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Director's Greeting...

Recently, I had a very frustrating experience which reminded me of all things small and large that AFTC's administrative staff does to make our workplace a great place to work. When I consider how much time is spent at work, the importance of these often unsung heroes of the workplace cannot be overlooked or ignored. So I want to express my heartfelt thanks to Vince Bocci and Toni Scholder for all the things they do that make a huge difference for all of us here at Abernathy Fish Technology Center.

Staff:

Administration:

- Judy Gordon, Center Director
- Patty Crandell, Deputy Center Director
- Vince Bocci, Administrative Officer
- Toni Scholder, Administrative Assistant
- Mark Hack, IT Specialist
- Dan Gourde, Electrician
- Jim Lowell, Maintenance Worker
- Pete Taylor, Fish Biologist
- John Holmes, Fish Biologist
- Jeff McLaren, Biological Technician

Nutrition:

- Ann Gannam, Regional Nutritionist
- Ron Twibell, Fish Nutritionist
- Jeff Poole, Extruder Operator
- Susan Ostrand, Biologist
- Nathan Hyde, Biological Technician

Conservation Genetics:

- Denise Hawkins, Regional Geneticist
- Christian Smith, Conservation Geneticist
- Pat DeHaan, Fish Geneticist
- Lindsay Godfrey, Biological Technician
- Brice Adams, Biological Technician

Ecological Physiology:

- Ken Ostrand, Regional Eco-Physiologist
- Kyle Hanson, Fish Physiologist
- Ben Kennedy, Fish Ecologist
- Richard Glenn, Microbiologist
- Will Simpson, Fish Ecologist
- Kurt Steinke, Electronics Engineer
- Jerone Anderson, Electronics Technician
- James Samagaio, Biological Technician
- Ashley McNamee, STEP Student

Steelhead Returns Up!



Jeff Poole with Native Steelhead
USFWS: John Holmes

The 2009-2010 winter steelhead season won't be over until June but this year's Abernathy Creek adult returns are already over 36% higher than those in 2008-2009. This was a consistently good year for all Abernathy Creek salmonids with 568 adult coho salmon captured compared to 203 last year, 19 summer steelhead captured compared to 7 last year, and 11 cutthroat captured compared to 1 last year. The total number of winter steelhead returning was 353 at the end of April compared to 259 captured over the entire season last year. Of this year's 353 steelhead returning, at least 77 were of native origin. Hatchery origin winter steelhead are propagated and released at Abernathy Fish Technology Center (AFTC) as part of a Bonneville Power Administration (BPA) funded project to study the relative reproductive success of native and hatchery origin steelhead. No other fish are released from AFTC.

Program Highlights....

Nutrition

Ron Twibell conducted fatty acid analyses on 94 egg samples from the Mora National Fish Hatchery and Technology Center to gain a better understanding of the nutritional requirements of Gila trout.



Ron Twibell working at the Gas Chromatograph
USFWS: Ann Gannam

A cooperative project with Purdue University looking at the effects of plant oil versus marine oil diet on reproduction in rainbow trout (*Oncorhynchus mykiss*) was finished with the completion of the sample and data analyses.

As part of Fish Feed Quality Control, Ron Twibell and Susan Ostrand analyzed 11 fish feed samples from Pacific and Pacific Southwest Region NFHs. As part of the routine analyses, all feeds were checked for rancidity. Ann Gannam wrote the feed memos and contacted the feed mills when necessary. She also had an inspection trip to Rangen for the manufacture of the Abernathy Diet for both Spring Creek and Lahontan NFHs.

Nathan Hyde, new biotech in nutrition, has started work. He is from the Western Washington FWO in Lacey, WA and has jumped right in to the chemical laboratory work with both feet.

