

U.S. Fish and Wildlife Service

Let's learn how to Fish!

Warm Springs Regional Fisheries Center



Fishing and related ecosystem information for kids



Welcome to Warm Springs Regional Fisheries Center! The Center is composed of several different programs including a National Fish Hatchery, Fish Health Center, and Fish Technology Center. While you are here, you can visit the aquarium, display ponds and nature trail and you may discover fish, plants and wildlife that are common to central Georgia habitats. This booklet was developed to promote fishing as a fun family activity and hopefully encourages you to Get Outdoors! Thank you for visiting today!

Using this booklet, you will gain knowledge to:

- Learn fishing basics and angling safety
- Identify Georgia native fish, wildlife, aquatic animals, and their habitats,
- Discover the importance of aquatic ecosystems
- Become conservation and environmental stewards
- Understand the mission of the U.S. Fish and Wildlife Service

This booklet was funded by the National Conservation Training Center's Youth in the Great Outdoors FY2011 Regional Funding Initiative.

Warm Springs RFC Animal Quiz

● What bird found at the Warm Springs Regional Fisheries Center has the largest wingspan?

Great Blue Heron Kingfisher Purple Martin Osprey Red-tailed hawk

● What type of aquatic system listed is not found at Warm Springs Regional Fisheries Center?

Creek Pond Spring Tributary Ocean

● What animal has the strongest poison?

Arrow-poison frog Rattle snake Black widow spider Diamond black snake Scorpion

● What type of footprints can you find at Warm Springs Regional Fisheries Center?

Dog Deer Raccoon Fox All of the above

● What kind of fish can only be found in a pond?

Bass Catfish Bluegill Sturgeon None of the above

● What is the area between land and a stream called?

Cereal bar Trail Riparian zone Zip line Bicycle path

● What is the pH of freshwater?

4 7 10 0 12

● Which turtle is not found in Central Georgia?



loggerhead



snapping



red-bellied slider



yellow-bellied slider



softshell

● Which tree is not native to Warm Springs?



pine



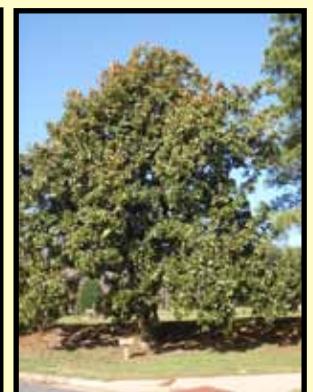
cedar



palm



holly



magnolia

● What are invertebrate animals lacking?

Ears Scales Tails Fur Backbones

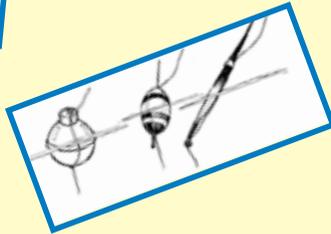
(answers on page 7)

Fishing Basics

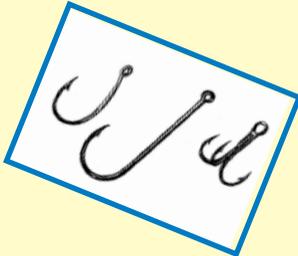
Fishing is fun for everyone. Let's learn about the basics of fishing including gear needed, landing fish and catch and release.



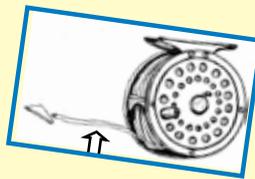
ROD



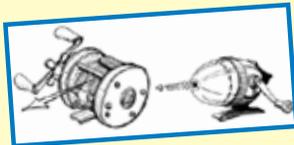
REEL



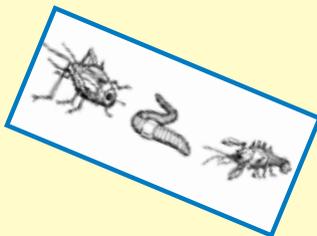
LINE



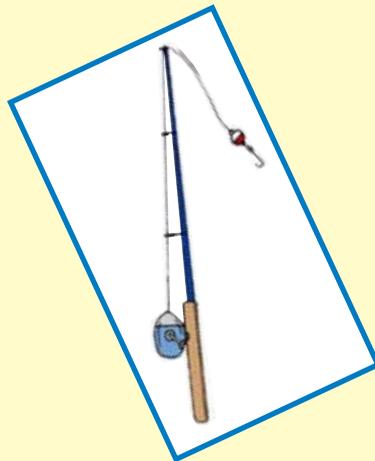
BAIT



HOOK



SINKER



FLOAT

How to land a fish:

1. Set the hook
2. Fight the fish (reel it in)- for really large fish you may have to “pump the rod”
3. Land the fish- by hand, onto the ground or with a net

Catch and Release Tips:

To release a fish, keep it in the water if you can. Handle the fish as little as possible and avoid holding with dry hands to prevent removal of protective slime coating. Don't let the fish bounce on the ground, boat deck, carpet or on shoreline rocks and gravel. Watch out for sharp edges and if you must hold a fish by putting your hand through the gill opening, avoid touching delicate gill filaments.

Don't keep a fish out of water longer than you can hold your breath and never tear a hook out. This can harm the fish and it may not live. If the fish is hooked deeply and you can't easily remove the hook, cut the line to release the fish. The hook will rust, dissolve, or become loose without harming the fish. If you are using bait or lures that are frequently swallowed and deep hooking is likely to be a problem, use barbless hooks. Unhooking your catch with barbless hooks is faster, easier and healthier for the fish. If a fish loses consciousness, try to revive it by gently moving it forward and backward so water moves through its gills. When the fish begins to struggle and can swim, let it go.

Basic Safety

Fishing isn't a dangerous sport, but you should prepare to keep safe and comfortable in the outdoors. It is possible to get caught unexpectedly in bad weather, encounter insects, spend too much time in the sun, or get caught on a fish hook.

Best way to keep safe is to be aware of the hazards and try to prevent them:

Hazard	Prevention
Poison ivy	Watch where you touch
Ticks	Tick check after being outdoors
Snakes	Beware of areas that they may be found
Ants	Watch where you step
Stinging insects- bees, wasps	Watch out/carry necessary equipment, if allergic
Slippery areas	Careful footing
Fish hooks	Be aware of surroundings and cautious
Fin spines	Handle fish carefully
Dehydration	Drink lots of water
Sun overexposure	Wear sunscreen/appropriate clothes
Hypothermia	Dress appropriately /get out of cold or wet and windy conditions

Safety with fishing equipment: look before casting; take caution and use long-nose pliers to remove hooks from fish; ensure hook is safely retained when transporting your equipment, ensure you handle fish appropriate according to species.

To handle emergency situations that may arise, it is best if you and your parents are prepared by taking a first aid/CPR course, which will teach you about dealing with broken bones, cuts and bleeding, and other serious injuries.

