

# Balanced Tackle

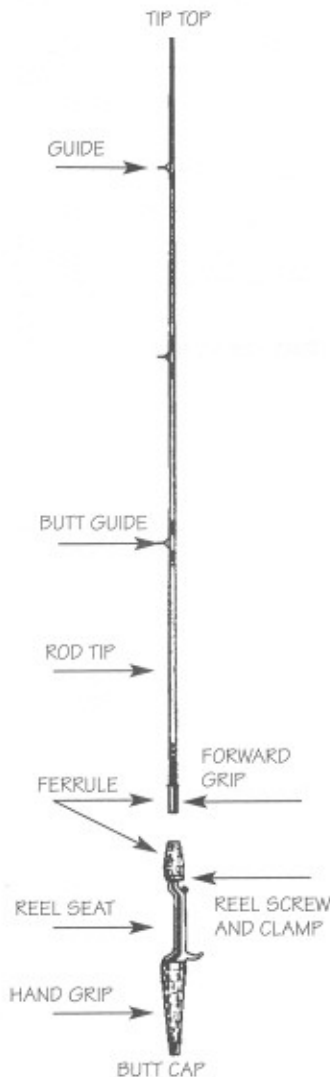
When the rod, reel, and line are correctly matched to handle a given-weight lure or bait, they are considered balanced. When in proper balance, they allow the fisherman to deliver the lure or bait with accuracy within any desired distance. Modern tackle manufacturers are continually experimenting and upgrading their rods, reels, and lines to create better balance and easier casting.

Balance with a spin-casting outfit or bait-casting outfit means that the reel and the rod grip fit the hand comfortably. The reel is not too heavy to tire the arm, and the rod is long enough to make easy casts, but not so long as to become awkward and not so short that it is cumbersome.

A balanced spinning outfit provides the feel of equal weight between the butt and the rod tip, like a lever with the hand at the fulcrum. The reel should be of a size to match the length of the rod, and both are keyed to the weight of the lure.

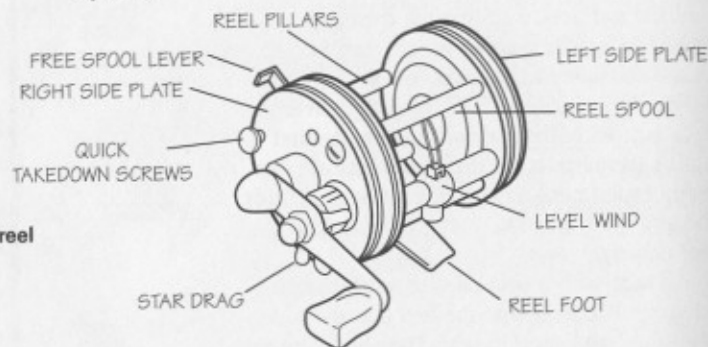
Fly-fishing requires a balance between the rod and the line, the reel mainly having the function of line storage, although its weight can determine how easily casts can be made. Fly rods are usually marked with numbers indicating which line works best on a particular model.

Equipment used in saltwater fishing is much the same as the equipment used in freshwater fishing except that every piece of tackle designed for saltwater is usually built on a larger scale: reels are huskier; rods can measure from 8 to 11 feet long; and lines and lures are heavier.



Tackle catalogs list rods and reels by weight and function, allowing the fisherman to make intelligent choices. Tackle dealers, tackle representatives at sport shows and demonstrations, and experienced fishermen are all good sources of information on balance.

The four general types of reels most commonly used by fishermen are the bait-casting reel, closed-face spin-casting reel, open-face spinning reel, and, for fly-fishing, the automatic fly reel.

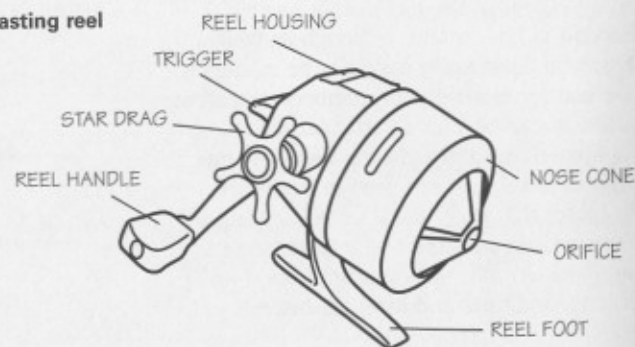


Bait-casting reel

## Bait-Casting and Spin-Casting

Bait-casting and spin-casting are similar in that the reel is on top of the rod and control of the cast is through use of the thumb on the casting hand.

However, bait-casting reels have a revolving line spool that must be "thumbed" lightly during the cast to prevent the line from overrunning and creating a backlash. Spin-casting reels

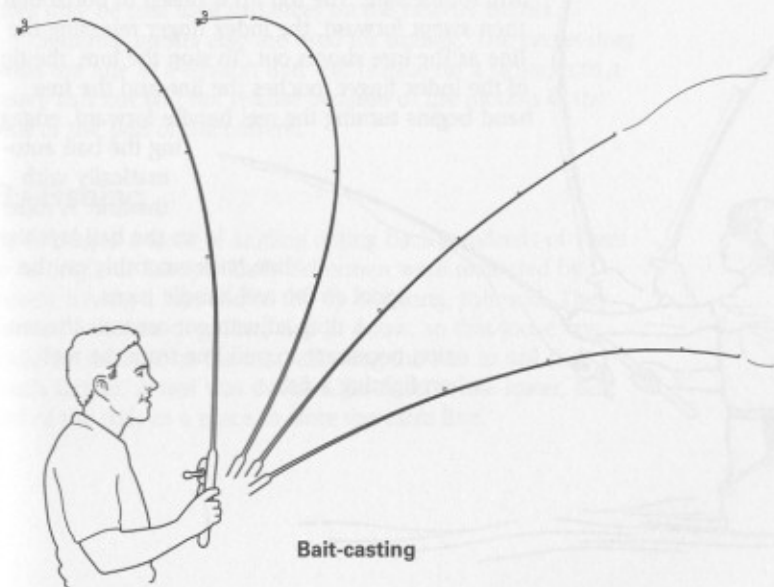


Closed-face spin-casting reel

have fixed spools mounted sideways inside a cover. The line comes off the end of the spool in the same way it comes off a spinning reel. Instead of the thumb being in direct contact with the line, the thumb presses a button or lever on the back of the reel that raises a pin inside, engaging the line and stopping its forward progress. During the retrieve, the pin causes the line to wind back on the spool. With a bait-casting reel, the line winds directly on the spool when the reel handle is moved forward.

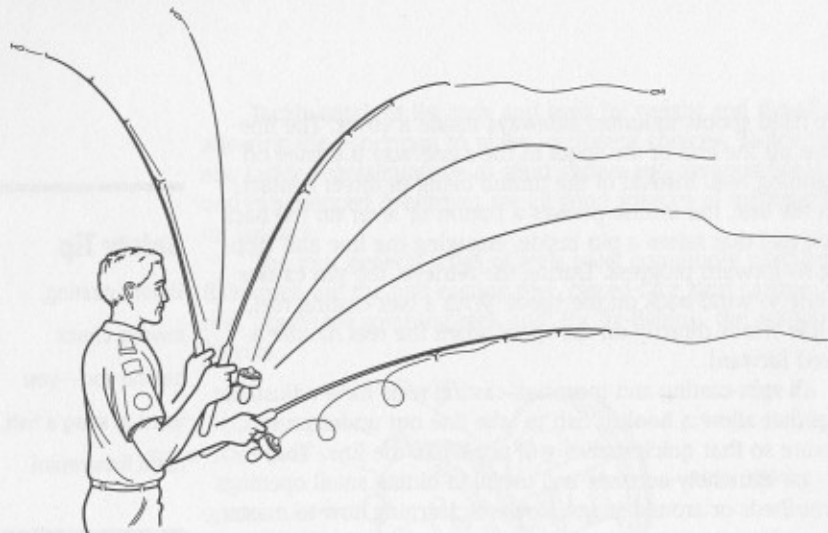
All spin-casting and most bait-casting reels have adjustable drags that allow a hooked fish to take line out under preset pressure so that quick rushes will not break the line. These reels are extremely accurate and useful in hitting small openings in weedbeds or around snags. However, learning how to master these skills takes time.