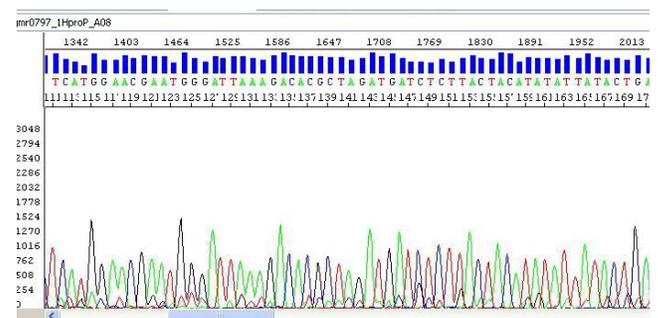
Conservation Genetics

Lindsay Godfrey began rapid response analysis of potential broodstock for two projects. The first project provides genetic identification of ESA listed winter run Chinook collected at Keswick Dam on the Sacramento River, CA for use at Livingston Stone NFH. This is a joint project with the Red Bluff FWO and Coleman NFH. The second project uses genetic identification to differentiate between summer and winter Hood River steelhead collected at Powerdale Dam in collaboration with Oregon Department of Fish & Wildlife.

Brice Adams optimized microsatellites for an analysis of genetic relationships and comparison of burbot collected from the Wind River in WY with burbot propagated at Garrison NFH.

Brice Adams began rapid response genetic determination of population of origin for bull trout in the Clark Fork River, MT this month. This is the 7th year of providing genetic assignment information to Avista Corporation to be used in facilitating connectivity of bull trout around three Clark Fork Dams.

Until April 2010, AFTC used external contractors to generate nucleic acid sequence data. Brice Adams has developed sequencing protocols and successfully generated very nice, complete sequence data for burbot, our first project since recently completed software upgrades that require sequence data.



Picture of burbot (*Lota lota maculosa*) sequence
generated by Brice Adams at AFTC
USFWS: Brice Adams

Program Highlights cont....

Ecological Physiology

Will Simpson and Kurt Steinke restored automatic data uploads and performed maintenance on PIT-tag antenna arrays at irrigation canals on the Umatilla River. The antenna arrays are used to determine entrainment and survival of PIT-tagged juvenile steelhead diverted into irrigation canals.

Will Simpson, Kurt Steinke, and Jerone Anderson installed PIT-tag antenna arrays at the mouth of Abernathy Creek. The antenna arrays are used to determine migration timing and demographics of Abernathy Creek steelhead smolts.

Ecological Physiology personnel sampled tidal creek habitats by electrofishing to characterize the community structure for as part of a collaboration with the Pacific Northwest National Laboratory's (PNNL) Marine Sciences Laboratory.

Richard Glenn, James Samagaio, Ben Kennedy, Ashley McNamee, Kyle Hanson, and Ken Ostrand sampled steelhead smolts released into Abernathy Creek for later analysis of gill Na^+ , K^+ - ATPase activity indicative of preparation for outmigration. Subsets of fish were also captured at a screwtrap operated by Washington Department of Fish and Wildlife (WDFW) at the mouth Abernathy Creek and returned to AFTC for a seawater challenge.

Richard Glenn started a collaborative project with Susan Ostrand in the Nutrition Program that measures the differences in gut microflora composition between hatchery and wild steelhead.

Richard Glenn finalized submissions to the Washington state government that were required for waivers on the number and frequency of drinking water tests. These waivers will result in saving AFTC \$7,000 to \$10,000 annually.

Ecological Physiology cont....

Ecological Physiology personnel have begun sample collection for a project in collaboration with the PNNL's Marine Sciences Laboratory. Team members captured juvenile Chinook salmon by beach seine and sampled fish for physiological indicators of habitat condition. The group has also constructed multiple PIT-tag antenna arrays in off channel habitats on the Columbia River to track juvenile salmon emigration through these habitats.



Kyle Hanson & Kurt Steinke transporting to site.
USFWS: Jerone Anderson



Kurt Steinke working on solar panel installation for the PIT-tag arrays.
USFWS: Jerone Anderson

Administration/Facilities

In March and April, 294 adult winter steelhead entered the AFTC holding pond and V-trap. The steelhead included 69 native origin, 174 that originated from the AFTC hatchery and 51 from outside the Abernathy Creek system. Winter steelhead passed above the weir as part of the BPA funded Abernathy Creek steelhead project included 47 native origin and 23 hatchery origin steelhead. Adult collection will continue into June. The first two of three steelhead smolt releases occurred on April 13th and 27th, with approximately 6900 smolts per release. The last release will occur in May.

