

Figure 4. Length frequency of largemouth bass collected at Clinch River mile 2.5 in Spring 2002.

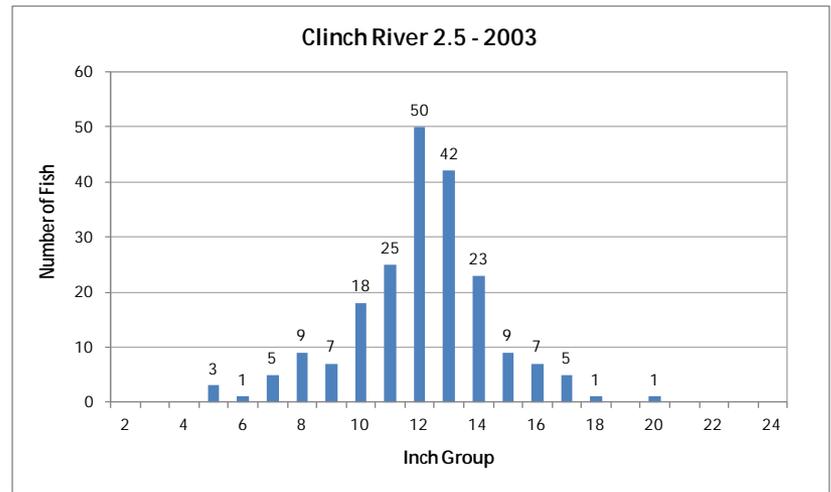


Figure 5. Length frequency of largemouth bass collected at Clinch River mile 2.5 in Spring 2003.

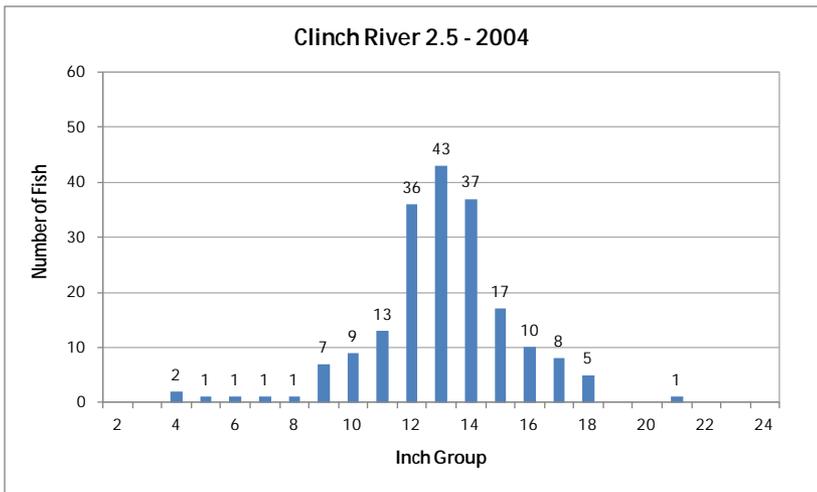


Figure 6. Length frequency of largemouth bass collected at Clinch River mile 2.5 in Spring 2004.

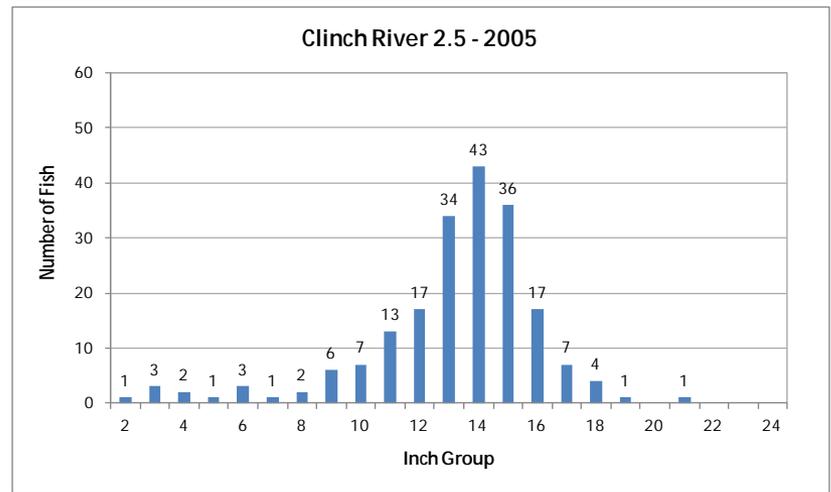


Figure 7. Length frequency of largemouth bass collected at Clinch River mile 2.5 in Spring 2005.



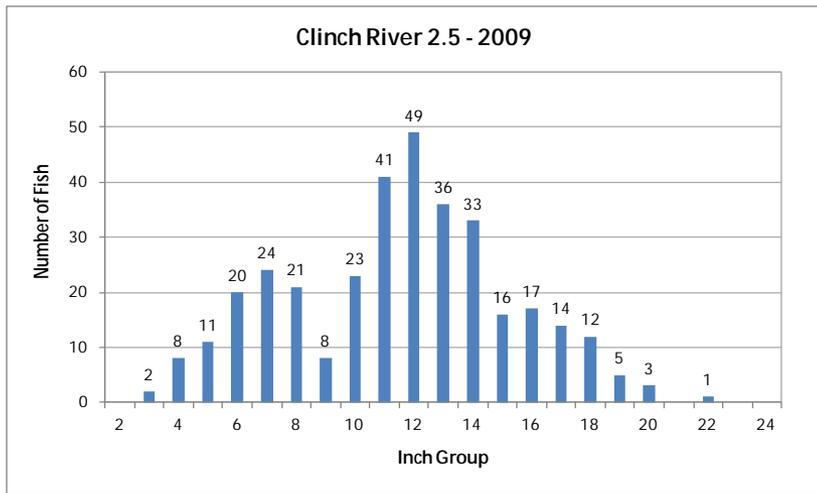


Figure 8. Length frequency of largemouth bass collected at Clinch River mile 2.5 in Spring 2009.

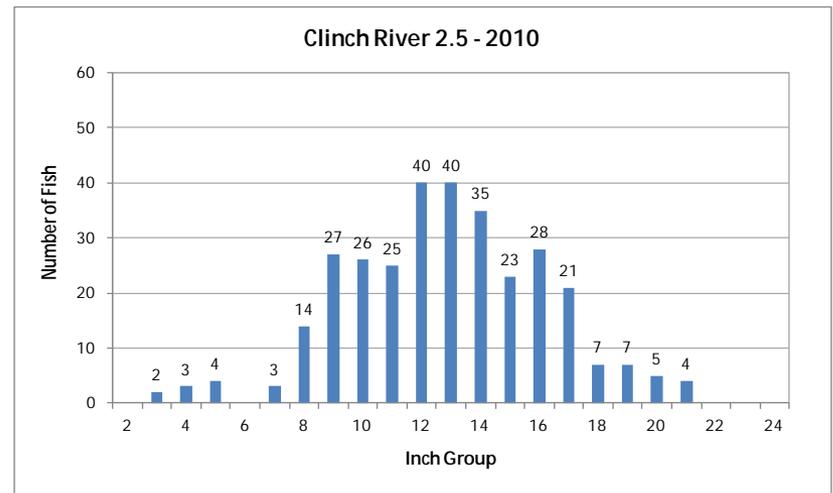


Figure 9. Length frequency of largemouth bass collected at Clinch River mile 2.5 in Spring 2010.

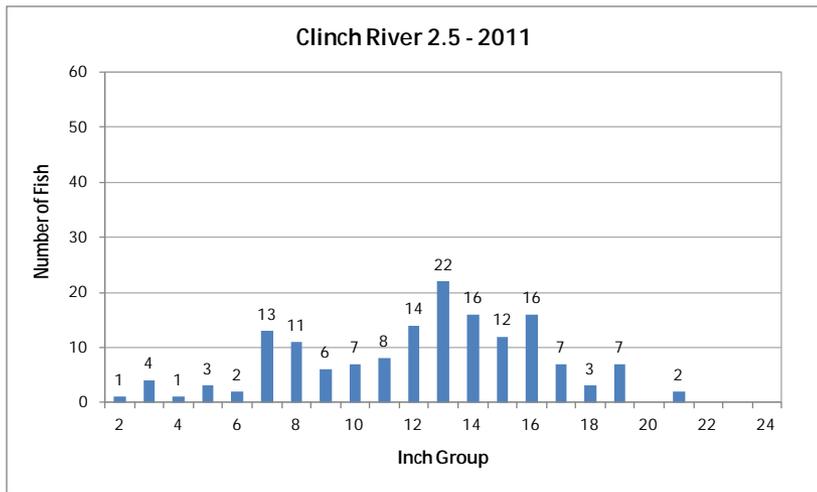


Figure 10. Length frequency of largemouth bass collected at Clinch River mile 2.5 in Spring 2011.

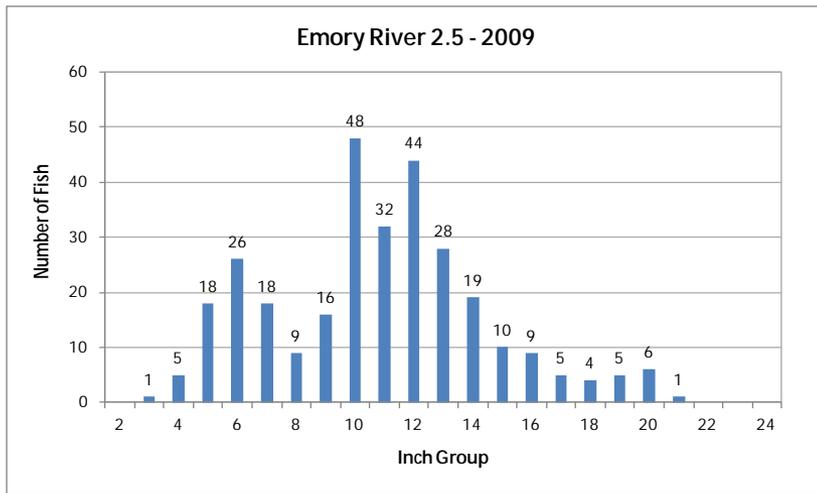


Figure 11. Length frequency of largemouth bass collected at Emory River mile 2.5 in Spring 2009.

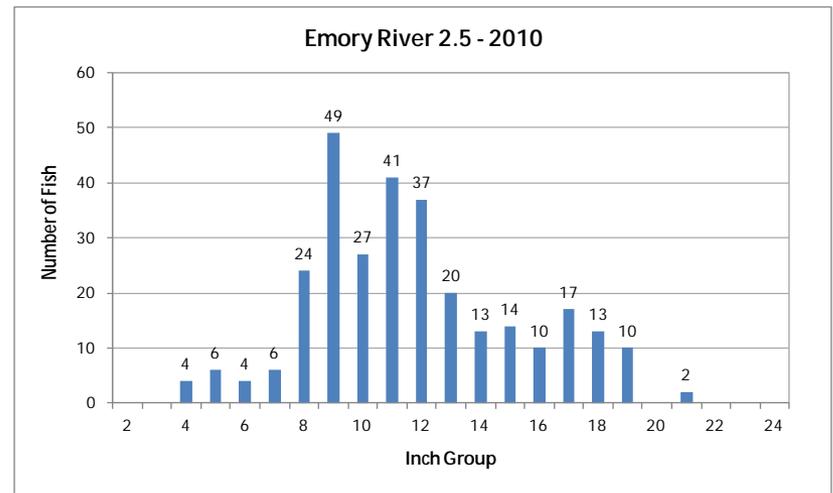


Figure 12. Length frequency of largemouth bass collected at Emory River mile 2.5 in Spring 2010.

