



Ice Fishing

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Objectives

Participating young people and adults will:

1. Practice ice fishing safety
2. Practice ice fishing in comfort
3. Practice basic ice fishing techniques
4. Explore winter fishing opportunities
5. Have fun while learning

Youth Development Objectives

Participating young people will:

1. Explore healthy winter outdoor activities
2. Develop safety consciousness in ice fishing
3. Develop self confidence and self control
4. Enhance gross and fine motor skills
5. Practice observation, decision making and planning
6. Broaden recreational skills

Best Time: Anytime safe ice is present

Best Location: Classroom and fishing area

Time Required: 45 to 90 minutes classroom; 4 hours or more fishing activity time

Equipment/Materials

[Personal equipment and clothing selection is based on experience and personal choice, but the following list provides some guidelines.]

felt-lined (well insulated) boots
insulated underwear
wool pants
sweater
insulated vest
windbreaker
snowmobile suit
gloves(two pairs)

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Roles for Teen and Junior Leaders

1. Demonstrate proper winter clothing
2. Assist in checking participants for proper clothing
3. Demonstrate proper uses of equipment
4. Assist young anglers as needed

Potential Parental Involvement

1. See "Roles for Teen and Junior Leaders" above
2. Locate and secure appropriate fishing site
3. Arrange for or provide transportation
4. Arrange for or provide refreshments
5. Arrange for or provide necessary equipment

Evaluation Suggestions

1. Observe clothing and equipment selections
2. Observe safety practices and fishing technique
3. Observe personal interactions among participants
4. Observe enjoyment and fishing success

mittens
personal floatation device (PFD)
spud
auger
skimmer
jigging rod
tip-up or tilt
assorted hooks, jigs, ice flies
bait bucket
minnow dipper
sled or toboggan
pack basket or pail
plastic bags
thermos
stool or insulated cushion

Teaching Outline

Presentation

- I. Why you are here, what you are trying to do.
 - A. Clothing and gear for safety and comfort
 - B. Ice fishing safety
 - C. Basic ice fishing equipment
 - D. Basic ice fishing techniques
- II. Special winter considerations/problems
 - A. Frostbite
 1. Description
 - a. Presence of ice crystals in flesh
 - b. High potential for tissue damage
 - c. Risk of losing affected tissue
 2. Symptoms
 - a. Loss of feeling, no longer feels cold
 - b. Waxy, yellowish/whitish appearance
 - c. Victim often unaware of problem
 3. First aid and treatment
 - a. Thawing frozen parts
 - 1) Warming against warm body parts
 - 2) Warm water (NOT HOT!)
 - 3) Warm air and shelter
 - 4) Protect from re-freezing
 - a) Damaged flesh freezes more easily
 - b) Impaired circulation

Application

Briefly **DISCUSS** the objectives of the lesson series and the benefits of ice fishing as a winter activity. **NOTE** that the lesson will include basic fishing skills and fishery science as well as knowledge of using proper, safe, and comfortable winter clothing and gear.

NOTE that winter outdoor activities bring with them the potential for some problems. **STRESS** that prevention is easier than correcting the problem.

DISCUSS the appearance of frostbite. **STRESS** the presence of ice crystals and the potential of tissue damage.

REVIEW the symptoms, stressing that the person becoming frostbitten frequently does not realize the problem exists.

DISCUSS first aid for frostbite. **REVIEW** the need to thaw the affected parts and some types of heat donors. **EMPHASIZE** that frozen parts should **NOT** be rubbed!

STRESS the importance of preventing re-freezing. **NOTE** that the damaged flesh has impaired circulation and will freeze more easily than undamaged tissue.

- c) Greater damage to tissue
- b. Proper medical attention imperative
 - 1) Potential for loss of affected part
 - 2) Permanent damage possible
 - 3) Burn-like problems (e.g. skin loss)
 - 4) Potential for secondary infections
- 4. Contributing factors
 - a. Exposure to severe cold and wind
 - b. Wet skin under freezing conditions
 - c. Factors impairing circulation
 - 1) Smoking
 - 2) Restrictive clothing
 - d. Direct contact with heat sinks (e.g. metal objects)
- B. Hypothermia
 - 1. Description
 - a. Lowering of the core temperature
 - b. Potentially life threatening
 - c. AExposure@ or Afreezing to death@
 - 2. Risk at even cool temperatures
 - Symptoms
 - a. Mild to moderate hypothermia
 - 1) Shivering that cannot be stopped
 - 2) Slurred speech
 - 3) Stomach upset or malaise
 - 4) Feeling Atired@ or weak
 - 5) Poor coordination
 - b. Deep hypothermia
 - 1) Lack of body response to cold
 - 2) Uncontrollable shivering stops
 - 3) Incoherence
 - 4) Unconsciousness
 - 3. Prevention
 - a. Proper clothing for weather conditions
 - 1) Head gear
 - 2) Wind barrier
 - 3) Insulation from cold
 - 4) Foot gear
 - 5) Staying dry
 - 6) Eating high energy foods
 - 7) Staying hydrated
 - 8) Avoiding alcohol
 - 4. First aid and medical treatment
 - a. Shelter and warming
 - 1) Reducing exposure to wind and cold
 - 2) Providing heat
 - a) Warm liquids
 - b) Warm coverings
 - c) Heat donors
 - b. Importance of medical follow up
 - 1) Fluctuating body temperature

EMPHASIZE the need for proper medical follow-up attention to prevent serious after effects of frostbite.

REVIEW factors that can contribute to frostbite. **NOTE** that reduced circulation because of smoking, restrictive clothing or other factors and exposure of bare skin to the elements can result in frostbite. **REINFORCE** prevention rather than treatment.

DEFINE hypothermia and **DESCRIBE** situations that could lead to this condition. **NOTE** that hypothermia can occur even at moderate temperatures and the life threatening situation is often not recognized by the victim.

REVIEW symptoms starting with feeling ill or weak to more severe symptoms like poor coordination, weakness, slurred speech. **NOTE** that the presence of uncontrolled shivering is a sign of serious hypothermia.

WARN participants that lack of response to cold (uncontrollable shivering stops, incoherent or wandering speech or unconsciousness indicates severe hypothermia that is life threatening. related to levels of heat loss.

DISCUSS prevention as the key to cold weather safety. **EMPHASIZE** the elements here as critical preventative measures.

NOTE that alcohol gives the feeling of warmth while dilating peripheral blood vessels, actually making the body more susceptible to hypothermia.

