

# WFRC Research News

*(news you can use to thrive and survive)*

Editor: Gary A. Wedemeyer

Volume 3(2): July, 2004

## IN THIS ISSUE

▶ **Lab News You Can Use**

*by Lyman Thorsteinson*

▶ **The INTASS RoadShow**

*by John Emlen*

▶ **Where Have All The Herring Gone?**

*by Paul Herschberger*

▶ **Fish Biology in the “Big Ditch”**

*by Jim Petersen*

▶ **People in the News**

- *Visiting Scientist Dr. Serge Pavlov*
- *Congratulations Maureen!*
- *Water Rescue at MFS*
- *Columbia River Shad Derby*
- *Yasutake Honored*

▶ **Alumni News**

- *Clarence Johnson (class of 1985)*
- *Stan Smith (class of 1997)*

▶ **A Little Light Reading**

*by the WFRC staff*

## Lab News You Can Use

*by Lyman Thorsteinson*

Over the past 3 months the Center was fully engaged in program planning and development including activities such as convening Klamath Basin Science Conferences and participating in USGS integrated science efforts. We've also managed to hire new staff (*vice* Pascho), meet with USGS Director Groat, and participate in 5-year strategic planning for the FAER and Contaminants programs.

The Upper Klamath Basin Science Workshop was a multi-agency sponsored event by the USGS, FWS, BOR, and the BLM. Held in Klamath Falls, OR (3-6 February 2004), with more than 160 registered participants, workshop goals were to identify and prioritize long- and short-term science needs in the basin. Both stakeholder and management presentations highlighted an urgent need for a high quality and well-communicated science strategy for the entire Klamath Basin. Science presentations addressed fish and water issues in the upper basin. The needs assessment focused on endangered sucker ecology (e.g., larval production, movement behavior, etc.), wetlands restoration, and potential refugia for endangered fish. While endangered species issues magnify all others, any basin-wide science strategy must include recovery goals for Lost River and shortnose suckers and coho

recovery, protection of the local economy, and remedies for habitat degradation. With respect to the upper basin, better understanding of phosphorus and nitrogen cycling relative to algal blooms, increased BOD, and subsequent fish kills is needed. The need to understand bloom dynamics, groundwater contributions to lake waters, connectivity between wetlands, nutrients, water quality, and quantification of water use were also priority themes. Rip Shively (WFRC-Klamath Falls Field Station) and Dennis Lynch (WRD-Oregon District Chief) gave the organization high profile visibility throughout the meeting. Both WFRC and the Oregon Water District are expected to receive significant fund increases in FY 05 and the conference provided an important synthesis to ongoing science planning.

In March, the Department asked USGS to convene a similar conference for the Lower Klamath River Basin. Mike Shulters (WRD-California District Chief) and I were asked to lead a planning team to organize and convene a major conference in Arcata, California (7-10 June 2004). Working with partners from other federal, state, tribal, and NGOs, we were able to host the conference at Humboldt State University. Debra Becker worked exclusively on making this conference happen and it was largely through her efforts, that the organization and facilitation of the meeting were a success.

Conference goals were to identify outstanding information needs and science priorities for the lower basin in the geographic area below Iron Gate Dam including major tributaries, the Trinity River, and estuary. Our guidance from the Department required that we emphasize salmonids and aquatic

habitats, tribal issues, interdisciplinary science, and adaptive management approaches.

Jim Winton presented an extremely informative and well-received paper on disease as a limiting factor in wild fish populations. Jim Petersen and Reg Reisenbichler served as independent reviewers of the science presented at the meeting. Jeff Duda and John Emlen presented a poster on steelhead population dynamics and species interactions in the lower Trinity River. Rip Shively served on the planning team, as a session moderator, and information-needs synthesizer after the meeting. Water flow, temperature, cold-water refugia, fish disease, and the state of various physical and biological models and their applications, dominated session discussions. Major science needs related to water flow, temperature regimes, and fish disease relationships. There was a major die off of adult chinook (> 33,000 fish) in the lower river in 2002 and currently, juvenile salmon are experiencing a high incidence (40-60%) of the *C. shasta* parasite.

David Woodson and I have been working on a variety of USGS and WFRC funding initiatives. David has been active in Puget Sound integrated science planning and the development of an FY 06 initiative (\$1 million). We are currently working on science plans for the Elwha River, Upper Columbia Plateau, and "Building a New Generation of Tools for Managing Water and Ecosystems in the West". While most efforts are in initial planning stages, the Western Region funded the Upper Columbia Plateau integrated science project for \$100,000 in FY04. Jim Hatten and David Woodson are Center leads for this web-based data and applications delivery project. In other program areas, we have

worked successfully with the NBII on several new projects including (1) a viral data base on the Pacific Northwest Information Node (Gael Kurath) and (2) Puget Sound Gap Analysis (Reg Reisenbichler, David Woodson, Jim Hatten, and Robin Salling). Other planning activities in which WFRC members are currently involved include the Upper Klamath Basin Science Plan effort for FY05 (Rip Shively) and ongoing Center strategic and work force planning.

I am pleased to announce that Dr. John Hansen will be joining the Fish Health Section as an immunologist on July 25, 2004. John's interest in fish immunology began during his doctoral training at Oregon State University where his studies focused on defining the primary sites for B-cell development (lymphopoiesis) in trout. Later, he joined the Basel (Switzerland) Institute of Immunology as a Scientific Member from 1995-2001 where he continued to explore processes that govern lymphocyte development and self/non-self discrimination in rainbow trout.

