

Detroit River
Fish Consumption Advisory
Data 2013

DRAFT

UNTIL PRINTED IN THE
2013-2014 MDCH
EAT SAFE FISH GUIDE

Bullhead**Detroit River****Wayne****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 | 2011 | 20 | 9.3 | na | 9.3 | 14.6 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 20 | 0.12 | 0.06 | 0.44 | 0.16 | 4 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.275 | 0.161 | | | | |

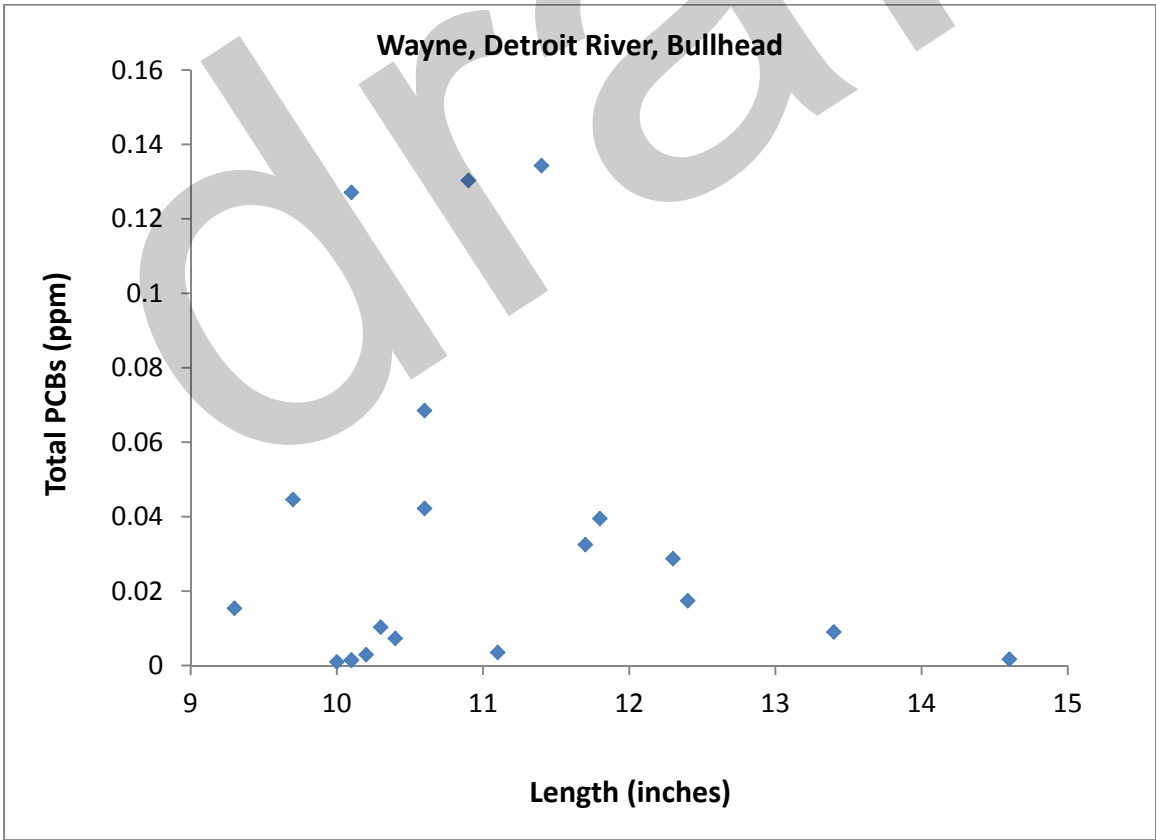
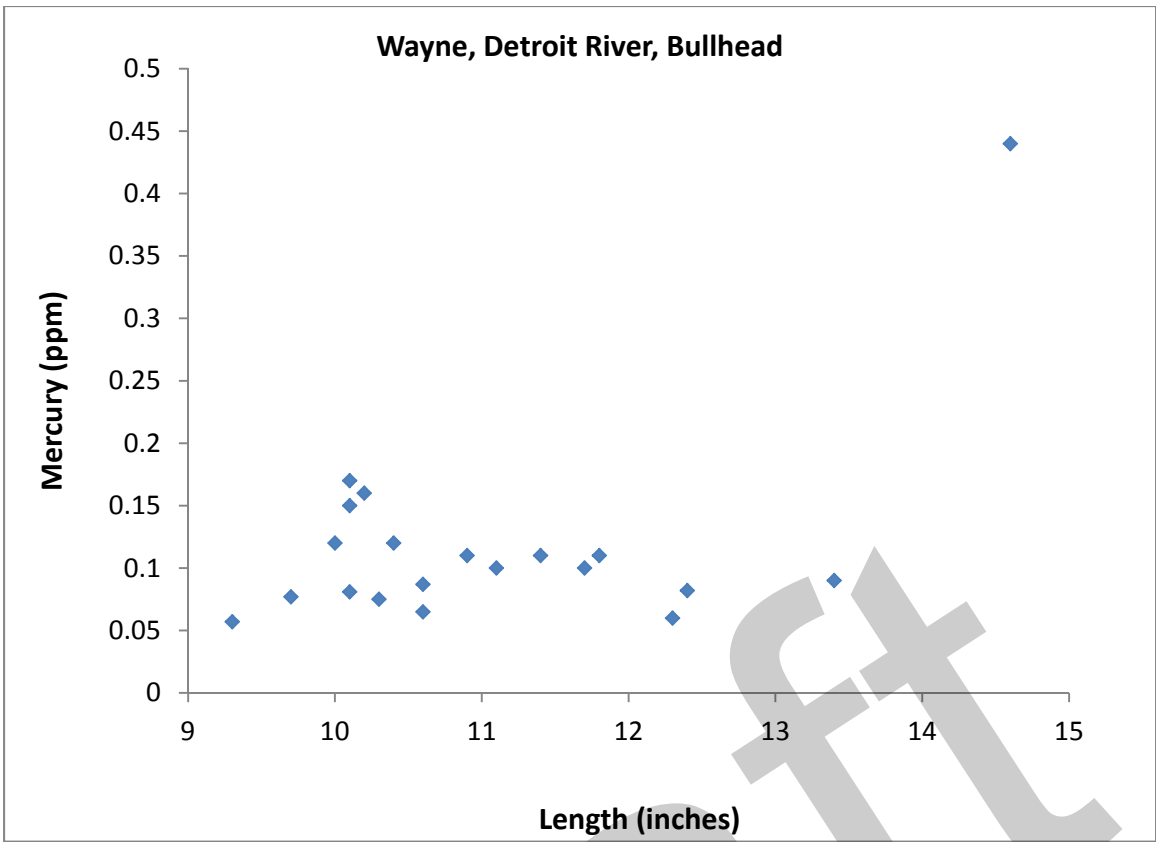
Organics Analysis:

| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--|------------------------|---------------------------|-----------------------|-----------------------|---------------------------------|------------------|
| Earliest | Most Recent | | | | Min | Max |
| 2010 | 2011 | 20 | 9.3 | na | 9.3 | 14.6 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 20 | 0.036 | 0.001 | 0.134 | 0.060 | 2 |
| DDT | 20 | 0.005 | 0.001 | 0.015 | 0.010 | 16 |
| Chlordane | 20 | 0.001 | 0.001 | 0.006 | 0.002 | -- |
| Toxaphene | 20 | ND | -- | -- | -- | -- |
| TEQ | 0 | -- | -- | -- | -- | -- |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.010 | 0.002 | | | | |
| DDT | 0.006 | 0.030 | | | | |
| Chlordane | 0.018 | 0.000 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ | -- | -- | | | | |
| Final meal category based on UCL: | | | | | | 2 |

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of bullhead from the Detroit River due to elevated concentrations of mercury, PCBs, and dioxins ("All other species" designation).

Recommendation: No one should eat more than 2 meals per month of Detroit River bullhead due to PCBs. Mercury would cause an advisory.

Note: PCBs in the bullhead collected from near Grassy Island were higher than the fish collected upstream near Belle Isle; including the Belle Isle fish did not lead to a more relaxed advisory.



Carp

Detroit River

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 | 2011 | 93 | 16.5 | na | 16.5 | 30.6 |
| Datasets available: 1985, '86, '90, '94, 2004, 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 93 | 0.16 | 0.04 | 0.45 | 0.18 | 4 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.012 | 0.020 | | | | |

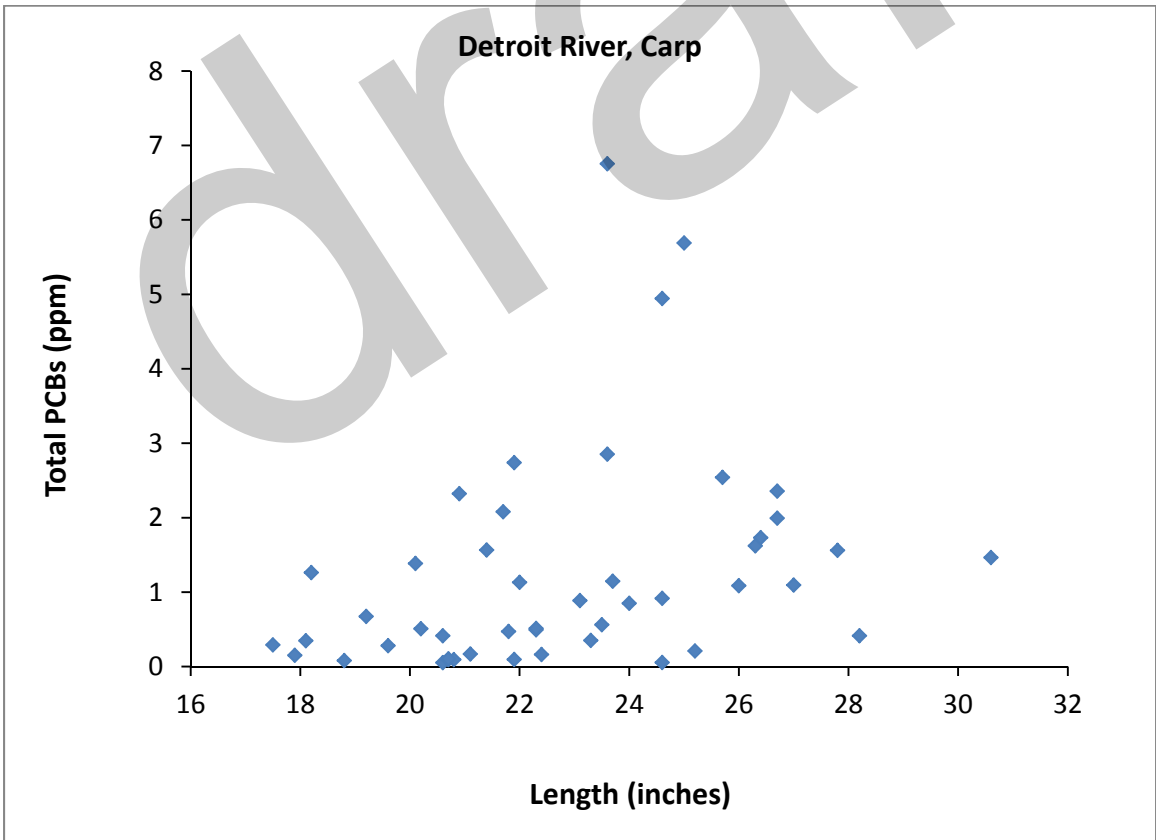
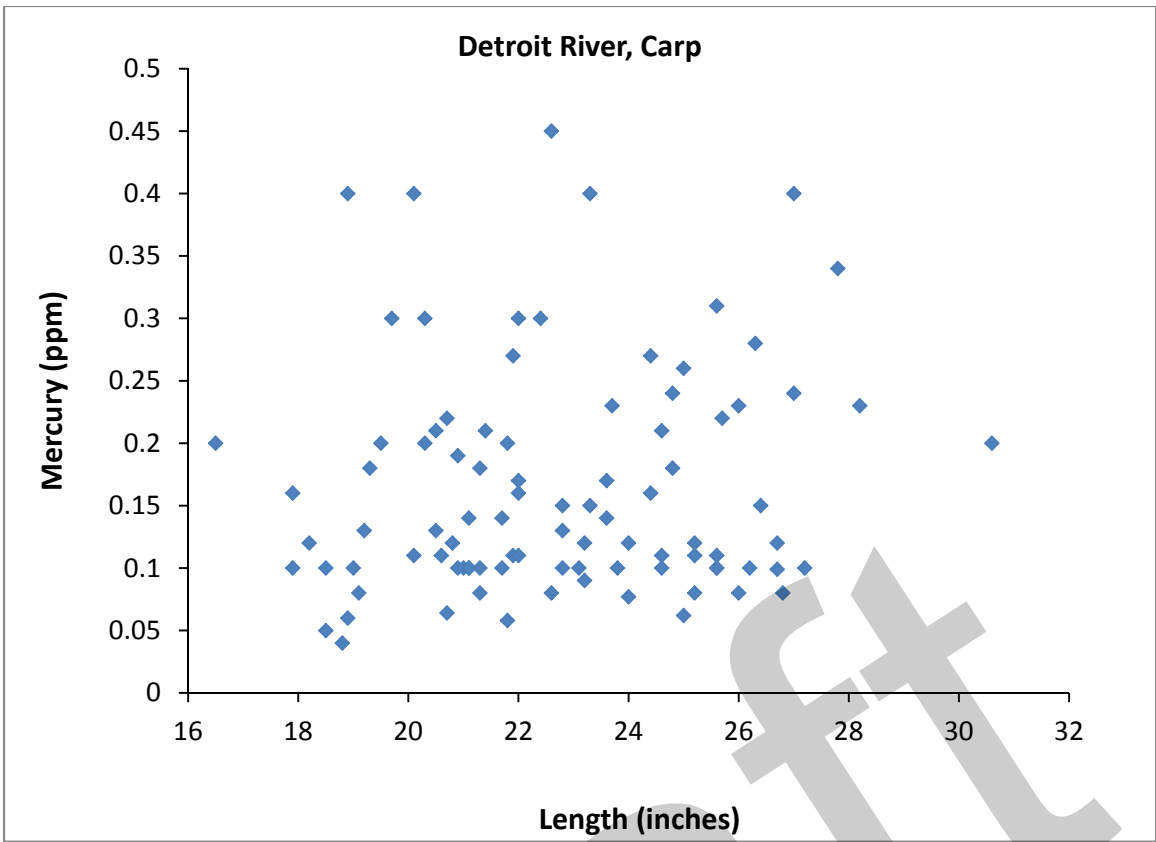
Organics Analysis:

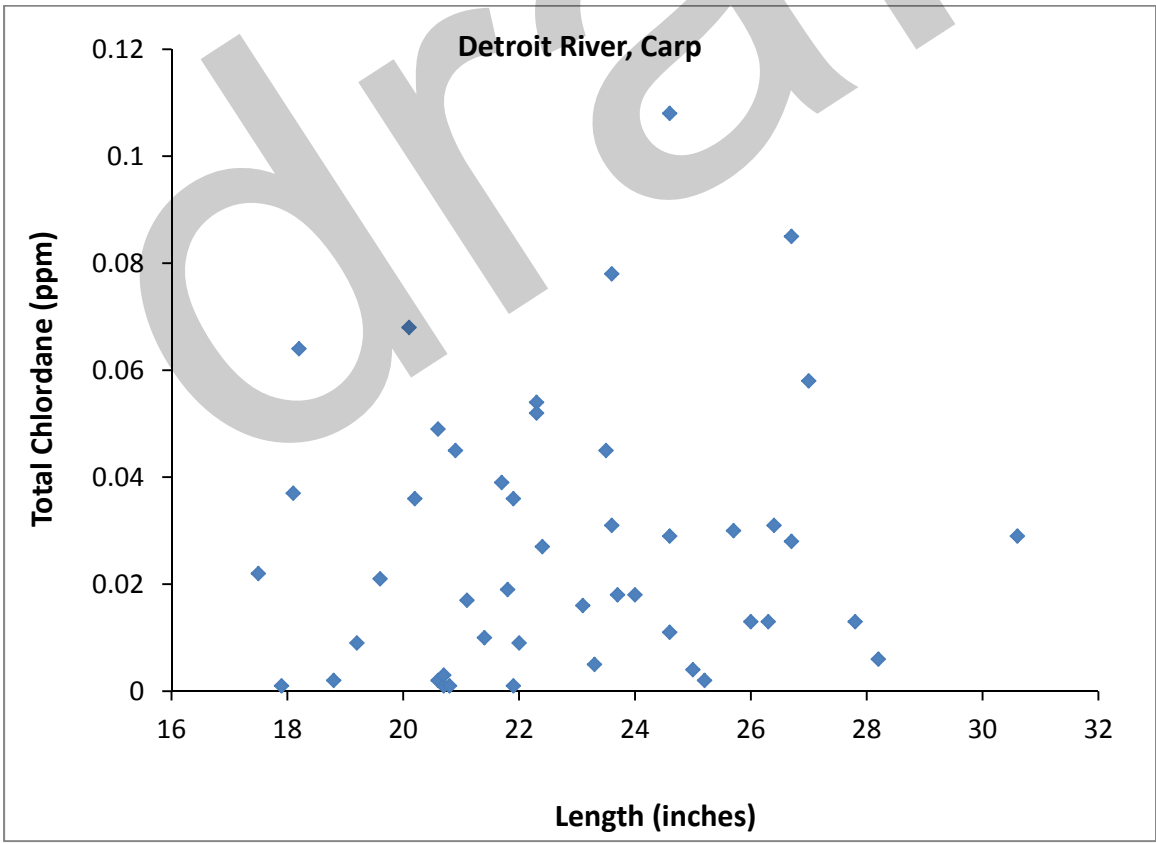
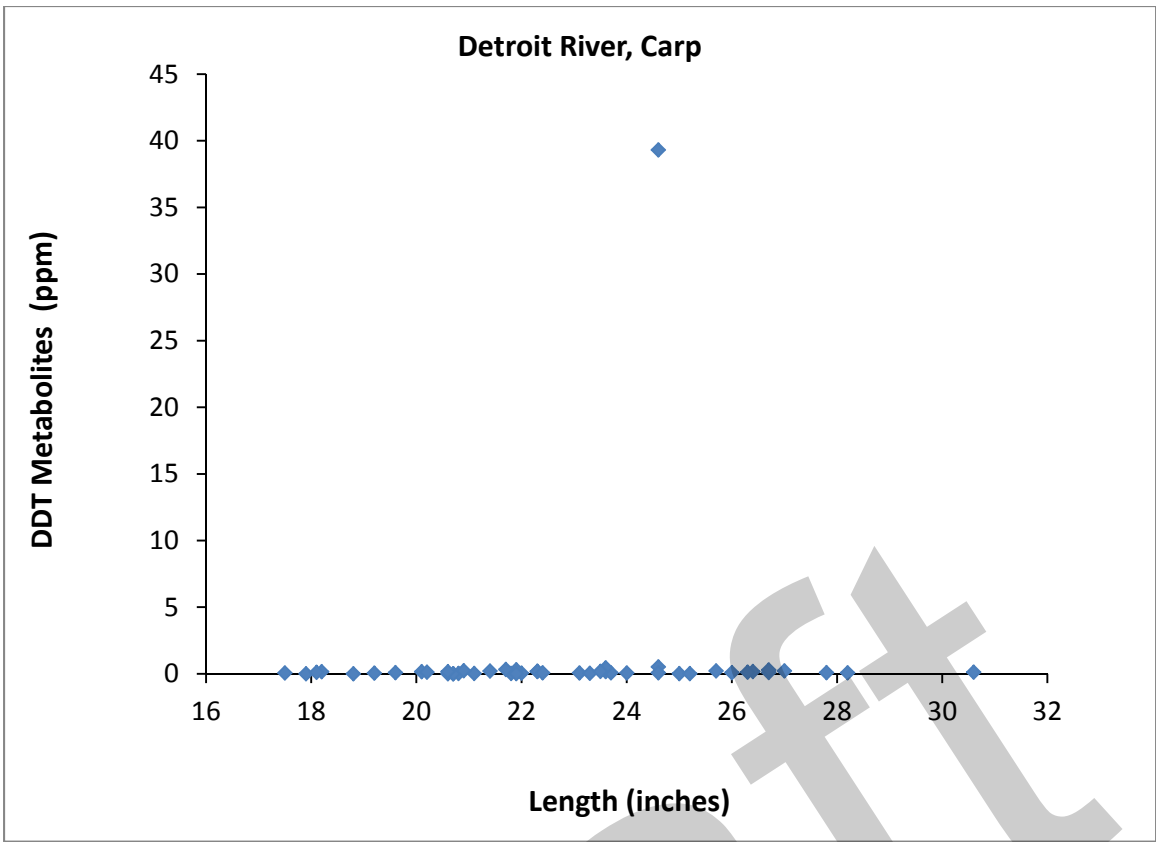
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|---|---------------------|------------------------|--------------------|--------------------|------------------------------|----------------|
| Earliest | Most Recent | | | | Min | Max |
| 2004 | 2011 | 37 | 17.9 | na | 17.9 | 30.6 |
| Datasets available: 1985, '86, '90, '94, 2004, 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 37 | 1.485 | 0.053 | 6.754 | 2.003 | Limited |
| DDT | 37 | 1.186 | 0.006 | 39.317 | 3.335 | 0.5 |
| Chlordane | 37 | 0.025 | 0.001 | 0.108 | 0.034 | -- |
| Toxaphene | 37 | ND | -- | -- | -- | -- |
| TEQ* | 19 | 13.7 ppt | 1.9 ppt | 37.8 ppt | 18.9 ppt | Limited |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.073 | 0.198 | | | | |
| DDT | 0.006 | 0.123 | | | | |
| Chlordane | 0.024 | 0.110 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ* | 0.413 | 0.410 | | | | |
| Final meal category based on UCL: | | | | | | Limited |