DISCUSS first aid for hypothermia. **STRESS** protecting the victim from further heat loss , externally or internally. **REVIEW** possible heat donor sources and **STRESS** the importance of proper medical attention.

2) Risk of secondary temperature drop

III. Proper clothing

A. Head gear

1. Head and neck a major heat loss area
2. Cap or hat for mild temperatures
3. Stocking cap or hooded jacket
4. Insulated cap and hood
5. Face mask

B. Body layering

1. Long underwear
 - a. Wicking moisture away from skin
 - b. Capturing warm air next to skin
2. Insulation layer if needed
 - a. Quilted materials
 - b. Most important on torso
 - c. Layered approach best
3. Protective layer
 - a. Outer clothing
 - b. Partial wind barrier
 - c. Protects insulation layer
4. Wind stopping layer
 - a. Prevents loss of A warm envelope@
 - b. Increases clothing effectiveness
5. Layering and adjusting to conditions key

C. Footwear

1. Feet in contact with ice, snow, cold water
2. Keeping feet warm (put on a hat!)
3. Waterproof footwear
4. Moisture wicking important
5. Sock layering important
 - a. Wicking socks as bottom layer
 - b. Polypropylene or wool outer socks
6. Boot types
 - a. Felt-lined pacs
 - b. AMickey Mouse@ boots
 - c. Insulated boots with semipermeable membranes

D. Hand protection

1. Keeping hands dry
 - a.. Using tools like dipper or skimmer
 - b. Neoprene or semi-permable membrane
2. Gloves for mild weather
3. Mittens for greater warmth

4. Hand warmers or chemical heat packs

E. Fueling up

1. Importance of eating properly
2. Importance of staying hydrated

REVIEW the effects of wind and wetness on heat loss and **DISCUSS** the value of proper dress to an enjoyable outing.

DISCUSS the importance of the head and neck in heat control for the body and prevention of heat loss by wearing proper head gear. **DEMONSTRATE** varieties of head gear useful to the ice fisherman.

DISCUSS the concept of layering, the functions of each layer and the types of materials that can be worn to conserve heat.

DEMONSTRATE layering with proper undergarments and the ability to add or subtract clothing to suit activity /warmth levels.

NOTE the fact that ice anglers fish while standing on ice. Ask participants to **LIST** some characteristics of good footwear for this purpose. **EMPHASIZE** keeping feet dry as well as warm, and **DEMONSTRATE** several types of suitable foot wear.

REMINDE participants that wet hands lose heat faster than dry ones, creating possible problems. **DISCUSS** behavioral ways of keeping hands dry as well as gloves designed for the purpose.

DEMONSTRATE various gloves and mittens, noting their uses and the need for extras.

SHOW and **DISCUSS** some external heat sources for warming hands.

Ask participants to **DISCUSS** reasons for eating well before going onto the ice. **EMPHASIZE** the importance of nutrition and drinking enough liquids in preventing problems with the cold.

IV Fishing on ice

A. Ice quality

1. Ice layer may not be uniform
 - a. Springs and currents
 - b. Amount of snow cover
 - c. Human activities
2. Hard versus Arotten@ or Aspringy A ice
 - a. Quality change with weather condition
 - b. Seasonal quality changes
3. Lake topography impacts

B. Ice thickness for safety

1. Hard, sound ice
 - a. One person - 5-7 cm (2-3 in)
 - b. Two people together - 7-11 cm(3-4 in)
 - c. Shanties, groups - 13-15 cm(5-6 in)
2. Springy or Arotten@ ice
 - a. No safe thickness!
 - b. Ice crystals loosely held together
3. Wind factors
 - a. Impacts of waves in open water
 - b. Wind changes and shelf ice
 - c. Impacts of warm winds on ice

C. Checking ice thickness

1. Importance of checking ice thickness
2. Spud or auger hole
3. Observing other anglers

D. If you break through the ice

1. Stepping into a hole
 - a. Step backward
 - b. Roll back away from hole
 - c. Be prepared to act quickly
2. Breaking through the ice
 - a. Clothing provides support
 - b. Icy water quickly dangerous
3. Getting out
 - a. Grasp ice edge
 - 1) Use of ice picks
 - b. Kick feet to get torso on ice
 - c. Roll toward safe ice before standing

4. Get to shelter

E. PFDs and other safety equipment

1. Ladders or boats
2. Spud or pole
3. Personal floatation devices
4. Exercise of common sense

F. Helping a person who has gone through

1. Use caution approaching hole
 - a. Going in yourself does not help
 - b. Spread weight by lying down

Ask participants to **DEFINE** A good ice@ and any factors they can determine that would cause thin or dangerous ice. Be sure to include human actions like building fires on the ice or making excessively large holes.

DEFINE Aspringy@ or Arotten@ ice and **NOTE** that it is dangerous no matter how thick it is.

REVIEW ice thickness relative to fishing safety. Consider the following verbal device for help when hard ice is present.

Inches two, it'll hold you

Inches three, thee and me

Inches four, set up a store.

NOTE that many add an inch to that for safety.

DISCUSS the danger of wind and wave actions on shore ice or ice bordered by open water. **NOTE** that ice in excess of 60 cm (2 feet) thick can be broken up very quickly by wave action.

DISCUSS drilling or spudding holes to check ice thickness as well as the use of a pole or spud to check as you walk onto the ice.

Ask participants to **THINK** about what to do if they step into a hole. **STRESS** stepping or leaning back (toward where it was safe) and rolling back from the hole.

Have participants **DISCUSS** things to do to get back on sound ice if they break through. Small group discussion might be helpful.

LEAD a group discussion on survival in this situation. **STRESS** staying calm, but acting quickly. Using a simulated situation in a classroom setting, **DEMONSTRATE** and have participants **PRACTICE** getting back on the ice and rolling toward safer ice.

NOTE that some ice fishermen wear or carry a pair of short ice picks (see *Ice Picks* Activity Sheet) to assist them in gripping the ice.

STRESS the immediate need to seek a warm, sheltered area and getting any needed first aid.

REINFORCE the idea that comfortable PFD's are easy to wear and can save a life.

DEMONSTRATE and have participants **PRACTICE** assisting someone who has gone through the ice through classroom simulations.

