

SUNY COLLEGE AT ONEONTA  
BIOLOGICAL FIELD STATION  
SAFETY AND HEALTH MANUAL

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Cooperstown, New York

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Biology Department  
State University College at Oneonta

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SUNY ONEONTA  
BIOLOGICAL FIELD STATION  
POLICY AND PROCEDURES  
REGARDING  
EMPLOYEE SAFETY AND HEALTH

I. Background

As an essential part of the Biological Field Station's (BFS) Safety Program, we have developed a Safety and Health Policy and related Field Manual for all BFS activities.

II. Objectives

- A. To authorize and provide generic means and methods for the safe operation of equipment, handling of chemicals, and to provide a safe and healthful environment in which to conduct daily activities.
- B. To provide and maintain safe and healthful working conditions, provide and maintain equipment and supplies necessary to carry out assigned program objectives in a safe manner, and to initiate and maintain operating practices that will safeguard all employees.

III. Applicability

We believe the safety and health of students and staff and the environment in which they work are of primary importance. The Administration recognizes that the efficiency of any operation can be measured by its ability to prevent accidents and reduce loss of time. The safety program is designed not only to provide and maintain safe and healthful working conditions but to improve morale and well-being and the efficiency of BFS operations.

IV. Authority

- A. Article 2, Section 27-a, New York State Labor Law (State OSHA).
- B. Article 48, Public Health Law; Article 28 New York State Labor Law (Toxic-Substance Act - Right to Know Law).

V. Policy

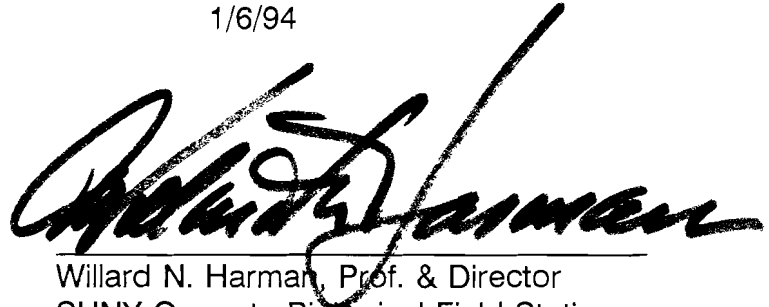
- A. Ensure that all faculty staff and students understand and follow the written policy and field manual instructions regarding safety and health.
- B. Stimulate, promote, and enforce safety consciousness and safe work habits.

- C. Provide guidelines for planning, development, and construction projects where safety and health need special consideration.
- D. Safety training programs will be established with assistance and guidance from the SUNY Oneonta Safety Coordinator.

VI. Procedures

- A. The attached Field Safety and Health Manual is to be followed and used by all Biological Field Station personnel.
- B. Use those procedures which best apply to your situation. Remember that safety policies, rules, and regulations cannot replace common sense, good judgment, and safety awareness in avoiding accidents.

Willard N. Harman  
1/6/94

A large, stylized handwritten signature in black ink, appearing to read 'Willard N. Harman', is written over a horizontal line.

Willard N. Harman, Prof. & Director  
SUNY Oneonta Biological Field Station

## INTRODUCTION

This manual has been prepared with your (the employee's) safety and health as our primary concern. Your awareness is important in assuring a safe working environment, alerting you of safety hazards and how to cope with them, and providing the necessary equipment and training for you to carry out your work safely and efficiently.

You are encouraged to make suggestions for improvement as the manual will be updated if required.

## RESPONSIBILITIES

### SUPERVISORS

Each faculty, staff, or student supervisor is directly responsible for the health and safety of all persons under their immediate supervision including permanent, temporary, and seasonal employees, as well as official volunteers.

To this end, supervisors shall: (1) provide all employees with formal safety instructions including a complete review of the BFS Safety Policy at least once annually; (2) provide employees with complete safety instructions prior to assignment of duties; (3) assure that all required safety equipment is available for use by employees and properly maintained; (4) provide required first aid and safety training as described herein to all permanent, temporary, and seasonal employees; (5) inspect work areas and equipment for unsafe practices and conditions; (6) take prompt corrective action to eliminate any hazards; (7) report all accidents and conduct any necessary investigations; (8) and enforce all safety rules and regulations. Supervisors should remember that their attitude and the example they set for subordinates may be the two most important factors in promoting job safety.

### EMPLOYEES

Each employee shall: (1) observe all written and oral safety instructions; (2) wear or use required safety equipment; (3) report unsafe conditions; and (4) report all accidents and injuries that occur to their immediate supervisor. It is the responsibility of the employee to report an unsafe condition to his supervisor or the Director. He may refuse to work under known unsafe conditions or to work without required safety equipment without fear of reprisal. If the employee is not satisfied with the disposition of the complaint, he should contact the Director following which he may also contact The SUNY Oneonta Safety Coordinator, or his union representative, or the Department of Labor.

### ACCIDENT INVESTIGATION AND REPORTING

Responsibility for investigation of accidents lies with the supervisor. If he needs assistance due to the nature of the accident, he should contact the Director.

Any accidents resulting in personal injury must be documented and reported to the supervisor. Any accident involving motor vehicles must be reported on NYS Department of Motor Vehicles No. MV-104 within 48 hours.

Accidents and injuries should be reported to help avoid further accidents, to assure that available benefits are obtained by qualified employees, and to determine government liability.

## ENFORCEMENT

Enforcement of the BFS Safety Policy is the responsibility of all personnel with full support of the Director.

The Supervisor has the responsibility of enforcing all requirements of the Safety Policy in accordance with administrative procedures.

