



U.S. FISH AND WILDLIFE SERVICE COLUMBIA FISH AND WILDLIFE CONSERVATION OFFICE ACCOMPLISHMENT REPORT

...Dedicated to Conserving Big River Ecosystems in America's Heartland.

Aquatic Species Conservation and Management

Trawling in the Abyss

The buzzing drone of mosquitoes greeted us as we launched into the darkness. Some said we were crazy to trawl the Missouri River at night. They were right. Trawling this swift, snag laden river without the aid of sunlight is not an adventure for the faint of heart. "All in the name of science", I remarked as I attempted to cough up another mayfly that had taken residence in my throat.

The science we were after this night was an answer to a long standing question, "Do young-of-year sturgeon utilize shallow water habitat at night?" Historically the Missouri River was a wide shallow river with numerous islands, sandbars, and side channels. Today the river is highly altered and little of the natural shallow water habitat remains. As part of pallid sturgeon recovery on the Missouri River several projects are underway to rebuild some of this important habitat. Understanding how sturgeon utilize this habitat is crucial for their successful recovery.

On this night, the tools we used to sample for young-of-year sturgeon included push trawling and bow trawling. Push trawling excels at sampling water less than a meter deep while bow trawling is capable of sampling deeper water. The combination of these two gears allowed us to effectively sample a wide range of depths and habitat types.

Over a four night period we collected 62 young-of-year sturgeon. These data when combined with last year's night trawling data and compared against daytime sampling should provide us with a better understanding of how these tiny, yet important, fish utilize habitat. Despite the pesky ubiquitous insects and long, sleep deprived nights, I would say that experimental night trawling was a success and may be employed in the future.



Small sturgeon, such as this one, reside in the lower Missouri River.



The push trawl boat all lit up and ready for action.

Colby Wrasse



Leadership in Science and Technology

National Conservation Training Center Training Applied to Pallid Sturgeon Stocking Program

Continuing education and training classes are important for fish and wildlife biologists working under adaptive management programs that rely on new research to direct future management actions. The Principles of Modeling class offered at the National Conservation Training Center (NCTC) teaches biologists how to use simple models to solve real world problems. Fish Biologists Joshua Schloesser and Clayton Ridenour attended this class and saw application to the pallid sturgeon stocking program in the lower Missouri River.

Every fall, the Middle Basin Pallid Sturgeon Workgroup stocking subcommittee needs to decide how many and when to stock the endangered pallid sturgeon, a task that is not straightforward. The stocking subcommittee must consider factors such as genetic conservation, supply of eggs, survival of hatchery raised fish in a wild river and hatchery space when developing a stocking strategy. To help make stocking decisions, Fish Biologists Joshua Schloesser and Clayton Ridenour developed an interactive model in Microsoft® Excel that predicts how many hatchery raised pallid sturgeon are expected to reach reproductive age and contribute back to the future pallid sturgeon population.

The pallid sturgeon stocking model requires only three inputs to estimate the number of females expected to survive to age 15, and males to age 6, when they are first thought to be in reproductive condition: 1) the number of fish at each age the hatchery wishes to stock, 2) the proportion of fish that are female or male, and 3) the annual survival rate of hatchery raised fish in the wild. Nebraska Game and Parks Commission has estimated that only 5% of fingerling pallid sturgeon stocked in the fall survive to age-1, 68% of age-1 stocked fish survive to age-2 and 93% of age-2 fish survive each successive year. By multiplying the number of fish being stocked out, with the proportion of fish that are female or male, and the annual survival rates, we can estimate how many hatchery fish are expected to still be alive from any given year class, 20 years into the future.

Depending on the current supply of fish in the hatcheries, the stocking subcommittee has several options of when to stock fish into the river. The Neosho National Fish Hatchery has the capacity to raise 20,000 fingerlings, 15,000 age-1 fish, or 10,000 fish to age-2. If all fish are stocked out, 100 of the stocked fingerlings, 1,620 of the age-1 fish, or 1,680 of the age-2 fish are estimated to survive to become 15 year old reproductive females. This indicates that annually stocking age-1 fish will produce the maximum number of pallid sturgeon that survive to reproductive age (age-2 fish can only be stocked every other year when at hatchery capacity). But, if the hatchery is not at capacity it has the option to hold fish until age-2 or age-3, which will assure the greatest number of fish survive to reproductive age.

