

# Activities

**August and September 2009**

South Dakota Cooperative Fish and Wildlife Research Unit  
South Dakota State University  
Box 2140B, Northern Plains Biostress Laboratory 138  
Brookings, SD 57007-1696  
Telephone: 605-688-6121  
Fax: 605-688-4515  
Email: [charles.berry@sdstate.edu](mailto:charles.berry@sdstate.edu)

**NOTICE: The annual Coop Unit Cooperators meeting will be held on the morning of October 21 on the SDSU Campus; contact C. Berry for details.**

## Research Highlight

**Research Need:** Methods for determining native vs. non-native fishes.

**Research Finding:** Nine criteria were applied to assess the status of northern plains killifish (*Fundulus zebrinus*, see photo) in the Cheyenne River drainage. The criteria were history, detectability, biogeography, life-history, human affinity, invasion path, invasiveness, phylogenetics, and pre-history. We found that only one criterion weakly supported non-native status, whereas five strongly supported native status, one weakly supported native status and two were equivocal. The criteria should be used as a cohesive set to improve understanding of species distributions and to provide a rigorous method to assess available information, reveal knowledge gaps, and produce testable hypotheses. This information was recently published in a journal (see publications section), but was also chosen by Wiley InterScience for its “early online” e-publishing product (11/08) which speeds up dissemination of science.



# Research Accomplishments

New Walleye Study: New Graduate Research Assistant (GRA) Megan Thul (B.S., Iowa State University) began a study of stocked walleye in lakes Mina and Richmond. South Dakota Game, Fish and Parks (GFP) test nets indicate that stocked fish do not survive. Thul and Advisor Assistant Leader Dr. Steven R. Chipps will investigate the mystery.

Breeding Bird Study (BBS) Extended: GIS analysis of the land use change along roads used for the USGS BBS is being funded through the Coop Unit as a Research Work Order to Dr. K. C. Jensen and Co-PI Dr. Bob Klaver, EROS. GRA Mick Hanan's thesis is in review; his findings will help improve the accuracy of the survey.



New Study on Waterfowl Egg Size and Climate Change: New Ph.D. GRA Julie DeJong is beginning a study initiated by Unit Emeritus Assistant Leader Dr. Kenneth F. Higgins, with help from Dr. K. C. Jensen. The researchers are measuring eggs in museums across the USA to determine if there are egg size changes that might be correlated with climate trends. Julie received an M.S. while working with Dr. Higgins in 2001 on landscape fragmentation and grassland patches and nongame birds.

Diet of Stocked Pallid Sturgeon: Juvenile pallids (356-720 mm long) ate invertebrates initially, but the composition of fishes in the diet increased with pallid body size. For pallids >600 mm diets were composed primarily of Johnny darters and other fishes. Chipps collaborated with U.S. Fish and Wildlife Service (USFWS) biologists on this publication (see Grohs et al in publications list).

Lewis and Clark Delta: The unique delta habitat is characterized by higher fish and invertebrate densities than are riverine reaches; such production might enhance foraging opportunities and thus improve recovery efforts for stocked pallid sturgeon. (This speculation was offered by the authors of the above publication.)



Targeted Sampling for Pallid Sturgeon: Areas with high probability of pallid sturgeon presence were identified in the Missouri River (photo shows several riverine habitats in Missouri River); trammel nets are the best sampling tool; the data will help researchers target fish clusters to improve sampling efficiency for monitoring vital statistics for this endangered species. (See Spindler et al in the publications list.)

# Technical Assistance

To USFWS: Chipps and Berry met with USFWS staff (W. Nelson-Stastny) to discuss data needs/availability for the Missouri River Ecosystem Restoration Program.

To American Fisheries Society (AFS) – Annual Meeting Activities in Nashville:

- Chipps was installed (two year term) as President of the Education Section, one of the largest sections within AFS; its mission includes: 1) improving the quality of education and 2) promoting information exchange.
- Chipps and three colleagues organized a one day symposium at the annual AFS meeting entitled “Fisheries Education in the 21<sup>st</sup> Century: Accommodating Change.”
- Berry and Elvis Presley organized a one day symposium on “Fisheries Science in the Year of Science, 2009.”



To South Dakota State University (SDSU) – Wildlife: Chipps and Berry assisted in the Graduate Orientation Seminar (09/09/09); Berry talked about safety; Chipps about lab protocols.

To SDSU – Ecology: Berry presented a guest lecture titled “Year of Science and a New Model for the Process of Science” at the “welcoming seminar” for the Ecology and Environmental Seminar series.

