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Director's Greeting....

Another year has been successfully completed at AFTC, and again I am extremely thankful for the opportunity to work with such a dedicated staff. This year I want to especially express my thanks for the support staff in the Facilities Program: Scott Gronbach, Jeff Poole, and Jim Lowell. As part of a natural resource conservation agency our goals are measured by the science we accomplish. Yet, none of that work would be possible without the facilities (buildings, equipment, vehicles, water, power, etc.) we use from day to day. The work of these three employees makes it all possible. So on behalf of myself and the rest of the staff: **Thank you!**

Staff:

Administration/Facilities:

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

Nutrition:

- Ann Gannam, Regional Nutritionist
- Ron Twibell, Fish Nutritionist
- Nathan Hyde, Biological Technician
- Heidi Hill, Fish Nutritionist
- James Barron, Biologist

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
- Dan Bingham, Fish Geneticist

Ecological Physiology:

- Chris Taylor, Regional Eco-Physiologist
- Kyle Hanson, Fish Physiologist
- Ben Kennedy, Fish Ecologist
- Richard Glenn, Microbiologist
- Will Simpson, Fish Ecologist
- Kurt Steinke, Electronics Engineer

Modeling and Management Decision Support:

- Doug Peterson, Senior Scientist

Science Advisor Visits AFTC



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Gaby Chavarria, Science Advisor to the Director visited AFTC on October 10. After a tour of the facilities and lunch with the Program Heads, she spent approximately one hour with the staff of each applied research program discussing their research, natural resources challenges, and near-term future directions. She enjoyed the time spent at AFTC and the staff deeply appreciated the fact that she dedicated so much of her valuable time to them.

Program Highlights....

Nutrition

The Nutrition Program analyzed 9 feed samples for Fish Feed Quality Control in September and October, the end of the fourth quarter. 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. Ten experimental diets from Kentucky State University were analyzed for proximate composition. Feed was made for the low phosphorus Fisheries Operations and Needs (FONS) project to be conducted this fall using spring Chinook salmon (fish courtesy of Willard NFH). Ron Twibell submitted the fourth quarter Fish Feed Quality Control summary report.

A final report, "Comparing proximate and fatty acid composition of wild and captive humber lake trout eggs," by Heidi Hill and Ann Gannam was submitted to Mark Holey with FWS Green Bay FWCO.

A data summary, "Lipid content of juvenile white sturgeon *Acipenser transmontanus* reared under different thermal regimes," by Heidi Hill and Ann Gannam was submitted to Mike Parsley at US Geological Survey (USGS) Western Fisheries Research Center Columbia River Research Laboratory

One manuscript from each of these journals was reviewed: North American Journal of Aquaculture, African Journal of Biotechnology, *Grasas y Aceites*, Transactions of the American Fisheries Society, Journal of Applied Aquaculture and the Journal of the World Aquaculture Society.

Nutrition cont....



Heidi Hill in the AFTC Lab

USFWS

Heidi Hill left the Nutrition Program at AFTC in September. She has accepted the position of Research and Development Manager--Aquaculture with Cargill Animal Nutrition in Elk River, MN.

Conservation Genetics

Liam Carter Smith was born on the first day of fall, September 22, 2012. He weighed 7 pounds and was 20 inches long at birth. Matt and Kelly are having quite the adventure as new parents.



Liam Carter Smith

M. Smith

Program Highlights cont....

Conservation Genetics....cont

Jennifer VonBargen, Brice Adams, and Christian Smith worked on genetic broodstock profiles for winter steelhead from Quinault and Makah NFH's.



View of the Tsoo-Yess River from Makah NFH. The Tsoo-Yess River flows past Makah NFH, and serves as a spawning ground for coho salmon, Chinook salmon and steelhead. The Makah NFH winter steelhead broodstock profile features a comparison of hatchery broodstock to the population of naturally-spawned fish in the Tsoo-Yess River.
USFWS: C. Smith

In preparation for moving into a new larger storage building, staff of the Conservation Genetics Program moved all of the sample archives out of their current location. The program currently holds just under 150,000 samples from various fish species.