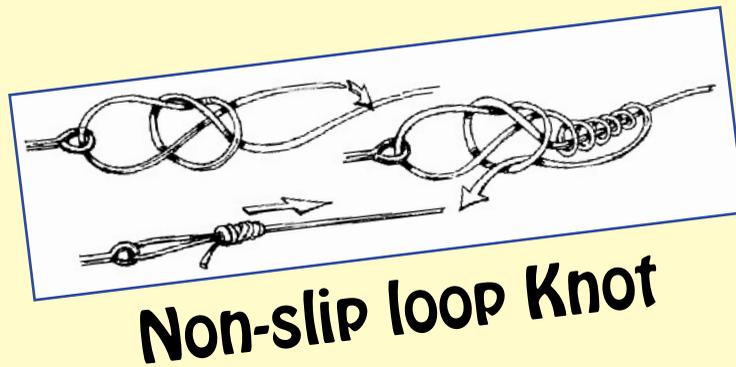
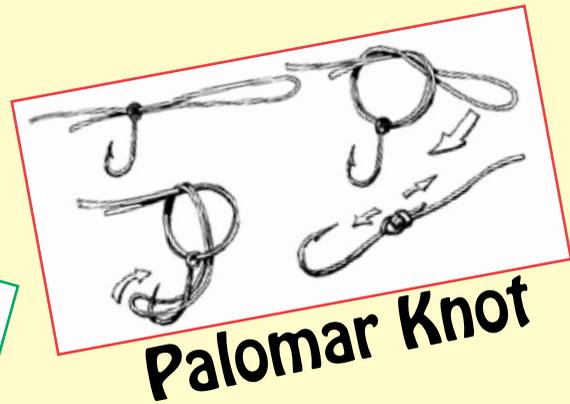
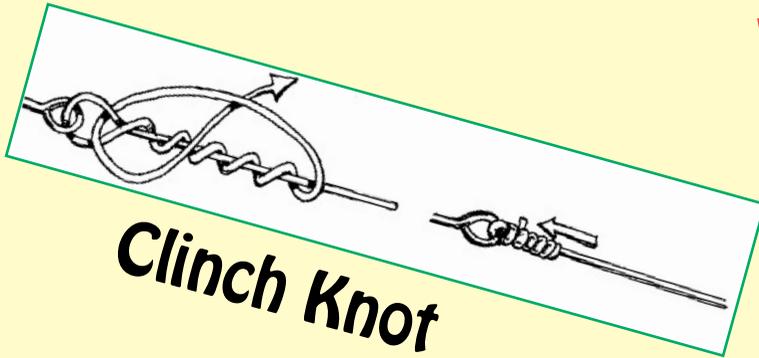
Safety around water: learn to swim; use buddy system; wear a personal floatation device; REACH, THROW, ROW, GO for assisting drowning individual



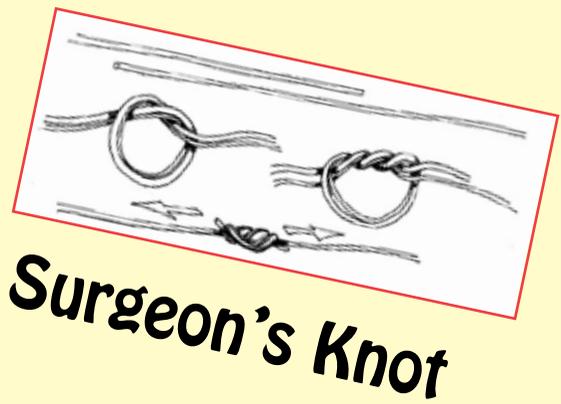
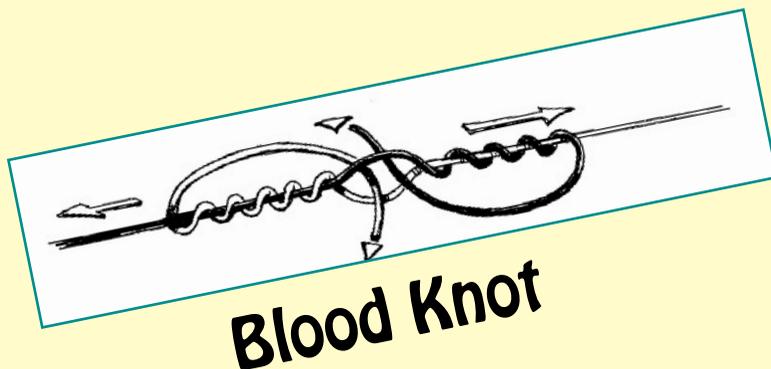
How to Tie knots

Learning to tie knots is an important part of fishing. You need to tie your hook/lure to your fishing line. Below are some diagrams of the popular knots used to fishing.