Bait-casting and spin-casting are done with the wrist and forearm. The rod is held so that the reel handle is up, with the thumb holding the line secure. The rod is brought up sharply until vertical, the weight of the lure bringing the tip back to a one o'clock position. With an almost continual motion, the rod is whipped forward and the thumb releases the line, allowing the lure to shoot forward.



## Safety Tip

Before casting, always check behind you—you want to snag a fish, not a fisherman!



## Spinning

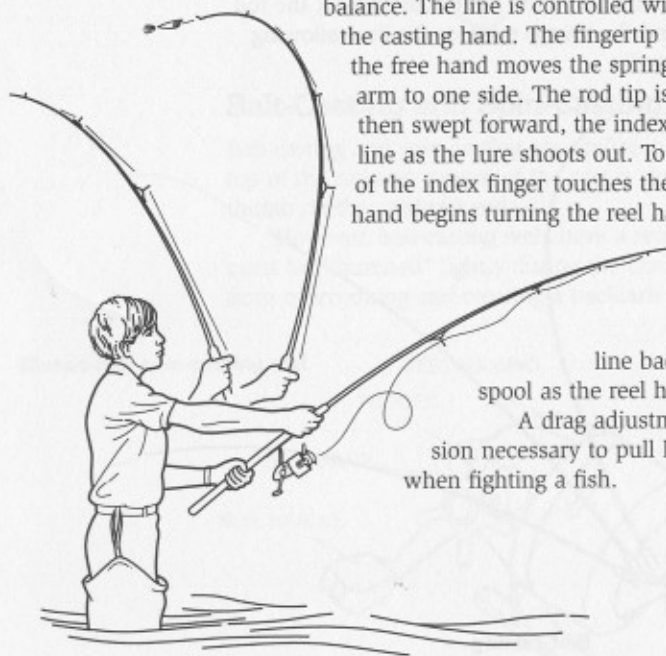
Although almost nonexistent in the United States before 1940, spinning has become a popular form of casting. The fixed-spool reel is mounted under the rod, allowing for a nice balance. The line is controlled with the index finger of the casting hand. The fingertip picks up the line as

the free hand moves the spring-operated pickup arm to one side. The rod tip is raised to horizontal then swept forward, the index finger releasing the line as the lure shoots out. To stop the lure, the tip of the index finger touches the line and the free hand begins turning the reel handle forward, engag-

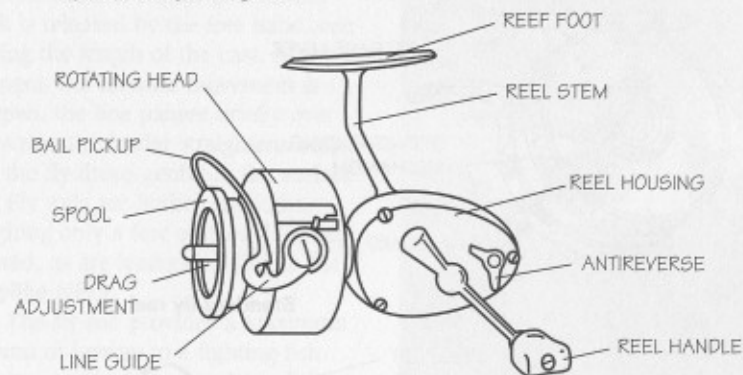
ing the bail automatically with the line. A roller on the bail lays the

line back smoothly on the spool as the reel handle turns.

A drag adjustment controls the tension necessary to pull line from the reel when fighting a fish.



## Open-face spinning reel



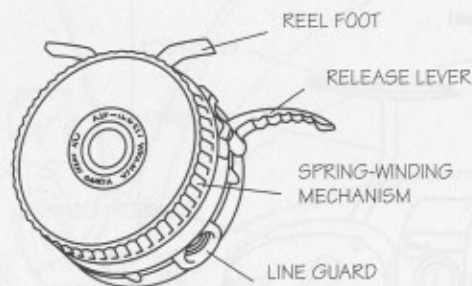
Spinning tackle ranges from heavy-duty big-water outfits that require two hands to cast to the ultralight combinations that weigh only a few ounces. Because there is no movable spool, long casts can be made effortlessly with spinning tackle. Tiny lures may be cast accurately on threadlike lines and large lures may be cast long distances on the heavier outfits.

Spinning outfits also are used for trolling. The preset drag holds the line at a tension that will release on a strike from a heavy fish but will not release because of the motion of the boat or the pull of the current.

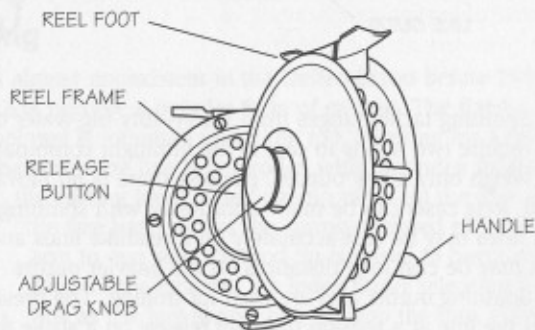
## Fly-Fishing

Fly-fishing is a form of angling dating back hundreds of years to its origin in Europe. Early fishermen were restricted by merely having a line tied to the tip of a long, thin rod. They devised a system of guides, tied in a row, so that loose line could be released at the cast, allowing the bait to sail out much farther. A reel was devised, fastened to the lower, butt end of the rod, as a place to store the extra line.

### Automatic fly reel



### Standard fly reel



In this type of fishing, the fly is so light it cannot be projected forward by its own weight. Instead, the line goes out first in a loop and the weight of the line pulls the fly after it, much like a tapered whip uncoils when it is snapped forward.

For the cast, a minimum of 15 feet of line plus the leader is stripped out in front of the angler. The rod tip is raised sharply and the slack line gripped firmly and pulled back with the free hand. This causes the line and leader to sail upward and behind the angler in a loop. As the loop straightens out,

the rod is brought quickly forward, the line and leader flying ahead in another loop. As the line begins to level off, slack is released by the free hand, controlling the length of the cast. At the last moment, the forward movement is stopped, the line pauses briefly over the water, the leader straightens out, and the fly drops gently to the surface.

Fly rods are limber and light, weighing only a few ounces. Lines are tapered, as are leaders, adding to the whiplike effect.

The fly rod provides a maximum amount of leeway to a fighting fish. However, with skill, even large fish can be played and captured on light-weight fly tackle. For more about fly-fishing, see the new *Fly-Fishing* merit badge pamphlet.

## Fishing Lines

Varieties of lines of different weights, diameters, and construction have been designed for certain types of fishing. Most widely used today is monofilament, a synthetic, single-strand line varying from a wisp with 1-pound strength to lines that will easily hold 40 or 50 pounds. Lighter lines are more pliable and easier to cast with fine tackle. Monofilament has uniform strength, does not easily deteriorate, is relatively inexpensive, and is transparent and almost invisible to fish.



