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## Focus on Youth



YCC crew doing stream assessment on Abernathy Creek with Kyle Hanson. USFWS

**Staff:**

**Administration & Facilities:**

Judy Gordon, Center Director  
 Patty Crandell, Deputy Center Director  
 Vince Bocci, Administrative Officer  
 Toni Scholder, Administrative Assistant  
 Mark Hack, IT Specialist  
 Scott Gronbach, Facilities Op Specialist  
 Jeff Poole, Water Treatment Plant Operator  
 Jim Lowell, Maintenance Worker

**Conservation Genetics:**

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

**Physiology & Nutrition:**

Kyle Hanson, Acting Regional Physiologist  
 Richard Glenn, Microbiologist  
 John Holmes, Fish Biologist  
 Ann Gannam, Regional Nutritionist  
 Ron Twibell, Fish Nutritionist  
 James Barron, Fish Biologist  
 Kelli Hawke, Biological Science Tech

**Quantitative Ecology & Technology:**

Doug Peterson, Senior Scientist  
 Ben Kennedy, Fish Ecologist  
 Will Simpson, Fish Ecologist  
 Kurt Steinke, Electronics Engineer

Kids rarely get the opportunity to learn or take part in conservation activities since not enough youth oriented conservation education and training opportunities exist. The result is that kids often don't feel engaged in conservation and competing activities and careers capture their attention. In an effort to reverse this trend, AFTC staff provided hands-on, aquatic-themed, science-focused activities designed to deliver our conservation message to local kids.

### Youth Conservation Corps (YCC) Creek Day

A YCC crew consisting of Wahkiakum High School (WHS) students and their leader Jeff Rooklidge, a Biology/Environmental Science teacher at WHS, spent the day working with AFTC staff in Abernathy Creek. The students were educated by AFTC scientists in stream assessment techniques, then they applied their training in the stream. They gathered information about the aquatic habitat and its invertebrates using nets and snorkeling. The invertebrates were evaluated and counted using microscopes in the laboratory. The kids also collected information about the stream itself. An outreach document/video is being created for social media that may stimulate further interest in conservation.

See the Outreach section for or more information about AFTC's youth outreach activities.

# Program Highlights....

## Physiology & Nutrition

Ron Twibell and James Barron analyzed 17 feed samples for Fish Feed Quality Control in July and August. As part of the routine analyses, all NFH feeds were checked for rancidity. Feed memos were sent to the NFHs and the feed mills.

Ron completed proximate composition analysis on steelhead sampled as part of a study of the effects of recirculating aquaculture systems on fish reared at Hagerman NFH.

A project that looks at the impacts of rearing coho salmon in flows found in recirculating aquaculture systems was started in July, and Ron analyzed fish for proximate composition. This trial is the second in a series that investigates the impacts of rearing Pacific salmon in flows commonly seen in recirculating aquaculture systems. The first trial with steelhead was completed in spring of 2014. This study was funded by the Fishery Resources Program's Fisheries Operations and Needs System (FONS).



Juvenile coho salmon prior to stocking  
In recirculating aquaculture system tanks.  
USFWS: A. Gannam

## Physiology & Nutrition cont....

James and Jeff Poole developed an in-line mixing cell and completed a flow through water heating system for the sucker rearing facility. The new water heating system will allow for precision control of water temperatures for rearing studies of warm water suckers.



Juvenile Lost River suckers are being reared at AFTC to develop aquaculture techniques and appropriate diets.  
USFWS: J. Barron

Richard Glenn, Kyle Hanson, and Kelli Hawke participated in the annual electrofishing survey on Abernathy Creek. Juvenile steelhead are captured, sampled for genetic analysis, and passive integrated transponder (PIT) tagged as part of a study funded by Bonneville Power Administration (BPA) that looks at the genetic and demographic effects of an integrated hatchery program on wild populations.

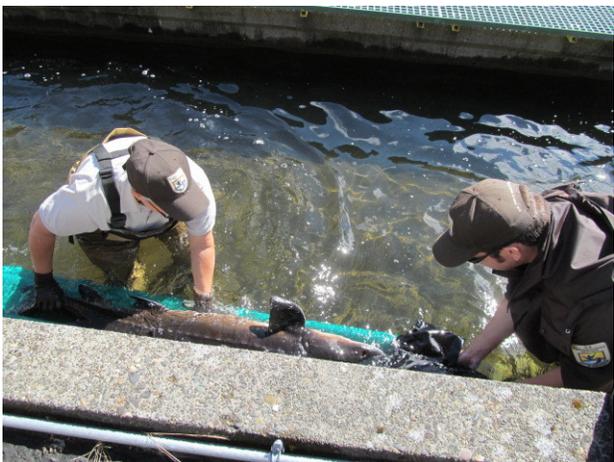
## Program Highlights cont....