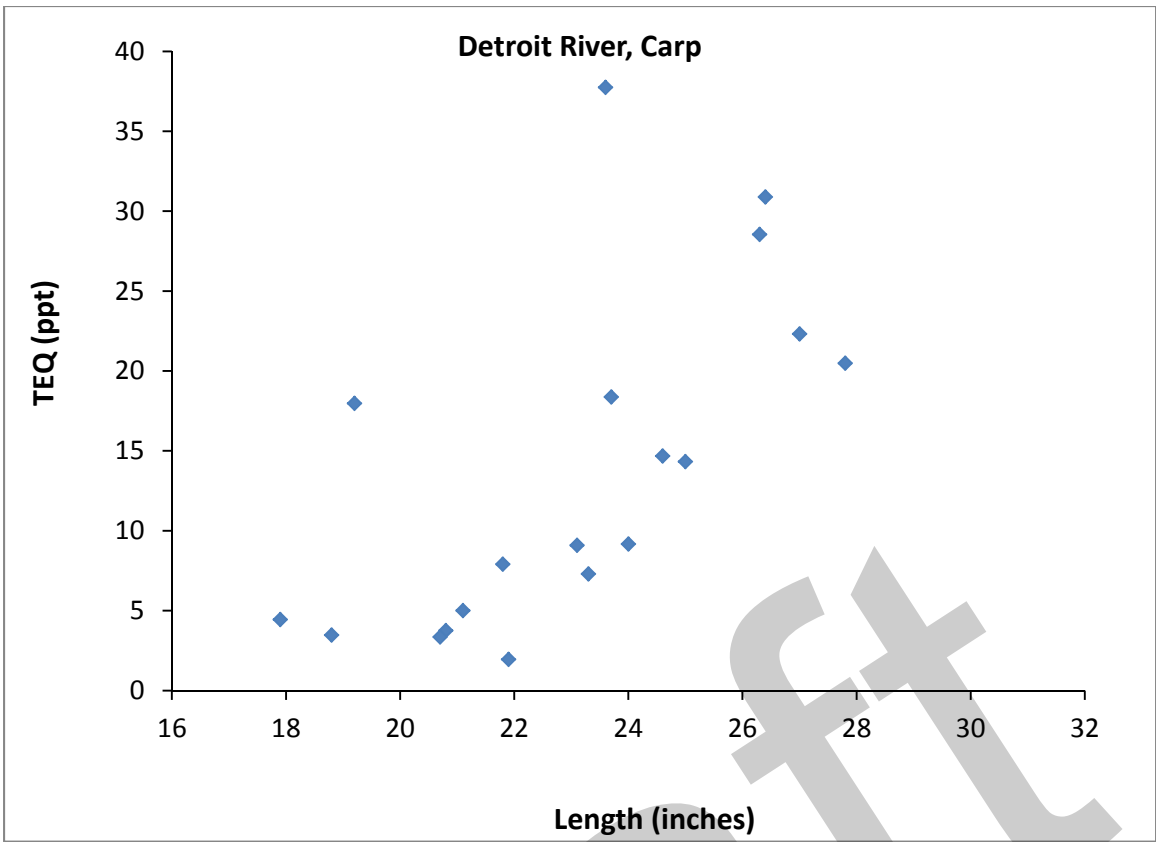
* 2005 WHO; dl-PCBs included

Existing MDCH Advisory: No one should eat carp from the Detroit River due to elevated concentrations of PCBs and dioxins.

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







draft

Channel Catfish

Detroit River

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 | 2011 | 17 | 15.1 | 12 | 15.1 | 26.7 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 17 | 0.25 | 0.12 | 0.46 | 0.30 | 2 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.038 | 0.088 | | | | |

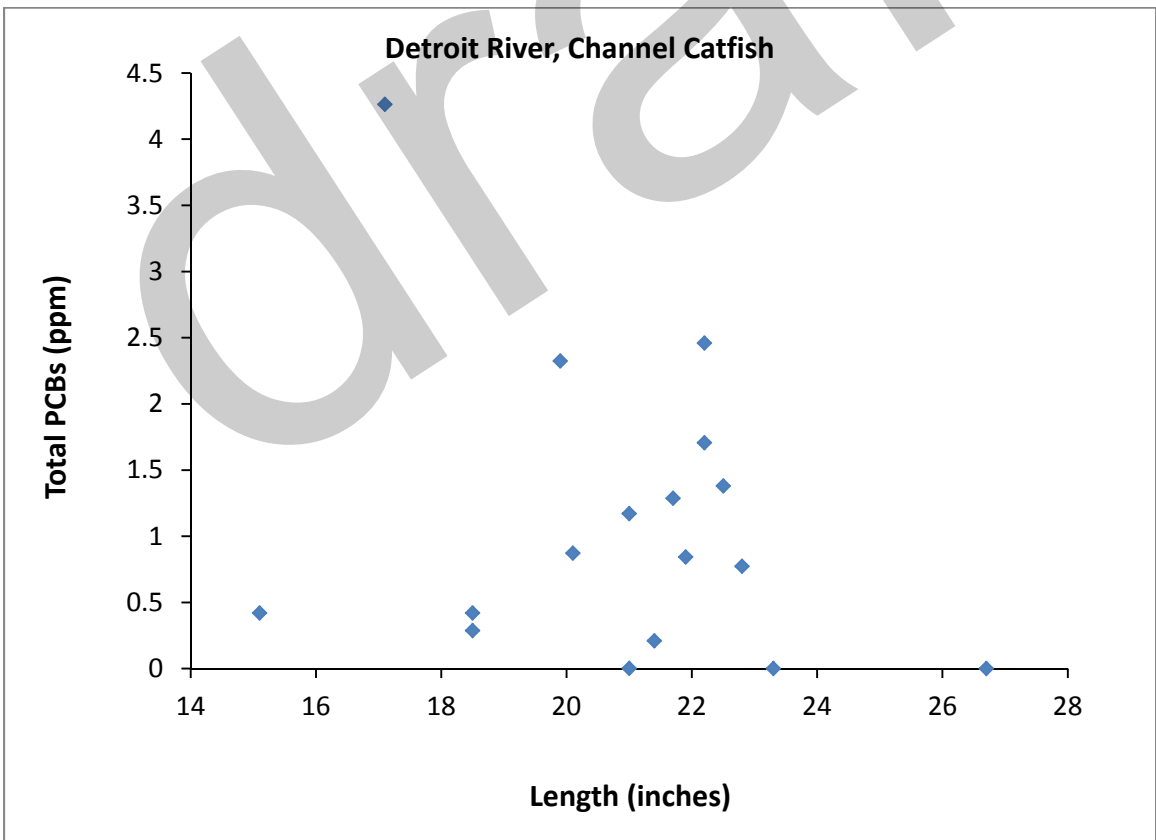
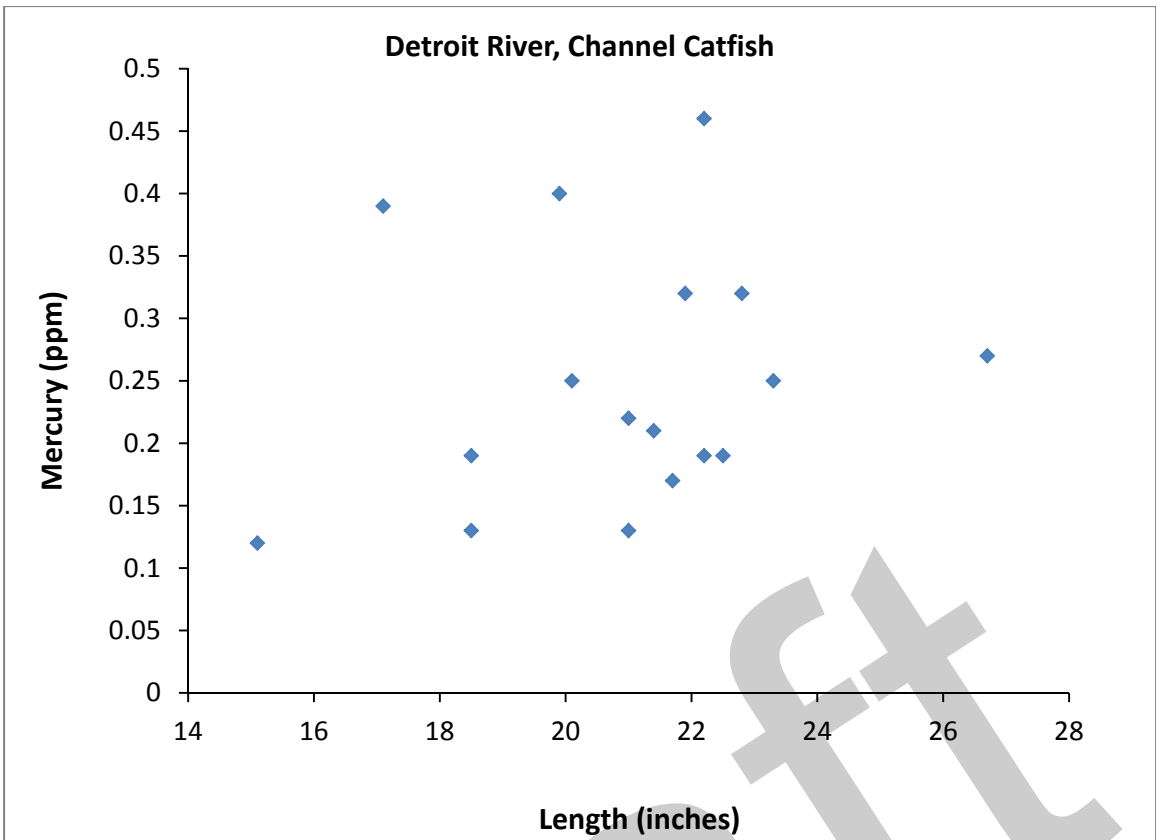
Organics Analysis:

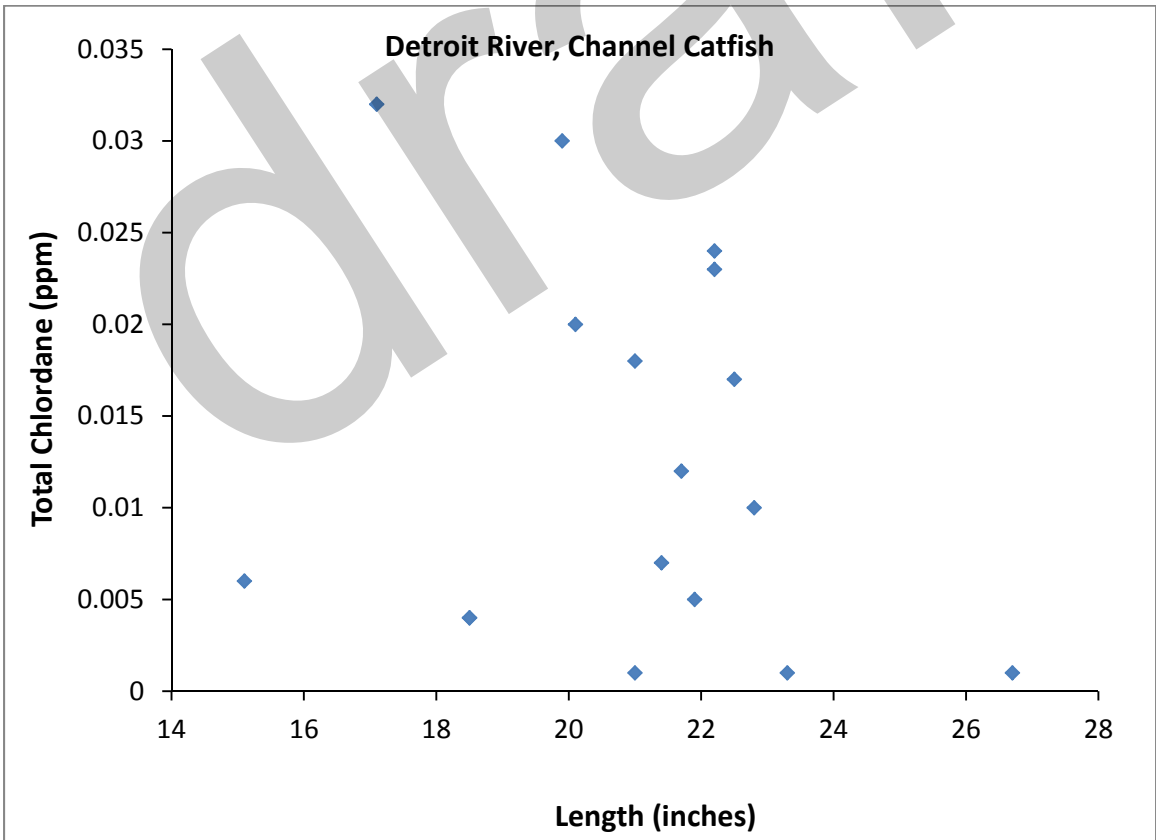
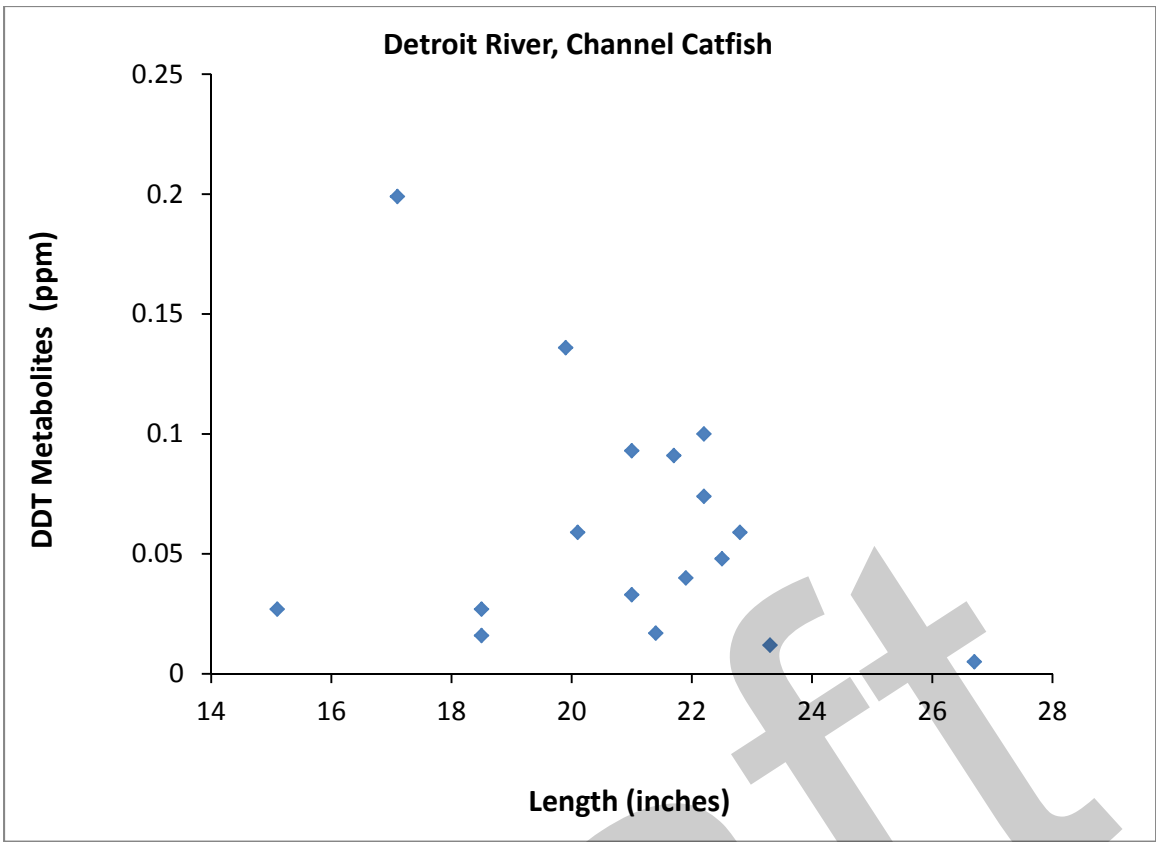
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--|------------------------|---------------------------|-----------------------|-----------------------|---------------------------------|------------------|
| Earliest | Most Recent | | | | Min | Max |
| 2010 | 2011 | 17 | 15.1 | 12 | 15.1 | 26.7 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 17 | 1.084 | 0.001 | 4.264 | 1.660 | Limited |
| DDT | 17 | 0.061 | 0.005 | 0.199 | 0.087 | 16 |
| Chlordane | 17 | 0.013 | 0.001 | 0.032 | 0.018 | -- |
| Toxaphene | 17 | ND | -- | -- | -- | -- |
| TEQ* | 17 | 27.82 ppt | 4.85 ppt | 104.8 ppt | 40.9 ppt | Limited |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.073 | 0.204 | | | | |
| DDT | 0.085 | 0.117 | | | | |
| Chlordane | 0.046 | 0.092 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ* | 0.102 | 0.081 | | | | |
| Final meal category based on UCL: | | | | | | Limited |

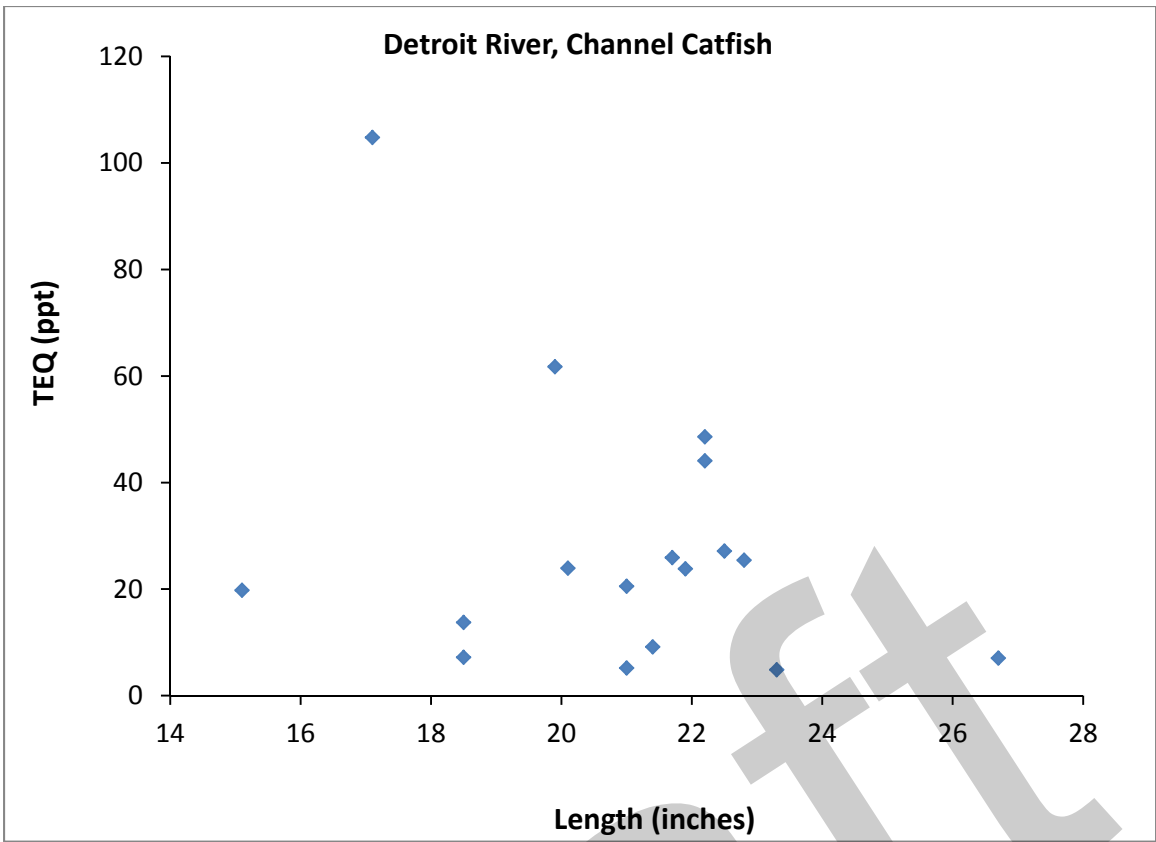
* 2005 WHO; dl-PCBs included

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of channel catfish from the Detroit River due to elevated concentrations of mercury, PCBs, and dioxins (“All other species” designation).

