



In this Issue:

New Kiosk	1
Program Highlights	2
Reports and Publications	6
Workshops/Conferences/Meetings	7
Employee Spotlight & More	10
Outreach	11

Director's Greeting....

The holiday season is always a time for reflection. So as we wind down 2011, we look back on the past year to take note of what we have been able to accomplish to ensure the continued presence of our aquatic resources. We also look forward to new challenges and opportunities. On behalf of the staff here at AFTC we wish you all a joyous New Year!

New Information Kiosk

Staff:

Administration:

Judy Gordon, Center Director
Patty Crandell, Deputy Center Director
Vince Bocci, Administrative Officer
Toni Scholder, Administrative Assistant
Mark Hack, IT Specialist
Jim Lowell, Maintenance Worker
John Holmes, Fish Biologist
Jeff McLaren, Biological Technician
Scott Gronbach, Facilities Op Specialist

Nutrition:

Ann Gannam, Regional Nutritionist
Ron Twibell, Fish Nutritionist
Jeff Poole, Extruder Operator
Nathan Hyde, Biological Technician
Heidi Hill, Fish Nutritionist
James Barron, SCEP Employee

Conservation Genetics:

Denise Hawkins, Regional Geneticist
Christian Smith, Conservation Geneticist
Pat DeHaan, Conservation Geneticist
Brice Adams, Biological Technician
Matt Smith, Fish Geneticist
Jennifer Von Bargaen, Lab Geneticist

Ecological Physiology:

Kyle Hanson, Acting Program Head
Ben Kennedy, Fish Ecologist
Richard Glenn, Microbiologist
Will Simpson, Fish Ecologist
Kurt Steinke, Electronics Engineer
Jerone Anderson, Electronics Technician

Modeling and Management Decision Support:

Doug Peterson, Senior Scientist



USFWS

We are proud to announce the completion of our new information kiosk! Now as visitors come in AFTC's entrance road and with our new parking lot design, (more inside on this), they are directed towards the kiosk. The entrance side provides a history of the facility from ~1960 when it began operations as a National Fish Hatchery to the present with research as the sole focus. The parking lot side describes the four Applied Research Programs and their activities with a brief summary of the fish and wildlife to be found in or near Abernathy Creek. This is a significant outreach tool which would not have been possible without the hard work and dedication of former and current Program Heads Ken Ostrand and Denise Hawkins, and Deputy Center Director Patty Crandell. Thanks everyone!

Program Highlights....

Nutrition

Heidi Hill (formerly Lewis) submitted a letter of intent for a US Department of Agriculture, Agriculture and Food Research Initiative: National Institute of Food and Agriculture (AFRI NIFA) Postdoctoral Fellowship Grant and was invited to submit a full proposal. The proposal is entitled, "Influence of dietary fatty acids on vulnerability of Pacific salmonids to ultraviolet radiation." She is currently writing the full grant proposal.

Heidi Hill compiled the Fall 2011 newsletter for the American Fisheries Society Fish Culture Section. It can be found at:

<https://sites.google.com/site/fishculturesection/home/newsletters-google-docs>

As part of Fish Feed Quality Control, Nathan Hyde, Ron Twibell and Heidi Hill analyzed 18 feed samples in November and December for fish feed quality. As part of the routine analyses, all feeds from the hatcheries were checked for rancidity. Ann Gannam wrote the feed memos and then contacted the feed mills when necessary.

Members of the Nutrition Program made sockeye starter for Idaho Fish and Game (IDFG). Preparation and completion of the diet required work the week before and after the feed run.

Ann Gannam attended a Contracting Officer Technical Representative (COTR) refresher class in Albuquerque, NM. She is the COTR for the fish feed contract for the Pacific and Southwest Pacific regions.

Conservation Genetics

Christian Smith performed analyses for the broodstock genetic profile for Livingston Stone NFH, and worked with project leaders at Warm Springs NFH and Quinault NFH to develop genetic profiles for spring Chinook salmon and steelhead broodstocks, respectively. As broodstock genetic profiles are completed, they are posted to the Abernathy FTC web site at:

http://www.fws.gov/aftc/congen_genetic_profiles.html



Shasta Dam on the Sacramento River in California. Endangered winter-run Chinook salmon are raised at Livingston Stone NFH.
USFWS

Jennifer Von Bargaen attended Foundations training at National Conservation Training Center (NCTC).

Jennifer Von Bargaen completed data conversion for the annual Bonneville Power Administration (BPA) funded steelhead reproductive success project. This conversion provided data for nearly 2000 steelhead comparable to previous year's data for trend comparisons.

Program Highlights cont....

