

Fisheries and Aquatics Bulletin

*A publication of the U.S. Geological Survey,
Fisheries: Aquatic and Endangered Resources (FAER) Program*

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Fall 2004, Edited by Robin M Schrock

From the Assistant Program Coordinator's Desk



Scouts at USGS Openhouse

The **USGS 2004 Openhouse** was held October 9 at the USGS National Center in Reston, Virginia. The Fisheries: Aquatic and Endangered Resources Program sponsored a booth highlighting the Science Centers and projects that conduct research on macroinvertebrates, mussels, aquatic diseases, and fishes. Special exhibits demonstrated the anadromous life history of salmon, and GIS tools for aquatic habitat mapping. The Florida Integrated Science Center provided fantastic bookmarks that featured photographs and facts about

aquatic organisms ranging from the bluenose shiner, to invasive snakeheads, and manatees. The barrage of questions about life history traits of the many species found in the exhibit from even the youngest visitors demonstrates how early we can recruit young scientists. Visitors were referred to individual Center websites for more specific information about their areas of interest.

Science Features



Razorback suckers

The USGS Teams-Up to Save Endangered Fish

Researchers from the USGS Fort Collin Research Center are working with researchers from the Fish and Wildlife Service, Bureau of Land Management, Bureau of Reclamation, National Park

Service, Arizona Game and Fish Department, California Department of Fish and Game, and Arizona State University in a study and repatriation of endangered bonytail and razorback sucker, two fish species found in the lower Colorado River. Scientists are currently creating refuge communities where these fish can live unmolested and produce young. Otherwise, the young fish would be eaten by introduced game fish as soon as they hatch. Biologists are capturing the larvae which are raised in protective care until they reached a size large enough to survive predation after release. USGS is leading the study on Cibola High Levee Pond, the only location in the world where these fish are producing young together. Information on spawning and early life stage requirements will be used to help construct additional refuge ponds and develop effective management plans. These activities are an important contribution to Upper Colorado River Recovery Program and the Lower Basin Multi-Species Conservation Plan efforts to reintroduce or augment existing populations. Reports from this and other related projects are online at: www.fort.usgs.gov/products/publications/21085/21085-A.pdf www.fort.usgs.gov/products/publications/21201/21201.asp).

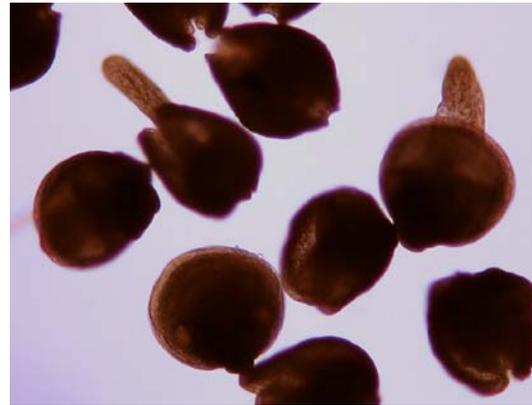


Cibola Pond

Outreach programs have been developed to inform the public about environmental problems and challenges that affect these unique species.

www.fort.usgs.gov/products/publications/10026/10026.pdf.

Missing Link Found for Endangered Native Mussels



Winged mapleleaf mussel (*Quadrula fragosa*).

Freshwater mussels are the most imperilled group of animals in North America. The winged mapleleaf mussel (*Quadrula fragosa*), a federally listed endangered species since 1991, exists only as a remnant population in a 20-kilometer reach of the lower St. Croix River bordering Minnesota and Wisconsin. Extensive surveys of this reach have found less than 100 individuals. One critical data gap identified by the U.S. Fish and Wildlife Service's Winged Mapleleaf Recovery Team is a lack of knowledge of the fish hosts needed to transform mussel larvae into juveniles. During 1997-2002, a team of biologists evaluated over 60 fish species (comprising 14 taxonomic families) but none were successful hosts. In 2002, the Upper Midwest Environmental Sciences Center received funds from the USGS Science Support Program to identify fish hosts, but no

gravid (fertile) females were found that year. In 2003-2004, several gravid females were found. Scientists from the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and the University of Minnesota were able to successfully transform winged mapleleaf larvae on two species, blue catfish and channel catfish. Over 25,000 juveniles were produced that were ultimately returned to the St. Croix River. This research supports one of the main program goals of the Fisheries and Aquatic Endangered Resources Program to provide science support to natural resource managers by investigating the factors that contribute to the conservation and recovery of aquatic species at risk. These findings were presented at five regional and national scientific conferences and a final report was written and distributed to the Winged Mapleleaf Recovery Team and to biologists and managers in the U.S. Fish and Wildlife Service. The newly identified fish hosts are being used by the U.S. Fish and Wildlife Service's Genoa National Fish Hatchery to artificially propagate mussels to augment, re-establish, and recover winged mapleleaf populations within its historic range. For example, in October 2004, over 100 channel catfish were infected with mussel larvae that should transform into juveniles next spring.

