The Ecology of Pacific Salmonids

Course ID: BIO-303

The Northwest Environmental Training Center presents:

The Ecology of Pacific Salmonids
Course ID: BIO-303 (2 days)
December 2-3, 2008, 8:30 A.M. to 5 P.M.
The Inn at Port Hadlock - Skyview Meeting Room
310 Hadlock Bay Road
Port Hadlock, WA

Instructor: Joseph E. Merz, Ph.D. Principal Scientist, Cramer Fish Sciences
Thomas P. Quinn, Ph.D Fisheries, School of Aquatic and Fishery Science - University of Washington

Description: Salmonids, including Pacific salmon and trout, are an important component of the ecological function and economy for western North America. Salmon and trout of the Pacific Coast have evolved in spite of natural disturbances such as floods, fires, volcanoes, wind-throw and disease. In fact, these influences have helped each species maintain their resiliency.

Natural disturbances tend to be relatively severe but localized, allowing for ecosystem recovery. However, human-caused disturbances may have a magnitude so great that irreversible changes to the aquatic community may occur or increase the severity of impacts from natural disturbances (e.g., flooding), having both acute and chronic impacts to salmonids. Human activities can also cause such widespread gradual changes across the landscape that the recovery potential of individual ecosystems or their components, including salmonid stocks, is altered.

While each salmonid species is unique, the genetic diversity within species across drainages may be as significant as those found across different species. Yet, certain fundamental biological requirements are the basis for all management, recovery or protection initiatives for salmonid streams. This course provides a greater understanding of:

- The life stages of salmon and trout in both coastal and inland streams, and the habitat requirements applicable to each stage
- How substrate quality and hydraulic flow affect spawning behavior and redd success
- How habitat features, instream complexity, bank structure and large woody debris influence success of salmonids at different life stages
- How water chemistry, water temperature and food availability impact trout and salmon behavior and/or physiology
- How migration patterns can be impeded or enhanced by changes in flow, water quality, barriers or obstacles

Day 1 tentative schedule:

9:00 AM - Introduction and Overview
Why are salmonids important?
What Is the Difference Between a Salmon and a Trout?
Salmonid species
Origins of the Pacific North American Salmon

10:45 AM Break

11:00 AM - Salmonid physiology
Anatomy
Processes

Day 2 tentative schedule:

9:00 AM Prey and Predators
Salmonids as predators- Trout and salmon food habits in fresh water
Salmonids as Prey

10:15 PM Break

10:30 PM Physical parameters
Physiology
Temperature Requirements
This course will provide general information on:

- Origins and evolution of Pacific North American Salmon;
- Life stages of salmon and trout in both coastal and inland streams and
- The habitat requirements applicable to each stage;
- Substrate quality and hydraulic flow affecting spawning behavior and redd success;
- How habitat features, instream complexity, bank structure and large woody debris influence success of salmonids at different lifestages;
- How water chemistry, water temperature and food availability impact trout and salmon behavior; and
- How migration patterns can be impeded or enhanced by changes in flow, water quality, barriers or obstacles

**Intended Audience:** This course is specifically designed for practitioners and agency personnel, including biologists, ecologists, hydrologists, planners and regulators involved with stream issues specifically dealing with salmonids, water supply and quality issues.

This course is immediately followed by: "Pacific Salmonid Spawning Habitat Restoration - Design, Implementation and Monitoring of In-Stream Habitat Improvement Projects in Regulated Streams and Rivers" by Joe E. Merz December 4-5, 2008

**Prerequisites:** None

**About the Instructor:** Joseph E. Merz, Ph.D., is a registered scientist with the American Fisheries Society. He has over 18 years experience working with aquatic resources and has been the principal scientist on several salmonid habitat restoration programs in the California Central Valley. He has taught environmental science, salmon biology and restoration courses for the past eight years.

**Course Materials:** Attendees will receive a binder containing workshop proceedings and reference material.

**Continuing Education Units:** 1.3

**What to Bring:** Pen or pencil, notepad, coffee mug, and a water bottle (to reduce waste). Please wear comfortable clothes appropriate for the prevailing weather. Coffee, tea, breakfast pastries, drinks and snacks will be provided each day. Lunch
on your own.

**Registration:** $495 (reduced tuition is available for Native American tribes; government employees; nonprofits; students; and NAEP, NEBC, NWAEP members). You may register via the link below or by calling the Northwest Environmental Training Center at 206-762-1976.

