

The Oregon Hatchery Research Center (OHRC)

Advisory Committee

Date: December 12, 2011
Time: 9:30 a.m. to 3:00 p.m.
Location: Oregon Department of Fish And Wildlife
 South Willamette Watershed District Office
 7118 NE Vandenberg Avenue
 Corvallis, OR 97330



Type of Meeting: Oregon Hatchery Research Center (OHRC) Advisory Committee

Attendees:

Members: Dr. Tom Ebert, Tom Gilg, Judy Gordon, Doug Hunt, Ron Mason, Barry McPherson, Dave Russel, Laurie Weitkamp, Stan Van de Wetering,
Staff: Bob Buckman, ODFW; Margaret Cleveland, ODFW; Charlie Corrarino, ODFW; Ryan Couture, ODFW OHRC; Dr. David Noakes, OSU/ODFW OHRC; Joseph O'Neil, ODFW OHRC; John Thorpe, ODFW; Micki Varney, ODFW
Guests: Bill Brignon, OSU/USFWS; Dr. Helen Diggs, Attending Vet, OSU; Kyle Hanson, USFWS; Christian Smith, USFWS; Neil Thompson, OSU
Public: Ty Wyatt, NW Sportsman Association

Welcome and Introduction

Chair Barry McPherson called the meeting to order at 9:30. Introductions were done around the table. September 19, 2011 minutes were approved.

A copy of the minutes is available at [Approved Minutes September 19, 2011](#)

OHRC AC Mission Outreach: AC member reports

Dr. Laurie Weitkamp represents Science-at-Large on this committee. She works for NOAA in the Newport Research Station studying juvenile salmon immediately after they enter the ocean.

A full copy of her report may be viewed at [Weitkamp](#).

Recruitment for AC Membership

Charlie Corrarino reported the recruitment for the Commercial Fisheries position on this committee. This position is very hard to fill due to the commitment involved by anyone actively involved in the industry. In addition, participation interest died due to lack of a hatchery based commercial fishery in ocean. The commercial fleet is entering another busy time as the opening of crab season approaches.

A list of commercial fishery license holders has been forwarded to Nancy Fitzpatrick, Salmon Troll Commission, for assistance in recruiting. A request for applications will be released in January.

Replacement for ODFW Liaison

John Thorpe introduced Michelle (Micki) Varney, replacement for Dr. Shaun Clements as liaison for ODFW Propagation to OHRC. Her background includes many years with WDFW, spending extended time studying the Snake River Fall Chinook. She joined ODFW in 2010. Her education includes degrees in Zoology from

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Washington State University and Biology with a teaching certificate from Central Washington University. She looks forward to returning to working with hatchery studies as part of her duties at ODFW.

Snorkel Surveys for Juvenile Salmon: My Experiences with Scale and Behavior

Bill Brignon, OSU, presented an interesting point of view of what snorkel surveys can tell scientists. The surveys involve less people, are inexpensive, can gather tons of data and be fun. Potential for unbiased data is great, but complicated when including the many factors that impact the outcome. Factors include parameters of habitat, time of day, movement of the fish in response to the person snorkeling the stream, and other unknowns. The example included ecological interactions in Eagle Creek, a tributary to the Clackamas River.

The conclusion reached was that although snorkeling is an inexpensive, quick way to gain information, the effect of the snorkeler on disturbing the fish distorts the data gathered. In-water observations may be more feasible for fish that do not move quickly, such as scuplin, bass and muskie; and non-moving parameters, such as redd locations; etc.; but not for quick moving fish.

A link to the presentation is at [Snorkel Surveys for Juvenile Salmon](#).

Sex reversal in Hood River Steelhead

Neil Thompson, OSU, is working in collaboration with Kassi Cole, Laura McMahon, Melanie Marine and Mike Blouin. Neil presented updated research on sex reversal in hatchery fish using Hood River winter and summer steelhead hatchery stock. The research has been over a 19 year period of 1991-2009, focusing on adults sampled at the Powerdale Dam, with female bias of 1.61 (60% f v 40% m) in wild fish, and only 1.07 (51% f v 49% m) in hatchery fish. Other studies show that chromosomally xx females could undergo sex reversal and change into phenotypic males. Aromatase enzyme converts testosterone to estrogen and high temperature inhibits aromatase, so Thompson tested possibility that genetically female hatchery steelhead from Hood River are being converted to phenotypic males by rearing temperatures that are warmer than temperatures experienced by wild fish.

