MONTANA FISH, WILDLIFE & PARKS

CONDITIONS OF SCIENTIFIC COLLECTORS PERMIT

Revised (1/2016)

1. Permits are not transferable.

2. Permits must be in permittee's possession during collection.

3. Any violation of the conditions of a Collector's permit may result in denial of future permit applications.

4. All permits issued within a calendar year will expire on December 31.

5. An annual report describing the results must be submitted to the Department by December 31 of the year issued. The report shall include copies of fish and related habitat field data. A new permit will not be issued until the report from the previous year's work has been submitted and accepted. An electronic spreadsheet version of the report form is available on the FWP web site.

6. Data collected during the term of the permit must be compatible with the data fields and structures used in the Montana Fisheries Information System.
See attached report form – available in electronic spreadsheet form at http://fwp.mt.gov/fwpDoc.html?id=56015 and http://fwp.mt.gov/fwpDoc.html?id=56016 or from our website: Fishing/Licenses & Permits/SCP.

7. The regional fish manager must be notified 7 to 10 days prior to sampling of any waters in that region. The purpose of this is to ensure conditions are still suitable for collection. The permittee and associates may be subject to spot checks to determine suitability of collection methods and gear.

8. Permittee is required to furnish his or her own electrofishing or other collection gear.

9. Permittee shall follow the Department's electrofishing guidelines (see attached).

10. Applications must be received 60 days prior to scheduled start of sampling.

11. The Department may deny a permit if the applicant is not qualified.

12. The permit may be denied if the proposed collection is not necessary for the proposed scientific investigation.

13. The permit may be denied if the method of collecting is not appropriate.

14. The permit may be denied if the proposed collecting may threaten the viability of the species.

15. The permit may be denied if there is no valid reason or need for the proposed scientific investigation.

16. The Department may place special authorizations or special requirements and limitations on any permit as necessary to protect the species to be collected, other species that may be affected and their habitats or to preserve the integrity of the scientific collection methods.

17. Minimum qualifications of principal investigator or permittee are a B.A. or B.S. plus five years experience or a M.S. in fish, wildlife or a related field. Specific training in electrofishing methods is required if it is one of the collection methods proposed in the application.

18. Students or associates under the supervision of the principal investigator must have specific training in the collection methods proposed in the application.

19. All of the above provisions apply equally to all applicants whether they are government, university or private.

20. A $50.00 fee must accompany all private applications. Government and university applicants are exempt from this fee.

21. If live fish are to be transported from the collection site, FWP's Fish Health Coordinator will also be required to review and approve the permit application.

22. If federally listed threatened or endangered species are to be collected, or if collecting in waters containing listed species, U.S. Fish and Wildlife Service authorization must also be obtained.

23. Please email permit application to: fwpfishadmin@mt.gov

24. Or mail permit application to: FWP Fisheries Division
1420 East 6th Avenue
PO Box 200701
Helena, MT 59620-0701

MONTANA FISH, WILDLIFE & PARKS

APPLICATION FOR SCIENTIFIC COLLECTOR'S PERMIT
FISHERIES

Date: _____

1. Name, phone number, affiliation, qualifications of the applicant and associates who will be conducting collection of fish. (Please attach additional sheets if necessary.)

Applicant's Name: _____

Address: _____

Phone#: _____

Affiliation: _____

Email Address: _____

Qualifications: _____

Associate's Name: _____

Address: _____

Phone#: _____

Email Address: _____

Affiliation: _____

Qualifications: _____

FWP receives requests for mailing lists. Do you want your name included on lists provided by FWP to requestors? Yes _____ No _____

2. Description of supervision provided by the applicant to associates. For example, will the applicant be in the field on a daily basis or will supervision be remote?

3. Description of why the collection is necessary (i.e., why collection by angling within creel limits by anglers is not possible):

4. Description of study plan (please attach research proposal if available):

5. Description of collection gear and method(s) of collection. If electrofishing is to be utilized, describe equipment and type of electrical current used. Include description of personnel experience and training with electrofishing if appropriate.

