

Hook, Line & Thinker

INSTRUCTOR GUIDE

Field Guide



**Field Knowledge—
Know Before You Go**

**Field Knowledge—
Making the Catch**



Select a fish that lives in Wisconsin that you would like to learn more about. Use this worksheet to profile the fish as you work through the different sections of this booklet. If each of your classmates selects a different fish, your classroom will know how to catch just about anything!

PLEASE
SEE APPENDIX A
Profile of a
Swimmer:
Wisconsin's Game
Fish

Profile of a Swimmer

Common Name(s): Black bullhead

Scientific Name: Ameiurus melas

INSTRUCTORS: Underlined content is not provided in student manual.

SENSE	FEATURE AND DESCRIPTION	IMPORTANCE TO FISH (HIGH, MEDIUM, LOW)
Sight	<u>Small eyes, relies on other senses</u>	<u>low</u>
Smell	<u>Nares (nostrils)</u>	<u>high</u>
Hearing	<u>Inner ear receives amplified sounds via swim bladder acting as sound chamber</u>	<u>high</u>
Taste	<u>Taste buds on whiskers and skin</u>	<u>high</u>
Touch	<u>Whisker-like feelers on barbels</u>	<u>high</u>

Identifying Characteristics: Their whiskers are black like those of the brown bullhead, but yellow bullheads have white ones. They have smooth spines on their dorsal and pectoral fins. Their lateral lines are very thin.

Natural Food: They are scavengers and will eat almost anything dead, animal or plant.

Habitat Description: They are demersal (bottom-dwelling) and can live in murky water with low oxygen content. They are widely distributed throughout Wisconsin in shallow bays and along shorelines.

Niche (role): They feed on the bottom and are active at night.

Spawning habits and habitat: The female digs a saucer-shaped nest with her fins under plants, logs, or overhanging banks. Both parents tend the nest of eggs until spawning is completed. As the eggs hatch, the male continues to protect the fry by herding them in a tight little ball until they are about one inch long.

Environmental stressors: Bullheads can do well in polluted waters, because they don't need much oxygen. They can become problems for game fish if there are too many of them stirring up sediments on the bottom.

Tackle and Bait: _____ Bag Limit: None

Is there a health advisory for this fish? if so, where? Yes. There is an advisory in Cedar Creek, the Fox River, the Manitowoc River, the Twin River.

Any restoration or stocking efforts for this fish? No

Good to eat or simple recipes? When taken from clean water, bullheads are good to eat. Fried bullhead recipe: Roll in flour with salt and pepper, fry in hot oil in a skillet until golden. Drain on a paper towel.

Other interesting facts about this species (list 5): Their black backs camouflage them from predators flying above and their white bellies camouflage them from predators swimming below. They do not have scales. They can easily overpopulate an area and become stunted. They sometimes burrow in mud for the winter. The world record black bullhead was eight pounds.

Sources: Various DNR publications

Welcome, Teachers & Volunteers!

You are holding a curriculum and activity guide that will help you make educated anglers and responsible water users out of your students.

The Hook, Line & Thinker program is designed for upper middle school and high school students. While the guide for teachers contains all activities, there are two separate booklets for students.

The first, **Hook, Line & Thinker: Science Guide**, is aimed primarily at life sciences students; the second, **Hook, Line & Thinker: Field Guide**, at physical education students or those in after-school programs, summer camps, or other places that have the ability to provide an angling field trip. We encourage instructors to work together to give their students the full Hook, Line & Thinker experience.

The **Hook, Line & Thinker: Science Guide** uses water and fish as focal points for teaching broader life science concepts. The student booklet is organized into two main sections: **Fish Knowledge** and **People Knowledge**.

In **Fish Knowledge**, activities and text are focused on the science of fishing: fish biology and aquatic ecology. Students build on what they learned in that section as they explore the impact people can have on fisheries, outlined in **People Knowledge**. **People Knowledge** looks at problems that humans have caused for fisheries and the various ways that managers and policy makers can try to solve these problems using science as a management tool. This section could also be used in social studies classrooms. In the final activities, students think about their own relationships to fish and our aquatic resources.