## Fishing Line Tips

- Store fishing line in a dark place at room temperature. Too much heat or cold can weaken the line.
- If a knot forms in the line, cut the line above the knot and discard the knotted piece.
- Frequently check the last 10 to 12 feet of casting line for nicks and abrasions by running the line between your fingers. If the line feels too rough, cut the rough piece, retie your rig, and resume fishing with fresh line.
- Dispose of used and broken line responsibly. Many tackle shops offer recycling bins specifically for used fishing line.

## Fly Lines

These come in three main styles:

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1. **Level fly lines** are fairly inexpensive and will handle a limited amount of casting, although they are used mainly for baitfishing with a fly rod and reel.

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2. **Tapered lines** are thicker in the middle and taper down to a fine diameter at the ends. This taper aids in casting light flies with accuracy. Tapered lines are usually the same on both ends and may be reversed for longer use.

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3. **A forward-weight line** has the heaviest portion near the terminal end, just before it tapers down sharply to the leader. This design allows for long casts and also provides added weight to cast large streamer flies or cork-bodied bass bugs.

## Wire Line or Wire Leader

To get lures down deep, such as when trolling for lake trout or saltwater species, braided wire lines are sometimes used. These are expensive and heavy, but they sink fast, keep the lure deep, and are nearly impossible to break.

## Live Freshwater Bait

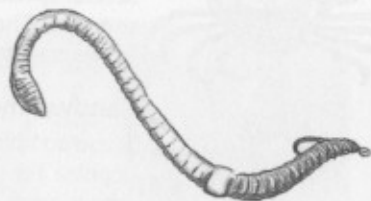
Natural foods are easy to fish, require a minimum of tackle, and are highly effective. Anglers may seek out their own bait or purchase it in specialized bait shops.

Be aware that releasing live bait and bait water can introduce undesirable fish, parasites, or diseases to native fish. To ensure that you do not accidentally make an unwanted biological introduction, try to obtain live baits that are native to the waters you intend to fish. At the end of the fishing day, do not release live bait into the water. If their origin is unknown, dispose of unused live bait and any water in the bait bucket on land well away from any water.

Before you make your live-bait choice, be sure to check the local fishing regulations regarding the use of live bait. Some classes of live bait may not be permitted in your area or during certain times of the year.

### Worms

Red worms, garden worms, and night crawlers all are good baits. A small hook (size 8 to 12) embedded in the head of a worm works well.



### Minnows

Dozens of minnow varieties are used for bait. One common method is to hook the minnow through both lips, from the bottom up. Another is to put the hook through the body near the tail.



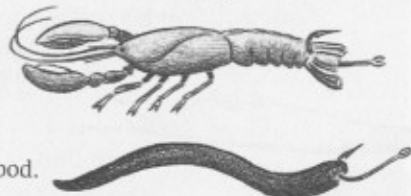
### Crawfish

Growing crawfish shed their hard outer coat several times in the summer. When in the "soft" state they make an excellent gamefish bait.



### Leeches

The gray or black leech is an excellent bait. The green and red bloodsucker leech is no good.



### Hellgrammites

These larvae of the dobsonfly are found under rocks in riffles. They are excellent bait but must be kept off the bottom or they will snag the hook.





## Live Saltwater Bait

All popular species of saltwater fish can be taken on live bait. Anglers who live near the coast often get their own. Others purchase theirs in bait shops. It takes considerable knowledge of each fish species to know which bait to use and how.

### Eels

These are a common bait along the East Coast, particularly for striped bass and bluefish. A double-hook rig is often used, usually with a weighted hook in the head.



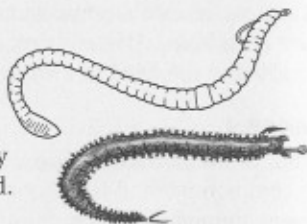
### Crabs

Several species are used as bait, the fiddler crab being the most common. The larger claw is pulled off and the hook embedded in the crab at that point.



### Sandworms

These and bloodworms are popular. For large fish, the whole worm is hooked on. For smaller fish, the worm may be cut up and just a piece used.



### Shrimp

Used whole or with just the tails on the hook, shrimp are excellent for a wide variety of fish. A piece of shrimp on a jig is highly effective.



### Squid

Cut into strips, squid will take many species of saltwater fish. Other cut bait such as mullet or menhaden are used for weak-fish, bluefish, channel bass, and striped bass.



## Killifish

This popular bait for bottom species is fished live, hooked through the nose. Killies are tough and durable if given reasonable care.



## Clams

These come in many sizes. Small clam meats are used whole; large ones may be cut up. Clam meats are obtained by pushing a knife between the shells and severing the muscles.



## Artificial Lures

While some anglers prefer the natural attraction provided by live bait, others favor artificial lures that can be bought in sporting goods stores or made meticulously by hand.

### Jigs

Hooks with lead weights molded into the head, called leadheads or jigs, are the basis for a whole range of popular artificial lures. The advantage is in having a single-hook lure that is compact yet carrying enough weight to be easily cast. Jigs also are adaptable to a variety of styles to imitate food that fish recognize.

Among the several styles are plastic-bodied grubs impaled on a jig hook; bucktail hair tied to create a weighted streamer fly; weedless bucktail designed for fishing in brush; a "twister"-type plastic body that has a wiggling tail in the water; and a "Canadian" minnow-type jig made with a soft chenille body, feather hackle front and back, and a feather tail.



## Tips for Using a Jig

- Jigs are meant for slow, patient fishermen. Fish them especially slow in cold weather.
- When a fish strikes a jig, it may be detected as only a twitch in the line. Be aware, and set the hook immediately.
- Fish with the lightest jig that allows you to feel when the jig is on the bottom.
- Be sure to keep jig hooks sharp so that they are not easily dislodged.

## Plastic Worms



Made of soft, pliable plastic, these artificial baits can be made to swim, wiggle, and dance underwater with an action fish cannot seem to resist. Four good ways to use plastic worms are worm-and-jig with an artificial night crawler trailing out behind a bare hook; a plastic worm impaled on the hook of a regular bucktail hair jig; a Texas rig, which uses a sliding

sinker with the hook stuck through the head of the worm and the point buried back in the worm body; and a plastic worm on a weedless hook with a split shot clipped on the line for casting weight.

Plastic worms are fished slowly, on or near the bottom. With the Texas rig or weedless rig, the fish is allowed to mouth the bait before the hook is set.

## Spoons



When fishermen noticed that minnows and other creatures in the water glistened in the sunlight, the idea of making lures out of shiny metal was born. This is done by cutting pieces of metal to shape, hammering them out so that they wobble in the water, and polishing them to a high shine. Various colors of enamel are added to some, others are given gold or silver finishes. They are called spoons because most of them are shaped like the lower part of a teaspoon.

## Spinners

By hammering a piece of metal very thin, drilling a hole in one end, and mounting it on a strip of wire, the spinner was born. The metal blade spins around the wire shaft, flickering like a live minnow swimming in the sunlight. Spinners are rigged up with hair flies, feather streamers, live bait, and sometimes used alone with the blade and hook. Most spinners work best if retrieved slowly, just fast enough for the blade to revolve without being a blur.



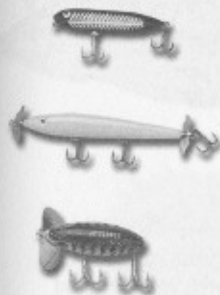
Spinners are sometimes rigged up with jigs for deep fishing. These have snaps that can be clipped to the eye of the jig.

In trolling, fishermen use "cowbells," a large variation of the single spinner.