## DEFINITIONS

1. Personal Flotation Devices (PFD's)  
Wherever reference to this is made, item will be U.S. Coast Guard approved.
2. Fuel Containers - Gas Cans - Gas Tanks  
Reference to any of the above will mean fuel containers that are F.M. labeled.
3. Fire Extinguishers  
Except for special situations noted, extinguishers will be for A.B.C. class fires.
4. First Aid Kits  
See Page 6 for recommended contents.

## RECOMMENDED FIRST AID KIT CONTENTS

<u>Small 10 unit</u>	<u>Medium 17 unit</u>	<u>Large 23 unit</u>
(#/Units)	(#/Units)	(#/Units)
1 - 4" compress bandage	2	2
1 - 2" compress bandage	2	3
1 - Band Aid	2	3
1 - 40" triangular bandage	2	3
1 - Merthiolate swabs	1	2
1 - Antiseptic swabs	1	2
1 - Eye Dressing	1	1
1 - Foille Burn Ointment 1/8 oz.	1	1
1 - Stingkill swabs	1	1
1 - Poison Ivy	1	1
	1 - wire splint	1
	1 - 2" stretch bandage	1
	1 - 3x3" compress	1
		1 - 4" roll bandage

Recommend 1 blanket in plastic bag for boats.

Recommend a package of needles and aspirin in all kits.

Suggestion: A gallon plastic bottle half filled with water and attached rope for lifeline.



## BOATING SAFETY

### A. PREREQUISITES TO ANY BOATING ACTIVITIES

1. SUPERVISORS WILL ENCOURAGE ALL EMPLOYEES TO BECOME COMPETENT SWIMMERS. For the purpose of this policy, a "competent swimmer" is defined as someone who can swim at least 50 yards and float (in motion) for a period of 5 minutes, is a certified SCUBA diver or has passed an American Red Cross swimming or life saving course at or above the Intermediate Swimmer, Basic Rescue or Basic Survival levels.

### B. GENERAL PROCEDURES

1. PERSONAL FLOTATION DEVICES (PFD's) must be worn at all times while vessels less than 24 ft. are underway, during all boat electrofishing operations, during night work or at periods of low visibility (500' or less), during helicopter-boat surveys, on all boats, at all times when water temperatures are less than 60<sup>o</sup>F, on all boats while operating any gear, and during any other conditions deemed hazardous to vessel and/or crew.
2. A CREW LEADER WILL BE DESIGNATED FOR ALL OPERATIONS INVOLVING BOATS. He is responsible for the safety of the crew and enforcement of safety guidelines.
3. IT IS THE RESPONSIBILITY OF THE CREW LEADER TO DETERMINE IF A SITUATION CAN BE DEALT WITH CONFIDENTLY AND SAFELY. This judgment will take into consideration weather forecast, lake conditions, type of boat, the load, the type of operation, and the ability and opinion of the crew.
4. ALL BFS BOATS WILL BE OPERATED ACCORDING TO RULES AND REGULATIONS OF THE U.S. COAST GUARD AND THE NYS NAVIGATION LAW.

### C. EQUIPMENT DESIGN AND CONSTRUCTION

1. BOAT LOADS WILL NOT EXCEED MAXIMUM BIA LOAD LIMITS indicated on the manufacturer's identification plate. If any boat does not have the manufacturer's recommended load limit, a reasonable approximation may be determined by:

$$\text{Maximum Load} = 7.5 \times L \times B \times De$$

Where L = length of the boat

B = beam (width) of the boat

De = depth of the boat measured from the bottom to the lowest point that water can gain entry into the hull

(all measurements are in feet)

2. SUPERVISORS SHALL ENSURE THAT ALL BOATS AND MOTORS ARE ANNUALLY INSPECTED BY A COMPETENT MECHANIC.
3. ALL BOATS PURCHASED AFTER SEPT. 1, 1982 SHALL HAVE UPRIGHT FLOTATION (flotation capable of supporting the boat in an upright position when swamped), except for large vessels where survival suits are required.
4. ALL BOATS USED IN WATER WITH A TEMPERATURE LESS THAN 60°F OR AT A DISTANCE OF MORE THAN 0.25 MILES FROM THE NEAREST SHORE SHALL HAVE UPRIGHT FLOTATION or all crew members must have either PFD or survival suits.
5. NO BOAT SHOULD BE POWERED BY AN ENGINE THAT EXCEEDS THE MANUFACTURER'S (BIA) RECOMMENDED HORSEPOWER LIMIT.
6. A SECONDARY POWER SUPPLY (i.e. paddles, oars, small outboard) SHALL BE ON BOARD FOR EACH BOAT.
7. FIRST AID KITS WILL BE AVAILABLE FOR ALL TRAILERED BOATS, and must be carried as part of the survey gear and maintained annually.
8. BOAT TRAILER LOADS SHALL NOT EXCEED RATED LIMITS, AND TRAILERS WILL BE CHECKED BEFORE EACH USE to make sure lights are working, safety chains are attached, tires are properly inflated, the trailer hitch is secure and the boat is secure.
9. ANY AUXILIARY FUEL TANKS OR EXTRA FUEL CONTAINERS MUST BE FM LABELED.

