Responsible Persons

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<th>Position</th>
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PURPOSE AND POLICY STATEMENTS

Purpose:

The purpose of this manual is to provide policies and procedures for field work performed by faculty, staff, and students of the College of Science and Engineering at Central Michigan University. This manual is intended to be a living document, to be reviewed annually and revised as appropriate.

Policy Statement:

The College is committed to providing opportunities for faculty, staff and students to perform field work for the College (both in coursework and research) and ensuring that this work is done in following best-practices for health and safety. All individuals performing field work on behalf of the College (or taking courses in the field) is responsible for ensuring they work in a safe and conscientious manner and follow the policies in this document at ALL times.

There is no research or educational objective that justifies taking avoidable risks with the health and safety of yourself or others. Furthermore, failure to follow these policies and procedures may make you individually liable in the case of accident or injury.

Documentation:

All faculty and staff engaged in field work either for coursework or research are required to complete the Field Policy and Procedures Documentation form (Appendix A, Form A-1) and submit it to Risk Management/Environmental Health & Safety (RMEHS), Smith 103.

I. General Comments on Field Safety

A. Purpose

This section describes the minimum requirements necessary for individuals to carry out field work in a safe fashion.

B. Policy

It is the policy of the College that individuals carry out assignments in a safe fashion. The College requires that individuals performing field work be trained and certified by the Red Cross or American Heart Association in cardiopulmonary resuscitation (CPR) and First Aid.

C. Required Training

Individuals have the responsibility to acquire CPR and First Aid certification if they are going to perform field work in a remote location. MIOSHA requires first
aid care be readily available to employees during all working hours. Employers with an infirmary, clinic, or hospital in “near proximity” are considered to have met first aid equipment, supplies, and treatment requirements. Three to four-minute response time is required in areas where serious accidents may occur (examples: fall, electric shock, amputation, severe chemical exposure). Maximum 15-minute response time is acceptable in other circumstances where life-threatening injury is unlikely. If you are performing field work in areas that do not meet these response times, then you must have CPR and First Aid certification.

Individuals are required to document compliance with this policy. Documentation includes current Red Cross or American Heart Association certification cards. Bloodborne pathogen (BBP) training is also a requirement. Contact RMEHS (774-7398) to schedule BBP training.

CPR training must be re-certified every two years. First Aid training must be recertified every two years.

1. Training Availability
   CPR and First Aid training are offered on campus through RMEHS and the Central Health Improvement Program.

   Individuals who cannot participate in the Department’s training session should arrange to receive training elsewhere. Call your local Red Cross (773-3615) or American Heart Association (1-800-968-2425) office for times and locations of training sessions near you.

D. Documentation
   Individuals are required to carry current CPR (every two years) and First Aid (every two years) certification cards.

II. Field and Gear Safety

A. General Required Procedures

1. Working Alone

   Working alone in the field is strongly discouraged and should be avoided if possible. Employees are only authorized to work alone with prior approval from their supervisor based on a documented assessment of hazards, with adequate contingency and emergency communication plans. Approval will only be granted if the chances of injury are minimal.

2. Familiarity with Study Area and Emergency Services
All individuals performing fieldwork must familiarize themselves with the natural hazards they may face (e.g., dangerous animals, strong currents) and appropriate responses to such hazards. They should also familiarize themselves with the closest human community to the area where their fieldwork is located, as well as locations of the nearest hospital, police department or other emergency center.

3. **Travel Itinerary**

Individuals performing fieldwork must submit a daily travel itinerary with a local contact person for emergency purposes. In the absence of a local contact person, the Department Office can be the point of contact for verifying a safe return. Appendix B (Form B-1) provides an example of a travel itinerary for those individuals performing fieldwork on land. Appendix B (Form B-2) provides a similar example for those performing fieldwork on open water.

B. **Weather Considerations**

1. **Heat-related Illness**

   a. **Symptoms**

   Heat cramps, heat exhaustion, and heat stroke are conditions caused by overexposure to heat. Heat cramps are painful muscle spasms that usually occur in the legs or abdomen. Signals of heat exhaustion include cool, moist, pale or flushed skin, headache, nausea, dizziness, weakness, and exhaustion. Heat stroke is the least common but most severe heat emergency. Signals of heat stroke include red, hot, dry skin; changes in consciousness; rapid, weak pulse; and rapid, shallow breathing.

   b. **Treatment**

   Care for heat-related illnesses by:

   1. **Calling an ambulance in all cases of heat stroke! Or if the victim refuses water, vomits or starts to lose consciousness.**
   2. Getting the victim out of the heat
   3. Loosening tight clothing
   4. Removing perspiration-soaked clothing
   5. Applying cool, wet cloths to the skin
   6. Fanning the victim
   7. Giving a conscious victim cool water to drink
2. **Cold-related Illness**

   a. **Symptoms**

   Frostbite and hypothermia are two conditions caused by extreme cold. Frostbite is the freezing of body parts exposed to the cold and can cause the loss of fingers, hands, arms, toes, feet, and legs. Signals of frostbite include lack of feeling in the affected area, skin that appears waxy, is cold to the touch, or is discolored (flushed, white, yellow, or blue). Hypothermia is the cooling of the entire body and can cause death. The primary indication of hypothermia is reduced body temperature. Signals of hypothermia include shivering, numbness, glassy stare, apathy, and loss of consciousness. Air or water temperature does not have to be below freezing for someone to get hypothermia.

   b. **Treatment**

   Care for cold-related illnesses by:

   1. Call for an ambulance – because cold-related illnesses can cause the loss of life or limb, you should get professional help as soon as possible.
   2. Care for any life-threatening problems.
   3. Move the victim to a warm place if you can.
   4. Remove any wet clothing and dry the victim.
   5. Warm the victim
      - for frostbite, do NOT rub the affected area as rubbing will cause further damage to soft tissue; warm the area gently by soaking the affected area in water no warmer than 105°F.
      - for hypothermia, warm the victim quickly in warm bath or by applying an external heat source to the head, neck and groin regions.
   6. Apply other sources of heat if they are available (chemical heat packs or hot water bottles). Be sure to keep a barrier such as a towel between the victim and the heat source to avoid burning the victim.

3. **Preventative Measures**

   To prevent heat or cold emergencies from happening to anyone in a field crew, it is suggested that individuals follow these guidelines:

   a. Minimize time outdoors in the hottest or coldest part of the day.
   b. Change your activity level according to the temperature.
c. Take frequent breaks in extreme temperatures. This allows the body to readjust to normal body temperature.
d. Dress appropriately for the environment.
e. Drink appropriate amounts of fluids.

C. Boat Safety

Working from boats is a potentially hazardous activity and the University has an interest in minimizing the risk of accidents and injuries to faculty, staff and students who perform work in boats. Because this is a health and safety issue the following policies are mandatory and failure to follow them will result in termination of all boat-based work. Failure to follow ensure employees and students under one’s supervision follow these guidelines may result in disciplinary action and also make one liable to criminal or civil prosecution in the event of a boating-related fatality or accident.

This policy differentiates between boat operators (the de facto captain of the vessel) and passengers who are not approved to operate a CMU vessel and who are required to follow the directions of the boat operator at all times. Boat operators who carry faculty, staff and students who are not qualified to operate a vessel under this policy must make sure that these individuals understand their obligation to follow this policy (e.g., wearing a PFD at all times) and the absolute requirement to follow the directions of the boat operator at all times.

In order to avoid confusion and debate under potentially hazardous conditions, where two or more personnel in the vessel are CMU approved boat operators, one must be designated as the primary operator for that specific trip and assume command of the vessel; this should be the individual with the greatest experience with the type of vessel and water body in question regardless of academic or supervisory rank.

1. Required Training and Research Vessel Operator Requirements

All employees, graduate or undergraduate students and non-CMU researchers or students operating CMU boats must possess a Michigan Boating Safety Certificate. This requires taking a proctored exam at a local county Sheriff’s office or DNR district office. The following web site provides links to an online training course and an online pre-certification exam that should be taken prior to taking the proctored exam. [http://www.boaterexam.com/usa/michigan/](http://www.boaterexam.com/usa/michigan/)

The IGLR or CSE will cover the cost of taking the required exams for any employee or student who is required to operate a vessel for their research or professional responsibilities.

A copy of the boat operator’s Michigan Boating Safety Certificate and any other documentation (e.g. US Coast Guard Captain’s License) must be on file at either the CMUBS or IGLR offices.

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1 Operating a boat means being ultimately responsible for the navigation and operation of the vessel and the safety of all passengers. Faculty, staff and students may ride in CMU boats as passengers without possessing a Michigan Boating Safety Certificate but are required to follow the directions of the boat operator at all times.

2 This policy applies to all boats used for CMU research or education regardless of ownership, including but not limited to those boats owned by CMU, other Universities, State or Federal Agencies and CMU faculty, staff and students. For example, if a members of faculty, staff or students use their own boats for CMU research they are required to follow the policy regarding PFD use even if this differs from their practice when the boat is used for non-CMU business or pleasure.
2. **Students Taking Courses**

Based on a ruling by the US Coast Guard, students taking courses are considered paying passengers and as such can only be carried on the Great Lakes in a vessel piloted by an individual with a US Coast Guard Captain’s license of the appropriate class for the number of passengers in the vessel. This does not apply to students engaged in research projects or hired as employees.

