

## Safety Hazards and Abatement Document

This is not a comprehensive list and the abatement actions are intended only as a general introduction. More in-depth review of abatement actions is likely necessary.

TASK	HAZARDS	ABATEMENT ACTIONS
<b>FLYING</b>	<p>Small planes, turbulent weather</p> <p>Low level flights (below 500 ft AGL)</p> <p>Emergency landing</p>	<ul style="list-style-type: none"> <li>• Pilot and plane will be Office of Aircraft Services (OAS) approved</li> <li>• Flights will be cancelled if pilot determines weather conditions are not conducive to small aircraft flying</li> <li>• Steep canyons and high mountain areas will be avoided if turbulent winds are present</li> <li>• OAS Basic Aviation Safety Course will be taken and personal protective equipment, which includes helmet, fire-resistant clothing, and leather boots, will be worn</li> <li>• Natural fiber garments worn under fire-resistant clothing</li> <li>• Seat belts worn at all times, know the location and use of fire extinguisher and Emergency Locator Transmitter</li> </ul>
<b>BOATING</b>	<p>General boating hazards</p> <p>High river flows, woody debris and ice flows</p>	<ul style="list-style-type: none"> <li>• No boating alone</li> <li>• PFDs will be worn at all times in the boat</li> <li>• PFDs will be international orange in color and equipped with retro-reflective tape</li> <li>• First aid kit will be carried onboard</li> <li>• Take Motorboat Operator Certification Course</li> <li>• Work will be cancelled if river flows are deemed unsafe</li> </ul>

## DRIVING

Slippery substrate, steep banks, rootwads, riprap

Lightning storms

Weather extremes  
-cold, snow, high winds

-heat, sun

Dangerous road conditions

Snow, ice storms

## ELECTROFISHING

Lack of training and checklist

Generator

Lifting and balancing

Carrying

- Felt-soled wading boots should be worn on rocks
- Be aware of footing. Polarized glasses are recommended to see underwater obstacles
- Work will be suspended until storm passes
- Waterproof coats, chest waders, and adequate insulation layers should be worn or available
- Know how to recognize and treat hypothermia
- Drink water regularly, apply sunscreen, take breaks if needed, and wear polarized glasses to protect eyes
- Properly maintain vehicle, drive defensively and slowly, use seat belts at all times, drive with head lights on, be alert for wildlife and senior citizens driving large motor homes
- Take defensive driving course
- Cancel trip if conditions are adverse and dangerous
- Drive slowly and allow for delays
- Trained crew leaders should test all equipment, inspect wires, connectors, and batteries prior to each field use
- Use electrofishing checklist. Check to make sure waders are not leaking
- Use approved lineman (rubber) gloves when testing all equipment
- Do not run the generator indoors
- Stay clear of the hot muffler
- Keep fuel in approved containers
- Use ear protection
- Backpack shockers: one unit per person with no additional equipment
- Raft: have equal number of people on either side of raft; lift with legs
- Empty raft of all equipment prior to moving
- Don't carry more equipment than you can handle and make multiple trips to the sampling site, if