## VEHICLE OPERATION

### A. PREREQUISITES FOR VEHICLE OPERATION

1. ALL OPERATORS SHALL HAVE CURRENT LICENSES FOR THE VEHICLE TYPE TO BE DRIVEN and be permitted according to SUNY Oneonta College Policy.
2. ALL VEHICLES SHALL BE PROVIDED WITH AND CARRY documents including vehicle registration.
3. ALL VEHICLES WILL BE EQUIPPED WITH:
  - a. Seatbelts for all passengers.
  - b. Warning flags or flares and flashlight.
  - c. First aid kit.
  - d. Other equipment and safety features required by Federal or State law.
  - e. Right and left side mirrors on trucks large enough for safe backing, or on any vehicle used to haul trailers.
  - f. Needed tools, including a jack, lug wrench and hand tools (pliers, adjustable wrench, common screwdriver, phillips screwdriver, electricians tape) for at least simple repairs.

### B. GENERAL PROCEDURES

1. OPERATORS SHALL CONDUCT A CHECK ON THE SAFETY OF A VEHICLE BEFORE EVERY TRIP.
2. NO DRIVER SHALL ATTEMPT TO DRIVE IF HIS DRIVING ABILITY IS IN ANY WAY IMPAIRED (such as by alcohol, fatigue, debilitating illness, or the use of medicines or drugs).
3. ALL ACCIDENTS AND TRAFFIC CITATIONS INCURRED WHILE OPERATING STATE VEHICLES SHALL BE PROMPTLY REPORTED by the driver to his supervisor.
4. NO EMPLOYEE MUST OPERATE ANY VEHICLE OR EQUIPMENT WHOSE CONTROLS AND OPERATION ARE NOT UNDERSTOOD, OR FOR WHICH THEY ARE NOT PROPERLY LICENSED.
5. NO EMPLOYEE SHALL KNOWINGLY OPERATE ANY STATE VEHICLE OR EQUIPMENT WHICH IS UNSAFE. Employees shall not be subject to any penalty or disciplinary action because of failure or refusal to operate or handle any equipment which they reasonably believe to be in unsafe condition.
6. USE OR OCCUPANCY OF STATE-OWNED VEHICLES BY PERSONS OTHER THAN STATE EMPLOYEES IS NOT PERMITTED EXCEPT WHEN THE COLLEGE ADMINISTRATION FORMALLY APPROVES SUCH USE.

7. MAINTENANCE SCHEDULES FOR STATE-OWNED VEHICLES shall comply with those recommended by the vehicle manufacturer, or Division of Operations.
8. ANY DRIVER WHO IN THE OPINION OF THE SUPERVISOR IS HABITUALLY CARELESS, repeatedly uses poor judgment, or repeatedly violates driving regulations may be grounded by his supervisor and may face disciplinary action.
9. WHEN AN OPERATOR IS INVOLVED IN AN ACCIDENT where there is an indication of negligence, the operator will be grounded by his supervisor pending final case disposition.
10. ANY DRIVER OF A VEHICLE INVOLVED IN AN ACCIDENT may be recommended to attend a DMV drivers' clinic and/or for disciplinary action warranted by the circumstances.

### C. CAR AND TRUCK SAFETY

1. ALL BFS PERSONNEL WILL ALWAYS USE SEAT BELTS WHILE OPERATING BFS VEHICLES.
2. DAILY, BEFORE DRIVING ANY ASSIGNED VEHICLE, THE DRIVER SHOULD CHECK FOR mirror alignments, adequate brakes, steering, windshield wipers, windshield washer, tires, lights, horn, and tight exhaust system. Keep vehicle windows clear of dirt, grease, steam, or snow.
3. AVOID LONG DRIVING PERIODS, ESPECIALLY AT NIGHT. No one will be authorized to drive, unless he has had at least 6 hours of sleep in the previous 24 hours. New York State Transportation Law states that an employee can only drive ten hours per day. Avoid driving continuously more than 3 hours. Take a short break or change drivers.
4. NO MORE THAN TWO PERSONS SHALL OCCUPY THE FRONT SEAT UNLESS THERE ARE SEAT BELTS FOR EACH OCCUPANT AND THERE IS SUFFICIENT ROOM TO SAFELY OPERATE CONTROLS.
5. PASSENGERS WILL NOT RIDE on the hood, fender, running boards, or bumpers of any vehicle.
6. DO NOT OVERFILL GASOLINE TANKS. Allow for temperature expansion and tilting. Vehicles shall not be operated without properly fitted metal gas caps. Never use a rag as a temporary replacement for a gas/filler cap.
7. VEHICLES COMMONLY PARKED NOT TOTALLY OUT OF TRAFFIC must be equipped with a permanent or portable yellow flashing (revolving) warning light that must be used by the vehicle operator in combination with vehicle hazard warning flashes when necessary.

8. GUIDELINES AND SAFETY TIPS FOR CAR AND TRUCK SAFETY
- a. All car and truck drivers shall adopt a policy of defensive driving, which means driving to avoid accident situations created by other drivers or by weather and road conditions.
  - b. Drivers on official business shall at all times drive with consideration for other drivers and obey all traffic laws.
  - c. Operators will be especially courteous to pedestrians. Honor their right-of-way privileges. Watch particularly for erratic pedestrian behavior especially by children and the elderly.
  - d. Operators will drive at a speed that permits full control of the truck, allowing for all factors, such as posted speed limits, stop signs, weather, visibility, traffic and road conditions, and safe stopping distance. Do not exceed posted highway speed limits. No job urgency transcends traffic safety.
  - e. On narrow roads either surfaced or unsurfaced and on blind curves, operators will keep well to the right and be able to stop the vehicle within less than half of the visible distance.
  - f. Before starting downgrade, shift into a lower gear if steepness or sharp curves indicate prolonged brake pressure will be needed to maintain control.
  - g. Park vehicles off the traveled portion of the highway. When necessary to park near or partly on the traveled portion of the highway, place warning devices in accordance with State or local regulations, or use hazard warning flashers and/or yellow rotating/flashing emergency light.
  - h. When using expressways, study maps in advance and know where you expect to leave and how to identify the exit in advance. Also, have ample fuel or plan intermediate stops.
  - i. Where there is danger of the vehicle rolling, such as when jacked up or parked:
    - 1) Block wheels.
    - 2) Place vehicle in lowest gear in direction of roll. Automatic transmission must be left in "park" position.
    - 3) Set handbrake.
    - 4) Turn wheels into bank or curb if present (downgrade toe into curb, upgrade toe away from curb).
  - j. When operating trucks equipped with vacuum-hydraulic brakes, if the engine stalls, be prepared for brake failure.
  - k. Park, if possible, off roadway and visible for a reasonable distance in both directions.