3. **Personal Flotation Devices (PFDs)**

All employees, graduate or undergraduate students and non-CMU researchers or students using CMU boats other than the M/V Chippewa are required to wear a personal floatation device (Type I, II, III or IV) **at all times.**

**PFDs must be:**
- Coast Guard Approved
- In good condition (straps etc.)
- Of the correct size for the wearer
- Have a whistle or other signaling device attached.
- Inflatable PFDs are acceptable provided they are Coast Guard approved and a spare CO₂ cylinder and arming mechanism is carried at all times.

**Exceptions:** The only exceptions to the PFD policy are as follows
- Working on a boat securely moored at a dock.
- Working on an anchored vessel of at least 16 feet in length and a beam of at least 4 feet under calm conditions and with the express approval of the CMU-approved boat operator.

4. **Minimum number in party**

   a. Under no circumstances should any member of faculty or staff or student work alone in a boat. A minimum of two people are required for all boat-based work.
   b. The only exception is where work is performed from single-person vessels (e.g., kayaks) in this case the requirement would be for a minimum of two people in the field team in different vessels.

5. **Research Vessel Requirements**

   III. Each research boat (except for small unpowered vessels exempt from this requirement under State Law) should be registered with the State of Michigan and copies of the registration must be filed in the IGLR or CMUBS office.
   - Boats can be registered in Michigan through the Secretary of State Office.
   - Display boat registration numbers on the hull according to state regulations.
   - Keep a copy of the boat registration on-board and a copy in the tow vehicle’s glove compartment.
IV. Research boats must be equipped with all required gear (e.g., navigation lights, horns) and safety equipment (e.g., personal flotation devices, fire extinguisher) according to state regulations. These regulations vary according to boat length. See the Michigan Boat Guide or call the Michigan Department of Natural Resources, Law Enforcement Division for specifics, or call the United States Coast Guard for additional information if research is being conducted on navigable waters. Note that the University’s policy on PFD use is more stringent than the Michigan DNR requirements.

V. Except for small vessels of 16 feet or less used in inland waters boats must also be equipped with the following equipment. When checking out boats from the IGLR or CMUBS offices users will be provided with a dry bag containing all required equipment. It is the users responsibility to check that the equipment is present and in working condition. Please notify the IGLR or CMUBS office immediately if equipment is missing or broken.

- GPS navigation system
- Compass
- Navigation charts (Great Lakes only)
- 2-way radio
- Tool kit including spares for motor
- Spare batteries for required electrical equipment
- Spare fuel in an approved container
- Oars or spare engine
- Anchor and rope
- Spotlight and emergency flares.

VI. In addition to the required PFDs small vessels of 16 feet or less (e.g., canoes and rowboats) must be equipped with:
- Spare oar or spare paddle

VII. All individuals working on boats must carry foul weather gear, and extra warm clothes. A dry bag for this gear is highly recommended unless the vessel possesses a weatherproof cabin or storage lockers.

6. All boat operators are required to demonstrate competency in boat operation and knowledge.

7. Float plans

a. A float plan must be filed with a responsible party on shore. This could be the departmental, CMUBS or IGLR offices (assuming return is in normal office hours), or when working from remote locations, with some other dependable person, preferably a CMU employee. The float plan must include:

i. Names of all persons on vessel including designated operator(s) of the vessel
ii. Cell phone number of at least one person in party (unless boat will be in radio contact)
iii. Destination(s)
iv. Time of Departure
v. Time of Return
vi. Overdue time; no more than 3 hours after time of return. Because this is the margin of safety before initialing search and rescue efforts it should be shorter than 3 h under hazardous conditions (e.g., working at night or winter work on the Great Lakes)

b. The responsible party on shore must be fully aware of what is expected of them. They must be available via phone or radio throughout the planned trip. The responsible party must notify emergency services (local police for inland water and the coast guard for the Great Lakes) if the boating party does not return or contact them before the overdue time.

c. The boating party must contact the responsible party on shore as soon as they return to shore. They should also radio or telephone to report a later-than-anticipated return giving new times of return and overdue.

8. Specialized Vessels: Electroshocking Boat, Airboat, and M/V Chippewa

The electroshocking boat requires extensive training and demonstration of competency and knowledge of the vessel. Further, all electroshocking requirements below must be met.

