

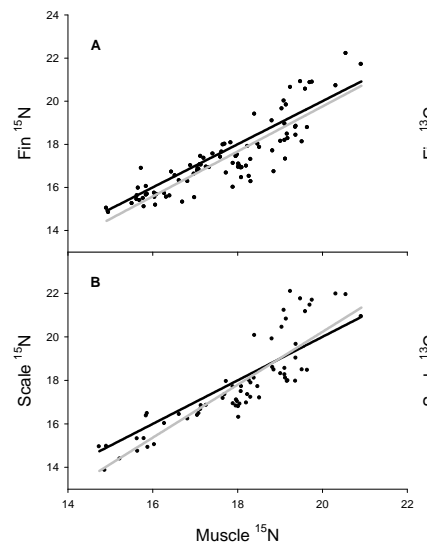
# Activities

February 2009

South Dakota Cooperative Fish and Wildlife Research Unit  
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## Research Accomplishments

Killing fish is not necessary to get stable isotope data. Stable isotope analysis (SIA) is used to address a variety of topics, such as determining dietary shifts from pelagic to benthic prey, modeling contaminant bioaccumulation in piscivorous fishes, monitoring the effects of eutrophication on aquatic food webs, and revealing feeding interactions not detected by traditional gut content. The use of non-lethal sampling techniques in SIA would eliminate the need to sacrifice fish. Assistant Unit Leader Dr. Steven R. Chipps and Graduate Research Assistants (GRAs) Justin Van De Hey and Mark Finsel collected walleye and yellow perch to determine if non-lethally collected tissues (fins and scales) can be readily substituted for white muscle for SIA. Results indicated that isotopic values from non-lethal tissues were significantly related to those measured from muscle tissue samples. (Upper figure shows close relation between fin and muscle for nitrogen, lower figure shows close relation between scale and muscle.) Mean square error analysis showed that fins were a better predictor of muscle isotopic values than scales. Predictive equations developed in this study can be used to estimate isotopic composition in muscle tissue from non-lethal samples for both  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ .

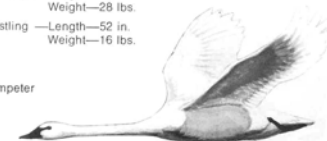


Forage production at LaCreek National Wildlife Refuge. Ms. Heather McWilliams presented a pre-project seminar on her study of moist soil management at LaCreek. The goal is to determine if adequate vegetative forage is being produced to

### Swans

Trumpeter—Length—59 in.  
Weight—28 lbs.  
Whistling—Length—52 in.  
Weight—16 lbs.

Trumpeter



support fall migrating and wintering waterfowl, especially trumpeter swans. Heather will continue sampling this spring.

Sturgeon chubs (*Macrhybopsis gelida*). GRA Nick Ahrens is finishing up his thesis on fishes in the White River near Badlands National Park. One of the many results in his thesis indicates that sturgeon chub growth is slower in the White River than in other populations in the region. Nick now has a fulltime position as a fisheries biologist for Texas, working on the coast near Corpus Christi. He will return this spring to defend his thesis.



Fisheries research findings revealed at American Fisheries Society (AFS) Dakota Chapter Meeting. Unit students and staff presented nine papers or posters at the February 23-25 meeting in Bismarck (see list of presentations and posters). Selected findings were:

- Drought reduced brown trout biomass in Black Hills streams.
- Different fish community below dams on the Forest River (North Dakota).
- Fins of pallid sturgeon yield isotope information identifying hatchery or wild.
- Energetics studies: fish eat more after being starved (compensatory growth).
- Lake sturgeon move to tributary mouths in May and June in Voyageurs National Park.
- Studies compared isotope signatures of consumed prey fish with and without intestines.



North Dakota rivers project planning. South Dakota State University (SDSU) staffers met with North Dakota fishery biologists in Bismarck (February 23) to plan sampling by GRA McLain Johnson for the coming spring. The North Dakota biologists requested more effort on the Souris River and Apple Creek; collect more creek chubs (*Semotilus atromaculatus*). Johnson is also looking for blue suckers (photo, *Cycleptus elongatus*).

