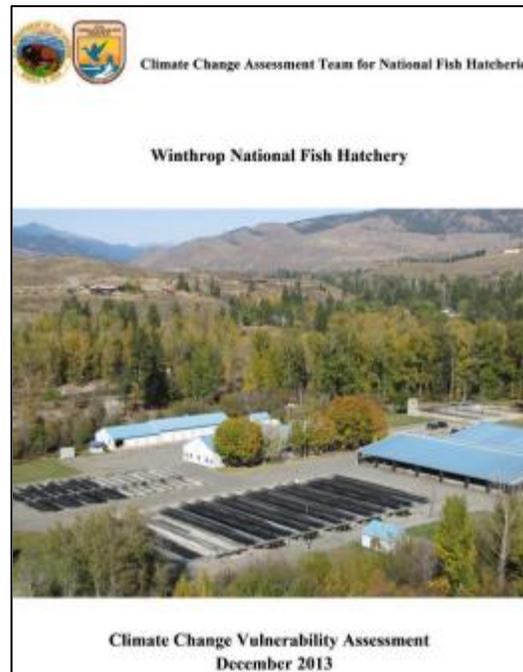




In this Issue:

Vulnerability Assessments	1
Program Highlights	2
Reports and Publications	7
Meetings and Training	8
Morale Boosters	10
Employee Spotlight	11



NFH Climate Change Vulnerability Assessments

Staff:

Administration & Facilities:

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

Conservation Genetics:

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

Quantitative Ecology & Technology:

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

One of the ways the FWS Pacific Region Fisheries Resources Program (Program) is addressing the challenge presented by climate change is by conducting an extensive evaluation of the vulnerability of its NFHs. The Climate Change Assessment Team (Assessment Team) for NFHs, with input from the Program, initiated quantitative vulnerability assessments in 2011 with a pilot facility, Winthrop NFH and is currently working on the vulnerability assessment for Quilcene NFH.

The Assessment Team focused on NFH vulnerabilities at the local level, recognizing that while other agencies and researchers have been evaluating climate change vulnerabilities of migration corridors, ocean conditions and other risks, no other entity would be evaluating the vulnerability of FWS facilities and programs to the changing climate.

Several staff from AFTC have been involved in producing vulnerability assessments for the NFHs in the Pacific Region. The vulnerability assessment for Winthrop NFH was recently finalized by the Assessment Team: Bill Gale, Mid-Columbia River FRO; Patty Crandell, Kyle Hanson, Doug Peterson, AFTC; Chris Pasley, Winthrop NFH; and Don Campton, RO, with assistance from the Winthrop NFH Hatchery Evaluation Team (HET). The report and appendices may be obtained by contacting AFTC or from Sharepoint. ([link](#))

Program Highlights....

Conservation Genetics

Matt Smith conducted a parentage analysis on adult and juvenile steelhead captured by State of OR biologists on the Deschutes River. The goal of this project is to compare the reproductive success of steelhead in the presence and absence of hatchery-origin stray steelhead.

Dan Bingham completed population and parentage analyses on steelhead from Abernathy Creek. The results of this work are being used to evaluate the impacts of conservation hatcheries on endemic populations of steelhead.

Dan Bingham resigned his position as Fish Geneticist to pursue other career opportunities on February 21st.

Brice Adams extracted DNA from 460 Oregon chub, and analyzed 9 microsatellite markers across these samples. The resulting data are being used by FWS and the State of OR to improve our understanding of the genetic impacts of various stocking strategies.

Jennifer Von Barga and Brice Adams began our annual evaluation of endangered winter run Chinook salmon broodstock for Livingston Stone NFH. Fin clips of potential brood fish are express-shipped to AFTC, where they are analyzed using 96 single nucleotide polymorphism (SNP) markers and are classified as winter run or non-winter run based on the genetic data. Results are shared with the NFH within 24 hours of the samples arriving at AFTC. This analysis is repeated weekly from February through July, and has been conducted every year since 2003.

Conservation Genetics cont....

Pat DeHaan provided genetic data and analyses for Lake Pend Oreille bull trout to our partners at Seattle City Light, University of British Columbia and University of Montana as part of a collaborative evaluation of the relicensing of Boundary Dam.

