



# Fisheries and Aquatics Bulletin

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Fisheries: Aquatic and Endangered Resources (FAER) Program  
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## **From the Program Coordinator's Desk FAER 5-year Planning Meeting Highlights**

**The future of the Fisheries: Aquatic and Endangered Resources Program for the next five years was pondered and planned at a two-day meeting held in Las Vegas, Nevada, November 5 & 6, 2003. Twenty-nine fisheries and aquatic science research scientists, representing all Science Centers that receive FAER program funds, as well as scientists selected by other Centers, the Central Region, the Alaska CRU, and NBII, pursued new science goals to represent ongoing research that is applicable to the current FAER program goals. The FAER Advisory Committee attendees represented a broad range of biological approaches to fisheries and aquatic resources research, as well as a good cross section of the demographics of the BRD. The meeting, organized by Deborah Barthello, was facilitated by Carolyn Bell of the Director's office, with James Preacher, FAER Program Coordinator, and Robin Schrock, Assistant Program Coordinator present to provide information about Bureau, BRD, and current program goals.**

The scientists areas of expertise represents the broad range of approaches needed to fulfill FAER Program science goals: behavioral ecology, stress physiology, juvenile fish ecology, conservation biology, molecular systematics, phylogeography, fish ecology, genetics, growth and survival, fish population dynamics, aquatic science, large river ecosystems, fish biology and fish health, aquaculture, aquaculture drugs, chemicals in fish management, environmental stress & contaminant effects on reproduction, sediments, population monitoring, fish-habitat hydrology relations, introduced species, social science and public affairs, aquatic habitat modeling, threatened/endangered species, nutrition & nutritional toxicology, food webs, exotic species, recovery of species & habitats.

The professional history of FAER scientists was varied and interesting with ten scientists with over 20 years with USGS, another twelve with over 10 years, and six that had joined USGS in the last ten years. The winning combination of experience and fresh new ideas in such a broad range of biological science applications

guaranteed lively discussions, new approaches, and professional completion of the meeting goal in just two days. Your colleagues produced six new science goals for the FAER Program and are currently refining the goal statements, and developing science objectives under each goal on six specialized writing teams.

To request a copy of the meeting notes, contact [Robin\\_Schrock@usgs.gov](mailto:Robin_Schrock@usgs.gov).

### **Special Thanks to Dr. Richard Jachowski**

Dr. Richard (Dick) Jachowski, Center Director of the Northern Rocky Mountain Science Center (NRMSC), served as the Acting Chief Scientist for Biology at HQ from November 4, 2003 until December 5, 2003. Dick oversaw Biological Resources during the busy budget season. He represented Science staff in overseeing funding for research. Dick brought a tremendous amount of biological knowledge and managerial experience with him during his detail. Dick, thanks again and best wishes in beautiful Bozeman and at the NRMSC (<http://www.nrmsc.usgs.gov/>).

### **Welcome - Dr. Kay Marano Briggs**

Dr. Kay Marano Briggs recently joined USGS as the International Program Specialist for the Biological Resources Discipline (BRD). Her responsibilities include working with the Program Coordinators to develop a vision for international biological research activities by USGS. Kay provides daily updates on international science activities of interest to USGS scientists.

Kay conducted her doctoral research on extremophiles in highly sulfidic environments in submerged, collapsed caverns on Andros Island, The Bahamas. She came to USGS from the Department of Interior's Offshore Minerals Management Service where she worked as a Fisheries Biologist in the Environmental Division. In this position she worked with the offshore oil and gas industry, beach renourishment dredge operators, and other government agencies to minimize impacts of these operations on Essential Fish Habitat, fisheries and fish resources in the Gulf of Mexico, western Pacific and Beaufort Sea. Prior to this she worked as a contractor managing the NOAA funded Large Pelagic Survey for Atlantic tunas, sharks and billfish targeted by recreational and General Category anglers.

In addition to her work at USGS she collaborates on coral disease research with faculty at George Mason University in Fairfax, Virginia; the Coral Disease and Health Consortium; NOAA's Center for Coastal Environmental Health and Biomolecular Research and the University of Buffalo's Industry/University Center for Biosurfaces. She recently isolated a photosynthetic, anoxygenic, purple sulfur oxidizing bacterium from within a pathogenic microbial mat disease of boulder corals known as Black Band Disease. Further research determined that this organism has very strong bio-adhesion capabilities; much greater than that of the barnacle or Zebra mussel. This discovery could be useful in the development of future, stronger marine adhesives.

