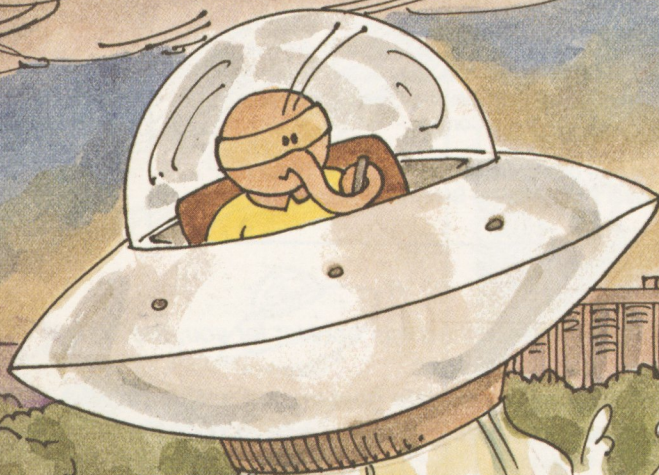


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MARTIN THE MARTIAN LEARNS TO FISH



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Martin the Martian learns to fish



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To Young Anglers:

The Colorado Division of Wildlife published this booklet for you, the kids of Colorado. We hope you read it and go fishing.

The Division of Wildlife is the part of the state government which sets the rules for fishing in Colorado. These rules are needed so that we have enough fish in Colorado for everyone.

These rules tell you how many fish you can catch, what size they have to be before you can keep them, and what kind of fishing equipment or bait you can use. All of these rules are explained in a pamphlet you can get free of charge at just about any sporting goods store.

Sometimes, special rules apply to only one lake or stream. These special rules are explained in the fishing rules pamphlet. They are also explained on special signs you'll see at these lakes or streams.

You can fish without buying a fishing license until you are 15 years old, but you can keep only one-half as many fish as people who buy fishing licenses. And, you still have to obey all of the other rules, just like adults. If you are under 15, you can buy a fishing license and keep the same number of fish as everyone else does.

Fishing is fun. So, read this booklet, find out more about fishing rules, and then go fishing. Have some fun.



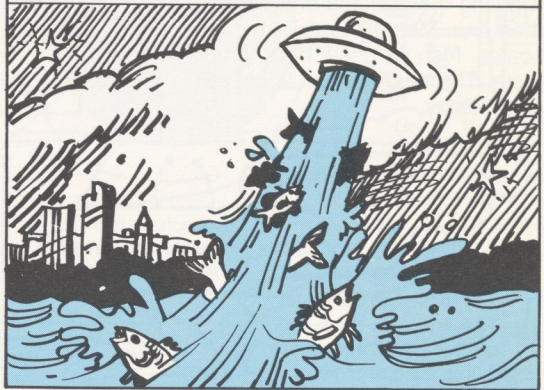
MARTIN THE MARTIAN LEARNS TO FISH

Chapter 1—The Why of Fishing

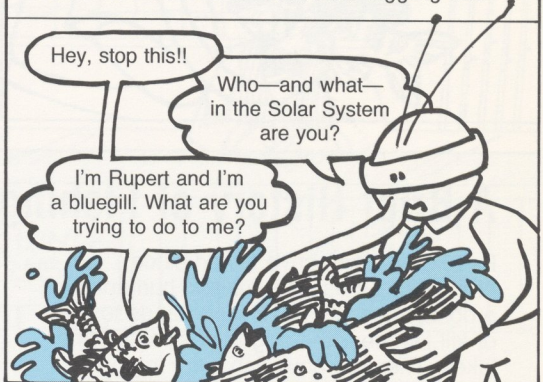
Unseen by human eyes, a spaceship plunges through the night sky and hovers above a small lake in the suburbs west of Denver.



A door on the underside of the saucer-shaped ship opens. A high-pitched whirring sound begins and within moments hundreds of fish are being sucked up from the lake into the open doors of the spaceship.



Aboard the ship, Martin the Martian readies his Protein Re-Processor to receive the wiggling fish.



Hey, stop this!!

Who—and what—in the Solar System are you?

I'm Rupert and I'm a bluegill. What are you trying to do to me?

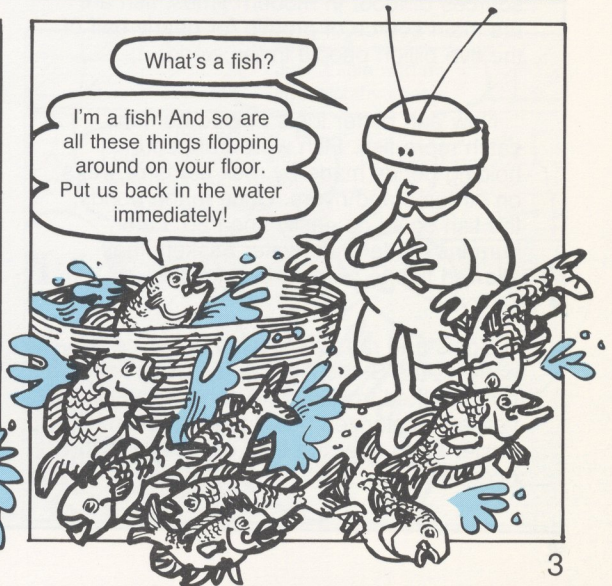
No big deal. I'm just using my Hydroichthyometer to get a little protein base for my Protein Reprocessor. Protein powers this ship.

Not this protein! Stop or you'll wipe out every fish in the lake. You're not even giving us a sporting chance! It's like shooting fish in a barrel.



What's a fish?

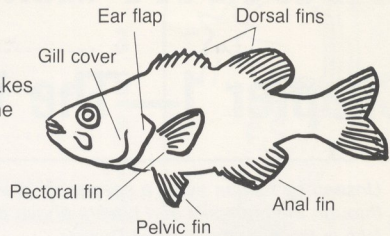
I'm a fish! And so are all these things flopping around on your floor. Put us back in the water immediately!



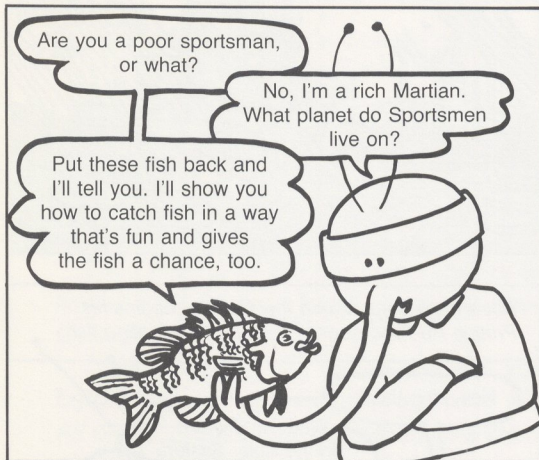
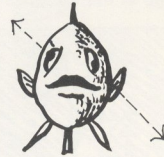
Fish Facts

A fish is an animal with a backbone. It lives in the water all the time. Fish are cold-blooded, which means they cannot control their own body temperatures. Instead, their bodies are the same temperature as the water they are in. Like animals that live on the land, fish need oxygen to live. However, fish breathe water, not air. Fish use their gills to get the oxygen out of the water. Most fish have streamlined bodies so they can swim fast. They swim by wiggling their bodies and steering with their fins. Most fish are covered with scales. Fish can see, hear, smell, and taste. The study of fish is called ichthyology.

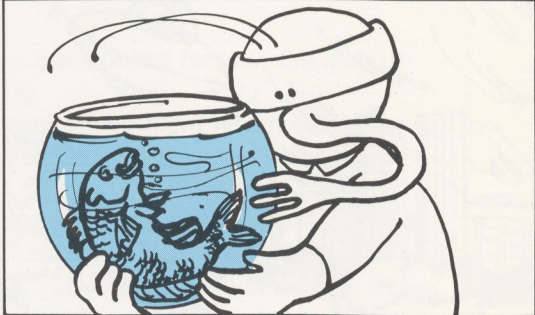
Dorsal and anal fins help a fish keep upright in water. Without fins, the fish would tend to roll sideways in the water. Pectoral fins act as brakes and rudders, helping the fish to guide its movement.



On many fish, sight is well-developed and they can see above, below, ahead and behind them at any time. Their two eyes can act independently, one eye looking up while the other looks down.



Curious about this talking creature, Martin turns off his Hydroichthyometer and dumps the fish back into the lake. At Rupert's urging, he fills an extra space helmet with water from the lake and puts Rupert in it.



A Brief History of Fishing

People on Earth have fished since prehistoric times. The earliest humans probably used clubs or their hands to grab or kill fish near the edges of swamps and lakes. Then, as now, fish were important sources of food. In modern times, fish are the main source of protein for nearly half of the five billion people in the world.

New and better tools helped humans catch more fish. Fish were trapped in holding ponds made by rock dams or weirs on streams and rivers. Once in the ponds, the fish could be easily speared. Later, humans made underwater baskets that allowed fish to swim in but not out.

Boats and rafts were used in fishing as early as the Stone Age. Before long fishing boats shifted from dugout canoes to sailing vessels. Motorized boats made it even easier to go after the fish, especially in the oceans.

