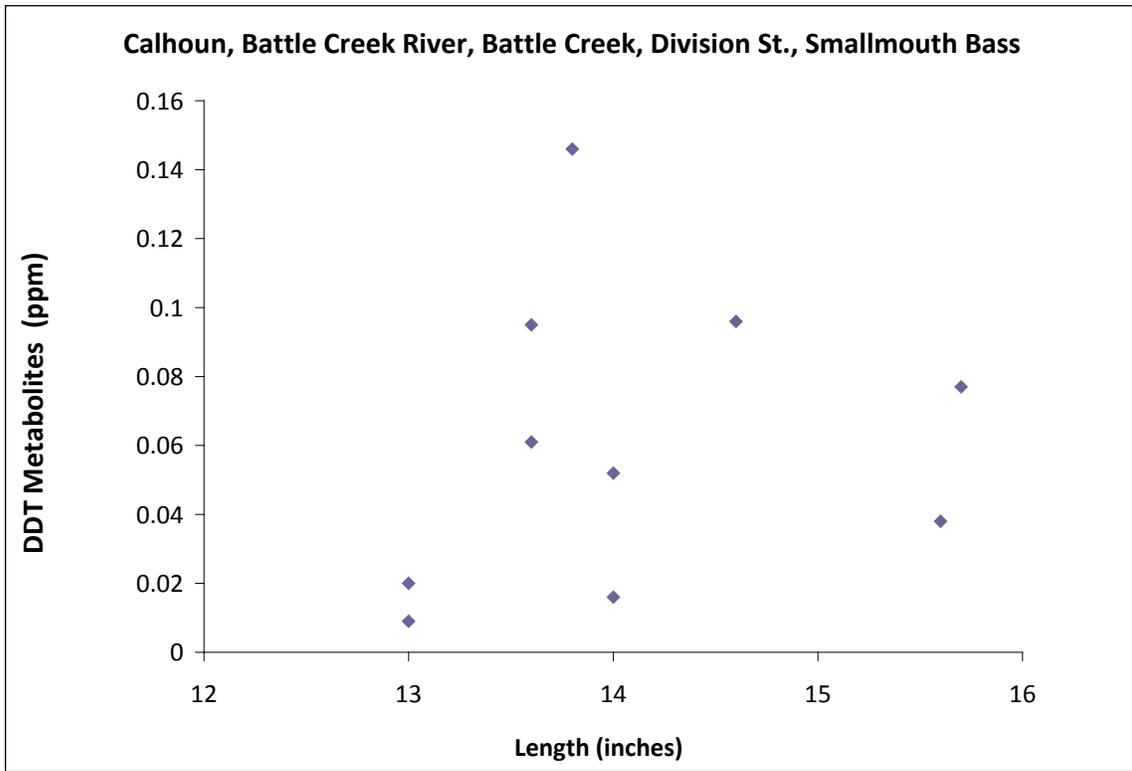
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2004	2004	10	11	14	13.6	15.7
Datasets available: 1991, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	8	0.139		0.21	1	
DDT	8	0.073		0.11	16	
Chlordane	8	0.005		0.01	--	
Toxaphene	8	ND		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.004	0.008				
DDT	0.040	0.139				
Chlordane	0.003	0.048				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>					<b>1</b>	

**Existing Advisory:** Women and children should eat no more than one meal per week of Battle Creek River smallmouth bass between 14 and 30 inches in length due to PCBs.

**Recommendation:** No one should eat more than 1 meal per month of Battle Creek River smallmouth bass or largemouth bass less than 18 inches due to PCBs, or 1 meal per month of Battle Creek River smallmouth bass or largemouth bass greater than 18 inches due to PCBs and mercury. Statewide length break applied.





**Bluegill & Redear Sunfish**  
**Hg Analysis:**

**Duck Lake**

**Calhoun County**

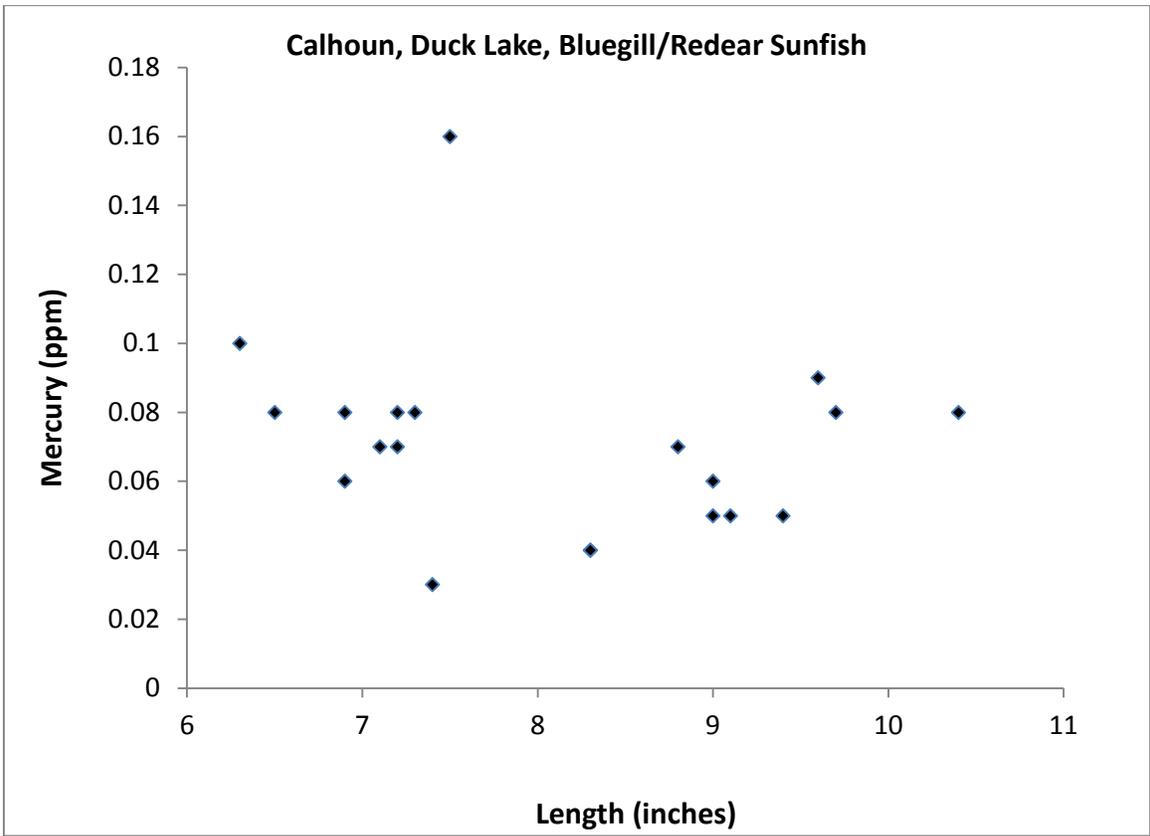
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1994	1994	20	6.3	NA	6.3	10.4
Datasets available: 1994						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	20	0.07		0.08	12	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.040	0.031				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	--	--		--	--	
DDT	--	--		--	--	
Chlordane	--	--		--	--	
Toxaphene	--	--		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>					<b>12</b>	

**Existing Advisory:** There are no consumption advisories on Duck Lake bluegill or redear sunfish.

**Recommendation:** No one should eat more than 12 meals per month of Duck Lake bluegill or redear sunfish due to mercury.



**Largemouth Bass**

**Duck Lake**

**Calhoun County**

**Hg Analysis:**

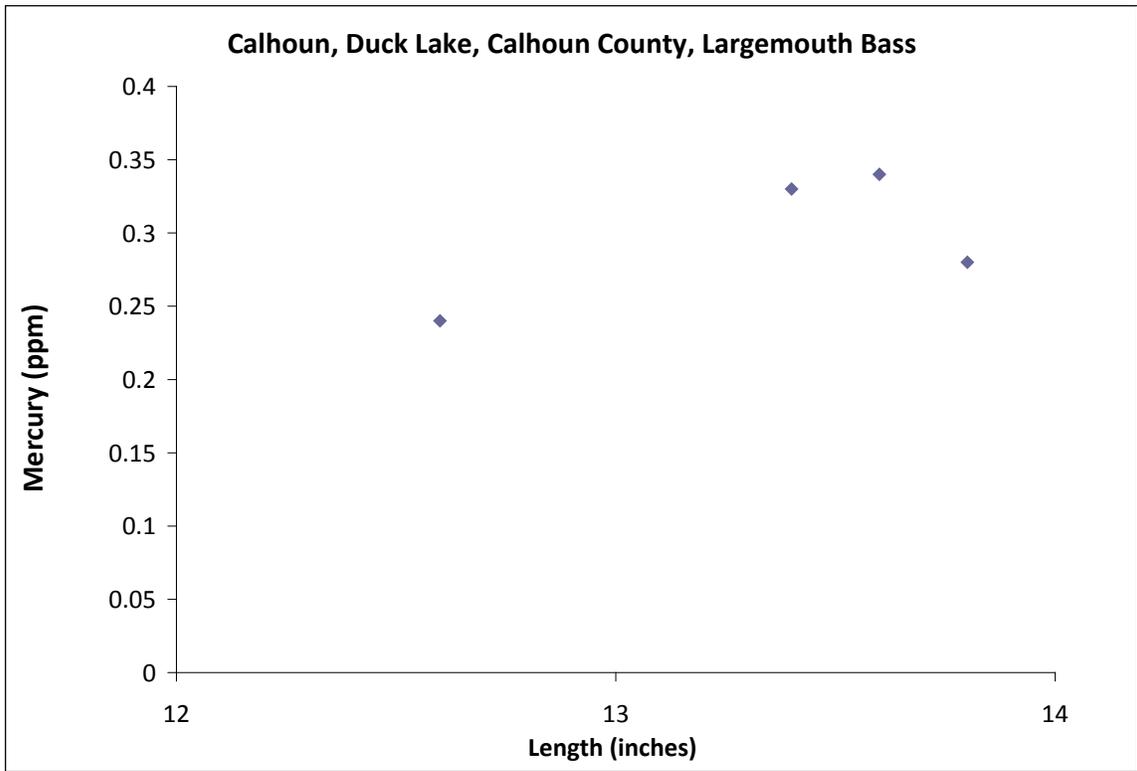
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1994	1994	4	12.6	14	6.3	7.5
Datasets available: 1994						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	3	0.317		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.420	0.459				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	--	--		--	--	
DDT	--	--		--	--	
Chlordane	--	--		--	--	
Toxaphene	--	--		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>					--	

**Existing Advisory:** Duck Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** Insufficient dataset to issue an advisory. Statewide guidelines apply.



**Yellow Perch**

**Duck Lake**

**Calhoun County**

**Hg Analysis:**

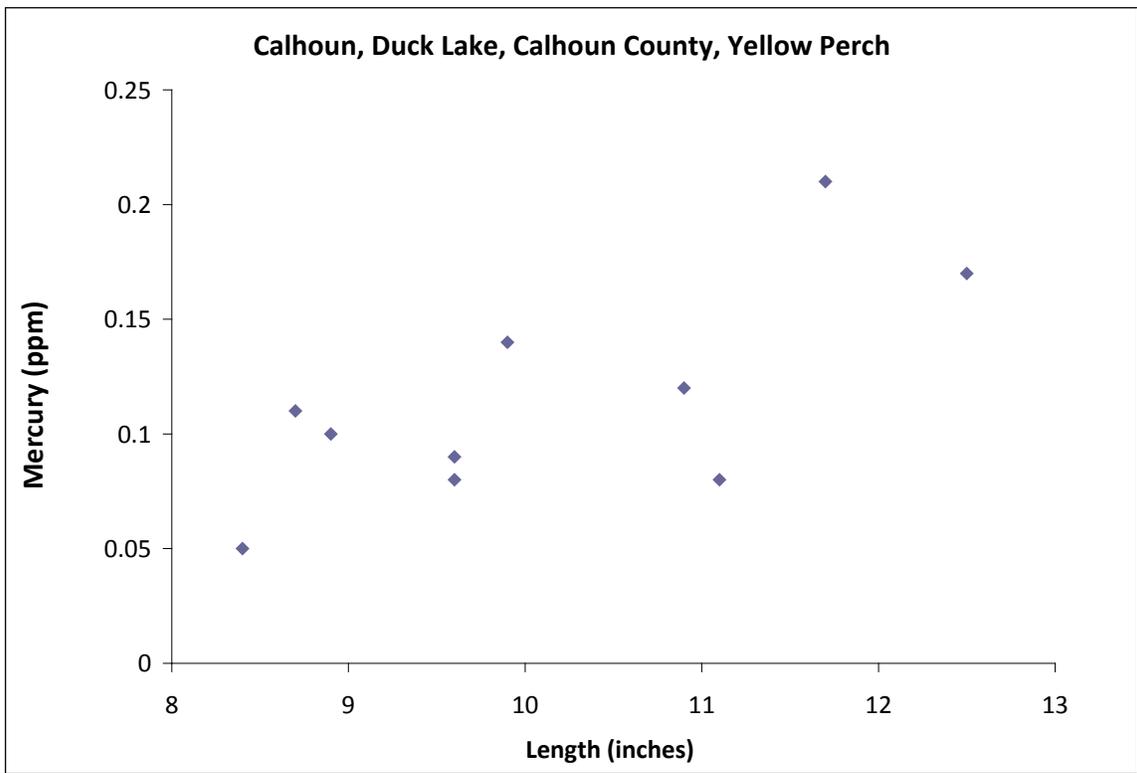
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1994	1994	10	8.4	NA	8.4	12.5
Datasets available: 1994						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
Mercury	10	0.115			0.15	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.503	0.476				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)			95%UCL (ppm)	Meal Category
PCB	--	--			--	--
DDT	--	--			--	--
Chlordane	--	--			--	--
Toxaphene	--	--			--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>4</b>

**Existing Advisory:** Duck Lake yellow perch are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 4 meals per month of Duck Lake yellow perch due to mercury.



**Walleye**

**Duck Lake**

**Calhoun County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1994	1994	1	18.3	15	18.3	18.3
Datasets available: 1994						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
Mercury	1	0.420		--		--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
PCB	--	--		--		--
DDT	--	--		--		--
Chlordane	--	--		--		--
Toxaphene	--	--		--		--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						--

**Existing Advisory:** Duck Lake walleye are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Duck Lake walleye. The statewide consumption guidelines recommend that no one eat more than 1 meal per month of walleye over 20 inches in length or more than 2 meals per month of legal size walleye under 20 inches in length.

**Brown Trout**

**Nottawa River**

**Calhoun County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	3	11.5	10	11.5	12
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	1*	0.340		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	3	11.5	10	11.5	12
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	1*	ND		--	--	
DDT	1*	0.039		--	--	
Chlordane	1*	0.006		--	--	
Toxaphene	1*	ND		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--		<b>Final meal category based on UCL: --</b>		

\* - one composite of 3 fillets

**Existing Advisory:** There are no current consumption advisories for Nottawa River brown trout.

**Recommendation:** There are insufficient data available to develop specific advice for Nottawa River brown trout.

**Sucker  
White and N. Hogsucker  
Hg Analysis:**

**Nottawa River**

**Calhoun County**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	9	9.2	NA	9.2	17
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
Mercury	2*	0.090		--		--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	9	9.2	NA	9.2	17
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
PCB	2*	ND		--		--
DDT	2*	0.015		--		--
Chlordane	2*	ND		--		--
Toxaphene	2*	ND		--		--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--		<b>Final meal category based on UCL:</b>		--

\* - 2 composite samples

**Existing Advisory:** There are no current consumption advisories for Nottawa River sucker.

**Recommendation:** There are insufficient data available to develop specific advice for Nottawa River sucker. The statewide consumption guidelines recommend that no eat more than 8 meals per month of sucker from inland waters.

**Largemouth Bass**

**Prairie Lake**

**Calhoun County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2013	2013	10	13.7	14	13.7	20.7
Datasets available: 2013						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.63	0.32	1.0	0.80	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.728	0.712				

**Organics Analysis:**

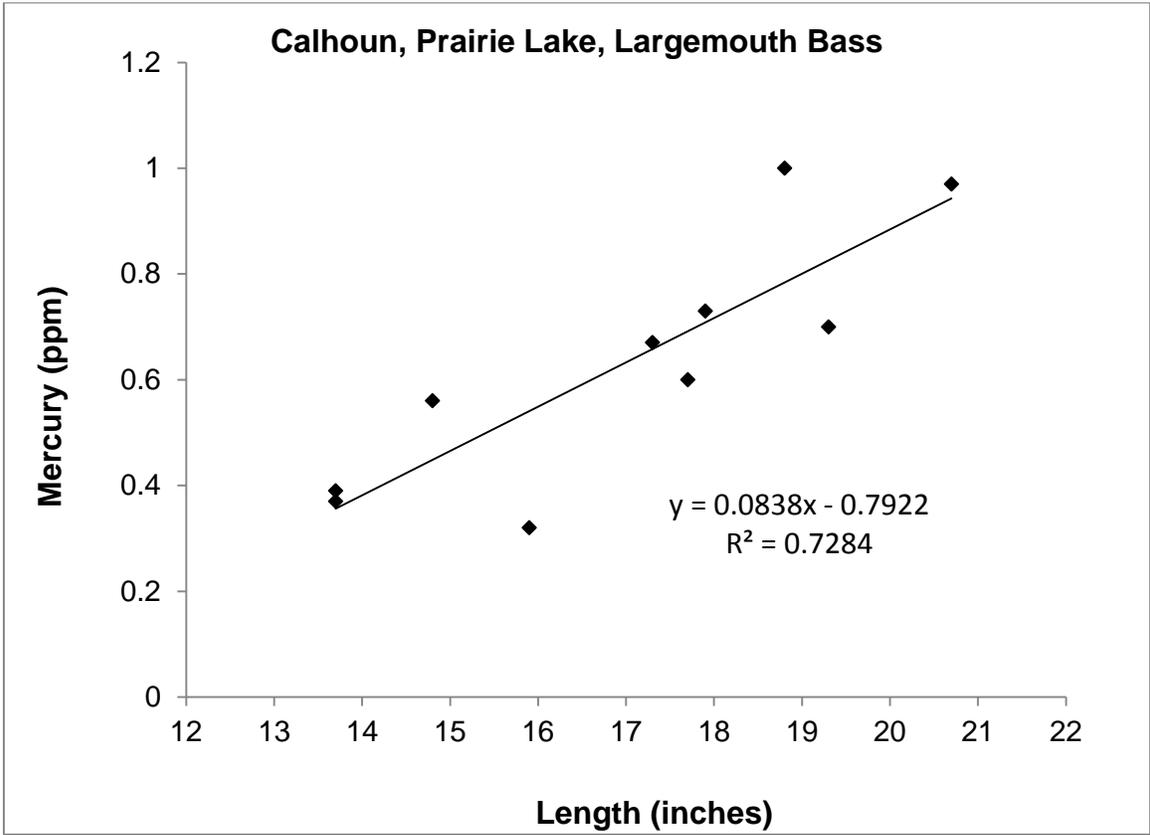
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available: --						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	--	--	--	--	--
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Prairie Lake largemouth and smallmouth bass are covered by the statewide advisory: No one should eat more than 2 meals of per month of largemouth or smallmouth bass smaller than 18 inches or more than 1 meal per month of those fish larger than 18 inches.

**Recommendation:** No one should eat more than 1 meal per month of Prairie Lake largemouth or smallmouth bass due to mercury.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
12	0.21	4
14	0.38	2
16	0.55	1
18	0.72	1
20	0.88	1
22	1.05	1
24	1.22	0.5

*Shaded area denotes extrapolated estimates*



**Rock Bass**

**Wabascon Creek**

**Calhoun County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	6.7	NA	6.7	10
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
Mercury	2*	0.140		--		--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	6.7	NA	6.7	10
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)		Meal Category
PCB	2*	ND		--		--
DDT	2*	0.005		--		--
Chlordane	2*	ND		--		--
Toxaphene	2*	ND		--		--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--		<b>Final meal category based on UCL:</b>		--

\* - 2 composite samples of 5 fish each

**Existing Advisory:** Wabascon Creek rock bass are not covered by a consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Wabascon Creek rock bass. The statewide consumption guidelines recommend that no one eat more than 4 meals per month of rock bass from inland waters.

**White Sucker**

**Wabascon Creek**

**Calhoun County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	2	9.3	NA	9.3	10
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
Mercury	2	0.090		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	2	9.3	NA	9.3	10
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)		95%UCL (ppm)	Meal Category	
PCB	2	ND		--	--	
DDT	2	0.003		--	--	
Chlordane	2	ND		--	--	
Toxaphene	2	ND		--	--	
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>					--	

**Existing Advisory:** There are no current consumption advisories for Wabascon Creek white sucker.

**Recommendation:** There are insufficient data available to develop specific advice for Wabascon Creek white sucker. The statewide consumption guidelines recommend that no one eat more than 8 meals per month of sucker from inland waters.

# Cass County

**Brown Trout**

**Dowagiac Creek  
u/s LaGrange Lake**

**Cass County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	8	10	9.9	12.7
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	2*	0.108	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	8	10	9.9	12.7
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2*	0.039	--	--	--	--
DDT	2*	0.013	--	--	--	--
Chlordane	2*	ND	--	--	--	--
Toxaphene	2*	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						--

\* - 2 composite samples of 5 fillets each

**Existing Advisory:** There are no current consumption advisories on Dowagiac Creek brown trout.

**Recommendation:** There are insufficient data available to develop specific advice for Dowagiac Creek brown trout.

**White Sucker**

**Dowagiac Creek  
u/s LaGrange Lake**

**Cass County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	9.3	NA	9.3	16.3
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	2*	0.075	--	--	--	--
Chemical	Linear Regression	Exponential. Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	9.3	NA	9.3	16.3
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2*	ND	--	--	--	--
DDT	2*	0.004	--	--	--	--
Chlordane	2*	ND	--	--	--	--
Toxaphene	2*	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--	<b>Final meal category based on UCL:</b>			

\* - 2 composite samples of 5 fillets each

**Existing Advisory:** There are no current consumption advisories on Dowagiac Creek white sucker.

**Recommendation:** There are insufficient data available to develop specific advice for Dowagiac Creek sucker. The statewide consumption guidelines recommend that no eat more than 8 meals per month of sucker from inland waters.

## Carp

## Dowagiac River

## Cass County

## Hg Analysis:

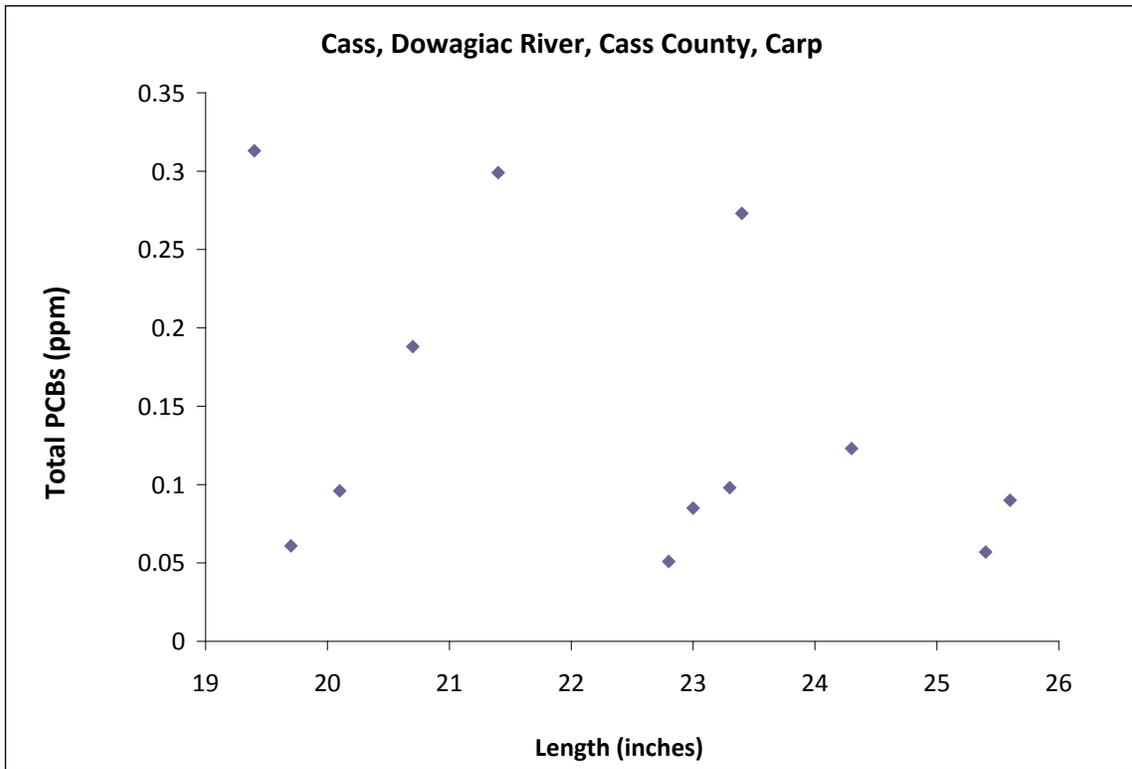
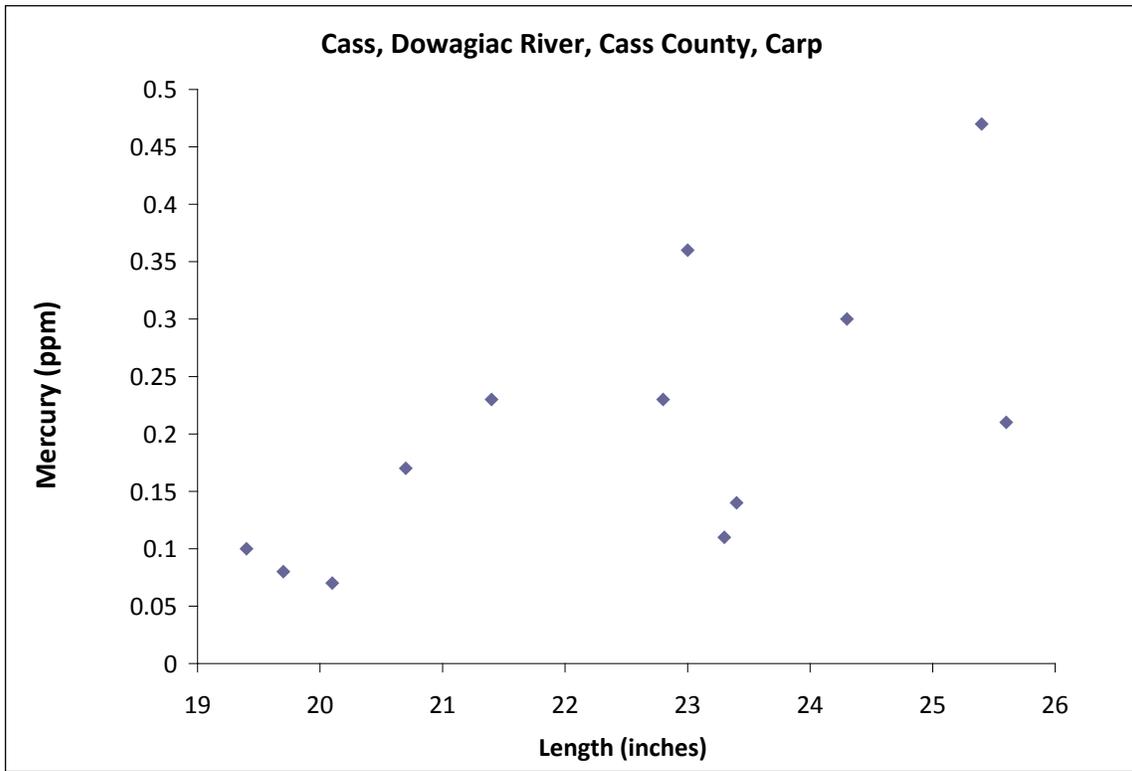
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1991	2000	12	19.4	NA	19.4	25.6
Datasets available: 1991, 2000						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	12	0.206	0.070	0.470	0.280	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.454	0.508				

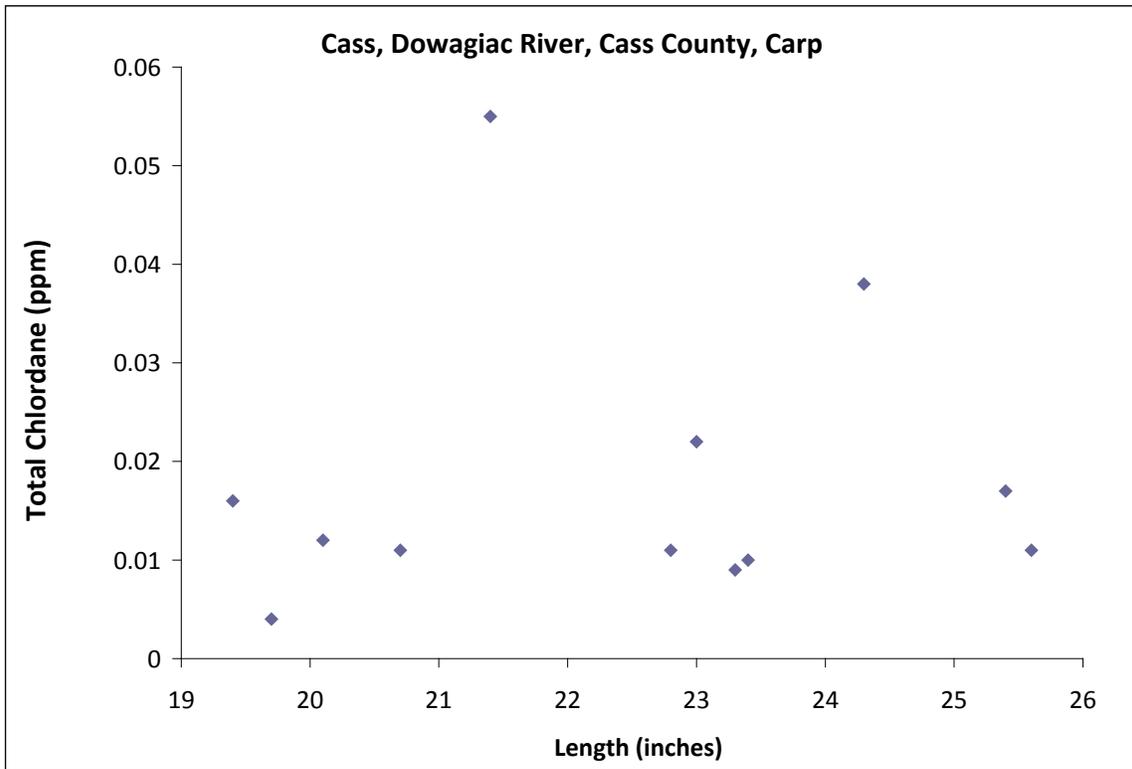
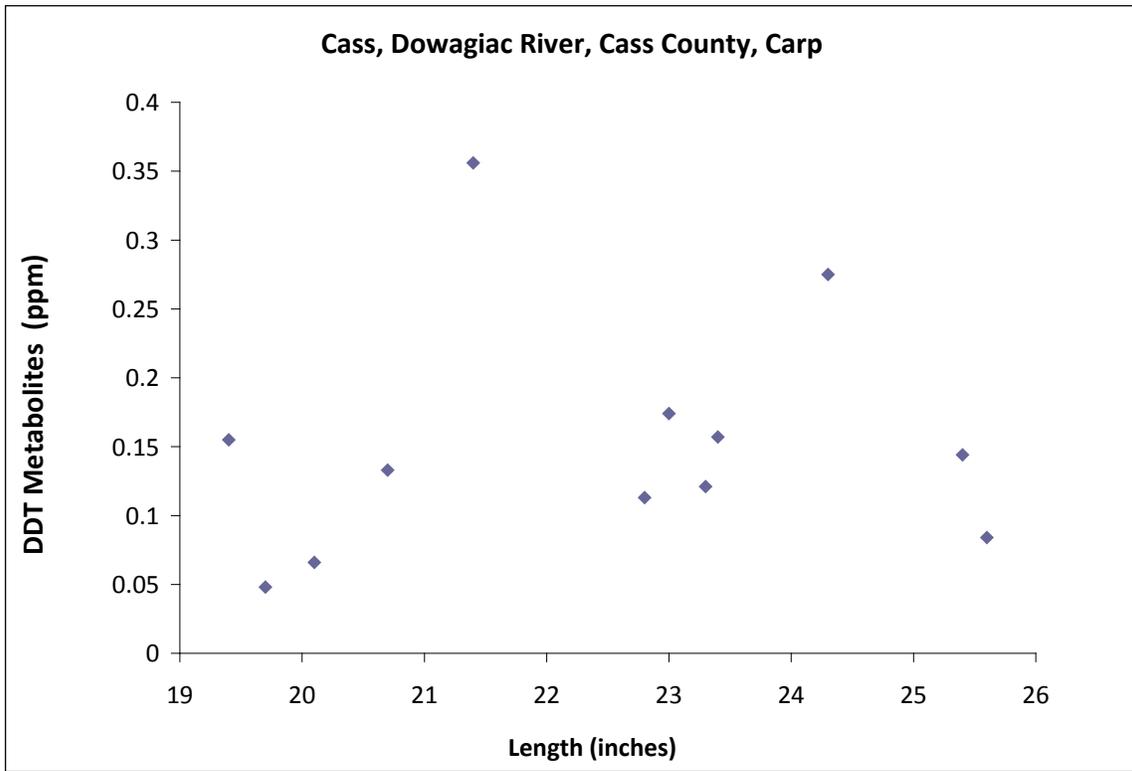
## Organics Analysis:

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1991	2000	12	19.4	NA	19.4	25.6
Datasets available: 1991, 2000						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	12	0.145	0.051	0.313	0.210	1
DDT	12	0.152	0.048	0.356	0.210	8
Chlordane	12	0.018	0.004	0.055	0.030	--
Toxaphene	12	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.139	0.116				
DDT	0.017	0.061				
Chlordane	0.007	0.047				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Women and children should not eat more than one meal per week of Dowagiac River carp of any size due to PCBs.

**Recommendation:** No one should eat more than 1 meal per month of Dowagiac River carp due to PCBs. Mercury and DDT would cause advisories.





**Carp**

**Indian Lake**

**Cass County**

**Hg Analysis:**

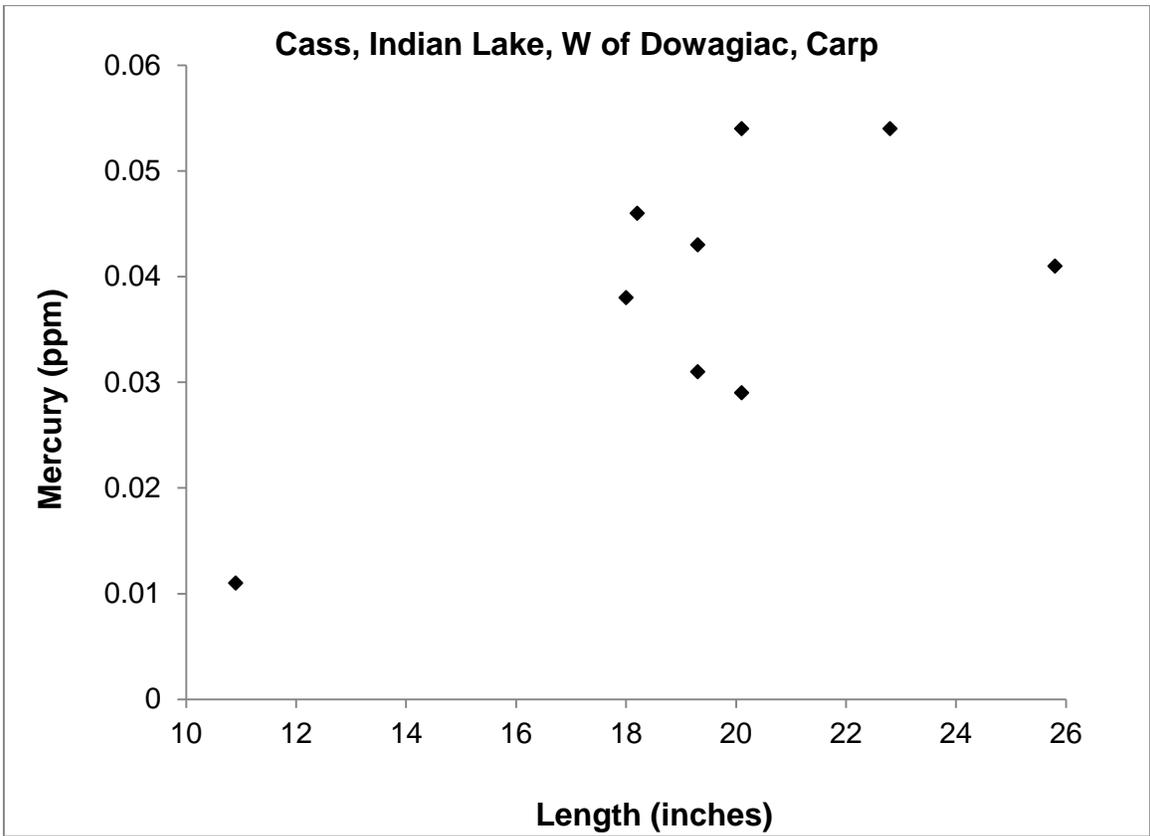
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2014	2014	9	10.9	na	10.9	25.8
Datasets available: 2014						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	9	0.04	0.01	0.05	0.05	16
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.471	0.587				

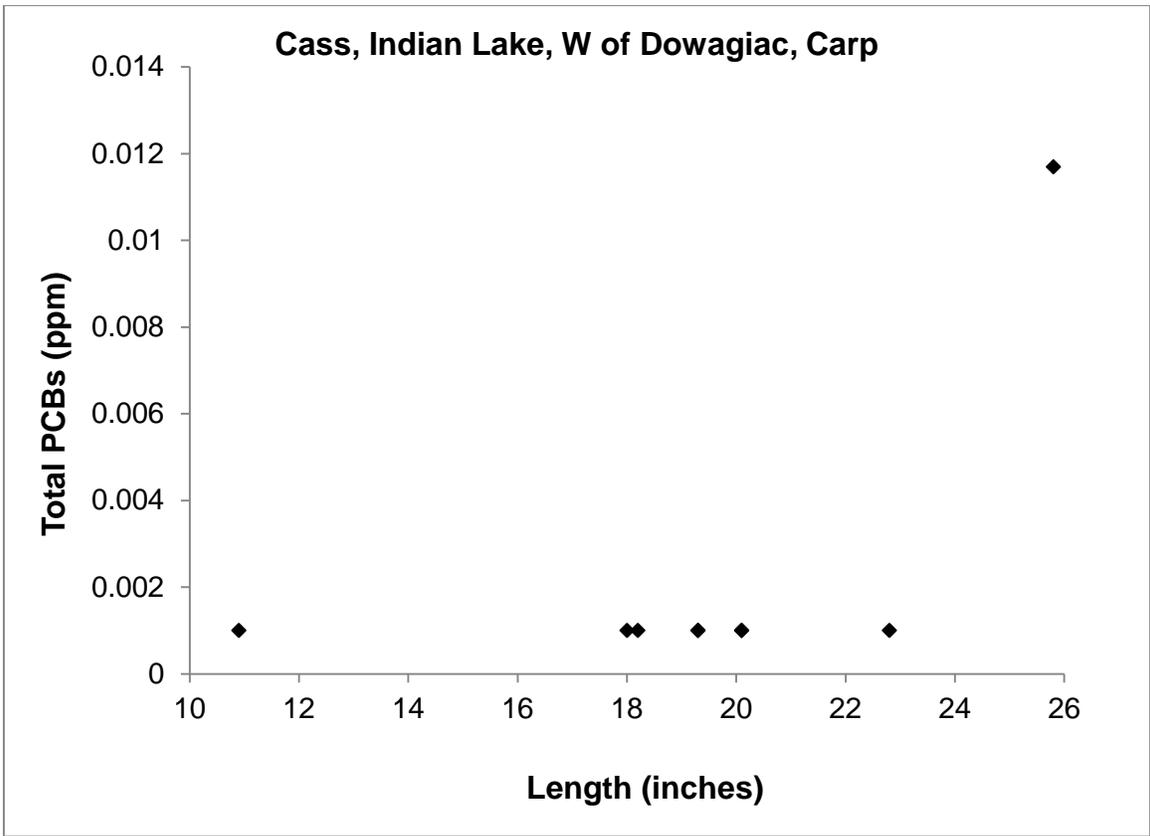
**Organics Analysis:**

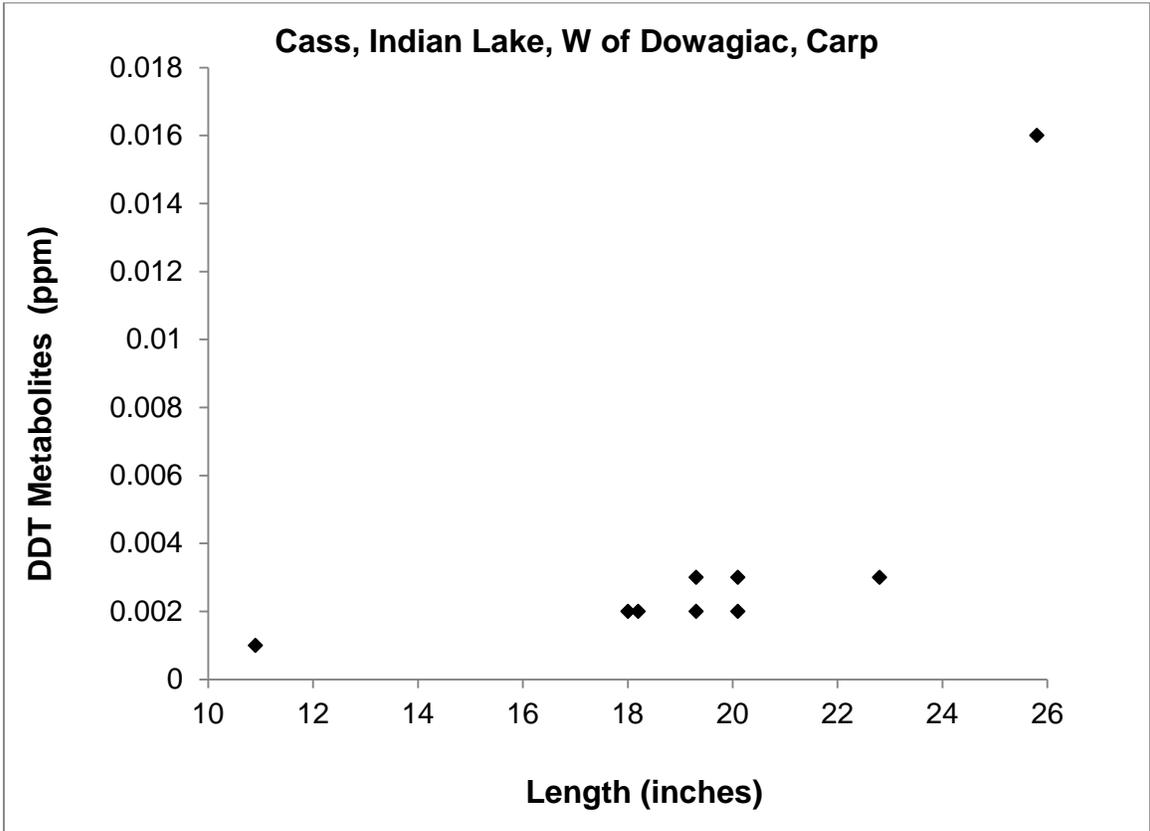
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2014	2014	9	10.9	na	10.9	25.8
Datasets available: 2014						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	9	0.002	0.001	0.01	0.01	16
DDT	9	0.004	0.001	0.02	0.01	16
Chlordane	9	ND	--	--	--	--
Toxaphene	9	ND	--	--	--	--
TEQ	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.358	0.358				
DDT	0.472	0.741				
Chlordane	--	--				
Toxaphene	--	--				
TEQ	--	--				
<b>Final meal category based on UCL:</b>						<b>16</b>

**Existing Advisory:** Indian Lake carp are covered under a statewide consumption advisory: No one should eat more than 2 meals per month of carp due to PCBs.

**Recommendation:** No consumption advisory is necessary for Indian Lake carp. These fish will be listed at 16 meals per month as the upper limit of the assessment. As the size range of the fish was limited, collection of larger fish, if any are present, are needed to refine the advisory.







**Walleye**

**Indian Lake**

**Cass County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2014	2014	10	15.9	15	15.9	26.1
Datasets available: 2014						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.30	0.12	0.78	0.48	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.904	0.942				

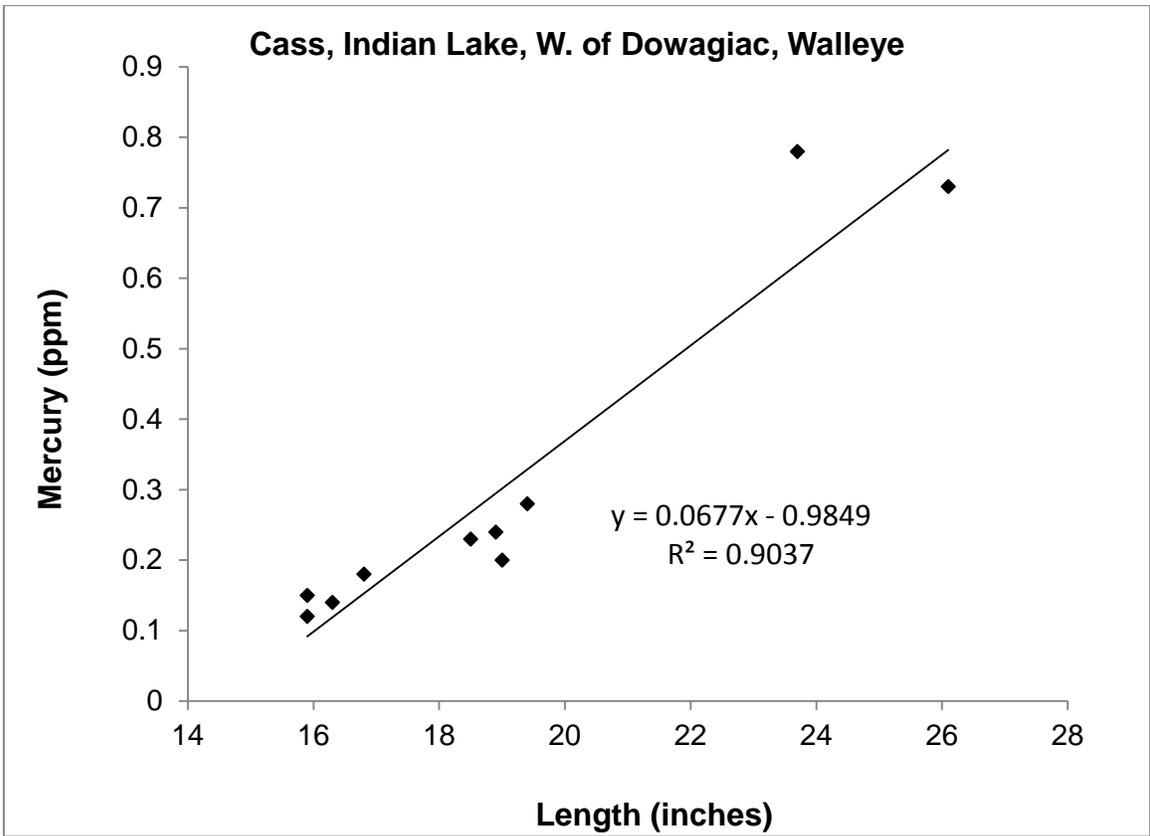
**Organics Analysis:**

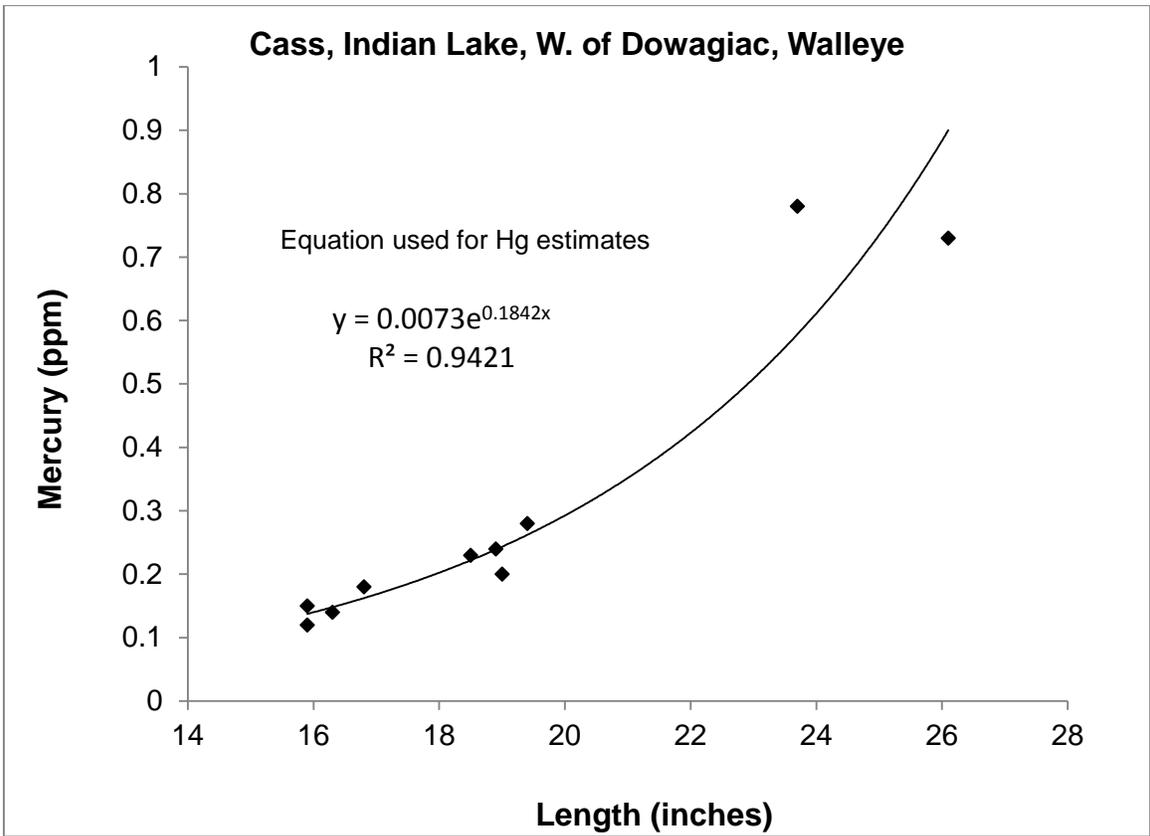
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0				
Datasets available: --						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
TEQ	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
TEQ	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
14	0.1	8
16	0.14	4
18	0.2	4
20	0.29	2
22	0.42	2
24	0.61	1
26	0.88	1
28	1.27	0.5

**Existing Advisory:** Indian Lake walleye are covered under the statewide mercury consumption advisory: No one should eat more than 2 meals per month of walleye smaller than 20 inches or more than 1 meal per month of walleye larger than 20 inches.

**Recommendation:** No one should eat more than 2 meals per month of Indian Lake walleye smaller than 22 inches or more than 1 meals per month of those fish larger than 22 inches due to mercury.





# Chippewa River Isabella and Midland Counties

**Carp**

**Chippewa River  
u/s Lake Isabella**

**Isabella County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples		Meal Category
Earliest	Most Recent				Min	Max	
1997	1997	2	28.5	NA	28.5	30.5	
Datasets available: 1997							
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category	
Mercury	2	0.540	0.49	0.59	--	--	
Chemical	Linear Regression	Exponential Regression					
	R <sup>2</sup>	R <sup>2</sup>					
Mercury	--	--					

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples		Meal Category
Earliest	Most Recent				Min	Max	
1997	1997	2	28.5	NA	28.5	30.5	
Datasets available: 1997							
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category	
PCB	2	0.071	0.06	0.08	--	--	
DDT	2	0.081	0.04	0.13	--	--	
Chlordane	2	0.009	0.008	0.01	--	--	
Toxaphene	2	ND	--	--	--	--	
Chemical	Linear Regression	Exponential Regression					
	R <sup>2</sup>	R <sup>2</sup>					
PCB	--	--					
DDT	--	--					
Chlordane	--	--					
Toxaphene	--	--					
<b>Final meal category based on UCL:</b>							<b>--</b>

**Existing Advisory:** There are no current consumption advisories for Chippewa River carp.

**Recommendation:** There are insufficient data available to develop specific advice for carp from the Chippewa River upstream of Lake Isabella. The statewide consumption guidelines recommend that no one eat more than 2 meals per month of carp from any river or inland lake.

**Rock Bass**

**Chippewa River  
u/s Lake Isabella**

**Isabella County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1997	1997	10	6.8	NA	6.8	10.1
Datasets available: 1997						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.21	0.13	0.39	0.28	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.776	0.677				

**Organics Analysis:**

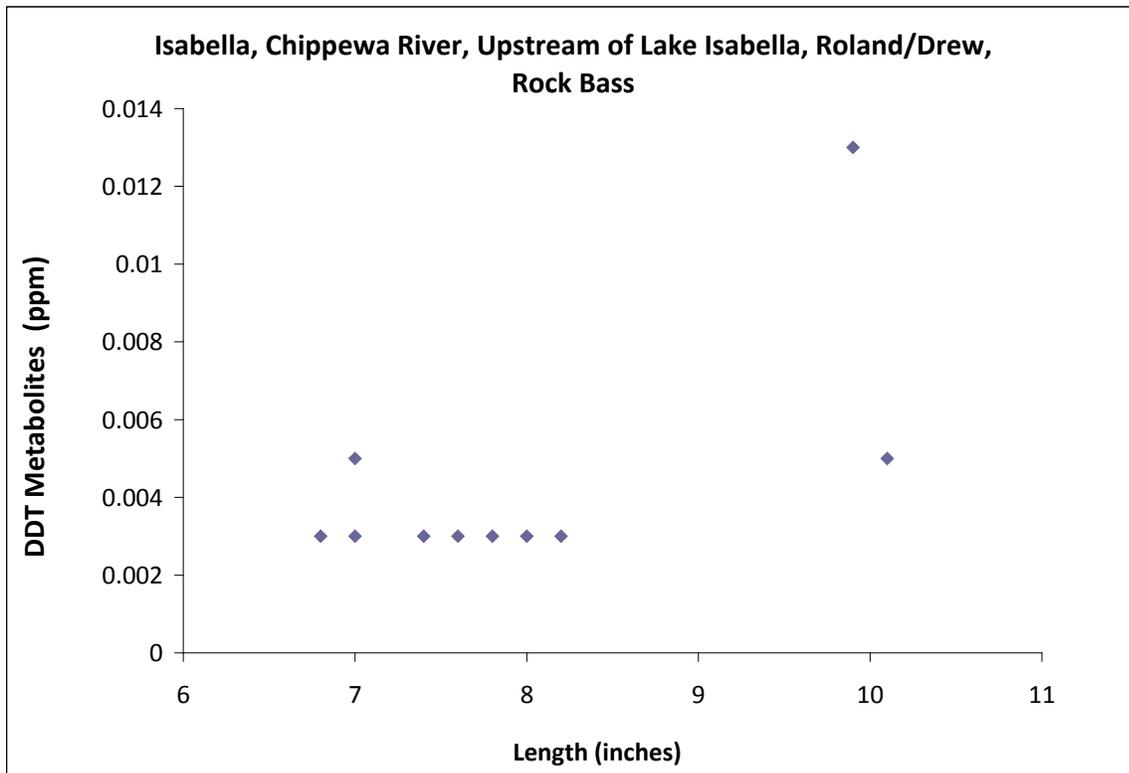
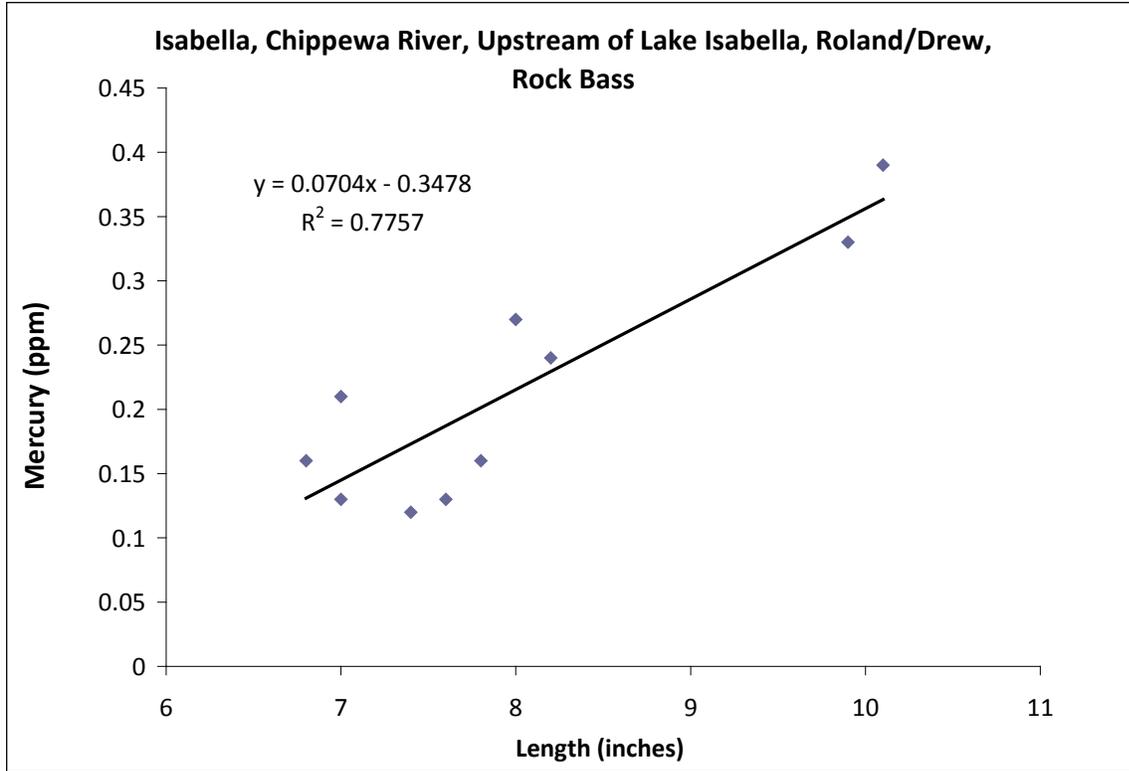
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1997	1997	10	6.8	NA	6.8	10.1
Datasets available: 1997						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	ND	--	--	--	--
DDT	10	0.004	0.003	0.013	0.010	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.433	0.466				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
5	0.004	16
6	0.075	12
7	0.145	4
8	0.215	4
9	0.286	2
10	0.356	2
11	0.427	2
12	0.497	2
13	0.567	1

*Shaded area denotes extrapolated estimates*

**Existing Advisory:** Chippewa River rock bass are not covered by a consumption advisory.

**Recommendation:** No one should eat more than 4 meals per month of rock bass less than 8 inches from the Chippewa River upstream of Lake Isabella or more than 2 meals per month of those fish greater than 8 inches due to mercury.



**White Sucker**

**Chippewa River  
u/s Lake Isabella**

**Isabella County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1997	1997	10	11	NA	11	14.2
Datasets available: 1997						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.20	0.13	0.39	0.28	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.686	0.720				

**Organics Analysis:**

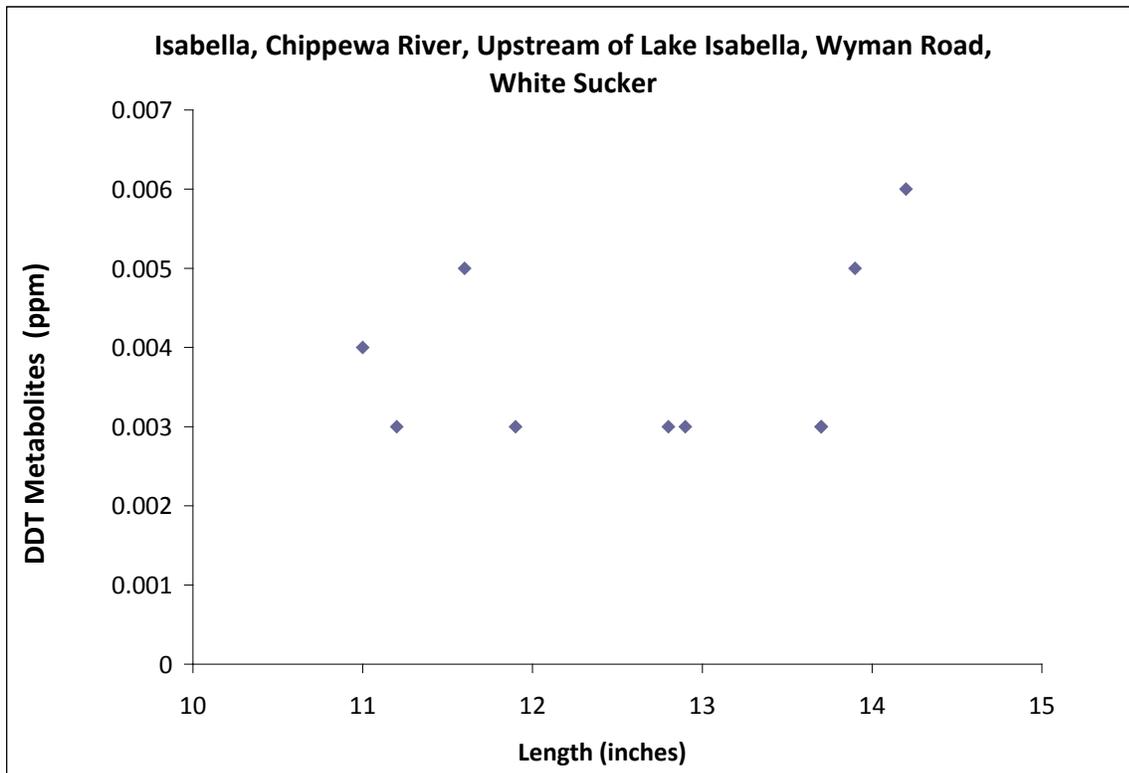
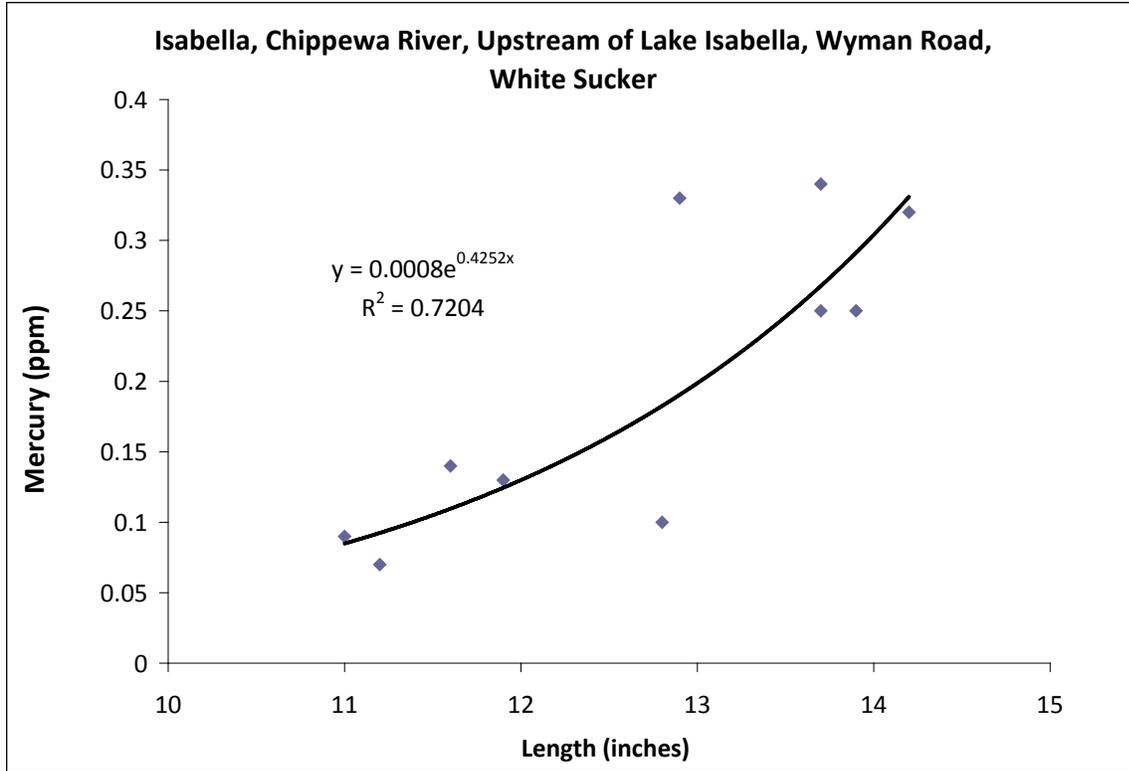
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1997	1997	10	11	NA	11	14.2
Datasets available: 1997						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	ND	--	--	--	--
DDT	10	0.004	0.003	0.013	0.005	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.064	0.044				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** There are no current consumption advisories for Chippewa River white sucker.