John's research is primarily focused on: teleost host-pathogen interactions, genomic mapping and biochemical analysis of the trout major histocompatibility complex (MHC), cellular immunity in finfish and hematopoietic events in all fish. These studies include genes and their encoded products that are involved in the process of distinguishing self from non-self. This includes members of the MHC complex that is generally accepted as "gateway" to immune responses in all vertebrates.

Currently John is using a functional genomic approach to define the MHC haplotypic architecture within clonal lines of trout. He is actively engaged in the design and usage of microarray technology that can be used for the identification of molecular pathways and candidate genes that are relevant to fish health and the production of effective vaccine technologies for various viral (IHVN, VHSV, IPNV, etc) and bacterial (*R. salmoninarum*, *S. iniae*) pathogens of salmon and trout.

On June 11, Jim Petersen, other Columbia River Research Laboratory Staff (CRRL), David Woodson, Robin Schrock (HQ), Frank Shipley (WRO), and I had the pleasure of hosting USGS Director Chip Groat in the Columbia River Basin. Our first stop included a tour of the CRRL facility and science briefing for the Director. On Saturday morning, we conducted an overflight of the Columbia River Basin, departing Hood River and flying to the estuary; eastward past Mt. Saint Helens and over the Toppenish National Wildlife Refuge and Hanford Reach; and then over Ice Harbor, McNary, John Day, and The Dalles Dams. Our purpose was to introduce the Director to CRRL people and place, inform him of the diversity and complexity of our science in the basin, and further inform him about regional issues in the Pacific Northwest.

We stopped at The Dalles Dam where Noah Adams (CRRL) provided an on-site briefing of his ongoing fish passage study. Director Groat was notably impressed with the visualization technology being utilized by Noah's team in this research. We visited a possible location for a new CRRL facility and, with Pat Connolly, visited the Conduit Dam

(scheduled for removal) and the Little White Salmon River. The latter visit included a white water rafting trip over near pristine salmonid habitats in Pat's study area. To end this day, the CRRL staff hosted a wonderful picnic and our visit with the Director was a huge success. Thanks to all those involved for putting on such a great show!

Finally, at the National Managers Meeting in Austin, Texas some administrative and science quality changes were announced. First, the Bureau Rate, currently 11%, is expected to increase to 12% in FY 05. The increase is associated with IT security and other requirements of the Geographic Information Office. Making more funds available for DOI Cost Shares is currently a topic under discussion by the Executive Leadership Team. As most of you may be aware, limitations in cost share funding may limit the amount of research we can do for our DOI partners. Science quality and the need for better standards for peer and policy reviews were announced at the meeting. I have revised Center policy and the WRO has instituted an interim certification process to ensure these reviews are taking place. If you aren't aware of our Center's policy or the certification process, please work with your supervisor and become better informed. ►

---

## The INTASS RoadShow

*by John Emlen*

Some ideas I've spent time on for quite a few years have finally jelled in the form of a major publication, several more to come, a big wave of interest from not only our own field and duty stations, but several universities and government labs. The subject is a field/analytical methodology

(Interaction Assessment, or "INTASS") by which field survey data can be used to generate quantitative expressions describing population dynamics. The expressions describe the per-capita rates of growth as functions of measured physical variables and the abundances of conspecifics, competitors, predators, and other attributes. This permits an easy evaluation of which factors are important in determining fitness, how important they are, and the manner in which they operate (i.e., including second order factors ... e.g., perhaps a predator's impact depends on the level of food availability or cover present, perhaps it is curvilinear function of some sort). The expressions also take into consideration effects at several spatial scales (e.g., interspecific competition might occur over short distances ... within the confines of a riffle ... whereas potential competitors in the next riffle or in an adjacent pool might have no impact on fitness).

INTASS is what is referred to as a "model platform," meaning that the form of the models it generates is very general and the field protocols are portable across a wide variety of species and habitats.

Potential uses, in addition to providing a way to see exactly how various environmental factors affect fitness, include defining critical habitat for T&E species, providing information on indirect effects and ecosystem feedback loops; management, control and recovery efforts, and allowing computer simulations to predict the outcomes of proposed management plans. This latter consideration could be an important aspect of adaptive management and could have significant impacts on future planning.

We are also exploring INTASS methodology in its application as a tool to help predict contaminant effects at the population/ecosystem level.

Current plans are to begin an INTASS “Road Show” (dubbed by some “The Antique RoadShow” on account of my advanced years), where Jeff Duda and I will visit various and sundry places to dispense our great wisdom in the form of seminars and workshops. To date interested parties include the Dixon Duty Station, the CRRL, NOAA-NIST labs in South Carolina, Oregon State University, University of Alaska, the Alaska Department of Fish and Game, and the Forest and Rangeland Ecosystem Science Center (FRESC). Others include the Southwest Biological Research Center (SBSC), field stations in Boise and Moab, the University of Nebraska, and Indiana University.

A recent development — a computer Science class at Oregon State University has adopted INTASS as a class project, and is developing a WINDOWS interface for our use. This will greatly facilitate the analytical portion of the methodology. ►

---

## Where Have All the Herring Gone -- WFRC Puget Sound Herring Research

by Paul Hershberger

The abundance and age structure of Pacific herring populations in Puget Sound have changed dramatically in recent years. For example, the biomass of herring at Cherry Point, historically the largest of the 19 herring populations in Washington, has decreased from nearly 15,000 tons in the early 1970's to only about 1,700 tons in 2004.

Additionally, the estimated natural mortality for Pacific herring in Puget Sound (excluding negligible mortality incurred from commercial fishing) has increased from 30-40% per year in the late 1970's and early 1980's to 60-80% in recent years.