The Abernathy Creek electric barrier weir was turned off and a v-trap was installed in the ladder during a break in the weather in early March.

John Baugher from BPA helped AFTC fish biologists collect biological samples from adult steelhead for an afternoon. John is Manager for the Abernathy Creek steelhead project, AFTC's largest and most integrated research project.

Mary Peters from Lower Columbia River Fish Health Center (FHC) visited to discuss adult steelhead sampling protocols, collect pre-release samples of steelhead smolts, and provide fish health advice.

Rick Jones from BPA conducted an energy audit of AFTC. He made minor recommendations, but major savings would best come from the construction of new energy efficient facilities.

Dr. Heida Diefenderfer from PNNL visited and gave a presentation titled "Using tidal wetland reference sites for restoration planning and assessment in the lower Columbia River and estuary: A case study of *Picea sitchensis* swamps".

International SNP III Workshop

Denise Hawkins, Brice Adams and Christian Smith attended the SNP III Workshop in Blaine WA. This was an internationally attended meeting organized to share continued development and application of single nucleotide polymorphism assays for use in multiple species.



Attendees of the SNP III Workshop
SNP III Organizing Committee

Reports and Publications

Olsen J. B., T. D. Beacham, M. Wetklo, L. W. Seeb, C. T. Smith, B. G. Flannery, and J. K. Wenburg. 2010. The influence of hydrology and waterway distance on population structure of Chinook salmon *Oncorhynchus tshawytscha* (Walbaum) in a large river. *Journal of Fish Biology* 76:1128–1148.

Kevin Williamson and Denise Hawkins finalized the annual report for a genetic analysis of egg box efficacy titled "Pedigree analysis reveals relative abundance of juvenile hatchery steelhead outplanted as eyed eggs in the Yankee Fork Salmon River, Idaho". This project was in collaboration with the Shoshone-Bannock Tribes.

Ken Ostrand and Will Simpson completed a report titled "Fisheries monitoring system: Umatilla project facilities." The report describes the entrainment, bypass, and survival of ESA-listed steelhead smolts at Umatilla River irrigation diversions during emigration.

New Faces at Abernathy....



James Samagaio
Biological Technician
Ecological Physiology

James was born and raised in Longview/Kelso, Washington. He received an Associates of Arts and Sciences in Biology from Lower Columbia College (LCC) in 2006 and a Bachelor of Science in Fisheries Biology from Humboldt State University (HSU) in 2008. While attending LCC and HSU, James was a student employee for AFTC. In previous years, he worked locally for WDFW as a Science Technician 2 and for NOAA Fisheries as a North Pacific Groundfish Observer out of Dutch Harbor, Alaska. James enjoys bass fishing, basketball, kayaking, rock jumping, and occasionally dancing (swing, break, etc). Comedic relief and competitive sports keeps him feeling alive. That sizzling 75 degree mark in late August always brings a smile to his face... you just can't keep him away from the water. Camping, hiking, swimming, boating, and riding eco-friendly wave runners all summer long are ideal, but work always comes first. James takes pride in his job; it must be a part of his competitive nature.



Jerone Anderson
Electronics Technician
Ecological Physiology

Jerone is from Northeast Ohio and attended college at Ohio University where he received an undergraduate degree in mechanical engineering and a master's degree in industrial and systems engineering. Jerone's research focus was in computer modeling of nonlinear systems. His thesis used artificial neural networks and Bayesian belief networks to analyze interactions between ecological variables and their effect on net ecosystem metabolism as an indicator of estuarine health. Jerone worked as a graduate assistant in the Ohio University Automatic Identification Laboratory for two years. He worked with barcodes and RFID tags among other technologies. He was also a member of a team which designed and built a 2D barcode verifier for GS1. Jerone's research interests continue to be in forecasting using computer modeling and in applications of RFID. When he is not working with computers and technology he enjoys hiking and photography.



