

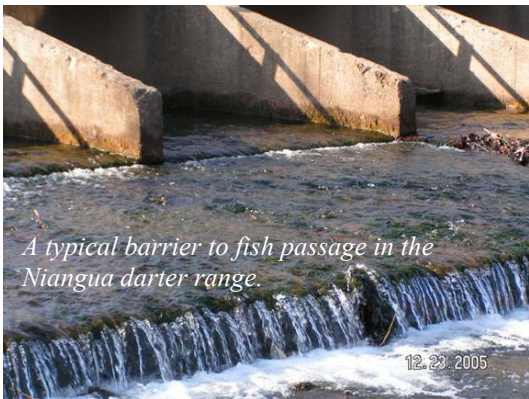


# U.S. FISH AND WILDLIFE SERVICE COLUMBIA FISHERY RESOURCES OFFICE ACCOMPLISHMENT REPORT

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

## **Aquatic Species Conservation and Management Biologists Work Together to Help the Threatened Niangua Darter**

The threatened Niangua darter occurs sporadically in eleven counties in the Osage River Basin in Missouri. The darter lives in clear upland creeks and small to medium-sized rivers with slight to moderate currents. They require continuously flowing streams with silt-free gravel and rock bottoms. The creation of reservoirs, which destroy stream habitat and stop upstream movement of fish, led to the darter's initial decline. Continued stream deterioration due to low-water crossings, sand and gravel removal, loss of streamside vegetation, fertilizer and pesticide run-off, and waste from humans and livestock further threatens the darter's existence. Immediate threats include isolation of the eight remaining extant populations by inadequate low-water crossings.



*A typical barrier to fish passage in the Niangua darter range.*

The current Niangua darter population is made up of fragmented, isolated subpopulations. One of the causes of fragmentation is poorly designed low water crossings which block Niangua darter movement. This lack of movement may have two detrimental effects. First, movement is crucial for maintaining populations in streams where local extirpation occurs as a result of environmental extremes, primarily drought, and other factors. A 1972 study by Dr. MacArthur on insular biogeography indicated that repeated local extinction, followed by dispersal and recolonization from other inhabited areas, is characteristic of all species that occur in discontinuous habitats.

Secondly, isolation of subpopulations reduces or prevents gene flow and genetic diversity. Frequently, these isolated populations face problems due to their size which may lead to their eventual disappearance. Small populations can run into three potential problems affecting genetic variation: population bottlenecks, genetic drift, and





inbreeding. Population bottlenecks are time periods when a population is reduced to a few individuals. Population bottlenecks reduce genetic variation to that found in the few surviving individuals. Variety is good. There is only a certain amount of variety that is contained within a few individuals. Variety allows species to adapt to a changing environment. Genetic drift is a random change in gene frequencies in populations. Alleles can become fixed due to this random chance. It has a higher probability in smaller populations. This effect again reduces genetic variation. Lastly, the probability of inbreeding increases with a decreased population size. Inbreeding is the mating between close relatives. Inbreeding causes a decrease in the ability for a species to reproduce, increase mortality in young, and detrimental affects in growth. Gene flow among populations is key to helping prevent population declines.

The modification or replacement of stream crossings in Niangua darter range is an important part of recovering this threatened species. It provides immediate help to existent populations by opening potential, new habitat and connecting them to other populations. Columbia FRO and Missouri Department of Conservation (MDC) are currently inventorying stream crossings within Niangua darter range and will be developing a system to rank them to prioritize modification efforts. Surveys involve measurements on the crossing as well as characterizing the adjacent stream. US Fish and Wildlife Service Fishery Biologist Nick Frohnauer began surveying Tier 1 sites in December. He has completed survey work on 54 sites with approximately 25 more to visit. Tier One sites are located within the current range of the Niangua darter. Future survey work will include Tier Two crossings. These crossings occur in areas where darters occurred historically or where MDC biologists have determined stream conditions could benefit the darter.