The unknown source of this mortality is selective for older age cohorts, resulting in decreased median ages of Puget Sound herring populations from 5+ year cohorts to newly recruited, 2 and 3 year cohorts in recent years; in 2002, 49% of the spawning herring biomass at Cherry Point consisted of 2-year age cohorts. The elevated adult mortalities result in general failure of these young age cohorts to return as iteroparous, recurrently spawning age classes, culminating in Puget Sound herring populations that are precariously maintained by a single, newly-recruited age cohort.

Recent studies conducted at the WFRC Marrowstone Marine Field Station (MMFS) indicate that, among larvae from herring populations in Washington, those from Cherry Point consistently demonstrate anomalies indicative of distress, including low weights and lengths at hatch, increased prevalences of skeletal abnormalities, and shorter survival times in food-deprivation studies. Correlation of these larval anomalies with adult recruitment is weak, indicating that the larval anomalies did not directly cause the population decline. *In situ* egg incubation studies indicate that larval anomalies originated primarily from factors independent of conditions at the spawning location because the anomalies were not reproduced by incubation of foreign zygotes along the Cherry Point shoreline, but they were reproduced after

development of indigenous zygotes in controlled laboratory conditions. Precise cause(s) of these anomalies have yet to be determined.

Ongoing research at MMFS is directed towards determining the origin of these high natural mortalities and larval anomalies; in particular, we are conducting studies to determine whether they are the result of parasitic disease-related mortality, particularly among under-represented, older cohorts. *Ichthyophonus*, a dangerous protozoan parasite is currently ubiquitous among many herring populations on the west coast of North America. In Puget Sound, prevalences of *Ichthyophonus* increase directly with herring age from 12% among 0 year cohorts to 58% among the under-represented 6+ year cohorts.

*Ichthyophonus* has been repeatedly associated with massive epizootics among populations of Atlantic herring and is highly pathogenic to immunologically naïve Pacific herring, causing 80% mortality 2 months after laboratory injection challenge. Considering that natural infestations of *Ichthyophonus* among less than 10% of plaice captured near Scotland have been estimated to result in annual mortalities of over 50%, we propose that the infection levels detected among herring in Puget Sound can conservatively account for currently elevated natural mortalities, particularly among the underrepresented, older age cohorts where infection prevalence is greatest. Furthermore, we are currently conducting studies to determine whether gametes from the newly recruited 2 and 3 year spawning cohorts at Cherry Point produce larvae with elevated levels of developmental

anomalies as a consequence of incomplete egg maturation in the newly recruited ‘adults.’ ►

---

## Fish Biology in the “Big Ditch” – WFRC Collaboration in the Grand Canyon

by Jim Petersen, CRRL

The USGS Directorate has long encouraged better science collaboration between disciplines and the centers. Last fall I had the opportunity to participate in just such an inter-center collaboration – a detail to the Grand Canyon Monitoring and Research Center (GCMRC) in Flagstaff, Arizona. I worked with staff from GCMRC, particularly Dr. Craig Paukert, to develop and test a bioenergetics model for humpback chub, an endangered fish that occurs



in the Grand Canyon. This turned out to be a great experience that included seeing how another BRD center operates, meeting a variety of other scientists, and spending 7 days on the Colorado River. This is my story – part basic science, part field work.

### **Basic Science**

Humpback chub (*Gila cypha*) are native to the Colorado River Basin and have been listed as a federally endangered species since 1967. The humpback is a large Cyprinid (*Cyprinidae*; minnow family) that can reach a maximum size of about 480 mm and 1.2 kg. One of the largest populations of

humpback chubs is believed to occur in the Grand Canyon reach of the lower Colorado River, below Glen Canyon Dam. Smaller populations occur above Glen Canyon Dam in the upper Colorado River, the Green River, and the Yampa River.

Unfortunately, humpback chub in the Grand Canyon continue to decline, likely because of decreased recruitment. Although several factors have been identified as possible causes for the decreased recruitment and low adult numbers of humpback chub, predation by non-native fishes (e.g., brown and rainbow trout, channel catfish) and cold water temperatures in the mainstem Colorado River have been identified as two of the primary causes of the decline. In light of this, efforts were implemented to remove non-native fishes in the Colorado River near the Little Colorado River (LCR) confluence, the primary spawning and rearing area for humpback chubs. In addition, a temperature control device (TCD) has been suggested as a possible tool to warm water temperatures from Glen Canyon Dam (124 km upstream of the LCR) to reduce predation by non-native trout and possibly increase recruitment of native fishes.

Hypolimnetic water from Glen Canyon Dam is released into the lower Colorado River causing temperatures to be 9-12 °C year-round, compared to a historic temperature range of about 2 to 26 °C . Major modifications to Glen Canyon Dam are being seriously considered that would enable water managers to release warmer water into the lower Colorado River during part of the year. Warm water releases would at least partially simulate the historic temperature regime, presumably improve growth

rates, minimize temperature shock for juveniles that migrate into the river from warm tributaries, and thus increase the overall rate of survival. However, there has also been speculation that warmer water might increase competition and/or predation mortality on the chubs by altering their feeding patterns or increasing the growth rates of rainbow or brown trout.

Predictive tools are needed to assist managers and researchers to evaluate the potential outcomes of actions such as predator removal and temperature modifications in large river systems. Models that integrate physical factors such as temperature and biological processes such as feeding rates should be especially useful, allowing managers to run divergent scenarios and possibly eliminate unsuitable choices. These models may also help to direct field monitoring efforts and laboratory experiments by identifying critical uncertainties.