The Airboat requires extensive training and demonstration of competency and knowledge of the vessel.

The M/V Chippewa requires extensive training and demonstration of competency and knowledge of the vessel. Further, the captain must hold a USCG captains license and be enrolled in a random drug testing program. The first mate must be trained in vessel operation, hold a boaters safety certificate, and be enrolled in a random drug testing program. When necessary, the captain may waive the requirements of the first mate unless tuition paying students are aboard.

9. Boat Towing Information

a. Register boat trailers with the Michigan Secretary of State Office (http://www.michigan.gov/sos) and submit copies of the registration to the Department.
b. License plate should be properly secured on the trailer.
c. Signals and lights should be working properly.
d. Individuals must demonstrate competency in towing their boat prior to heading to field sites.

10. General Towing Information

a. Individuals are highly encouraged to practice towing their boat on campus prior to heading to field sites.
b. Do not exceed the maximum towing capacity for the trailer, ball and hitch setup, or towing vehicle.
c. A proper match should be made between the ball and hitch. Trailer safety chains should be properly connected to the towing vehicle.
d. Trailer wheel bearings should be checked frequently.
e. Trailer tires should be properly inflated.
f. Always check boat trailer lights for proper function prior to towing.
g. Boat engine should be secure and radio antennas lowered (if applicable). Remove or tie down all gear which can potentially blow out of the boat when towing.
h. Carry a spare trailer tire.
i. Drive at a speed appropriate for the trailer, but do not exceed the posted speed limit.

11. Other guidelines

a. Check if weather conditions are favorable before leaving the dock. No one should be on the water during thunder and/or lightning. It is recommended to take a weather band radio to the field to monitor weather conditions.
b. Carry an extra set of truck and boat keys in case a set is lost overboard.
c. Place boat keys on a floating key ring and store an extra set in towing vehicle.
d. Carry a change of clothes on-board or in the towing vehicle.

D. SCUBA and Snorkeling Safety

1. Policy

   Individuals using SCUBA for their research must be PADI (Professional Association of Dive Instructors), NAUI (National Association of Underwater Instructors), YMCA, or SSI (SCUBA Schools International) certified. It is highly recommended that individuals be specialized in low visibility and cold water diving. Individuals using SCUBA and snorkeling should be comfortable in water environments and strong swimmers. **It is against College policy for individuals to dive or snorkel alone.** SCUBA diving must be done using the buddy system with at least two qualified divers in the water at all times. An attendant on shore or in a boat is not acceptable because they are unable to provide assistance in case of an emergency under water. An attendance on shore or boat is acceptable for snorkeling work provided they are both a strong swimmer and immediately ready to enter the water to effect a rescue.

2. Training Availability

   For PADI courses in Michigan:  

   For SSI courses:  
   [http://www.ssiusa.com](http://www.ssiusa.com)

   For NAUI courses:  
   [http://www.naui.org](http://www.naui.org)

3. Required SCUBA Procedures
a. All SCUBA divers must do a check-out dive with an IGLR certified SCUBA instructor before each field season.
b. All SCUBA divers must be trained in the use of dive tables and emergency procedures.
c. Pre-dive planning should include informing a contact person of the dive schedule (location, time and names of divers). Appendix C (Form C-1) provides an example of a dive schedule itinerary.
d. Dive location should be marked by a dive flag and a tethered buoy attached to a vessel and a description of the marker should be provided in the Dive Itinerary.
e. Dive equipment should be properly maintained. Individuals using SCUBA should pay particular attention to using the appropriate equipment given environmental conditions. SCUBA tanks are required to be visually inspected every year and hydrostatically tested every 5 years.
f. All divers are required to purchase and keep dive logs. Dive logs should be kept with dive time and maximum depth.
g. It is important that divers familiarize themselves with rules and regulations for particular dive sites as some dive locations (i.e., National Parks) may require pre-dive approval (e.g., diving ability and accessibility).

4. **Recommended SCUBA Procedures**

   Full refresher courses are highly recommended for infrequent divers and those who are previously certified but will be using SCUBA intensively for their research.

5. **Recommended Snorkeling Procedures**

   Become familiar with the physical features of the body of water to avoid placing oneself in dangerous situations. Use buoyancy control devices in open water.

6. **Documentation**

   A photocopy of SCUBA certification cards must be submitted to IGLR and/or CMUBS.

E. **Electrofishing**

   1. **Policy**

      Electrofishing is an inherently hazardous activity – electrical energy used in electrofishing is sufficient to cause electrocution. Thus, it is the policy of the College that all individuals using electrofishing will make
safety their primary concern. The project leader will ensure that all individuals involved in electrofishing are familiar with the safe use of electrofishing gear being operated and with the risks involved in using this technique. All individuals will be instructed on how to respond if someone falls in the water while electrofishing is in progress.

