



Field Research Programs: Loss Control Presentation

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Field Research Safety Awareness Training Introduction

- **Field Research Defined**
- **Field Research Risk Concerns**
- **Field Research Safety Policy**
- **Preparation Steps**
- **Field Research Supervision**



Field Research

Defined as University sponsored activities conducted primarily for the purpose of research, undertaken by employees or students of the University outside of an office or research laboratory.



Field Research Risk Concerns

- **Exposure to loss varies with each project and also on a daily basis within each project**
- **Exposures are often unpredictable**
- **Exposures vary because of the nature of the research being conducted: from the physical climate conditions, or from the political, social, economic, and cultural environments of the field work**



Field Research Safety Policy

While it is impossible to predict the numerous safety exposures that may be encountered during any field research project, every effort is required by all campus departmental personnel and student participants to identify and understand the anticipated risks in advance of each University sponsored field research project



Field Research Supervision

Field supervisor overall responsibilities

- Exercise good judgment at all times regarding the safety and security of all participants
- Assure all participants are trained on the results of the risk assessment for each project
- Assure thorough understanding of each participant's duties and responsibilities
- Forbid activities throughout the project that put individuals or others at risk



Field Research Supervision

- **Students, faculty, and staff should be strongly discouraged from working alone in remote areas**
- **Prior to departure, a detailed itinerary should be established and distributed as appropriate and will include:**
 - **“Base” location details**
 - **Emergency contact information**
 - **Estimated return date**
 - **Latest possible return date**



Field Research Supervision

- **Sufficient supervisor positions are needed for each field research project**
- **Leader: participant ratio of 1:10 recommended**
- **Back-up leaders should be designated in case of an injury or illness**
- **No one should be left behind**



Risk Assessment

Prior to each field research trip a risk assessment should be completed



Field Research Project Risk Topics

- Environmental hazards
- Protective clothing requirements
- Equipment needs
- Backpacking exposure
- Transportation concerns
- Watercraft safety
- Emergency procedures
- Communication plans
- Security precautions
- Food and housing exposures
- International exposures
- Insurance needs
- Immunizations and other health issues



What is a Risk Assessment?

A risk assessment is simply a careful examination of what, in your trip, could cause harm to people, so that you can evaluate whether you have taken enough precautions or should do more to prevent harm:

- 1. Identify the hazards**
- 2. Decide who might be harmed and how**
- 3. Evaluate the risks and decide on precautions**
- 4. Record your findings and implement them**
- 5. Review your assessment and update if necessary**



Determine the Risk

Risk is determined by examining the likelihood of an incident occurring and the consequences if it did. Likelihood and consequence are assessed against the following scales:

Likelihood

Name	Description
Improbable (VL)	So unlikely the probability is close to zero
Remote (L)	Is quite unlikely to happen, although conceivable
Possible (M)	Could occur sometimes
Occasional (H)	Is quite likely to happen
Likely or frequent (VH)	Occurs repeatedly, the event is expected

Consequence

Name	Description
Minor Injury (L)	The subsequent injury would be minor, i.e. a cut, graze, scratch, or bruise
Serious Injury (M)	The subsequent injury would stop the individual from continuing the activity, i.e. sprain, minor fracture, burn, or hypothermia
Major Injury (H)	The subsequent injury would be major, i.e. loss of limb, crush, fracture, loss of consciousness, permanent reduction in the ability to work
Fatal (VH)	The subsequent injury would be fatal.

Implement Control Measures

These are the measures taken to reduce the risk to an acceptable level. Control measures can range from the provision of protective equipment, the content of a safety briefing, standards in staff training or more permanent engineering solutions such as fencing off areas.