For more information about this research contact: Teresa Newton
tnewton@usgs.gov or go to
<http://www.umesc.usgs.gov/>

Show Off Your Mussels!



Fragile papershell mussel (*Leptodea fragilis*)

New Publications !



Black carp (*Mylopharyngodon piceus*)

The November 5, 2004 issue of **Science** features an article, "Expanding trade with China creates ecological backlash", about the growing potential for bilateral exchange of invasive species between the US and China. The USGS was a cosponsor of the Beijing International Symposium on Biological Invasions held in June 2004, where international experts gathered to discuss strategies to halt the invasions and potential ecological and economic consequences from this two-way traffic. Exotic fishes and other aquatic invaders are transported in commercial shipments or in ballast water. Asian carp have been extremely successful in establishing themselves in North American waters.

Black Carp: Biological Synopsis and Risk Assessment of an Introduced Fish

AFS Special Publication 32
AFS has released a new publication on the black carp, a mollusk eating Asian fish. Authored by Leo G. Nico, James D. Williams, and Howard L. Jelks of the USGS Florida Integrated Science Center (FISC), the book includes information on other Asian carp species including bighead carp, silver carp and grass carp. The book can be ordered through the AFS Online Bookstore at:
<http://www.fisheries.org>

Go to <http://fisc.er.usgs.gov/> to find out more about integrated science projects at FISC.

The American Fisheries Society recently released **[Aquatic Protected Areas as Fisheries Management Tools](#)** Symposium 42, J. Brooke Shipley (ed). The proceedings from the 2003 AFS Annual Meeting symposium of the same name includes articles on the design and selection of aquatic protected areas; legal, economic and management issues; and evaluations of the effectiveness of the areas. Case studies were also presented. Purchase through the AFS Online Bookstore at: <http://www.fisheries.org> For information on the USGS **Testing the Effectiveness of a High Latitude Marine Reserve Network** project at the Alaska Science Center (featured in the December 2003 of the Fisheries and Aquatics Bulletin) view the website: http://www.absc.usgs.gov/glba/marine_reserves.htm

[Improving the Use of the "Best Scientific Information Available" Standard in Fisheries Management.](#)

The National Research Council (NRC) has released this excellent examination of the current status of "best scientific information available" to develop a useful definition and to explore approaches to help improve and facilitate the application of science in fishery management. Recommended guidelines were based on recent court cases regarding applications of scientific data to management questions, a very interesting read. Criteria for scientific information that is to be applied in management include: relevance, inclusiveness, objectivity, transparency and openness, timeliness, and peer review. The compact 105 pages, a must read for all fishery professionals, was produced by the NRC Ocean Studies Board: <http://dels.nas.edu/osb/>

Go to Great Links

Several websites to scan at your leisure and keep yourself informed!

The **[Nonindigenous Aquatic Species](#)** information resource of the USGS <http://nas.er.usgs.gov/AlertSystem/default.asp> has been established as a central repository for accurate and spatially referenced biogeographic accounts of. Provided are scientific reports, online/realtime queries, spatial data sets, regional contact lists, and general information for the United States. The data is made available for use by biologists, interagency groups, and the general public. A user friendly Sighting Report Form is available for fishery and aquatic professionals to report a sighting by actual location and date.

You can now follow development of the **[National Fish Habitat Initiative](#)** at <http://www.fishhabitat.org/> The Sport Fishing and Boating Partnership Council, the International Association of Fish and Wildlife Agencies, the US Fish and Wildlife Service and other Federal agencies, States, tribes, partners and stakeholders are working together to develop a National Fish Habitat Plan. The Plan will foster geographically-focused, locally driven, and scientifically based partnerships that will work together to protect, restore, and enhance aquatic habitats and reverse the decline of fish and aquatic species.

