

The Oregon Hatchery Research Center (OHRC)

Advisory Committee

Date: December 4, 2009
Time: 9:30 a.m. to 2:00 p.m.
Location: Oregon Hatchery Research Center
 2418 E. Fall Creek Rd.
 Alsea, OR 97324
 (541) 487-5510



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

Members: Reese Bender, Tom Davis, Tom Ebert, Judy Gordon, Jeff Hard, Wayne Hoffman, Doug Hunt, Barry McPherson, Denny Richey, Dave Russel, Susan Sahnnow, Stan Van de Wetering

ODFW: Bob Buckman, Margaret Cleveland, Charlie Corrarino, Ryan Couture, Jessica Sall

OSU: David Noakes

Public: Joe Rohleder

Guests: Jose Marin Jarrin, Kassie Cole, Lydia Zeglin, Thom Nelson

Agenda

9:30 – Welcome, Introductions, Minutes – Chair Tom Ebert

9:40 – Sandy Beach Surf-zones: What is Their Role in the Early Life History of Chinook Salmon? – Jose R. Marin Jarrin

9:55 – Planned 3-Volume Book Series on Hatchery Research and Hatchery Reform – Judy Gordon

10:15 – Break

10:30 – Sexual Development and Sex Change in Fishes – Dr. Kassie Cole

10:50 – Bacterial Biofilm Communities in Streams: Structure, Function and Food Web Interactions – Dr. Lydia Zeglin

11:10 – Newsletter Evolution – Jessica Sall

11:30 – Public Comment

11:45 – Break

12:00 – Working Lunch – Staff Reports:
 Housekeeping Issues – Tom Ebert
 Outreach and Education and Operations Update – Ryan Couture

1:20 – Recent Research Projects/Summary information about hatchery and wild fish in Japan, China, and the North Pacific Ocean – Dr. David Noakes

1:40 – Anti-Predatory Bird Behavioral Training for Hatchery Reared Salmon – Thom Nelson

2:00 - Good of the order and adjournment

Welcome and Introduction

Meeting was called to order by Chair Ebert at 9:30, with introductions of all attendees, including welcoming of two new committee members, Reese Bender and Dave Russel. Minutes were approved with a minor correction.

Sandy Beach Surf-zones: What is Their Role in the Early Life History of Chinook Salmon? – Jose R. Marin Jarrin

Jose Marin Jarrin is doing his doctoral study of juvenile salmon, specifically the inhabitants of sandy beach surf-zones (inner breaker, trough, outer breaker zones). Fingerlike structures of sand bars create pool and not-pool areas. Ocean type juveniles show the highest mortalities during the first year of ocean life, exiting estuaries at greater than nine centimeters in length and moving to surf zone habitat for certain populations or years. Nursery habitats contribute disproportionately to survival rate.

- Hypotheses: Sandy beach surf-zones are a quality habitat based on a species' density, growth, survival, or movement to adult habitats.
- Sampling: Samples were taken during 2006, 2007, 2007, 2008 and 2009. The 2007 information was also gathered from Columbia River, Tillamook Bay, Alsea and Coos Bay estuaries. Growth rates and diet information was gathered. The sampling method was netting. Results showed distribution on 4 estuary locations. Annual densities of salmon reflect a greater number of collections in 2007. Densities in pools and non-pools during 2008-2009 showed 23 to 12 % decrease.
- Growth rate and diet: Factors identified were based on otolith, cohort, and stomach content analysis. Diet results were based on prey, with the main prey items different from year to year.
- Summary: The sandy beach surf-zones provide intermediate habitat between estuary and open ocean for all populations and vary year-to-year.
- Future directions: continue analysis of previous summer samples, collection on a 5th year in Coos Bay and Alsea Bay, allowing continued data analysis.
- Variables: Identification of variables within seasons, size variation between beaches, erosions and loss of beach with the rise of ocean levels. salinity, wind, storm grain size slope of beach, and availability of spawners will create varied results.

See [Sandy Beach Surf-zones](#) for full PowerPoint presentation.

Planned Three-Volume Book Series on Hatchery Research and Hatchery Reform – Judy Gordon

Judy Gordon reported she is collaborating on a three-volume book titled Pacific Salmon Management: Hatcheries and their Science". Volume One will be "Setting the Stage (Background History)". Volume two will be Case Studies (current study examples). Volume three will be planning "Where Do We Go From Here and How to Get There" (with recommendations and wrap-up). The expected time line for the three volumes is less than two 2 years (18-24 months). Advisory Committee members will receive emails soliciting case studies and are encouraged to participate.

Sexual Development and Sex Change in Fishes – Dr. Kassi Cole

Dr Kassi Cole, University of Hawaii, presented studies and theories on sexual development and what causes sex changes in fish. The environment, water chemistry, pH levels in water, and temperature all affect sexual development. The incidents of altered sexes have been seen in a many different fishes.