## Welcome - Sharon Gross

Sharon joins us in the BRD as the Assistant Program Coordinator for Invasive Species Program. Sharon previously worked for the U.S. Fish and Wildlife Service where she was the Branch Chief for the U.S. Fish and Wildlife Service Branch of Invasive Species in the Fisheries and Habitat Conservation Program. She also served as the Executive Secretary of the Aquatic Nuisance Species Task Force. Sharon has a B.S. in Biology from Salem College in West Virginia, and an M.S. in Biological Science from Marshall University, also in West Virginia. Before joining the government in 1991, she spent 9 years as an environmental consultant working on a variety of issues including the development of Rapid Bioassessment Protocols and Biological Criteria for the U.S. EPA. She served as the Coordinator of the ANS Task Force from 1991 (when it was formed) until 1994 when she transferred to California to work on California water issues with the Fish and Wildlife Service. She worked with the CALFED Bay-Delta Program (a state-federal consortium developing a long-term plan to address water management issues in the Sacramento/San Joaquin Bay-Delta) for 4 years and returned to Washington, D.C. in 1998 where she continued working on California water issues. She began working with the ANS Task Force again during the summer of 1999 and was named Chief of the Branch of Invasive Species in November 1999. The responsibilities of the Branch of Invasive Species were primarily to support the activities of the Aquatic Nuisance Species Task Force, implement the provisions of the

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (as amended, National Invasive Species Act of 1996), and implement the injurious wildlife provisions of the Lacey Act.

## Share Your Expertise through the Fisheries and Aquatics Bulletin

The “**FAB**”: **F**isheries and **A**quatics **B**ulletin is a great opportunity to publish your fisheries and aquatic resource articles and other items of interest to gain national exposure. Thanks to all those who contributed material to this issue of the FAB. To have your articles published in FAB -

Contact: [Robin\\_Schrock@usgs.gov](mailto:Robin_Schrock@usgs.gov) Asst. Program Coordinator  
or [Jim Preacher, FAER Program Coordinator at jpreacher@usgs.gov](mailto:jpreacher@usgs.gov).

## Fish Photo Op



*Returning adult salmon J. Seelye retired USGS*

## Seminars

Recent Seminars at the USGS Biological Resources Program offices featured research from Glacier Bay, the Upper Mississippi and the Columbia River. Check out the Center and Research Project websites to familiarize yourselves with the great work your colleagues are doing across the US. As we transition to Program-based research efforts, collaboration and integration among scientists from all our research centers will become more frequent.

## Marine Reserve Research in Glacier Bay National Park - Alaska

by Dr. T. James Taggart, ASC  
Glacier Bay Field Station



*Tanner crab with sonic tag*

In 1999, the US Congress created one of North America's largest temperate marine reserves by closing commercial fishing in parts of Glacier Bay, Alaska. Glacier Bay National Park and Preserve is dominated by the marine waters that make up nearly one fifth of the park's area. Starting in the late 1800's, the nutrient rich waters of Glacier Bay supported highly productive commercial fisheries. Throughout the world, "no-take marine reserves" are being promoted as effective tools for promoting the long-term sustainability and management of fisheries, while simultaneously meeting marine conservation goals and maintaining marine biodiversity. The formation of marine reserves in Glacier Bay National Park provides a unique opportunity for marine reserve research in a high latitude ecosystem. For the immediate future, there is a reserve network of five closed areas for Tanner crabs (*Chionoecetes bairdi*) and halibut (*Hippoglossus stenolepis*) while the entire bay proper is a reserve for red king crabs (*Paralithodes camtschaticus*) and Dungeness crabs (*Cancer magister*). The network of closed areas adjacent to

the open portion of the Bay provides a large-scale laboratory to study marine reserve effectiveness.