The pallid sturgeon stocking model is one tool that can help managers understand the contribution of stocked fish to an endangered population and has eliminated past debates



based on personal opinions. This modeling approach is appealing because its operated in a common spreadsheet program, simple to incorporate new research, transparent in its calculations, and flexible to evaluate different stocking strategies based on the current supply of hatchery fish, all of which are important components in an adaptive management program. The training opportunities offered at NCTC have enabled biologists with the skills to solve real world problems, provide aid in difficult decision making, and help recovery efforts of the endangered pallid sturgeon.

Joshua Schloesser

Partnerships and Accountability

Swan Lake NWR YCC crews meet fish of the big muddy

Habitat Assessment and Monitoring Program (HAMP) crews from Columbia FWCO met Swan Lake National Wildlife Refuge based Youth Conservation Corps (YCC) at Miami Missouri for a day on the Missouri River. Columbia FWCO crews were conducting standard field work so the students were able to see what real big river fisheries work is like. Unfortunately, weather conspired against the outing and by mid morning thunder storms and rain forced everyone off the river. Though most were soaked by the time the rain ended, spirits were not dampened and the field day resumed after lunch so all had a chance to experience the operation of both the push trawl and the stern trawl. The push trawl is used to sample shallow areas of the river while the stern trawl is used to sample areas deeper than 6 feet. Discussions about big river ecology and identification of big river fish species dominated the conversations. The day proved to be a welcome break for YCC from their day to day duties on the Refuge. YCC is a program that has been in existence for decades and originated from the CCC of the



Two YCC members holding a shovelnose sturgeon during a field trip on the Missouri River at Miami, MO.

Depression Era. The YCC has been instrumental in introducing young Americans to conservation opportunities since the program was created in 1970.

Since its inception, the YCC has worked with many conservation agencies throughout the country to provide educational and team building skills for young people. Hundreds of employees currently working in land management agencies were introduced to the field via the YCC.

The U.S. Fish and Wildlife Service acknowledges that providing awareness and educating others remains crucial to our efforts to conserve, protect and enhance our nation's aquatic resources. This effort demonstrates our commitment to develop tomorrow's scientists in keeping with the Partnerships and Accountability Goal of the "Fisheries Program Vision for the Future".

Andy Starostka



Columbia FWCO Moving Forward on ARRA Projects

All fish passage projects we work on at Columbia FWCO take time for planning and coordination with partners, and those funded under the American Recovery and Reinvestment Act (ARRA) are no exception. After months of hard work and diligence, Columbia FWCO, and our partners, are under contract to complete work on two separate fish passage projects that are funded through the Recovery Act.

Both projects are intended to improve fish habitat in Missouri streams, however each will use different approaches to accomplish that goal. One project is a low water crossing replacement located within the range of the threatened Niangua Darter which blocks fish movements. Replacing the current structure with a newly designed span bridge crossing will be beneficial to fish, and other aquatic life, as well as, on average, require less maintenance by the local road commission and be closed for shorter durations during high water events. Our second project, working with landowners in the Lower Bourbeuse River watershed, focuses on restoring riparian areas and corridors along stream banks to ensure good water quality and improve aquatic habitats.

With a contract in place, work on the ground for each project will begin soon. This will spark a series of site visits and meetings related to each project. In addition, there will be continued coordination with our partners to ensure the project is completed in due time and in accordance with ARRA specifications.

Brian Elkington and Tracy D. Hill

Aquatic Habitat Conservation and Management

Columbia Samples Dalbey Bottoms on the Missouri River



CFWCO technician Chris Scheppers poses with a shovelnose-pallid sturgeon hybrid.