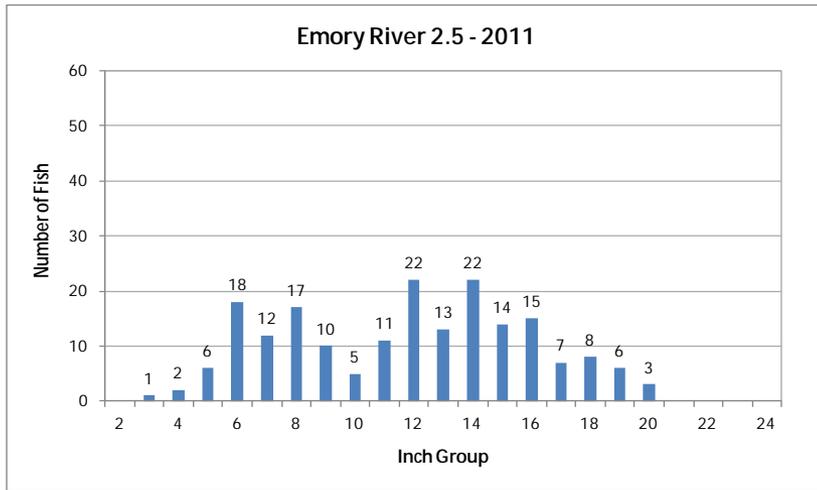
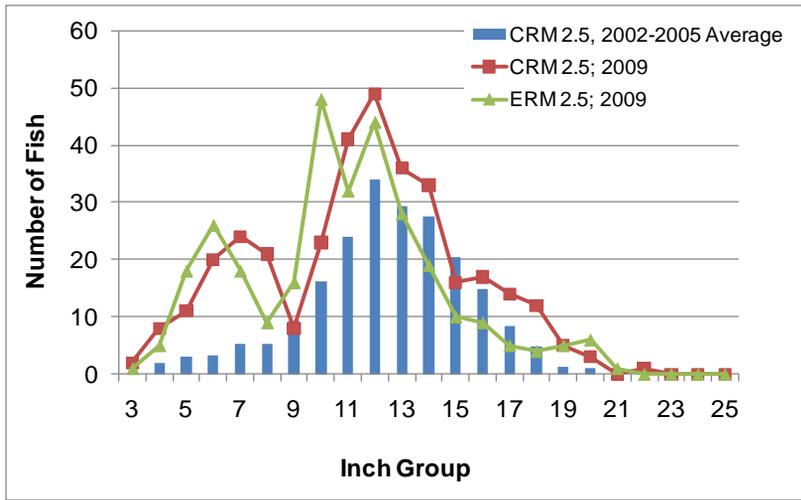


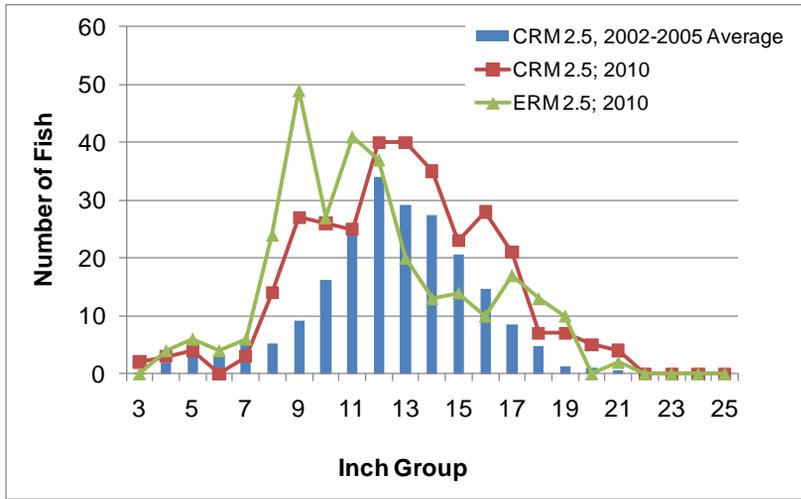
Figure 13. Length frequency of largemouth bass collected at Emory River mile 2.5 in Spring 2011.



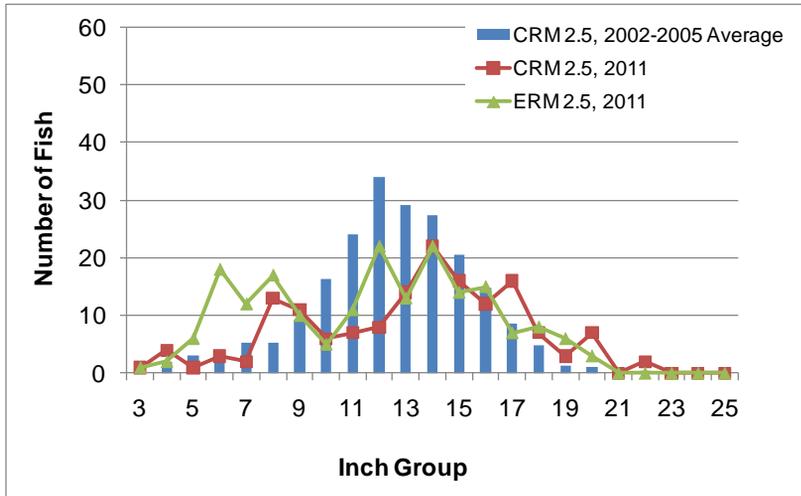
Emory River Mile 2.5 and Clinch River Mile 2.5: 2009



Emory River Mile 2.5 and Clinch River Mile 2.5: 2010



Emory River Mile 2.5 and Clinch River Mile 2.5: 2011



Source: Baker 2011b



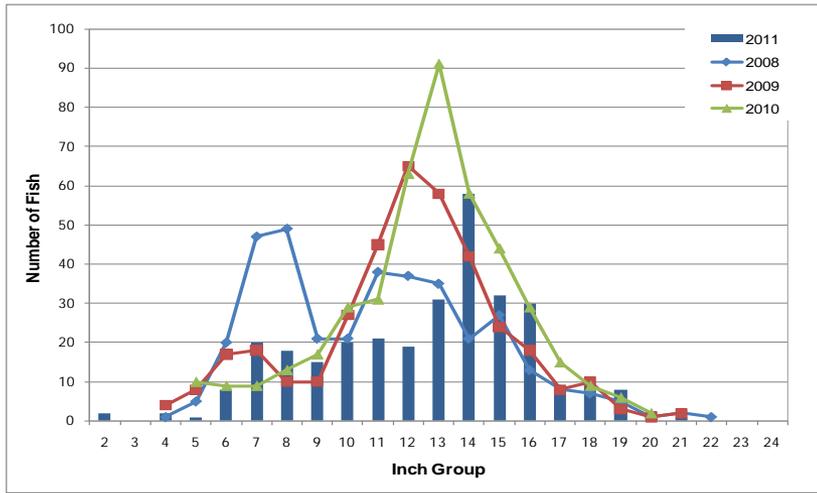


Figure 15. Caney Creek largemouth bass length frequency in 2011 compared to 2008, 2009, and 2010.

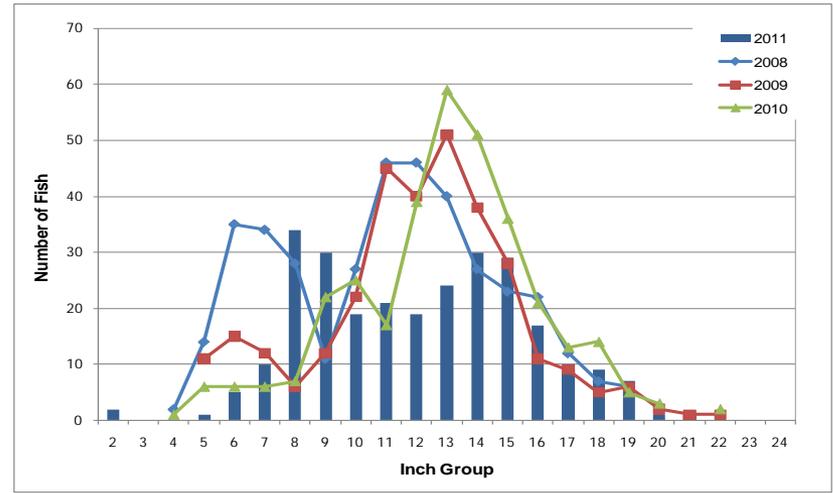


Figure 16. Blue Springs largemouth bass length frequency in 2011 compared to 2008, 2009, and 2010.

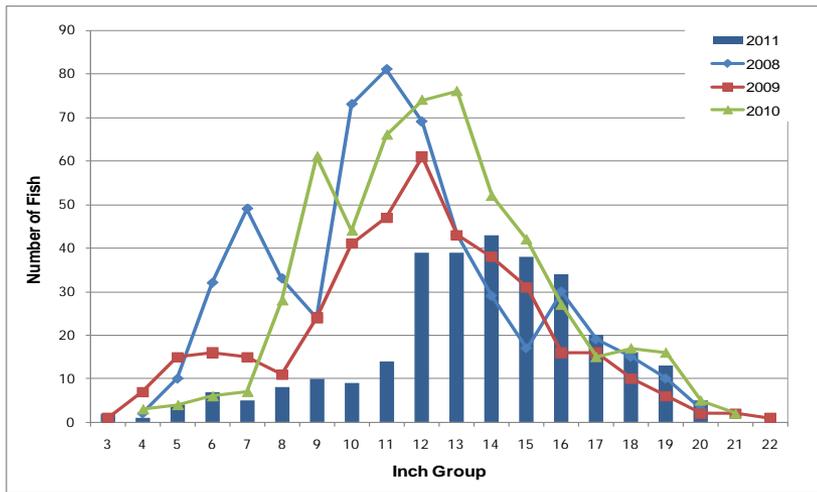


Figure 17. Watts Bar Forebay largemouth bass length frequency in 2011 compared to 2008, 2009, and 2010.

Source: Baker 2011b



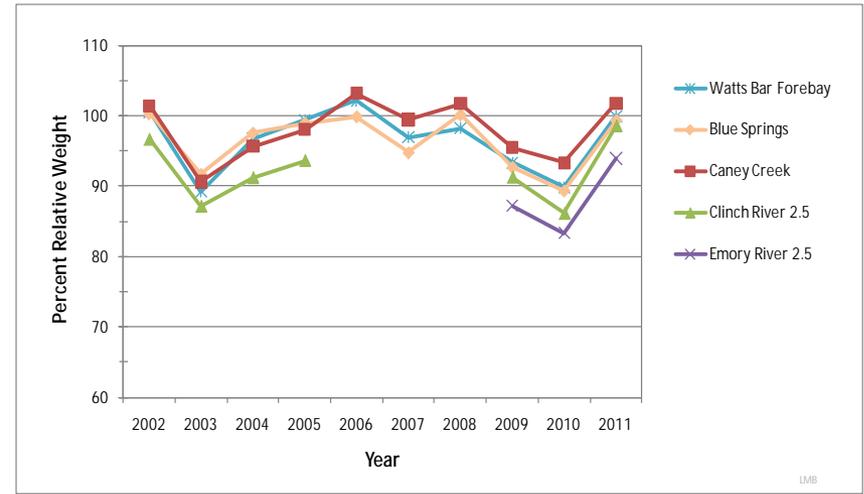
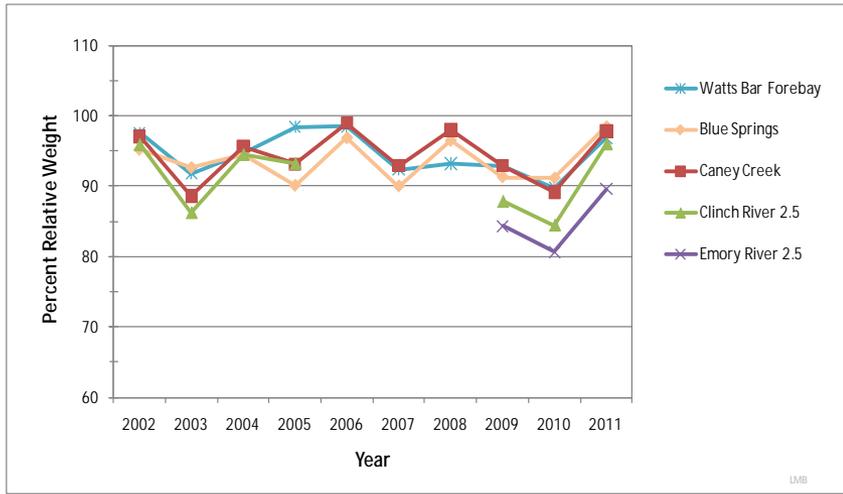


Figure 18. Average relative weights (Wr) for stock (8-11 inch) largemouth bass.