Recommendation: Sensitive populations should not eat these fish. Healthy adults should limit consumption of channel catfish from the Detroit River to no more than 1 or 2 meals per year due to PCBs and dioxins. Mercury would cause advisories.







Freshwater Drum

Detroit River

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 | 2004 | 32 | 10.9 | na | 10.9 | 21.5 |
| Datasets available: 1990, 1993, 2004 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 32 | 0.43 | 0.05 | 1.01 | 0.51 | 2 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.373 | 0.499 | | | | |

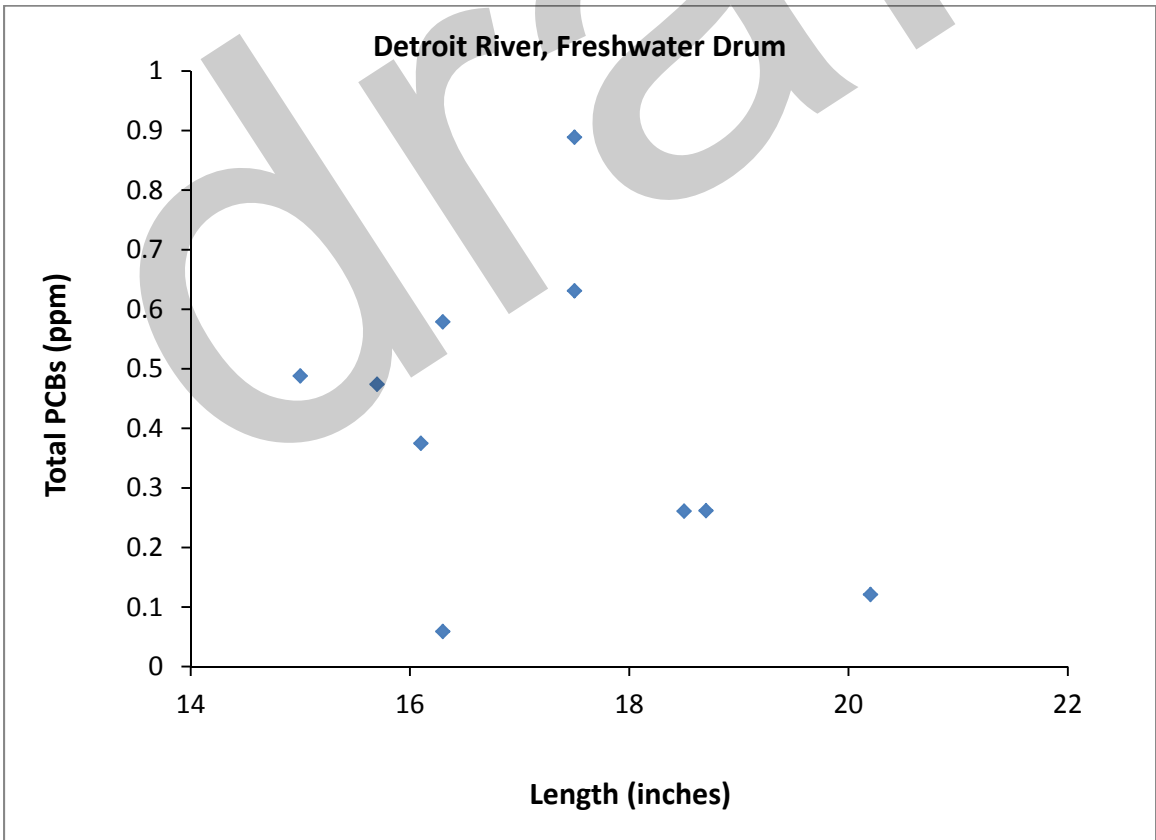
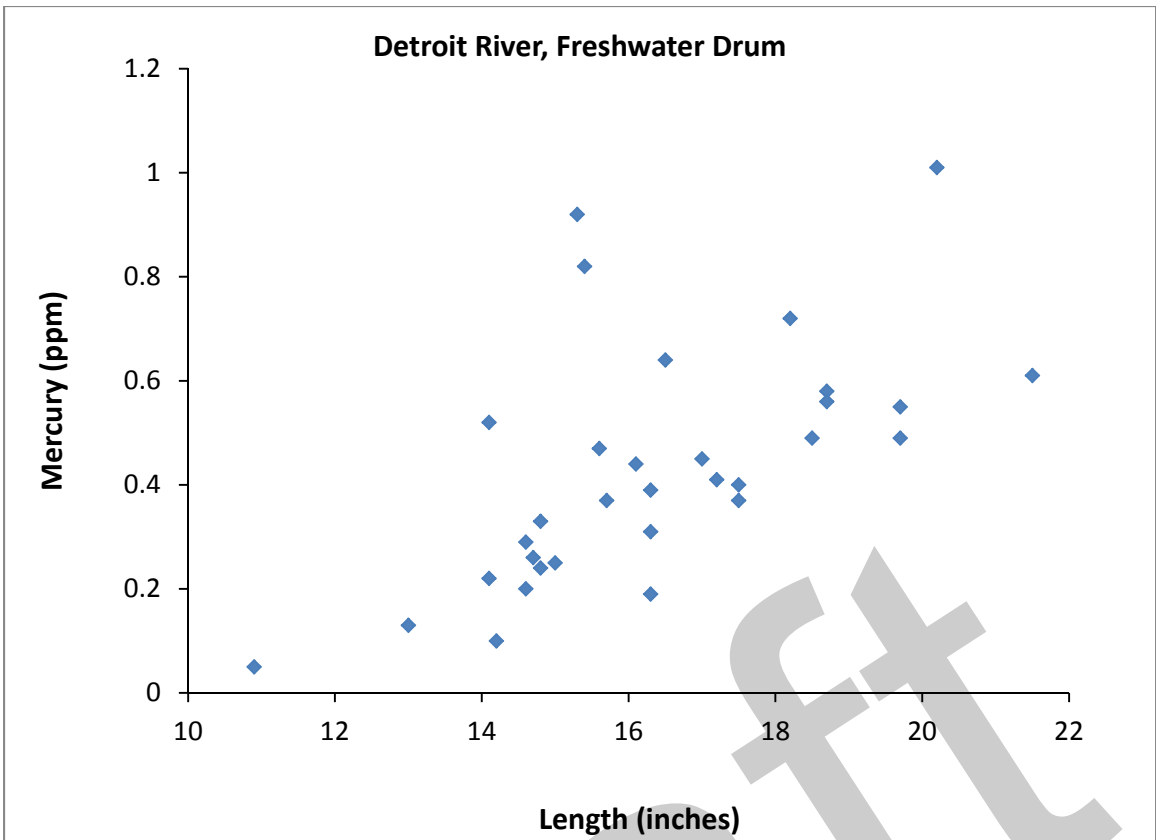
Organics Analysis:

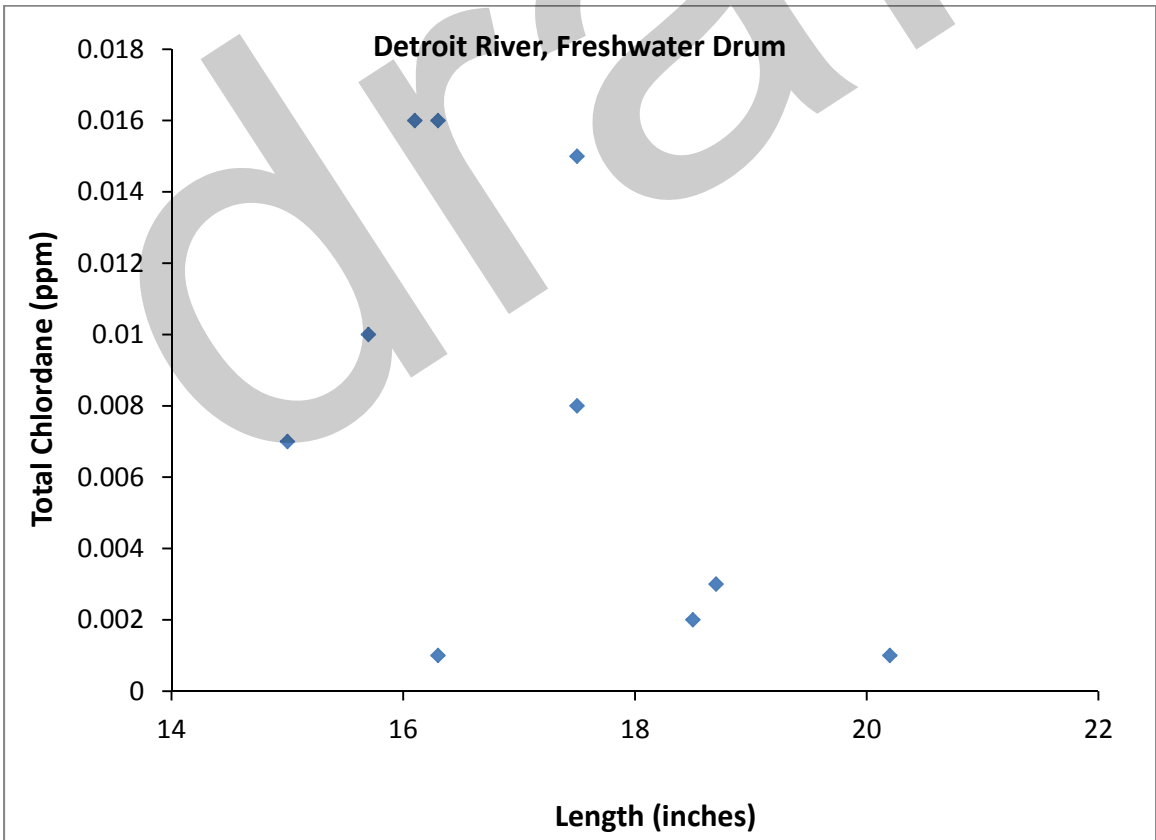
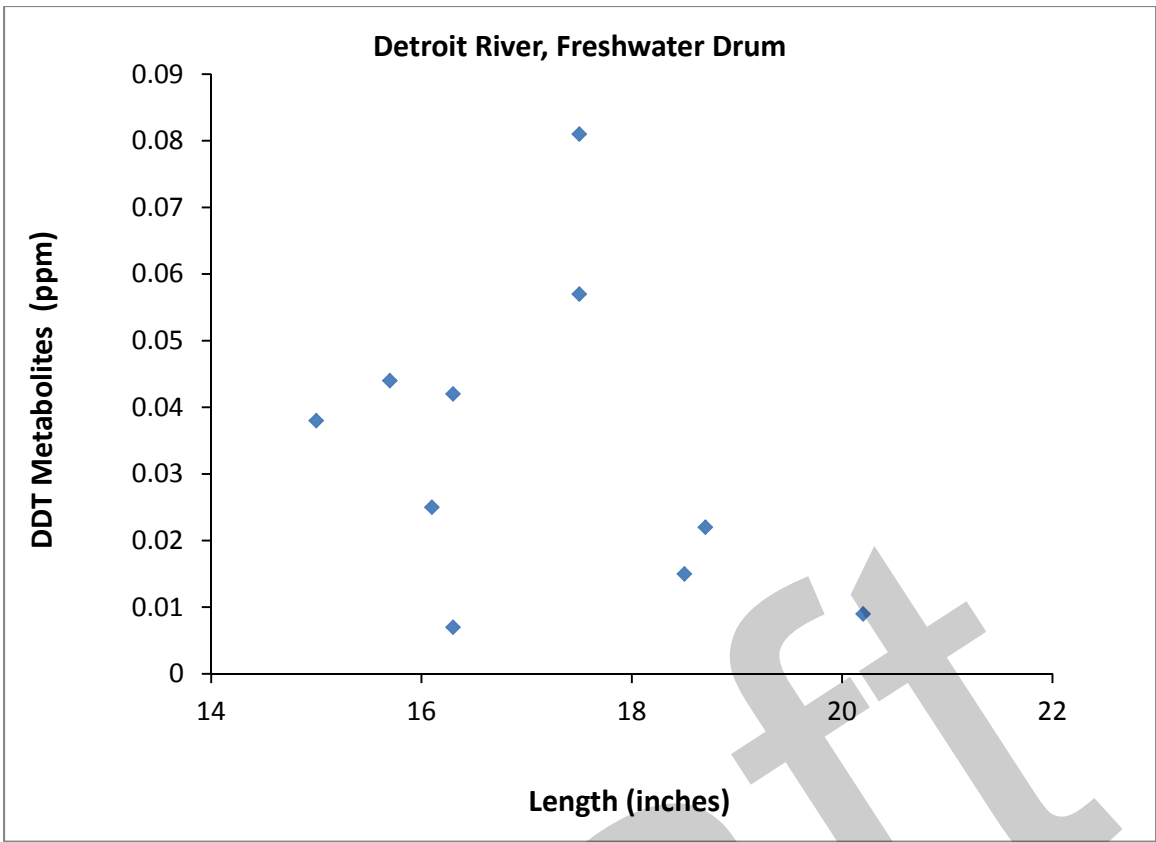
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--------------------------------------|---------------------|------------------------|--------------------|--------------------|------------------------------|---------------|
| Earliest | Most Recent | | | | Min | Max |
| 2004 | 2004 | 10 | 15 | na | 15 | 20.2 |
| Datasets available: 1990, 1993, 2004 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 10 | 0.414 | 0.059 | 0.889 | 0.594 | Limited |
| DDT | 10 | 0.034 | 0.007 | 0.081 | 0.051 | 16 |
| Chlordane | 10 | 0.008 | 0.001 | 0.016 | 0.012 | -- |
| Toxaphene | 10 | ND | -- | -- | -- | -- |
| TEQ | 0 | -- | -- | -- | -- | -- |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.099 | 0.096 | | | | |
| DDT | 0.078 | 0.147 | | | | |
| Chlordane | 0.255 | 0.317 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ | -- | -- | | | | |

Final meal category based on UCL: Limited

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of Detroit River freshwater drum due to elevated concentrations of mercury and PCBs.

Recommendation: Sensitive populations should not eat these fish. Healthy adults should limit consumption of freshwater drum from the Detroit River to no more than 1 or 2 meals per year due to PCBs. Mercury would cause an advisory.