The **Hook, Line & Thinker: Field Guide**, on the other hand, walks students through the steps of a successful fishing excursion. It is divided into two primary sections: **Field Knowledge—Know Before You Go** and **Field Knowledge—Making the Catch**.

In **Know Before You Go**, students consider safety, ethics, and regulations and practice their tackle, knot, and casting skills in a controlled setting. **Making the Catch** has field day activities, including reeling in a fish.

Although the activities in these booklets may be used independently of one another, they build upon each other when used consecutively. If used independently, students may need to refer to earlier activities or the glossary in the back of their booklets to find information.

If doing a section in its entirety, consider opening with the **Scenario**. The scenario is designed to get students thinking about the material that will be covered in the following text and to give you a sense of students' current knowledge. At the end of each section is a **Vocabulary Review and Section Assessment**. The review allows students to practice new vocabulary, while the assessment returns to the opening scenario and suggests a concluding project. Service-learning project ideas are listed under **Extensions**.

Additional resources are included in the Appendix. If you have downloaded this booklet, please see the separate Appendix download for additional materials. Sources and a materials list as well as correlations to the Wisconsin State Academic Standards, Project Wet, Project WILD, and Water Action Volunteers are listed in the back of the book.

Standards are listed with the most basic presentation of the activity in mind. Additional standards may be addressed through extensions and deeper investigations of issues related to the activities.

This guide is not detailed enough to make students expert anglers, but it does set them on a path toward discovering some basic principles about aquatic environments and their connections to them as anglers, as fellow water-dependent beings, and as citizens with the ability to think and choose how they act.

We offer our deepest thanks to you for providing your students with a chance to learn more about Wisconsin's fisheries and the aquatic resources that sustain them. Because of you, fewer students will leave their youth unaware of this great beauty and bounty that surrounds them in Wisconsin.

Enjoy your angling adventure!

● *If you have downloaded this booklet, please see the appendix that follows for additional materials.*

Master Materials List

Profile of a Swimmer

- Appendix A: Wisconsin's Game Fish

What Makes a Fish a Fish?

- Fish Wildcards/Fish Field Guide*
- Appendix B: Salmonid Dissection Guide
- Appendix B: Fish Anatomy Transparency
- Appendix B: Speaking Anatomically

Which Fish is This?

- Appendix C: A Key to Common Wisconsin Fish
- Appendix C: Credits for Fish Drawings
- Appendix C: Fish Images
- Fish Wildcards/Fish Field Guide*

Fish Food

(One set for each group of four to six students.)

- Appendix D: Steady State? Game handouts
- Stopwatches
- Scissors (if materials are not pre-cut)

Water of Life

- Appendix E: Field Trip Record sheet
- Distilled water
- Salt
- Three 400 ml glass beakers or pint-sized canning jars
- 25 x 200 mL tube with screw cap
- Large syringe
- Drinking straw
- Blue, yellow, and red food coloring
- A means to rapidly heat and cool water

Alternate Demonstration Materials List

- Honey
- Vinegar
- Grape juice concentrate

- Salad or olive oil
- Herbs
- Pint-sized canning jar with lid

Home Sweet Home

- Appendix F: Field Trip Record sheet
- A variety of travel brochures
- Research materials
- Computers

To the Point

- Topographic map of your area*
- Map and information about your local watershed
- internet access or handouts

Shared Interests

- Appendix G: Field Trip Record sheet
- Butcher paper or poster board
- Markers
- A local zoning map

Aquatic Exotics

- Appendix H: PowerPoint Presentation: Invasive Images

Restoration Nation

- Optional: Guest speaker

Taking Stock

One set for each group of six students.

- Appendix I: Balancing Act Game handouts
- Open top containers
- Dried pinto beans (approximately one pound or 2 cups for each group)
- Graduated cylinders (250 ml or larger)
- Measuring spoon sets
- Cups
- Papers rolled into cones or funnel with large opening

• If you have downloaded this booklet, please see the appendix that follows for additional materials.