### Physiology & Nutrition cont....

Kyle and Kelli sampled white sturgeon with researchers from Dalhousie University, Nova Scotia, as part of a collaborative project that investigates the impact of stress on sturgeon behavior and physiology.



Kyle Hanson and Kelli Hawke assisting with the sturgeon study.  
USFWS: T. Scholder



Kyle Hanson and Kelli Hawke preparing to release the sturgeon after study preparation.  
USFWS: T. Scholder

Richard completed analysis of sockeye salmon gill samples for a project with Puget Sound Energy. Sockeye salmon passing through a floating surface collector in the Baker River system were sampled and gill biopsies were analyzed to determine if capture at the structure impacts seawater tolerance of migrating smolts.

### Physiology & Nutrition cont....

Staff continued research and development of diets for juvenile Lost River suckers. Six experimental diets were formulated and prepared at AFTC, and fish growth and condition will be monitored in a 60 day feeding trial. Ron analyzed the six experimental sucker diets for proximate composition and analyzed fat and fatty acids in sucker whole bodies. James completed image analysis/data acquisition for the initial sucker feeding trial which compared live feed to two commercial dry feeds. These studies were funded in cooperation with the Klamath Falls FWO.



Ron Twibell sampling juvenile Lost River suckers at the start of the 60 day trial.  
USFWS: J. Barron

Richard completed analysis of steelhead gill samples collected from the Sacramento River and Winthrop NFH. The samples were collected for a project that describes the gene expression patterns associated with smoltification or residualism in juvenile steelhead. This study was funded by FONS.

## Program Highlights cont....

### Conservation Genetics

Jennifer Von Bargaen and Brice Adams conducted rapid response genetic analysis of winter run Chinook salmon in cooperation with Livingston Stone NFH (117 fish), Clark Fork River bull trout in cooperation with Avista Corporation (15 fish), and Lewis River bull trout in cooperation with PacifiCorp (1 fish).

Jennifer and Brice extracted DNA from 380 steelhead from Abernathy Creek and analyzed 25 microsatellite markers in these samples. Results of this work will be used to compare reproductive success of hatchery-origin and natural-origin fish for a BPA funded project.

Pat DeHaan and Brice worked with Avista Corporation to collect bull trout and westslope cutthroat trout in the lower Clark Fork River, MT. The samples are being analyzed to improve our knowledge of genetic diversity in native salmonids in the Clark Fork River.



Avista and Idaho Department of Fish and Game biologists electrofishing in Strong Creek, ID. Bull trout recently began spawning upstream in Strong Creek following modification of a barrier. *USFWS*

### Conservation Genetics cont....

Christian Smith, Richard Glenn, Scott Gronbach and Vince Bocci conducted genetic sampling at Carson NFH during spawning. The samples will be used in a collaborative effort between FWS and the Columbia River Inter-Tribal Fish Commission (CRITFC) to better understand migration of and fisheries targeting Columbia River Chinook salmon.



Scott Gronbach assisting with the sampling of Chinook salmon during spawning at Carson NFH. *USFWS*

Jennifer extracted DNA from 317 listed Klamath suckers, and analyzed 25 microsatellite markers in these samples. Results of this work will be used to inform species recovery in cooperation with Klamath Falls FWO.

Brice extracted DNA from 564 Chinook salmon from the Sacramento River. Results of this work will be used to evaluate natural populations of Chinook in the vicinity of Coleman NFH.

## Program Highlights cont....

### Quantitative Ecology & Technology

Will Simpson and Doug Peterson visited Malheur NWR to conduct some pilot work on a project to determine whether invasive carp can be controlled by targeting eggs and embryos with electrofishing. They surveyed water sources in the NWR to determine conductivity, captured carp and collected eggs, and tested an experimental chamber where the eggs and embryos will be exposed to the electrical current.



Will Simpson and Doug Peterson preparing to inject a common carp with a hormone to induce spawning. *USFWS*



Linda Beck, biologist at Malheur NWR (in uniform), and crew who provided field assistance and logistical support during AFTC's site visit to the NWR. *USFWS*

### Quantitative Ecology & Technology cont....

Doug, Will, Ben Kennedy, Kurt Steinke, and Kyle Hanson met with NOAA biologists near Clatskanie, OR to learn about their efforts to design antennas for a new PIT tag reading system and to visit a PIT tag interrogation site in the Columbia River.