Research has shown that some fish have both male and female organs, some of which do

not have outlet for milt or egg. More research is currently in progress. Proposed research includes carrying out a series of basic experiments using temperature as the key factor in sexual development. Cyclic or elevated constant temperatures will be used to define vulnerable time for eggs. It is noted that red band trout spawn in cold water while steelhead spawn in warmer water. Another variable to be looked at is the comparison of hatchery verses wild fish. Please see [Sexual Development and Sex Change in Fishes](#) for full PowerPoint presentation.

Information gained in this research will be shared with the OHRC and others. Updates will be shared when available.

Bacterial Biofilm Communities in Streams: Structure, Function and Food Web Interactions – Lydia Zeglin

Dr Lydia Zeglin presented information regarding bacterial biofilm and how it interacts with food sources. Hydrology and seasonality affects food sources. Bacteria are a core component of stream food webs. Salmonids are top of food chain and bacteria the bottom. Invertebrates produce protein. Bacteria can grow on most any environment. Doing surveys of bacterial content in sediment, the researchers took samples to grow heterotrophic bacterial with correlations between predominate heterotrophic bacteria and physicochemical water quality parameters in two Canadian rivers. Rainfall strongly related to bacteria abundance, both lab based or culture based. Common molecular structure as denaturing gradient gel electrophoresis. Types of questions yet to be answered include 1) do bacteria exist in the presence or lack of water and what is the major determination; 2) do hydrologic conditions affect stream sediment bacterial communities, such as Rio Salado in New Mexico, Onyx River in Antarctica; and 3) what types of differences of bacterial communities exist in dry verses wet sediments and waters. Streams are unique environments of bacterial communities. Bacterial communities are based on composition of soils sediments. Small stream flows affects the physical and taxonomic structure of biofilms. OHRC is very well suited for this type of study with controlled stream environment, researching the affects of hatchery-used antibiotics on bacterial communities and their affect on chemical loading and nutrient loading. Hatchery fish with different foraging habits affect bacterial communities. See [Bacterial Biofilm Communities in Streams](#) for PowerPoint presentation.

Newsletter Evolution – Jessica Sall

Jessica Sall reported changes in the newsletter as everything around us is migrating to electronic format. Changes in staffing and inability to devote to quarterly newsletter are another factor in the change. Viewability, situational, and on-demand updates of research topics are prompting the change. The new format, fitted to the screen instead of a printed version, will be posted with a link from email. Table of contents with link the viewer to individual articles.

Public Comment

No public comments

Working Lunch – Staff Reports

Housekeeping Issues – Tom Ebert – no announcements
Outreach and Education – Ryan Couture on Joseph O'Neil's behalf, reported the 3rd Annual Fall Creek Festival, held November 7th, was well attended with 90 participants. Activities included water color painting, wire wrap jewelry, leather working, fish printing and basket making. Committee member Susan Sahnaw was recognized for teaching one of the topics. Six groups of students visited on field trips. The full report may be

viewed at <http://www.dfw.state.or.us/OHRC/committee.asp>, in the list of documents for December 4, 2009.

Operations Update – Ryan Couture reported the facility was dewatered during Fall Festival due to blockage. Staff were able to correct the water flow issue without disturbing the attendees. Fish counts are showing very high counts for Coho this season. September, October, and November facility progress reports may be viewed at <http://www.dfw.state.or.us/OHRC/committee.asp>, in the list of documents for December 4, 2009.

Mission of Advisory Committee – Charlie Corrarino gave an update on the mission of the Advisory Committee and process of reviewing research proposals. With several new members, the Committee membership guidelines were reviewed.

Recent Research Projects – Dr. David Noakes has 15 projects currently in process, gave 41 presentations this quarter, traveled to China (International Sturgeon Symposium) and Germany (ecology and evolution of fishes), and British Columbia (Ecology, Ethology & Evolution of Fishes). He will also attend the May 2010 Wild Salmon Center's "Ecological Impacts of Hatcheries" in Portland, OR. He also worked on several books, reports, and publications. The full report is available at [Research Report December 2009](#).

Anti-Predatory Bird Behavioral Training for Hatchery Reared Salmon – Thom Nelson

Thom Nelson, a commercial fisherman and inventor, has identified a possible way to protect smolt from predation as they move through the estuaries and into the ocean. He presented his ideas on training hatchery fish by hazing the runs with artificial predatory birds prior to release. The discussion provided insight to the committee and Mr. Nelson of possible research and the need to improve fish survival rates. See [Anti-Predatory Bird Behavioral Training for Hatchery Reared Salmon](#) for PowerPoint presentation.

Good of the order and adjournment

No additional discussion was needed. Chair Ebert closed the meeting at 2:10 p.m. The next meeting will be Monday, March 8, 2010, at OHRC.