## Technical Assistance

To SDSU Honors College: Unit Leader Dr. Charles R. Berry Jr. met (2/20) with Assistant Dean T. Nichols and three other Honors College faculty to plan the fall course on Year of Science topics. SDSU Honors College is dedicated to supporting the highest quality academic and enrichment opportunities; enrollment limited to high-achieving students

To South Dakota Academy of Science: Berry arranged for a half-day symposium on Year of Science topics at the upcoming annual meeting, Northern State University, April 3-4.

To SDSU Film Society: Berry arranged for the showing of two films to celebrate the Year of Science: 1) The Family That Walks on All Fours (2006, Nova) on February 3, and 2) A Sense of Wonder (2008) on February 10. A Sense of Wonder is a Rachel Carson film; Berry served as discussion leader after the Carson film.

To AFS: Both Unit scientists are active in planning events for the AFS annual meeting in Nashville, Tennessee, August 30-September 3. Chipps, and other Education Section members, worked with the AFS Planning Committee to organize student activities. Berry finalized the agenda for a Year of Science symposium; he will moderate and present, other speakers will address 1) the process of fisheries science, 2) fisheries science in the larger biology arena, and 3) public understanding of science.

To U.S. Army Corps of Engineers (COE): Chipps participated in a shallow water habitat workshop to develop invertebrate sampling protocols for evaluating habitat construction efforts in the Missouri River. The shallow water habitat program is part of ongoing recovery efforts for endangered pallid sturgeon.

To SDSU: Chipps served as a Ph.D. committee member for Michael Weber, who held his first committee meeting to review his proposal on common carp ecology in the Great Plains.

## Awards, Publications, and Presentations

### **Award:**

Chipps was selected as one of three speakers in the Research Session at SDSU's Faculty Recognition Day. His presentation summarized work on mercury accumulation in South Dakota walleyes. The study was carried out by former student, Dr. Trevor Selch – dissertation PDF at <http://wfs.sdstate.edu/wfsdept/Publications/Theses/Selch,%20Trevor%20M.%20Ph.D.-2008.pdf>

### **Popular Publication:**

Berry, C. R. 2009. Fish and Wildlife Science on the Hot Seat. Out of Doors, the monthly newspaper of the South Dakota Wildlife Federation 49(2):4, 6.

### **Presentations:**

Borgstrom, L., C. Berry, and C-A. Hayer. February 24, 2009. Longitudinal fish community assemblage in the Forest River, North Dakota. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

French, W., B. D. S. Graeb, S. R. Chipps, and R. A. Klumb. February 3, 2009. Vulnerability of age-0 pallid sturgeon to predation. Annual Meeting, Minnesota-Wisconsin-Ontario Chapters, American Fisheries Society, Duluth, Minnesota.

James, D. A., J. W. Wilhite, and S. R. Chipps. February 24, 2009. Influence of drought conditions on brown trout *Salmo trutta* biomass in the Black Hills, South Dakota. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

Fincel, M. J., J. A. Van De Hey, and S. R. Chipps. February 3, 2009. Non-lethal sampling of walleye and yellow perch for stable isotope analysis: a comparison of three tissues. Annual Meeting, Minnesota-Wisconsin-Ontario Chapters, American Fisheries Society, Duluth, Minnesota.

Schaeffer, T. W., D. E. Spengler, C. W. Schoenebeck, M. L. Brown, and S. R. Chipps. February 25, 2009. Compensatory growth and metabolic responses of female yellow perch subjected to symmetric feed:fast cycles. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

Van De Hey, J. A., M. J. Fincel, and S. R. Chipps. February 24, 2009. Non-lethal sampling of walleye and yellow perch for stable isotope analysis: a comparison of three tissues. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

Wuellner, M. R., D. W. Willis, S. R. Chipps, and W. E. Adams. February 25, 2009. Relative influence of two prey species on growth of two predatory fishes in Lake Sharpe, South Dakota. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

### **Posters:**

Andvik, R. T., B. J. Galster, J. A. Van De Hey, M. J. Fincel, S. R. Chipps, and B. D. S. Graeb. 2009. Non-lethal stable isotope analysis of the endangered pallid sturgeon. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

Bacula, T. D., B. G. Blackwell, D. W. Willis, and S. R. Chipps. 2009. Smallmouth bass bioenergetics in Pickerel Lake, South Dakota. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