Physiology & Nutrition

Program staff analyzed 23 feed samples for Fish Feed Quality Control (FFQC) as well as raw ingredients (6) for the open formula Abernathy Diet manufactured at Rangen, Inc. Results of the ingredient analyses were used to formulate the Abernathy Diet. As part of the routine analyses, all feeds from the hatcheries were checked for rancidity. Feed memos were sent to the hatcheries and the feed mills. In addition, Ron Twibell produced and distributed the 1st quarter FFQC report for FY14.

Ron Twibell submitted a proposal to Sea Pact, a sustainable seafood alliance, to fund a project involving the use of poultry fat as a substitute for fish oil in salmon feed.

Adult Abernathy Creek steelhead were captured for potential use as broodstock in a Bonneville Power Administration (BPA) project looking at the relative reproductive success of wild and hatchery steelhead. Forty-two fish were from AFTC production and held for broodstock, and three were out-of-basin strays which were euthanized. The last coho salmon were captured and transported upstream. The total size of the coho salmon run was 104 fish (31 females, 45 males, 28 jacks).

Program Highlights cont....

Physiology & Nutrition cont....

Nathan Hyde resigned his position as BioTech in the nutrition laboratory to pursue human nutrition interests.



Nathan Hyde at Kessler Elementary Career Day
USFWS: A. Gannam

Kyle Hanson and Richard Glenn collected gill biopsy samples during BPA funded Abernathy Creek steelhead passive integrated transponder (PIT) tagging operations. These samples will be analyzed to determine the development of seawater preparedness of juvenile steelhead across hatchery rearing.

Ron Twibell and James Barron trained Richard Glenn on updated standard operating procedures in the nutrition laboratory. Richard has prior experience in the nutrition laboratory, and will be lending a hand in the lab in the upcoming months.

Program staff made extruded feed for Dr. Jonathan Eya, West Virginia State University (WVSU). The feed will be used in a project to determine whether water temperature and dietary manipulation influences the expression of nuclear- and mitochondria- encoded respiratory oxidative genes associated with nutrient retention efficiency, growth and developments in fishes when fed animal/plant protein combinations or plant-based alone.

Physiology & Nutrition cont....

Ron Twibell took the lead on analyzing fish body samples from Carson NFH for proximate analysis and fatty acid profiles. The study is designed to evaluate alternative feeding methods to reduce precocial maturation in Chinook salmon. Final sampling of fish will occur this spring at the facility.

Richard Glenn and Kyle Hanson collected gill biopsies and proximate condition samples from steelhead that are part of an evaluation of the effects of raising fish in a constant flow regime at AFTC. This study is funded by Fisheries operations and Needs (FONS). For this study, AFTC staff modified circular tanks to mimic the constant flow found in recirculating aquaculture systems.

Sean Connolly, Pacific RO, picked up specially designed lamprey tanks constructed by James Barron to be used in classroom outreach projects. The tanks are designed to show the behavior of juvenile lamprey after they have burrowed into the sand.



Lamprey tank designed by James Barron.
USFWS: J. Barron

Physiology & Nutrition cont....

Drs. Jonathan Eya, Dayan Perera and Rodrigue Yossa from WVSU visited AFTC. Dr. Eya is one of our partners and we had just completed a project with him. He and his colleagues were stranded in Seattle after the World Aquaculture meeting because of weather on the East Coast and were therefore free to visit.



From left to right, Jonathan Eya, Rodrigue Yossa and Dayan Perera. *USFWS: A. Gannam*

Quantitative Ecology & Technology

Doug Peterson continued to work on a modeling project for Avista Corporation's Native Salmonid Restoration Plan for the lower Clark Fork River. He participated in two webinar updates to research partners at the Avista and traveled to Noxon, MT to conduct a two-day modeling workshop with collaborators with Avista; ID Fish and Game (IDFG); MT Fish, Wildlife and Parks (MFWP); US Forest Service; and Prairie Mountain Region of the FWS.

Ben Kennedy reviewed a paper for Northwest Science and served as subject editor for the FWS's Journal of Fish and Wildlife Management.

Quantitative Ecology & Technology cont....

Ben Kennedy, Will Simpson, Kurt Steinke and Doug Peterson worked with Richard Glenn and Kyle Hanson to implant PIT tags in 1,500 juvenile steelhead. The fish will be released, as smolts, into Abernathy Creek and are part of a BPA funded project to assess reproductive success of an integrated hatchery population of steelhead.

Will Simpson assisted in the creation of a presentation given at The Wildlife Society annual meeting in Bend, OR detailing the progress of Cascades PikaWatch, a citizen science project monitoring the distribution and occupancy of Pacific Northwest pika.