**Recommendation:** No one should eat more than 4 meals per month of sucker smaller than 13 inches from the Chippewa River upstream of Lake Isabella or more than 2 meals per month of those fish larger than 13 inches due to mercury.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
10	0.056	16
11	0.086	12
12	0.132	4
13	0.201	4
14	0.308	2
15	0.471	2
16	0.721	1
17	1.102	0.5
18	1.687	0.5

*Shaded area denotes extrapolated estimates*



**Carp**

**Chippewa River**

**Isabella and Midland Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1985	2015	14	17.5	na	17.5	30.5
Datasets available: 1985, 1997, 2015						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	14	0.33	0.14	0.59	0.41	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.005	0.039				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2015	2015	6	21.3	na	21.3	28.4
Datasets available: 1985, 1997, 2015						
Chemical	Sample Size (Legal)	Mean	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	6	0.56	0.004	2.66	1.66	Limited
DDT	6	0.07	0.006	0.27	0.18	8
Chlordane	6	0.02	0.005	0.02	0.02	--
Toxaphene	6	ND	--	--	--	--
TEQ*	6	13 ppt	0.6 ppt	59 ppt	37 ppt	Limited
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.487	0.873				
DDT	0.562	0.855				
Chlordane	0.102	0.159				
Toxaphene	--	--				
TEQ*	0.478	0.791				
<b>Final meal category based on UCL:</b>						<b>Limited</b>

\*2005 WHO TEFs; dl-PCBs included

**Existing Advisory:** No one should eat more than 2 meals per month of Chippewa River carp due to mercury.

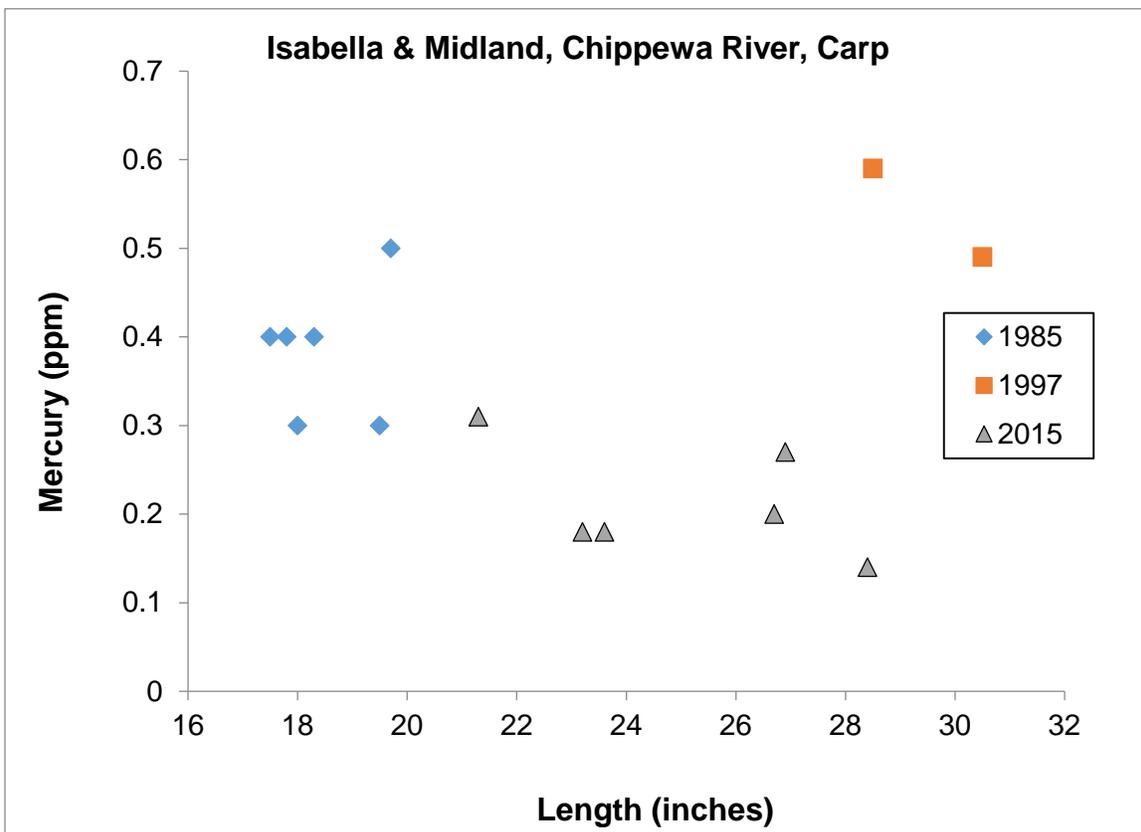
**Recommendation:** Sensitive populations should not eat these fish. Healthy adults should not eat more than 1 or 2 meals per year of Chippewa River carp due to PCBs and dioxins. Mercury and DDT would cause advisories.

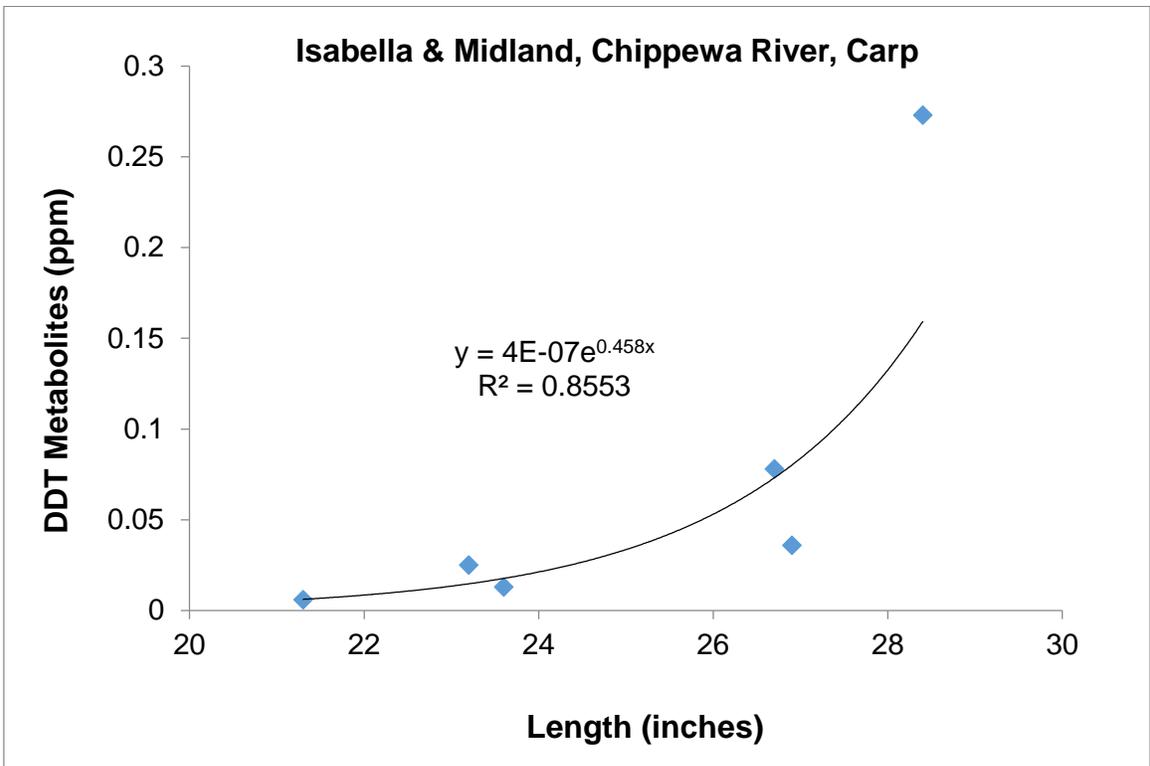
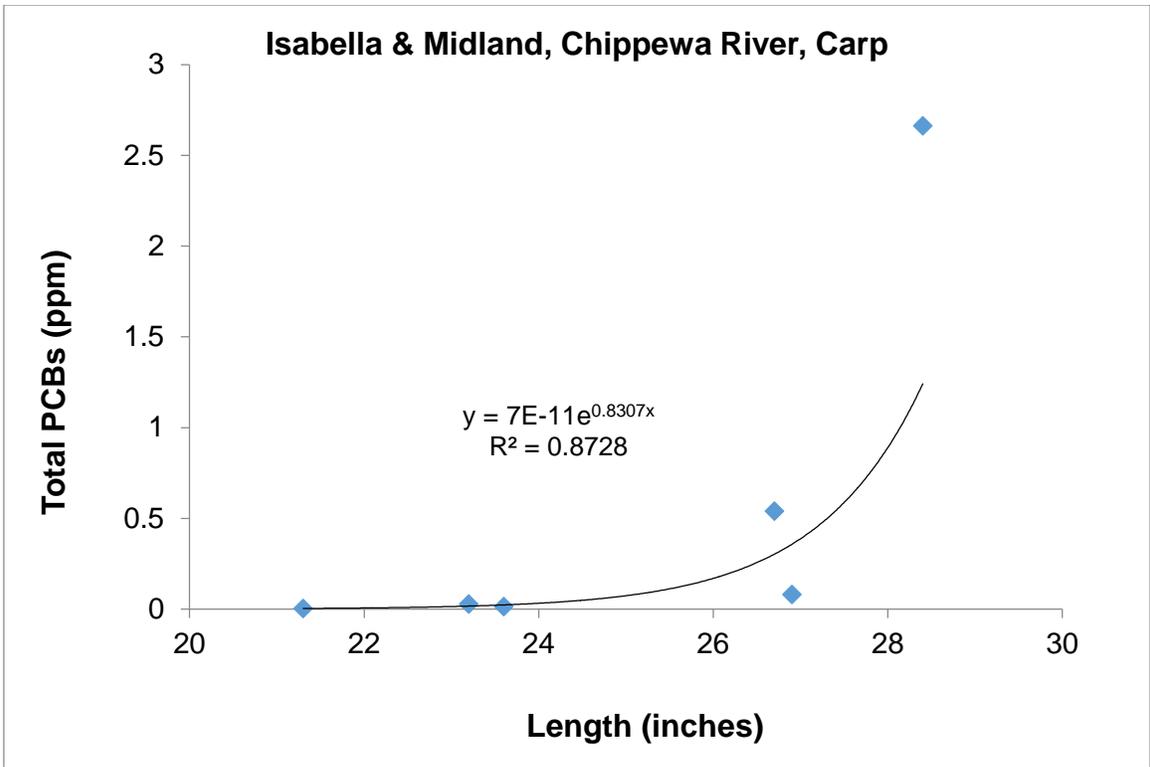
Note: Additional carp samples from the Chippewa River near or downstream of Mt. Pleasant should be analyzed to better characterize contamination levels. Smaller carp (less than 24 inches) may not need such restrictive guidelines, and the small sample size represented here

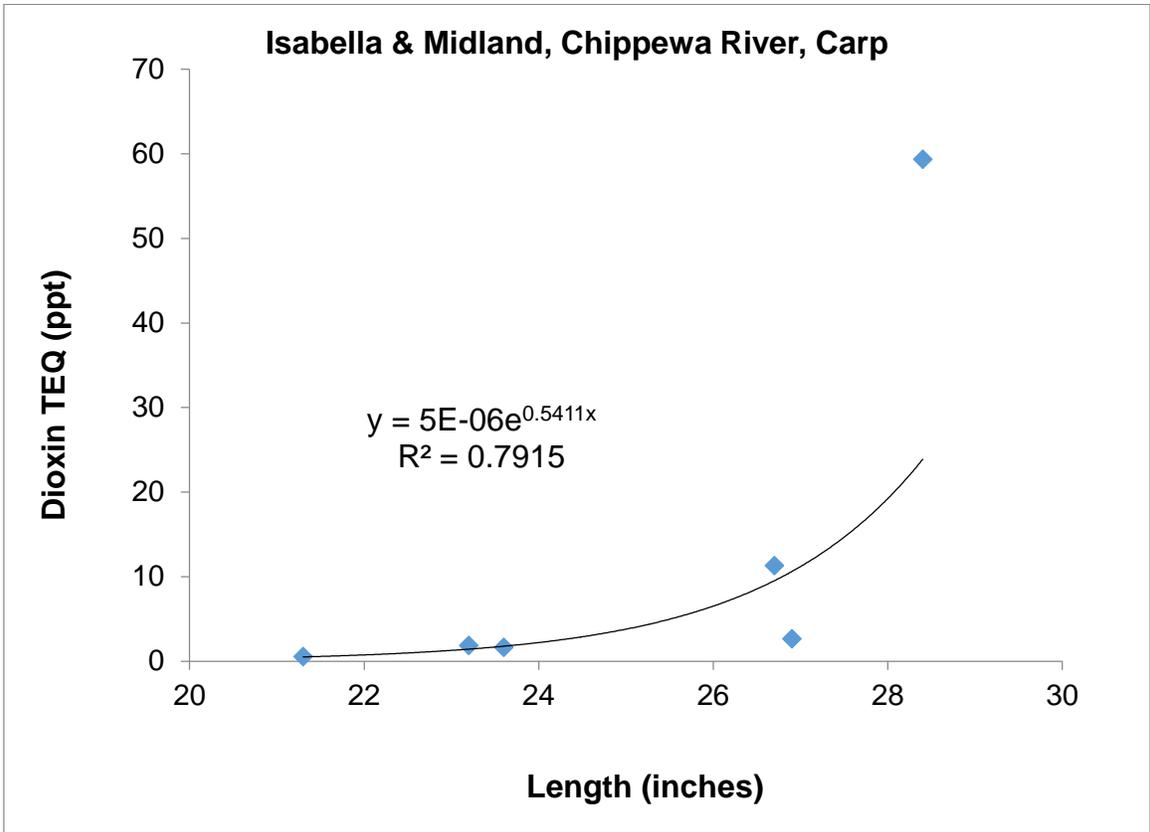
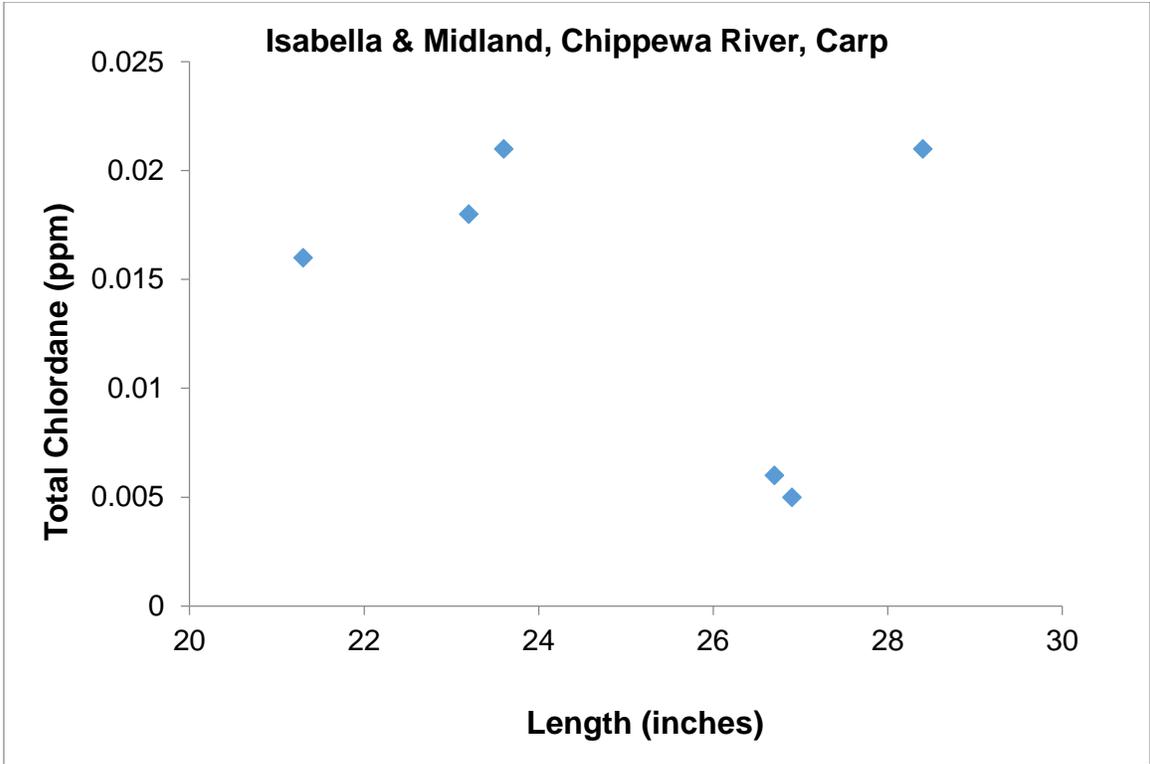
does not provide confidence in the length/concentration regressions. Sampling is planned for 2016.

Length (Inches)	PCB Regression Equation Estimate (ppm)	Meal Category	DDT Regression Equation Estimate (ppm)	Meal Category	TEQ Regression Equation Estimate (ppt)	Meal Category
20	0	16	0	16	0.25	16
22	0.01	16	0.01	16	0.74	8
24	0.03	8	0.02	16	2.18	2
26	0.17	1	0.06	16	6.44	1
28	0.88	Limited	0.15	12	19.01	Limited
30	4.66	DNE	0.37	4	56.09	Limited

*Shaded area denotes extrapolated estimates*







# Clinton County

**Bullhead  
Black & Yellow  
Hg Analysis:**

**Lake Ovid**

**Clinton County**

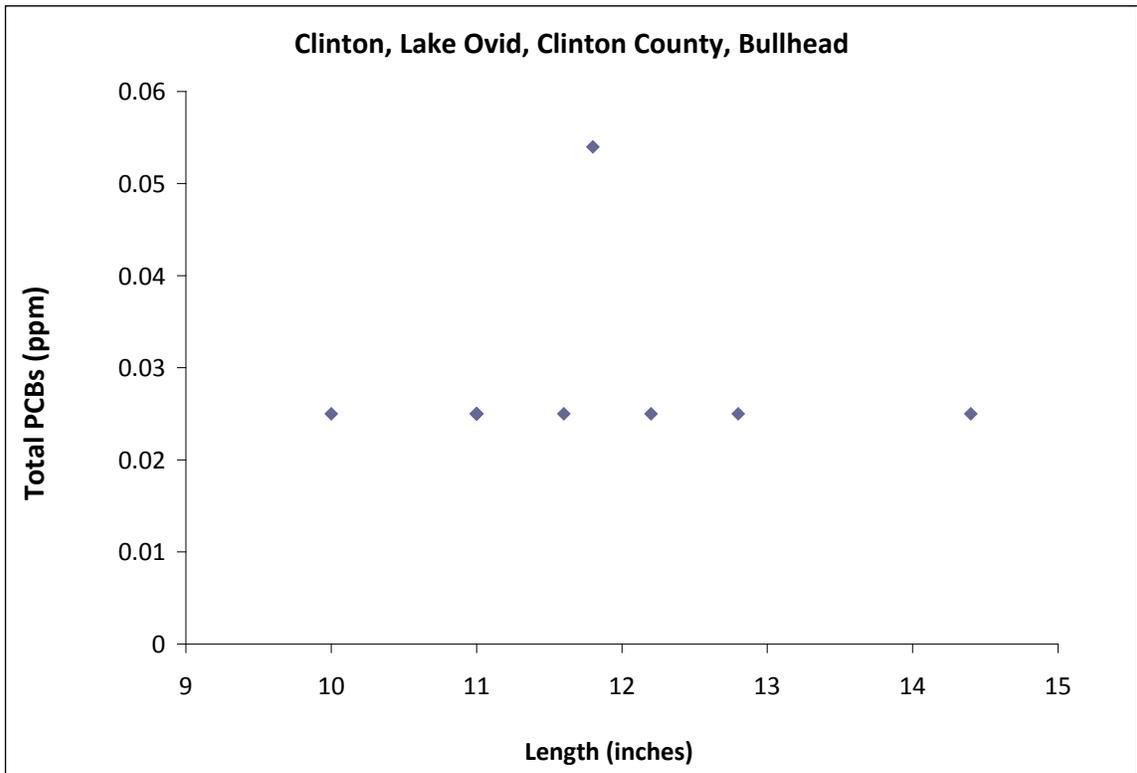
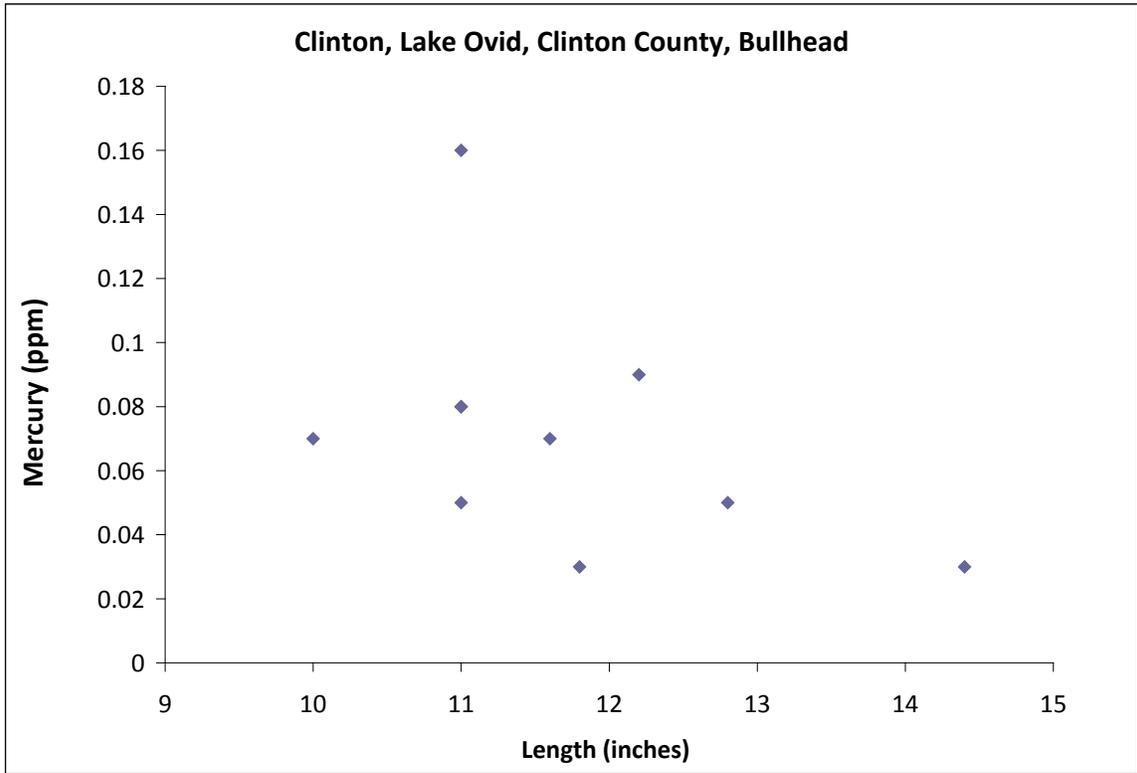
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	10	NA	10	14.4
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.071	0.030	0.160	0.100	8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.202	0.315				

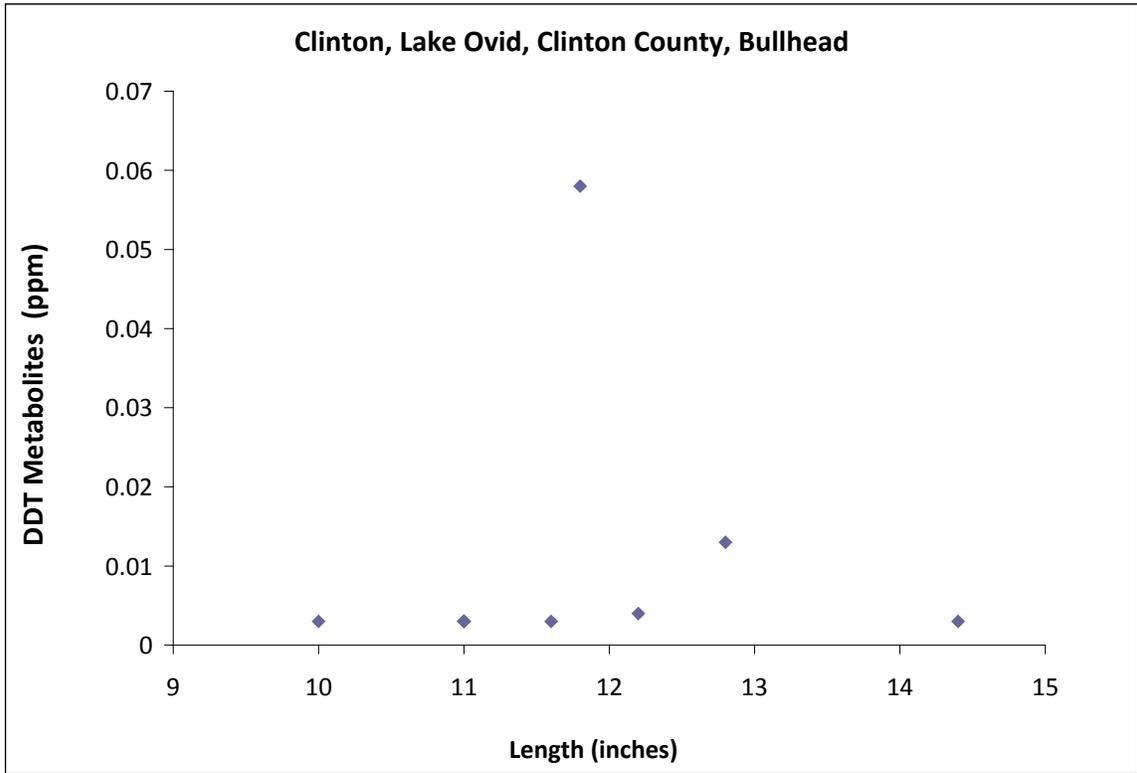
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	10	NA	10	14.4
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.028	0.0250	0.054	0.030	8
DDT	10	0.010	0.003	0.058	0.020	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.001	0.001				
DDT	0.009	0.039				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>8</b>

**Existing Advisory:** There are no current consumption advisories for Lake Ovid bullhead.

**Recommendation:** No one should eat more than 8 meals per month of Lake Ovid bullhead due to mercury. Based on DEQ's Fish Contaminant Monitoring Program, PCB and DDT concentrations ≥15 years old are expected to have declined to concentrations that allow a less restrictive meal category than determined by the standard evaluation method. PCBs would not be expected to cause an advisory.





**Black Crappie**

**Lake Ovid**

**Clinton County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	1	8.7	NA	8.7	8.7
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	1	0.110	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	1	8.7	NA	8.7	8.7
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	1	ND	--	--	--	--
DDT	1	ND	--	--	--	--
Chlordane	1	ND	--	--	--	--
Toxaphene	1	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Lake Ovid black crappie are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Lake Ovid crappie. The statewide consumption guidelines recommend that no one eat more than 4 meals per month of crappie from inland waters.

**Largemouth Bass**

**Lake Ovid**

**Clinton County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	2003	12	13.6	14	13.6	18.5
Datasets available: 1989, 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	12	0.413	0.280	0.740	0.490	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.691	0.753				

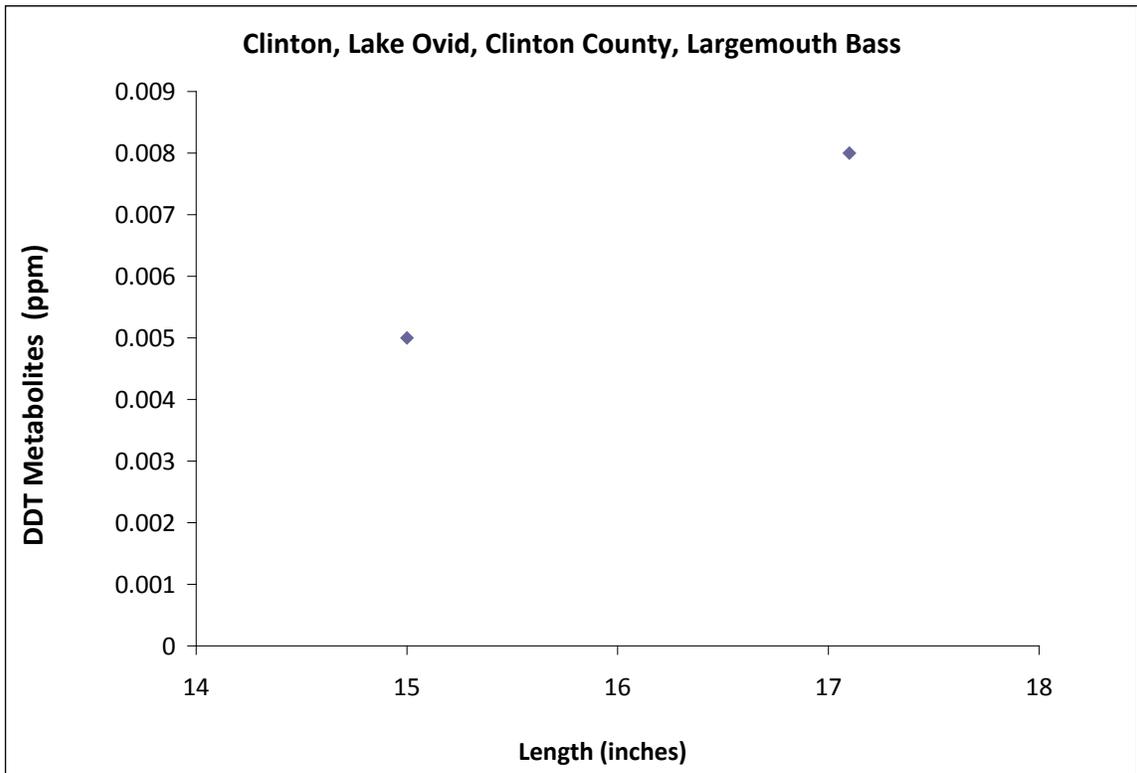
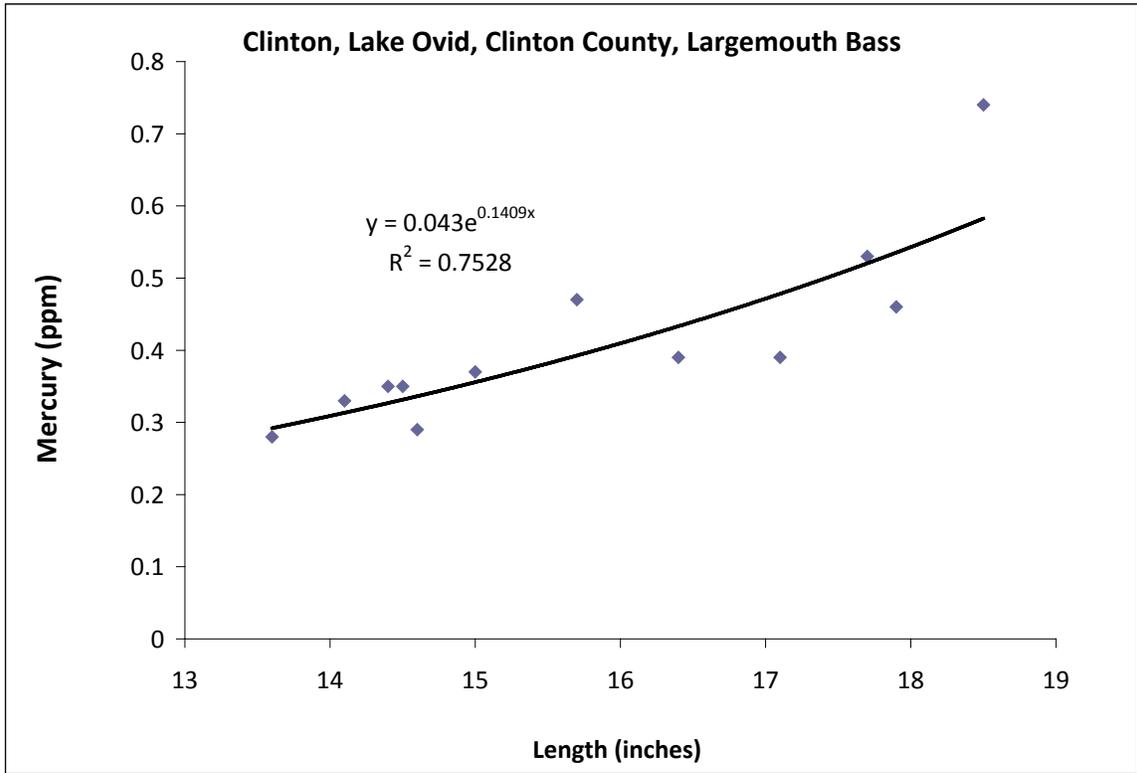
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	2	15	14	15	17.1
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2	ND	--	--	--	--
DDT	2	0.007	--	--	--	--
Chlordane	2	ND	--	--	--	--
Toxaphene	2	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Lake Ovid largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of legal size Lake Ovid largemouth or smallmouth bass under 18 inches or more than 1 meal per month of largemouth or smallmouth bass over 18 inches. Robust regression ( $R^2 \approx 0.8$ ) supports using statewide length break.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
14	0.309	2
15	0.356	2
16	0.410	2
17	0.472	2
18	0.543	1
19	0.625	1
20	0.720	1
21	0.829	1
22	0.954	1
<i>Shaded area denotes extrapolated estimates</i>		



**Northern Pike**

**Lake Ovid**

**Clinton County**

**Hg Analysis:**

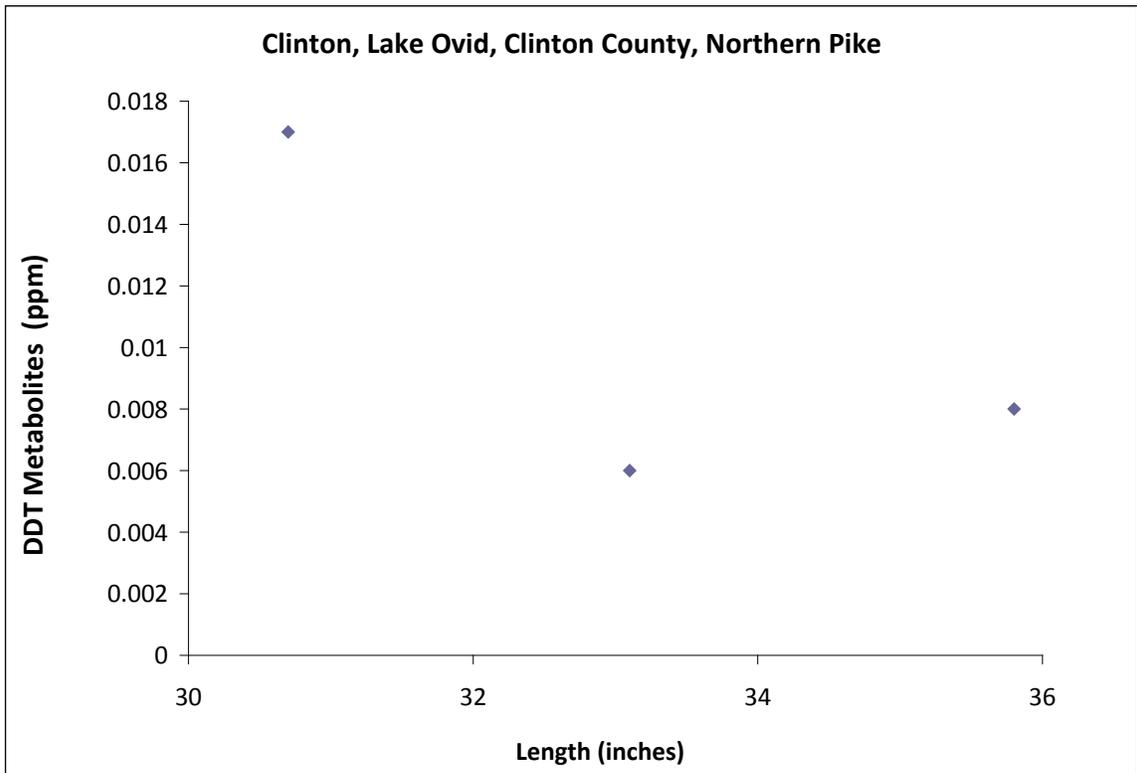
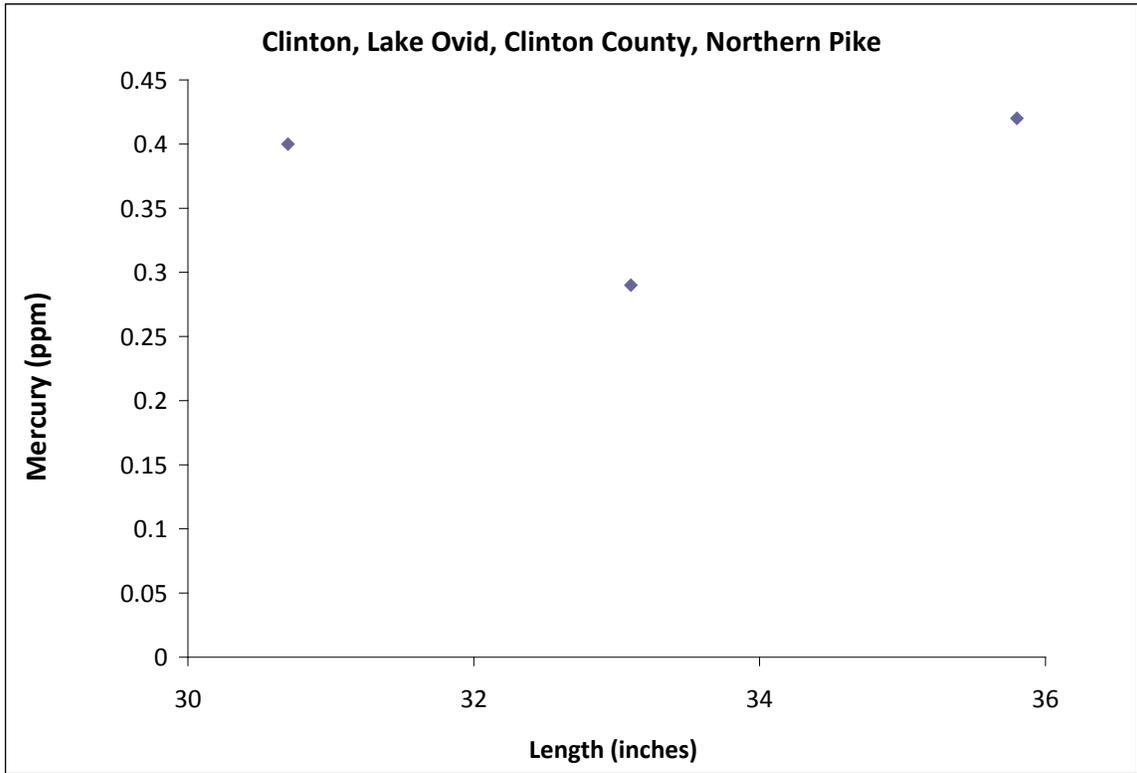
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	3	30.7	24	30.7	35.8
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	3	0.370	0.290	0.420	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	3	30.7	24	30.7	35.8
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	3	ND	--	--	--	--
DDT	3	0.010	--	--	--	--
Chlordane	3	ND	--	--	--	--
Toxaphene	3	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Lake Ovid northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Lake Ovid northern pike. The statewide consumption guidelines recommend that no one eat more than 1 meal per month of northern pike over 30 inches or more than 2 meals per month of northern pike under 30 inches in length.



**Tiger Muskellunge**

**Lake Ovid**

**Clinton County**

**Hg Analysis:**

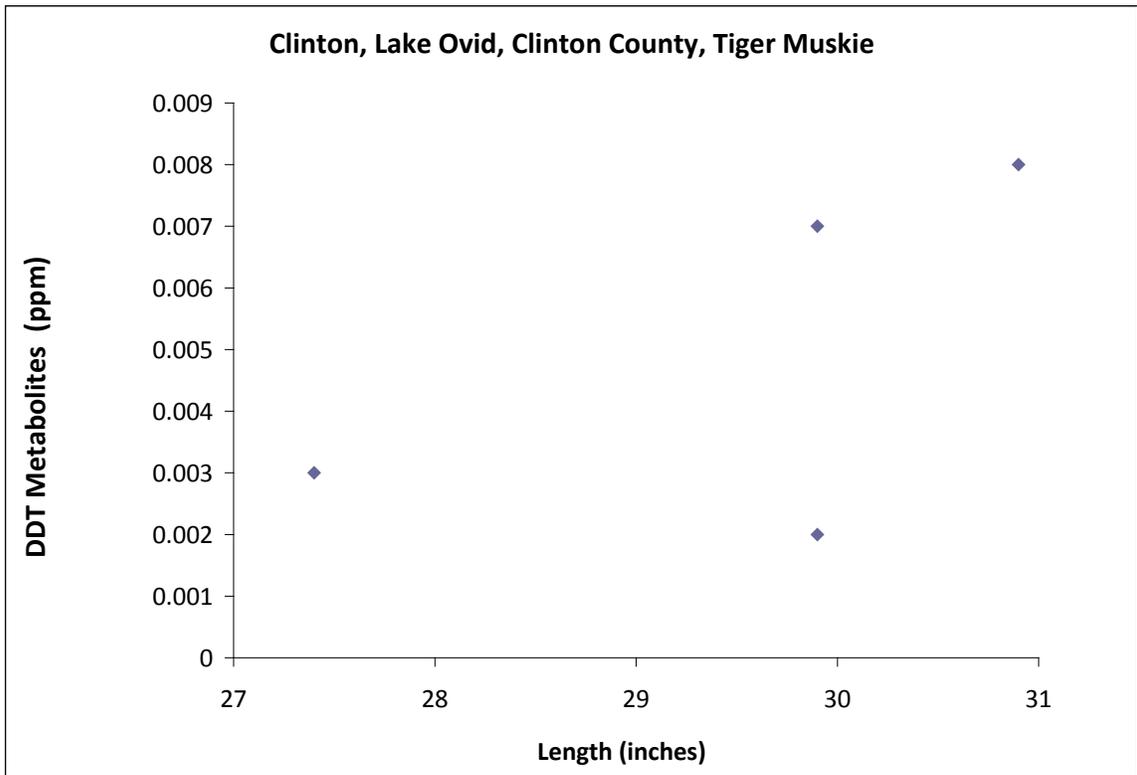
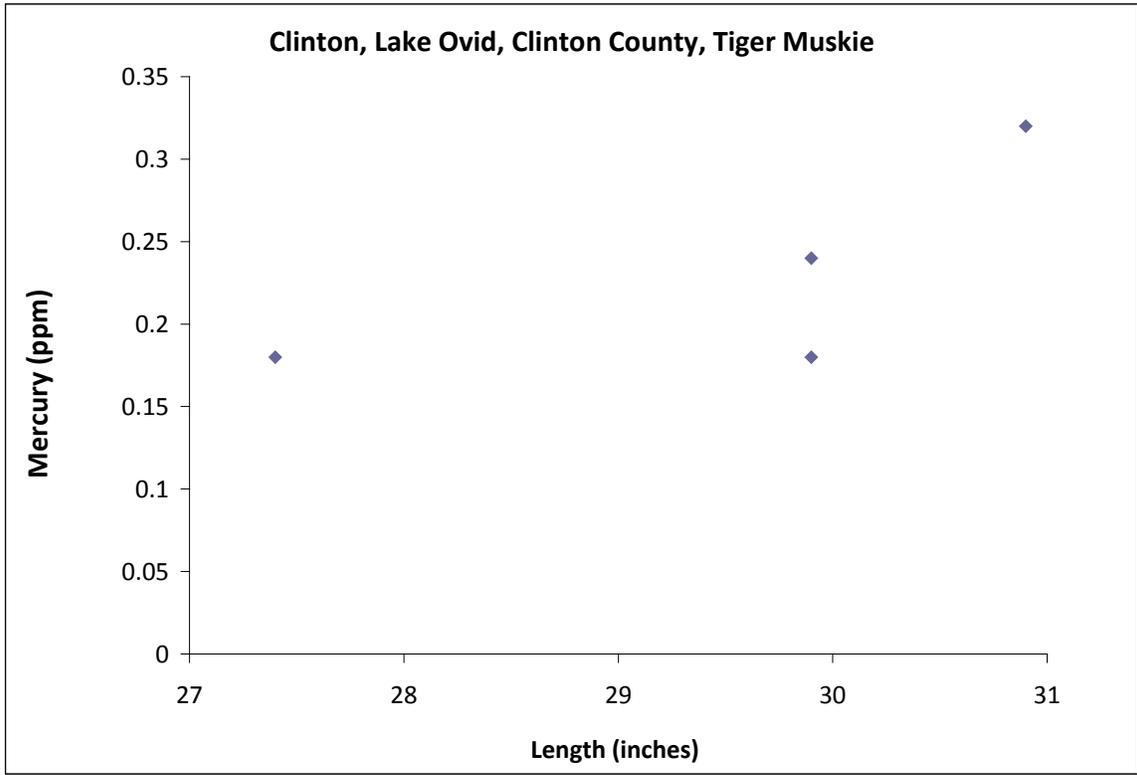
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
1989	1989	4	27.4	42	27.4	30.9
Datasets available: 1989						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	4	0.230	0.180	0.320	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.524	0.531				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
1989	1989	4	27.4	42	27.4	30.9
Datasets available: 1989						
Chemical	Sample Size	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	4	ND	--	--	--	--
DDT	4	0.005	0.002	0.008	--	--
Chlordane	4	ND	--	--	--	--
Toxaphene	4	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.368	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						--

**Existing Advisory:** Lake Ovid tiger muskellunge are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Lake Ovid muskellunge. The statewide consumption guidelines recommend that no one eat more than 1 meal per month of muskellunge.



**Rock Bass**

**Looking Glass River  
Dewitt**

**Clinton County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
1998	1998	5	6.3	NA	6.3	7.9
Datasets available: 1998						
Chemical	Sample Size	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	1*	0.140	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
1998	1998	5	6.3	NA	6.3	7.9
Datasets available: 1998						
Chemical	Sample Size	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	1*	ND	--	--	--	--
DDT	1*	0.004	--	--	--	--
Chlordane	1*	ND	--	--	--	--
Toxaphene	1*	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						--

\* - 1 composite sample of 5 fillets

**Existing Advisory:** Looking Glass River rock bass are not covered by a consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Looking Glass River rock bass. The statewide consumption guidelines recommend that no one eat more than 4 meals per month of rock bass from inland waters.

**White Sucker**

**Looking Glass River  
Dewitt**

**Clinton County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	10.4	NA	10.4	14.6
Datasets available: 1998						
Chemical	Sample Size	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	2*	0.095	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	10.4	NA	10.4	14.6
Datasets available: 1998						
Chemical	Sample Size	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2*	ND	--	--	--	--
DDT	2*	0.007	--	--	--	--
Chlordane	2*	ND	--	--	--	--
Toxaphene	2*	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

\* - 2 samples of 5 fillets each

**Existing Advisory:** There are no current consumption advisories for Looking Glass River white sucker.

**Recommendation:** There are insufficient data available to develop specific advice for Looking Glass River sucker. The statewide consumption guidelines recommend that no one eat more than 8 meals per month of sucker from inland waters.

# Eaton County

**Brown Bullhead**

**Erickson Power Plant Pond**

**Eaton County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1986	1986	3	--*	na	--	--
Datasets available: 1986						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	3	0.13	0.10	0.20	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1986	1986	3	--*	na	--	--
Datasets available: 1986						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	3	0.81	0.40	0.68	--	--
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

\* - length data not recorded

**Existing Advisory:** Erickson Power Plant pond bullhead are not covered by an advisory.

**Recommendation:** A dataset of less than five data points for a given chemical, species and waterbody is considered insufficient for evaluation using the standard evaluation method. The statewide advice applies: No one should eat more than 4 meals per month of bullhead from inland waters.

**Sunfish**

**Erickson Power Plant Pond**

**Eaton County**

**Hg Analysis:**

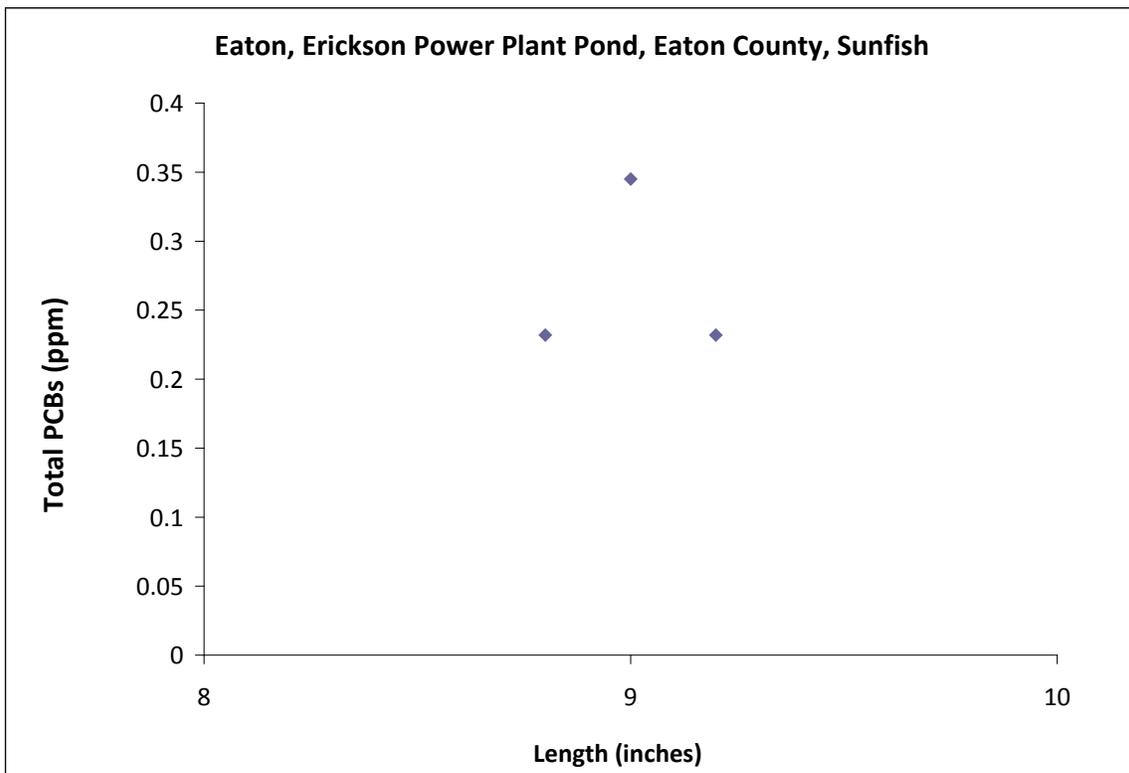
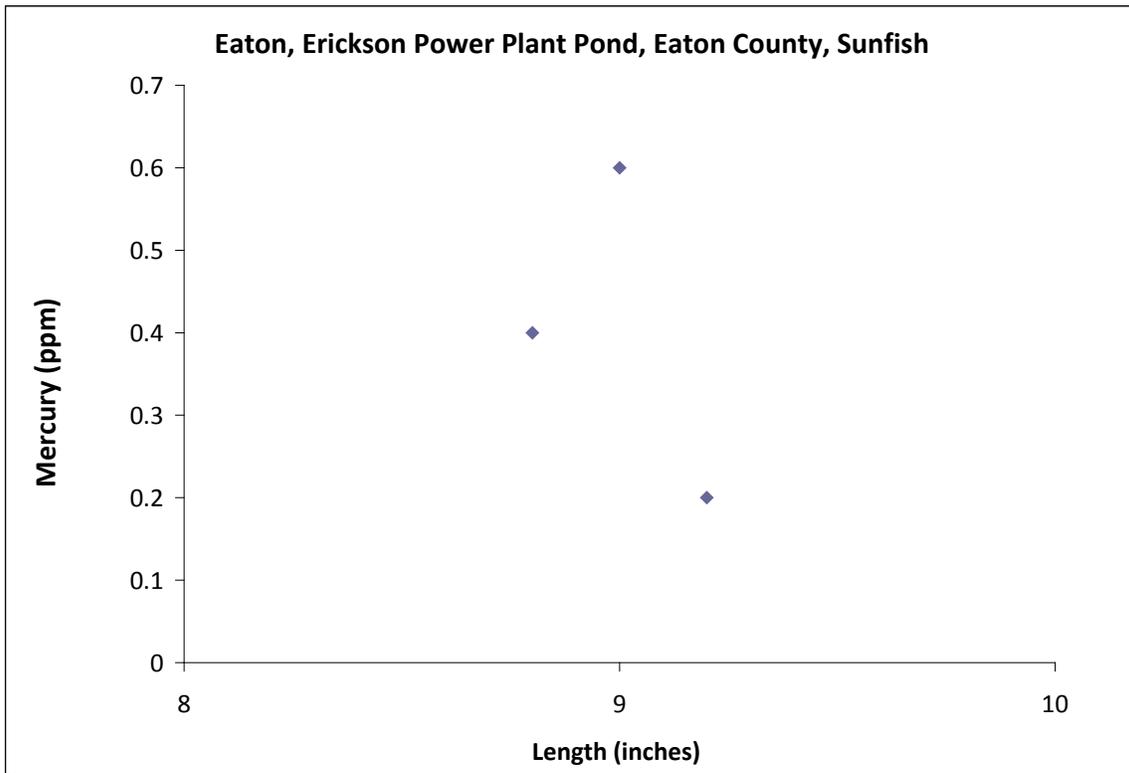
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1986	1986	3	8.8	NA	8.8	9.2
Datasets available: 1986						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	3	0.400	0.200	0.600	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1986	1986	3	8.8	NA	8.8	9.2
Datasets available: 1986						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	3	0.270	0.232	0.345	--	--
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** There are no current consumption advisories on Erickson Power Plant Pond sunfish.

**Recommendation:** There are insufficient data available to develop specific advice for Erickson Power Plant Pond sunfish. Dataset is limited due to age. The statewide consumption guidelines recommend that no one eat more than 8 meals per month of sunfish or bluegill from inland waters.



**Yellow Perch**

**Erickson Power Plant Pond**

**Eaton County**

**Hg Analysis:**

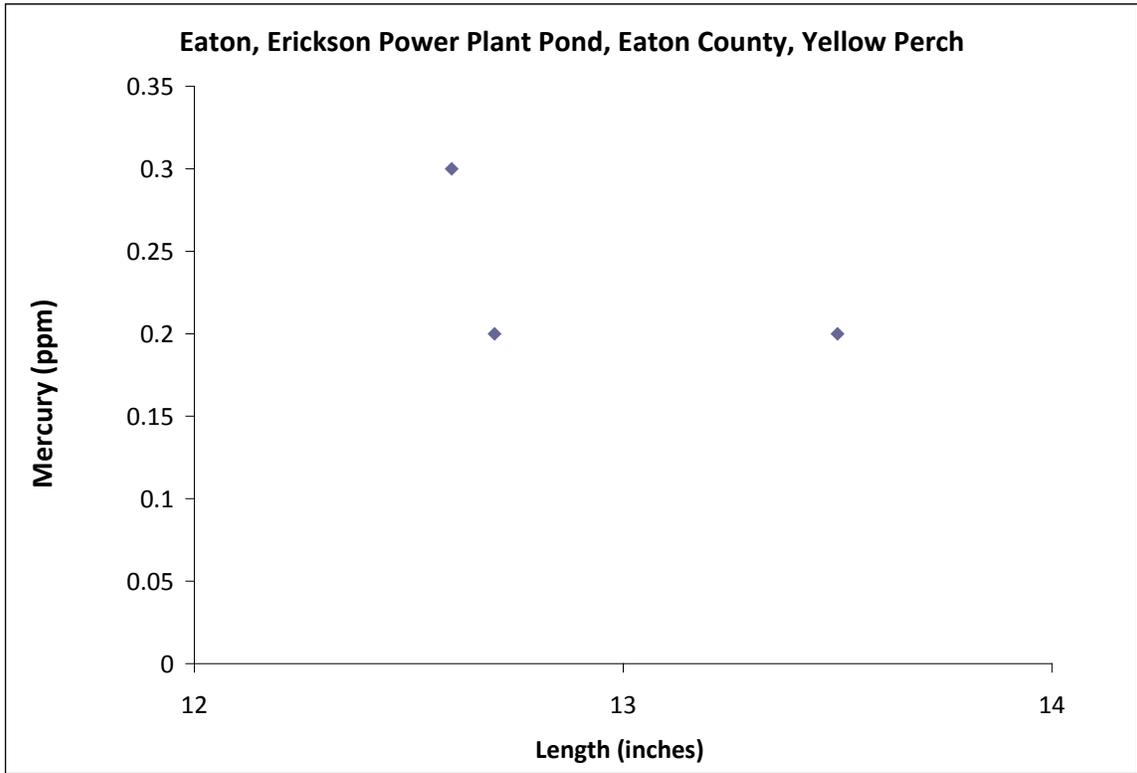
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1986	1986	3	12.6	NA	12.6	13.5
Datasets available: 1986						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	3	0.233	0.200	0.300	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1986	1986	2	12.6	NA	12.6	13.5
Datasets available: 1986						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	2	0.230	.0225	0.234	0.290	0.5
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Erickson Power Plant Pond yellow perch are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Erickson Power Plant Pond yellow perch. The statewide consumption guidelines recommend that no one eat more than 4 meals per month of yellow perch from inland waters.



# Flat River

## Ionia, Kent, and Montcalm Counties

**Rock Bass**

**Flat River  
Upstream of Greenville Dam**

**Montcalm County**

**Hg Analysis:**

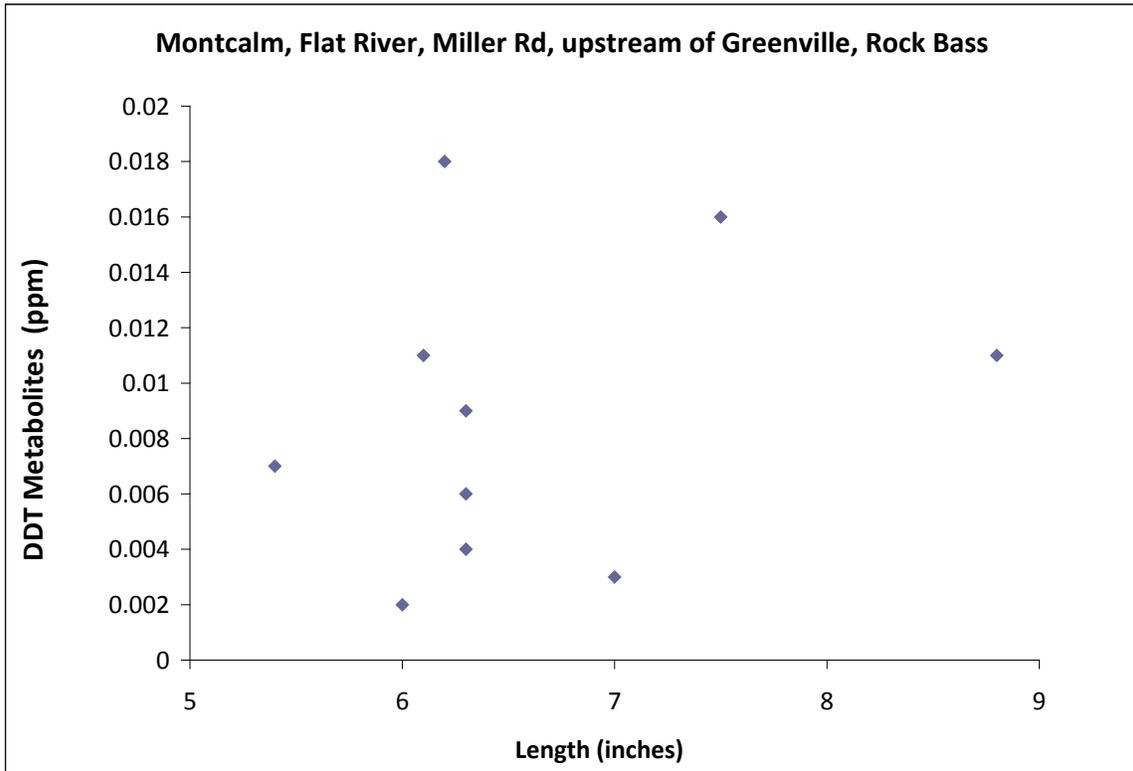
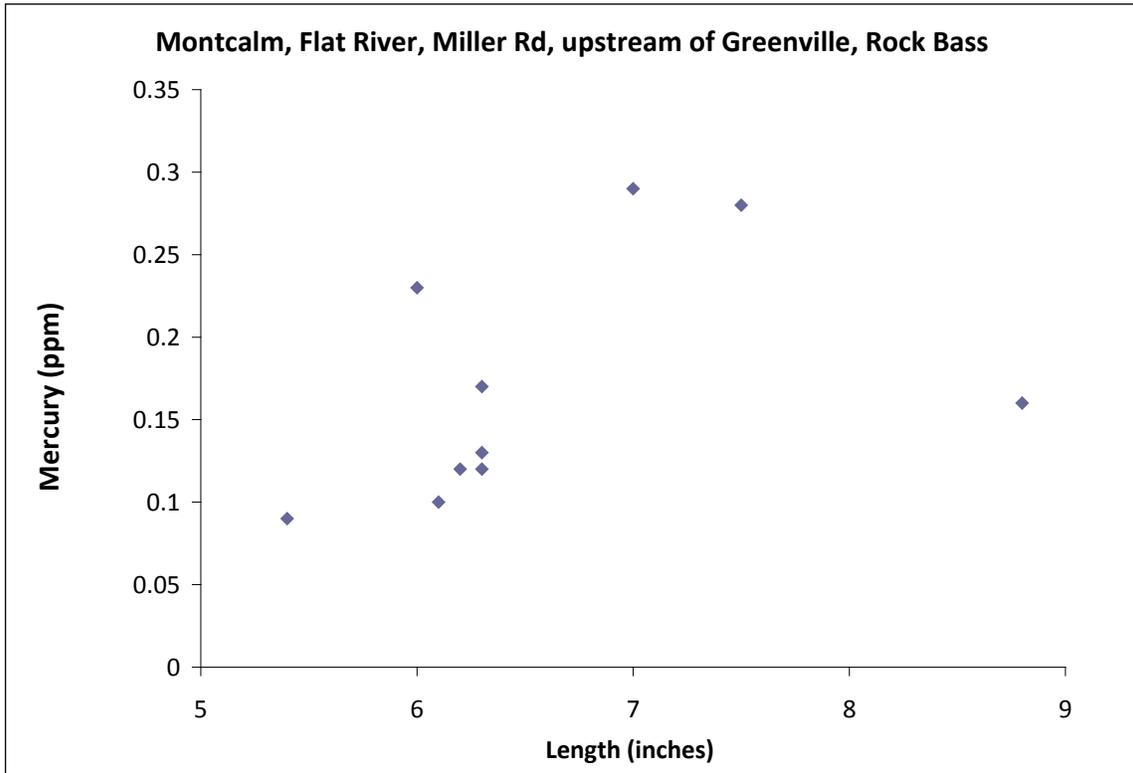
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	5.4	na	5.4	8.8
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.17	0.09	0.29	0.22	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.179	0.222				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	5.4	na	5.4	8.8
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	ND	--	--	--	--
DDT	10	0.009	0.002	0.02	0.01	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.074	0.074				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>4</b>

**Existing Advisory:** Rock bass from the Flat River upstream of Greenville are not covered by an advisory.

**Recommendation:** No one should eat more than 4 meals per month of rock bass from the Flat River upstream of the Greenville Dam due to mercury.