Conservation Genetics cont....

Brice Adams began lab work on the annual end of year samples for our Clark Fork River bull trout project funded by and in collaboration with Avista Corp.

In the lab, Jennifer Von Bargaen started processing bull trout samples for additional analyses of bull trout from the Deadwood/Payette River. The objective of this project is to use genetic assignments to examine entrainment patterns for bull trout collected below Deadwood Dam. During 2011, we added additional samples and loci to our baseline dataset to increase our assignment ability, and we provided genetic assignments for a number of unknown bull trout collected below Deadwood Dam. Our partners on this project include the US Bureau of Reclamation, the US Forest Service (USFS) Boise National Forest, and the FWS Boise ES office.

Brice Adams and Christian Smith gave a tour of the lab to a student from Chehalis High School. She is using molecular genetic techniques in a school project and wanted to see the types of equipment available in our program, learn more about the types of projects carried out by the FWS, and get some advice on how to proceed with her project.

Ecological Physiology

Will Simpson and Jerone Anderson began operating Passive Integrated Transponder (PIT) tag antenna arrays at irrigation canals on the Umatilla River, OR. The antenna arrays are used to determine entrainment and survival of PIT tagged Endangered Species Act listed juvenile mid-Columbia steelhead diverted into irrigation canals.

Ecological Physiology

Richard Glenn completed analyzing tissue swabs from Columbia spotted frogs (*Rana luteiventris*) for the presence of amphibian chytridiomycosis fungal infection. This work was a collaboration between the FWS Nevada FWO and AFTC to determine if frogs from multiple populations in NV had been exposed to the fungal infection.

Jerone Anderson and Kurt Steinke developed a proposal for installation of four PIT tag reader arrays for monitoring Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) passage through culverts in Maggie Creek, NV.

Jerone Anderson and Kurt Steinke developed a script for the Meteor Burst modem that allows it to connect directly to the Destron-Fearing FS1001M multiplexer and transmit its data.

The three new pass-over antennas in Abernathy Creek that were dug into the substrate continue to function. The results are encouraging, and pass-over antennas may be able to be left in year-round without damage from high water events.



Three new PIT-tag antenna were installed in Abernathy Creek in a pass-over configuration designed to prevent damage from high flows and debris. These antennas will be used to track movements of PIT-tagged juvenile steelhead throughout the winter and spring.

Program Highlights cont....

Administration/Facilities

The 2 month long parking lot paving project at AFTC was completed at the end of November. The new parking lot boasts an eco-friendly drainage system, 38 parking spaces (including two ADA and two visitor), a nearly three-foot high retaining wall in front of the main office, 140' of sidewalk and an ADA ramp leading from the kiosk to the main office entrance.



Parking lot at AFTC under construction.
USFWS: S. Gronbach



New parking lot at AFTC completed.
USFWS: S. Gronbach

Facilities personnel installed an IT Security access point was installed in accordance with DOI network requirements preventing unauthorized access to the AFTC's network hardware.

Administration/Facilities cont....

Facilities personnel completed the annual HVAC/furnace maintenance and added more than 800 gallons of fuel to AFTC's diesel tanks in preparation for the winter weather. Debris removal from rain gutters and the replacement of three downspouts was also conducted in addition to the winterizing of several outside water service connections.

Facilities personnel installed and built a road over a culvert placed in the outer fringe of the street which now allows ATV access to AFTC's domestic water reservoir. Similarly, 20 tons of top soil was placed behind the main office building to mitigate an excessive height difference between the first step of the staircase and the ground and also to level off the uneven landscaping terrain.

Facilities personnel have been actively correcting longstanding safety issues. During the past two months, additional flood, emergency, and motion detecting lighting has been installed on multiple assets.

Facilities Operations Specialist Scott Gronbach received his certification as a Water Distribution Specialist from the WA State Department of Health and also completed the FWS Foundations course at NCTC.

Safety meetings were conducted for the entire staff. Topics discussed were Driving Safety and Holiday Safety Tips. Similarly, the AFTC Safety Committee held their quarterly meeting and discussed upcoming annual safety evolutions as well as updating various components of the AFTC's safety manual.

Program Highlights cont....

Administration/Facilities cont....

Staff started capturing adult winter steelhead as part of project “Natural Reproductive Success and Demographic Effects of Hatchery-Origin Steelhead in Abernathy Creek”. Twenty-nine steelhead were captured in November and December: 2 natural-origin steelhead (released upstream), 8 hatchery-origin steelhead (retained for broodstock) and 19 out of basin stray steelhead. The capture of returning adult steelhead will continue into June.