Figure 16. Average relative weights (Wr) for stock (12-14 inch) largemouth bass.

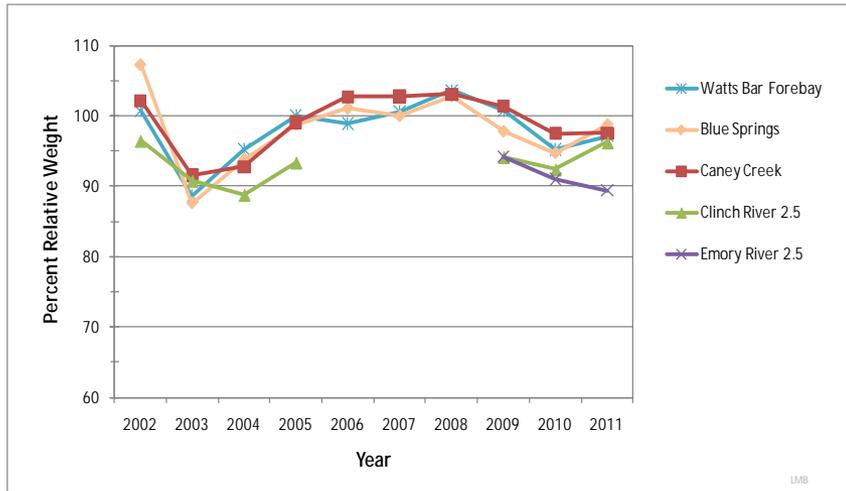
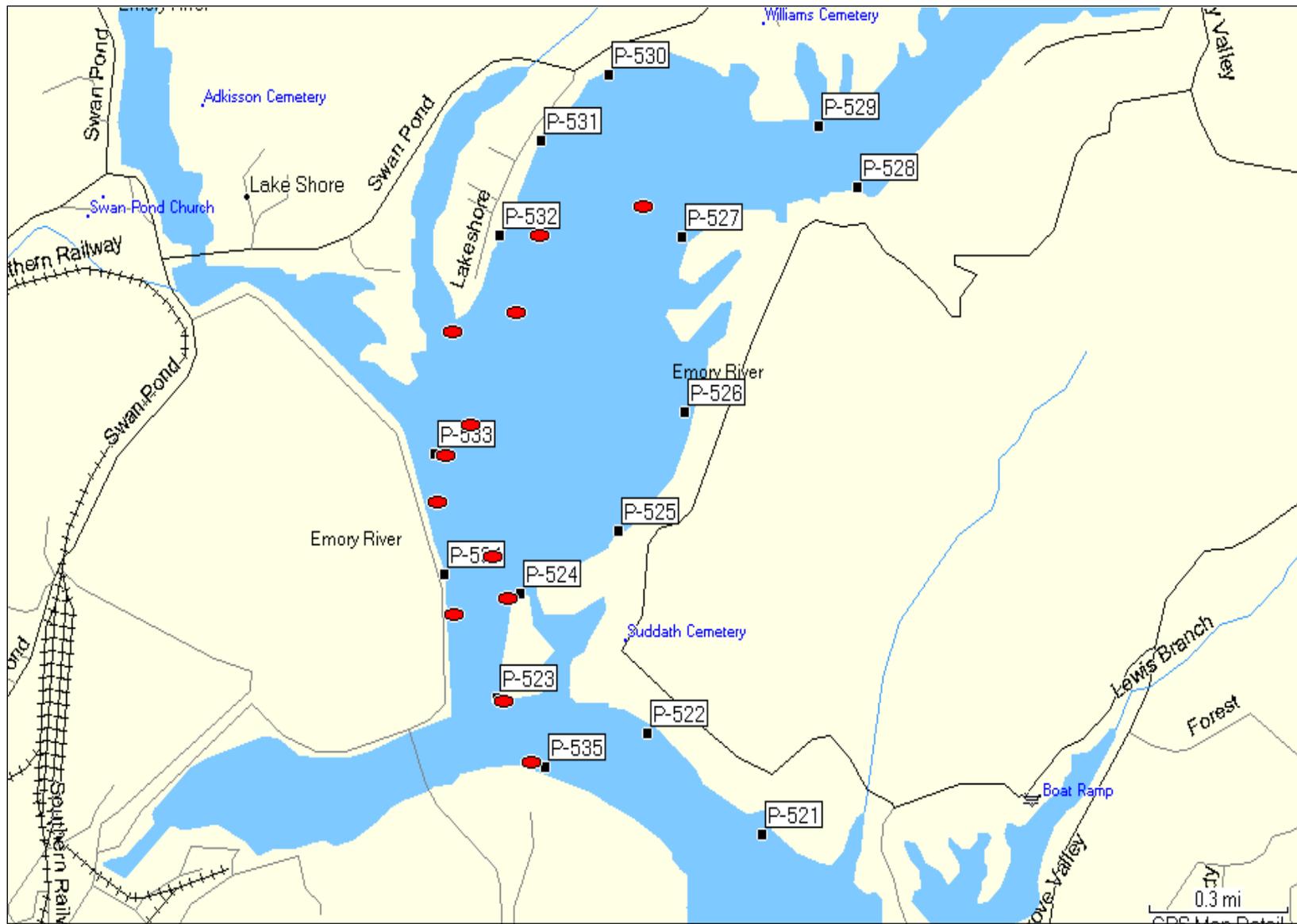


Figure 17. Average relative weights (Wr) for stock (15-19 inch) largemouth bass.

Source: Baker 2011b





Source: Baker 2011a

Reservoir Fish Assemblage Index at Emory River Mile 2.5
 Baseline Ecological Risk Assessment
 TENNESSEE VALLEY AUTHORITY
 KINGSTON, TENNESSEE

FIGURE
3-5

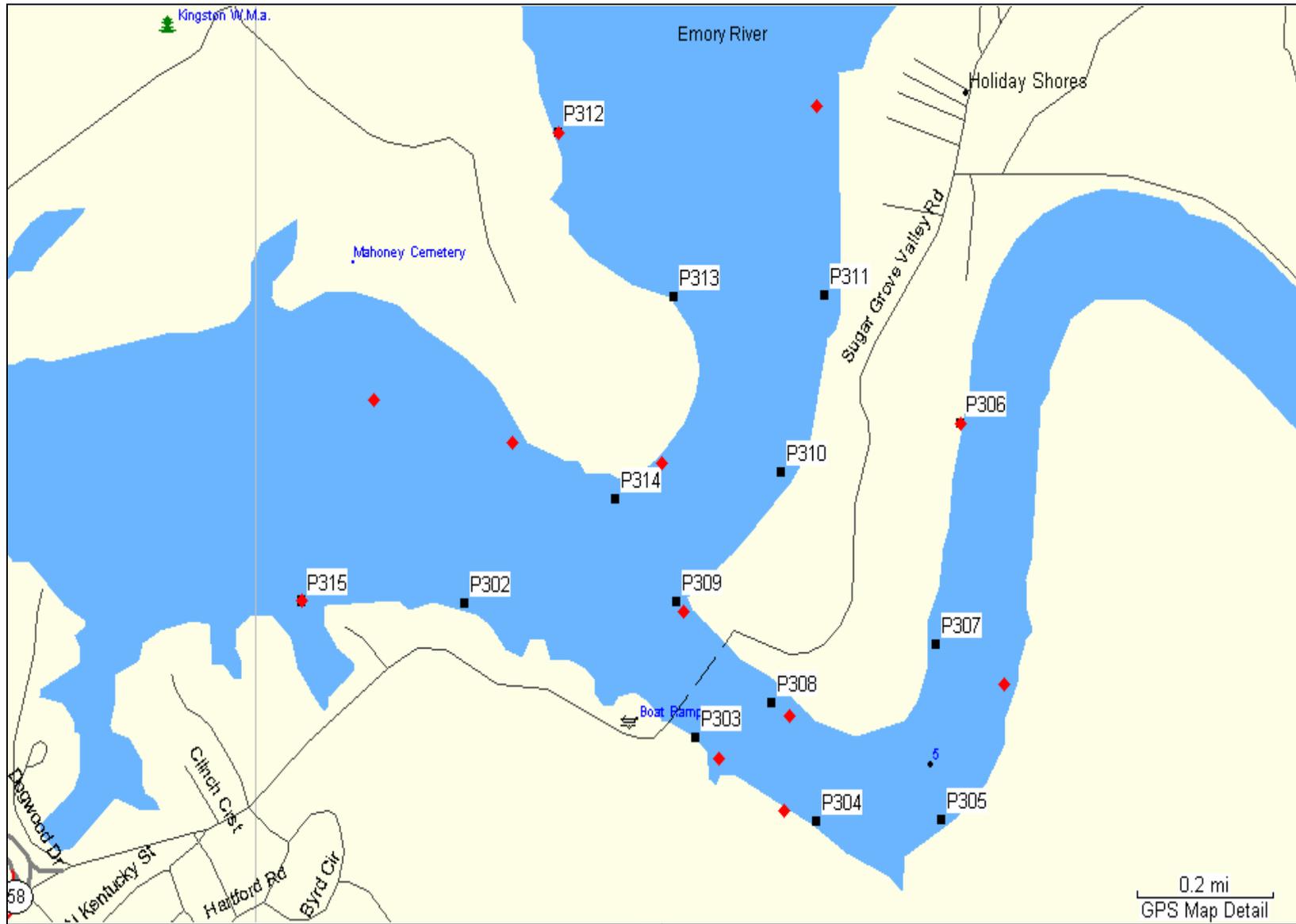




Source: Baker 2011a

Reservoir Fish Assemblage Index at Clinch River Mile 1.5
 Baseline Ecological Risk Assessment
 TENNESSEE VALLEY AUTHORITY
 KINGSTON, TENNESSEE