#### D. TRAILER SAFETY

1. TRAILERS AND TOWING VEHICLES SHALL BE EQUIPPED WITH BRAKES, LIGHTS, COUPLING, SAFETY CHAIN and other devices prescribed by New York State law.
2. GROSS TRAILER WEIGHT SHALL NOT EXCEED 75% OF GROSS VEHICLE WEIGHT.
3. PERSONNEL SHALL NOT RIDE IN TRAILERS DURING TRANSPORT.
4. VEHICLES TOWING TRAILERS SHALL BE EQUIPPED WITH DUAL, SIDE MOUNTED REARVIEW MIRRORS.
5. TRAILERS WITH A LOADED TONGUE WEIGHT EXCEEDING 100 LBS. MUST be equipped with a wheel jack to aid in trailer hook-up.
6. BOAT AND CARGO TRAILERS SHALL HAVE LOADS SECURED AND BALANCED OVER THEIR AXLE(S) to avoid undue vehicle leverage at the coupling.
7. BOAT KEELS SHOULD BE SUPPORTED EVENLY ON ROLLERS OR SKIDS FROM TRANSOM FORWARD.
8. TRAILERED BOATS WITH OUTBOARD DRIVES SHOULD BE CHECKED FOR ADEQUATE GROUND CLEARANCE of the prop and/or skeg. Maximum clearance is obtained with the lower unit in a securely raised position, where it should remain for all launchings.
9. BOAT LAUNCHING TRAILERS REQUIRE EXTRA MAINTENANCE CHECKS OF WHEELS, WHEEL BEARINGS, AND BRAKE LIGHTS DUE TO EXPOSURE OR IMMERSION.
10. BOATS SHOULD BE LAUNCHED FROM TRAILERS ONLY AFTER SECURING THE TOWING VEHICLE FROM ROLLING.

## ELECTROFISHING SAFETY

### A. PREREQUISITES TO ELECTROFISHING ACTIVITIES

1. ALL ELECTROFISHING BOATS AND STREAM ELECTROFISHING UNITS SHALL BE INSPECTED ANNUALLY before the beginning of the field season to assure that all equipment meets the safety standards set herein.

### B. GENERAL

1. A CREW LEADER WILL BE DESIGNATED FOR ALL ELECTROFISHING ACTIVITIES. The Crew Leader is responsible for the safety of the crew and enforcement of safety regulations.
2. EACH CREW MEMBER SHALL WEAR PROTECTIVE HAND AND FOOT GEAR. Crew members will wear lineman's gloves (Desc). Rubber soled boots at least 6" high must be worn during boat electrofishing. Rubber hip boots with non-slip soles are a minimum requirement for stream electrofishing; however, waders are recommended because of their added safety margin (canvas or nylon covered rubber hipboots and waders meet requirements).
3. GASOLINE ENGINE OPERATED GENERATORS SHALL NOT BE REFUELED WHILE IN OPERATION. An adequate amount of time shall be taken after refueling to allow gasoline vapors to dissipate, and any spilled fuel will be cleaned up before starting the generator.
4. ALL ELECTROFISHING EQUIPMENT SHALL BE TURNED OFF BEFORE MAKING ANY CONNECTIONS, DISCONNECTIONS, OR PART REPLACEMENTS.
5. A FIELD ELECTROFISHING CHECK LIST SHALL BE USED BEFORE EACH OPERATION to assure that all required equipment is available and all safety procedures are followed.
6. NO FIELD MODIFICATIONS TO ELECTROFISHING UNITS WILL BE PERMITTED.
7. STREAM ELECTROFISHING:
  - a. ALL ELECTROFISHING BRAIL SUPPORT HANDLES AND ALL WAND-TYPE ELECTRODE HANDLES SHALL HAVE INDIVIDUAL WATER TIGHT PRESSURE SENSITIVE SWITCHES powered by no more than 24 volts (ac or dc). Whenever possible, a second level of electrical interruption should be maintained between source (georator) and electrodes.
  - b. A STREAM ELECTROFISHING CREW SHALL CONSIST OF NO LESS THAN TWO CREW MEMBERS. Hip boots or waders (with nonskid felt-type soles) must be worn by all crew members.
  - c. PFD'S SHALL BE WORN WHEN WORKING IN SITUATIONS WHERE CURRENT, DEPTH, AND STREAMBOTTOMS MAY CREATE HAZARDOUS CONDITIONS.

