

# Fishing Knots & Rigging

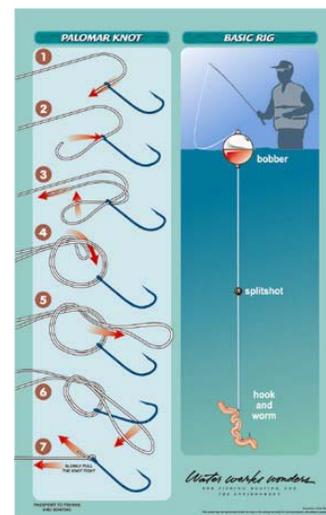
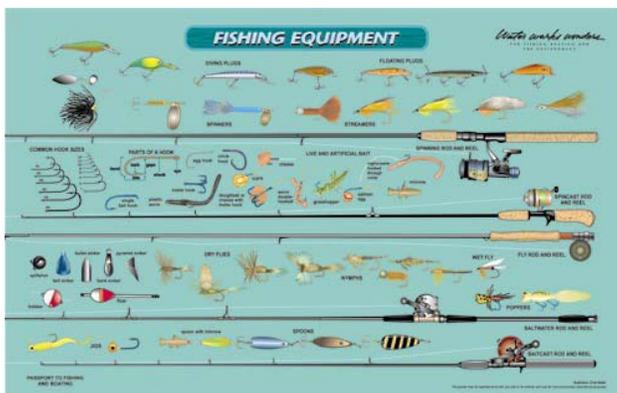
One of Six Stations in the Passport Program: An Introduction to Fishing and Boating

## Read before the Event

### Objectives:

At the end of this station participants will:

- ✓ Know how to tie a reliable knot for attaching hooks to fishing line,
- ✓ Know how to bend the barb down on a barbed hook,
- ✓ Understand that using non-lead sinkers and picking up discarded fishing line protects wildlife,
- ✓ Assemble basic rigging,
- ✓ Understand baits, lures, and flies attract fish.



# Background for the Volunteer:

Did you ever peer into a tackle box? It is full of fascinating do-dads; the equipment of countless dreams and a host of memories. Anglers put their confidence in a staggering array of both manufactured and homemade solutions to catch fish. But the truth is it takes just a few simple pieces of equipment to get started toward a lifetime of recreation.

This Station teaches the participants how to tie the Palomar Knot and how to put together a basic rig. Most of the activities can be done by the children, but crushing the barb is presented as a demonstration because children generally do not have the fine motor skills to do that independently.

The activities are designed to help make independent anglers. There are a few basic pieces of equipment they will need to know about and they should be able to fashion a basic rig after this station.

A good place to start is with fishing line. Fishing line comes in a variety of sizes but ten pound test line is good for beginners. They need to know that at times any line can get tangled or damaged and must be cut off. When this happens be sure you put it into your pocket or the trash. If you see tangled line left by another fisherman pick it up and put it in your pocket and save it for the trash container. Remember, wildlife (like bald eagles and turtles) can die if they get tangled in discarded fishing line.

A hook must be sharp to work and this makes care in handling very important. We recommend showing how to use a pair of pliers to bend the barb down. This makes it easier to release fish, and remove hooks in the event that you snag something while casting. You can catch a big fish with a little hook but you cannot catch a little fish with a big hook. So, a smaller hook is recommended for beginners.

We are also using a bobber, a float that keeps your bait from sinking all the way to the bottom. Bobbers also “bob” when a fish strikes the bait, letting the angler know it is time to tug on the line and set the hook in the fish’s mouth so it cannot get away.

The metal weight on the line is called a sinker. In the past, sinkers were manufactured only from lead. Unfortunately lead in the water has become a problem for ducks and other water birds. Since it is our job to look after our fishing and boating places, we will be using only the sinkers made of an alternative metal (tin or steel), not lead. We recommend using a splitshot. Splitshots should be fastened to the line with a pair of pliers, never with your teeth.

To attach items to fishing line we recommend a pair of needle-nosed pliers and one good knot. Fishing line is very strong but requires a good knot to hold the hook securely. This activity has instructions for the Palomar Knot written into the text. If you prefer the Improved Clinch Knot, the instructions appear under the Extensions section. Whenever you teach a new knot to children, start at the very beginning with the simplest move. Too often our instructions begin after two or three steps have already been made and the kids are already lost.