Damon Goodman and Stewart Reid, with the FWS in Arcata, CA, visited AFTC and worked with Kurt Steinke to design and construct antennas to detect movements by Pacific lamprey.

Administration & Facilities

Patty Crandell and Vince Bocci met with Karleen Grossenbacher from the RO (B&F) to discuss AFTC's budget situation in FY2014. Karleen admitted it would be difficult to obtain a reasonable estimate until more budget information was made available, but she did give them some hints about understanding the process.

Administration & Facilities....cont

Vulnerability assessment related activities:

- Patty Crandell helped to finalize documentation for the Winthrop NFH Vulnerability Assessment with Bill Gale from the Mid-Columbia River FRO.
- Patty Crandell participated in a discussion with Bill Gale from the Mid-Columbia River FRO and Sean Connolly, Fisheries Resources, RO, about building a website that would make documentation and information about NFH vulnerability assessments available to internal and external partners and the public.
- Patty Crandell met with Bill Gale from the Mid-Columbia River FRO and Denise Hawkins from the WA FWO in a two day meeting to discuss and write sensitivity and background sections for the Quilcene NFH vulnerability assessment.
- Patty Crandell provided information to the Quilcene NFH HET about the status of the ongoing vulnerability assessment for the NFH. She also asked the HET for assistance with editing and adding additional information to the background and sensitivity sections of the draft report.

Administration & Facilities....cont

Eli Asher, Restoration Ecologist from the Cowlitz Indian Tribe (Tribe) gave a brown bag presentation at AFTC. Eli is managing a habitat restoration project that will reopen a small side channel of Abernathy Creek on AFTC property. The restored channel will provide overwintering habitat for coho salmon juveniles. His presentation included: a brief overview of the Tribe's program, the IMW (Intensively Monitored Watershed) restoration plan and work to date, the SRFB (Salmon Recovery Funding Board) priorities in the area, and the rough plan and timeline for work at the AFTC site. He also helped to consume some of the pies available for pie day.

Judy Gordon participated in a meeting of the Science-TEK (Traditional Ecological Knowledge) Subcommittee of the North Pacific Landscape Conservation Cooperative in Seattle, WA. The group discussed priority work areas to submit to the steering committee for a possible request for proposals. This was followed by a conference call with a smaller group, to review and discuss pre-proposals submitted for funding.

Over the past two months, the Facilities Program was able to offer help and receive help from other FWS offices as well as help the environment. Jim Lowell and Jeff Poole assisted the Eagle Creek NFH with several maintenance concerns during a recent visit. From their efforts, much needed repairs were made and replacement parts to several vital systems were identified and ordered.

Administration & Facilities....cont

Scott Gronbach received an education on all-things permits this past month. Scott has taken considerable strides in completing the multitude of permits encompassing this summer's riprap replacement project. Thanks in large part to Yvonne Dettlaff of the WA FWO, he has gained insight into the realm of Endangered Species Act, Army Corps of Engineers, WA Department of Fish & Wildlife (WDFW), Cowlitz County, NOAA Fisheries, and many other agencies' permit requirements. Special thanks to Steve West of the WDFW Vancouver Office for taking a day trip to the site and pointing out some potential hurdles in the planned activities.



Riprap replacement project site.

USFWS

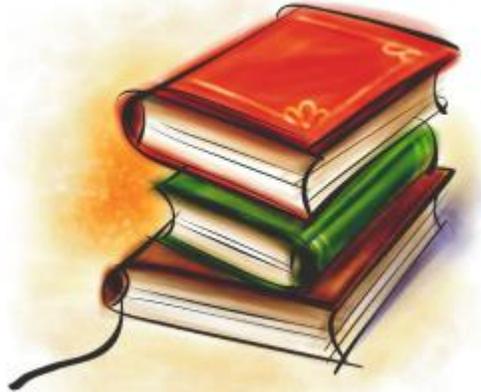
Jim Lowell and Jeff Poole helped our environment by transporting more than two tons of recyclable electronic waste to the Pacific RO in support of the annual recycling event. Additionally, Jim and Ron Twibell removed more than 20 gallons of laboratory chemical waste from the station via contaminant waste recycling activities in cooperation with Waste Control of Longview, WA. Lastly, Jim delivered more than a ton of antiquated polypropylene rings, aka coke rings, used to aerate well water to Northwest Polymers in Molalla, OR to be recycled.