- d. BACK PACK UNITS SHALL BE SHUT OFF PRIOR TO ENTERING OR LEAVING A STREAM, and the battery terminals disconnected when not in use.
- e. A CREW MEMBER WHO GETS EXCESS WATER IN BOOTS OR WADERS SHALL IMMEDIATELY LEAVE THE OPERATION and remove water from his gear before returning and, if temperature dictates, obtain dry clothing and boots.
- f. CREW MEMBERS SHALL ALWAYS MAKE SURE THAT ALL PERSONNEL ARE CLEAR OF THE ANODE BEFORE TURNING ON THE POWER.
- g. CREW MEMBERS SHALL NOT REACH INTO THE WATER WITH A HAND in vicinity of an electrode even if rubber gloves are being worn.
- h. A CREW MEMBER CARRYING A HEAVY BACK PACK UNIT with an overall weight exceeding approximately 20 pounds will not be allowed to simultaneously operate a shocking wand (in hazardous conditions).

C. EQUIPMENT DESIGN AND CONSTRUCTION

- 1. ELECTROFISHING CONTROL UNITS SHALL HAVE BUILT-IN LOW VOLTAGE SAFETY FACTORS. Units of this type include the Coffelt model VVP-2C, the Bureau of Electronics "blue box" or "black box" and the "orange" or "green" backpack shockers.
- 2. THE ALTERNATOR OUTPUT MUST BE ELECTRONICALLY ISOLATED. Do not tie the neutral wire to the chassis ground on the generator.
- 3. THE VOLTAGE AND AMPERAGE RATING OF WIRING MUST BE ADEQUATE. The rated voltage of insulation on conductors used to deliver output current from the pulsator to the electrodes must exceed the maximum potential voltage of the pulsator or generator by the next higher rating as follows:

<u>Pulsator/Generator</u>	<u>Minimum Insulation Rating of Conductor</u>
0-249 volts	250 volts
250-599 volts	600 volts
600-899 volts	900 volts

Conductor size shall be approved for rated amperage of equipment as follows:

<u>Amperage</u>	<u>Conductor Size</u>
0-15	14 AWG
16-20	12 AWG
21-30	10 AWG

Note: These ratings apply to stranded wire which will be used exclusively on all electrofishing boats.



4. **WIRING MUST HAVE ADEQUATE MECHANICAL PROTECTION.**  
Conductors used shall meet the requirements for dampness. All conductors in electrofishing boats shall be enclosed in conduit or liquid-tight flexible conduit except that appropriate heavy duty rubber cord can be used if greater flexibility in installation is necessary.
5. **CONNECTORS AND INTERLOCKING MUST BE ADEQUATE.** No splices of wire shall be permitted. If connections are necessary, the rating of the connector (plastic wire nut) must be at least equal to that of the wire. Connectors used in association with flexible cords shall be of the locking weatherproof type.

#### D. RECOMMENDED SAFETY TIPS

1. **STREAM ELECTROFISHING:**
  - a. **ALL CREW MEMBERS MUST BE ALERT,** but the brail operator who controls the power switch must be constantly aware of netters in the electrical field, especially when working in deep water.
  - b. **OPERATE SLOWLY AND CAREFULLY.** Footing in most streams is poor and most falls often occur when crew members are hurrying.
  - c. **TAKE FREQUENT BREAKS.** Don't let stress and fatigue endanger your safety.
  - d. **BEWARE OF TURBID WATER** where unseen subsurface obstacles or dropoffs could be hazardous.
  - e. **A GASOLINE POWERED GENERATOR SHOULD NOT BE IN OPERATION WHILE ON A CREW MEMBER'S BACK.** The Generator should be operated while secured to the stream bank or in a tow boat.

## CHEMICAL HANDLING SAFETY

### A. PREREQUISITES FOR CHEMICAL HANDLING

1. ALL BFS PERSONNEL SHALL RECEIVE CHEMICAL FIRST AID TRAINING INCLUDING THE USE OF SAFETY EQUIPMENT, FIRST AID KITS, AND FIRE EXTINGUISHERS.
2. REQUIRED PERSONAL PROTECTIVE SAFETY EQUIPMENT MUST BE PROVIDED to each individual involved. This includes gear like goggles, gloves, respirators, protective clothing, etc. as specified in Table 1.

### B. GENERAL PROCEDURES

1. PERSONNEL SHALL READ LABELS ON CONTAINERS BEFORE OPENING. Manufacturer's instructions regarding handling, storage, and use must be followed unless they have been altered in writing only by an employee's supervisor.
2. PERSONNEL MUST BE FAMILIAR WITH CHEMICALS THEY WILL BE HANDLING including general hazards, safety precautions, allowable limits, safe exposure levels, and associated first aid procedures. The chemicals listed in Table 1, p. 21, include most of these that may be encountered by BFS personnel. Assume any chemical is dangerous unless one knows differently.
3. CHEMICALS MUST NOT BE HANDLED OR USED WITHOUT REQUIRED EQUIPMENT such as gloves, goggles, respirators, etc. as listed in Table 1. In some cases (as listed), the use of equipment is recommended, but not required, for your protection when handling chemicals which are not normally considered hazardous. Bare hands should not be placed into wet or dry chemicals. Remember that clothing and safety equipment will not provide complete protection.
4. ONLY APPROVED CHEMICAL CARTRIDGE RESPIRATORS SHALL BE USED. Boxes containing respirators and cartridges must be stamped with a certification of approval by NIOSH (National Institute for Occupational Safety and Health) or MESA (Mining Enforcement and Safety Administration). Clean and disinfect the facepiece of the regulator before using. Cartridge type must match the chemical being used and be replaced as needed.
5. IN CASE OF ACCIDENT OR SPILLAGE, DANGEROUS FUMES, VAPORS OR DUST SHOULD NOT BE INHALED. Eyes or areas of skin in contact with chemicals should be flushed with eyewash or clean water for at least 20 minutes. Contaminated clothing should be changed as soon as possible, and contaminated protective clothing should be placed in a container prior to washing. All permanent personnel shall complete a basic course in chemical first aid.