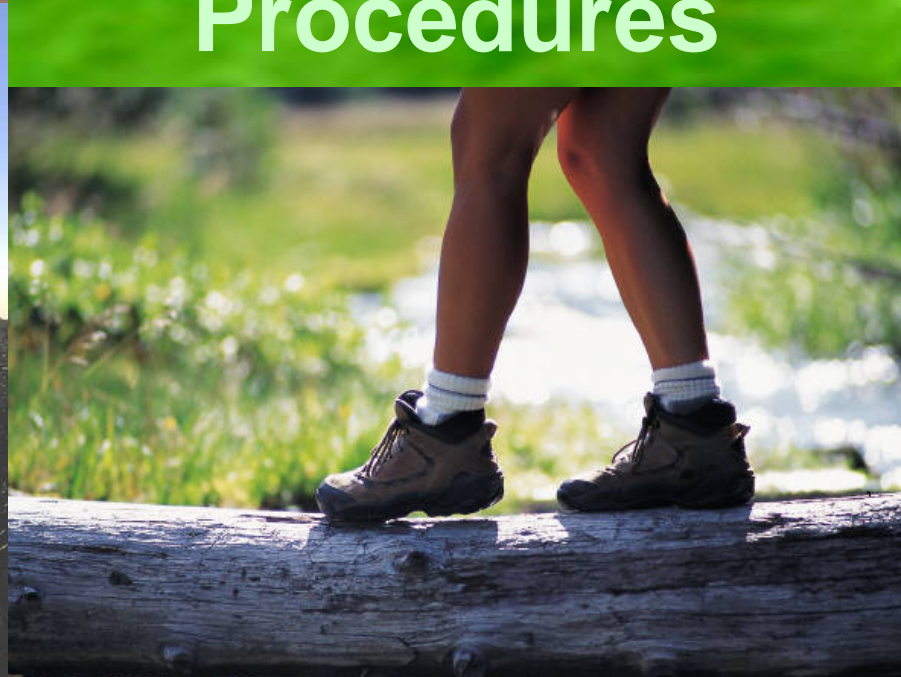
Review the Process

A formal review of all Risk Assessments should be conducted on an annual basis. Additional reviews can be conducted earlier if circumstances suggest it is necessary.





Emergency Procedures



Emergency Procedures

- **Emergency planning needs to be part of each risk assessment**
- **Adverse situations should be anticipated**
- **“What if” scenarios should be discussed**
- **Emergency response strategies should be developed and discussed periodically**



Risk Management Responsibilities of Program Sponsors

- **Develop emergency preparedness programs and train all participants**
 - **Make sure that all emergency plans are tied to home campus procedures**
 - **Clear communication plans need to be established between campus personnel, field trip participants, and their respective families**
 - **Document, document, document! Make sure that all participants have written emergency instructions to reduce confusion**
 - **Plan for media inquiries both at home and at the field research locale**



Emergency Response

- **Determine protocols for dealing with emergencies affecting individuals and crises affecting programs as a whole and have them examined by the institution**
- **Identify campus Emergency Response team members (“you are not alone...”)**
- **Delineate roles and responsibilities as team composition will vary depending on the nature of the crisis**
- **Establish a core emergency response team**



Potential Emergency Scenarios

- **Common environmental hazards**
 - Poison ivy
 - Lightning
 - Bees and wasps
 - Overexposure to sun
 - Cold/hot temperatures
 - Contaminated water
- **Common equipment hazards**
 - Improper clothing
 - Faulty stove
 - Inoperative equipment
 - Missing/damaged equipment



Potential Emergency Scenarios

- **General human hazards**
 - Previous medical conditions
 - No awareness of hazards
 - Trying to “prove” oneself
 - Fatigue
 - Anxiety/fear
 - Limited outdoor skills
- **Hazards among participants**
 - Not interested in being on trip
 - Poor communication skills
 - Not willing to follow instructions
 - Group lacks cooperative structure



Potential Emergency Scenarios

- **Hazards among leaders**
 - Teaching abilities may lessen when faced with emergencies
 - Inability to manage group
 - Poor judgment regarding safety
 - Inadequate skills to extricate self and others from hazards



Pre-planning Strategies

- **General guidelines**
 - **Know people's experience levels and plan accordingly**
 - **Have everyone trained in first aid**
 - **Have a clear decision-making strategy for emergencies**
 - **Make sure that each participant's physical condition is appropriate to the trip**



Communication Plans

- **Pre-plan dates/times when communication with cell phones will be unavailable and identify alternatives**
- **Distribute pertinent itinerary information in advance for all trips**
- **Leave copies of itineraries with friends and family**
- **Establish a program that registers all trips in advance of departure with Campus Police**