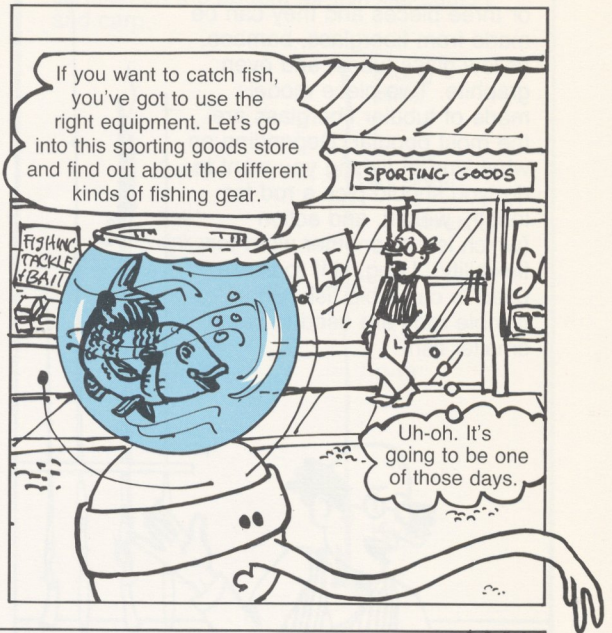
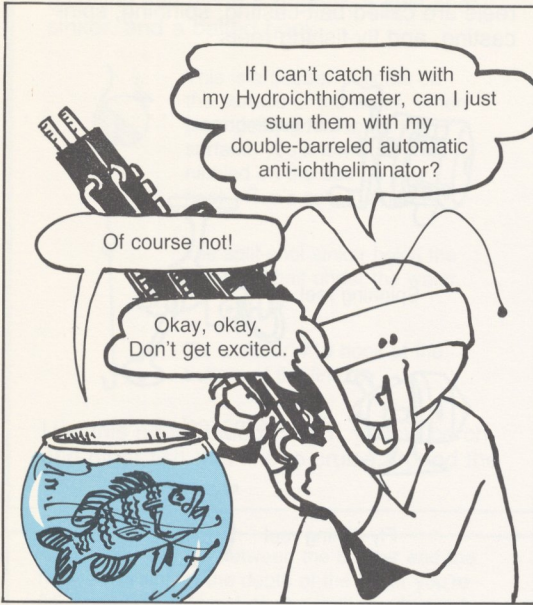
After spears, hooks were invented to catch fish. Next came nets, which turned fishing into big business since ocean-going ships could catch large quantities of fish and sell them.

Like hunting, early fishing was done to get food to eat. Gradually, fishing evolved into a sport enjoyed by people all over the world. Now people fish more for fun than for food.

Commercial fishing provides most of the fish for human use. Nearly 14 million tons of sardines, herring, and anchovies are netted by commercial fishing fleets each year. Approximately 32 million tons of other kinds of fish are caught every year. Japan, Russia, and China are the major fishing nations of the world.

About a third of all the fish caught goes for food for people. Most of the fish which are caught are used for fertilizer, oil, pet food, and fish meal to feed livestock.

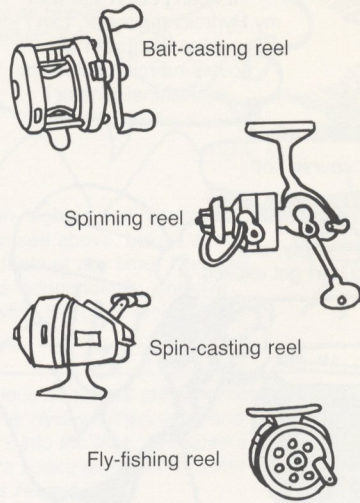
Chapter 2—Fishing with the Right Stuff



Many different kinds of rods are made. They come in one, two, or three pieces and they can be made from fiberglass, bamboo, hollow glass tubes, and even graphite. Two-piece models made of tubular fiberglass are the most popular. Depending on what kind of fishing you want to do, you should pick a rod for length, weight, and action (which is just another word for flexibility). Long, stiff rods are used to catch big fish. Short, flexible rods are used to catch smaller fish.

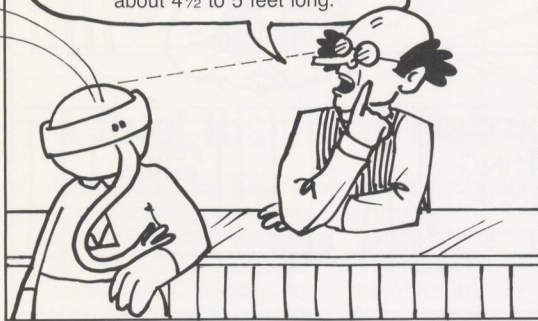


The kind of rod you use also depends on the kind of reel you use. The most common reels are called bait-casting, spinning, spin-casting, and fly-fishing reels.



The most common kinds of rods are fly rods and spinning rods.

Since you're about as tall as a 10-year-old human being, you'll probably want to start with a short, lightweight spin-casting rod about 4½ to 5 feet long.

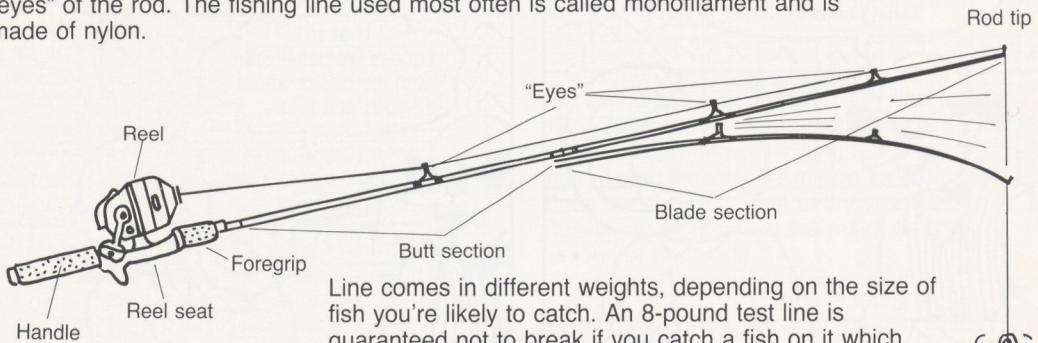


I get it. I use this to stab the fish with, right?

Oh, brother! Is this really happening to me?



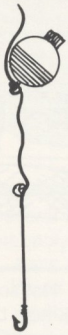
The rod holds the reel. Fishing line is wound up onto the reel and run through the "eyes" of the rod. The fishing line used most often is called monofilament and is made of nylon.



Line comes in different weights, depending on the size of fish you're likely to catch. An 8-pound test line is guaranteed not to break if you catch a fish on it which weighs eight pounds or less. When you're learning to fish, use line anywhere from six to 12 pound test.



Here's one easy way to rig your line for catching fish using a bobber, a split-shot sinker, and a baited hook.



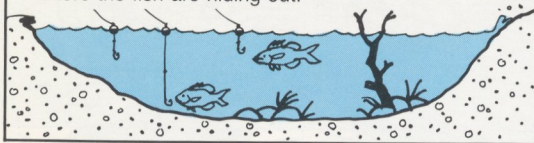
This is a bobber. It floats on the surface of the water. When it suddenly goes under the surface, you know a fish has nibbled on the bait on your hook. That's called a bite.

The split-shot sinker holds the hook and bait under the water.

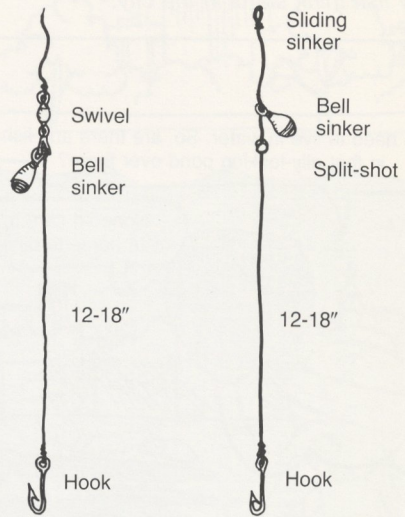
Tie a #8 or #10 hook at the bottom of the line.

Use this rig for bluegill, trout, yellow perch and other fish that like to cruise around the lake.

Adjust the distance between the bobber and the hook according to the depth of the water you're fishing in. Try different depths until you find out where the fish are hiding out.

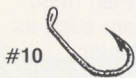


Here are other ways to rig your line so you can fish on the bottom for fish like catfish and carp.



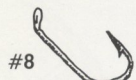
When you fish with these rigs, you have to keep your line "tight" so there's no slack.

Hooks come in different sizes. The bigger the number, the smaller the hook. Use small hooks for small fish and big hooks for big fish or fish with big mouths. Here's a guide:



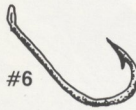
#10

#10 hook—Use for small bluegill, crappie, perch, small trout.



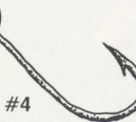
#8

#8 hook—Use for larger bluegill, most sunfish, perch, crappie, small catfish, and medium-sized trout.



#6

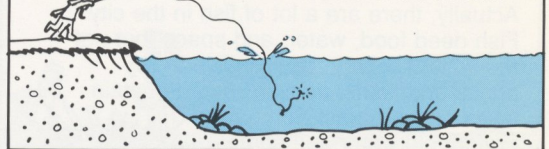
#6 hook—Use for big bluegill, big perch, small bass, bigger catfish, and bigger trout.



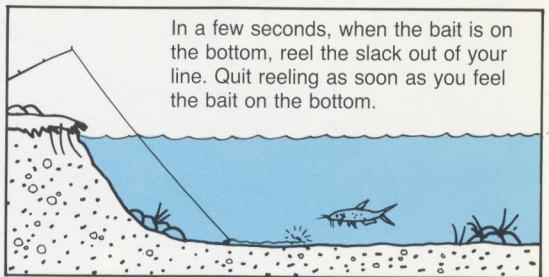
#4

#4 hook—Use for catfish, bass, carp, big trout, and other big fish.

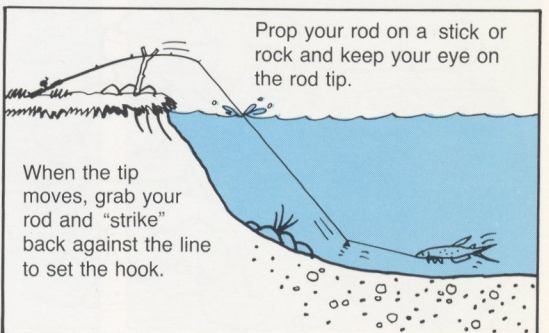
After baiting the hook, cast the bait to a deep hole in a lake or pond, and let the bait settle to the bottom.



In a few seconds, when the bait is on the bottom, reel the slack out of your line. Quit reeling as soon as you feel the bait on the bottom.

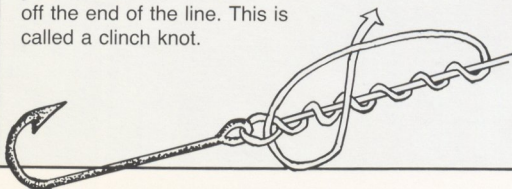


Prop your rod on a stick or rock and keep your eye on the rod tip.