Brittany Balbag, a Student Conservation Association (SCA) summer intern, completed her term. During her 6 week internship, Brittany worked in the lab making up genetic sample collection kits, extracting DNA for several projects, and learning about analyses. She also assisted with electrofishing efforts in Abernathy Creek and collecting samples from broodstock at Carson NFH. The Program staff will miss Brittany's outstanding attitude and assistance.

Conservation Genetics....cont

In preparation for the annual analysis of Abernathy Creek steelhead reproductive success, Jennifer Von Bargen summarized data for hatchery and natural origin parents and offspring produced during the first eight years of the project. This project, funded by Bonneville Power Administration (BPA), compares the reproductive success of hatchery and natural origin steelhead spawning in Abernathy Creek. Dan Bingham started data generation for the 2012 analysis, extracting DNA and performing PCRs for approximately 2000 steelhead collected from Abernathy, Mill, and Germany creeks. He completed DNA extractions and fragment analyses on all 2012 samples and genotyping is completed for over half of the nearly 2000 samples. Also as part of the Program's QA/QC procedure, Brice Adams has begun the re-extraction and re-analysis of 10% of the samples. The report for these samples will be part of the AFTC annual report submitted to BPA at the end of the year.

Jennifer VonBargen and Christian Smith participated in MIQE (Minimum Information for Publication of Quantitative Real-Time PCR Experiments) Guideline training. The on-line training was provided by IDT – Integrated DNA Technologies and was titled: "MIQE Guidelines: A Roadmap for Proper qPCR Experimental Design and Reporting".

Denise Hawkins represented the Pacific Region on the National Asian Carp Surveillance Team.

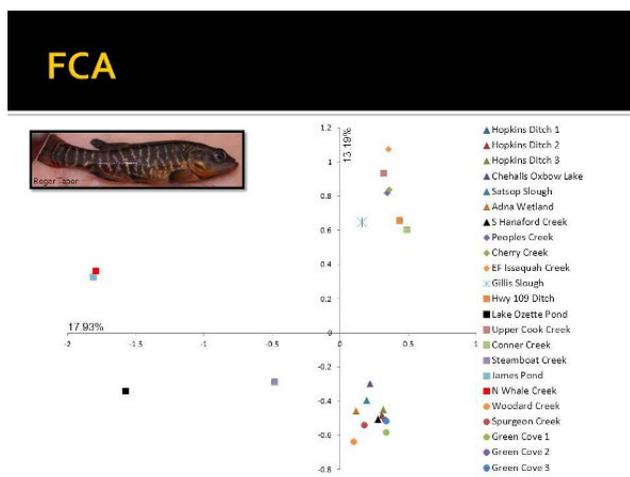
Program Highlights cont....

Conservation Genetics cont....

Pat DeHaan, Brice Adams, and Denise Hawkins attended the Olympic Mudminnow Workshop held in Lacey, WA and hosted by the Washington-British Columbia Chapter of American Fisheries Society (AFS). The workshop was convened with the following two goals:

- Share science on Olympic mudminnow, a native fish that only lives in western WA.
- Establish a partnership coalition capable of developing and implementing a conservation strategy for Olympic mudminnow and their habitat.

Pat gave a presentation titled: Analysis of Genetic Variation in Olympic Mudminnow, which summarized levels of genetic diversity within collections from throughout the range of mudminnow and presented data concerning the potential origin of populations located on the eastern side of Puget Sound.



Factorial Correspondence Analysis showing genetic relationships among the 23 collections of mudminnow. Each point represents a different collection and collections from the same geographic region have the same symbol.
USFWS: P. DeHaan

Conservation Genetics cont....

Christian Smith presented office ergonomics safety training to AFTC staff.

Christian Smith and Kyle Hanson (Ecological Physiology) began collecting RNA samples from AFTC juvenile steelhead. These samples are being used for a collaborative gene expression project between AFTC and University of Victoria to develop tools to predict proportions of hatchery fish which will residualize (not migrate) after release. Six juvenile steelhead will be sampled monthly until release in May to determine changes in RNA amplification associated with smoltification.

