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Guest Director's Greeting....

Abernathy Fish Technology Center (AFTC) staff is exceptionally busy this summer! Several of us are developing new skills by working outside of our usual positions. Director Judy Gordon is assisting in the Portland Regional Office while Patty Crandell is acting Center Director, Ken Ostrand is acting Deputy, and Administrative Officer Vince Bocci is acting COR/COTR for American Rehabilitation and Reinvestment Act (stimulus) projects. Others are busily accomplishing seasonal tasks. The biological staff is collecting field data, assisting with rapid response genetic analyses, and performing feeding trials. The facilities staff is collecting information relating to budgets and stimulus projects while preparing the facility for winter. Employees are continuing to improve our abilities while performing the mission of the FWS.

Patty Crandell, Deputy Center Director

Staff:

Administration/Facilities:

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

Nutrition:

Ann Gannam, Regional Nutritionist
 Ron Twibell, Fish Nutritionist
 Jeff Poole, Extruder Operator
 Susan Ostrand, Biologist

Conservation Genetics:

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

Ecological Physiology:

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

Hatchery Reform:

Don Campton, Senior Scientist

Regional Director Visits



Robyn Thorson, Regional Director
U.S. Fish and Wildlife Service, Pacific Region
USFWS: Staff

The Regional Director took time out of her exceptionally busy schedule to beat the heat and visit AFTC. Robyn Thorson the Regional Director (RD) of the U.S. Fish and Wildlife Service's Pacific Region, returned to Portland last fall 23 years after beginning her federal career in the Pacific Regional Office. AFTC Director Judy Gordon hosted the RD's visit, and they spent the day touring the facility and discussing AFTC's research projects and mission with staff. The RD had lunch with the senior staff and met with most of the other employees throughout the day. All AFTC employees appreciated the opportunity to exchange information with the RD who was genuinely interested and very knowledgeable about the work we do. A good time seemed to be had by all.

Program Highlights....

Nutrition

STEP student Tiffany Ogunsanya, a graduate student from Kentucky State University, assisted us with lab work and feeding trials.



Tiffany Ogunsanya measuring Spring Chinook Salmon.
USFWS: Ron Twibell

Ann Gannam, Ron Twibell and Susan Ostrand are looking at a marine based diet (marine oil and protein) vs. a land based diet (plant oils and land based protein) and affects on fatty acid composition and gene expression in rainbow trout and steelhead.

Susan Ostrand is making progress with the rosemary oil project investigating its antimicrobial activity. In June she and Richard Glenn completed work evaluating its effect on *Edwardsiella tarda* and *Yersinia ruckeri*.

Susan Ostrand applied for and was awarded an \$800 outreach grant from the Pacific Region Connecting People to Nature Team. Her project is titled "Connecting People to Nature Backpacks".

Ron Twibell began a 15 week study to determine the optimal lipid source for bull trout.

Nutrition cont....

Kyle Hanson (Ecological Physiology) and Susan Ostrand started an evaluation of a method to non-lethally determine the proximate composition of fish. The method will be useful to non-lethally check condition of stream fish.

Ron Twibell and Susan Ostrand subjected 18 samples sent in by Pacific Region hatcheries to proximate analysis as part of Fish Feed Quality Control. Ann Gannam wrote feed memos and contacted feed mills as necessary. Rancidity is an ongoing problem. Feeds used at AFTC were also analyzed (6 samples).

Conservation Genetics

Conservation Genetics staff, working with Stewart Reid of Western Fishes, is conducting genetic analyses that will allow quantification of migration and hybridization for Modoc suckers. Christian Smith and Lindsay Godfrey visited project collection sites in tributaries to the Pit River, CA. The Modoc sucker was listed as endangered under the ESA in 1985 based on threats to the species.



Modoc Sucker found in Ash Creek, CA
USFWS: Christian Smith

Program Highlights cont....

Conservation Genetics cont....

Pat DeHaan and Denise Hawkins met with Lou Ellyn Jones from the Western Washington FWO ES Program and Mike Hudson from the Columbia River FPO to discuss genetic analysis of Lewis River bull trout. Pat presented the perspective gained from a similar project with Avista Corp. on the Clark Fork River.