2. Required Procedures

Prior to the field season, anyone planning to use electrofishing as a sampling tool is required to complete the following electrofishing course Access the DOI Learn External Learners page http://www.doi.gov/doilearn/nondoi_learners.cfm
Select the link "Search our Public Catalog" in the center of the page.
Select the "Public Catalog" tab in the upper left of the page.
Search for course #: FIS2202 in the search box.
Select the course, then select "Request a New Account". You need to put "USFWS" in the "reason box."
Set up a New Account with DOI learn.
Once you receive a User Name and Password log in and complete the course.
Once the course is completed, print out a certificate and give it to a Service employee at the sampling event.

a. Field personnel using electrofishing must be certified in CPR. Any exposure of the skin to water while electrofishing may result in an electrical shock that may stop the heart. Waders should be worn at all times and checked for leaks prior to electrofishing. Insulated rubber gloves should be worn by all personnel (netters and probe handlers) involved in electrofishing.

b. At the field site, never electrofish alone. All members of an electrofishing crew should understand the electrofishing equipment being used (including location and use of kill switches), the safe use of the equipment, and what to do if someone falls in or feels the electric current. Avoid excessively large crews as they cause confusion and lead to mistakes. However, make sure that one person has control of the power source.

c. The project leader should have a thorough working knowledge of the equipment. All equipment must be in good repair prior to the field season. Any problems with the equipment during the season should be repaired immediately. Equipment that is not working properly should be tagged with pertinent information.

d. When using a boat mounted electrofishing apparatus, the policies regarding boat safety should also be followed.

e. Follow instructions for safe use of generators found in the owner’s manual. Never fill the gas tank while the engine is still hot – wait at least 3 minutes or more to allow the engine to cool. Follow the maintenance schedule recommended by the manufacturer.
f. When using backpack shockers, use sealed batteries that are the correct voltage for the unit being used. When charging batteries, be careful to follow instructions for the batteries and the chargers.

3. **Recommended Procedures**

Make a checklist of all required equipment before loading the truck and heading into the field. The checklist should include:
   a. Electrofishing unit
   b. Generator or batteries
   c. Probes
   d. Insulated gloves
   e. Fiberglass handled nets
   f. Approved gasoline container if applicable
   g. First Aid kit
   h. Fire extinguisher (ABC type)
   i. Tool kit – including necessary tools for minor generator repairs

4. **Documentation**

The appropriate safety inspection form (see Appendix D, forms D-1, D-2, D-3) and the Electrofishing Safety Checklist (See Appendix D, form D-4) should be filled out prior to any field activity.

F. **Personal Safety Gear Checklist**

1. **General Items**
   a. The following items are recommended to be carried on your person while in the field:

   - Radio or cell phone with GPS capabilities
   - First aid kit
   - Knife
   - Compass and map
   - Water
   - Snack “survival” food
   - Raingear
   - Waterproof matches
   - Whistle, horn or other signaling device
   - Current health insurance information

   b. The following items are recommended to be carried in the field vehicle:

   - Complete change of clothes.
c. Remember to prepare yourself for the current climatic conditions (e.g., in the summer you might carry insect repellent and sunscreen while in the winter you might carry extra gloves and a face mask).

2. Personal first aid kit – suggested contents:

- 6-alcohol swabs
- 1 roll of 1” tape
- 4 – 4” x 4” gauze pads
- 1 – 8” x 7.5” bulk dressing
- 1 – 3” gauze roll
- 1 – 4” elastic bandage
- 10 band-aids
- 1 – 3” x 6” blister pad or moleskin
- 1 pair of examination gloves
- 2 – cotton-tipped applicators
- 1 thermometer
- 1 - #11 scalpel blade
- 1 pair of fine tweezers
- Lighter or waterproof matches
- 1 – all-purpose knife
- 1 – small container of liquid soap
- 1 – container of 2% tincture of iodine
- 1 – tube of antibiotic ointment
- 1 – container of total sun block
- 1 – small amount of ibuprofen or Tylenol

**Note:** In addition to the above listed items, individuals with known allergies (such as to bee stings, etc.) or with chronic health conditions should be sure to include necessary items in their field packs. (For example, individuals that are allergic to bee stings should carry an epipen for emergency treatment. Be sure that both you and the person accompanying you in the field is aware of your allergy and knows where emergency supplies are and how to administer them if necessary).