Ecological Physiology

Ecological Physiology finished electro-fishing and tagging in Abernathy Creek as part of the BPA steelhead project. 3000 steelhead were Passive Integrated Transponder (PIT) tagged.

Chris Taylor has accepted an Associate Editor position for *Transactions of the American Fisheries Society*.

Chris Taylor was invited to give a seminar at Portland State University titled: "Hatchery fish gone wild: the ecological implications of developing a native steelhead broodstock."

Kyle Hanson and Ann Gannam (Nutrition) prepared data collected from a trip to evaluate the condition of fish being reared at Warm Springs NFH for presentation to the Warm Springs NFH HET.

Richard Glenn finished a growth hormone probe-set report for AFTC.

Ecological Physiology cont....

Kyle Hanson discussed plans for upcoming eulachon research with the lead eulachon biologist for the Cowlitz Indian Tribe, Craig Olds. Research during the 2013 spawning run will focus on the mechanics of egg and larval fish development under deposited sand.

Kurt Steinke provided technical support to Brett Kokes (Mid-Columbia River FRO) for installing a solar array to power a PIT-tag interrogation site.

Ben Kennedy and Ron Twibell attended training in Orofino, ID, about water reuse in aquaculture.

Modeling and Management Decision Support

Doug Peterson (Modeling), Kyle Hanson and Chris Taylor (Ecological Physiology), and Ann Gannam (Nutrition) participated on a conference call with biologists from the Nez Perce Tribe to discuss collaboration on research to understand the effects of petroleum spill on aquatic resources in the Lochsa River, ID.

Doug Peterson worked on a dataset for presence of westslope cutthroat trout in stream segments isolated by culvert barriers. The analysis focuses on modeling the occurrence as a function of habitat size and isolation time and will be used to refine a decision support model for cutthroat trout.

Doug Peterson collaborated with Wade Fredenberg (FWS Ecological Services, Mountain Prairie Region) on a proposal for a spatially-explicit decision support model to help the Avista Corporation implement its Native Salmonid Restoration Plan in the lower Clark Fork River, MT.

Modeling and Management Decision Support cont....

Victoria O'Byrne (SCA, GIS Intern in Modeling) mapped stream flow predictions under future climate change scenarios for watersheds containing NFHs in the Pacific Region. During September and October she focused on: Carson, Dworshak, Eagle Creek, Entiat, Hagerman, Kooskia, Leavenworth, Little White Salmon, Makah, Quinault, Spring Creek, Warm Springs and Willard NFHs. This project supported AFTC's effort to model how climate change may affect the salmon programs at Pacific Region NFHs.

Administration/Facilities

Patty Crandell submitted a response to the proposed funding reductions for BPA funded FWS Research, monitoring and evaluation projects. AFTC's Abernathy Creek steelhead was spared from cuts.

Patty Crandell, Denise Hawkins (Genetics), and Kyle Hanson (Ecological Physiology) submitted the statement of work for the BPA funded Abernathy Creek steelhead project and developed protocols and methods for the project in the required Monitoringmethods.org database.

Doug Peterson (Modeling), Kyle Hanson (Ecological Physiology), and Patty Crandell finished their sections for an initial draft of the Winthrop NFH climate change vulnerability assessment.

Program Highlights cont....

Administration/Facilities cont....

Judy Gordon and Patty Crandell met with the heads of each program (Nutrition, Conservation Genetics, Ecological Physiology, Modeling/Decision Support, Facilities, and Budget) to discuss their ideas and near term (<5 years) plans. The goal of these discussions was to assist in focusing AFTC's resources and to work activities directions.

Judy Gordon hosted a tour of AFTC's electric weir at the request of Smith-Root, Inc., for a group of visiting Norwegian scientists.

The Olympia FHC Open House was held on September 27, 2012, with Judy Gordon, Patty Crandell, Ann Gannam, and Denise Hawkins in attendance representing AFTC.