Natural bait is usually the place to start. Worms are good for nearly all freshwater (earthworms) and saltwater species (marine worms). Hook the worm through the body two or three times. It is a good idea to give the participants other options for bait. Children respond enthusiastically to smelling various baits. If catfish are sought after in your area, use stinky catfish bait. But there are other baits with a somewhat less penetrating smell that can be passed around a group to make the point that bait with a smell can be attractive to fish (Power Bait™, Velveta™ cheese, salmon eggs, canned corn).

Using your own tackle box or the equipment poster from the *Passport Materials Kit*, you will show the participants some lures and flies that look like smaller fish or insects. An important part of this station is making the connection between successfully catching fish and having something on the end of your line that looks, smells, or tastes like a desired food for the fish.

Putting a sample rig together to take home is also an important part of the program. Completed rigs should go into an envelope with the child's name on it. The Group Guide can carry the envelopes through the remaining stations and distributed at the end of the last station. Or, they can be collected and redistributed at the end of the program to parents/guardians too. Either way, having participant's hands free to participate in the rest of the stations is the goal.

The Knots and Rigging activity 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. You might like to use a Highlighter on the main points to help keep you on track. The script has room for your notes in the left column. 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 Fishing Knots & Rigging:

We strongly recommend that an experienced adult angler present this station. If you are not the state aquatic educator, a fishing instructor, or someone who regularly ties the Palomar Knot, you will need several practice sessions before an event where you will teach rigging.

Prepare in advance. If you need the script for the first couple of times through you might want to put 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.

Two volunteers are needed at this station to provide enough help when everyone builds a rig. Even with two volunteers, the parents of the participants should be involved to help assemble the rig.

Participants need to sit down to do this activity. A tarp or other ground cover not only provides a place to sit, but also aids in finding dropped hooks, splitshots, and line. Use a table to keep your gear and supplies together. Stand in front of the table so the seated participants will not be tempted to get up and crowd the table to see your equipment.

Tape the posters to the front edge of your table so they are at eye level and close to the participants. If that is not possible, move your station to where the posters can be displayed, particularly the Palomar Knot and Basic Rig poster. Having a visual image of how to tie the knot and the rig you are building makes teaching these items much easier.

When you distribute parts of the rig to be assembled, hand the parts to the adults. They in turn can give the part to their child. Distribute one item at a time, attach it, distribute another, attach it, etc.

This station requires a lot of small finger coordination. Give lots of positive reinforcement to the participants while they are tying the knot and building the rig.

You will need to pre-cut the fishing line into 4 foot lengths and crush the barbs on the hooks before the event. Keep enough uncrushed barbed hooks to use as a demonstration of how to crush the barb for each group.

While you are helping the participants build rigs, ask the Group Guide to put the participants' names on envelopes. The completed rig can be dropped into the envelope and held for later. The Group Guide carries these envelopes until the end of the program when they are redistributed to the participants before they go home. This allows the participants to keep their hands free for other station activities.

As you demonstrate tying the knot with a rope and large hook, do not tighten up the knot. You may not be able to get it undone easily. Just simulate tightening the knot, without actually doing it.

For the knot tying demonstration, have a volunteer hold the large hook while the presenter ties the knot.

- The presenter sits on the ground, with his/her back to the audience, so the participants can see over his/her shoulder.
- Participants watch the first time the knot is tied.
- The presenter then unties the knot and goes through the sequence one step at a time with participants following along and tying their knots at the same time using a real hook and fishing line.
- Parents should hold the hook and the loose end of the fishing line while the child ties the knot with the one free end.
- If you have time, clip and discard the first knots and let them tie the knot alone. The poster showing the knot should help them if they forget the sequence.

Similarly, have the parents hold both ends of the fishing line and hold it taut when the children attach the bobber. Bobbers should not be threaded through the free end of the line.

If you do not have enough adults to hold hooks or lengths of fishing lines, use packaging tape to secure one end of the line to the table.