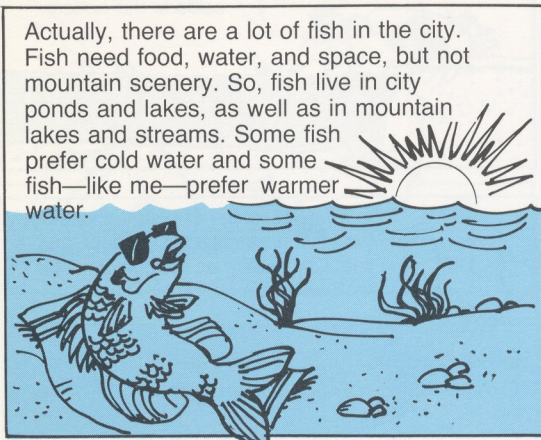
When the tip moves, grab your rod and "strike" back against the line to set the hook.

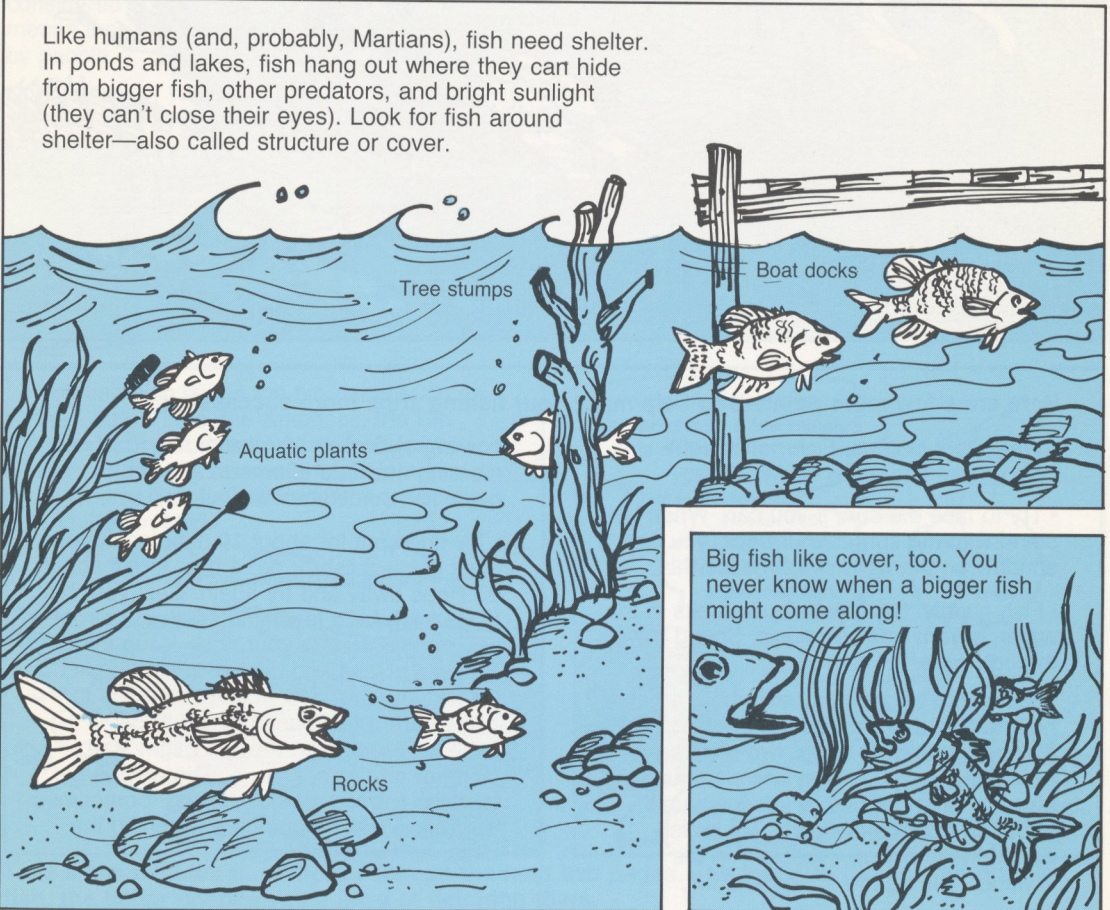
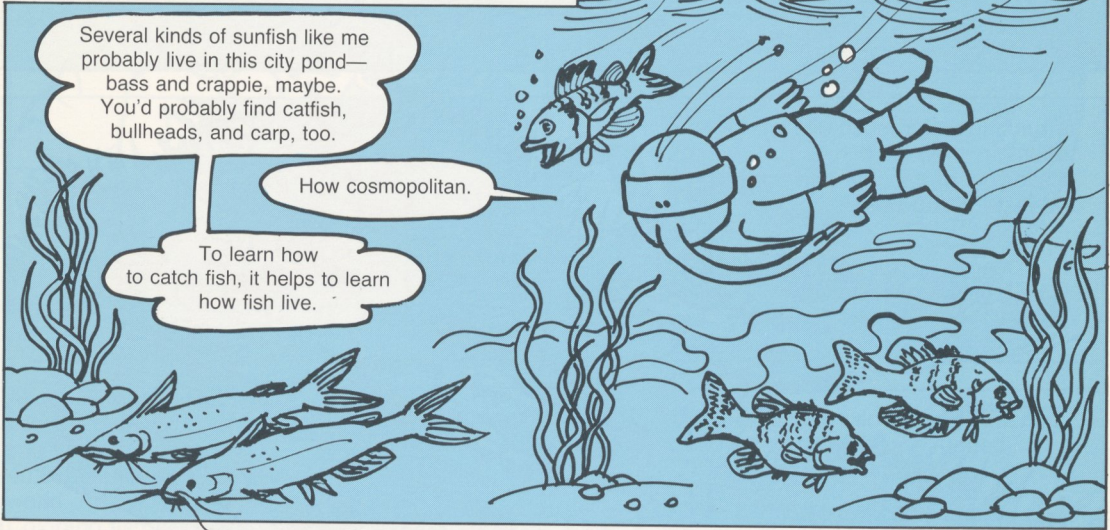
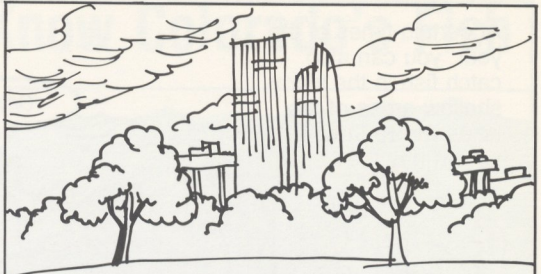
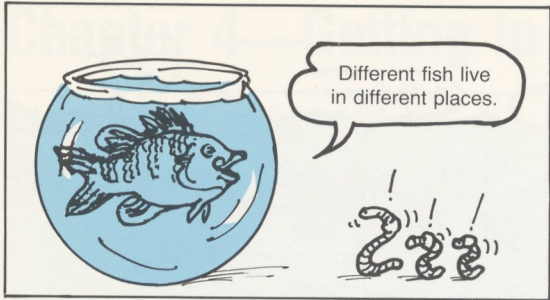
And here's an easy knot to use to make sure your hook or sinker doesn't come off the end of the line. This is called a clinch knot.



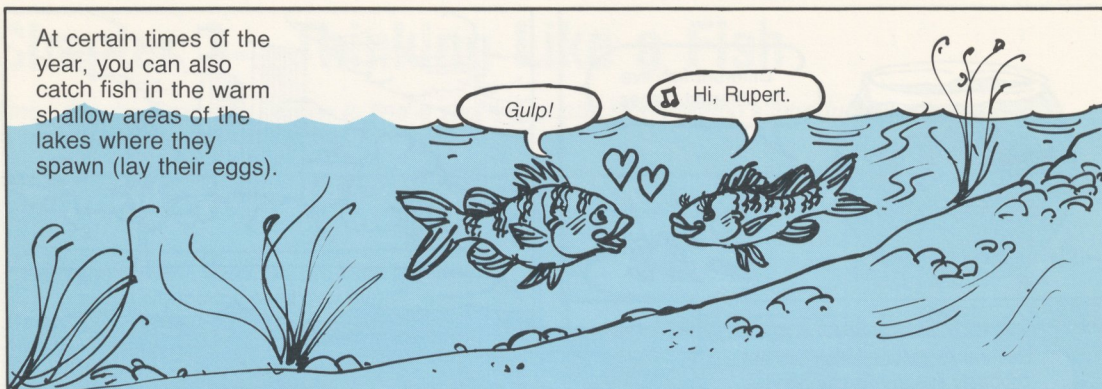
Chapter 3—Thinking Like a Fish

Since they had come to Denver to find a sporting goods store, Martin's introduction to how fish think starts in the city.

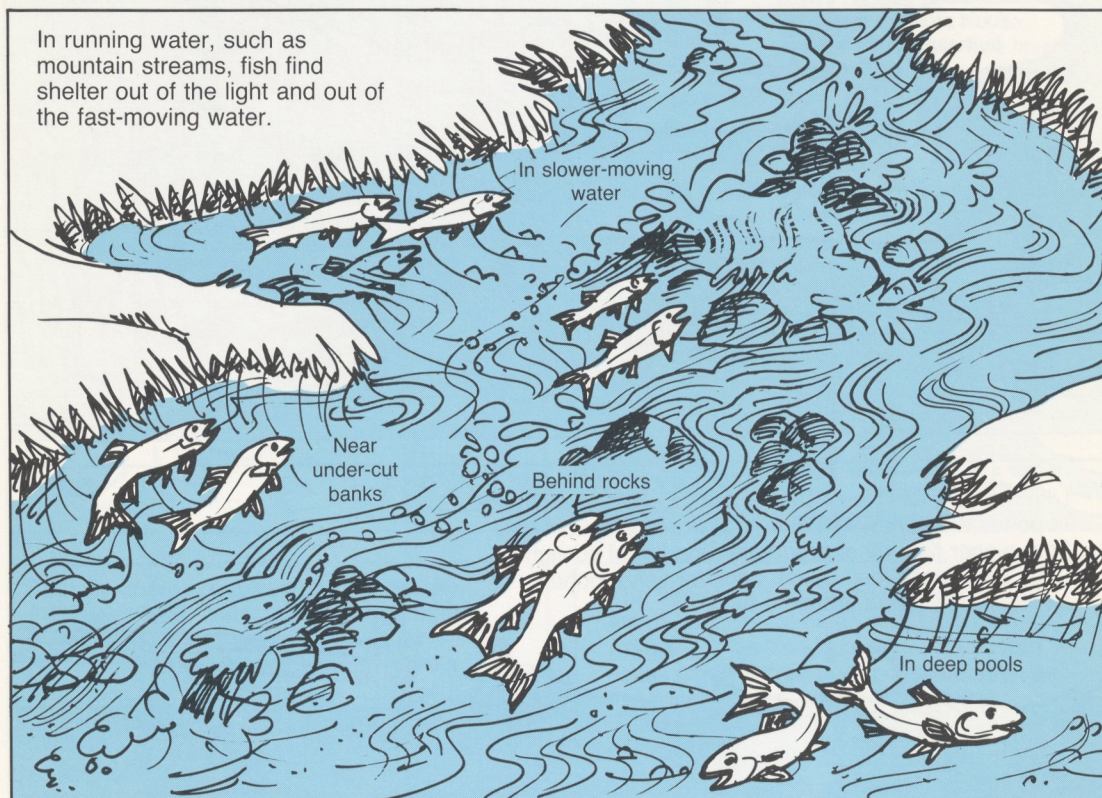




At certain times of the year, you can also catch fish in the warm shallow areas of the lakes where they spawn (lay their eggs).