Judy Gordon attended the Pacific Region's Strategic Habitat Conservation/Surrogate Species Leadership Training, in Portland, OR. This training was an exciting opportunity to learn about the FWS' vision for conservation through the use of surrogate species from the Regional Directorate and questions and answers with FWS Director Dan Ashe.

Andy Goodwin, Pacific Region Fish Health Manager visited AFTC. He received a tour of the facilities, met staff, discussed ways for increased cooperation with the Pacific Region's FHCs.

Judy Gordon and Patty Crandell hosted a visit from Jackie Ferrier and Eva Kristofik, Complex Manager and Deputy Complex Manager for Willapa NWRC. The goal of this visit was to reestablish ties with AFTC's closest FWS neighbor. A return visit will soon be reciprocated.

Administration/Facilities cont....

As part of the BPA funded Abernathy Creek steelhead project, "Natural Reproductive Success and Demographic Effects of Hatchery-Origin Steelhead in Abernathy Creek, Washington", 10,800 juvenile steelhead to be released next spring were given coded wire tags (CWT) and adipose fin clipped.

The trapping season for returning adult salmonids was started on October 15th. At the end of the month a total of 5 steelhead trout, 7 cutthroat trout, and 145 coho salmon had entered the AFTC's holding pond. One steelhead was of natural origin (adipose fin and no CWT) and released upstream. The remaining 4 steelhead were identified as strays (lacking both adipose fin and CWT), and since strays are from outside Abernathy Creek basin, they were euthanized. All the coho salmon and cutthroat trout were released upstream to spawn.



Female Coho

USFWS

Scott Gronbach attended a water systems asset management course provided by the Rural Community Assistance Corporation in conjunction with the WA Dept. of Health (DOH) Office of Drinking Water and Jeff Poole became certified via the WA DOH as a Water Distribution Specialist.

Administration/Facilities cont....

Facilities staff had a busy end to the summer season. Staff went electrofishing with the Ecological Physiology Program and completed Phase 2 of the Main Office Enhancement Project. The enhancement project consisted of painting nearly 1,000' of wall space, sanding the hardwood flooring, installing a vent into the men's bathroom, replacing the back door with a fortified security-grade door, and replacing the front entrance door with one that is ADA compliant.

The residence received a much needed energy efficiency upgrade in the garage. This project added insulation, finished drywall, and new light fixtures to go along with a new security back door.

The Conservation Genetics flammable storage building was relocated more than 100 yards to its final resting place (a concrete pad near the Maintenance Shop) to give way to the much larger flammable storage building anticipated to arrive by the end of the year. The Facilities staff laid more than 9 cu. yds. of concrete in preparation for the new building.



Jim Lowell moving the storage building.
USFWS

Facilities staff also uncovered the devastation from water damage to the Nutrition office conference room. Demolition activities are underway and plans to rehab the space are ongoing.

Administration/Facilities cont....

Scott Gronbach has begun working with Little White NFH and Spring Creek NFH on asset enhancement projects which are expected to finish in the coming months.

Now that the rain has come back, efforts to combat the fallen leaves and debris from clogging the creek intake are in full swing. During a recent inspection by Smith-Root on the electric weir, it was discovered that the primary computer failed and has since been replaced. As for corrective actions, Jim Lowell installed a new louver actuator in the well building so that proper ventilation was available for the generator and pumping system. He also installed a new security door on the residence and cleaned the building gutters of debris.