G. Safety Procedures for Field Work

1. Stopping along public roadways
Stopping along public roadways may be potentially dangerous to researchers as well as students participating in a field trip. Whenever possible, existing pullouts, parking lots, or other designated spaces for parking should be used; if these are unavailable, drivers - first and foremost - should be sure that it is legal to pull off the roadway and park on the shoulder.

Where existing pullouts, etc. are not available, drivers should not stop unless safe and adequate shoulder space is present. Safe shoulder space is one that allows a slow and safe exit from the roadway without presenting a hazard to other vehicles, one that is not sloped away from the roadway to any degree that would potentially cause harm or excessive exertion to students leaving or entering the vehicle on the side away from the vehicle, or that would potentially place the vehicle in a rollover situation, or that has the potential for the vehicle to sink into the shoulder (soft shoulder). Adequate shoulder space is defined by a shoulder area width that can safely accommodate the maximum width of the vehicle including the extra width of doors that open towards the roadway and as shoulder area length that will accommodate the safe parking of all vehicles involved in the field trip.

If a vehicle must be stopped on a paved or unpaved shoulder along any roadway, the vehicle driver is responsible for turning on the vehicle’s emergency flashers, and if available, placing a rotating yellow caution light on the roof of the vehicle to alert other drivers to the presence of not only the parked vehicles but also to people along the road. All Geology-owned vehicles are equipped with such a caution light. If rental vehicles are used with more than one vehicle with a caution light, the rental vehicles must park between the caution light vehicles; that is, the vehicles with caution lights should take the first and last position in the line of parked vehicles to provide adequate warning to traffic approaching from both directions. If only one vehicle is used, it must be parked in the most visible position relative to the outcrop and the roadway to alert oncoming drivers as far in advance as possible. Parking on tight curves where visibility is reduced for other traffic is discouraged.

Vehicles should be parked at a distance from any rock outcroppings to be sampled to avoid damage from flying rock chips.

All personnel involved in a stop along a public roadway must stay off the roadway to the maximum extent possible, and must remain vigilant for oncoming vehicles or traffic. On sparsely traveled highways, oncoming vehicles should be announced to the group to give needed time to move away from the roadway. On heavily trafficked roadways, personnel should constantly remain as far away from the roadway as possible and preferably behind any guardrails present. STAY TOGETHER AS MUCH
AS POSSIBLE. Faculty must be especially vigilant to keep students near
the roadways safe when traffic is present.

2. Clothing

Adequate clothing for the environmental conditions experienced during
field work must be provided by individuals. Layering is recommended.
Adequate rain gear may be necessary. For many types of field work,
bright-colored clothing should be considered to help others keep sight of,
or even find, a field worker. Certainly, in remote areas when working in
small groups, bright-colored clothing may be important. Likewise, bright-
colored clothing used by faculty and students participating in a field trip
may help the participants to not only keep others in sight, but also to
provide visual warnings to oncoming traffic. Individuals should also wear
appropriate footwear. Heavy hiking boots (with toe protection) may be
warranted for certain types of geologic field research. In other cases, deck
shoes may be needed for shipboard work. Participants in class-related
field trips should not be allowed to wear sandals, open-toed shoes, or
athletic shoes (tennis or running shoes) unless these are also considered
light hiking boots. Likewise, long pants are recommended to reduce the
possibility of scrapes and cuts while working in the field.

3. Maneuvering (climbing/descending) rock outcroppings or other steep
slopes

Individual researchers who must climb rock outcroppings should have
adequate training in mountaineering or climbing. Certainly anyone
pursuing field work that requires any type of technical climbing (using
climbing aids such as ropes, etc.) must provide evidence of climbing
school completion. In other cases, caution should always be used when
climbing and descending rock outcroppings, boulder fields or scree, and
other steep slopes. Faculty leading class field trips should avoid if
possible ascending or descending steep outcrops or slopes with students.
Faculty should never allow students to climb on vertical (very steep) rock
faces or roadcuts during class field trips. Likewise, students should never
be allowed within 5 meters of the top of a cliff.