In running water, such as mountain streams, fish find shelter out of the light and out of the fast-moving water.



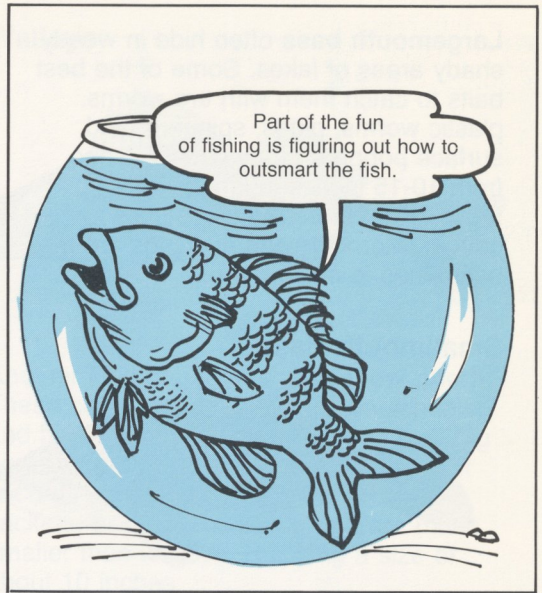
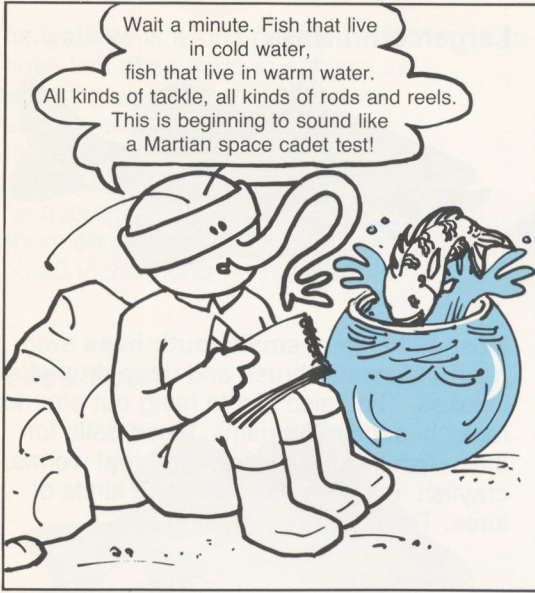
Here are a few more pointers to help make your fishing trips more successful:

- Wear dark clothes. Fish notice light-colored clothing more easily.
- Try to face the sun, if you can. When you stand with the sun at your back, you cast a shadow on the water. Fish notice that.
- Fish quietly. Don't yell, throw rocks in the water, or turn up your music. Sound travels through water.
- Fish seem to get hungriest about a half-hour before daylight, just as the birds are waking up, and for about two or three hours after sun-up. They are also hungry about a half-hour before sundown until about an hour before dark. Try to fish during these hours, especially in the summer. During the spring and fall,

however, you can also catch fish from mid-morning until late afternoon. On cloudy days, fish sometimes bite all day.

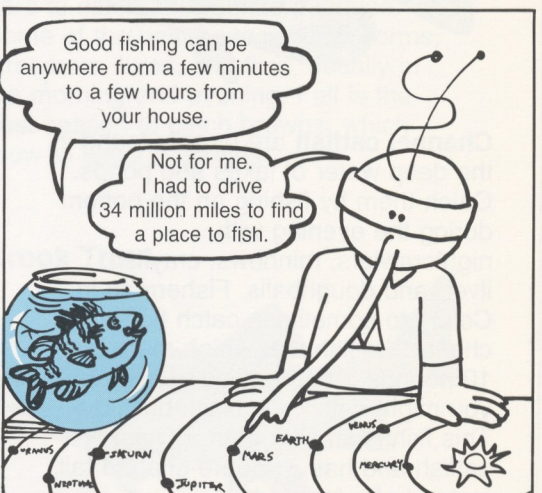
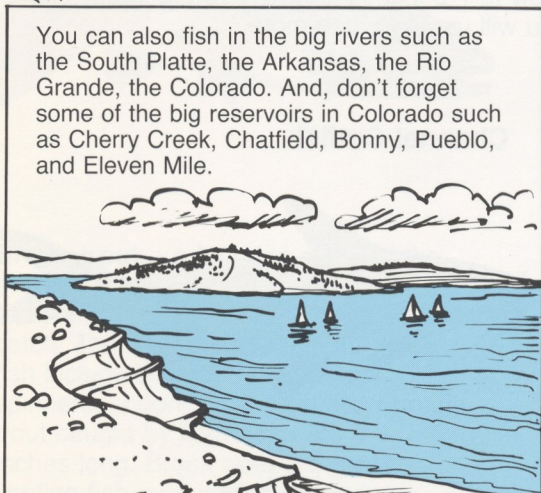
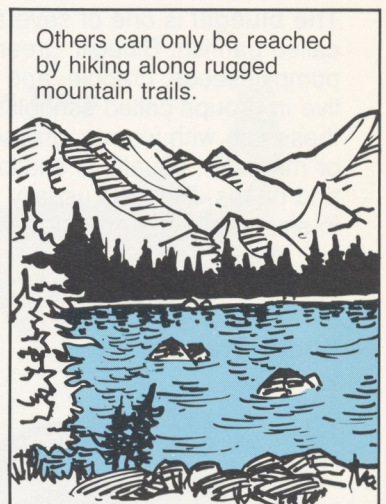
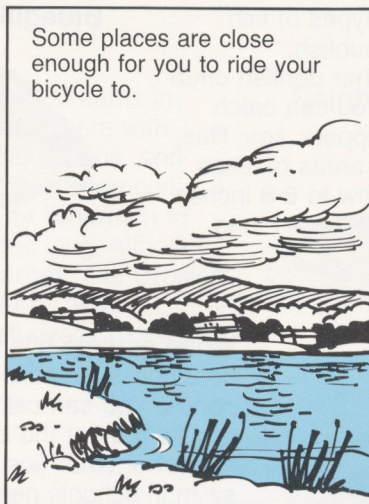
- Try one spot for about 10 minutes. If you don't catch a fish or get a bite, move about 25 steps away and try again. Cast your bait to your left for a few minutes, then in front of you, and then to your right. Keep trying different places and depths to find the fish. Check your bait every once in a while to make sure a fish hasn't stolen it. Be patient. Remember, the fish might start biting at any time. (You don't always have to catch fish to have fun fishing. Sometimes it's nice to just be outdoors watching the birds, animals, and insects.)

Chapter 4—Getting to Know Colorado's Fish



About 80 kinds (species) of fish are found in Colorado, a tiny fraction of the over 40,000 species of fish in the world. About 30 kinds of Colorado fish are considered sportfish, which means they are fished for by people.

In Colorado, you'll find lots of places to fish from city ponds to high-mountain lakes and streams.

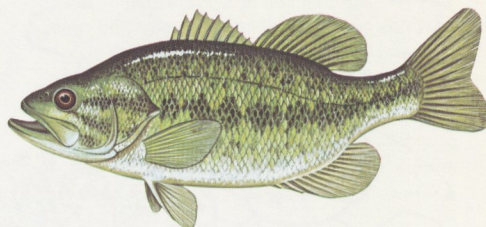


Take a few minutes to study the fish on the next two pages. The more you know about these fish, the better chance you'll have of catching them.

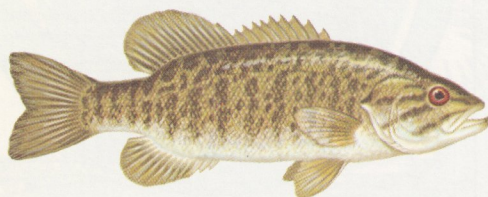
Here Are Some of the Fish Y

Largemouth bass often hide in weedy, shady areas of lakes. Some of the best baits to catch them with are worms, plastic worms, plugs, spinners, and surface poppers. They usually range from 10-15 inches in length, although much larger ones are sometimes caught. Mornings and evenings are the best times to catch them.

Largemouth Bass



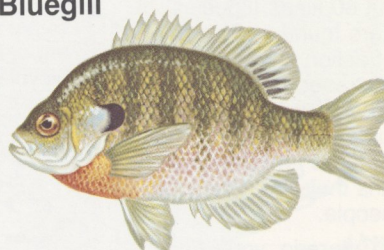
Smallmouth Bass



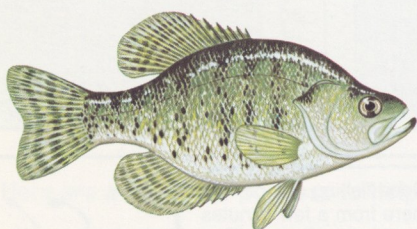
Most of the time, **smallmouth bass** swim near underwater brush and deep drop-offs in lakes. They also like to hang out around rocky beaches and dams. Good baits for these fish include artificial and real worms, crayfish, minnows, and different kinds of lures. They are good fighting fish.

The bluegill is one of several types of fish called panfish. Bluegill, green sunfish, pumpkinseeds, crappie, and other panfish often live in groups called schools. You can catch these fish with worms, grasshoppers, jigs, flies, or minnows, usually in shallow areas of lakes and ponds. Bluegills usually grow to 6-8 inches in size, but some grow to be 10 inches long.