2. Throw or reach from safe ice
 - a. Rope, pole, or similar
 - b. Ladder
 - c. Board or plank
3. Pull to sound ice
4. Get to shelter

V. Ice fishing equipment

A. Getting through the ice

1. Spud - long-handled chisel
2. Augers
 - a. Types
 - 1) Spoon-type auger
 - 2) Drill-bit style auger
 - 3) Power augers
 - b. Sizes from about 9-30cm (3.5-12 in.)
3. Skimmer

B. Tackle - simple to elaborate

1. Tilts (traps)
2. Tip-ups (traps)
3. Jigging tackle
 - a. Jigging or chugging stick
 - b. Jigging rod
 - 1) Relatively short
 - 2) Use of spring tip indicators
4. Lines
 - a. Selected for the purpose
 - 1) Light monofilament for jigging
 - 2) Heavy braid for tip-up or tilt use
 - b. Match line to fish and lure or bait
5. Reels
 - a. Wrapped line storage
 - b. Simple fly or bait casting reels
 - c. Spinning reels for deep water
6. Miscellaneous equipment
 - a. Sounding lead

b. Hemostat or needle nose pliers

c. Terminal tackle

- 1) Snaps, split rings, quick clips
- 2) Sinkers
- 3) Hooks to match target fish

d. Sharpening stone

e. Tape measure or measuring board

f. Fish identification key, if needed

g. Carrying tools

1. Plastic bucket or pack basket
2. Plastic bags

EMPHASIZE keeping well back from the hole and using something that will spread weight without risking having the rescuer become a second victim.

Ask participants to **CONSIDER** how to get their bait or lures to the fish. **SHOW** a variety of ice cutting tools for anglers and **DEMONSTRATE** their use in a simulation. **STRESS** keeping the hole small for safety, efficiency in making the holes, and minimum effort, yet large enough to handle the fish being caught. **NOTE** that most panfishes are easily handled through a 3 or 4 inch hole and that even very large bass, pike or trout can be taken through an 8 to 10 inch hole.

DEMONSTRATE the use of a skimmer, noting its importance in keeping the hole clear and the hands dry.

SHOW a variety of ice fishing tackle, **DEMONSTRATING** how each type works and **DISCUSSING** advantages and disadvantages of each type.

DEMONSTRATE the use of a jigging rod and **DISCUSS** how a strike indicator, like a spring tip or a tiny neutral buoyancy bobber can help in detecting strikes. **EMPHASIZE** selecting rod flexibility to match the conditions and fish being caught.

DISCUSS selection of lines for ice fishing using all types of tackle. **NOTE** the trade-off between strength and sensitivity and **DISCUSS** reasons for using braided or monofilament lines.

NOTE that reels are not even needed for many types of ice fishing, but that simple ones are adequate for most situations except for large fish or very deep water.

ASK why a sounding lead might be helpful and **REMIND** participants that the warmest water may be at the bottom.

NOTE the value of a hemostat or needle nose pliers in removing hooks and other tasks without removing gloves.

DISCUSS the selection of terminal tackle and carrying a small extra supply to make sure you can re-rig if necessary.

DISPLAY and **DISCUSS** other equipment that might be helpful on the ice or in getting gear from home or a vehicle to the ice and back.

- h. Bait handling equipment
 1. Bait bucket
 2. Minnow dip net or dipper

C. Bait

1. Minnows
 - a. Size appropriate for target fish
 - b. Species appropriate for conditions
2. Dead fish
 - a. Smelt-Swedish hooks
 - b. Cut fish pieces
 - 1) Belly or fin strips
 - 2) Fish eyes
 - 3) Strips or fillets
3. Insect larvae
 - a. Mousies - rat tailed maggots
 - b. Wigglers - mayfly larvae
4. Earthworms
5. Protection from freezing important

D. Lures

1. Spoons
 - a. Size appropriate to fish sought
 - b. Generally specialized for jigging
2. Jigs
 - a. Specialized ice jigs
 - b. Small bucktail or marabou jigs
3. Jigging lures - fish imitations
4. Jigging
 - a. Lift and drop technique
 - b. Nearly stationary techniques
 - c. AThrumming@ - stationary wiggle
 - d. Determine what fish want that day

VI. Ice fishing techniques

- A. How it differs from other fishing
 1. Primarily vertical fishing
 2. No casting involved
 3. Being Aon fish@ vital to success
 4. Most fish on or near the bottom
- B. Species caught through the ice
 1. Lake trout
 - a. Location
 - 1) Deep water lakes
 - 2) Drop offs, ledges
 - 3) Deep reefs
 - b. Baits
 - 1) Jigs or jigging spoons
 - 2) Live minnows or suckers
 - 3) Smelt
 2. Other salmonids and related fish
 - a. Brook and brown trout like lakers

NOTE the importance of insulated bait containers to prevent bait from freezing when temperatures are below the freezing point. **NOTE** too that a minnow dipper helps to keep the hands dry.

DISCUSS some of the different types of baits available for ice fishing. **NOTE** that minnows should be selected for the size fish being sought and for hardiness in cold water.

NOTE that either whole dead fish or cut pieces are excellent for some types of fishes. Strongly **SUGGEST** that fish should be dead before cutting them up or removing eyes for bait.

EXHIBIT and **EXPLAIN** the use of insect larvae or pupae as bait. **DISCUSS** different ways to locate, secure or grow them.

STRESS that most baits have to be protected from freezing.

SHOW a variety of jigging lures and **DEMONSTRATE** their actions. **NOTE** that the bright colors aid are a help in the dark water under ice and snow or in deeper waters where light penetration is minimal. **EMPHASIZE** seeking advice from local anglers and tackle shops when purchasing ice jigs, spoons or flies.

USE an aquarium or other container to demonstrate the actions produced by various jigging techniques with a variety of lures. **NOTE** that simply changing lures may get fish hitting.

DISCUSS the simplicity of ice fishing - vertical presentations and simple techniques.

EXPLAIN the importance of the fish's winter habitat for fishing success. **DISCUSS** some local species that can be caught through the ice.

For selected species that can be taken in your area, **DISCUSS** their winter habitat, baits and lures that work best, and other characteristics that can be helpful to the ice angler.

