OHRC REACHES OUT TO SCHOOLS

ACTIVITIES INCLUDED IN SCHOOL CURRICULUM

Oregon Hatchery Research Center employees are taking educational outreach to a new level by integrating OHRC fish research activities into primary and secondary school curriculums.

“We’re working collaboratively with educators to design a science-based curriculum that follows students from first grade through 12th grade and provides an opportunity at each grade level for students to be involved with an activity at the research center,” said Assistant OHRC Manager Joseph O’Neil.

The curriculum will incorporate a variety of hands-on activities. For example, students will learn about fish anatomy by dissecting a fish, and learn about spawning behaviors by observing salmon at the OHRC.

The curriculum will also include components on fish and invertebrate identification, and art activities.

“We want to be more involved with schools instead of just providing tours,” said O’Neil. “The idea is to incorporate the research we are doing here into earth science and life science classes. Ideally, it enhances what teachers are doing and gives students a chance to work outside of the classroom with natural resource professionals.”

O’Neil’s goal is to incorporate OHRC activities into other courses as well. Industrial art students could build picnic tables, or students in foreign language courses could help develop bilingual brochures. Currently, middle school history students are documenting history of the area by conducting interviews, taking photos and gathering video footage.

“We hope to develop a curriculum that can be used agency wide,” said O’Neil.

Benjamin Boreman Stout, was born in Parkersburg, West Virginia on March 2, 1924 and passed away July 29, 2007 at the age of 83.

Ben chaired the OHRC advisory committee from 2005, when the group was formed, until February of this year.

Ben was at his best when doing what he loved, forestry and playing golf. He will be missed greatly by his family and friends.

All of us at the Oregon Department of Fish and Wildlife, Oregon State University and Oregon Hatchery Research Center will miss Ben and send our condolences to his family and friends. May Ben rest in peace.

In Memory Of
Benjamin Stout
1924 – 2007
NOAKES’ NOTES

This is part one of a two-part series on the history of the Alsea Basin.

Naomi Mitchison was the sister of J. B. S. Haldane, one of the pre-eminent biologists of the 20th century. Her detailed diary, “Among You, Taking Notes”, is a fascinating account of a fishing village, offering considerable insights into family dynamics as well as life in that community. The title has always seemed an appropriate theme because it stresses the importance of history and historical records for my own notes. It also reminds me that there are others among us, taking notes in their own fashion.

The Mission of the OHRC includes research, education and outreach. A common thread that brings them together is history. For the youngest students who come to learn at the Center, history might stretch back a few days. For most researchers history would include at least the life cycle of their study species. In some cases history might extend back for hundreds or even thousands of years.

The history of the Center is, in one sense, recent and limited. We opened in October 2005 and have a relatively complete documentation of our activities since then, in the form of monitoring data, reports to the Advisory Committee, the OHRC Newsletter, and monthly operations reports from the OHRC staff. In a broader sense our history extends back through the ODFW.

Fall Creek Hatchery, to the first European settlers on this site, and prior to that through the Native Americans who were here.

We have met and interviewed some of the descendants of family members from the first homesteaders on this site, and they have very generously allowed us to make electronic copies of their personal photographs. We encourage the Lincoln County school students to conduct interviews with their family members and older residents in the community to develop this sense of historical perspective.

The history of land use, native animal and plant species, and the broader context of long-term changes in climate are also important parts of our history. Our Education and Outreach activities with the Lincoln School Board generate digital photographs, video and audio recordings, and numerical data from laboratory and field activities.

The Corps of Engineers conducted surveys of the Alsea River for purposes of navigation in the 19th century. The House of Representatives published reports from field surveys of the Alsea in 1895 and 1897. We have copies of those reports, in both printed and electronic format. At that time there was no road from Waldport to Alsea, so the transport of goods and materials to and from Alsea was by barges on the river. The early reports recommended improvements to the Alsea River to facilitate the passage of those barges, including removal of gravel bars and some areas of large rocks. The total cost of those improvements was estimated to be $3,000 (a very considerable expense at the time). For some of us, these reports and records of changes to the Alsea might be an interesting curiosity. To the present members of the Alsea Watershed Council these reports are an essential part of their attempts to restore the Alsea River.

Look for Part 2 in the spring 2008 newsletter.

OHRC Employee Spotlight

RYAN COUTURE OVERSEES OPERATIONS

Ryan Couture has worked for Oregon Department of Fish and Wildlife for almost eight years and the last two as the Facility Manager at the Oregon Hatchery Research Center.

He plans, coordinates, directs and organizes the operation, maintenance, and oversight of the OHRC.