4. Hiking in woods

Hiking in woods often provides a set of safety challenges that are
sometimes not anticipated and often overlooked. Mostly these come from
biohazards that may have immediate or delayed impacts. Field workers,
including students participating in field trips, should be aware of various
poisonous plants (including ivy, oak, and sumac), and plants with thorns
or other sharp protuberances. Stout clothing that covers the body is the
best defense. Plants and fungus (mushrooms) should never be consumed
by field personnel without proper training as to their distinct identification. Insects and animals also present safety concerns to the field researcher. Large carnivorous animals such as bears, mountain lions, etc. should be given warning to the field worker’s presence via bells, loud talking, or other loud noises made on a regular basis. This is also a good idea for large animals such as moose, elk, and bison when working in the western states, as these animals may be very aggressive when startled or with young. Smaller animals may also become dangerous when startled, so in general, field travel should not be silent. When confronted in the field with any animal that seems dangerous, a thoughtful retreat is usually the best option. Poisonous snakes present dangers to field researchers, and again, in general it is a good idea to announce one’s presence via noise and vibrations. When working in areas where poisonous snakes are known to present a hazard, snake bite kits or antivenom serum should be carried and used if necessary. The field worker should be familiar with the proper use and administration of these. Likewise, bees, wasps, and other poisonous insects or arachnids (spiders, etc.) often may present a problem to the field researcher. While such insect bites/stings are seldom life threatening to most people, certain individuals may be put in peril by such insect bites/stings, and should carry appropriate antihistamines or other drugs that will counteract the insect venom. Students on field trips should be encouraged to provide appropriate measures to counteract insect bites/stings if they are sensitive to them; conversely, they may elect to confidentially notify the instructor of their sensitivity to such interactions with insects.

Hiking in dense woods presents many of the problems noted above, but it also has an added complication of increasing the possibility of loss of orientation – that is, a field worker may lose his/her direction and sense of location in dense woods. Consequently, all field researchers are urged to become competent with orienteering, using maps and dead reckoning, and/or by using GPS units (provided the satellite signal can penetrate the woods).

5. Working in remote areas

Working in remote areas requires considerable forethought and planning not only from a logistical sense, but also in terms of safety. Fill out Form B-1 or B-2 (located in Appendix B) to ensure others are aware of the trip specifics. Where cell phone coverage is not available, a satellite phone should be rented and carried with the researcher in case of emergency. The cost of the satellite phone should be covered by grant funds. In cases where grant funds are not available, the cost of the satellite phone should be covered by the researcher via personal funds, or in certain cases where students are also pursuing their research, by funds negotiated with the department and/or college.
6. **Working in rivers/streams/lakes**

Field work in rivers and streams by individuals or groups including students involved in class field trips is always potentially dangerous. Waders should always be worn by persons working in shallow (wadeable) rivers and streams, as these help to protect the person from potential dangers including fish, reptiles, and leeches. In deeper (and larger) rivers, boats or other floatation devices may become necessary to pursue field work. In such cases, other sections of this document may become important to ensure compliance with safety guidelines.

7. **Collecting samples**

A hazard evaluation for sampling methods should be conducted prior to going in the field to identify the proper personal protective equipment (PPE) for the work. Proper PPE must be worn for sample collection. For example, when collecting rock samples, safety glasses with side shields (ANSI Z87 approved), face shields, gloves, clothing that covers the arms and legs, and stout shoes/boots may be required depending on the procedure. Ear plugs or other hearing protection may be needed. Hammers approved for breaking rocks (e.g. Estwing, Cutrock, etc.) should be used. Jackhammers, drills, chisels, etc. all present other problems that should be addressed with the College safety coordinator as they become a need.

Environmental samples usually consist of surface or groundwater samples, or soil samples. Specific collecting protocols for these have been developed by the EPA and other agencies. Eye protection and gloves are examples of PPE that may be needed for water or soil sampling.
Central Michigan University
College of Science and Engineering

Field Policies and Procedures Documentation

I, the undersigned, have read and fully understand the Field Policies and Procedures Manual of Central Michigan University’s College of Science and Engineering.

Signature _______________________________________ Date________________

Employee/Student Number ____________________________
Central Michigan University  
College of Science and Engineering  

Land Based Travel Itinerary

Name: _________________________________ Date: __________________

Make and Model of Vehicle(s): ________________________________

    Color: ________________________________

    License Plate Number: ___________________________

Emergency Contact Name and Phone Number: _________________________

Area of Field Work: ________________________________________________

Departure Time: ___________________________________________________

Expected Arrival Time: _____________________________________________

Purpose of Field Work: _____________________________________________

<table>
<thead>
<tr>
<th>Names of Accompany Individuals</th>
<th>Emergency Contact &amp; Phone Number</th>
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<tr>
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Central Michigan University
College of Science and Engineering

