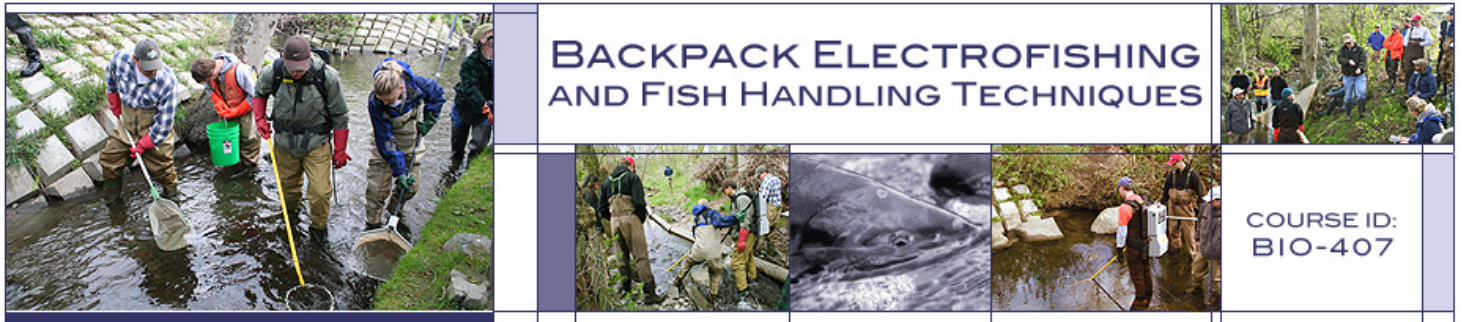


The Northwest Environmental Training Center presents:



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

Course ID: BIO-407

August 24 - 25, 2006, 8:30 A.M. to 5 P.M. (2 Days)

Radisson Hotel - Sacramento

500 Leisure Lane, Sacramento California

Instructors: *Dr. James B. Reynolds and Others*

**Course 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 has been audited by the National Marine Fisheries Service (NMFS) and meets their 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 August 24, participants will spend the day in the classroom learning electrofishing principles and science. On August 25, participants will spend the day in the field learning backpack electrofishing techniques at a nearby stream. In the afternoon of August 25, we will process the results of the field session, review the essential concepts and techniques of electrofishing, and answer any final questions.

**About the Instructors:** Dr. James B. Reynolds is a retired Professor of Fisheries at the University of Alaska Fairbanks where he served on the faculty since 1978. 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 a Past President of the Education Section and Missouri and Alaska chapters of the AFS, and presently serves as President of the AFS Fisheries History Section. Jim also provided technical guidance for the NOAA Fisheries electrofishing guidelines (see link above). Other instructors will assist during the field portion of the class.

### 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
- 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

#### 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
- 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

**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 electro shocking) 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:** 1.5

**Registration:** \$495. (\$395 for Native American Tribes; nonprofits; government agencies; students; and AFS, and NAEP members). You may register online via the link below. You may also register via phone by calling the Northwest Environmental Training Center at (206)762-1976. A registration form is attached to this PDF file. You may also register online at [www.nwetc.org](http://www.nwetc.org) or by calling the Northwest Environmental Training Center at (206) 762-1976

---

**Northwest Environmental Training Center**







*A 501(c)(3) nonprofit program of the Northwest Environmental Education Council*

650 S. Orcas Street, Suite 220 | Seattle, Washington 98108 | Main: 206-762-1976 | Fax: 206-762-1979 | [www.nwetc.org](http://www.nwetc.org)



*Radisson Hotel*  
SACRAMENTO, CALIFORNIA

**Sacramento, California ACCOMMODATIONS**  
Hotels near Radisson Hotel - Sacramento

<p>Radisson Hotel Sacramento ( COURSE LOCATION ) 500 Leisure Lane Sacramento, CA <a href="#">reservations</a></p>	<p>(916) 922-2020</p>		<p>Courtyard By Marriott - Cal Expo 1781 Tribute Road Sacramento, CA <a href="#">reservations</a></p>	<p>(916) 929-7900</p>	
<p>Residence Inn By Marriott Cal expo 1530 Howe Avenue Sacramento, CA <a href="#">reservations</a></p>	<p>(916) 920-9111</p>		<p>Best Western Expo Inn 1413 Howe Avenue Sacramento, CA <a href="#">reservations</a></p>	<p>916) 922-9833</p>	
<p>Red Lion Hotel Sacramento 1401 Arden Way Sacramento, CA <a href="#">reservations</a></p>	<p>(916) 922-8041</p>		<p>Clarion Hotel Downtown 700 16th St. Sacramento, CA <a href="#">reservations</a></p>	<p>(916) 442-8129</p>	

To find out more about NWETC's programs please call us at (206)762-1976

**Northwest Environmental Training Center**

A 501(c)(3) nonprofit program of the Northwest Environmental Education Council

650 S. Orcas Street, Suite 220 | Seattle, Washington 98108 | Main: 206-762-1976 | Fax: 206-762-1979 | www.nwetc.org