The fish used were spawned at Parkdale on the Hood River and reared at Oak Spring Hatchery on the Deschutes River where the water temperature is 1.2 degrees C warmer. Gender, origin and fin clip sample were taken by ODFW of 96 random individuals per run type & sex, creating 384 samples. Conclusions showed there was no temperature-induced sex reversal in Hood River hatchery steelhead. Two other possible explanations for the lower percentage of females among hatchery steelhead were 1) selection against females in the hatchery or at sea, and 2) a lower rate of hatchery fish male residency in the river compared with wild male residency. There appeared to be no selection against females, either in the hatchery or at sea. So the likely explanation of the lower ratios of adult males among wild adults versus hatchery adults returning to the Hood River is that there is a lower rate of residualism among hatchery male juveniles than among wild male juveniles.

The Powerdale Dam has since been removed and further study is not available under the same conditions.

A link to the presentation is at [Sex Reversal in Hatchery Fish](#)

IACUC Oversight of Animal Care and Research

Dr. Helen Diggs is the Attending Veterinarian at OSU. Tim Miller Morgan is the aquatics veterinarian, located at HMSC. He is back-up for Dr. Diggs for OSU. Both are involved in animal care oversight. Dr. Diggs provided a history of animal care in research settings in the nation and at OSU.

Use of animals in research is privileged and must be treated as such. In the early 1900s, animals were brought to campuses and housed next to offices which became labs. During the 1950's animals were not

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well cared for and housed in closets and other non-desirable locations. Campus administrators brought in veterinarians to review animal care. Starting with the University of Chicago, they brought together all animal care (42 different sites at University of Chicago alone). There had been no standardization of food or care, such as life cycle, temperature, food source; all of which affects the outcome of research. Animal colonies that were sick with viruses were involved in research without knowledge of care, preventing repeated research reaching same outcomes. This move at University of Chicago created more standardized and improved animal care.

What happened at the University of Chicago led to formation of an organization called the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC). The plan was for vets to go out and help different universities in doing the same animal care in research as researchers at other universities. The outcome was a guide to care of lab animals, like a "Betty Crocker Book of Animal Care". Some of the standardization included water, food, bedding, cage size and housing location. Vets started AAALAC in 1965 with 30 universities. By the 1970's more research facilities wanted the AAALAC accreditation. After many attempts over the years, Washington state's Senator Warren Magnuson was able to put through animal protection legislation, signed by Lyndon Baines Johnson in 1965. The final push to get the Animal Welfare Act was the discovery in Baltimore of individuals stealing pets in mornings and selling them to research facilities. The discovery happened when an escaped dog returned to its owner after a two-week absence wearing a Harvard Medical Center collar.

The US Public Health Service became involved in 1971 with their first policy on animal care in research, requiring AAALAC accreditation and a vet on campus having oversight of research using animals. Many researchers did not want vets to have oversight on their research. This led to the formation and empowerment of PETA (People for the Ethical Treatment of Animals) in 1980. Peter Singer wrote a book titled "Animal Liberation" in 1976 focused on "speciesism". In 1985 all US policies and regulations associated with animal research were updated. A new requirement was that each campus have an Institutional Animal Care and Use Committee (IACUC). The IACUC was required to give campus vets authority to improve conditions and responsibility to keep universities out of news media due to inappropriate animal care. Dr. Noakes is on IACUC for OSU. Approach is not taken lightly. IACUC has guidelines for membership, with authority and oversight.

Accreditation by AAALAC International is critical to getting funding for research involving any kind of animals. Vertebrates and invertebrates are all included under all regulations. OSU will hopefully be accredited in late January 2012. OSU has 71 Land Grant Programs to be accredited. OSU will be one of 19 learning institutions where the entire program will be accredited. OHRC needs to continue having a representative on OSU's IACUC to help oversee its animal care for research projects. Dr. Diggs will be invited back at a later time for further discussion.

Further Discussion of Hatchery Influence on Coho in Salmon River

This subject was tabled as Dennis Richey was unable to attend today's meeting.

Public Comment

No comment was offered.

