

Fisheries and Aquatics Bulletin



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Edited by Janet A Cushing

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From the Editor's Desk

As we enter the changing of the seasons and a new fiscal year, it's a good idea to take a deep breath and see where we've been and where we're heading. Near the end of the fiscal year many of us headed to the Annual Meeting of the American Fisheries Society to mix and mingle, give presentations on our research, listen to other fascinating presentations, and to meet with others to collaborate on future projects. In some respects, it brings to my mind the image of a yearly migration at which are laid the eggs of new ideas.

The AFS Meeting also provided a wonderful opportunity to highlight the research our USGS scientists are doing. There were at least 40 presentations by USGS scientists at this year's meeting. Given the number of sessions at any particular time (22-26 sessions!), it's virtually impossible to hit all the USGS talks. USGS fisheries and aquatic research was also highlighted at the joint Ecological Society of America and Society for Ecological Restoration Meeting, and at the Diadromous Fish Symposium. You can read about those highlights in the Meeting Notes section of this issue.

Looking ahead, the public's access to our research is expanding. Not only has our revamped Fisheries: Aquatic & Endangered Resources Program website been online for a few months, but in the near future, the public will be able to query our project database (BASIS+) on-line to read the project and task narratives. This feature is already accessible for the Status and Trends Program projects. So now would be a great time to review and update your project and task narratives.

In case some of you are wondering if the public, outside of natural resource management agencies, are keeping an eye out for our science, consider this scenario: science related to your research being the theme on an episode of a popular television drama. This scenario actually played out on the October 18th episode of CSI (the one set in Las Vegas). On that show, there was a mystery surrounding one of the victims, a teenage boy, in that he was found to be

growing mammary glands. As it turns out, the crime scene investigators discovered that the boy was being affected by the water from the wastewater treatment plant because of endocrine disruptors. One of the characters involved was researching contaminants in carp, and there was mention of the intersex fish in the Potomac River. Granted, this episode combined fact with fiction, but it shows that the public is interested in our science. Just something to keep in mind as we begin FY 2008.

Inside this issue:	
DIVERS COMPLETE 42 MILE FISH SURVEY OF	3
SCIENCE CENTERS IN THE NEWS	4
NEW PUBLICATIONS	5
NFHAP NEWS	6
JOB ANNOUNCEMENTS & FUNDING OPPOTUNITIES	7
MEETING NOTES	7
UPCOMING MEETINGS	9
GO TO GREAT LINKS	9

Science Features:

Fire and Fish: Understanding Resilience in the Face of Massive Disturbance

-Jason Dunham, USGS Forest and Rangeland Ecosystem Science Center

Research by the USGS and colleagues shows that some physical characteristics of stream habitats can remain altered for many years following wildfire, but that native fish can be resilient to such change. In a land-management context, this finding suggests that wildfire may be less of a threat to native species than those human influences that alter the capacity of vertebrates in streams to persist in the face of natural disturbance.

Extensiveness and severity of forest fires in the western United States has increased in recent years. Besides burning vegetation within watersheds, wildfire can lead to increased erosion on hill slopes and within stream channels, sometimes resulting in dramatic flooding and debris flows. These events can

Fisheries and Aquatics Bulletin

completely reorganize stream channels and even extirpate biota. For example, Gila trout (*Oncorhynchus gilae*), a species listed as Threatened under the Endangered Species Act, was extirpated from habitats in the southwestern United States in situations where fragmentation and isolation of populations heightened their susceptibility to wildfire (Propst et al., 1992; Wondzell and King, 2003). Questions remain about how fire may affect fish and other stream aquatic vertebrates, especially where populations of aquatic species are less fragmented and less isolated than the case with Gila trout.

USGS Aquatic Ecologist Jason Dunham and collaborators from the U.S. Forest Service and University of Idaho examined the influences of wildfire and channel reorganization on both spatial and temporal variation in stream temperature and the distribution of fish and amphibians. Their work focused on stream temperatures in relation to wildfire in small streams in the Boise River Basin in central Idaho.