We developed a bioenergetics model for humpback chub, estimated parameters for the model using a Monte Carlo method, and demonstrated model performance relative to temperature and food availability. One of the goals of this approach was to develop a non-lethal method of parameter estimation and model development for imperiled or endangered species. Laboratory experiments on imperiled or endangered species are hard to conduct because of difficulty in obtaining these fish in the field, the complexity of obtaining the necessary collecting permits, and the possibility of harming or killing the fish during transport or handling. Using the humpback chub model and an existing model for rainbow trout, we simulated how food and temperature influence growth rate and how

temperature changes might alter competition between humpback chub and rainbow trout. Results of the modeling work were discussed in the context of management options, needs for specific data to improve models, and data needed to test hypotheses in the field.

Simulations indicated that manipulating water temperatures within the range possible from a TCD (9 to 16°C) may have a minimal effect on humpback chub growth rates, unless food availability increases greatly. Per capita consumption by rainbow trout was 2.8 to 4.5 times greater than humpback chub and their diets overlapped. This suggests that rainbow trout may compete with humpback chub in the temperature range of the TCD manipulation. Increased water temperature may help native fishes in the Grand Canyon such as the humpback chub, but feeding, growth, and predation rates of non-native fishes, such as rainbow trout and brown trout, will also be altered. To evaluate the effects of increased temperatures on humpback chub in the lower Colorado River, it will be essential to monitor the growth rate of humpback chub, the composition and abundance of the invertebrate community, and similar features of the lower trophic levels.

### **Field Work**

Most of my time was spent at the GCMRC, which is part of the Southwest Biological Science Center (SBSC), headed up by Dr. Denny Fenn. The SBSC is a mixture of BRD, WRD, and GD, including a large contingent of astrophysicists who are co-located there. Flagstaff is a great town, and I spent most weekends checking out the numerous state and national parks in northern Arizona.

Of course it's never a good idea to develop a model for an organism that you haven't seen in the wild, so I had to go on one of the periodic research trips conducted by GCMRC into the Grand Canyon itself. The staff was very accommodating and got me on a float trip that left Lees Ferry and lasted for



about 7 days. The objective of this particular trip was to sample backwaters of the river, and we did catch some juvenile humpback chubs along the way. We spent 7 great days of floating, sampling, and camping on the beaches. They dropped me off at Bright Angel Creek where I hiked out (6 miles horizontal, 1 mile vertical) with the new Director of GCMRC, Jeff Lovich.

One of the surprising things I learned was the number of trips that GCMRC arranges and guides – about 50 per year! These trips include fish trips for sampling or predator removal, trips to measure sand deposition and sediment transport (remember the big artificial floods out of Glen Canyon Dam a few years ago), bird and wildlife trips, archaeological trips, and a few trips for bigwigs from D.C. GCMRC has a couple of full-time staff whose job is to organize these trips, which often include a mixture of USGS, federal and state biologists,



contractors, and volunteers. If anyone is interested, volunteer opportunities might be available.

The chub research work briefly summarized above has been put into a manuscript, gone through peer and policy review (!), and submitted for publication. The detail was organized by Lyman, myself, Steve Gloss from GCMRC, and Craig Paukert, and was originally proposed as a “scientist exchange.” About the time my detail was to begin, Craig received an offer to become the Assistant Coop Unit Leader at Kansas State University and he has now moved to his new position. However, while the “exchange” part of the plan has become uncertain, everyone involved in my detail felt it was a scientifically and personally productive experience. I recommend it highly. ►

---

## People In The News

*Visiting Scientist: Dr. Serge Pavlov*  
by Gary Wedemeyer

### **Part 2, Serge Returns to WFRC**

Dr. Serge Pavlov, a fish geneticist at Moscow State University, returned to WFRC in May to finish the DNA lab work on fish tissues collected in the Fall of 2003 as part of our cooperative project with the Kronotsky Lake Biosphere Preserve on the Kamchatka Peninsula in eastern Siberia.

This research project is part of the WFRC’s Genetic Analyses of Pacific Salmonids in the Russian Far East and the U.S. Pacific Northwest project. In 2003, the research objective was to learn more

about the genetic diversity of charr morphotypes (*Salvelinus malma*) in Kamchatka. As you may recall, Carl Ostberg (WFRC-Seattle) spent much of last August and September collecting tissue samples for genetic analysis from Dolly Varden inhabiting Kronotsky Lake near the eastern shore of the Kamchatka peninsula. Kronotsky Lake is in the Kronotsky Biosphere State Reserve about 20 miles from the Pacific ocean. The field crew included Carl, Dr. Pavlov, and his graduate student Zhenya Pivovarov.

Carl took liver tissue and preserved it for later mtDNA sequence analyses. Dr. Pavlov and his student took meristic and morphometric measurements and eye, liver, and heart tissue for later allozyme analyses to be conducted here at the WFRC.

WFRC participation provides first hand experience with charr ecology for the USGS and facilitates a continuing collaboration between USGS and Russian fisheries scientists regarding the evolution and biology of culturally important species. The genetic analyses are part of a larger effort that includes Arctic charr, Dolly Varden, and bull trout from North America.

