

Fish Habitat & Handling

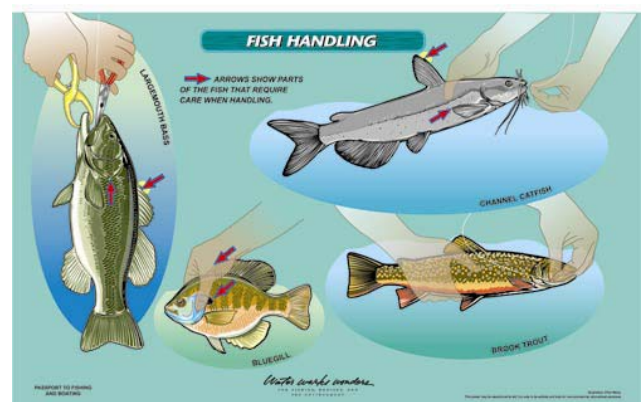
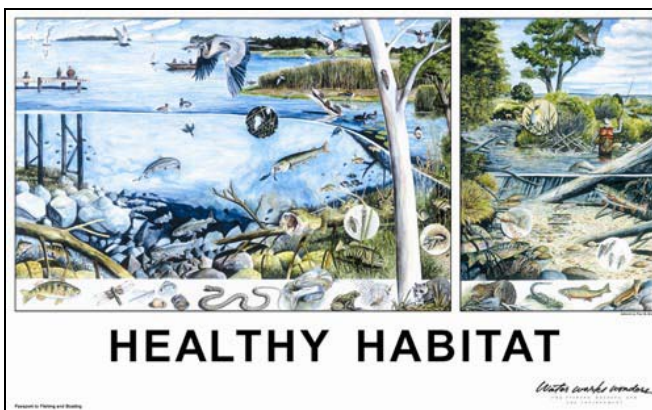
One of Six Stations in the Passport Program: An Introduction to Fishing and Boating

Read before the Event

Objectives:

At the end of this station participants will:

- ✓ Know the importance of watersheds to fish and humans,
- ✓ Understand the term “habitat” and its importance,
- ✓ Understand what fish need to survive,
- ✓ Understand how water can be polluted,
- ✓ Know one method of releasing a fish,
- ✓ Know the parts of a fish that require care in touching.



Background for the Volunteer:

At first glance fish seem very different from humans. How can we really understand what they are about? We breathe and move about in air: fish breathe and move about in water. We have hands and arms and legs to touch and reach and move: fish have fins for balance and movement, and feel with a sensitive collection of nerves on their sides. We protect ourselves by shielding our bodies with inventions like shoes and hats: fish protect themselves with built-in spiny fins. We have noses that help us smell and breathe: fish have nares, an indentation above their mouths that enables a very keen sense of smell but not breathing. We have skin that feels dry to the touch: fish have a layer of slime covering their bodies.

But, in spite of our differences, humans and the fish are linked in very basic ways. Not only do we share similar organs and structures like backbones, eyes, teeth, and mouths. We also share waters, and watersheds (the land area drained by a specific river). Watersheds are named for the river that drains them, but they are 99% land. Humans live on that land and almost everything that humans do there effects what happens in the river.

Healthy places for both fish and humans begin on the land. Melting snow and rain wash the land surface as they drain into the creek, taking with them not only nutrients from the land but also trash and pollutants like oil, fertilizers, pesticides, soap suds, and animal waste. Anglers and boaters want healthy water for fish to live in along with places for fish to rest and hide and eat. Keeping the watershed healthy is the first step toward having good places available to spend a lifetime of recreation.

This station not only provides a chance to learn about and understand our watershed, but also some information to aid participants when they catch fish. Fish live in a world of predator and prey, where they either eat or get eaten; where they are wary of movement and sound. Keen senses help them survive. The fish has built-in ways to discourage predators (including humans) from catching it. They include a slippery layer on the outside of the body so they are difficult to hold onto and a very wide field of vision so sneaking up on them is difficult.