Security Precautions

- **Do not take unnecessary valuable jewelry or electronics on trips**
- **Never openly display valuables to the public**
- **Never go out alone at night: use the “buddy system”**
- **Avoid “risky behaviors”**
- **Learn how to use the local phone system and whom to call in an emergency**



Field Research Programs

- **The following slides address a variety of exposures that could be relevant to your Field Research Programs.**
- **Faculty and staff are welcome to use any of the following slides to help train student participants prior to their involvement in an upcoming Field Research Program**



Environmental Hazards



Common Environmental Hazards

- **Fire**
- **Lightning**
- **Hot temperatures**
- **Cold temperatures**



Emergency Response Strategies

Fire Survival

- **If you are unable to escape an oncoming fire, there are only a few alternatives**
 - **Do your best to locate the fire and move perpendicularly away from the *flank* of the fire**
 - **If the surface fire is severe or approaching fast and crowning, look for the nearest large body of water, but be aware of the possibility of hypothermia from prolonged exposure to cold water**
 - **Go to an area with little fuel, such as a creek bed (even a dry one) or rockslide**
 - **Go to an area that has already burned**



Emergency Response Strategies Lightning Strikes

Practice 30/30 rule for survival

- **If lightning strikes within 30 seconds of thunder, move to a secure area**
 - **Away from tall trees**
 - **Away from water**



Protection from Lightning Strikes

- **Get off of summits, ridges, pinnacles, or any other place that is the highest location around**
 - Even a few yards lower may offer some protection
- **Stay away from trees**
 - If in a forest, try to find a grouping of lower trees
- **If you are in an open field, get into a low-lying area and lay flat**



Protection from Lightning Strikes

- **If you are on the water, get to shore as soon as possible**
- **Stay out of depressions, gullies, or drainages that may have water flooding into them**
- **Stay away from metal objects**



Environmental Concerns: Heat Exposure

- **Special provisions may be needed based on anticipated environmental conditions**
- **Heat promotes accidents**
 - **Decreased strength**
 - **Reduced comprehension and ability to retain information**



Environmental Heat Exposures:

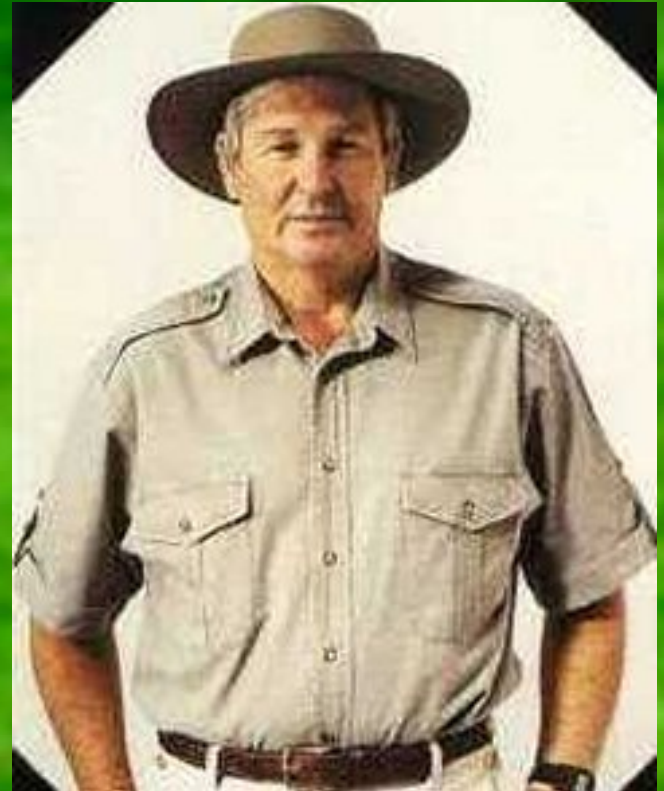
- **Heat rash**
- **Heat syncope or fainting**
- **Heat cramps**
- **Heat exhaustion**
- **Heat stroke**

Heat Related Concerns



Protective Clothing for Hot Temperatures

- **Cool clothing**
- **Shade-providing hats**
- **Portable water products**
- **Reflective clothing**
- **Circulating air around the body**