**Largemouth and
Smallmouth Bass**

Detroit River

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 | 2011 | 28 | 6.3 | 14 | 13.6 | 18.8 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 19 | 0.38 | 0.18 | 0.84 | 0.46 | 2 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.583 | 0.680 | | | | |

Organics Analysis:

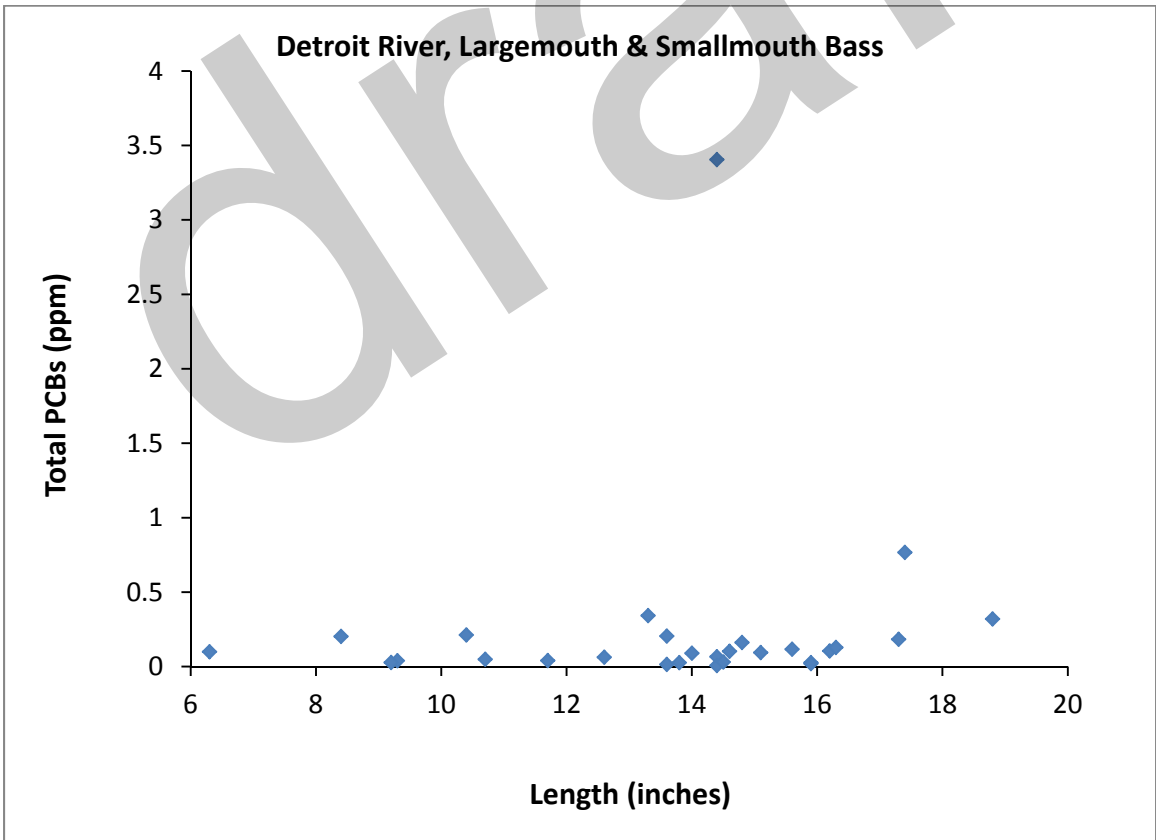
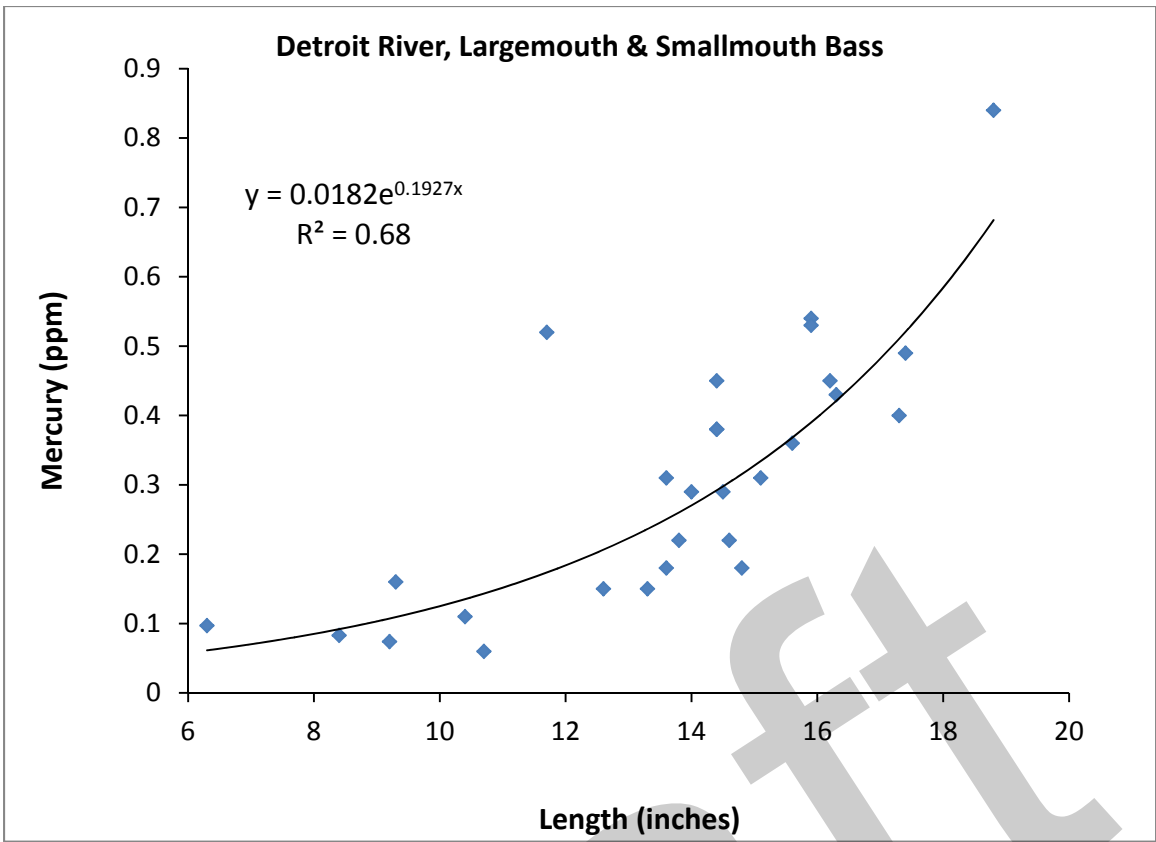
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--|------------------------|---------------------------|-----------------------|-----------------------|---------------------------------|------------------|
| Earliest | Most Recent | | | | Min | Max |
| 2010 | 2011 | 28 | 6.3 | 14 | 13.6 | 18.8 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 19 | 0.309 | 0.007 | 3.405 | 0.680 | Limited |
| DDT | 19 | 0.012 | 0.001 | 0.060 | 0.018 | 16 |
| Chlordane | 19 | 0.001 | 0.001 | 0.006 | 0.002 | -- |
| Toxaphene | 19 | ND | -- | -- | -- | -- |
| TEQ | 0 | -- | -- | -- | -- | -- |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.014 | 0.031 | | | | |
| DDT | 0.184 | 0.149 | | | | |
| Chlordane | 0.064 | 0.008 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ | -- | -- | | | | |
| Final meal category based on UCL: | | | | | | Limited |

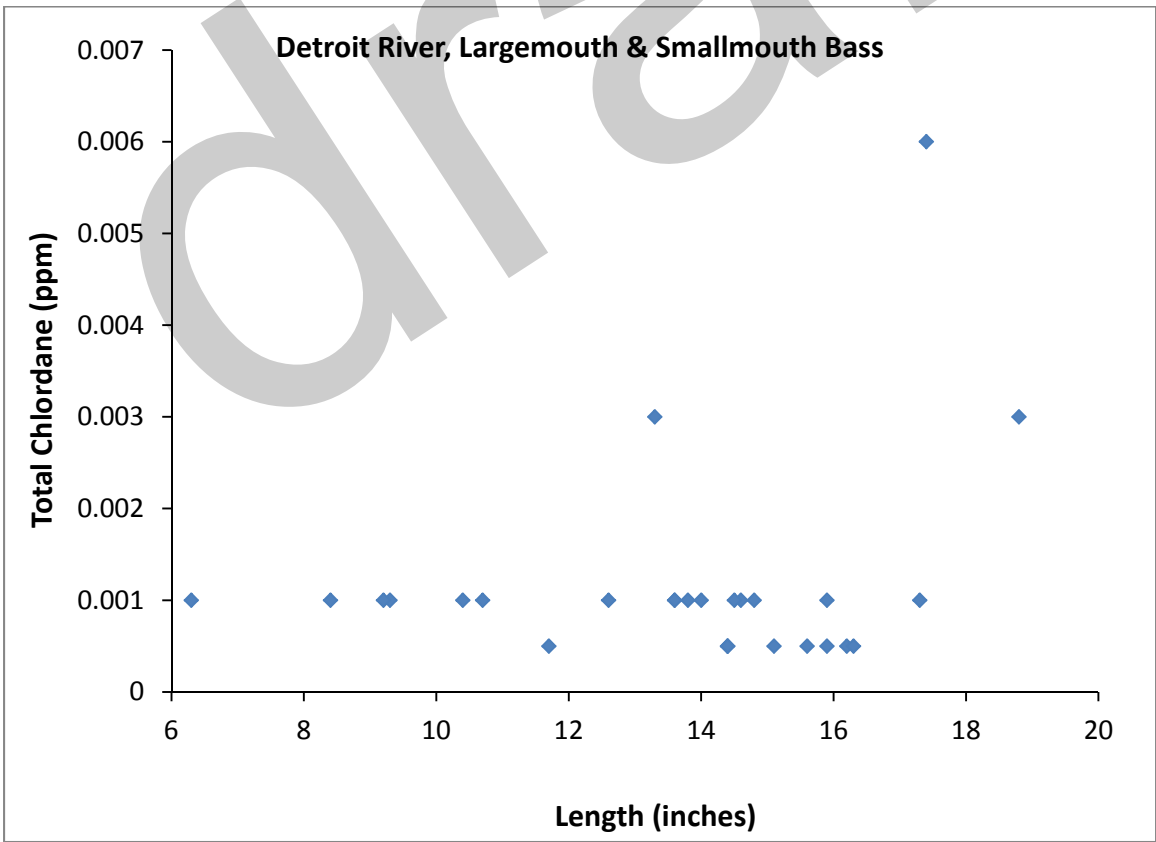
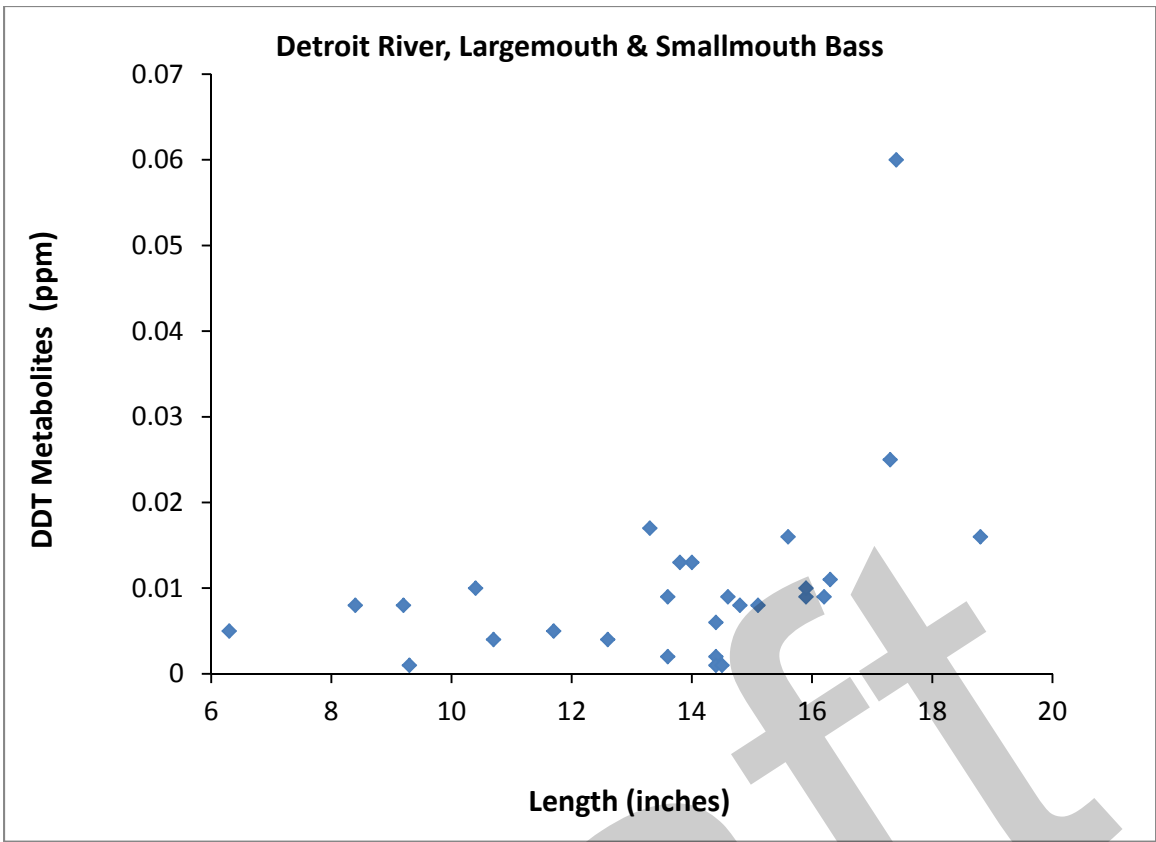
Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of largemouth or smallmouth bass from the Detroit River due to elevated concentrations of mercury, PCBs, and dioxins ("All other species" designation).

Recommendation: Sensitive populations should not eat these fish. Healthy adults should limit consumption of largemouth and smallmouth bass from the Detroit River to no more than 1 or 2 meals per year due to PCBs. Mercury would cause an advisory.

| Length (Inches) | Hg Regression Equation Estimate (ppm) | Meal Category |
|--------------------|---|------------------|
| 10 | 0.13 | 8 |
| 12 | 0.18 | 4 |
| 14 | 0.27 | 4 |
| 16 | 0.4 | 2 |
| 18 | 0.58 | 1 |
| 20 | 0.86 | 1 |
| 22 | 1.26 | 0.5 |
| 24 | 1.86 | 0.5 |
| 26 | 2.73 | 0 |

Shaded area denotes extrapolated estimates





Northern Pike

Detroit River

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 | 2011 | 22 | 19.5 | 24 | 24 | 30.8 |
| Datasets available: 1993, 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 16 | 0.38 | 0.08 | 1.8 | 0.59 | 1 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.196 | 0.199 | | | | |

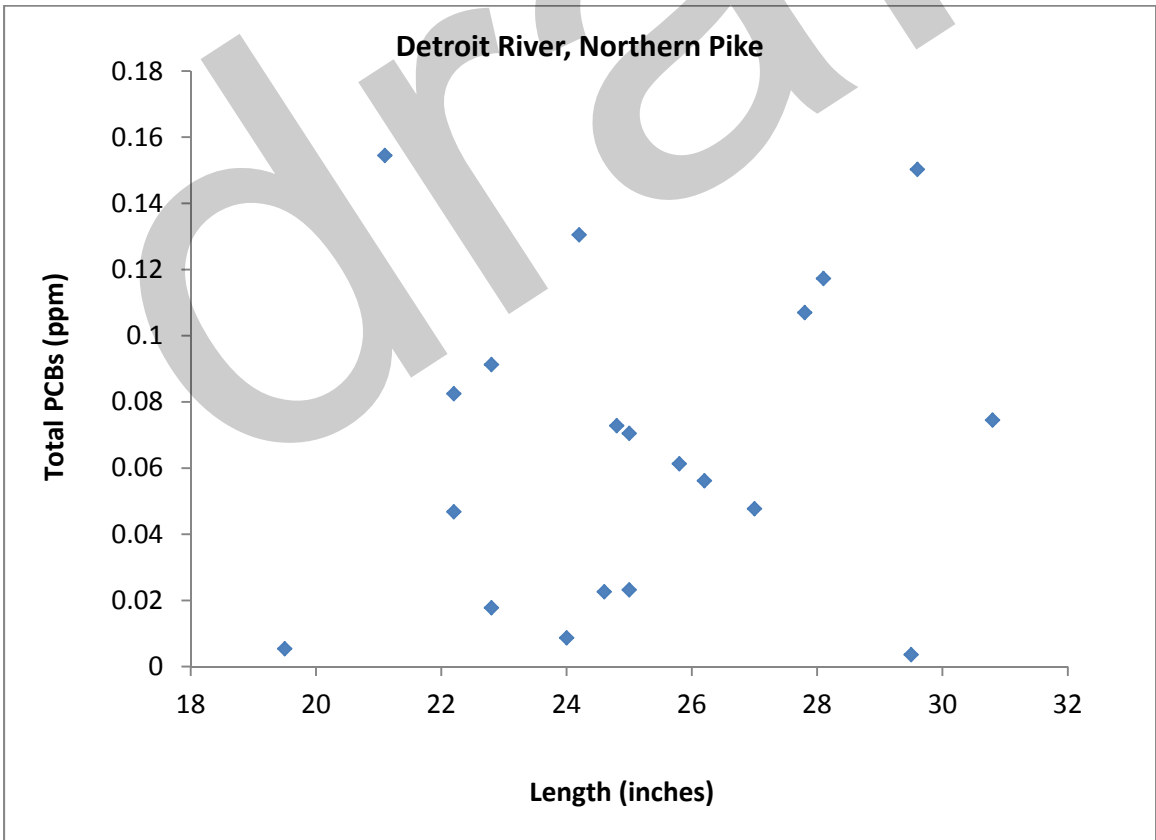
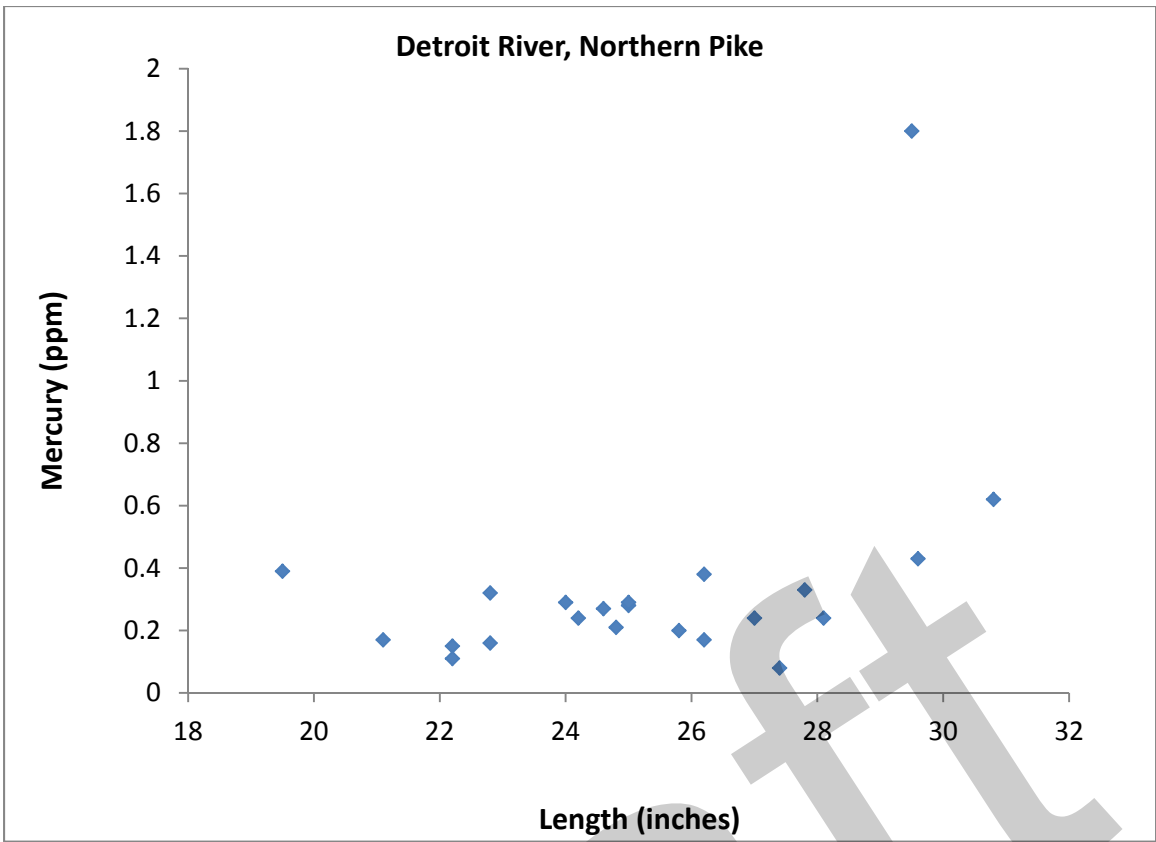
Organics Analysis:

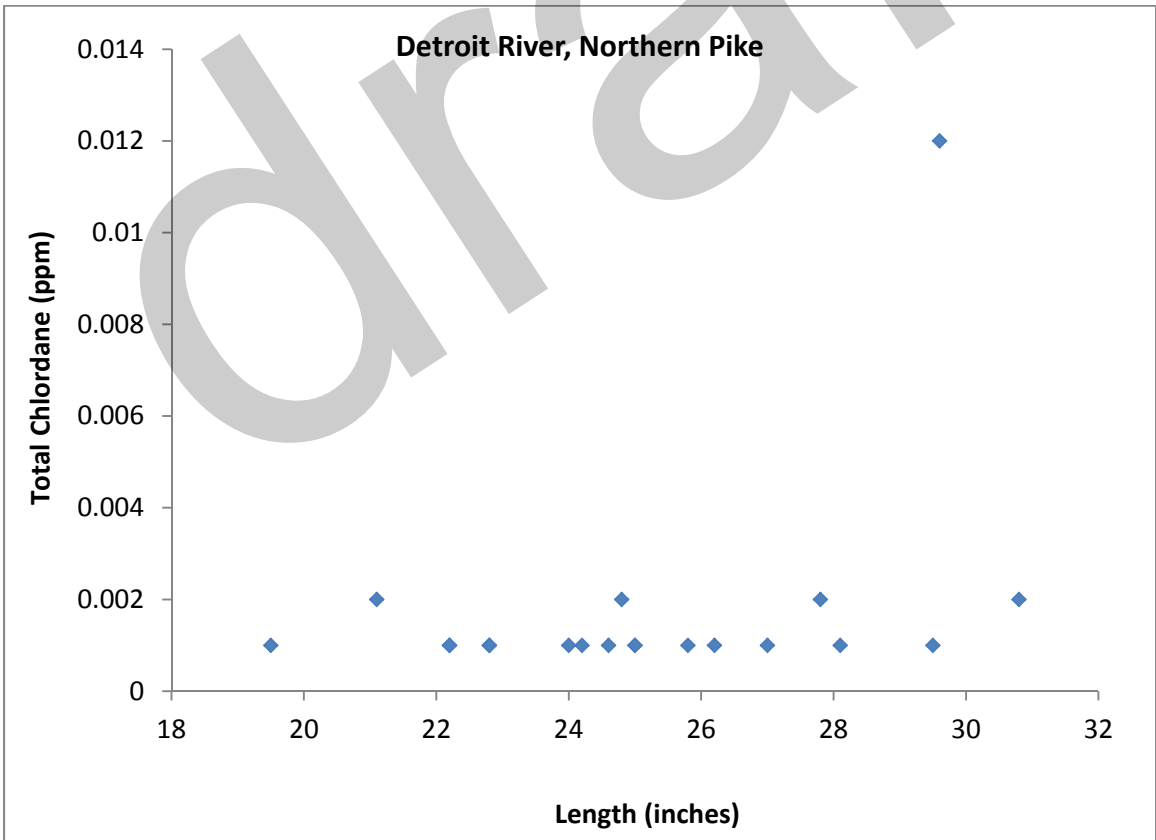
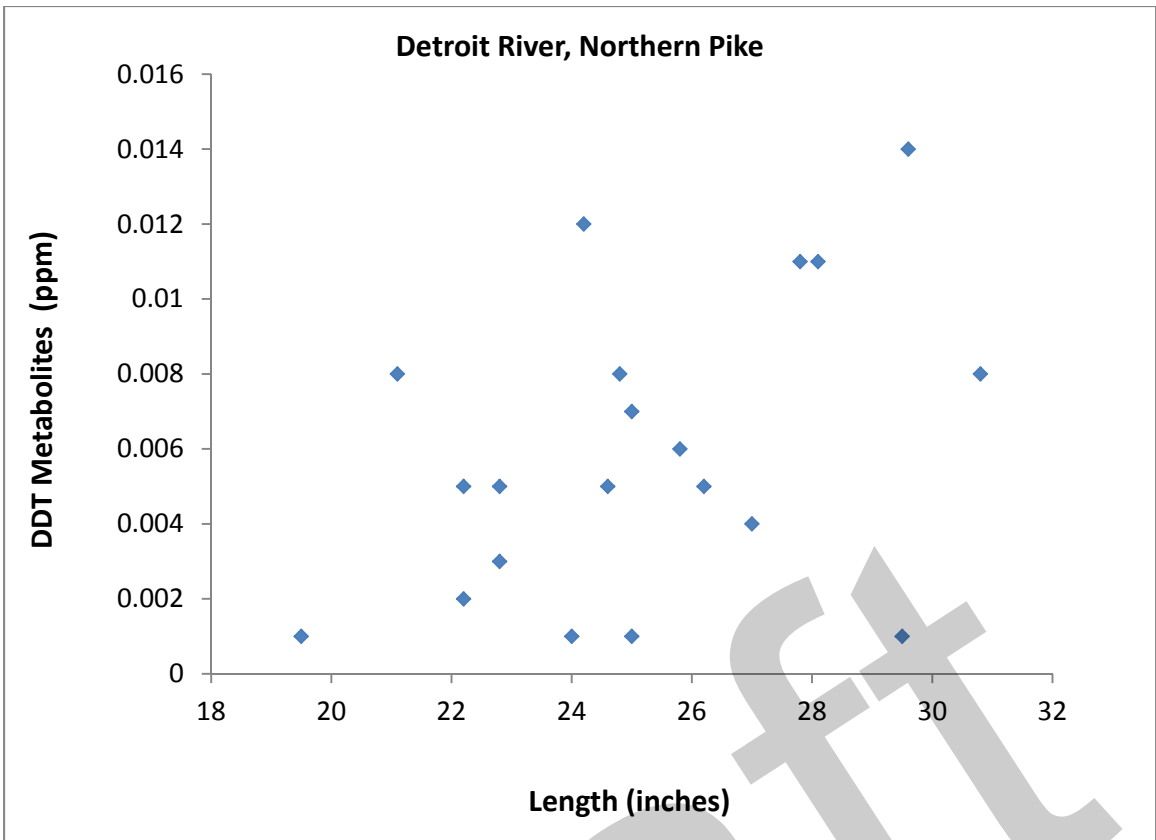
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--|---------------------|------------------------|--------------------|--------------------|------------------------------|---------------|
| Earliest | Most Recent | | | | Min | Max |
| 2010 | 2011 | 20 | 19.5 | 24 | 24 | 30.8 |
| Datasets available: 1993, 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 14 | 0.068 | 0.004 | 0.150 | 0.094 | 2 |
| DDT | 14 | 0.007 | 0.001 | 0.014 | 0.009 | 16 |
| Chlordane | 14 | 0.002 | 0.001 | 0.012 | 0.004 | -- |
| Toxaphene | 14 | ND | -- | -- | -- | -- |
| TEQ* | 7 | 3.1 ppt | 2.4 ppt | 4.2 ppt | 3.8 ppt | 1 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.027 | 0.024 | | | | |
| DDT | 0.172 | 0.106 | | | | |
| Chlordane | 0.144 | 0.165 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ* | 0.232 | 0.266 | | | | |
| Final meal category based on UCL: | | | | | | 1 |

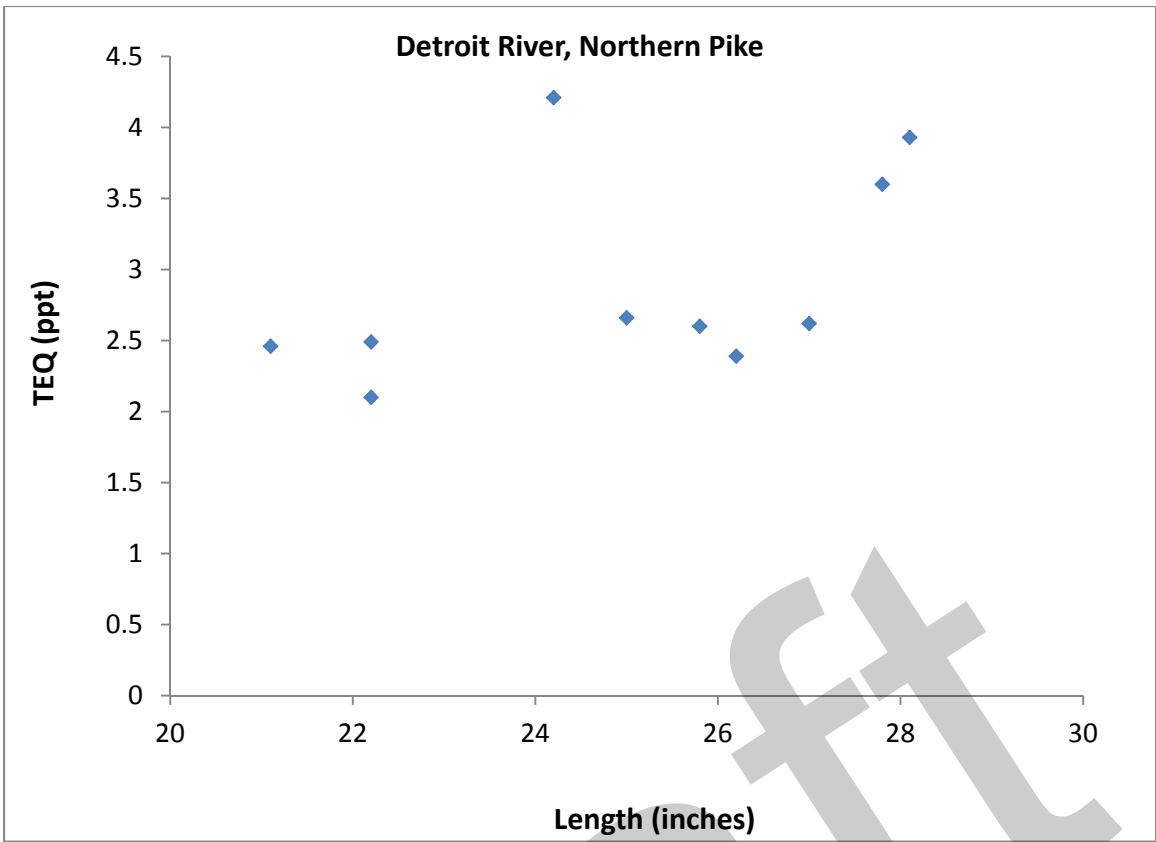
* 2005 WHO; dl-PCBs included

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of northern pike from the Detroit River due to elevated concentrations of PCBs.

Recommendation: No one should eat more than 1 meal per month of Detroit River northern pike due to dioxin and mercury. PCBs would cause an advisory.







Redhorse Sucker

**Detroit River
Including Lower River Rouge**

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 | 2005 | 30 | 10.2 | na | 10.2 | 21.1 | |
| Datasets available: 1993, 2004, 2005 | | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 30 | 0.16 | | 0.02 | 0.46 | 0.20 | 4 |
| Chemical | Linear Regression | Exponential Regression | | | | | |
| | R ² | R ² | | | | | |
| Mercury | 0.449 | 0.538 | | | | | |

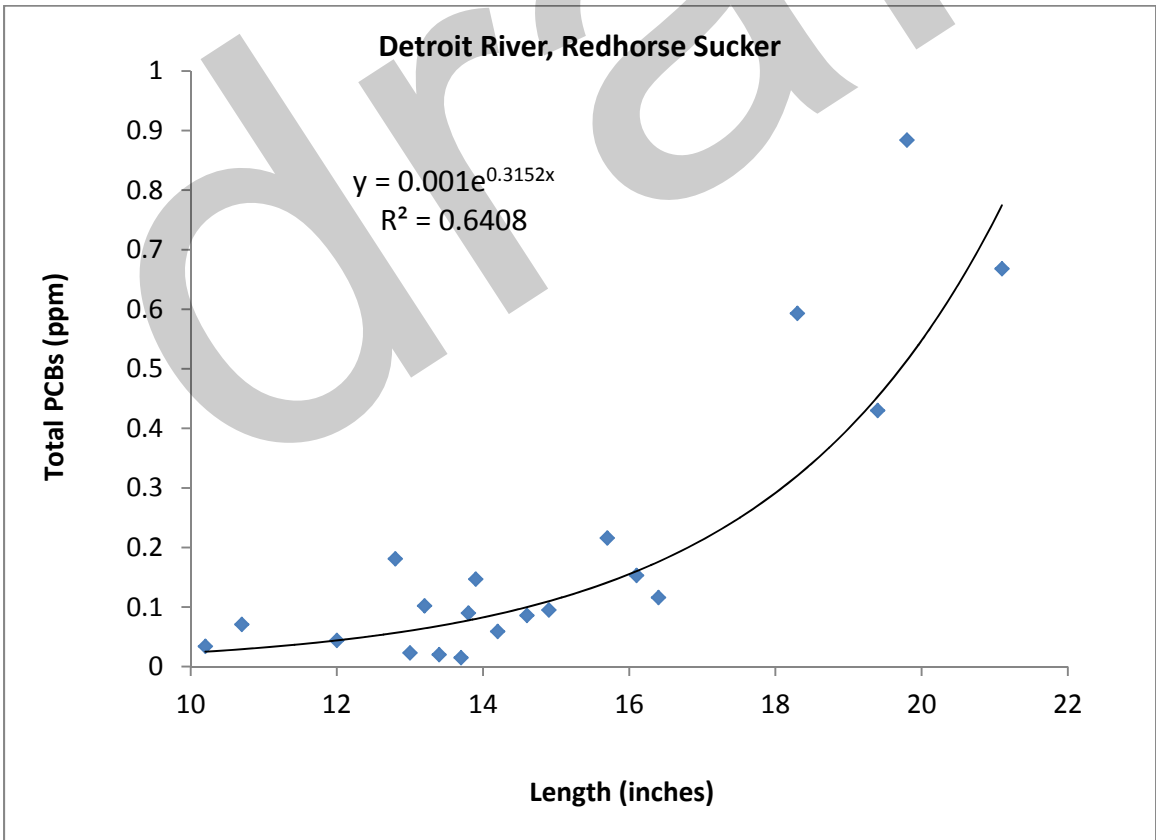
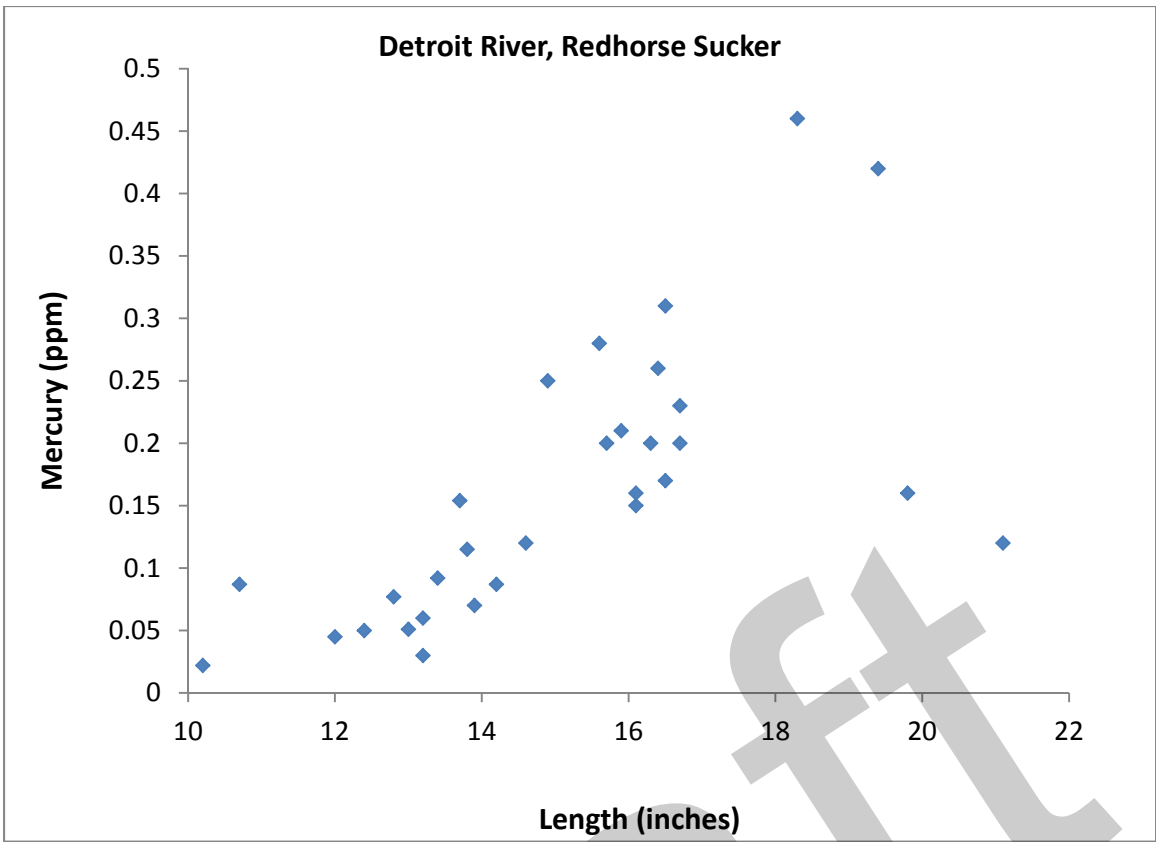
Organics Analysis:

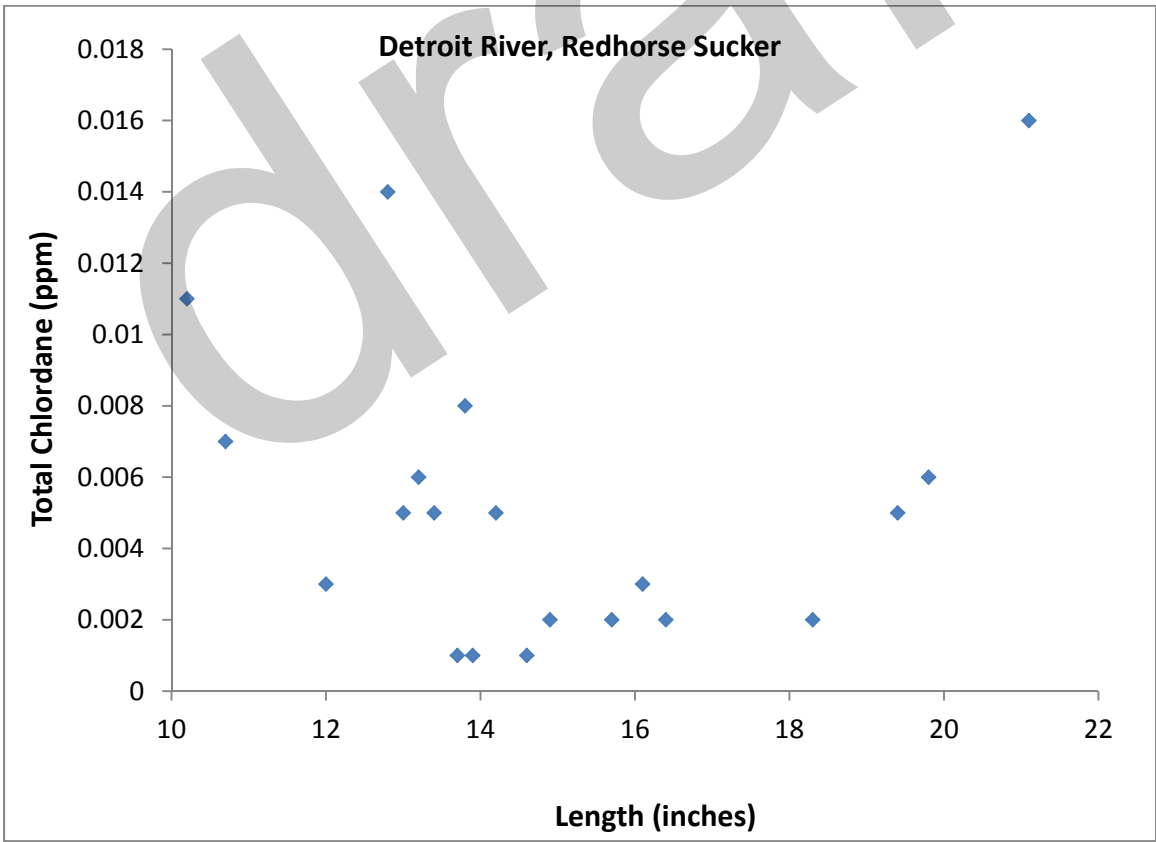
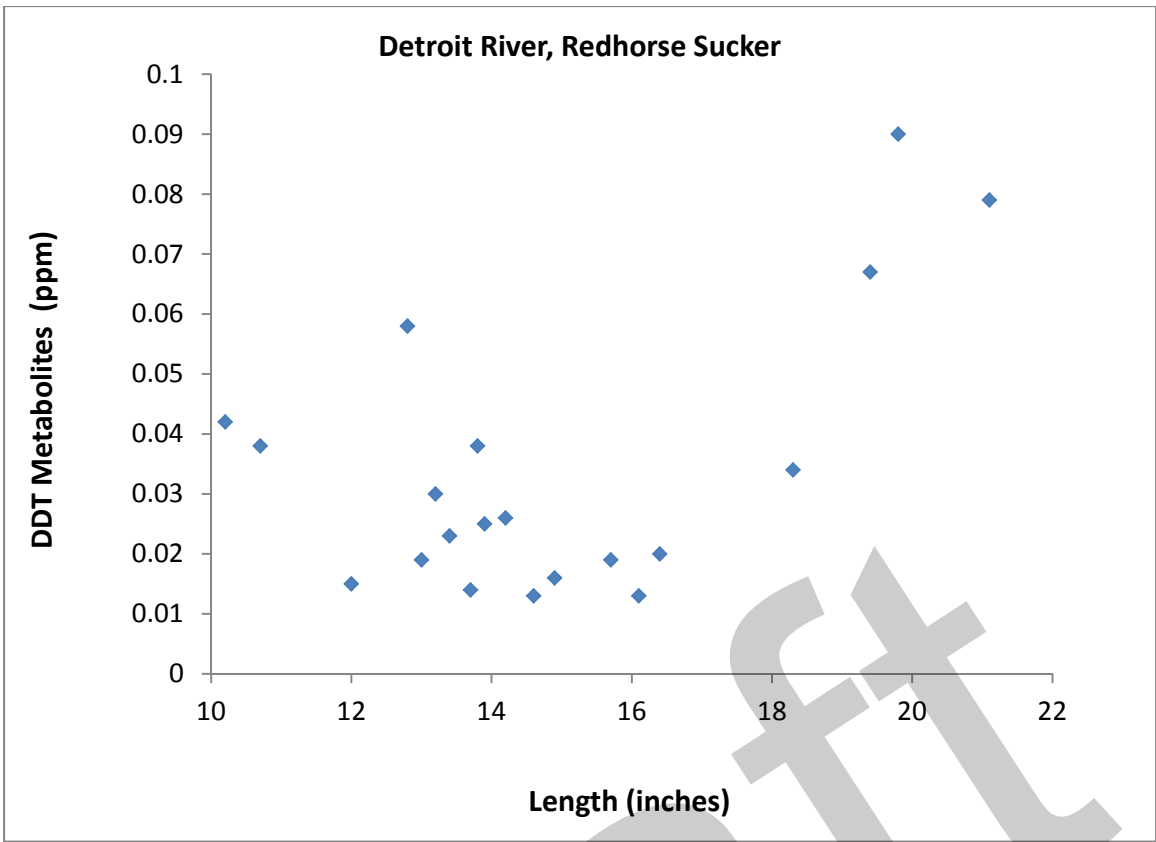
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | | |
|--|---------------------|------------------------|--------------------|--------------------|------------------------------|--------------|---------------|
| Earliest | Most Recent | | | | Min | Max | |
| 2004 | 2005 | 20 | 12.4 | na | 10.2 | 21.1 | |
| Datasets available: 1993, 2004, 2005 | | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 20 | 0.729 | | 0.015 | 0.884 | 0.316 | 0.5 |
| DDT | 20 | 0.079 | | 0.013 | 0.090 | 0.045 | 16 |
| Chlordane | 20 | 0.013 | | 0.001 | 0.016 | 0.007 | -- |
| Toxaphene | 20 | ND | | -- | -- | -- | -- |
| TEQ | 0 | -- | | -- | -- | -- | -- |
| Chemical | Linear Regression | Exponential Regression | | | | | |
| | R ² | R ² | | | | | |
| PCB | 0.717 | 0.641 | | | | | |
| DDT | 0.292 | 0.170 | | | | | |
| Chlordane | 0.001 | 0.000 | | | | | |
| Toxaphene | -- | -- | | | | | |
| TEQ | -- | -- | | | | | |
| Final meal category based on UCL: | | | | | | | 0.5 |