6. Describe the collection locations, dates, anticipated number of fish to be collected and the anticipated number to be kept.

Species	# To Be Collected	# To Be Kept	Gear Used	Dates	Waterbody name	Location 4th code HUC (see attached map)	Lat/Long or TRS

7. Describe the proposed disposition of those specimens collected and kept:

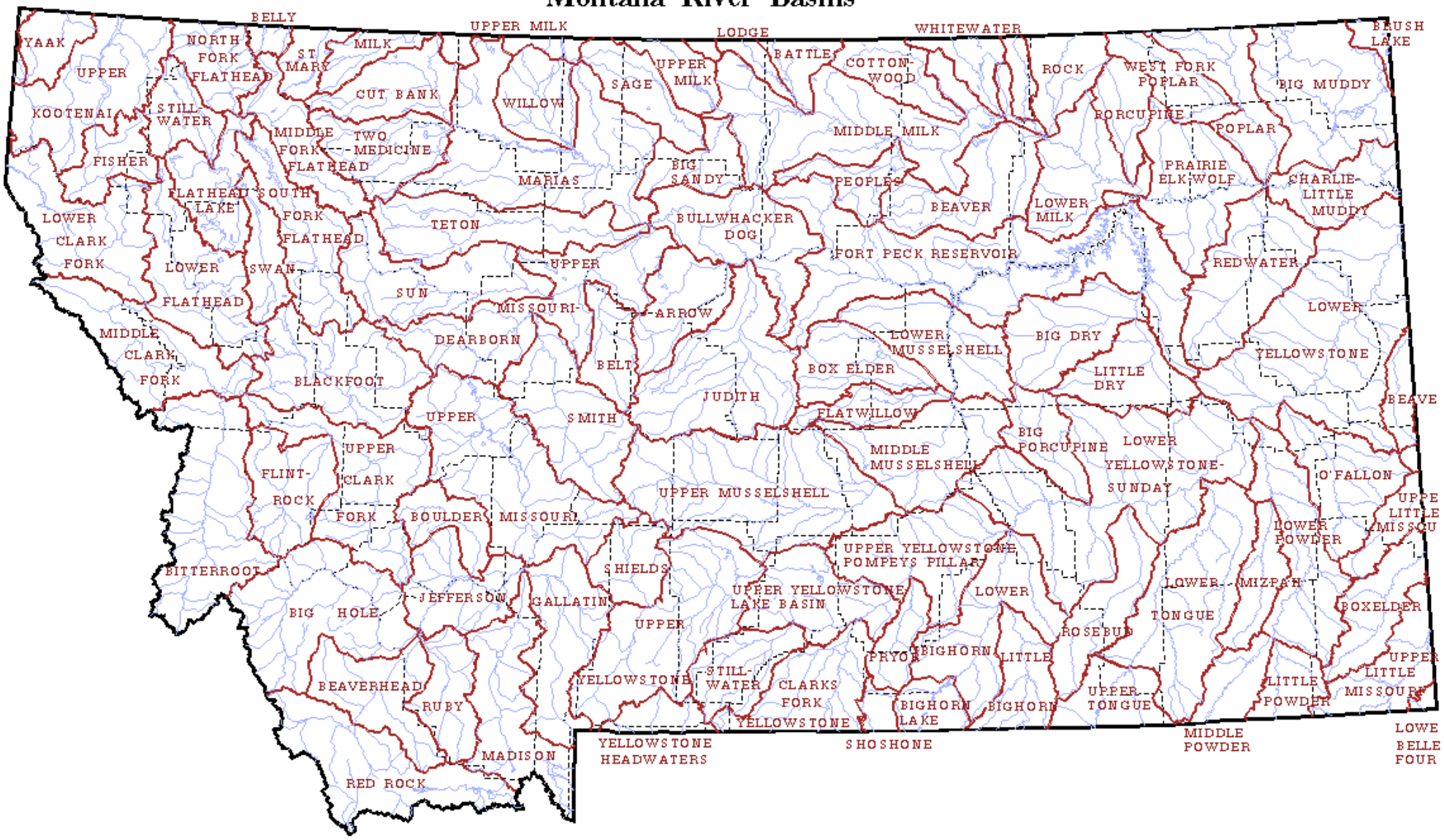
Will live fish be transported from the capture location? Yes* _____ No _____

*If live fish are going to be transported from the location of capture, additional review by FWP Fish Health Coordinator will be necessary. Please ensure adequate time for this additional review.