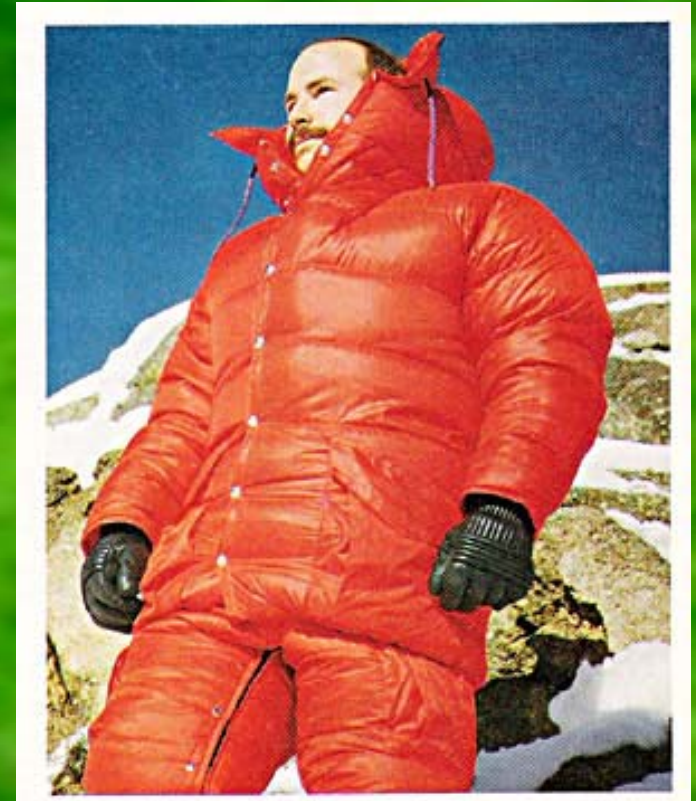
Environmental – Cold Exposure

- **Exposure to cold temperatures can also lead to accidents:**
 - Exposure to severe cold or contact with cold objects
 - Affects fingers, toes, cheeks, nose, and ears
 - Tissue freezes at 30°F
 - May cause gangrene
 - More susceptible to future frostbite
 - Tissue death – amputation or loss of function



Protective Clothing for Cold Temperatures

- **Several layers of clothing**
- **Synthetic fibers next to skin to whisk away sweat**
- **Water repellent, wind resistant outer clothing**
- **Hats, hoods, or face covers**
- **Insulated, waterproof footgear**
- **Insulated, waterproof gloves**
- **Change of clothing available**



Protective Clothing Requirements

- **Based on the risk assessment, the following items of protection may be needed:**
 - **Hard hats**
 - **Safety glasses**
 - **Hearing protection**
 - **Gloves**
 - **Steel-toed shoes**
 - **Mosquito nets**





Wilderness Safety



Equipment Needs

Based on the risk assessment, the following items may be required:

- Portable generators
- Winches and pulleys
- Smoke detectors
- Fire extinguishers
- Trailers
- Flashlights (waterproof type)
- Maps and compasses
- Flares
- Water bottles
- Rain gear
- Matches / lighters
- Sunscreen
- Candles



Equipment Training

- **As identified in the risk assessment, all participants may need training on the following:**
 - **How to operate and trouble shoot all equipment**
 - **How to tow trailers**
 - **How to change tires**
 - **How to operate winches and pulleys**



**Training
Schedule**

Hiking safety

- **Prior to the field trip, make sure everyone is trained on use of a compass, emergency signals, first aid, and local conditions to be encountered**