- b. Pelagic fishes
 - 1) Rainbow trout
 - 2) Ciscos and other whitefish
 - 3) Smelt
 - 4) May be right under ice to bottom
- c. Location
 - 1) Similar structures to lake trout
 - 2) Drop offs from top to bottom
 - 3) Upwelling or spring areas
 - a) Watch ice quality and thickness
- d. Baits and lures
 - 1) Minnows
 - 2) Ice jigs with mousies or wigglers
 - 3) Jigging spoons/ minnow imitations
- 3. Esocids - pike and pickerel
 - a. Location
 - 1) Weed beds, weed lines
 - 2) Deep holes in shallow lakes
 - b. Baits and lures
 - 1) Jigging lures - small jigs to spoons
 - 2) Minnows - sized to fish
- 4. Perch, walleye, sauger
 - a. Location
 - 1) Reefs and rock piles
 - 2) Weed beds, weed lines
 - 3) Sand or gravel flats
 - 4) Holes or drop off edges
 - b. Baits and lures
 - 1) Jigging lures - small to medium
 - 2) Baited jigs
 - a) Mousies
 - b) Wax worms or meal worms
 - c) Perch eyes or cut strips
 - 3) Minnows
- 5. Sunfishes
 - a. Common ice fishing species
 - 1) Pumpkinseeds
 - 2) Bluegills
 - 3) Crappies
 - 4) Bass
 - b. Locations
 - 1) Weed beds, weed lines
 - 2) Holes in shallow lakes
 - 3) Sunken structure (logs, rocks)
 - c. Baits and lures
 - 1) Small lures for smaller species
 - a) Small ice jigs or flies
 - b) Perch eyes, mousies, goldenrod grubs, wasp larvae
 - 2) Larger jigs, spoons for crappie and bass
 - a) Minnows
 - b) Baited jigs or spoons

NOTE that these fishes may roam throughout the water column following smaller fish prey or feeding on scuds or small shrimp-like animals directly under the ice.

STRESS that pike and pickerel (where present) can be found in shallow to moderately deep water, usually associated with weeds or other structure, and that they may take small baits or lures intended for other species.

DISCUSS local habitats where the various fishes listed can be found and some of the local favorite methods for taking them.

Where necessary **DISCUSS** the impact of regulations on the ability to harvest some fish species through the ice. **NOTE** that most of these fishes tend to be schooling fish that are abundant once located.

- 6. Other species
 - a. Burbot
 - b. Bullheads
 - c. Other local fishes

C. Keeping a log

- 1. Importance
 - a. Memory enhancement
 - b. Location information for later years
 - c. Technique information
 - d. Improves fishing skills
- 2. Content
 - a. Date and time of day
 - b. Location - be specific
 - 1) Body of water
 - 2) Entry point
 - 3) Distance and direction from a landmark
 - c. Weather and ice conditions
 - d. Depth and lure depth
 - e. Structure if known
 - f. Bait or lures and techniques used
 - g. Species, numbers and sizes caught

Ask participants to **DISCUSS** some benefits of keeping a good fishing journal (See *Keeping a Fishing Journal* lesson plan). **DISCUSS** some of the elements of a journal and **SHARE** a personal entry or two if appropriate and related to ice fishing.

VII. Care of the catch

- A. Return immediately if not keeping a fish
 - 1. Higher chance of survival
 - 2. Reduced stress
 - 3. Head first into hole
- B. Freshness - iced immediately on catch
- C. Cleaning and cooking techniques
 - 1. Same as with other fishes
 - 2. Try something new on the table

DISCUSS how to return fish through the ice and what to do with the fish you decide to keep.

EXPLAIN food quality and keeping the fish cold (See *Fish Cookery* lesson plan). **DEMONSTRATE** field dressing and filleting and a fish recipe or two. If desired, defer this portion of the lesson until after a fishing field trip.

Summary Activity

The obvious summary exercise is a trip to a local pond or lake for an ice fishing outing. The closer this event happens to the lecture and demonstration of clothing, safety, and ice fishing techniques, etc., the better. Reinforce proper clothing by thorough review of participants apparel before leaving for the ice, and make provisions to replace, or repair potential problems. A good supply of extra hats, gloves, blankets, and snacks can come in handy. The instructor will want to take advantage of parental/teen leader help to assist in opening holes on the ice and to reinforce ice fishing skills learned during the lesson.

Lesson Narrative

Why Are You Here

This lesson is a primer to ice fishing. It covers the fundamental concerns for ice fishermen to be safe, comfortable and successful. Clothing and gear considerations emphasize the need for layering, adapting to prevailing conditions, basic requirements for ice fishing, and how to be comfortable in the cold. Ice fishing safety covers those things that must be considered in order to be safe and secure on the ice as well as ways of avoiding problems and getting out of trouble or helping others who have gotten into trouble. Next we will consider some basics of ice fishing equipment, including some things you can make for yourself. Finally we will look at some fundamental tactics for commonly sought fishes.

Special Winter Considerations/problems

Frostbite B Frostbite is local freezing of the flesh. It is most likely to occur on the extremities or on the nose and ears. Any condition that reduces peripheral circulation (smoking, restrictive clothing, or circulatory disorders) greatly increases the chance of encountering frostbite. As frostbite develops, the affected body parts may feel painfully cold. The skin may appear flushed and reddened as the body attempts to warm itself by dilating blood vessels in the affected areas. At this stage, the skin may burn, tingle or itch. Once the flesh begins to freeze, these symptoms give way to numbness. The skin of the affected area will have a waxy whitish or yellowish appearance as the ice crystals form under the skin. The ice crystals that form in the tissues are sharp and can cause significant damage to the frozen tissues. As a result, rubbing the frozen areas should be avoided. The secondary symptoms of frostbite mimic those of burns. Even relatively mild cases may involve blistering and sloughing of some skin. More severe cases can even lead to gangrene, requiring surgical treatment or amputation. As a result, frostbite victims are wise to consult a physician should be consulted to prevent greater problems.

Immediate warming of the affected area is the first order of treatment for frostbite. **Do not** rub the frozen tissue. If the victim must walk on frostbitten feet, they should be treated after the walking is finished. A hand or finger can be warmed by placing it against warm flesh. The abdomen, armpit, or groin areas are all good heat donors for this purpose. A warm hand is a good donor for the ears or nose. The heat source should be at body temperature. A warm, not hot, bath is an excellent donor if the victim has been taken to a warm shelter. A fire or stove should not be used to warm the affected part because the insensitive, frozen flesh may be burned without the victim being aware of it, causing further injury.

Frostbite often results in damage to the circulation in the affected areas, resulting in that area being very susceptible to being frozen again either immediately after it has been warmed or for some time after the incident. Care should be taken to avoid this possibility. Wet or damp clothing against the skin is an invitation to further damage. Frostbite can be avoided by being prepared for the weather and having sense enough to seek shelter before the freezing takes place. It is also a good idea for buddies to watch each other for signs of frostbite.