Even when we catch a fish, the fish still has a few tricks up its "sleeve." Wounds from fishing are rare, but it is good to know how to avoid them. A spiny dorsal (top) fin can be pressed downward toward the fish's body in a motion that is like petting a fish. The spiny fin can lie against the body if you pet from head to tail. Your hand then holds the fish from the front just behind its head (see Fish Handling poster). A catfish has

spines at both the dorsal (top) and pectoral (gill) fins that can give a painful puncture prone to infection. Handling a catfish means carefully avoiding the top and gill fin spines. Some fish do have teeth that can puncture or cut your skin. It is best to avoid putting your fingers into the fish's mouth. Some fish also have sharp gill covers that can cause bad cuts, so be careful with the gills and gill cover.

On the other hand, if we are going to release the fish, it is also possible for us to damage it. We need to take care to keep its outside slime layer intact. Dry hands cause the slime to stick to us rather than the fish. Wetting your hands before you touch the fish helps keep the slime layer where it belongs. Participants should also know that the gills and eyes on a fish are very delicate. Touching the gills damages a fish's ability to remove oxygen from the water and so the fish cannot breathe. Bleeding from the gills indicates the fish is not likely to survive if released.

A fish to be released and caught again another day, needs to be treated gently and handled as little as possible. Two things may happen with beginners: either they drop the fish, or get hold of it and squeeze too hard. Dropping a fish, either on land or in the boat, can cause internal wounds that can be fatal. A dropped fish, if it is legal to keep, should not be released. If you must release it, then take comfort in the fact that nothing in nature is wasted. A dead fish will be recycled by providing nutrients to others.

If you are using a barbless hook, it is possible to release a fish by keeping the fish in the water. Move your hand down the line until you can get hold of the hook, and then turn the hook upside down. The fish generally will not turn upside down, falling back into the water. If that doesn't work and touching the fish is necessary, keep it in the water and wet your hands before touching. If you must remove the fish from the water, keep it out of the water only as long as you can hold your breath.

A fish will sometimes swallow the hook, making it impossible to reach. If this happens then it is proper to cut the line, leaving the hook embedded in the fish. Hooks rust out or are absorbed fairly quickly. The fish has more of a chance of survival if the hook is left in place than if it is ripped out of the fish's mouth.

The program to be presented at this station follows the Materials section below. It appears in two forms, a script and an outline, so you can choose the one that will help you most with your presentation. If you feel more comfortable using a script, the part directly following the Materials section is for you. Those presenters who would rather read through the script and then use an outline as a guide will find a suggested outline following the script.

Teaching Tips for Fish Habitat and Handling:

Make sure all of the needed teaching tools and equipment are handy. Lay the items out so you can find them easily. Prepare in advance. If you need the script for the first couple of times through, you might consider putting it on a clipboard with a rubber band to keep it from flapping in the wind. Have some rocks or weights on hand to anchor your props in case a breeze comes up. The watershed model, in particular, may need to be held to the ground in the wind.

Seat your audience on the ground or a tarp, facing you. Make sure they are not looking in the direction of some other interesting and distracting activity.

This Station uses two different posters to show what a good habitat looks like and how to hold onto fish. Displaying the posters close to the participants is very important. If they are 20 feet from the posters they cannot have much impact. If it is impossible to move the posters close to the participants, then move the participants close to the posters. Having your audience get up and move to a poster hanging on the fence will help them focus on the things you want them to see. Having a couple of people hold up the poster can also be effective and has an added benefit: it gives a restless participant something constructive to do.

Engage the parents and the kids in your activity. Adults generally need to be invited to participate. A talking group of parents in the background is very distracting and these activities are designed to include all members of the family, so invite them in and sit them down with the group.

