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Director's Greeting...

As we enter the holiday season at the end of another calendar year, I wish to thank the entire staff of Abernathy FTC for all their hard work and dedication to providing outstanding science for use in the management of aquatic natural resources in the western US. Whether you celebrate, Hanukah, Christmas, Kwanzaa, Winter Solstice, or just a beautiful winter's day, we here at AFTC wish you all a safe and healthy December.

Happy Holidays!

13th Annual Pacific Region Hatchery Management Workshop

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



Patty Crandell, Welcome to Workshop
USFWS: Judy Gordon



James Barron, University of Idaho, Presenting Culture Techniques for North American Burbot
USFWS: Judy Gordon

The objective of the Pacific Region's Hatchery Management Workshop (HMW) is to provide a forum for the NFH Managers and staff in the Pacific and Pacific Southwest Regions to hear scientific presentations of specific interest to hatchery operations. This year's HMW, November 3-5, 2009, was another success with the theme *Science in the Service*. Technical presentations were given by Fishery Resource Offices, Fish Health Centers, NFHs, and Fish Technology Centers from Regions 1, 2, 6 and 8. Presentations were also provided by partners, including the Oregon Hatchery Research Center, University of Washington, US Geological Survey, and the University of Idaho. Topics included but were not limited to: *Salmon and steelhead management in California's Central Valley*, *Management of pathogen and aquatic invasives*, *Disinfection protocols for NFHs*, *Yellow fat disease in late fall Chinook at Coleman NFH*, *The Oregon Hatchery Research Center: a laboratory in a natural environment*, *Genetic profiling of NFH stocks*, and *The three r's of captive propagation of the endangered fountain darter – refugium, research, and recovery*.

Program Highlights....

Nutrition

Ecological Physiology and Nutrition have completed the bioimpedance method evaluation. Steelhead were evaluated for proximate composition (protein, lipid, moisture and ash) using the bioimpedance device and by the conventional methods to compare results. This device will be useful to non-lethally check condition of stream fish. A draft manuscript is under review.

Feed was made (750 lbs) for a partner, Dr. Jonathan Eya at West Virginia State University. Dr. Eya's study will look at various protein/energy ratios to determine what works best for rainbow trout.

Susan Ostrand, working with Richard Glenn (Ecological Physiology), has continued to make progress with the rosemary oil project (checking the ability of rosemary oil to inhibit the growth of various disease causing bacteria). They have completed plating and measurements for cold water disease (*Flavobacterium psychrophilum*), the sixth bacterium tested.

As part of Fish Feed Quality Control, Ron Twibell and Susan Ostrand analyzed 13 feed samples in October and 3 samples in November sent in by the Pacific and Pacific Southwest Region NFHs. Ann Gannam wrote the feed memos and contacted the feed mills when necessary. Two feeds were checked for rancidity and one was found to be rancid.

Conservation Genetics

Kevin Williamson attended the Lower Columbia River Lamprey Conservation Program meeting held at the Columbia River Fisheries Program Office (CRFPO). The meeting was attended by regional lamprey biologists.

Christian Smith and Denise Hawkins visited Quilcene NFH to become familiar with the coho spawning protocols and meet with hatchery staff to discuss needs for genetic evaluation of the program.



Quilcene NFH Spawning Activities
USFWS: Denise Hawkins

Jeff Stephenson from the Columbia River Intertribal Fish Commission visited AFTC. While here he met with Lindsay Godfrey and Christian Smith to learn about the Progeny database used to store sample and genotype data. Jeff also gave a lunch time seminar entitled "Evaluation of the Johnson Creek Summer Chinook Supplementation Program using Parentage" that described an ongoing relative reproductive success project.



Jeff Stephenson presenting lunch time seminar.
USFWS: Christian Smith

Program Highlights cont....

Conservation Genetics

Kevin Williamson presented an overview of an analysis of population genetic structure and influence of out-of-basin hatchery stray fish on native Lower Deschutes River sub-basin summer steelhead populations to fishery biologists from the CRFPO and representatives from the Confederated Tribes of the Warm Springs Reservation of Oregon and Columbia River Intertribal Fish Commission. This is a collaborative project with the CRFPO.