The scientists used before and after fire comparisons and a retrospective approach. In one case, stream



Scientists use electrofishing to sample in a tributary of the Boise River burned by the Hot Creek Fire in 2003. Following the fire, several meters of sediment were washed out of the channel by a debris flow. In spite of these major disturbances, fish can rapidly repopulate in this system. This stands in contrast to systems where connectivity and habitat quality have been lost and populations are less resilient to wildfire.

Photo credit: Joseph Benjamin, Forest Service

temperatures recorded at two sites in different streams were compared following a wildfire in one of the streams. In a second case, stream temperature recorded at 10 sites in two streams were contrasted with temperature measurements taken several years later following a severe wildfire in one stream. For the retrospective approach, they looked at spatial variability in temperatures using a “space for time” substitutive design across 90 sites in nine streams. Streams were included with a history of stand-replacing wildfire plus streams with severe post-fire reorganization of channels due to debris flows and flooding. Additionally, occurrence of native rainbow trout (*Oncorhynchus mykiss*) and tailed frog larvae (*Ascaphus montanus*) were investigated in relation to maximum summer stream temperatures.



Rainbow trout.

Photo credit: John R. McMillan, Oregon State University

The combined results indicated that summer maximum water temperatures can remain significantly elevated for at least a decade following wildfire, particularly in streams with severe channel reorganization. In addition, both rainbow trout and tailed frog larvae occurred in nearly every site sampled, and tailed frog larvae were found in much warmer water than previously reported in the field. Clearly, in spite of some dramatic physical changes to streams, these two vertebrates were remarkably resilient in terms of their distribution across the landscape.

Homeowners in forested landscapes often are advised to manage their property before fires occur in a way that reduces the risk of negative consequences should fire happen. Such an approach might also serve managers well when their interest is conservation of aquatic vertebrates in wildfire-prone areas. Allowing habitats and species to express the range of natural variability that has allowed them to persist for millennia prior to human influences may be more effective than focusing on wildfire itself as the threat. In fact, over the longer-term, many scientists believe that wildfire may be a critical process for maintaining conditions that support aquatic species. The challenge will be for land management to integrate these concepts and findings into fire-management plans, firefighting, and after-fire rehabilitation activities.

References:

- Propst, D.L., J.A. Stefferud, and P.R. Turner. 1992. Conservation and status of Gila trout, *Oncorhynchus gilae*. *The Southwestern Naturalist*, 37(2): 117-125.
- Wondzell, S.M. and J.G. King. 2003. Postfire erosional processes in the Pacific Northwest and Rocky Mountain regions. *Forest Ecology and Management*, 178: 75–87.

Editor's note: For more information please contact Jason Dunham, 541-750-7397, jdunham@usgs.gov. The full article may be found in Dunham, J.B., Rosenberger, A.E., Luce, C.H., Rieman, B.E. 2007. Influences of wildfire and channel reorganization on spatial and temporal variation in stream temperature and the distribution of fish and amphibians. Ecosystems, 10: 335-346.

Divers Complete 42 Mile Fish Survey of Elwha River, Washington

-Jeffrey Duda, Western Fisheries Research Center, Sam Brenkman, Olympic National Park, Jason Dunham, Forest and Rangeland Ecosystem Science Center, Christian Torgersen, Cascadia Field Station, Robert Hoffman, Forest and Rangeland Ecosystem Science Center

Two dams constructed on the Elwha River over 90 years ago dramatically changed the ecology of the river below the dams. Historically one of the most productive salmon producing rivers in the Puget Sound, the Elwha River once supported 10 runs - representing all five species of Pacific Salmon - that spawned throughout the basin. Built without fish passage, the lower Elwha dam limited salmon to the lower five miles of the river (Wunderlich et al., 1994).

The ecological effects of the dams on the Elwha ecosystem were large and cumulative. The reservoirs created by the dams (Lakes Mills and Aldwell) have acted as sediment traps, storing 13.8 and 4.0 million cubic yards of fine grained sediments (DOI 1996a). This has starved the lower river, the delta at the river mouth, and the nearshore and beach areas of material that would have naturally accumulated and receded. Instead, there has been considerable erosion in the nearshore areas of the Strait of Juan de Fuca (Warrick et al., accepted) and an armoring of the river bed (Pohl 2004) that has contributed to a reduction in spawnable areas remaining for salmon (Pess et al., accepted).