Making Decisions

- Appendix J: Sample Resolutions
- internet/computer access

Great Conservationists

- Pencil

Tackling Tackle

- Appendix K: Tackle Craft Instructions
- Appendix K: Tackle Craft Pictures
- Appendix K: Tackle Cue Cards
- Appendix K: Tackle Transparencies
- A wide sampling of tackle*
- Tackle craft supplies
- A clear tank with water
- Fishing line

Got Skills?

- Appendix L: Knot-testing Experiment
- Appendix L: Getting Rigged
- Rope for practice knots
- Eye bolts or shower curtain rings
- Hooks and fishing line*
- A sampling of tackle*
- Tires/hoops/Backyard Bass®*

Golden Rules

- Appendix M:
A Key to Common Wisconsin Fish
- Appendix M: Fish images
- Appendix M: Fish Identification Cheat Sheet
- Scraps of paper
- DNR fishing regulations*
- Three boxes or bowls

Safety First

- PFDs
- Rods and reels*

- Paddles
- Other skit supplies

Reading the Water

- Appendix A: Wisconsin's Game Fish
- Lake chart for a local lake
- Fish reference books* or internet access

Fish Out of Water

- Tackle*
- PFDs
- Fishing licenses
- First Aid kit

Cooking, Cleaning, and Companions

- Fillet knives
- Spoons/fish scalers
- Plastic bags/newspaper
- DNR's Choose Wisely guide*
- First Aid kit
- Recipe supplies

* Materials Notes

- Fish Wildcards available from the DNR.
- *Fish of Wisconsin* by Dave Bosanko is a pocket-sized, inexpensive field guide.
- The website wisfish.org is an excellent tool for identifying fish and learning morphology.
- Maps of the state can be ordered for a low price from the Wisconsin Geological and Natural History Survey.
- Current Fishing Regulations and the *Choose Wisely* guide can be found on the DNR website or wherever fish licenses are sold.
- A limited selection of tackle is available for classroom use through the Tackle Loaner program. Go to the DNR website at dnr.wi.gov/fish/kidsparents/loanerequipment for more information.
- Backyard Bass® can be purchased from ironwoodpacific.com or borrowed from many DNR tackle loaner sites: dnr.wi.gov/fish/kidsparents/loanerequipment.

● If you have downloaded this booklet, please see the appendix that follows for additional materials.

Welcome, Anglers!

You are holding a guidebook that will provide you with **Field Knowledge** to take you through the various steps of fishing. This booklet is organized into two main sections: **Section A, Field Knowledge—Know Before You Go** and **Section B, Field Knowledge—Making the Catch**.

In Section A, Know Before You Go, you will learn about:

- fishing equipment
- techniques
- regulations
- safety considerations

You will build on what you learn in this section when you go outside for an actual fishing trip. Section B, Making the Catch guides you through:

- reading the water
- catching a fish
- deciding whether or not to keep your fish
- cleaning your catch
- cooking your catch

This booklet can be paired with the *Hook, Line & Thinker: Science Guide* that focuses on the biology, ecology, and management of fish in Wisconsin. Even when done together, however, these booklets are not detailed enough to make you an expert angler. Fishing is a life-long adventure and the more you fish, the more you'll learn.

Be sure to thank your teacher and community members for offering you this chance to get outside and test the waters. We wish you the best in making an exciting catch and hope you will enjoy angling for many years to come!

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Field Knowledge— Making the Catch

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INSTRUCTORS:
Answers found in
Section Assessment
on page 128.

The Scene

You and your friends are out fishing on Devil's Lake. You've each caught and kept your limit of one northern pike for the day, but the weather is perfect and you're all enjoying yourselves so much that you decide to keep fishing for a few more hours. If you catch any more fish, you'll release them. You sit back to watch the hikers on the ridge, when suddenly your bobber sinks and your line goes taut. You pick up your rod and struggle to reel in what turns out to be the largest northern pike you've ever seen! It's much bigger than the fish you caught several hours ago and would feed many more mouths. What would you do? Would you keep it or release it? Why? If you release it, how will you go about making it a safe release for the fish?

SECTION A

Field Knowledge—Know Before You Go

Knowing when to keep a fish and when to release it is an important part of being a responsible angler. In this booklet you will learn about the gear, techniques, and skills necessary for fishing, but most importantly you will learn some guidelines on how to be an ethical and responsible angler. It will be up to you to put these ethics into action!