**Cancellation Policy:** Registration fees are fully refundable up to 30 days prior to the event and 50 percent refundable (or 100% credit) thereafter up to 3 business days prior to the event. No refunds are issued for cancellations occurring less than 3 business days before the start day. You may register via the registration link or by calling the Northwest Environmental Training Center at 206-762-1976.

Northwest Environmental Training Center
A nonprofit 501(c)(3) program of the Northwest Environmental Education Council
650 S. Orcas Street, Suite 220, Seattle, Washington 98108
Phone: (206)762-1976, Fax: (206)762-1979
www.nwetc.org
Pacific Salmonid Spawning Habitat Restoration
Course ID: BIO-304

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Pacific Salmonid Spawning Habitat Restoration
Course ID: BIO-304 (2 days)
December 4-5, 2008, 8:30 A.M. to 5 P.M.
The Inn at Port Hadlock - Skyview Meeting Room
310 Hadlock Bay Road
Port Hadlock, WA

Instructor: Joseph E. Merz, Ph.D. Principal Scientist, Cramer Fish Sciences

Designed for practitioners and agency personnel involved with field data collection, detailed design and/or review of river restoration projects, this course provides general training in design, implementation and monitoring of in-stream habitat improvement projects in regulated streams and rivers, with an emphasis on the issues surrounding Pacific salmonid spawning.

You will learn techniques for assessing existing habitat and collecting and analyzing field data. Discover how to integrate physical, biological and aesthetic objectives into habitat improvement design; characterize and estimate sediment transport and budgets for enhancement sites; and to design effective monitoring programs. Material selection, contracting procedures, and data and project presentation will be covered. Examples of techniques will be provided from both successful and failed restoration projects. You will also visit an ongoing enhancement project where techniques will be demonstrated. All students receive a comprehensive habitat restoration manual.

The course will provide general training in:

1. Design, implementation, and monitoring of instream habitat improvement projects in regulated streams and rivers. Emphasis will be on improvements associated with salmonid spawning habitat. It will explain and demonstrate common techniques for

2. Assessing existing habitat and collecting and analyzing field data;

3. Integrating physical, biological and aesthetic objectives into habitat improvement design;

4. Characterizing and estimating sediment transport and sediment budgets for enhancement sites;

5. Designing effective monitoring programs;

6. Choosing appropriate fish habitat improvement designs;

7. Understanding enhancement limitations. It will also cover equipment and material selection, contracting procedures, and data and project presentation. As part of the course, participants will visit an ongoing enhancement project where several field techniques will be demonstrated.

Intended Audience: Designed for practitioners and agency personnel involved with field data collection, detailed design and/or review of river restoration projects, this course provides general training in design, implementation and monitoring of in-stream habitat improvement projects in regulated streams and rivers, with an emphasis on the issues surrounding Pacific salmonid spawning.

This course is preceded by: "The Ecology of Pacific Salmonids" by Joe E. Merz December 2-3, 2008. There is an additional discount that applies when registering for both courses.
Prerequisites: Suggested - "The Ecology of Pacific Salmonids"

About the Instructor: Joseph E. Merz, Ph.D., is a registered scientist with the American Fisheries Society. He has over 18 years experience working with aquatic resources and has been the principal scientist on several salmonid habitat restoration programs in the California Central Valley. He has taught environmental science, salmon biology and restoration courses for the past eight years.

Course Materials: Attendees will receive a binder containing workshop proceedings and reference material.

Continuing Education Units: 1.3

What to Bring: Pen or pencil, notepad, coffee mug, and a water bottle (to reduce waste). Please wear comfortable clothes appropriate for the prevailing weather. Coffee, tea, breakfast pastries, drinks and snacks will be provided each day. Lunch on your own.

Registration: $495 (*$395 reduced tuition is available for Native American tribes; government employees; nonprofits; students; and NAEP, NEBC, NWAEP members). An additional $100 Discount applies when registering for both BIO-303 and BIO-304. You may register via the link below or by calling the Northwest Environmental Training Center at 206-762-1976.

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ACCOMMODATIONS

The Inn at Port Hadlock 310 Hadlock Bay Road :: Port Hadlock, WA 98339 reservation | (360) 385-7030  Due to the location of the Inn at Port Hadlock we have reserved a block of rooms for our guests at the Inn at Port Hadlock. You may make a reservation with the Inn by calling (360) 385-7030
Location/Directions

Map to inn

The Inn at Port Hadlock, an "art hotel" situated on the south side of Port Townsend Bay on Port Hadlock's Historic Waterfront.