Administration & Facilities....cont

Jeff Poole and Scott Gronbach met with Tim Mayer (Water Resources Branch) in the Pacific RO to fully understand the water rights at AFTC. Jeff has begun to capture the effects of changing our pumping activities against the water rights and also understand what future climate changes to the Abernathy Creek will mean to AFTC's rearing abilities. Hamer Electric installed a new wiring harness and outdoor outlets onto the aeration tower so that new efficient flow meters can be properly installed and utilized to track and measure our volatile aquifer.

Safety, as usual, was a centerpiece at AFTC. Monthly discussions included Electric Weir Safety (thanks John Holmes!) as well as the 100% staff participation in the National Safety Council's Defensive Driving course. The AFTC Safety Committee also met to discuss the lingering safety concerns from 2013. AFTC had a 2-day inspection by Robert Scott from the Occupational Safety Health Administration (OSHA). Although we received high marks overall, there are some programmatic changes that AFTC will adopt in 2014 in order to improve safety communications and procedures.

During much of the past two months, Scott Gronbach was on orders working for the Navy in and around the Bremerton, WA area as well as attending the coveted Junior Officer Professional Development course in Ft. Worth, TX. He hopes to apply some of the managerial techniques learned in this course to his FWS position.



Conservation Genetics:

DeHaan, P. W., C. Pascal, and J. E. Seeb. 2014. Novel SNP Genotyping Assays Facilitate Species Identification of *Salvelinus* Collected in a Recreational Fishery. *North American Journal of Fisheries Management* 143:164–172.

DeHaan, P., and B. Adams. 2014. Rapid response genetic analysis of bull trout collected in the Lewis River, WA. AFTC Final Report.

Conservation Genetics:

- Matt Smith and Dan Bingham met with Oregon Department of Fish and Wildlife (ODFW) and Portland General Electric to share genetic results for Willamette Basin coho salmon and steelhead.
- Pat DeHaan met with biologists from the MFWP to share the results of a genetic analysis he conducted on Arctic grayling.
- Pat DeHaan hosted two guest speakers at AFTC. The first was Mark Nelson of the Mid-Columbia River FPO, who presented information on “Subadult to adult return ratios of migratory bull trout in the Entiat River”. The second was Professor Kim Scribner from Michigan State University, who presented the results of his work the molecular ecology of lake sturgeon in the Great Lakes.
- Christian Smith participated in a HET meeting for Quilcene NFH.
- Christian Smith, Pat DeHaan and Brice Adams participated in a meeting with our partners at IDFG to discuss testing of the recently created inter-agency database for salmon genetic data. The new database will provide an openly available repository for data generated by agencies, as well as academic and commercial laboratories.

Physiology & Nutrition:

- James Barron had a conference call with Sean Connolly, Pacific RO, and Donna Allard, Columbia River FPO, to describe the design and set up of the lamprey tanks for use in local classrooms.
- Nutrition and Physiology Program staff participated in a conference call with Scott Foote, CA/NV FHC, and Josh Rasmussen, Klamath Falls FWO, to discuss potential research on dietary requirements of endangered Klamath Basin suckers.
- Ann Gannam provided a webinar for staff members of the FWS Dworshak NFHC and members of the Shoshone-Bannock Tribe titled, “Overview of nutritional needs and common nutritional diseases”. The webinar was sponsored by the Idaho FHC.
- Ann Gannam attended a webinar titled, “FDA’s New Rules for Use of Antibiotics in Food Animals”, hosted by the University of Illinois at Urbana-Champaign.
- Kyle Hanson participated in a conference call with staff from Dalhousie University, Carleton University, Fisheries and Oceans Canada, and the British Columbia Ministry of Forests, Lands, and natural Resources to discuss potential research investigating the impacts of recreational and commercial angling on white sturgeon.

Quantitative Ecology & Technology:

- Doug Peterson participated remotely in a meeting to discuss the conservation genetics of the Upper Missouri River Distinct Population Segment of Arctic grayling. The meeting was hosted by MFWP and provided a forum to discuss new population genetic monitoring data that had been generated by AFTC and MFWP for conservation populations of Arctic grayling in the Big Hole River and upper Centennial Valleys, MT.

Quantitative Ecology & Technology:

- Kurt Steinke and Doug Peterson participated remotely in the Malheur Lake Work Group meeting. A meeting objective was to help identify science gaps that need to be filled to better mitigate for the effects of introduced common carp in Malheur Lake.
- Will Simpson attended a PTAGIS Information meeting that introduced new features of the PTAGIS database to Columbia basin researchers.
- Kurt Steinke, Doug Peterson, and Kyle Hanson held a conference call with FWS Fish Biologists in Green Bay, WI, to discuss design and deployment of PIT tag antennas to monitor spawning migrations by lake sturgeon.
- Ben Kennedy met with WDFW personnel to discuss ongoing field work in Abernathy Creek.