Fishing is an excellent way to connect with the water world around you while relaxing with friends and family. But first you need to select your tackle, practice your casting, and make sure you have a handle on water safety and fishing regulations.



SECTION A

Field Knowledge— Know Before You Go Tackling Tackle

OBJECTIVES: Students will be able to:

- recognize various pieces of tackle and match them to their functions
- describe several lures and the fish that might be attracted to these lures
- assemble a tackle box to catch a certain species of fish

METHOD: Divided into two teams, students will compete in a game similar to Twenty Questions to identify mystery tackle. Students will work in pairs to create an appropriate tackle box for a certain species of fish.

MATERIALS:

- 1) Rods and reels
- 2) Hooks
- 3) Bobbers
- 4) Sinkers
- 5) Lures
- 6) Baits

Optional: a clear tank filled with water and fishing line

● See Appendix K for Tackle Cue Cards; print on sturdy paper

*Tackle is available for loan through the Tackle Loaner Program. See the DNR's website for details: dnr.state.wi.us/fish/kidsparents/loanerequipment

SETTING: Indoors or outdoors

DURATION: One or two 45-minute periods

VOCABULARY: Tackle, rod, reel, guides, cast, spinning gear, baitcasting gear, spincasting gear, fly-fishing gear, line, hook, bobber, sinker, snap, swivel, bait, lure, plug, spoon, spinner,

spinnerbait, jig, plastic tail, pork rind, marabou, fly, popper.

STANDARDS:

Physical Education: C 8.1, 8.3, 12.2, 12.4.

Science: G.8.3, 8.7

BACKGROUND: To be effective anglers, students need to understand the function of each piece of tackle and how that tackle is adapted to catch a particular species of fish.

OPENING: Allow students to familiarize themselves with the tackle. The tackle could be displayed on a table with labels or you could explain each piece of tackle and pass it around to students so they have the opportunity to closely examine it. Discuss the strengths and weaknesses of spincasting versus baitcasting, etc., and allow students who have fishing experience to share their opinions. If time and space allow, demonstrate how various lures move through the water by attaching each to a two-foot piece of line and dragging them through a tank of water at fast and slow speeds. Allow students to use their booklets to take notes on the tackle. This activity may take an entire class period.

MAIN ACTIVITY: Divide the students into two teams that will compete to guess mystery tackle. Decide whether or not they may use their booklets to help them in the game. Start by picking an angler from one team to describe a piece of mystery tackle. The angler is given a cue card describing the uses and characteristics of a piece of tackle. The opposite team will ask the first yes or no question about the mystery item. They may ask, for instance, "Does it float?" or "Is it used to catch trout?" Then the angler's team has an opportunity to either ask another question or to guess what the item is. An accurate guess will earn one point. An inaccurate guess will earn two points. Encourage teams to keep a record of the "yes" answers on paper to help them make informed guesses. At the end of the game, the team with the low score wins. Display the cue cards with their appropriate tackle at the end of the game for students to review.

CLOSING: Divide students into pairs and assign each pair a fish. Again, decide whether or not they may use their booklets during this task. Students will make a list of the gear they would

include in their tackle box if they were to go fishing for their assigned fish. They will turn their list in at the end of class for review. Keep these lists handy for the next lesson.

ASSESSMENT QUESTION: Name and describe three types of lures.

*ANSWERS: Plugs, spoons, spinners, spinner-baits, jigs, flies, poppers, etc. are all described in **Tackling Tackle**.*

EXTENSIONS:

Art: Have students design and create their own fishing lures.

Service Learning: Have students work with a community after-school program or nearby elementary school to teach tackle-craft to younger children or start a school club to share their knowledge with their own peers.

● **See Appendix K** for Tackle Craft instructions, transparencies, and games.