Dalbey Bottoms is located on the Missouri River between northwest Missouri and northeast Kansas near river mile (RM) 417. The U.S. Army Corps of Engineers proposed to build a side channel here as part of the Missouri River Recovery Program to restore habitat for pallid sturgeon. Columbia FWCO and the Corps are cooperating to study Missouri River habitat at Dalbey Bottoms before and after construction to assess the ecological impact of the constructed chute on pallid sturgeon and other native Missouri River fishes. Fish Biologists from Columbia FWCO completed the second round of sampling at Dalbey during early August. Project Engineer Zach White from the Corps jumped aboard to assist and collaborate with Columbia and their sampling efforts at Dalbey. Stable weather and river conditions provided a pleasant work environment for both stern trawling and push trawling. Columbia crews managed to catch 1,672 fish, 57 of which were young of the year sturgeon. One pallid sturgeon and



one shovelnose-pallid sturgeon hybrid were also collected while sampling. Construction of the chute is scheduled for the winter of 2009, but we plan to return in October to sample using trotline gear. This cooperative effort provides an avenue to apply adaptive management and supports the Service's Strategic Habitat Conservation program.

Adam McDaniel and Clayton Ridenour

If You Plant It, It Will Grow..... Unless the Carp Get There First

Columbia FWCO Biological Science Technicians Aaron Walker and Mark Corio traveled to DeSoto National Wildlife Refuge to begin the most recent phase of a project started last spring. The project is designed to determine if carp are a limiting factor for aquatic vegetation at DeSoto Lake, which is located approximately 25 miles north of Omaha, NE. In general, vegetated areas provide nursery habitat that are important for the survival of fish in their first year of life. It is hypothesized that the lack of dense vegetation beds at DeSoto Lake is due to the presence of common carp. Additionally, that excluding carp from key areas will help increase plant populations and provide quality nursery habitat.



Aaron Walker and Mark Corio of Columbia FWCO plant Longleaf Pondweed in Desoto Lake with the help of Steve Van Riper from Desoto NWR.

Aaron and Mark teamed up with Steve Van Riper and Jeremy Havener of DeSoto National Wildlife Refuge to plant vegetation in three 20 ft X 30 ft experimental carp enclosures. The enclosures were divided into three equal sections. Within each section one of the following species

was planted: white water lily, water stargrass, longleaf pondweed, or no plants. The plant growth in each enclosure will be periodically measured and noted for analysis. Ultimately, the results of this experiment will aid us, and our partners, in more effectively managing the fishery at Desoto Lake. We are grateful for Darcy Cashatt and our other partners at the Iowa Department of Natural Resources who provided the plants for this project.

Our efforts to improve fish habitat and production at DeSoto Lake help to support the 'Aquatic Habitat and Conservation' goals of the 'Fisheries Program Vision for the Future'. With our continued work we hope to maintain and continue to improve aquatic health and recreational fishing opportunities at DeSoto Lake.

Aaron Walker and Mark Corio



Steve Van Riper of Desoto NWR distributing white water lilies to be planted in the lake bottom.



Public Use

Big Muddy, Big Race

Once again canoeists and kayakers from around the world gathered to begin the journey that is the Missouri River 340. To complete the race means successfully navigating 340 miles of Big Muddy, from Kansas City, MO to St. Charles, MO, near St. Louis. This was the fourth annual running of the world's longest, non-stop river race, featuring 255 participants and 183 finishers; the winning boat made the trip in just less than 39 hours.

Quickly becoming a tradition, employees from the Columbia FWCO stepped up to man the Coppers Landing checkpoint near Easley, MO. Simply enough, the job of the check station worker is gather the signatures of the racers as they pass through. However, we are also presented with the opportunity to provide information about the Missouri River ecosystem and the plight of the pallid sturgeon to the public. From Project Leader to STEP student, Columbia FWCO staff worked in shifts, manning the checkpoint for nearly 40 continuous hours. However, Brian Elkington, a regular at the check station, was given a pass on his responsibilities this year as he became the first Columbia FWCO employee to tackle the big race on the Big Muddy...



Typical scene at Coopers Landing as MR340 racers check in, ground crews help re-supply them and spectators look on.

It was an unnerving experience paddling away from Kaw Point in my kayak, knowing that I had 340 miles between myself and the finish. However, the adrenaline was pumping and I was surrounded by others in the same situation. Due to my chosen profession, I felt I had an edge on some of my competitors. I had already spent a considerable amount of time working on the river with sampling crews from Columbia FWCO. Also, I had been pestering my co-workers for weeks before the race asking for any ideas that would hasten my journey to St. Charles. Although we talked about river currents and water velocity, many of them jokingly suggested I "get an outboard!"