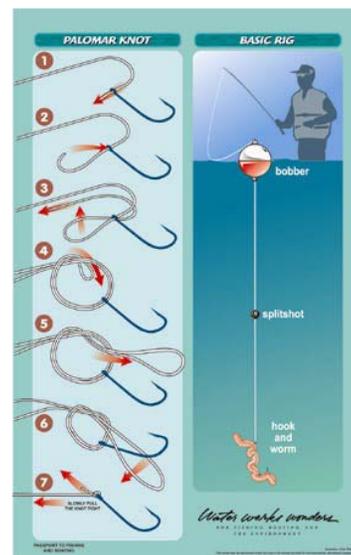
Participants frequently ask for a copy of the Palomar Knot diagram to take home. It is part of a template for a Handout at the Local Information station. Ask your event organizer if the template will be used and distributed as part of the "goodie bag" at the end of the event. If not, participants can print a copy of the Palomar Knot diagram at [www.WaterWorksWonders.org](http://www.WaterWorksWonders.org).

# Materials needed:

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

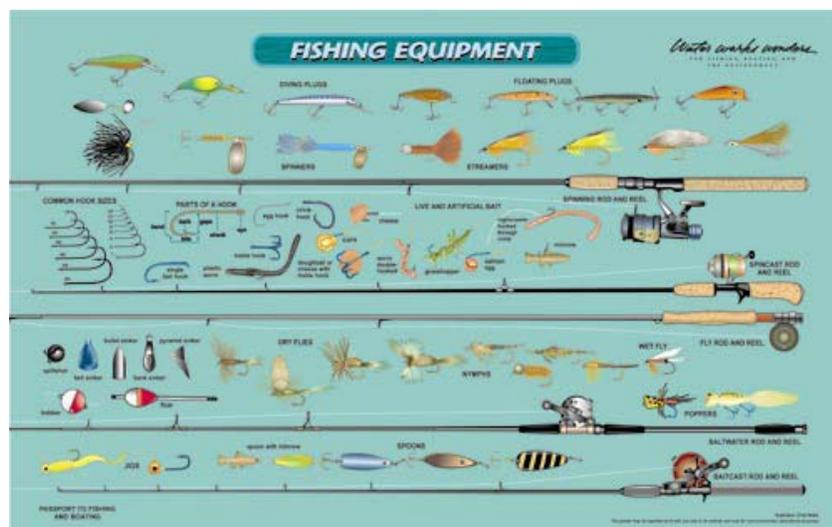
## Knot Tying:

- Tarp, ground cover, or plastic table covers for participants to sit on
- 1 large hook for demonstrating (hook is 10 to 15 inches long with large eye) is included in the *Passport Materials Kit* or may be purchased from Future Fisherman Foundation, 703-519-9691 or online at [www.futurefisherman.org](http://www.futurefisherman.org). Dull the barb with a file. The hook is best, but a large eyebolt can also serve the purpose.
- 1 length of parachute cord or 1/8 inch braided nylon rope 5 feet long, for knot tying demonstration. Check to see that the rope can fit through the eye on the large hook and then come back through again, forming a large enough loop so you can complete the knot.
- Supplies for 10 people to make rigs to take home. Allow for loss and breakage. Multiply by the number of groups of 10 people you expect at your event.
  - Spool of fishing line, 10 pound test, pre-cut the number of sections you need in 4 foot lengths (one per participant and a few extras)
  - 12 hooks with barbs, 11 have had the barb crushed so they may be used. One is to demonstrate barb crushing.
- 5 nail clippers for cutting fishing line
- 5 pair needle-nose pliers
- 1 barbless hook to show
- Knot tying poster showing Palomar Knot from the *Passport Materials Kit* or downloaded from [www.NationalFishingandBoatingWeek.org](http://www.NationalFishingandBoatingWeek.org):



## Rigging:

- Complete rig with rod, reel, line, bobber, splitshot, and hook. If the complete rig is not available, a poster showing a complete rig as shown on page 6 may be used.
- Supplies for 10 people to make rigs to take home. Allow for loss and breakage. Multiply by the number of groups of 10 participants you expect at your event:
  - 12 removable splitshot (no lead)
  - 12 bobbers
  - 10 paper envelopes or plastic bags to send rigging home with participants
  - 10 plastic bait worms to put over the points of the hooks before they go into the envelope to go home. They are very inexpensive when purchased in bulk. If that is not possible, 5 Styrofoam packing peanuts cut in half, to sink the hooks into before they go in the envelope or a roll of masking tape so that small pieces can be folded over the hooks
- Pen to write names on envelopes
- Bait to be passed around to smell (Power Bait™, salmon eggs, a can of corn, Velveta™ cheese, and maybe catfish bait, if catfish are a sought after fish in your area)
- Your own tackle box or a poster showing equipment array: spincasting rod and push button reel; spinning rod and reel; bait casting rod and reel; fly rod and reel; saltwater fishing rod and reel; and baits, lures and flies. The Fishing Equipment poster can be found in the *Passport Materials Kit* or downloaded from [www.NationalFishingandBoatingWeek.org](http://www.NationalFishingandBoatingWeek.org).