8. Describe provisions that will be made to protect Threatened and Endangered Species and Montana Species of Special Concern (see attached)

9. Attach study plans if available.

Montana River Basins



Montana Species of Concern

Arctic Grayling	*Thymallus arcticus montanus*
Blue Sucker	*Cycleptus elongatus*
*Bull Trout	*Salvelinus confluentus*
Columbia River Redband Trout	*Oncorhynchus mykiss gairdneri*
Deepwater Sculpin	*Myoxocephalus thompsonii*
Iowa Darter	*Etheostoma exile*
Lake Trout	*Salvelinus namaycush*
Northern Redbelly Dace	*Phoxinus eos*
Northern Redbelly x Finescale Dace	*Phoxinus eos* x *P. phoxinus neogaeus*
Paddlefish	*Polydon spathula*
*Pallid Sturgeon	*Scaphirhynchus albus*
Pearl Dace	*Margariscus margarita*
Pygmy Whitefish	*Prosopium coulterii*
Sauger	*Sander canadensis*
Shortnose Gar	*Lepisosteus platostomus*
Sicklefin Chub	*Macrhybopsis meeki*
Spoonhead Sculpin	*Cottus ricei*
Sturgeon Chub	*Macrhybopsis gelida*
Torrent Sculpin	*Cottus rhotheus*
Trout Perch	*Percopsis omiscomaycus*
Westslope Cutthroat Trout	*Oncorhynchus clarki lewisi*
*White Sturgeon	*Acipencer transmontanas*
Yellowstone Cutthroat Trout	*Oncorhynchus clarki bouvieri*

***** *Federally listed as a threatened or endangered species – USFWS authorization is also required to take these species.*

Scientific Collectors Permit Laws and Rules

87-2-806. Taking fish or game for scientific purposes. (1) It is lawful for the duly accredited representative of an accredited school, college, university, or other institution of learning or of any governmental agency or for an individual, who may be investigating a scientific subject for which collection may be necessary, to take, kill, capture, and possess for that purpose any birds, fish, or animals protected by Montana law or state fish and game rule, provided that a permit to collect is authorized by the department. Under the provisions of this section, a permittee may take, kill, and capture protected or unprotected birds, fish, or animals in any way that is approved by the department, except by the explosion of dynamite. A permittee may not take, kill, or capture more birds, fish, or animals than are necessary for the investigation. A collection permit may not be given for a species for which a taking is prohibited by statute or rule.

(2) A person who desires to engage in the scientific investigation shall apply to the department for a permit. The department may require the applicant to submit a plan of operations that includes the purpose for the collection, collection methodology to be employed, and the qualifications of the person who will be doing the collecting. The department may set qualifications for persons to whom permits are issued and may place special authorizations or special requirements and limitations on any permit. If the department is satisfied of the good faith and qualifications of the applicant and that the collecting is necessary for a valid purpose, the department:

(a) may issue a permit that must place a time limit on the collections and may place a restriction on the number of birds, fish, or animals to be taken; and

(b) shall require a report of the numbers and species of animals taken by collection areas.

(3) The department may deny a permit if:

(a) the applicant is not qualified to make the scientific investigation;

(b) the proposed collecting is not necessary for the proposed scientific investigation;

(c) the method of collecting is not appropriate;

(d) the proposed collecting may threaten the viability of the species; or

(e) there is no valid reason or need for the proposed scientific investigation.

(4) By December 31 of each year, a permittee is required to submit a report to the department that lists the species and numbers of individuals of the species taken and locations from which collections were taken. A permittee who fails to file a required report may not be issued another permit.