Bluegill



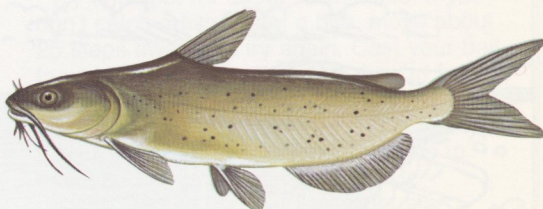
White Crappie



White crappie often hang around sunken trees, boat docks, weeds, or gravel bars in lakes and ponds. You can catch both the white crappie and its brother the black crappie with worms, minnows, small jigs, and spinners. They usually swim in schools near the shallow water, and grow to 7-9 inches long. When you catch one, you will usually catch more.

Channel catfish are usually found in the deep water of lakes and ponds. Catch them by fishing on the bottom during the evening with nightcrawlers, minnows, crayfish, liver, and doughballs. Fishermen in Colorado sometimes catch huge channel catfish that weigh more than 10 pounds. Another kind of catfish you might catch is a black bullhead. This fish is smaller than a channel catfish and has a square-shaped tail, instead of a forked tail.

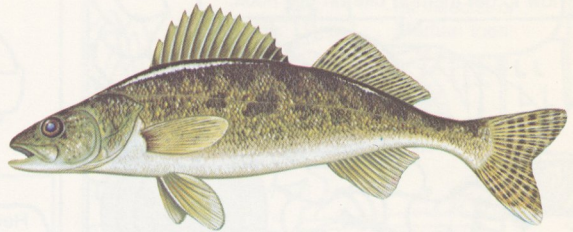
Channel Catfish



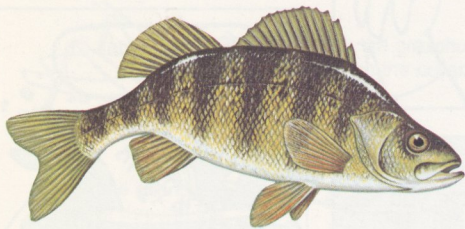
You Are Likely to Catch

The **walleye** is a kind of perch. These fish often swim in schools in the spring along the steep rocky dams in reservoirs. Fish for them with worms, jigs, plugs, and spinners cranked slowly toward the shore. The average walleye caught by fishermen in Colorado is between 15 and 20 inches long—a real keeper!

Walleye



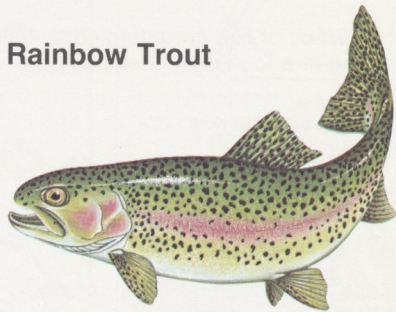
Yellow Perch



Another kind of perch is the **yellow perch**. These perch are usually found in schools, and bite best in the afternoon and evening hours. Fish near the bottom with live bait such as worms, minnows, grasshoppers, crickets, or grubs. Yellow perch are much smaller than walleye, reaching a size of about 10 inches.

Rainbow trout live in lakes and streams in many parts of Colorado. Fish for them with worms, salmon eggs, spinners, spoons, and flies in the early morning and late afternoon. Most of the rainbows caught by fishermen in Colorado are about 8-12 inches long, although they sometimes grow much larger. The Division of Wildlife raises millions of these fish in hatcheries and stocks them all over Colorado.

Rainbow Trout



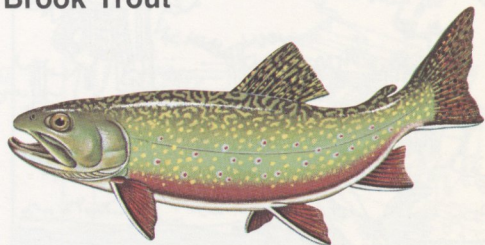
Brown Trout



Brown trout are found in reservoirs, lakes, and streams, often at lower elevations than other trout. They are hard to catch and require patience. Some of the best baits include worms, streamers, lures, and flies, usually in the morning and evening. Fall is the best season to catch browns, which grow to several pounds.

Brook trout are found in many of the streams and lakes in the mountains. They are the easiest kind of trout to catch. The best baits to use for these fish include worms, salmon eggs, spinners, spoons, and flies. Most brook trout caught by fishermen are 6-8 inches long. Brook trout are great fighting fish, and very good to eat.

Brook Trout



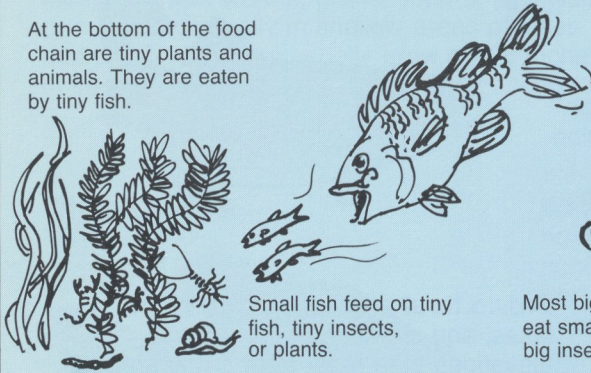
Chapter 5—Fish or Cut Bait



You attract fish to your hook by offering them something they would find and want to eat in their natural environment. Or, you offer them something that looks like it would be good to eat.

Different kinds of fish are attracted by different kinds of bait. This drawing of a food chain helps explain why.

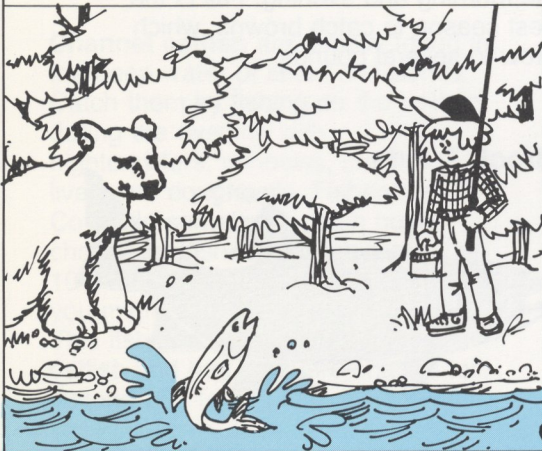
At the bottom of the food chain are tiny plants and animals. They are eaten by tiny fish.



Small fish feed on tiny fish, tiny insects, or plants.

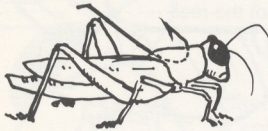
Most big fish eat small fish or big insects.

Big predators such as bears, eagles, and people eat big fish.



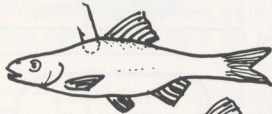
It's not hard to get bait. You can buy worms and salmon eggs at a bait store or sporting goods store. You can catch grasshoppers in your backyard or in fields near your home and keep them alive in a paper bag or a small wire mesh cage. You can find all kinds of insects under rocks and logs. Dig in the garden or any rich, soft dirt to find worms. Catch nightcrawlers on your lawn at night or after a rainstorm. You can buy minnows at the bait store or catch them in ponds with a small net or minnow trap.

When you're learning how to fish, stick to simple live baits such as worms, minnows, or grasshoppers. Or, try salmon eggs. Here's how to attach these baits to your hook:



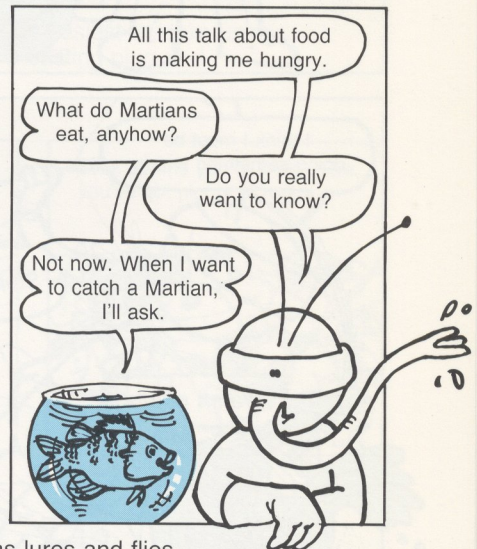
Hook the grasshopper through the collar.

Hook the minnow in the back or through the mouth.



Hook on salmon eggs one at a time.

Hook the worm or nightcrawler through the collar or mouth. (See if you can figure out which end the mouth is on!)



In addition to live baits, it's also fun to fish with artificial baits such as lures and flies. These things imitate the fish's natural food. You cast these out and either reel or pull them back in. That way you provide the movement so that the fish thinks the lure is alive.

Here are some tips about artificial baits.



• **Plugs** look like small fish. Use them to catch bass.



• **Spinners** look like insects or small fish when they are pulled through the water. Use them on trout, bass, and other sunfish.



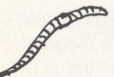
• **Jigs** look like injured insects hopping in the water. Pull them along with short, jerky motions to catch crappie and other sunfish.



• **Dry flies** look like insects floating on the surface of the water. Use them with fly fishing equipment or with a bobber or bubble to catch trout or bass.

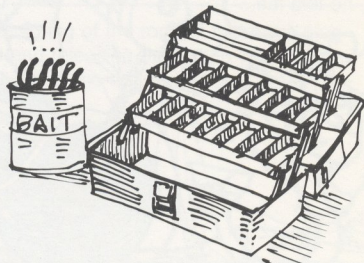


• **Wet flies** look like drowned insects floating downstream. Use them to catch trout.