Hypothermia B Hypothermia, like frostbite, results from exposure to the cold. Often called exposure, hypothermia is a potential killer. It, too, can become a problem without the victim realizing it. Temperatures need not be severe for hypothermia to develop. In fact, even fairly mild temperatures (4-10EC (40-50EF) can lead to hypothermia, particularly when they are combined with dampness and/or wind. The problem occurs when the body loses heat faster than it can be generated. When that happens, the body's core temperature begins to drop and all its systems begin to lose efficiency. At first the body reacts to slight decreases in temperature by reducing blood flow to the extremities and by shivering. The rapid muscle contractions generate heat that can bring the temperature back to normal. The use of proper clothing and common sense, coupled with a high energy diet, can prevent hypothermia, and prevention is much simpler than treatment.

Reduction in the body's core temperature results in a variety of symptoms, the victim may develop coordination problems, blurred vision, nausea, slurred speech, and muscular weakness. They may become confused or experience difficulty thinking clearly, reasoning or remembering. Reduction of the normal core temperature by 4-7E C (7-12E F) makes the symptoms more severe. Frequently the victim begins to shiver violently and uncontrollably. Individuals in this condition are not able to help themselves. Assistance is essential so that the situation does not become life threatening. Further reduction in the body temperature to approximately 26-30E C (78-86E F) will result in collapse and/or death.

Getting an individual to shelter or adding a layer of insulating clothing may be adequate for mild hypothermia. Severe cases demand medical assistance and an external heat source to warm the body. First aid treatment of hypothermia involves protecting the victim from further heat loss, gradual and selective re-warming of the body, and maintaining the individual's recovered temperature.

Protecting from further heat loss involves insulating the victim. A warmed sleeping bag is an excellent insulating device. In addition, the victim should be sheltered from the wind. Because wind chill is worsened by dampness, the victim should be protected from moisture. Wet clothing should be removed

and replaced by dry clothing or coverings, and protection from rain, snow, or spray should be provided. Because movement of extremities circulates blood into chilled tissue and worsens the condition of the body's core, movement should be minimized. Similarly, elevation of the legs will concentrate blood in the head and torso.

Warming can be aided in many ways. A warm shelter (e.g., 21-27°C [70-80°F]) may not be enough. If the victim is conscious, warm fluids such as tea or clear soup can carry heat to the body's core. The head and torso should receive attention first; then the extremities can be warmed. Perhaps the best warming technique is the body of another person. Skin to skin contact within a sleeping bag, is the best. Placing a victim wearing cold clothes in a cold sleeping bag with a well-dressed donor may be more detrimental than helpful. The victim should never be left without a heat source. Depressants, such as pain killers or alcohol, should be avoided. Do not massage the skin because that will stimulate peripheral circulation and possibly result in further heat loss. Maintain the treatment until medical assistance is available.

Proper Clothing

The best way to assure a safe, successful, and enjoyable ice fishing outing is through thorough preparation. This means a meticulous attention to detail, especially when it comes to clothing. The ice angler needs to be aware of potential danger from the cold. Proper clothing minimizes the risk of problems and aids in having a safe, enjoyable, and successful outing. Carefully consider the effects of wind, water, and low temperature on the human body. Wind is a heat thief; it steals the envelope of warmed air around your body and replaces it with colder air. This effect depends on wind velocity with the apparent cold being called wind chill factor. Wind proof clothing or a wind screen of some sort should be a part of the ice angler's equipment. Garments like wind parkas, foam-insulated jackets, or breathable rain gear are superior windbreakers. By shielding the body from the wind, they help to retain the warmed layer next to the skin, minimizing heat loss. Water on the skin has several impacts, regardless of whether it is from outside or produced by the body's sweat glands. Cold water directly reduces the body temperature, at least locally; so actions like reaching into the minnow bucket, scooping slush from the hole, or handling wet fish can chill the hands directly. Under any conditions where the air is not saturated with water vapor (and most of the time winter air has very little water vapor present), water will tend to evaporate from the skin's surface or the clothing. As it evaporates, it cools the surface of the skin. Under windy conditions, this increases heat loss and apparent wind chill. Finally, low temperatures have a direct effect on the body. Heat energy moves from warm objects to cold ones. As a result, the warm body gives up heat to the cold air or ice. In well-clothed people, the primary source of heat loss is through the head.

Head Gear B Since the head and neck are the major area of heat loss, special attention to that part of the body can go a long way in keeping oneself warm. In mild temperatures with little or no wind, a cap or hat may be adequate. A stocking cap or a hood on a jacket or shirt increases the amount of the head and neck protected and provides more insulation for this vulnerable part of the body. Under cooler conditions, using an insulated cap and hood with a drawstring and wind barrier will work well. Under the most severe conditions, a face mask or scarf around the neck and face will provide additional warmth if worn under a hood. Remember, old-timers say, Aif your feet are cold, put on a hat. That is one way of saying that if the head, neck and face are kept warm, the rest of the body will feel warmer.

Body Layering B Layering is the best way to maintain suitable body temperatures, i.e. keeping warm but not getting overheated. Since ice fishing intersperses more or less sedentary angling and more or less vigorous exercise in towing gear onto the lake or pond, making holes in the ice, or running madly between flags. (We will not get into the idiot once seen Atrolling with ice skates, a practice dangerous to everyone.)

Layering starts with underwear. Long underwear should serve two functions, wicking moisture away from the skin and capturing a layer of warm air next to the skin. Several synthetic materials and some natural materials are outstanding at both of these functions. Spun polypropylene is among the least expensive and most comfortable materials to wear next to the skin. It wicks moisture well and captures air in the spaces

among the fibers. Wool does not wick well, but it does an excellent insulating job, even when it is wet. Cotton is normally a poor choice. It tends to be very absorbent, trapping moisture next to the skin.

The next layer is the insulating layer.

1. Long underwear
 - a. Wicking moisture away from skin
 - b. Capturing warm air next to skin
2. Insulation layer if needed
 - a. Quilted materials
 - b. Most important on torso

Dangers from the Cold

Hypothermia and frost bite are constant threats to careless anglers. Both of these cold-induced problems are easier to prevent than they are to correct. All outdoor enthusiasts should know both the symptoms and the first aid treatment of these injuries. A buddy system helps because the victim frequently is unaware of the problem until it has become serious. With hypothermia that can be life-threatening. With frostbite, it can be serious enough to require surgical treatment or even amputation of badly damaged parts.

Changes of gloves or mittens can help prevent cold hands when lots of fish are being handled.