The anadromous fish community structure has changed from one dominated by pink salmon to one that is dominated by hatchery produced Chinook and coho salmon (DOI 1996b). Between the dams and above the upper dams, the loss of marine-derived nutrients may have affected aquatic communities as well as cross-boundary effects in riparian and upland areas (Gende et al., 2002). It is believed that many species of birds and mammals who feasted upon salmon carcasses may have suffered population declines (Cederholm et al., 2000).

Following passage in 1992 of the Elwha River Ecosystem and Fisheries Restoration Act, it was determined that the removal of dams on the Elwha River would best accomplish the goal of “full restoration of the native anadromous fisheries” (PL 102-495; DOI 1996b). The impending removal of the two Elwha River dams in Washington State has accelerated research and monitoring activities by various federal and state agencies, the Elwha Klallam Tribe, and universities. Researchers are seizing the opportunity to study the ecological effects of dam removal and track the restoration salmon populations. The baseline information will represent the existing conditions of a river ecosystem that dramatically changed over 90 years ago once the dams were constructed. The Elwha River opportunity is unique because the dams will be among the largest ever removed, a restored river could support large runs of salmon that are currently suffering population declines, and most of the watershed occurs within Olympic National Park.

One recent example of baseline data collection was a large scale snorkel survey – from the headwaters to the sea—for adult fish in the mainstem Elwha River during late August 2007. The 42 mile survey began at 2,250 feet, just above Chicago Camp in the upper Elwha Valley and ended at the sea where the river enters the Strait of Juan de Fuca. Twenty-one biologists from the National Park Service, U.S. Fish and Wildlife Service, USGS, NOAA Fisheries, Peninsula College, and the Wild Salmon Center participated in the survey. Unlike similar whole-river efforts that may occur over an entire summer, this survey of the Elwha was conducted in a single week. Using aerial reconnaissance, researchers determined the sections of the river accessible to snorkeling, avoiding narrow sections in three different canyons that were unsafe. Two teams were supported by pack animals, as they journeyed on foot into the wilderness for 17 or 25 miles before they could begin their survey.



The presence of salmon below the dams contributed to a higher species richness being found there than in sections between or above the dams. In the five river miles below the dams, divers observed Chinook, pink, and coho salmon, along with sculpin, bull trout, threespine stickleback, and starry flounder. Above the dams, only rainbow trout and bull trout were observed, while these species and the non-native brook trout were observed between the dams. In total, the divers observed 7,300 rainbow trout, 215 bull trout, 539 Chinook salmon, and 26 pink salmon. The data will begin to inform research questions related to the interaction of resident populations above the dam with re-colonizing salmon populations, as well as the overall recovery of salmon following dam removal.

Dam removal is expected to commence following the building of infrastructure to maintain the domestic water supply of Port Angeles, which has just begun. USGS researchers will continue to work collaboratively with their research partners to document the existing ecological conditions that are expected to respond to dam removal and the restoration of salmon populations.

References

Cederholm, C.J., D.H. Johnson, R.E. Bilby, L.G. Dominguez, A.M. Garrett, W.H. Graeber, E.L. Greda, M.D. Kunze, B.G. Marcot, J.F. Palmisano, R.W. Plotnikoff, W.G. Percy, C.A. Simenstad, and P.C. Trotter. 2000. Pacific salmon and wildlife- ecological contexts, relationships, and implications for management. Special Edition Technical Report, Prepared for D.H. Johnson and T.A. O'Neil, Wildlife-Habitat Relationships in Oregon and Washington. Washington Department of Fish and Wildlife, Olympia.

Department of Interior (DOI). 1996a. Sediment analysis and modeling of the river erosion alternative.

Elwha Technical Series, PN-95-9, Bureau of Reclamation, Pacific Northwest Region, Boise.

Department of the Interior (DOI). 1996b. Elwha River ecosystem restoration implementation, Final Environmental Impact Statement, Olympic National Park, Washington. Department of the Interior, Denver.

Gende, S.M., R.T. Edwards, M.F. Willson, and M.S. Wipfli. 2002. Pacific salmon in aquatic and terrestrial ecosystems. *BioScience*, 52(10): 917-928.