[USFWS launches website for their aquaculture drug program](#)

<http://fisheries.fws.gov/aadap/> will keep you posted on the USFWS Aquatic Animal Drug Approval Partnership Program. In cooperation and

coordination with USGS and the USDA-Agricultural Research Service, the USFWS conducts FDA required research to fulfill FDA-Center for Veterinary Medicine stringent guideline to gain approval of drugs for use in public and private aquaculture.

Researchers and fishery managers are encouraged to review the information at: <http://www.fda.gov/cvm/index/aquaculture/aqualibtoc.htm>

A list of approved drugs and their permitted uses are available at the site.

Meeting Notes

Science for Watershed Conservation



Lake Baikal and Selenga River Delta at Istomino

The international **Science for Watershed Conservation** conference was held September 3-8 in UlanUde, Buryatia, Russia, and UlanBataar, Mongolia. The conference brought together international experts with an interest in providing support for coordinated conservation efforts for Lake Baikal and its largest tributary, the Selenga River. Scientific presentations and round table discussion were held at both locations, and specialists toured research laboratories and field sites in their areas of interest. Fisheries experts discussed the merits of supplementation programs for the Omul salmon

Coregonus autumnalis) and the Baikal sturgeon (*Acipenser baerii baicalensis*).

Over 200 presentations by academics and natural resource managers were synthesized in discussions of multidisciplinary and transboundary approaches for management of the Lake Baikal and its watershed, with the Selenga River stretching from Mongolia to the delta in Buryatia, Russia. For an electronic copy of the two volume conference abstracts contact:

robin_schrock@usgs.gov

IAFWA, the International Association of Fish and Wildlife Agencies held its 94th Annual Meeting in Atlantic City, New Jersey September 26 - October 1, 2004. Several Committee Meetings dealt with topics especially relevant to fishery professionals: Science & Research, Fisheries and Water Resources, Fish and Wildlife Health, Threatened and Endangered Species, and the Invasives Species Advisory Group. An Aquaculture Drug Approval meeting afforded the states, Federal researchers and Center for Veterinary Medicine (Food and Drug Administration) an opportunity to get updates on the status of different drugs that are being developed for applications in fish culture. The central focus of the Fisheries and Water Resources meeting was on the National Fish Habitat Initiative. The ESA update at the Threatened and Endangered Species meeting revealed the inclusion of hatchery fish in listings if they will contribute to long-term recovery efforts. For information on ESA listings go to: <http://endangered.fws.gov/wildlife.html#Species>

Biological Resources Staff Updates

Chief Scientist for Biology

Dr. Robert C. Szaro, is the new Chief Scientist for Biology in the USGS. Bob has a long government career, most recently serving as the Deputy Station Director for the USDA Forest Service's Pacific Northwest Research Station in Portland, Oregon. He was responsible for the leadership, oversight and management of the research station with more than 500 employees and a total budget of \$55 million.

Bob's full and well rounded career began with a Bachelors in Wildlife and Fisheries at Texas A&M. He earned a Masters in Zoology at the University of Florida. A doctorate in Ecology from Northern Arizona University was followed by the Senior Executive Fellows program at Harvard University. His equally interesting professional career began as a Research Wildlife Biologist with the U.S. Fish and Wildlife Service in Laurel, Maryland, before he moved to take a position as a Research Ecologist with the Forest Service in Tempe, Arizona. He has authored more than 120 papers and edited three books on the conservation of biodiversity, sustainable resource management and the implementation of ecosystem management. He served from 1989-1996 in the Forest Service's National Headquarters in Washington, DC, including positions as Ecosystem Research and Biodiversity Specialist, Research Budget Coordinator, Special Assistant to the Deputy Chief for Research on Ecosystem Management, and Special Assistant to the Chief on the "Ecological Stewardship Project."

Bob moved on the international arena by serving as the Coordinator for the Special Programme for Developing Countries of the International Union of Forestry Research Organizations (IUFRO-SPDC) and the Agricultural Attaché (Forestry) for the U.S. Embassy in Vienna, Austria from 1996-2000. He was responsible for forestry research capacity building efforts throughout the developing world with particular focus primarily on Africa, Asia, and Eastern Europe.