The watershed-building activity uses spray bottles to wet down crumpled paper. You will need a new piece of paper for each group and a way to dispose of the used wet paper when you are finished with it. Ideally, this activity takes place outside where spilled water or over spray is not a problem. If you are presenting this program inside you will need a large piece of plastic to protect the floor and a sponge to mop up spills between groups.

Encourage your audience to participate. Let them get their hands on the fish models and help with the watershed. Respond to wrong answers with, "Can you think of something else?"

Watch your timing. Take as long as the activity needs to make your points and to let the participants have fun while doing the activities. The watershed model is particularly adaptable to using more or less time. If you have more time let the coloring of the watershed elements take longer by involving more participants in the coloring. If you need to save time on this one, handle the “rain” squirt bottle yourself, or color the model yourself from suggestions your audience gives you for placement of the city, forests, etc. If your audience is young substitute the word “home” for “habitat.”

If one child is distracting the others by being wiggly or talkative, give him a task to help you in some way. Make sure it is a task that requires him to be still. You might have him hold a poster or prop so everyone can see. If the child is too young for the activity, let him play with one of the teaching tools.

Materials needed:

- Comfortable and attractive life jacket for the presenter to wear throughout the program

Fish Habitat:

- 1 piece of white easel paper about 27" by 34" for each group
- 2 spray bottles filled with water, nozzle adjusted to fine mist
- 1 or 2 colors of liquid food color (tiny squeeze bottles work well)

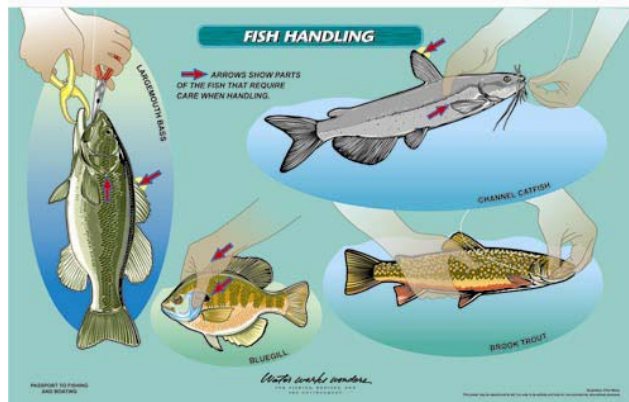
Customize by using mixed food colors to represent pollution sources that are a significant problem in your area: brown=silt, brown = animal waste, blue= fertilizers and pesticides, red = waste oil or runoff from city streets.

- 4 permanent markers with fat tips to represent permanent parts of the landscape: brown (mountains and rocky cliffs), green (forests and stream buffers), blue (rivers and streams), black (cities, asphalt, buildings, highways) or other colors of your choice
- Twig to act as a "log" on the watershed model, or grass (whatever is appropriate in your area)
- Small pebbles to put onto the model as "structure"
- Healthy Habitat Poster showing cross section of bodies of water with food chains, structure, spawning habitat, and people fishing and boating



Fish Handling:

- 2 rubber fish from the *Passport Materials Kit* or fish shaped pillows
- Slimy stuff to feel: a plastic covered index card with a picture of a fish on it from the *Passport Materials Kit*, or download the image to print and laminate, from www.NationalFishingandBoatingWeek.org. Put a little vegetable oil or hand cream on the outside.
- Short, rigged fishing rod with 2/0 hook, hook's barbs and point filed so it isn't sharp. If you do not have a short fishing rod you might want to use just the top half of a larger rod.
- One 8" plastic bait fish hooked to the fishing rod so it can be unhooked as a demo. Two fish are included in the *Passport Materials Kit* or can be ordered from a saltwater fishing equipment catalog.
- Fish Handling Poster showing different fish and how to hold them from the *Passport Materials Kit* or download the image to print and laminate from www.NationalFishingandBoatingWeek.org.