Administration & Facilities:

- Patty Crandell participated in a Regional Climate Board meeting by phone.
- Patty Crandell and Judy Gordon participated in two Fisheries Resources Project Leader meetings by phone. Patty provided an update of Climate Change Vulnerability Team's assessment of NFH vulnerabilities. Other topics discussed included: redistribution of duties in the regional office, update on hatchery staffing review and report, relationship of hatchery staffing assessment to succession planning for field vacancies, R1 ARD Fisheries position plan, and FY14 Project Leaders meeting. Both meetings included discussions about the budget.
- Patty Crandell took part in EEO training titled "Reasonable Accommodation: Best Practices", a one-hour webinar to help managers and supervisors better understand the regulations and the Departmental policy requirements of the reasonable accommodation process.
- Patty Crandell and Christian Smith took part in a Conservation Genetics webinar entitled: Environmental DNA (eDNA): An early detection surveillance tool for invasive Bighead and Silver Carp". The webinar was presented as part of a series provided by NCTC and the presenter was Emy Monroe, Geneticist for the FWS La Crosse FHC.
- Judy Gordon and Patty Crandell participated in the PDEExpress (Position Description Express) webinar and Patty also took part in the JAX (Job Announcement Express) webinar. PDEExpress and JAX were developed by HQ to streamline and improve administrative hiring processes.
- Judy Gordon participated in HET Meetings for Quinault and Quilcene NFHs.
- Judy Gordon participated in the monthly Fish Technology Centers' conference call.
- AFTC staff participated in the All Employee WebEx hosted by FWS Director Dan Ashe.
- The Pacific Region Science Coordination Team held a face to face meeting in Portland, OR. Judy Gordon attended the meeting and participated in discussions on the role of the team and how it can be value added to the Pacific Region.

National Pie Day



Continuing our tradition of celebrating food related holidays during lunch, AFTC staff held their second annual National Pie Day Celebration on January 23rd. Not to be confused with the National Pi (3.14159....) Day Celebration on March 14, this one involved both savory and dessert pies. The savory pies were ham and swiss quiche, broccoli and cheddar quiche, pizzas, crawfish pie, and hand-held shepherd's pies. The dessert pies included lemon, strawberry freezer, Dutch apple and pumpkin pies. The pies were all great and we managed to avoid a staff-wide sugar low at about 2:30 pm!

National Chili Day



Team ChiliDawgs



Good Eatin Chili!



Team FireHouse

February 28th marked the second annual National Chili Day celebration at AFTC. The celebration included a fierce competition for best tasting chili, best presentation, and best teamwork awards. Team ChiliDawgs dominated the competition (amid some controversy), winning the best tasting and best presentation awards with their elk and sausage chili. Team FireHouse prevented a full sweep by winning the award for best teamwork with their delicious lamb and bison chili. Team BackDraft opted for a traditional beef chili while Team AfterBurn went out on a limb with their triple pork and whiskey chili. All chili entries were delicious and thoroughly enjoyed by AFTC staff. Thanks to judges Denise Hawkins, WA FWO, and Leanna Birge and Josh Seerup, members of the public touring AFTC.

Photos, USFWS: T. Scholder & W. Simpson

Employee Spotlight....



Patty Crandell
Administration
Deputy Center Director

Patty was born in OR and has lived in every west coast state. She grew up in northern CA and all of her immediate family still lives there. She went to college at UC Davis where she graduated with degrees (BS and Ph.D.) in Genetics with an emphasis on aquaculture and an interest in feeding the world before moving to AK. In AK she worked for the University of AK, the State of AK, and NOAA-Fisheries. Currently, she lives with her family in Ridgefield, WA, in part to be near one of the nicest areas of federal land in Southwest WA, the Ridgefield NWR.

Patty enjoys visiting wild places including NWRs, backpacking, and hiking with her dogs. She volunteers when she can at the Ridgefield NWR. In the summer, she and her dog help to locate and eradicate ricefield bulrush on the refuge. She also likes to hang out and be a bum at home.



Patty and Stella preparing to search for ricefield bulrush at Ridgefield NWR.

R. Bash