Pat DeHaan and Denise Hawkins participated in a meeting to discuss an upcoming Lewis River bull trout project that uses genetic population identification to assist with passage decisions around Swift Dam. This project will be conducted in collaboration with Pacific Corp., Washington Department of Fish and Wildlife (WDFW), and CRFRO.

The Genetics staff celebrated the successful conclusion of this year's rapid response analysis of bull trout collected on the Clark Fork River, MT. This year marked the largest number of bull trout sent to AFTC for genetic determination of population of origin to assist passage decisions around three dams in the Clark Fork River. This is a collaborative project with Avista Corp.

Andy Harwood, MSc student from Washington State University, visited AFTC to learn single nucleotide polymorphism (SNP) analysis methods employed by the Genetics Program.



Lindsay Godfrey explaining SNP analysis techniques to Andy Harwood. *USFWS: Christian Smith*

Conservation Genetics cont....

Pat DeHaan and Denise Hawkins met with Tim Whitesel and Mike Hudson from the CRFPO to discuss on-going and future bull trout projects. Both groups presented overviews of their areas of interest and discussed the current collaborative project to provide data to help with bull trout passage over Swift Dam on the Lewis River, WA.

Pat DeHaan presented the results of a genetic analysis of bull trout population structure and hybridization between bull trout and brook trout in the Malheur River, OR at a management meeting in Burns, OR.

Barney Gill from Perkin Elmer demonstrated the capabilities of the JANUS® liquid handling robot to potential customers and worked with Lindsay Godfrey and Brice Adams to improve DNA standardization protocols using the JANUS®.

Ecological Physiology

Kyle Hanson traveled to Hagerman NFH and conducted a study looking at the use of a short term salt bath to minimize the effects of handling stress on juvenile steelhead.

Richard Glenn completed AFTC's requirements to meet new water operations status and NPDES permit.

Richard Glenn conducted safety training on Winter Driving/ Road Rage.

Will Simpson and Kurt Steinke used mobile PIT-tag detection units to survey an irrigation canal. The survey was conducted for the Bureau of Reclamation to determine if hatchery steelhead entrained from the Umatilla River were dying in the canal.

Will Simpson and Kurt Steinke installed a new antenna at an irrigation canal on the Umatilla River. The antenna was used to determine entrainment and survival of PIT-tagged juvenile steelhead diverted into the irrigation canal.

Program Highlights cont....

Administration/Facilities

The Smith-Root electric barrier in Abernathy Creek at AFTC was activated for the 2009-2010 research season. The barrier restricts upstream access directs fish from the creek into the AFTC holding pond. The barrier will be inactivated in March or when weather permits a trap to be installed in an upstream ladder.

In October and November, 594 adult salmonids entered the AFTC holding pond. Biological data and genetic and scale samples were collected on: 556 coho (164 adipose clipped), 21 summer steelhead (19 adipose clipped), 6 summer steelhead, and 11 cutthroat trout. The winter steelhead included 5 that originated from the AFTC hatchery and 1 from outside the Abernathy system. Adult collection will continue into June.

In the first week of November the FWS tagging crew, coded-wire tagged and adipose clipped the brood year 2009 juvenile steelhead (21,400) to be released in the Spring of 2010.



Hatchery Management Workshop



USFWS: Judy Gordon

Employee Spotlight....



Ben Kennedy

Ben came to the U.S. Fish and Wildlife Service and Abernathy FTC in May of 2004. He previously worked for the U.S. Forest Service, Colorado State University, Idaho Department of Fish and Game, and Utah State University. He started his freshman year majoring in fishery biology and has been involved with western trout, whitefish, salmon and steelhead for the past 13 years.

Ben grew up in a small town called Boulder Creek in California (near Santa Cruz). He currently lives in Cathlamet, WA with his wife, Carrie, and their dog, Naya.

Ben attended San Lorenzo Valley High School in Felton, California. He received his BS in fishery biology at Colorado State University in Fort Collins, CO and his MS in ecology at Utah State University in Logan, UT.

Ben spends his off time fishing for salmon and steelhead in the lower Columbia River area. When he is not fishing, he works on various truck, boat and house projects.