AFTC and NOAA staff visiting a PIT tag interrogation system installed on a pile dike in the Columbia River near Westport, OR *USFWS*

Kurt conducted a site visit in upper Clackamas River to help Columbia River FPO biologist Jennifer Poirier with antenna design and troubleshooting of a PIT tag interrogation system for bull trout.

Roger Tabor, Washington FWO, visited AFTC and received technical assistance from Kurt Steinke on antenna design and operation for a system to detect movement PIT tagged sculpin.

Will traveled to Trout Lake, WA and gave a presentation to high school students about the Cascades Pika Watch program and monitoring climate sensitive pika.

# Program Highlights cont....

## Administration & Facilities

Patty Crandell participated in the Fishery Resources Program's Conservation Hatchery Workshop with other PLs from the Program. The workgroup developed a framework that provides a systematic approach for determining if and when Pacific Region Fishery Resources Program should consider conservation hatchery programs for species conservation and recovery.

AFTC supervisory staff finished their 8 hours of EEO training as required for FY14.

AFTC staff finished updating their accomplishments for FY14.

Patty, Bill Gale (Mid-Columbia River FRO) and Kyle met in the Pacific Region Regional Office to discuss the Quilcene NFH vulnerability assessment.

Patty turned in the hosting paperwork for the 2014 Hatchery Management Training.



Recent visitors to AFTC taking a shortcut through the parking lot.  
USFWS: T. Scholder

## Administration & Facilities cont....

Scott Gronbach completed a Comprehensive Condition Assessment (CCA) at the Eagle Creek NFH for the Fishery Resources Program. Each CCA conducted at each facility every five years includes a complete review of each asset on station, a review of each open work order in FBMS/SAMMS, and a thorough current replacement value on each asset in the unfortunate event that it has to be replaced completely.

During the past two months, Scott worked 7 days for the Navy as he prepared for deployment at the end of September in support of contingency operations overseas.

The Abernathy Creek Side-Channel Restoration Project, managed by the Cowlitz Indian Tribe, began in late August. This project intends to improve coho salmon overwinter habitat as well as restore historic creek flows on AFTC's property.



Freshly placed logs stabilize a new channel for overwintering coho juveniles. Note the cabling on the right just above the root ball anchoring the tree to the boulder.  
USFWS

## Program Highlights cont....

### Administration & Facilities cont....

After nearly a year of consistent efforts, Scott completed the extensive environmental permit requirements to work in the creek and stabilize the bankline adjacent to the northern side of the AFTC bridge via the replacement of large diameter riprap. Permits received include a State Environmental Policy Act (SEPA) Exemption and Hydraulic Project Approval (HPA) from WDFW, Shoreline Management Exemption from Cowlitz County Dept. of Bldg & Planning, Endangered Species Act & Section 7 Concurrence Letter from NOAA, a National Historic Preservation Act (NHPA) Section 106 Compliance Letter from FWS, a Nationwide Permit (NWP) 33 from the USACE, and a Biological Assessment (BA) from the FWS. The Doyon Group intends to complete the riprap replacement project in September.

Several AFTC personnel met with Tim Mayer and Stephen Pilson from the RO to discuss AFTC's current and future well and creek water rights, as well as the unique water control systems on station. As hoped, the current water rights are intact and are flexible enough to allow for continued AFTC operations into the distant future.

Scott assisted in the collection of Chinook samples at the Carson NFH. Although his snipping skills have yet to be refined, he still enjoyed the experience of spawning fish and working collaboratively with other Pacific Region field station employees. Scott also assisted with e-fishing and looks forward to doing it again next season.

### Administration & Facilities cont....

Facilities project activities included a roof replacement, concrete wall construction, and a new building installation. Contractors replaced the garage section of the metal selective breeding building roof in hopes of thwarting running drips and leaks on personnel and stored equipment; provided 3 cu. yards of concrete mix for a new wall and floor below the weir's electrical control building; and installed a 680 square foot carport behind the electric weir building which will permanently house AFTC's boat and trailer.



Contractors in the process of replacing the garage roof.  
USFWS: T. Scholder



New carport to house the boat and trailer.  
USFWS: S.Gronbach

## Administration & Facilities cont....

Jeff Poole and Jim Lowell took advantage of the low flows in the creek to remove large amounts of river rock and sediment in front of the intake screens as well as a very large boulder that mysteriously found its way inside the intake structure. Through a series of ropes, nets and chains, they were able to remove the submersed rock and increase directional flows into the intake. Jim, Jeff and Scott also used the dry weather to pressure wash buildings and walkways, remove weeds in and around the asphalt areas, and weed whack around the settling pond, pollution abatement pond and the single lane bridge.