Pess, G.R., M. McHenry, T.J. Beechie, and J. Davies. Biological impacts of the Elwha River dams and potential salmonids responses to dam removal. *Northwest Science*. Paper accepted for publication in Elwha Special Issue.

Pohl, M. 2004. Channel bed mobility downstream from the Elwha dams, Washington. *The Professional Geographer*, 56: 422-431.

Warrick, J.A., G.R. Cochrane, Y. Sagy, and G. Gelfenbaum. Nearshore substrate and morphology offshore of the Elwha River. *Northwest Science*. Paper accepted for publication in Elwha River Special Issue.

Wunderlich, R.C., B.D. Winter, and J.H. Meyer. 1994. Restoration of the Elwha River ecosystem. *Fisheries*, 19:11-19.

Editor's note: For more information about this study, please contact Jeff Duda at jeff_duda@usgs.gov. Photo credit: Jeff Duda, USGS.

Science Centers in the News

USGS celebrates 35th Anniversary of Clean Water Act and Great Lakes Water Quality Agreement with Release of Lake Whitefish into Detroit River

The USGS Great Lakes Science Center (GLSC), in partnership with the Detroit River International Wildlife Refuge and Huron-Erie Corridor (HEC) Initiative members, celebrated the 35th anniversary of the Clean Water Act and Great Lakes Water Quality Agreement. The event included Dr. Leon Carl, director of the GLSC, as the "master of ceremonies," with Congressman John Dingell, Canadian Consul General to Detroit Robert Noble, and Canadian Member of Parliament Jeff Watson as guest speakers. John Hartig (FWS) and Rose Ellison (EPA) also spoke about the significance of

this anniversary. Thirty children from three high schools participated in releasing lake whitefish, key indicators of ecosystem health, into the Detroit River to highlight the progress that has been made since 1972. Approximately 100 people attended this very successful event.



High school children and Canadian Member of Parliament Jeff Watson releasing fish.

Photo credit: Thomas Savino

USGS Fishery Biologist Receives Presidential Rank Award

Dr. Carl Schreck, a world-renown endocrinologist and immunologist, and Fish Unit Leader of the Oregon Cooperative Research Unit, received the Meritorious Executive Rank Award. The Meritorious Executive rank is awarded to leaders for sustained accomplishments and is awarded to only five percent of SES and SL/ST employees. Award winners are chosen through a rigorous selection process. From across the country, agency heads nominated their best senior executives and professionals; citizen panels evaluated the nominations using evaluation criteria focused on leadership and results; and the President approved the winners.

New Publications

Nonnative Trout

Citation: Benjamin, J.R., J.B. Dunham, M.R. Dare. 2007. Invasion by Nonnative Brook Trout in Panther Creek, Idaho: Roles of Local Habitat Quality, Biotic Resistance,

and Connectivity to Source Habitats. *Transactions of the American Fisheries Society* 136:875–888.

This study investigates the variables representing habitat quality, biotic resistance, and connectivity to determine which were associated with the occurrence of nonnative brook trout (*Salvelinus fontinalis*) in Panther Creek, a tributary to the Salmon River, Idaho. Results suggest that source connectivity and local habitat characteristics, but not biotic resistance, influence the establishment and spread of nonnative brook trout populations.

Contaminant Biology

Citation: Lerner, D.T., B.T. Björnsson, S.D. McCormick. 2007. Larval Exposure to 4- Nonylphenol and 17 β -Estradiol Affects Physiological and Behavioral Development of Seawater Adaptation in Atlantic Salmon Smolts. *Environmental Science and Technology* 41: 4479-4485.

This paper addresses the potential of particular estrogenic compounds to cause population declines of anadromous salmonids. The researchers exposed Atlantic salmon yolk-sac larvae to Nonylphenol (NP), a xenoestrogen, and 17 β -Estradiol. Their results suggest that early exposure to environmentally relevant concentrations of NP, and other estrogenic compounds, can cause direct and delayed mortalities and that this exposure can have long term, “organizational” effects on life-history events in salmonids.

Aquatic GAP

Citation: Sowa, S., G. Annis, M. Morey, and D. Diamond. 2007. A GAP Analysis and Comprehensive Conservation Strategy for Riverine Ecosystems of Missouri. *Ecological Monographs*, 77(3): pp. 301–334.