Acid burns	<ul style="list-style-type: none"> <li>necessary</li> <li>Keep batteries upright</li> <li>Transport in case with handles and cover</li> </ul>
Traffic hazard	<ul style="list-style-type: none"> <li>Ensure all equipment is properly secured</li> <li>Wait until traffic is clear and there is plenty of time to cross the road</li> <li>Use orange safety vests while working anywhere near the roadway</li> </ul>
Potential shock or electrocution	<ul style="list-style-type: none"> <li>Trained crew leader should follow basic startup procedures</li> <li>Shut down procedures are in reverse order, with all control settings set to zero</li> </ul>
Shock or electrocution in water	<ul style="list-style-type: none"> <li>Waders should be at least hip boots in small streams and chest waders in boats</li> <li>Rubber gloves must be intact</li> <li>Be aware of co-workers; verbally alert co-workers to stop shocking if someone is falling into the water</li> </ul>
Drowning	<ul style="list-style-type: none"> <li>PFD must be worn at all times when working in an electrofishing boat</li> <li>PFD must be worn while working in streams with fast water</li> </ul>
Rain	<ul style="list-style-type: none"> <li>Stop electrofishing in moderate or heavy rain</li> <li>Attempt to cover equipment if it begins to rain</li> </ul>
Lightning	<ul style="list-style-type: none"> <li>If lightning is in the vicinity, stop electrofishing and get off the water</li> </ul>
Rowing	<ul style="list-style-type: none"> <li>Be aware of up-coming hazards (rocks, downed trees, fence posts, anglers) in the water</li> </ul>
Loss of hearing Shock or electrocution	<ul style="list-style-type: none"> <li>Wear approved hearing protection</li> <li>NEVER reach for fish with your hands while the power is on</li> <li>Maintain your balance on the front of the boat</li> </ul>
Being struck with nets by your co-workers	<ul style="list-style-type: none"> <li>Always be aware of your co-workers' location</li> <li>Net fish from the same position each time to avoid confusion</li> </ul>
Wildlife	<ul style="list-style-type: none"> <li>Survey the area and minimize disturbance of dangerous wildlife</li> <li>Do not land boat or process fish near wildlife</li> </ul>
Puncturing raft	<ul style="list-style-type: none"> <li>Keep tools away from boat and</li> </ul>

## GILLNETTING

Potential back strain and overexertion from lifting when loading and unloading gill nets

Potential back strain and overexertion from lifting when loading and unloading fish containers  
Tripping and slipping on the boat ramp and dock

Potential for tripping on floor items when loading and distributing equipment onto boat

Potential for items not stored on floor to fall in rough water conditions

Drowning

Getting burned by the engine or generator  
Cuts and bruises

Sickness from engine exhaust

Crushed foot

Loss of boat mobility and stranding

Loss of balance

Potential for gill net to snag on clothing, jewelry, and life vests

repack all processing equipment

- Always require two people to load buckets
- Lift with legs
- Make sure gill-net buckets are loaded to the front of the truck
- Always require two people to load buckets
- Lift with legs
- Beware of conditions on the ramp and dock, especially when snow covered
- Always distribute heavy and large items on deck of boat allowing clear paths for access to, and working with, equipment
- All rope and clothing must be stored in containers or placed out of walkways
- Secure tall items placed on floor with rope, do not stack items higher than gunwale height, and secure items placed on shelves and seats
- PFD must be worn at all times when working in the boat
- Stay clear of hot surfaces.
- Properly stow all equipment, especially knives
- Make sure you are not continuously exposed to the exhaust
- Wear steel-toed boots
- Be aware of net locations, keep nets and lines out of boat props
- Communicate locations to the boat operator
- Use caution when moving around the boat
- Use handrails when possible
- In extreme weather, move as little as possible
- Always wear approved PFD
- Remove all jewelry and watches before deploying gill nets
- Do not wear loose fitting clothing and avoid clothing with buttons on sleeves
- Communicate deployment with