Ryan and his staff implement and assist with research projects that will help answer questions related to fish recovery and hatchery programs, including differences that may exist between wild and hatchery fish.

Ryan worked at three production hatcheries before starting at the OHRC. He earned an Associate in Applied Science degree in Fisheries Technology from Mt. Hood Community College.

Ryan and his family reside at the facility and he enjoys hunting, fishing, camping, snowmobiling, playing on the beach and being with family.

Joseph O’Neil is assistant manager of the Oregon Hatchery Research Center, outreach and education coordinator and performs most of the design and fabrication for the facility.

His 12 years of ODFW experience include seven years at Oak Springs Hatchery and three years at Bonneville Hatchery.

He also worked as a scientific technician with Washington Department of Fish and Wildlife, a technician at a private sturgeon grower in California and spent a season in Alaska as an assistant on a research project.

“I get involved in conducting a lot of the research that is going on, helping to do it and designing how it is going to work,” said Joseph. “It keeps me active, keeps me thinking. My role is to be active in the research as well as the education and outreach side which I have a real passion for.”

Joseph’s hobbies include painting with watercolors and he volunteers his time to teach classes throughout Washington and Oregon.
OHRC Employee Spotlight

**Joyce Mahr**

**MAHR MONITORS SAFETY AT OHRC**

Joyce Mahr has worked for ODFW for over seven years. Her career began as a Fish & Wildlife Tech 1 at Fall Creek Hatchery. At that time, Fall Creek Hatchery was closed and Joyce’s role was as a property guard, volunteer host supervisor, and often assisted at Alsea Hatchery with general fish culture activities.

Prior to working for ODFW, Joyce worked at numerous local gardens and nurseries, and worked for Benton County in the Parks Department.

Joyce currently fills the role of Fish and Wildlife technician at the Oregon Hatchery Research Center. She also wears the hat of the facility Safety Officer, and volunteer and host coordinator for the site.

Joyce leads the role of fish culture technician on-site often assisting and training interns and researchers. She carries out the sometimes tedious task of facility grounds keeping.

Joyce’s hobbies include spending time with her children and grandchildren, gardening, photography, camping and hunting.

She is also an active member in the local chapter of the Oregon Hunters Association.

**Jeff Hard**

Jeff Hard is the Population Biology Program Manager at the National Marine Fisheries Service Northwest Fisheries Science Center in Seattle, Washington.

He is responsible for reviewing the status of salmon under consideration for listing under the Endangered Species Act and for providing the technical foundation of salmon recovery planning in the Pacific Northwest.

The Oregon Hatchery Research Center represents a tremendous resource to Oregonians that I think is difficult to overestimate.

I cut my scientific teeth in fisheries at a research facility (in Alaska) that shares many elements with the OHRC, and as a result I grew to appreciate the importance of a research facility with the capabilities for experimenta- tion and monitoring that a facility like this provides researchers.

I have no doubt that the questions that will be addressed by research conducted at the OHRC and the knowledge that will result will be essential to sound, science-based management and conservation of salmon and steelhead in Oregon.

**Mark Labhart**

Mark Labhart received a Forestry degree from Oregon State University and retired from the Oregon Department of Forestry after 34 years. In 2004, he was voted in as Tillamook County Commissioner and was also selected as Tillamook County Citizen of the Year.

He served on the statewide Salmon and Trout Enhancement Program (STEP) Advisory Committee for five years with one year as Chair. He was appointed by the Oregon Fish and Wildlife Commission in 1991 to be a member of the Fish Restoration and Enhancement Board and served two terms and was twice selected as Chair of the R&E Board.

According to Labhart the Center provides a great opportunity to understand the mechanisms that may create differences between hatchery and wild salmon and steelhead. The Center will provide opportunities for researchers to develop approaches to best manage those differences to meet fishery and conservation objectives. In addition, the Center will help Oregonians understand the role and performance of hatcheries in responsibly using and protecting Oregon’s native fish. As an advisory committee member, I look forward to providing input to ODFW, OSU and the center staff on how to achieve these tremendous opportunities.

**Dennis Richey**

Dennis Richey is Executive Director of Oregon Anglers, an all-volunteer Political Action Committee formed to lobby for fisheries conservation and the promotion of sport fishing.

He has recently co-founded Oregon Anglers Research Society, (OARS), a charitable corporation to help fund fisheries research and education. He has served on a number of state and federal fishery committees. A retired psychologist/counselor, he lives in West Linn with his wife Marie.

His hobbies involve fishing, cooking, gardening and his two-year-old grandson.