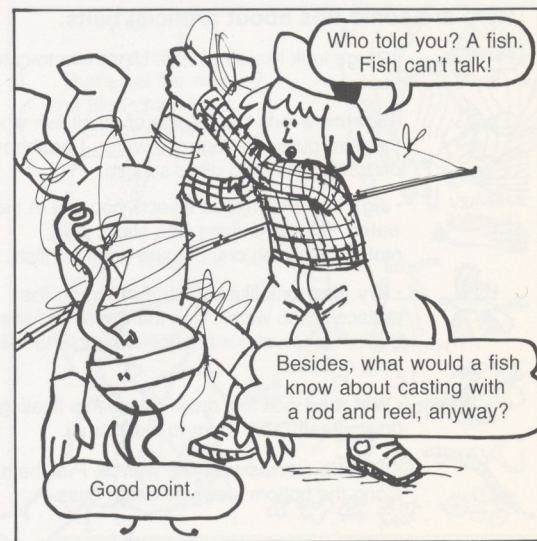
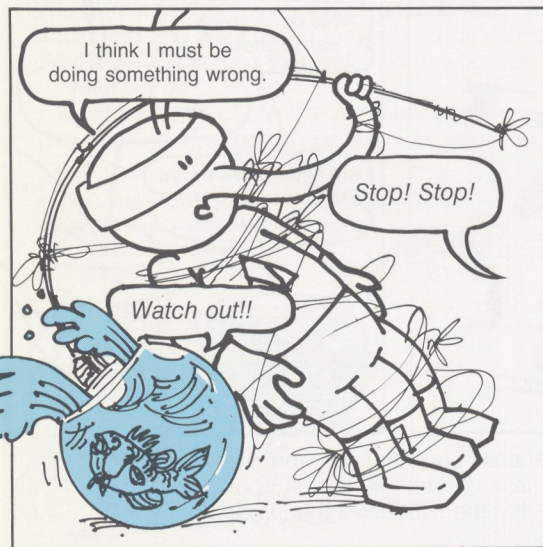


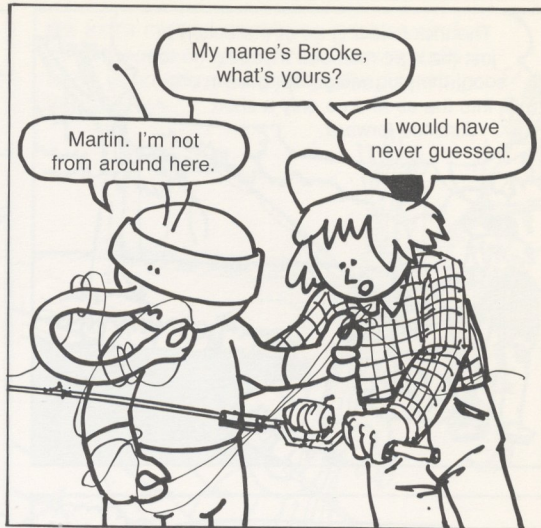
• **Plastic worms** look like worms. Pull them along the bottom slowly to catch bass.

Keep your artificial baits neatly organized in a tackle box. You can keep most live baits for at least a short period of time. Keep grasshoppers in a small cage and worms in a container filled with rich soil to provide the worms with food (you can feed worms by adding a little cornmeal).

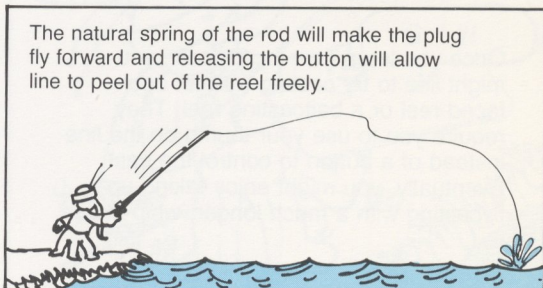
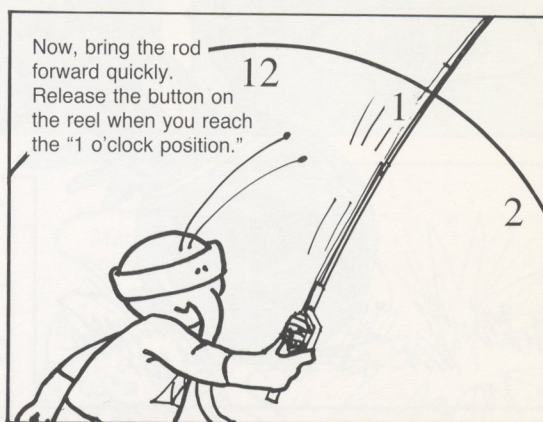
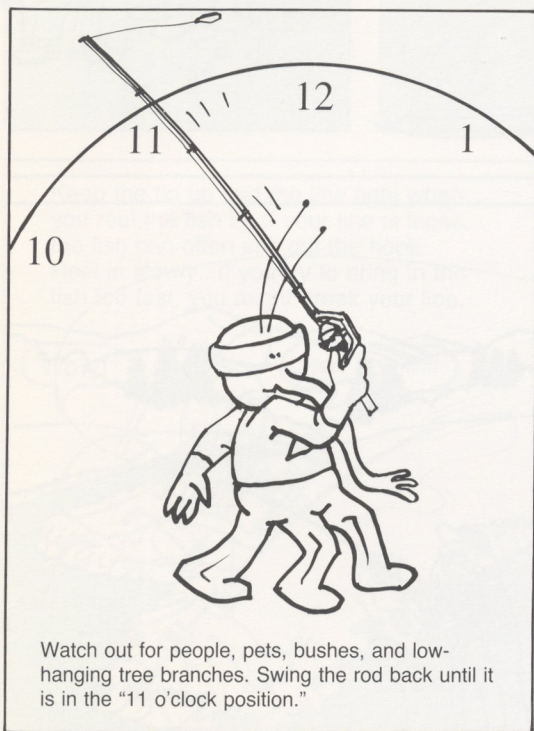
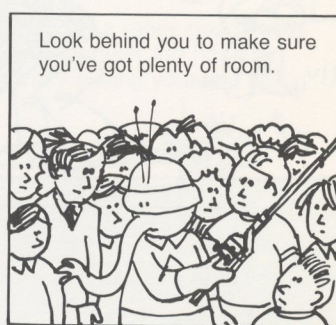
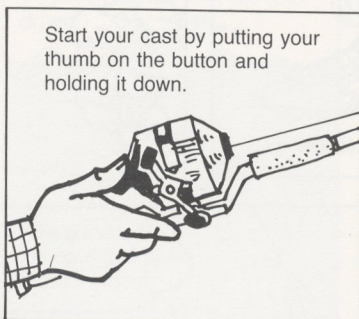
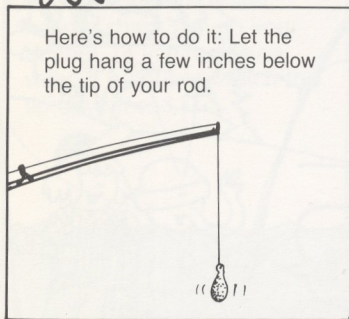


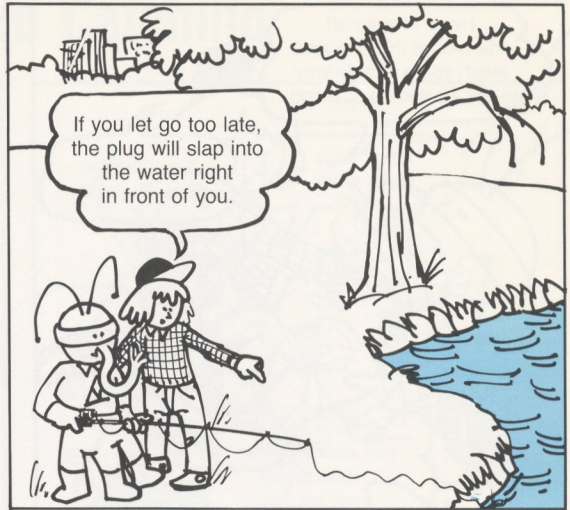
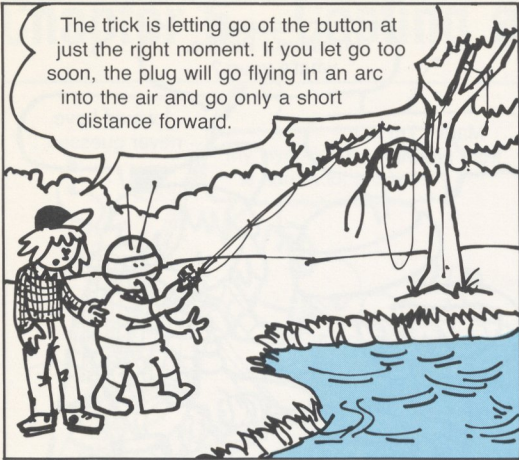
Chapter 6—Casting and Catching





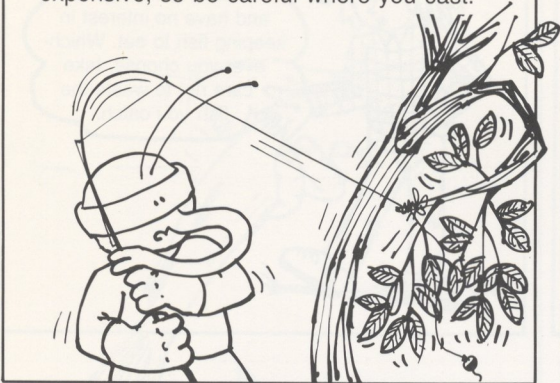
Casting is easy, once you get the hang of it. It's easiest to learn using a spincasting reel with a thumb release. Get a casting plug and practice before you try it for real.



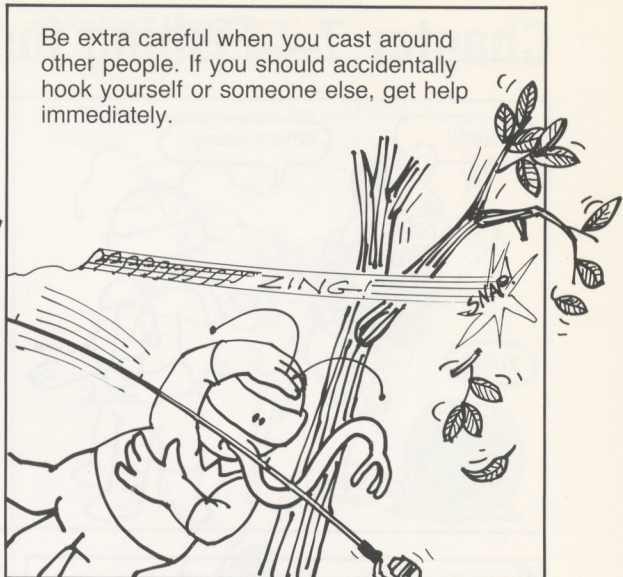


Once you learn how to spincast, you might like to try casting with an open-faced reel or a baitcasting reel. They require you to use your thumb on the line instead of a button to control the cast. Eventually, you might enjoy taking up flycasting with a much longer, whip-like rod.