● *If you have downloaded this booklet, please see the appendix that follows for additional materials.*



1

Tackling Tackle

Newcomers to fishing are often overwhelmed when they step into a bait shop and face a wide variety of gear and gadgets. Anglers have a language all their own when it comes to tackle (gear), but fishing club members, bait shopkeepers, and probably some of your classmates are happy to translate. Where could you go for tackle advice in your community? Here are the basics to help you start a conversation and make the best selection for your fishing goals.

Fishing clubs, parents and friends who fish, tackle shops.

Hook, line and Sinker

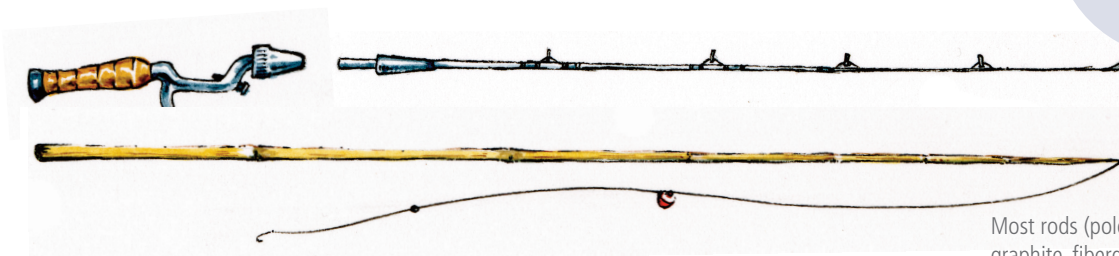
All you really need to fish is a soda can, a piece of fishing line, a hook and some bait. If you wrap the line around the can about 50 times and thrust the can forward while letting the line release, you have a very inexpensive form of fishing tackle. Most people, however, find that a rod and reel help them better meet their fishing goals.



All you really need to fish is a soda can, a piece of fishing line, a hook and some bait.

PLEASE
SEE APPENDIX K

Tackling Tackle:
Tackle Transparencies,
Tackle Cue Cards, and
Tackle Craft



Most rods (poles) are made of graphite, fiberglass, composites, or bamboo.

Rods and Reels

Rods and reels are two separate pieces of equipment, but they are almost always sold and used together. Most **rods** (poles) are made of graphite, fiberglass, composites, or bamboo. In general, the more high-tech the rod material, the more expensive the rod will be. Most rods have **guides** (loops) along their length to thread fishing line through. Rods can be as short as four feet or as long as 16 feet, but most are about six feet in length. In general, the longer the rod, the further you can cast. However, a shorter rod allows for greater accuracy.

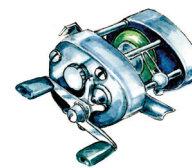
Reels are used to **cast** (send out) and retrieve fishing line. The reel attaches to the base of the rod. Many people, however, start fishing on the no-reel cane pole, the simplicity of which allows new anglers to focus on fish, rather than on gadgets.

The type of rod and reel you choose depends on the type of casting you will be doing.

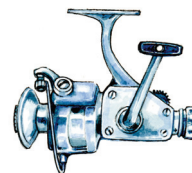
Spinning gear is designed for long, backlash-free casts and is effective with relatively light weights.

Baitcasting gear (also called “levelwind”) is designed for precision casting and can be used with heavier weights and heavier line. Beware of the backlash though; baitcasting gear can leave your line in tangles.

Spincasting gear is similar to spinning gear, but has a button on the reel that makes it one of the simplest reels to use.



Baitcasting reel



Spinning reel

Reels are used to cast (send out) and retrieve fishing line. The reel attaches to the base of the rod.

Rods and reels are two separate pieces of equipment, but they are almost always sold and used together.

Baitcasting gear



Spinning gear



Spincasting gear



Fly-fishing gear



Fly-fishing tackle is very different from the others listed above. The reel is designed to store line, not to cast and retrieve, and the rod is long and limber. The angler does the casting, rather than the gear; it takes some skill and a lot of practice to become a successful fly angler.

should break when a fish pulls back with 10 pounds of force or more. Lines are actually under-rated to allow for knots, the weakest point on your line. For optimal castability, look for limp, 8-pound test line.

Lines



Line comes in a variety of sizes and strengths.