Working Lunch – Staff Reports

Operations Update – Ryan Couture

The silt settling pond has been drained, repaired and put back in operation.

The drum filter shed has been painted with Killz primer to prevent water damage.

Two of the residences have new drain pipes.

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The wifi system for use by visitors and groups meeting at the OHRC is installed and functioning.

OSU's IACUC Coordinator, Steve Durkee, assisted the facility in preparation for AAALAC's accreditation process in October, with hope of accreditation by January 2012.

The winter steelhead off-site release and broodstock comparison study has settled on fin marks combined with blank coded wire tags to differentiate groups. The plan calls for release of fish during the spring out-migration. Plans are to release some smolts at a lower-river location with identifiable marks so returning adults can be monitored for contribution to fisheries and any straying.

The facility has two new exhibits. Eight sturgeon are now on site and available for viewing in the show pond. The life-size fish display is also now on site and installed in the interpretive center.

A link to Ryan's report, including the proposed research schedule is available at [OHRC Progress Report](#).

Outreach and Education – Joseph O'Neil

Joseph participated in activities with the Lincoln County Schools.

The Fall Festival registration filled a full month early this year.

Future plans are to change the release date of registration to closer to the event.

The boat restoration has been on hold due to staff and volunteer availability. This will progress as time and manpower is available. It is difficult to restore an artifact that will not be "fully restored to new condition" when complete. The plan is to leave it in a state showing use.

Recent Research Projects – Dr. David Noakes

David participated in education and outreach throughout the state and with colleagues, researching funding opportunities, research discussions, entertaining international visitors, editing and publishing research reports, attending research conferences, and developing research proposals. A link to the presentation is at [Noakes Research Report](#)

Genetic Monitoring of National Fish Hatcheries and Natural Populations in the Pacific Region

Christian Smith, Abernathy Fish Technology Center, USFWS, presented a compilation of genetic profiles for all USFWS Northwest hatcheries and hatchery reform as developed by the Hatchery Scientific Review Group (HSRG). Issues reviewed included justification and adaptable management practices, which individuals should be included in brood stock, the relationship between hatchery stock and adjacent wild stocks, and monitoring of impacts based on hatchery scientific review. The objective was to develop standardized genetic profile and control profile variances and to monitor divergence in return time. A link to the presentation is at [Genetic Monitoring of National Fish Hatcheries](#)

Natural Reproductive Success and Demographic Effects of Hatchery-Origin Steelhead in Abernathy Creek, WA

Kyle Hanson, Abernathy Fish Technology Center, USFWS, presented the natural reproductive success and demographic effects of using hatchery origin fish to supplement wild fish in Abernathy Creek, WA. One "solution" was to use integrated hatchery broodstock. This involved catching wild fish to be raised for broodstock. Theoretically, the genetics were the same. In 1999-2001 the juvenile wild steelhead were reared to sexual maturity and released at the rate of 20,000 annually.

Using Abernathy Creek, the researchers knew which adult steelhead were above the hatchery by use of an electric weir and trap at the falls in the creek. This effectively blocked upstream migration of all steelhead and allowed placement of only known adults upstream. Weight, length and condition of parr that reared in the creek from natural spawning were very similar between parr from wild and hatchery parents. Spatial distribution of parr was very different in that parr from wild parents tended to be distributed farther upstream while parr from mixed and hatchery parents remained closer to the research center. Juveniles from hatchery parents moved in the fall while parr from mixed and wild parents did so lower rates. Interpretations: restricted spatial distribution of hatchery parentage may increase competition for resources. Altered emigration timing by juveniles from hatchery parentage may not properly sync with natural cues. There is potential for reduced diversity, survival and future reproductive success from hatchery steelhead spawning in the wild. More to research is planned.

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A link to the presentation is at [Natural Reproductive Success Abernathy Creek WA](#).

Report on “Salmon in a Changing Climate” Conference and Discussion of Preparedness & Role of OHRC in Relation to the Issues Raised

This agenda item was tabled until the March 12 Advisory Committee meeting due to lack of time and a desire to recruit more presenters on the topic.

Good of the order and adjournment

With no other business to cover, Barry closed the meeting at 3:05 p.m. The next meeting will be on Monday, March 12, 2012 at OHRC.