## Plugs

The first plugs—minnowlike replicas—were carved out of wood. Some still are, but most are made of plastic by lure manufacturers. Floating-diving plugs rest on the surface until reeled in. They are designed to wiggle in the water like a minnow.

Some plugs are made to run deep. These are either all metal, weighted with metal and plastic, or have a long bill in the front that causes them to head for the bottom when reeled in. They also are effective lures when trolled behind a boat.



Surface plugs

Surface plugs are made to imitate either a frog hopping across the top of the water or a large minnow that has been injured and is flopping around in trouble. Bass, pike, and muskellunge are species most often caught on these gurgling, popping, and sputtering lures.

Most plugs have several treble hooks, and anglers must take care not to stick themselves or their fishing companions on the barbs.

## Flashing Minnows

Fish often pursue schools of minnows up to the surface, causing the minnows to skip from the water in a desperate attempt to escape. These surface eruptions, called boils, show that there are game fish below on the feed. Casting minnowlike lures into these spots is often a surefire way of catching whatever fish are chasing the schools of minnows.

## Flies

Flies are tied to represent insects and tiny minnows, the preferred food of trout and salmon. Other fish, such as bass, panfish, and pike, will also take flies. Flies are made of hair, feathers, wool, chenille, and tinsel, held together with thread and glue.



Floating-diving plugs



Deep-running plugs



### DRY FLIES

These are tied on light wire hooks and are constructed so that they will float like a newly hatched insect. Casting a dry fly so that it lands lightly and floats naturally requires the ultimate in skill.



### WET FLIES

Many insects are swept away by the current before they get airborne, and trout feed on these in great numbers. They are tied so that they sink and are fished beneath the surface.

### STREAMER FLIES

Longer hooks, wisps of hair, and soft feathers make these long, slim flies appear like shiners, chubs, darters, and other minnows. Sometimes they can be sunk with a split shot to get into the deep holes where the big trout lie. Most streamers are fished rapidly in swift jerks to imitate frightened minnows racing for freedom.



### NYMPHS

A whole world of aquatic life crawls in the mud and gravel on stream bottoms—larvae that will later hatch into winged insects. Nymphs are tied to represent the different types of larvae that trout feed on.



### Bass Bugs

Both largemouth bass and smallmouth bass are ever on the alert for big bugs, frogs, mice, or anything else edible that might fall into the water. Bass bugs are tied with cork or hair bodies so that they will float easily. Some have concave heads that make a noisy "pop" when jerked on the surface with a fly rod.



### CORK MINNOWS

Sick or injured minnows often struggle on the surface. Bass spot these as an easy meal and are quick to gulp them down.



### HAIR MOUSE

Tied of hollow deer hair, this lure looks like a little mouse that stumbled and fell into the water—all a bass needs for a quick lunch.



### CORK-BODIED FROGS

Usually tied with hairy legs and painted with green spots, these high-floating lures appear to the fish just like the real thing.



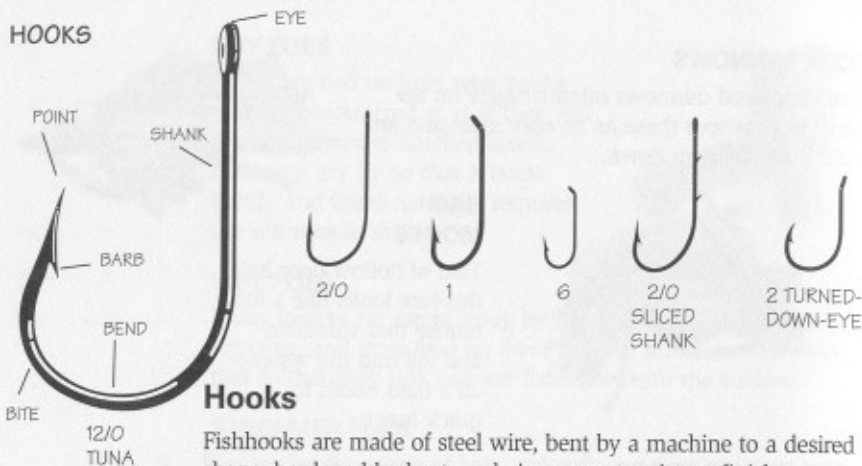
### RUBBER LEGS

Cork bugs can be made more lifelike by adding strands of rubber that stick out the sides and wiggle like the legs on something swimming.



Small cork-bodied lures, called panfish bugs, are sometimes the best baits for bluegills, rock bass, and crappies, particularly in the spring when these fish are in the shallows.





## Hooks

Fishhooks are made of steel wire, bent by a machine to a desired shape, hardened by heat, and given a rust-resistant finish.

Hooks come in a wide range of sizes, from very large (12/0) and larger tuna and shark hooks down to very tiny size 28 hooks, which are hard to see. It can be confusing trying to figure out hook sizes, but one simple way is to start with size 1, an all-around good fishing hook. The larger the number, the smaller the hook. Thus a size 2 is smaller than 1, and size 4 is smaller than 2.

Going the other way, the addition of /0 means the bigger the number, the bigger the hook. A 1/0 is bigger than 1, a 2/0 is bigger than 1/0, and so on.

Hooks also come in a variety of shapes. Straight-eye hooks are used most often with snaps and leaders. Turned-down-eye hooks are used for bait fishing and flies. Some hooks have sliced shanks to better grip live bait. Circle hooks are becoming increasingly popular because they are less damaging to a fish.

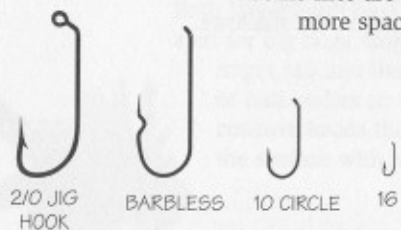
Some flies are tied on turned-up-eye hooks, providing more space between the hook point and the leader.

Turned-up- or turned-down-eye hooks allow the leader to lie straight with the hook point, making it easier to hook a fish.

Jig hooks are made so that the wire will not twist inside the lead-head. Fishermen who let most of

their fish go use barbless hooks, which do less damage to the fish's mouth.

Hooks must be kept sharp to be effective. And care must be taken that they get stuck only in fish, not in people.



## Sinkers

Many types of sinkers, each designed for specific types of fishing, are useful in getting the bait down to the fish. Some of the more common sinkers include:

- Trolling sinkers, which move through the water effectively
- Split-shot sinkers, which come in a variety of sizes and are designed to be pinched on the line or leader.
- Worm sinkers, which are effective in weed beds where plastic worms might snag or tear
- Dipsey and pyramid sinkers, which usually are used when a lot of weight is needed.
- Barrel sinkers—named for their shape—have a hole so the line can run free

Other types of sinkers include:

- Clinch-on sinker, which has two wings that can be bent over the line or leader and squeezed tight.
- Saltwater sinker, popular with anglers who need a weight that will grip the bottom in tide and surf
- Heavy bank sinker, used for deep-sea fishing
- Sliding sinker, which has a hole in it so the line can slide through when a fish strikes, and which can slide over the bottom without snagging
- Keel sinker, which is used for trolling because the keel keeps the weight from twisting the line.

## Sinkers



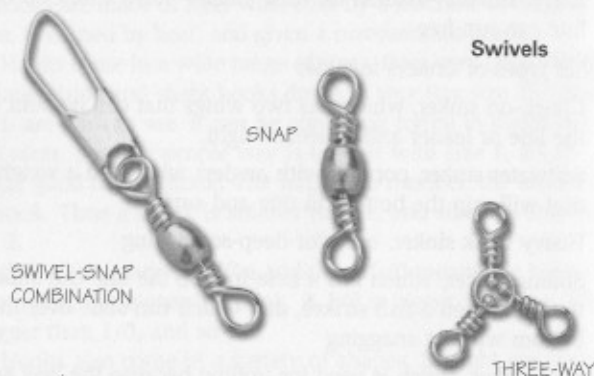
**Take the lead out.** If you want to be more environmentally friendly, try using sinkers made of ceramic or alternative metals such as tin, tungsten, and bismuth, instead of lead.