The USGS National Aquatic GAP program was highlighted in the August 2007 issue of *Ecological Monographs*, a publication of the Ecological Society of America. The authors describe in detail how Aquatic GAP data and methods were used to select “Conservation Opportunity Areas” in Missouri, which have proven critical for biodiversity conservation and implementation of the State Wildlife Action Plan for Missouri. For more information, go to: http://www.gap.uidaho.edu/projects/aquatic/sowa_etal_2007_ecomonographs.pdf.

Sturgeon articles

The following articles published by authors from the USGS Columbia Environmental Research Center focus on various aspects of pallid sturgeon and their habitat. The articles, all found in a special issue of the *Journal*

of Applied Ichthyology (v. 23, no. 4) devoted to sturgeon, range from characterization of benthic habitat to reproductive characteristics of sturgeon to life history traits. To view the abstracts for these articles, go to: <http://www.blackwell-synergy.com/toc/jai/23/4>.

Citations:

Gaeuman, D. and R.B. Jacobson. 2007. Quantifying fluid and bed dynamics for characterizing benthic physical habitat in large rivers. *Journal of Applied Ichthyology* 23(4): 359-364.

Wildhaber, M.L., D.M. Papoulias, A.J. DeLonay, D.E. Tillitt, J.L. Bryan, and M.L. Annis. 2007. Physical and hormonal examination of Missouri River shovelnose sturgeon reproductive stage: a reference guide. *Journal of Applied Ichthyology* 23(4): 382-401.

Bryan, J.L., M.L. Wildhaber, D.M. Papoulias, A.J. DeLonay, D.E. Tillitt, and M.L. Annis. 2007. Estimation of gonad volume, fecundity, and reproductive stage of shovelnose sturgeon using sonography and endoscopy with application to the endangered pallid sturgeon. *Journal of Applied Ichthyology* 23(4): 411-419.

DeLonay, A.J., D.M. Papoulias, M.L. Wildhaber, M.L. Annis, J.L. Bryan, S.A. Griffith, S.H. Holan, and D. E. Tillitt. 2007. Use of behavioral and physiological indicators to evaluate *Scaphirhynchus* sturgeon spawning success. *Journal of Applied Ichthyology* 23(4): 428-435.

Bajer, P.G. and M.L. Wildhaber. 2007. Population viability analysis of Lower Missouri River shovelnose sturgeon with initial application to the pallid sturgeon. *Journal of Applied Ichthyology* 23(4): 457-464.

Braaten, P.J. and D.B. Fuller. 2007. Growth rates of young-of-year shovelnose sturgeon in the Upper Missouri River. *Journal of Applied Ichthyology* 23(4): 506-515.

Braaten, P.J., D.B. Fuller, and N.D. McClenning. 2007. Diet composition of larval and young-of-year shovelnose sturgeon in the Upper Missouri River. *Journal of Applied Ichthyology* 23(4): 516-520.

National Fish Habitat Action Plan News

Fish Habitat Partnerships

At the last National Fish Habitat Board meeting, the Board endorsed four Fish Habitat Partnerships. Those

four partnerships are: Eastern Brook Trout Joint Venture, Southeastern Aquatic Resources Partnership, Midwest Driftless Area Restoration Effort, and Matanuska-Susitna Basin Salmon Conservation Partnership. An invitation was sent to pilot and candidate fish habitat partnerships to apply for Fish Habitat Partnership status. The National Fish Habitat Action Plan calls for the creation of 12 or more Fish Habitat Partnerships by 2010.

National Fish Habitat Board

The National Fish Habitat Board met on October 2nd and 3rd in Washington, D.C. Dana Infante, from Michigan State University, presented an update on the National Fish Habitat Assessment, and further work that is necessary to finish the first assessment by 2010.

In other business, the Board discussed the 5-year staff plan and budget to meet the needs and priorities of the Board. A sub-committee of the Board was formed to work on finding needed resources. Also, the Board discussed the draft legislation of the National Fish Habitat Act.