6. **NO SMOKING DURING OR IMMEDIATELY AFTER USE OF SPECIFIED CHEMICALS** (Table 1). The heat from a lighted cigarette vaporizes chemicals in contact with it and passes the chemical(s) directly to your lungs and also could be a fire hazard. After handling chemicals, both hands and face must be washed before smoking. Also, remember that cigarettes can be contaminated while being carried in your pocket.
7. **FIRST AID KITS MUST BE AVAILABLE** during any operations where chemicals listed in Table 1 are handled. First aid kits will include one pint bottle of eye wash and a five gallon can of clean water (if not available on-site).
8. **PERSONS WITH DOCUMENTED ALLERGIES TO CERTAIN CHEMICALS SHALL NOT BE ASSIGNED TO WORK WITH THOSE CHEMICALS.** Written documentation of the allergy from either one's supervisor or a physician is adequate.
9. **CHEMICALS THAT REACT DANGEROUSLY WHEN MIXED WITH OTHERS** will not be stored next to each other so that mixing cannot occur if their containers leak or break.
10. **CHEMICALS WHICH ARE FIRE HAZARDS BY CHEMICAL REACTION** (exothermic) will not be stored near flammable substances.
11. **PROLONGED PERIODS OF CHEMICAL STORAGE WILL BE AVOIDED.** Care should be taken to purchase only enough chemicals to satisfy reasonably current demands, especially when using highly poisonous, corrosive, or flammable chemicals.
12. **EMPLOYEES MUST WASH HANDS BEFORE HANDLING FOODS** after working with poisons, acids, or caustics. Food shall not be stored in contaminated work areas or eaten while wearing contaminated clothings.
13. **CHEMICALS SHALL NOT BE STORED IN POORLY VENTILATED ROOMS,** or where food can be contaminated. Local fire codes must be checked for chemical storage regulations.
14. **CHEMICAL CONTAINERS MUST BE CLEARLY LABELED** as to contents and whether poisonous, flammable, or corrosive. Unidentifiable contents of unlabeled containers shall be properly disposed of.
15. **DANGEROUS, POISONOUS, FLAMMABLE, REACTIVE, OXIDIZING, CORROSIVE, AND EXPLOSIVE CHEMICALS** must be kept in the laboratory when not in use.
16. **STRONG ACIDS OR ALKALIES SHALL BE HANDLED** only if protective gloves are available. Wash gloves before removing. If skin contact occurs, wash contaminated areas with soap and water and apply lanolin products. If irritation persists, a physician should be consulted.

17. CONTAMINATED EQUIPMENT such as rain gear, goggles, packboards, etc. shall be cleaned thoroughly with soap and water immediately after use.
18. CLOTHING CONTAMINATED WITH DANGEROUS CHEMICALS SHOULD BE REMOVED AS SOON AS POSSIBLE, followed by a shower and a clean change of clothes before continuing work. A hat with a sweaty or contaminated sweat band should not be worn.
19. EMPLOYEES WILL NOT INVESTIGATE OR WORK AT THE SITE OF A CHEMICAL SPILL UNTIL THE CHEMICAL INVOLVED HAS BEEN IDENTIFIED.
20. CHEMICALS FROM LARGE CONTAINERS WILL BE REMOVED BY PUMPS OR SIPHONS. SIPHON TUBES MUST NEVER BE PRIMED WITH YOUR MOUTH.
21. CHEMICALS MUST ALWAYS BE DILUTED BY POURING INTO THE DILUTING SOLUTION, never the reverse, e.g. acid into water, etc.
22. WORKERS WHO COMPLAIN OF HEADACHE, NAUSEA, GIDDINESS, BODY PAINS, OR NUMBNESS during or after the use of chemicals shall be removed from the work area and taken to a doctor.
23. A FIELD PROJECT SUPERVISOR THOROUGHLY TRAINED IN CHEMICAL HANDLING SAFETY WILL BE DESIGNATED IN CHARGE of field operations where hazardous chemicals will be used.
24. USED CHEMICALS AND CONTAINERS SHALL BE DISPOSED OF AS FOLLOWS:
  - a. Used chemicals shall be placed in appropriate "waste chemical containers" for special disposal. Special waste containers are available for flammable waste in the Volatile Storage Room. Toxic and nontoxic waste containers are available for aqueous chemical wastes. Chemical wastes should not be poured down the drain.
  - b. A NYS DEC Regional Solid Waste Engineer should be consulted for information on disposal of other chemicals.
  - c. Containers, liners, and debris from toxic chemicals shall be punctured or crushed to render them useless and then transferred to a sanitary landfill. Paper bags remaining after liming operations may be burned on-site in accordance with local or DEC regulations regarding open burning.

### C. REQUIRED SAFETY EQUIPMENT

The following list includes equipment that is required for the safe handling of various types of chemicals as listed in Table 1.

1. Goggles, chemical splash.
2. Dust/mist respirators, full face dust/mist respirators, chemical cartridge respirators.
3. Protective aprons.
4. Protective gloves.
5. Fire extinguishers.
6. Eye wash solution, clean water (if not available on-site).
7. Impervious coveralls.
8. First Aid Kits.
9. Special protective boots if warranted.