**White Sucker**

**Flat River  
Upstream of Greenville Dam**

**Montcalm County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	10.4	na	10.4	12.7
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.07	0.05	0.11	0.08	12
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.638	0.685				

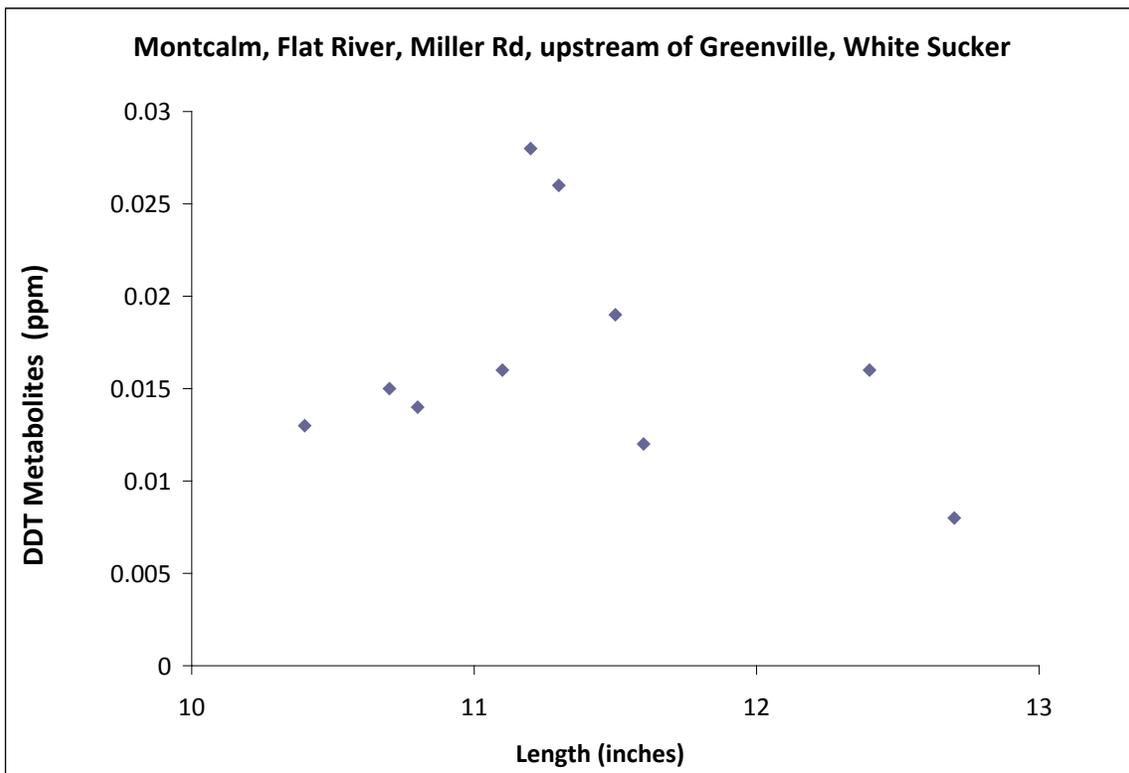
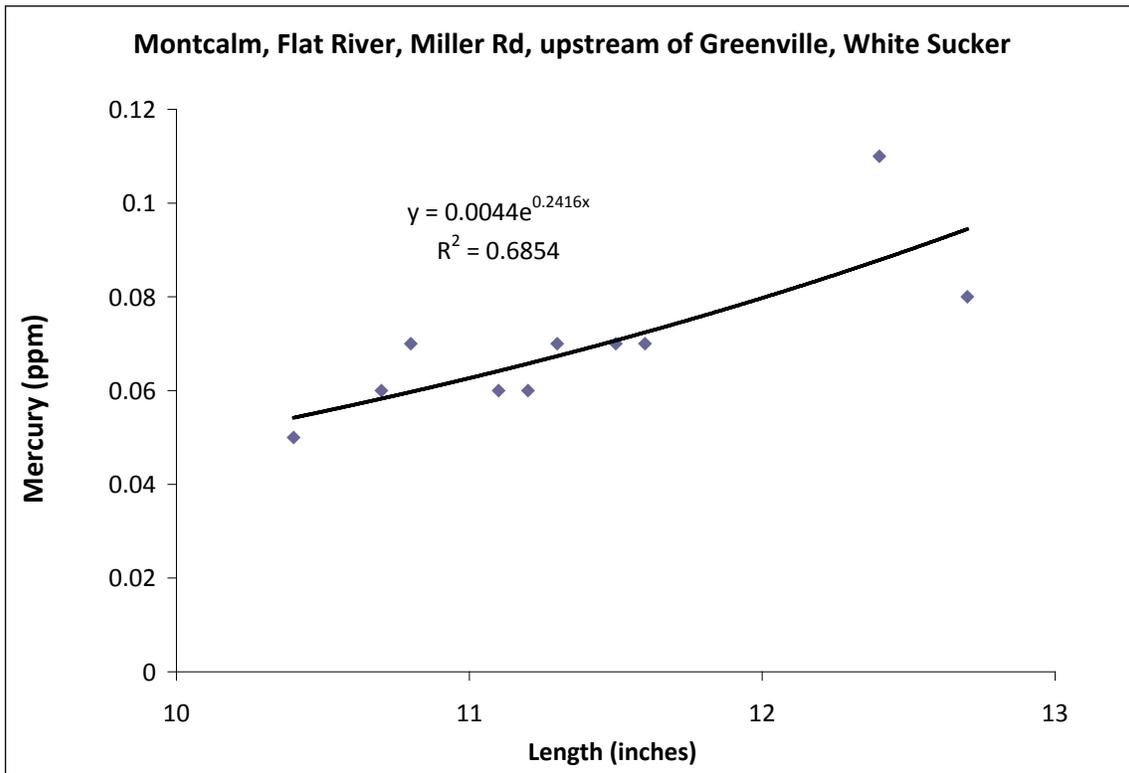
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	10.4	na	10.4	12.7
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	ND	--	--	--	--
DDT	10	0.02	0.008	0.03	0.02	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.052	0.105				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>12</b>

**Existing Advisory:** White sucker from the Flat River upstream of Greenville are not covered by an advisory.

**Recommendation:** No one should eat more than 12 meals per month of sucker smaller than 12 inches from the Flat River upstream of the Greenville Dam or more than 8 meals per month of those fish larger than 12 inches due to mercury.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
10	0.05	16
11	0.06	16
12	0.08	12
13	0.10	8
14	0.13	8
15	0.16	4
16	0.21	4
<i>Shaded area denotes extrapolated estimates</i>		



**Rock Bass**

**Flat River  
Between Greenville and Belding Dams**

**Ionia & Montcalm  
Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10*	5.5	na	5.5	7.5
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10*	0.08	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

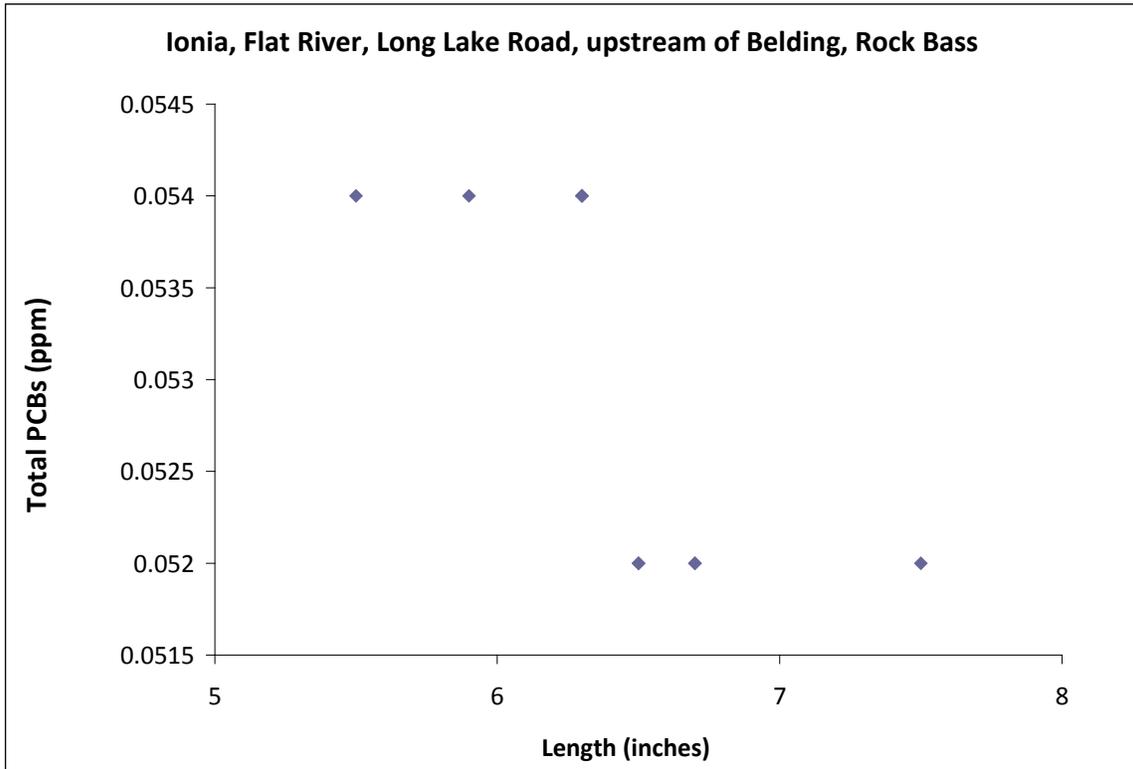
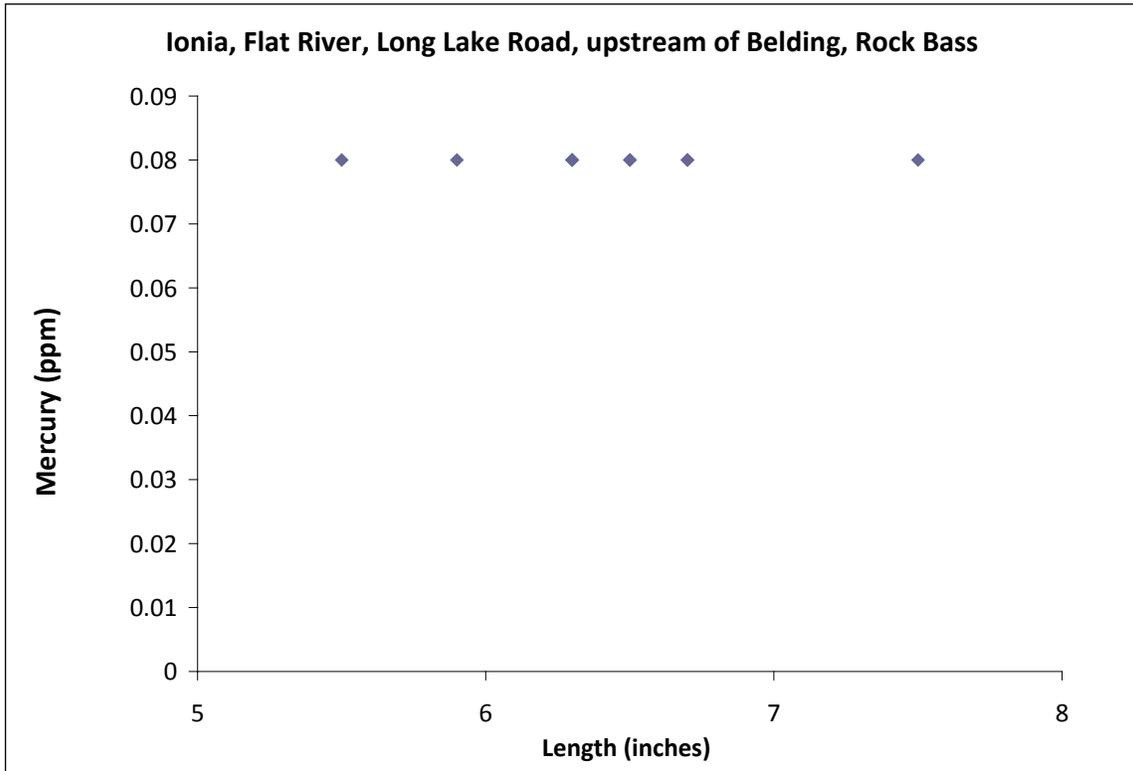
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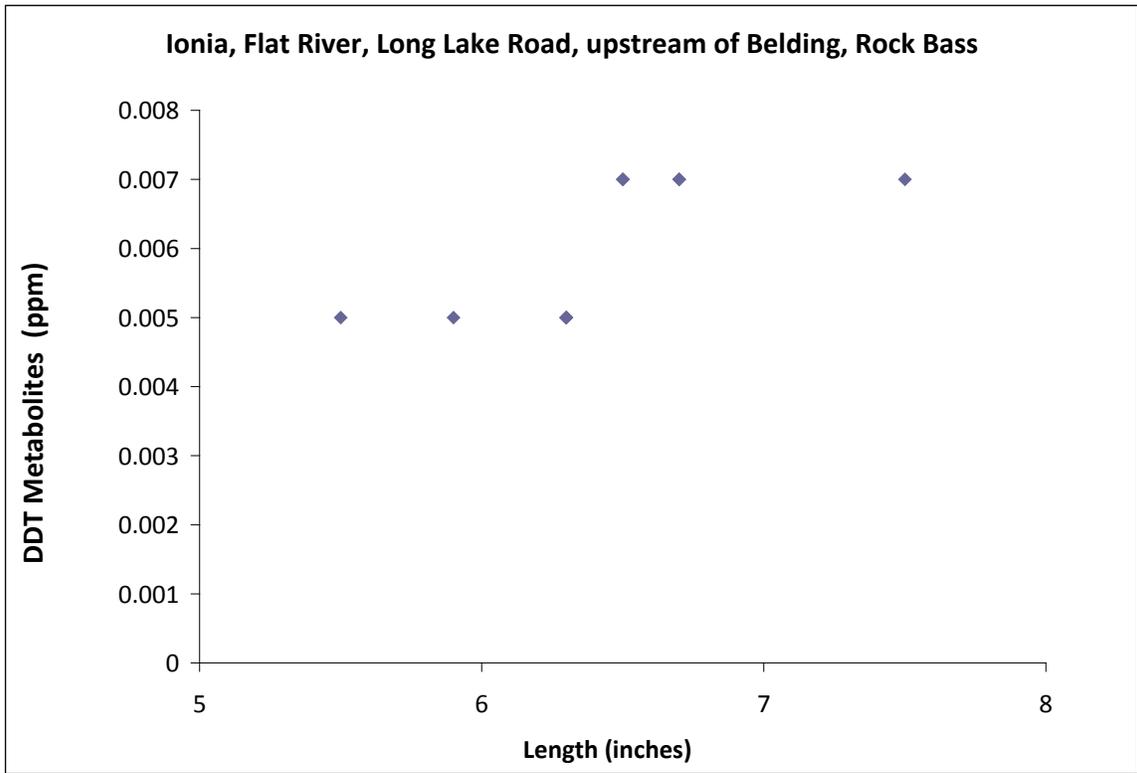
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	1998	10	5.5	na	5.5	7.5
Datasets available: 1998						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10*	0.05	--	--	--	--
DDT	10*	0.006	--	--	--	--
Chlordane	10*	ND	--	--	--	--
Toxaphene	10*	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						--

\* - 2 composites of 5 fillets each

**Existing Advisory:** Women and children should not eat more than one meal per week of rock bass from the Flat River downstream of the Greenville Dam due to PCBs.

**Recommendation:** A dataset of less than five data points for a given chemical, species and waterbody is considered insufficient for evaluation using the standard evaluation method. Statewide guideline applies: No one should eat more than 4 meals per month of rock bass from inland waters.





**Rock Bass**

**Flat River  
Between Belding and Fallasburg Dams**

**Ionia & Kent  
Counties**

**Hg Analysis:**

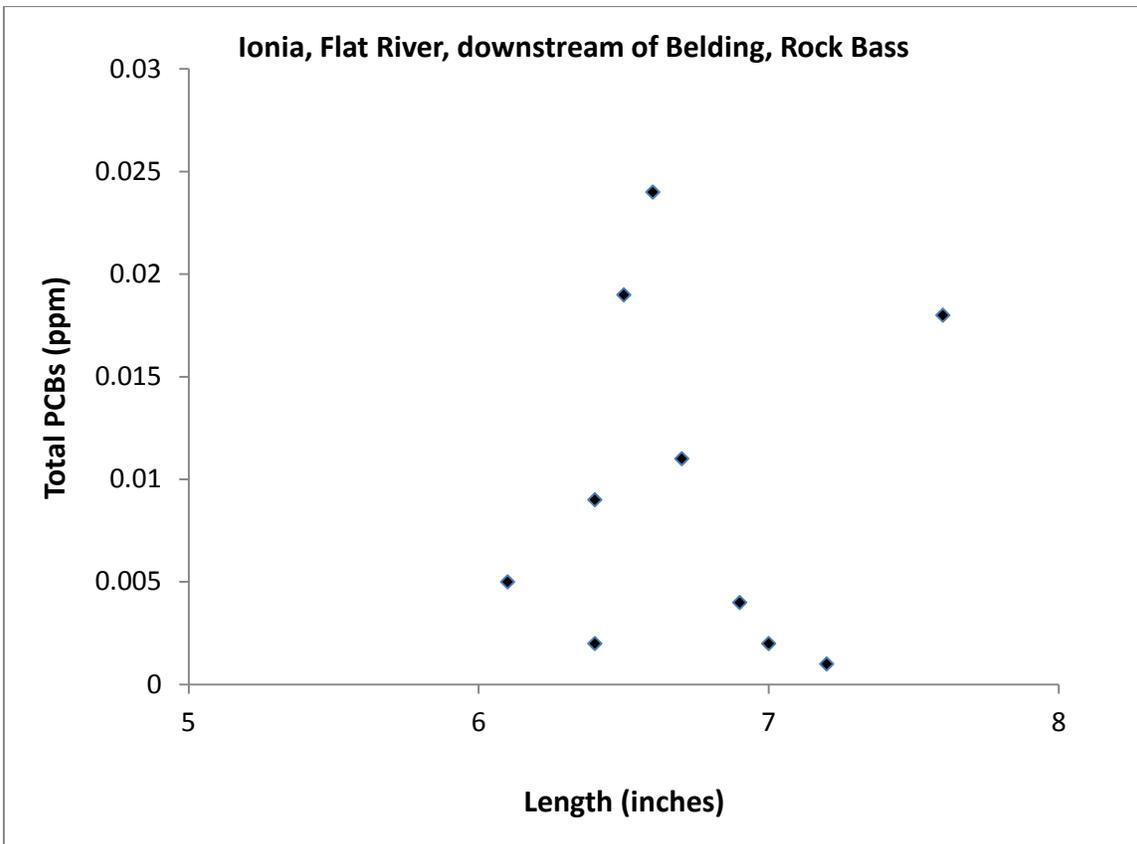
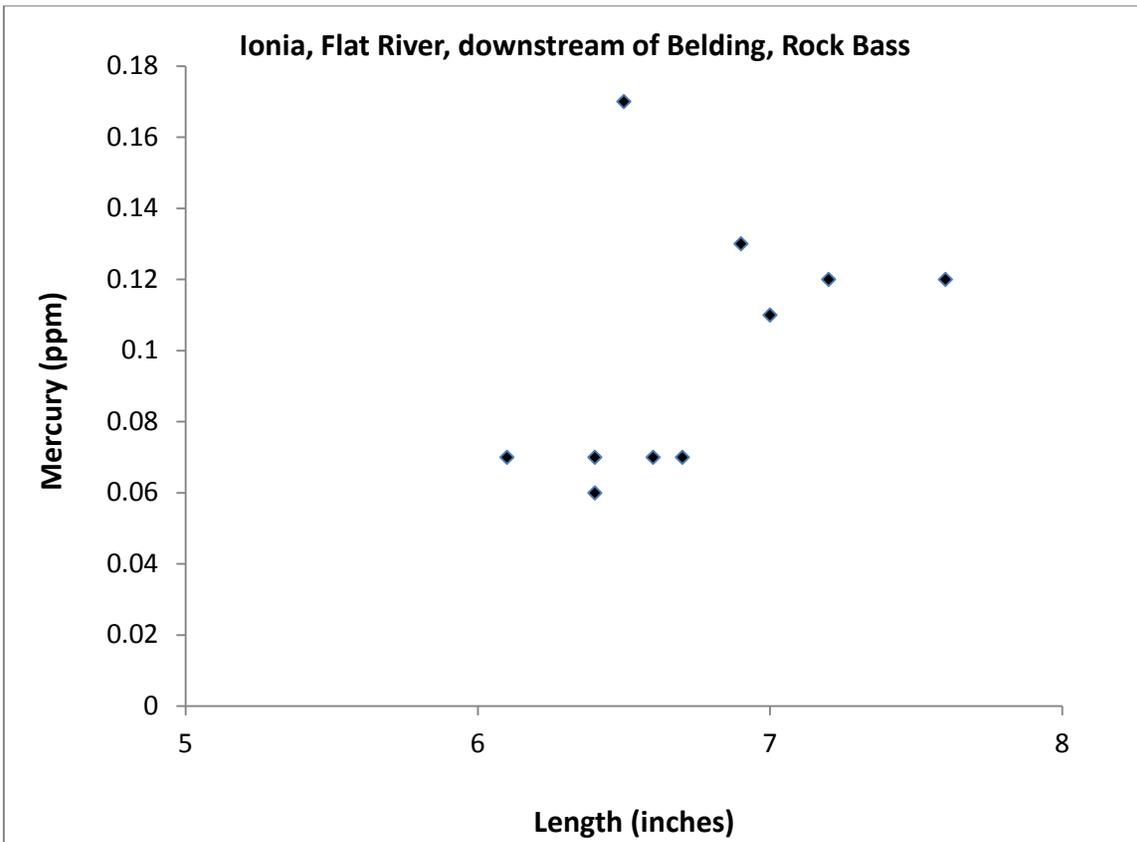
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	2003	19	5.9	na	5.9	7.6
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	19	0.09	0.06	0.17	0.10	8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.260	0.350				

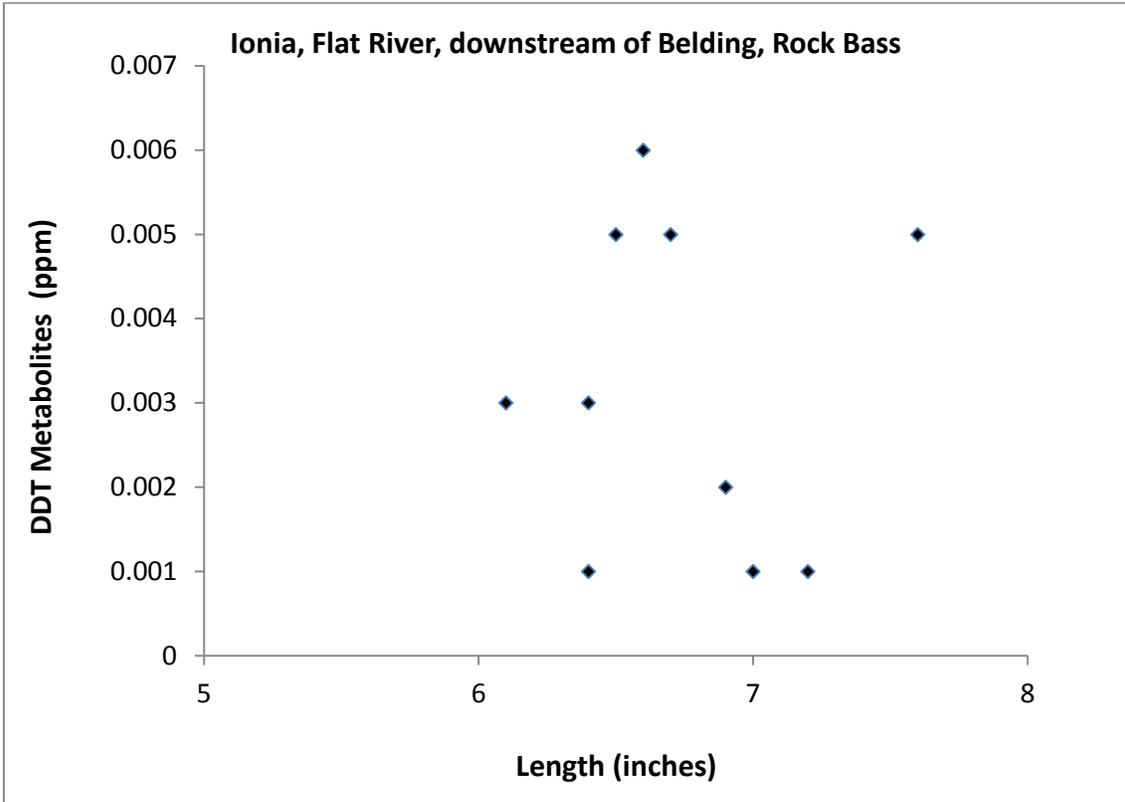
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	6.1	na	6.1	7.6
Datasets available: 1998, 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.010	0.001	0.02	0.02	12
DDT	10	0.003	0.001	0.006	0.005	16
Chlordane	10	0.001	--	--	--	--
Toxaphene	10	0.050	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.003	0.007				
DDT	0.001	0.009				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>8</b>

**Existing Advisory:** Women and children should not eat more than 1 meal per week of rock bass from the Flat River downstream of Greenville due to PCBs.

**Recommendation:** No one should eat more than 8 meals per month of rock bass from the Flat River between the Belding and Fallasburg Dams due to mercury. PCBs would cause an advisory.





**White Sucker**

**Flat River  
Between Belding and Fallasburg Dams**

**Ionia & Kent  
Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	9.6	na	9.6	15.2
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.08	0.03	0.14	0.11	8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.892	0.915				

**Organics Analysis:**

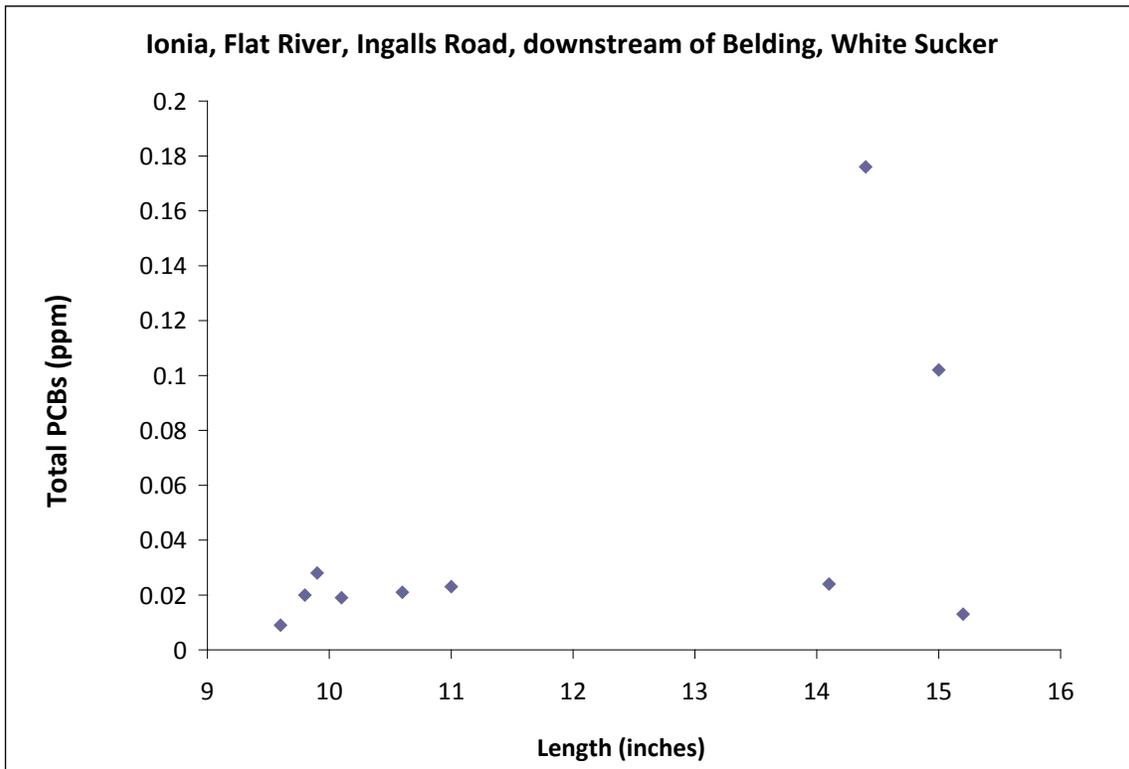
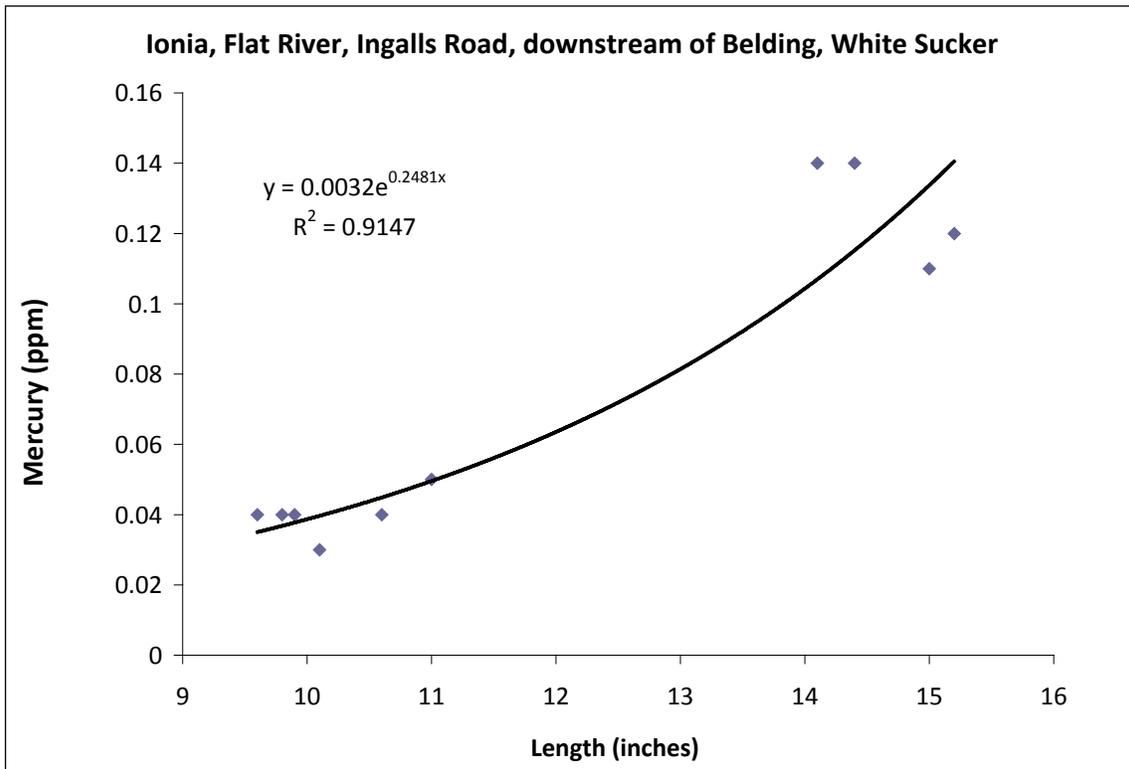
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2003	2003	10	9.6	NA	9.6	15.2
Datasets available: 2003						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.044	0.009	0.18	0.08	2
DDT	10	0.014	0.004	0.03	0.02	16
Chlordane	10	0.002	0.001	0.005	0.003	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.293	0.284				
DDT	0.252	0.196				
Chlordane	0.298	0.336				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

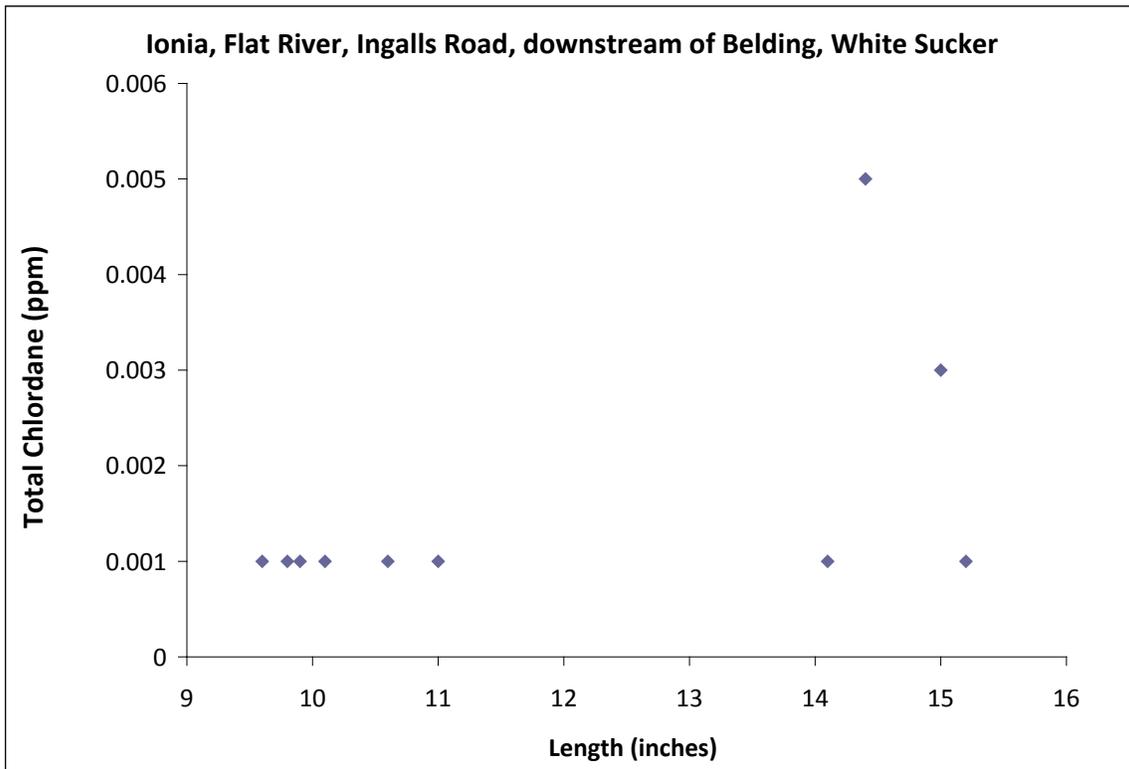
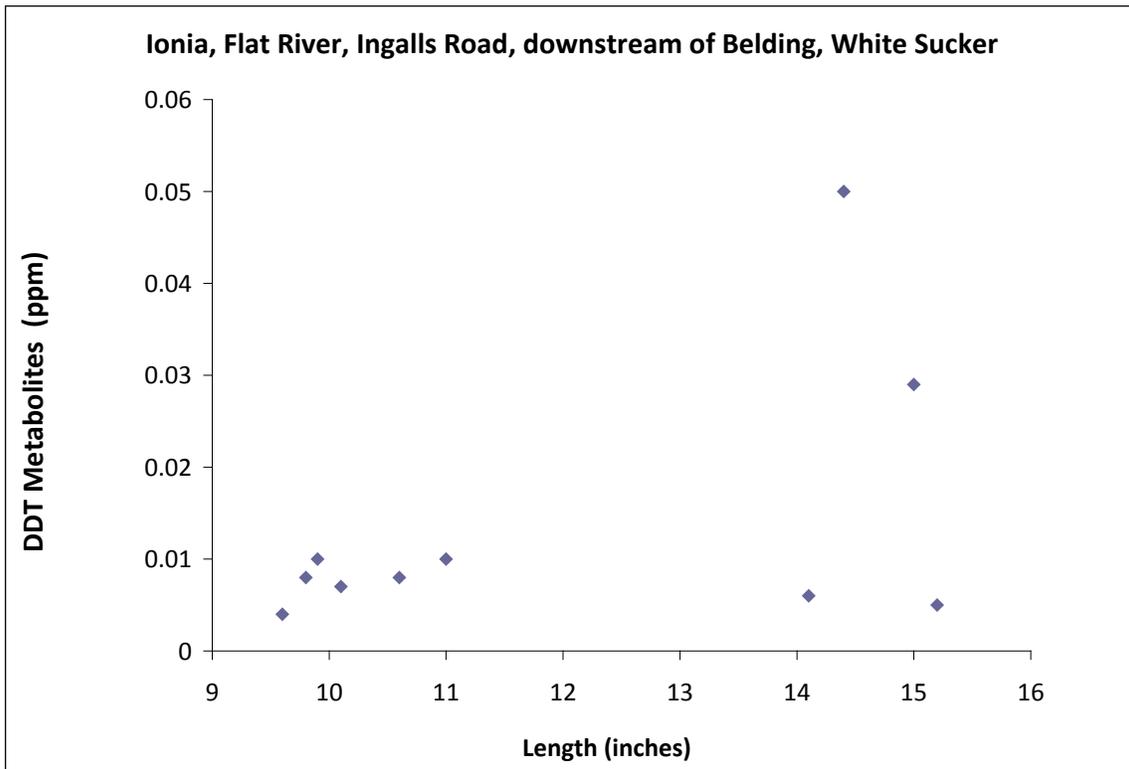
**Existing Advisory:** Women and children should not eat more than one meal per week of sucker larger than 14 inches from the Flat River downstream of the Greenville Dam due to PCBs.

**Recommendation:** No one should eat more than 2 meals per month of sucker from the Flat River between the Belding and Fallasburg Dams due to PCBs. Mercury would cause an advisory.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
10	0.038	16
11	0.049	16
12	0.063	16
13	0.081	12
14	0.103	8
15	0.132	4
16	0.169	4
17	0.217	4
18	0.278	2

*Shaded area denotes extrapolated estimates*





**Carp**

**Flat River  
Between Fallasburg and Lowell Dams**

**Kent County**

**Hg Analysis:**

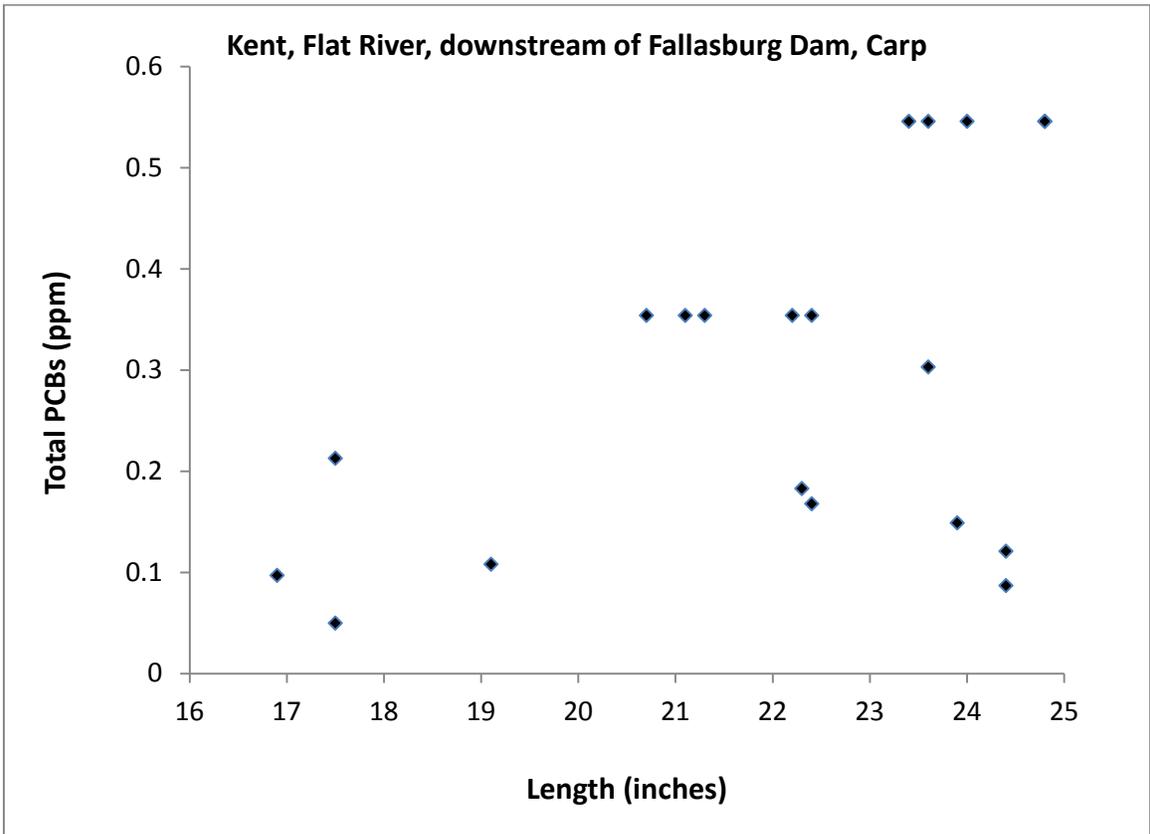
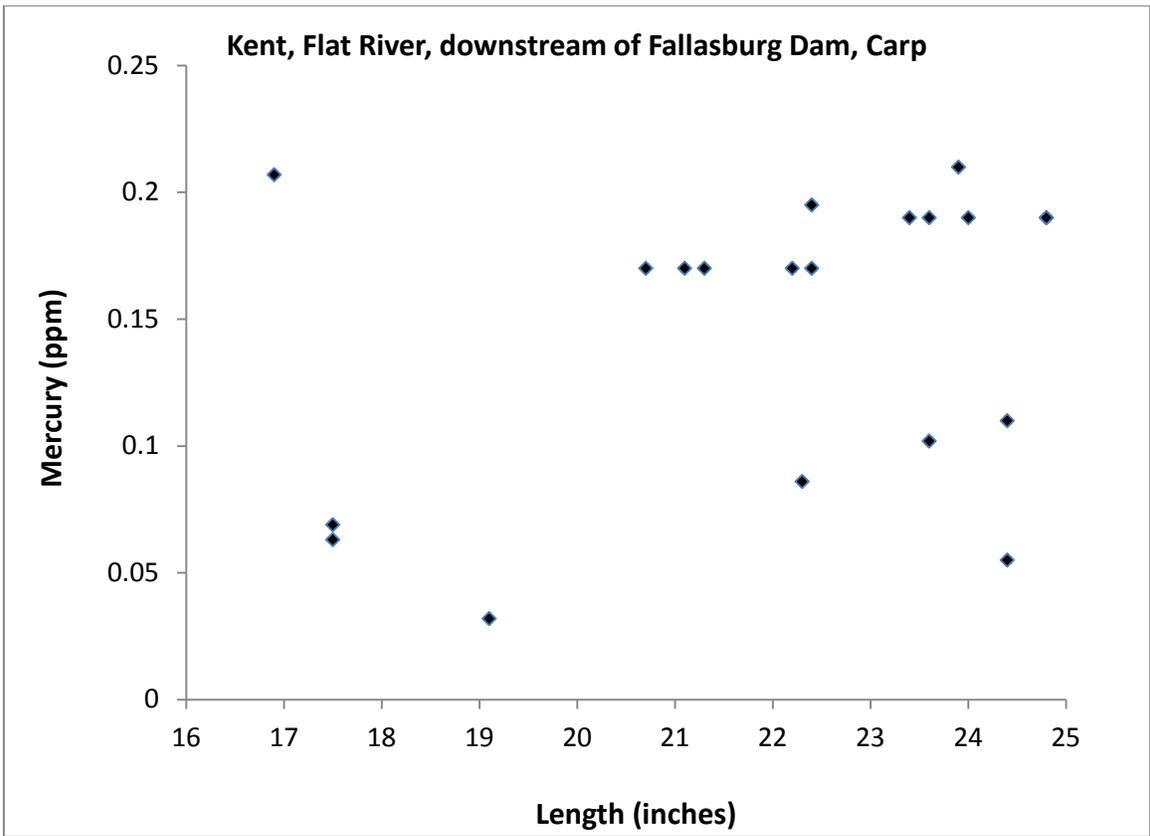
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	2008	20	16.9	na	16.9	24.8
Datasets available: 1998, 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	20	0.15	0.03	0.21	0.17	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.105	0.129				

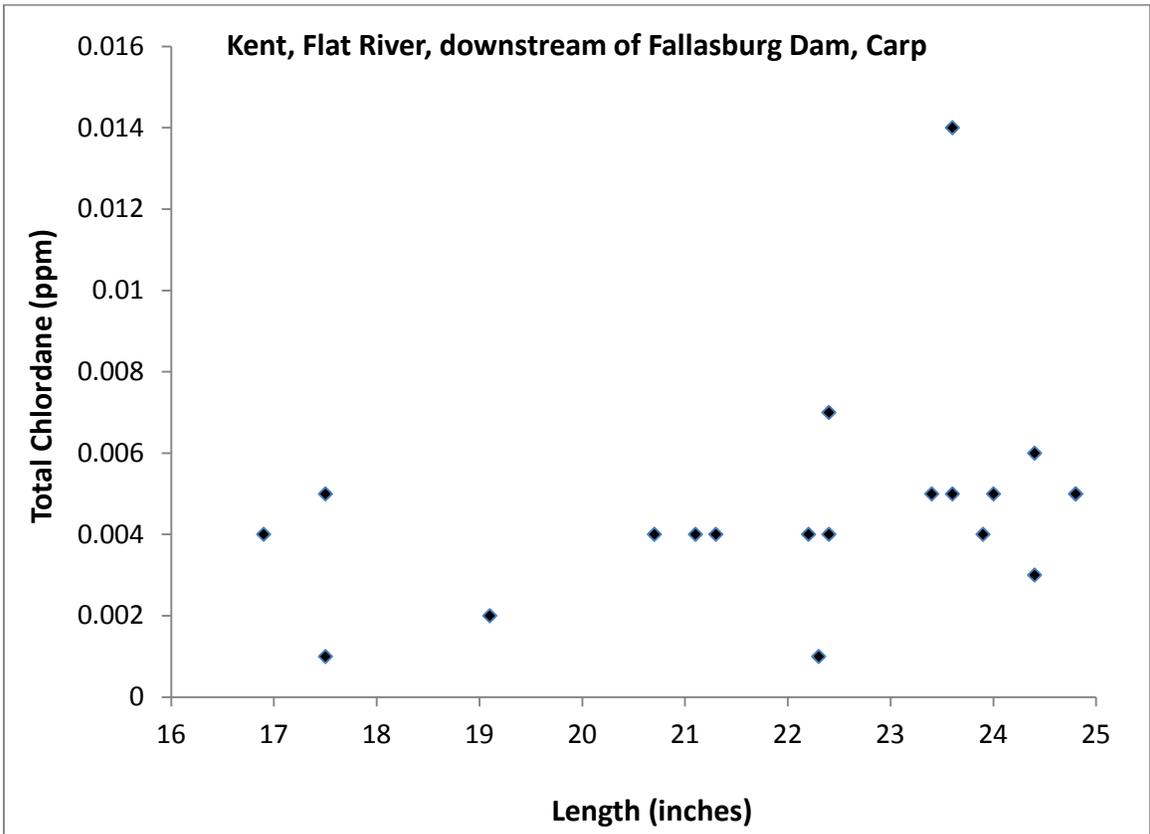
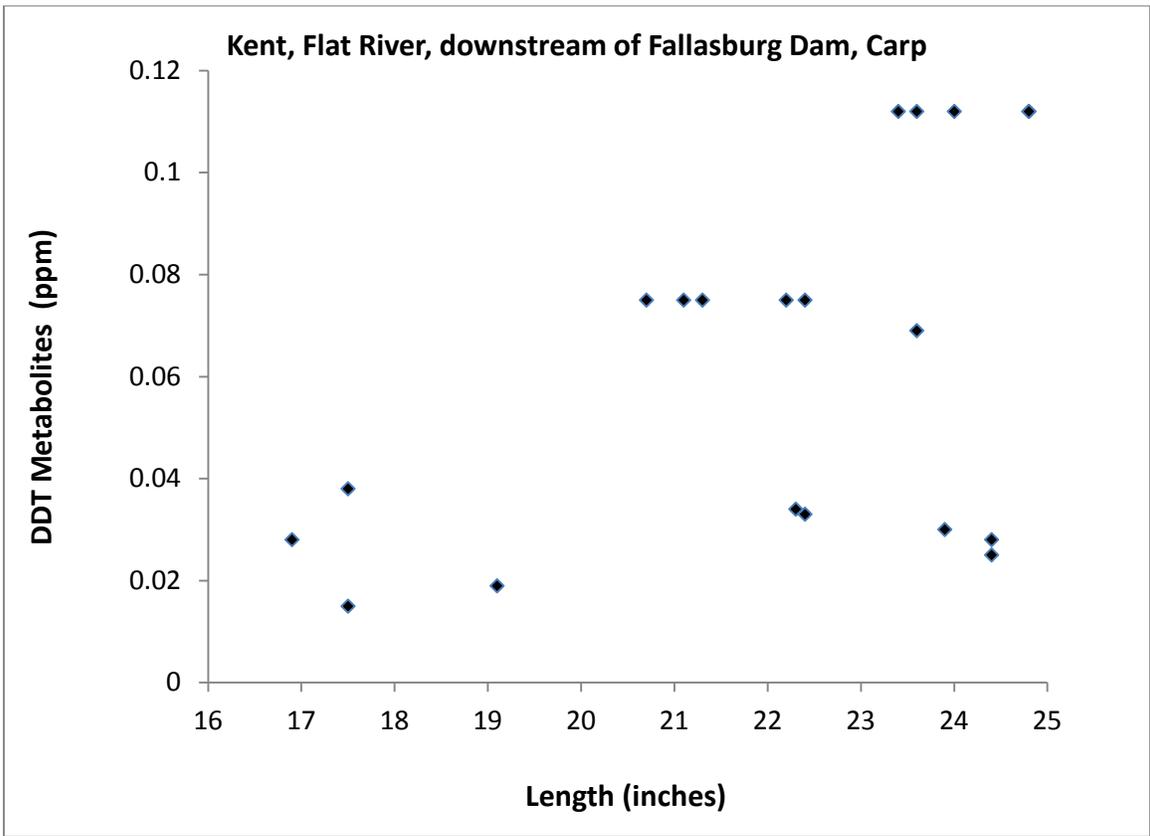
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2008	2008	10	16.9	na	16.9	24.4
Datasets available: 1998, 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.148	0.05	0.303	0.200	1
DDT	10	0.032	0.015	0.069	0.040	16
Chlordane	10	0.005	0.001	0.014	0.010	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.081	0.119				
DDT	0.111	0.148				
Chlordane	0.134	0.126				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Women and children should not eat more than one meal per month of Flat River carp due to PCBs.

**Recommendation:** No one should eat more than 1 meal per month of carp from the Flat River between the Fallasburg and Lowell Dams due to PCBs. Mercury would cause an advisory.





**Rock Bass**

**Flat River  
Between Fallasburg and Lowell Dams**

**Kent County**

**Hg Analysis:**

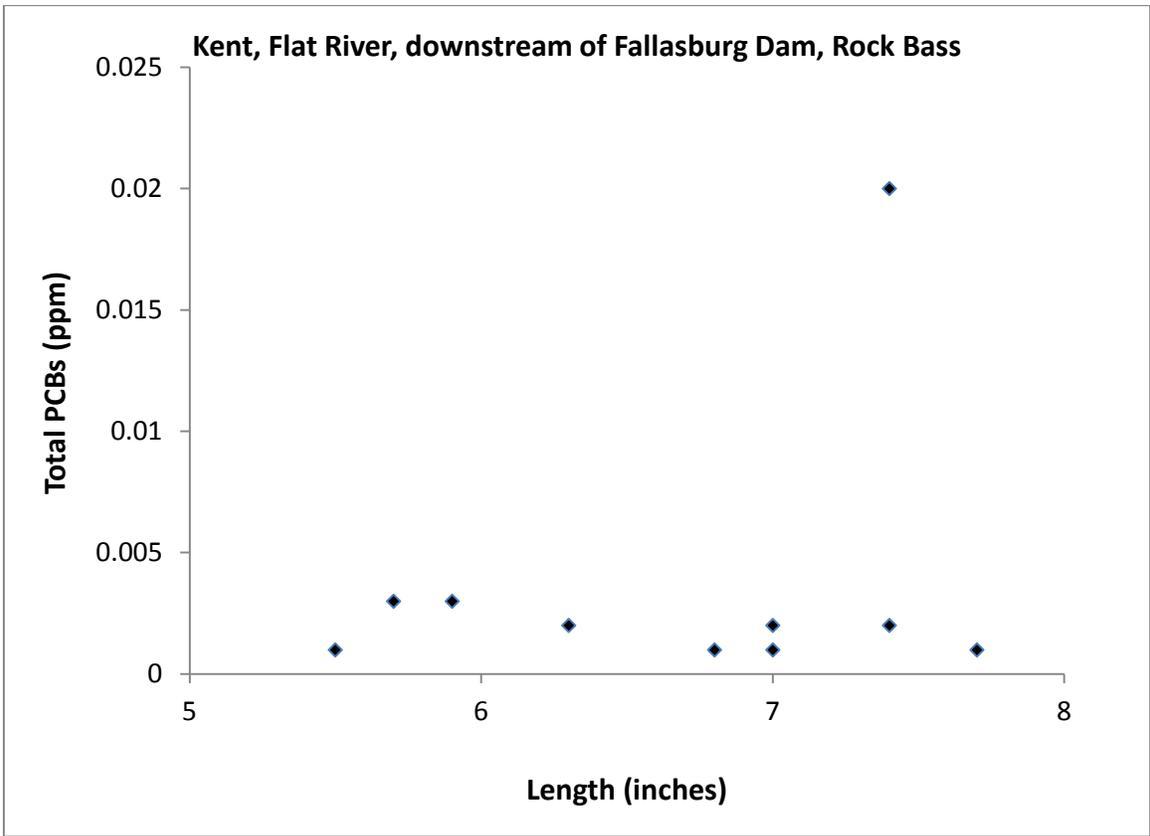
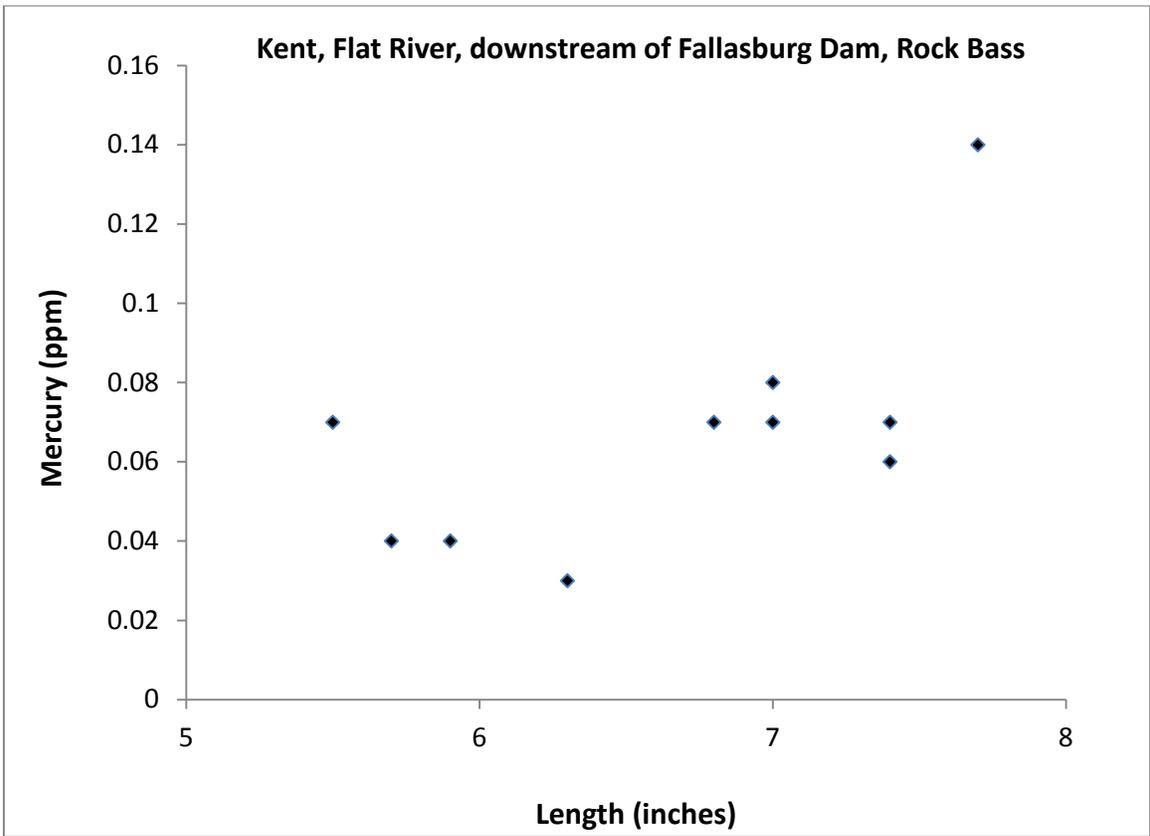
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2008	2008	10	5.5	na	5.5	7.7
Datasets available: 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.07	0.03	0.14	0.09	12
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.402	0.407				

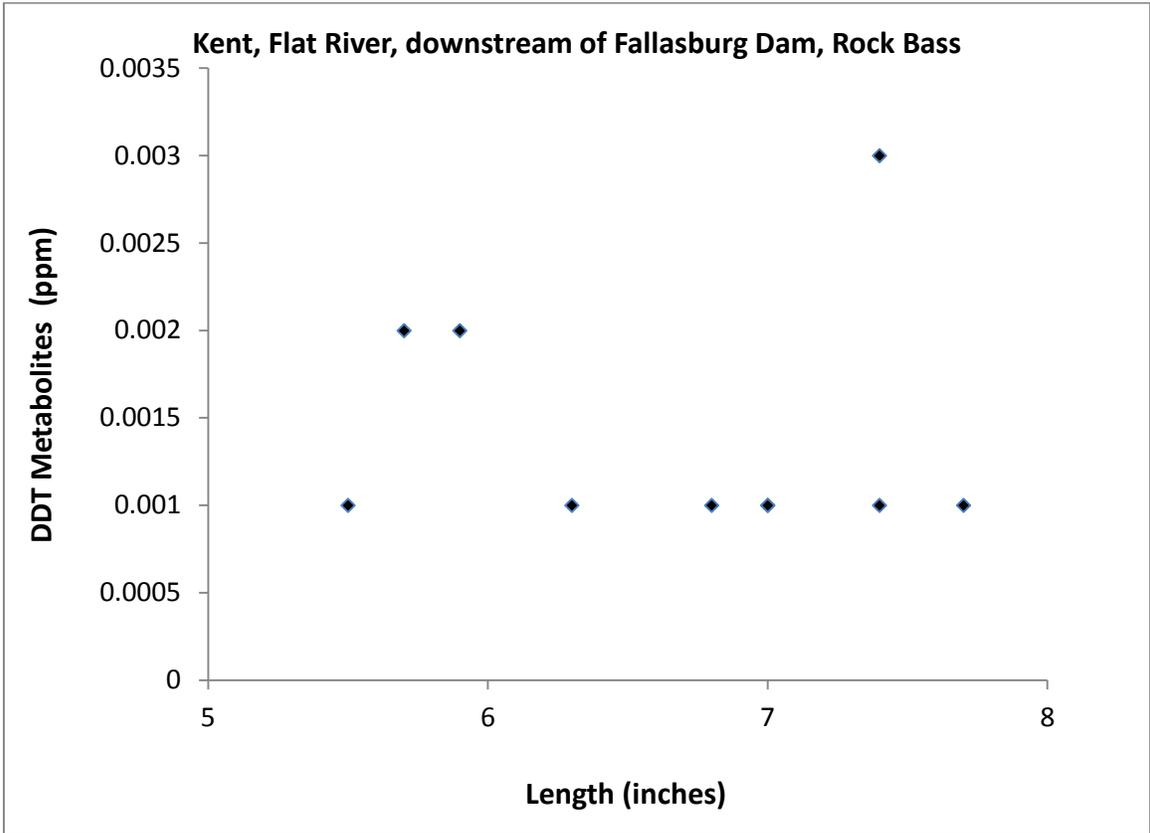
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2008	2008	10	5.5	na	5.5	7.7
Datasets available: 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.004	0.001	0.02	0.008	16
DDT	10	0.001	0.001	0.003	0.002	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.075	0.014				
DDT	0.003	0.020				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>12</b>

**Existing Advisory:** Women and children should not eat more than one meal per week of Flat River rock bass due to PCBs.

