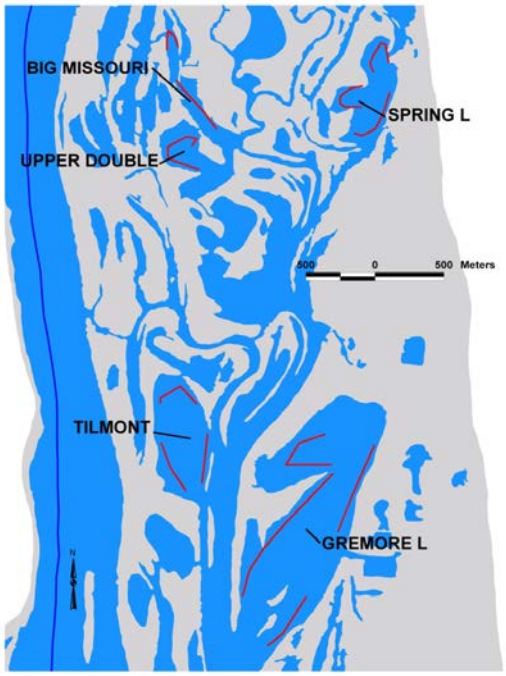
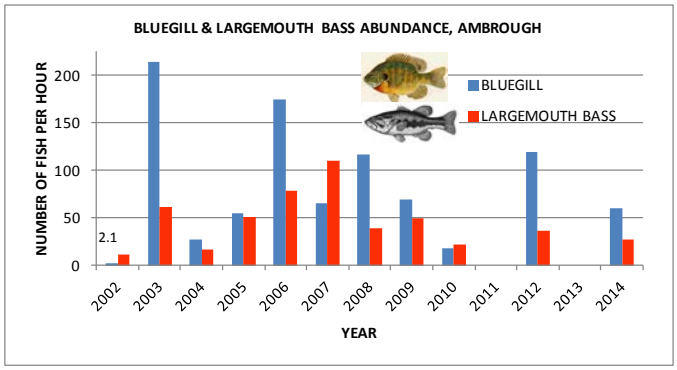
An Evaluation of Fishery Trends at the Ambrough Slough Habitat Project

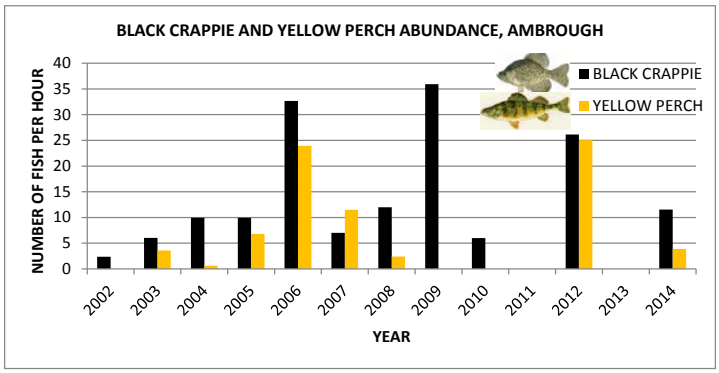
The Ambrough Slough backwater complex is a popular fishery for bluegill, yellow perch, crappie and largemouth bass. It is located near Prairie du Chien in Pool 10 of the Mississippi River. The federal Upper Mississippi River Restoration Program (UMRRP) completed the project in September 2004 for 2.6 million dollars. Features included dredging three lakes, construction of a channel into Gremore Lake and reducing flows at two lakes. These changes were aimed at providing adequate overwintering habitat for backwater fish. This habitat project is located on the Upper Mississippi River National Wildlife and Fish Refuge and Wisconsin Department of Natural Resources (WDNR) lands. The project was spearheaded by the U.S. Army Corps of Engineers. Partners included the Wisconsin Department of Natural Resources, the U.S. Fish and Wildlife Service, and local interests.



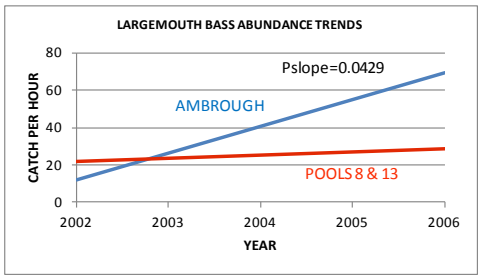
During 2002-2010, 2012, and 2014, the WDNR sampled fish using electro-fishing within five directly affected water bodies. These samples were taken from mid-October through mid-November. Electro-fishing runs were typically 370 meters long; eighty-seven non-randomly selected runs were conducted; all non young-of-the-year game fishes were captured, measured and released.