Heat loss can be reduced by using layers of warm clothing between the wind-breaking outer shell and the sweat-fighting inner layer. By using layers of clothing, the anglers can adjust the insulation layer to temperature changes and exertion level. The angler must be adequately clothed from head to toe. Much of the body's heat is lost through the head and neck. A stocking cap or ski mask makes an excellent foundation for keeping the head warm. A hooded jacket can provide a second layer for extreme cold or windy conditions. The neck can be protected with a scarf, dickey, or turtleneck sweater. Many anglers use layers of wool or acrylic material or a down vest to complete their clothing needs. In severe weather a snowmobile suit or heavy woolen hunting clothes may be advisable to hold back the chill. A change of clothes essential if getting wet is a possibility. Extra clothing can be carried conveniently in a backpack or pack basket. Some anglers use sleds (See activity ?) or small toboggans to transport all their equipment, including extra clothes.

* Keep warm with proper boots and gloves! Good footwear is important. Many an ice fish outing was ruined by cold toes. Remember, you will be standing on ice for a few hours. Many serious ice anglers swear by so-called Mickey Mouse boots developed by the U.S. government. These boots use a dead air space for insulation, and they are quite effective. Felt-lined pacs or felt gaiters with a rubber overboot are also excellent. Many insulated rubber or leather boots are also available. The boots should be water proof (not water repellent) because slush or puddles may be encountered on the ice. Wool socks, with liners of material that acts as a wick to carry perspiration away from the skin, are an excellent choice to wear inside your boots.

Mittens and gloves complete the angler's outfit, Mittens are far warmer than gloves, but they aren't as convenient to use. Several pairs of gloves may be adequate for the work of drilling holes, baiting hooks and so forth, but heavy mittens are ideal for the slack times and for when you are walking to and from the fishing area. Keep at least one pair of gloves or mittens inside your clothing so that they will be warm. They can be a real blessing to a hand chilled after baiting a hook or landing a fish.

Many ice fishing "pros" use handwarmers to help keep them warm. Some people like to put a hand warmer over the lower back to cover the kidney area and to keep one in the outside pockets to warm their hands.

The last proper ingredient to keeping warm is to fuel up. Eat well before going out on the ice, preferably a high carbohydrate meal. If you plan to be out for any length of time, take along a high energy snack. Some anglers even take a stove and prepare a hot meal on the ice (and a hot meal never tasted better) To avoid dehydration and fortify yourself against the cold take along cocoa, sweetened tea, hot soup, or hot fruit juice. A mixture of sweetened, spiced tea orange juice is a personal favorite. Avoid

alcohol. It stimulates peripheral circulation and gives a false sense of warmth while diverting heat from the body's core. To drink alcohol while fishing is to invite hypothermia. Also because smoking tobacco tends to reduce peripheral blood flow, smokers are a high risk for frostbite.

Fishing On Ice

Before we go into details directly related to the ice fishing experience it is important to discuss some other unique challenges fishing on ice in cold weather may produce. As with most other pursuits, ice fishing requires some precautions by participants. A concern of the ice angler is with the quality of the ice. When selecting a spot for an outing this consideration is as important to a successful outing as the likelihood of catching a fish or the species sought. Icy cold waters and bonechilling air are unforgiving elements. Unsafe behavior can result in a costly lesson.

Prolonged periods of freezing weather produce good, hard, ice, with sub-zero temperatures making up to an inch of ice each day. A river or lake may not have a uniform ice layer. Warm springs (even 4 C [32 F] water may be warm in winter) or currents may produce areas of thin unsafe ice. The outside of river bends, areas along sunny cliffs, or points jutting into a lake are all potential locations for thin ice. Areas that seem dark or show evidence of crumbly or honeycombed ice should be carefully avoided. So-called rotten ice should also be avoided as winter yields to spring. Weak spots may appear unpredictably as the ice breaks down. This is particularly true of ice along the shoreline or where streams enter or leave a pond in late winter or early spring.

Under subfreezing conditions 5-7 cm (2-3 in.) of ice is about minimal for widely spaced anglers. Solid ice that is 7-11 cm (3-4 in.) thick is adequate to support small groups of people. Most people prefer to have at least 13-15 cm (5-6 in) of good, solid ice before operating snowmobiles and similar equipment on it. These standards should be considered minimal. In some situations no amount of is really safe. When fishing shoreline ice or frozen bays on larger bodies of water, anglers must be acutely aware of winds. Wind and wave action can break up good ice 46-60 cm (18-24 in.) thick with alarming speed. Many unwary ice anglers have been chased ashore with open water lapping at their heels, plucked from drifting floes by the Coast guard, or lost when they failed to respect the power of wind and waves on the ice they had trusted.

(Instructors along any large lakes like the Great Lakes or large inland lakes should stress this point)

*Checking ice thickness

Doubts about ice thickness can be satisfied easily by using a spud, auger, or ax to make a test hole. Even then, one should be careful. Bonfires or old ice shanty sites may have caused thin spots. Careless anglers could have bored oversized holes. Be careful. An ice water bath is a life-threatening situation.

If you should break through the ice, a step backward on the secure foot might limit the accident to your errant foot. Breaking through completely may cause panic. Heavy, relatively airtight clothing provides some floatation until it soaks through. Working quickly, but without panic, grasp the edge of the ice (if the ice breaks away, repeat the process until solid ice is reached), kick your feet for thrust, and attempt to get your torso onto the ice surface. Once you have cleared the edge, roll toward the safe ice you had previously covered.

Once you are safely on good ice, give immediate attention to getting warm and dry. Do not hesitate. A heated shanty, a warm car, or any warm shelter is needed immediately to prevent hypothermia. * The Coast Guard recommends that anglers wear a personal floatation device (PFD) while on the ice. Many fishing vest and jackets double as a PFD. Their construction makes them both comfortable and warm. These devices are recommended for all ice anglers, particularly those who fish shelf or shore ice along open waters or rivers, Anglers who insist on fishing "spring ice" would also be wise to add this item to their equipment list. A PFD may prevent panic and aid in body heat retention in case of accident.

Ice Fishing Equipment

*Spud or auger

Ice fishing poses one problem not faced by the open-water angler. How do you get to the water? A few anglers use hatchets or axes to chop holes in the ice, but most use either a spud or auger. An ice spud is simply a chisel on a pole. With it, the angler can chip a hole large enough to do some fishing. Usually

spud users like to taper the hole so that it enlarges toward the bottom. A hole 15-20 cm (6-8 in.) in diameter is large enough. Anything over 20 cm (8 in.) is dangerous! Keep the holes small.

A spud works best when it is kept very sharp. As with any sharp tool, an ice spud should be used very carefully, and the user should take care of the edge. Many anglers attach a wrist thong to their spud to prevent losing it if it suddenly breaks through the ice. This is particularly important if the angler uses a loose grip and tosses or drops the spud in the hole. This is one of the most effective and least tiring ways to use this type of tool.