Dr. Pavlov has now completed most of the laboratory work and has returned to Moscow State University where he will process the last of the samples and complete the data analysis. A joint publication is expected in 2005. ►

## Congratulations Maureen!

by *Tosh Yasutake*

“Almost Dr.” Maureen Purcell, a UW Ph.D. candidate completing her dissertation research in Diane Elliott’s lab at WFRC is this year’s recipient of the Faculty Merit Award of the School of Fisheries and Aquatic Sciences (SAFS). This is the most prestigious award given to students by the SAFS and is based on professional achievements and community service in addition to the expected academic excellence. Way to go Maureen! ►

---

## Water Rescue at the Marrowstone Marine Field Station

by *Jim Winton*

At about 4:45 pm on Friday, April 30, staff biologist Nancy Elder mentioned to Station Chief Paul Hershberger that she had noticed children playing in the water in front of the laboratory; one child was drifting on a log about 15 feet from the shore, on a course parallel to the shoreline. The MMFS staff often sees children playing on the public beach in front of the laboratory and, due to the extremely swift rip current that is nearly always present off Marrowstone Point, they generally take notice when people swim in the water. When the child drifted by the laboratory on the log, he was laughing and playing, so the staff returned to work.

A few minutes later, they heard children screaming in the parking lot, and immediately surmised that the child on the log was in danger. Paul ran out of his office and grabbed several life vests to throw to the child. He spotted the boy’s head in the tide rip,

far up the beach and approximately 200 yards offshore. It turned out that after the log had drifted past the point, the boy had jumped off and tried to swim to shore. Since it was now too far to throw a pfd, Paul gave a floatation vest to an onlooker and instructed him to throw it in the water to mark the child’s position. He then ran back to the laboratory, where we house an inflatable Zodiac boat. At the same time, Nancy ran to the wet lab to alert Jake Gregg that they had an emergency and then called 911. Jake backed the truck up and he and Paul hooked the trailer to the truck. Paul pulled the boat out while Jake ran to get the boat gas tank from the shed.

Meanwhile, Nancy was standing on the point with binoculars focused on the boy (who was treading water) and talking on the cell phone with the 911 operator who had transferred her to the Coast Guard. Nancy continued to monitor the position of the boy while the boat was being launched.

The closest boat ramp to the laboratory is in Fort Flagler State Park, approximately 2 miles from the lab. The staff knew that it would take too much time to trailer the boat to the ramp and motor back to the child, so they decided to launch the boat from the beach next to the lab. Jake and an unidentified man cleared a path through the extensive driftwood on the beach enabling Paul to back the truck and trailer across the sand and into the water. Jake and the unidentified man shoved the boat off the trailer and both jumped into the boat and sped off in search of the boy. Paul pulled the truck and trailer away from the water and ran back to the point where Nancy was monitoring the child’s location in the water. After a search, the Zodiac crew finally found the

boy and pulled him to safety. By the time of the rescue, the current had carried the boy a half mile or more across Admiralty Inlet, well into the shipping lanes. The Zodiac returned the shaken boy to the beach and Paul wrapped him in a blanket taken from the lab's visiting scientist quarters.

Fortunately, an off duty firefighter with EMT training happened to be walking on the beach and had observed the rescue. He examined the boy, diagnosed him with Stage 2 hypothermia, and determined that bringing his body temperature back up slowly with blankets would be sufficient. Upon his recovery, the boy then left the area with his friends and an adult.

After a great deal of effort, the MMFS staff retrieved the truck and boat trailer from the beach and were cleaning up the equipment when a group of people drove up to the lab to thank them for the rescue work. The rescued boy was 12 year old Max Walker from Black Diamond, WA who thanked the staff profusely for pulling him out of the water. Max was camping at the state park (Fort Flagler) over the weekend with some friends and their grandfather. His parents were at home in Black Diamond.

The MMFS staff Paul Hershberger, Nancy Elder and Jake Gregg are to be highly commended for this successful rescue. They were forced to make numerous critical decisions very quickly under very stressful circumstances and the teamwork they displayed was outstanding. It was clear to all that the boy was approaching the end of his ability to stay above water and that no other source of rescue was available in time to prevent him from being swept far out into the Straits of Juan de Fuca where

he certainly would have perished. Were it not for the quick thinking and decision making of our Marrowstone Marine Field Station staff, the ending of this near-tragic event would have been much different.

The MMFS has since requested that Fort Flagler State Park post "No Swimming – Dangerous Currents" signs on the beach near the laboratory. ►

---

## Columbia River Shad Derby

by John Beeman

The success of the pink salmon fishing derby Rob Jackson coordinated in the Puget Sound last year inspired us to organize a similar derby for American shad (*Alosa sapidissima*) this year.

Several people from the WFRC spent a day fishing for shad on the Columbia River below Bonneville Dam on Sunday, June 13, 2004. Lyman Thorsteinson, Frank Shipley, and Tom Poe fished out of Frank's boat, Mike Parlsey, Pat Connolly and Dan Poe fished with Mike, and Philip Haner, Dave Woodson and I fished out of my boat.

The rules of the derby were discussed and agreed upon at the boat ramp minutes before the fishing began. Although some of us were content to just have a fun day of fishing, Frank would have none of that. He suggested a small entry fee, with the pot being split evenly between the person with the most, the largest and the smallest shad. It sounded good to us so we changed the rules on the spot! The fishing officially began at 10:30 AM and ended at

2:00 PM. Despite over 203,000 shad passing Bonneville Dam that day, the numbers caught during the derby were low. Top honors went to Philip Haner for the most fish caught (12) as well as the smallest total length fish (about 15 inches), and Frank took the honors for largest fish (about 22 inches). Frank and Pat each caught 9 fish and several people had shad nearly as large as Frank's.