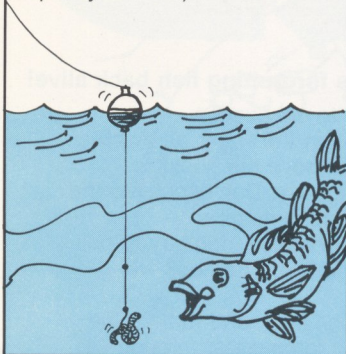
If you get your line tangled up in a tree or bush, use common sense. If you can safely get to the branch to remove your line, do so. If that's not safe, though, you'll have to cut your line and rig it up again. Losing spinners and lures in this way can get expensive, so be careful where you cast.



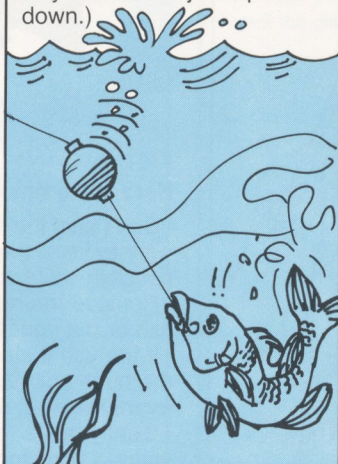
Be extra careful when you cast around other people. If you should accidentally hook yourself or someone else, get help immediately.



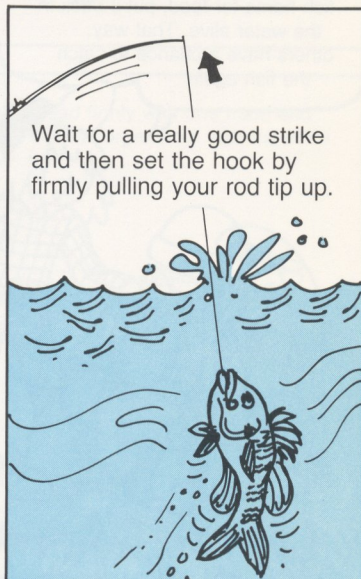
Now that you've learned how to cast, it's time for the real thing. When you've cast your bait into the water, keep a sharp eye on your bobber. (If you're fishing without a bobber, watch the tip of your rod.)



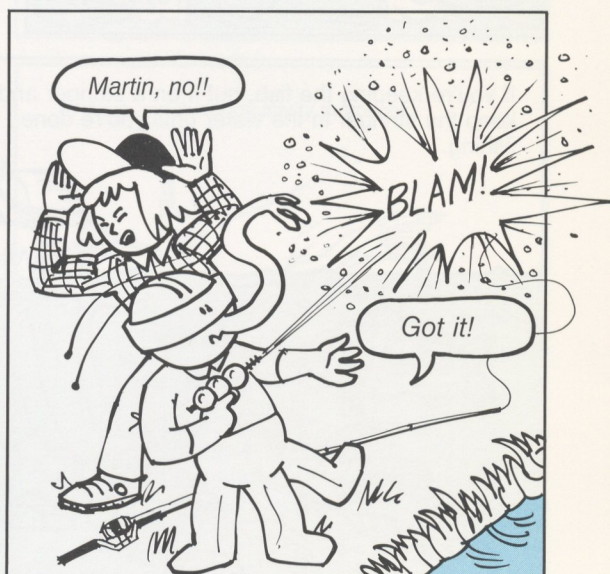
When the fish nibbles at the bait, the bobber will be pulled under the water. (Or, the tip of your rod will jerk up and down.)



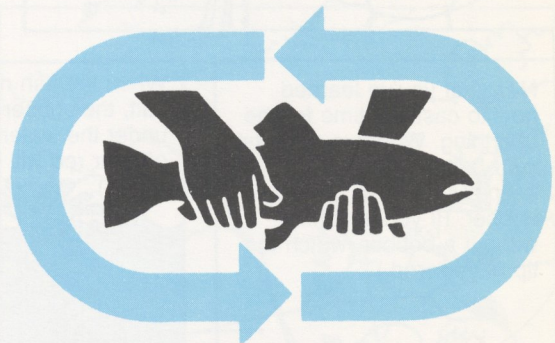
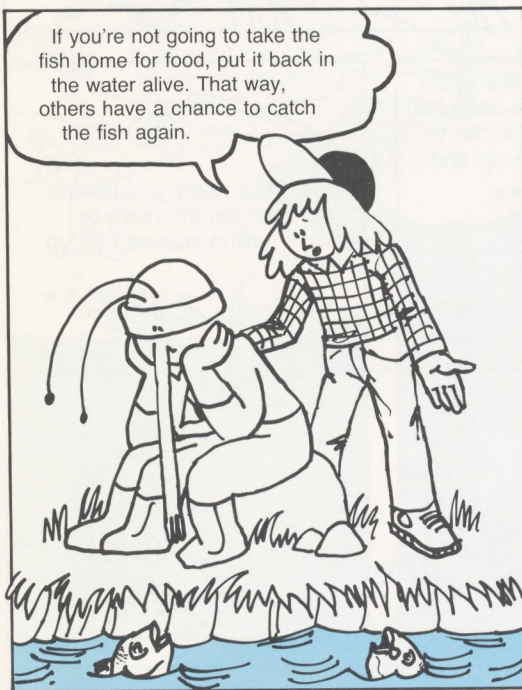
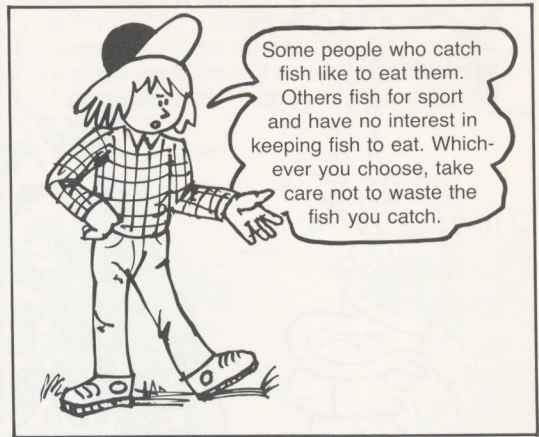
Wait for a really good strike and then set the hook by firmly pulling your rod tip up.



Keep the tip up and the line tight when you reel the fish in. If your line is loose, the fish can often spit out the hook. Reel in slowly...If you try to bring in the fish too fast, you might break your line.

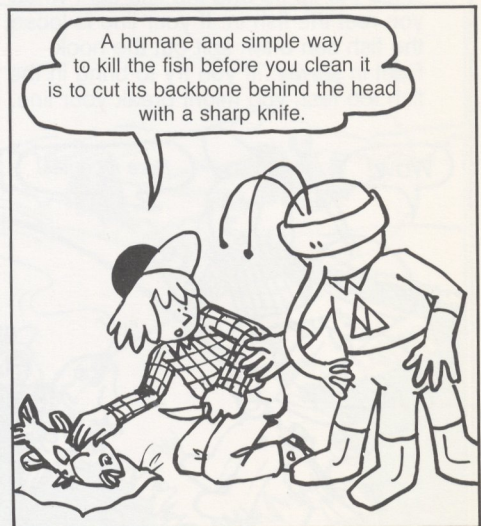
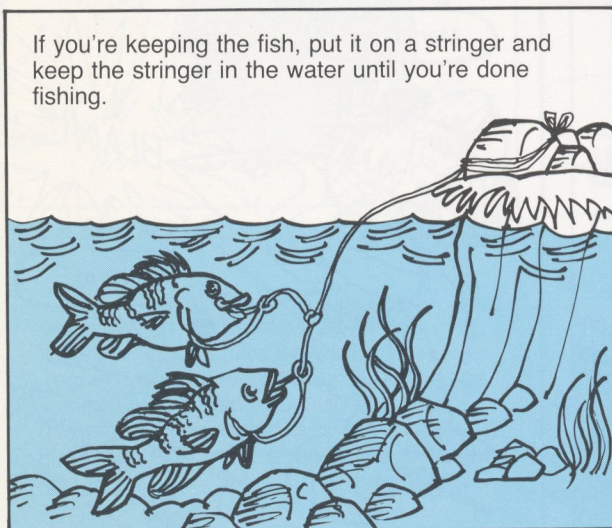


Chapter 7—Fishing for Food and Sport



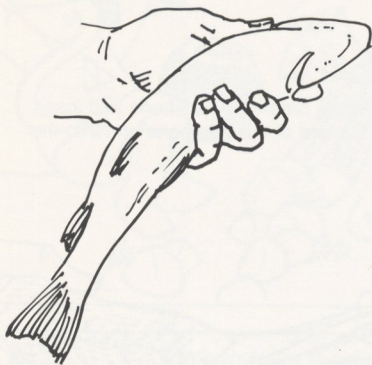
Here are a few tips for putting fish back alive!

- Don't play the fish to exhaustion.
- Try to keep the fish in the water as much as possible while you remove the hook.
- Remove the hook gently. Don't squeeze the fish or put your fingers in its gills.
- If the fish is deeply hooked, don't try to pull the hook out. Cut the line. The hook will eventually rust out.
- Gently move the fish back and forth in the water a few times to force water through its gills.
- Release the fish in quiet water.

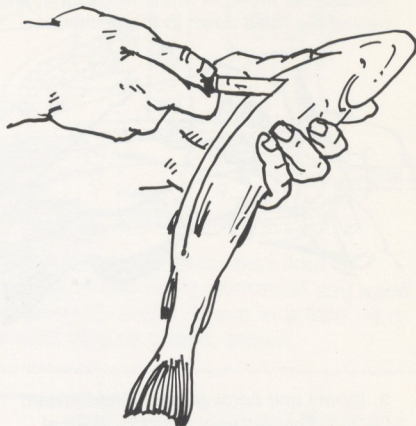


All fish should be cleaned before storing, freezing, or cooking. Here's how:

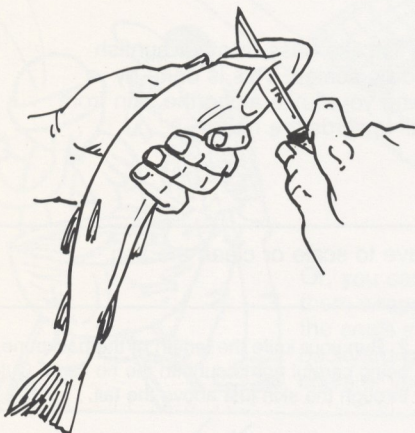
1. Hold the fish belly up in the palm of your hand with your thumb and forefinger in its gills.