Research scientists from the Alaska Science Center are conducting surveys to determine the distribution and abundance of these species. Preliminary results demonstrate that distribution and abundance varied greatly across the reserve. The next step is to determine the movements of the population in relation to the reserve boundary. The retention of breeding adults in marine reserves is quantified as transfer rate and ASC has initiated a research program to measure how often animals enter and leave the protected areas. Long-term plans are to simultaneously measure the transfer rate among multiple reserves and the adjacent area remaining open to commercial fishing. Sonic-tags will be used within each of the reserve area and areas open to fishing to track movements. Data loggers act as acoustic gates along the reserve borders, and between sampling grids. The crabs will be tracked over the next 2 years to estimate how much time the population spends in the reserve and determine the transfer rate across the boundary. This study will evaluate the effectiveness of the East Arm marine reserve and develop predictions about long-term changes in the Tanner and king crab population structure inside the reserve. If the transfer rate is low, increases in body size and or population abundance in the reserve are expected.

Changes in size of Dungeness crab after fishing closure were also noted by US Geological Survey, the University of Alaska Fairbanks, and the National Marine Fisheries Service scientists who initiated a study in 1992 to document changes in the population structure of Dungeness crabs. Study sites were

selected inside and outside the proposed closure areas. In each subsequent year since the closure the number and size of male crabs has increased. In contrast, at a control site outside of the Park that is still open to commercial fishing, there was not a large shift in the size of male crabs. At all sites, female and sub-legal sized male crabs, the portions of the population not directly targeted by commercial fishing, did not increase in size or abundance following the closure. Our data demonstrate that a marine reserve can markedly increase the size of male Dungeness crabs and provide evidence that the changes in the male population were caused by a release from commercial fishing mortality. Fisheries that remove most of the large individuals from a population can select against genotypes that promote fast growth (Reznick et al. 1990) and slower growth can reduce productivity of fisheries (Conover and Munch 2002). If reserves protect adult animals so they have the opportunity to grow to a larger size and there is gene exchange between the reserve and the adjacent area, the genetic consequences of commercial fishing could potentially be mitigated by strategically located marine reserves (National Research Council 2001; Trexler and Travis 2000). The results of the research in Glacier Bay support the concept that marine reserves could help maintain genetic diversity in Dungeness crabs and other crab species subjected to size limit fisheries.

For information contact: S. J. Taggart, J. Mondragon, A. G. Andrews, or J. K. Nielsen at the Alaska Science Center. Visit: <http://www.absc.usgs.gov/> for more information about research at the Alaska Science Center

## New List Server

FishPass, a mailing list for professional discussion of the biological and engineering science of upstream and downstream fish passage. Areas of discussion include fish passage technologies, projects, swimming capabilities and behavior, and biological and engineering studies and events. There are currently about 300 subscribers to the list from more than 20 countries. You can subscribe to FishPass by sending an email to [Listserv@mail.orst.edu](mailto:Listserv@mail.orst.edu) with the following command in the body of the message: **subscribe FishPass firstname lastname**.

## Job announcement

The Pacific Island Network, Inventory & Monitoring Program currently has its Network Coordinator position open on the USAJobs website. The position is advertised as a GS-12, permanent, Full-Time, and interdisciplinary in the Ecologist, Physical Scientist, & Biologist series, duty-stationed at Hawaii Volcanoes National Park on the island of Hawaii.

Application materials must be submitted via the procedures specified in the vacancy announcement, available online at: <http://jobsearch.usajobs.opm.gov/> the USAJobs website. For the fullest consideration, you must submit a separate application for each of the separate position announcements: Ecologist (PGSO-03-151-A-DEU and PGSO-03-151-A-MPP), Biologist (PGSO-03-151-B-DEU and PGSO-03-151-B-MPP), and Physical Scientist (PGSO-03-151-C-DEU and PGSO-03-151-C-MPP). closing date is listed as Wednesday, Dec. 31 2003. Please share this information with any interested parties. For information about the Pacific Island Network and Inventory & Monitoring Program see: <http://www1.nature.nps.gov/im/units/pacn/>

# Science to restore at-risk fish populations: USGS partnering in the Pacific Northwest

by Patrick Connolly WFRC



*Wild steelhead, Wind River WA*

Recognizing that wild adult steelhead *Oncorhynchus mykiss* returning to the Wind River, WA, had dipped to perilously low levels and that watershed conditions needed improvement, a coalition of federal, state, and tribal cooperators was assembled to explore corrective actions. Actions taken since 1994 include: forming and coordinating a watershed council and technical advisory committee, conducting a watershed assessment, identifying and prioritizing habitat restoration projects, completing cooperative restoration projects, conducting pre- and post monitoring and evaluation, and encouraging community and school involvement. The goal of the project is to restore habitat conditions that will facilitate recovery of wild steelhead populations to numbers assuring their persistence and allowing for healthy expression of genetic and life history diversity. Personnel from multiple agencies (including US Geological Survey, US Forest Service, Underwood

Conservation District, US Fish and Wildlife Service, and Yakama Nation) were recognized for their efforts when awarded the Rise to the Future award by the U.S. Forest Service in 2001 for Collaborative Aquatic Stewardship. Efforts since 1998 have been largely supported with by the Bonneville Power Administration.