SCRIPT STARTS HERE

Estimated time for this section (**Fish Habitat**): 7 minutes

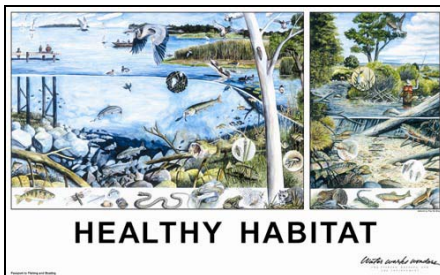
Presenter says words in bold; Participants give answers in italics;

Presenter and participants do the actions in the boxes.

Watch for check marked “**Objectives**” in the left column to see that you are covering the essential information.

Tips, Objectives, Your Notes, etc.:

Display poster showing
healthy habitat:



► **Teaching Tip:**
For younger children use
the word “home” instead
of “habitat.”

► **Teaching Tip:**
Point to the poster

SCRIPT:

Do you want to catch fish? (*Yes!*)

I’m (*your name*).

I’m going to help you catch fish by helping you understand some things about:

- fish
- where they live.

If you know an answer to a question say it loud so we can all hear.

As we are going through the program if you don’t understand what we are doing, please ask about it. Our time is limited, so let’s get going.

We are closely linked to the fish we catch by more than a fishing line. Fish and humans, no matter where we live, share a watershed. We both need healthy water. If you want to go fishing and boating you need a healthy place for fish to live. Scientists call those places “habitats.”

Healthy habitats for fish look like this.

✓ **Objective:**
**Understand the term
“habitat” and its
importance**

✓ **Objective:**
**Know the importance
of watersheds to fish
and humans.**

**What do you see on this poster that makes it a good
“habitat” for fish to live in?**

water

food

*places for the fish to hide when trying to escape a
predator, or to rest*

places for the fish to lay eggs and have young

**We are going to make a model watershed so you can
understand a little about how a watershed works. A
watershed is:**

- **An area that drains into a river or stream**
- **99% is land, 1% is water**
- **A healthy watershed means good places to
fish and boat.**

**Here’s a box of watershed stuff. We can make a
model place for fish and us to live.**

**I need a volunteer to start this paper watershed. Who
would take this paper and wad it up into a ball?**

Choose a volunteer to wad up the paper

**Now we’ll pull it apart until it looks something like the
landscape around here. We can make mountains,
valleys, rivers and towns but we want whatever rain
that falls onto our watershed to drain down to our
place to fish and boat just like a real watershed.**

Pull the paper lightly apart to make landforms. Try
to identify an area in the crumpled paper that is
similar to where you live.

Hey that was quick. Here's our watershed. See, it has mountains, hills, tablelands (or whatever your landscape looks like) just like we have around here.

Where would our town be? Make it black.
Take these markers and color in the features of the watershed.

Have the kids use the permanent markers for permanent features of your landscape

► **Teaching Tip:**

Use as many participants as you can to color the watershed. Only do it yourself if you need to save time.

Do we live in a valley or on a mountaintop?

Where does our water come from?

Reservoir? Wells? River?

There must be forests and other green buffers too.
Use this green marker to color in those areas.

We'll need some dirt somewhere. Or cliffs? Or mountains? That can be brown.

Blue is for water. Where is our water supply?

Looks pretty good, doesn't it?

Fish like structure to hide under or around. They like logs, brush piles, rocks, docks; things that give shelter or shade. They hang out there.

This is a fish "home" so the structure is like the furniture in our home. Put some of these twigs and pebbles onto the model to make good places for fish to live and for us to catch fish.

✓ **Objective:**
Understand what fish need to survive

✓ **Objective:**
**Understand what fish
need to survive.**

Place the twig and some piles of pebbles onto the model for good places for fish to hide from predators or to rest.

Now we have a great place for both the fish and us. Look at the poster again. Can you find places for the fish to hang out on the poster like we put into our watershed?

Is there food for each of the creatures to eat?

Do you see places that you could fish?