In addition to his new duties as Chief Scientist, Bob is currently on the Editorial Advisory Board for the journal "Landscape and Urban Planning". He served on the U.S. Delegation to the Biodiversity Convention, lead efforts for the World Bank and Global Environment Facility on biodiversity conservation in production forests, and served on the National Research Council Committee on "Biodiversity Conservation in Transboundary Protected Areas in Poland, Czech Republic, Slovakia, Belarus, and the Ukraine."

We welcome Bob and look forward to his leadership and participation in the USGS experience.

Suzette Kimball Appointed Eastern Regional Director

Congratulations to Suzette Kimball who has been appointed as the Acting Eastern Regional Director, following the recent retirement of Bonnie McGregor. As the former Eastern Regional Executive for Biology, Suzette brings a fresh and innovative biological perspective to the Director's position. Suzette was very effective and nationally renowned in proposing an array of biological issues in the Southeastern US,

especially in the coastal and near shore environment. We are excited about Suzette's promotion to Regional Director and look forward to her enthusiastic leadership.

New US Fish and Wildlife Service Liaison to USGS



Gary Frazer is on-board since early October in the newly established position of USFWS liaison to USGS. While his office is physically located within BRD at the USGS National Center in Reston, he will be working with all USGS disciplines to help establish and strengthen communications and partnerships in support of FWS science-based management needs. Prior to assuming this new position, Gary was the Assistant Director for Endangered Species at the U.S. Fish and Wildlife Service's headquarters in Washington, D.C., where he was responsible for policy development and management of all aspects of the Endangered Species program.

Gary started his career with the Service in 1984 as a field biologist in an Ecological Services field office in Virginia. He transferred to the Washington Office in 1989, initially as a staff person for wetland regulatory issues. While in Washington he spent a year on detail to the Senate Environment Committee, served as acting deputy chief for the Division of Habitat

Conservation, and then worked as special assistant to the Assistant Secretary for Fish and Wildlife and Parks for 3 years. He left Washington in 1994 to become field supervisor of the Ecological Services field office in Columbia, Missouri, but returned to Washington in 1998 as Deputy Assistant Director for the Ecological Services program. He was promoted to Assistant Director for Endangered Species in 1999.

Gary earned an M.S. degree in Forestry with a Wildlife Specialty from Purdue University, and a B.S. in Fisheries and Wildlife Biology from Iowa State University. He was born and raised in a small farming community in southeastern Iowa.

Please don't hesitate to contact Gary if you have questions about FWS, opportunities for FWS, etc., or just to introduce yourself or your office. He can be reached at (703) 648-4059 or at Gary_Frazer@fws.gov.

Dr. Gregory Smith Accepts Center Director Position at the National Wetlands Research Center

Greg, the former Program Coordinator of the BRD Wildlife: Terrestrial and Endangered Resources Program now directs the NWRS in Lafayette, Louisiana. During his tenure as the Wildlife PC, Greg was instrumental in organizing the 2004 international *Science for Watershed Conservation* conference that was held September 3-8 in UlanUde, Buryatia, Russia, and UlanBataar, Mongolia. The conference brought together international experts with an interest in providing support for coordinated conservation efforts for Lake Baikal and its largest tributary, the Selenga River. Scientific presentations

and round table discussion were held at both locations, and specialist toured research laboratories and field sites in their areas of interest. Fisheries expert discussed the merits of supplementation programs for the Omul salmon (*Coregonus autumnalis*) and the Baikal sturgeon (*Acipenser baerii baicalensis*). Greg's was also a leader in national efforts to organize research and strategies to characterize and combat Chronic Wasting Disease. He will now bring these talents to wetlands research. For more information about wetlands research in the USGS, check out the National Wetlands Research Center site: <http://www.nwrc.usgs.gov/>

Dr. Robert Gresswell Relocates to the Northern Rocky Mountain Science Center

Bob Gresswell has transferred from the Forest and Rangeland Ecosystem Science Center to NRMSC. While at FRESC, Bob studied interrelationships among physical, chemical, and biological characteristics of terrestrial, riparian, and aquatic systems, especially at broader spatial scales. Evaluations of the distribution and relative abundance of coastal cutthroat trout through time allowed identification of characteristic of areas that more frequently support higher of the fish. Variation in distribution patterns among watersheds reflected diverse environments and selective factors - geology, geomorphology, climate, and land-management history. Quantification of links between habitat restoration and response of native populations of coastal cutthroat trout (*Oncorhynchus clarki clarki*), the location, life-history form (e.g., anadromous or nonanadromous),