Water Based Travel Itinerary

Name: ___________________________ Date: __________________

Vessel Name: _____________________________________________________

Vessel Description: _______________________________________________

Make of Vessel: ___________________________________________________

Length: __________________________________________________________

Color: _____________________________________________________________

Type Motors (if applicable): _________________________________________

Emergency Contact Name and Phone Number: _________________________

__________________________________________________________________

Departure Time: ____________________________________________________

Estimated Time of Return: ___________________________________________

Area of Vessel Operation: ____________________________________________

Purpose of Vessel Operation: _________________________________________

<table>
<thead>
<tr>
<th>Crew people/Passengers</th>
<th>Emergency Contact &amp; Phone Number</th>
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Central Michigan University
College of Science and Engineering

SCUBA Dive Itinerary

Name: _________________________________ Date: __________________

Dive Buddy: _________________________________________________

Emergency Contact Names & Phone Numbers: __________________________
________________________________________________________________

Dive Location: ____________________________________________________

Directions: _________________________________________________________
________________________________________________________________

Coordinates: ______________________________________________________

Marker Description: _______________________________________________

Departure Time: ___________________________________________________

Estimated Time of Return: ___________________________________________

<table>
<thead>
<tr>
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Central Michigan University
College of Science and Engineering

Daily Field Check Sheet – Electrofisher Boat

Boat ID#: __________________ Date: ________________ Time: ________________

Crew Leader: ___________________ Location: ______________________

Crew Members: ______________________________________________________

Log Book: Up to Date? YES__ NO__ Manual Present? YES__ NO__

BOAT

_____ 1. Hull integrity
_____ 2. Safety railings intact and sturdy
_____ 3. Decks clean, free of excess water/bilges dry
_____ 4. Adequate mechanical protection of wiring
_____ 5. Adequate connectors and interlocking (integral with hull)
_____ 6. All metal equipment in boat electrically bonded to hull (checked with volt/ohm meter)
_____ 7. Batteries fully charged – properly enclosed and vented
_____ 8. Communication gear working (where applicable)
_____ 9. Boat clean – equipment neatly stored
____ 10. Auxiliary motor present and working (where applicable)
_____11. Oars/paddles present
_____12. Anchors/bailers present

ELECTROFISHER

_____ 1. Controls and gauges operational
_____ 2. HV output checks done
_____ 3. Adequate mechanical protection of wiring
_____ 4. Adequate connectors and interlocking
_____ 5. Audible tone generator working
_____ 6. HV flashing lights working
_____ 7. All foot switches working
_____ 8. “KILL SWITCHES” working
_____ 9. Operators safety switch working
Central Michigan University  
College of Science and Engineering  

Daily Field Check Sheet – Electrofisher Shore Unit

Boat ID#: __________________Date: ________________Time: ________________

Crew Leader: _____________________ Location: ________________________

Crew Members: ______________________________________________________

Log Book: Up to Date? YES__ NO__ Manual Present? YES__ NO__

GENERATOR/ALTERNATOR

_____ 1. Electrical connections secure and protected
_____ 2. Mounting secure
_____ 3. Exhaust directed away from operator
_____ 4. Frame properly grounded to earth
_____ 5. Unit electrically bonded/connected to hull
_____ 6. Oil topped up
_____ 7. Gas topped up

ELECROFISHER

_____ 1. Controls and gauges operational
_____ 2. HV output checks done
_____ 3. Adequate mechanical protection of wiring
_____ 4. Adequate connectors and interlocking
_____ 5. Audible tone generator working
_____ 6. HV flashing lights working
_____ 7. Anodes switches working
_____ 8. “KILL SWITCHES” working
_____ 9. Operators safety switch working
_____10. Wiring to anodes in good condition
Central Michigan University
College of Science and Engineering

Daily Field Check Sheet – Back Pack Electrofisher

Boat ID#: ___________________ Date: _______________ Time: ________________

Crew Leader: ___________________ Location: __________________________

Crew Members: __________________________________________________________________

Log Book: Up to Date? YES__ NO__ Manual Present? YES__ NO__

GENERATOR/ALTERNATOR

_____ 1. Electrical connections secure and protected
_____ 2. Mounting secure
_____ 3. Exhaust directed away from operator
_____ 4. Oil topped up
_____ 5. Gas topped up
_____ 6. Engine clean – no oil or gas leaks

BATTERY (where applicable)

_____ 1. Clean and fully charged, gel cell type
_____ 2. Terminal clean and tight

ELECROFISHER

_____ 1. Controls and gauges operational
_____ 2. HV output checks done
_____ 3. Adequate mechanical protection of wiring
_____ 4. Adequate connectors and interlocking
_____ 5. Audible tone generator working
_____ 6. HV flashing lights working
_____ 7. “KILL SWITCHES” working
Central Michigan University  
College of Science and Engineering  

Electrofishing Safety Checklist

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>DATE</th>
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<th>COMMENTS</th>
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