**Recommendation:** No one should eat more than 12 meals per month of rock bass from the Flat River between the Fallasburg and Lowell Dams due to mercury.





**White Sucker**

**Flat River  
Between Fallasburg and Lowell Dams**

**Kent County**

**Hg Analysis:**

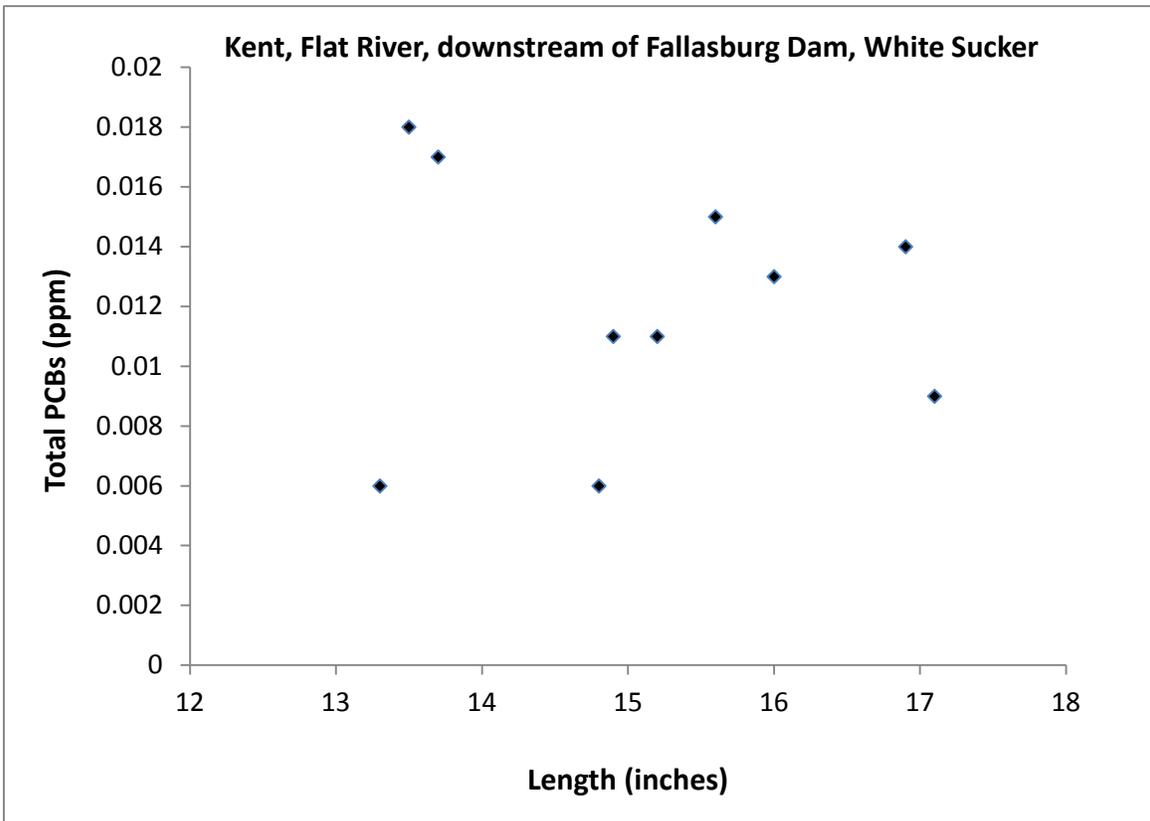
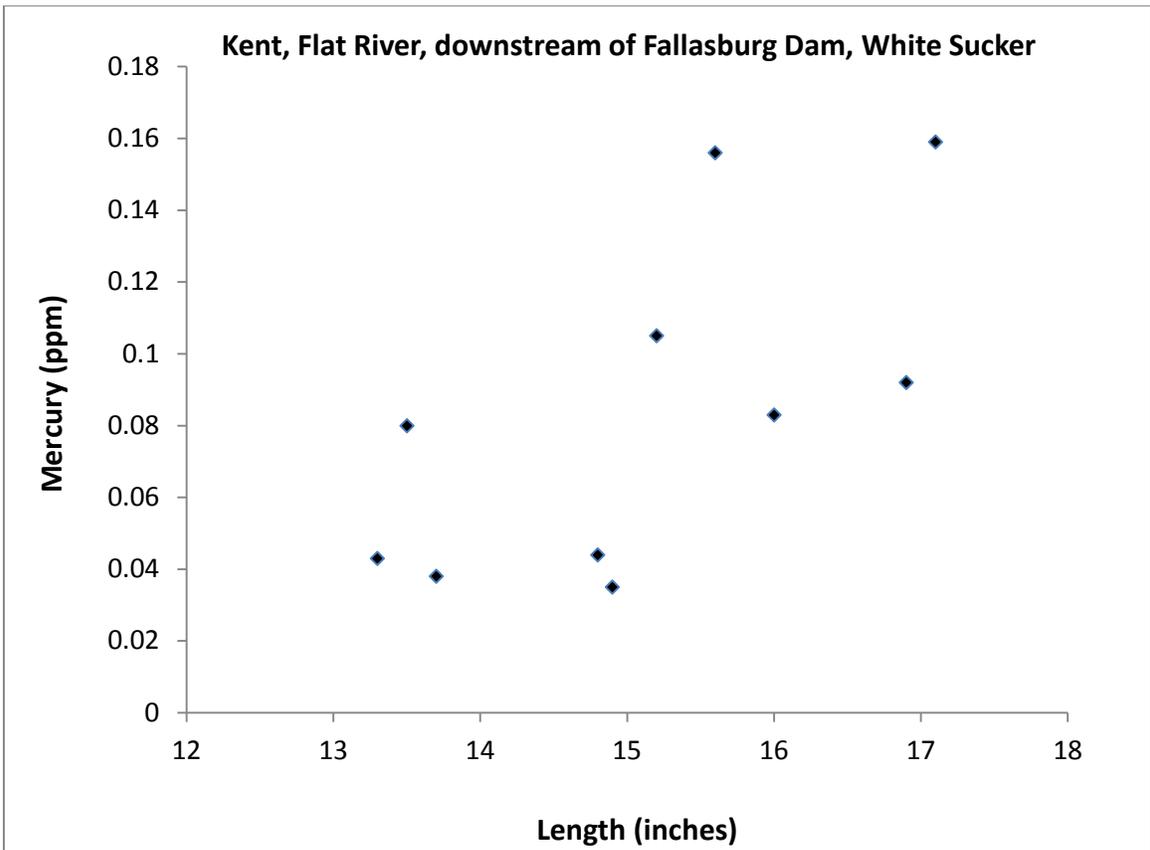
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2008	2008	10	13.3	na	13.3	17.1
Datasets available: 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.08	0.04	0.16	0.12	8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.437	0.436				

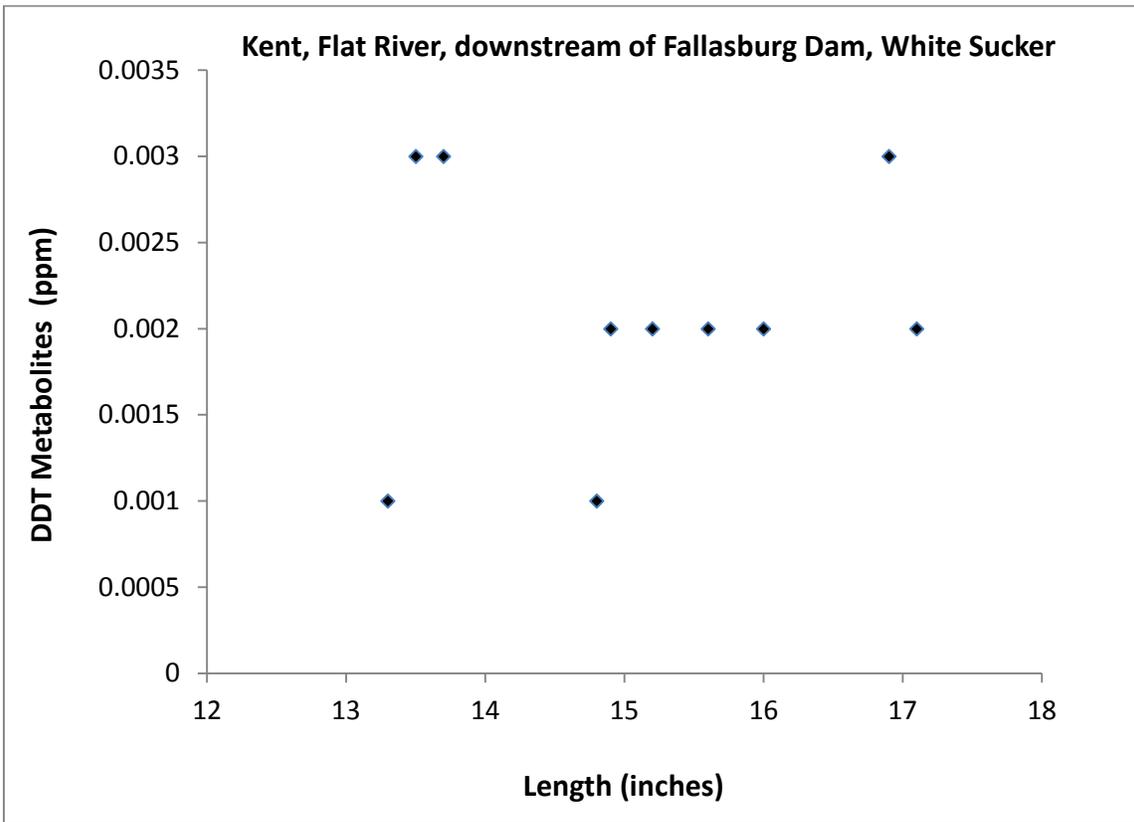
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2008	2008	10	13.3	na	13.3	17.1
Datasets available: 2008						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.08	0.006	0.02	0.02	12
DDT	10	0.01	0.001	0.003	0.003	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical						
	10	0.050				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.006	0.002				
DDT	0.010	0.040				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>8</b>

**Existing Advisory:** Women and children should not eat more than one meal per week of Flat River sucker larger than 14 inches due to PCBs.

**Recommendation:** No one should eat more than 8 meals per month of sucker from the Flat River between the Fallasburg and Lowell Dams due to mercury. PCBs would cause an advisory.





Grand River  
Clinton, Eaton, Ingham, Ionia, Jackson, Kent  
and Ottawa Counties

**Carp**

**Grand River  
Upstream of Smithville Dam**

**Ingham, Eaton &  
Jackson Counties**

**Hg Analysis:**

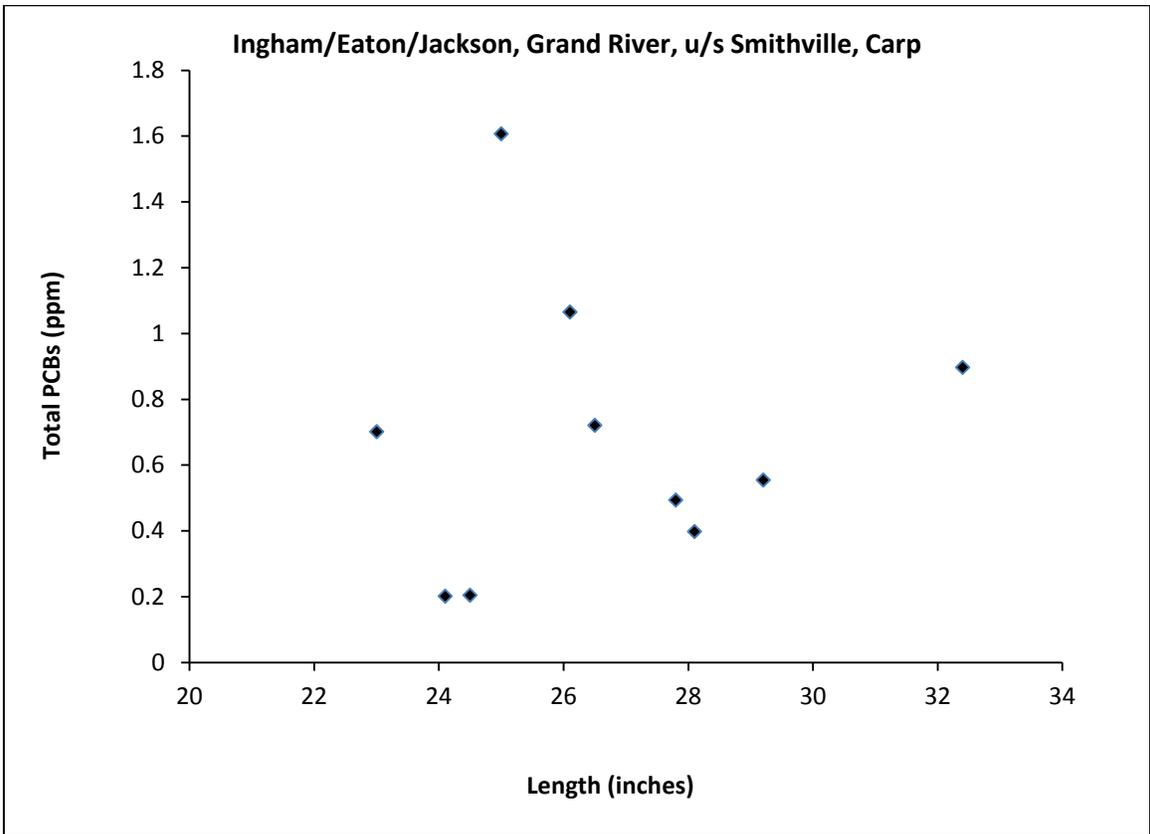
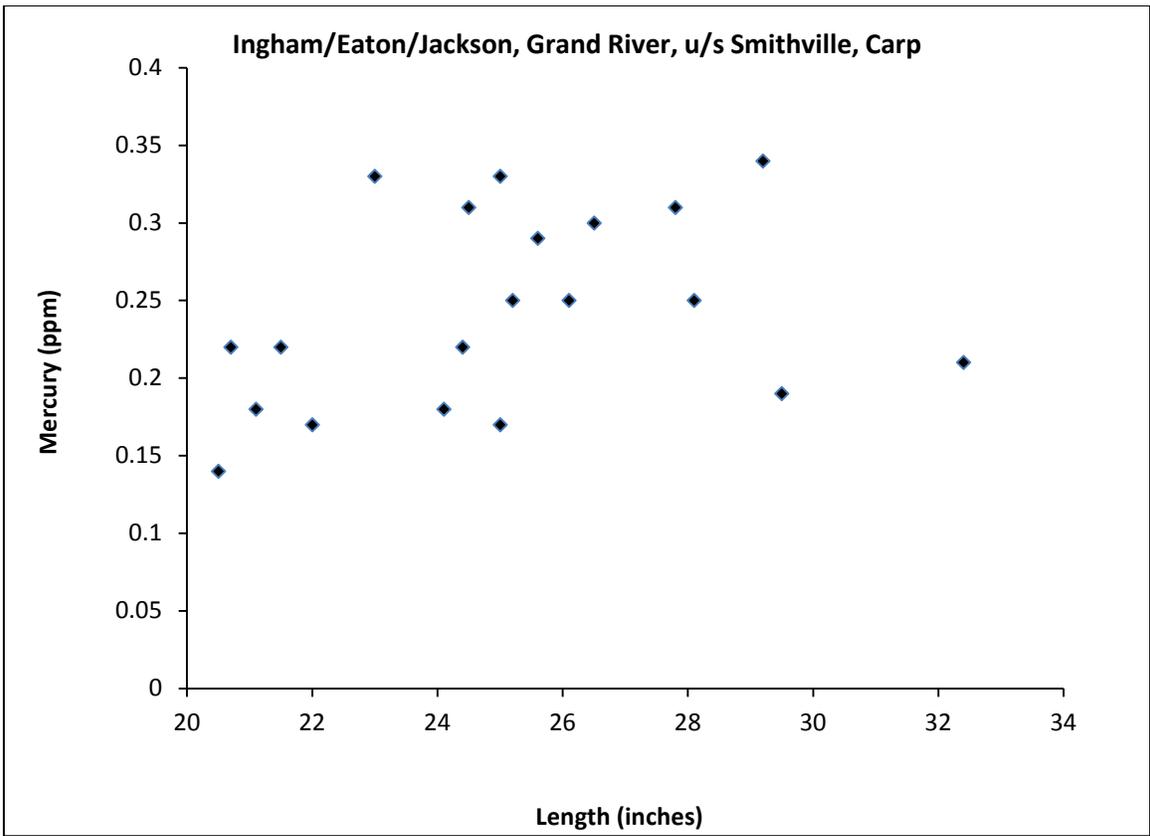
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	2001	20	20.5	na	20.5	32.4
Datasets available: 1990, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	20	0.24	0.14	0.34	0.27	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.105	0.122				

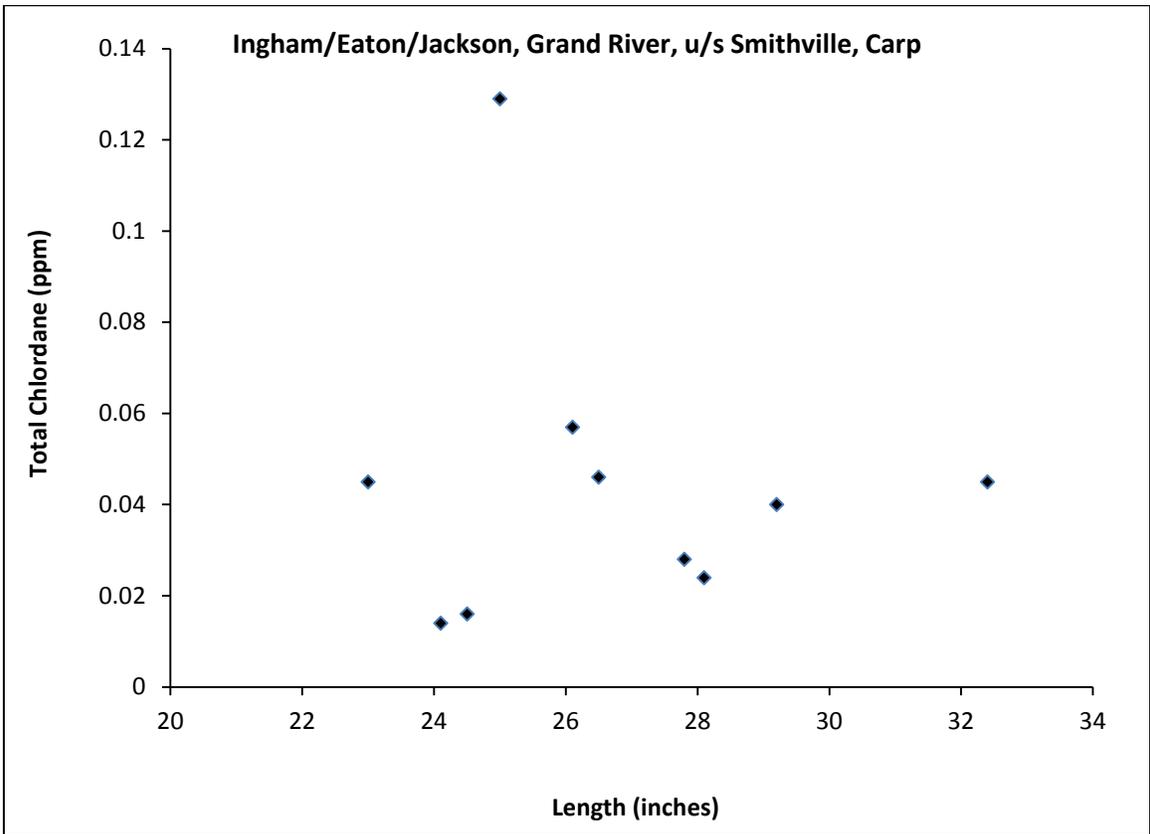
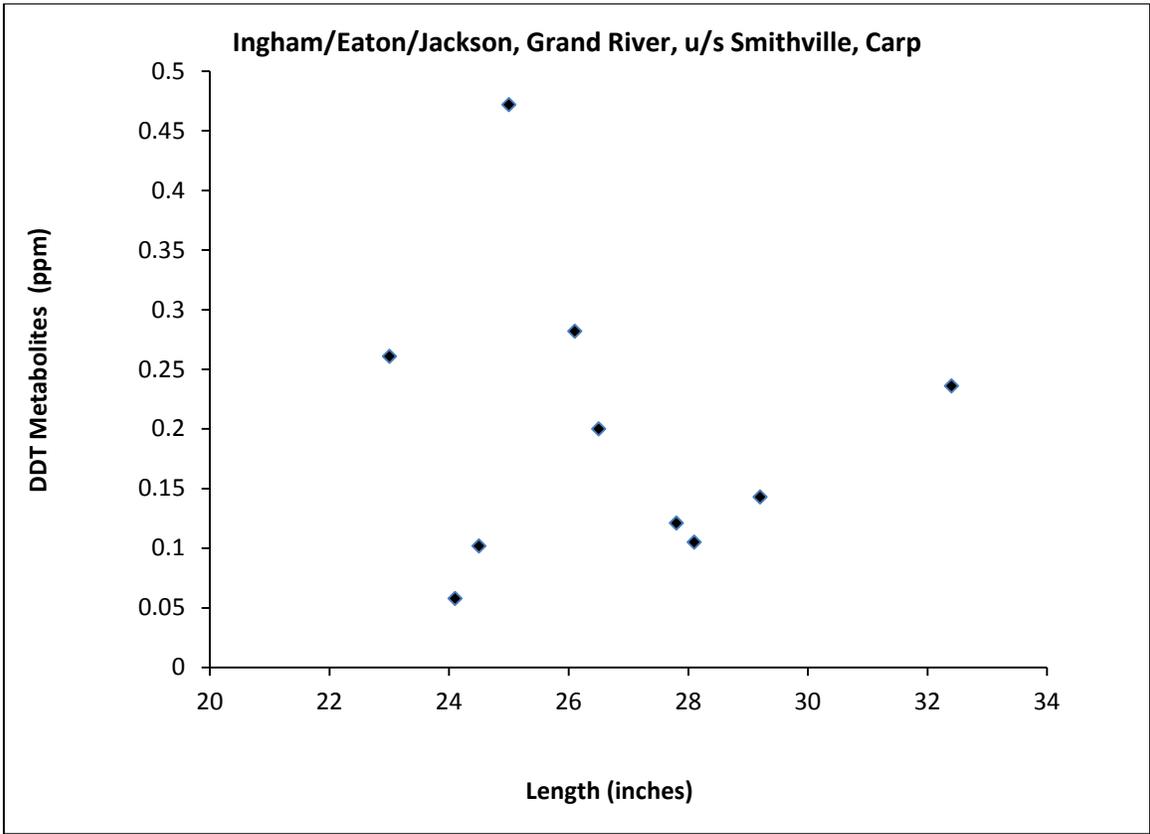
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	23.0	na	23.0	32.4
Datasets available: 1990, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.685	0.202	1.607	0.990	Limited
DDT	10	0.198	0.058	0.472	0.290	4
Chlordane	10	0.044	0.014	0.129	0.070	16
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.004	0.052				
DDT	0.010	0.002				
Chlordane	0.006	0.010				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>Limited</b>

**Existing Advisory:** Women and children should not eat more than 1 meal per month of Grand River carp due to PCBs.

**Recommendation:** Sensitive populations should not eat these fish. Healthy adults should limit consumption of carp from the Grand River upstream of the Smithville Dam to 1 or 2 meals per year due to PCBs. Mercury and DDT would cause advisories.





**Largemouth Bass**

**Grand River  
Upstream of Smithville Dam**

**Ingham, Eaton &  
Jackson Counties**

**Hg Analysis:**

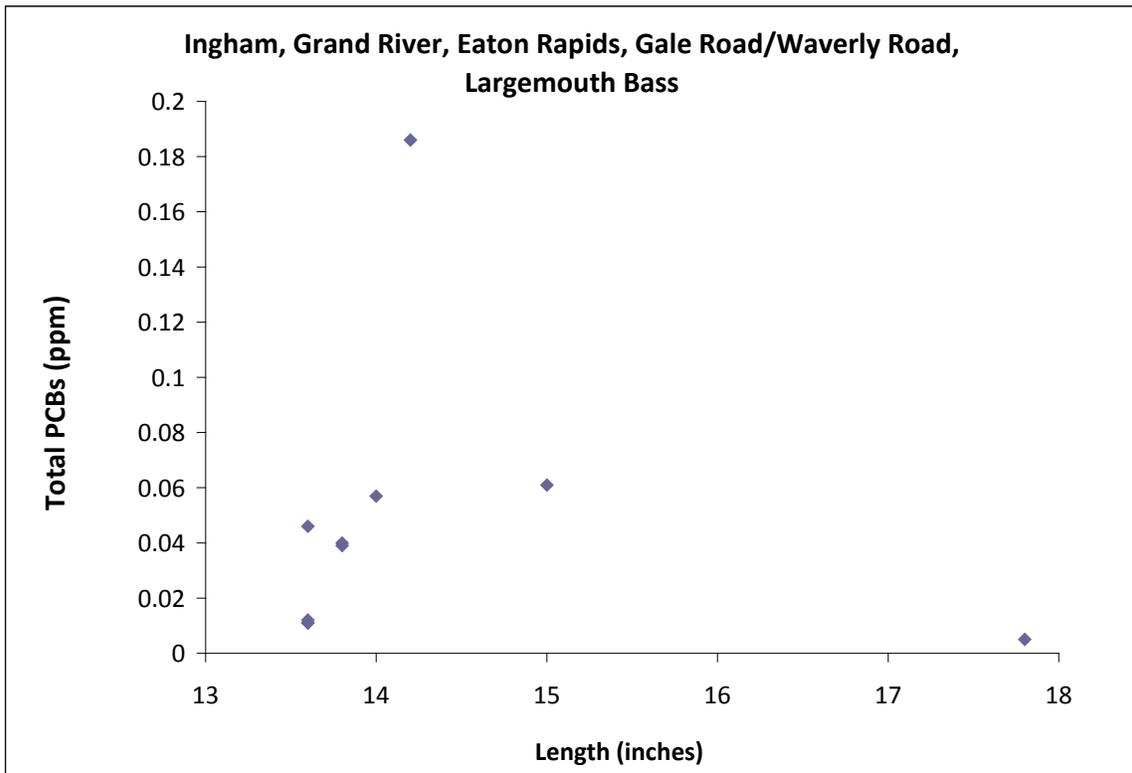
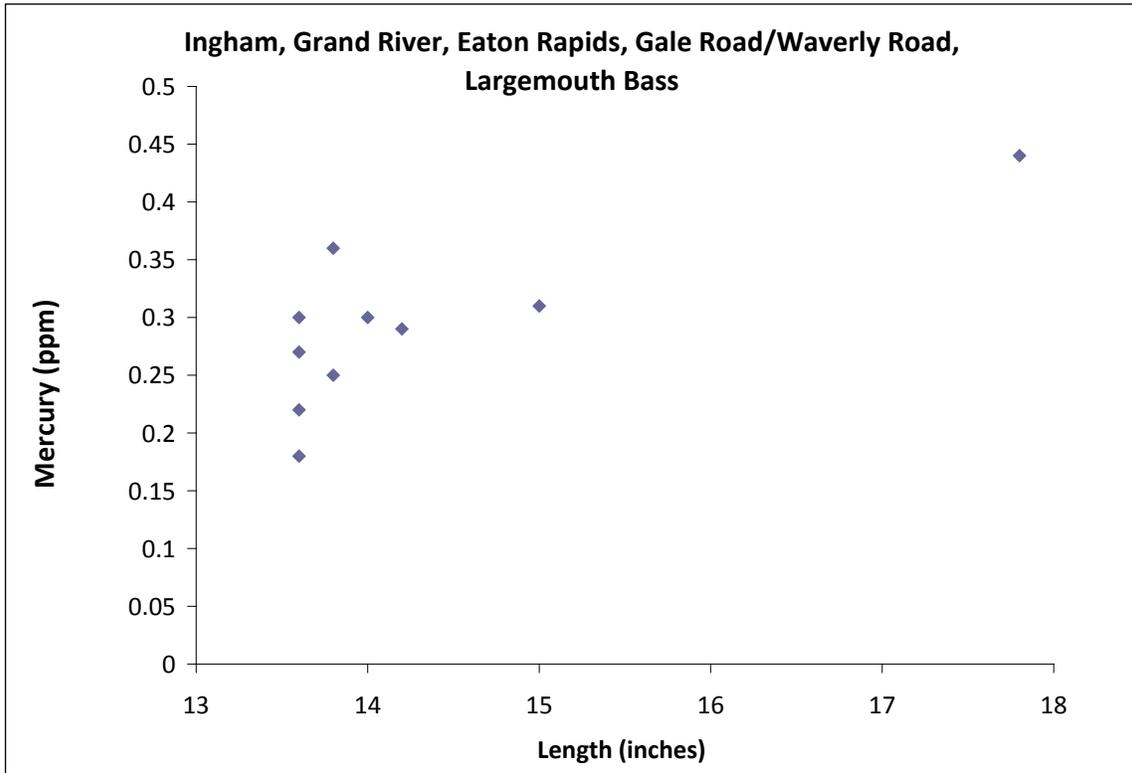
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	13.6	14	13.6	17.8
Datasets available: 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.292	0.180	0.440	0.340	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.595	0.479				

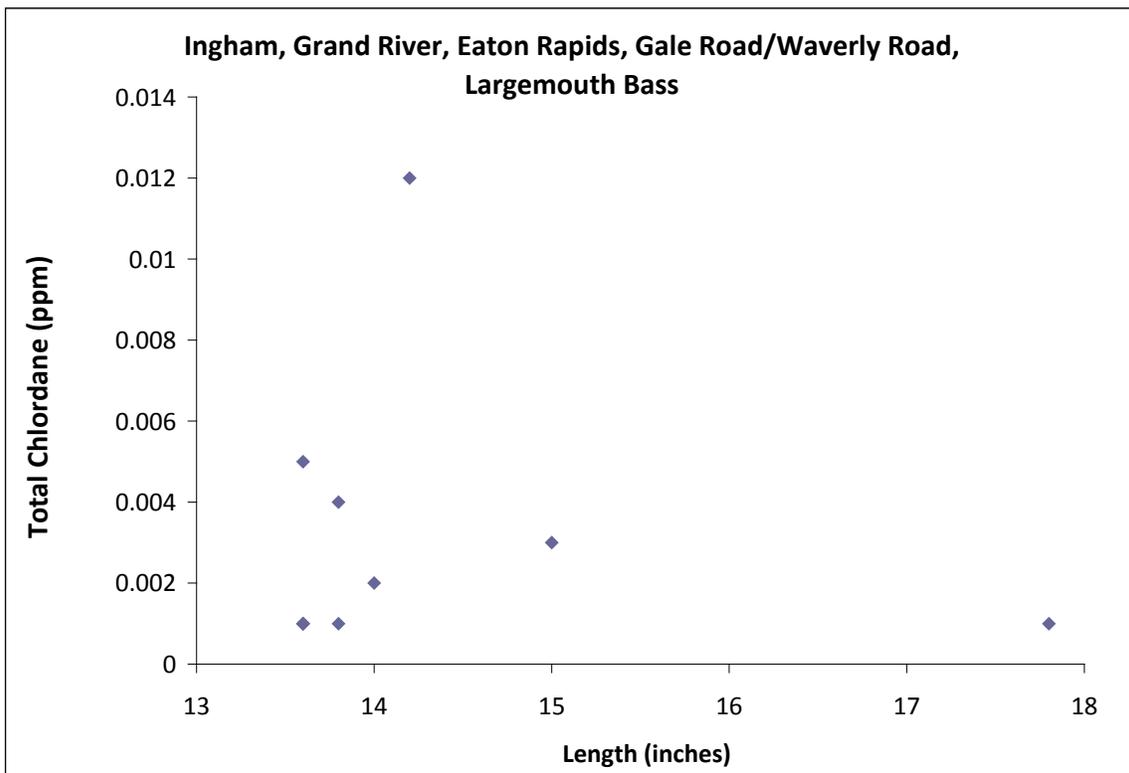
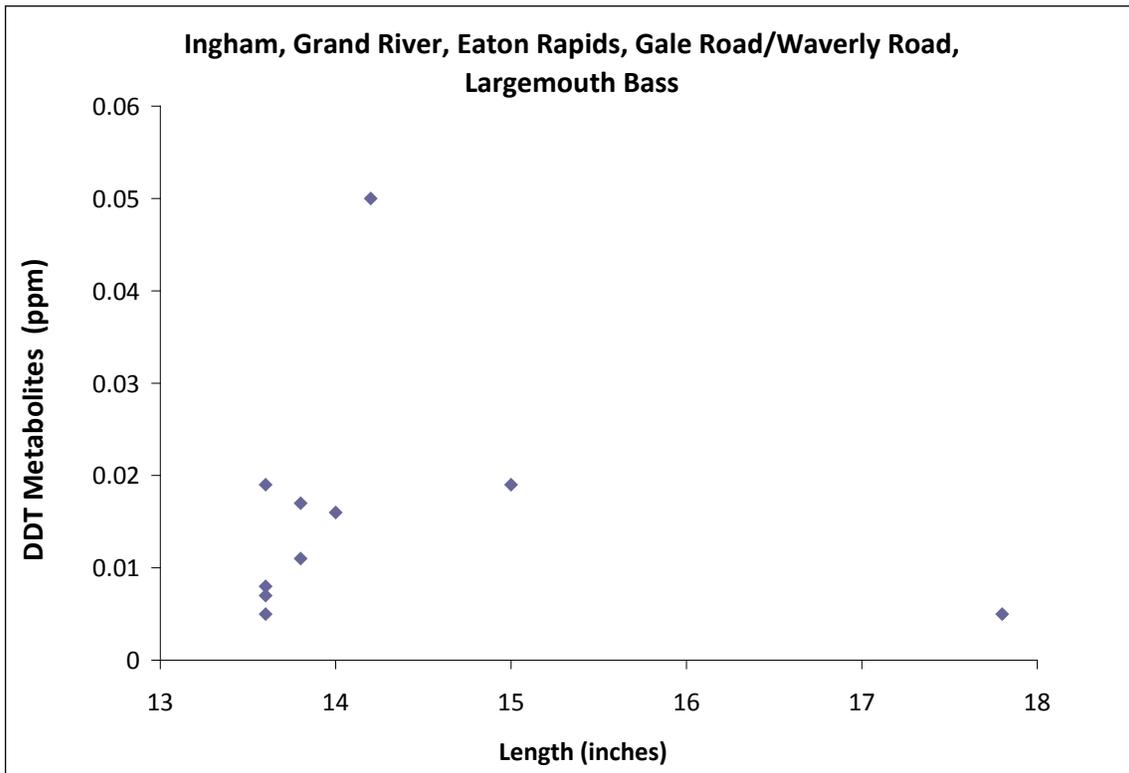
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	13.6	14	13.6	17.8
Datasets available: 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.047	0.011	0.186	0.080	2
DDT	10	0.016	0.005	0.019	0.030	16
Chlordane	10	0.003	0.001	0.012	0.010	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.013	0.135				
DDT	0.017	0.065				
Chlordane	0.011	0.021				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Grand River largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of legal size largemouth or smallmouth bass under 18 inches due to PCBs and mercury or more than 1 meal per month of largemouth or smallmouth bass over 18 inches due to mercury. Statewide length break applied as the size range of the collected fish was limited.





**Northern Pike**

**Grand River  
Upstream of Smithville Dam**

**Ingham, Eaton &  
Jackson Counties**

**Hg Analysis:**

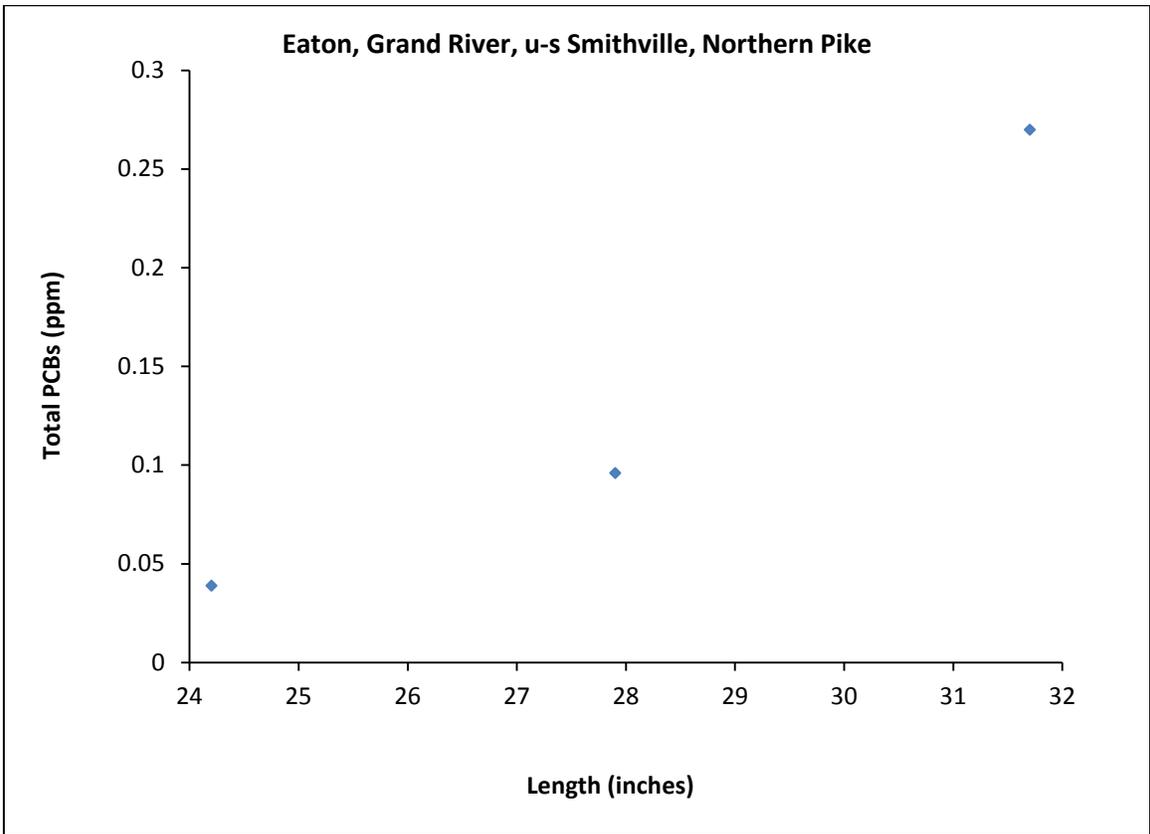
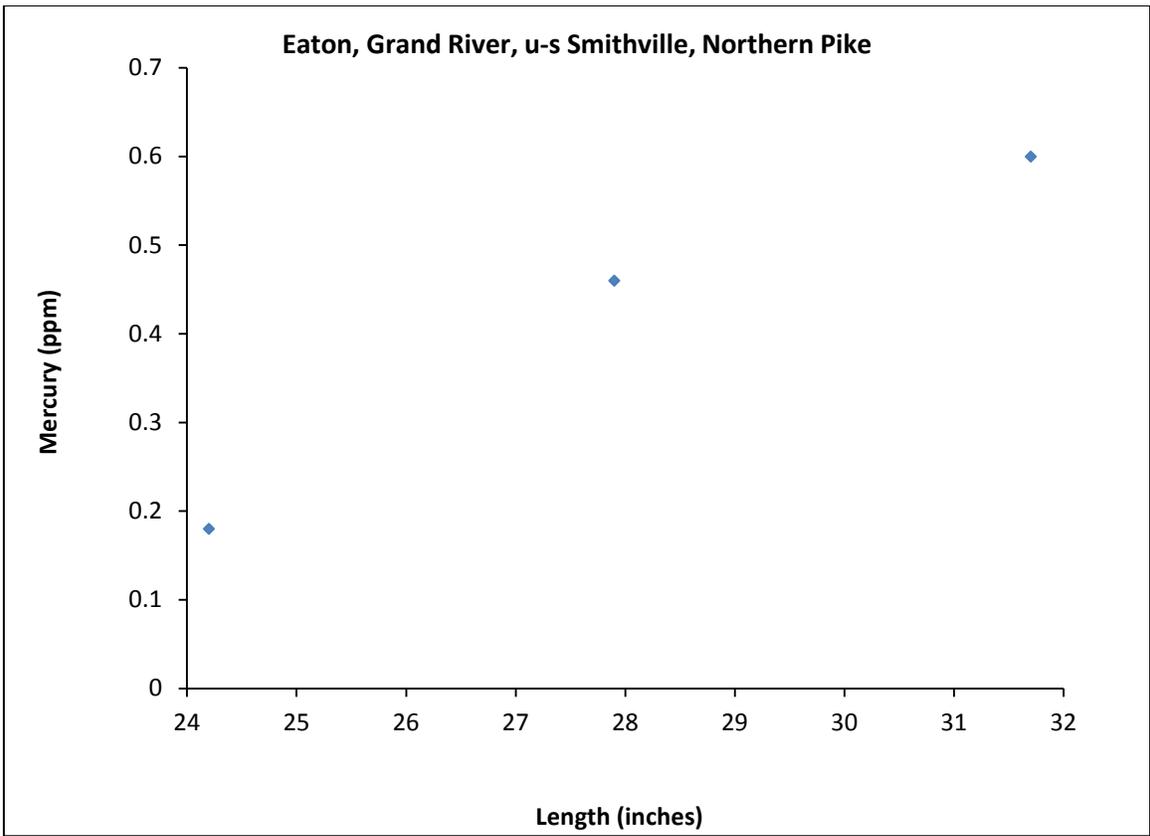
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2002	2004	3	24.2	24	24.2	31.7
Datasets available: 2002, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	3	0.41	0.18	0.60	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

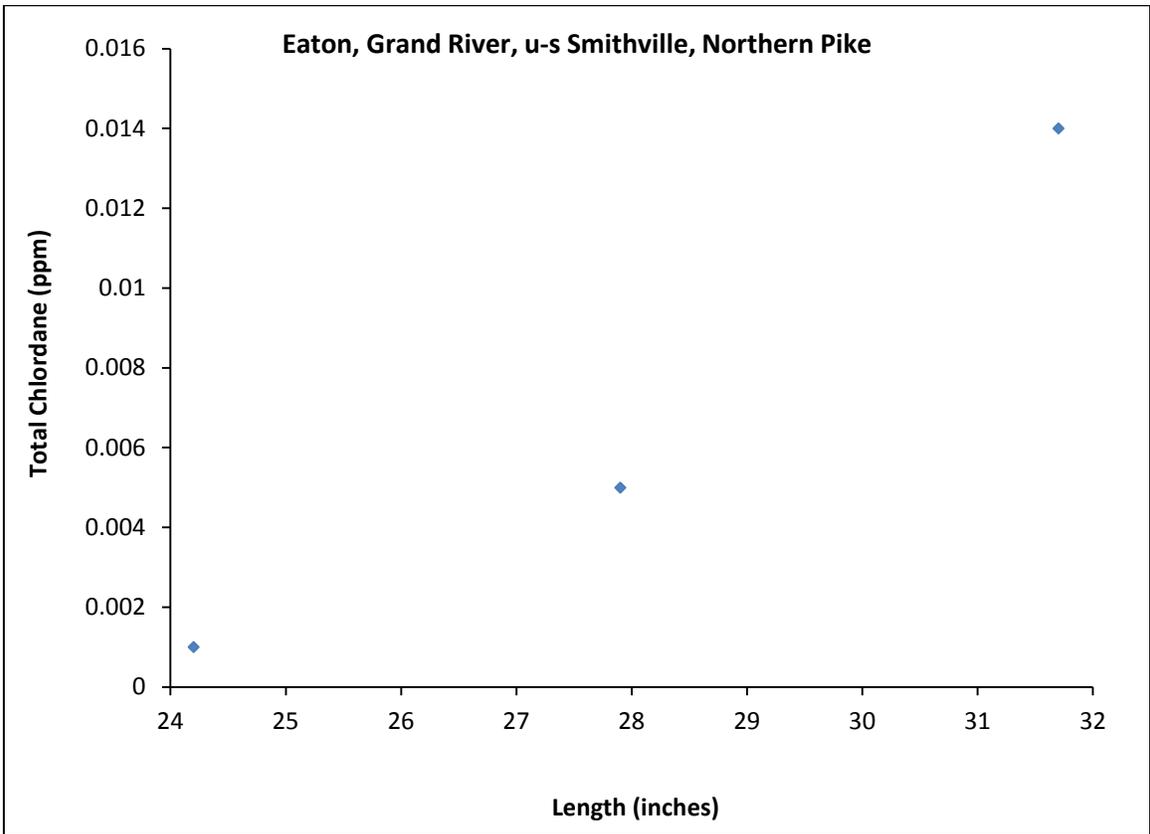
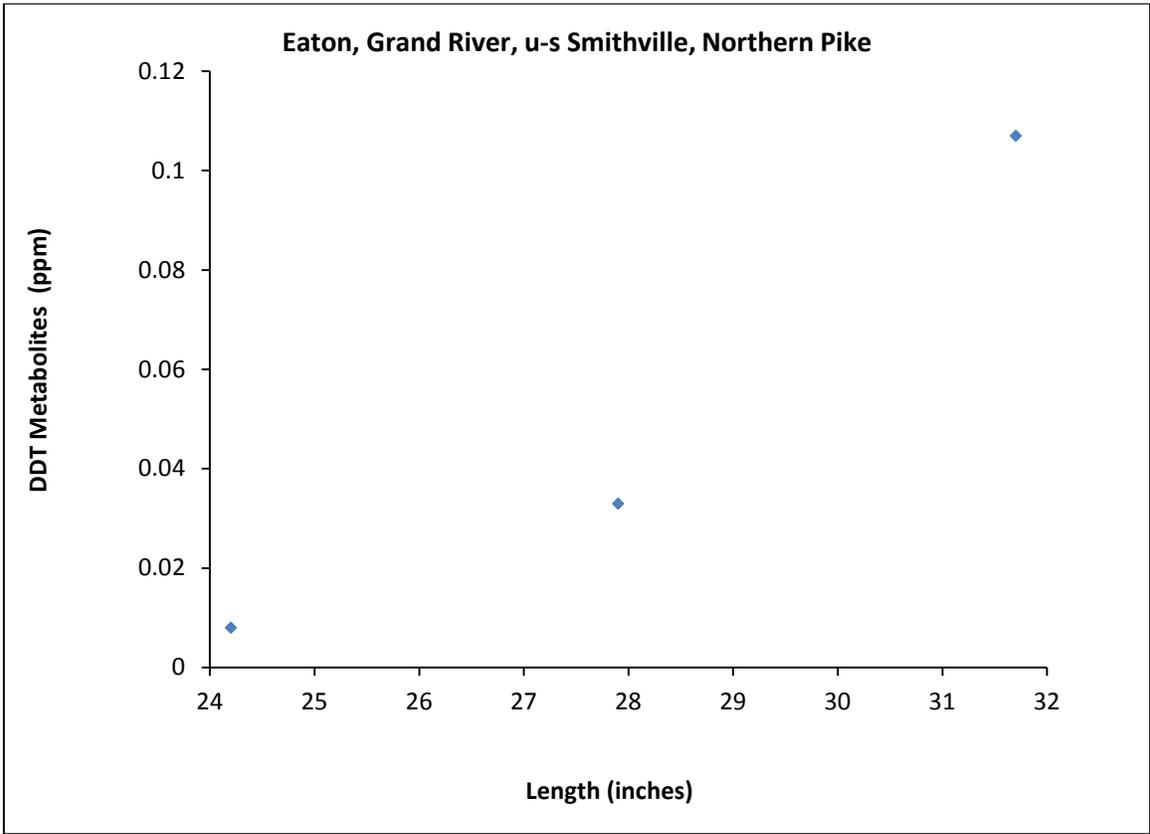
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2002	2004	3	24.2	24	24.2	31.7
Datasets available: 2002, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	3	0.13	0.04	0.27	--	--
DDT	3	0.05	0.008	0.11	--	--
Chlordane	3	0.007	0.001	0.01	--	--
Toxaphene	3	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Women and children should not eat more than one meal per week of Grand River northern pike due to PCBs.

**Recommendation:** There are insufficient data available to develop specific advice for northern pike from this reach of the Grand River. The statewide consumption advice recommends that no one eat more than 1 meal per month of northern pike over 30 inches or more than 2 meals per month of northern pike under 30 inches in length.





**Walleye**

**Grand River  
Upstream of Smithville Dam**

**Ingham, Eaton  
& Jackson Counties**

**Hg Analysis:**

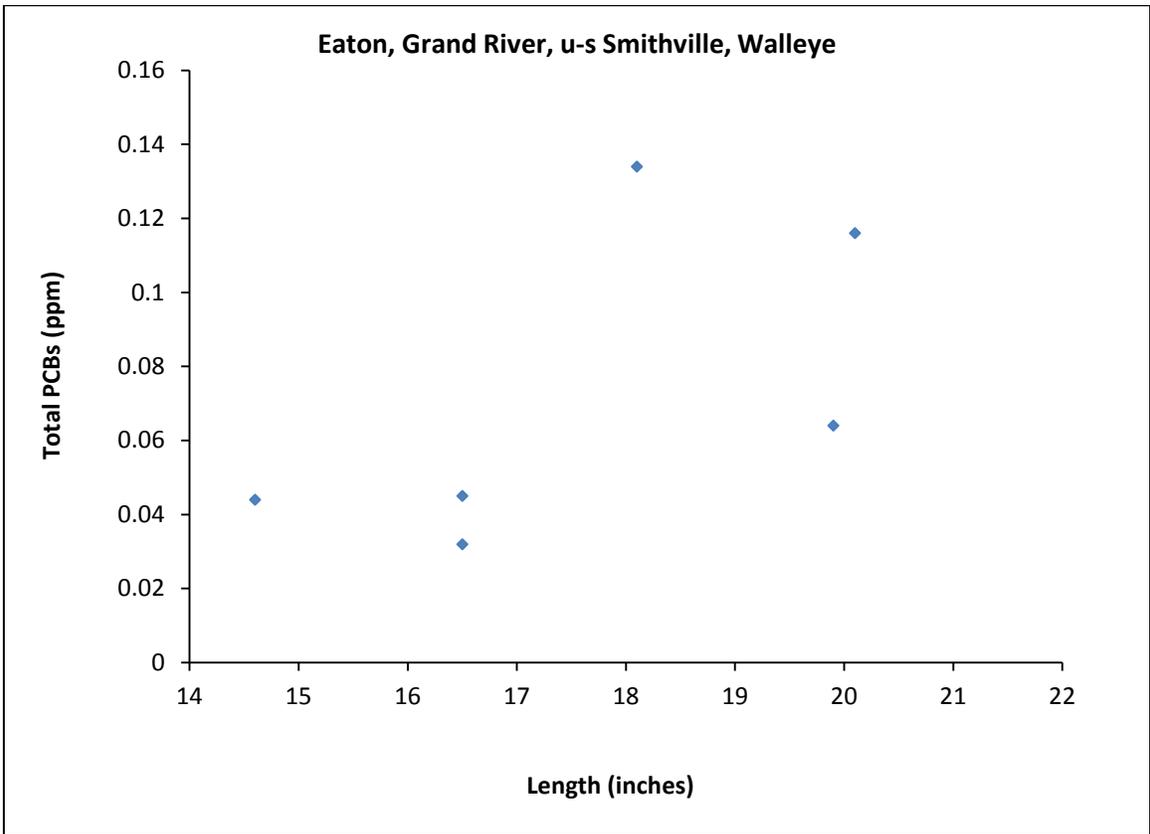
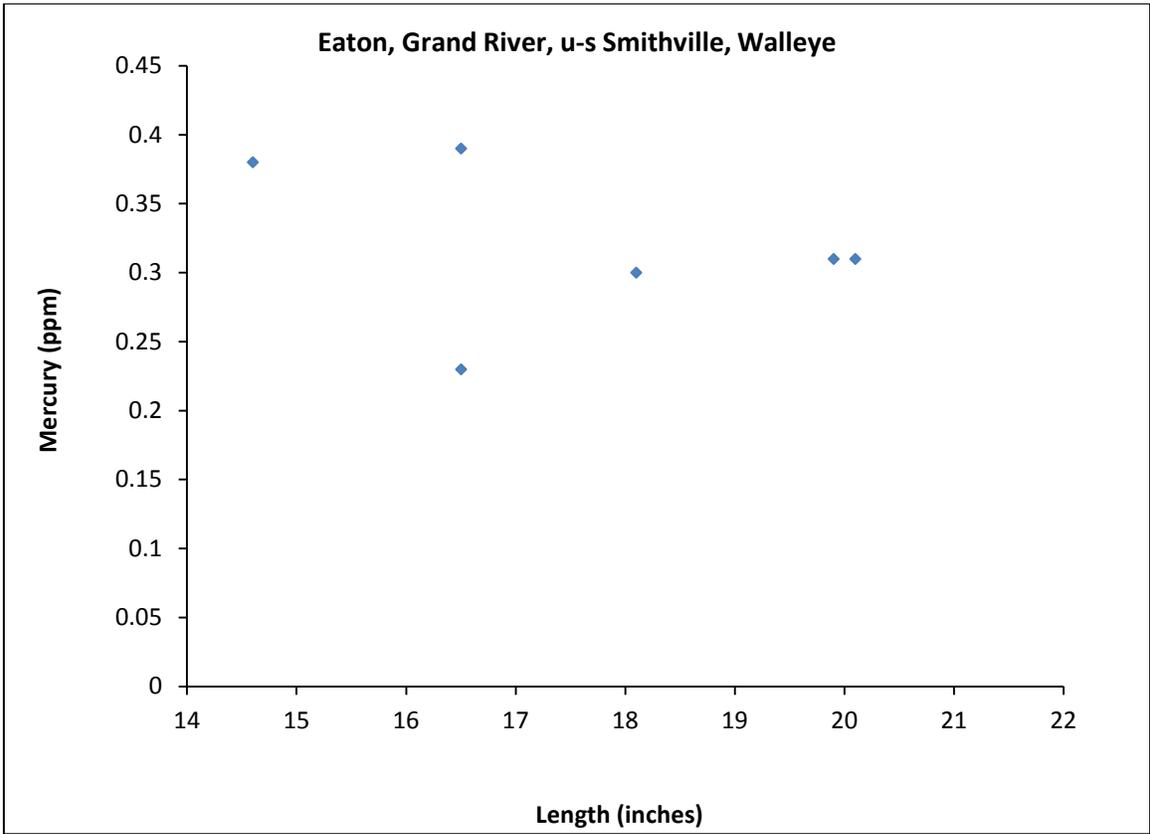
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	2001	6	14.6	15	14.6	20.1
Datasets available: 1990, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	6	0.32	0.23	0.39	0.38	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.117	0.072				

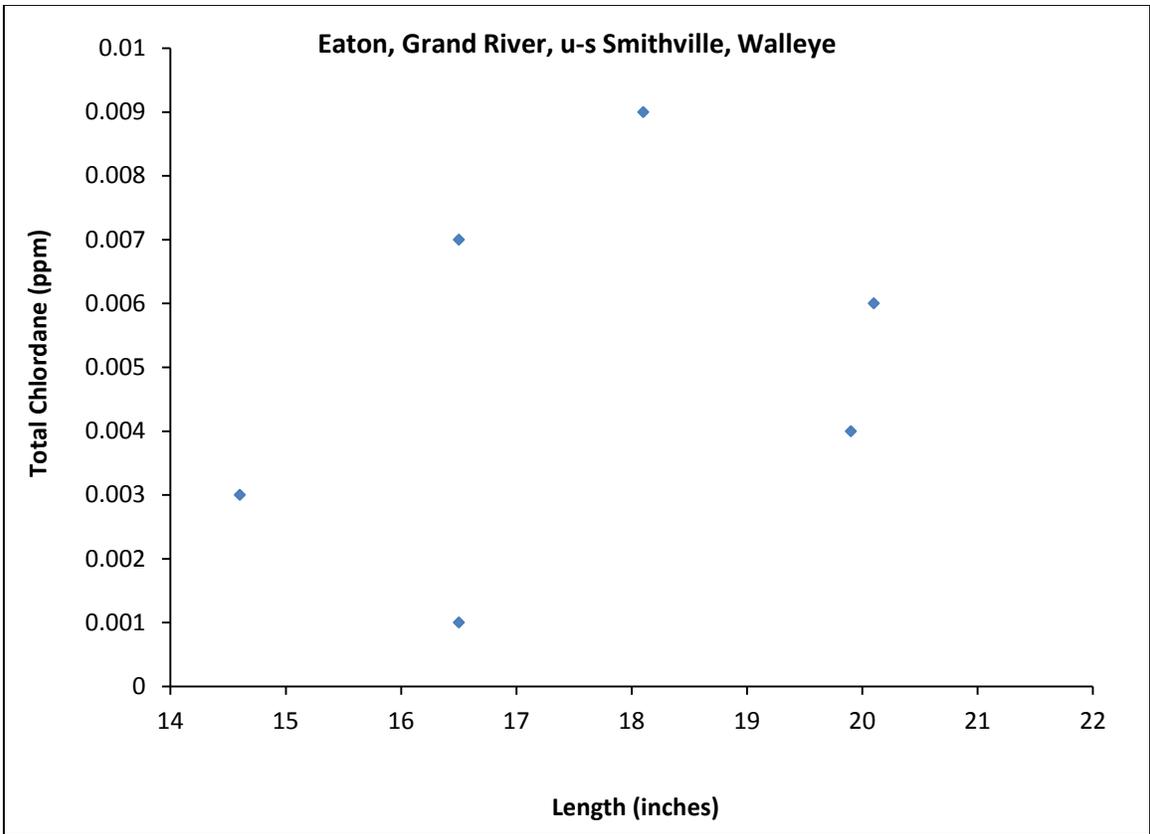
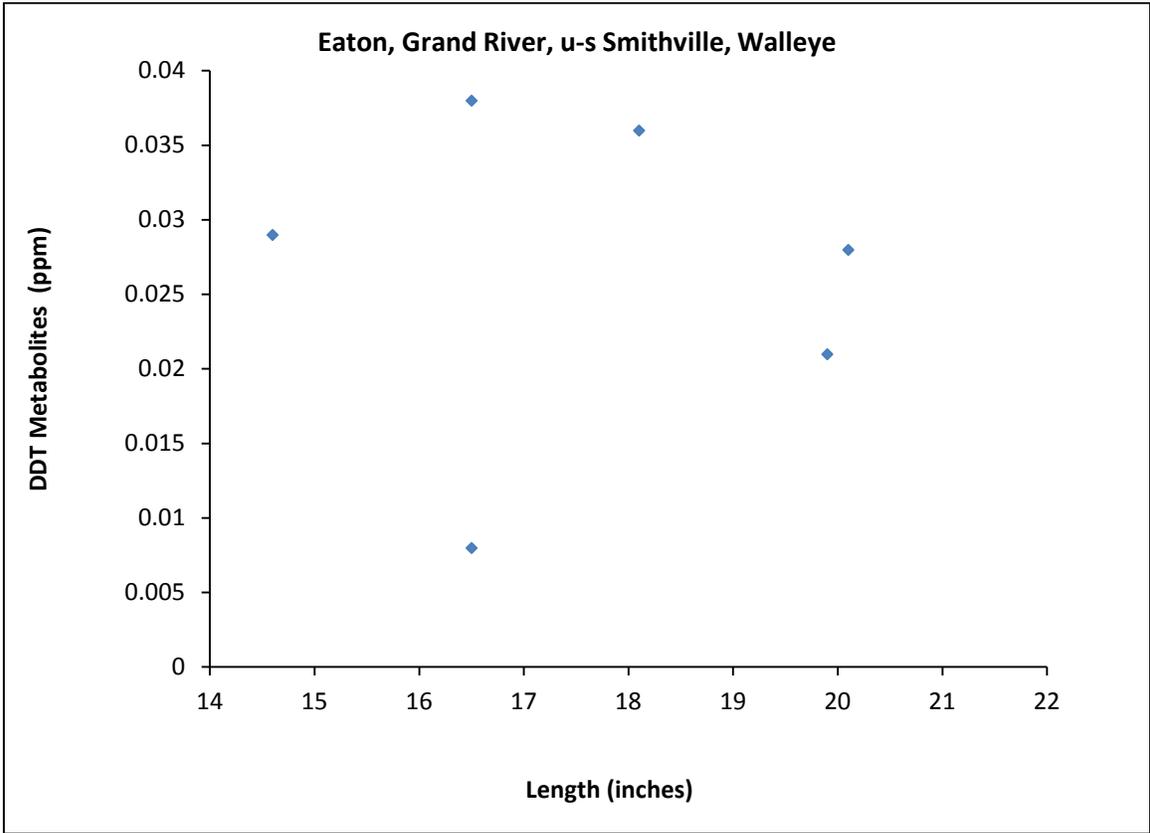
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	2001	6	14.6	15	14.6	20.1
Datasets available: 1990, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	6	0.07	0.03	0.13	0.12	1
DDT	6	0.03	0.008	0.04	0.04	16
Chlordane	6	0.005	0.001	0.009	0.01	--
Toxaphene	6	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.378	0.448				
DDT	0.001	0.005				
Chlordane	0.111	0.140				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Women and children should eat no more than one meal per week of walleye from the Grand River upstream of Webber Dam (Ionia County).

**Recommendation:** No one should eat more than 1 meal per month of walleye less than 20 inches due to PCBs or more than 1 meal per month of those walleye greater than 20 inches from the Grand River upstream of the Smithville Dam due to mercury and PCBs. Mercury would cause an advisory.