Researchers from the USGS Columbia River Research Laboratory are helping to fill critical science information gaps about production of juvenile steelhead in the basin. They are assessing stream habitat conditions, determining abundance of juvenile steelhead in tributary systems, and characterizing life history aspects of the steelhead population. Data show that the Wind River Watershed has diverse elevation and thermal gradients creating a broad range of physical habitat conditions for fish. Conditions in the ocean and the rich disturbance history in the watershed, including wildfire, logging, and damming, have had a large influence on the level and distribution of productivity and its annual variability. Findings have

been used by the USFS to determine types of and locations for active restoration activities that have included adding large woody debris, reconnecting stream channels with floodplains, and planting riparian vegetation. Passive restoration activities have also been integrated in the recovery efforts, which include promoting watershed stewardship and modifying angling regulations and seasons.

For information contact P.J. Connolly or J.H. Petersen.

Visit:

<http://wfrf.usgs.gov/research/research.htm> for more information about research at the Columbia River Research Laboratory and other facilities of the WFRF.

## **Fisheries and Aquatic Resources Information Node**

The Fisheries and Aquatic Resources Information Node (FAR see <http://far.nbii.gov/>) of the National Biological Information Infrastructure (NBII see <http://www.nbii.gov/>) has recently completed development of its 5 year strategic plan. A guidance group of individuals, consisting of representatives from the American Fisheries Society, USGS Regional Offices, USGS FAER program, USGS NBII nodes, US Fish and Wildlife Service, NOAA Fisheries, Trout Unlimited, Sport Fishing and Boating Council, Michigan State University, Conservation Management Institute, Pacific Marine States Fisheries Commission, Atlantic Coastal Cooperative Statistics Program and the states of Wyoming, Indiana and New York spent two days developing ideas that could be used to guide work on the FAR node in the upcoming years. The

group identified the following ideas as a broad mission for the FAR node: 1) serve and access fishery and aquatic databases, 2) link to fishery and aquatic resource information sites and 3) act as larger scale coordinating site for fisheries and aquatic resources standards. The goals developed for the FAR node included: 1) coordinate and provide access to information that permits multiple-scale analysis of the status and trends analysis of aquatic resources, 2) develop a clearinghouse for fisheries and aquatic resources information, 3) promote development of standards for fisheries and aquatic resources information, and 4) leverage existing programs and information systems to further develop fisheries applications. For more information or details about the FAR strategic plan please feel contact Doug Beard: [dbeard@usgs.gov](mailto:dbeard@usgs.gov)

## **Website Development**

The FAER Program is soliciting your recommendations for features you would like to see in the new FAER website. The site is under development as standards for BRD Program websites are being discussed. We are asking our scientists to recommend features that will help you access information from your colleagues, and more importantly, to share your research with other FAER, BRD, and USGS scientists as easily as possible. Search capabilities will be very important, as well as how and in what detail we characterize our research. 2004 will be an exciting year with new goals, new science directions, and a new public face. Be a part of it by forwarding your suggestions to: [Robin\\_Schrock@usgs.gov](mailto:Robin_Schrock@usgs.gov)

## Meeting Summaries

### **4th Annual USGS Conference on Science in Oregon and Washington**

Many of the scientific problems in the Pacific Northwest require expertise crossing the traditional discipline boundaries of biology, geology, mapping, and water. Indeed, multidisciplinary and ecosystem approaches are essential to meet the scientific challenges faced by the USGS. To help overcome the barriers associated with these discipline boundaries, USGS scientists primarily from Oregon and Washington have been meeting annually since 2000 to discuss research projects, present results, and develop and strengthen collaborative relationships. As a result of these meetings, attendees are more aware of the research being conducted in the Pacific Northwest and are better able to collaborate with experts in other disciplines to the benefit of their own investigations.