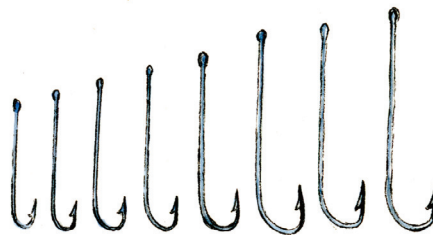
Fishing line winds around the reel up through the guides on the rod and is tied off with a hook on the end. Line comes in a variety of sizes and strengths. There are four basic types: monofilament (meaning "one line"), braided, high-performance polyethylene, and fly line. The type you choose depends on your rod and reel, the fish you plan to catch and the bait you will be using. The higher the "pound test" on the line, the stronger it is. A 10-pound test line

There are four basic types of fishing line: (top left) braided, (top right) monofilament, (bottom left) fly line, and (bottom right) high-performance polyethylene.



Hooks

There are many fish hook styles and sizes, and you will want to try to match the hook size to the size of your intended catch's mouth. Hook sizes work the opposite of what one might logically expect. The larger the number, the smaller the hook. So a no. 24, used for fly-fishing, is tiny and much smaller than a no. 2. It might seem, then, that there would be no hook larger than a no. 1. There are, but sizes larger than a no. 1 add a "/0." So the next size up is a 1/0, then 2/0, 3/0 (pronounced "three-oh" or "three-ought") and so on. At this end of the scale, the larger the number the larger the hook, so a 12/0 is larger than a 2/0.



The larger the number, the smaller the hook. So a no. 24, used for fly-fishing, is tiny and much smaller than a no. 2.

Buy Local!

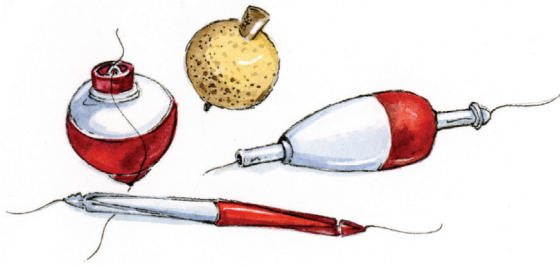
Take a guess: how many large tackle manufacturers are based in Wisconsin?

If you guessed over 30, you're correct. With a little pre-shopping research, you could boost Wisconsin's manufacturing industry by assuring that your rod, reel, spoons, spinners, plugs, tackle box, artificial baits, and lure components were all produced in the state. In the 2006–2007 fishing season, anglers spent \$2.75 billion dollars on their hobby here in Wisconsin. What better way to help the economy than to go fishing?

1

Bobbers

Also known as “floats,” bobbers have two jobs: to hold your bait at the right level in the water and to help you detect bites. Bobbers are Styrofoam® or hollow plastic and are attached to the line. When a bobber dips down, you might have a fish (or maybe a stump!)



Also known as “floats,” bobbers have two jobs: to hold your bait at the right level in the water and to help you detect fish bites.

Sinkers

Sinkers are weights to help get your bait and hook under the water. There are many different sinker shapes and weights. Choose one that meets your needs—but avoid ones with lead. Lead poisons wildlife. Many anglers have turned to non-lead alternatives. Tin and bismuth sinkers are lighter, so you need more of them to sink your bait.



Sinkers are weights to help get your bait and hook under the water.

Snaps and Swivels

Snaps are used to connect a hook or lure to the line, and swivels are used to prevent the line from twisting. The number one mistake beginning anglers make is to add too many snaps and swivels. Try starting without snaps and swivels and only add what you need.



Snaps are used to connect a hook or lure to the line, and swivels are used to prevent the line from twisting.

Luring Them In

The method you choose to entice a fish to bite depends entirely on what species of fish you want to catch. Your attention-grabbing item could be live bait or an artificial lure. Both serve the same purpose of luring in the fish either by offering something to eat or something to attack.

Bait

Worms, grasshoppers, live minnows, and dough balls are common baits you can slip onto your fishing hook. Not all baits are legal at all times so check the regulations before you drop your line in the water.

Obtaining bait is easy, but what to do with it after a day of fishing requires some thought.