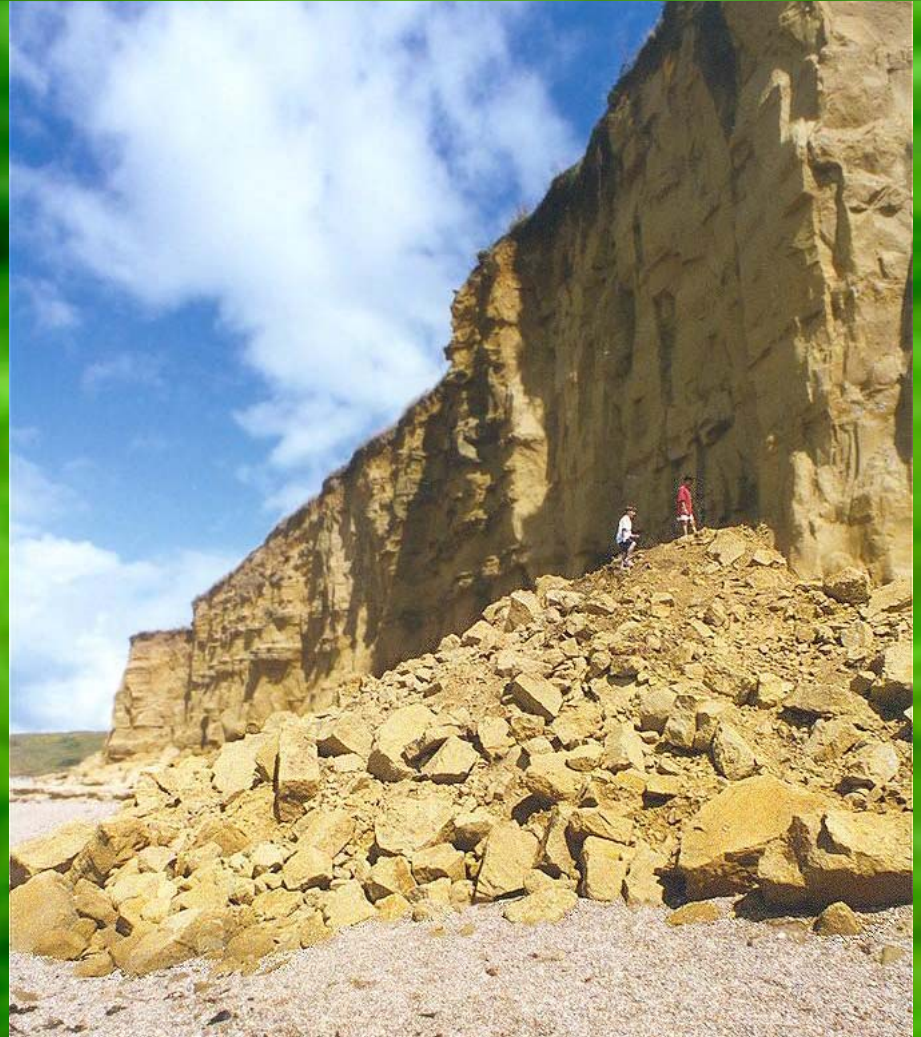
Hiking safety - Cliffs

- Many serious hiking accidents occur on or around cliffs
- Never work at a cliff edge or directly beneath a cliff



Hiking safety - Cliffs

- Falls from cliffs are most likely to occur in wet or frosty conditions
- Stay clear of cliffs after heavy rains



Hiking safety - Cliffs

- **Participants should wear hard hats when approaching the bottom of a cliff**



Hiking safety – Snake Bites

- Snakes generally do not attack unless they are disturbed
- Be aware of local species and hot to avoid nesting areas



Backpacking Exposures

- **Many field research projects involve backpacking to and from sites**
- **Trip planning questions:**
 - **How long is the trip? Can the trip be self-supporting in terms of equipment and food, or will you need to re-supply? How will you handle the re-supply – cache items ahead of time, hike out, or have some hike in?**
 - **How remote is the trip from “civilization” and help in case of an emergency?**
 - **What are the trail conditions?**
 - **Are there special places you want to see?**
 - **Are there places you want to avoid?**
 - **Are shelters available on a daily basis, or do you need to bring your own?**

Backpacking Exposures

- **What is the water availability and water quality on a daily basis?**
- **Are there safety issues – hunting season, off-road vehicles, etc.?**
- **Are there any special natural hazards – flash floods in desert canyons, wildfires, etc.?**



Backpacking Exposures: Expect the Unexpected

- **Make a plan that can be modified during the trip. All sorts of factors – bad weather, changing trail conditions, broken equipment, ill-prepared participants, an injury – may require you to change your itinerary**
- **Don't plan long or difficult hikes on every day of the trip. Vary the mileage so that you have some days when you can get a later start or get to camp early**
- **On longer trips, schedule a rest day every five to seven days**
- **Make sure that people have some time during each day to kick back – to read, watch the sunset, write, etc.**
- **When hiking at high altitudes, people acclimate at different rates. You may have to adjust your trip to properly acclimate before going higher**