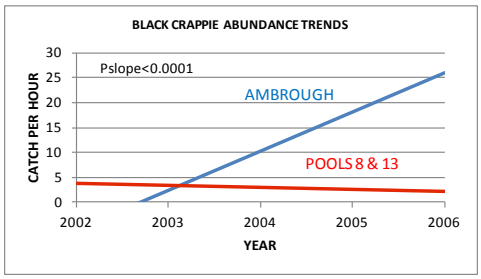
From 2002 through 2014, we found no trend in abundance of bluegill, largemouth bass, black crappie, yellow perch or combined backwater game fishes. From 2002 through 2006 we found increasing numbers of largemouth bass, black crappie, yellow perch, and backwater game fishes combined. These three fishes and combined game fishes' abundance either declined or fluctuated with no trend after 2006. In general, there appeared to be little change in fish abundance except for an initial five-year increase for all but bluegill. This initial increase could be a result of project construction. Other factors may influence fish abundance estimates within the habitat project. These include annual variation in current velocity, water surface elevation, water quality, weather, sampling crew performance, angler harvest rates, and aquatic vegetation abundance. One important variable that can be examined is fluctuations in the surrounding population.

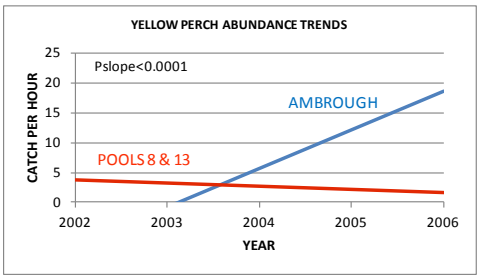




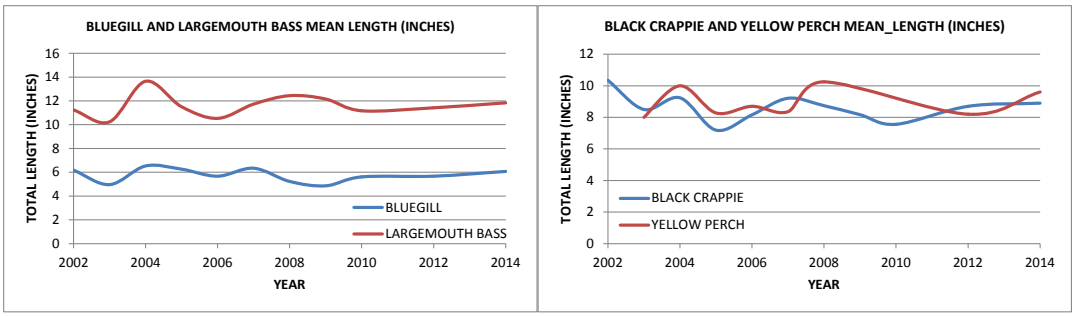
We indirectly estimated the surrounding fish populations using long-term fish monitoring data from the federally funded UMRRP*. The initial upward trend for these three fishes was sigificantly different from trends in pools 8 and 13 combined. The trends in these two "reference" pools were relatively stable. This suggests that project construction may have influenced local fish abudance during at least the first five years of monitoring.







Changes in average fish size could indicate effects of project construction, especially during the initial years. Of the four most common fishes examined, none had significant size change from 2002 through 2014. From 2002 through 2006, there were changes in size for two fishes: bluegill and black crappie. The average size of bluegill increased 0.6 inches. Black crappie size decreased 1.5 inches. For all four fishes, there were no trends in length for years after 2006.



The early increase in bluegill size coincided with a decrease in size in pools 8 and 13. The decline in average size of black crappie during the early years coincided with a concurrent decline in pools 8 and 13.

The angling public's reaction to the habitat project has been favorable. Use of the project, especially in winter, has increased since project completion. Anglers have been drawn to this project from distant locations including Illinois, Iowa, and southern Wisconsin because of increased fish numbers.

SUMMARY

- The number of anglers using this project has increased due to greater numbers of fish.
- Abundance of largemouth bass, black crappie and yellow perch increased the first four years after project completion.
- Abundance increases for these three fishes may be directly related to habitat changes from project construction.
- Average size of two fishes changed from 2002 through 2006. Bluegill size increased 0.6 inches while black crappie decreased 1.5 inches.

**The U.S. Army Corps of Engineers' Upper Mississippi River Restoration (UMRR) Program Long Term Resource Monitoring (LTRM) element is implemented by the U.S. Geological Survey, Upper Midwest Environment Sciences Center (UMESC), in cooperation with the five Upper Mississippi River System (UMRS) states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. The U.S. Army Corps of Engineers (Corps) provides guidance and has overall Program responsibility.*

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