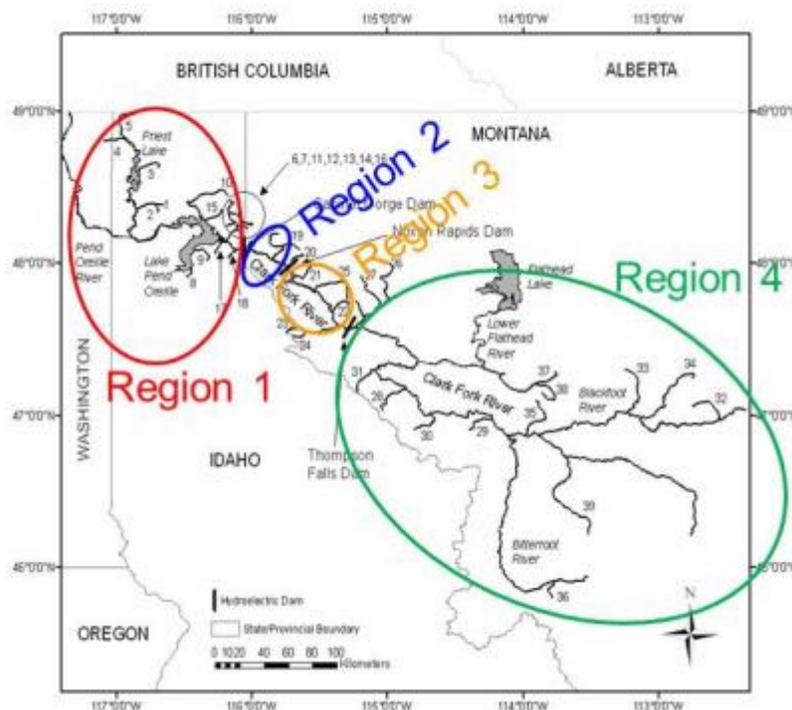
Since it is officially fall, annual preventative maintenance on numerous assets have begun such as sampling and analyzing the composition of the diesel in the three above ground tanks and conducting the final CY12 Volatile Organic Contaminants sample of the Well #4.

In regards to station safety, employees belonging to the hearing loss prevention program received their annual audiograms. And from what I am hearing (ha, ha), everyone passed. AFTC also conducted their annual fire system and general alarm training/drill and received training on personal ergonomics in the workplace from Christian Smith. Both training sessions resulted in several lessons learned and improvement planning. Lastly, the station participated in the Great Shakeout Exercise designed to improve our ability to recover from a massive earthquake.

Inside Abernathy....

This issue's *Inside Abernathy* article focuses on the Conservation Genetics Program (Program). The Program began with the hiring of the first Regional Geneticist in 1996, followed by the construction of additional offices and laboratory space in 2002. The capabilities and technical services provided by the Program are: rapid response genetic identification; characterization of genetic diversity within and among populations; standardization of genetic markers; Pacific Region NFH Genetic Profiling; identification of species and population of origin; and tissue/DNA archiving.

Some fishery management decisions require information on the stock of origin of individuals to be provided within hours of the samples being taken from those individuals, i.e. rapid response genetic identification. One common example is deciding which individuals out of a group of captured fish to use for broodstock. Another example is deciding whether a fish captured at a man-made barrier belongs to the population above the barrier or the population below the barrier. Rapid response genetic assignment requires dedication of laboratory personnel to work around the clock and requires allocation of personal and equipment in anticipation of samples that may arrive on an unpredictable scale. While these requirements make "rapid response" genetic assignments more expensive than standard genetic analyses, there are many applications where having access to information quickly allows conservation of the natural population structure and thus conservation of the species' genetic resources.



During upstream migration, Lake Pend Oreille bull trout samples are sent to AFTC, where in 6 hours, staff analyze each sample and determine if the fish is from region 1, 2, 3, or 4. This information is sent back to field biologist to help them in determining where to move fish.

Inside Abernathy cont....

Characterization of genetic diversity within and among populations is needed when species diverge from one another when geneflow (migration) between populations is limited and/or where environments that populations are in differ in the selective pressures on those populations. This commonly results in the genetic resources of the species being distributed among several populations. Unlimited geneflow between populations limits the potential for adaptation to different environments in which individuals of the species are distributed. Pacific salmon and freshwater fish species often exist as a series of populations between which geneflow is limited (i.e. sub-populations). Decisions regarding conservation priorities and conservation actions can be difficult to make in the absence of knowledge of geneflow among populations. This can be true on a recent temporal scale, such as determination of the degree of interbreeding between wild and hatchery fish within a system, or over a longer temporal scale, such as designation of the evolutionary units important to that species.