Mike Parsley hosted a shad feast at his house after the derby. Though few people on the West Coast seem to eat shad, we wanted (that may be too strong a word) to try it, since it is considered a prized fish in the East. In fact, the species name *sapidissima* means "most delicious." I provided some canned smoked shad that was well received. Mike Parsley served fresh shad in broiled, baked, and alder planked methods as well as some fried shad roe. Surprisingly, everyone took part in the feast and all agreed the meat was quite good, tasting sort of like trout. The roe wasn't too bad either, though I doubt many of us will ever eat much of it in our lifetimes. Overall, the derby was a big success and everyone had a good time – see you next year! ►

Wisconsin. For those of you who don't know Tosh, his picture will soon be posted on the AFS website ([www.fisheries.org](http://www.fisheries.org)). Check it out! ►

---

## Alumni News

### *Stan Smith, Class of 1997*

Well now let's see; where to begin? As most of you "older" folks know, I retired out of the Cook Lab (CRRL) on 31 January 1997. It wasn't an easy decision, but I had been around long enough — it really was time to go.

My initial goal was to work around the 3 acre place we had purchased in Underwood, WA and possibly do a few weeks/months per year active duty with the Coast Guard since I was still active in the Reserve Program. I managed to keep very busy around the place and didn't miss work at the lab nearly as much as I thought I would, which was a good thing. I had been working in the fisheries field for nearly 27 years, including time with NMFS, FWS, and finally USGS. I had also managed to do a few 2-3 week active duty stints off and on, but not nearly as much as I had hoped for.

In December of 1998 I was called to 6 months active duty at the Thirteenth Coast Guard District Office in Seattle to fill in for a Division Chief who had been placed on a project back at Coast Guard Headquarters. Fortunately, Anita's sister lives in West Seattle so I bunked there during the week and drove home on weekends, and believe me, that's got to be the most boring stretch of I-5 there is! I completed that project in May and returned to the Gorge full time, or so I thought.

---

## Yasutake Honored

*by Gary Wedemeyer*

WFRC Senior Scientist Emeritus Dr. Tosh Yasutake has received the American Fisheries Society Golden Membership Award in recognition of 50 years of service to the AFS. Tosh and the other awardees will be officially recognized at this year's AFS National Meeting in Madison

In April of 1999 I was recalled again to active duty to head up the Y2K project for the 13<sup>th</sup> District. That kept me on active duty until January 2000, and once again I returned to the Gorge thinking I would relax, go canoeing, hike and/or all the other things us retiree's are supposed to be doing. Wrong!

By this time I had made Captain (same as full bird colonel for you Army and AF types) and because of my recent experience I was recalled a number of times for various small projects between Seattle and Coast Guard Headquarters in the other Washington. It was beginning to keep me busier than I really wanted. I was away from home way too much and summers in DC are not all that pleasant, as many of you already know.

During all this time, Anita was her normal completely indispensable self to the City Manager of Hood River, OR as the City Recorder/Office Manager. However, changes were on the horizon. We have an old and dear friend who was about to finish up her career in the Department of State-Foreign Service (FS) and were seeing quite a lot of her and her husband, also in the FS, as they would pass through the area visiting relatives. Anita, being an Army Brat and having traveled extensively as a child, began to look "way" over the horizon at the possibility of finishing up with a career in the FS. Far fetched you say?? Not for this lady. Once they found out she had been a paralegal for 25 years, plus the Hood River office guru, they sucked her up within a few months of her application submission; quite unusual since the normal application process can take up to two years. In May of 2002 she was notified that she needed to report to the Foreign

Service Institute (FSI) in Arlington, VA in June for her initial training and assignment; quick but doable. By late September of 2002 she had completed the training, a French refresher course and was on her way to NATO headquarters in Brussels, Belgium where we currently reside (but only for about another two weeks).

Meanwhile, our lovely and talented daughter Jennifer had begun dating a Chief Petty Officer in the Coast Guard (I swear I had nothing to do with this, honest!). She was living and working in Ilwaco, WA at the mouth of the Columbia and he (Chris) was stationed at the CG Air Station in Astoria. They eventually got married and we now have a wonderful, healthy 6 month old grandson who we are looking forward to seeing again upon our return to the states.

Now, back to boring old me. In August of 2001 I was in Seattle supervising a project for the District Commander when the tragic events of 9/11 occurred. Well, needless to say, all of us who could fog a mirror were either placed under long term orders or if we were already on active duty, were activated for a minimum of one year. I spent nearly 18 months, until January 2003 as the Branch Chief of the new Maritime Homeland Security Branch for the District Commander in Seattle. A lot of fun and very exciting to help launch a new branch, but the 96 hour weeks got real old before very long. Things eventually settled down and a minor form of "normality" resumed, although there would never be any going back to the days prior to 9/11. I was able to convince my bosses that I had to get the house sold in the Gorge and really needed to be released from active duty and would really, really

like to rejoin my better half in the not too distant future. By then we had been living apart for nearly two years. I found a relief and they let me go in January of 2003. I painted and sold the house and got most of the junk out. Anita came home from Brussels for a couple of weeks and we had all our household goods either taken to permanent FS storage in Maryland, or as in the case of dishes, pictures, etc., we had some sent to our apartment in Brussels where I thought I'd be heading soon after. Wrong again!!

The Coast Guard decided that I would really like a stint at headquarters in Washington, DC. I could have turned them down, but... well, you know me. I really do like the service. I moved out of the house and spent a couple of weeks with Alec and Judy Maule in their lovely home on "Maule" Mountain in the Gorge and headed for DC in April of 2003. I remained there until 1 October 2003 (I had been officially retired on 01 July and recalled to active duty on 2 July) working in the Maritime Safety and Security Directorate. I departed for Brussels on 2 October 2003 as an official retiree/house husband where I now keep house, do the shopping, travel around Europe with Anita or a group of retired guys I hang out with, and am thoroughly enjoying life. And no, I don't miss either USGS or the USCG, at least not on a full time basis.