Augers are used to drill holes through the ice. A sharp auger drills more efficiently than a spud does. The holes are uniform in size, but one cannot taper the hole or cut a holding pool with an auger. Power-driven augers are available, but hand powered ones work fine. These tools come in two basic types: a sharp edged half cup and an over sized wood-bit design. Both types work very well if they are properly sharpened. Read the directions carefully before attempting to sharpen an auger blade. Improper sharpening can ruin an auger in seconds.

Augers come in a variety of sizes from about 9-25cm (3 1/2 in.-10 in.). The 10- 15- and 20 cm (4, 6, and 8 in.) sizes are most frequently used. Panfish anglers prefer the smaller sizes. They are adequate for perch, pickerel, and even crappies. Anglers trying for larger pike, walleyes, or lake trout often select 20-cm (8 in.) holes in case a trophy fish is hooked.

Using either a spud or and auger, the angler is likely to leave chips of ice and slush in the hole as it is completed. That material should be removed to prevent the rapid refreezing of the hole. A skimmer, a long-handled perforated ladle, is used for this purpose. For smaller holes, a long handled slotted serving spoon works fairly well. The hands can be used, but wet hands invite frostbite, or at least chapped hands.

*Tackle

Ice fishing tackle can be very simple or quite elaborate. A simple drop line with a bobber to suspend the bait and attached to a stick anchored beside the hole may be just as effective as traps or tip-ups. Some anglers use discarded plastic spools, such as those used in retailing monofilament lines, and attach them to an upright stick with a bolt. Tension can be supplied by using a coil spring on the bolt this can prevent line overruns if the striking fish runs, then stops suddenly.

Tip-ups, tilts, or traps are more elaborate forms of set lines. Tilts usually are set so the reel is above water. The pressure of a striking fish pulls one arm of the tilt downward, exposing the signal flag on the other arm. Careful adjustment can make a tilt sensitive to even the lightest strikes. Their major disadvantages are sensitivity to "wind" strikes and the potential for ice buildup on the exposed reel. Tip-ups are usually set with the reel below the surface of the water. The strike of a fish trips a spring-loaded signal flag. Tip-ups may freeze at the water's surface and many anglers consider them less sensitive to light strikes than tilts. Either type of device may be called a trap.

Besides the set baited line, ice anglers frequently use jigging rods. These devices are used with baits, lures, or combinations of the two. A jigging outfit can be a simple stick with a bit of line attached. Sometimes jigging sticks are built so that the length of line can be easily adjusted. A somewhat more sensitive outfit uses a short glass rod, usually solid fiberglass, rather than a stick. Many anglers attach an inexpensive reel, particularly when fishing in deeper water.

A strike indicator made of either spring-steel wire or light spring steel strapping, can increase the anglers' efficiency in detecting strikes. Some anglers use a tiny bobber as a strike indicator. Jigging rods often can be made relatively short to allow the angler to stand close to the hole. The flexibility of the rod should match the fish, the strength of the flexible (soft or light) rod is suitable for small lures and light lines. If the angler uses large jigging spoons for lake trout or pike, a fairly stiff rod is needed to allow proper setting of the hook.

Both monofilament and braided lines are useful to the ice angler. Braided, waterproof lines are usually used on tip-ups or in jigging for large fish, such as pike or lake trout. Either nylon or Dacron lines are acceptable, but most anglers prefer the Dacron lines because they have less stretch. Most anglers want the line on the tip-ups to be fairly heavy. This is not so much for strength as it is for ease in handling the line with cold fingers.

Monofilament is most often used by anglers seeking panfish or smaller gamefish. Lines as light as monofilament sewing thread (about 1 lb test) are used for perch and bluegills. Two- to 4- pound test lines are light enough to be used on the smallest of panfishes, and a careful angler can land fairly large fish with them. The key is to use as light a line as you can handle without losing large numbers of fish. That will eliminate most problems with tightly curled or coiled monofilament and will make your equipment more

sensitive to strikes. You can also get better lure action with light lines. Line strength, like rod action, must be matched to the fish and to your technique.

A well-prepared winter angler may carry an array of miscellaneous equipment. A sounding lead, of a heavy sinker on an alligator clip, is handy for finding the depth of the water. Remember often you are trying to fish near the bottom. A supply of snaps, split rings, or quick clips can be very useful. You may want a sharpening stone for your auger. A hemostat or a pair of needlenose pliers has a wide assortment for uses from hook disgorging to extensions for cold fingers. Don't forget your tape measure if you are after fish with a legal minimum size. An identification key for local fish and a regulation syllabus are useful if there are season restrictions. A plastic pail or garbage bag makes an excellent container for bring home your catch.

*Bait

Ice fishing baits are varied. Minnows and an assortment of insect larvae are the most commonly used baits. Anglers using minnows should use foam or fiber bait buckets because they resist freezing better than the metal bait pails. A minnow dipper is a handy item because it keeps the angler's hands out of the bait bucket. Minnows can be of various species, but their size should be appropriate for the fish being caught. Bait dealers often refer to "perch," "pickerel," or "pike" minnows. There is some overlap in size preferences, but generally panfish prefer baitfish less than 5-6 cm (2- 2 1/2 in.) long. Pickerel, walleyes, bass, and some larger panfishes, such as big perch or crappies, prefer minnows in the 6-9 cm (2 1/2-3 1/2 in.) range. Big pike or bass like large bait. If you are expecting a mixed bag, concentrate on the smaller bait fish, but bring along a few 9-12 cm (3 1/2-5 in.) baits to tempt a lunker.

Dead fish, particularly smelt, or pieces of fish are also used effectively as bait. Smelt are often threaded on special hooks, called Swedish hooks (fig. ?), for use on lake trout or pike. Small triangles of fish are used to dress panfish jigs or as bait for smelt. Larger strips can be used on lake trout jigs. Perch eyes taken from dead perch are very popular either alone or on a jig for panfish. Some anglers use strips of perch belly or fins as bait, particularly for pickerel.

Many insect larvae make excellent ice fishing bait. As with the baits already mentioned, they can be used alone or as a dressing on the tail hooks of a jig. Some more favored larvae can be purchased from bait shops. Others must be gathered and stored or raised by the angler. Goldenrod galls contain small maggots, the larvae of the peacock flies. Most panfish find these "grubs" attractive. Centipedes and pill bugs or sow bugs can be gathered from under hay bails or similar shelter and used as bait. Some anglers like to use wasp or yellow jacket larvae gathered when the weather is cold and the insects are dormant. Crane fly larvae (oak leaf bugs), dragon fly naiads, rat-tailed maggots (mousie grubs), and mealworms are all effective bait. If they are available, earthworms, the old standby, also make fine bait for fishing through the ice. With any of these baits the angler must use some caution to keep them from freezing.