**Mark Labhart is vice-chair of the OHRC advisory committee**

**Jeff Hard represents Science-at-Large on the OHRC advisory committee**

**Dennis Richey is chairperson of the OHRC advisory committee**

**Oregon Hatchery Research Center**
SPRING CHINOOK RESEARCH PROJECT:
FOCUS IS ON BEHAVIOR OF JACKS

By Dan Knoll

Oh those precocious jacks. These three year-old male Chinook salmon, too small to compete with the older males, are known to sneak in at the last second during spawning.

“We think jacks don’t partner with a female but are opportunistic spawners,” said OHRC Facility Manager Ryan Couture. “So a male and female will be spawning and a jack will come in and make a contribution. This project is designed to look at how jacks interact with older males and females, how successful they are at fertilizing eggs and then how that relationship changes as the number of jacks increases.”

This collaborative spring Chinook research project is spearheaded by Barry Berejikian of NOAA Fisheries and Tim Hoffnagle with ODFW Research in La Grande. The project will look at the mating success of Chinook jacks spawning naturally, the effects of jack frequency in the population on their relative reproductive success and the growth and survival of jack offspring. Starting in August 2007, several numerical combinations of spring Chinook males, females and jacks will be placed in each of the four artificial streams.

Beginning this fall, Berejikian and Hoffnagle will observe the behavior in each stream to estimate the spawn timing of female Chinook salmon and estimate the behavioral participation of jack males in spawning over the course of the spawning season.

“We will attempt to assign individual females to constructed redds and to document female and male participation in as many spawning events as possible,” said Research Fisheries Biologist Tim Hoffnagle. “By combining these behavioral observations with the results of the pedigree analyses, we’ll obtain greater understanding of how jack male breeding success changes over the course of the spawning season, which will allow us to provide more precise guidance on the most appropriate spawning protocols to be used in hatcheries.”

Each stream channel will be observed several times a day to record fish behavior and document new spawning nests called redds. Fry will be collected from each stream channel and placed into channel specific small rearing tanks and later sampled for DNA pedigree analysis. Data will be analyzed to compare per-capita jack production and to estimate variation in fry production.

“The primary question being addressed is whether jack males produce offspring in proportion to their frequency in the breeding population,” said Berejikian. “The dependent variable will be number of fry produced by each male.”

The study contributes to the OHRC mission by clarifying the natural contribution of jack Chinook salmon males relative to older males, which are strongly favored in hatchery spawning practices.

The data generated will identify similarities or differences in the natural reproductive performance of jack males relative to their contribution under current hatchery practices and may suggest mechanisms by which hatchery and natural populations may diverge.

The study meets the OHRC Research Goals by developing information that will help to maintain adaptive life history characteristics in Chinook salmon broodstocks and potentially contribute to changes in hatchery practices that will minimize impacts on natural populations.

The research project continues through the winter of 2007 and spring of 2008 and depending on results could be repeated in 2008 and 2009.

The project is funded by NOAA Fisheries.

All four artificial streams will be used during the research project.

OHRC Upgrades

A drum filter installed during this past summer will remove sediments before water enters the research building.

The filter, located between the silt pond and the main research building, will also allow incubation equipment such as the micron filter and UV filter to operate properly.

“Water comes from the intake to the silt pond and 3,700 gallons of water will move through a 37 micron screen,” said OHRC Manager Ryan Couture. “It will make the micron filter work the way it was designed and allow for adequate UV filtration.”

A flag is used to mark a redd in the artificial stream.

All 44 fish tanks are covered with camouflage netting to prevent fish from jumping out of the tanks, help ease fish stress, provide shade and discourage predators.
**Tracking Steelhead on the Clackamas**

The Oregon Hatchery Research Center is working with ODFW and the Department of Fisheries and Wildlife at Oregon State University to study and measure the behavior and movements of returning adult hatchery summer steelhead in the Clackamas River. Eva Schemmel is collecting the information for her Master of Science degree at OSU.

Eva and Joseph O’Neil build an operation table for tagging summer steelhead.

message that these fish are not to be kept but must be released immediately for the study.

“We are looking for a pattern, if most of the steelhead move upstream that is a pattern, if they are just going back and forth or if they go out of the stream that is a pattern,” said Schemmel.

**Helping Out at the OHRC... interns & assistants receive hands on experience**

Bethany Hagen

Bethany Hagen, an OSU graduate working two days a week at the facility, is developing text for three kiosks located behind the OHRC research building.

One kiosk will provide information about salmon, why they spawn at this location, what kind of gravel they like and what they look like prior to spawning.