We're now in the process of getting ready to move again. Anita has been here for nearly 2 years and she has been reassigned to the US Embassy in Moscow, Russia where we'll reside for two more years. It was our first choice, but I'm not sure why!! We travel back to the states on 30 June for some home leave and then a seven week Russian

language course back at FSI. We depart for Moscow on 27 August 2004.

Well, there you have it in a nutshell, albeit a large nutshell. My email address, which should be good even after we're in Moscow is: [coastie43@hotmail.com](mailto:coastie43@hotmail.com). We'll most likely get hooked up with ADSL, but will keep this address as a back-up. Keep in touch, and if you're ever in Moscow, let me know. ►

---

## Alumni News

### *Clarence Johnson (Class of 1985)*

I vowed that I would never write an article about the "wild" life of retirement, but after reading so many of your articles... I can not believe you people don't realize that Gary is a softy, easily excited and distracted. All you needed to do was slip a piece of lighted primer cord underneath the bathroom door, or attach a "smoke-bomb" to his car. For some reason he would lose all sense of rationality. Of course, this was perhaps one of the reasons I was soon elevated to the Office of Research Support in Washington D.C. When he found out I was leaving, Gary's only comment was "well, the average I.Q. of both places is going to increase significantly"

I did like the sound of that, so I transferred to Washington D.C. in 1985 as the staff biologist for the National Contaminant Research Program. As such, I coordinated with the FWS Division of Environmental Contaminants to assure that research needs were incorporated in budget initiatives for the Service, worked with laboratory staff to evaluate biological indicators and to develop strategic plans

to evaluate contaminants on the National Wildlife Refuges.

The years were challenging as well as rewarding with constant liaison expended between federal, state and private agencies to finalize funding support for the analysis of contaminants resulting from the “Valdez Oil Spill,” evaporation ponds in California, and contaminated sediments in the Great Lakes and its tributaries. I subsequently was designated the staff biologist for Fishery Research and represented FWS Research and Development to the FDA, USDA, and EPA concerning drug registration activities. I also worked closely with laboratory staff regarding disease policy, and to establish guidelines for quality assurance and quality control for fish health inspections. I was the Service liaison officer for all chemical and drug registration related activities with FDA, EPA, and USDA. All in all, it was a very enlightening experience.

The difficulty was in recognizing that the job is not the only thing in life. We spent nearly every spare moment traveling the East Coast, from Boston to Miami and the Bahamas. Many of the buildings and historical areas in Washington D.C. are managed by the National Park Service and therefore are free to visit. We could make “day trips” to Harpers Ferry, the Manassas Battle Field (Bull Run to you northerners), Gettysburg National Park and others all too many to mention. When I was designated interim staff biologist for both Contaminant and Fishery Research, plus supervising three interns, I decided it was time to retire out. Work was not worth the stress.

Upon retirement, my wife Kay and I returned to Port Townsend to contemplate the challenges of retirement and where to live. We had retained a

house here from our previous assignment at the Marrowstone Marine Field Station. While remodeling the old farm house, we discovered that the problems we had previously encountered with raising a family in a small town had suddenly disappeared and we enjoyed the close proximity of the ocean and the mountains, so we decided to stay. Since then, we have purchased and remodeled another home on 1.3 acres with a small assortment of fruit trees and sufficient space to house our 5th-wheel, an office and a shop.

We have also become quite involved in our civic and social responsibilities. “Barbershop singing” has become a very relaxing sidelight that I never had the opportunity to enjoy while I was extolling the virtues of the “federal government”. After 30-plus years in the Masonic Fraternity, I have become quite active at the state level to promote reading skills in the local schools, working with the youth groups to develop and expand their public relations skills, and working with the local food bank and Habitat for Humanity.

All this is squeezed in between trips in our 5th wheel. This past fall we took a 3-month trip to the East Coast to renew old acquaintances and to learn more about our great United States. In 1999, I had the honor of presenting a paper at the 25th Anniversary of HAKI, the Hungarian Fishery Institute in Szarvas, Hungary and the Golden Anniversary of Dr. John Halver's work in fish nutrition. While there, Kay and I enjoyed three weeks touring Budapest, Prague, and Vienna. The one thing I would pass on to all you “workers” – there are more things to life than your job. If you are not enjoying life while you are working, why are you still there?

*(ps. I still have a couple of ideas to liven things up if things should ever get dull over there!) ►*