**White Sucker**

**Grand River  
Upstream of Smithville Dam**

**Ingham, Eaton &  
Jackson Counties**

**Hg Analysis:**

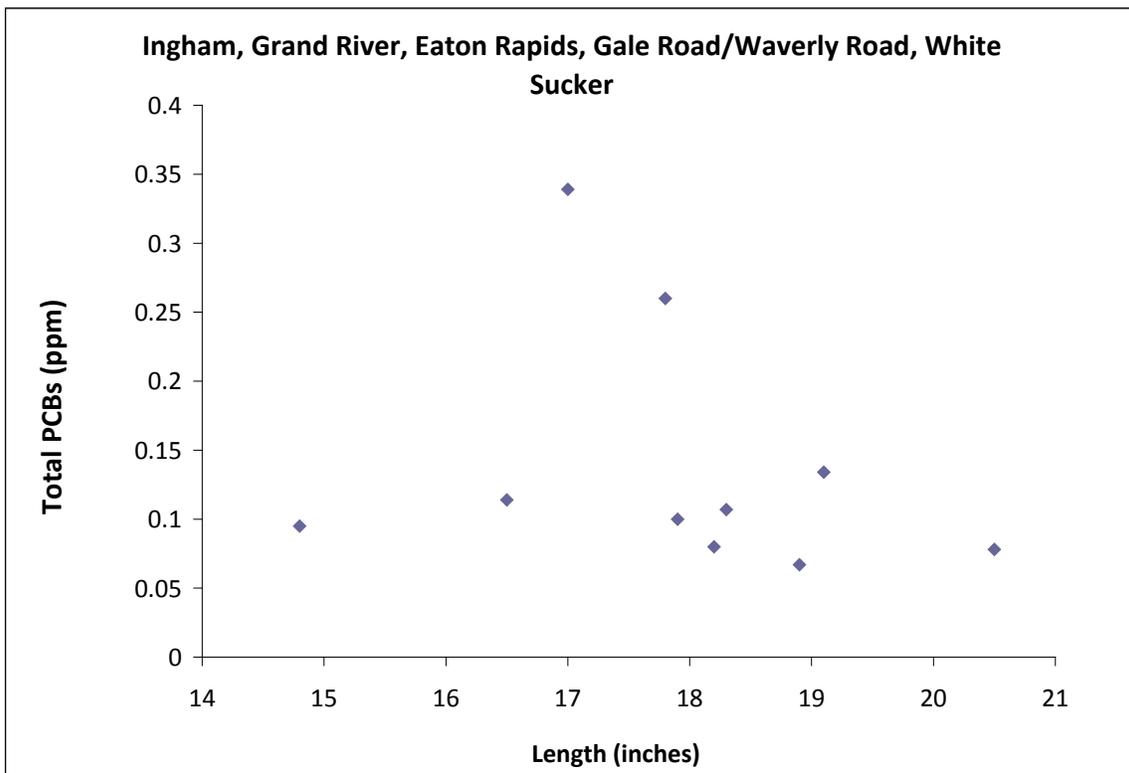
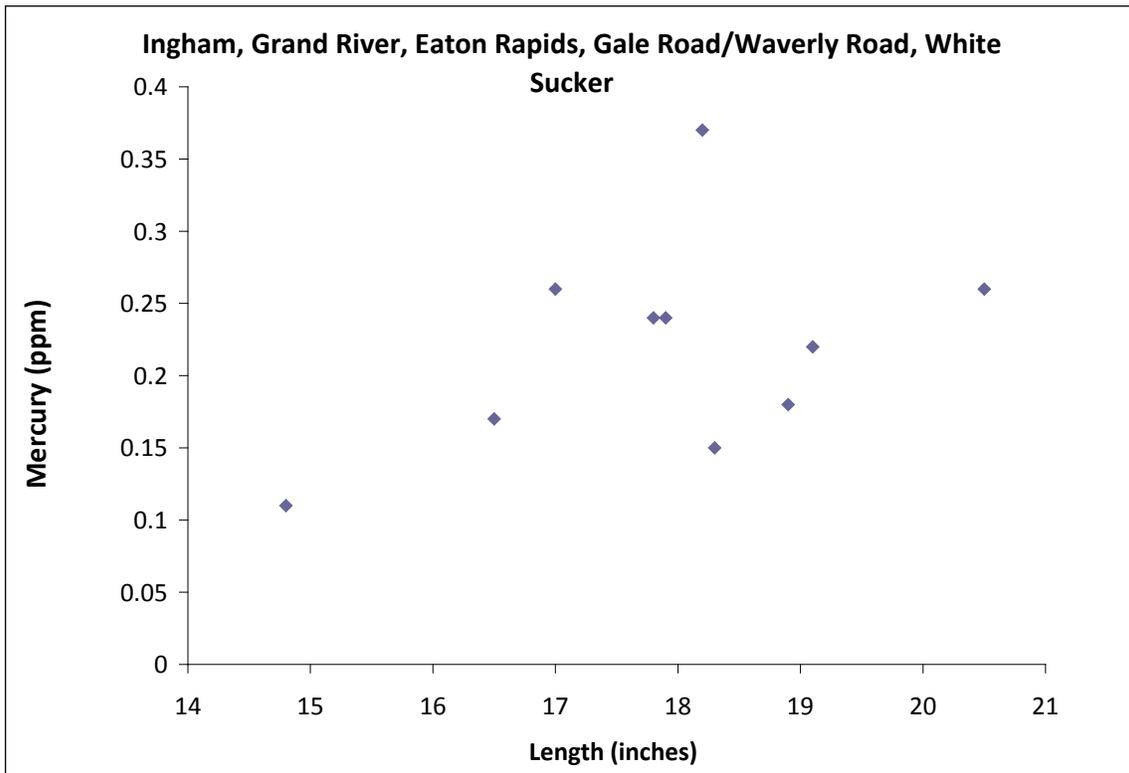
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	14.8	na	14.8	20.5
Datasets available: 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.22	0.11	0.37	0.27	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.198	0.292				

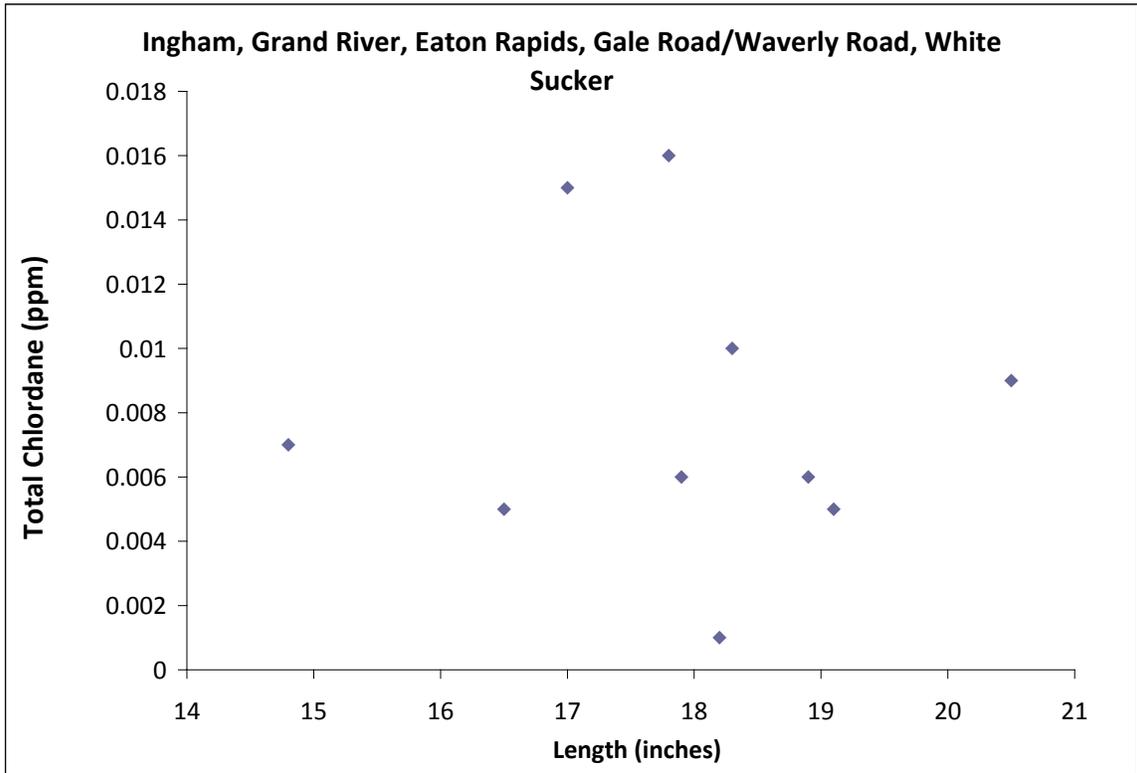
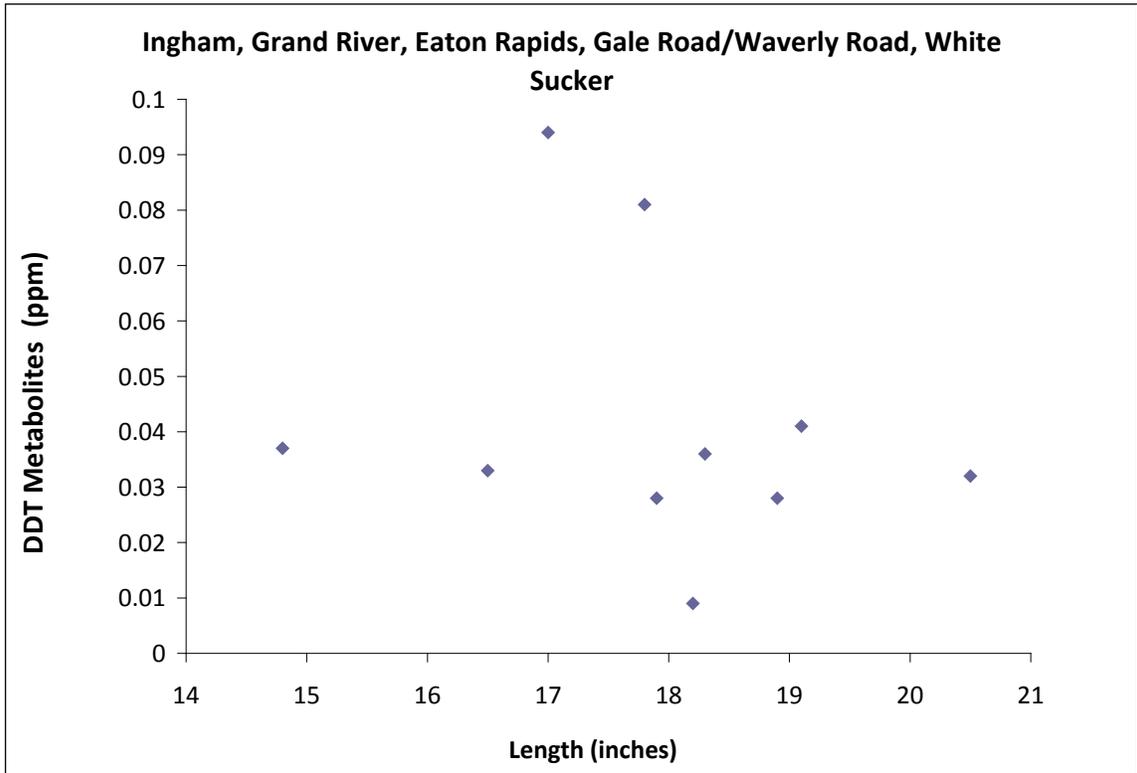
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2001	2001	10	14.8	na	14.8	20.5
Datasets available: 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.137	0.067	0.339	0.200	1
DDT	10	0.042	0.009	0.094	0.060	16
Chlordane	10	0.008	0.001	0.016	0.010	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.053	0.070				
DDT	0.045	0.037				
Chlordane	0.004	0.003				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Women and children should eat no more than one meal per month of Grand River white sucker due to PCBs.

**Recommendation:** No one should eat more than one meal per month of white sucker from the Grand River upstream of Smithville Dam due to PCBs. Mercury would cause an advisory.





**Carp**

**Grand River  
Between Smithville & Moores Park Dams**

**Ingham &  
Eaton Counties**

**Hg Analysis:**

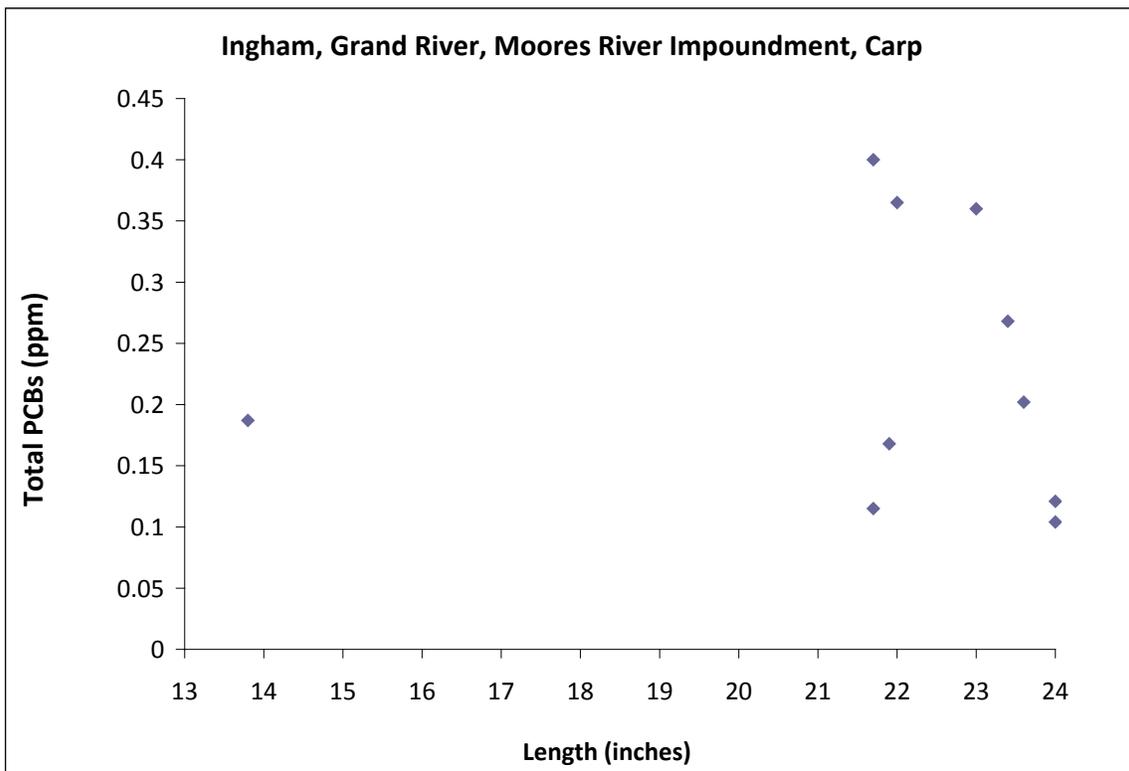
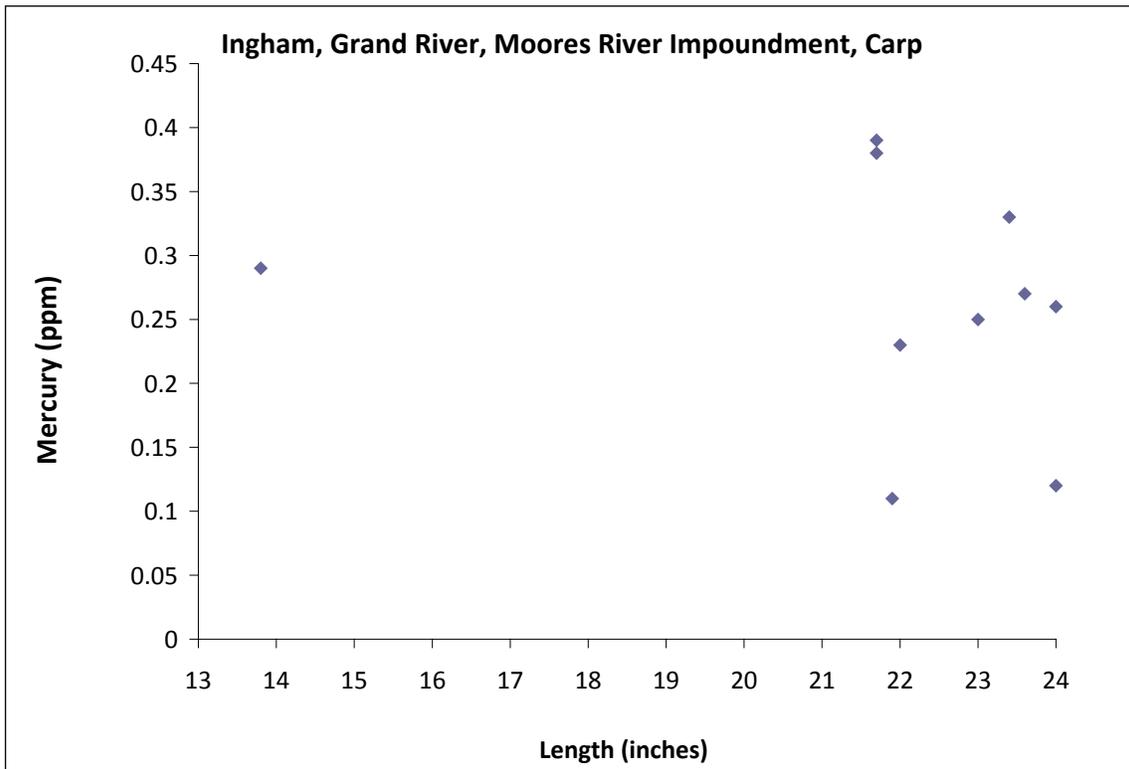
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1996	1996	10	13.8	na	13.8	24
Datasets available: 1996						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.26	0.11	0.38	0.33	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.035	0.038				

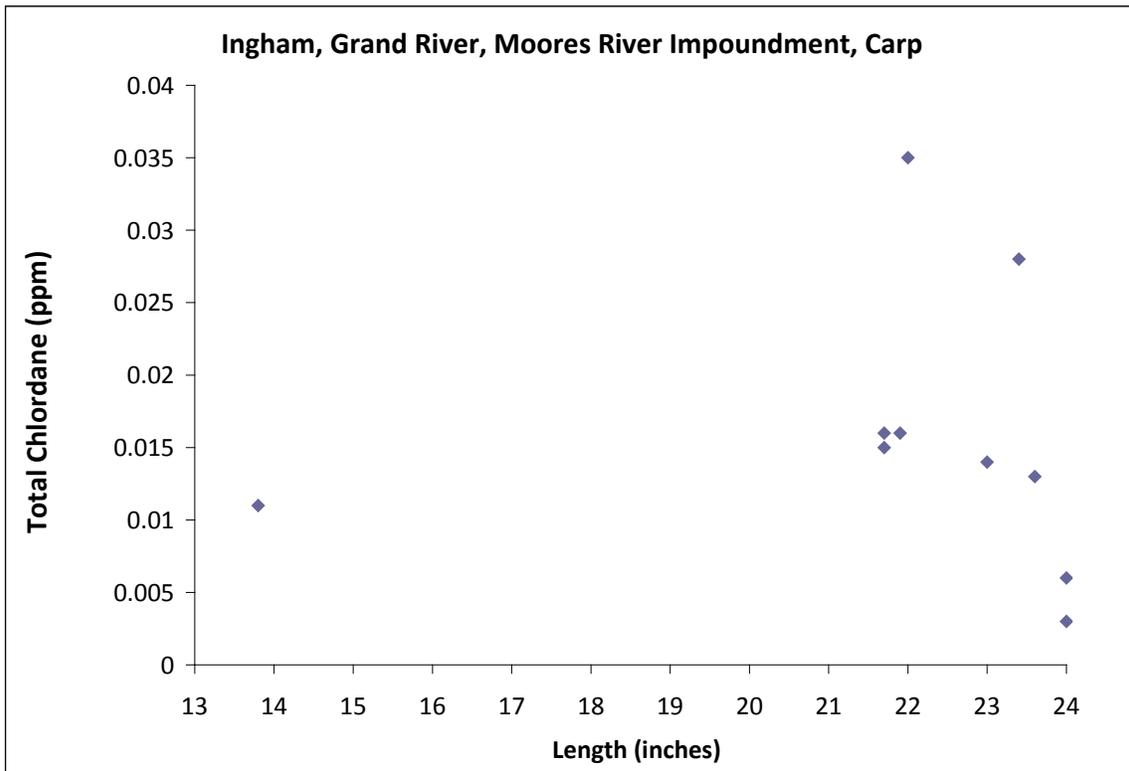
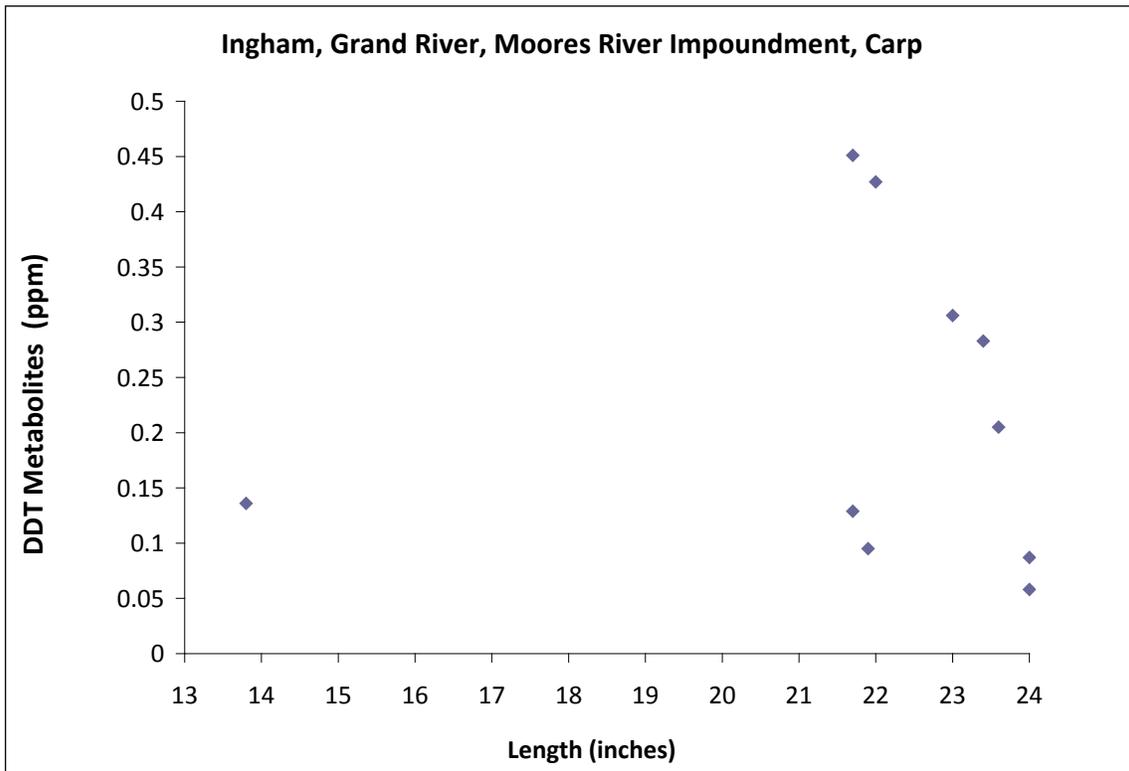
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1996	1996	10	13.8	na	13.8	24
Datasets available: 1996						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.229	0.12	0.36	0.31	0.5
DDT	10	0.218	0.06	0.45	0.32	4
Chlordane	10	0.016	0.003	0.04	0.02	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.000	0.003				
DDT	0.003	0.000				
Chlordane	0.000	0.012				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>0.5*</b>

**Existing Advisory:** Women and children should not eat more than one meal per month of carp from the Grand River upstream of Webber Dam due to PCBs.

**Recommendation:** No one should eat more than 1 meal per month of carp from the Grand River between the Moores Park Dam in Lansing and the Smithville Dam in Eaton Rapids due to PCBs. Mercury and DDT would cause advisories. The quality of this dataset is limited due to the age of the data. \*Based on the MDEQ Fish Contaminant Monitoring Program, PCB and DDT concentrations ≥15 years old are expected to have declined to a concentration that allows a less restrictive meal category than determined by the standard evaluation method.





**Channel Catfish**

**Grand River  
Between Smithville & Moores Park Dams**

**Ingham &  
Eaton Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	15	12	15	24.8
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.18	0.07	0.47	0.26	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.656	0.818				

**Organics Analysis:**

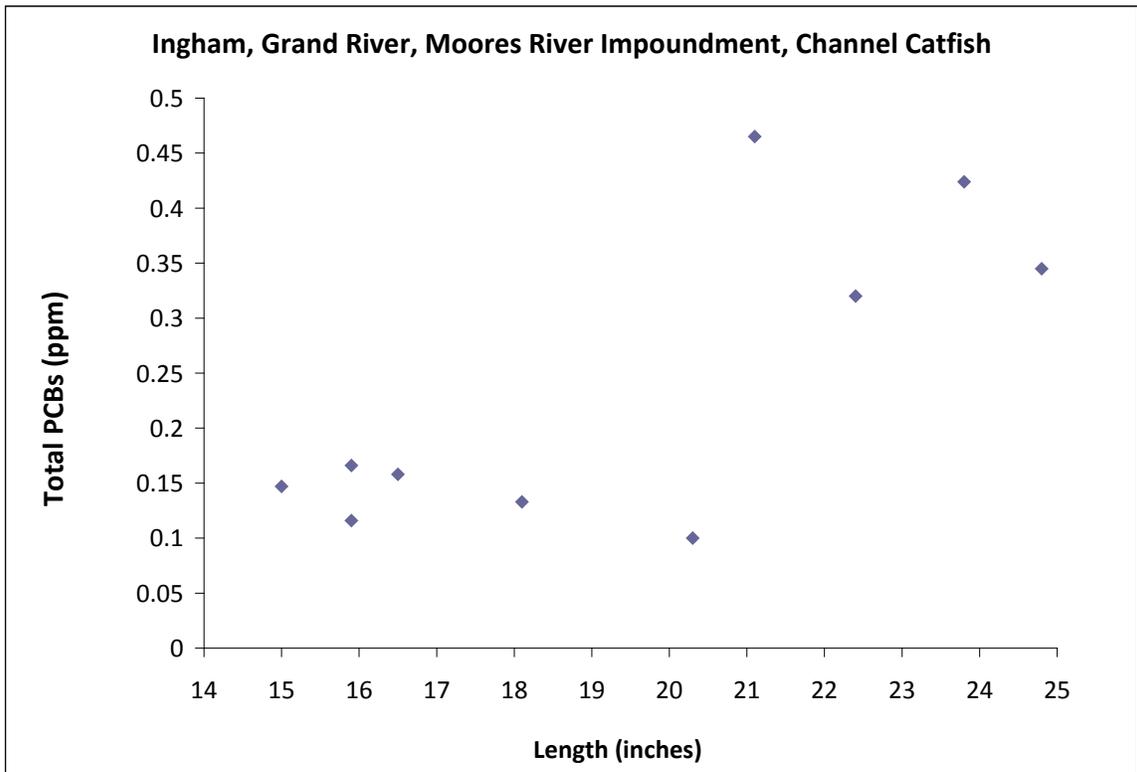
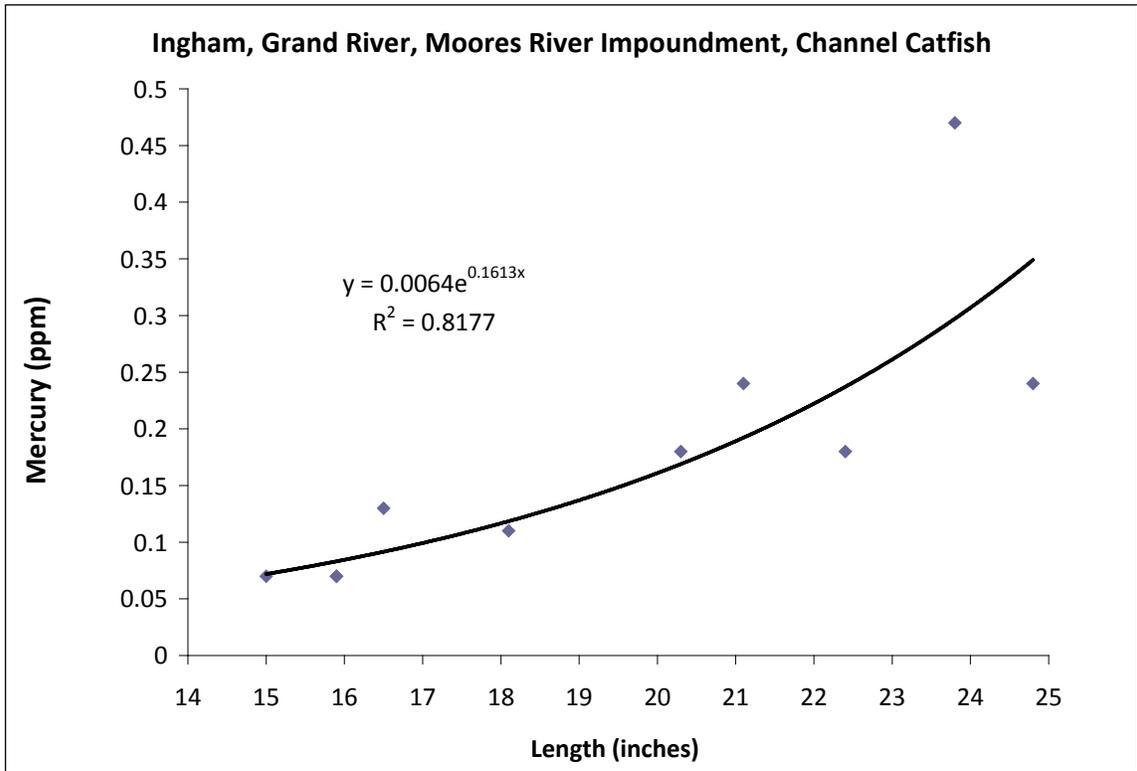
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	15	12	15	24.8
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.24	0.10	0.46	0.34	0.5
DDT	10	0.25	0.10	0.49	0.36	4
Chlordane	10	0.04	0.003	0.10	0.06	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.577	0.551				
DDT	0.669	0.668				
Chlordane	0.347	0.140				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>0.5*</b>

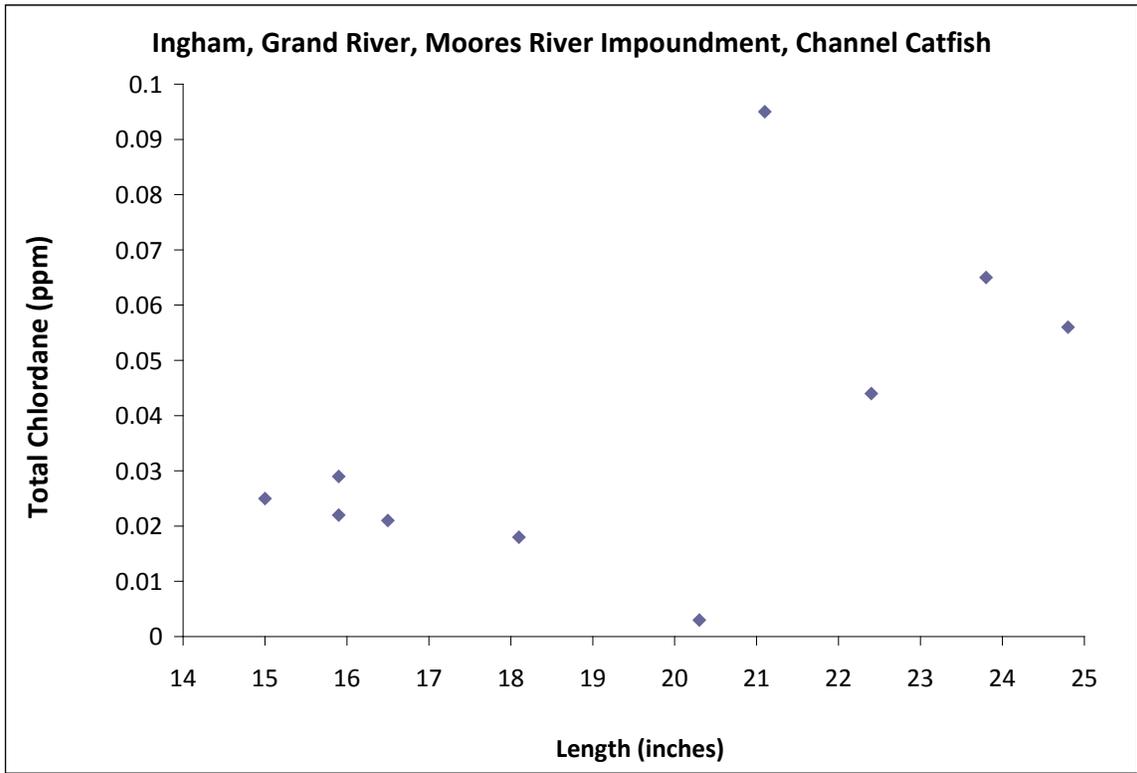
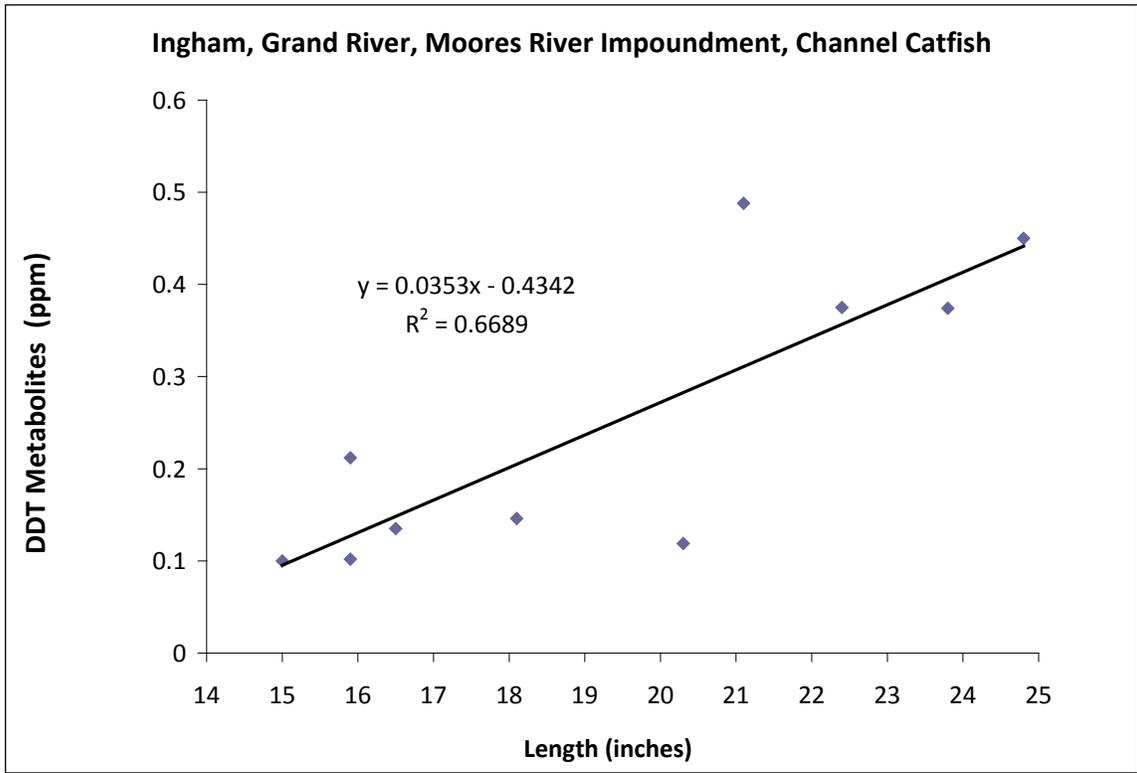
**Existing Advisory:** Women and children should eat no more than one meal per week of channel catfish less than 18 inches from the Grand River upstream of Webber Dam and no more than one meal per month of those fish larger than 18 inches due to PCBs.

**Recommendation:** No one should eat more than 1 meal per month of channel catfish from the Grand River between the Moores Park Dam in Lansing and the Smithville Dam in Eaton Rapids due to PCBs. Mercury and DDT would cause advisories. The quality of this dataset is limited due to the age of the data. \*Based on the MDEQ Fish Contaminant Monitoring Program, PCB concentrations ≥15 years old are expected to have declined to a concentration that allows a less restrictive meal category.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category	DDT Regression Equation Estimate (ppm)	Meal Category
12	0.044	16	-0.011	16
14	0.061	16	0.060	16
16	0.085	12	0.131	12
18	0.117	8	0.201	8
20	0.161	4	0.272	8
22	0.222	4	0.342	4
24	0.307	2	0.413	4
26	0.424	2	0.484	2

*Shaded area denotes extrapolated estimates*





**Largemouth Bass  
& Smallmouth Bass  
Hg Analysis:**

**Grand River  
Between Smithville & Moores Park Dams**

**Ingham &  
Eaton Counties**

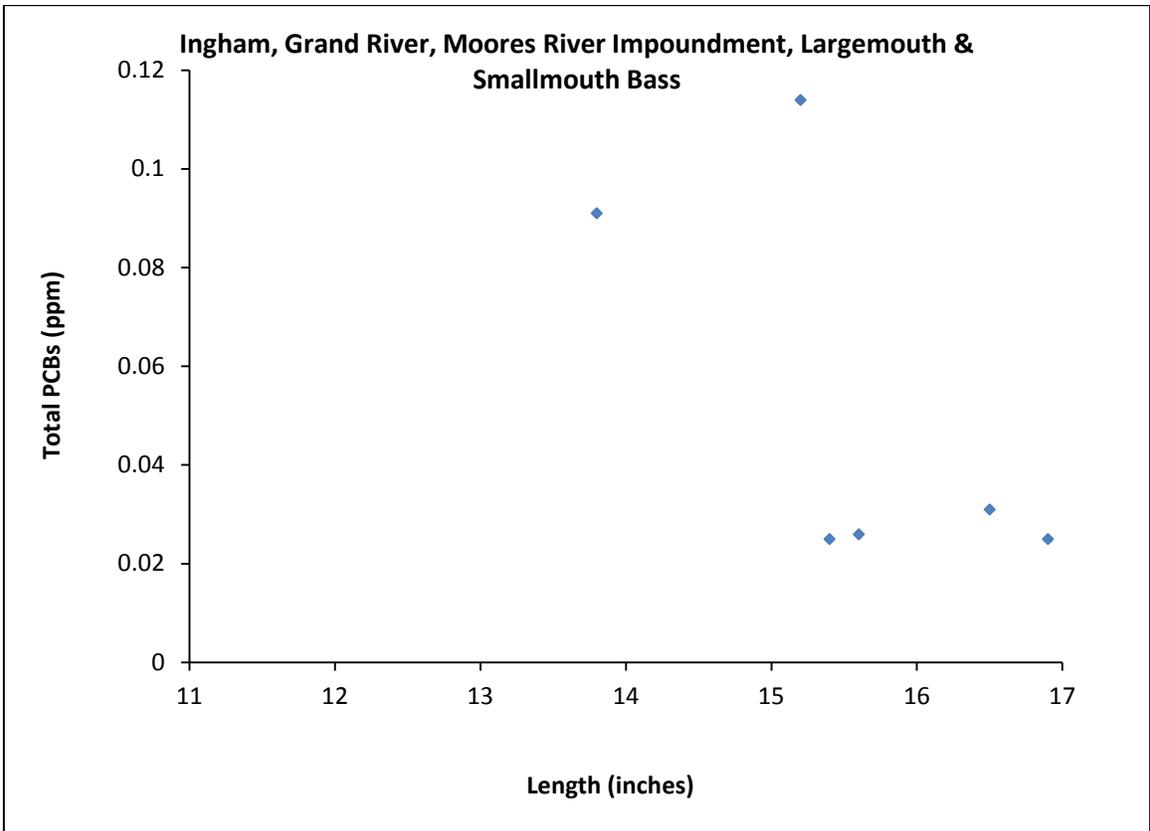
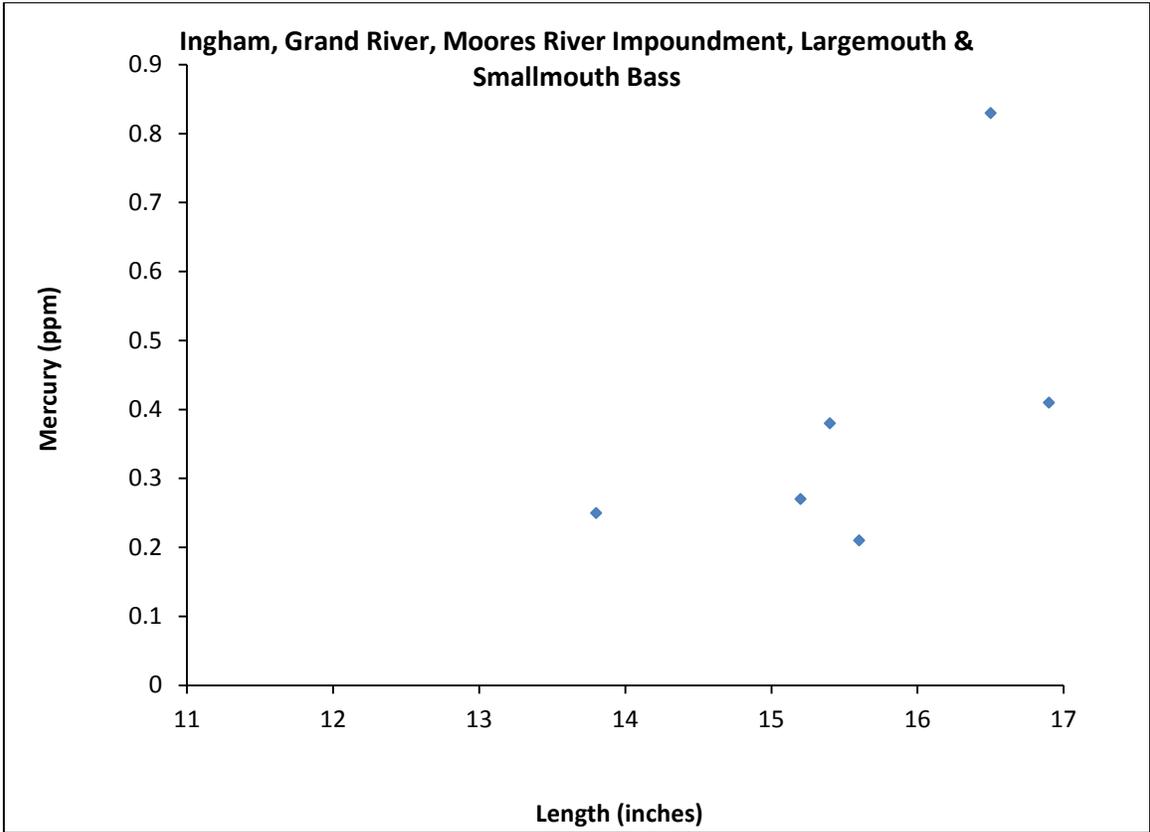
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1996	11	11.8	14	13.8	16.9
Datasets available: 1989, 1996						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	6	0.39	0.210	0.830	0.630	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.401	0.484				

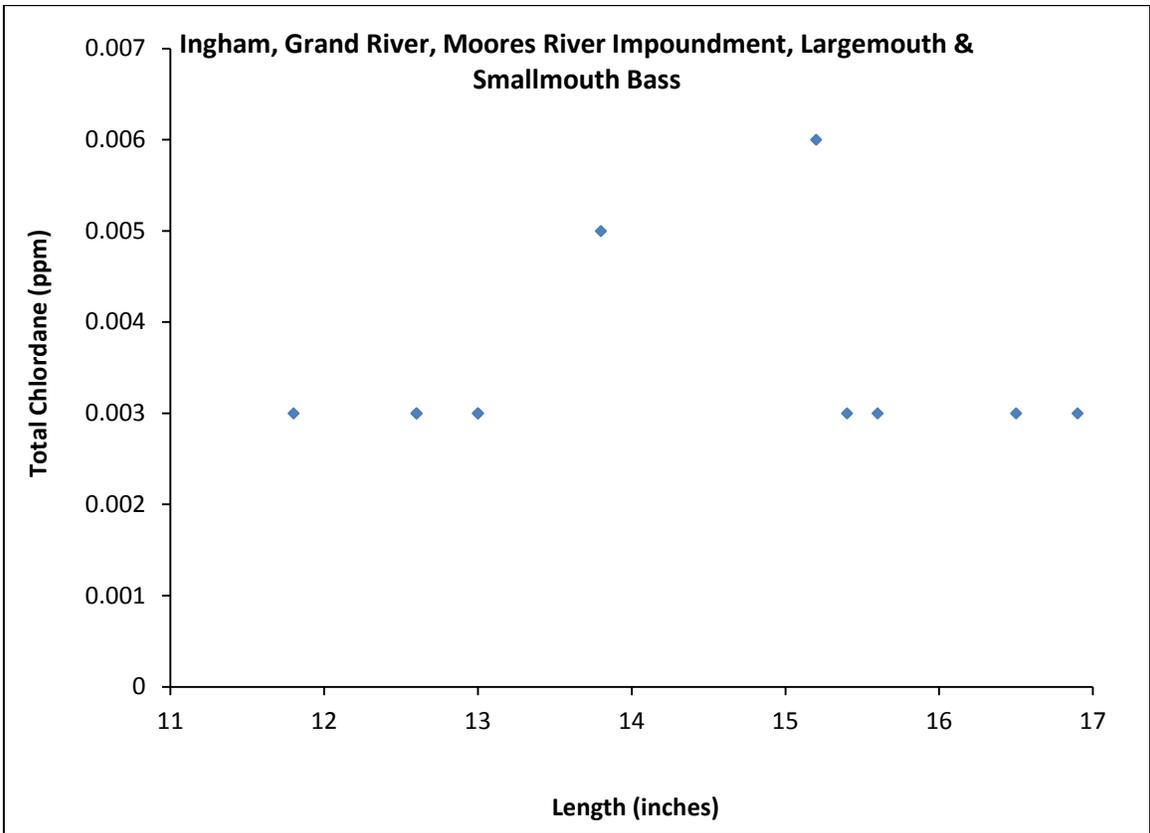
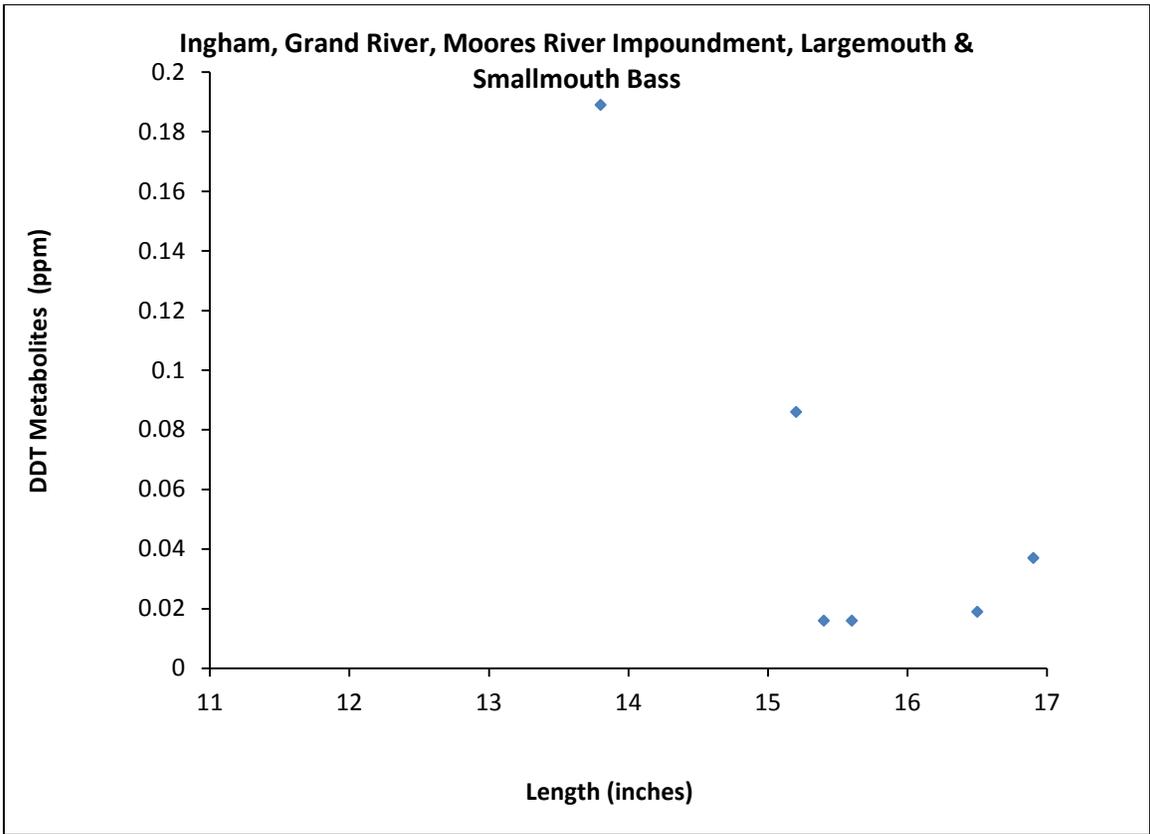
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1996	11	11.8	14	13.8	16.9
Datasets available: 1989, 1996						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	6	0.05	0.02	0.11	0.09	4
DDT	6	0.06	0.02	0.19	0.13	12
Chlordane	6	0.004	0.003	0.01	0.01	--
Toxaphene	6	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.438	0.477				
DDT	0.650	0.442				
Chlordane	0.410	0.451				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Moores River Impoundment (Grand River) largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of largemouth or smallmouth bass less than 18 inches or more than 6 meals per year of those greater than 18 inches from the Grand River between the Moores Park Dam in Lansing to the Smithville Dam in Eaton Rapids due to mercury. PCBs and DDT would cause an advisory. The statewide length break was applied as the size range of the fish was limited.





**Northern Pike**

**Grand River  
Between Smithville & Moores Park Dams**

**Ingham &  
Eaton Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	2004	6	21.7	24	23.6	26
Datasets available: 1989, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	5	0.36	0.11	0.65	0.65	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.026	0.027				

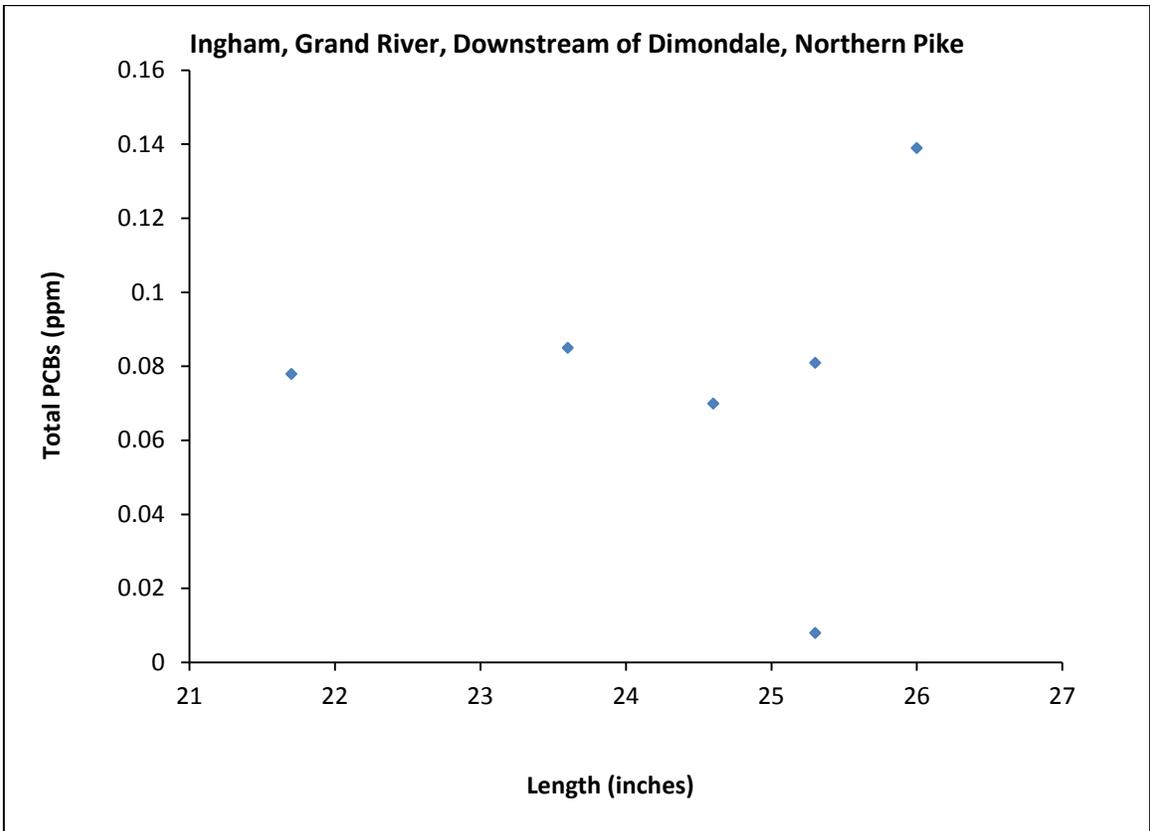
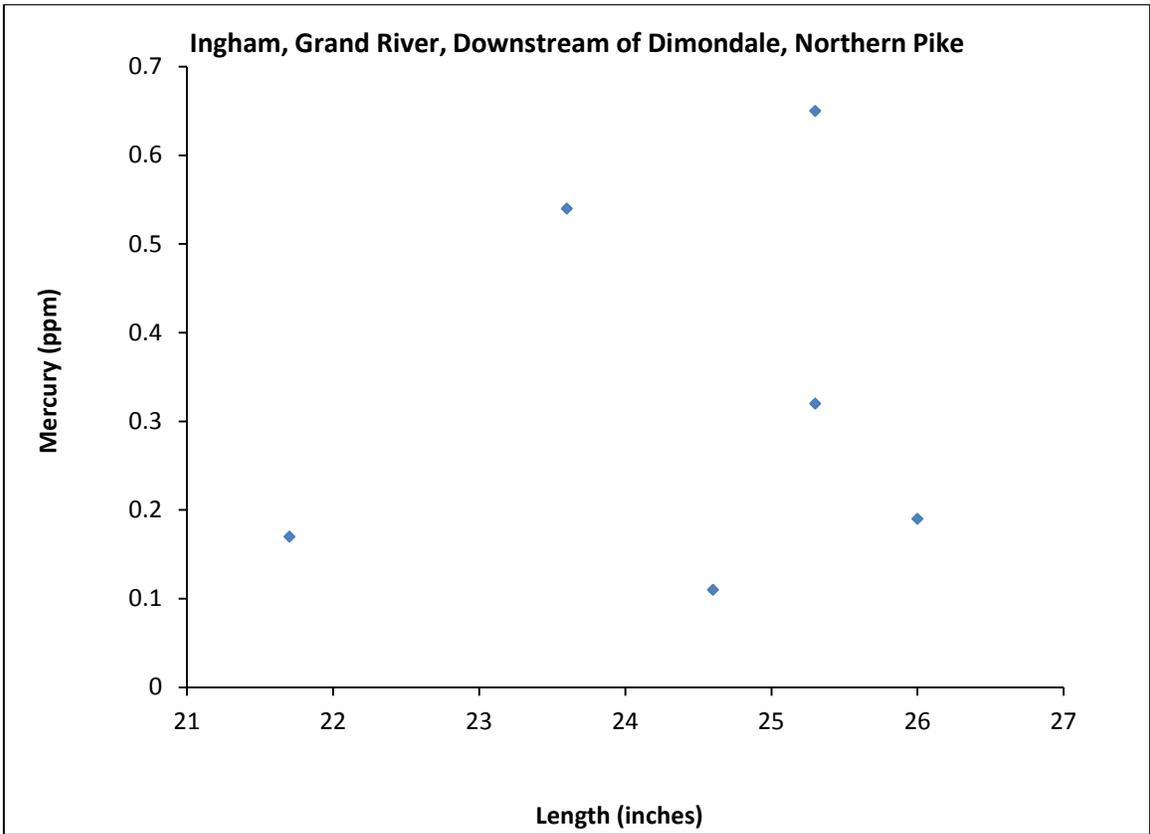
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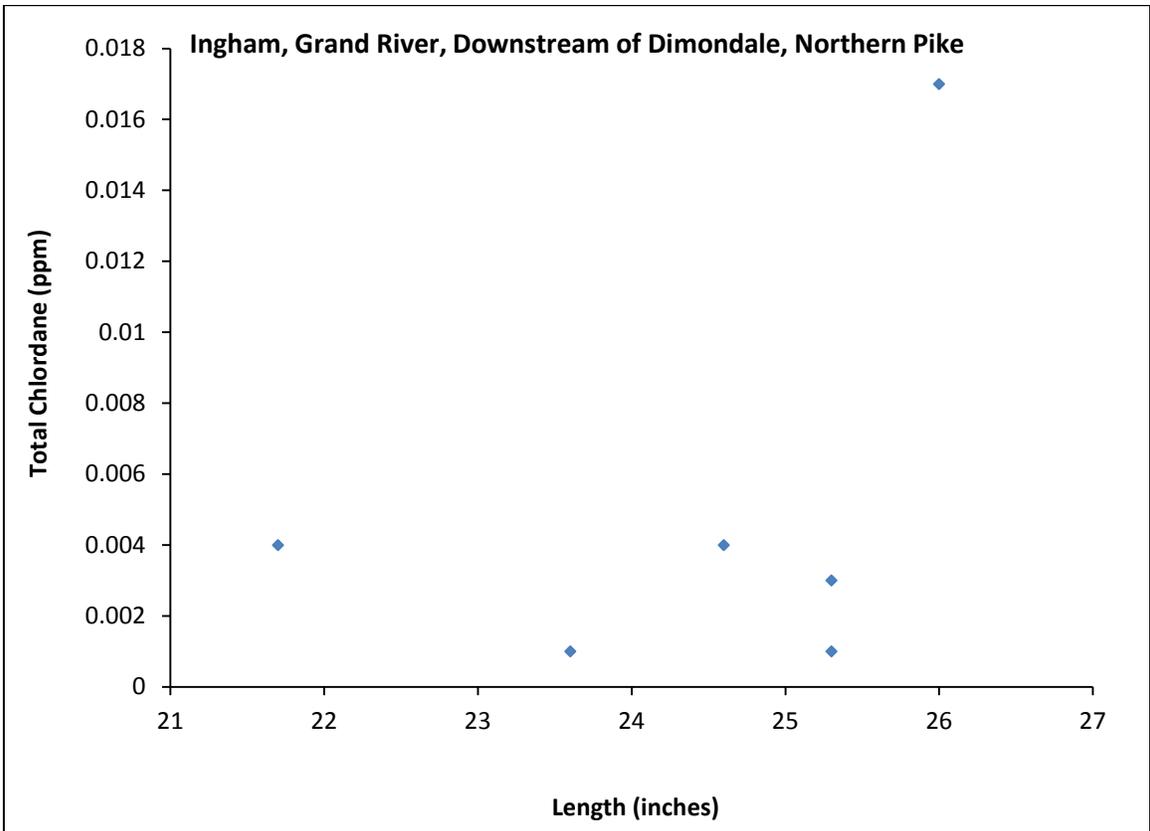
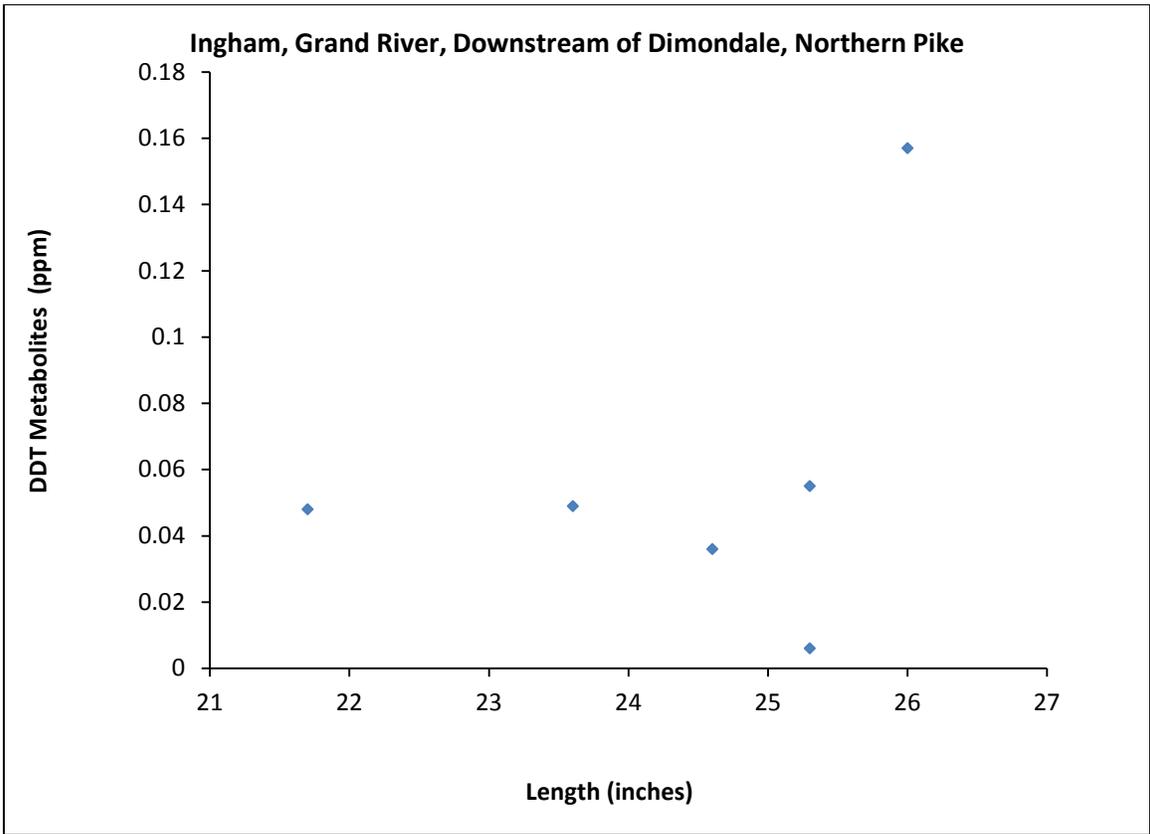
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	2004	6	21.7	24	23.6	26
Datasets available: 1989, 2004						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	5	0.08	0.008	0.14	0.13	1
DDT	5	0.06	0.006	0.16	0.13	12
Chlordane	5	0.005	0.001	0.02	0.01	--
Toxaphene	5	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.009	0.022				
DDT	0.120	0.000				
Chlordane	0.172	0.056				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Women and children should not eat more than one meal per week of northern pike from the Grand River upstream of Webber Dam.

**Recommendation:** No one should eat more than 1 meal per month of northern pike smaller than 30 inches from the Grand River between the Smithville and Moores Park Dams, or more than 6 meals per year of those fish larger than 30 inches due to mercury and PCBs. Statewide size break applied as the size range of the fish was limited.