# SCRIPT STARTS HERE

Estimated time for the **Knot Tying** section: 9 minutes

**Presenter says the words in bold; participants answers appear 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.:**

► **Teaching Tip:**

Seat everyone, parents and children, on a tarp in front of your table.

## SCRIPT:

Ask the Group Guide to put each child's name on an envelope.

Display Palomar Knot and Basic Rig poster at eye level to your audience.

Stand in front of the table.

**Hi, my name is (fill in).**

**Who wants to learn how to fish?**

**We are going to try some of the things you need to know.**

**First we'll learn how to tie a good knot to keep your hook on a fishing line.**

**Fishing line is very strong stuff and you need a special knot to tie the hook to your line.**

**Hooks are sharp**

**That's why they catch fish.**

**Be careful with them.**

Hold up a hook.

**Does this hook look too small for the size fish you are planning to catch?**

**Remember, you can catch a big fish with a small hook but you cannot catch a small fish with a big hook.**

**We use barbless hooks or we crush the barb on a hook with barbs because:**

- **It is easier to unhook a fish you do not want to keep if you have caught it on a barbless hook**
- **If you accidentally hook something else, like your sweater or hat, it is easier to get it out**

**If you get a hook with barbs you can make it barbless with a pair of needle-nose pliers. Here is what it should look like.**

Show a hook with barbs and one on which you have crushed the barb so the participants can see the difference.

**This is a hook with barbs. Watch what I do to crush the barb.**

Using the needle-nose pliers, crush the barb against the shank of the hook as a demonstration of what they should do.

✓ **Objective:**

**Know how to bend the barb down on a barbed hook.**

**It takes dexterity to crush the barb. Parents, when you are fishing you may need to help with this process.**

**I have already crushed the barbs on these so we can use them to make our rigs.**

**Take a piece of fishing line. Share the nail clippers and pliers. Here is a hook.**

► **Teaching Tip:**

The parts are small. Hand them to the parents and let the parents hand them to their kids.

Distribute fishing line and hooks. Give hooks to parents to hand to the child.

Sit on the ground so everyone can see what you are doing over your shoulder as you tie the knot and refer to the poster.

Show the rope and the large hook.

**I'll demonstrate how easy this knot is.**

- **If you can learn to tie your shoes you can learn to tie this knot too.**
- **I am going to use this huge hook and a piece of rope to show you so you can all see at once.**
- **I am going to tie the Palomar knot.**

Have someone hold the big hook while you tie the knot. Do not pull it tight.

- **First watch while I tie the knot**
- **Then we will do it together one step at a time**
- **Then you can do it on your own**

**To tie the Palomar knot (demonstration):**

- **First put the line through the eye of the hook**
- **Then push the end of the line back through the eye so you have a loop on one side**
- **Use the loop and the two lines on the other side of the hook to tie an overhand knot (like**

✓ **Objective:**  
**Know how to tie a reliable knot for attaching hooks to fishing line**

you start with when you tie your shoes) but don't pull it tight.

- Put the hook through the loop
- Pull the loose end of the line to snug the knot.
- Trim the end to about 1/8 inch with the nail clippers

Now we will do it all together.

Everyone ties the knot together. Give help were needed.

- Let your parent or partner hold the hook.
- Put the line through the eye of the hook
- Put the end of the line back through the eye of the hook so you have a big loop on one side.
- Use the loop and the two lines you have on the other side of the hook to tie an overhand knot, but don't pull it tight.
- Put the hook through the loop.
- Pull the loose end of the line to snug the knot

**If you have time**, give everyone a couple of tries at tying the knot. They can cut the knot off with the nail clippers and start again. Groups with older kids work faster. The young ones take a little longer.

✓ **Objective:**  
Understand that picking up discarded fishing line protects wildlife.

**When your fishing line gets rough or nicked:**

- Clip off the bad part and use the next section
- Put the bad part in your pocket or your tackle box to be thrown away in the trash
- Wildlife (like a bald eagle or a turtle) can get tangled up in fishing line and die.

