



BACKPACK ELECTROFISHING AND FISH HANDLING TECHNIQUES

COURSE ID:
BIO-407

The Northwest Environmental Training Center presents:

Backpack Electrofishing and Fish Handling Techniques Effective Methods for Maximizing Fish Capture and Survival

Course ID: BIO-407

June 17-19, 2008, 8:30 A.M. to 5 P.M. (3 Days)

William A. Egan Civic & Convention Center - Board Room

555 West 5th Avenue

Anchorage, Alaska

Instructor: *Dr. James B. Reynolds & other*

Description: Electrofishing is an effective way to sample freshwater fish populations. However, electrofishing may cause fish injury or mortality. The proper balance between efficient sampling and minimal adverse effects to fish is achieved through use of proper field techniques and understanding the principles of electricity. This course is intended to meet the National Marine Fisheries Service (NMFS) training requirements for electrofishing field staff. The NMFS guidance and training requirements document may be [downloaded here](#). This course will provide a one-day overview of electrofishing principles and practices and one day of field experience. On the first day, participants will spend the day in the classroom learning electrofishing principles and science. On the second day, participants will spend the day in the field learning backpack electrofishing techniques at a nearby stream. On the last day of the course, we will process the results of the field session, review the essential concepts and techniques of electrofishing, and answer any final questions

Course Topics

Fish Sampling and Electrofishing Applications

- Electrofishing applications for fish exclusion, relocation, and abundance estimates
- Single pass, multi-pass, and depletion approaches
- Electrofishing in low conductivity versus high conductivity water
- Electrofishing in different habitats (substrate, undercut banks, and aquatic vegetation)
- Determining when electrofishing is appropriate or necessary?

Electric Circuits and Electric Fields

- Principles of electricity and terminology
- Comparison of AC, pulsed DC, and DC waveforms
- Electric field formation and power transfer
- Getting fish into the circuit
- Electrode size and shape effects

Backpack Electrofishing Systems

- System components
- Settings, calibration, and maintenance

Fish Health and Safety

- Fish behavior in electric fields

Sampling Design, Techniques, and Standardization

- Project design for data consistency and quality
- Deep water versus shallow water issues
- Single species versus multiple species sites
- Importance of water conductivity in standardization
- Use of power transfer to standardize sampling

Crew Health and Safety

- Common safety issues
- Safe use of backpack shockers
- Incorporating safety into electrofishing projects

Permit Requirements and Agency Conditions

- Local, state and federal permits and regulations
- National Marine Fisheries Service guidelines
- Other important considerations

Equipment Summary

- Essential equipment for every backpack electrofishing project
- Optional equipment that could be useful under certain circumstances

Field Demonstration Session (at local creek)

- Waveform and voltage calibration in the field

- Electroshock-induced injury, stress and mortality
- Factors affecting risk of mortality and injury
- Field calibration of backpack shockers
- Guidelines for minimizing fish stress and injury

Fish Capture and Handling Techniques

- Net types and appropriate usage
- Block net versus no block net
- Upstream versus downstream electrofishing
- Fish handling techniques
- Fish resuscitation equipment and practices

- Electric field mapping
- System safety and evaluation
- Power standardization

Field Application Session (at local creek)

- Participants will apply course concepts during field exercises designed to simulate a typical project.
- Each participant will use the electrofishing equipment in the water
- Each participant will assist with fish capture, data logging, and fish release in small teams

About the Instructor: Dr. James B. (Jim) Reynolds is Professor Emeritus of Fisheries at the University of Alaska Fairbanks where he served on the faculty during 1978-1999. Jim is a recognized authority on electrofishing and ecology of northern fishes. He has taught electrofishing short courses to over 1,500 biologists in the U.S. and Canada, is the author of the chapter on electrofishing in "Fisheries Techniques" published by the American Fisheries Society and has written numerous research articles on the subject. Jim is Past President of the Education and Fisheries History sections and Missouri and Alaska chapters of the American Fisheries Society. He also provided technical guidance for the NOAA Fisheries electrofishing guidelines (see link above). Other instructors will assist during the field portion of the class.

Intended Audience: This course is intended for biologist, field personnel, and other professionals seeking an improved understanding of the principles and techniques of electrofishing.

What to Bring: All participants must bring a notebook, pen/pencil, electronic calculator, and bottle of water. Please also bring insulated rubber gloves and waders (if you have them for electrofishing) and dress for prevailing weather during the field trip. You are also encouraged to bring your own backpack electrofishing unit if you have access to one. You will gain knowledge of the specific optimal settings for your unit and hands-on experience using it in the field. There will be backpack electrofishing equipment available for those who do not bring their own.

Continuing Education Units: 2.0

Registration: \$695 (*\$595 reduced tuition is available for Native American tribes; government employees; nonprofits; students; and [AFS](#), [NAEP](#), [NEBC](#), [RMAEP](#) 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. Course registration fees and cancellation policy are subject to change without notice.

Disability Accommodations: To request disability accommodations, please contact us at info@nwetc.org or (206) 762-1976 at least 30 days prior to the event.

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