## Swivels

Many lures and baits have a tendency to twist the line, causing it to kink and snarl. Swivels are designed to allow the baits to revolve, helping to eliminate the twisting. Many swivels are built with snaps, which allow a hook, lure, or leader to be clipped on without using a knot.

Sometimes it is advisable to use a three-way swivel. This allows a no-twist connection to the line, a no-twist connection with a leader to the hook or lure, and another no-twist connection to a separate leader and a sinker.

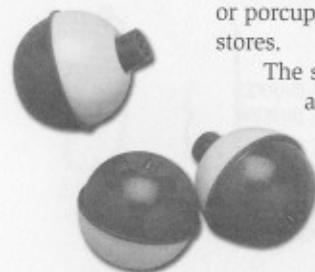
Some species of saltwater fish are extremely powerful, requiring special steel swivel-snap combinations.



## Bobbers

While their technical name is "floats," these markers bob on the water and so earned their popular nickname. Years ago, most anglers made their own bobbers from corks, balsa wood, or porcupine quills. Now most fishermen buy them in tackle stores.

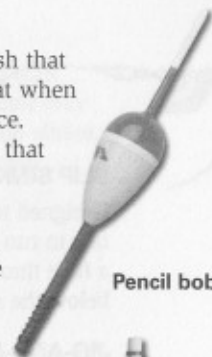
The simplest kind of bobber has a wire loop on the top and bottom that operates on a spring so that the line or leader can be clipped on and anchored in place. The depth of the hook is predetermined, and the bobber is set to hold the hook at that point. Bobbers are made of plastic and are inexpensive.



Simple bobbers

## Pencil Bobber

Long, thin, and light, the pencil bobber is used for fish that bite lightly. The advantage of the pencil bobber is that when a fish pulls on the bait it will feel no drag or resistance. The line is held against the bobber by a rubber band that can be adjusted easily.



Pencil bobber

## Slip Bobber

The slip bobber has a hollow stem through which the line passes. A sliding knot is tied above the bobber on the line, and the knot will not go through the tiny hole in the stem. Any depth can be set. When the bait is reeled in, the bobber will slide down to the sinker, which makes it easy to cast.



Slip bobber

## Weighted Bobber

These transparent plastic bobbers are made so that they can be partially filled with water to give them casting weight. With the added weight it is possible to cast a light bait or even a fly a great distance on regular spinning tackle. The transparency allows the angler to see how much water is inside the bobber so that it doesn't lose all its flotation.



## Rigs

When bait is used with any combination of bobbers, line, sinkers, and hooks, a fisherman's rig is created. The rig usually is connected to or fashioned from the end of the fishing line.

## Freshwater Live Bait Rigs

There are many combinations of freshwater rigs, and each one has a special function.



Weighted bobber

### SLIP SINKER

Designed to get the bait down to the bottom, yet allowing the fish to run free without any drag on the line, the slip sinker has a hole through which the line can run freely. A swivel and snap below the sinker keep the sinker from sliding down to the hook.

### JIG-AND-BAIT

This is an old standby with most freshwater anglers. The lead-headed jig gets the bait down to the fish where it can be drifted or retrieved in short jerks. Minnows, worms, leeches—all live bait—work well with this method. When a fish strikes, it must be allowed to run with the bait before the hook is set.

### SLIP JOGGER

With the slip jogger rig, the hollow stem on the slip bobber allows the line to slide through to a preset depth. But when the bait is reeled in, the bobber slides down to the sinker. Thus the angler can cast the bait some distance away, yet the bait and sinker will drop to the proper depth. A wisp of heavier monofilament tied to the line makes a knot that stops at the bobber top.

### FLOATING JIG HEAD

Instead of a leadhead, the floating jig head is made of balsa wood or hollow plastic. This rig, with live bait, is used with a slip sinker and is designed to get down to the bottom but will keep the bait and hook 18 to 24 inches off the rocks. It is an effective and relatively snap-free method of fishing all varieties of live bait.

SLIP SINKER

JIG-AND-BAIT

FLOATING  
JIG HEAD

## Saltwater Bait Rigs

Surf anglers generally use two basic rigs when fishing with natural baits. The first, the standard surf rig, uses a three-way swivel. The swivel is tied a few inches above a pyramid sinker. The hook and leader are tied to one eye on the three-way swivel, and the line is attached to the remaining eye.

SURF RIG

FISH-FINDER RIG

The other rig is known as the fish-finder rig. The fish-finder has a ring on one end and a snap on the other. A large-sized snap swivel may be used as a substitute. A barrel swivel is inserted between the leader and the line to act as a stop.

Both rigs can be used with different leaders and various sizes and types of hooks, depending on the fish you are after. Nylon monofilament, wire, or stainless-steel wire measuring about 18 inches long is recommended. Either rig can be used for striped bass, channel bass, blues, weakfish, and other surf-feeding fish.

Corks can be attached to either type of rig to float the bait off the bottom and help keep it away from crabs and bottom snags.

SLIP  
JOGGER

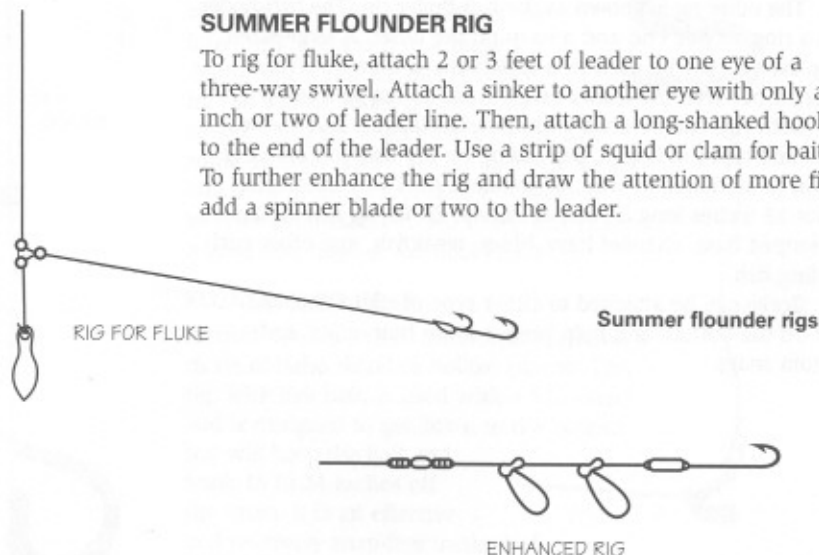
## PACIFIC SALMON RIG

This is an ideal rig for slow trolling or drifting when fishing for king and coho salmon. A plug-cut or a whole herring is attached to a two-hook rig on a 3-foot leader. The leader is attached to the eye of a crescent sinker weighing from 2 to 6 ounces, depending on the current and the depth you want to fish. Let the rig go down to the bottom, and then reel back slowly. When you get your first strike, mark your line so that you can let the rig down to the same depth again.