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of Detroit River suckers larger than 18 inches or more than 1 meal per week of suckers less than 18 inches due to elevated concentrations of PCBs.

Recommendation: No one should eat more than 2 meals per month of Detroit River of suckers less than 14 inches or more than 6 meals per year of suckers between 14 and 18 inches in length due to PCBs. Sensitive populations should not eat any Detroit River suckers larger than 18 inches, and healthy adults should limit consumption of those fish larger than 18 inches to no more than 1 or 2 meals per year. Mercury would cause an advisory.

| Length (Inches) | PCB Regression Equation Estimate (ppm) | Meal Category |
|---|--|---------------|
| 10 | 0.02 | 12 |
| 12 | 0.04 | 4 |
| 14 | 0.08 | 2 |
| 16 | 0.15 | 1 |
| 18 | 0.29 | 0.5 |
| 20 | 0.55 | Limited |
| 22 | 1.03 | Limited |
| 24 | 1.93 | Limited |
| <i>Shaded area denotes extrapolated estimates</i> | | |





Rock Bass

**Detroit River
Belle Isle & Grassy Island**

Hg Analysis:

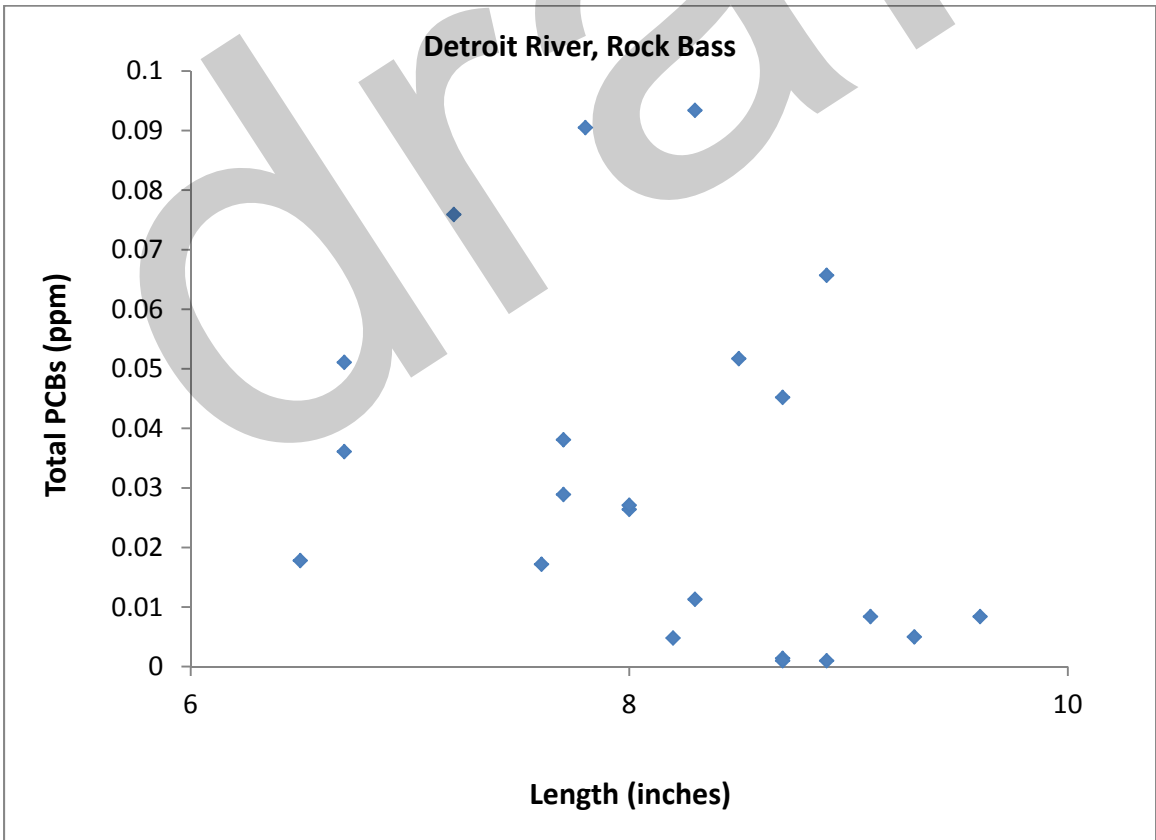
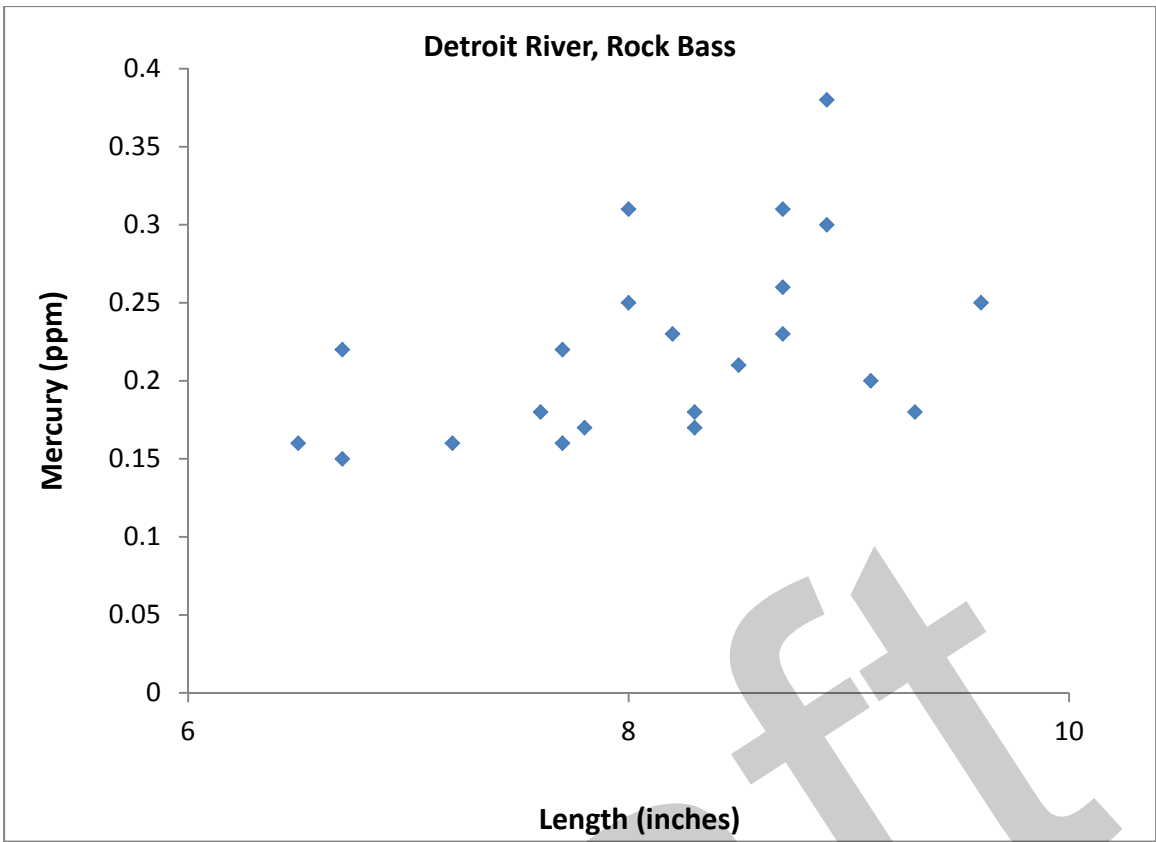
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--------------------------------|------------------------|---------------------------|-----------------------|-----------------------|---------------------------------|------------------|
| Earliest | Most Recent | | | | Min | Max |
| 2010 | 2011 | 22 | 6.5 | na | 6.5 | 9.6 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 22 | 0.22 | 0.15 | 0.38 | 0.25 | 4 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.233 | 0.266 | | | | |

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 | 2011 | 22 | 6.5 | na | 6.5 | 9.6 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 22 | 0.032 | 0.001 | 0.093 | 0.040 | 4 |
| DDT | 22 | 0.003 | 0.001 | 0.006 | 0.003 | 16 |
| Chlordane | 22 | 0.001 | 0.001 | 0.001 | 0.001 | -- |
| Toxaphene | 21 | ND | -- | -- | -- | -- |
| TEQ | 0 | -- | -- | -- | -- | -- |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.101 | 0.212 | | | | |
| DDT | 0.001 | 0.000 | | | | |
| Chlordane | 0.395 | 0.395 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ | -- | -- | | | | |
| Final meal category based on UCL: | | | | | | 4 |

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of rock bass from the Detroit River due to elevated concentrations of mercury, PCBs, and dioxins (“All other species” designation).

Recommendation: No one should eat more than 4 meals per month of Detroit River rock bass due to mercury and PCBs.



Walleye

Detroit River

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 | 2011 | 60 | 13.5 | 15 | 14.6 | 26.5 |
| Datasets available: 1986, 1990, 1999, 2001, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 54 | 0.27 | 0.08 | 0.84 | 0.31 | 2 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.336 | 0.430 | | | | |

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 | 2011 | 16 | 13.5 | 15 | 16.9 | 26.5 |
| Datasets available: 1990, 1999, 2001, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 12 | 0.499 | 0.046 | 1.381 | 0.774 | Limited |
| DDT | 12 | 0.040 | 0.004 | 0.107 | 0.061 | 16 |
| Chlordane | 12 | 0.009 | 0.001 | 0.027 | 0.014 | -- |
| Toxaphene | 12 | ND | 0.025 | 0.500 | 0.169 | -- |
| TEQ* | 6 | 7.2 ppt | 1.6 ppt | 18.6 ppt | 13.8 ppt | 0.5 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.544 | 0.775 | | | | |
| DDT | 0.579 | 0.840 | | | | |
| Chlordane | 0.571 | 0.699 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ* | 0.160 | 0.243 | | | | |
| Final meal category based on UCL: | | | | | | Limited |

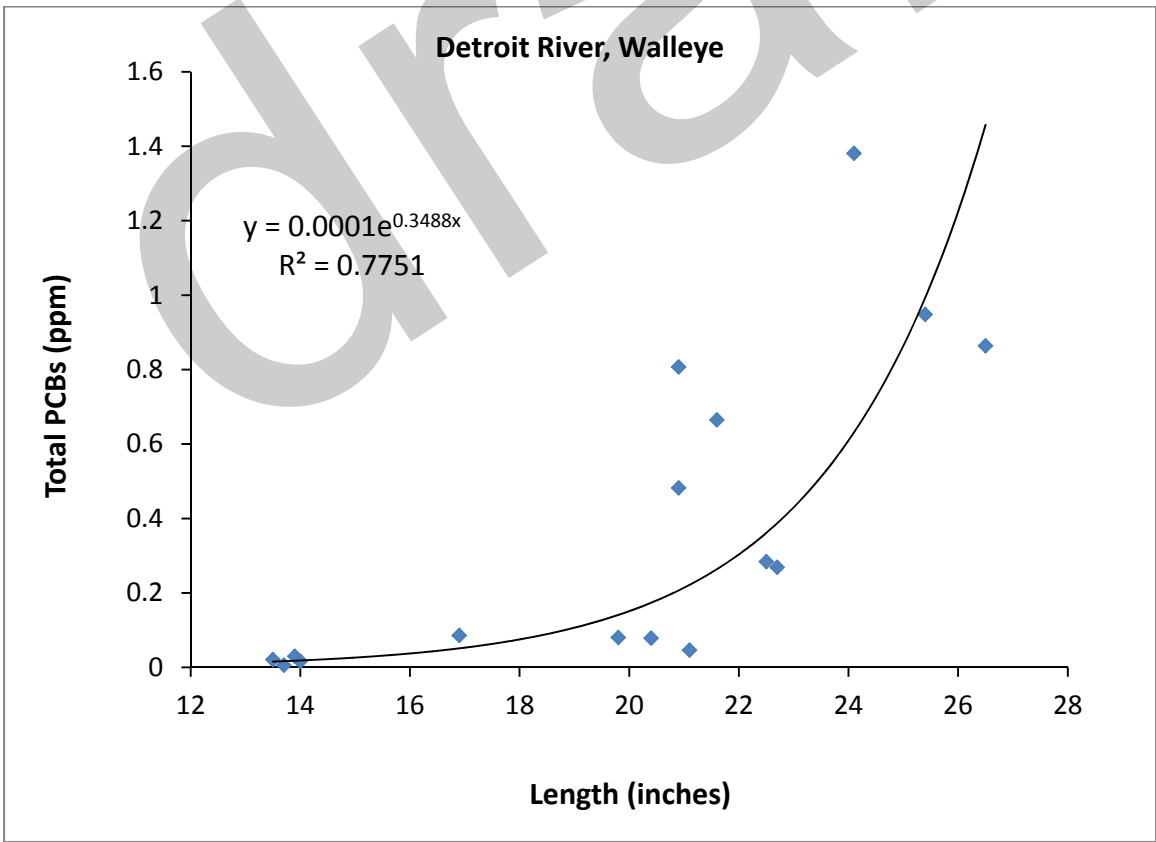
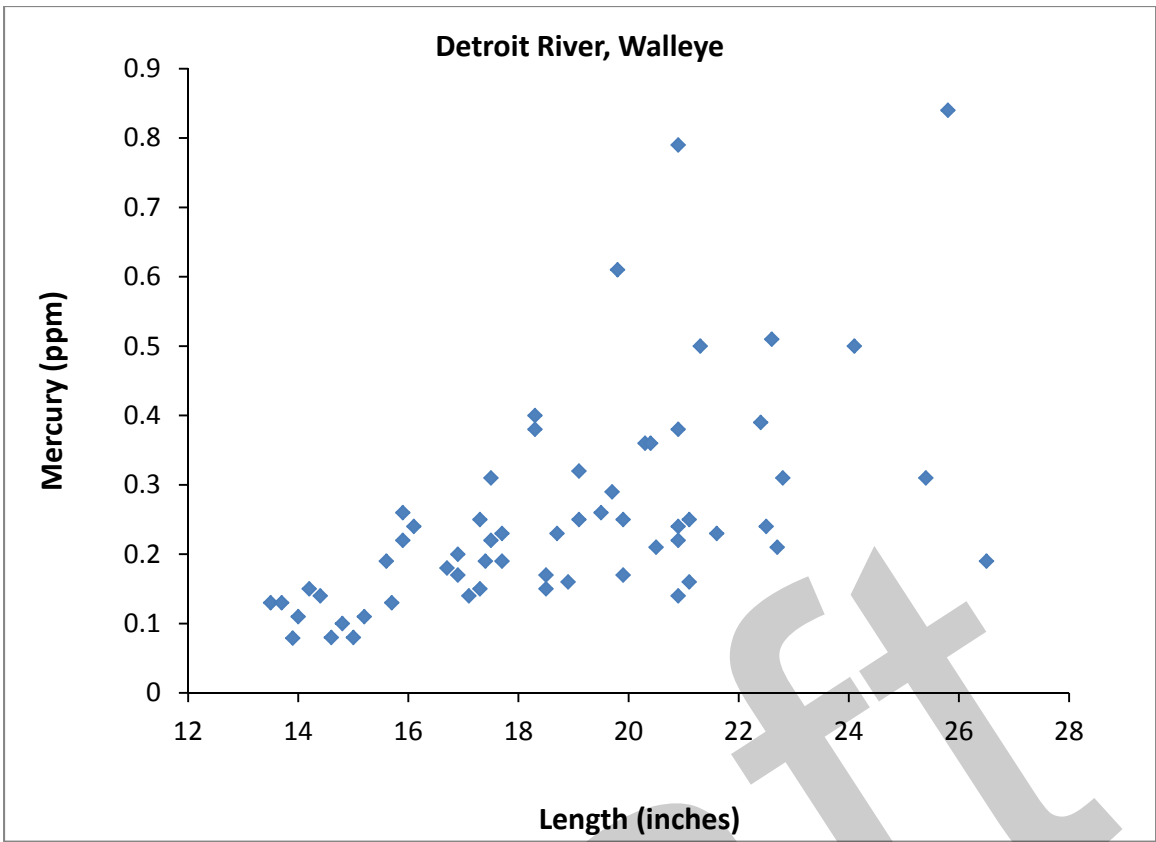
* 2005 WHO; dl-PCBs included