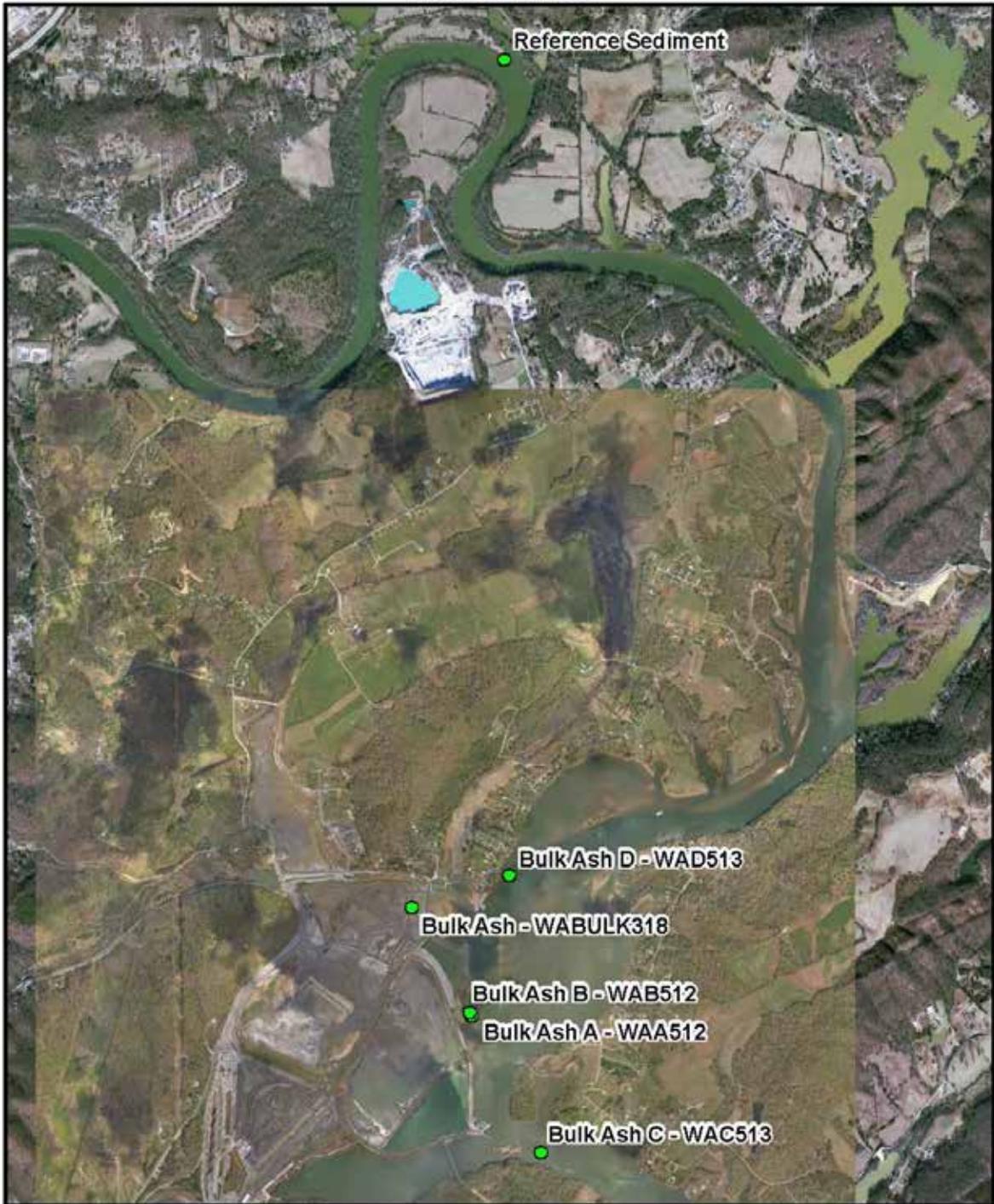


Source: Baker 2011a

Reservoir Fish Assemblage Index at Clinch River Mile 4.4
 Baseline Ecological Risk Assessment
 TENNESSEE VALLEY AUTHORITY
 KINGSTON, TENNESSEE



ORNL-BULK ASH



Legend



ORNL_BulkAsh_Samples_20100519_Box11_r1.pdf

Notes:

Map supplied by TVA includes sampling location (WABULK318) of ash used in a separate task for long-term fathead minnow adult exposures (results not presented in Greeley et al. June 2011 report)

Source: Greeley et al. 2011

Dates of imagery:
KIF area: April 9, 2010
Surrounding area: January 9, 2009

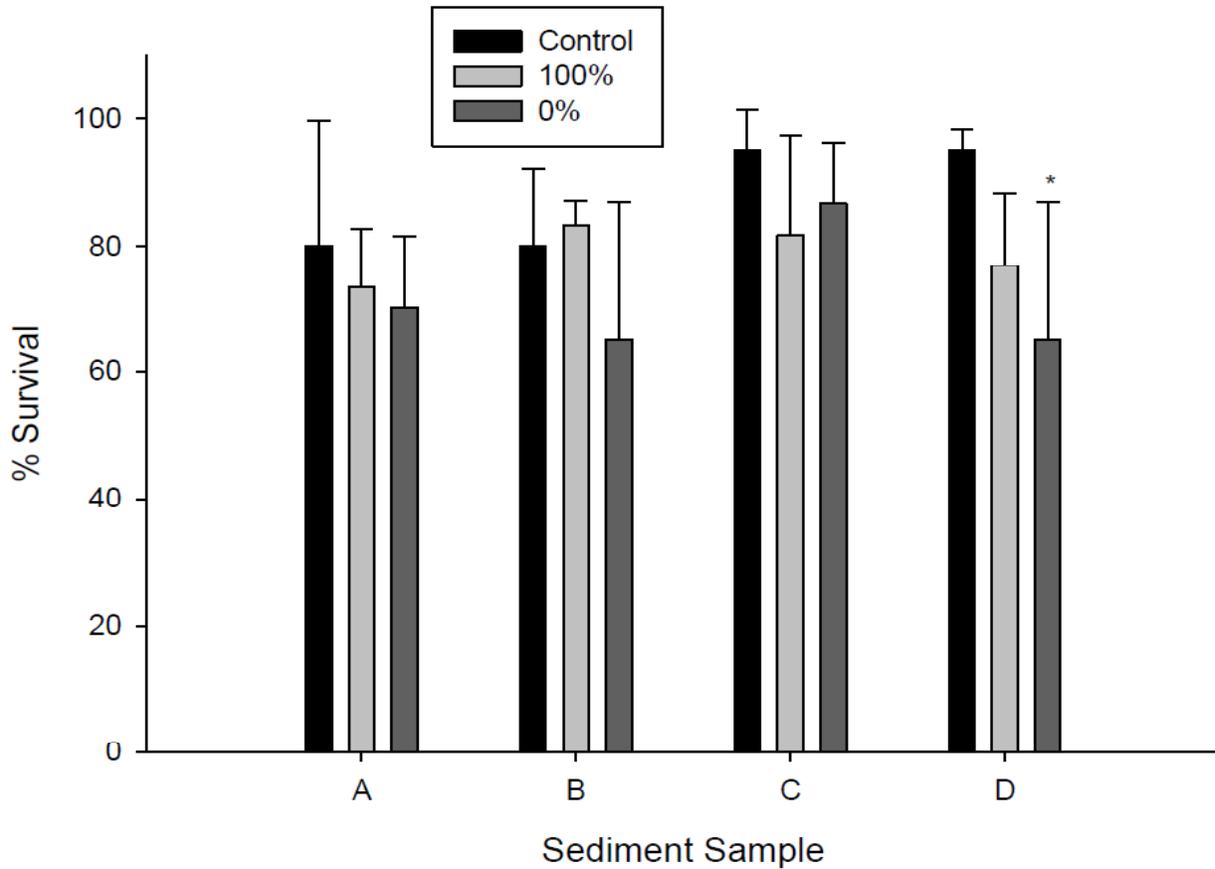
Tennessee Valley Authority
Geographic Information & Engineering

Emory River Sediment Sampling Locations for Fathead Minnow Embryo-Larval Toxicity Tests

Baseline Ecological Risk Assessment
TENNESSEE VALLEY AUTHORITY
KINGSTON, TENNESSEE

FIGURE

3-8



Notes:

Controls = Emory River water collected at ERM 8.0 upstream of the fly ash spill.

100% = Full strength sediment samples containing fly ash from the lower Emory River downstream of ERM 6.0.

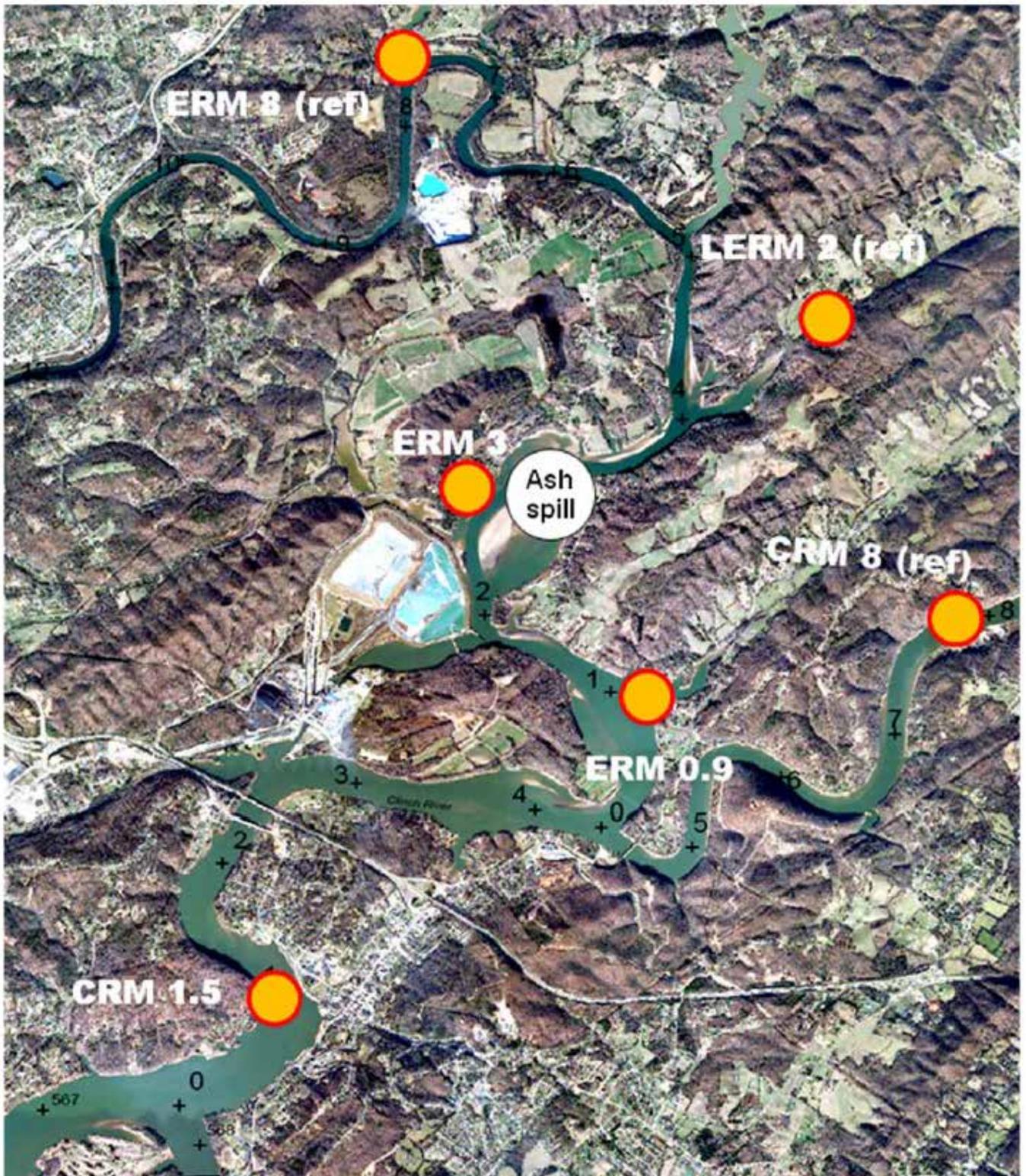
0% = Reference sediment from the Emory River upstream of ERM 6.0.

Expressed as means ± standard deviations of four replicates.

* = Statistical decrease in percent survival from the control ($p = 0.05$).