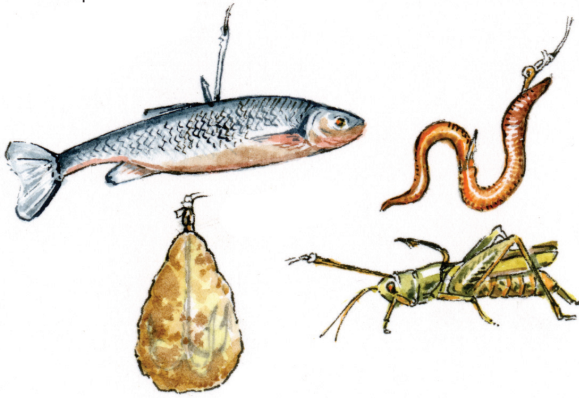
Transferring bait from one waterbody to another is prohibited due to concerns about spreading invasive species and viral hemorrhagic septicemia (VHS).



Lead poisons wildlife. Many anglers have turned to non-lead sinkers.

In order to prevent the spread of VHS, it is illegal to harvest wild minnows, both commercially and for personal use, from all known and suspected VHS waters. It is also illegal to possess or use minnow harvesting gear on any of the VHS waters. A current listing of these waters is posted on the DNR's website.

Worms are another matter. All common bait worms are non-native and often become invasive. They can change the species composition of the forest by devouring the leaves that would normally decompose slowly and provide important soil nutrients for tree seedlings, wildflowers and ferns. So, just like you wouldn't dump your leftover minnows in the water, don't dump your worms in the woods; put them in the trash.



Live minnows, worms, dough balls, and grasshoppers are all forms of bait that you slip onto a hook when fishing.

Lures

Lures are designed to resemble natural fish food, grab a fish's curiosity, or just make a fish mad enough to bite. Lures come in a variety of shapes, sizes, and colors. They're fun to look at and to make.

A **plug** is a casting lure, usually made of wood or plastic. It is designed to imitate a small fish or other aquatic animal moving on the water or below the surface. The actions of the angler make plugs dip, dive, rattle and thrash like live prey. The faster you retrieve a wooden plug, the deeper it will "swim."



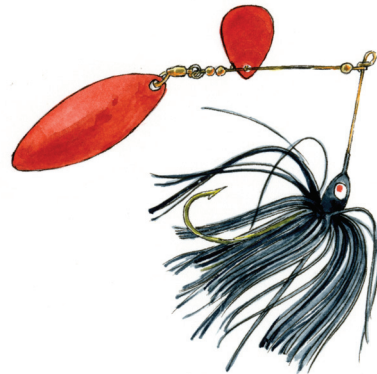
Plug

A **spoon** is a curved, tapered slab of metal designed to wobble or flutter upon retrieval. As it is retrieved, the spoon will catch light and flash, attracting a fish's curiosity. Spoons may be fished at virtually any depth.



This well-proven spoon for northern pike is most effective when fished slowly, just off the bottom.

A **spinner** is a wire shaft with a treble hook at the bottom and a blade that spins (revolves) when pulled through the water. A variation of this is the spinnerbait, a weighted lure with one or two spinning blades set over the hook. It spins around a shaft that looks like a safety pin. Spinners also attract fish by catching and reflecting sunlight.



Spinners attract fish by catching and reflecting sunlight.

The most common freshwater **jig** is called a leadhead, which is a piece of lead molded onto a hook. It is baited with a plastic tail, pork rind, or marabou (described below).

Anglers allow the jig to sink, then quickly jerk it up, then allow it to sink again. This action is called jigging. Jigs may also be trolled or reeled in at a steady or irregular rate at any depth or speed. Consider choosing a non-lead jig to protect birds and other wildlife.



The most common freshwater jig is called a leadhead, which is a piece of lead molded onto a hook.



How Many Hooks are Legal?

The regulations state that you can fish with only three hooks, baits, or lures. What does that mean for lures with treble hooks? A treble hook has three points and some lures have three treble hooks or nine points, but still are counted as one bait or lure. So, you can fish with three lures that have treble hooks. You'll learn more about regulations later.