Participants point to places where they would fish

✓ **Objective:**
**Understand how
water can be
polluted.**

That's good. Now let's see what happens if there are problems in the watershed. When it rains the water washes the land and whatever was on the land ends up in the river or the lake. Remember that a watershed is 99% land so it is washing a lot of space and running the water into a much smaller place.

People who don't know better might pollute the water by pouring waste oil or dumping bug spray or throwing trash on the land.

We'll pretend this food coloring shows where someone dumped oil from their car or just let it drain on the ground. I'll put it here and here on the model.

Now we will make it rain and we'll see what happens.

Give the squirt bottles to two volunteers to spray the paper watershed. Spray a lot! Make lakes. Watch the colors run into every part of the water.

✓ **Objective:**
Know the importance of watersheds to fish and humans

► **Teaching Tip:**

Use the Healthy Habitat poster. There is no way for someone who has never seen a good habitat to imagine the complexity of this natural system.

What happened? (*The water was polluted.*)

We do not want that to happen to places we fish and boat. We need healthy water for the fish to live in and for us to play on too. Would you want to boat or water ski in this polluted water?

What would you do if you saw trash in the water?

Pick it up and take it to the garbage can.

You know we all have water that can be polluted because “We all live downstream.” No matter where you live you receive water that passed by someone else first. Keep oil and pollutants and trash out of our watershed so we have good places to fish and boat.

Anglers and boaters want our fishing places to look like this. (Point to poster)

What did you learn?

Keep pollution out of our watershed.

Continue: Estimated time for this section about **Fish Handling:** 8 minutes

**Tips, Objectives,
Your notes, etc.:**

SCRIPT:

Let’s get up close and personal with a fish. Knowing some “personal” things about fish will help you be better anglers.

Let's say you are fishing and catch a fish that is too little to keep. There it is on the end of your fishing line.

- What do you do? *Let it go.*

- Drag it up on the bank and fling it all around? *NO!* You're right. You must be gentle.

- Dropping a fish can injure it so it dies later. You must be gentle with it.

✓ **Objective:**
Know one method of releasing a fish

How can you get the fish off the hook?

You must take it off

You should as gently as possible take it off. You can have somebody help you if you want. The first thing to try is to:

- Leave the fish in the water
- Hold your rod up in the air
- With your hand, follow the line down until you can get hold of the hook
- Turn the hook upside down

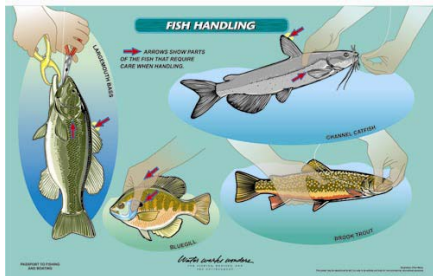
✓ **Objective:**
Understand what fish need to survive

Demonstrate, using your fishing rod with the plastic bait fish hooked on the end – Let one participant hold the fish and move it back and forth as you move your hand down to hold the hook and turn it upside down

Usually the fish flops off because it does not turn upside down. If this does not work then you must go to the next step and it involves slime.

If that doesn't work then you need to get hold of the fish to remove the hook.

Display the Fish Handling poster:



✓ **Objective:**
Know the parts of a fish that require care in handling

Feel this slimy stuff.

Pass around the card with “slime” on it.

That’s the way a fish feels on the outside. This slime protects the outside of the fish and makes it slippery.

What do you think would happen to a fish if it loses too much of its slime?

It would die.

Yup, belly up. So we want to keep the slime on the fish if we are releasing it to grow some more.

- **Our skin is dry and fish are wet.**
- **If our dry skin touches the fish its slime comes off on our hands.**

This is VERY IMPORTANT:

To keep the slime on the fish, wet your hands before touching it.

What do we do before handling a fish?

Wet your hands.

Here are some rubber fish for us to practice on.