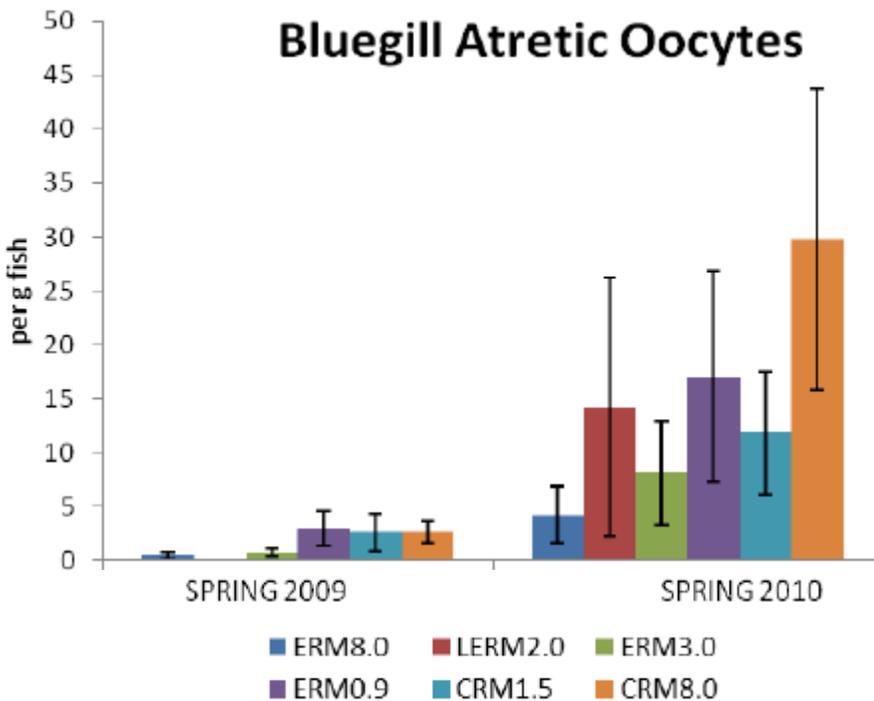
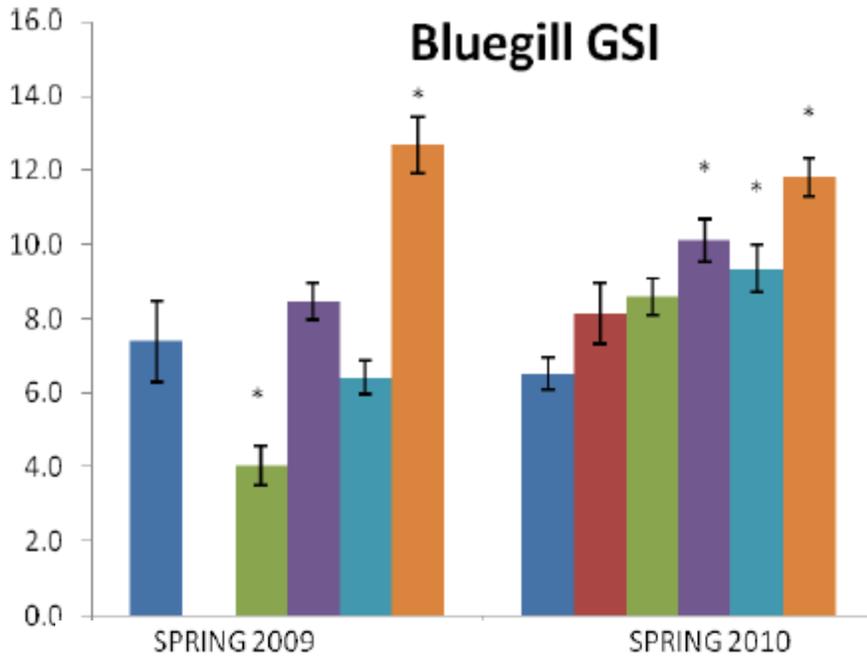
Source: Greeley et al. 2011





Notes:
 ERM = Emory River mile.
 CRM = Clinch River mile.
 LERM = Little Emory River mile (sampled only in 2010).

Source: Greeley and Adams 2011



Notes:

GSI = Gonadosomatic index.

ERM = Emory River mile.

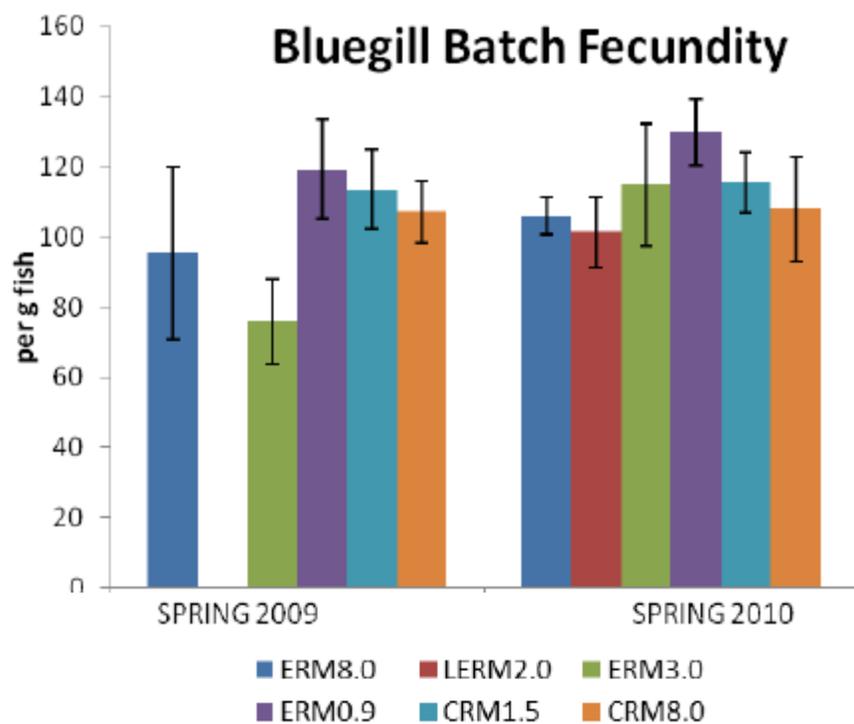
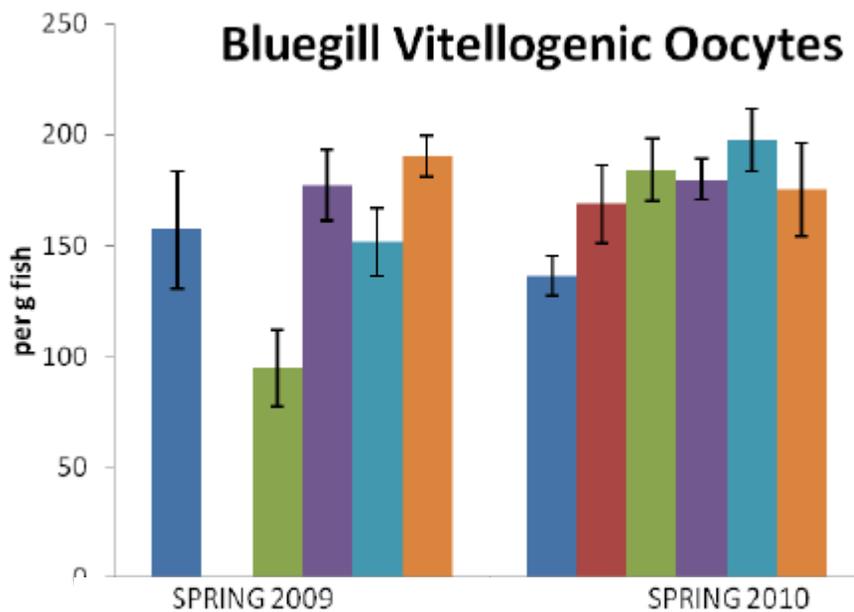
CRM = Clinch River mile.

LERM = Little Emory River mile (sampled only in 2010).

* = Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

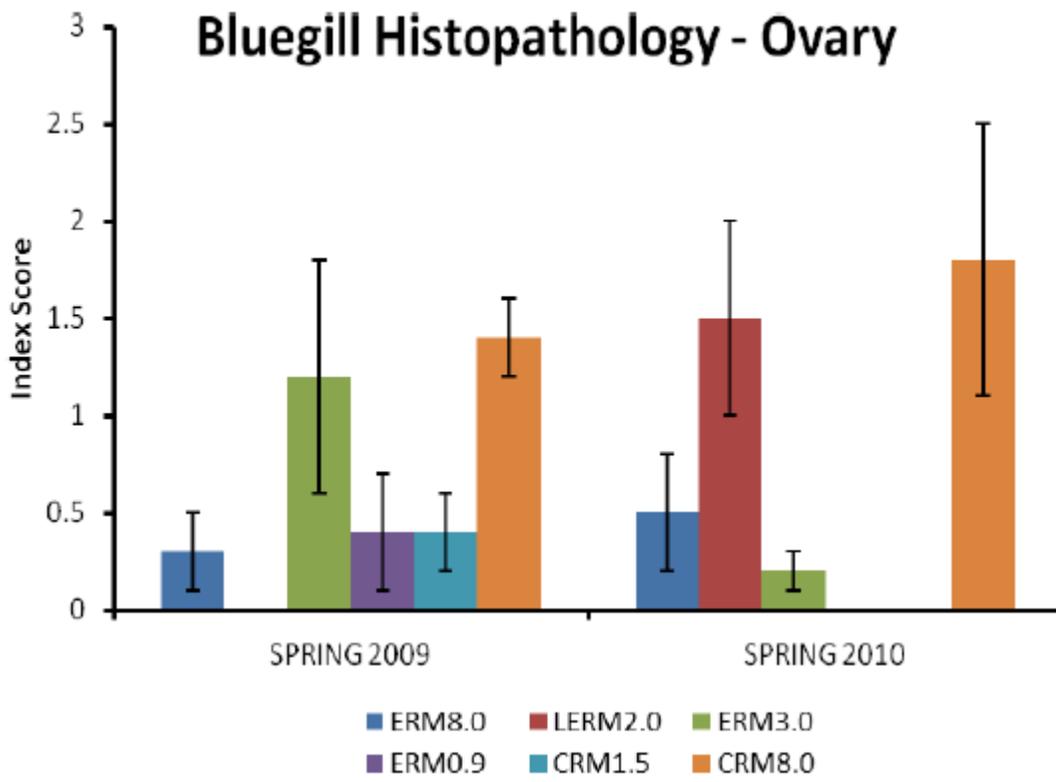
g = Gram.

Source: Greeley and Adams 2011



Notes:
 ERM = Emory River mile.
 CRM = Clinch River mile.
 LERM = Little Emory River mile (sampled only in 2010).
 * = Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.
 g = Gram.

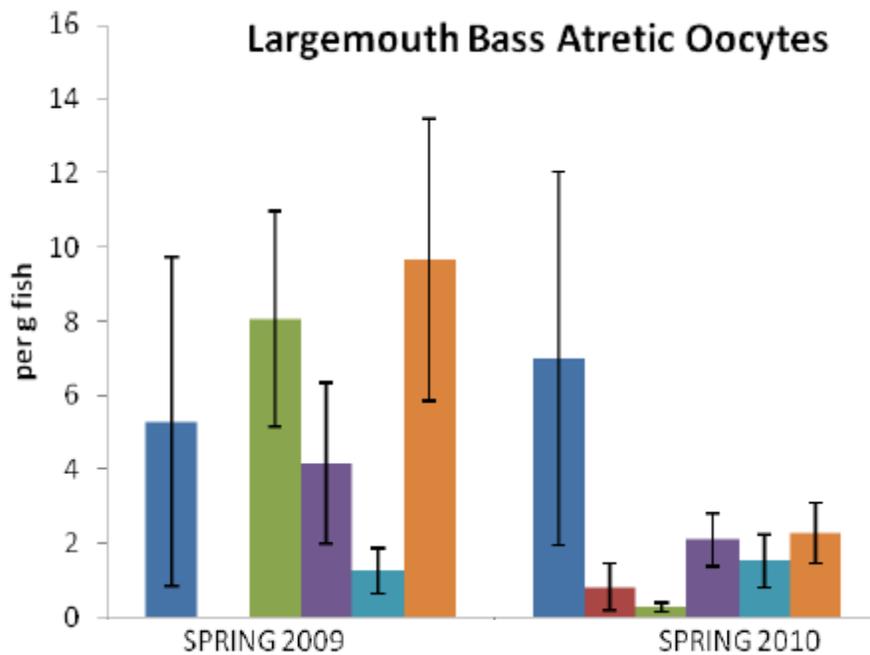
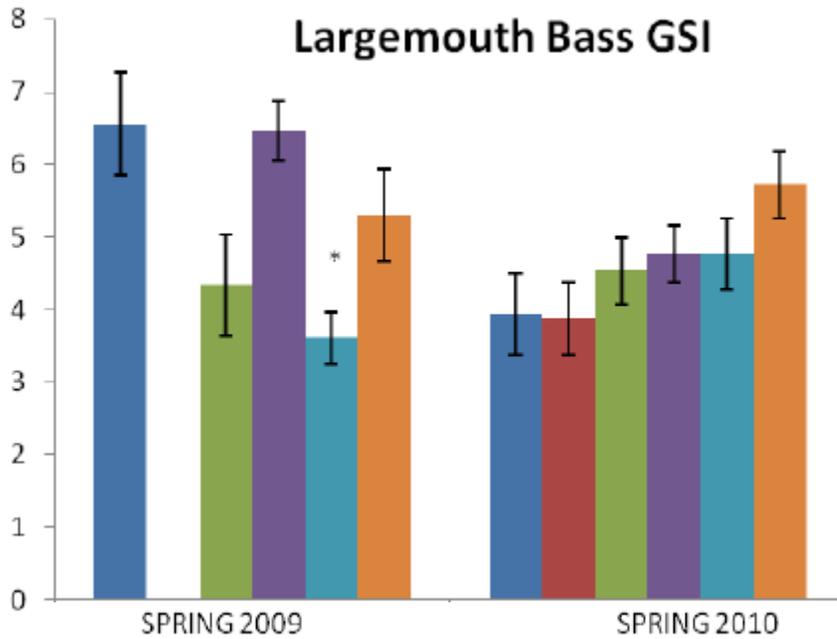
Source: Greeley and Adams 2011



Notes:
 ERM = Emory River mile.
 CRM = Clinch River mile.
 LERM = Little Emory River mile (sampled only in 2010).
 * = Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

Source: Greeley and Adams 2011





■ ERM8.0 ■ LERM2.0 ■ ERM3.0
■ ERM0.9 ■ CRM1.5 ■ CRM8.0

Notes:

GSI = Gonadosomatic index.