Ben and Naya on the Grays River.

Carrie Kennedy

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

Nutrition:

- Ann Gannam, Kyle Hanson and Christian Smith participated in a conference call with Scott Foott and Ken Nichols of the California/Nevada Fish Health Center to discuss possible causes and solutions for coagulated yolk observed in endangered Sacramento River Chinook salmon.
- HAZCOM training for the Center was conducted by the Chemical Hygiene Officer, Ron Twibell.
- Ann Gannam participated in NOAA-Fisheries monthly Alternative Feeds conference calls in October and November.
- Ron Twibell presented a poster at the 2009 National Forum on Contaminants in Fish in Portland, OR (meeting sponsored by the US EPA). The poster compared contaminant content in adult salmonids returning to Quilcene, Quinalt and Warm Springs NFHs.
- Ann Gannam attended the Hatchery Management Workshop and EEO training in Richland, WA.
- Susan Ostrand Ron Twibell and Ann Gannam attended the Great Northern LCC web conference and science needs assessment.

Conservation Genetics:

- The Genetics staff attended a meeting in Olympia, WA designed to increase familiarity and knowledge of the genetics programs at AFTC, WDFW Molecular Genetics Lab, and University of Washington International Program for study of Salmon Ecological Genetics. Each of the three lab leads (Denise Hawkins represented AFTC) presented an overview of the type and scope of work conducted. The overview presentations were followed by detailed project presentations from each lab (Pat DeHaan presented work on Metolius River bull trout and Christian Smith presented work on Modoc suckers). The day concluded with discussions of potential collaborative projects.
- Christian Smith and Denise Hawkins attended the Hatchery Management Workshop in Richland, WA. Christian presented a talk titled "Genetic Profiling of National Fish Hatchery Stocks". The talk discussed how the Program is providing a genetic baseline for NFH stocks in a standardized format.
- Denise Hawkins attended a meeting of the Clackamas River bull trout reintroduction team at the FWS Oregon State Office (OSO) in Portland, OR. Plans for how to move ahead with the reintroduction and formation of a smaller workgroup to implement the project were discussed.
- Kevin Williamson presented his research regarding genetic sex marker variation and analysis of possible chromosomal mechanisms responsible for producing incongruent sexual genotype and phenotype in California fall-run Chinook salmon at a CALFED Bay-Delta agency coordination meeting brown bag seminar in Sacramento, CA.
- Pat DeHaan attended a meeting at the OSO to discuss the completion of a report detailing genetic analyses of Oregon chub. The meeting also included Paul Sheerer, Oregon Department of Fish and Wildlife (ODFW), and FWS staff from the CRFRO and OSO.

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

Ecological Physiology:

- Kenneth Ostrand, Kyle Hanson, and Kurt Steinke attended the Hatchery Management Workshop in Richland, WA. Kurt presented a talk titled "Improving the Efficiency of Technologies Associated with PIT Tags".
- Ben Kennedy attended a Regional workshop in Skamania, WA to assist in the development of a Columbia River Basin coordinated anadromous salmon monitoring strategy.
- Ben Kennedy and Kenneth Ostrand participated in a National Fish Habitat Reservoir Partnership Science and Data Subcommittee meeting.
- Ben Kennedy attended the Pacific Lamprey Translocation Workshop in Vancouver, WA.
- Will Simpson and John Holmes attended a workshop entitled "Upstream Fish Passage: Fish Behavioral, Engineering, and Related Considerations".
- Will Simpson attended a Umatilla Management, Monitoring, and Evaluation Oversight Committee meeting to discuss Umatilla River steelhead monitoring efforts and irrigation canal operations.
- Kenneth Ostrand met with Pacific Northwest National Laboratory (PNNL) and the US Army Corps of Engineers to finalize a study designed to examine the benefits of estuary habitat enhancement and restoration on juvenile Pacific salmon. The project is scheduled to begin in the spring of 2010 within the lower Columbia River estuary.
- Kenneth Ostrand met with members of the FWS's Pacific Lamprey Conservation Team to collect information from regional partners and composed a introductory chapter for the Draft Pacific Lamprey Conservation Plan. The plan will facilitate the effective protection and enhancement of Pacific lamprey and their habitat throughout the species' native range by promoting the communication and coordination of efforts among federal, state, tribal, county and city biologists working with representatives of local watersheds, private landowners, industry and conservation organization action agencies.