- **We need to handle any fish that will be released gently.**
- **Dropping a fish can hurt it but:**
 - Fish are slick on the outside**
 - Hold it firmly enough so it can’t get away**
 - Hold it softly enough so it isn’t injured**

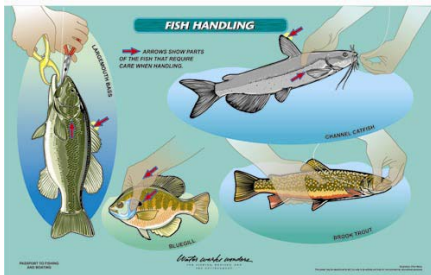
But fish:

- **Live in a world of predators and prey where they either eat other fish or get eaten themselves**

- Have built in protections on them that you should watch out for when you try to handle them

- It's easy if you know what to do.

This one is a (bluegill or sunfish) with spiny fins on the top. But, the fin will lie down if you push it down from front to back – like petting a fish. Push the fin down and hold the fish at the front.



Use a spiny finned rubber demo fish like a bluegill, sunfish or bass. Pass around the demo fish, pointing to the top and gill fins.

Pass this around and show me how you would hold a spiny finned fish.

Let everyone have a turn holding the demo fish. Show the spiny fin. Keep hands away from both the gills and the eyes on the fish.

Now catfish are something else.

- They have spines at both the top and gill fins that can give a painful puncture that gets infected easily.

- So they require some careful handling to avoid those spines.

- Look at the poster and see how to take hold of a catfish

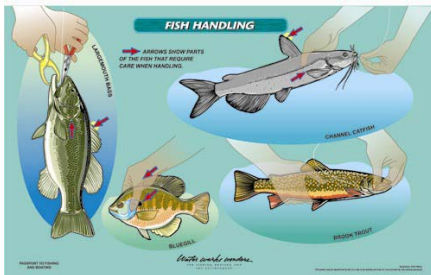
- What should you do first?

Wet your hands

Show where the spines are on a catfish at both the top and gill fins.

Pretending that this fish is a catfish, how would you hold it?

Have participants show how to hold a catfish. See that everyone gets a turn.



Other things to keep in mind when you are touching fish are that their gill covers can be sharp and the gills are very delicate. You can hurt the fish's gills if you touch them.

What are the gills for?

To breathe

Sure. The fish takes oxygen from the water with its gills. If you touch the gills, the fish will have trouble breathing.

Even if you are going to kill the fish to eat it, we still treat it with the respect you give a living thing and so we do not touch the gills or the eyes. We do not cause any unnecessary damage.

Take it out of the water for only as long as you can hold your breath, because the fish will not be able to get oxygen from the air like we do.

Do fish have teeth?

Yes (most do)

What do you suppose you should do about that?

Keep fingers out of its mouth

So, what parts of a fish can hurt you?

gill cover
spiny fins
teeth
spines on catfish

But a fish can get hurt too. What can YOU HURT if you touch or mishandle a fish?

gills
slime
eyes

So now you have hold of the fish with one hand. With the other hand take hold of the hook and remove it from its mouth.

Do you know what to do if the fish has swallowed the hook? You cut the line and leave the hook in the fish. It is more likely to survive if the hook stays in than if you jerk it out. Most of the time, the hook will rust away in a short time.

It's time to wrap this up. Your Group Guide will ask you some questions and take you to the next station. It's been nice talking to you. Bye.

► Teaching Tip:

Use your demo fish and poster to help with the review. Point to the parts as the participants remember them.

Group Guide's Questions

Ask these questions before taking the group to the next station:

What parts of a fish can hurt you? (*fins, gill cover, teeth*)

What parts of a fish can you hurt? (*gills, slime coating*)

Before you touch a fish what do you do? (*Wet your hands*)

How can you help protect your watershed? (*Be careful not to pollute or litter*)

OUTLINE STARTS HERE:

Introduce yourself and the station

Fish Habitat & Handling will help you catch fish by helping you understand them and where they live

We are closely linked to the fish we catch by more than a fishing line

Both fish and humans need:

- healthy water
- healthy watershed

Healthy habitats for fish look like the poster

What do you see that makes it good habitat?

water,

food,

places to hide or rest,

places to lay eggs and have young

√ Objective:
Understand
the term
“habitat”
and its
importance.