Christian Smith and Denise Hawkins met with Scott Hamelberg (Coleman NFH Complex), John Rueth (Livingston Stone NFH) and Bob Null and Kevin Niemela (Red Bluff FWO) to discuss plans for evaluating the winter run Chinook program using genetic parentage analyses.

Lindsay Godfrey visited Don Van Doornik at the NOAA Northwest Fisheries Science Center Research Station in Manchester, WA to learn their protocols for coho microsatellites. AFTC will be starting a new FONS project looking at population structure in Clackamas River coho.

Pat DeHaan, along with Paul Scheerer (Oregon Department of Fish and Wildlife) and Alan Mauer (USFWS Bend Field Office), visited and collected samples of Warner sucker from Warner Basin, OR. The species was federally listed as threatened in 1985 due to habitat fragmentation and other threats.



*Paul Scheerer with Warner sucker
Warner Basin, OR
USFWS: Staff*

Conservation Genetics cont....

Christian Smith and Emily Williams collected liver samples for a collaborative project between the Conservation Genetics and Nutrition programs to monitor gene expression in rainbow trout and steelhead in response to dietary variables.



*Emily Williams processing liver samples.
USFWS: Staff*

Summer student Emily Williams completed her 2009 term at AFTC. While here she populated the new Progeny samples database and moved archived collections into the new storage building in addition to working in the lab on several on-going projects. We will miss Emily and wish her well.

Brice Adams, Lindsay Godfrey, and Kevin Williamson began work on steelhead genetics collected from Abernathy Creek. These samples are part of a BPA funded cooperative project started in 2004 that involves nearly all AFTC staff. The Conservation Genetics program uses parentage analyses to estimate the relative reproductive success of hatchery and native origin steelhead.

Program Highlights cont....

Ecological Physiology

Will Simpson and Kurt Steinke constructed a new PIT tag antenna for a location in Hermiston, OR and also used mobile PIT-tag detection units to survey ESA listed Mid-Columbia steelhead trout.

Kurt Steinke completed the design for the Deep Water Electrofisher Control unit to be used in the Columbia River main channel to collect juvenile lamprey. He has also been working closely with USDA regarding the use of meteor burst modems as a means to remotely collect data at PIT tag antenna sites.

Ben Kennedy completed collection of juvenile steelhead otoliths. The Program is using otolith microchemistry to determine if the juveniles collected have mothers that were anadromous or freshwater residents.

Kyle Hanson completed plasma osmolality and sodium analyses to determine if steelhead smolts were ready to emigrate to the ocean. The Ecological Physiology and Nutrition Programs are continuing an ongoing analysis of non-lethal methods of determining body composition and fat content of juvenile Pacific salmon.

Richard Glenn has been completing AFTC's requirements to meet new water operations status including a Groundwater Susceptibility Assessment Survey for the State of Washington's Department of Health.

Will Simpson was requested by the Utah ES Field Office to provide data describing unique low-elevation distributions and climate associated with American Pikas in the Columbia River Gorge. A status review has begun to determine if the American Pika qualifies for protection under the ESA. ES is working with NOAA to review climate observations and develop downscaled climate projections to help assess the potential effects of global climate change on pika and their habitat.

Ecological Physiology cont....

Richard Glenn is finishing work on bacterial kidney disease at Warm Springs NFH and is completing qPCR analyses for Enteric Redmouth from Spring Creek and Hagerman NFH's.

Hatchery Reform

FWS Hatchery Review Team (HRT) activities of Don Campton.

June 9-11, team meeting in Walla Walla, WA with Washington Department of Fish and Wildlife (WDFW) to give an oral report on preliminary conclusions and recommendations of the HRT regarding Lower Snake River Compensation Plan (LSRCP) hatchery programs in Washington.

June 23-25, team meeting in LaGrande, OR with Oregon Department of Fish and Wildlife (ODFW) to discuss goals, objectives and operations of LSRCP hatchery programs in Oregon.

July 7-9, team meeting in Vancouver, WA to develop draft review report for LSRCP hatchery programs in Oregon.