(5) The permittee shall pay $50 for the permit, except that a permittee who is a representative of an accredited school, college, university, or other institution of learning or of any governmental agency is exempt from payment of the fee.

(6) The permittee may not take, have, or capture any other or greater number of birds, fish, or animals than are allowed in the permit.

(7) A representative of an accredited school, college, university, or other institution of learning or an individual permittee who may have various students or associates assisting throughout the year may apply to have a permit issued that includes the individual and the students or associates. The department shall approve the qualifications of a student or an associate and the level of supervision required by the primary permittee. The students or associates, when carrying a copy of the permit, have the same authorizations and restrictions as the primary applicant. The primary applicant shall keep a record of all students or associates listed on the permit and of the dates when each student or associate conducts a collection under the permit. The primary applicant is responsible for the students' or associates' use of the permit or copies of the permit.

History: En. Sec. 81, Ch. 173, L. 1917; re-en. Sec. 3760, R.C.M. 1921; re-en. Sec. 3760, R.C.M. 1935; amd. Sec. 27, Ch. 224, L. 1947; amd. Sec. 1, Ch. 116, L. 1973; amd. Sec. 43, Ch. 511, L. 1973; amd. Sec. 49, Ch. 9, L. 1977; R.C.M. 1947, 26-1008; amd. Sec. 1, Ch. 154, L. 1995.

MONTANA FISH, WILDLIFE & PARKS

Fisheries Division
ELECTROFISHING POLICY
2002

A. ELECTROFISHING METHODS POLICY

INTRODUCTION

The growing interest in and use of Montana's fisheries resources by the public places ever increasing demands for obtaining information about our fish populations. Electrofishing has been a common fisheries sampling tool for over thirty years in Montana and it continues to be an important method for sampling fish populations today. Electrofishing is one of the few methods that allows fishery professionals to quantitatively sample fish populations for assessment of, among others, population dynamics, age and growth, and movement.

Over the years, injury to fish and other organisms as a result of electrofishing was known to occur but was generally considered to be of a minor and inconsequential nature. However, in 1988 a publication by Sharber and Carathers documented serious injury to large rainbow trout captured by electrofishing. The resulting publicity caused many agencies, including the Montana Department of Fish, Wildlife and Parks (FWP), to examine their own electrofishing practices.

Since 1989, FWP has tested a variety of electrofishing systems on a number of fish species (Fredenberg, W., 1992. *Evaluation of electrofishing-induced spinal injuries resulting from field electrofishing surveys in Montana.* FWP, Helena. Unpublished report. 43 p.) The study demonstrated a significant rate of injury to certain fish species with particular electrofishing gear. These results prompted a re-evaluation of previously accepted electrofishing practices and the development of guidelines for acceptable equipment type and use.

Electrofishing may result in adverse consequences for affected fish of a variety of species and life history stages. The presence of injuries under some circumstances dictates a conservative policy until more specific data are available. Injury should be assumed to occur unless information indicates otherwise. It is therefore the determination of the Fisheries Division that all electrofishing by any entity operating in the waters of the State of Montana conform to the following policy. Modification of this policy may be adopted as additional information becomes available.

POLICY

It is the policy of the FWP that all electrofishing conducted in the waters of the State of Montana conform to the following standards to minimize injury to aquatic life. This policy shall apply to employees of FWP, other state and federal agencies and those entities operating under the authority of a collector's permit issued by MDFWP. The only exceptions to this policy are for permanent collections where all fish sampled are killed, or for experimental purposes. Exceptions must be approved by the Fisheries Division Administrator and such requests must be submitted with written justification at least sixty (60) days in advance. No other electrofishing may be conducted. Any violation of this policy will be referred to the Administrator of the Fisheries Division for corrective action.