## SUMMER FLOUNDER RIG

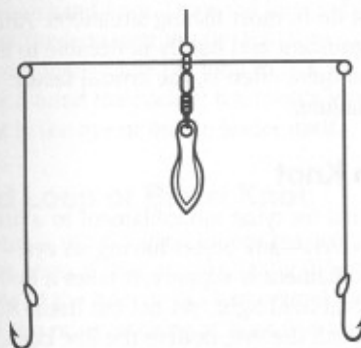
To rig for fluke, attach 2 or 3 feet of leader to one eye of a three-way swivel. Attach a sinker to another eye with only an inch or two of leader line. Then, attach a long-shanked hook to the end of the leader. Use a strip of squid or clam for bait. To further enhance the rig and draw the attention of more fish, add a spinner blade or two to the leader.



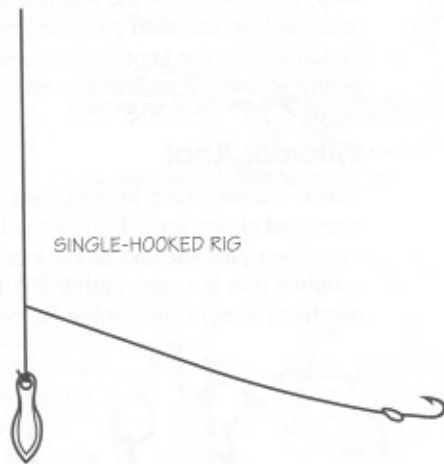
## WINTER FLOUNDER RIG

The two-hooked rig uses a wire spreader to keep the two hooks apart so that they can lie together on the bottom where the flounder will be feeding. The sinker is attached to a snap in the middle. The single-hooked rig has its hook tied a few inches above the sinker. Both rigs use a long-shanked hook.

TWO-HOOKED RIG



SINGLE-HOOKED RIG





## Knots for Fishing

Contrary to the thinking of many novice fishermen, a simple overhand knot will not do in most fishing situations. Although a knot may seem insignificant and hardly noticeable to the observer, it can be, and quite often is, the crucial factor between success and failure.



### Improved Clinch Knot

This is the universal knot for tying monofilament to a hook or for tying hooks and swivels—any object having an eye—to the line. Because monofilament is slippery, it takes a knot that will jam against itself and hold tight, yet not cut itself. Run the end of the line through the eye, double the line back, and make five twists around the line through the eye, leaving a loop. Run the end of the line through the loop where the line joins the eye and then pass the line through the large loop. Partially close the knot and moisten it a little (not with saliva) before securing it against the eye.

### Palomar Knot

This is another basic knot that serves the same purpose as the improved clinch knot. Double the line to make a 3- to 4-inch loop, then pass the end of the loop through the eye. Hold the standing part between thumb and forefinger and tie a loose overhand knot in the double line with the other hand.

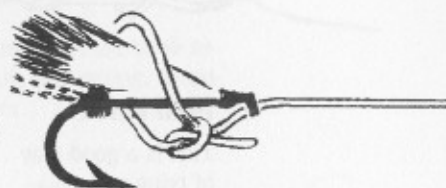
Then pass the hook through the loop and pull on the doubled line to tighten the knot, guiding the loop over the top of the eyelet. Clip the tag end.



### Turtle Knot

This knot is popular with Atlantic salmon fishermen. The turtle knot makes a straight connection between the hook shank and leader. Since the knot is small and simple, it's good for tying a fine leader to a small hook, such as that of a fly.

Begin by passing the end of the leader through the hook's eye from the front; then slide the fly up the leader so that it will be out of the way. Make a slipknot in the end of the leader by bringing the free end around twice, like a double overhand knot. Draw the knot tight and pass the loop over the fly. Pull the leader and manipulate the loop so that it tightens around the back of the hook's eye and *not* in the eye or on the leader itself.



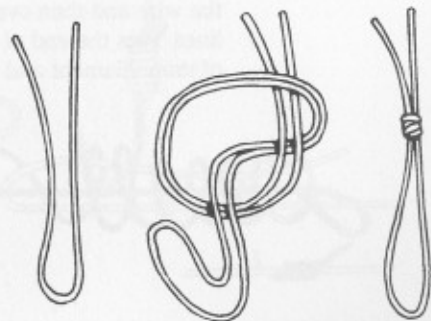
### Blood Loop or Barrel Knot

This knot is usually used to join two sections of line or leader together, even if they are of slightly different diameters. Lap the ends of the lines or leaders several inches. Then twist one around the other, making at least five turns. Place the end between the strands and hold them together between thumb and forefinger. Wind the same number of turns (five) in the opposite direction, using the end of the other line. Then pull on the two ends to draw the turns closer together. When they have closed up snugly, pull tight on the ends to make the knot as small as possible. Clip the ends.



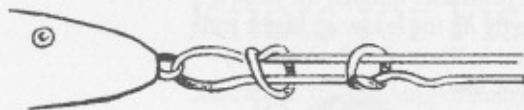
### Surgeon's Loop

This is an easy way to form a loop in the end of a line or leader. Double the end of the line and make a single overhand knot. Then pass the loop around and through the overhand knot again. Hold the loop in one hand and the standing part and tag end in the other hand. Moisten the knot (not with saliva) and pull to tighten. Clip off the tag end.



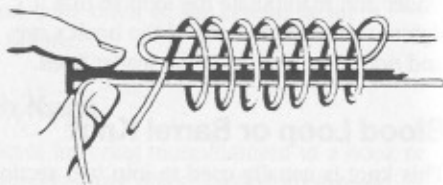
## Loop Knot

This is used to tie on lures that require freedom of movement. The front knot is pulled tight, then the back knot, which leaves a loose loop in front of the lure, allowing the lure to swing back and forth, with a minimum of resistance.



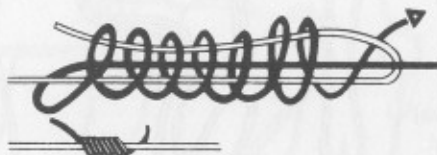
## Nail Knot

This is a good way of tying monofilament to lead-core line backing to a fly line, or a leader to a fly line. First, position the nail (or any similar object) along the lead core. Then lay a loop of monofilament on the nail. With the free end of monoline, take five or six turns over that loop and the nail and lead core. Next, run the end of the mono through the loop. Tighten the knot by pulling on both lines, slip the nail out, and tighten the knot all the way. Clip the protruding ends short.



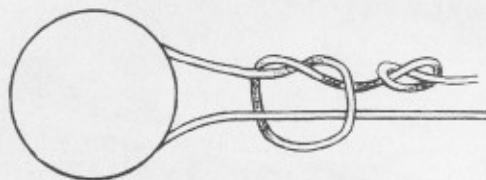
## Wire Line to Mono Knot

Holding the wire line in your left hand, fold 4 inches of the end back over the standing part of the line. Run monofilament through the middle of the bend in the wire, passing it behind the wire and then over it. Make seven close turns around both lines. Pass the end of the monofilament over the center strand of monofilament and under the top strand of the wire, and then draw up snugly. Cutting the free end of the wire would leave a burr that could cut fingers. Instead, bend it back and forth. It will break close to the turns of the monofilament, leaving no burr.



## Reel Spool Knot

Locking the line on the reel spool takes a knot that will cinch up tight and not slip if a fish takes the line to the end. The knot at the terminal end is pulled tight first, then the other, and the loop snugged up against the spool.



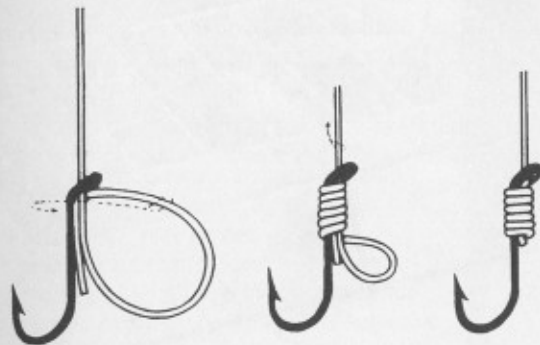
## Tucked Sheet Bend

When fastening line to a leader loop or tying a snelled hook to the line, the tucked sheet bend is quick, tidy, and strong. It can be undone without cutting the line or leader.