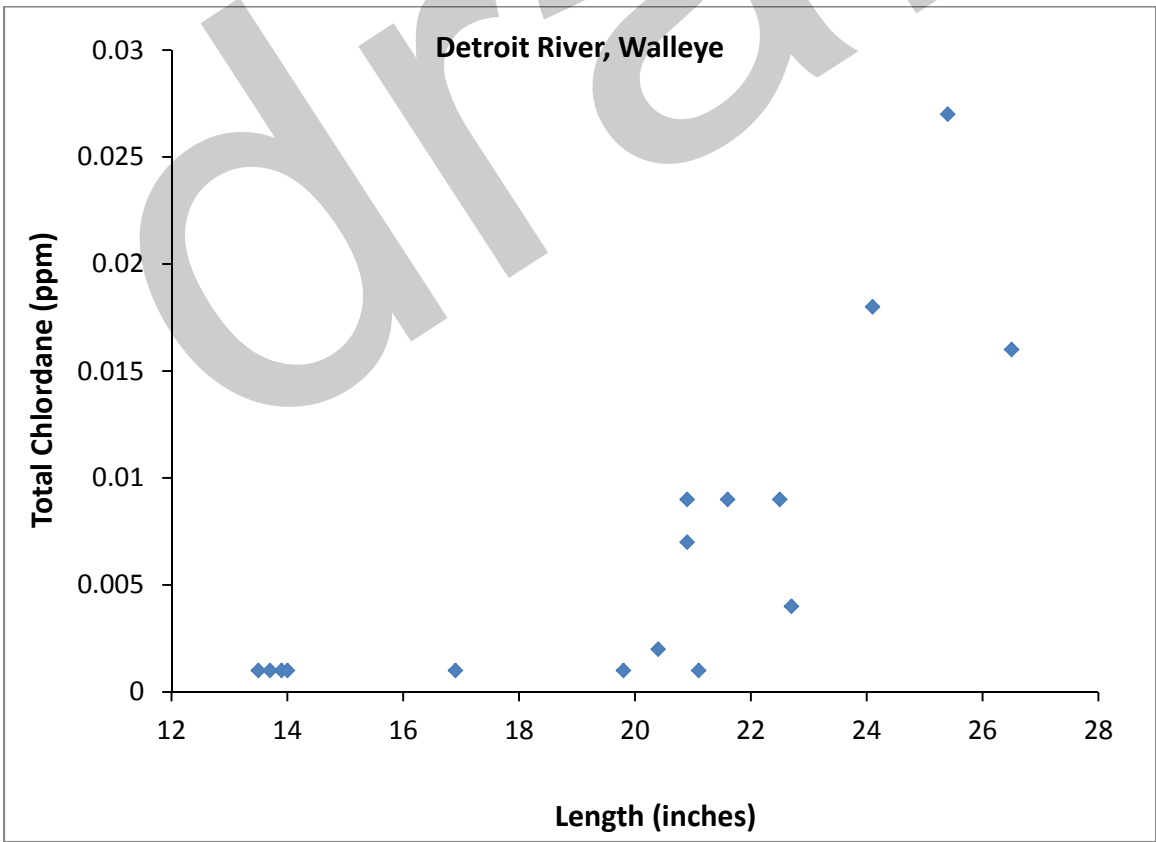
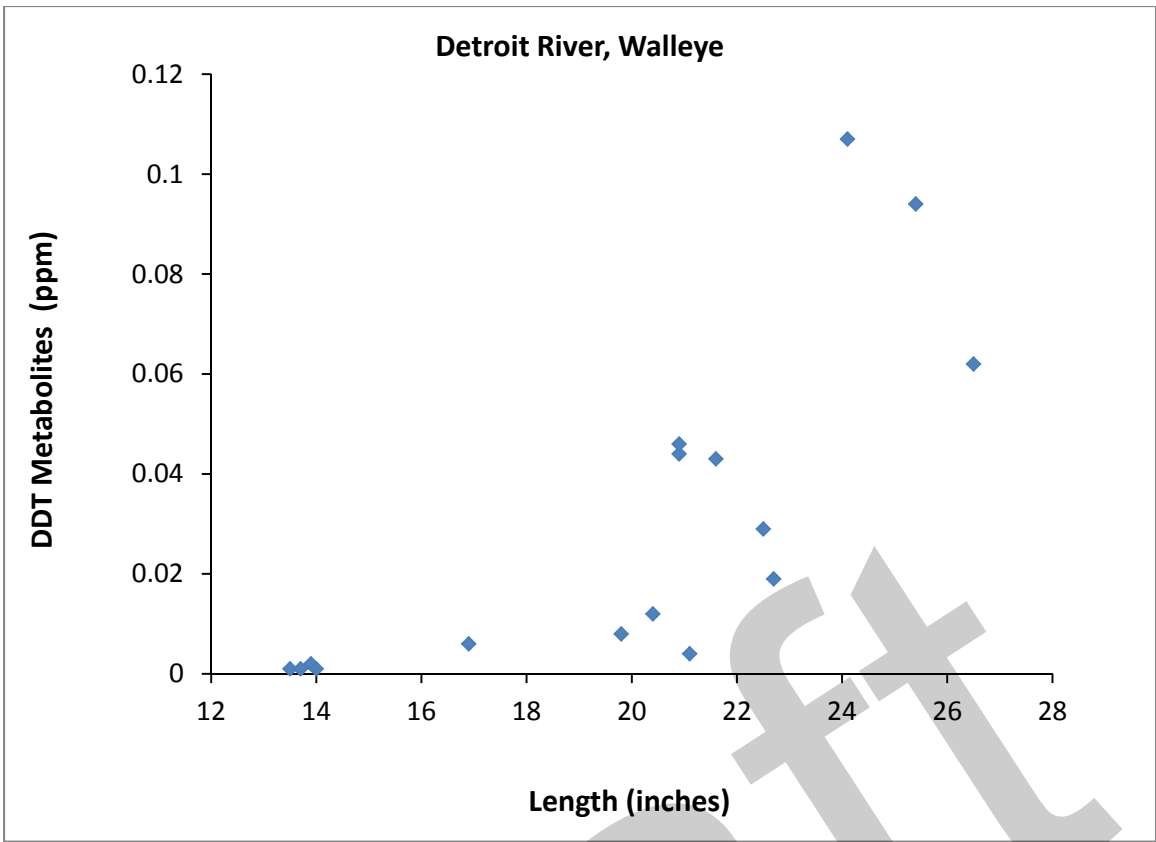
Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of walleye from the Detroit River due to elevated concentrations of PCBs.

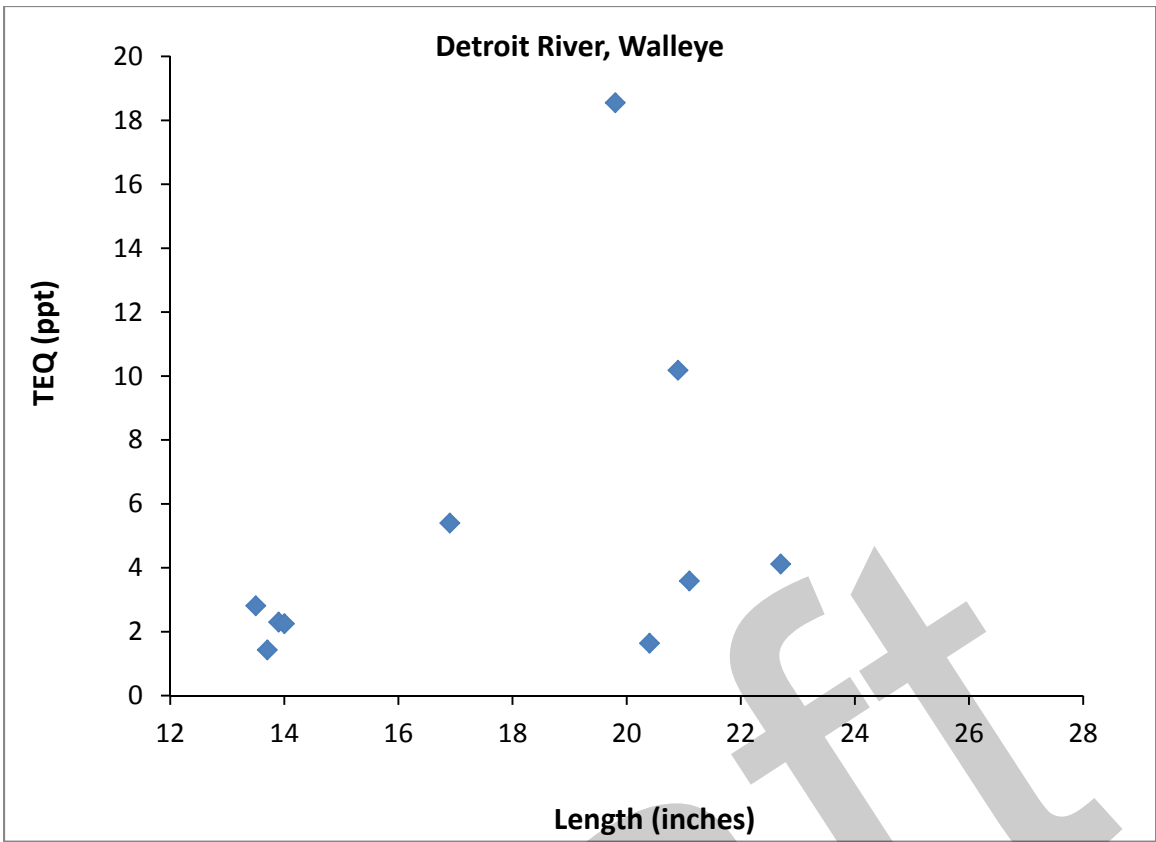
Recommendation: No one should eat more than 6 meals per year of Detroit River walleye less than 24 inches in length due to dioxins. Sensitive populations should not eat any Detroit River walleye larger than 24 inches, and healthy adults should limit consumption of those fish to no more than 1 or 2 meals per year due to PCBs and dioxins. Mercury would cause an advisory.

| Length (Inches) | PCB Regression Equation Estimate (ppm) | Meal Category |
|--------------------|--|------------------|
| 14 | 0.01 | 16 |
| 16 | 0.03 | 8 |
| 18 | 0.05 | 4 |
| 20 | 0.11 | 2 |
| 22 | 0.22 | 0.5 |
| 24 | 0.43 | 0.5 |
| 26 | 0.87 | Limited |
| 28 | 1.74 | Limited |

Shaded area denotes extrapolated estimates







draft

White Bass

Detroit River

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 | 2011 | 16 | 12.1 | na | 12.1 | 14.4 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 16 | 0.35 | 0.16 | 0.84 | 0.43 | 2 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.069 | 0.081 | | | | |

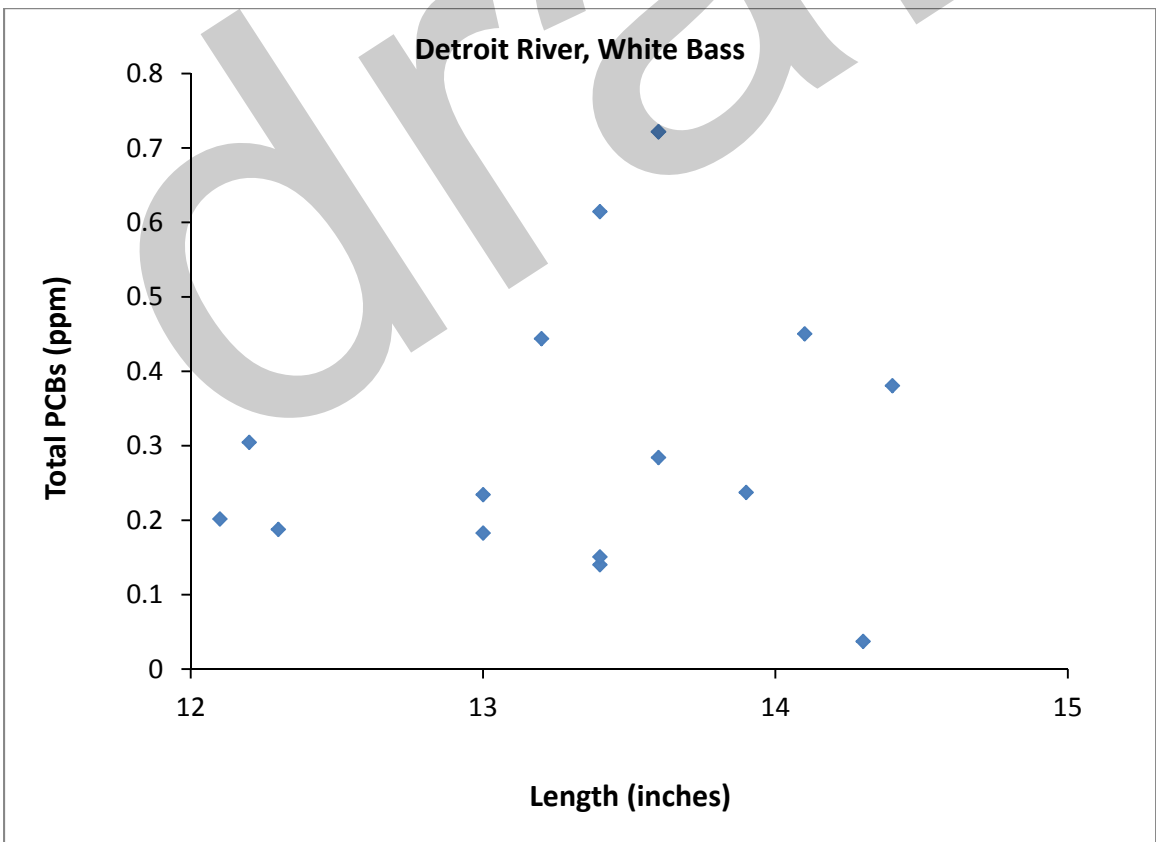
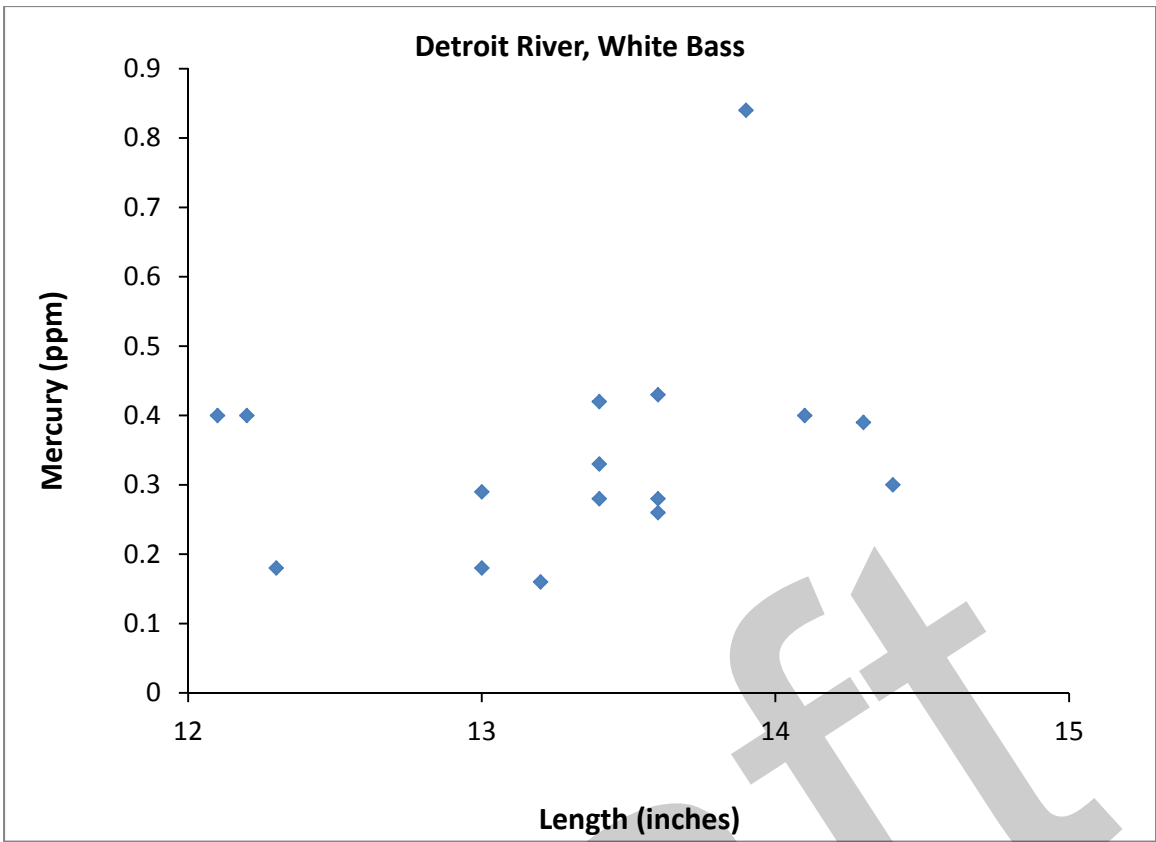
Organics Analysis:

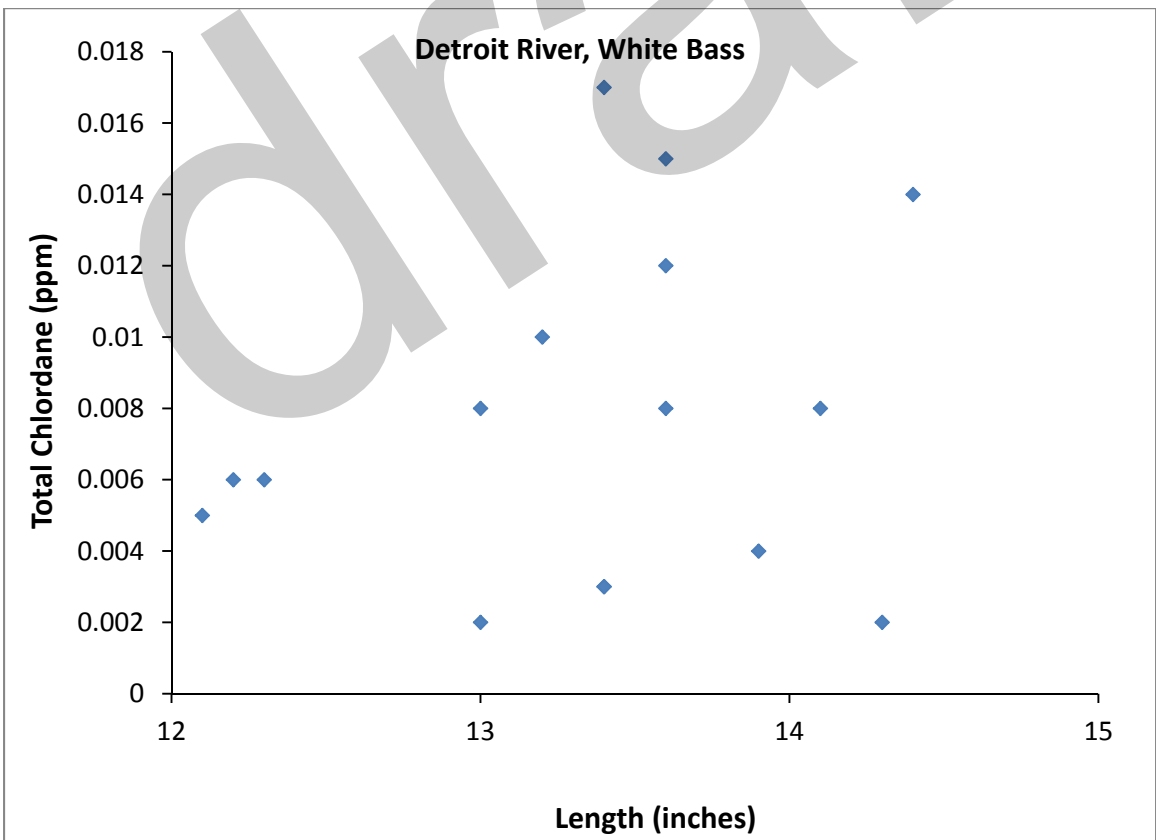
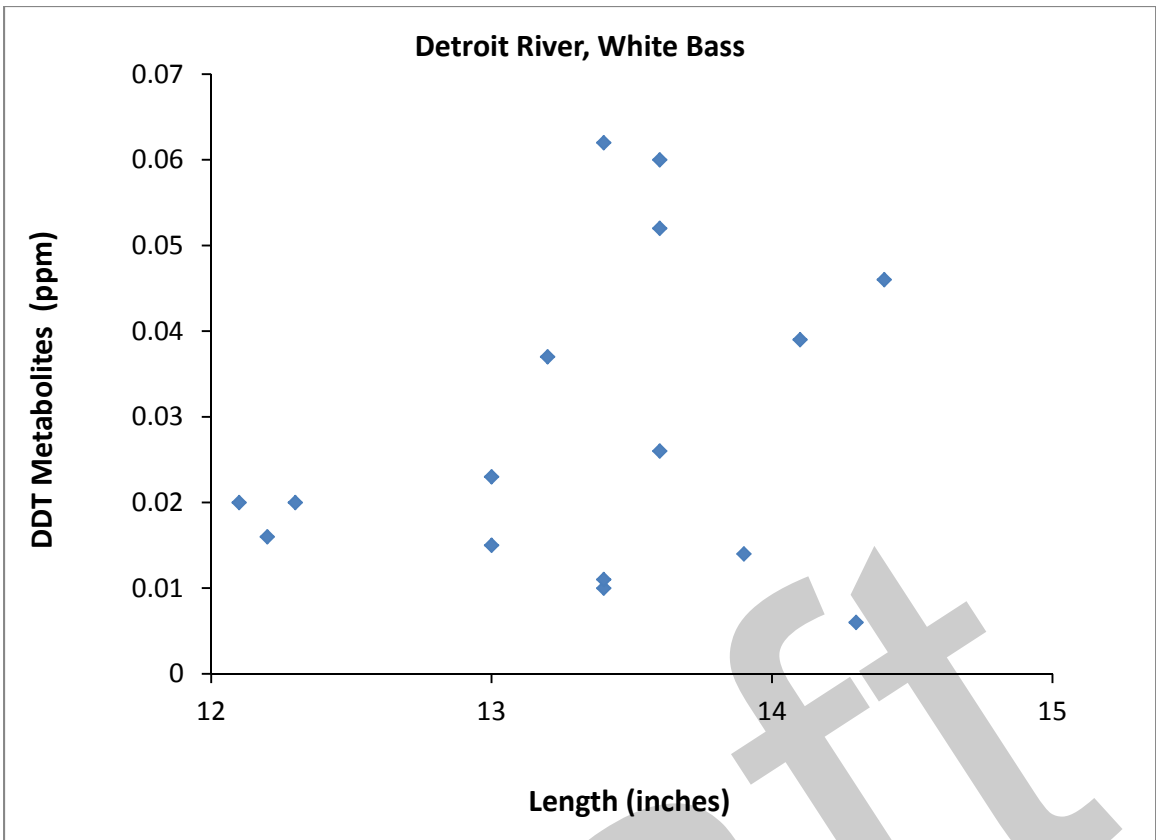
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--|------------------------|---------------------------|-----------------------|-----------------------|---------------------------------|------------------|
| Earliest | Most Recent | | | | Min | Max |
| 2010 | 2011 | 16 | 12.1 | na | 12.1 | 14.4 |
| Datasets available: 2010, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 16 | 0.331 | 0.037 | 0.722 | 0.442 | Limited |
| DDT | 16 | 0.029 | 0.006 | 0.062 | 0.038 | 16 |
| Chlordane | 16 | 0.008 | 0.002 | 0.017 | 0.010 | -- |
| Toxaphene | 16 | ND | -- | -- | -- | -- |
| TEQ* | 10 | 17.4 ppt | 10.1 ppt | 33.4 ppt | 22.5 ppt | Limited |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.034 | 0.000 | | | | |
| DDT | 0.066 | 0.013 | | | | |
| Chlordane | 0.049 | 0.010 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ* | 0.190 | 0.242 | | | | |
| Final meal category based on UCL: | | | | | | Limited |

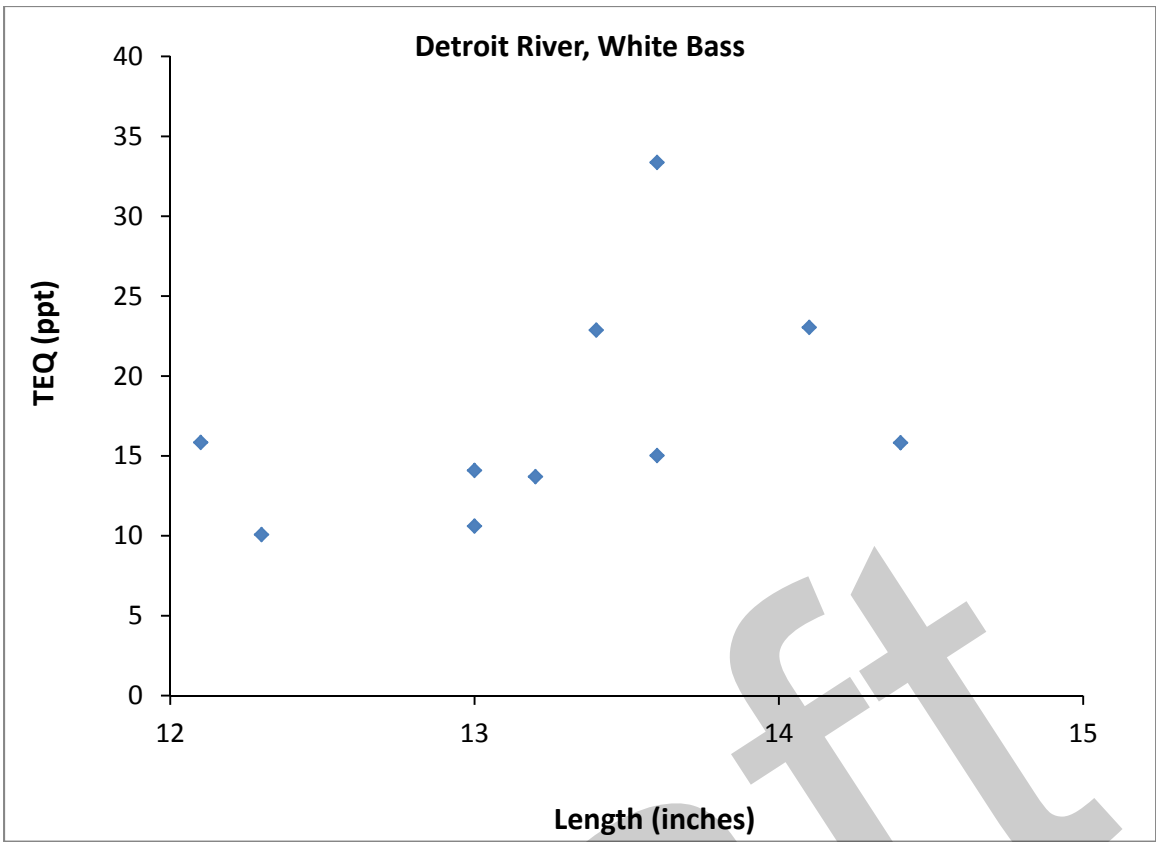
* 2005 WHO; dl-PCBs included

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of white bass from the Detroit River due to elevated concentrations of mercury, PCBs, and dioxins (“All other species” designation).

Recommendation: Sensitive populations should not eat these fish. Healthy adults should limit consumption of white bass from the Detroit River to no more than 1 or 2 meals per year due to PCBs and dioxin. Mercury would cause an advisory.







draft

Yellow Perch

Detroit River

Hg Analysis:

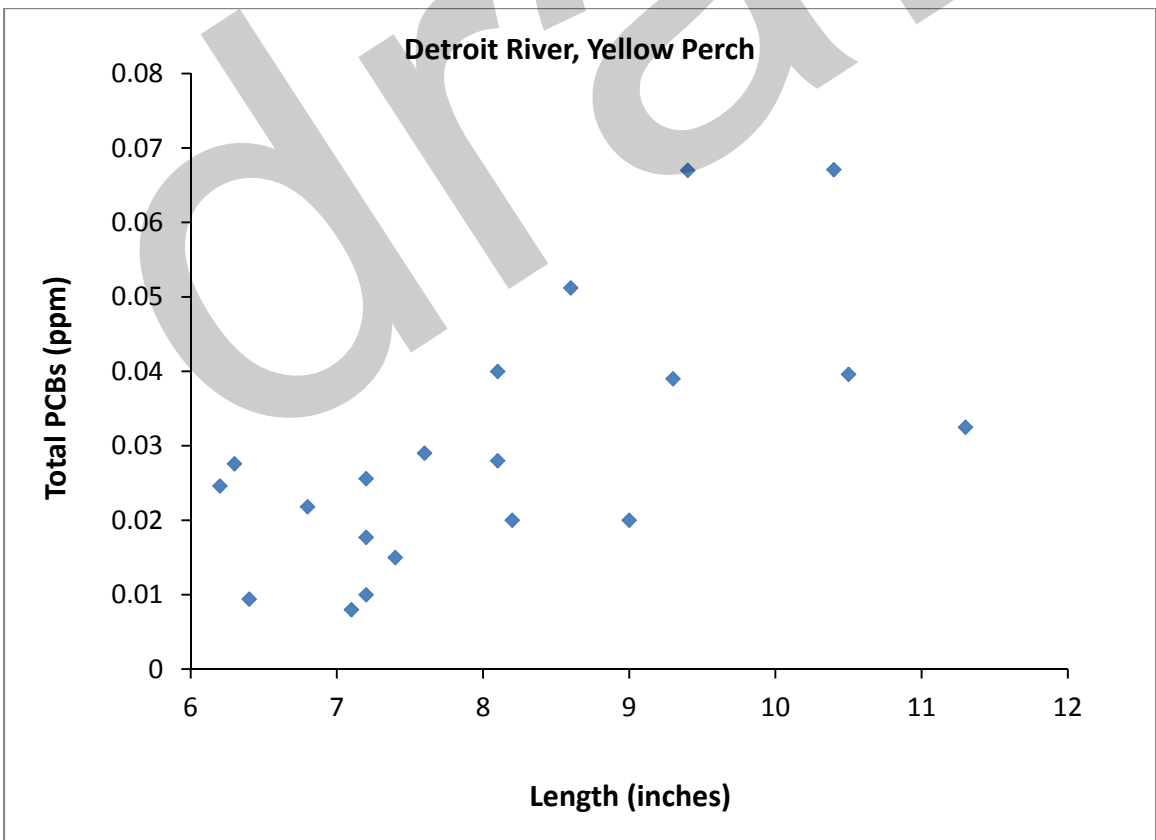
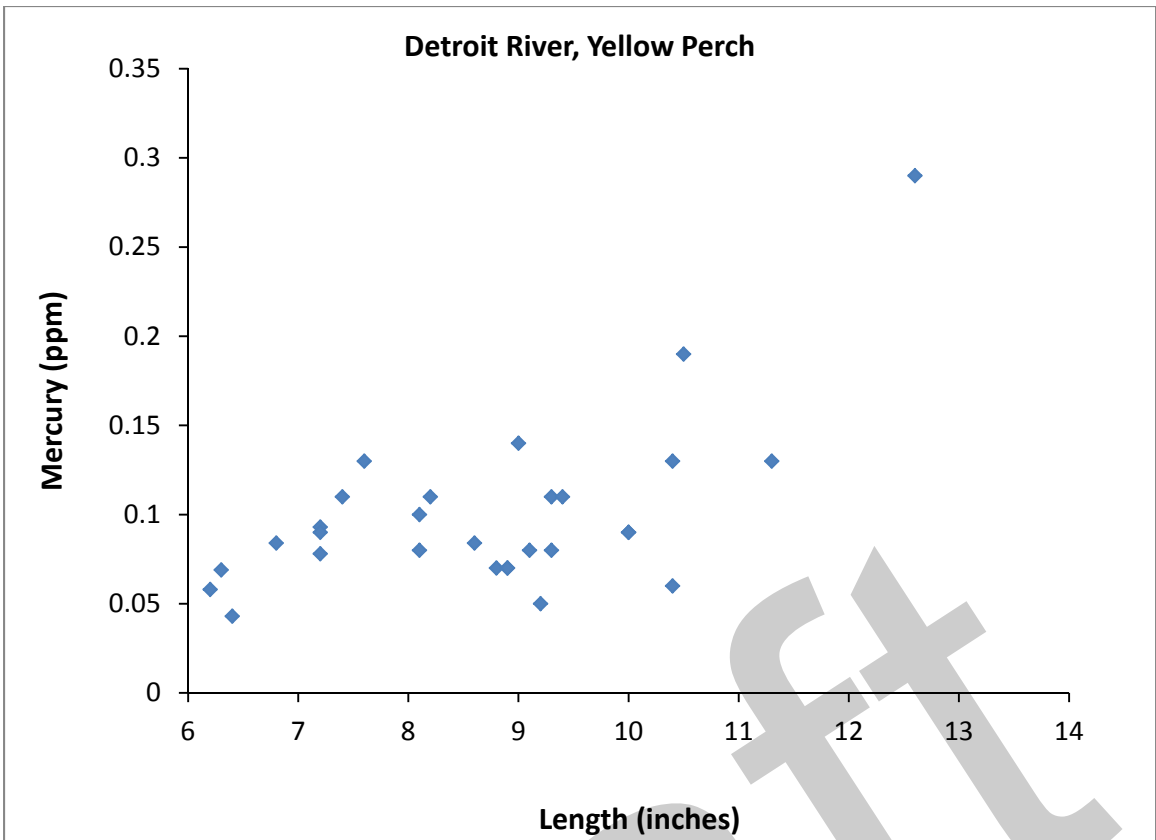
| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--------------------------------------|---------------------|------------------------|--------------------|--------------------|------------------------------|---------------|
| Earliest | Most Recent | | | | Min | Max |
| 1993 | 2011 | 29 | 6.2 | na | 6.2 | 12.6 |
| Datasets available: 1993, 2004, 2011 | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| Mercury | 29 | 0.100 | 0.043 | 0.290 | 0.118 | 8 |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| Mercury | 0.368 | 0.321 | | | | |

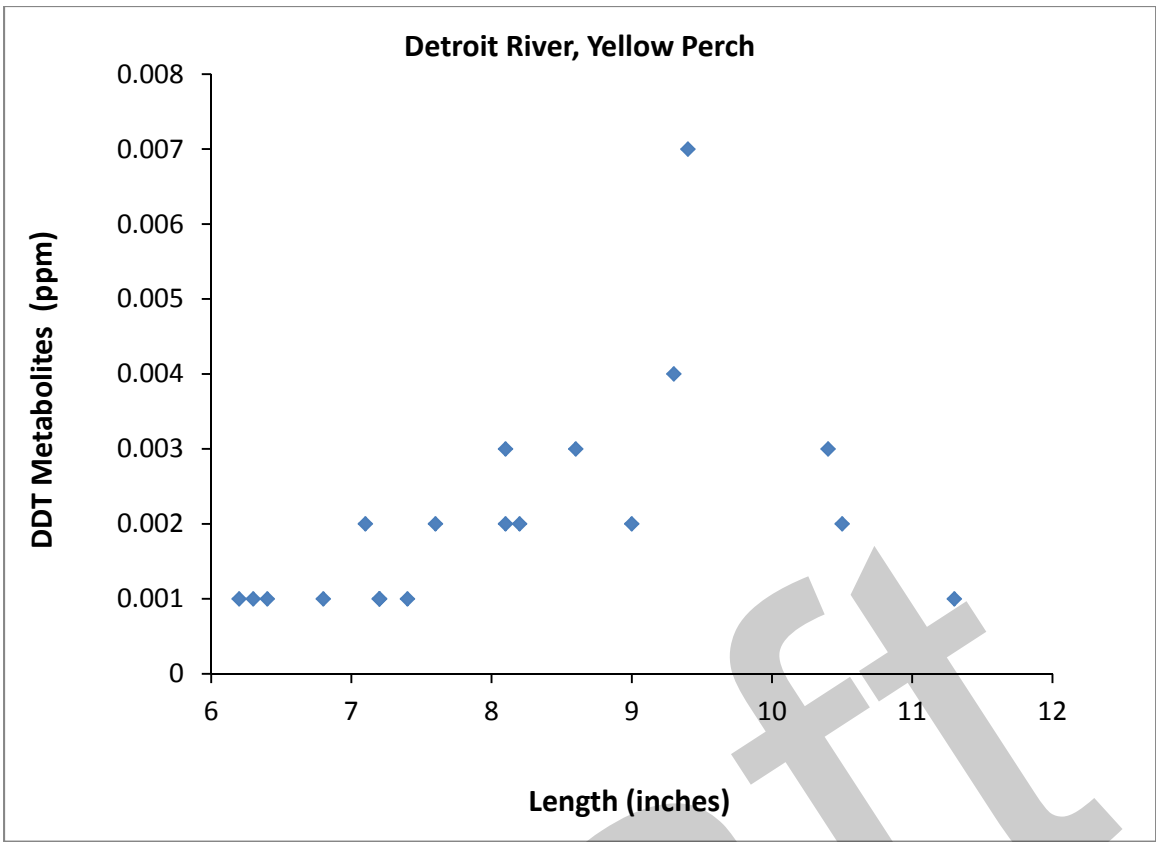
Organics Analysis:

| Range of Years Used | | N (All) | Overall Min Length | Legal Min (Inches) | Range of Legal Sized Samples | |
|--|---------------------|------------------------|--------------------|--------------------|------------------------------|---------------|
| Earliest | Most Recent | | | | Min | Max |
| 2004 | 2011 | 20 | 6.2 | na | 6.2 | 11.3 |
| Datasets available: | | | | | | |
| Chemical | Sample Size (Legal) | Mean (ppm) | Min. Conc. (ppm) | Max Conc. (ppm) | 95%UCL (ppm) | Meal Category |
| PCB | 20 | 0.030 | 0.008 | 0.067 | 0.038 | 4 |
| DDT | 20 | 0.002 | 0.001 | 0.007 | 0.003 | 16 |
| Chlordane | 20 | ND | -- | -- | -- | -- |
| Toxaphene | 20 | ND | -- | -- | -- | -- |
| TEQ | 0 | -- | -- | -- | -- | -- |
| Chemical | Linear Regression | Exponential Regression | | | | |
| | R ² | R ² | | | | |
| PCB | 0.406 | 0.387 | | | | |
| DDT | 0.205 | 0.270 | | | | |
| Chlordane | 0.084 | 0.084 | | | | |
| Toxaphene | -- | -- | | | | |
| TEQ | -- | -- | | | | |
| Final meal category based on UCL: | | | | | | 4 |

Existing MDCH Advisory: Women and children should not eat more than 1 meal per week of Detroit River yellow perch larger than 10 inches due to elevated concentrations of PCBs.

Recommendation: No one should eat more than 4 meals per month of Detroit River yellow perch due to PCBs. Mercury would cause an advisory.





draft