STANDARDS

1. Each electrofishing effort should be preceded by an analysis weighing anticipated negative impacts on aquatic life against benefits to be gained from the data collected. Other methods of data collection should be considered in this analysis.
2. Electrofishing over spawning areas containing eggs or larvae will be conducted only when eggs are needed for government hatcheries or the data to be collected are critical to the well being of the fish population as determined by the regional fisheries manager.
3. The use of electrofishing gear in waters containing Species of Special Concern should be minimized. Prior approval must be given by the regional fisheries manager before electrofishing in these waters.
4. Electrofishing in areas where threatened or endangered aquatic species may be encountered is restricted to situations in which electrofishing gear and methodology have been shown to be of minimal impact to that species or a recovery team has determined that electrofishing will be in the best interest of the threatened and endangered species. Authorization for "take" from the U.S. Fish and Wildlife Service must be obtained before electrofishing in waters that contain federally listed threatened or endangered species.
5. Electrofishing units which produce only 60 HZ pulsed DC waveforms are prohibited (e.g., Coffelt VVP2C, VVP2E, etc.). Settings on units that provide rectified sine, capacitor discharge or AC waveforms may not be used.
6. Settings on electrofishing units that produce pulse rates in excess of 30 HZ per second are not allowed in waters containing self-sustaining salmonid populations. The use of higher pulse rates for collection of warm/coolwater species should occur only after consideration has been given to the effect of this electrical form on these species and prior approval has been received by the regional fisheries manager.

PRACTICES

The following guideline table should be consulted before selecting and operating electrofishing equipment. The mention of specific brands and models of equipment is based solely on the electrical characteristics specified above. Other brands and models are excluded from this table due to lack of information. The MDFWP does not endorse any specific brand or model of electrofishing equipment.

Questions or comments on this policy should be directed to Fisheries Division, FWP, PO Box 200701, Helena MT 59620-0701.

MONTANA ELECTROFISHING GUIDELINES

PARAMETER	***RECOMMEND***	***AVOID***
Pulse Rate	30 Hz or less	Over 30 Hz
Pulse Duration	*5 milliseconds*	*10 milliseconds or >*
Pulse Shape	*Smooth DC – Best* *CPS – Second Choice* *Square – Third Choice*	*Rectified Sine* *Capacitor Discharge* *AC*
Voltage	*High Conductivity= use low voltage* *Low Conductivity = use high voltage*	
Shocker Box	*Coffelt Mark 22M* *Coffelt Mark 22 CPS* *Coffelt VVP 15 (smooth DC or low pulse rates)* *Leach/Fisher (smooth DC only)*	*Coffelt VVP2C* *Coffelt VVP2E* *Leach/Fisher Pulse*
Generator	*Low Conductivity (<200 umhos/cm 2,500 W or >)* *High Conductivity (>200 umhos/cm) 5,000 W or >)*	*Inadequate power supply/generator*
Electrode	*Bigger is Better – Always use largest possible anode except in highest conductivity water (800 umhos/cm or >)* *Always maximize cathode size, in metal boats use the boat.*	*Small point anodes such as a single dropper.* *Never use small cathode.*
Method	*Mobile Anode – Best*	*Never allow fish to lie in field*
Intensity	*Turn power down to the lowest effective level*	*Excessive current*
Brands	*Look for brands. If numerous, turn power down.*	*Branded fish are an indicator of spinal injury.*

MONTANA ELECTROFISHING GUIDELINES

PARAMETER	***RECOMMEND***	***AVOID***
Fish Species	*Most susceptible to spinal injury –* *Rainbow Trout* *Cutthroat Trout* *Brown Trout* *Less Susceptible* *Arctic Grayling* *Unknown Susceptibility* *Warmwater Spp.*	*Never assume fish are not being injured based only on external appearance.*
Fish Size	*Exercise caution with large fish.*	*Do not assume small fish are immune to spinal injury.*
Environmental Variables	*Record water temperature and conductivity and adjust methods accordingly.*	*Do not ignore water conditions.*
Eggs	*Assume eggs in redds have potential to be damaged.*	*Avoid shocking spawning females and areas with redds.*
Crew	*Use trained crews.*	*Avoid multiple-dipping into the field and other factors that will stress fish.*

B. ELECTROFISHING SAFETY POLICY & GUIDELINES

All electrofishing operations will be conducted in accordance with FWP electrofishing guidelines, using only trained electrofishing crew members. All equipment must be constructed and operated according to approved electrofishing guidelines.