To SDSU – Honors Program: Berry met with the teaching team to plan the fall semester; Berry presented the “kick off” lecture on September 8<sup>th</sup> to 18 Honors students; The Honors class adopted Year of Science as a theme and will discuss climate change science.

To National Park Service (NPS): Chipps and GRA Stephanie Shaw (M.S.) met with cooperators from the NPS, Minnesota Department of Natural Resources, and Ontario Ministry of Natural Resources to discuss lake sturgeon research in Voyageurs National Park. Shaw is evaluating seasonal movement patterns and population demographics (gender, size-structure, age distribution) in the Namakan Reservoir system.

To USFWS: Chipps presented a Webinar entitled “Modeling mercury accumulation in fishes using bioenergetics models.” The USFWS and USGS Cooperative Research Units (CRU) have developed a web conferencing program to increase communication and transfer of technical information between USFWS and CRU on topics for which CRU has expertise.

# Publications

Berry, C. 2009. Four misconceptions about science. Out of Doors, the newsletter of the South Dakota Wildlife Federation 49(9):3,6.

Hoagstrom, C. W., C-A. Hayer, and C. R. Berry. 2009. Criteria for determining native distributions of biota: the case of the northern plains killifish in the Cheyenne River Drainage, North America. Aquatic Conservation: Marine and Freshwater Ecosystems 19:88-95. (Published on-line November 19, 2008, in Wiley InterScience in the “early online” publication option.)

Spindler, B. D., S. R. Chipps, R. A. Klumb, and M. C. Wimberly. 2009. Spatial analysis of pallid sturgeon *Scaphirhynchus albus* distribution in the Missouri River, South Dakota. Journal of Applied Ichthyology 25:8-13.

Grohs, K. L., R. A. Klumb, S. R. Chipps, and G. A. Wanner. 2009. Ontogenetic patterns in prey use by pallid sturgeon in the Missouri River, South Dakota and Nebraska. Journal of Applied Ichthyology 25:48-53.

Fincel, M. J., S. R. Chipps, and D. H. Bennett. 2009. Composition and location of simulated lake-shore redds influence incubation success in kokanee, *Oncorhynchus nerka*. Fisheries Management and Ecology 16:398-407.

Shaw, S., S. Chipps, D. Willis, S. Windels, and D. Mcleod. 2009. Seasonal distribution of adult lake sturgeon in Namakan Reservoir, Voyageurs National Park. Poster Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

French, W., B. Graeb, S. Chipps, and R. Klumb. 2009. Prey selection and vulnerability to predation in juvenile pallid sturgeon. Poster Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

Van De Hey, J., M. Fincel, and S. Chipps. 2009. Nonlethal sampling of walleye and yellow perch for stable isotope analysis: a comparison of three tissues. Poster Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

James, D. and S. Chipps. 2009. Factors associated with the distribution and abundance of *Didymosphenia geminata* in the Black Hills, South Dakota. Oral Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

Galster, B., J. Van De Hey, M. Wuellner, M. Fincel, B. Graeb, D. Willis, and S. Chipps. 2009. A trip back in time: re-constructing historic food webs with stable isotope analysis. Poster Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

Wuestewald, A., M. Fincel, J. Van De Hey, and S. Chipps. 2009. Comparing isotope signatures of prey fish: does gut removal affect 13C or 15N signatures? Poster Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

Hayer, C., S. Chipps, and J. Stone. 2009. Relationship of water quality, land use, and watershed characteristics to mercury concentrations in top-level fish tissues. Poster Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

Hayer, C-A, C. Berry, and N. Troelstrop. 2009. Fish and invertebrate assemblages and habitat conditions in headwater streams of the Dakotas. Oral Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

Cari-Ann Hayer, a Research Associate for the Coop Unit for several years, is starting a Ph.D. at SDSU; she was much involved in AFS activities at the annual meeting – presenting papers, attending technical meetings, and helping with student paper evaluations.



Berry, C. 2009. Factors influencing public understanding of science. Oral Presentation at the 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

## Award

Best Student Poster: Van De Hey, J., M. Fincel, and S. Chipps. 2009. Nonlethal sampling of walleye and yellow perch for stable isotope analysis: a comparison of three tissues. 139<sup>th</sup> Annual Meeting of the American Fisheries Society, Nashville, Tennessee.

## Other

Training: The Unit staff and SDSU administrative staff completed training in the on-line course titled DOI General Environmental Management System Awareness Training.

USGS All Hands Meeting: Chipps and Berry attended the all-hands meeting and social at the AFS meeting; USGS Scientist D. Beard welcomed the group; about one-third of the attendees were Coop Unit scientists.