Backpacking Exposures: Campfires

- **When not to have a fire**
 - When fire danger is moderate to high – if fire danger is high, you may have to avoid having a fire
 - When there are restrictions against fires in certain locations or above certain altitudes
 - On windy days when flying sparks might be a hazard, especially when the woods are dry
 - When dead wood is scarce



Backpacking Exposures: Campfires

- When its okay to have a fire
 - When there are no restrictions against fires, *and...*
 - When fire danger is low, *and...*
 - When you have sufficient dead wood available and its removal won't be noticeable, *and...*
 - When there already is an established fire ring or you have the skill to build a proper “Leave No Trace” fire



Backpacking Safety Signaling for Help

- **A series of three anything (whistles, flashes, etc.) is the universal signal for distress**
- **During the day smoke from fires will be more visible, at night, the flame will be your best signal**
- **Mirrors can reflect sunlight beyond the horizon – hold a mirror in your hand and send three flashes to signal**



Backpacking Exposures

What to do if Approached by a Bear

- **Your goal is to convince the bear you are not a threat**
 - Remain calm
 - Avoid abrupt movements
 - If possible, back away slowly while still facing the bear - stop if this appears to further agitate the bear
 - ***DO NOT*** look directly into the bear's eyes – this is seen as a challenge and may further provoke the bear
 - ***DO NOT*** run away



Backpacking Exposures

What to do if Approached by a Bear

- **What to do if charged by a bear**
 - **Remain calm**
 - **In most cases charges are actually a bluff and the bear will break off the charge**
 - **Stand your ground, do not run**
 - **If you have pepper spray, have it out and ready to use**
 - **Use it when the bear is within 10 to 15 feet away and spray directly into the eyes, nose, and mouth**





Transportation and Watercraft Safety



Transportation Concerns

- **Student drivers need to be approved in advance of trips**
- **All drivers must possess a current drivers license**
- **On extended trips, rest stops should be made at lease every two hours**
- **Seat belts are mandatory for all participants**



Watercraft Safety

- Boats
- Canoes



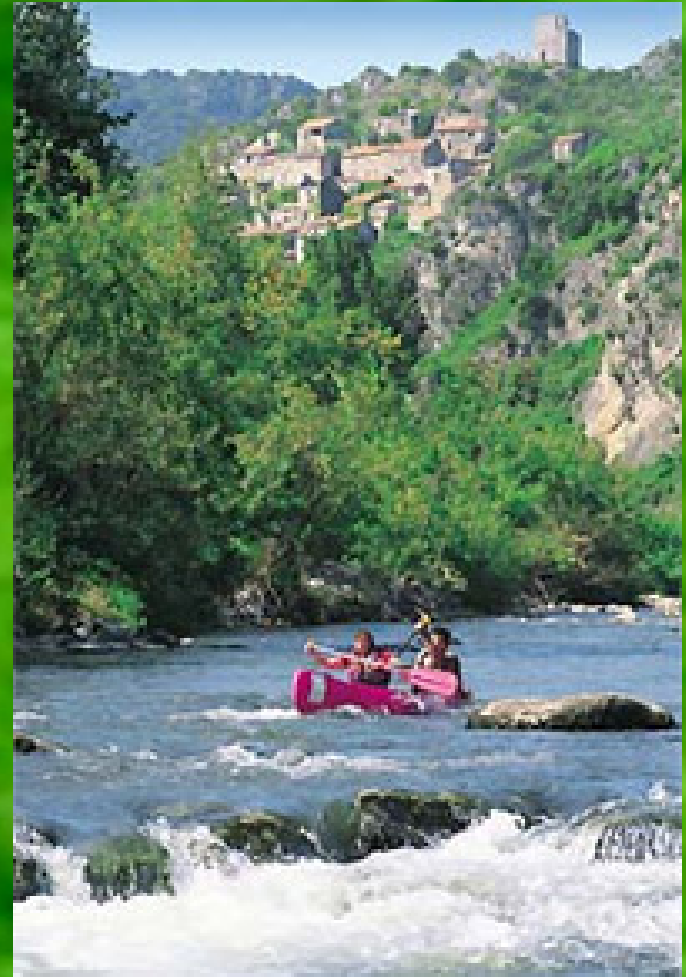
Boating Safety

- **Only persons who have been authorized and trained may charter and operate any boats used to transport others**
- **The boat operator is responsible for:**
 - **Safe transport of the vessel to and from the launch site**
 - **Safe navigation of the vessel to and from the site(s) of the operation**
 - **The safe operation of the vessel and equipment at all times**