Build a model to help you see how a watershed works

- Watersheds are 99% land and 1% water
(wad up paper, pull apart to make model)
- Take the markers and color in our town, mountains, forests, rivers
- Fish like structure (like furniture in a home) They hang out there
(Put twigs and pebbles onto model as good place for fish to live and us to fish)
- Look at poster and identify structure, food for fish to eat. This is the way it should be

√ Objective:
Know the
importance
of
watersheds
to fish and
humans.

Let's see what happens when there is trouble in the watershed.

- Rain washes the large amount of land and it all goes into the much smaller place filled with water
- People who don't know better pour oil or bug sprays or put trash on the land
(Use food color to represent where someone changed oil or spilled bug spray or put trash on the land)
- Make it rain. What happened?
- We do not want that to happen to our places to fish and boat.
- What would you do if you saw trash in the water?

√ Objective:
Understand
how water
can be
polluted.

- We all live downstream!
(Point to poster) Anglers and boaters want our fishing places to look like this.

Fish parts

√ Objective:
Know one method of releasing fish.

- Knowing personal things about fish will help you be a better angler
- What if you are fishing and you get a fish that is too little to keep?
How can you get it off the hook?
(Demonstrate following line down to get hold of hook, turn upside down)
- If that doesn't work go to next step – getting hold of the fish
Need to know about Slime!
(Feel slime, pass around)
Slime protects fish – what happens if the fish loses its slime?
Our skin is dry and fish are wet. The slime will stick to our skin.
Wet your hands.

√ Objective:
Understand what fish need to survive.

- Getting hold of a fish: (Rubber fish are for us to practice on.)
Handle any fish gently.
Dropping a fish can hurt it
Fish live in a world of predators and prey
 - They have built in ways to protect themselves
 - They are easy to handle if you know what to do
 This one is a (bluegill) and it has spiny fins on top.
 - Pet it to lay the fin down – hold at the front
(Pass it around and demonstrate.)

Catfish:

- Spines on both top and gill fins that can give a painful puncture that is easily infected
 - Look at poster to see how to handle
 - What should you do first? (Wet your hands.)
(Pass around fish)
- Gills are delicate and gill covers can be sharp
What are gills for?
Even if you are going to kill the fish to eat it
- Treat it with respect

√ Objective:
Know the parts of a fish that require care in handling.

- Do not cause any unnecessary damage
- Take it out of the water only as long as you can hold your breath

Do fish have teeth?

What should you do about that?

(keep fingers out of its mouth)

What parts of a fish can hurt you?

spiny fins

teeth

gill cover

catfish spines

What parts of a fish can you hurt?

gills

slime

eyes

So now you have hold of the fish. Hold in one hand, take out hook with other

What happens if you cannot get hook out?

- Cut the line and leave hook in fish
- Hook will rust out
- Do not pull the hook out

It's been nice. Bye.

Group Guide asks questions.

Extensions: (If you have more time . . .)

Cleaning a Fish:

If your event includes an actual fishing experience, you may want to take advantage of the opportunity to demonstrate how to clean a fish. The demonstration keeps knives out of children's hands but allows a careful exploration of how to get the edible parts for your use. Using a long flexible fillet knife to remove a slice of meat from each side of the fish without gutting it (filleting) is an easy way to handle the demonstration. Some people prefer gutting the fish so the head can stay on for measuring and photos.

Cooking fish:

Another popular demonstration is cooking (and eating) freshly caught fish. Recipes vary from region to region but the result is universal, an enthusiastic response from hungry anglers.