## NON-BFS EMPLOYEE PARTICIPATION

During the course of routine operations, including various types of field surveys, fish stocking, meeting attendance, etc. individuals not employed by the BFS or the State of New York commonly participate in these activities strictly on a volunteer basis with no remuneration involved.

In some cases, individuals previously designated for specific work assignments for a specified period are considered "official" volunteers after SUNY Oneonta administrative recognition. In these cases, liability and compensation coverage is identical to that of permanent employees.

Generally, however, most volunteer participation is not pre-planned and, especially in the case of fish stocking assistance, paperwork is seldom submitted in advance. In these cases where volunteer participation is condoned and often even encouraged, there is no formal arrangement for liability and compensation coverage.

For the safety of the volunteers involved as well as for the protection of the BFS or SUNY Oneonta against liability claims:

1. NO VOLUNTEERS WILL BE ALLOWED IN BOATS, CARS, TRUCKS, AIRCRAFT, OR MOTORIZED VEHICLES UNLESS ADMINISTRATIVE APPROVAL HAS BEEN PROPERLY SUBMITTED AND APPROVED BY THE PRESIDENT OR HIS DESIGNATED AGENT(S).
2. Except as noted in item 3, NO VOLUNTEERS WILL BE ALLOWED TO PARTICIPATE IN EITHER BOAT OR STREAM ELECTROFISHING SURVEYS, CHEMICAL HANDLING OPERATIONS, OR ANY OPERATIONS INVOLVING THEIR TRANSPORT BY BOAT, CAR, TRUCK, AIRCRAFT, OR OTHER VEHICLE UNLESS:
  - a. Administrative recognition forms have been submitted and approved.
  - b. Any safety equipment required for use by permanent employees will be provided for and used by volunteers.

Individuals will be permitted to observe electrofishing operations from a safe distance (25 feet or greater) as determined by the supervising crew leader.

3. VOLUNTEER PARTICIPATION WITHOUT SUBMITTAL AND APPROVAL WILL BE PERMITTED ONLY BY INDIVIDUALS NOT INVOLVED WITH ELECTROFISHING, CHEMICAL HANDLING, OR VEHICLE TRANSPORT, however,
  - a. Volunteers will be familiar with and abide by the BFS safety policy.
  - b. Any safety equipment required for use by permanent employees will be provided for and used by volunteers.
  - c. Volunteers must be advised by the crew leader or supervisor of potential safety hazards and necessary safety precautions prior to participation in field or laboratory activities.

BFS personnel involved in field or laboratory activities cannot be held liable for the safety of non-BFS employee volunteers.

TABLE 1. Chemicals Routinely Used in Fisheries Operations

NAME (FORMULATION)	FISHERIES USE	HEALTH HAZARD	METHOD OF EXPOSURE	SYMPTOMS	SAFETY PRECAUTIONS AND PROTECTIVE EQUIPMENT	FIRST AID
* Rotenone (emulsified liquid)	Fish toxicant	Irritant poison (est. lethal dose - 200 mg/kg, or 13.6 g. for a 150 lb. person)	Inhalation, ingestion, skin contact	Numbness, nausea, vomiting, tremors, skin & eye irritation	Wear impervious coveralls or raingear, rubber gloves and goggles if direct & repeated or prolonged contact is unavoidable. Use a chemical cartridge respirator with an organic vapor cart- ridge when prolonged inhalation of mist or spray is unavoidable. No smoking during and immediately after application until hands are washed. After use place protective clothing in a container for future washing. Change clothing and shower daily during application period.	Remove contami- nated clothing. Flush contami- nated areas of the body with soap and water or eyewash.
* TFM (liquid)	Lampricide	No known toxicity to man; physical eye irritant		Eye irritation		Flush eyes with eyewash.
* Bayer 73 (coated granules)						
Hydrated Lime (powder)	Liming	Irritant	Inhalation, skin & mucous membrane contact	Irritation of eyes, skin, and respiratory system	Wear impervious coveralls or raingear, rubber gloves, headgear, rubber framed goggles and a dust/mist respirator if prolonged contact is unavoidable. During helicopter applications wear garments with full hoods and elasticized ankle, wrist and face openings. Use a full face dust/mist respirator. (Helicopter application creates increased hazards from rotor wash and swirling dust.) After use place protective clothing in a container for future washing.	Remove contami- nated clothing. Flush contami- nated areas of the body with soap and water or eyewash. Apply lanolin products to irritated areas.
Potassium Permanganate (crystalline/ powder)	Disinfectant, detoxifying agent	Flammable, strong irritant	Inhalation, ingestion skin and mucous membrane contact	Irritation of eyes, skin, respiratory system	Wear rubber gloves, goggles. Use dust/ mist respirator when working with powder formulation. Do not store near com- bustible substances. Do not mix or store in close proximity with glycerine or ethylene glycol. Impervious coveralls, apron or raingear recommended to protect clothing.	Flush affected areas with water or eyewash.

\* Application must be under supervision of a certified pesticide applicator.

TABLE 1. Chemicals Routinely Used in Fisheries Operations (cont.)