ERM = Emory River mile.

CRM = Clinch River mile.

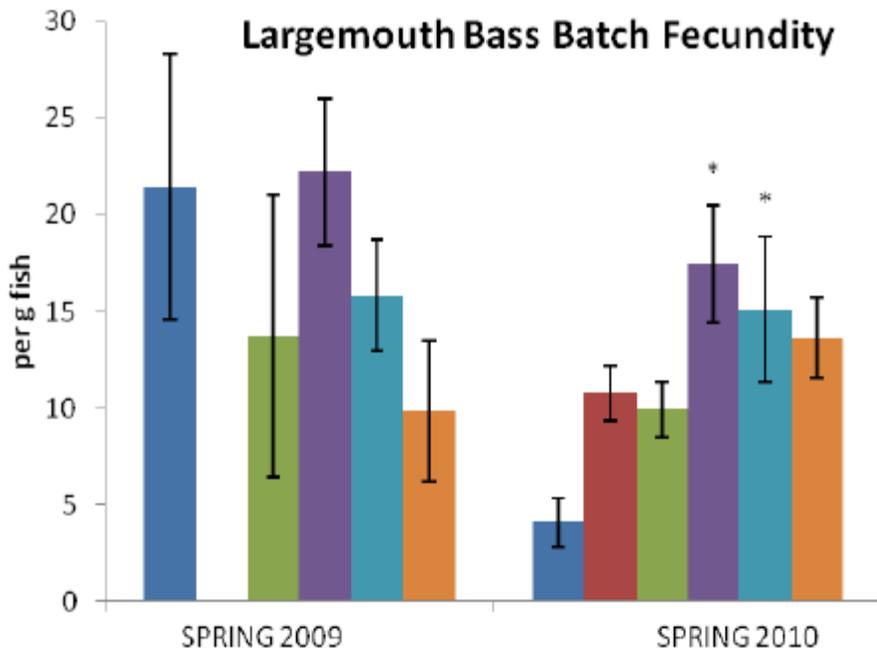
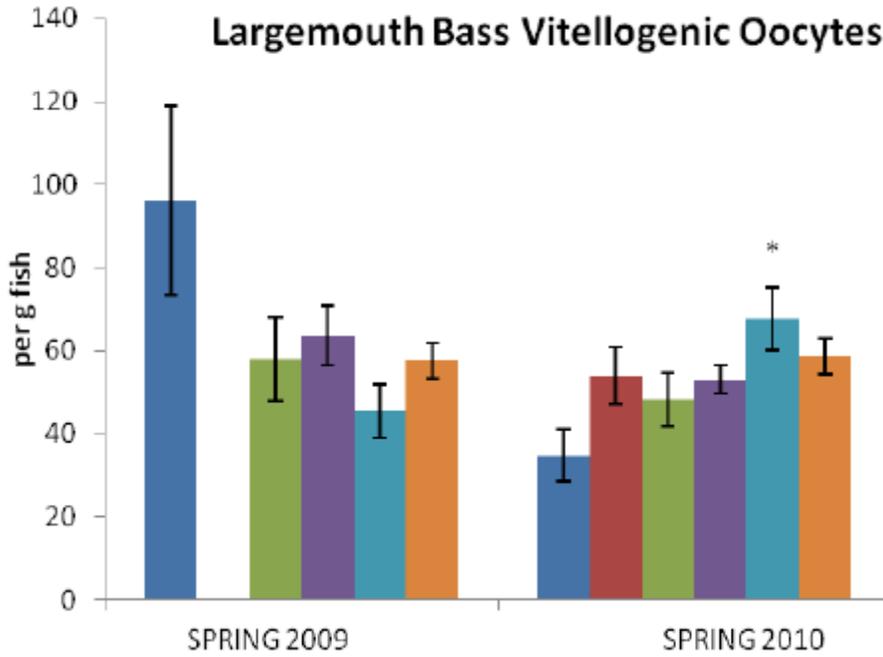
LERM = Little Emory River mile (sampled only in 2010).

* = Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

g = Gram.

Source: Greeley and Adams 2011





■ ERM8.0 ■ LERM2.0 ■ ERM3.0
■ ERM0.9 ■ CRM1.5 ■ CRM8.0

Notes:

ERM = Emory River mile.

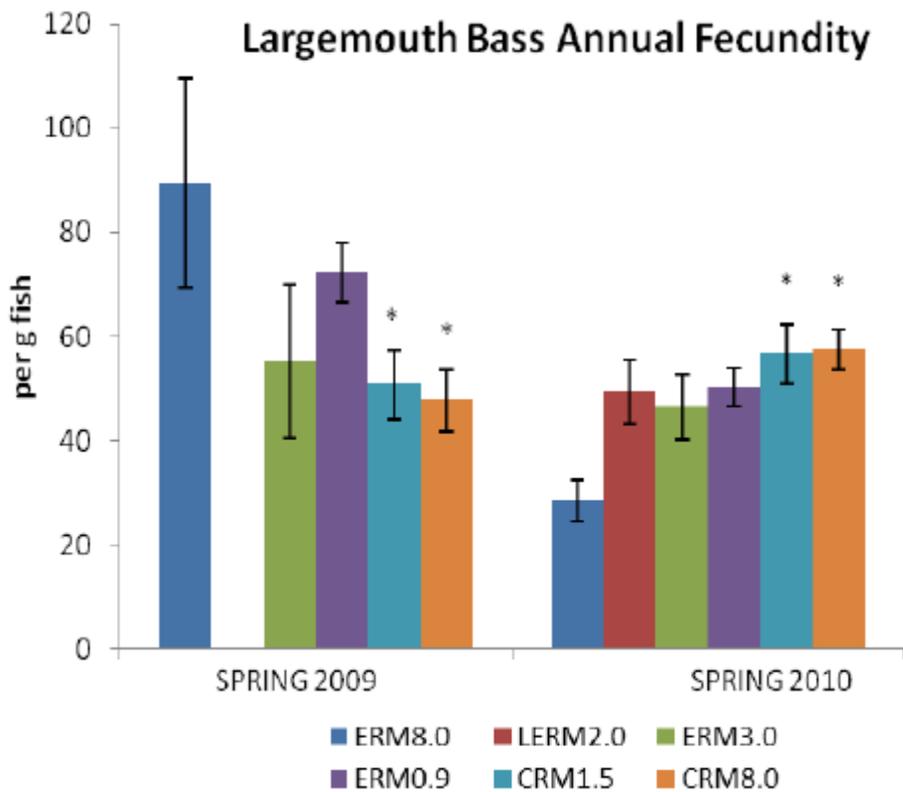
CRM = Clinch River mile.

LERM = Little Emory River mile (sampled only in 2010).

• = Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

g = Gram.

Source: Greeley and Adams 2011



Notes:

ERM = Emory River mile.

CRM = Clinch River mile.

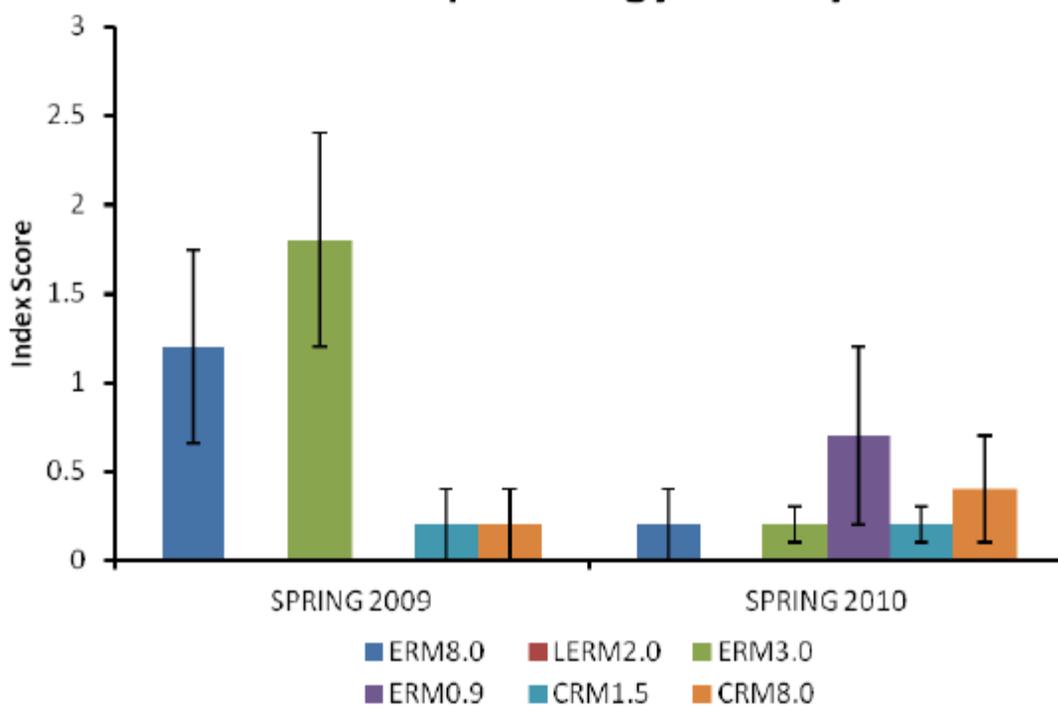
LERM = Little Emory River mile (sampled only in 2010).

•= Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

g = Gram.