*Note: 2 fish, 1 legal-size and 1 sub-legal, were collected from this reach of river in 1989. Including the 1989 organics results (0.14 ppm, 0.08 ppm) for the legal-size fish increases the PCB mean from 0.06 ppm to 0.08 ppm and leads to a 95%UCL in the 1 meal per month range. The length range of all northern pike is very limited. The 1989 data and the 2004 data overlap in range and thus are combined to reach the largest possible sample size for this dataset.*





**Walleye**

**Grand River  
Between Smithville & Moores Park Dams**

**Ingham &  
Eaton Counties**

**Hg Analysis:**

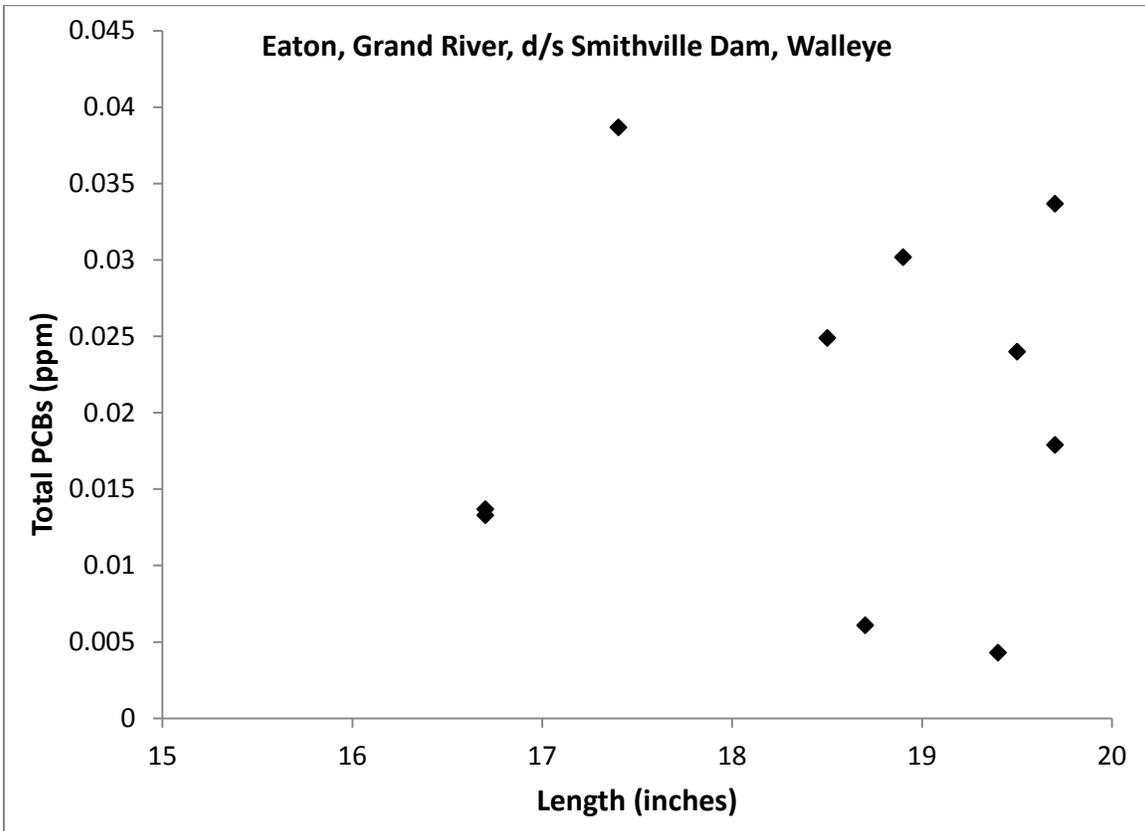
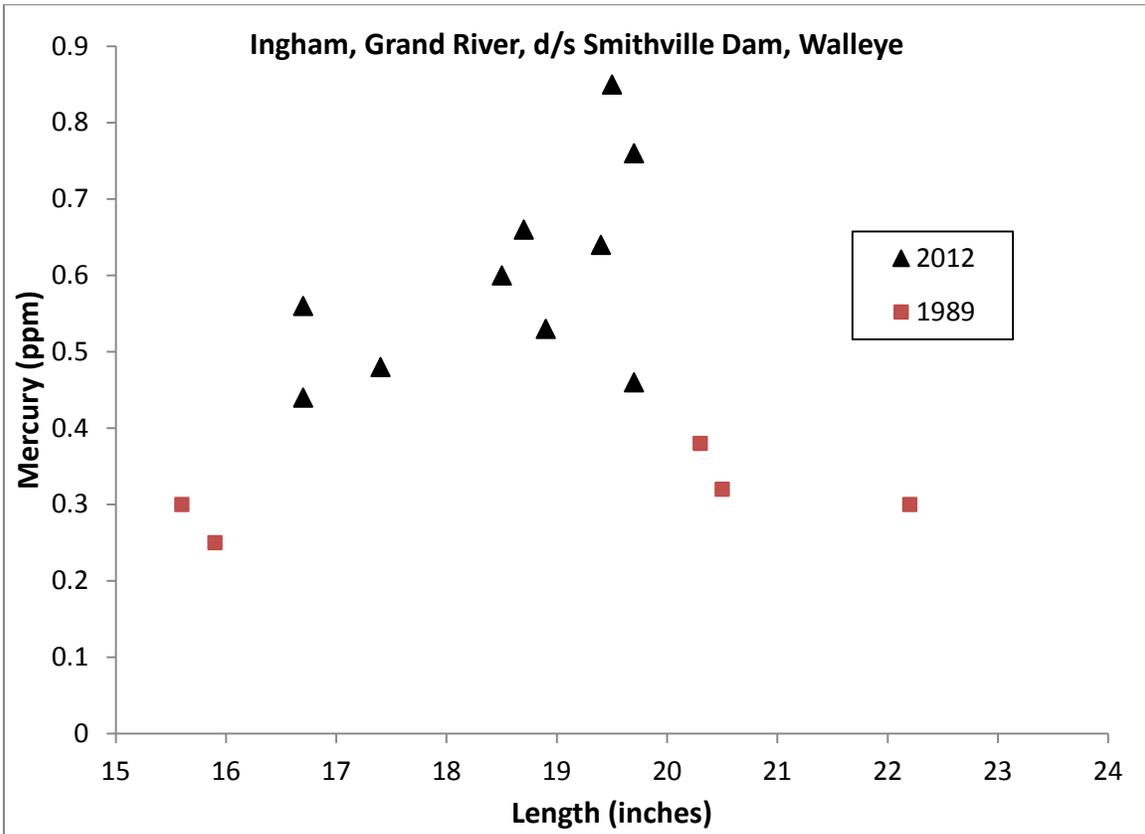
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	2012	15	15.6	15	15.6	22.2
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	15	0.50	0.25	0.85	0.60	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.024	0.023				

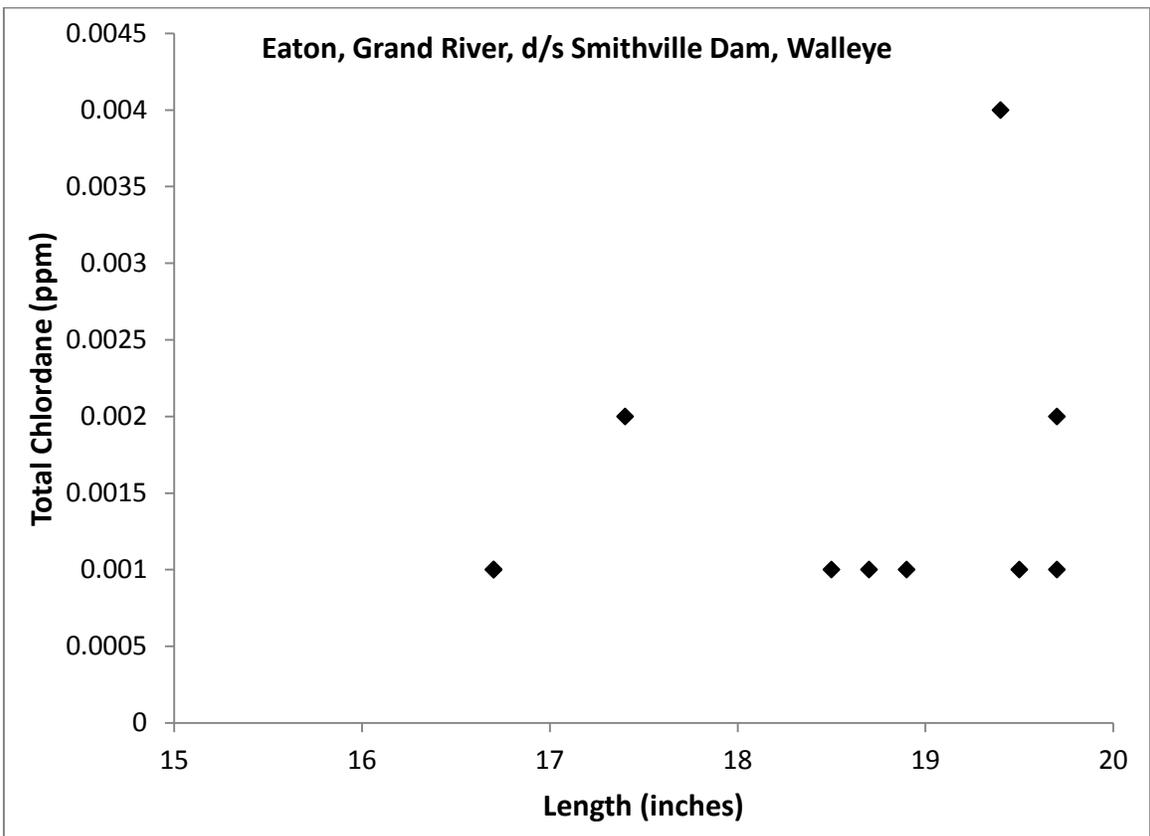
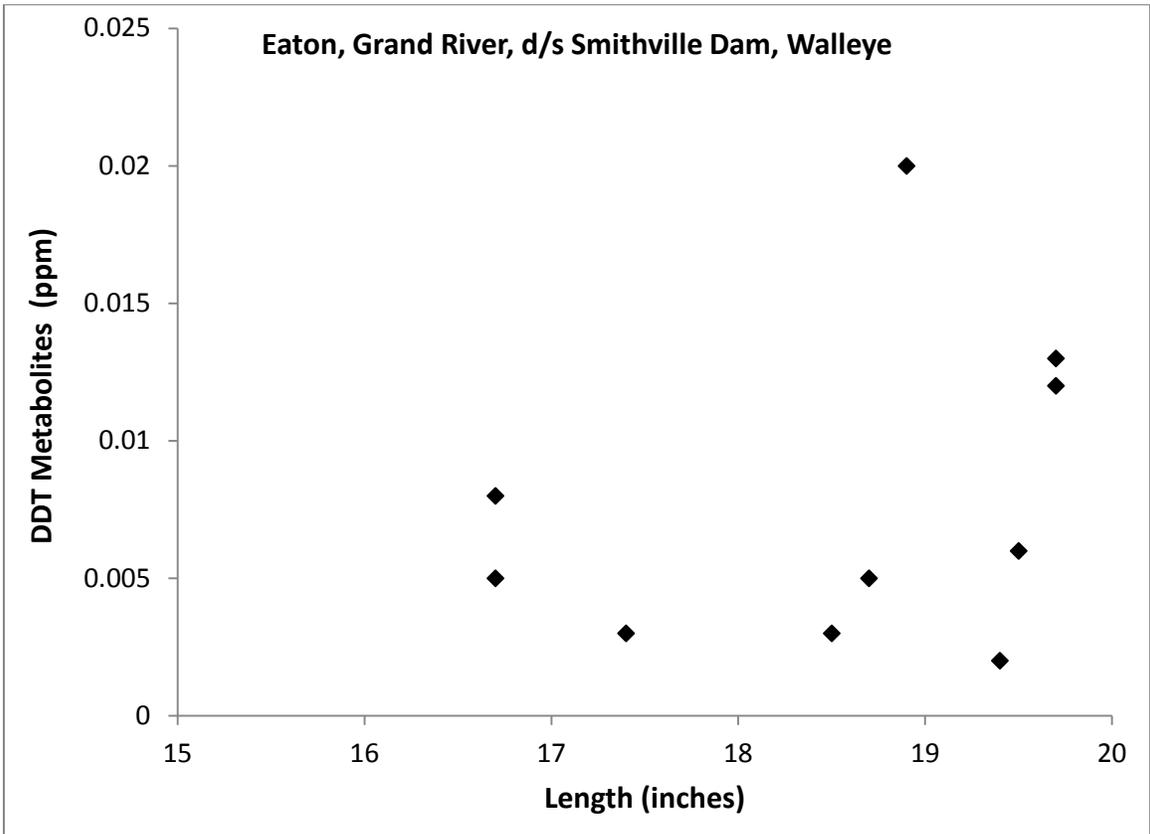
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2012	2012	10	16.7	15	16.7	19.7
Datasets available: 1989, 2012						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.02	0.004	0.04	0.03	8
DDT	10	0.008	0.002	0.02	0.01	16
Chlordane	10	0.002	0.001	0.004	0.002	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.004	0.000				
DDT	0.094	0.052				
Chlordane	0.068	0.060				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** No one should eat more than 2 meals per month of walleye from the Grand River between Moores Park Dam (Lansing) and Smithville Dam (Eaton Rapids) due to mercury and PCBs.

**Recommendation:** No one should eat more than 1 meal per month of walleye from the Grand River between Moores Park Dam (Lansing) and Smithville Dam (Eaton Rapids) due to mercury. PCBs would cause an advisory.





**Carp**

**Grand River  
Between Moores Park and Webber Dams**

**Ingham, Eaton,  
Clinton & Ionia  
Counties**

**Hg Analysis:**

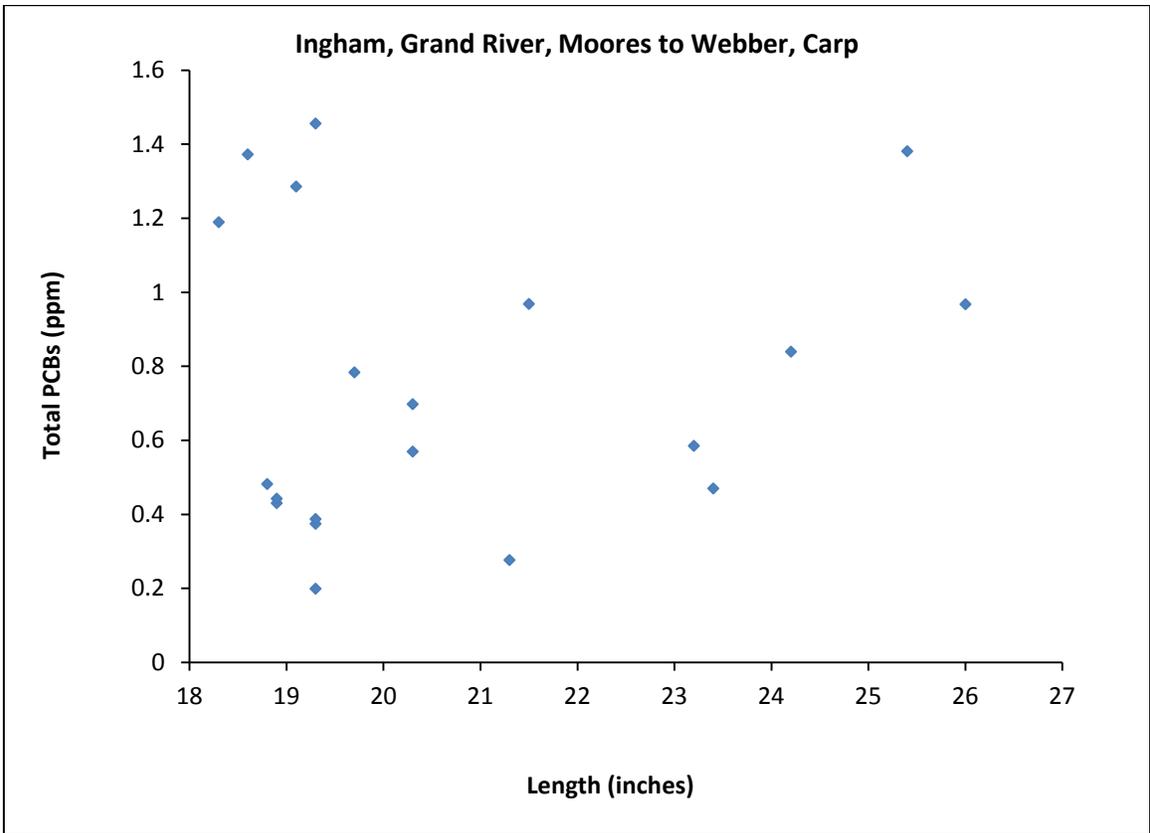
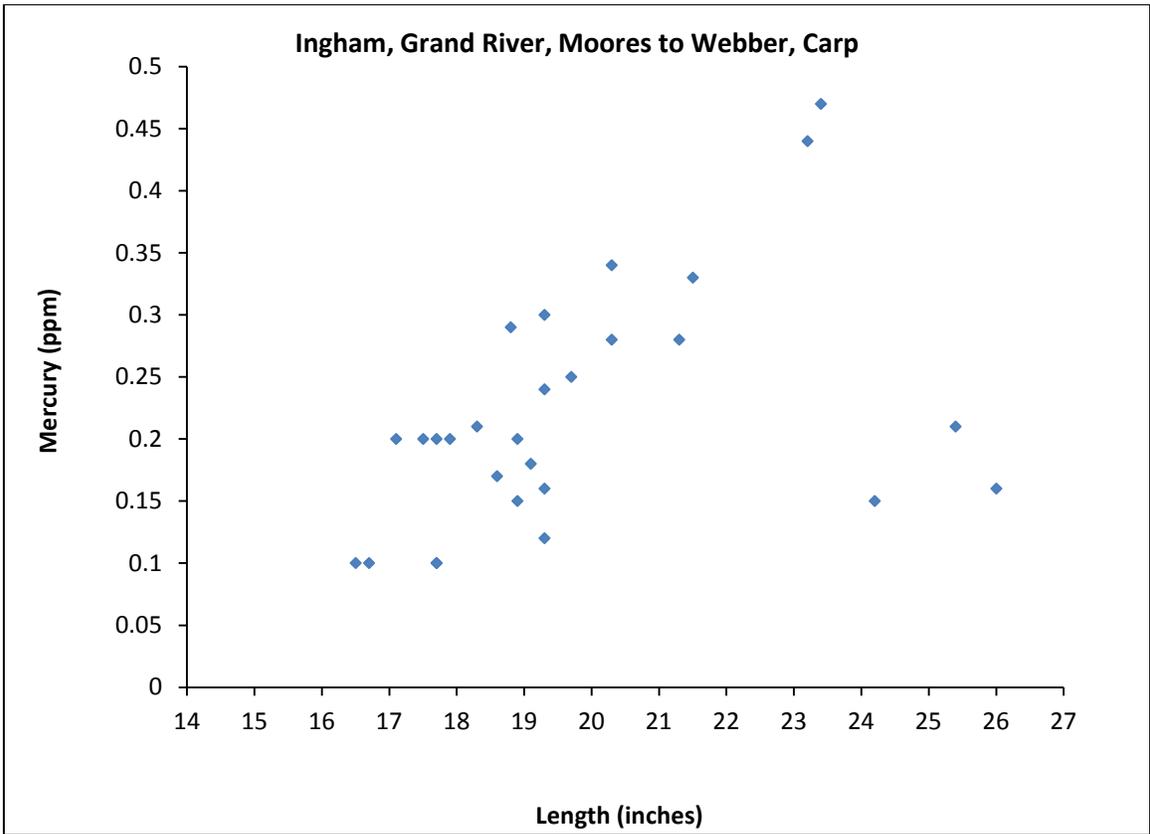
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1985	1992	28	15.0	na	16.5	26.0
Datasets available: 1985, 1990, 1992						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	28	0.22	0.10	0.47	0.26	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.188	0.181				

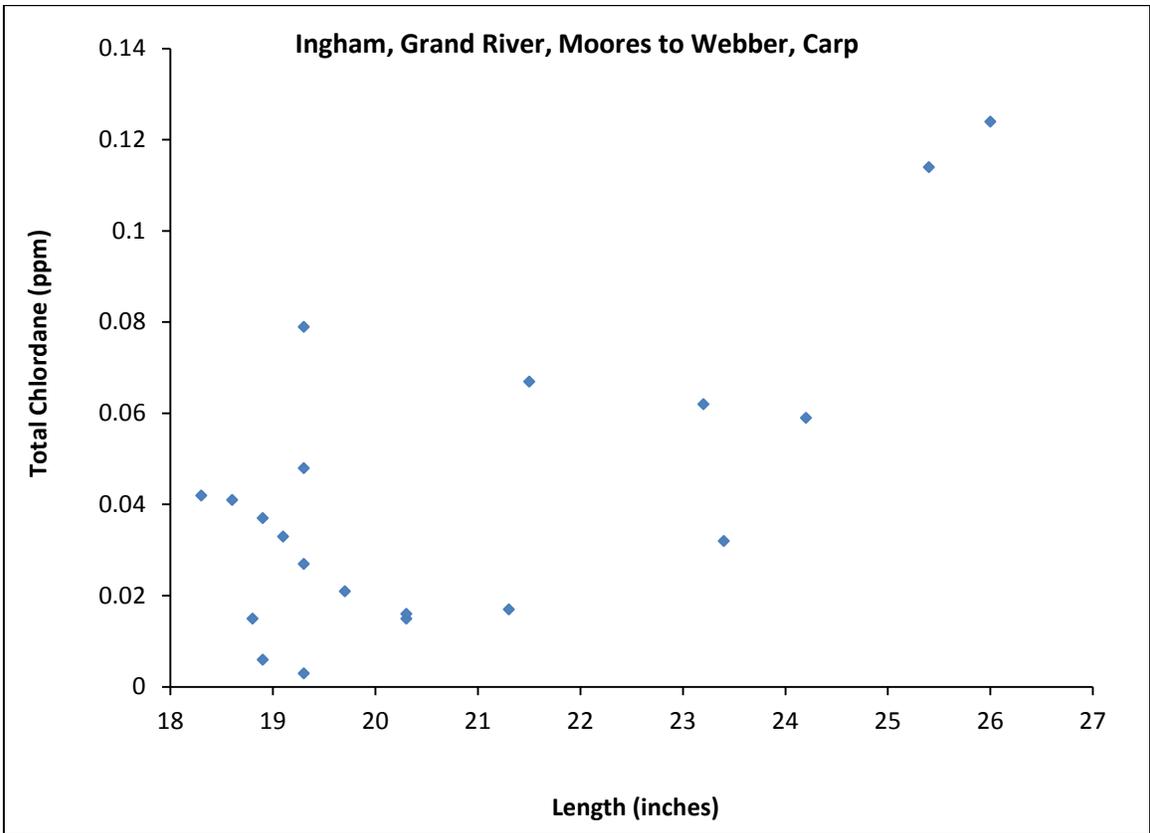
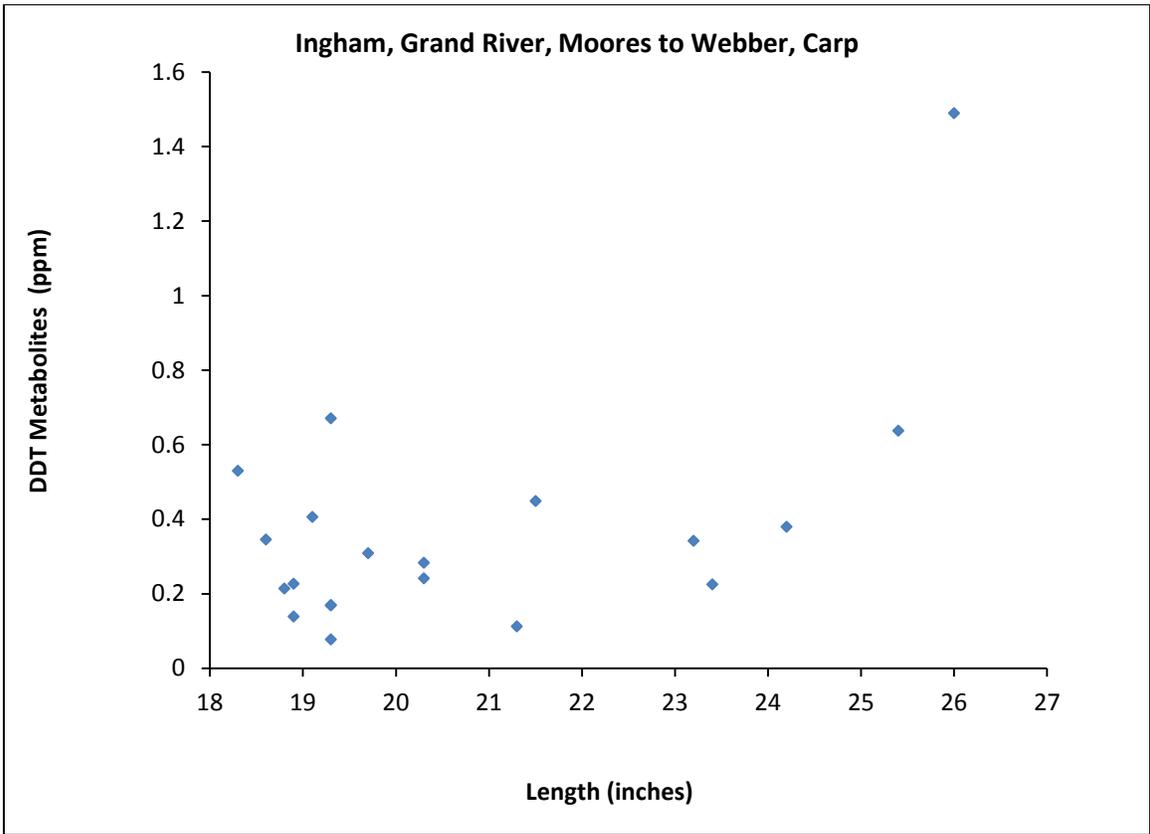
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	1992	20	18.3	na	18.3	26
Datasets available: 1984, 1985, 1990, 1992						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	20	0.76	0.20	1.46	0.95	Limited
DDT	20	0.37	0.08	1.49	0.52	2
Chlordane	20	0.04	0.003	0.12	0.06	--
Toxaphene	20	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.018	0.036				
DDT	0.317	0.235				
Chlordane	0.489	0.291				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>Limited*</b>

**Existing Advisory:** Women and children should not eat more than 1 meal per month of carp from the Grand River upstream of Webber Dam due to PCBs.

**Recommendation:** Sensitive populations should not eat these fish. Healthy adults should limit consumption of carp from the Grand River between the Moores Park and Webber Dams to 1 or 2 meals per year due to PCBs. Mercury and DDT would cause advisories. The quality of this dataset is limited due to the age of the data. \*Based on the MDEQ Fish Contaminant Monitoring Program, PCB concentrations ≥15 years old are expected to have declined but would remain too high to recommend a less restrictive meal category.





**Largemouth  
and Smallmouth Bass**

**Grand River  
Between Moores Park and Webber Dams**

**Ingham, Eaton,  
Clinton & Ionia  
Counties**

**Hg Analysis:**

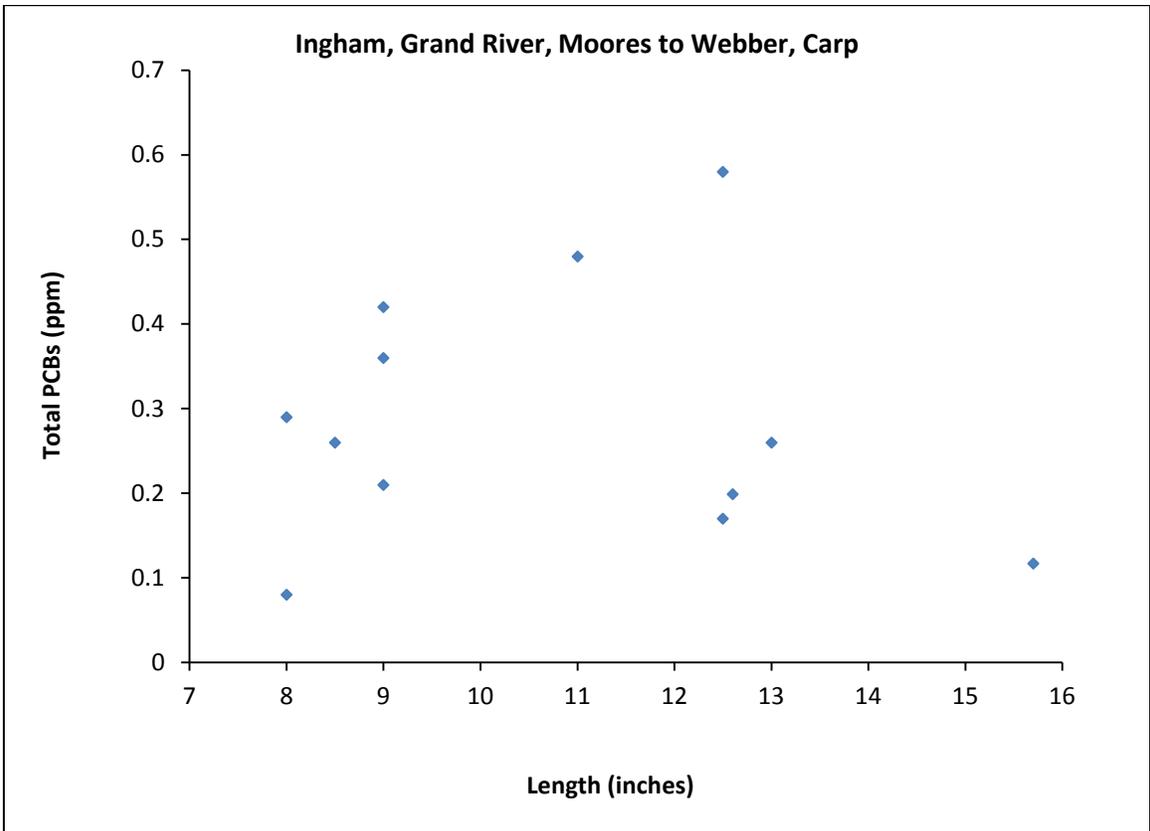
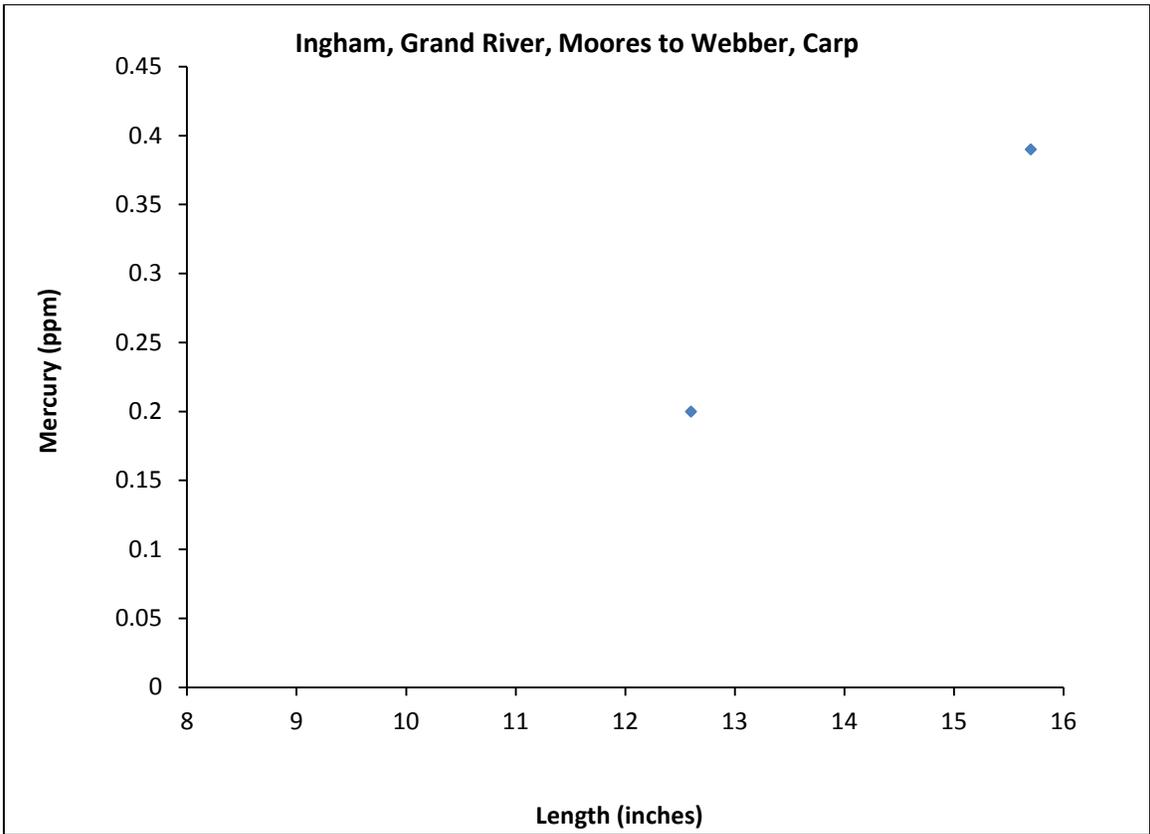
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	1990	2	12.6	14	15.7	15.7
Datasets available: 1990						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	1	0.39	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

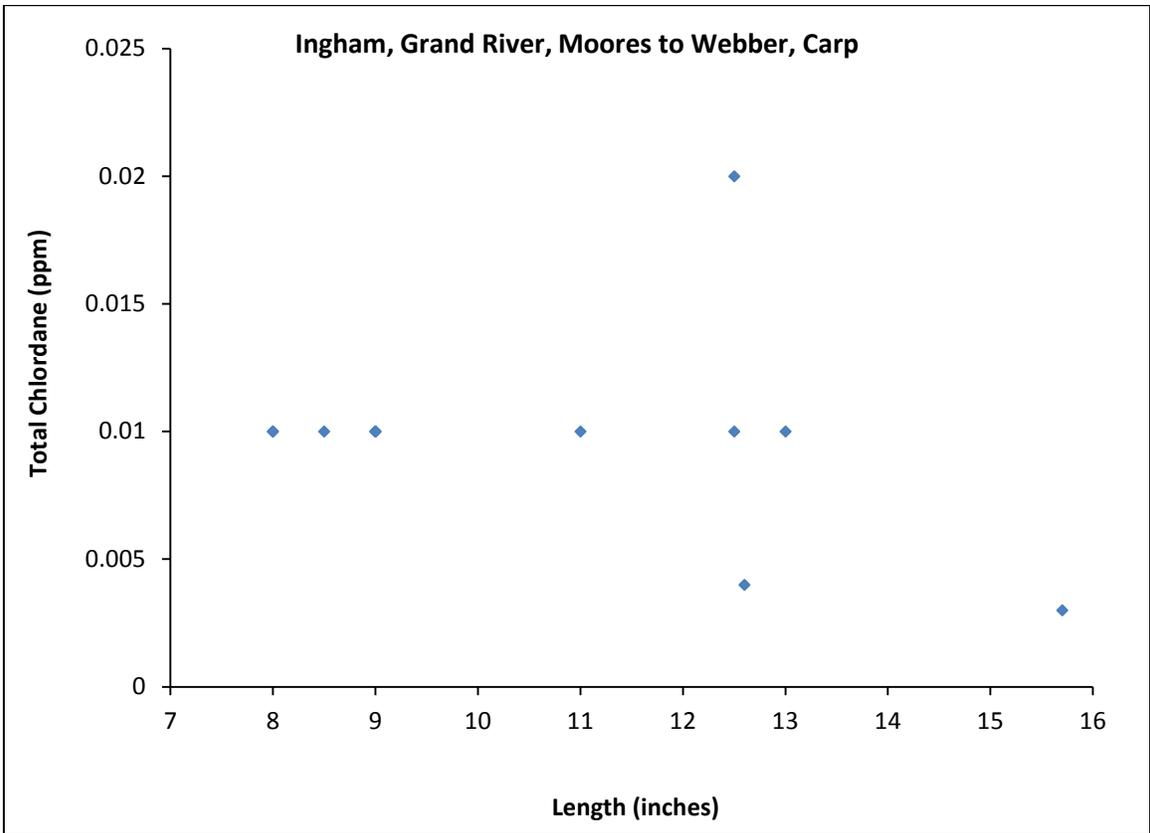
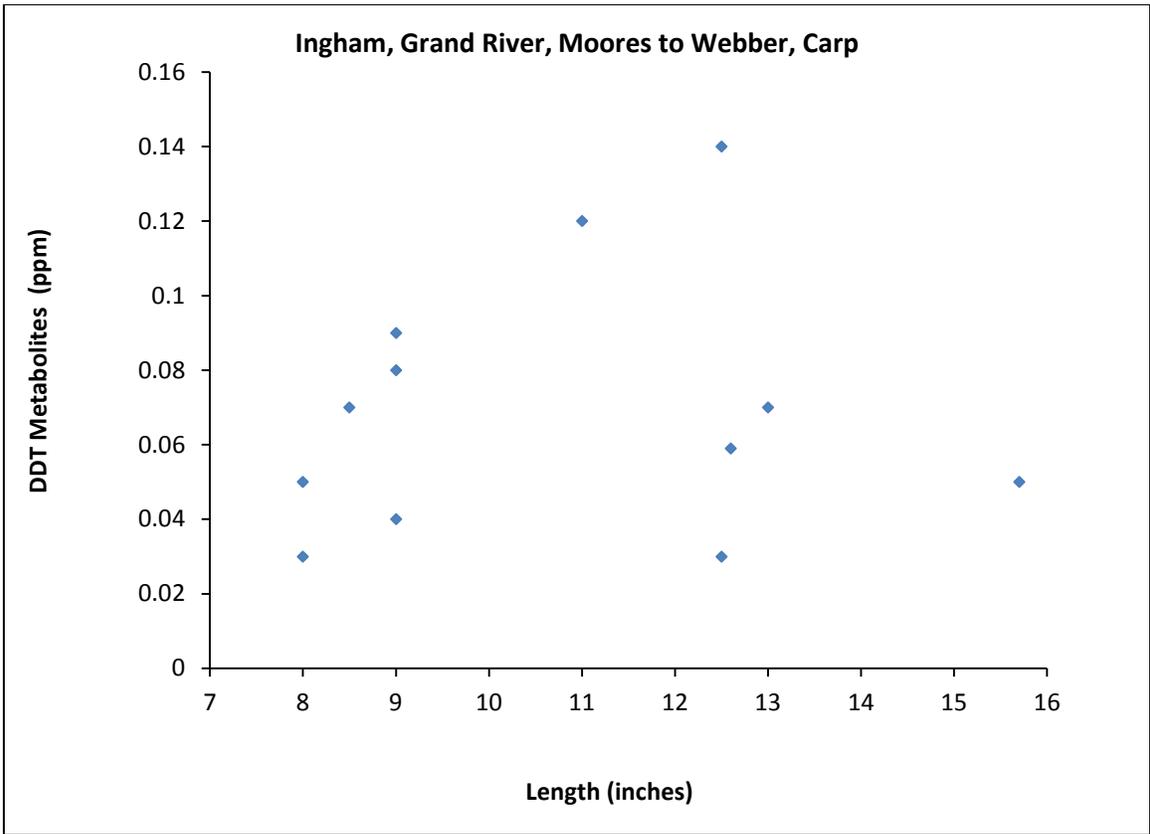
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1984	1990	12	8	14	15.7	15.7
Datasets available: 1984, 1990						
Chemical	Sample Size (All)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	12	0.286	0.08	0.58	0.38	0.5
DDT	12	0.069	0.03	0.14	0.09	16
Chlordane	12	0.010	0.003	0.02	0.01	--
Toxaphene	2	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.006	0.012				
DDT	0.014	0.011				
Chlordane	0.063	0.235				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>0.5*</b>

**Existing Advisory:** Largemouth and smallmouth bass taken from Grand River impoundments are covered by the statewide mercury advisory.

**Recommendation:** The statewide guidelines apply: No one should eat more than 2 meals per month of largemouth or smallmouth bass from the Grand River between the Moores Park and Webber dams smaller than 18 inches or more than 1 meal per month of those fish larger than 18 inches. The size range of fish in this sample set is limited and the quality of the dataset is limited due to age of the data. This dataset was not used to issue the guideline, and instead the statewide guidelines apply. \*Based on the MDEQ Fish Contaminant Monitoring Program, PCB concentrations ≥15 years old are expected to have declined resulting in a less restrictive meal category.





**Carp**

**Grand River  
Webber Dam to Grand Haven**

**Ionia, Kent,  
& Ottawa Counties**

**Hg Analysis:**

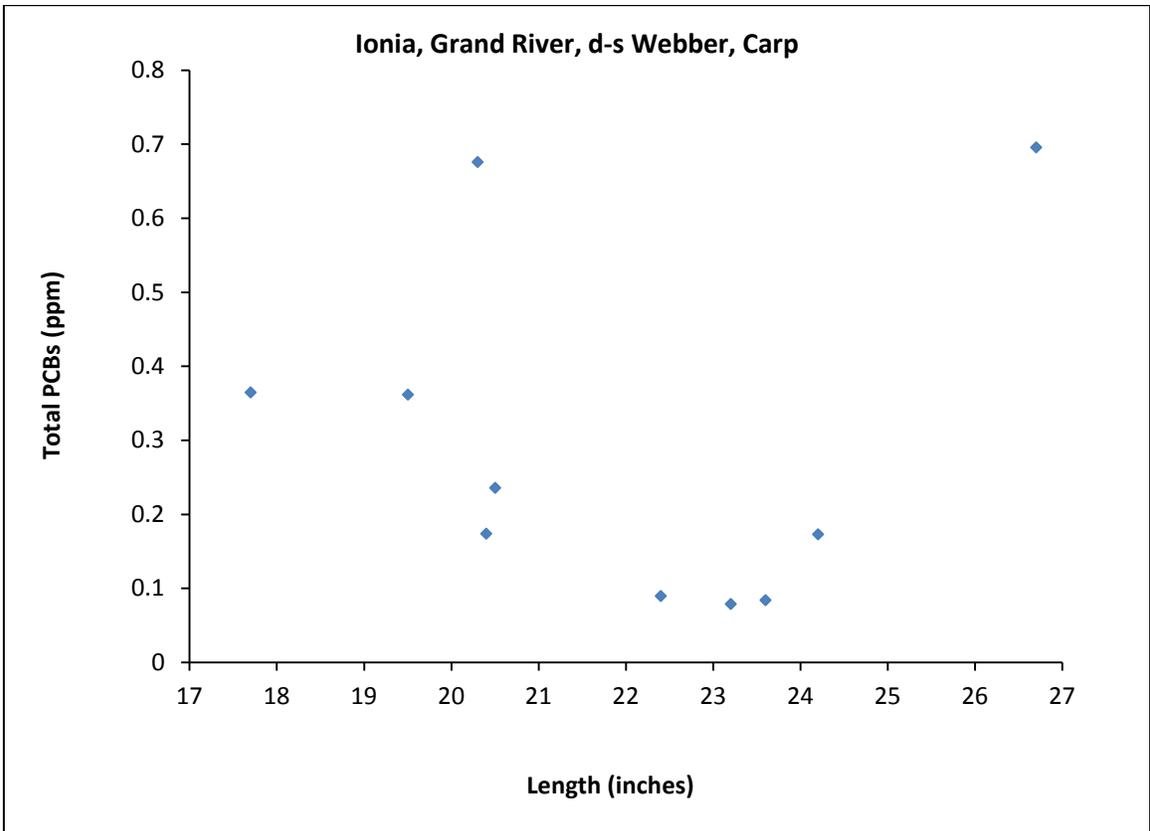
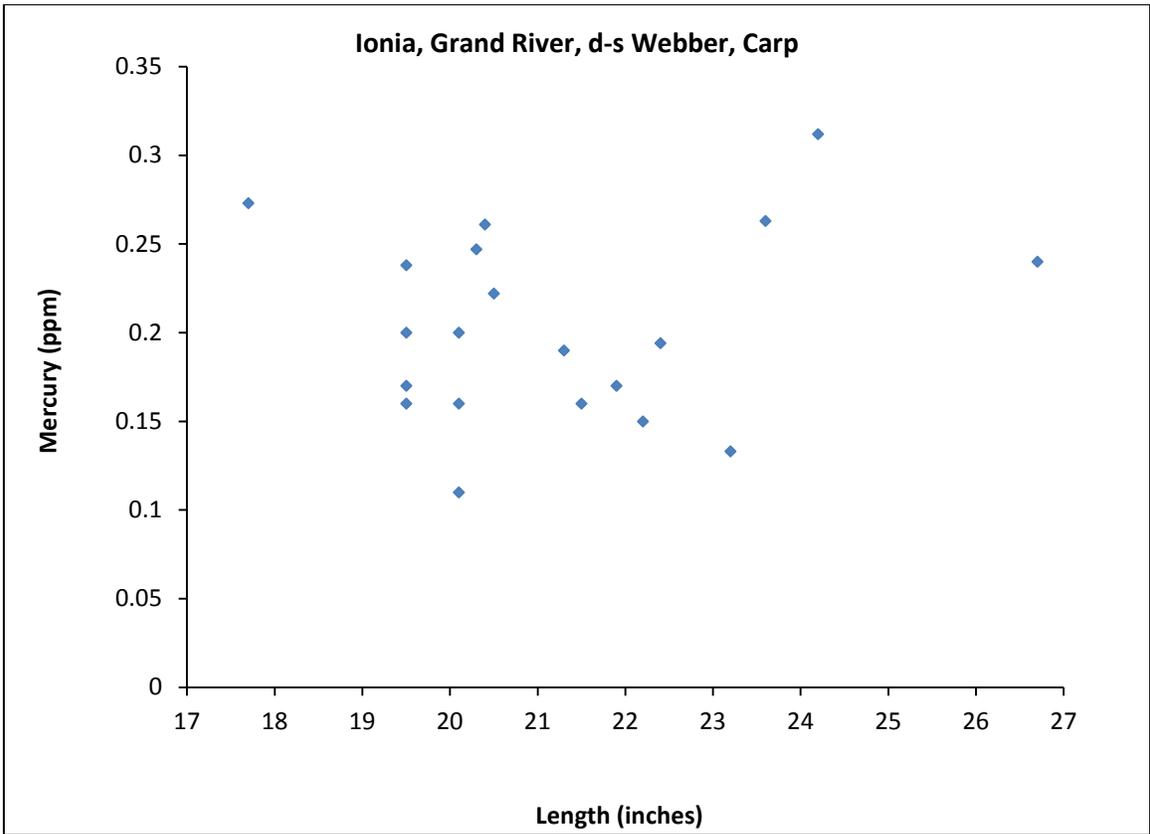
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1990	2006	20	17.7	na	17.7	26.7
Datasets available: 1990, 2006						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	20	0.20	0.11	0.31	0.23	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.023	0.017				

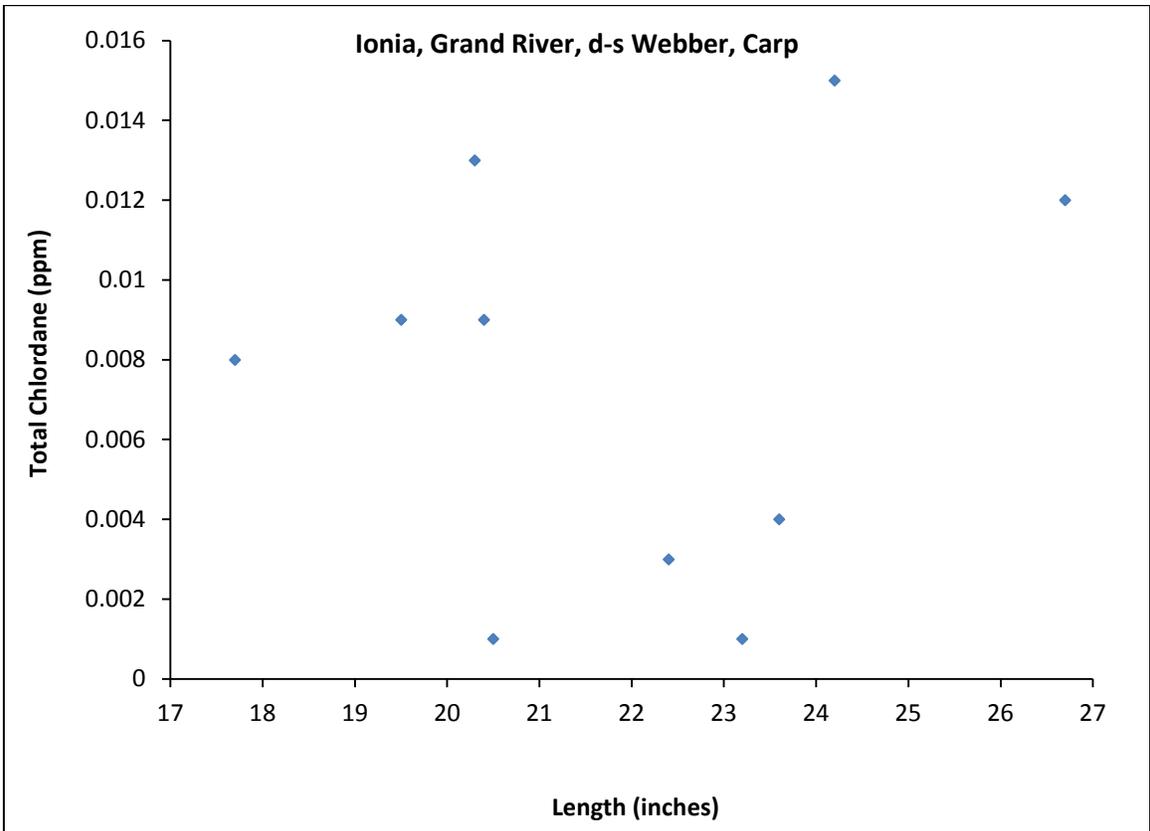
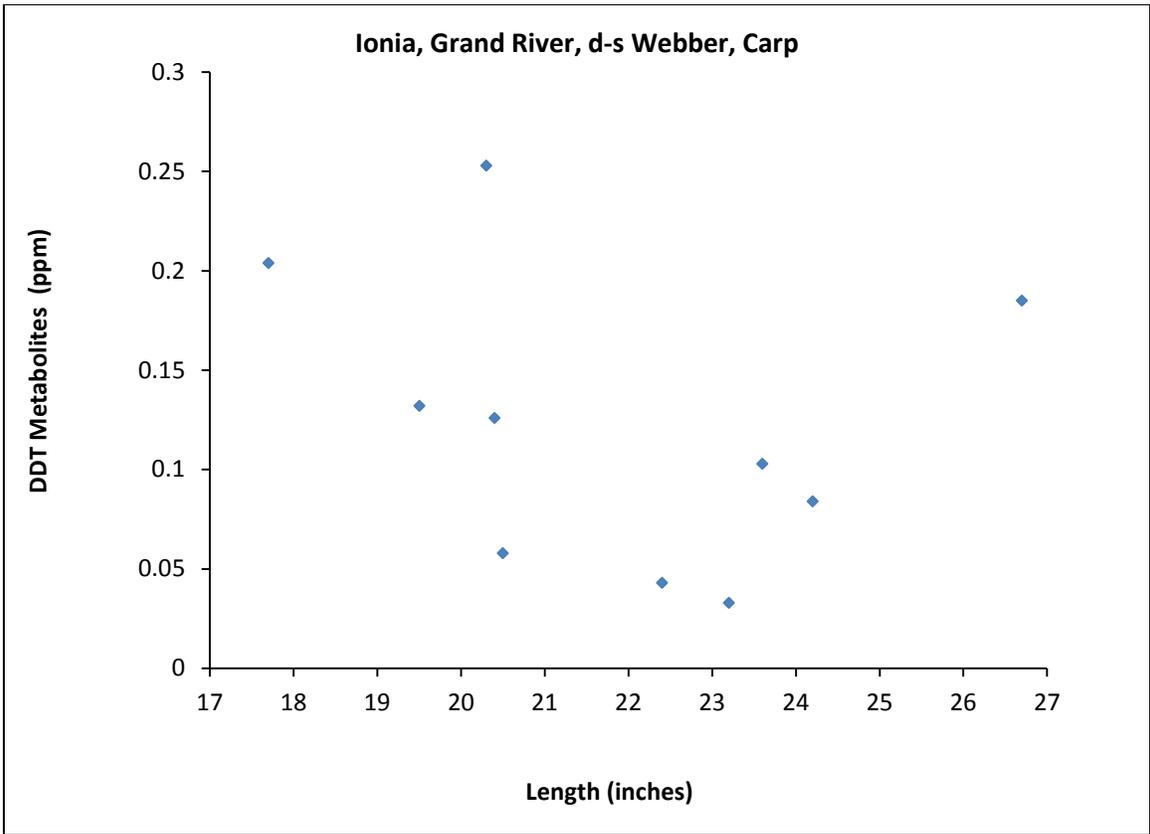
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2006	2006	10	17.7	na	17.7	26.7
Datasets available: 1990, 2006						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.29	0.08	0.70	0.46	Limited
DDT	10	0.12	0.03	0.25	0.17	8
Chlordane	10	0.008	0.001	0.02	0.01	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.000	0.029				
DDT	0.072	0.060				
Chlordane	0.015	0.000				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>Limited</b>

**Existing Advisory:** Women and children should not eat more than 1 meal per month of carp from the Grand River downstream of Webber Dam due to PCBs.

**Recommendation:** Sensitive populations should not eat these fish. Healthy adults should limit consumption of carp from the Grand River between the Webber Dam and Grand Haven to no more than 1 or 2 meals per year due to PCBs. Mercury and DDT would cause advisories.





**Channel Catfish**

**Grand River  
Webber Dam to Grand Haven**

**Ionia, Kent,  
& Ottawa Counties**

**Hg Analysis:**

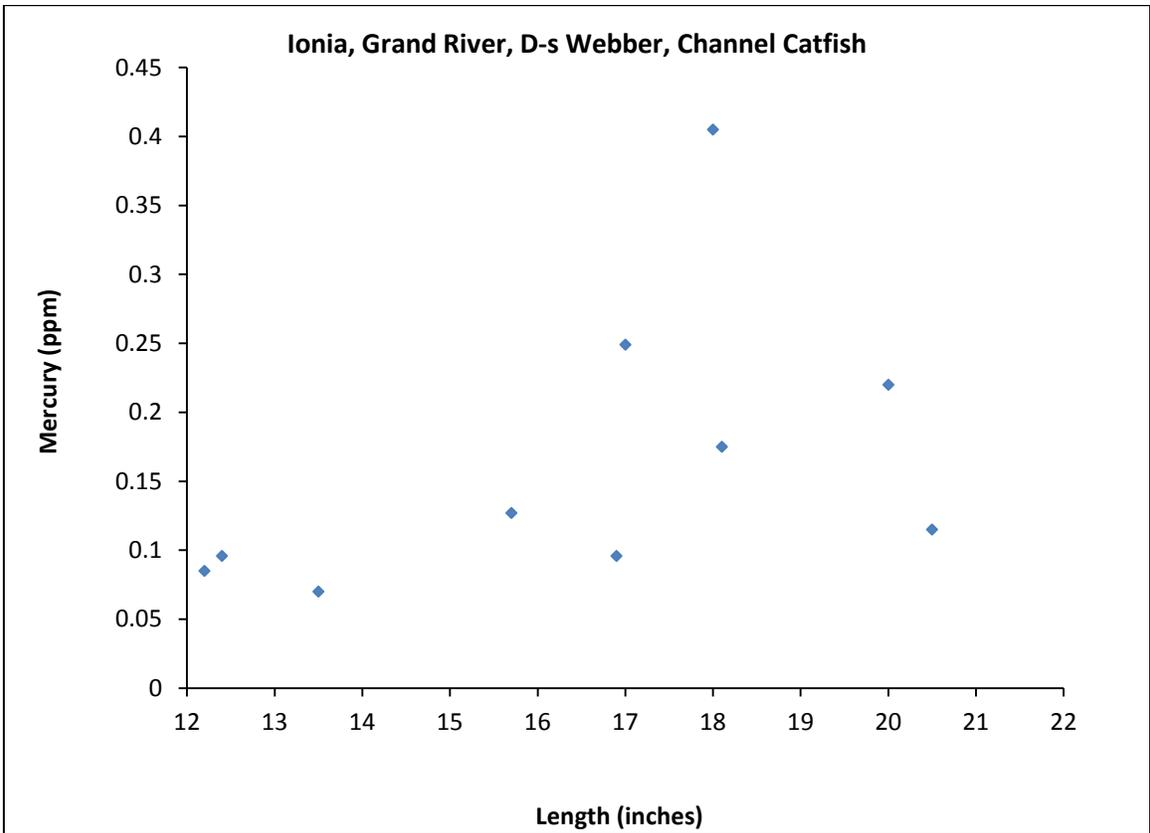
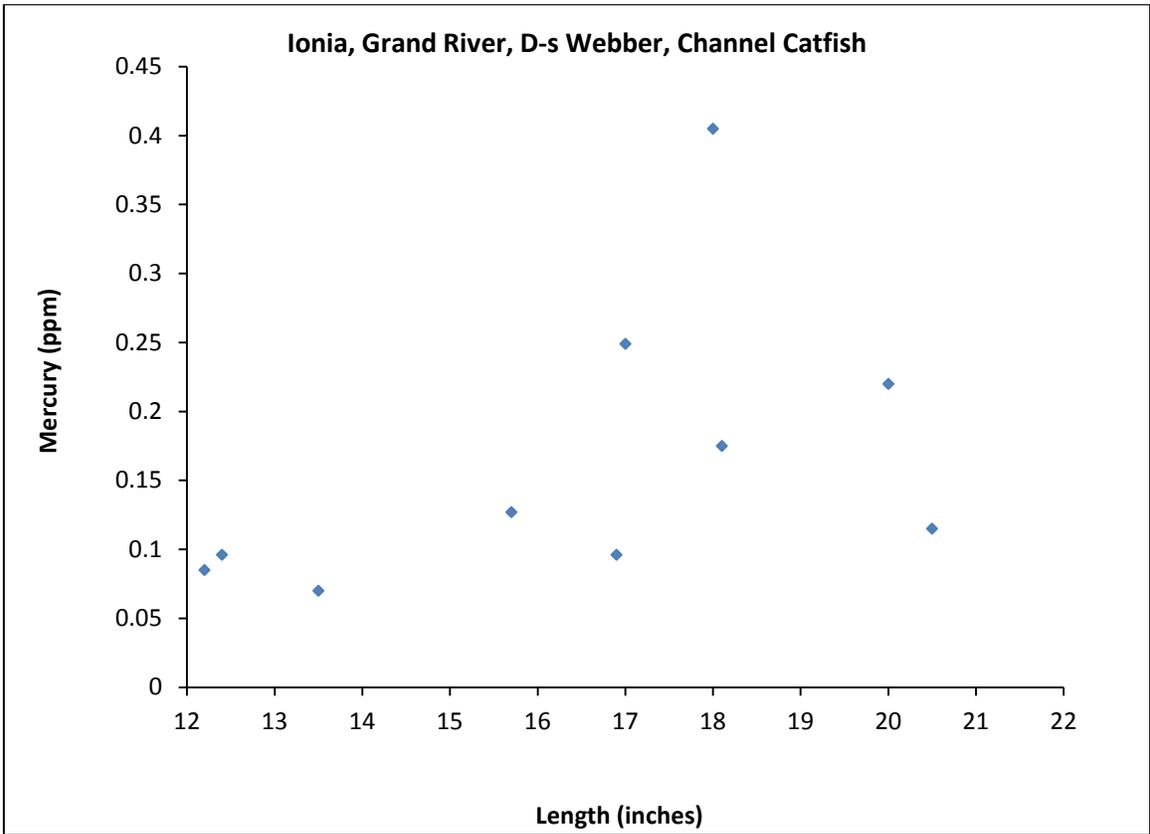
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2006	2006	10	12.2	12	12.2	20.5
Datasets available: 2006						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.16	0.07	0.40	0.24	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.232	0.351				

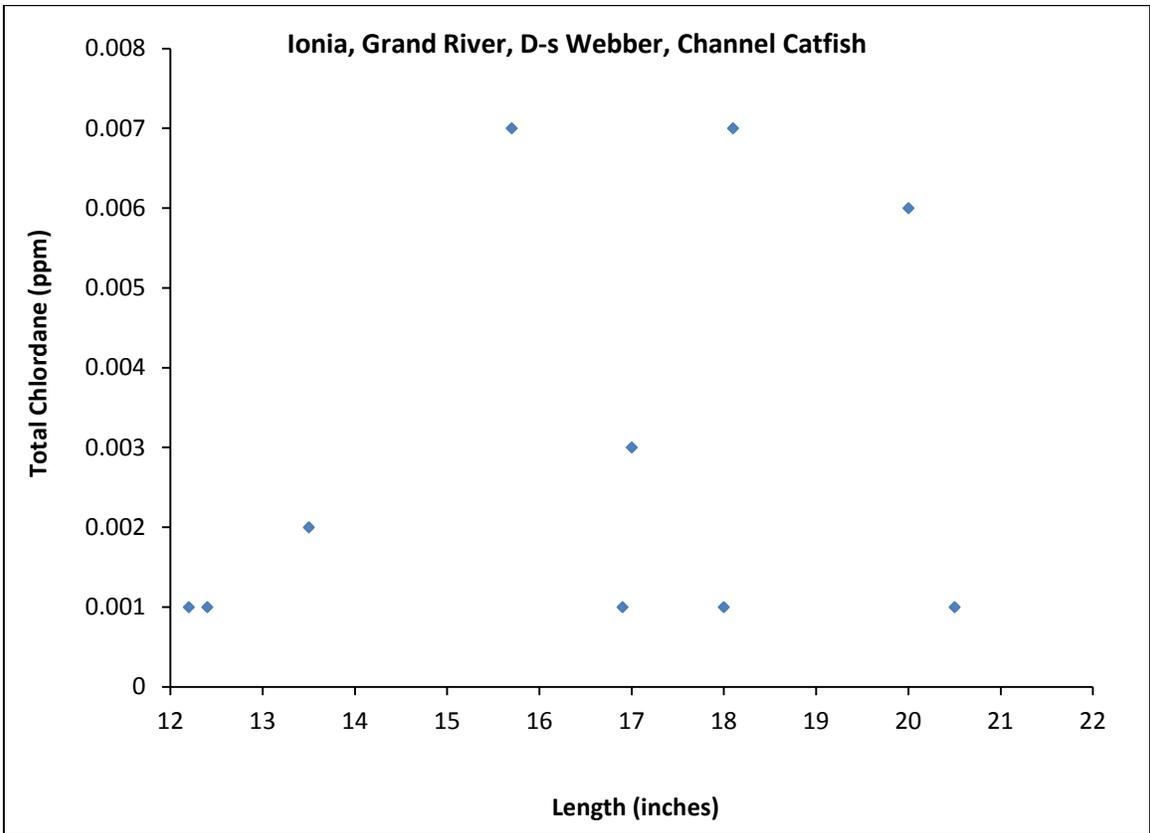
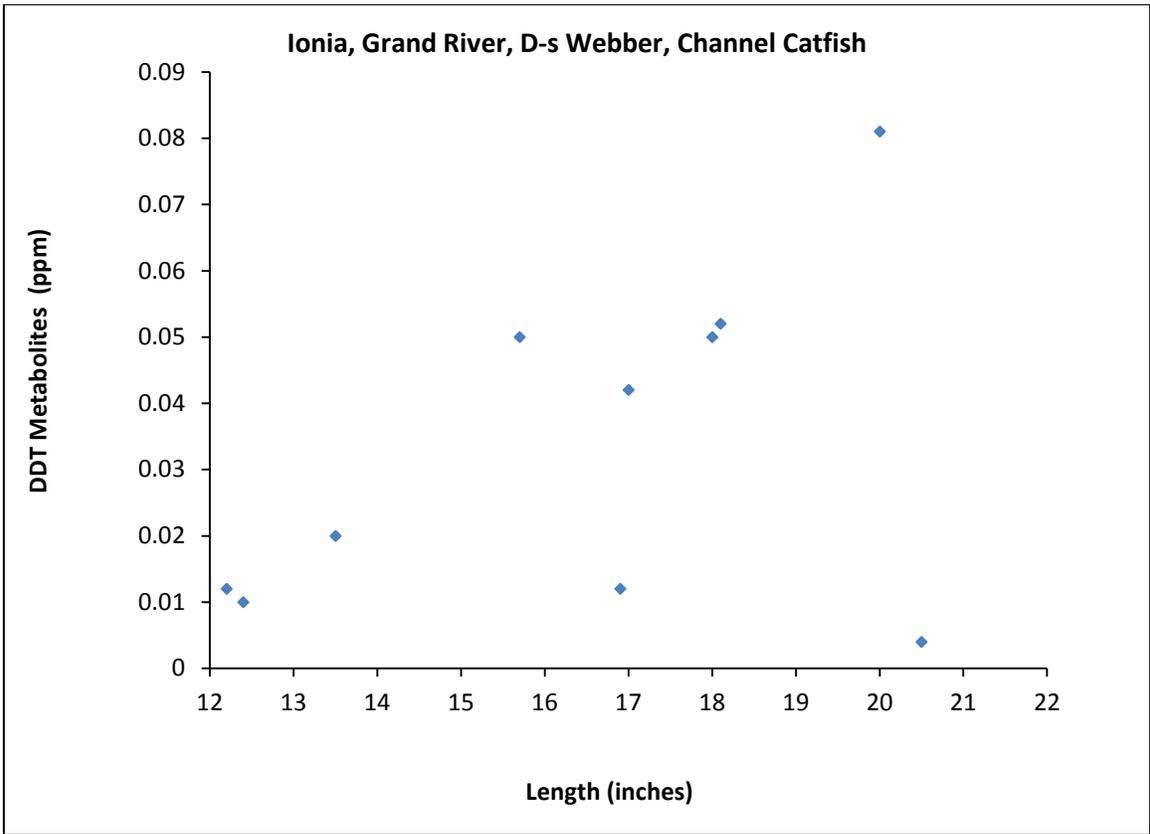
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2006	2006	10	12.2	12	12.2	20.5
Datasets available: 2006						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.05	0.001	0.11	0.08	2
DDT	10	0.03	0.004	0.08	0.05	16
Chlordane	10	0.003	0.001	0.007	0.004	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.096	0.018				
DDT	0.219	0.053				
Chlordane	0.097	0.086				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Women and children should not eat more than 1 meal per week of channel catfish from the Grand River downstream of Webber Dam smaller than 18 inches or more than 1 meal per month of those fish larger than 18 inches due to PCBs.