Five candidate fish habitat partnerships gave presentations on their process for developing a partnership. These five were: Atlantic Coastal Fish Habitat Partnership, Desert Fish Habitat Partnership, Ohio River Basin Habitat Partnership, Southwest Alaska Conservation Coalition, and Midwest Glacial Lakes Partnership.

More information on the Board meeting, including briefing materials, can be found at <http://www.fishhabitat.org/nationalboard.htm>.

Science and Data

The National Fish Habitat Assessment Workshop occurred the morning of September 2, 2007, in conjunction with the American Fisheries Society Annual Meeting. This half-day workshop was well attended, with a diverse audience—approximately 60 people from Federal and State agencies, a Native American tribe, local government, state marine fisheries commissions, Pilot and Candidate Fish Habitat Partnerships (FHPs), conservation organizations, sport fishing organizations, and academia. After introductions and background presentations, the audience participated in the following question and dialogue sessions:

- Necessary Data and Scales for Data Collection;
- Roles of the FHPs in the Assessment; and
- Role of the Assessment in assisting the FHPs.

After receiving additional input, the Science and Data Committee will use the workshop results to assist in the completion of the Science and Data Framework Report

and will incorporate the results into the design of the National Fish Habitat Assessment.

The USGS will be sponsoring a workshop in the Spring of 2008 that will develop a list of key science and monitoring research needs for the NFHAP. The steering committee for this workshop consists of USGS researchers, members of the Science & Data Committee and NFH Board, and scientists from FWS, NOAA, and the States. Stay tuned!

Job Announcements & Funding Opportunities

Position Announcements

University of Alaska School of Fisheries and Ocean Sciences

The following faculty positions are now posted at <http://www.sfos.uaf.edu/employment/>. Please note the first review for all positions is **December 7, 2007**:

- Assistant Professor of Fisheries (# 0054133)
- Assistant Professor Fisheries (# 0054134)
- Assistant Professor of Fisheries (# 0054140)
- Assistant/Associate Professor of Fisheries (# 0054142)

Black-lipped Pearl Oyster Specialist, Marshall Islands Marine Resource Authority

The Marshall Islands Marine Resource Authority (MIMRA) is inviting applications for a full time Black-lip pearl oyster specialist. Duty station is Majuro, Republic of the Marshall Islands (RMI). The successful candidate will be responsible for running a commercial-scale pearl oyster hatchery in conjunction with training local staff in all aspects of pearl oyster larval and spat rearing. Other duties will include: coordinating and participating in applied research projects; liaising with farmers and government personnel; and occasional outer island and international travel. To receive the full announcement, contact Glen Joseph, Director, MIMRA, P.O. Box 860, Majuro, MH, 96960, Republic of the Marshall Islands or by email at: gjoseph@mimra.com.

Closing date for applications is December 15, 2007.

Funding Opportunities

RFP for Expanded Research Opportunities in Global Change in FY08

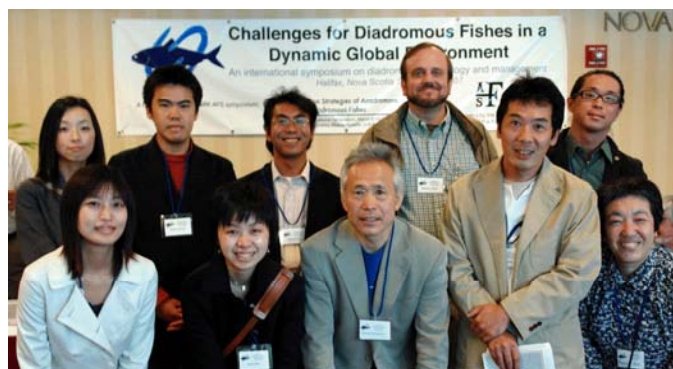
The USGS Global Change Science Program has put out a

Request for Proposals to all USGS scientists. Specific information regarding the Request, including details of the objectives, potential funding levels, selection criteria and process, and a timeline for completion, are included in the document Expanded Research Opportunities in Global Change Science–2008 (http://internal.usgs.gov/global_change/docs/usgs_fy08_global_change_rfp.pdf). **A letter of intent is due on October 31, 2007, and the submission deadline for all proposals is 11:59PM EST, November 30, 2007.**

Meeting Notes

USGS Supports Diadromous Fish Conference

On June 18, 2007, over 200 biologists, fisheries scientists, and managers convened at the Marriott Halifax Harbourfront Hotel in downtown Halifax, Nova Scotia, to attend the four-day international symposium, *Challenges for Diadromous Fishes in a Dynamic Global Environment*, sponsored by the American Fisheries Society Northeast Division. USGS supported the meeting with a generous donation of over \$5000 and over a dozen USGS scientists and their graduate students attended the meeting.