Source: Greeley and Adams 2011

Largemouth Bass Histopathology - Ovary



Notes:

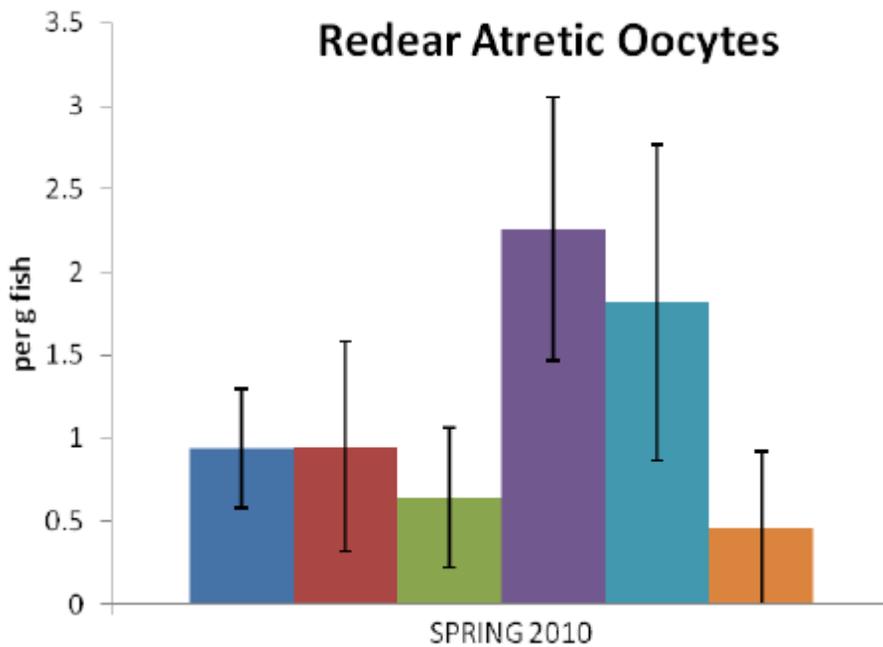
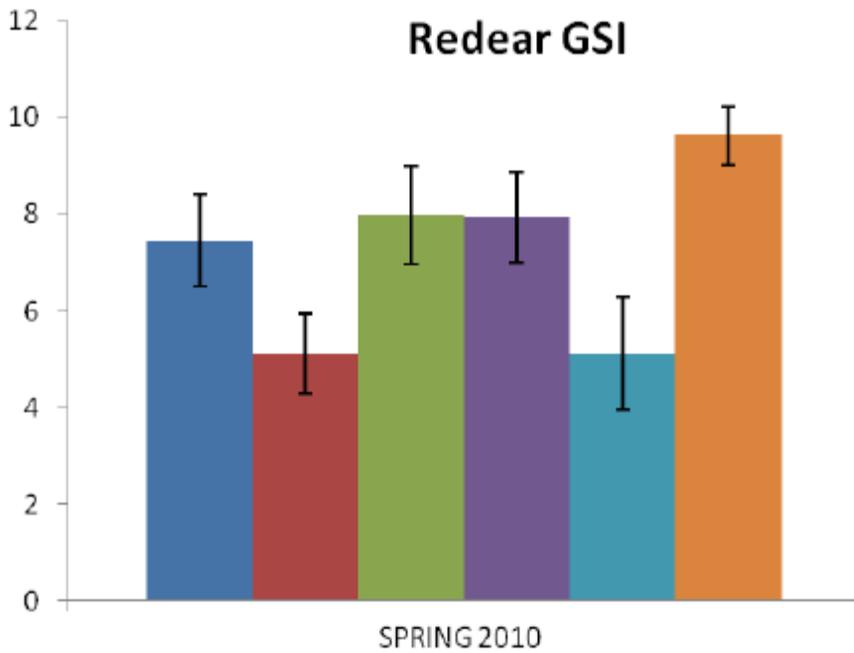
ERM = Emory River mile.

CRM = Clinch River mile.

LERM = Little Emory River mile (sampled only in 2010).

* = Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

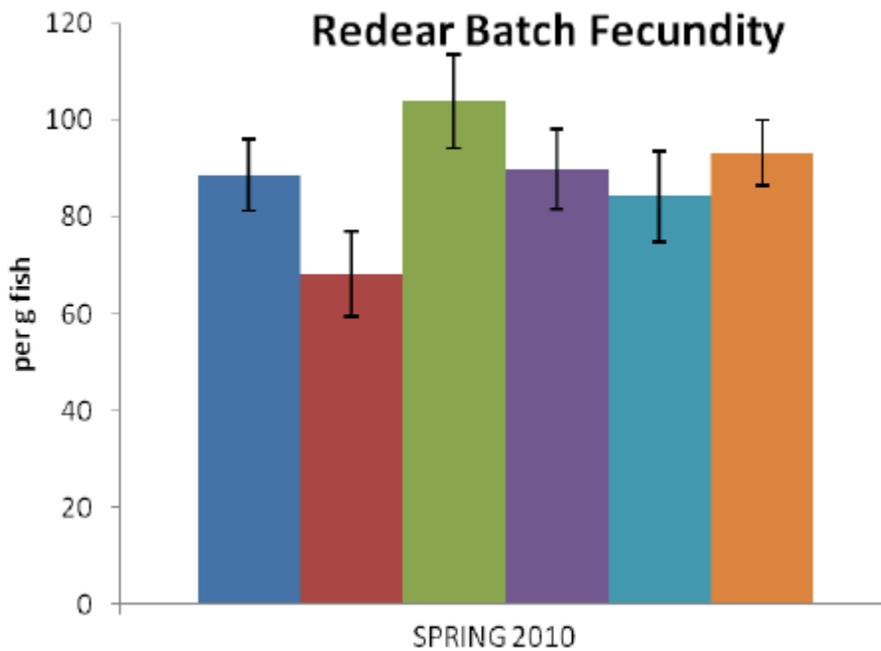
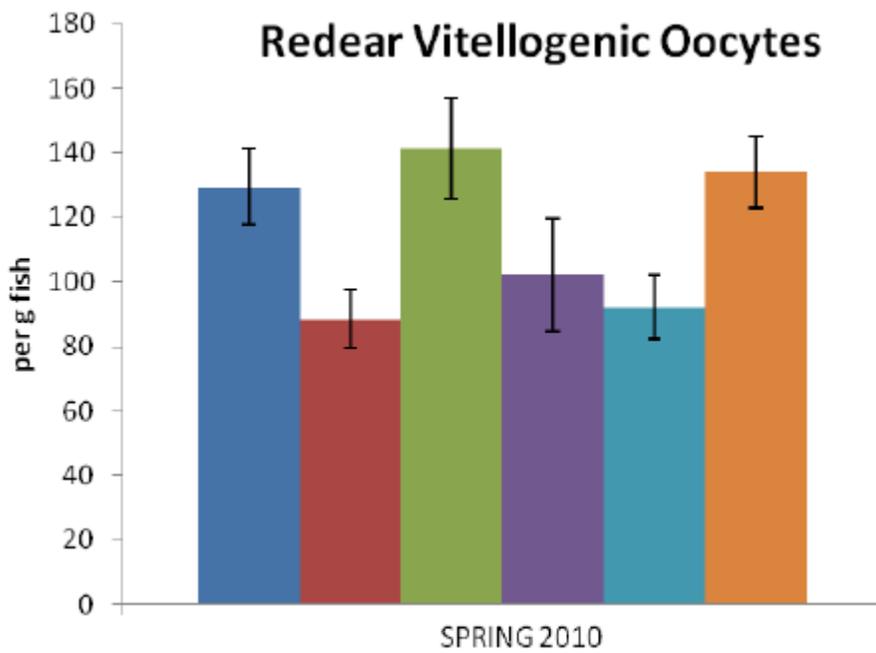
Source: Greeley and Adams 2011



■ ERM8.0 ■ LERM2.0 ■ ERM3.0
■ ERM0.9 ■ CRM1.5 ■ CRM8.0

Notes:
 GSI = Gonadosomatic index.
 ERM = Emory River mile.
 CRM = Clinch River mile.
 LERM = Little Emory River mile (sampled only in 2010).
 •= Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.
 g = Gram.

Source: Greeley and Adams 2011



■ ERM8.0 ■ LERM2.0 ■ ERM3.0
■ ERM0.9 ■ CRM1.5 ■ CRM8.0

Notes:

ERM = Emory River mile.

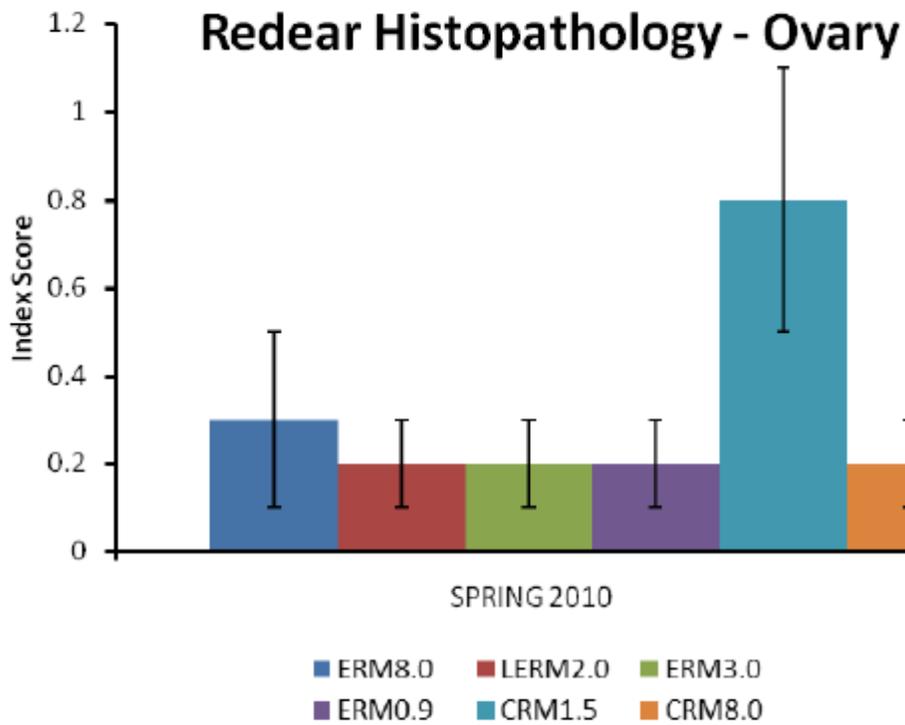
CRM = Clinch River mile.

LERM = Little Emory River mile (sampled only in 2010).

•= statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

g = Gram.

Source: Greeley and Adams 2011



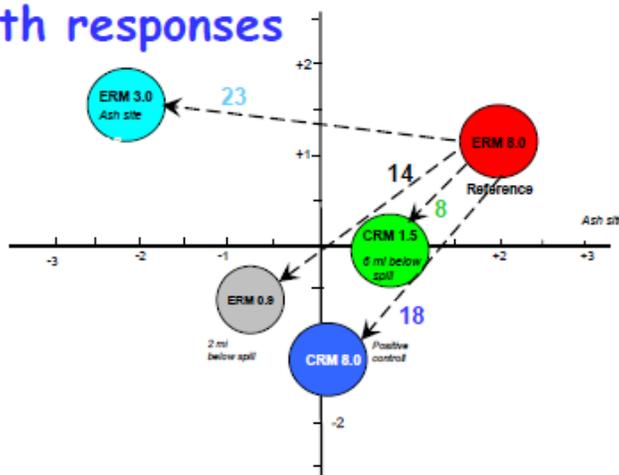
Notes:
 ERM = Emory River mile.
 CRM = Clinch River mile.
 LERM = Little Emory River mile (sampled only in 2010).
 * = Statistical difference from the primary upstream reference site (ERM 8.0) at $\alpha = 0.05$.

Source: Greeley and Adams 2011



Integrated health responses

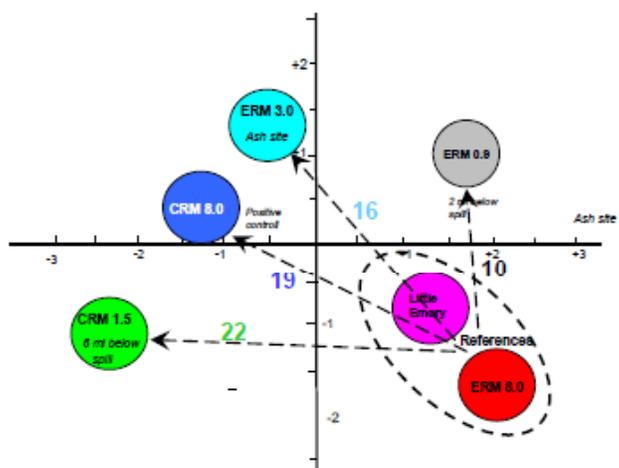
Bluegill
Spring 2009



Variables used In analysis

Condition factor
Liver-somatic index
Visceral-somatic index
Feeding index
Hematocrit
Glucose
Total protein
Globulin
Blood urea nitrogen
Creatinine
Liver enzyme
Potassium
Calcium
Liver histopath
Ovary histopath

Bluegill
Spring 2010



Condition factor
Liver-somatic index
Visceral-somatic index
Feeding index
Hematocrit
Glucose
Total protein
Globulin
Blood urea nitrogen
Creatinine
Liver enzyme
Sodium
Calcium
Liver histopath
Ovary histopath

Notes:

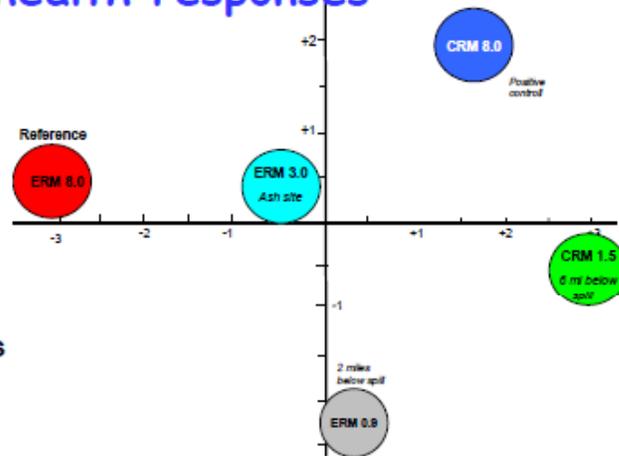
Circles represent holistic or integrated health response of fish at each sample site.
Linear statistical distances between midpoints of circles (sites) are indicated by dashed lines.
Variables used or entered into the discriminant analysis are shown on right of figure,
with those in red being the most influential in discriminating among sites.
The closer the circles are to each other, the more similar is the health response.