NAME (FORMULATION)	FISHERIES USE	HEALTH HAZARD	METHOD OF EXPOSURE	SYMPTOMS	SAFETY PRECAUTIONS AND PROTECTIVE EQUIPMENT	FIRST AID
Formaldehyde (aqueous solution)	Fish disease control, specimen preservation	Irritant	Inhalation, ingestion, skin and mucous membrane contact	Irritation of eyes, skin and respiratory system	Adequately ventilate work areas; wear goggles and use rubber gloves or a barrier cream.	Flush affected areas with water or eyewash. Ventilate work area.
Morpholine (liquid)	Imprinting agent	Irritant, flammable (95% flash point) poisonous			Adequately ventilate work area; wear goggles and rubber gloves; do not store near combustible material or in areas of excessive heat. Contaminated clothing should not be worn. No smoking. Fire extinguisher must be available in work area.	
Chlorine (aqueous solution)	Hatchery disinfectant	Strong irritant			Adequately ventilate work area, wear rubber gloves and goggles, and impervious coveralls, apron or raingear. Contami- nated clothing should not be worn. After use, place protective clothing in a container for future washing.	
Sulfuric Acid Hydrochloric Acid Nitric Acid Potassium Hydroxide Sodium Hydroxide	Water Chemistry	Corrosive, strong irritant	Skin or mucous membrane contact	Irritation of eyes, skin	Rinse hands after use to prevent accidental eye contact. Recommend eye protection (rubber framed goggles) during use. Label containers clearly.	Flush affected areas with water or eyewash for up to 15 minutes.
Isopropanol, ethanol (liquid)	Specimen preservation	Skin and eye irritant, toxicant, flammable	Ingestion, inhalation, skin or eye contact	Irritation of eyes, skin; headache, drowsiness, fatigue	Work in a well ventilated area; wear plastic gloves or a barrier cream as needed; fire extinguisher must be available in work area. No smoking.	Flush affected areas with water or eyewash for up to 15 minutes. Ventilate work area.
Autimycin (liquid)	*Fish toxicant	Very caustic, skin & eye irritant	Eye and skin contact	Irritation of eyes, skin; blindness	Wear impervious coveralls or raingear, rubber gloves, rubber framed goggles. Rinse rubber gloves and hands immediately after use with soap and water. After use place protective clothing in a container for future washing.	Flush affected areas with water or eyewash for up to 15 minutes.

Other  
Chemicals Additional chemicals not listed here may be encountered or used by fisheries personnel during routine operations or emergencies like accidental chemical spills. Read the manufacturer's label or take other measures to identify the chemical and follow the instructions regarding hazards handling, storage, use and first aid procedures.



TABLE 1. Chemicals Routinely Used in Fisheries Operations (cont.)

NAME (FORMULATION)	FISHERIES USE	HEALTH HAZARD	METHOD OF EXPOSURE	SYMPTOMS	SAFETY PRECAUTIONS AND PROTECTIVE EQUIPMENT	FIRST AID
Acetone	Chlorophyll extraction	Flammable, Irritant/ Narcotic	Inhalation, ingestion, skin contact	Irritant of upper respiratory tract. Throat irritant. Central nervous system depressant.	Protective equipment. Work in well ventilated area. Avoid contact with sparks, flames or other sources of ignition. Wear protective (impervious) gloves to prevent contact.	<u>Inhalation</u> - Remove from exposure area to fresh air immediately. <u>Skin contact</u> - Remove contami- nated clothing & wash affected area with soap & large amounts of water. <u>Eye contact</u> - Wash eyes immediately with large amounts of water.
Roccal (liquid) Hyamine (liquid) Purina 4X (liquid) Chloramine T (powder)	Fish disease control	Mild irritant	Inhalation, ingestion, skin and mucous membrane contact	Slight irritation of eyes, skin, and and respiratory system	Wear rubber gloves and goggles if direct and repeated or prolonged contact is unavoidable.	Flush affected areas with water or eyewash as needed.
Dylox (powder)	Fish disease control	Skin and eye irritant, toxicant	Inhalation, ingestion, skin and mucous membrane contact	Irritation of eyes, skin and respiratory system, uncontrolled muscle spasms	Wear impervious coveralls or raingear, rubber gloves, headgear, and goggles. Use a chemical cartridge respirator with an organic vapor cartridge when inhalation is possible. No smoking or eating immediately after application until hands are washed. After use place protective clothing in a container for future washing.	Remove contami- nated clothing. Flush affected areas with soap & water or eyewash.

Other  
Chemicals Additional chemicals not listed here may be encountered or used by fisheries personnel during routine operations or emergencies like accidental chemical spills. Read the manufacturer's label or take other measures to identify the chemical and follow the instructions regarding hazards handling, storage, use and first aid procedures.

TABLE 1. Chemicals Routinely Used in Fisheries Operations (cont.)

NAME (FORMULATION)	FISHERIES USE	HEALTH HAZARD	METHOD OF EXPOSURE	SYMPTOMS	SAFETY PRECAUTIONS AND PROTECTIVE EQUIPMENT	FIRST AID
Terramycin (powder) Sulfamerazine (powder)	Fish disease control	Mild irritant	Skin and mucous membrane contact	Irritation of eyes and skin	Wear rubber gloves and goggles if direct and repeated or prolonged contact is unavoidable.	Flush affected areas with water or eyewash as needed.
Chlorotone (powder) MS-22 (powder) Methyl Pentynol (liquid) Quinaldine Sulphate (liq.)	Fish anesthetic	Not established	Inhalation, ingestion, skin and mucous membrane contact	Unknown	Although toxicity to humans is unknown, adequate precautions should be taken by employees commonly using them to prevent inhalation, ingestion or skin contact.	Remove contami- nated clothing. Flush affected areas of the body with soap and water or eyewash as needed.

Other  
Chemicals Additional chemicals not listed here may be encountered or used by fisheries personnel during routine operations or emergencies like accidental chemical spills. Read the manufacturer's label or take other measures to identify the chemical and follow the instructions regarding hazards handling, storage, use and first aid procedures.