Steelhead from Abernathy Creek.
USFWS: J. Holmes

The coho salmon run ended in December with a total of 97 captured in 2011 (23 females, 41 males, 23 jacks), Seven sea-run cutthroat trout (1 female, 6 males) were also captured during November and December.



Cutthroat trout from Abernathy Creek.
USFWS: J. Holmes

Modeling and Management Decision Support

Doug Peterson, in collaboration with Kyle Hanson (Ecological Physiology) and Chris Pasley (Winthrop NFH), continued work on a modeling exercise to explore how changes in temperature and stream flow may affect salmon production within the Winthrop NFH. Winthrop NFH is the pilot facility for a larger assessment effort encompassing all Pacific Region NFHs. In early December, Doug focused on collating hatchery rearing data, water use, and projected surface water availability (under future emissions scenarios) for the Winthrop NFH. He then related that information to flow and density indices – metrics used by hatchery managers to coordinate culture of different salmon stocks – to identify periods in the rearing cycle of summer steelhead where changes in surface water availability may result in stressful or unacceptable environmental conditions that lead to bottlenecks in the life cycle of these fish.

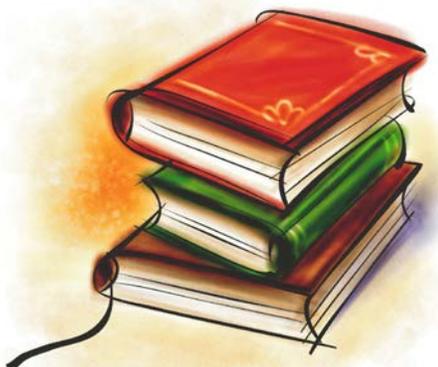
Doug Peterson was contacted by FWS Mountain-Prairie Region (Montana) ES and the Partners for Fish and Wildlife to assist with technical reviews of draft conservation plans for Arctic grayling under a Candidate Conservation Agreement with Assurances (CCAA) for Arctic grayling in the Big Hole River, MT, one of the largest CCAs in the country. The parties are currently setting up the statement of work and anticipate that reviews will begin in December 2011.

Conservation Genetics

DeHaan, Patrick W., Shana R. Bernall, Joseph M. DosSantos, Lawrence L. Lockard, and William R. Ardren. 2011. Use of genetic markers to aid in re-establishing migratory connectivity in a fragmented metapopulation of bull trout (*Salvelinus confluentus*). *Can. J. Fish. Aquat. Sci.* 68: 1952–1969

Hawkins, D. and B. Adams. 2011. Genetic characterization of Pacific lamprey (*Entosphenus tridentata*) in Agency Creek, a tributary to the South Yamhill River (Willamette Basin, OR). Abernathy Fish Technology Center Report.

Von Bargaen, Jennifer and Denise Hawkins. 2011. Genetic Distinction of Summer-Run and Winter-Run Steelhead in the Hood River, Oregon: Rapid Response Genotyping for Hatchery Broodstock Selection. Abernathy Fish Technology Center Report.



Ecological Physiology

Crandell P., J. Holmes, J. McLaren, J. Poole, D. Hawkins, M. McGlaufflin, A. Gannam, R. Twibell, W. Simpson, B. Kennedy, K. Steinke, K.C. Hanson, R. Glenn, J. Anderson and K. Ostrand. 2011. Natural reproductive success and demographic effects of hatchery-origin steelhead in Abernathy Creek, Washington. Annual Report 2011. United States Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife.

Hanson, K.C., and R.A. Glenn. 2011. Results of screening for the presence of amphibian chytridiomycosis fungal infection in Columbia spotted frog (*Rana luteiventris*) populations in Nevada. U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, Reno, NV, 89502. Abernathy Fish Technology Center Report.

Hanson, K.C. 2011. The feasibility of initiating cryopreservation of salmon gametes at Region 1 National Fish Hatcheries. Abernathy Fish Technology Center Report.

Hanson, K.C., K.G. Ostrand, and W.S. Simpson. 2011. Fisheries monitoring system: Umatilla Project facilities. U.S. Bureau of Reclamation, Umatilla Project Office, Hermiston, OR, 97838.

Workshops, Conferences, and Meetings....