**It is our job to take care of places to fish and boat and this is one way that you can help.**

**Continue:** Estimated time for this section about **Rigging:** 6 minutes

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

✓ **Objective:**  
Understand that using non-lead sinkers protects wildlife

## **SCRIPT:**

**There are other things to go on this line too.**

- Here is a sinker. This one is called a splitshot
- It is a weight that will help you throw the line and keep your hook and bait from floating.
- Usually sinkers are made of lead but we use sinkers made of either tin or steel.
- Keeping lead out of the water is safer for critters and for us.
- Pinch the splitshot open with the pliers;
- Put the line through, pinch it closed with the pliers.

✓ **Objective:**  
**Assemble basic rigging**

- **You try it.**
- **Don't even think about pinching the splitshot with your teeth.**

Everyone puts a sinker on their line.

**We need a bobber too.**

Have parents hold the line taut with an end in each hand. That way the child must use the mechanism to attach the bobber rather than threading the line through the eye.

- **A bobber is a float that keeps your bait off of the bottom of the lake.**
- **Here is how you put it on.**
- **You can put one on your line.**

Everyone puts a bobber on their line.

**That's what the end of your line will look like. We call it "the rig." You can take yours home if you like.**

- **Here's a plastic worm to keep the hook from poking you. (Or: First put this little bit of Styrofoam on your hook so it will not poke through the envelope)**
- **Your Group Guide will give you an envelope with your name on it to put the rigging inside.**

- You will get it back when you finish the program.

Display Fishing Equipment poster or your own tackle box

✓ Objective:  
Understand baits,  
lures, and flies  
attract fish

**We will start with bait because it is natural fish food and easy to use.**

- Flies and lures, like these, try to fool the fish into thinking they are fish food but they are not.
- What do you think this one looks like to a fish?

Refer to Fishing Equipment poster or hold up items from your own tackle box that look like a smaller fish or an insect.

- So, that would look like the right thing but once a fish takes a taste of a fly or lure they know it isn't the right thing and will spit it out.
- You will learn to be a skillful angler if you practice, so you can catch the fish before it spits a fly or lure out.

**Until then, these are baits.**

Pass around baits.

- Bait can not only look like something natural but can also **SMELL** like something that fish would like.
- What would you want for dinner?

- **Hamburgers? See if this smells like hamburgers to you!**

**It may not smell good to you but the important thing is that it smells good to a fish!**

**I know you will have fun fishing.**

**It's been great seeing you.**

**Now your Group Guide will ask you some questions and then take you to the next station.**

## **Group Guide's Questions**

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

**Bait can LOOK like something the fish normally eats. What else would a fish find attractive?** *It can SMELL or TASTE like something the fish would normally eat.*

**What kind of sinkers would you buy to help wildlife?** *Unleaded!*

**Why would you bend the barb down on your hook?** *So it is easier to release the fish or whatever else is caught.*

# OUTLINE STARTS HERE

(Ask Group Guide to put names on envelopes)

Introduce yourself and **Fishing Knots and Rigging** station

Who wants to learn how to fish?

We will try things you need to know

- Fishing line is strong; you will need a good knot
- Hooks are sharp so they catch fish – be careful
  - Is this hook too small for the fish you are planning to catch?
  - You can catch a great big fish with a small hook but not a small fish with a big hook
- Use barbless hooks
  - easier to unhook fish
  - easier to get off of your sweater or hat
- Making a barbed hook barbless (show difference)
  - watch me crush the barb
  - you might need adult help for strength
  - I have already fixed these for us to use

✓ **Objective:**  
**Know how to bend the barb down on a barbed hook**

Get ready to tie the Palomar Knot

- Get a piece of fishing line, share the pliers & clippers
- Here is a hook (hand to adult)
- If you can tie your shoes, you can tie this knot
- First watch while I tie the knot
- Then we will do it together, one step at a time
- Then you can do it on your own

Demonstrate tying the Palomar Knot:

- **First put the line through the eye of the hook**
- **Then push the end of the line back through the eye so you have a loop on one side**
- **Use the loop and the two lines on the other side of the hook to tie an overhand knot (like you start with when you tie your shoes) but don't pull it tight.**
- **Put the hook through the loop**
- **Pull the loose end of the line to snug the knot.**
- **Trim the end to about 1/8 inch with the nail clippers**

Tie the knot, one step at a time, you with the large hook & rope, everyone else with a small hook and piece of fishing line