Remedying fish passage issues is only part of the work going on to help the Niangua Darter. MDC, Columbia FRO, Missouri Ecological Service Office, Missouri Private Lands Office and other organizations are working with landowners to address other problems that have led to the species decline. They include sand and gravel mining, loss of streamside vegetation, fertilizer and pesticide runoff, and animal waste runoff. To date, 16 USFWS projects to address these issues have been completed within watersheds that support Niangua darter. The majority of these are a result of cooperative efforts with Partners for Fish and Wildlife administered through Private Lands Services out of the Columbia Ecological Services Office.

This project is directly helping the threatened Niangua Darter which falls under the USFWS goal of aquatic species conservation and management, specifically those that fall under the *Endangered Species Act*. Also, the USFWS involvement with the Niangua darter has lead to building a long-term relationship with the Missouri Department of Conservation helping further the USFWS goal of improving partnerships and accountability.

Nicholas K. Frohnauer



## Partnerships and Accountability

### Columbia FRO Meets with Partners of HAMP

Biologists from Columbia FRO met with Army Corps of Engineers and other partners in Kansas City to discuss the Habitat Assessment and Monitoring Program (HAMP). The agenda for this meeting included reports on 2005 activities, discussion of an Independent Science Review results and work towards refining the 2006 activities for HAMP. Andy Starostka provided presentations of field work conducted by the office for HAMP and the Mitigation projects in 2005. Nebraska GPC, and the physical mapping crews from the Corps and USGS also provided reviews of last seasons work. An Independent Science Review was conducted by Sustainable Ecosystems Inc. The recommendations of this review were discussed among all parties. More analysis of 2005 data will need to be conducted before the recommendations can be incorporated into 2006 sampling. Work by the group continues toward refining the activities for HAMP. This meeting was a unique opportunity of biologists, hydrologists, and engineers to be at the table together. Meetings like this provide insight into the work that each group is conducting and assists others understand the complex sampling issues each group faces while conducting work for this project.

Resource Outcomes: These results will lead to our vision in leadership in science to recover an endangered species and protect sensitive communities. This project will assist the Service's Fishery Program with meeting its Partnership and Accountability goal of developing collaborative conservation strategies for aquatic resources.

*Andy Starostka*

### Evaluation of Flow Modifications from Gavins Point Dam

Project Leader, Tracy Hill, and Corps Operations Branch Chief, Wyatt Doyle, traveled to Kansas City, MO on 20 January to assist the Army Corps of Engineers (Corps) and other Missouri River biologists, engineers and hydrologists with finalizing plans to evaluate experimental flow releases planned from Gavins Point Dam during the spring of 2006. These flows are deemed necessary to aid the recovery of the endangered pallid sturgeon. The Amended Biological Opinion issued to the U. S. Army Corps (Corps) of Engineers in 2003 describes in detail the need for flow modifications below Gavins Point Dam to avoid jeopardizing the continued existence of the pallid sturgeon. A more normalized hydrograph, one that mimics the natural hydrograph, is thought to benefit sturgeon by restoring some semblance of natural riverine processes.

The Corps and the U.S. Fish & Wildlife Service (Service) conducted a collaborative process during 2005 to develop a reasonable flow scenario to address Biological Opinion requirements and basin concerns. This plan has been developed to reflect what can reasonably be implemented in 2006. This study design documents a plan to evaluate biological and physical responses to flow modifications, including behavioral and physical responses of sturgeon, and changes in suspected spawning habitats. This study is just the first year of what should be considered a comprehensive, multi-year study design. Logistics of the actual monitoring work were discussed and agreed upon during the meeting.





This collaborative project provides an opportunity for the Service to expand its network of both governmental and non-governmental partners. Working with other governmental agencies and Missouri River Basin stakeholders has been beneficial in aiding the ongoing pallid sturgeon recovery efforts at the Columbia FRO. Maintaining and working to expand these partnerships is critical to the success of recovering pallid sturgeon throughout the Mississippi River basin and is consistent with the Service's Fisheries Program Vision for the Future priorities for "Aquatic Species Conservation and Management" and "Partnership and Accountability".