July 23-24, face to face meeting of team representatives, Joe Krakker and Don Campton, with research biologists from ODFW (LaGrande, OR, July 23) and the Nez Perce Tribe (Joseph, OR, July 24) to discuss research, monitoring, and evaluation activities associated with LSRCP hatchery programs in Oregon.

July 29-31, team meeting in Vancouver, WA to continue developing draft review report for LSRCP hatchery programs in Oregon.

Program Highlights cont....

Administration/Facilities

Judy Gordon was detailed to the Pacific Regional Office. She assisted with National Pollutant Discharge Elimination System (NPDES) permitting for NFHs, stimulus projects, and hiring within the Fisheries Regional Office as well as other duties.

Dustin Gray and Pila Finrock from the Regional Office Division of Information Technology Management visited. They have offered to assist us with our many concerns relating to laboratory and field computers and security. Some of the issues discussed included: automatic updates, stand alone equipment, and problems with networking.

Thirty juvenile white sturgeon (*Acipenser transmontanas*) were acquired to provide AFTC opportunity to continue to conduct regionally important research on sturgeon. The new arrivals are 5 years old and average 60 cm in length. They will complement our 13 to 15 year old sturgeon already on station.

A bank of raceways which were previously part of AFTC's re-use system were adapted to receive water from an upper bank of raceway increasing the number of larger rearing units available for research from 6 to 12 without increasing water demands.

Lunchtime Seminar

As part of our monthly lunch time seminar series we hosted a seminar entitled "Toxicity of 5% Prentox® Prenfish rotenone to freshwater prawn, *Macrobrachium spp*" presented by Tiffany Ogunsanya from Kentucky State University. The presentation summarized information from her Master's research.



Tiffany Ogunsanya, STEP student
USFWS: Staff

Administration/Facilities cont....

AFTC staff and fish easily survived the week long heat wave that fried the normally temperate Pacific Northwest at the end of July. Two State hatcheries in this area each suffered losses of more than 100,000 steelhead due to outbreaks of Ich (*Ichthyophthirius multifiliis*) that spread rapidly during the hot weather.



The ubiquitous yellow jacket's work at AFTC. This nest hangs on the building that houses the Conservation Genetics Program.
USFWS: Vince Bocci

This year has been exceptional in many ways including the number of biting and stinging insects. AFTC staff has had numerous interactions with horse flies and yellow jackets, and Jim Lowell was stung several times while organizing large recyclables.



From left to right: Heida Diefenderfer (PNNL), Ken Ostrand, Amy Borde (PNNL), Ben Kennedy, Ann Gannam and Ron Twibell discussing the importance establishing eel grass in coastal habitats.
USFWS: Staff

AFTC staff (pictured) visited the Pacific Northwest National Laboratory (PNNL) regarding collaborative studies to be conducted in the Columbia River estuary. Christian Smith (not pictured) also participated by discussing AFTC Conservation Genetics Program capabilities in relation to needs of the Battelle Lab.

Training, Workshops, Conferences, and Meetings....

Nutrition:

- Ron Twibell participated in NOAA's monthly Alternative Feeds conference call in June and Ann Gannam and Ron participated in the NOAA conference call in July.
- Ann taught the nutrition section in Ray Brunson's annual Fish Health class. This year it was held at Dworshak NFH.
- Yves Harache (European Aquaculture Society President 2010-2012) and his wife Daniele from Nantes, France visited AFTC. Yves worked at AFTC for about 6 months with Laurie Fowler and Joe Banks many years ago. Laurie, his wife Carole, Joe and Dave Leith with his wife Helen all came to AFTC to meet with Yves and have a tour of the facilities.
- Ann Gannam and Ron Twibell met with two members of the Hood Canal Salmon Enhancement Group to discuss possible cooperative work. The group's main interest is the formulation and manufacture of carcass analogues.