Federal and State governments as well as tribal organizations, and universities commonly use genetic data to improve our understanding of genetic diversity in fish populations. Use of non-standardized genetic methods and markers make results obtained by one group difficult or impossible for other groups to use or validate. In the past this has led to redundant work by several laboratories. Program staff provides leadership and continued support for coast-wide standardization of genetic markers. In species lacking standardized markers, we take measures to adopt markers and methods that render data generated by AFTC comparable with those generated in other laboratories.

By generating genetic profiles for each of the stocks we raise at Pacific and Pacific Southwest Region NFHs, we improve our ability to assess the benefits and the impacts of those stock on wild populations. For example, this type of data has been used to determine the genetic impacts of NFH fish straying into other drainages.



Makah NFH Chinook salmon stray to nearby drainages. Genetic analyses indicate that they are not contributing to the populations in those drainages.

Inside Abernathy cont....

We archive tissue samples and extracted DNA for samples from numerous species. This sample “bank” allows any results generated by our laboratory to be examined further or validated in the future. It also allows archiving of samples that are collected opportunistically in cases where no funding presently exists for analysis of those samples. Archived samples are made available to our partners in tribal, agency and university laboratories on request, under the conditions that they are returned following analysis and that results of analyses of the samples are made available. AFTC is the FWS’ tissue bank for bull trout samples.



Back row left to right: Denise Hawkins, Brice Adams, and Jennifer Von Bargaen.
Front left to right: Christian Smith, Pat DeHaan, and Matt Smith. Not pictured Dan Bingham.

Denise Hawkins, Regional Geneticist and Program Head

As Regional Geneticist and Program Head, Denise is the point of contact for the Pacific and Pacific Southwest Regions on genetic issues and policy. She has provided technical assistance and policy guidance on issues as diverse as environmental DNA, parental based tagging, coordination with other Regional Geneticists, and interpretation of data generated by others. Denise works to keep the Program focusing on how to further the use of genetic information in the conservation of genetic diversity in natural populations.

Christian Smith, Conservation Geneticist and Program Lab Manager

Christian has oversight for the Program’s laboratory activities and purchases. He also initiates and conducts research, participates in large scale studies, responds to technical requests and has the lead on NFH genetic profiling analyses.

Pat DeHaan, Geneticist

Pat is the point of contact for genetic information on species other than Pacific salmon and steelhead. His recent work has included studies of bull trout, Arctic grayling, Olympic mudminnow, Oregon chub and Warner suckers.

Inside Abernathy cont....

Matt Smith, Geneticist

Matt (no relation to Christian) examines the reproductive success of Deschutes River steelhead to determine the impact of straying fish. He is also the point of contact for technical assistance to the Shoshone Bannock Tribe on Chinook salmon.

Dan Bingham, Geneticist

The newest addition to the Program, Dan's current work focuses on evaluating the reproductive success of hatchery vs naturally-occurring steelhead in Abernathy Creek.

Jennifer Von Bargen, Lab Geneticist

Jennifer is responsible for Chinook salmon rapid response for Livingston Stone NFH. In addition she manages the Program's sample inventory (~185,000 samples).

Brice Adams, Biological Technician

Brice conducts bull trout rapid response analyses in collaboration with our private sector partners at AVISTA (Clark Fork River, ID and MT) and PacifiCorp (Lewis River).

Recent peer-reviewed publications (2011 to present). AFTC staff names are in bold italics.

Ardren, W. R. , ***P.W. DeHaan, C.T. Smith***, E.B. Taylor, R. Leary, C.C. Kozfkay, L. Godfrey, M. Diggs, W. Fredenberg, J. Chan, C.W. Kilpatrick, M.P. Small, and ***D.K.Hawkins***. 2011. Genetic structure, evolutionary history, and conservation units of bull trout in the coterminous United States. *Transactions of the American Fisheries Society* 140(2): 506 – 525.

DeHaan, P., S. Brenkman, ***B. Adams***, and P. Crain. 2011. Genetic population structure of Olympic Peninsula bull trout populations and implications for Elwha Dam removal. *Northwest Science* 85(3): 463-475.