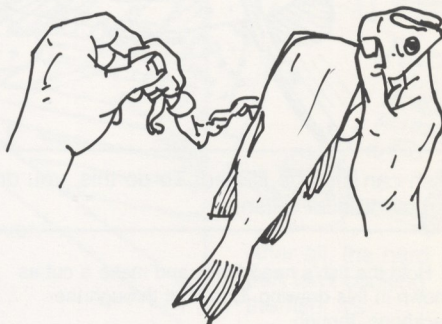
2. Slit the skin open from the vent (near the tail) to the gills.



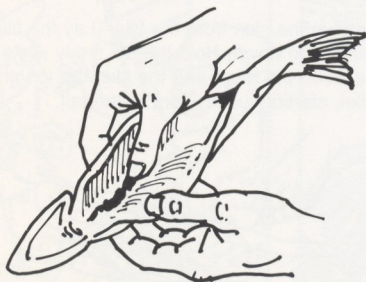
3. Cut the gills away from the skin under the fish's jaw.



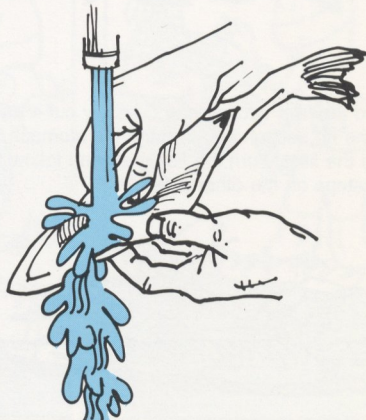
4. Hold the fish's head firmly with one hand and pull the gills and internal organs out with the other.



5. Remove the black streak which runs along the fish's backbone by scratching the length of the backbone with the tip of the knife. Then, push out the black material with your thumb.

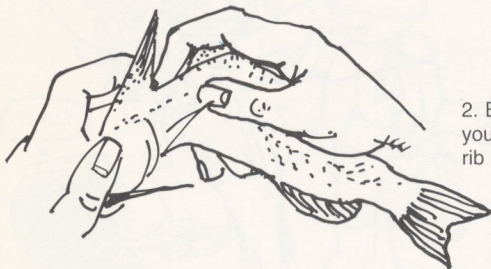
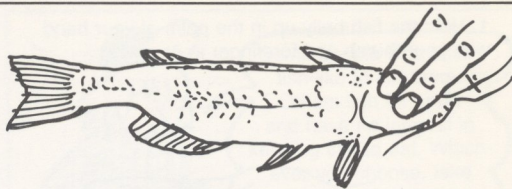


6. Wash out the body cavity thoroughly.

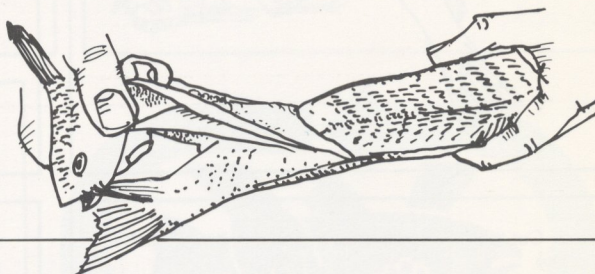


Some fish, such as catfish, have skin that shouldn't be eaten. Here's how to clean and skin a catfish all at the same time:

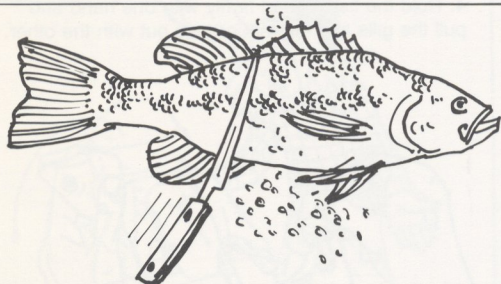
1. Starting at the top fin near the tail, cut the skin along the backbone until your blade reaches the dorsal fin at the front of the fish. Cut through the fish behind the head down to the backbone.



2. Bend the head down to break the backbone and insert your forefinger over the end of the backbone and into the rib cage.



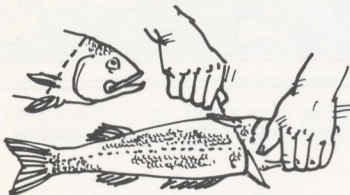
3. Slowly and firmly pull the head toward the tail. This will peel the skin, internal organs, and head free, leaving the fish ready for cooking.



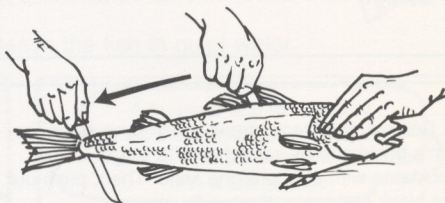
Scaly fish like bass or other sunfish should be scaled. This is done by scraping your knife along the skin from the tail towards the head.

Most fish can also be filleted. To do this, you don't even have to scale or clean the fish. Here's how to fillet a fish:

1. Hold the fish's head firmly and make a cut as shown in this drawing. Don't cut through the backbone, though.



2. Run your knife the length of the backbone, being careful not to cut into the rib cage. Cut through the skin just above the tail.

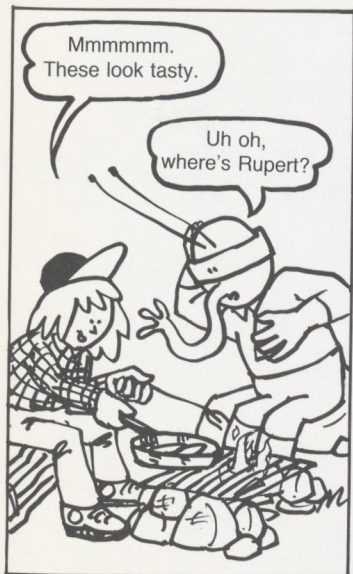
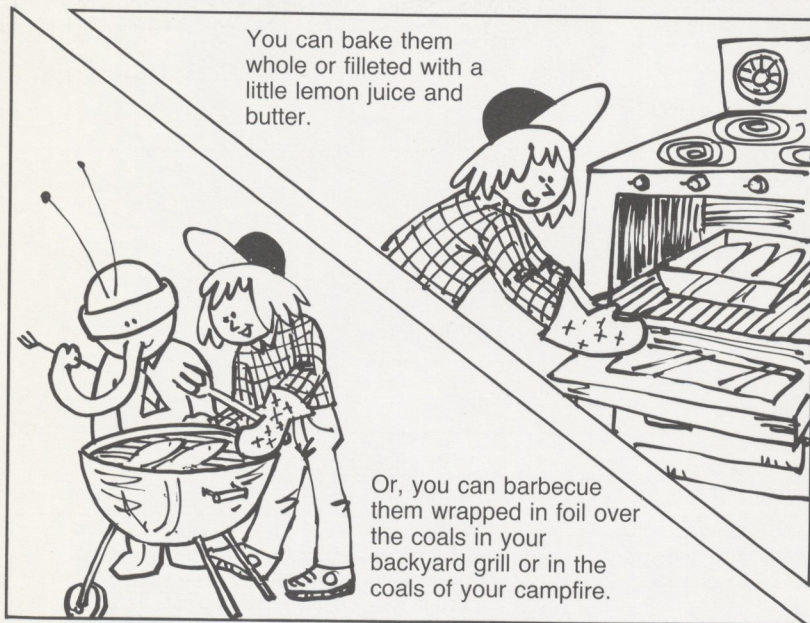
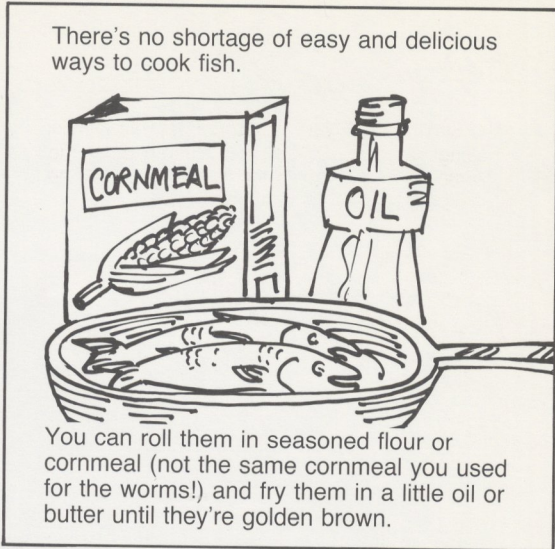
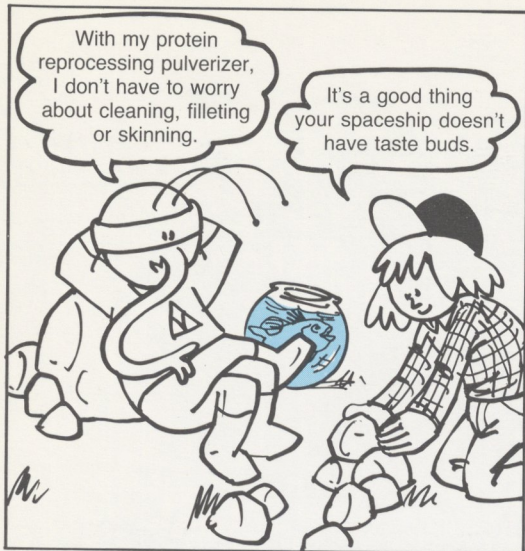


3. Hold the fillet section and carefully cut it away from the rib section and through the stomach skin to free the fillet. Turn the fish over and follow the same steps on the other side.



4. Remove the skin from the fillet. Lay the fillet with skin side down. Hold the tail firmly while you cut between the meat and the skin the length of the fillet, starting just in front of the tail.







Where to Get More Information

- Get the pamphlet about fishing rules at any sporting goods store.
- Find out about places to fish by asking adults or reading the sports pages of your local newspaper. If you live in Denver or the suburbs you can get a free booklet called "Fishing Close To Home" from the Colorado Division of Wildlife's main office at 6060 Broadway in Denver.
- Get books about fishing in the outdoor recreation sections of most bookstores.
- Check out books about fish and fishing at your school or neighborhood library.
- Fill out the coupon below and we'll send you more information about fishing. We'll also let you know about a new fishing club for young anglers.

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