General Electrofishing Guidelines

Electrofishing guidelines are set up to provide the groundwork for electrofishing crews to safely and efficiently perform their work duties. There are several factors affecting a safe, efficient electrofishing operation; primary among these are experienced personnel, safe equipment, and updated training.

I. Experienced Personnel – All electrofishing crews must be led by a crew leader who has taken a Fish, Wildlife and Parks safety standards course.

   a. Crew leader – Must receive formal training in water safety, electrofishing theory and electrical safety.

   b. Crew member – Must receive some form of water safety instruction and be instructed by the crew leader in current electrofishing safety techniques for expected electrofishing type and water conditions.

II. Safe Equipment – Electrofishing equipment must be maintained in good working order. It must be constructed and operated according to Fish, Wildlife and Parks safety standards. The crew must be trained in its safe operation and maintenance.

III. Guidelines for Specific Electrofishing Operations – Each type of electrofishing has its own specific operational and safety procedures, which the crew leader is responsible for implementing.

IV. Continued Safety Training – Safety training of all electrofishing crews will be updated with new equipment and safety procedures as they become available.

Specific Electrofishing Guidelines

I. Experienced Personnel

A. All fisheries personnel that use electrofishing equipment as a management tool will be familiar with equipment and its safe operation.
B. At least one member of each electrofishing crew (crew leader) will have taken the FWP electrofishing safety course. All other crew members must take a standard one day electrofishing safety and training course taught by a trained crew leader which will include equipment and safety checklists and a “dry run” with no electricity in the water.
C. All electrofishing crew members must be able to swim 25 yards with a personal flotation device (life jacket) and waders on.
D. At least two members of every electrofishing crew must have current certification in CPR (Cardio-Pulmonary Resuscitation).
E. All crew members must be physically fit and must report known health problems to their supervisor.

II. Safe Equipment

A. Personal Equipment
    1. All personnel on the electrofishing crew must be equipped with waterproof footwear that is free of leaks. Belted chest-high waders or neoprene waders with slip-resistant soles are generally recommended for most electrofishing to provide adequate boot height to prevent body contact with the water. Neoprene waders are available for cold weather electrofishing.
    2. All personnel on the electrofishing crew must wear waterproof rubberized gloves that are free of leaks.
    3. The wearing of polarized sunglasses is recommended to increase in-water visibility (safety) and the effective retrieval of fish.
    4. At the crew leader’s discretion (with the exception of boom shocking on large rivers or in lakes), crew members will wear a personal flotation device.
    5. All electrofishing boats must carry a first aid kit. Spare clothing and fire-starter supplies, packed in a waterproof storage bag, are also recommended.

B. General operational safety procedures

1. The anode should never touch the cathode or any other metal equipment.
2. All equipment will be given a thorough inspection before use.
3. Electrofishing will not be conducted if climatic or water conditions are such as to pose safety problems beyond those normally expected.
4. If any person feels an electric shock, even minor, the electrofishing operation must be shut down and repaired. A report on the incident must be given to the regional fisheries manager or your immediate supervisor.
5. "Dip" net handles that have metal cores will be covered with a non-conductive material and then frequently inspected for cracks. Rubber butt-caps must be in place.