Nutrition:

- Ann Gannam and Kyle Hanson (Ecological Physiology) attended a two day Lamprey Supplementation Workshop. They have been asked to work on lamprey nutrition. This work would be in collaboration with US Geological Survey (USGS) and the Yakama Nation.
- Nathan Hyde attended the “Biofuels Co-products Workshop in Aquatic Feeds” workshop in HI put on by the Oceanic Institute. He was able to visit their laboratory before the workshop and observe analytical techniques for amino acid analysis that will be useful in the Nutrition Program.
- Ann Gannam had a conference call with Carl Schreck , Rob Chitwood and Julia Unrein all from Oregon State University (OSU) and David Noakes from the Oregon Hatchery Research Center (OHRC) to discuss new feed ideas for producing wild-like Chinook salmon. They have provided the OHRC with a small amount of diet to test.
- Ann Gannam talked with Bob Rose of the Yakama Nation to discuss the upcoming lamprey request for proposal from the Chelan PUD.

Conservation Genetics:

- Doug Olson and David Hand, Columbia River FPO, (CRFPO) met with Christian Smith and Denise Hawkins to discuss on-going, and potentially new, spring Chinook work in conjunction with Roger Sorensen at the Warm Springs NFH. The results of the FONS funded NFH Genetic Profiling project were discussed.
- Matt Smith and Denise Hawkins participated in a conference call with Lytle Denny, Kurt Tardy, Mike Haddix, and Dan Stone from the Shoshone-Bannock Tribes. A new statement of work for the continuation of the Panther Creek spring Chinook genetic analysis was discussed in addition to some potentially new projects.
- Denise Hawkins met with Don Campton and Paul Heimowitz at the Regional Office to discuss plans for moving forward with testing environmental DNA (eDNA) applications. They also participated via video conferencing in a seminar and discussion at the Boise FWS office given by David Pilliod (USGS).
- Denise Hawkins participated in the monthly Pacific Region Fisheries Project Leaders call to discuss Parentage Based Tagging (PBT). PBT is the process of using genetic parentage analyses to mark all juveniles produced at a hatchery. The technique requires collection and genotyping of all broodstock from participating hatcheries for the brood years assessed.
- Pat DeHaan and Denise Hawkins met with Shaun Clements and members of the Oregon Department of Fish and Wildlife (ODFW) Native Fish Research Program in Corvallis, OR. Pat and Denise gave a presentation that outlined the types of projects carried out at AFTC Applied Program in Conservation Genetics. The ODFW staff presented summaries of their on-going work. The group discussed the potential for future collaborative efforts.
- Denise Hawkins participated in a bull trout Recovery Monitoring and Evaluation Group (RMEG) conference call. The group reviewed the documents that will be provided to the FWS bull trout technical team for use in the current Recovery Planning Process.

Workshops, Conferences, and Meetings cont....

Ecological Physiology:

- Kyle Hanson and Ann Gannam met with representatives from the Confederated Tribes and Bands of the Yakama Indian Nation, Confederated Tribes of the Umatilla Indian Reservation, USGS, and FWS at the Columbia River Inter-Tribal Fish Commission office in Hood River, OR, to discuss proposed research into Pacific lamprey (*Lampetra tridentata*) aquaculture methods.

Administration/Facilities:

- Patty Crandell participated in a Pacific Region Climate Change Board meeting via phone.
- Patty Crandell, Doug Peterson, and Kyle Hanson participated in a Fisheries Program Climate Change Planning Team meeting via phone. The meeting was held to discuss presentations to be given at an upcoming FRO meeting.
- Judy Gordon, Patty Crandell, Doug Peterson, and Kyle Hanson attended a multi-day FRO Project Leader's Meeting in Leavenworth, WA. Doug Peterson and Kyle Hanson gave a presentation entitled, "Summary of Model Development for Pacific NFHs Vulnerability Assessment".
- Judy Gordon, Federal Representative, attended the quarterly meeting of the OHRC's Advisory Committee Meeting in Corvallis, OR. Also in attendance were two AFTC staff as invited speakers. Christian Smith gave a presentation entitled, "Genetic Monitoring of National Fish Hatcheries and Natural Populations in the Pacific Region". Kyle Hanson gave a presentation entitled, "Natural Reproductive Success and Demographic Effects of Hatchery-Origin Steelhead in Abernathy Creek, WA".

Modeling and Management Decision Support:

- Doug Peterson attended meeting to discuss aquatic organism passage (AOP) research on cutthroat trout at the USFS Regional Office in Portland, OR. Attendees included scientific, engineering and biological staff from the USFS Siuslaw National Forest, USFS Regional Office, and the USGS Forest and Rangeland Ecosystem Science Center.
- Doug Peterson met with Helen Neville (Trout Unlimited, Boise, ID) at the CRFPO in Vancouver, WA. The purpose of the meeting was to organize and select tissue samples from westslope cutthroat trout collected in summer 2011 that will be genotyped for parentage analysis and individual assignment as part a larger project to evaluate fish passage.
- Doug Peterson traveled to Corvallis, OR to meet with Drs. Jeff Falke (OSU), Kris McNyset (US Environmental Protection Agency), and Jason Dunham (USGS Forest and Rangeland Ecosystem Science Center) to discuss and coordinate efforts to develop decision support tools to assess fire and climate impacts on bull trout.
- Doug Peterson held a conference call with Rick Taylor (University of British Columbia) and Bill Ardren (FWS Northeast Region) to discuss analysis of a genetic dataset to examine the evolutionary history of Arctic grayling and the origins of a disjunct population in MT. A plan also was formulated to extract DNA from 100 year-old museum specimens with intent of understanding the evolutionary history of now-extinct Michigan Arctic grayling.
- Doug Peterson participated in a number of teleconferences with staff from the Pacific Regional Office, Winthrop NFH, Mid-Columbia River FRO, and AFTC to discuss progress on the region's effort to assess potential climate change impacts on NFH facilities. A draft framework to model how changes in surface water availability may affect hatchery production has been developed, and is awaiting additional data hatchery programs so the draft model can be applied to the Winthrop NFH.

Modeling and Management Decision Support cont...

- Doug Peterson and Kyle Hanson (Ecological Physiology) coordinated with Nate Mantua at the University of Washington's Climate Impacts Group (CIG) to compile a dataset of downscaled climate projections (air temperature, precipitation, routed surface water flows) spatially referenced to the Region's NFHs. The data will be used to help evaluate potential climate change impacts on these hatcheries, and will provide a methodologically consistent dataset for that purpose.
- Doug Peterson attended a webinar on the use of BayesiaLab as a software tool for inference and reasoning using probabilistic models.
- Doug Peterson traveled to the USGS Columbia River Research Lab in Cook, WA to meet with Joseph Benjamin, and discuss potential research collaboration on ecosystem effects of hatchery salmon.

Employee Spotlight and more....



Vince Bocci
Administrative Officer

Vince Bocci is a native of the Pacific Northwest having been raised in Portland, OR. He grew up in lower SE Portland in an area once known as Little Italy and remains passionate towards his heritage and traditions. He has worked as a federal civil servant since 2002 in the area of Financial/Budget Analysis and Administration. Vince served in the U.S. Air Force Reserve from 1995 – 2010 in the area of Financial Management. This is where he learned many aspects of government accounting. In the fall of 2006 Vince was hired as AFTC's Administrative Officer. This position provides much satisfaction helping our facility manage and execute the funds we are entrusted with.

Vince currently resides in Vancouver, WA. When he is not working he is spending time with his wife Cherri and their two chocolate labs. They have four grown children that are now living their dreams outside the house. They love to travel whenever possible and especially enjoy any coastline wherever it may be. An ideal weekend would be relaxing and making a meal from scratch while having guests over to enjoy the meal and socialize.

Former resident visits AFTC

AFTC was visited by Mr. Michael Jacobson, a resident of Abernathy Fish Technology Center starting in 1960.

Mr. Jacobson moved to AFTC in 1960 with his family. His was one of the first families to live at AFTC. He said the other two houses were already occupied when they arrived. His father worked at AFTC and they lived in the house currently occupied by Jeff Poole. The family then moved to Hagerman NFH where his father (and eventually he) was employed. He is now retired from the FWS but works for the University of ID, Hagerman Lab. He noticed all the changes at AFTC. Previously, the lab building was the hatchery, there was no hatchery building and where the Conservation Genetics and Ecological Physiology Programs are, there were large tanks. Mr. Jacobson has family in the Longview area and he was visiting the area for Thanksgiving.

MESA DAY

Math and Science Day promotes math and science literacy, and career options to middle school students with innovative, interactive and engaging hands-on science exhibits, demonstrations and lab activities. MESA (**M**athematics **E**ngineering **S**cience **A**chievement) connects math, engineering and science to everyday life, helping students envision themselves in these careers. MESA primarily serves under-represented and minority students and their families: African American, Native American, Latino, women, etc., by closing the achievement gap and offering support systems for entering college. SW WA MESA currently runs programs in six area middle schools and one high school in the Evergreen, Vancouver and Washougal school districts.

AFTC continued its annual participation in SW WA MESA's Math and Science Day by providing 4 separate sessions on fish diversity to ~40 students. Heidi Hill and Jennifer Von Barga created an interactive 30 minute lesson on fish diversity in WA State and DNA. A short oral presentation was given to introduce and teach students about fish diversity and the basics of DNA, including what one can learn from genetic material. Students participated in a discussion on some of the more common species of fish found in WA and were given the opportunity to precipitate suspended DNA out of solution, making it easily visible to the naked eye.