**Recommendation:** No one should eat more than 2 meals per month of channel catfish from the Grand River between Webber Dam and Grand Haven due to PCBs. Mercury would cause an advisory.





**Northern Pike**

**Grand River  
Webber Dam to Grand Haven**

**Ionia, Kent,  
& Ottawa Counties**

**Hg Analysis:**

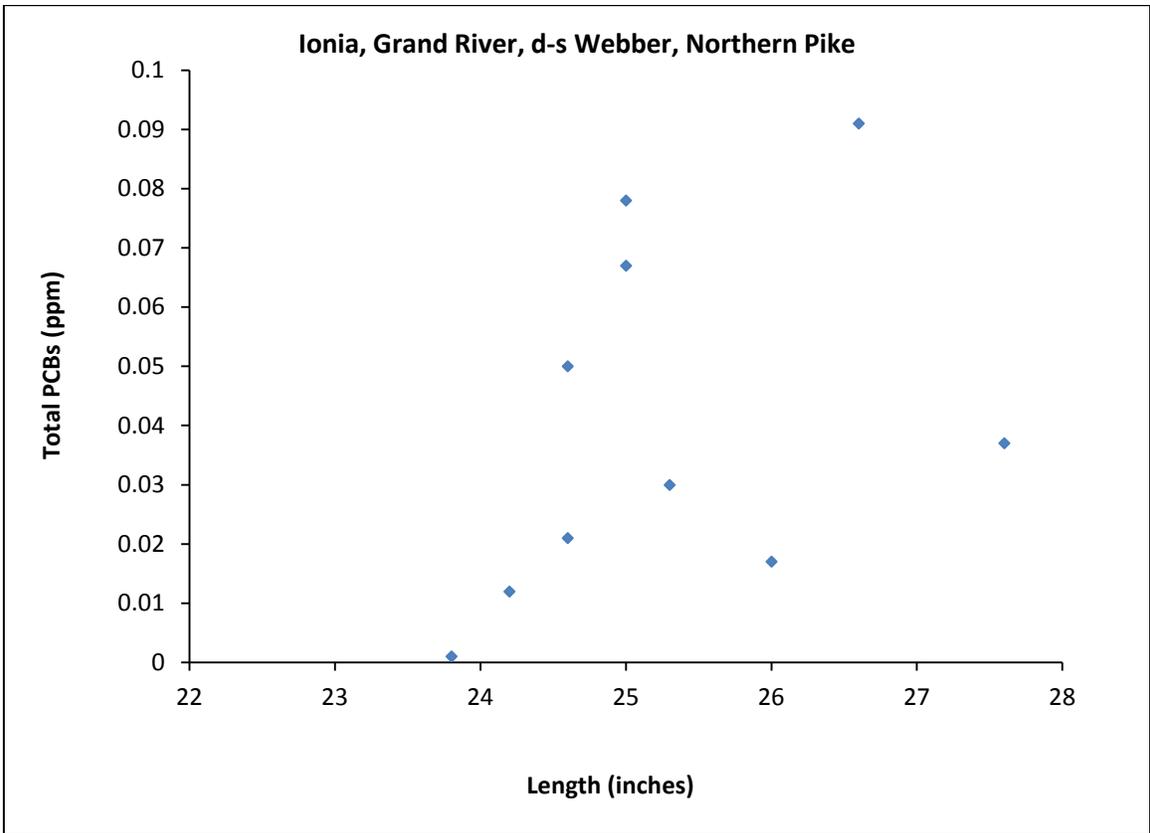
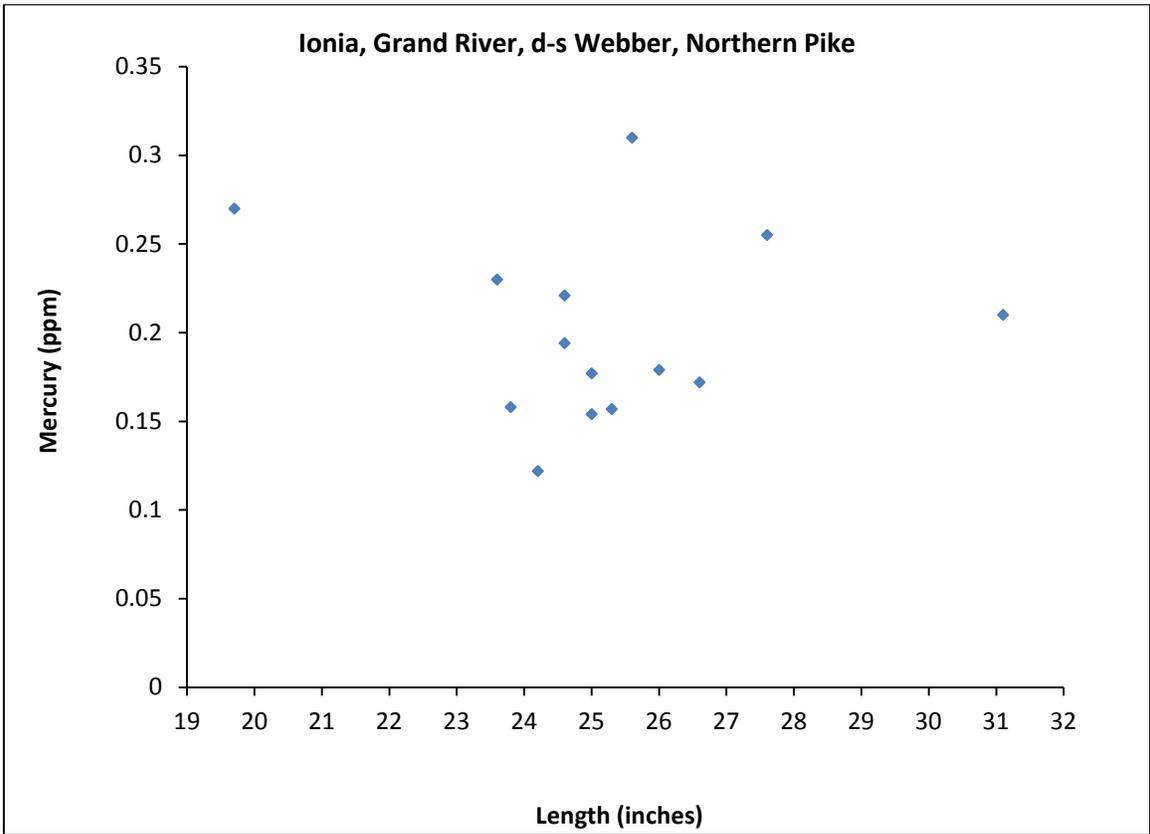
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	2007	14	19.7	24	23.6	31.1
Datasets available: 1998, 1999, 2007						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	13	0.20	0.12	0.31	0.23	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.005	0.001				

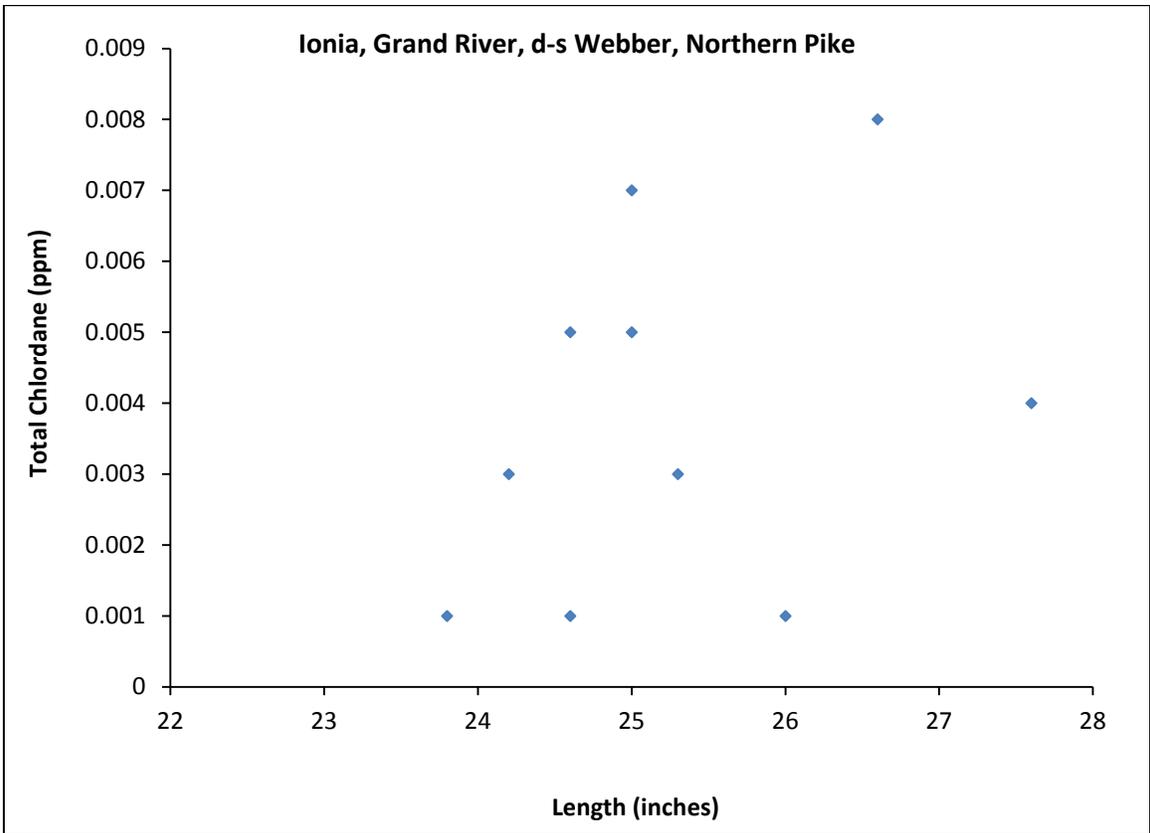
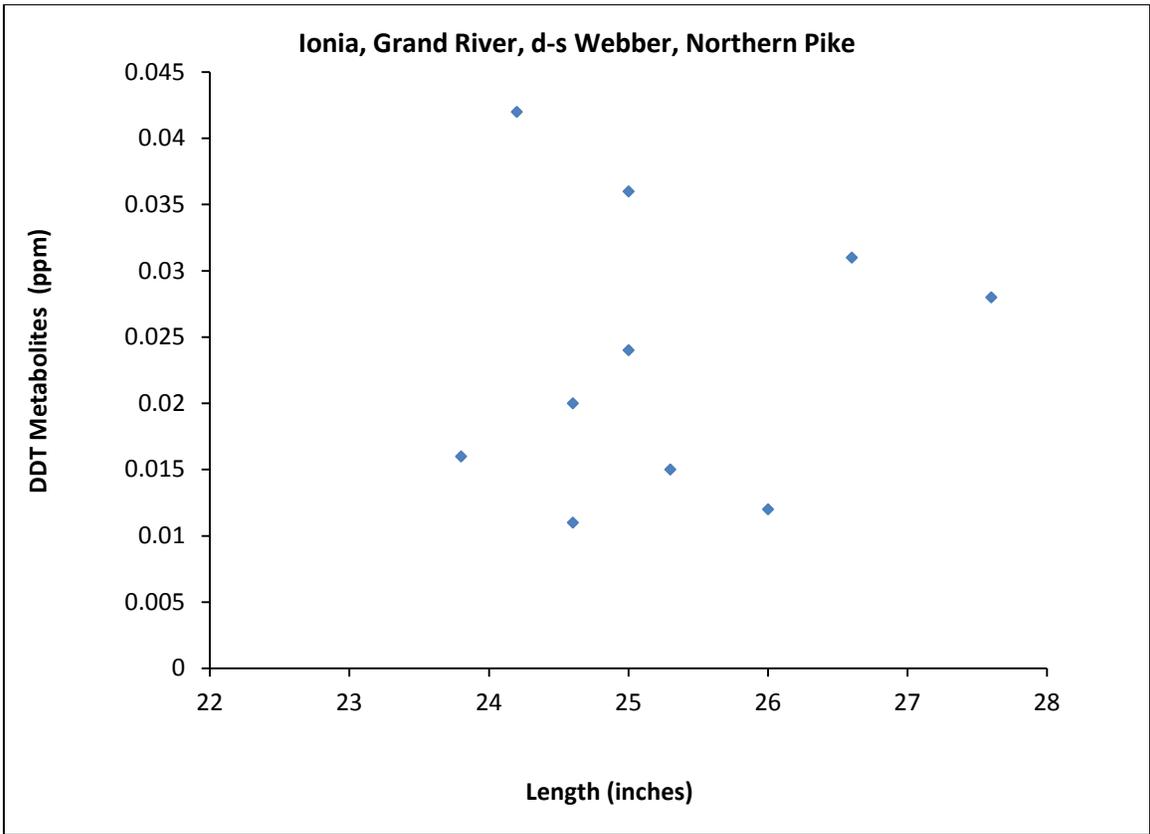
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2007	2007	10	23.8	24	23.8	27.6
Datasets available: 1998, 1999, 2007						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.040	0.001	0.09	0.06	2
DDT	10	0.024	0.01	0.04	0.03	16
Chlordane	10	0.004	0.001	0.008	0.01	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.145	0.255				
DDT	0.009	0.022				
Chlordane	0.116	0.111				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Women and children should not eat more than 1 meal per week of northern pike from the Grand River downstream of Webber Dam due to PCBs.

**Recommendation:** No one should eat more than 2 meals per month of northern pike from the Grand River between Webber Dam and Grand Haven less than 30 inches due to PCBs or more than 2 meals per month of those fish larger than 30 inches due to mercury and PCBs. Statewide length break applied as the size range of the collected fish was limited.





**Redhorse Sucker**

**Grand River  
Webber Dam to Grand Haven**

**Ionia, Kent,  
& Ottawa Counties**

**Hg Analysis:**

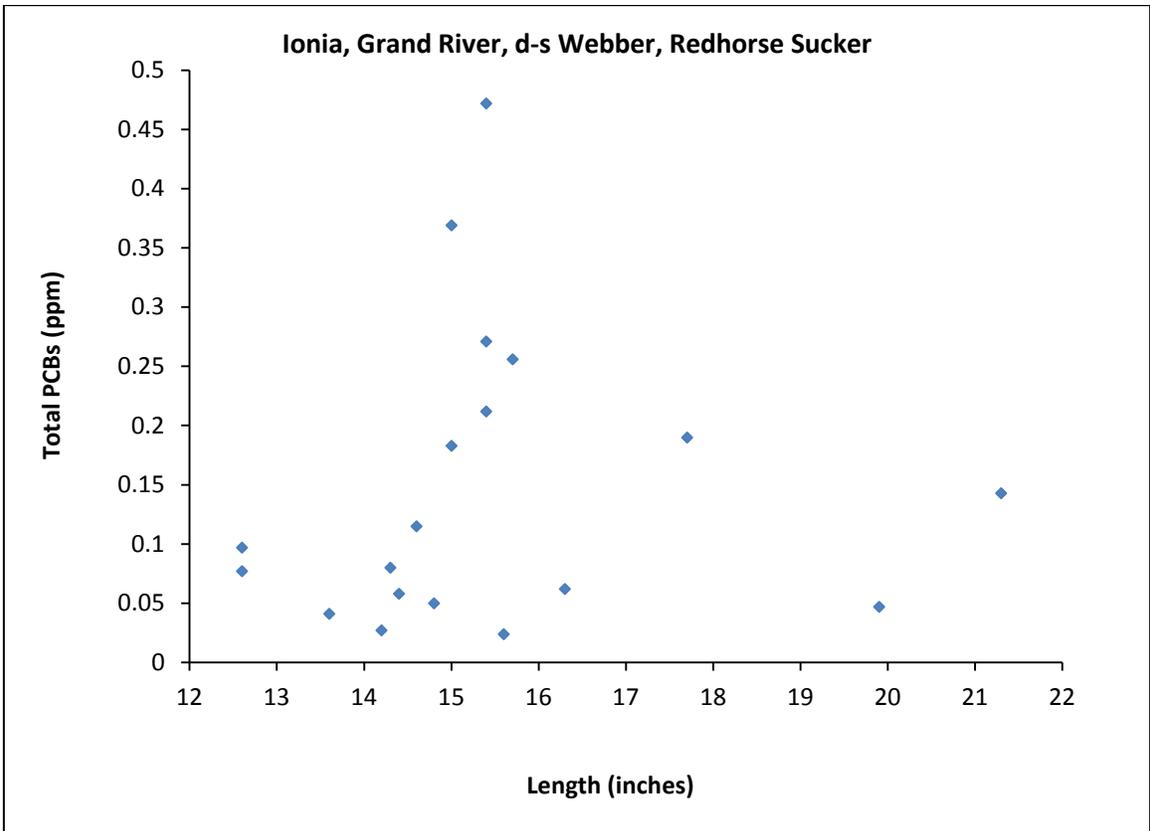
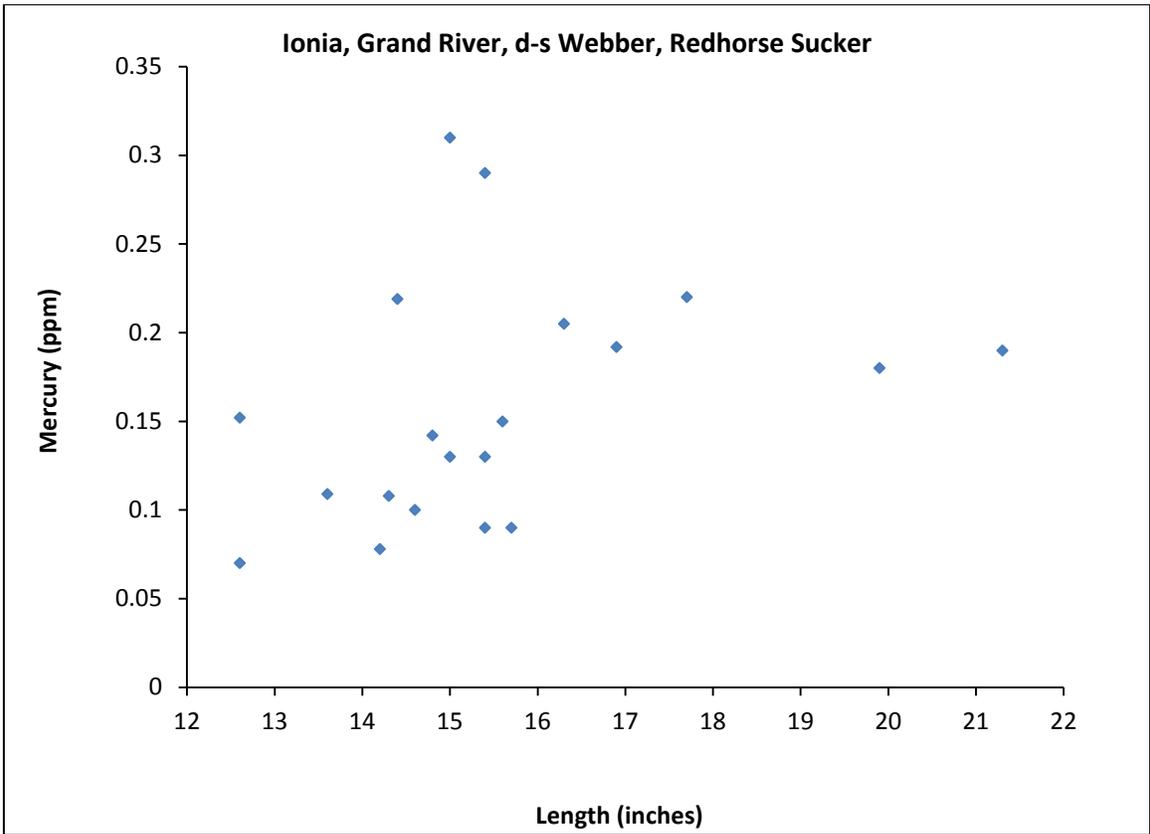
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	2006	20	12.6	na	12.6	21.3
Datasets available: 1998, 2006						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	20	0.16	0.07	0.31	0.19	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.120	0.176				

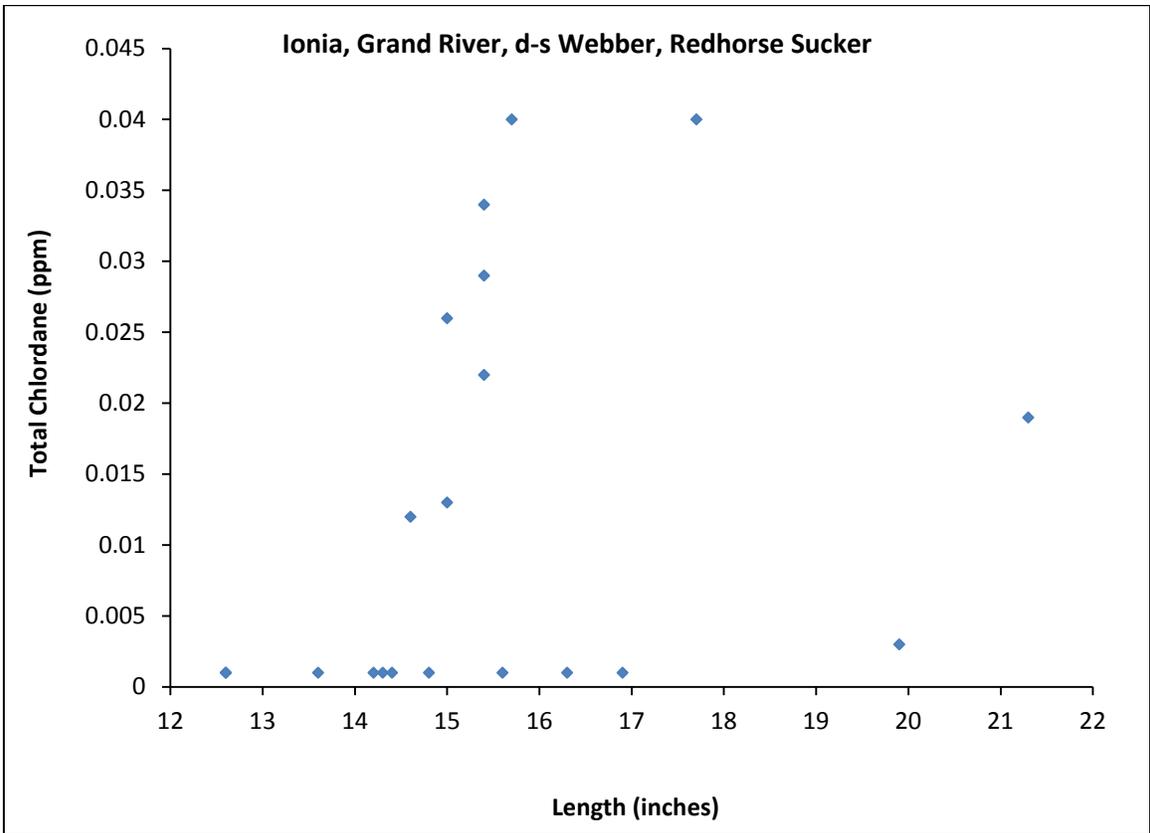
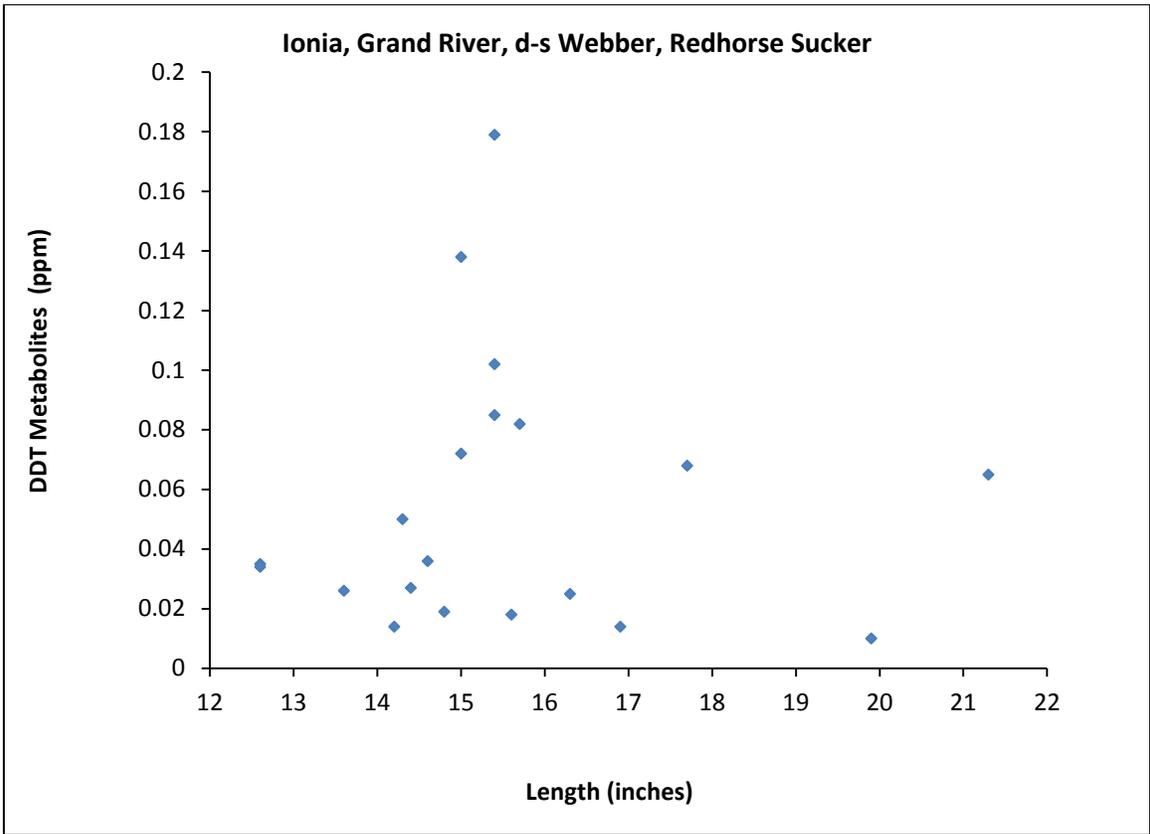
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	2006	20	12.6	na	12.6	21.3
Datasets available: 1998, 2006						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	19	0.15	0.02	0.47	0.21	1
DDT	20	0.06	0.01	0.18	0.08	16
Chlordane	20	0.01	0.001	0.04	0.02	--
Toxaphene	20	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.006	0.014				
DDT	0.001	0.002				
Chlordane	0.076	0.129				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Women and children should not eat more than 1 meal per month of sucker from the Grand River downstream of Webber Dam due to PCBs.

**Recommendation:** No one should eat more than 1 meal per month of sucker from the Grand River between Webber Dam and Grand Haven due to PCBs. Mercury would cause an advisory.





**Walleye**

**Grand River  
Webber Dam to Grand Haven**

**Ionia, Kent,  
& Ottawa Counties**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1986	2013	41	13.4	15	14.6	23.6
Datasets available: 1986, 1991, 1998, 2006, 2013						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	39	0.27	0.03	1.1	0.33	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.140	0.119				

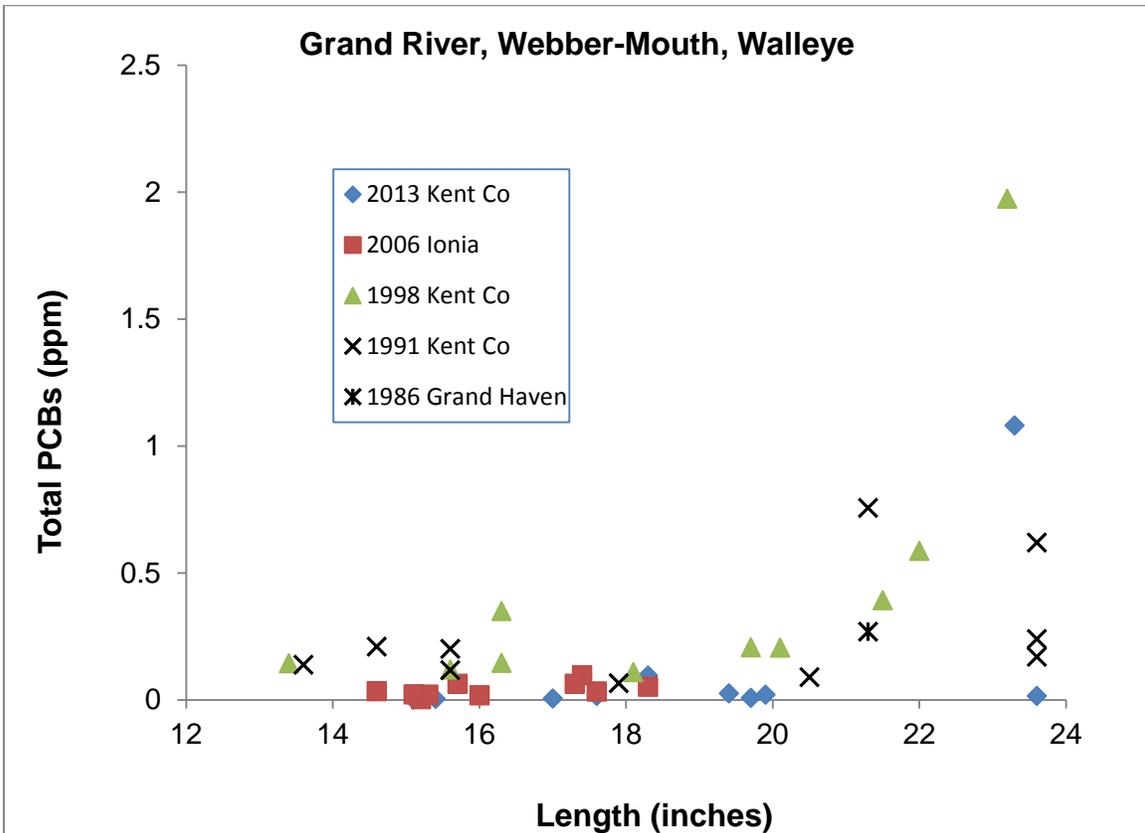
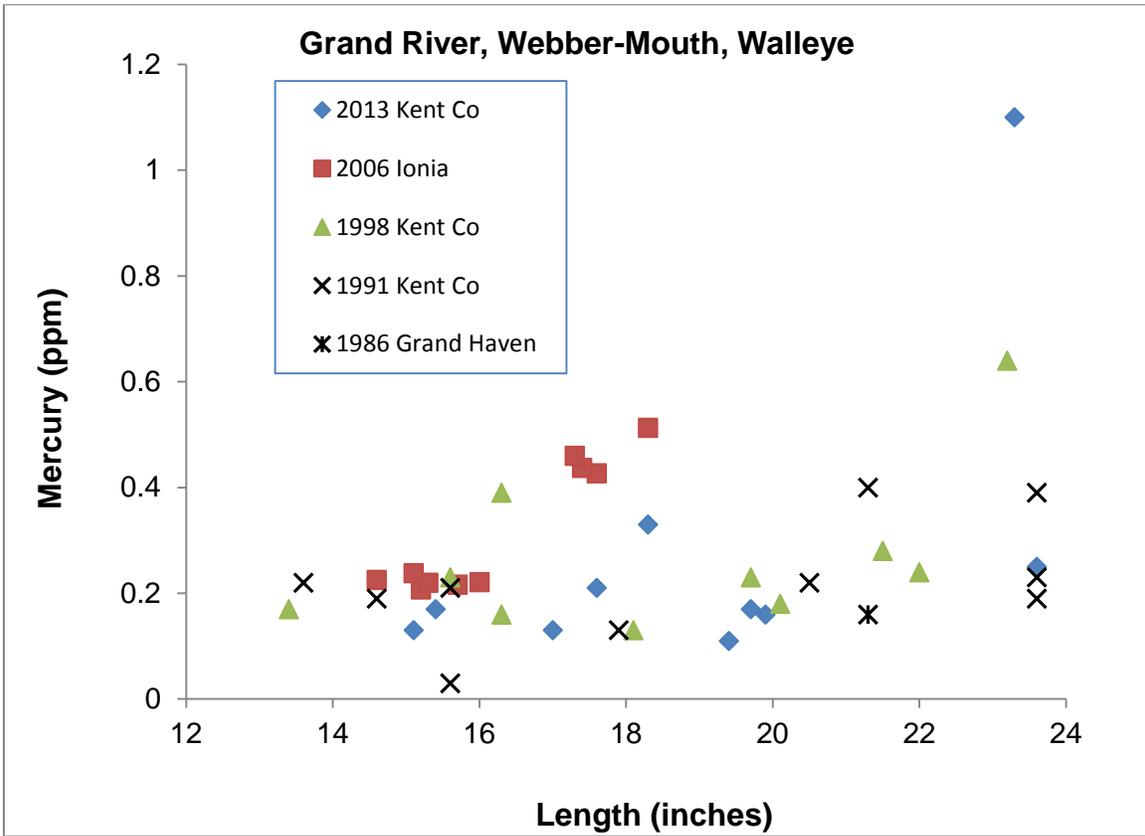
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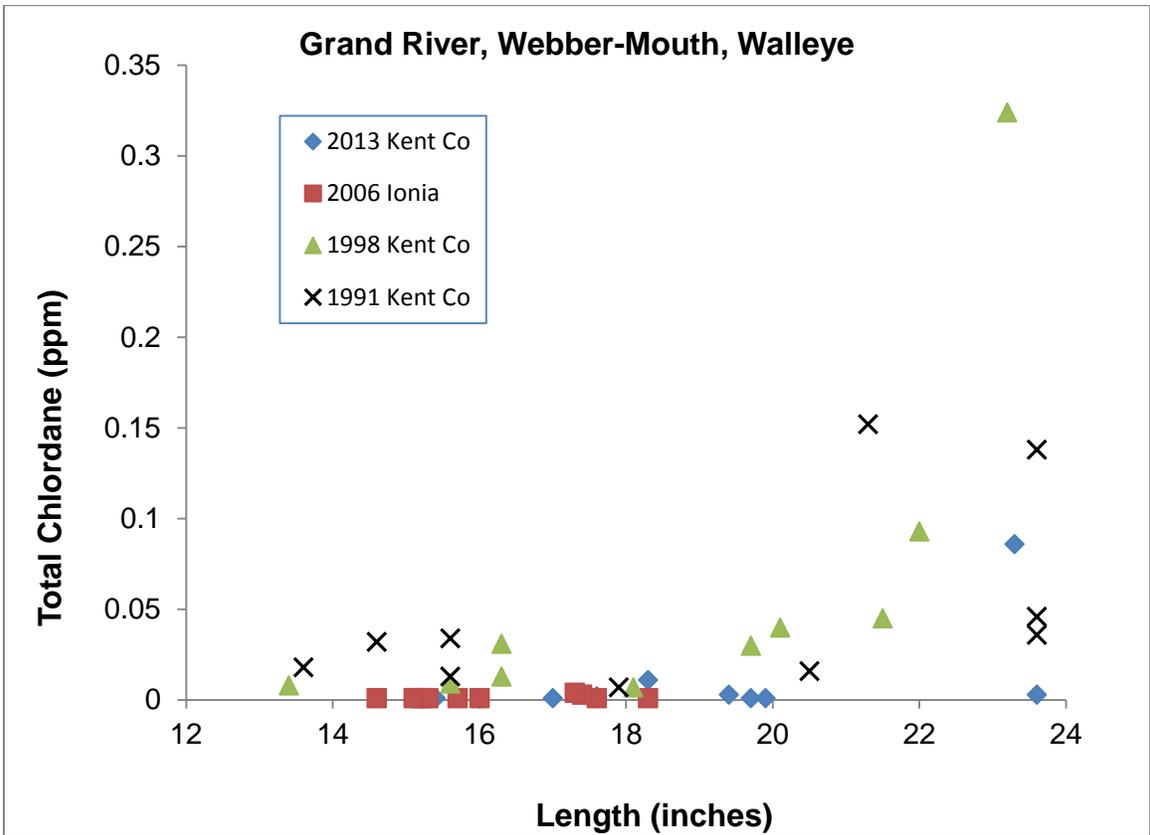
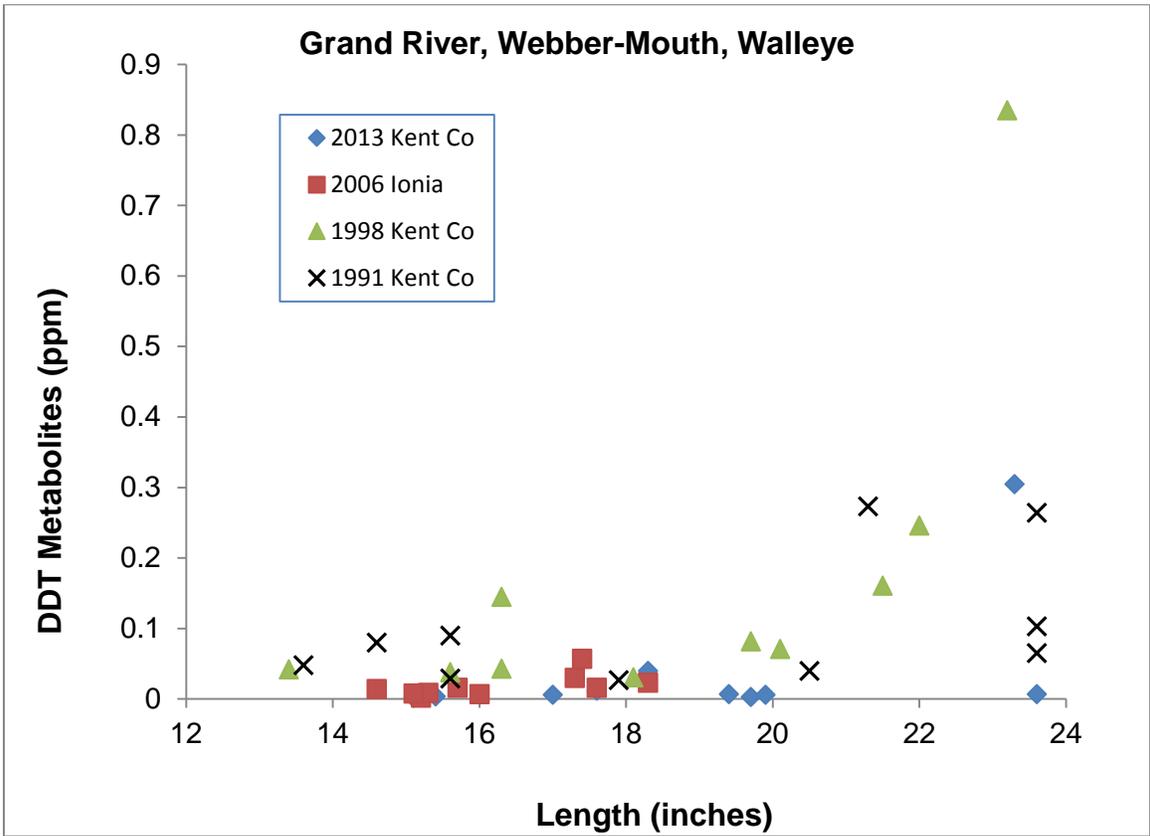
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1998	2013	30	13.4	15	14.6	23.6
Datasets available: 1986, 1991, 1998, 2006, 2013						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	29	0.199	0.002	1.98	0.36	0.5
DDT	29	0.077	0.002	0.84	0.14	12
Chlordane	29	0.025	0.001	0.32	0.05	--
Toxaphene	29	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.332	0.240				
DDT	0.306	0.244				
Chlordane	0.300	0.355				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>0.5</b>

**Existing Advisory:** Sensitive populations should not eat these fish. Healthy adults should limit consumption of walleye from the Grand River downstream of the Webber Dam to no more than 1 or 2 meals per year due to PCBs.

**Recommendation:** No one should eat more than 6 meals per year of walleye from the Grand River downstream of the Webber Dam.

Note: exclusion of 1998 data, which pre-dates the most recent results by 15 years, leads to a 1 meal per month recommendation.





# Hillsdale County

**Bluegill**

**Bird Lake**

**Hillsdale County**

**Hg Analysis:**

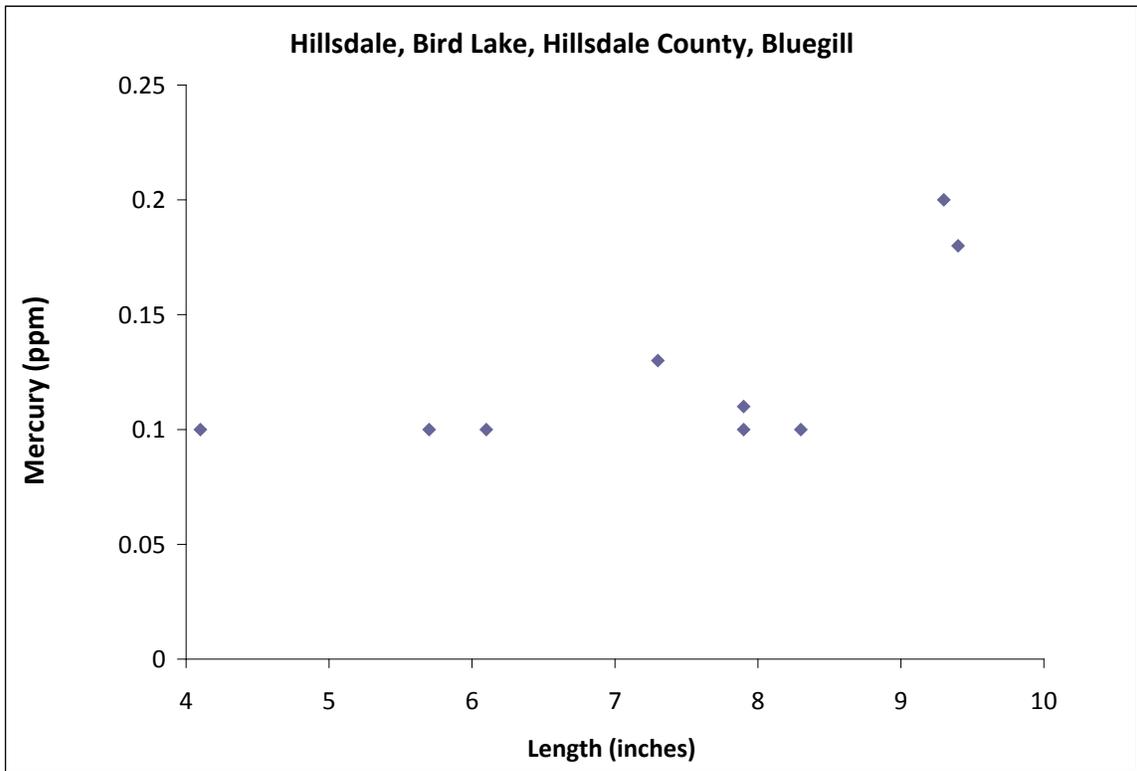
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1987	1987	9	4.1	na	4.1	9.4
Datasets available: 1987						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	9	0.12	0.10	0.20	0.15	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.459	0.467				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
		0				
Datasets available:						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	NA	--	--	--	--
DDT	0	NA	--	--	--	--
Chlordane	0	NA	--	--	--	--
Toxaphene	0	NA	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>4</b>

**Existing Advisory:** There are no consumption advisories for Bird Lake bluegill.

**Recommendation:** No one should eat more than 4 meals per month of Bird Lake bluegill and sunfish due to mercury.



**Northern Pike**

**Bird Lake**

**Hillsdale County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples		Meal Category
Earliest	Most Recent				Min	Max	
1987	1987	1	33.7	24	33.7	33.7	
Datasets available: 1987							
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category	
Mercury	1	0.200	--	--	--	--	
Chemical	Linear Regression	Exponential Regression					
	R <sup>2</sup>	R <sup>2</sup>					
Mercury	--	--					

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples		Meal Category
Earliest	Most Recent				Min	Max	
--	--	0	--	--	--	--	
Datasets available: --							
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category	
PCB	0	--	--	--	--	--	
DDT	0	--	--	--	--	--	
Chlordane	0	--	--	--	--	--	
Toxaphene	0	--	--	--	--	--	
Chemical	Linear Regression	Exponential Regression					
	R <sup>2</sup>	R <sup>2</sup>					
PCB	--	--					
DDT	--	--					
Chlordane	--	--					
Toxaphene	--	--					
<b>Final meal category based on UCL:</b>							<b>--</b>

**Existing Advisory:** Bird Lake northern pike are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Bird Lake northern pike. The statewide consumption guidelines recommend that no one eat more than 1 meal per month of northern pike over 30 inches or more than 2 meals per month of northern pike under 30 inches in length.

**Hg Analysis:**

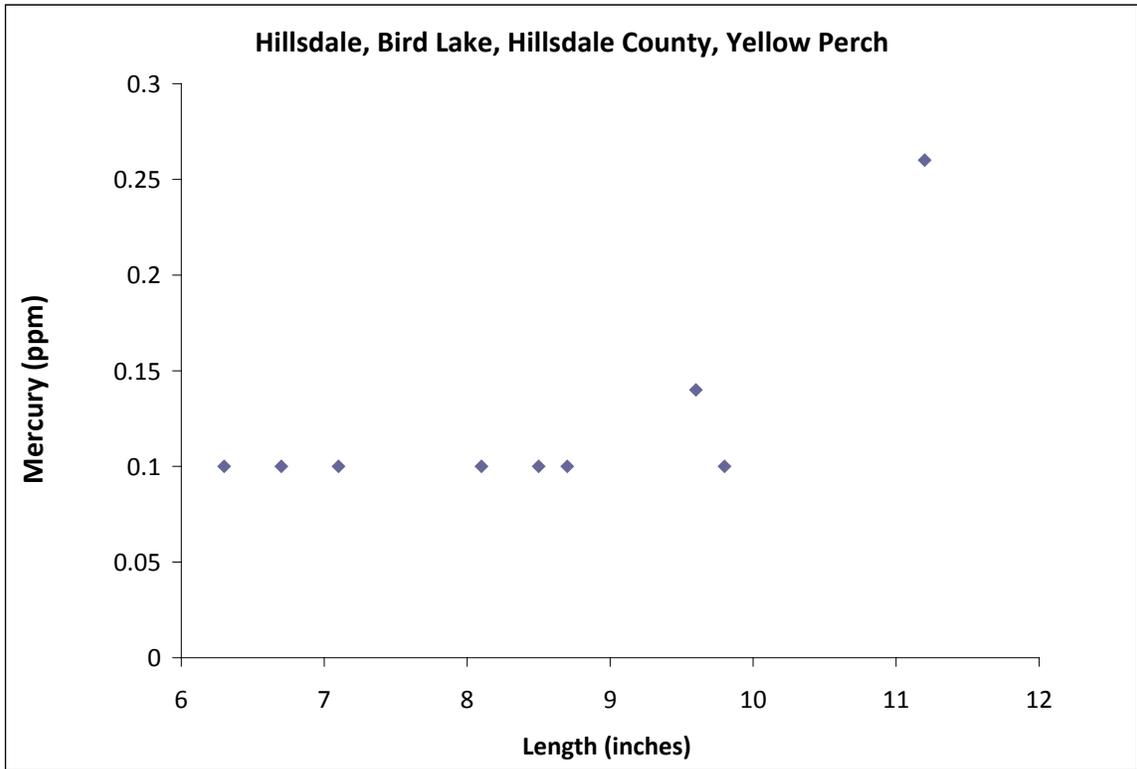
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1987	1987	9	6.3	NA	6.3	11.2
Datasets available: 1987						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	9	0.12	0.10	0.26	0.16	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.511	0.532				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
--	--	0	--	--	--	--
Datasets available: --						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	0	--	--	--	--	--
DDT	0	--	--	--	--	--
Chlordane	0	--	--	--	--	--
Toxaphene	0	--	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>4</b>

**Existing Advisory:** Bird Lake yellow perch are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 4 meals per month of Bird Lake yellow perch due to mercury.



# Ingham County

**Black Crappie**

**Fidelity Lake**

**Ingham County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	1	12.9	NA	12.9	12.9
Datasets available: 2010						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	1	0.57	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	1	12.9	NA	12.9	12.9
Datasets available: 2010						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	1	ND	--	--	--	--
DDT	1	0.001	--	--	--	--
Chlordane	1	ND	--	--	--	--
Toxaphene	1	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	--	--				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Fidelity Lake black crappie are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for Fidelity Lake crappie. The statewide consumption guidelines recommend that no one eat more than 4 meals per month of crappie from inland waters.

## Bluegill

## Fidelity Lake

## Ingham County

## Hg Analysis:

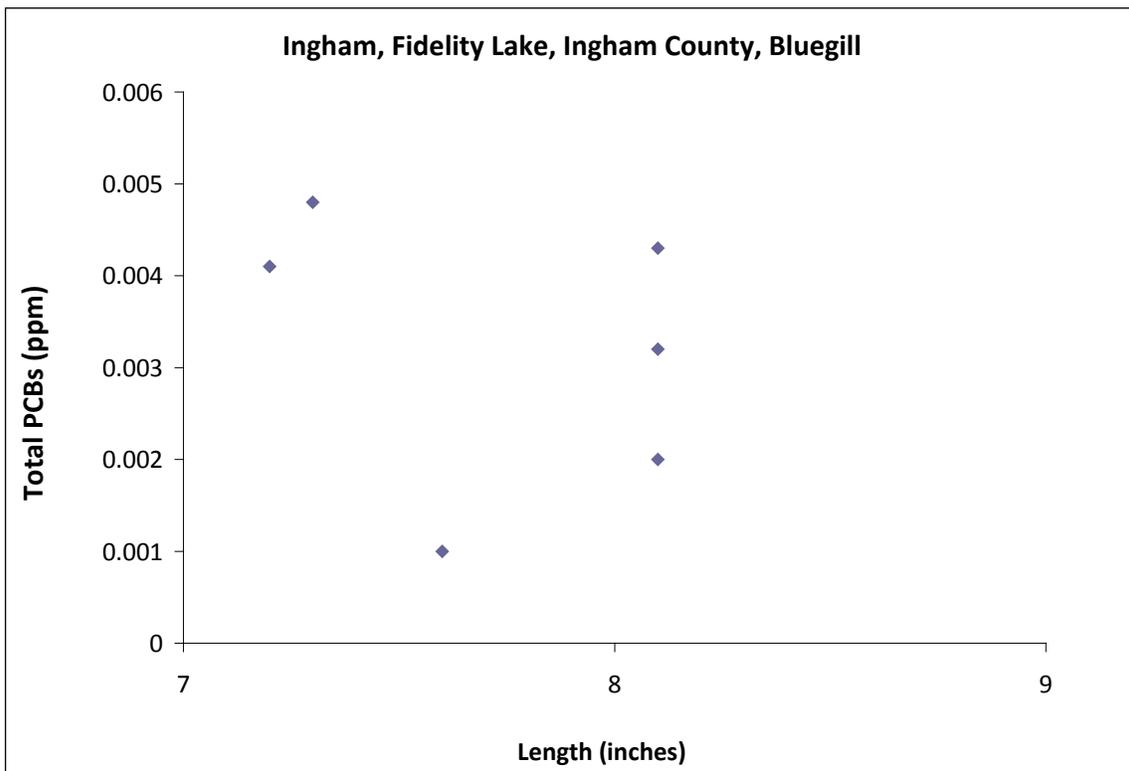
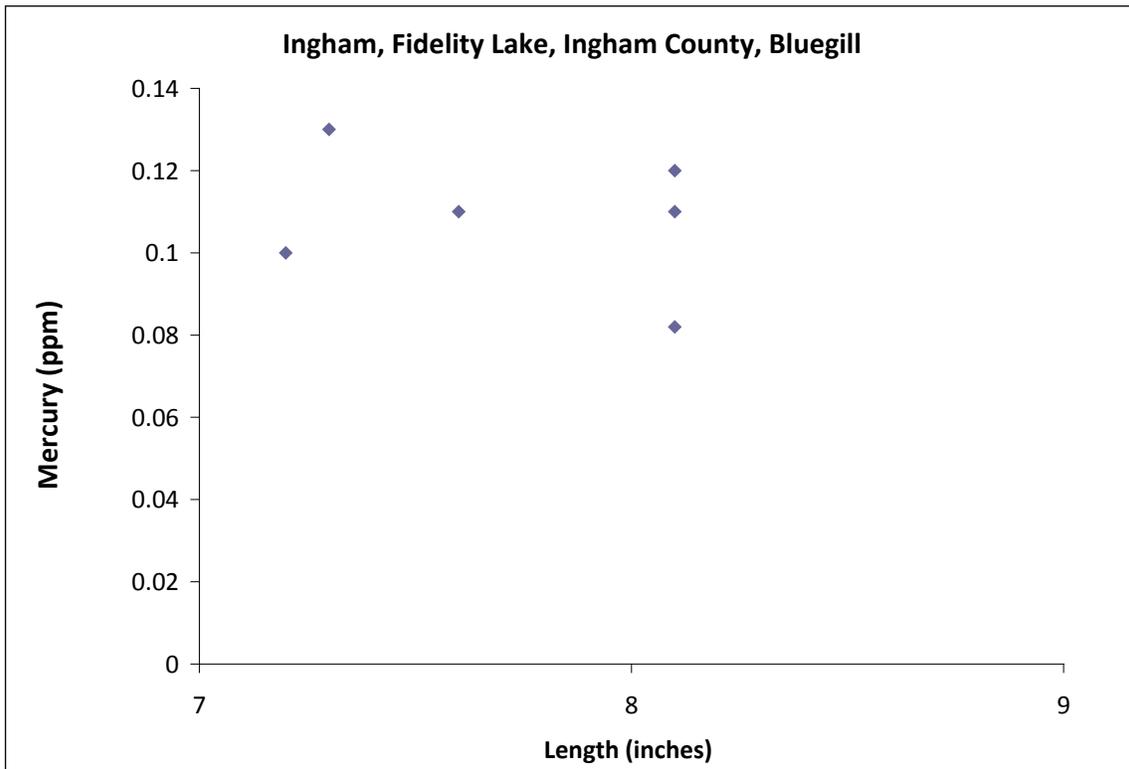
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	6	7.2	na	7.2	8.1
Datasets available: 2010						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	6	0.11	0.08	0.13	0.13	8
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.080	0.083				

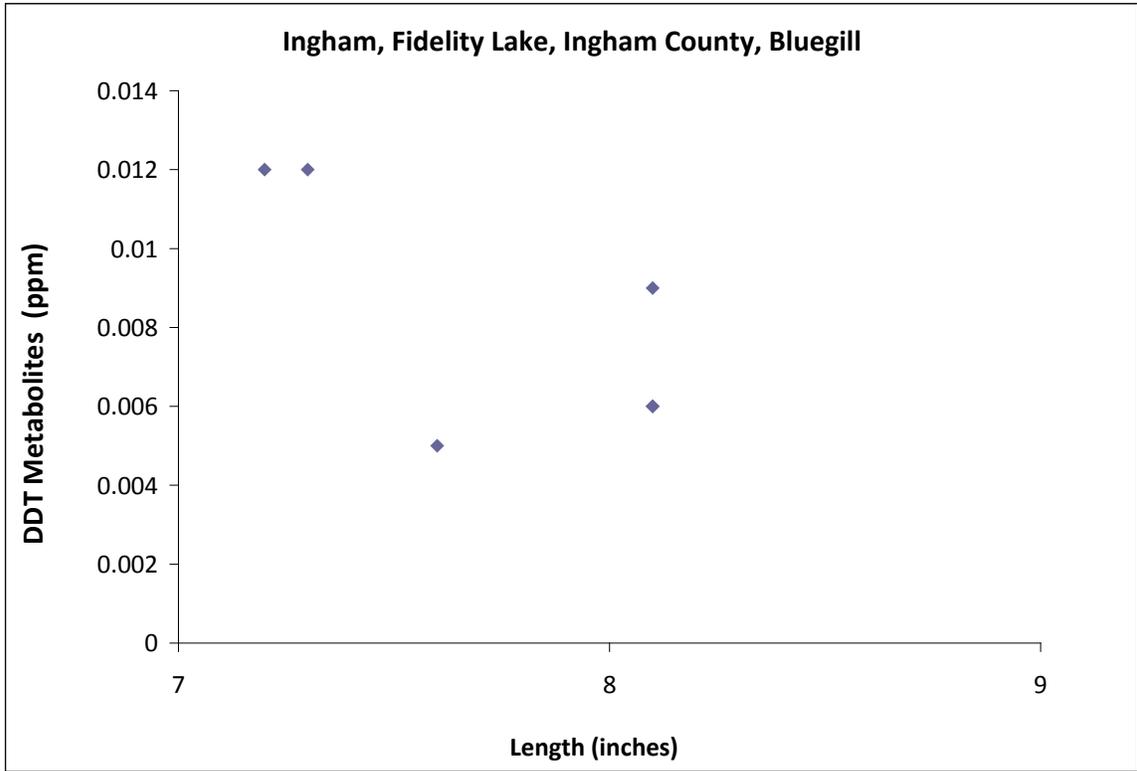
## Organics Analysis:

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	6	7.2	NA	7.2	8.1
Datasets available: 2010						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	6	0.003	0.001	0.005	0.000	16
DDT	6	0.008	0.005	0.012	0.010	16
Chlordane	6	ND	--	--	--	--
Toxaphene	6	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.087	0.029				
DDT	0.473	0.381				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>8</b>