**WADING IN STREAMS  
AND RIVERS**

Potential for anchor and buoy ropes to become entangled around feet	boat operator
Potential to be struck by anchor as net is deployed Potential to fall overboard during rough weather	<ul style="list-style-type: none"> <li>• Prepare ropes before net deployment</li> <li>• Set ropes in a location away from feet with a clear path toward the net being deployed into water</li> <li>• Communicate with boat operator and slow boat down near end of net</li> <li>• Always use at least one hand to grasp handrails when walking around cabin with netting gear</li> <li>• Always deploy nets with at least two workers</li> <li>• Evaluate working conditions with boat operator</li> </ul>
Potential for cuts as net is deployed	<ul style="list-style-type: none"> <li>• Be aware of sharp objects (screws, nuts, fish hooks) on the nets and buoys</li> </ul>
Potential for extremities to become entangled in netting during hydraulic lift operation	<ul style="list-style-type: none"> <li>• Keep hands at least one foot away from hydraulic roller and net lifter</li> <li>• One worker should solely operate hydraulic controls and always monitor net in roller and lifter</li> <li>• Operate hydraulic roller and lifter only at slowest speeds that still allow net retrieval</li> <li>• Communicate with boat operator</li> <li>• Manually retrieve nets with at least two workers</li> </ul>
Potential back strain and overexertion from manual retrieval of nets Potential for gill net anchor to strike net retriever Cuts to the hands	<ul style="list-style-type: none"> <li>• Keep alert for net anchor at start and end of each gill net</li> <li>• Wear gloves to avoid cuts from the nets</li> <li>• Take care in handling fish and processing with knives</li> <li>• Maintain secure footing</li> <li>• Keep boat decks as clean as possible</li> <li>• Inform co-workers of slippery areas</li> </ul>
Falling due to slippery deck	<ul style="list-style-type: none"> <li>• Wade in slow and shallow waters only</li> <li>• Make sure waders fit properly and do not have leaks</li> <li>• Use neoprene waders during cold weather</li> <li>• Bring extra clothes if possible</li> <li>• Wear polarized glasses to see where you are stepping</li> <li>• Walk with a co-worker</li> </ul>
Difficult wading conditions	
Hypothermia	
Slipping and falling	

## HIKING

Waders filling with water	<ul style="list-style-type: none"><li>• Use the handle portion of the net or a walking stick to gain stability</li><li>• Attempt to position feet with the stream flow</li><li>• Do not walk perpendicular to the flow</li><li>• Be sure one foot is secure prior to moving the other</li><li>• Avoid stepping on large slippery rocks or logs</li><li>• Alert co-workers when losing balance</li><li>• Survey the area for best location prior to crossing the stream</li><li>• Don't overload yourself with equipment</li><li>• Face upstream when kneeling and working with equipment</li><li>• Wear a wader belt or if possible use hands and arms to restrict water from entering</li><li>• Avoid broken sticks or other objects that may tear or puncture the waders</li></ul>
Being swept downstream	<ul style="list-style-type: none"><li>• Wear approved PFD when working in fast currents</li><li>• If swept downstream keep your face up and feet facing downstream</li><li>• Attempt to move towards streambank</li></ul>
Blisters	<ul style="list-style-type: none"><li>• Make sure waders fit properly and do not leak</li><li>• Make sure waders are dry</li></ul>
Steep, rugged, and remote terrain	<ul style="list-style-type: none"><li>• Wear proper footwear, choose footing carefully, use caution going over and around downfall</li></ul>
Large animals, rattlesnakes	<ul style="list-style-type: none"><li>• Don't panic, do not run or act aggressively, back away slowly, be aware of habitat areas</li><li>• Carry bear spray if working in known bear areas</li><li>• Be aware of how to act when encountering a bear or mountain lion</li></ul>
Ticks Stinging and biting insects	<ul style="list-style-type: none"><li>• Remove ticks intact</li><li>• Be especially aware of yellow jackets; know if any crewmembers are allergic to insect venom and carry appropriate medicines for treatment</li></ul>
Poison ivy, oak	<ul style="list-style-type: none"><li>• Recognize and avoid</li></ul>

## LAB WORK

Adverse weather conditions

- Be prepared for weather, carry appropriate clothing for the season
- Recognize signs of hypothermia and know how to treat it
- Wear sunscreen and stay hydrated

Handling toxic chemicals

- Know the hazards of all chemicals being used
- Take appropriate precautions
- Wear gloves, eye goggles and use fume hood or a well-ventilated area, when necessary

Poisoning

- Never eat or drink when handling toxic chemicals
- Do not store food or drink in chemical storage areas

Flammable chemicals

- Store all flammable chemicals in certified flammable storage
- Be aware of what chemicals are flammable and take appropriate precautions

Cuts from glassware

- Place all broken glassware in designated “sharps” containers