On October 7-8, 2003, more than 100 USGS scientists, as well as invited guests from other federal agencies, participated in the 4th Annual USGS Conference on Science in Oregon and Washington held in Troutdale, Oregon. The morning session included presentations on new technologies in data collection, such as applications and use of LIDAR, non-contact methods for measuring stream discharge, remote tracking of wildlife and fish, remote methods for measuring water temperature (FLIR), and research applications of GIS. The afternoon session addressed the effects of dams, including modification of the hydrologic regime, changes in water and sediment quality, alterations in fish habitat,

hazards, and implications of dam removal. There was also an afternoon poster session with various research topics, and evening presentations on the Columbia River 200 years ago - the findings of Lewis and Clark. The second day included a guided field trip to the Ridgefield Wildlife Refuge in Washington.

One of the first products of these conferences was a searchable directory of USGS scientists in the region, complete with research interests, contact information, and abstracts of their latest research. It is a tool that can be used to quickly locate expertise and therefore enhance cross-disciplinary research. Various collaborations among USGS scientists were strengthened or made possible as a direct result of past conferences and have resulted in technical assistance, and joint projects and proposals. More information on this year's conference can be found at: [http://oregon.usgs.gov/uo/usgs\\_conf/](http://oregon.usgs.gov/uo/usgs_conf/)

**Contact:** Dena Gadowski BR-Columbia River Research Laboratory (dena\_gadowski@usgs.gov) & Stewart Rounds of the Portland WRD (sarounds@usgs.gov)

### **National Partnership for the Management of Wild and Native Coldwater Fisheries**

The National Partnership for the Management of Wild and Native Coldwater Fisheries oversees research funded by the Whirling Disease Initiative to address the disease caused by the European parasite, the metazoan organism *Myxobolus cerebralis*. At the National Partnership meeting held in Bozeman,

MT in September 2003, research directions for 2004 were determined. The call for pre-proposals to address specific research needs determined at the meeting closed on December 8, 2003 and final proposals are due January 13, 2004. Information about whirling disease can be found at:

<http://water.montana.edu/topics/fisheries/whirling/default.htm>

with information about the Whirling Disease Initiative. The National Partnership consortium of public agencies and non-governmental organizations also evaluates other fisheries-health problems as potential subjects for integrated national research initiatives.

Whirling disease infects hundreds of streams in the United States and now affects wild salmonids and fish hatcheries in 23 states. In addition to the fish host, an aquatic worm host known as *Tubifex tubifex*, is found in certain types of sediments. The parasite damages cartilage and places pressure on the nervous system, killing young fish or causing infected fish to spin without control so that they succumb quickly to predators. Currently, attempts to eradicate the parasite and worm host can significantly damage the ecosystem.

### **Upcoming Meetings**

The American Geophysical Union's **12th Ocean Sciences Meeting** will be held for the first time in **Portland, Oregon, 26-30 January 2004**, at the **Oregon Convention Center**. Join your colleagues by submitting your session proposal and abstract and participating in this exciting event! Registration deadline is December 29, 2003. Check out the meeting site:

<http://www.agu.org/meetings/os04/>  
Themes for the 2004 meeting include: Observing Systems and Technology, Paleoclimatology and Paleoceanography, Coastal Ocean Processes, Ecosystem Modeling, Ocean Physics, Climate Influences, and Education. Sessions on climate and fisheries, and characteristics of near coastal areas will be of special interest to fishery scientists.

**4th World Fisheries Congress** will be held in **Vancouver, B. C., Canada, May 2-6, 2004**. The international congress, sponsored by the American Fisheries Society features sessions on [Reconciling Fisheries with Conservation: The Challenge of Managing Aquatic Ecosystems](#). The meeting focuses on how fish are valued, ownership, achieving benefits, and the management of fisheries ecosystems. Session descriptions and speakers can be viewed at:  
[http://www.worldfisheries2004.org/program/program\\_sessions.htm](http://www.worldfisheries2004.org/program/program_sessions.htm)

**2nd National Conference on Coastal and Estuarine Habitat Restoration** will take place at the Washington State Convention & Trade Center and the Grand Hyatt Seattle  
**September 12-15, 2004 · Seattle, Washington.**

Check:  
<http://www.estuaries.org/2ndnationalconference.php> for more information about the conference, and to view proceedings from the Inaugural National Conference on Coastal and Estuarine Habitat Restoration that was held April 13-16, 2003 in Baltimore, Maryland.