Nathan Hyde
Biological Science Technician
Nutrition

Nathan grew up in Washington and has been resident of the state all of his life. He has lived in small towns across much of Western Washington. Nathan attended High School in Battle Ground and college in Ellensburg (Central Washington University). His previous appointment with FWS was with the Washington FWO. Before working in fisheries he was employed as a chemist in the environmental testing field. Nathan's number one hobby is flyfishing but he also enjoys golfing, woodcutting, hiking, gardening, bible prophecy, home improvement projects, and bird watching. His current project is a solar panel and he hopes to build a bunch of them and give less money to PUD.



Ashley McNamee
STEP Student
Ecological Physiology

Ashley grew up in Chinook, Washington where she graduated from Ilwaco High School. She is currently attending Mt. Hood Community College in Gresham Oregon. Ashley has an Associate Degree in General Studies and is working on her second AA in Fisheries Technology. She previously worked at Big Creek Fish Hatchery and Eagle Creek NFH. She became interested in fish while in high school working on charter boats as a deck hand. Ashley enjoys gardening, fishing, camping and traveling.

Workshops, Conferences, and Meetings....

Nutrition:

- Ron Twibell and Ann Gannam participated in NOAA's monthly Feeds conference call in March and April.
- Ann Gannam, Ron Twibell, Susan Ostrand, Jeff Poole and John Holmes attended the World Aquaculture Society (WAS) Aquaculture 2010 in San Diego, CA. Ann, Ron, and Susan made presentations.

Gannam: "Probiotics in finfish aquaculture"; Twibell, Gannam, Ostrand, Holmes & Poole: "Effects of a marine fish oil-free diet on growth and fatty acid composition of first-feeding rainbow trout and steelhead"; and Ostrand, Glenn, Gannam: "Inhibitory effects of rosemary *Rosmarinus officinalis* oil on six common finfish pathogens".

- Ann Gannam also co-chaired a session with Dr. Delbert Gatlin: Feed Additives for Health.
- Susan Ostrand and Ron Twibell presented their talks from the WAS meeting to the staff at AFTC.

Conservation Genetics:

- Pat DeHaan and Denise Hawkins participated in a conference call with Nolan Banish, Klamath FWO and Jason Dunham, US Geological Survey to discuss potential genetic monitoring of Klamath Basin bull trout.
- Christian Smith attended the Annual Klickitat White Salmon Fisheries & Watershed Science Conference in The Dalles, OR hosted by The Yakama Nation, FWS, and BPA.
- Christian Smith and Denise Hawkins attended a presentation by Mike Hudson on at the Columbia River FPO (CRFPO) titled "Lower Columbia River Cutthroat".
- Pat DeHaan attended the annual Lewis River bull trout working group meeting held at Merwin Dam. The meeting was attended by staff from FWS (AFTC, WO-ES, CRFPO), WDFW, PacificCorp, and US Forest Service. Planning for the proposed rapid analysis of Lewis River bull trout was discussed.
- Denise Hawkins, Patty Crandell and Kenneth Ostrand attended Pisces training given by BPA in Portland, OR. Pisces is the automated system used to administer BPA contracts.
- Christian Smith participated in a graduate committee meeting for Molly McGlaufflin at the University of Washington.
- Christian Smith participated in a Warm Springs NFH hatchery evaluation team meeting via phone. Plans for upcoming genetic monitoring were discussed.
- Pat DeHaan travelled to Mt. Hood, OR to discuss plans for a genetic evaluation of bull trout in the Mt. Hood National Forrest.
- Christian Smith attended a White Salmon/Condit Dam removal workgroup meeting at the Spring Creek NFH. Planning for monitoring after dam removal was discussed.
- Denise Hawkins attended a Pacific Rim Chinook Coordination meeting at the NOAA Northwest Fisheries Science Center in Seattle, WA. The meeting was attended by genetic labs involved with Chinook throughout their range and was organized to coordinate selection of single nucleotide polymorphism markers for use in parentage and population assignment of Chinook.

Workshops, Conferences, and Meetings, cont....

Ecological Physiology:

- Will Simpson and Kurt Steinke consulted with Warm Springs NFH and personnel from Confederated Tribes of Warm Springs on methods for PIT-tag detection of salmonids and lamprey at remote locations and within hatchery facilities.
- Will Simpson attended the Western Division meeting of the American Fisheries Society (AFS) in Salt Lake City, UT. He gave a presentation titled "Entrainment, bypass, and survival of ESA-listed steelhead smolts at federal irrigation diversions during emigration."
- Richard Glenn also attended the Western Division meeting of the AFS in Salt Lake City, Utah. He gave a presentation titled "The use of a quantitative PCR primer/probe set to observe infectivity of *Yersinia ruckeri* in steelhead and Chinook."