Plastic tails, pork rind, and marabou are generally fished behind a jig or a weight. Plastic tails come in a tremendous array of shapes, colors, sizes, and even flavors! They imitate worms, eels, frogs, or salamanders. Many have curly-cue ends that wiggle upon retrieval.

Very thin, colored, cured strips of pork skin are appropriately called pork rind. Pork rind has amazingly lifelike action in the water and, although more expensive than plastic, is tougher and can't be pulled off a hook.

Marabou is a type of feather that takes on lifelike movements in the water.



Plastic tails



Pork rind attached to a spoon



The marabou lure imitates the mayfly nymph, a favorite food of trout.

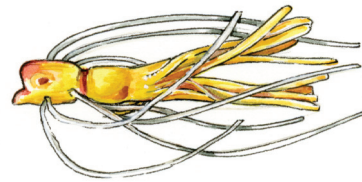
Fish will bite on **flies** that imitate what they would encounter in nature, so anglers need to "match the hatch" or choose flies to match the insects that are currently on the water.

Wet flies are used below the surface while **dry flies** float on the surface.



The dry fly (left) is a Traun-wing caddis; it mimics the veining of a caddis fly's wing. The wet fly (right) imitates the woolly bear caterpillar.

Poppers are bug-like flies that, because of their shape, pop when pulled along the surface.



Popper

A few other fishing essentials are listed below. What else would you add to this list?

Line clipper

Pliers

Life jacket or personal flotation device (pfd)

First aid kit

Sunglasses

Sunscreen

Drinking water

Don't Catch Birds!

A major cause of wildlife entrapment is fishing line that has been cut loose and left as litter by anglers.

Good fishing ethics include proper disposal of old line when you re-spool your reel with new line. Patronize local bait shops that will recycle old line.

Know Your Fish

Your choice of equipment, bait, and technique when fishing all depend on the fish you are hoping to catch. Here is an easy chart that you can use to help you make the right choices.

FISH SPECIES	PREFERRED HABITAT	EQUIPMENT CHOICE	BAIT	PRINCIPLE FOOD	TECHNIQUE
Bluegill Pumpkinseed	shallow, fertile, warm waters often around weeds	light tackle: poppers, flies, bait	worms	insects	jiggle bait, depth is key
Crappie	open water, or near logs/weed beds; in cooler water in summer	bait casting rod with light line	minnows or small jigs or spinners	insects, fish	early morning is best
Largemouth Bass	warm water with cover such as lily pads and weed beds	medium bait casting or spinning rod	weedless artificial worms, minnows	fish, crayfish	casting into cover is best
Smallmouth Bass	rocky substrate, deep and cool water in summer	medium spin casting or bait casting, fly rod on occasion	hellgrammite, crayfish, dragonfly larvae	fish, crayfish, insects	quiet casting near old logs or rocks, deep holes
Perch	cool open water	light casting or spinning	minnows, worms	insects, fish	find a school, jig bait in the school
Walleye, Sauger	shallow at night, deep during day	medium casting	leeches, night crawlers, minnows, small plugs	insects, fish	trolling or casting in known habitats
Salmon	open water of Great Lakes	heavy trolling with downriggers, heavy casting in fall	plugs and spoons when using downriggers on open water; spawn bags of fish eggs and streamer flies on tributaries	insects, fish	trolling in open water around epilimnion
Brook Trout	head of streams, small pools	fly rod or light casting in streams	flies, worms, minnows, small spinners	insects, fish	quietly using flies in pools
Brown Trout	deep pools or rocky ledges of streams	fly rod or light casting	flies, worms, minnows, small spinners	small minnows, crayfish, fish eggs, insects	May to June using dry flies
Rainbow Trout	cold, clear stream	fly rod or light bait casting	flies, worms, minnows, small spinners	minnows, insects	fly-fishing at night is best
Catfish, Bullheads	shallows at night	medium casting	stinkbait	fish, mollusks, insects	use their sense of smell against them
Northern Pike	weed beds	heavy casting or spinning	rapalas, bait fish	fish	casting in weed beds
Muskellunge	weed beds and old logs	heavy casting or spinning	live suckers or large plugs, spoons, and bucktails	fish	10,000 casts



Notes