Tracy D. Hill

### **Columbia FRO Attends the Dakota Chapter AFS Annual Meeting**



Biologists from the Columbia FRO attended the Dakota Chapter AFS annual meeting February 28 and March 1 of 2006 in Chamberlain, South Dakota. Geno Adams presented *Age, Growth and Aging Structure Comparison of Bighead and Silver Carp in the Missouri and Illinois Rivers*. Andy Starostka presented *Dispersal of Hatchery Reared Pallid Sturgeon from a Stocking site on the Lower Missouri River*. Biologists attended presentations relating to Missouri River issues and pallid sturgeon. They also observed work that is being done elsewhere in the basin.

Columbia FRO biologists were able to strengthen old relationships and begin new ones with multiple state agencies. Networking with other Missouri River biologists allows staff of the Columbia FRO the opportunity to communicate with other professionals and to highlight projects and accomplishments of this office. Communication between all stakeholders is a key component of managing and studying broad scale, interjurisdictional waters such as the Missouri River.

This action fulfilled Objective 1.1 of the 'Fisheries Program Vision for the Future': Develop and improve long-term partnerships with States, Tribes, other federal agencies, non-governmental organizations, and other Service programs to develop collaborative conservation strategies for aquatic resources.

W. Geno Adams, Andrew B. Starostka

### **Annual Missouri Natural Resources Conference**

Fishery Biologist Jennifer Johnson of the Columbia FRO traveled to Lake of the Ozarks, Missouri to attend the Missouri Natural Resources Conference in February. Jennifer presented a poster entitled "Reproductive Development of the Sicklefin Chub (*Macrhybopsis meeki*) in the lower Missouri River". The focus of this year's conference was "Managing the Public's Trust Amid Competing Voices ". Johnson attended a workshop on Reservoir Fisheries Issues, a Technical Paper Session in Fisheries and attended the Missouri Chapter of the American Fisheries Society Annual Meeting.



Participation in the workshops provided current information on reservoir and small impoundment fisheries management issues, updates of research projects by Resource Scientists, and presentations of management problems by Fisheries Management Biologists. The poster presentation provided valuable opportunity to interact with other graduate students as well as scientists and decision makers from federal and state agencies, to answer questions regarding Jennifer's research, and provide information to interested parties. The workshops, contributed papers, and poster sessions provided the chance to discover new ideas and techniques for managing natural resources and communicating with the public. The event fulfills the Service's Partnerships and Accountability section of the Strategic Vision.

*Jennifer L. Johnson*

## **Aquatic Habitat Conservation and Management White River Partnership Potential National Fish Habitat Initiative**

### **Project**

Joanne Grady, Columbia FRO Fisheries Conservation Branch Chief, attended the White River Partnership Meeting on January 31<sup>st</sup>. The White River Partnership is the joint effort between the Missouri Department of Conservation and the Arkansas Game and Fish Commission to manage border area fisheries on the shared reservoirs and river stretches of the White River. This partnership began simply with two state management biologists on one reservoir sharing their resources and data to determine the health of their joint fish stocks. This partnership has developed into an agency level collective effort to manage the impounded and free-flowing portions of an entire river system. Joanne and Norm Stucky of Bass Pro Shops briefly discussed the National Fish Habitat Initiative and the potential this program may have for the White River.

Identifying and implementing significant watershed management programs with partners ensures that habitat conservation and restoration is an integral component of management actions. This aids us in achieving Objective 6.1 'Facilitate management of aquatic habitats on national and regional scales' of the Fisheries Strategic Vision.

*Joanne M. Grady*

## **Leadership in Science and Technology**

### **Columbia FRO Biologist Completes FIS Training**

Joanne Grady, Columbia FRO Fisheries Conservation Branch Chief, and several other participants from Region 3 completed Fisheries Information System training at NCTC. FIS is being updated from an older FileMaker Pro structure into a web-based system. Joanne and the other participants not only tested the beta version of the software but provided comments on both the training and the system to the development team. Improvements in this system will ease both entry at the field station level and usability in the Regional and Washington Offices.

The FIS program helps the Service meet Objective 5.1 'Utilize appropriate scientific and technologic tools in formulating and executing fishery management plans and policies' of the Fisheries Program Strategic Vision .