estimated size, and likelihood of persistence for existing populations in Oregon and Washington needed to be identified. Coastal cutthroat trout historically occurred throughout coastal drainages of Oregon and Washington and in most lower Columbia River tributaries east to Fifteenmile Creek in Oregon and the Klickitat River in Washington. Sea-run populations of cutthroat trout once supported robust recreational fisheries and in the lower Columbia River, for example, coastal cutthroat trout supported a large sport fishery as recently as 1985. Sport-angler catch and effort has dramatically declined and throughout their range, sea-run cutthroat trout have declined in the past 20 years. The research demonstrated the need to view fish habitat as matrix of physical sites critical to the fitness and persistence of fish populations that are linked by movement. Results are helping the BLM make land-use decisions with better regard for their effects on coastal cutthroat trout populations and habitats. For more information contact Bob at: bgresswell@usgs.gov and read the latest publications highlighting links between terrestrial and aquatic processes:

Beschta, R.L., Rhodes, J.J., Kauffman, J.B., Gresswell, R.E., Minshall, G.W., Frissell, C.A., Perry, D.A., Hauer, R., 2004, Postfire management in forested public lands of the western USA: *Conservation Biology*, v. 18, no. 4, p. 957-967.

Keim, R.F., Price, A.B., Hardin, T.S., Skaugset, A.E., Bateman, D.S., Gresswell, R.E., Tesch, S.D., 2004, An annotated bibliography of selected guides for stream habitat improvement in the Pacific Northwest: Corvallis, OR, Forest Research Lab, College of Forestry, Oregon State University, 32 p.

For more information on ecological and ecosystems research in the USGS, check out these related sites:

Forest and Rangeland Ecosystem Science Center <http://fresc.usgs.gov/>
Northern Rocky Mountain Science Center <http://www.nrmssc.usgs.gov/>

Job Announcements

The University of Mississippi. Faculty positions in Animal Physiology and Development/Evolution

The Department of Biology at The University of Mississippi seeks two tenure track Assistant Professors. Candidates must have a Ph.D. degree in a biological field; the ability to establish and maintain a nationally competitive research program; and a commitment to teaching excellence at the undergraduate and graduate levels.

For more information see:

<http://www.olemiss.edu/depts/biology/>
<http://www.oxford.k12ms.us/> and
<http://www.oxfordms.com/glance.asp>

Please visit the Online Employment Service at www.jobs.olemiss.edu

USDA Forest Service Physical Scientist (Ground Water Program Leader)

WO-National Forest System Deputy Area; Minerals and Geology Management Staff Arlington, VA.
GS-1301-13/14 Full-Time, Permanent

The Forest Service is seeking qualified applicants for a new position of National Ground Water Program Leader. This is a shared position between the Minerals and Geology Management (MGM) Staff, under the Assistant Director, Minerals and Geology, and the Watershed, Fish, Wildlife, Air, and Rare Plants (WFW) Staff, under the Assistant Director,

Watershed, Fish & Air, and located in the Washington Office. The incumbent will be the program expert responsible for ground-water resources and hydrogeology, providing authoritative advice to the Director of Minerals and Geology Management; the Director of Watershed, Fish, Wildlife, Air, and Rare Plants; and the Chief and Staff at the agency headquarters level and below on resource management-related issues and policy. The incumbent will be responsible for developing an emerging ground water resource management program into a full national level program. He/she will provide consultation and expertise on ground water inventory and monitoring, hydro geologic settings, and physical and chemical aspects of ground water.

For specific technical information about the job you may contact Michael Burnside on (703) 605-4788.

For information about the application procedure you may contact Human Resources Customer Service on (703) 605-0816. Refer to Vacancy Announcement WO-0587-04G (TK) or Recruitment Notice WO-0587-04D (TK)

Share Your Expertise through the Fisheries and Aquatics Bulletin

Communicate your fisheries and aquatic resources items of interest to gain national exposure. Thanks to all those who contributed material to this issue of the FAB. To send articles and photographs:

Contact: robin_schrock@usgs.gov
FAER Asst. Program Coordinator
or Jim Preacher, FAER Program Coordinator at jpreacher@usgs.gov.
<http://biology.usgs.gov/farp/index.htm>