DeHaan, P. W., S.B. Bernall, J. M. DosSantos, L. L. Lockard, and W. R. Ardren. 2011. Use of genetic markers to aid in re-establishing migratory connectivity in a fragmented metapopulation of bull trout (*Salvelinus confluentus*). *Canadian Journal of Fisheries and Aquatic Sciences*. 68: 1952-1969.

Smith, C.T., and R. Engle. 2011. Persistent reproductive isolation between sympatric lineages of fall Chinook salmon in White Salmon River, Washington. *Transactions of the American Fisheries Society* 140: 699 – 715.

Smith, C. T., S. B. Reid, L. Godfrey, and W. R. Ardren. 2011. Gene Flow among Modoc Sucker and Sacramento Sucker populations in the Upper Pit River, California and Oregon. *Journal of Fish and Wildlife Management*. <http://www.fwspubs.org/doi/pdf/10.3996/022010-JFWM-003>.

DeHaan, P.W., Scheerer, P.D., Rhew, R., and Ardren, W. 2012. Analysis of genetic variation in populations of Oregon Chub, a threatened floodplain minnow in a highly altered environment. *Transactions of the American Fisheries Society* 141(2): 533-549.

Workshops, Conferences, and Meetings....

Nutrition:

- Ann Gannam participated in the monthly Northwest Fish Culture Conference committee planning conference call.
- Kyle Hanson and James Barron attended a meeting to discuss Pacific lamprey research at NOAA Fisheries research station in Mukilteo, WA. The meeting was a discussion of ongoing and future research focusing on the artificial spawning and rearing of lamprey and was attended by members of the Confederated Tribes of the Umatilla Indian Reservation, Yakama Nation, USGS, and NOAA Fisheries. James gave a presentation about the lamprey diet trial currently underway at AFTC and Ann Gannam called in.
- Ron Twibell and Ann Gannam called Eric Billman at Oregon State University (OSU) to discuss the surrogate Chinook project and OSU's needs this year.
- Ann Gannam attended the Hatchery Evaluation Team (HET) meeting at Warm Springs NFH.

Conservation Genetics:

- Matt Smith, Dan Bingham, and Judy Gordon attended the HET meeting at Eagle Creek NFH. Matt presented the results of our NFH profile for Eagle Creek NFH. The goals of this report series are 1) to summarize available genetic information for NFH broodstocks and make that information available to hatchery managers, and 2) to make sure that data for the NFH broodstocks are available for internal hatchery reviews and HET meetings, as well as to our partners.
- Denise Hawkins, Christian Smith, Patty Crandell, and Judy Gordon participated in a meeting in the Regional Office held to discuss parentage based tagging (PBT). Denise presented a webinar titled: "Parentage Based Tagging of Chinook salmon and steelhead in Columbia River NFHs above Bonneville Dam: What you collect, what you get, what it costs" which provided information on logistics and cost of PBT. PBT involves comparing the genotype of offspring to a database of potential parent genotypes and, at the basic level, can be used to determine the hatchery and brood year of origin of fish released from the hatchery and subsequently captured as either juveniles or adults.
- Denise Hawkins attended the Washington Department of Fish and Wildlife (WDFW) annual fish science division meeting. Presentations included topics on steelhead hatchery introgression, reproductive success of hatchery and natural origin salmon, steelhead diversity in the Skagit Basin, and genetic mark-recapture.
- Christian Smith, Denise Hawkins and Judy Gordon participated in the HET meeting for Makah NFH. Christian presented available genetic data for coho salmon raised at the hatchery. Plans were made to analyze coho salmon which return to the Tsoo-Yess River in late November and December, after broodstock collection has been completed, so that they could be compared to the broodstock.

Modeling and Management Decision Support:

- Doug Peterson and Victoria O'Byrne attended a webinar titled "How does climate influence stream temperatures, as compared to other factors such as groundwater influence?" by Dr. Tim Mayer, FWS Water Resources Branch.
- Doug Peterson attended a webinar titled "Downscaling climate change models to local site conditions: effects of sea-level rise and extreme events on coastal habitats and their wildlife" by Dr. John Y. Takekawa, Research Wildlife Biologist, USGS Western Ecological Research Center.
- Doug Peterson attended a webinar titled "State-of-the-art projected climate scenarios for the Pacific Northwest based on the latest generation of global climate modeling" by Dr. John Abatzoglou, University of Idaho; and Drs. Phil Mote and David Rupp, Oregon Climate Change Research Institute.