Administration/Facilities:

- Patty Crandell and Judy Gordon met with Brad Thompson from the Western Washington FWO to discuss future collaborations regarding climate change and modeling.
- Patty Crandell participated in a 2 day meeting as a member of the FHC Workforce Planning Team. The Team finalized a white paper for the Fisheries Program line supervisors containing options for strategic placement of FHC program workforce capacity and infrastructure.
- Patty Crandell and Christian Smith participated in an Eagle Creek NFH Hatchery Evaluation Team meeting.
- Patty Crandell, Kyle Hanson, and Ron Twibell participated in a Spring Creek NFH Hatchery Evaluation Team meeting. Kyle presented results of his research about stress in adult Chinook returns to Spring Creek.
- Neil Thompson, an Oregon State University graduate student visited AFTC. He discussed collaborative research ideas with several of the staff.
- Judy Gordon and Denise Hawkins attended the DOI Conference on the Environment in Portland, OR. The session discussed the coordination of Landscape Conservation Cooperatives among other topics.
- Toni Scholder attended Dreamweaver IV and Photoshop training at New Horizons in Beaverton, OR.
- Vince Bocci attended the Administrative Workshop which was held in Portland, OR. Current fiscal year summaries were provided by regional staff.

Learning About....

Genetics....

Christian Smith presented a DNA extraction experiment for a class of 29 fourth grade students at Robert Grey Elementary School in Longview WA.

Connecting with Nature....



Susan Ostrand presenting the backpack at the Longview Public Library
Longview Public Library

Susan Ostrand received funding again this year from Connecting People with Nature. Her project involves developing more backpacks for use at local libraries. The backpacks are filled with activities that concentrate on nature and outdoor pursuits specific to the city of Longview and surrounding areas. This year some of the backpacks have a career theme to show kids the different areas of study in the biological sciences that allows you to work outdoors.

Science of Pathology....

Richard Glenn attended a Cub Scout Den meeting and introduced the scouts to fisheries science including showing the internal anatomy of a fish, teaching the proper use of pipettes, the use of a scale, and allowing scouts to use cotton swabs to sample surfaces for bacterial growth. Scouts were also given FWS outreach materials including literature, coloring books, and stickers.

Fish Technology Centers....

Judy Gordon gave an FTC overview presentation to the participants in the National Conservation Training Center Fisheries Academy class and to twenty students in the Fisheries Technology class at Mt. Hood Community College.

Outreach cont....

Longview Earth Day

Susan Ostrand, Ann Gannam and Lindsay Godfrey participated in the Longview Earth Day event. A FWS booth was set up at the event with information about the AFTC. It included materials about invasive species, protecting frogs in your backyard and volunteering at FWS facilities along with a table where kids could use recycled materials to make crafts.



Susan Ostrand assisting a young visitor with crafts.



USFWS: Amanda Bryson

MESA (Mathematics Engineering Science Achievement) Day at Clark College, Vancouver, WA.

Ann Gannam participated in MESA Day at Clark College in Vancouver, WA and the Parachute Egg Drop (this event was designated as a physics exercise). She explained what the students needed to do to build their egg parachute. Students had to build a parachute for their egg that would prevent it from breaking when dropped from 5 m and if successful then 10 m. Middle school and high school students participated.

Cowlitz/Wahkiakum Sophomore Career Fair

Susan Ostrand participated in the Cowlitz/Wahkiakum Sophomore Career Fair at the Lower Columbia College in Longview, WA. Nine hundred sophomores from eight high schools attended up to three sessions to hear professionals talk about their careers and the education and training required, job outlook, working conditions, etc. A FWS DVD was shown entitled: *Conserving the Nature of America: An Overview of the U.S. Fish and Wildlife Service* to introduce the students to careers within the FWS. A short power point presentation was also given about AFTC.