III. Guidelines for Various Types of Electrofishing

A. Large River Fixed-Electrode (boom) Electrofishing; generally jet-boat propulsion but may also be rowed.
    1. A minimum crew of two personnel, of which at least one must be a trained crew leader.
    2. Only crew members experienced in motorized river boat operation may drive the electrofishing boat. Untrained boat operators may drive the boat only under the direct supervision of the trained personnel by their side.
    3. The electrofishing boat can be constructed of either metal or nonmetal, and when it is of metal construction, the hull of the boat should be used as a cathode.
        a. All internal metal equipment must be grounded to the boat.
        b. Skid-proof decking is required on the netting platform.
    4. There should be a guard rail 36-48 inches above the netting platform to protect "dip" netters from falling out of the boat during electrofishing operation.
    5. "Positive" kill switches for the electrofishing circuit must be installed, with one switch in easy reach of boat operator and one for the dip netter(s). It is recommended that a "positive" kill be installed for the boat operator that will also shut off the generator.
    6. Crew leader should have a good knowledge of the water hazards present in each of his electrofishing sections. All new sections must be "run" in the boat prior to electrofishing.
    7. A functional fire extinguisher must be carried in a readily-accessible location in the boat.
    8. A first-aid kit must be carried in the boat.
    9. Crew members must wear some form of personal flotation device at all times.
    10. An extra change of clothing and dry matches are recommended for crew members, if space is available.
    11. Wearing of hearing protection devices is optional but recommended.
    12. Night electrofishing
        a. Primary lighting must be a 12-volt system to avoid blackouts if the generator malfunctions. A 110- or 220-volt lighting system is recommended as a secondary or accessory system.

b. The electrofishing boat must carry a fully charged spare 12-volt battery and a flashlight.
c. The boat must be equipped with a 12-volt spotlight hand-held by the driver and used to navigate boating hazards. The 12-volt system must be semi-permanently grounded to prevent possible blackouts from circuit disruption (not alligator clips).
d. All lighting should be equipped with in-line switches rather than using a battery terminal disconnect.
e. Night electrofishing will be conducted only after the reach or body of water has been thoroughly scouted and preferably electrofished during daylight hours first.
f. Electrofishing boats should be equipped with internal lighting sufficient to light the deck and the area behind the deck around the fish holding tank.
g. On large or remote lakes or streams it may be advisable to carry an extra motor. At a bare minimum, night shocking crews should have sufficient gear to spend the night out if a breakdown occurs.

13. Electrofishing observers
Untrained observers will be allowed as a secondary dipnetter only after a thorough briefing on the safety aspects of the operation, and only when accompanied on the netting platform by a trained crew member (primary dipnetter).

B. <u>Drift Mobile or Boom Electrofishing (no motor)</u>
This refers to an electrofishing operation where two people remain in the boat and one person in the water controls the boat, generally small or medium-sized rivers.

1. A minimum crew of two personnel of which one must be a trained crew leader, with only experienced personnel handling the boat.
2. Electrofishing boat must be constructed of a non-conductive material with all internal metal equipment having a common ground, but not grounded to the external cathode.
    a. Skid-proof decking is required on the netting platform.
    b. Only plastic gas containers may be used.
3. There must be a 36-48 inch guardrail to protect netters from falling out of the boat during the electrofishing operation.
4. Mobile anode handles must be made of a non-conductive material and electric cord frequently inspected for weak spots.
5. “Positive” kill switches must be installed in the electrofishing circuit, with one located near boat operator and one near “dip” netters and anode operator. It is recommended that the rear kill switch also be installed so that it will kill the generator.
6. Crew leader should have a good knowledge of water hazards present in each shocking section.
7. Wearing of hearing protection is optional, but is recommended.
8. A functional fire extinguisher must be carried in the boat, mounted in a readily accessible location.
9. Crew members must wear some form of personal flotation device unless the crew leader designates it optional on a particular water.

10. It is recommended that crew members should have an extra change of clothes and dry matches, if space in the boat is available, especially during cold weather shocking.
11. No observers will be allowed in the electrofishing boat. They must either observe from the bank or from another boat.

C. Portable Drift Electrofishing

This type of electrofishing is a hybrid of drift and bank shocking where a boat is used to carry the generator and other shocking equipment, but electrofishing personnel do not normally ride in the boat (Crawdad shocking).