Administration/Facilities:

- Patty Crandell participated in a 3 day meeting in Lacey, WA as a member of the Fish Health Center (FHC) Workforce Planning Team. The Team will be developing a white paper for the Fisheries Program line supervisors containing options for strategic placement of FHC program workforce capacity and infrastructure that promote the Program's ability to implement the FHC mission and Pacific Region Fisheries Program 5 year Strategic Plan.
- Toni Scholder and Patty Crandell organized and attended the Thirteenth Annual Pacific Region Hatchery Management Workshop in Richland, WA. The Workshop included EEO training and an afternoon of Regional Office updates as well as 21 scientific presentations.
- Patty Crandell attended the Spring Creek NFH Hatchery Coordination Team (HCT) meeting, and coordination between various agencies involved with Spring Creek NFH was the focus. An overview of the fish passage study involving Spring Creek NFH smolts that was conducted at Bonneville Dam was presented by Lyle Gilbreath, NOAA-Fisheries.

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

Administration/Facilities cont....

- Judy Gordon was invited to give a presentation at the October Monthly Staff Meeting for the Regional Office Ecological Services staff. The presentation entitled "Abernathy Fish Technology Center: Capabilities and Technical Services", was opened up to all interested RO staff. The audience included staff from Information Resource and Technology Management, Contracting and General Services, Human Resources, Contaminants, Endangered Species, Recovery, Listing and others.

Reports and Publications....

Conservation Genetics:

2008 Annual Project Report. Pedigree analysis reveals relative survival and abundance of juvenile hatchery steelhead outplanted as eyed eggs in the Yankee Fork Salmon River, Idaho. **Kevin S. Williamson** and Andrew P. Matala.

Ecological Physiology:

W. G. Simpson, B. M. Kennedy, and K. G. Ostrand. 2009. Seasonal Foraging and Piscivory by Sympatric Wild and Hatchery-reared Steelhead from an Integrated Hatchery Program. *Environmental Biology of Fishes* 86:473-482.

Hanson, K.C., and S.J. Cooke. 2009. Why does size matter? A test of the benefits of female mate choice in a teleost fish based on morphological and physiological indicators of male quality. *Physiological and Biochemical Zoology.* 82:617-624.

Crossin, G.T., S.G. Hinch, S.J. Cooke, M.S. Cooperman, D.A. Patterson, D.W. Welch, **K.C. Hanson,** I. Olsson, K.K. English, and A.P. Farrell. 2009. Mechanisms influencing the timing and success of reproductive migration in a capital breeding, semelparous fish species: the sockeye salmon. *Physiological and Biochemical Zoology.* 82:635-652.

Hanson, K.C., A. Abizaid., and S.J. Cooke. 2009. Causes and consequences of voluntary anorexia during the parental care period of wild male smallmouth bass (*Micropterus dolomieu*). *Hormones and Behavior.* 56:503-509.

Kyle Hanson had research featured in a press release from the University of Chicago

Press:<http://www.journals.uchicago.edu/action/showStoryContent?doi=10.1086%2F%2Fpr.2009.11.17.2511>

“Mathematics Engineering Science Achievement (MESA) Science and Math Day”

Lindsay Godfrey, Denise Hawkins, Judy Gordon and Susan Ostrand participated in the MESA Science and Math Day held at Washington State University, Vancouver, WA. They presented an interactive demonstration and activity entitled “DNA: A Genetic ID Card”. 42 students participated during four separate sessions.



Lindsay Godfrey describes to students how DNA moves through a gel.
USFWS: Judy Gordon



Students examine suspended salmon DNA during SW Washington MESA's Math and Science Day, October 30, 2009.
USFWS: Judy Gordon

COLUMBIA RIVER BASIN STAKEHOLDERS

Will Simpson gave a presentation to 100 5th grade students at York Elementary School, Vancouver, WA that discussed the needs of anadromous salmon in the Columbia River Basin and potential effects human activities have on salmon ecology.