Conservation Genetics:

- Denise Hawkins attended the Foundations course at NCTC the first week of June.
- Lindsay Godfrey attended the Population Genetic Data Analysis module at the Summer Institute in Statistical Genetics in Seattle, WA.
- Kevin Williamson, Christian Smith, and Denise Hawkins attended the Inference of Relationships and Relatedness module at the Summer Institute in Statistical Genetics in Seattle, WA.
- Denise Hawkins attended a Western Washington Fish and Wildlife Office training course entitled Interpreting Ecological Modeling Output. The course was organized by Brad Thompson of Western Washington FWO and taught by Dan Hayes from Michigan State University Department of Fisheries and Wildlife.
- Denise Hawkins attended a presentation at Washington Department of Fish and Wildlife in Olympia, WA given by Ian Courter of Cramer Fish Sciences.
- Christian Smith and Denise Hawkins met with Ruth Phillips and Andy Harwood (WSU Vancouver) to discuss progress on a FONS project designed to develop methods to estimate hybridization between native Westslope cutthroat trout and introduced trout.

Ecological Physiology:

- Kyle Hanson participated in the Spring Creek NFH Hatchery Evaluation Team meeting.
- Kenneth Ostrand, Will Simpson, and Kurt Steinke met with Chet Sater from the Bureau of Reclamation to discuss continuing assistance with the monitoring of steelhead entrainment within Umatilla River Basin surface diversion canals.

Training, Workshops, Conferences, and Meetings,

Ecological Physiology:

- Ben Kennedy attended a two-day training course on building and interpreting ecological models with an emphasis on impact of climate change at the Western Washington Office in Lacey, WA.

Administration/Facilities:

- Vince Bocci attended *COR/COTR Certification Training* for a week at the Portland Regional Office. This certification will provide oversight of stimulus projects to be completed at AFTC and Quinault NFH. John Holmes completed on-line EXCEL classes and Mark Hack completed IT security classes through SkillSoft.
- Jim Lowell and the AFTC forklift both attended heavy equipment training at Julia Butler Hansen Refuge for the Columbian White-Tailed Deer. Jim took backhoe training and the forklift was used to provide training to other FWS employees.
- Ken Ostrand, Patty Crandell, and Denise Hawkins hosted a meeting with Bonneville Power Administration, Tracy Hauser and John Baugher. Mr. Baugher is the new Project Manager for AFTC's largest and most integrated research project. AFTC staff introduced Mr. Baugher to the role Abernathy is playing in evaluating innovative hatchery practices to establish depressed steelhead populations throughout the Columbia River basin and discussed administrative issues.

Reports and Publications:

Patrick DeHaan, Lawrence Schwabe, **William Ardren**. Spatial Patterns of Hybridization between Bull Trout, *Salvelinus confluentus*, and Brook Trout, *Salvelinus fontinalis* in an Oregon Stream Network. Conservation Genetics Published on line Conserv Genet DOI 10.1007/s10592-009-9937-6.

Jeff J. Stephenson, Matt R. Campbell, Jon E. Hess, Chris Kozfkay, **Andrew P. Matala**, Megan V. McPhee, Paul Moran, Shawn R. Narum, Melanie M. Paquin, Ora Schlei, Maureen P. Small, Donald M. Van Doornik, John K. Wenburg. 2009. A centralized model for creating shared, standardized, microsatellite data that simplifies inter-laboratory collaboration. Conserv. Genet. 10:1145-1149.

Run composition of Chinook salmon at Red Bluff Diversion Dam during gates-in operations: A comparison of phenotypic and genetic assignment to run type. AFTC Annual Report. **Christian Smith** and **Lindsay Godfrey**. July 20, 2009.

Outreach....

Backpack Outreach

Susan Ostrand tested materials for the backpack outreach project with assistance from two young volunteers, Kier and Joshua Hack.



USFWS: Susan Ostrand



USFWS: Susan Ostrand

YCC Tour

Susan Ostrand and Robert Neal gave a tour of AFTC on July 17. Youth Conservation Corps (YCC) students from the Willapa National Wildlife Refuge and the Julia Butler Hansen Refuge for the Columbian White-Tailed Deer. A short tour of AFTC was given and students were able to dissect a few fish. Susan and Robert helped explain the physiology and function of coho salmon organs as well as increase awareness of the unique salmon life cycle and habitat requirements.



USFWS: Staff

Cowlitz County Fair

Susan Ostrand set up the AFTC booth at the Cowlitz County Fair in Longview, WA. Ann Gannam ensured that the booth was properly stocked with pamphlets, education materials and "word". Approximately 30,000 members of the public attended the event.