Administration/Facilities:

- Judy Gordon and Patty Crandell participated in the monthly Fisheries Program teleconference calls.
- Patty Crandell participated in a FTC conference call. Agenda topics included: Budget Update, Fisheries Strategic Plan Update/Overview, Program Evaluations – FHC and NFH, HQ Perspective on Future of FTCs, LUA issues, FTC Evaluation Process, ServCat, FTC meeting, and SHC/surrogate species.
- Judy Gordon attended North Pacific LCC's Science/TEK Subcommittee webinars.
- The AFTC staff participated in the Surrogate Species webinar.
- The Science Awards Webinar, hosted by the Office of the Science Advisor, was attended by Judy Gordon.
- Judy Gordon participated in a teleconference discussion on Quilcene NFH's weir.
- Judy Gordon and Patty Crandell participated in the Future of Our Salmon Conference hosted by the Columbia River Inter-Tribal Fish Commission in Portland, OR.

Reports and Publications....

Conservation Genetics

AFTC Conservation Genetics Program. 2012. Genetic profile for Eagle Creek NFH coho salmon. Abernathy Fish Technology Center Report.

Ecological Physiology

Simpson, W. Pika Watch. Connecting People with Nature, Small Project Report. Submitted to USFWS, Portland, OR.

Hanson, K.C., K.G. Ostrand, and R.A. Glenn. 2012. Physiological correlates of habitat utilization by migrating juvenile Chinook salmon (*Oncorhynchus tshawytscha*) in the lower Columbia River. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*. 163:343-349.

Hanson, K.C. 2012. Interim report: Evaluation of sediment induced egg mortality in eulachon, *Thaleichthys pacificus*. Interim Report. Cowlitz Indian Tribe, Longview, WA, 98632. Abernathy Fish Technology Center Report.

Hanson, K.C. 2012. Evaluation of transmitter application techniques for use in research of adult eulachon, *Thaleichthys pacificus*. Final Report. Cowlitz Indian Tribe, Longview, WA, 98632. Abernathy Fish Technology Center Report.



Employee Spotlight....



Ann L. Gannam
Nutrition
Regional Nutritionist

Ann's home town is Savannah, GA so, of course, she went to the University of Georgia for a BS in zoology. She then ventured to the University of Southern Mississippi for a MS in biology. She conducted her research at the Gulf Coast Research Laboratory in Ocean Springs, MS. Her work at the laboratory solidified her interest in nutrition and aquaculture. She then attended Auburn University and graduated with a Ph.D. in fish nutrition.

Ann joined the FWS in July of 1992 starting work at the Abernathy Fish Technology Center as a fish nutritionist. She was previously a research associate then an assistant professor at the University of Arkansas, Pine Bluff conducting research in the area of fish nutrition and teaching ichthyology and limnology courses for undergraduates. Prior to that, between getting her masters and PhD, she was a shrimp inspector for the National Marine Fisheries Service on the Mississippi Gulf Coast.

Ann enjoys gardening, cooking and reading. She really enjoys traveling. She's taken several trips throughout the US including road trips across the Southeast, up the eastern seaboard to Maine and Canada and across the country to California and Mexico. She has also made some trips to Europe and countries around the Mediterranean. She's visited Egypt, Brazil and Canada for work and enjoyed the bonus of visiting two countries she may not otherwise been able to see.

Happy Birthday!....

September 18th, 2012 marked the 10 year anniversary of the construction of the Conservation Genetics Program building. AFTC staff celebrated the event by reminiscing about the dedication of the building in 2002 which marked the official beginning of AFTC's ability to generate genetic data, the growth and development of the program through the years, eating a beautiful cake that Judy provided, and bashing a fish pinata!

Images courtesy of USFWS: T. Scholder