Brezden, T. J., S. L. Shaw, S. R. Chipps, D. W. Willis, S. Windels, and D. McLeod. 2009. Growth and abundance of Lake Sturgeon in Voyageurs National Park. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

French, W., B. D. S. Graeb, S. R. Chipps, and R. A. Klumb. 2009. Prey selection by juvenile pallid sturgeon *Scaphirhynchus albus*. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

Schaeffer, T. W., D. E. Spengler, C. W. Schoenebeck, S. R. Chipps, and M. L. Brown. 2009. Testing bioenergetics models under symmetric feed-starve regimes that produce compensatory

growth in female yellow perch. Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

Shaw, S., S. R. Chipps, D. W. Willis, S. Windels, D. McLeod. 2009. Seasonal distribution of adult lake sturgeon in Namakan Reservoir, Voyageurs National Park, MN. Annual Meeting, Minnesota-Wisconsin-Ontario Chapters, American Fisheries Society, Duluth, Minnesota.

Wuestewald, A., M. J. Fincel, J. A. Van De Hey, and S. R. Chipps. 2009. Comparing isotope signatures of prey fish: does gut removal affect  $^{13}\text{C}$  or  $^{15}\text{N}$  signatures? Annual Meeting, Dakota Chapter, American Fisheries Society, Bismarck, North Dakota.

## In The News

(Attached) South Dakota Conservation Digest, Jan/Feb 2008, page 30, had two notices, both involving Unit Leader Chuck Berry – book titled “History of Fisheries and Fishing in South Dakota” and re-election to three-year term on board of directors of the American Institute of Biological Sciences.

## Training

SDSU Secretaries Terri Symens and Carol Jacobson completed Federal Information Systems Security Awareness training on February 18, 2009.



# Wildlife Notes

## HISTORY OF Fisheries and Fishing IN SOUTH DAKOTA



### *History of S.D. Fishing Captured in Book*

South Dakota State University, with cooperation from the S.D. Department of Game, Fish and Parks, has recently published a book capturing the "History of Fisheries and Fishing in South Dakota."

The 477-page book compiles contributions from a number of authors who share insight on how fish management in this state has evolved, culminating with a final chapter titled, "South Dakota Fisheries: Predictions for the Next 20 Years."

The book is available to the public through Internet sale only. Copies may be purchased for \$10 by credit card from the Game, Fish and Parks Web site at [www.sdgifp.info](http://www.sdgifp.info), then clicking on the link to "Shop GFP Online."

The books are not available from any Game, Fish and Parks office.

### *SDSU faculty member to serve on national biological sciences board*

Adjunct professor Charles R. Berry, Jr. was re-elected for a 3-year term to the board of directors of the American Institute of Biological Science.

Berry has taught fisheries science in the Department of Wildlife and Fisheries Sciences at South Dakota State University since 1985.

The American Institute of Biological Sciences is a professional organization representing about 250,000 biologists in some 200 professional biological organizations and museums across the country.

Based in Washington, DC, the Institute is dedicated to promoting biology in everyday life.

"My involvement with AIBS has helped bring more national attention to SDSU and the Northern Great Plains," said Berry.

The Institute and the National Science

Foundation are placing one of 19 ecological observatories on the prairies near Jamestown, N. D.

Researchers in South Dakota will have opportunities to be involved with the North Dakota site.

But the biggest advantage for the state, according to Berry, will be for high school and college science classes to link by satellite to the observatory and the network.

Berry's immediate goal for South Dakota through his participation on the board is to participate in one of the Institute's newest programs, a nationwide celebration in 2009 as "The Year of Science."

"I'm looking for partners in other South Dakota colleges and universities, school districts, museums and industries to help the public better understand science and how we know what we know," said Berry.

A Maryland native, Berry received his bachelor's degree from Randolph-Macon College, Ashland Va., master's degree from Fordham University and Ph.D. from Virginia Polytechnic Institute.



Berry is employed by the U. S. Geological Survey and is Leader of the Survey's South Dakota Cooperative Fish and Wildlife Research Unit at SDSU.

For more information on ABIS or the observatory in North Dakota, contact Berry at [Charles.Berry@sdstate.edu](mailto:Charles.Berry@sdstate.edu).

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