✓ **Objective:**  
**Know how to tie a reliable knot for attaching hooks to fishing line**

If there is time, clip the knots and let them tie independently

When your line gets rough or nicked

- Clip off the bad part and use the next section
- Put it in your pocket and dispose of the line properly
- Bald eagles and turtles can get tangled
- We will take care of places to fish & boat

✓ **Objective:**  
**Understand that using non-lead sinkers and picking up discarded fishing line protects wildlife**

Sinkers

- Weight to help you throw the line and keep the hook and bait from floating
- Usually made of lead but we use either tin or steel (safer for critters and for us to keep lead out of the water)
- These sinkers are called “splitshot”
- Pinch it open with the pliers (never your teeth), pinch it closed with the pliers
- You put one on your line

✓ **Objective:**  
**Assemble basic rigging**

Bobber

- Float that keeps your bait off of the bottom
- Here is how to put it on
- You put one on (Parents hold line taut so the kids work mechanism and the bobber is not threaded on line)

Add plastic worm to keep hook from catching you

Put your rig in the envelope Group Guide prepared

Give it to Group Guide to hold for you until you have done all stations

✓ **Objective:**  
**Understand baits, lures, and flies attract fish**

Bait, flies, lures

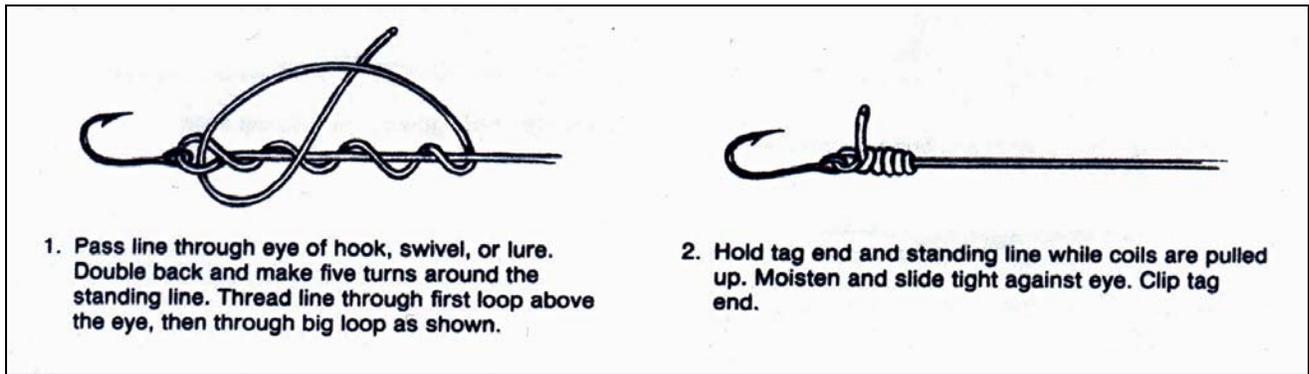
- Flies and lures try to fool the fish into thinking they are fish food.
- What do you think this one looks like to a fish?
- They will taste and spit out.
- Skillful anglers can catch the fish before it spits the lure fly out
- Bait is the actual food for the fish. Taste or smell important.
- Pass around bait to smell

Have fun. Group Guide will ask questions and then take you to the next station. Bye.

# Extensions:

**Improved Clinch Knot:** In some areas the Improved Clinch Knot is more commonly used and may be substituted for the Palomar Knot. To tie the knot:

- Put the end of the line through the eye on the hook
- Wrap the end of the line around the standing line five times
- Double back by threading the end of the line through the first loop above the eye on the hook
- Thread the end of the line through the big loop formed when you doubled back
- Wet the knot with your fingers
- Snug the knot
- Trim the end to about 1/8 inch



**Fishing Equipment:** Using the Fishing Equipment poster provided with the *Passport Materials Kit* or download from [www.NationalFishingandBoatingWeek.org](http://www.NationalFishingandBoatingWeek.org), explore the rich variety of equipment available to catch fish. If you have examples of different rods and reels and a well stocked fishing tackle box, bring them so the participants can see first hand some of the things that are available. Talk about the different situations that make some kinds of rods and reels better to use in those circumstances. Emphasize that learning to fish is usually easiest using a rod and spincast push button reel, but there are lots of choices in fishing. Classes are available through your local fishing store to learn to use different kinds of equipment.