## Snelling a Hook

This is a neat and simple way of attaching a hook to monofilament for certain types of bait fishing. To make a double-gang hook rig, leave the free line end long and tie in a second hook behind the first. This is a popular way of hooking worms for trolling or drifting.



# Fishing Gear

## Tackle Boxes

Carrying cases for lines, leaders, hooks, lures, reels, and other pieces of equipment come in a wide range of sizes. New, rugged, noncorrosive plastic tackle boxes have largely replaced the old metal boxes used years ago.

Many fly-fishermen prefer plastic or aluminum boxes to hold individual flies, or compartments with hinged lids. All the flies needed for one trip can easily be carried in a small box that fits in a jacket pocket.

All tackle boxes are designed to keep the items separated so that they do not become tangled. A well-ordered tackle box makes fishing easier and is the mark of an experienced angler.

Some fishermen keep all their tackle in a large box, using smaller boxes to carry whatever they will need for one day. Some have separate boxes for spinning, spin-casting, bait-casting, saltwater, and fly-fishing equipment.

Inexpensive tackle carriers can be adapted from plastic boxes that are sold in hardware stores to hold bolts, nuts, and other small items. A lot of products are shipped in small plastic boxes, and sometimes these can be had by just asking the store owner.

Over the years many items worth a lot of money may accumulate in a tackle box, some of them difficult to replace. The smart angler is careful not to drop his tackle box into the lake or stream nor to leave it on the shore where someone could pick it up.

## Tackle Box Items

Among the usual lures, line, and other necessities, consider storing a few of these items with your tackle:

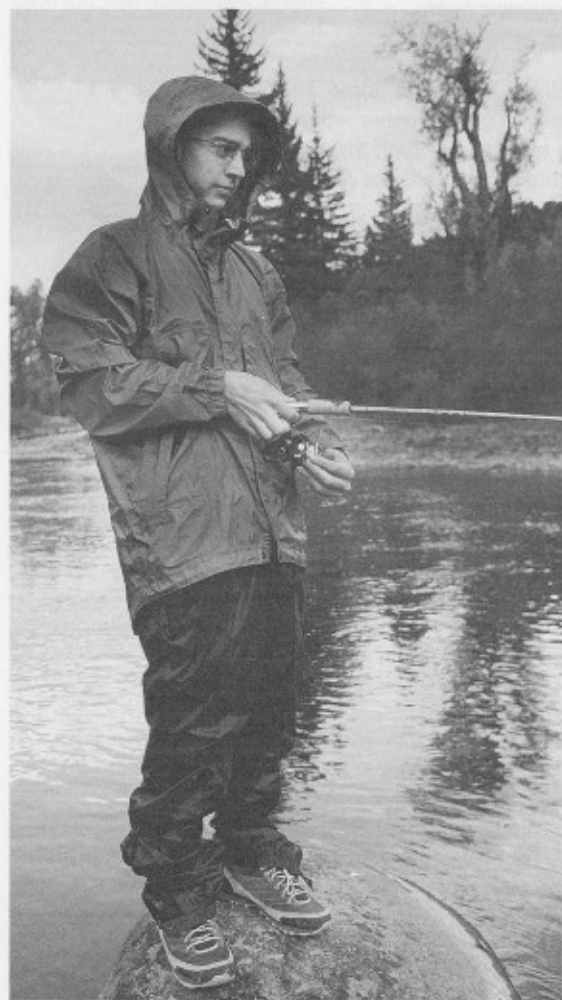
- ☐ A pair of gloves
- ☐ Sunglasses
- ☐ A disposable camera
- ☐ A first-aid kit
- ☐ Hand towels
- ☐ Insect repellent
- ☐ Sunscreen
- ☐ A compass

## Clothing

Since fishing is an outdoor pastime, wear clothing suitable for the season and to protect you from the elements.

### Gear

Fishermen discover quickly that rain often accompanies some of the best fishing. The best outfits are matching rain parkas and pants made of waterproof and windproof nylon or the new breathable, waterproof and windproof fabrics. Lightweight rain gear can be rolled into a small package and stowed in the pocket of a jacket or pack. Ponchos will do a good job of shedding rain, but they make casting more difficult and are not recommended. Cheap rain gear will snag on branches and tear.



## Fishing Vest

This handy item comes with a multitude of pockets for carrying hooks, leaders, flies, lures, bait, and about everything else. The fishing vest helps keep an angler's hands free. While it is not a necessity, it is convenient for the angler who can afford one. When shopping for a fishing vest, think about the weather conditions you will encounter. Be aware of the bulk your filled pockets may create. You might want to consider a vest that comes with a life preserver built in—it will inflate if you pull a cord.

### Foot Gear

Boat fishermen can wear anything from sneakers to leather boots, but the wading angler needs to pay careful attention to the feet. In cold weather, or in icy trout streams or surf, hip boots, or better yet, chest-high waders, help keep the legs dry. In warm streams during the summer, an old pair of shoes and a worn pair of jeans will do.



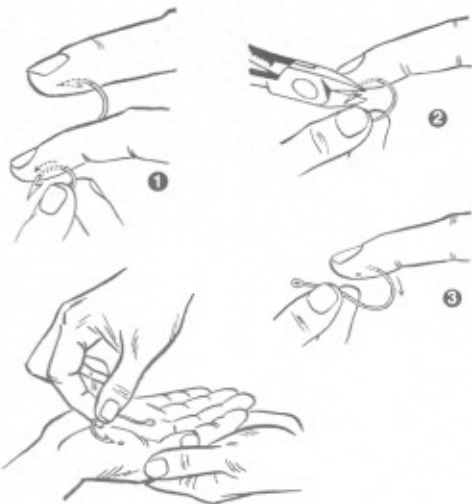


# Fishhooks

Always be aware of the path of your fishing rod and line when you cast to prevent the hook and line from catching on anything, especially another fisherman! If a fishhook wound does occur, never try to remove a fishhook that is near an artery or from the face or near an eye, or from any other sensitive area. Never try to remove an embedded hook by pulling it back the way it went in.

If only the point of the hook enters the skin and does not go deep enough to let the barb take hold, you can safely remove the hook by backing it out. If the barb becomes embedded, it's best to let a physician remove it. If medical help is not available, try this method:

1. Push the hook farther in, in a shallow curve, until the point comes through the skin.
2. Cut off the barbed end with wire cutters or pliers.
3. Back the shank of the hook out through the entry wound.



After removing the hook, wash the area with soap and water and cover it with a dry adhesive or gauze bandage. Because of the danger of tetanus, be sure that the injured person consults a physician.

**Back out hook if barb has not taken hold.**

# Obeying Fish and Game Laws

With millions of anglers fishing the nation's waterways, it is necessary for the taking of fish to be regulated so that there are enough to go around. State conservation departments seek laws that will balance fish production with the harvest. Trained conservation officers patrol the waterways to see that the laws are followed.



## Limits

Each state puts a limit on the number of game fish of each species that may be taken by an angler at one time. Limits vary in direct proportion to the availability of the fish. More scarce species have a much lower limit. Muskellunge, for instance, in many states are limited to one a day. Panfish, which are prolific and numerous, have much higher limits, or no limits at all. Some areas may have regulations for the catch and release of some species.