Additional corrective maintenance activities during the past two months included replacing sections of damaged chain link fence due to a fallen maple tree, replacing the front gate armature sensor, replacing the batteries and pads to the AED (Automated External Defibrillator), draining the refrigerant from a faulty freezer, patching cracked concrete surrounding handrails, and replacing leaking bathroom faucets and toilets.



Fallen maple tree soon to be firewood for the residence.  
USFWS: T. Scholder

## Administration & Facilities cont....

### New Employee



Kelli Hawke  
Physiology & Nutrition  
Biological Science Technician

Kelli grew up all over the west coast and is a recent graduate of the fisheries program at Mt. Hood Community College, Gresham, OR. She served in and is retired from the US Army. She and her family now live in the Longview area.

When not at work, Kelli enjoys fishing and watching the Women's National Basketball Association (WNBA).

## ***Physiology & Nutrition:***

- Ann Gannam and Ron Twibell participated in a conference call with NOAA partners about the development of diets for culture of sturgeon.
- Ann, Ron, and James Barron participated in a conference call with partners at the CA/NV FHC about ongoing research into developing rearing techniques and diets for endangered Lost River Suckers.
- Ann participated in the annual meeting with the Science Support partnership (SSP) committee.
- Ron provided Hazardous Communication training for the AFTC staff.
- Ann attended the National Conservation Training Center (NCTC) Pesticides and Fish & Wildlife course held in Portland, OR.
- Kyle Hanson presented results of the Winthrop NFH Climate Change Vulnerability Assessment to the North Pacific LCC Steering Committee in Lacey, WA.

## ***Conservation Genetics:***

- Matt Smith and Jennifer Von Bargen met with Klamath Falls FWO staff and US Geological Survey (USGS) scientists to provide information regarding genetic work underway on endangered Lost River and shortnose suckers of the Klamath River basin.
- Pat DeHaan completed a three day job shadow with Steven Zylstra, Assistant Regional Director for Science Applications, in the RO.
- Christian Smith participated in the Coleman and Livingston Stone NFHs Hatchery Coordination Team meeting.
- Christian participated in a FWS Genetics Community of Practice teleconference.
- Brice Adams presented preliminary results for a genetic analysis of the endangered plant Spalding's Catchfly at the North America Congress for Conservation Biology in Missoula, MT.
- Pat and Matt attended a two day training course hosted by Northwest Environmental Training Center in Portland, OR entitled "Visualizing & Analyzing Environmental Data Using R."

## ***Administration & Facilities:***

- AFTC employees participated in the regional All-Employee Webex.
- Patty Crandell participated in a Regional Climate Board meeting by phone. Topics included: climate change and stream temperature workshop, carbon footprint reporting, R1 long-term aquatic monitoring program for climate change at NWR's.
- Patty with Bill Gale of the Mid-Columbia River FRO by phone about Quilcene VA.

## **Administration & Facilities cont...**

- Patty and Kyle Hanson took part in the Fishery Resources PL meeting in Vancouver.
- Quarterly safety committee meeting was held in July.
- Doug Peterson, Ben Kennedy, and Will Simpson completed the Motorboat Operators Certification Course.
- Scott Gronbach collected the long-term radon gas tests on station. The findings of the tests conclude that each of the original residences have high levels (anything over 4 pCi/L's per EPA) of radon gas which will need to be mitigated in FY15.
- Proper personal protective equipment (PPE) usage while performing lawn care and the annual hazardous communications were the topics of discussion during the past months' safety trainings.

## **Reports and Publications**

Hanson, K.C., and D.P. Peterson. 2014. Modeling the potential impacts of climate change on Pacific salmon culture programs: an example with three species at Winthrop National Fish Hatchery. *Environmental Management*. 54:433-448.

Glenn, R.G., A.L. Gannam, and S.E. LaPatra. 2014. The lack of effectiveness of rosemary oil on fish feed in controlling bacterial cold-water disease in Rainbow Trout. *North American Journal of Aquaculture*. 76:359-363.

Smith, C. T., R. French, J. Lovtang, and D. Hand. 2014. Genetic composition of the Warm Springs River Chinook Salmon population maintained following eight generations of hatchery production. *Transactions of the American Fisheries Society* 143: 1280-1294.

DeHaan, P., B. Adams, and J. Von Bargen. 2014. Genetic analysis of native salmonids from the Lake Pend Oreille and Clark Fork River system, Idaho and Montana. AFTC Final Report.