**Existing Advisory:** There are no current consumption advisories for Fidelity Lake bluegill.

**Recommendation:** No one should eat more than 8 meals per month of Fidelity Lake bluegill and sunfish due to mercury.





**Largemouth Bass**

**Fidelity Lake**

**Ingham County**

**Hg Analysis:**

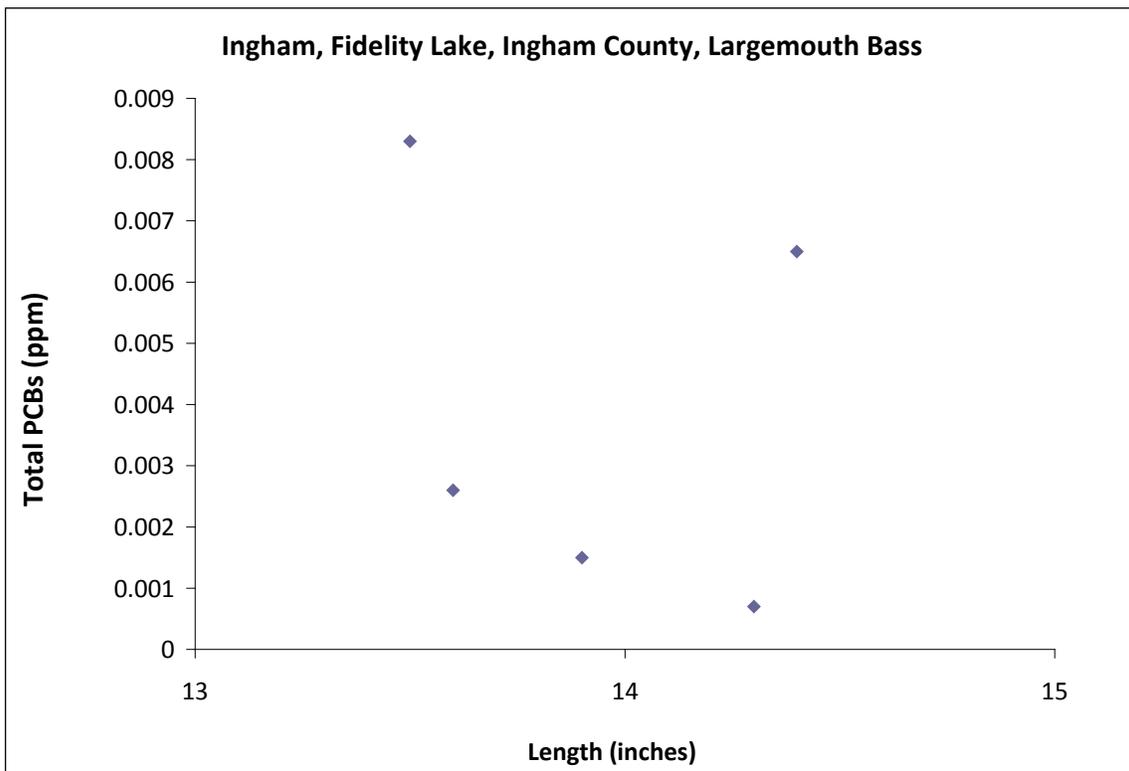
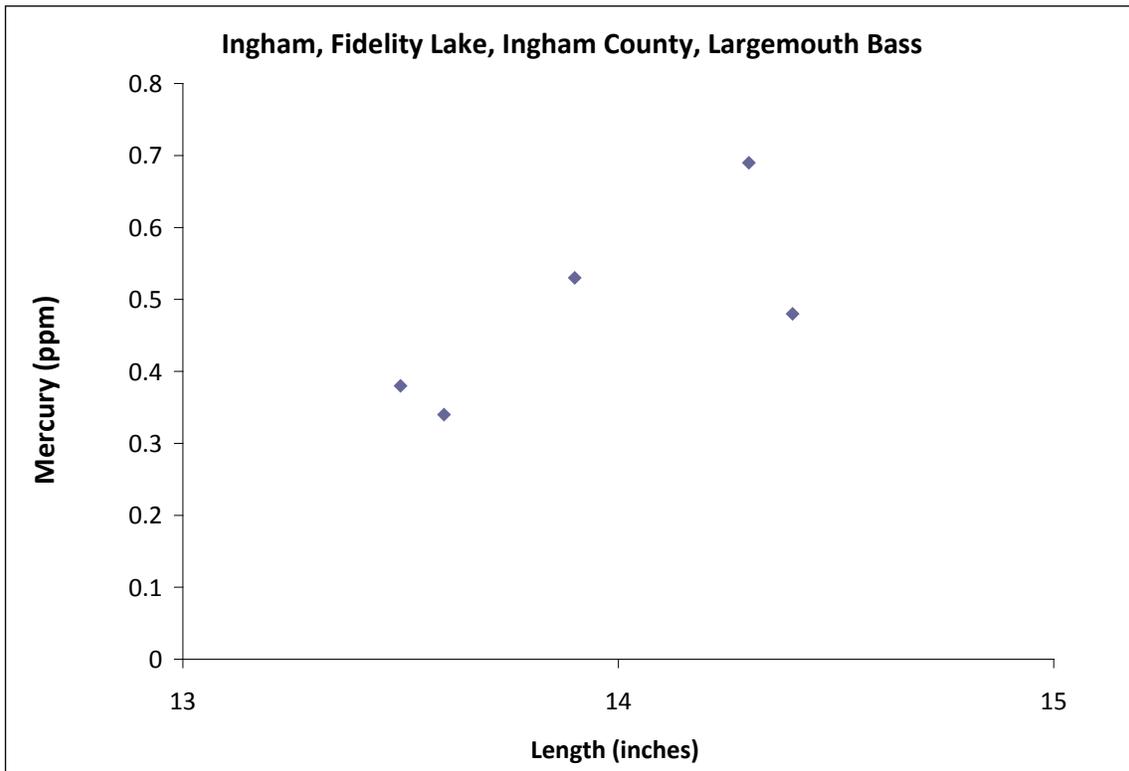
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	5	13.5	14	13.5	14.4
Datasets available: 2010						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	5	0.48	0.34	0.69	0.66	1
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.550	0.590				

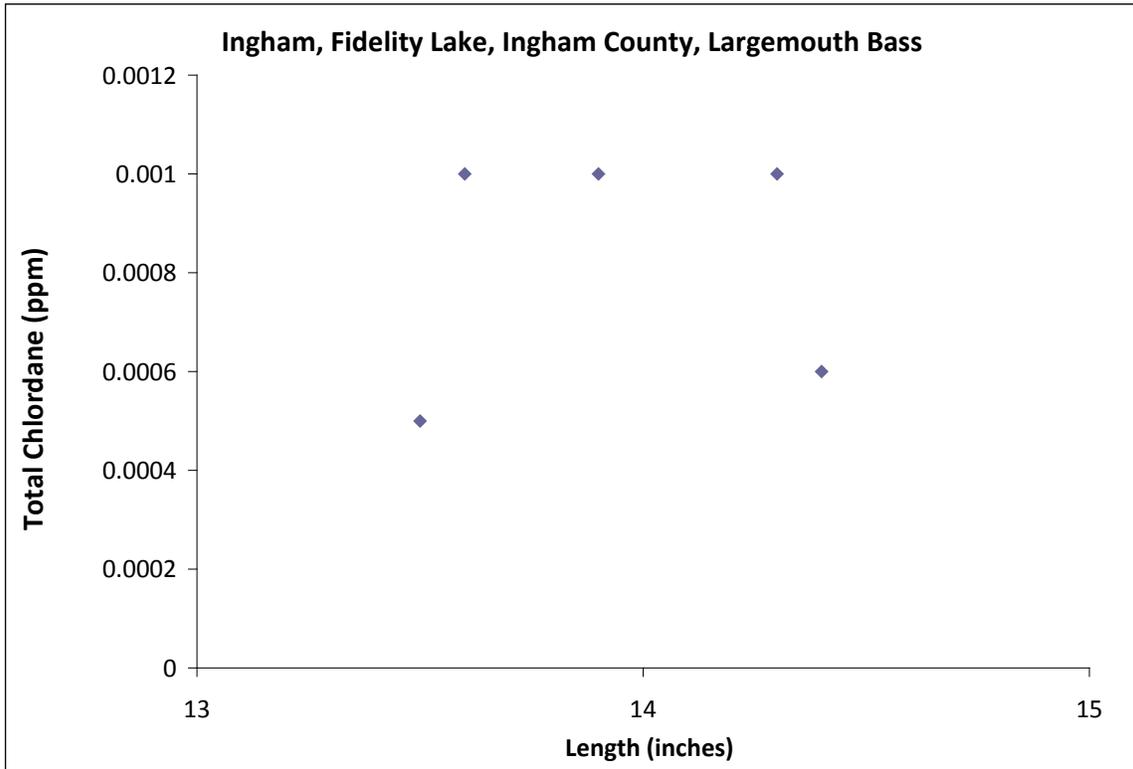
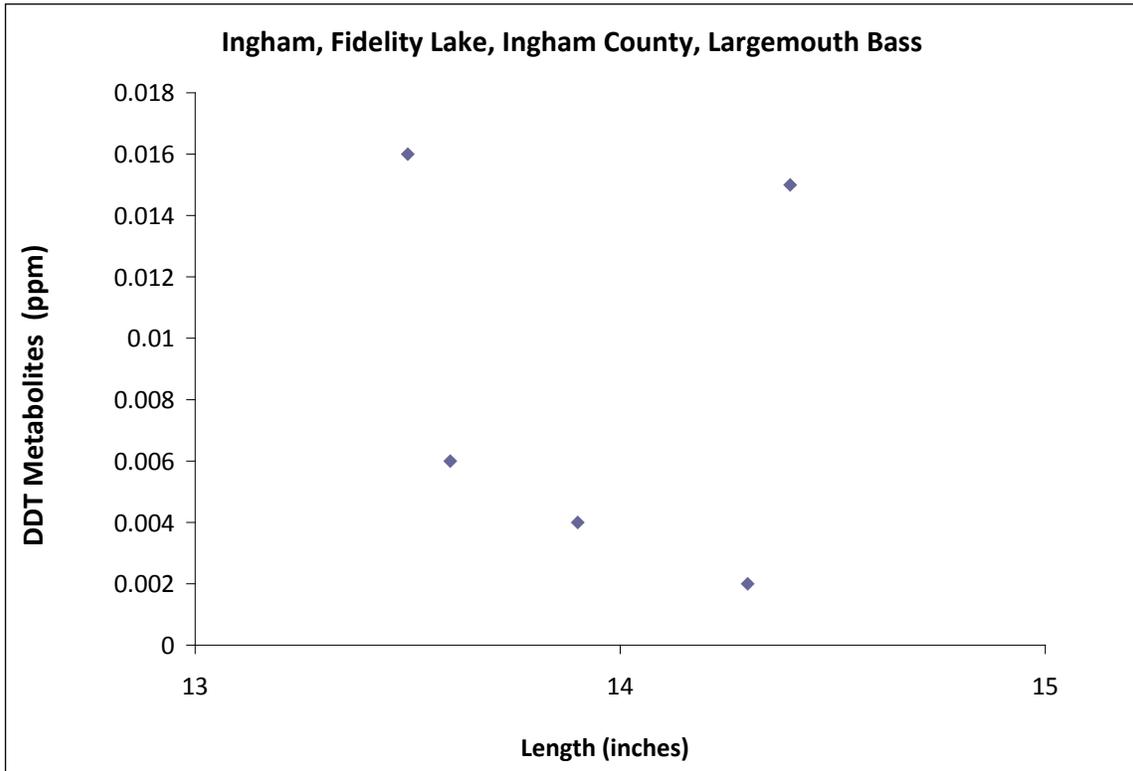
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	5	13.5	14	13.5	14.4
Datasets available: 2010						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	5	0.004	0.002	0.008	0.01	16
DDT	5	0.009	0.002	0.016	0.02	16
Chlordane	5	0.001	0.001	0.001	0.001	--
Toxaphene	5	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.064	0.106				
DDT	0.024	0.074				
Chlordane	0.008	0.017				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>1</b>

**Existing Advisory:** Fidelity Lake largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 1 meal per month of largemouth or smallmouth bass less than 18 inches or more than 6 meals per year of these fish greater than 18 inches. Statewide length break applied.





**Black Crappie**

**Lake Lansing**

**Ingham County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	8.1	NA	8.1	11.4
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.24	0.17	0.53	0.32	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.904	0.907				

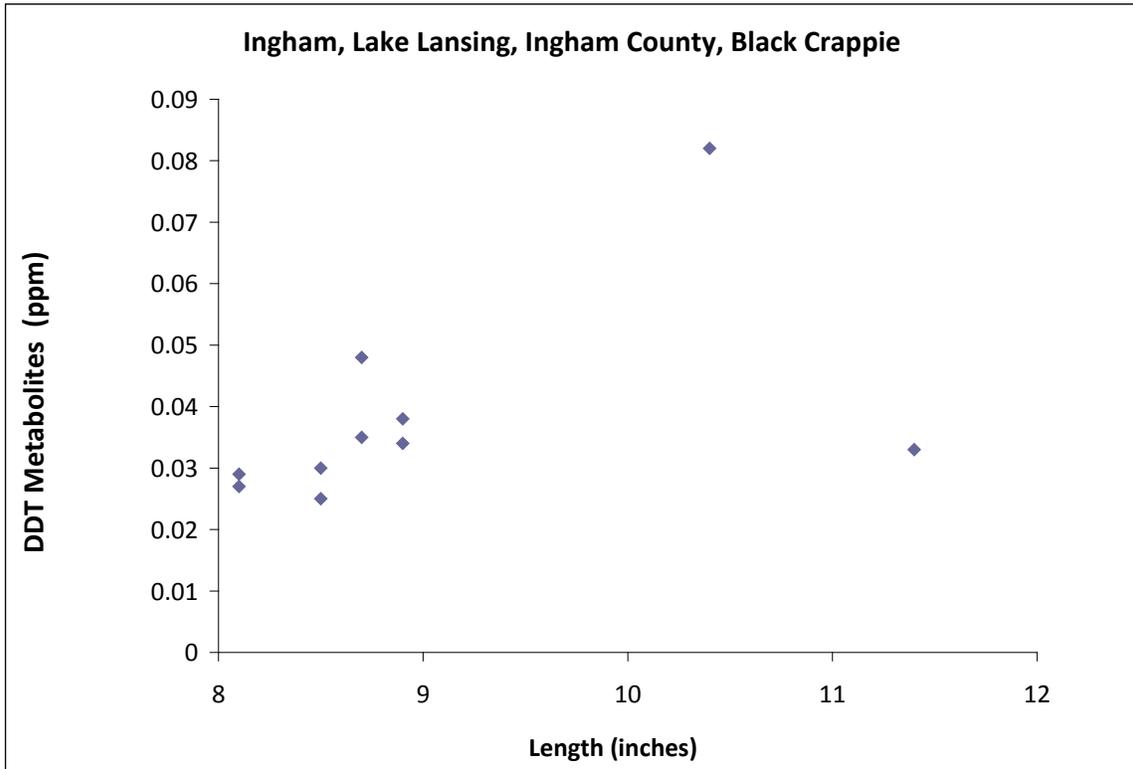
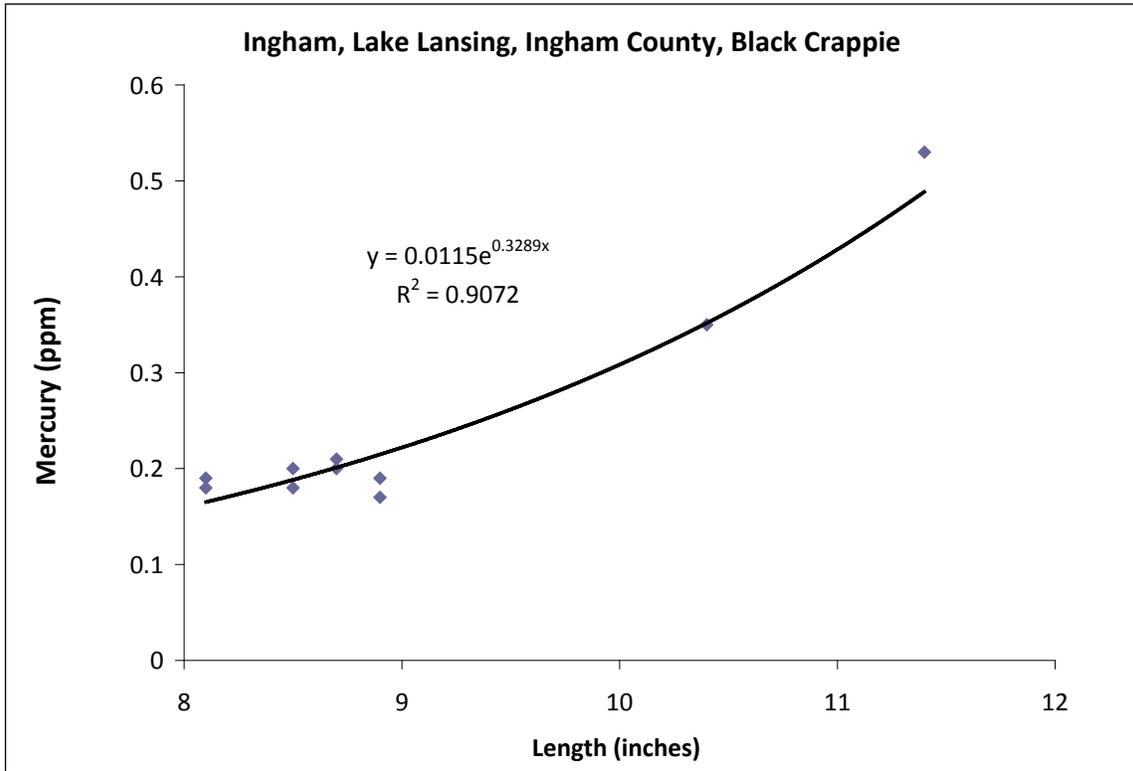
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	8.1	NA	8.1	11.4
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	ND	--	--	--	--
DDT	10	0.038	0.025	0.05	0.05	16
Chlordane	10	ND	--	--	--	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.231	0.237				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Lake Lansing black crappie are covered under the statewide mercury consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of Lake Lansing crappie larger than 9 inches or more than 4 meals per month of crappie less than 9 inches due to mercury.

Length (Inches)	Hg Regression Equation Estimate (ppm)	Meal Category
6	0.083	12
7	0.115	8
8	0.160	4
9	0.222	4
10	0.308	2
11	0.428	2
12	0.595	1
13	0.827	1
14	1.149	0.5
<i>Shaded area denotes extrapolated estimates</i>		



**Largemouth Bass**

**Lake Lansing**

**Ingham County**

**Hg Analysis:**

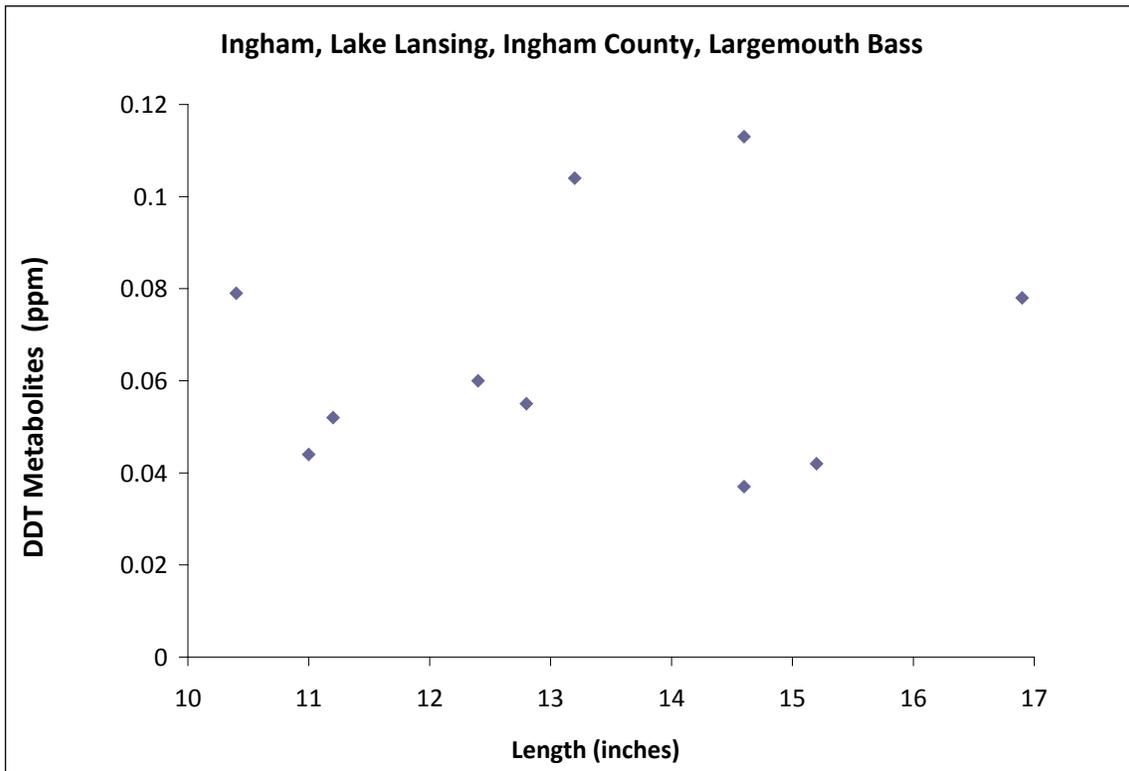
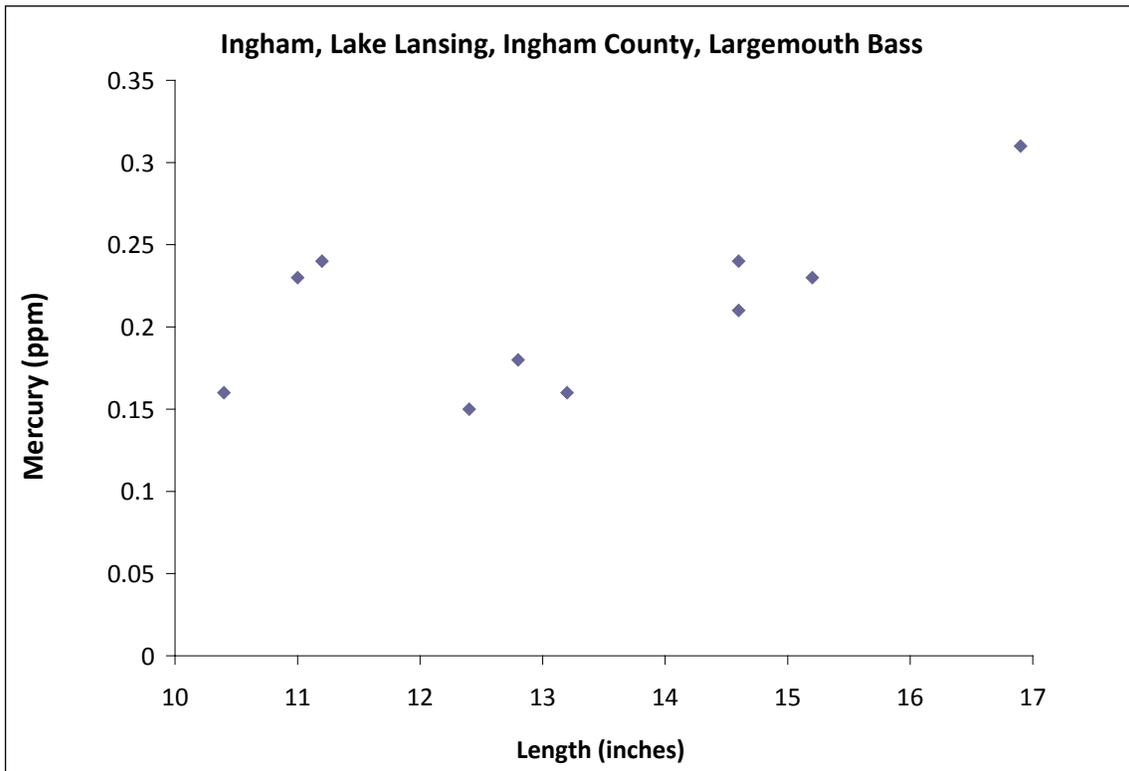
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	10.4	14	14.6	16.9
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	4	0.248	0.210	0.310	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	--	--				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1989	1989	10	10.4	14	14.6	16.9
Datasets available: 1989						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	4	ND	--	--	--	--
DDT	4	0.068	0.037	0.113	--	--
Chlordane	4	ND	--	--	--	--
Toxaphene	4	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	--	--				
DDT	0.021	0.009				
Chlordane	--	--				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>--</b>

**Existing Advisory:** Lake Lansing largemouth bass are covered under the statewide mercury consumption advisory.

**Recommendation:** There are insufficient data available to develop specific advice for largemouth bass from this reach of the Grand River. Statewide guidelines apply, which state that no one should eat more than 2 meals per month of legal size largemouth or smallmouth bass under 18 inches or more than 1 meal per month of largemouth or smallmouth bass over 18 inches.



**Carp**

**Red Cedar River  
Webberville / East Lansing**

**Ingham County**

**Hg Analysis:**

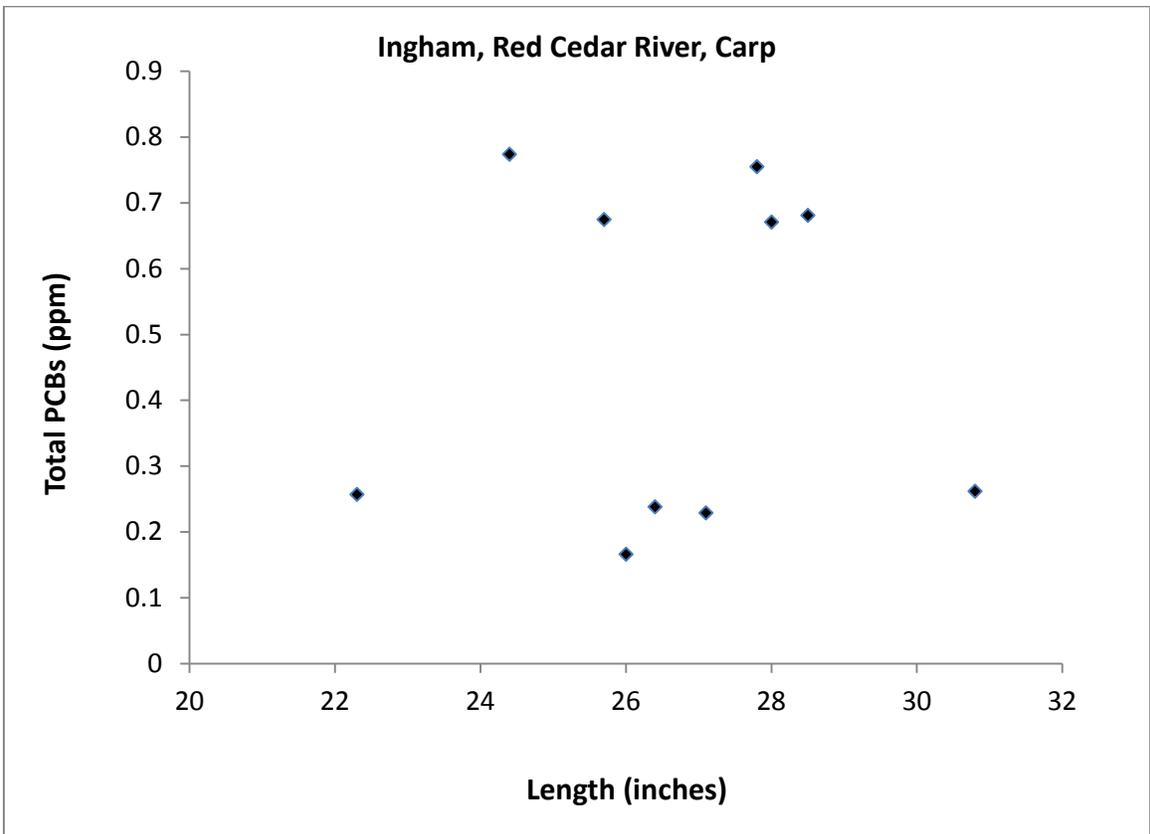
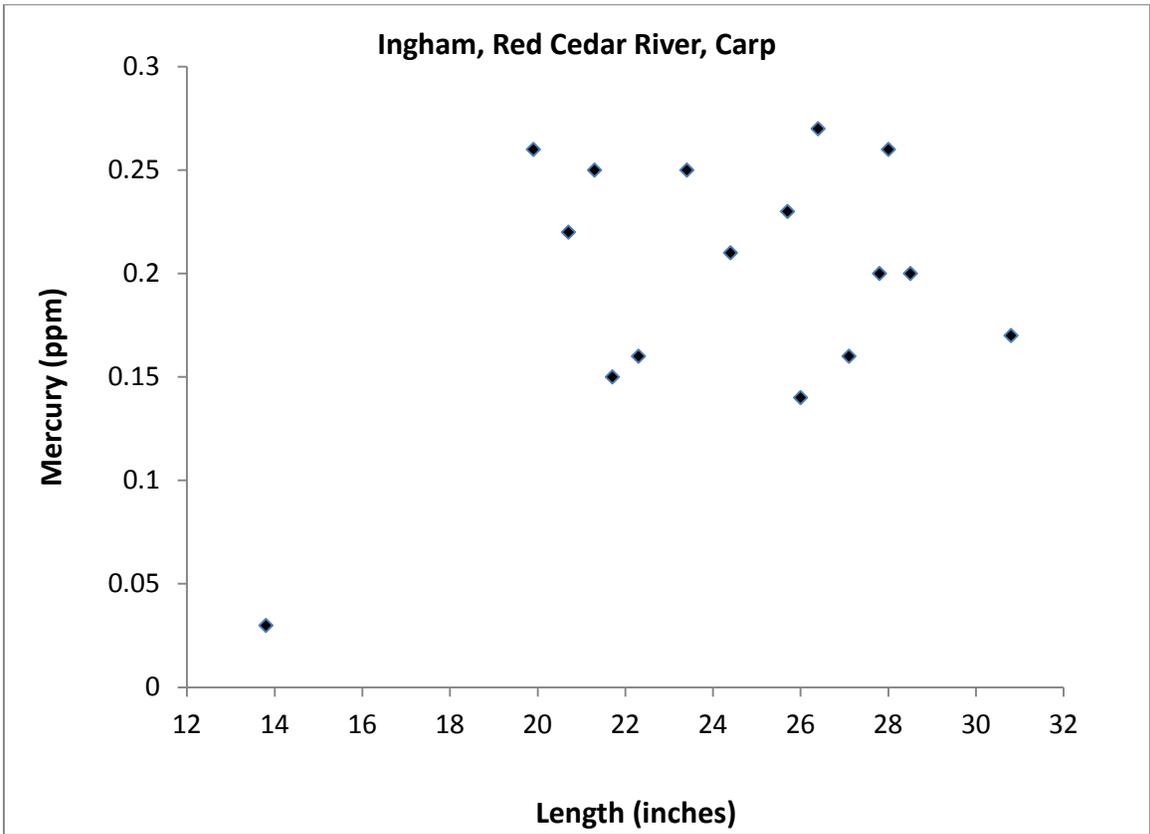
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
1991	2001	16	13.8	NA	13.8	30.8
Datasets available: 1991, 2000, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	16	0.20	0.03	0.27	0.23	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.140	0.300				

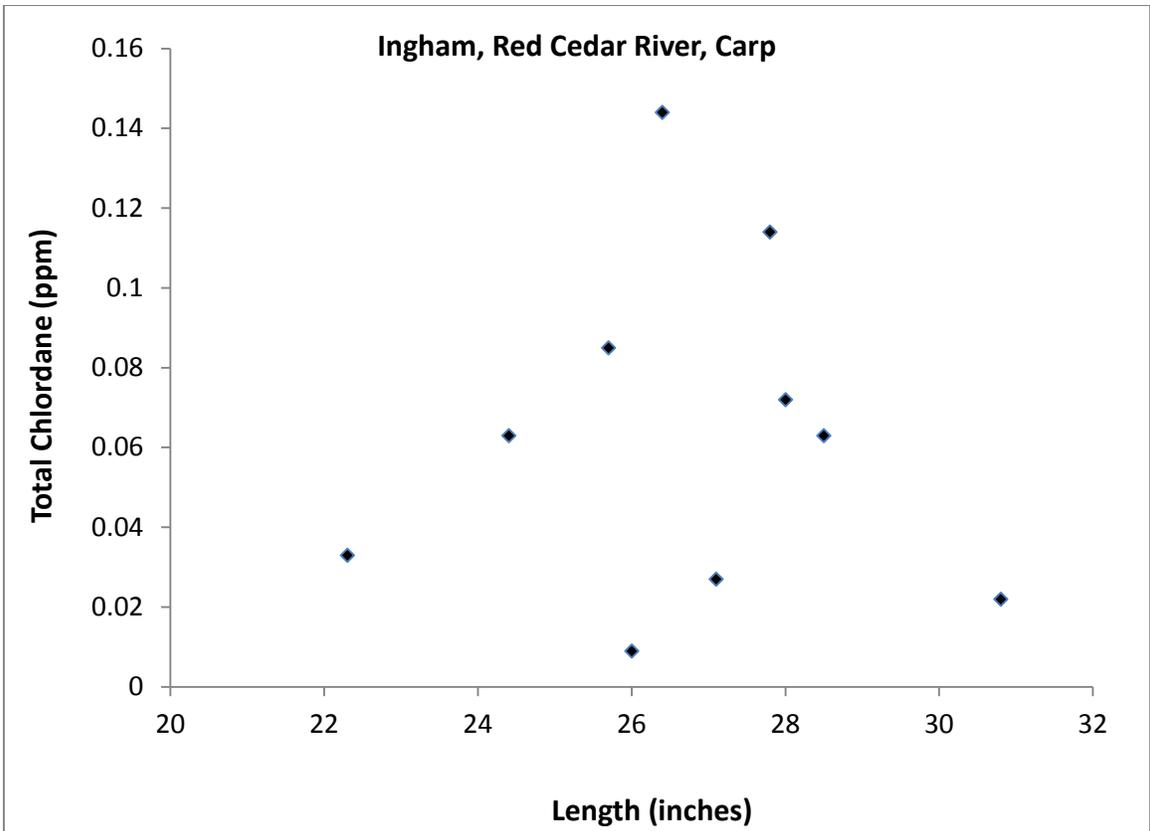
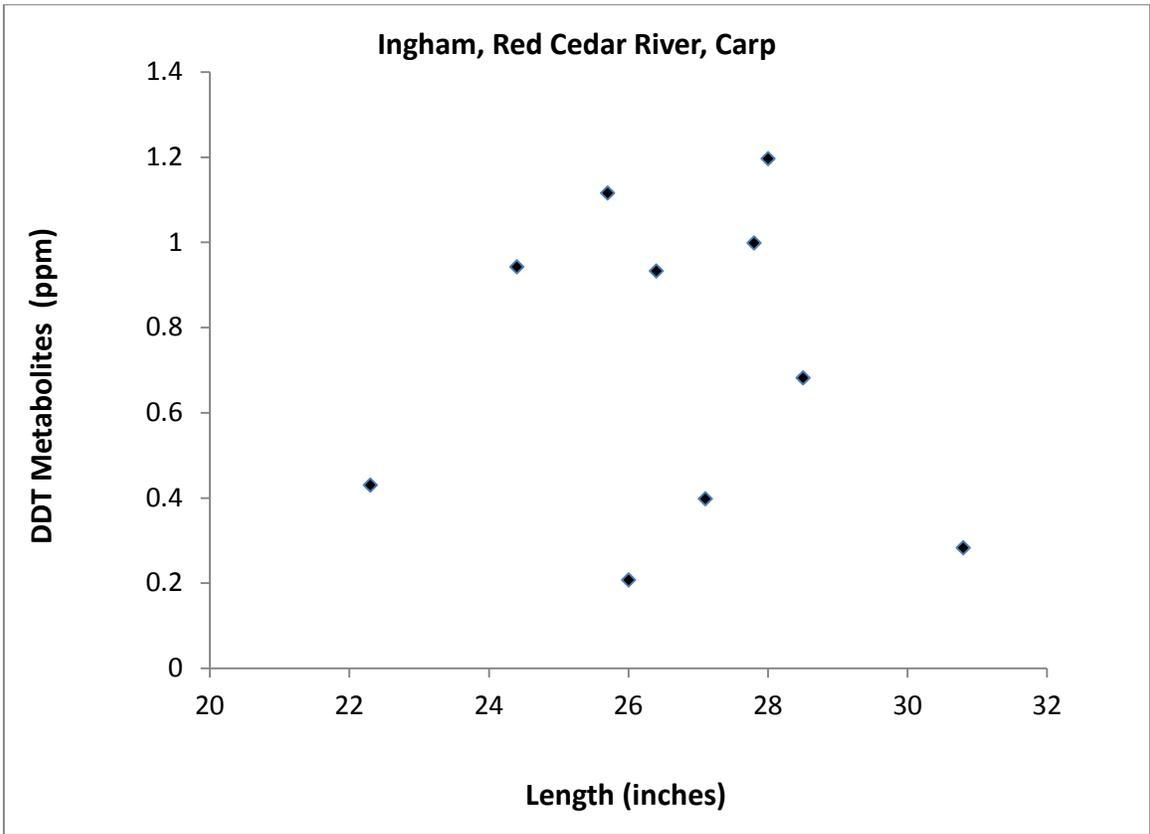
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2000	2001	16	13.8	NA	13.8	30.8
Datasets available: 1991, 2000, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.471	0.17	0.77	0.650	Limited
DDT	10	0.719	0.21	1.20	0.980	1
Chlordane	10	0.063	0.009	0.14	0.090	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.004	0.007				
DDT	0.003	0.008				
Chlordane	0.000	0.000				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>Limited</b>

**Existing Advisory:** Women and children should not eat more than one meal per week of Red Cedar River carp less than 18 inches or more than one meal per month of those fish larger than 18 inches due to PCBs.

**Recommendation:** Sensitive populations should not eat these fish. Healthy adults should limit consumption of Red Cedar River carp to no more than 1 or 2 meals per year due to PCBs. DDT and mercury would cause advisories.





**Northern Pike**

**Red Cedar River  
Webberville / East Lansing**

**Ingham County**

**Hg Analysis:**

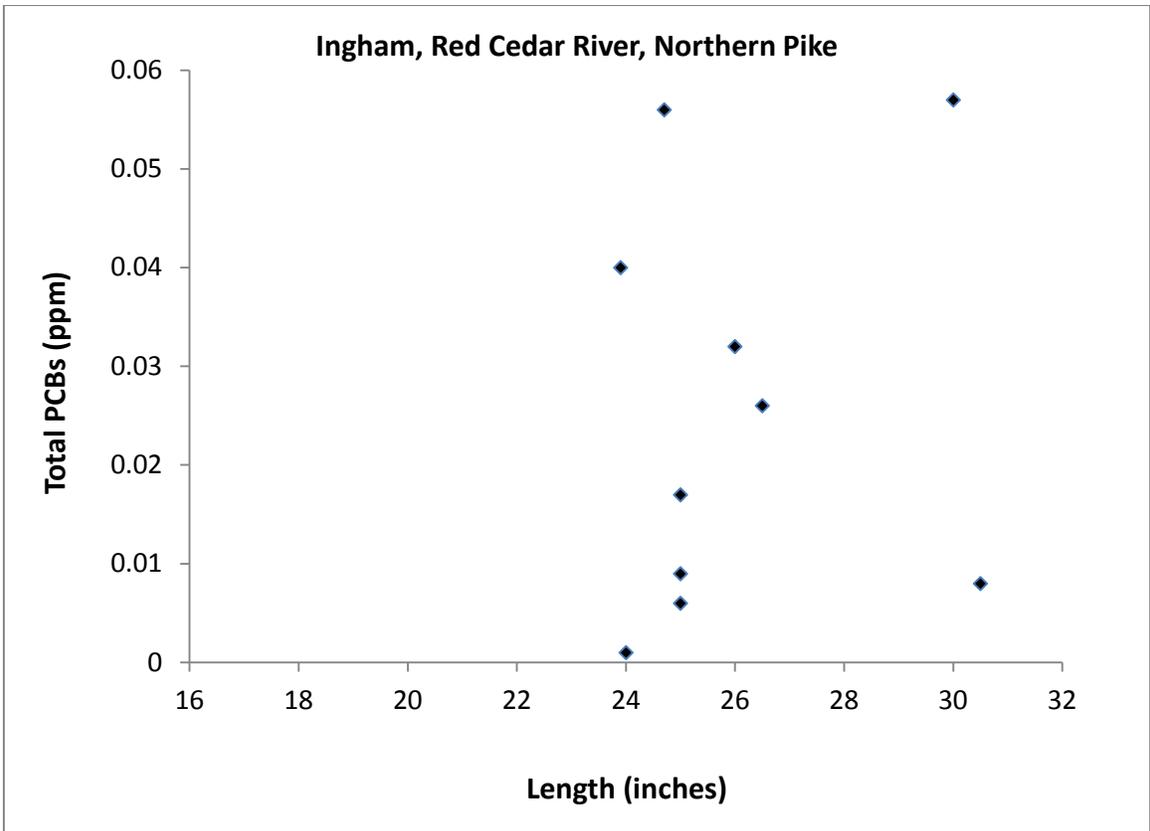
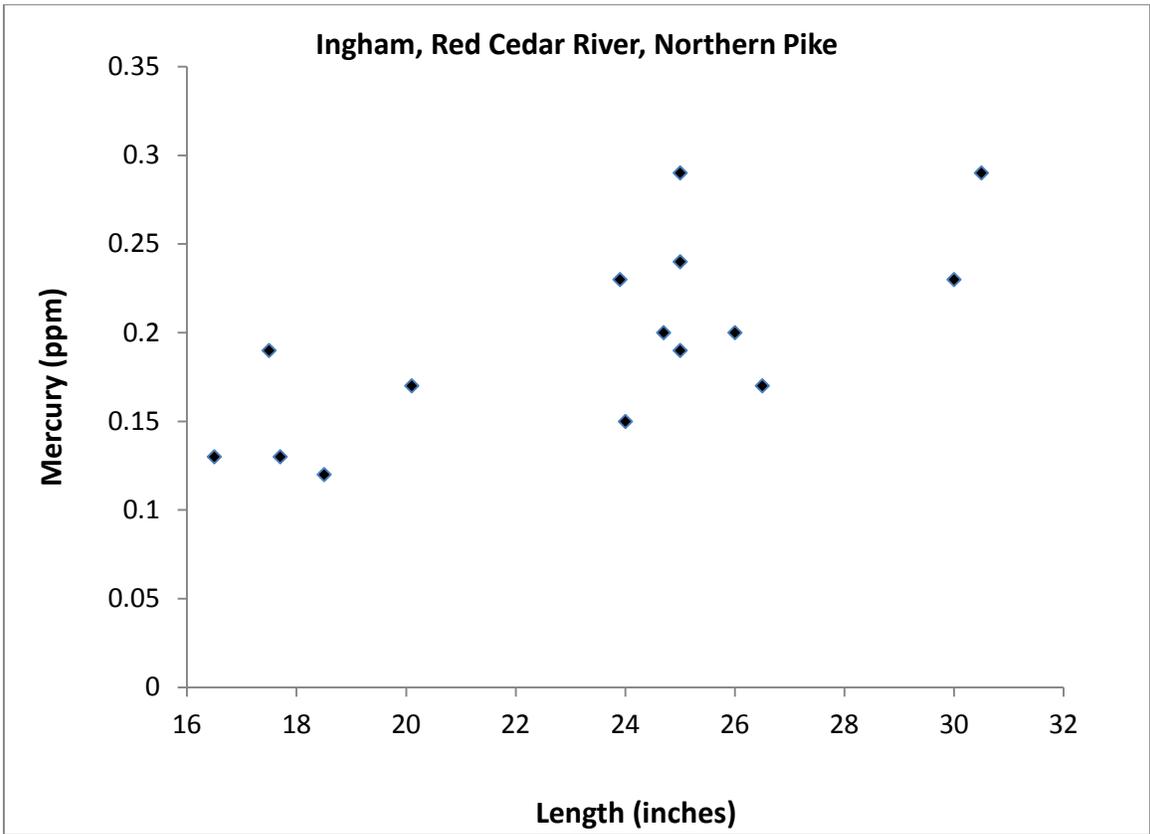
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
1991	2001	15	16.5	24	23.9	30.5
Datasets available: 1991, 2000, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.22	0.15	0.29	0.25	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.513	0.543				

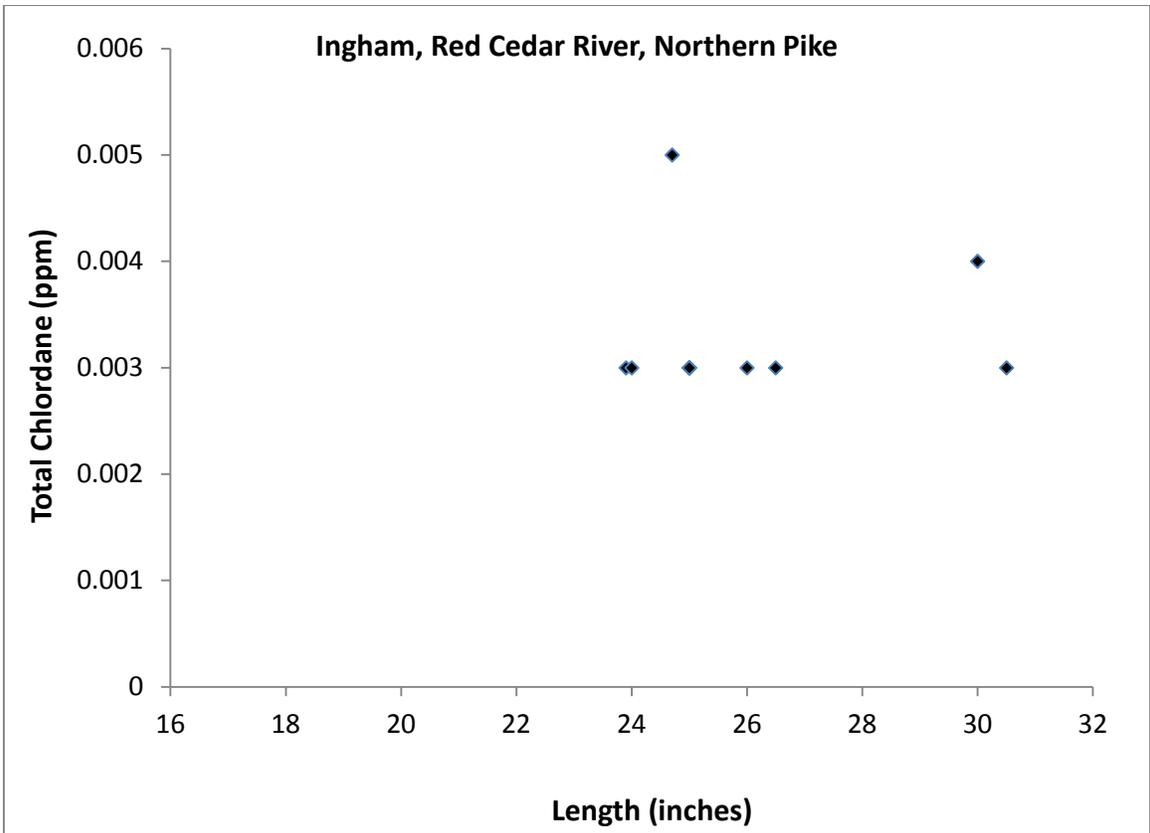
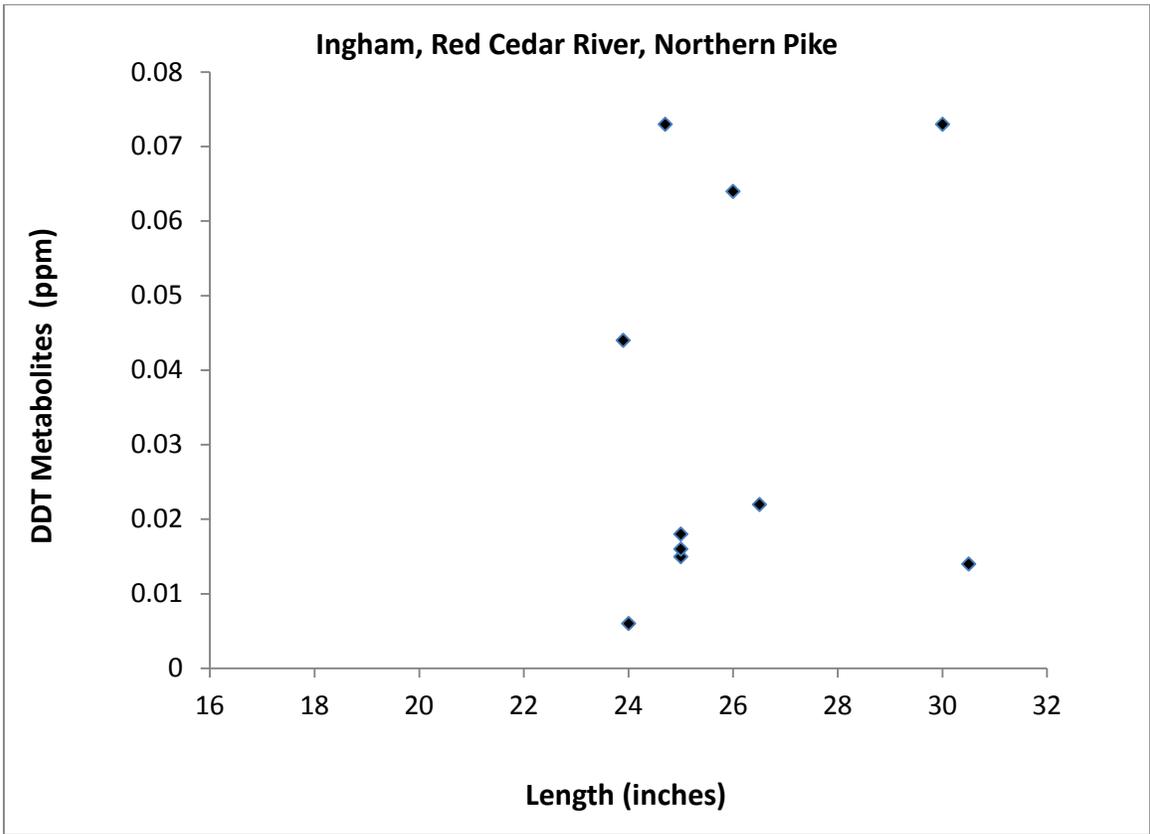
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Size Range of All Samples	
Earliest	Most Recent				Min	Max
2000	2001	10	23.9	24	23.9	30.5
Datasets available: 1991, 2000, 2001						
Chemical	Sample Size	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.025	0.001	0.06	0.04	4
DDT	10	0.035	0.006	0.07	0.05	16
Chlordane	10	0.003	0.003	0.005	0.004	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.027	0.046				
DDT	0.030	0.031				
Chlordane	0.007	0.014				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>4</b>

**Existing Advisory:** Red Cedar River northern pike are not covered by a consumption advisory.

**Recommendation:** No one should eat more than 4 meals per month of Red Cedar northern pike less than 30 inches due to mercury and PCBs or 2 meals per month of those greater than 30 inches due to mercury. Statewide length break applied.





**Rock Bass**

**Red Cedar River  
Webberville / East Lansing**

**Ingham County**

**Hg Analysis:**

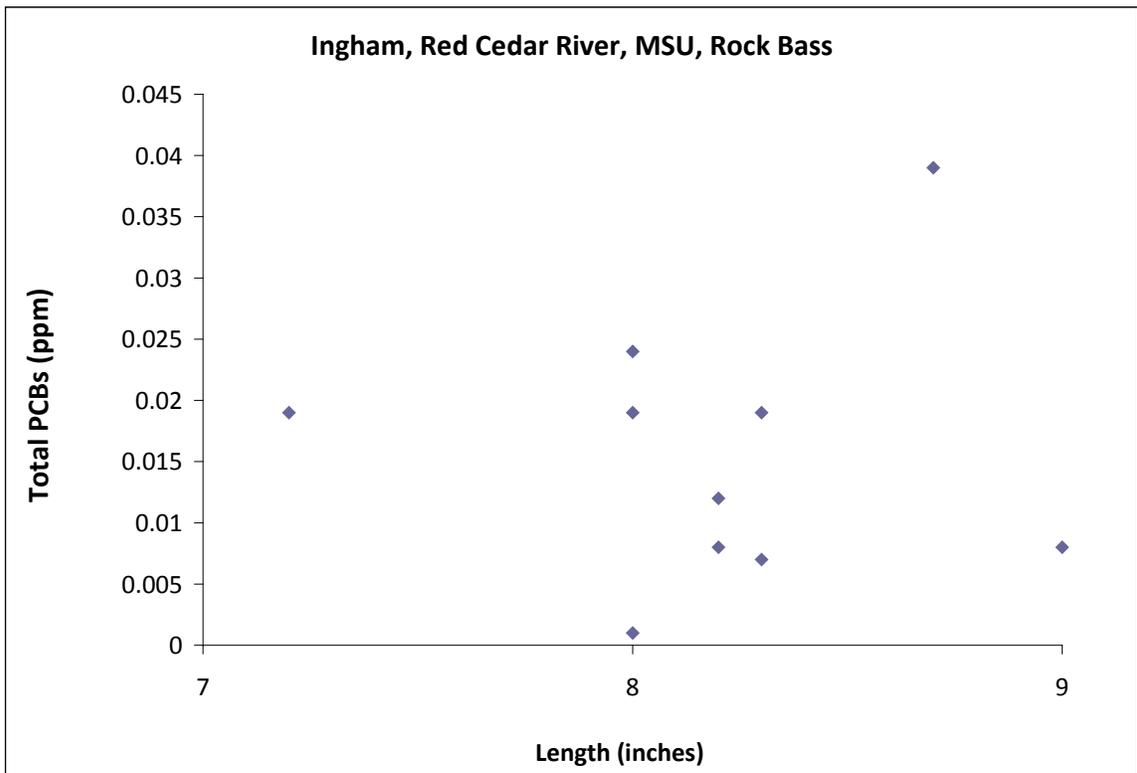
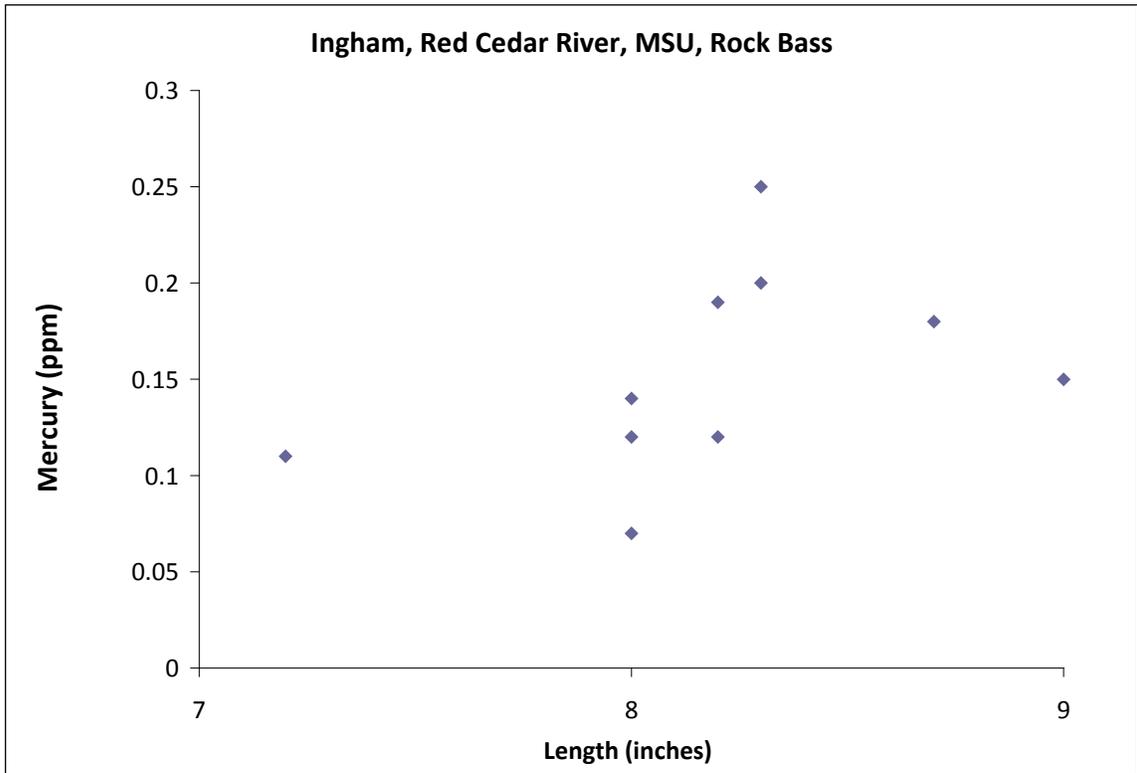
Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2000	2001	10	7.2	NA	7.2	9
Datasets available: 2000, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.153	0.07	0.25	0.19	4
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.177	0.195				

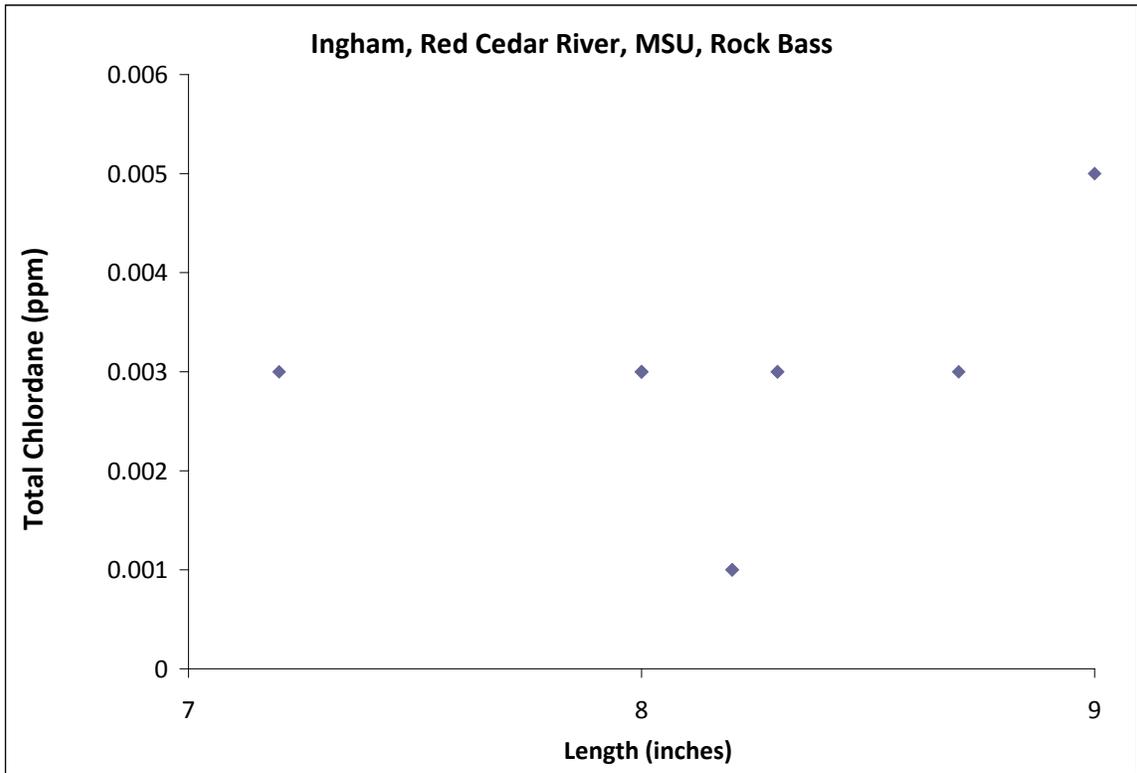
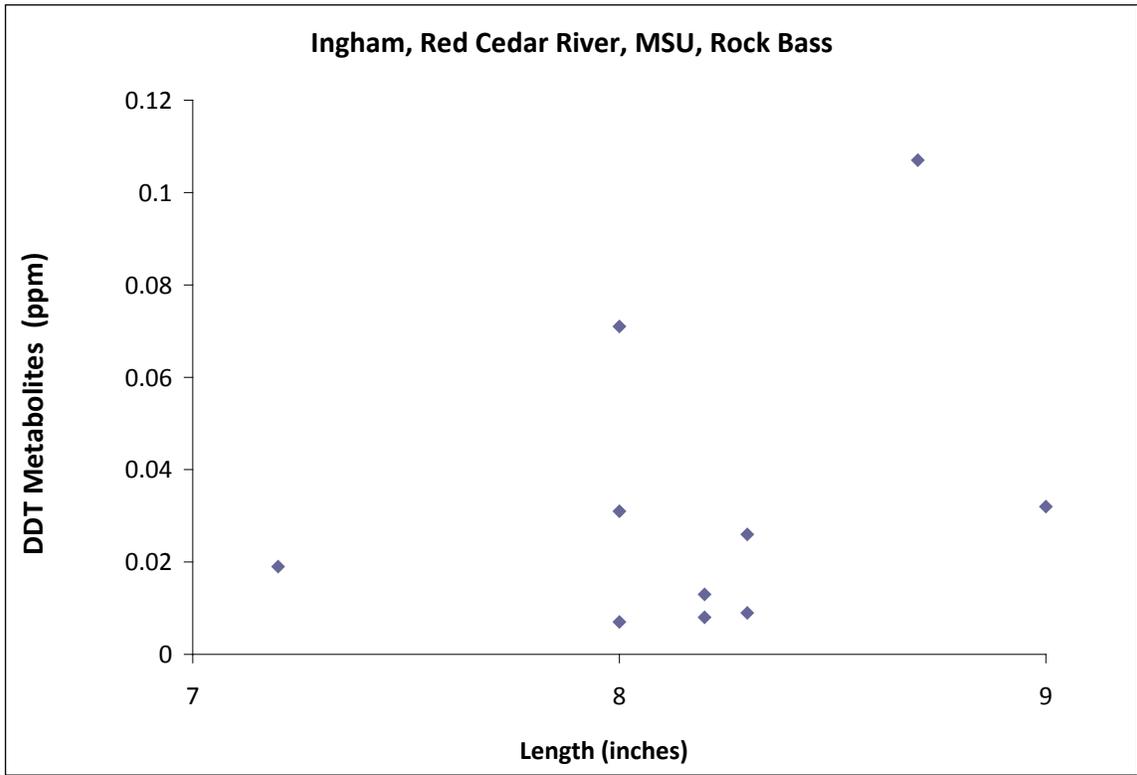
**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2000	2001	10	7.2	NA	7.2	9
Datasets available: 2000, 2001						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.016	0.001	0.04	0.02	12
DDT	10	0.032	0.008	0.11	0.06	16
Chlordane	10	0.003	0.001	0.005	0.004	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.002	0.000				
DDT	0.106	0.077				
Chlordane	0.106	0.032				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>4</b>

**Existing Advisory:** Red Cedar River rock bass are not covered by a consumption advisory.

**Recommendation:** No one should eat more than 4 meals per month of Red Cedar rock bass due to mercury. PCBs would cause an advisory.





**Smallmouth Bass**

**Red Cedar River  
Webberville / East Lansing**

**Ingham County**

**Hg Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2000	2000	10	13.8	14	13.8	16.3
Datasets available: 2000						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	10	0.36	0.20	0.55	0.44	2
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
Mercury	0.120	0.137				

**Organics Analysis:**

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2000	2000	10	13.8	14	13.8	16.3
Datasets available: 2000						
Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	10	0.037	0.006	0.094	0.06	2
DDT	10	0.026	0.013	0.063	0.04	16
Chlordane	10	0.004	0.003	0.008	0.01	--
Toxaphene	10	ND	--	--	--	--
Chemical	Linear Regression	Exponential Regression				
	R <sup>2</sup>	R <sup>2</sup>				
PCB	0.001	0.002				
DDT	0.100	0.081				
Chlordane	0.035	0.021				
Toxaphene	--	--				
<b>Final meal category based on UCL:</b>						<b>2</b>

**Existing Advisory:** Red Cedar River smallmouth bass are not covered by a consumption advisory.

**Recommendation:** No one should eat more than 2 meals per month of Red Cedar smallmouth or largemouth bass less than 18 inches due to PCBs and mercury or 1 meal per month of those fish greater than 18 inches due to mercury. Statewide length break applied.