## Methods

With the change from gathering fish only for food to a concept of fishing for sport, rules of sportsmanship have been woven into regulations. Game fish must be taken on hook and line and cannot be speared or netted except with a landing net. In some areas, trout may be taken only on artificial flies. Where salmon and steelhead trout migrate up streams to spawn, only single hooks may be used on lures to prevent unscrupulous fishermen from trying to snag fish with treble hooks. In many areas, only one lure or bait may be used on one line, and only one line is allowed for each angler.

## Seasons

To protect fish while spawning, seasons are set so that game fish can lay their eggs without interference. For species such as bass, pike, and walleye, the seasons open after spawning ends in the spring. For lake trout, brook trout, and other fall-spawning species, the seasons are closed in late autumn, just before spawning starts. When fish are spawning, they are particularly vulnerable because they savagely strike to protect their eggs.

Failure to know and obey the fish and game laws can lead to an arrest and a stiff fine. True sports enthusiasts never consider breaking the rules. Many states have a TIP (Turn In Poachers) hotline telephone number that can be called to report violations. People who break the fish and game laws are thieves, stealing from their fellow outdoor enthusiasts.

## Information

Most marine docks and shops that sell tackle and bait and issue fishing licenses also supply information about local fishing regulations. You might also check with local fish and game offices or their Web sites. Be aware that in some cases you may need to obtain a special license in addition to a basic fishing license.

## Leave No Trace

To ensure a healthy future for ourselves and our environment, we must do more than simply pick up litter. We must learn how to maintain the integrity and character of the outdoors. Leave No Trace is an awareness and an attitude, rather than a set of rules, that helps us to do just that. Along with the Outdoor Code, the seven Leave No Trace principles offer guidelines to follow at all times. These guidelines apply to fishing just as well as they do to hiking, camping, or any other outdoor activity.



### 1. Plan Ahead and Prepare

Proper planning and preparation for a fishing trip helps ensure a safe and enjoyable experience while minimizing damage to natural and cultural resources. Fishermen who plan ahead can avoid unexpected situations and minimize their impact by complying with area game and fish laws, such as size and catch limits, tackle and bait regulations, and seasonal restrictions. Failure to know and obey these laws can lead to an arrest and a stiff fine. Be sure to obtain a fishing license if necessary and any other needed permits or permission before embarking on your fishing adventure.

Obtain information concerning geography, water levels, and weather where you plan to fish so that you are not caught off-guard by a storm or strenuous terrain. Allow ample time to travel to and from your desired fishing spot, whether on the water or the shore. Take along the proper equipment and tackle for the type of fishing you plan to do. It is also helpful to schedule your outing to avoid times of high use. Following these steps will help ensure a safe, comfortable, and fun fishing trip.

## 2. Travel and Camp on Durable Surfaces

Whether you fish for a few hours, an entire day, or plan to camp and fish, it is important to minimize your impact on the land. Damage to land occurs when visitors trample vegetation or communities of organisms beyond recovery. The resulting barren areas develop into undesirable trails, campsites, fishing spots, and soil erosion. If fishing from shore in high-use areas, concentrate activity where vegetation is already absent. Minimize resource damage by using existing trails and selecting designated or existing fishing areas.

If camping overnight, keep campsites small by arranging tents in close proximity. In more remote, less-traveled areas, avoid creating trails that cause erosion, and avoid places where impacts are beginning to show. If you are camping and cooking that day's catch, disperse tents and cooking activities—and move camp daily to avoid creating permanent-looking campsites. Always choose the most durable surfaces available: rock, gravel, sand, compacted soil, dry grasses, or snow. If fishing on the water, be sure to use the appropriate boat launch location.

These guidelines apply to most alpine settings and may be different for other areas, such as deserts. Learn the Leave No Trace techniques for your specific activity or destination. Check with land managers to be sure of the proper technique.

### 3. Dispose of Waste Properly (Pack It In, Pack It Out)

This simple yet effective saying motivates outdoor visitors to take their trash home with them. Inspect your fishing spot, boat, or campsite for trash or spilled foods. Accept the challenge of packing out all trash, leftover food or bait, and used or broken fishing line. Never release live bait or bait water into a lake or stream where you might unknowingly introduce nonnative species or disease. Use designated fish cleaning areas or check with the local game and fish officials if you will be fishing in a more remote area.

You must properly dispose of any wastewater, fish entrails, or bodily waste while in the backcountry; this is especially pertinent if you are on an overnight fishing trip. If cooking in the backcountry, strain food particles from the dishwater and disperse the water at least 200 feet from springs, streams, and lakes. Use biodegradable soap 200 feet or more from any water source. Dig catholes to properly dispose of human waste and prevent the spread of disease and exposure to others. A cathole should be dug 6 to 8 inches deep in humus and 200 feet from water, trails, and campsites.





#### 4. Leave What You Find

Allow others a sense of discovery, and preserve the past. Leave rocks, plants, animals, archaeological artifacts, and other objects as you find them. Examine but do not touch cultural or historical structures and artifacts that you may stumble across. It may be illegal to remove artifacts.

Good fishing spots are found, not made. Avoid altering a site, digging trenches, or building structures. Never hammer nails into trees, hack at trees with hatchets or saws, or damage bark and roots by tying horses to trees for extended periods. Replace surface rocks or twigs that have been cleared from the fishing spot or campsite. On high-impact sites, clean the area and dismantle inappropriate user-built facilities such as log seats or tables and multiple fire rings.



#### 5. Minimize Campfire Impacts

If you plan to cook what you catch while on a fishing trip, consider the potential for resource damage. Some people would not think of cooking or camping in the outdoors without a campfire. Yet the naturalness of many areas has been degraded by overuse of fires and increasing demand for firewood. A low-impact alternative is to use a lightweight camp stove. Stoves are fast, eliminate the need for firewood, and make cleanup after meals easier.

If you build a fire, keep it small. Whenever possible, use an existing fire ring and dead and downed wood that can be broken easily by hand. Choose not to have a fire in areas where wood is scarce, and when possible, burn all wood to ash and remove all unburned trash and food from the fire ring. Be certain all wood and campfire debris is cold out.



#### 6. Respect Wildlife

Help keep wildlife wild. Be respectful of any catch-and-release areas, and return unharmed to the water any fish that you don't plan to eat or that exceed the designated limit. Pack out used or broken fishing line. Use the appropriate tackle. For example, lead sinkers can be harmful to fish and other wildlife. While fishing, chances are you will encounter other wildlife as well, on the shore or in the water. Avoid disturbing animals by observing them from afar and giving them a wide berth. You are too close if an animal alters its normal activities. Never

feed wildlife (except the fish you're trying to catch, of course!). Store food securely and keep garbage and food scraps away from animals so they will not acquire bad habits.

#### 7. Be Considerate of Other Visitors

Thoughtful anglers respect other visitors and protect the quality of their experience. The following are a few tenets of outdoor ethics:

- Travel in small groups. If camping, do so in groups no larger than that prescribed by the land managers.
- Let nature's sounds prevail. Keep the noise down and leave radios, tape players, and pets at home. Fish can be spooked by such interruptions.
- Select fishing spots and campsites away from other groups to help preserve their solitude and their chances of catching fish.
- Always travel quietly to avoid disturbing other visitors. If fishing from a watercraft, take care not to disturb other anglers' efforts on the water.
- Respect private property and leave gates (open or closed) as found.

The Leave No Trace principles might seem unimportant until you consider the combined effects of millions of outdoor visitors. With a 750 percent increase in the use of designated wilderness areas over the last 30 years, leaving no trace is everyone's responsibility. Use judgment and experience to tailor outdoor activities to the environment. Forest, mountain, seashore, plains, freshwater, and wetland environments all require different minimum-impact practices. Whether outdoors for sport or leisure, you are nature's guest; remember to act accordingly while there.