## BBQ and Badminton!



USFWS

On July 30<sup>th</sup>, AFTC employees enjoyed some hot sunny weather, good food, and some light recreation during our annual lunchtime summer BBQ. Matt Smith, Ben Kennedy, and Pat DeHaan brought in a number of items for the grill and took turns preparing the food for everyone. Other employees brought in a number of delicious side dishes and desserts and, as usual, there was plenty of food to go around. Will Simpson's homemade ice cream was certainly one of the highlights of the day. After lunch, Vince Bocci organized a raucous game of bocce ball that featured Doug Peterson and Kelli Hawke narrowly defeating Ben Kennedy and Kyle Hanson 10-9. James Barron organized a doubles badminton tournament which included 6 different teams. The competition got pretty intense but in the final match, the team of Brice Adams and Will Simpson beat Matt Smith and Doug Peterson and took home the custom trophies. Everyone had a great time despite temperatures in the 90s F and there is already talk of badminton rematches for next year.



## Catapult to College



Catapult to College STEM (Science, Engineering, Technology, and Math) Camp is designed to encourage middle school students towards careers in the STEM fields. AFTC staff and Donna Allard from Columbia River FPO provided a salmon themed activity (<http://idahoptv.org/dialogue4kids/season7/fish/Hooks%20and%20Ladders.pdf>) to almost 100 Longview middle school students at Lower Columbia Community College. Judy Gordon directed students through the *Hooks and Ladders* game. The activity demonstrated to students the difficulties salmon have migrating and returning to spawn by allowing them to try to migrate through dams, predators, anglers etc.

## Cowlitz County Fair

AFTC had a booth at the Cowlitz County Fair, July 23<sup>rd</sup> -27<sup>th</sup>, presenting information about research conducted at the facility. Pamphlets concerning Pacific salmon, invasive species, pollinators, fish friendly gardening and others were made available and word games, mazes and posters with fish themes were given to the children visiting the booth. Over the course of the fair, about 300 people visited the booth.



## Ongoing Projects....

Diet development for Lost River and short nose suckers in the Klamath River Basin (Klamath Falls FWO, California/Nevada FHC)

Effects of flow regime on juvenile coho salmon condition (Freshwater Institute, Fishery Resources Program via FONS)

Evaluation of steelhead reared in a reuse aquaculture system at Hagerman NFH (Hagerman NFH)

Fish Feed Quality Control (NFHs)

Climate change vulnerability of Pacific Region National Fish Hatcheries (Mid-Columbia FRO, Fishery Resources Program)

Feed type comparison at Entiat NFH using summer Chinook salmon (Entiat NFH, Olympia FHC)

Genetic analysis of bull trout in the Lewis River system (Washington FWO, Columbia River FPO, PacifiCorp, US Forest Service, Washington Department of Fish and Wildlife).

Relative reproductive success of hatchery and wild steelhead in the Deschutes River basin (Oregon Department of Fish and Wildlife, Idaho Department of Fish and Game, Columbia River Intertribal Fish Commission).

Population genetic structure of Spalding's catchfly (Idaho FWO).

Testing genetic monitoring tools proposed by California Hatchery Review (Red Bluff FWO).

Genetic needs assessment for endangered Lost River and shortnose suckers of the Klamath River Basin (Klamath Falls FWO, US Geological Survey).

Rapid response genetic analysis of threatened bull trout trapped at dams in the Clark Fork River, MT (Avista Corporation, Confederated Salish Kootenai Tribes, Idaho Department of Fish and Game, Kalispel Tribe of Indians, Montana Department of Fish Wildlife & Parks, Montana Ecological Services Field Office, Pend Oreille PUD, Pennsylvania Power & Light, MT).

Genetic identification of endangered winter-run Chinook salmon in the Sacramento River, CA (Livingston Stone NFH, Red Bluff FWO, NOAA Fisheries).

Natural reproductive success and demographic effects of hatchery-origin steelhead in Abernathy Creek, WA (Bonneville Power Administration, Washington Department of Fish and Wildlife).

Collection of samples for parentage-based tagging of Chinook salmon at Carson NFH (Columbia River Intertribal Fish Commission, Columbia River FPO, Lower Columbia FHC, Carson NFH).

## *Ongoing Projects....*

Entrainment and bypass of ESA-listed salmon in irrigation diversions in the Umatilla River (Bureau of Reclamation)

Suppression of common carp in Malheur Lake using electrofishing to target eggs and embryos (Malheur NWR)

Strategic modeling of bull trout conservation actions in the lower Clark Fork River (Avista)

Antenna design for the Biomark IS1001 PIT tag reader (NOAA)

Genetic baseline Makah (Makah NFH)