Boating Safety

- **The boat operator is responsible for:**
 - **Ensuring that all required operational and safety equipment is on board before getting underway**
 - **Verifying and adhering to the load ratings of the tow vehicle, vessel trailer, and vehicle towing assembly (tongue weight)**
 - **Reporting all accidents, incidents, citations, and safety concerns/issues**



Boat Operator Qualifications

- Complete a boating safety course from the US Coast Guard
- Provide documentation of and/or acquire practical experience in operating a boat
- Demonstrate proficiency in the safe operation of the proposed type of boat in local conditions
- Demonstrate proficiency in the operation of any specialty equipment, emergency equipment, and procedures specific to the boat or task to be undertaken



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April 18, 6 – 9PM Real Canadian Superstore Gloucester 4720 Innes Road	April 22, 9AM – Noon Moncion's Independent Grocer Manotick / Riverside South 685 River Road
May 15, 6 – 9PM Moncion's Independent Grocer Manotick / Riverside South 685 River Road	May 23, 6 – 9PM Real Canadian Superstore Gloucester 4720 Innes Road

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Canoeing Safety

- **Always have a personal flotation device (PFD) available for each occupant**
- **Select the paddle that's right for you**
 - A blade that's longer than 25 inches, narrower than 5 to 6 inches gives less resistance while touring and is quieter
 - A wider blade of 7 to 8 inches provides more power when whitewater rafting
 - A stiff paddle is best in whitewater, while a more flexible paddle is better for general rafting
 - Too much flex, particularly in older plastic paddles, interferes with the ability to transmit power against the blade
 - A square tipped blade can catch in water, beginners may prefer a blade with rounded edges for easier control



Canoeing Safety

Keep the Canoe Stable

- **Entering**
 - **Grasping both gunwales, step into the canoe over the center-line**
 - **Keep your weight low to lower your center of gravity**
 - **Step along the centerline and slide your hands along the gunwales to move to your seat**



Canoeing Safety

Keep the Canoe Stable

- **Changing Positions**
 - The stern paddler crouches in the middle of the boat
 - The bow paddler crawls backward over the partner, staying low and carefully balancing weight by sliding hands along the gunwales
 - Once seated, the bow paddler should place paddle in the water to help stabilize the boat while the stern paddler finishes moving to the other seat



Canoeing Safety

Pre-Paddling Health Check

- **Do you ever feel faint or have spells of severe dizziness?**
- **Do you have a history of heart trouble or high blood pressure?**
- **Do you have any joint problems, such as arthritis, that could be aggravated by canoeing?**
- **Are you taking any prescription medications?**
- **Have you recently been treated for any physical condition(s) that may affect your participation?**



Canoeing Safety

10 Commandments for Touring Safely

1. Don't choose rivers beyond your ability
2. Choose your routes wisely; try shorter distances first
3. Be respectful of private property
4. Dress properly for the activity and the weather
5. Wear a properly fitting personal flotation device
6. Be properly outfitted with equipment in good repair
7. Do not consume alcohol or other drugs
8. Paddle with a support party
9. Establish organizational guidelines for the tour
10. Establish a reasonable schedule and stick with it