One of many international contingents attending the symposium: Katsumi Tsukamoto's group from the Ocean Research Institute, Tokyo, Japan

Building upon the very successful 1986 symposium, *Common Strategies of Anadromous and Catadromous Fishes*, the 2007 symposium focused on new aspects of biology, life history, migration, energetics, and population dynamics on this unique group of fishes, with a special emphasis on anthropogenic impacts and management in a changing global climatic environment. Presenters and attendees from over 20 countries heard over 40 talks on a diverse range of topics in six sessions, including Dynamic Nature of Diadromy, Climate Change and Anthropogenic Influences, Ocean Environment and Migration, Linkages With Ecosystem

Fisheries and Aquatics Bulletin

Energetics, Population and Habitat Restoration, and Management and Governance of Diadromous Fishes. Two excellent plenary talks were given by Dr. Robert McDowall of the National Institute of Water and Atmospheric Research, Christchurch, New Zealand and Dr. Thomas Quinn of the University of Washington, who, as attendees of the original 1986 meeting, also provided additional perspective in wrap-up talks at the end of the meeting. An extensive poster session featured over 60 posters, enough to support two poster socials!

Proceedings from the meeting will be published in the AFS Symposium series, to include full papers and extended abstracts from posters. Details of the meeting, including abstracts of both presentations and posters, can be found at the symposium website: www.anacat.ca, or contact the Symposium Chair, Alex Haro, at Alex_Haro@usgs.gov.



Symposium steering committee (L-R): Ken Beal, Ron Klauda, Rick Cunjak, John Cooper, Roger Rulifson, Christine Moffitt, Alex Haro, Mike Dadswell, Trevor Avery, Katherine Smith

Photo credits: Mike Miller, of the Ocean Research Institute, University of Tokyo.

Endocrine Disrupting Compounds—Monitoring Studies—2007 American Fisheries Society Annual Meeting

This symposium at the Annual Meeting of the American Fisheries Society in San Francisco covered results on monitoring effects of Endocrine Disrupting Compounds (EDC) in wild populations of fish. Coordinated by Alan Kolok of the University of Nebraska and Lou Reynolds of the U.S. Environmental Protection Agency, WV, the papers focused on laboratory studies and documented effects throughout the northern hemisphere. The following papers highlighted the role that USGS plays in this field of research.

- PCBs impaired physiological function and perform-

ance in anadromous Arctic charr. (Maule et al.)

- Intersex in sturgeon, reported since 1960, appears causally related to chemical contamination. (Papoulias et al.)
- Smallmouth bass at 5 sites in the Potomac River watershed were investigated by collaborators for evidence of endocrine disruption. (Guy et al.)
- Chemical and biomarker results with common carp collected in 2006 from several sites in the Lake Mead National Recreation Area are generally consistent with those of previous studies there showing association between presence of contaminants and effects on male reproduction. (Patiño et al.)
- Two types of passive water sampling devices (SPMD and POCIS) deployed at four sites in the Santa Ana River were used to assess the types and estrogenicity of organic compounds present. (Goodbred et al.)
- Studies of the quality of spermatozoa from western mosquitofish, smallmouth bass, common carp, and green swordtails from sites in the U.S. added to other evidence of endocrine disruption. (Jenkins et al.)

For additional information about this session, please contact Jill Jenkins at jenkinsj@usgs.gov.

Elwha River Restoration: Dam Removal, Ecological Framework, and Baseline Studies—2007 Ecological Society of America and Society for Ecological Restoration Joint Annual Meeting

At this year's Ecological Society of America annual meeting, held jointly with the Society for Ecological Restoration in San Jose, California, USGS scientists organized and contributed to an oral session devoted to the Elwha River restoration project. Billed as one of the largest projects of its kind, the removal of two long standing dams on the Elwha River in Washington State is focused upon restoration of salmon populations that once thrived in the watershed. Scientists from diverse agencies and institutions are collaborating and coordinating research and monitoring projects through an NSF-funded Elwha Research Consortium.

