Occurrence and Abundance of Topeka Shiners in West-Central Iowa

Principal Investigators:	Clay L. Pierce, Michael C. Quist
Student Investigator:	Bryan Bakevich (M.S.)
Collaborators:	Daryl Howell Greg Gelwicks, Iowa DNR

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Goals and Objectives:

- Describe the distribution and occurrence (i.e., presence-absence) of Topeka shiners in west-central Iowa
- Estimate the density of Topeka shiners in west-central Iowa
- Describe and define abiotic factors (i.e., physical and chemical habitat) and biotic interactions (i.e., predators, competitors) associated with the occurrence and abundance of Topeka shiners in Iowa waters.

Progress:
All project objectives were completed, a final report was submitted, and three manuscripts are being submitted for publication.

Conclusions and Recommendations:
Fish assemblages and habitat characteristics were sampled in 67 stream and 27 off-channel sites during 2010 – 2011. Topeka shiners were found in 52% of off-channel sites, but only 9% of stream sites, supporting the hypothesis that off-channel habitats are an important component of their life history. When compared to prior distributions, our results indicated a recent reduction in the distribution of Topeka shiners in Iowa. Fish assemblages in stream sites differed significantly from off-channel sites and had higher species richness. Fish assemblages containing Topeka shiner were different from those that did not contain Topeka shiner in off-channel sites, but not in stream sites. Results from logistic models suggested that Topeka shiner presence was associated with increased submerged vegetation and abundance of fathead minnow *Pimephales promelas*. Contrary to the findings of other studies, the abundance of large piscivorous fishes was not associated with the occurrence of Topeka shiner. Our results provide new information about the biology and life history of Topeka shiners in west-central Iowa that will guide restoration and other recovery efforts.