*Joanne M. Grady*





## Public Use

### **Yes, Eagles Eat Fish.**

A line forms outside the small theater at the U.S. Army Corp of Engineers visitor center overlooking Truman Lake in central Missouri. Residents from the village of Warsaw anxiously await the opportunity to see the next live eagle interpretive program, snack on Crazins, look at brochures and watch a slide show on Missouri River fishes.

It was sunny and warm on Saturday January 14, a perfect day to observe the Annual Bald Eagle Day event held by the Corps. The visitor center is perched atop a bluff overlooking Truman Dam in an area frequented by eagles and bird watchers.

Fishery Biologists Jeff Finley and Geno Adams showcased a colorful display with video imagery of Missouri River fishes and Columbia FRO activities at the entrance to the theater. Danny Sandersfeld, USACE Ranger, expected a large turnout due to aggressive advertising. Ranger Dan helped strategically locate the Columbia FRO booth for maximum participation. More than 1,000 bald eagle enthusiasts gathered to learn about and view live eagles and other birds of prey. Participants had the opportunity to attend a variety of educational presentations dealing with natural resource history and heritage in Central Missouri. The function also gave natural resource agencies the opportunity to discuss pertinent resource issues with the public. The U.S. Fish and Wildlife display familiarized people with Missouri River issues such as pallid sturgeon monitoring and invasive species. Biologists were able to address specific concerns with these issues and also increase awareness of the USFWS mission.

This action fulfilled objective 2.4, Action 2.4.4: Increase education and outreach activities to raise public awareness of aquatic nuisance species problems and how the public can help.

*W. Geno Adams*

### **Ozark Mountain Anglers All Sports Show**

The Ozark Mountain Anglers (OMA), a proactive fishing club, promotes, organizes and conducts the best all sports show in Central Missouri. Their appreciation of children, family, a wide range of outdoor activities and Natural Resource Agencies is likely the reason this show has been so popular. OMA provides free booth space to these agencies, free admission to children, free kids fishing pond and a variety of vendors from bass boats to wildlife art. This year marks the first year Columbia FRO has participated in the show.

Since boats are a central theme for this show we decided to display our newest trawl boat, the "Silver Bullet". Most people rarely have the opportunity to view a specialized work boat such as this up close. The boats rugged construction, jet out drive and 8.1 liter engine commanded the attention of young and old alike. A poster displaying a collage of trawling action photos added a more insightful perspective to the display. Columbia FRO



biologists were on hand throughout the show to answer question and assist visitors on a guided tour of the boat's operation and the trawling equipment used to sample benthic fish communities. One young "trawler" was quoted as saying "Such a big boat to catch little fish" as he sat in the drivers seat and honked the horn.

For as long as I can remember OMA has held the annual All Sports Show in Columbia at the University of Missouri's Hearnes Center on the first weekend of February. A typical gate is 2000 adults and as many children. Our participation in the show and co-location with other State and Federal agencies provided an excellent venue to clarify our role in Natural Resource conservation and fulfills the "Public Use" goal of the 'Fisheries Program Vision for the Future' by promoting the value of native fish and aquatic resources.

*Jeff M. Finley*

### **What Do You Want to Do When You Grow Up?**

"Do you get to drive boats everyday?" "How big do the fish get that you work with?" "Do fish biologists only work in hatcheries?" "What can I do to prepare myself to become a biologist?" These are just a few of the questions filling the minds of sixth and seventh graders at Smithton and Gentry Middle Schools in Columbia, Missouri during career days. U.S. Fish and Wildlife Service biologists Jeff Finley and Geno Adams represented the Service at the annual career day events on the 15<sup>th</sup> and 23<sup>rd</sup> of February 23, 2006 to dispel some of the myths surrounding fisheries biology work and to entertain questions from the workforce of tomorrow. Students were awed by presentations featuring photos of 80 pound blue catfish and five foot long lake sturgeon that swim in the waters of the Missouri River near Columbia. A paddlefish replica sparked the interest of students and teachers alike, leading to conversations on fish biology and the role played by the U.S. Fish and Wildlife Service in modern day fisheries resource management and monitoring. Students were inspired by a rewarding, unique career in fisheries that may have previously gone unnoticed by many. If one student walked away with thoughts of fish and biology in their future career path then it was a successful outreach exercise!