The race itself affects everybody differently, for me it was intense, particularly the nights, as well as mentally and physically arduous. Although I trained for months in advance, there were many aspects that no training could prepare me for. Such as, the utter exhaustion I felt in the early morning hours from 3:00am to 5:00am after paddling all day or the constant weakness and hunger, during the second half of the race, which no food seemed to help. Through all the struggles and challenges, my support/ground crew, my loving wife, Alaine, and my dad, Tom, were always there when I needed them most; be it at the check points or a quick phone call when I needed some encouragement. They were always, reliably, there waiting for me with fresh water and food in hand, willing to jump through hoops to help me in any way they could. I couldn't have done it without them. I also received a lot of support from my friends and co-workers and even bumped into a



few of our sampling crews out working during the race, which gave me a boost! It was also a turning point in the race for me when I pulled into the Coopers Landing Checkpoint, just past halfway through the race, and was checked in by my supervisor and co-workers. Up until that point I could not see my end goal, St. Charles was too distant, but at Coopers Landing that changed. I knew it was just a matter of time before I was in St. Charles. From there on, I had more miles behind me than ahead, which may seem simple but was a big step forward mentally.

The last leg of the race from Klondike to St. Charles was the most painful and yet invigorating experience of the race, for me. I was so close to the end and was focused on making it to St. Charles in the quickest time I could. I was continually doing the math in my head and realized that I might be able to beat 53 and a half hours if I kept pushing hard. A perfect goal, I thought, to help me finish the race as I had not seen another men's solo division boat for more than 12 hours. With all the muscles in my body either aching or burning, or both, I pushed onward towards my new goal and hoped to make it. With about 1 mile left in the race, I knew it was going to be close, I



Brian arrives at Coopers Landing Wednesday afternoon to be greeted by not only his ground crew, but co-workers as well!

only had about 10 minutes left if I was going to beat 53 and a half hours. I am not sure where I got the energy, but I started to pick up the pace and push a little harder. As I got closer, I saw I was walking the line and was now completely consumed by beating my time challenge. With a half mile left or so I felt like I was sprinting to the finish, pushing as hard as I could with everything I had left. I pulled into St. Charles exhausted, but elated. As my ground crew and other race volunteers helped me and carried my boat up the river bank I heard the time keeper say I made it in 53 hours and 27 minutes and was 4th place in the men's solo division and 14th overall! Not only did I survive this challenge, but had an amazing experience in the process.



Brian leaving Jefferson City and pushing on towards Hermann, only 115 more miles till the finish!

This event was a great opportunity for Columbia FWCO to teach others about Missouri River aquatic resources. It also helps to support the 'Public Use' goals of the 'Fisheries Program Vision for the Future' through communication with the local community about Missouri River issues and is a great way to spend a couple of days, whether you are racing or working at the checkpoint!

Joe McMullen & Brian Elkington



Workforce Management

Where Can I Learn About GPS?

During the week of August 2nd, GIS Technician Mark Corio from Columbia FWCO traveled to Shepherdstown, WV to attend the National Conservation Training Center's TEC 7132 course: GPS Use for Field Personnel. With years of experience as a GPS salesman and a course instructor for geocaching, navigation and understanding GPS technology with outdoor groups such as the Boy Scouts of America and various other organizations, Mr. Corio fit right in at the NCTC course. Although he learned a thing or two, the main purpose of his attendance was to learn the methods of teaching this course so that he can offer it at satellite locations throughout Region 3.

The course focuses on the Garmin GPSMap76CSx handheld mapping grade GPS and includes building skills such as plotting waypoints, saving tracks, measuring distances and calculating areas, but most importantly: how to take this information and apply it to the day to day field operations of USFWS field employees. A portion of the class is also dedicated to downloading the data collected with the GPS and converting it into files to be used with ArcGIS Software and even Google Earth!

With Mark now trained to teach this course, he will start to offer classes in late Spring, 2010. This course is perfect for any field office that uses the Garmin GPSMap76 line of GPS receivers and it lasts 3 ½ to four days, although the length and some content of the course can be customized for individual classes. More information on the Region 3 courses will be made available closer to Spring of 2010.

Mark Corio

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