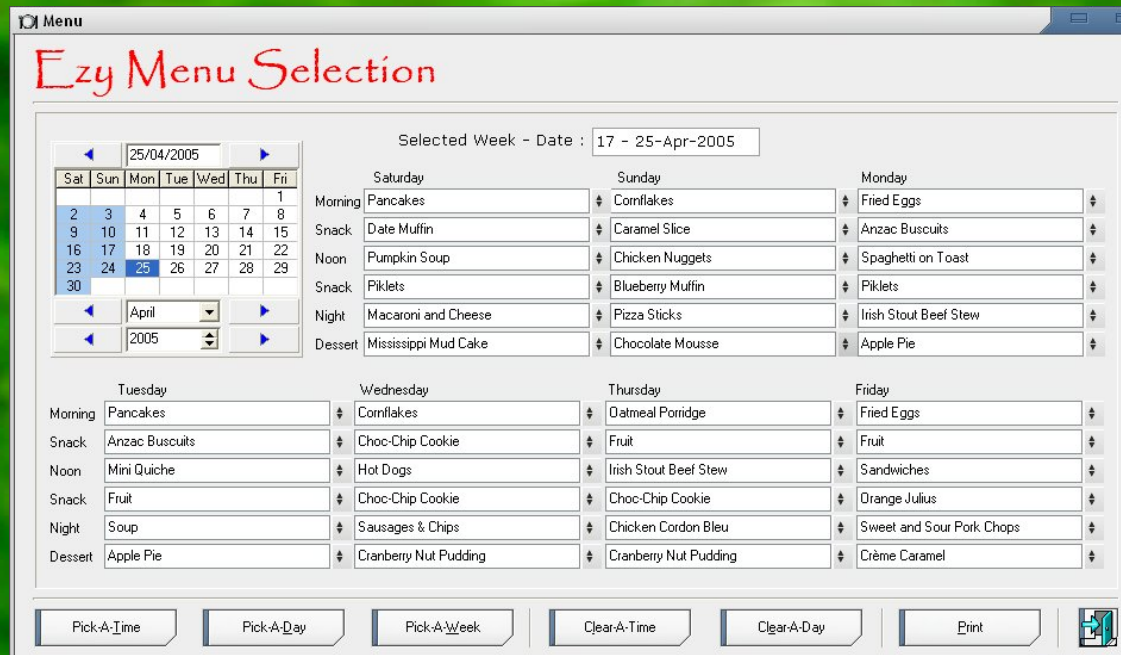


Food and Living Accommodations



Food and Living Accommodations

- **Pre-planning is the key!**
 - Menu planning is often based on how much can be transported and safely stored
 - Accommodations should be assessed for life safety concerns



Food and Accommodations Menu Planning Tips

- **Less than a week**
 - Carry any type of fresh food that won't spoil
 - At the beginning of a trip, if weight is not an issue, you can freeze pre-cooked foods and take them with you
 - Seven to ten days
 - Add dehydrated or freeze-dried foods to cut down on weight
 - Greater than ten days
 - Increase the proportion of dehydrated or freeze-dried foods, or arrange for food re-supply



Food and Accommodations Motels, Cabins, Inns, Etc.

- **Install a smoke alarm if one is not already in place**
- **Make sure you know how to get to all exits in case of emergency evacuation**
- **Check to make sure all doors and windows can be easily opened**
- **Check to make sure there are secure locks on all doors and windows**





Field Research Health Issues



Health Issues

- **Participants in field trips/classes requiring physical exertion, mobility in uneven terrain, or potential exposure to significant health hazards (i.e. dust for asthmatics, anaphylaxis-inducing allergens, etc.) should be made aware of the risks. All participants should be asked to provide information indicating personal medical conditions that may create a serious health threat or endanger the group (i.e. respiratory, cardiovascular, allergic, and endocrine conditions)**



Health Issues

- **Medication for trip participants (either dosage regimens such as insulin or prophylactic medications such as epinephrine auto-injectors) must be provided by the participants; prescription medications cannot be supplied by the department. Needs for such medications, as well as items such as carrying spare prescription eyewear and hearing aid batteries, should be determined in advance**



Health Issues

- **It is extremely unwise to undertake physically demanding fieldwork if not reasonably physically fit, or if pre-existing medical conditions pose a significant threat for survival. Special needs participants should work with course providers**
- **Medical record and health form – required to be submitted prior to participation**





Questions or
Comments?

Field Research Safety Awareness Training



References

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- **National Society for Experiential Education: www.nsee.org**
- **Outdoor Industry Association: www.outdoorindustry.org**
- **Wilderness Education Association: www.weainfo.org**
- **Outward Bound: www.outwardboundwilderness.org**
- **National Outdoor Leadership School: www.nols.edu**
- **Association of Challenge Course Technology: www.acctinfo.org**
- **Wilderness Medicine Training Center: www.wildmedcenter.com**
- **Know the Ropes – Web based software tracking program: www.knowtheropes.net**