## A Little Light Reading

*Some Recent Publications by the WFRC Staff*

- Duda, J.J., D.C. Freeman, M.L. Brown, J.H. Graham, A.J. Krzysik, J.M. Emlen, J.C. Zak, D.A. Kovacic. 2003. Estimating Disturbance Effects from Military Training Using Developmental Instability and Physiological Measures of Plant Stress. *Ecological Indicators* 3:251-262.
- Freeman, D.C., M.L. Brown, J.J. Duda, J.H. Graham, J.M. Emlen, A.J. Krzysik, H. Balbach, D.A. Kovacic, and J.C. Zak. 2004. Developmental Instability in *Rhus copallinum* L.: Multiple Stressors, Years, and Responses. *International Journal Plant Science* 115(1):53-63.
- Gadomski, D.M., and C.N. Frost. 2004. Persistence of Identifiable Remains of White Sturgeon Juveniles in Digestive Tracts of Northern Pikeminnow. *Calif. Fish and Game*. 90:85-90.
- Gadomski, D.M., D.A. Venditti, T.C. Robinson, J.W. Beeman, and A.G. Maule. 2004. Distribution and Relative Abundance of Fishes in Littoral Areas of Chief Joseph Reservoir, Columbia River. *Northwest Science* 78:48-58.
- Gale, W.L., R. Patiño, and A.G. Maule. 2004. Interaction of xenobiotics with estrogen receptors alpha and beta and a putative plasma sex hormone binding globulin from channel catfish (*Ictalurus punctatus*). *General and Comparative Endocrinology* 136:338-345.
- Goodwin, A.E., and J.R. Winton. Spring Viremia of Carp. 2003. Chapter 2.10 *in*: Suggested Procedures for the Detection and Identification of Certain Finfish and Shellfish Pathogens. Fish Health Section Bluebook, 5th ed. American Fisheries Society, Bethesda, MD.
- Hockersmith, E.E., W.D. Muir, S.G. Smith, B.P. Sanford, R.W. Perry, N.S. Adams, and D.W. Rondorf. 2003. Comparison of Migration Rate and Survival Between Radio-Tagged and PIT-Tagged Migrant Yearling Chinook Salmon in the Snake and Columbia Rivers. *North American Journal Fisheries Management* 23:404-413.
- Kurath, G., W.N. Batts, W. Ahne, and J.R. Winton. 2004. Complete Genome Sequence of Fer-de-Lance Virus Reveals a Novel Gene in Reptilian Paramyxoviruses. *Journal of Virology* Vol. 78 (4):2045-2056
- Mesa, M.G., J.M. Bayer, and J.G. Seelye. 2003. Swimming Performance and Physiological Responses to Exhaustive Exercise in Radio-Tagged and Untagged Pacific Lampreys. *Trans. American Fisheries Society* 132:483-492
- Miller, K.M., J.R. Winton, A.D. Schultz, M.K. Purcell, and T.J. Ming. 2004. Major Histocompatibility Complex Loci are Associated with Susceptibility of Atlantic Salmon to Infectious Hematopoietic Necrosis Virus. *Environmental Biology of Fishes* 69:307-316.
- Mork, C., P. Hershberger, R. Kocan, W. Batts, and J. Winton. 2004. Isolation and Characterization of a Rehabdovirus from Starry Flounder (*Platichthys stellatus*) Collected from the Northern Portion of Puget Sound, Washington, USA. *Journal of General Virology*. 85:495-505.



- Morris, R.G., J.W. Beeman, S.P. VanderKooi, A.G. Maule. 2003. Lateral Line Pore Diameters Correlate with the Development of Gas Bubble Trauma Signs in Several Columbia River Fishes. *Comparative Biochemistry Physiology* 135:309-320.
- Ostberg, C.O., and R.J. Rodriguez. 2003. Bi-Parentally Inherited Species-Specific Markers Identify Hybridization Between Rainbow Trout and Cutthroat Trout Subspecies. *Molecular Ecology Notes* 4:26-29.
- Perry, R.W., M.J. Bradford, and J.A. Grout. 2003. Effects of Disturbance on Contribution of Energy Sources to Growth of Juvenile Chinook Salmon (*Oncorhynchus tshawytscha*) in Boreal Streams. *Canadian Journal Fisheries Aquatic Science* 60:390-400.
- Petersen, J.H., and C.A. Barfoot. 2003. Evacuation of Passive Integrated Transponder (PIT) Tags from Northern Pikeminnow Consuming Tagged Juvenile Chinook Salmon. *North American Journal of Fisheries Management* 23:1265-1270.
- Rodriguez, R. J., D. Cullen, C. Kurtzman, G. Khachatourians, and D. D. Hegedus. 2004. Molecular methods for discriminating taxa, monitoring species, and assessing fungal diversity. Pp. 77-102 in G. Mueller, G. Bills, and M. Foster (eds.) *Biodiversity of Fungi: Inventory and Monitoring Methods*. Elsevier Academic Press, New York.
- Rolland, J.B., and J.R. Winton. 2003. Relative Resistance of Pacific Salmon to Infectious Salmon Anaemia Virus. *Journal of Fish Diseases* 26:511-520.
- Sanders, G.E., DVM, W.N. Batts, and J.R. Winton. 2003. Susceptibility of Zebrafish (*Danio- rerio*) to a Model Pathogen, Spring Viremia of Carp Virus. *Comp. Med.* 53 (5):514-521.
- Scoppettone, G.G., J.E. Harvey, and J. Heinrich. 2004. Conservation, Status, and Life History of the Endangered White River Spinedace, *Lepidomeda albivallis* (Cyprinidae). *West. North American Naturalist* 64(1):38-44.
- Scoppettone, G.G., P.H. Rissler, and S. Shea. 2004. A Fish Survey of the White River, Nevada. *Western North American Naturalist* 64(1):45-52.
- Tiffan, K.F., C.A. Haskell, and D. W. Rondorf. 2003. Thermal Exposure of Juvenile Fall Chinook Salmon Migrating Through a Lower Snake River Reservoir. *Northwest Science* 77 (2):100-109.
- Yasutake, W.T., and D.G. Elliott. 2003. Epizootiology and Histopathology of *Parvicapsula sp.* In Coho Salmon *Oncorhynchus kisutch*. *Diseases Aquatic Organisms* 56:215-221.
- Yun, Sang-Seon, A.P. Scott, J.M. Bayer, J.G. Seelye, D.A. Close, W. Li. 2003. HPLC and ELISA Analyses of Larval Bile Acids from Pacific and Western Brook Lampreys. *Steroids*. 68:515-523.