This activity supports the 'Fisheries Program Vision for the Future' specifically in Action 3.3.2: Work with partners to identify and implement outreach and education activities regarding the concept, value, and importance of responsible recreational fishing to the American public.

*W. Geno Adams*

## **Workforce Management**

### **Columbia FRO Joins Missouri's Diversity Taskforce**

Joanne Grady, Columbia FRO Fisheries Conservation Branch Chief, represented the Fish and Wildlife Service at the Diversity in Agriculture and Natural Resources Symposium and Workshop on January 31<sup>st</sup>. The group was comprised of thirty representatives ranging from state, federal and agricultural agencies to non-profit organizations and universities. The participants frankly discussed their efforts to recruit minorities into these fields of study. Minority representatives discussed their perceptions of urban



populations and potential reasons why minority students are not choosing fields of study in agriculture and natural resources. University of Missouri staff presented data for university enrollments showing a very low number of minority students showing interest in agriculture and natural resources. The group agreed that efforts to recruit minorities into agriculture and natural resource fields need to begin as early as middle school. The group will be meeting again in April to develop joint recruitment efforts.

Adding diversity to our workforce aids the Fish and Wildlife Service in meeting our Fisheries Strategic Vision Workforce Management Goal of maintaining and supporting an adequately-sized, strategically positioned workforce with state-of-the-art training, equipment, and technologies in their career fields.

*Joanne M. Grady*

### **Student Recruitment Efforts Pay Off**

Recruiting ambitious, dedicated and intelligent students to develop into future fisheries professionals is an annual goal at Columbia FRO. Opportunities through the Services STEP and SCEP programs are tools that enable us to attract, interview and ultimately hire students to work in their chosen field.

Columbia FRO began recruiting efforts when Joanne Grady, Columbia FRO Fisheries Conservation Branch Chief, presented information on Federal Jobs at the monthly Fisheries and Aquatic Sciences Society (FASS) meeting at University of Missouri-Columbia on January 26<sup>th</sup>. FASS is a student subchapter of the American Fisheries Society whose goal is to promote interactions and activities which encourage professional development of students interested in aquatic sciences. Approximately twenty-five students attended the meeting. Joanne discussed the STEP program and available summer openings at Columbia FRO for current students and introduced the graduating seniors to the usajobs website. She also provided resume advice to the students. Several FASS members applied for STEP positions at Columbia FRO. Two of them will begin working for us when the spring semester ends.

Recruiting efforts continued at the annual Student Job Fair held at the Missouri Natural Resources Conference on February 1<sup>st</sup>. In addition to the job fair, Columbia FRO staff visited with Lincoln University, USDA's Wildlife Initiative, the University of Missouri and representatives from our staff's collective alma maters and distributed job flyers far and wide. There seems to be a downward trend in college students seeking the field of natural resources making recruiting students a challenge.

These efforts paid off with 27 students applying for summer and intermittent positions. It was the largest pool of student applicants to date at Columbia FRO. Of these applicants, the top six were selected, two from Lincoln University, three from the University of Missouri-Columbia and one from South Dakota State University. We are excited to be a part of their training and experience and are anxious for them to start. These efforts support the 'Fisheries Program Vision for the Future's' Workforce Management Goal by recruiting, supporting and training effective and motivated employees.

*Joanne M. Grady and Jeff M. Finley*





### **Columbia FRO Staff**

Tracy D. Hill – Project Leader  
Joanne M. Grady – Branch Chief, Fisheries Conservation  
Wyatt J. Doyle – Branch Chief, Corps Operations  
Andrew B. Starostka – Team Leader, ANS/Habitat Assessment  
Jeff M. Finley – Team Leader, Outreach/Mitigation  
Corey W. Lee – Fishery Biologist  
(Geno)Wells E. Adams – Fishery Biologist  
Nicholas K. Frohnauer – Fishery Biologist  
Nicholas J. Utrup – Fishery Biologist  
Andy T. Plauck – Fishery Biologist  
Cliff D. Wilson – Fishery Biologist  
Jennifer L. Johnson – Fisheries Biologist  
Casey L. Bergthold – Fisheries Biological Sciences Technician