Ice fishing lures are less varied than their summer counterparts. They are designed to be fished vertically, and the most lure action is imparted by the angler. They are usually swept up, then allowed to settle in a yo-yoing or jiggling motion. Ice lures are often very brightly colored, designed to attract the fish's attention under low light intensity. A few minnow imitations are designed for vertical fishing. These lures are usually lead bodies with a lip designed to make them swim in a circle. The best advice on ice lures is to consult local anglers or bait shops to see what kinds, sizes, and colors are good producers in the waters you want to fish. An adequate supply can be carried in a small plastic box. Ice Fishing Tactics

Perhaps one of the reasons that anglers have so much success at ice fishing is that it is simple. You merely suspend the right bait at the right depth and wait for a customer, or you work a lure vertically until a fish bites. To determine the right place and the right time, the angler must consider the fish's winter habitat.

Anglers spend most of their time pursuing a limited number of species through the ice. Members of the salmon, pike, perch, and sunfish families make up the majority of the catch. These fishes have different habits that can help the angler in locating them.

Lake trout tend to hang near the bottom structures. Rocky ledges, sharp drop-offs, sunken stream channels, deep rubble piles, or gravel bars are good places to locate lakers. Other salmonids and closely related fish, such as smelt and ciscoes, are more pelagic. They can be found directly under the ice as well as on the bottom, and they move throughout the body of water in search of food. Drop-offs or channels are excellent places to try and fish for them, but baits should be set at various depths until they are located. These fish may feed in schools, so there may be bursts of activity between long lulls. Try using small shiners or bright spoons for the smaller trout. Lakers will hit spoons, fish-fillet-dressed jigs, or smelt.

Esocids, members of the pike family, can be found in their weed bed haunts. Channels or deep holes within or beside weeds are excellent places to fish for these predatory fish. Pike and pickerel are traditionally the mainstays of shallow lake and pond ice fishing. In winter they feed as well as or better than they do in summer. Spoons and dressed jigs are good lures, and minnows of appropriate size are excellent bait. Bait should be suspended just over the weeds, so cruising fish can see it readily. Many a panfish angler has had pike or pickerel grab their offerings. They can be taken on very light lines if their sharp teeth do not cut the monofilament. Because there is a good chance of having these fish hit, many panfish anglers carry a small gaff to assist in landing them on light lines. A fish gaffed through the lower jaw (i.e., lip gaffed) can be released unharmed, if you desire.

Perch and walleyes are highly prized by winter anglers. Either species makes outstanding table fare. One should say that these fish are ubiquitous, that is, they are found in almost all types of habitat with some locations more productive than others. Both these species are usually found on or near the bottom. Bottom structure, like gravel bars, rubble piles, holes, springs, or wrecks, are attractive to perch and walleyes. Smaller perch are often taken in shallow water, usually in weeds. Larger perch and walleyes are more frequently taken at greater depths. In very deep lakes, both species will tend to move toward shallower waters as the winter progresses.

Perch and walleyes take an assortment of bait, but small to medium sized shiners are preferred. Spoons, jigs, and lead minnow imitations are good lures. Even large perch and walleyes can be very gentle in their striking on some days. Tiny bobbers if spring-tip strike indicators are useful to the angler at these times. These fish travel in schools. Once they are located, you may have very fast action. You can move about in likely areas until you locate them. Do not neglect to try to fish the deep edges of drop-offs or channels.

Sunfish also provide considerable sport during the winter. They are usually in fairly shallow (less than 4.5 m [15 ft]) water. Weed beds, sunken logs, pilings, and similar structures are attractive to them. Crappies, bluegills, pumpkinseeds, and bass are commonly caught through the ice. Because of their small size, pumpkinseeds are not as actively sought as the others. Bass are taken in designated waters, but closed seasons limit their importance to ice fishing. Bluegills and both black crappies (calico bass) and white crappies are heavily fished through the ice.

Bluegills are very light strikers during the winter. Even a tiny bobber or a delicate strike indicator may show only the slightest touch. Small bait like goldenrods, grubs, mousies, or perch eyes on tiny jigs is favored for these tasty fish. As with perch, the angler should move until a school is located and then fish persistently. Bluegills are usually just above the bottom.

Crappies are minnow eaters. They travel in schools, often suspending and hovering in middle depths over submerged cover. They often feed at night, as well as during the day. These fish can be voracious and hard hitting but they are adept at stripping minnows from tip-ups without springing the flag. Any strange movement of a bobber including apparent slack in the line, could spell strike when crappies are in the area. Anglers should not make the mistake of fishing under suspended crappies. Fish your bait or lure from anywhere directly under the ice to the bottom and then note the depth at which the fish are feeding. You could be in for furious action once the fish are located.

As we said at the beginning, ice-fishing tactics are really quite simple. The angler must choose depth, structure (nature of underwater habitat), and bait or lure for the particular kind of fish. Some means of marking depth is very desirable. Care should be taken with pelagic if suspending species that all depths are fished. Closed attention to detail in detecting strikes is important. Locally useful lures and appropriate-sized bait on lines that are light but adequate, should produce results. Keep a log book that tells when (date and time of day), where (perhaps a couple of compass bearings or a distance and direction from some landmark), and what you caught. Include information on the weather conditions, the baits or lures that worked and how you could have increased your success. This information will help you become a successful ice angler.

Care of the Catch

Fish taken through the ice can be the highest quality fish you will catch. They are usually flash frozen with a glaze of ice that prevents drying. Once thawed, they can be handled in any way you normally care for fish. For further information on pan dressing, field dressing or filleting fish, refer to.....

Often ice anglers catch lots of smaller perch or other panfish. These fish can be filleted and cooked in tempura batter. They are outstanding. Don't let yourself fall into the panfry rut. Try out the recipes in any book on fish cookery or contact your local cooperative extension office for recipes. You may find dozens of ways in which you can enjoy eating the fish you take through the ice. That gives you an excuse to catch more!

Good luck and good, safe, ice fishing.

Exhibit and sharing suggestions

1. Prepare a poster describing hypothermia, symptoms and first aid.
2. Prepare a wind chill factor chart.
3. Prepare a poster showing the local fish or those caught during fishing outing.
4. Develop journal of fishing conditions, techniques, bait, used during ice fishing outings

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