Source: Adams 2011b



Integrated health responses

Largemouth bass
Spring 2009

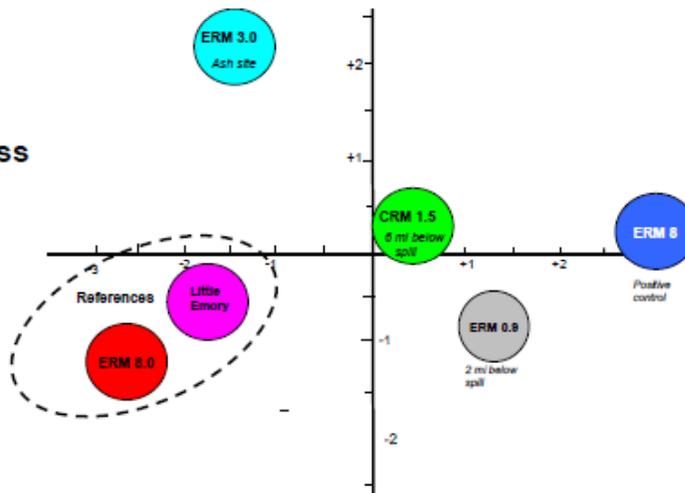


Variables use

In analysis

Condition factor
Liver-somatic index
Visceral-somatic index
Feeding index
Hematocrit
Glucose
Total protein
Globulin
Blood urea nitrogen
Creatinine
Liver enzyme
Sodium
Calcium
Liver histopath
Ovary histopath

Largemouth bass
Spring 2010



Condition factor
Liver-somatic index
Visceral-somatic index
Feeding index
Hematocrit
Glucose
Total protein
Globulin
Blood urea nitrogen
Creatinine
Liver enzyme
Sodium
Calcium
Liver histopath
Ovary histopath

Notes:

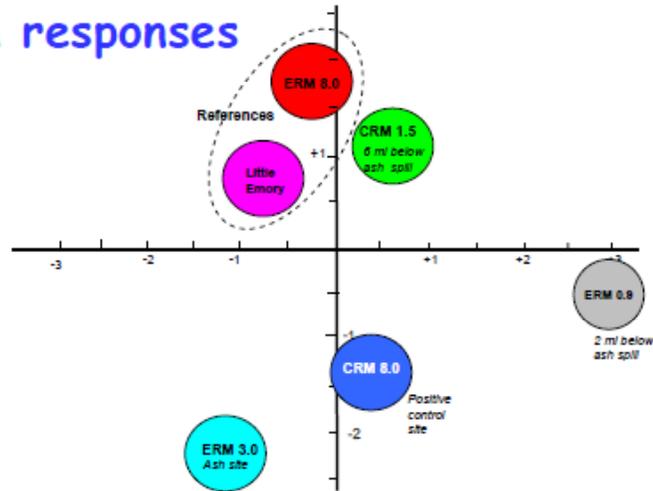
Circles represent holistic or integrated health response of fish at each sample site.
Linear statistical distances between midpoints of circles (sites) are indicated by dashed lines.
Variables used or entered into the discriminant analysis are shown on right of figure,
with those in red being the most influential in discriminating among sites.

Source: Adams 2011b

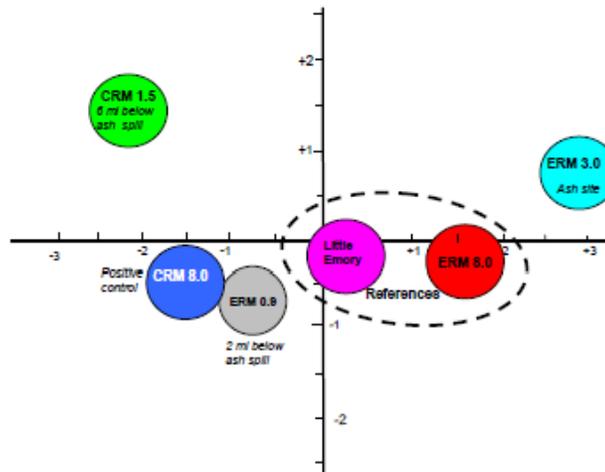


Integrated health responses

Bluegill-fall 2009



Bluegill-fall 2010



Notes:

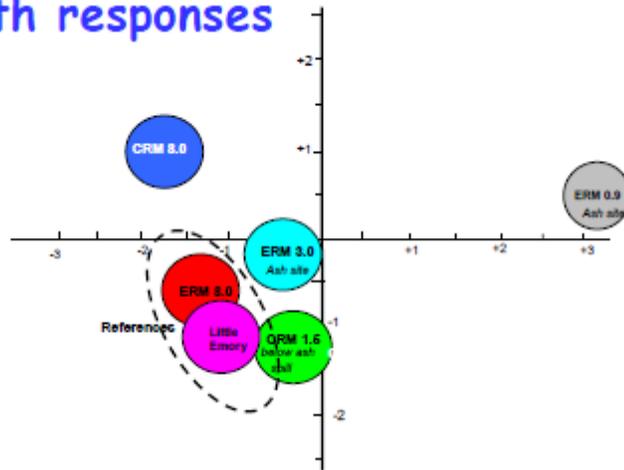
Circles represent holistic or integrated health response of fish at each sample site.
The closer together the circles are to each other, the more similar is the health response.

Source: Adams 2011b

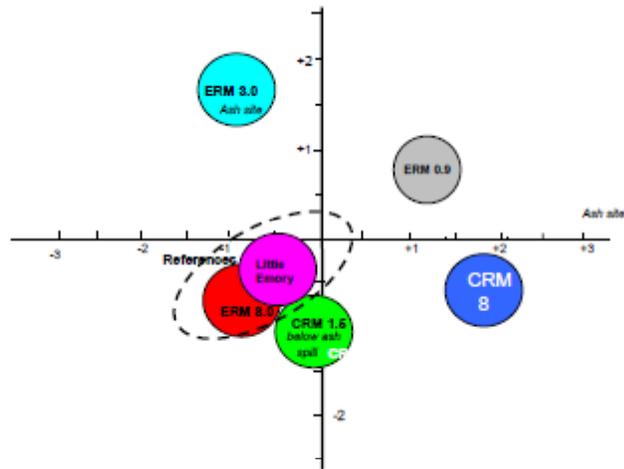


Integrated health responses

Largemouth bass
Fall 2009



Largemouth bass
Fall 2010



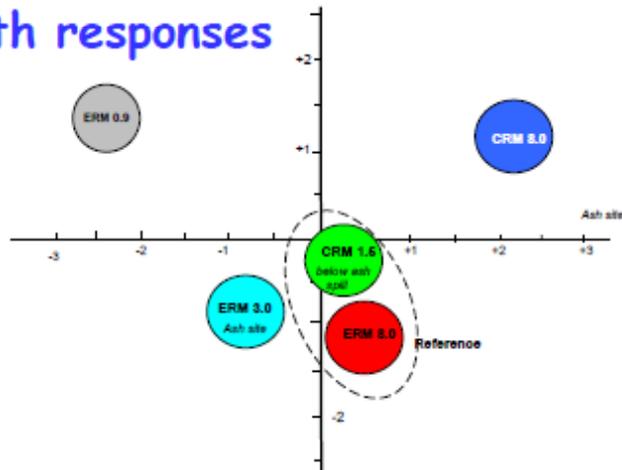
Notes:
Circles represent holistic or integrated health response of fish at each sample site.
The closer together the circles are to each other, the more similar is the health response.

Source: Adams 2011b

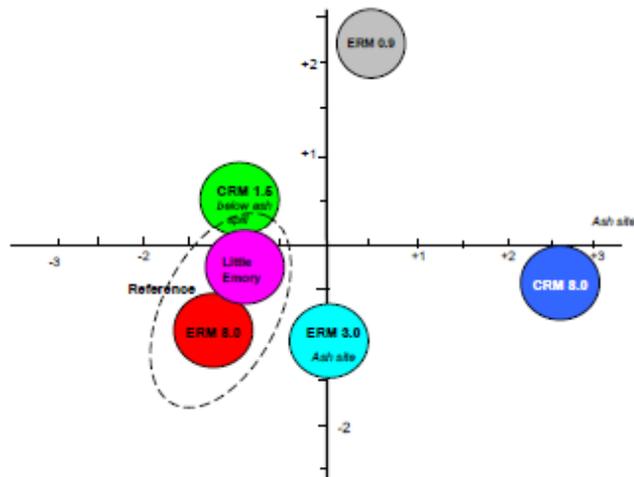


Integrated health responses

Channel Catfish
Fall 2009



Channel Catfish
Fall 2010



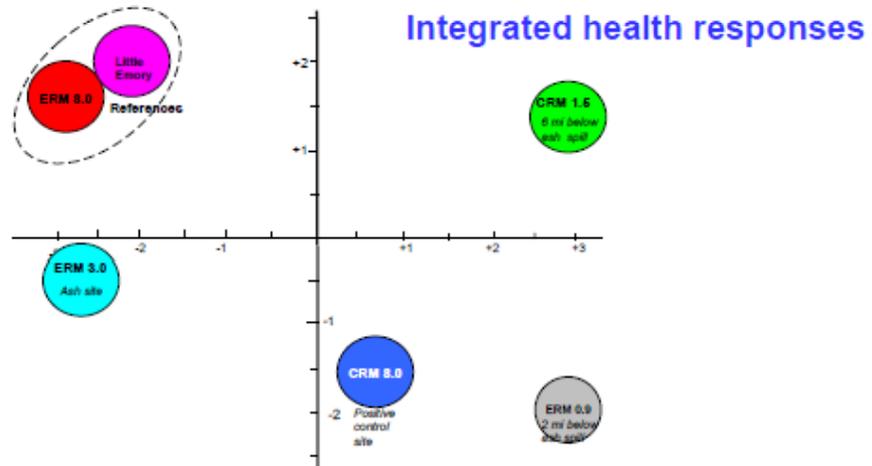
Notes:

Circles represent holistic or integrated health response of fish at each sample site.
The closer together the circles are to each other, the more similar is the health response.

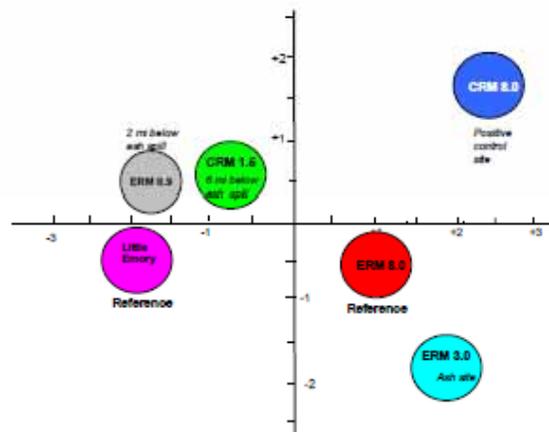
Source: Adams 2011b



White Crappie
Spring 2010



Redear Sunfish
Spring 2010



Notes:
Circles represent holistic or integrated health response of fish at each sample site.
The closer together the circles are to each other, the more similar is the health response.

Source: Adams 2011b