Over 100 people were in the audience listening to 10 presentations on a wide range of research topics. Jeff Duda from the USGS Western Fisheries Research Center presented stable isotope data collected from multiple trophic levels below, between, and above the dams. The goal of his research was to establish baseline levels of carbon and nitrogen stable isotopes in aquatic organisms that could be influenced by nutrients provided by salmon in areas with and without current

salmon populations. Pat Shafroth from the USGS Fort Collins Science Center also used a quasi-experimental approach of establishing riparian transects above, between, and below the Elwha River dams to determine the current status of the system in light of the altered fluvial geomorphic conditions. Jon Warrick of the USGS Coastal and Marine Geology Program in Santa Cruz summarized an on-going research program in the Elwha estuary and nearshore. His presentation summarized beach profiles, particle size distributions of the beach, and nearshore bathymetry, which all could be impacted by the release of large amounts of sediment following dam removal. This session highlighted the continued collaboration and cooperation among multiple federal, state, tribal, and academic partners and the role that USGS has played in these efforts.

For additional information about this session, please contact Jeff Duda at jeff_duda@usgs.gov.

Upcoming Meetings

Southeastern Fishes Council

On **November 8-9, 2007**, the Southeastern Fishes Council will convene their first conference in Chattanooga, TN. A special session with invited presentations will be devoted to various topics associated with *Captive Propagation for Reintroduction and Translocation of Imperiled Southeastern Freshwater Fishes*. Information from these presentations will provide the basis for a publication on guidelines for reintroduction/translocation of nongame imperiled southeastern fishes. To register, go to: <http://www.tnari.org/sfc.htm>.

Research Forum on Atlantic Salmon and their Ecosystems

This Forum (formerly the Maine Atlantic Salmon Technical Advisory Committee Research Forum) will be held on **January, 9-10, 2008** on the campus of the University of Maine in Orono, ME. This meeting provides an opportunity to present the latest results of research on Atlantic salmon and their habitat, including interactions with other fish species. For further information, contact Sharon MacLean, at Sharon.maclea@noaa.gov or 401-782-3258.

59th Pacific Fisheries Technologists Meeting

This meeting will take place **February 3-6, 2008** in San Francisco, California. The 2008 theme of this international meeting emphasizes bridging communication. The call for papers seeks presentations in: Aquaculture and Feeds, Biochemistry, Byproducts, Education and Extension, Engineering, Environmental Issues, Fish Harvesting and Handling, Marine Biology, Marketing, Microbiology,

Processing, Regulatory Issues, Safety, Shellfish, Value-added Products, Waste Management. The due date for submitting abstracts is **November 30, 2007**. Details regarding the meeting are available on the PFT home page at: <http://seafood.ucdavis.edu/pft2008>.

2nd International Tagging and Marking Symposium

This symposium, hosted by the American Fisheries Society, Australian Society for Fish Biology, and New Zealand Marine Sciences Society, will take place in Auckland, New Zealand, during **February 24-28, 2008**. This meeting offers a unique opportunity for the sharing of information on satellite and data logging tags, acoustic and radio telemetry, new methods using traditional internal and external tags, chemical and genetic marks, and innovative data analysis techniques. For more information, go to the following website: <http://www.fisheries.org/units/tag2008/abstract.html>.

Go to Great Links

<http://www.usgs.gov>

Fish Drug Analysis-Phish-Pharm 2006

The free searchable fish pharmacokinetics database "**Fish Drug Analysis-Phish-Pharm 2006**" has been updated and posted to: <http://www.fda.gov/cvm/addaquininfo.htm>. The database can be freely downloaded in the form of a Microsoft Office Access file that can be easily searched, a stand alone Access Application, or an Excel spreadsheet. The information in the database, including data from 124 species (95 genera), was gathered from over 400 articles. This database is a valuable resource to investigators of drug metabolism in aquatic species as well as government and private organizations involved in the drug approval process for aquatic species.

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