An easy day trip from Seattle, we are just a 1/2 hour ferry ride and 36 driving miles from downtown Seattle or 90 minutes from Sea-Tac Intl. Airport. Rental car, bus charter, and limousine service from Sea-Tac Airport are available. Or arrive by float plane from Seattle.

From Edmonds or North of Seattle

Take the Washington State Ferry from Edmonds to Kingston. Ferry crossings take approximately 25 minutes. From Ferry dock in Kingston, follow HWY 104 WEST for approximately 10 miles through Port Gamble to the Hood Canal Bridge. After crossing the Hood Canal Bridge continue on HWY 104. Turn right onto WA-19/Beaver Valley Road and continue approximately 10 miles. Turn right onto Chimacum Road. Turn right onto Oak Bay Road. Turn left onto Hadlock Bay Road and follow to the Inn at Port Hadlock.

From Seattle Via Ferry

Take the Washington State Ferry from Seattle waterfront to Bainbridge Island. The ferry crossing is 30 minutes. From the Ferry terminal in Bainbridge Island, follow HWY 305 for approximately 11 miles to HWY 3 interchange in Poulsbo. Take HWY 3 North to the Hood Canal Bridge. Turn left onto the bridge, and after crossing the Hood Canal Bridge continue on HWY 104. Turn right onto WA-19/Beaver Valley Road and continue approximately 10 miles. Turn right onto Chimacum Road. Turn right onto Oak Bay Road. Turn left onto Hadlock Bay Road and follow to the Inn at Port Hadlock.
From Tacoma or South of Tacoma

From I-5 South to Tacoma, take the Gig Harbor/Bremerton exit. You are now on HWY 16. Follow HWY 16 across Tacoma Narrows Bridge and continue on past Gig Harbor to Gorst. At Gorst, HWY 16 flows into HWY 3. Follow directions on HWY 3 to Hood Canal Bridge (turns to HWY 104). After crossing the Hood Canal Bridge continue on HWY 104. Turn right onto WA-19/Beaver Valley Road and continue approximately 10 miles. Turn right onto Chimacum Road. Turn right onto Oak Bay Road. Turn left onto Hadlock Bay Road and follow to the Inn at Port Hadlock.

From Seattle-Tacoma International Airport

Leaving Airport, head West on South 170th street towards Military Road South. Turn left onto Military Road South. Turn left onto S 188th Street. Merge onto I-5 South toward Portland. Merge onto WA-16 West via Exit 132 toward Gig Harbor/Bremerton. You are now on HWY 16. Follow HWY 16 across Tacoma Narrows Bridge and continue on past continue on past Gig Harbor to Gorst. At Gorst, HWY 16 flows into HWY 3. Follow directions on HWY 3 to Hood Canal Bridge (turns to HWY 104). After crossing the Hood Canal Bridge continue on HWY 104. Turn right onto WA-19/Beaver Valley Road and continue approximately 10 miles. Turn right onto Chimacum Road. Turn right onto Oak Bay Road. Turn left onto Hadlock Bay Road and follow to the Inn at Port Hadlock.

For driving directions from your exact location please click here.

Our address is:
310 Hadlock Bay Road, Port Hadlock, WA, 98339

Toll Free (800) 785-7030
International (360) 385-7030
REGISTRATION FORM

Name:__________________________        Today’s Date:______________

Agency/Organization:____________________________________________

Street Address:___________________________________________________

Street Address (cont’d):____________________________________________

City:__________________________        State:______________        Zip:__________________________

Phone:__________________________        Fax:__________________________

Email:__________________________        Title:__________________________

Indicate Course[s]:

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    310 Hadlock Bay Road
    Registration: $495 ($395*)

Pacific Salmonid Spawning Habitat Restoration $____________
    Course ID: BIO-304, December 4-5, 2008
    The Inn at Port Hadlock- Skyview Meeting Room
    Registration: $495 ($395*)

*Reduced rates for Native American Tribes; nonprofits; government; students; and NEBC, NAEP and NWAEP members. An additional discount applies to all registrants when registering for both classes.

Payment Method: Check ☐  PO ☐  Credit Card (☐Visa ☐Mastercard) Total: $____________

Credit Card or PO #:_________________________________________        Exp:__________________________

Notes: Please make checks payable to Northwest Environmental Training Center.

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