1. A minimum crew of three personnel of which one must be a trained crew leader, with only experienced personnel handling the boat and shocker unit.
2. The electrofishing boat must be constructed of a non-conductive material with all internal metal having a common ground, but not grounded to the external cathode. Only plastic gas cans can be carried in the boat.
3. Mobile anode handles must be made of a non-conductive material and electric cord frequently inspected for weak spots.
4. “Positive” kill switches must be installed in the electrofishing circuit, with one located near the boat operator.
5. Crew leader should have a good knowledge of water hazards present in each shocking section.
6. Wearing of hearing protection is optional.
7. A fire extinguisher must be carried in the boat.
8. Crew members must wear some form of personal flotation device unless the crew leader designates it optional on a particular water.
9. It is advisable that crew members have an extra change of clothing and dry matches.
10. No observers will be allowed in the immediate vicinity of the electrofishing operation.
11. In deep water the anode operator may sit (not stand) on the foredeck of the boat. The dipnetter may not ride in the boat under any circumstances while the electrofishing operation is under way.

D. Backpack Electrofishing

1. A minimum crew of two personnel of which one member must be a trained crew leader.
2. The backpack unit must be equipped with a quick release belt.
3. When battery-powered units are used, a gel-cell leak-proof battery should be used to minimize acid burn possibilities.
4. An “excessive tilt” electrical shutoff for electric current will be installed on the backpack unit.
5. Mobile anode must contain a “deadman” type switch in the handle to break the electrical current. The handle must be constructed on a non-conductive material. Taping down the deadman switch is a serious safety hazard, and is prohibited.
6. Observers may be used in this type of electrofishing operation, but only as a secondary dipnetter or to transport fish up or downstream to “livecars”.

E. Bank Electrofishing

This refers to the method of placing a generator on the bank and running a cord upstream or downstream. Due to the safety implications this method should be avoided unless absolutely necessary.

1. A minimum crew of two personnel of which one member must be a trained crew leader.
2. The bank electrofishing unit (generator and electrofishing box) must have a common ground to earth to reduce shock hazard.
3. The bank electrofisher must have a “positive” kill switch for both the electrode operator and the dip netter. These positive kill switches must be either made waterproof or operate off of a 12 volt safety circuit.
4. Observers must remain on the stream bank and not enter the steram during the electrofishing operation.

MONTANA FISH, WILDLIFE & PARKS

Fisheries Division
Gill Netting Guidelines
2002

Gill nets are a standard management tool, widely used within the Fisheries Division. They are also potentially lethal to personnel who utilize them. The following suggestions on conditions for use of gill nets have been developed by the Electrofishing/Water Safety Committee to provide guidance for safe working conditions for those new to gill net use, and as a reminder for more experienced personnel.

1. Never, ever, work alone! Gill nets have a deadly affinity for zippers, pull tabs, buttons, rings, and fingers. Entanglement in a net can be impossible to escape without assistance. Do not set or pull gill nets by yourself.
2. Dress for success. Minimize exposed clothing with buttons, zippers, etc. that are prone to tangling. Some raincoats, hooded sweatshirts, etc. are well-adapted to this operation. Remove rings, watches, nose rings, or earrings, before handling nets.
3. Life Preservers. Wear them always, preferably under smooth external clothing.
4. Boats. Use enough boat for the water you are on! Float tubes, inflatable vinyl rafts, etc. will not do the job. The boat must be sufficient to handle the worst-case scenario, which includes hung up nets or bad weather. Use great care with motors. An entangled motor will stall, causing the boat to turn stern toward the waves and swamp in rough water.
5. Weather. Check the forecast! A boat suitable for setting nets in light water may be totally unsafe for rough water retrieval. If the nets cannot be safely pulled, let them fish until the weather improves. Better the fish die than you.
6. Net Loss. No one wants a lost net. They fish for a long time. Use adequate anchors and strong buoy lines. Be sure that both ends are marked with brightly-colored buoys and identified with DFWP lettering. Floating nets should be marked in several places along their length.
7. Helicopter Netting. This is an irreplaceable but inherently dangerous technique for sampling mountain lakes. Always wear a life preserver. A lifeline may be useful. Never throw anything; the rotors are unforgiving. The pilot cannot help you so be extremely cautious.
8. Non-target Catches. Make maximum use of buoys to warn away swimmers, divers, and boaters. Talk to people on the lake and tell them nets are out. The potential for fatalities is real. Avoidance of areas and times of heavy public use helps reduce risk. There are major legal and emotional consequences to an accident. Don’t be the first!