The second kiosk will emphasize the environmental factors that affect the quality of salmon habitat, including shade, cool water, woody debris, ripples and pools, nutrient cycling, adequate dissolved oxygen in the water and abundant fish and wildlife in the surrounding area.

A third kiosk will have information about wildlife in the area such as the belted kingfisher, beaver, black-tailed deer, raccoon, otter, red-legged frog and other species.

“We are starting with basic information on each panel so people get an idea of what the sign says,” said Bethany. “Then we will go into more detail and also provide tangibles such as gravel or simulated eggs so kids can compare size of the eggs to the gravel.”

The kiosks will have interchangeable panels to provide seasonal information to the public. The kiosks are on an interpretive trail located next to Fall Creek.

Besides developing text for the kiosks, Bethany is taking an inventory of all the equipment and fish samples taken at the facility. She also develops brochures and helps teach students about macro-invertebrates.

Her major was natural resources with an emphasis on fish and wildlife conservation.

“This experience is exactly what I wanted because I have a chance to learn everything they do here and get a feeling of what a hatchery research center is all about,” said Bethany. “I have been involved in a lot of activities such as shocking fish, weighing them, measuring them, putting them in little bags, taking out their ovaries and looking at their stomach contents.”

**OHRC Progress**

**ON EXPERIENCE**

**RECEIVE HANDS**

**INTERNS & ASSISTANTS**

**OUT AT THE**

**OHRC...**

Richard Ryan

Richard Ryan, a student at Oregon Coast Community College in Newport, worked for 10 weeks as an intern at the OHRC. He was involved in all aspects of hatchery maintenance including cleaning raceways, mowing, cutting branches and weeding. Ryan also sorted, counted, weighed and measured fish at the facility.

“It was a great experience and I learned a lot more than just sitting in a classroom,” said Ryan. “These guys are great to work with and are like my third family.”

Ryan’s major is aquarium science. He plans to attend a four year college and get a Bachelor of Science degree in fish pathology.

**Kiosks will look similar to this sign that provides information about the artificial streams at the OHRC.**
Sixteen students from the Mt. Hood Community College fisheries technology program visited the OHRC April 18 to get an overview of the facility and learn about ongoing and upcoming research projects.

They will eventually look for work as fish culturist’s at one of Oregon’s hatcheries or work with biologists in the field collecting creel survey information, spawning fish surveys, population estimates and habitat surveys.

“We provide a lot of hands-on field type training so the students acquire skills they might not get in a four year program,” said MHCC Fisheries Instructor Todd Hanna.

Students participate in spawning activities at numerous ODFW hatcheries throughout the year and also get experience working at the MHCC campus hatchery.

Fifteen first graders from Zion Lutheran Private Christian School in Corvallis had a busy day at the OHRC last April.

They toured the facility, dissected two year old steelhead and made fish prints. The group of youngsters learned about the internal and external anatomy of the steelhead and practiced Gyotaku, the Japanese art for making fish prints.

A first grader dissects a fish.

Fall Creek Salmon Festival
November 3, 2007
Oregon Hatchery Research Center
2418 East Fall Creek Road
Alsea, OR
For more information call Joseph O’Neil at 541-487-5510.

It’s a bug’s life...

Dr. Sherri Johnson with United States Forest Service Pacific Northwest Research Station and Dr. Judy Li with Department of Fisheries and Wildlife at OSU are using the OHRC to examine the influences of stream temperature on macroinvertebrates.

The term macroinvertebrates refers to aquatic invertebrates including insects, crustaceans, aquatic snails and worms that inhabit a river channel, pond, lake, wetland or ocean.

“Fish diets are greatly influenced by the biomass of insects that they consume, yet we know little about the factors influencing biomass of these prey,” said Johnson.

Johnson added that if insects are smaller at higher water temperatures, there may be reduced availability of calories to support fish growth.

She said that the role of stream temperature in influencing size and biomass of macroinvertebrates prey has broad implications for fish diet and fish growth across Oregon and the Pacific Northwest.

Johnson and Li will examine the influences of stream temperature on aquatic larval growth rates, sizes, wing development and timing of emergence as adults for representative mayflies, stoneflies and caddisflies.

Larval macroinvertebrates will be collected from nearby headwater streams and reared in covered baskets in flow-through troughs or stacked flow-through incubations trays in an inside laboratory at the OHRC. The experiments started in June and will continue through June of 2008.

Mayflies live underwater for up to two years before emerging as winged adults.

Construction of the Oregon Hatchery Research Center made possible by these supporters:

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