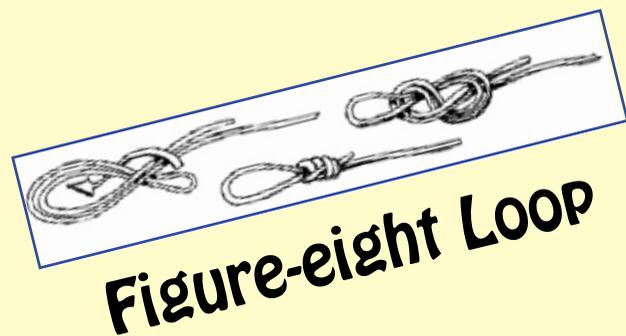
Knots to tie on hooks, lures, rigs



Knots to join lines



Knots to make a loop



Fishing Tackle and Casting

Fishing tackle is used to get your bait or lure to the fish. You don't need a lot of equipment to begin fishing. In fact, it's a good idea to begin with basic, simple tackle.

The Most Basic Tackle

The simplest fishing tackle is a pole. The pole can be made of cane, bamboo or a straight piece of tree branch. Cut a piece of fishing line as long as the pole. Tie the line to the tip of the pole and a hook to the other end of the line. A small sinker, called a "split shot," is squeezed onto the line above the hook. The sinker makes it easier to swing the bait out into the water and keeps the bait under the surface. You may also want to use a bobber or float. By moving the bobber up or down the line, you can change the depth of your bait in the water. With a pole and line you can fish the area near the bank, where many fish live.

Rods and Reels

There are four main reel types. Other types of fishing tackle use reels to store large amounts of line. They let you cast farther. They also help you retrieve lures correctly, fish in deeper water, and battle larger fish.

Four kinds of reels: spincast, spinning, baitcast, and fly.

Each kind uses a different type of rod.



Three reel types from top spinning, baitcasting (2 shown), spincasting. Baitcasting reels are usually good for bass and striper fishing, whereas spinning reels are good for long-distance casting but require a bit more practice.



*Parts of a spinning reel:
1: Pick up or bail
2: Reel seat
3: Reel foot
4: Handle
5: Support arm
6: Anti-reverse lever
7: Skirted spool
8: Fishing line
9: Drag adjustment knob*

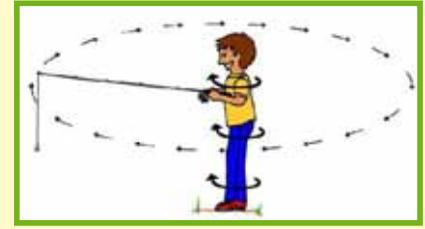


Man fly fishing in river. Notice the lightweight rod and reel.

Spincast reels are ideal for beginning anglers and often used while fishing for bluegill, crappie and other panfish.

For practice, push button spincast rod and reel to cast a weighted plug toward a target.

Overhand casting is most useful in wide open situations. If you are in an area where bushes and trees make overhand casting difficult or on a boat with other casters, then pitch casting using a pendulum swing in front of you is recommended.



In a real fishing situation casting with hooks requires a great deal of caution. Since we are preparing for a real fishing experience, we need to keep our eyes on the hook or plug at all times, even when it is behind you, to help avoid accidents. Before you start practicing, make sure you have enough space around you by holding out your rod and turning around to mark an imaginary “safety circle”.

HOW TO CAST:

- Hold the rod tip pointing toward the sky when carrying them around to avoid catching the hook on anything other than a fish.
- Reel in the plug by turning the handle on the side around and around until the plug hangs no more than 4 inches from the rod tip.
- Keep your feet on the ground, slightly apart, facing forward towards the target. Do not step forward as you are casting.
- Keep your eye on the plug or hook at all times.
- Press and hold the button down on your reel with your thumb.
- Draw your hand up towards your ear.
- As you bring your arm forward to toss the baited hook, release the button by lifting your thumb but keeping your fist closed. Just like you open your hand when you are throwing a ball.
- Follow through by pointing the tip of the rod at the target.
- When a fish takes the bait (plug), an angler drives the hook into the fish’s mouth by slightly jerking up and back on the rod. This is called “setting” the hook. Remember that we are not trying to throw the plug as far as it will go. We are trying to have enough control to hit the target.
- Watch the plug, even when it is behind you. Sometimes the line can get looped around the end of the rod and your cast cannot work that way.

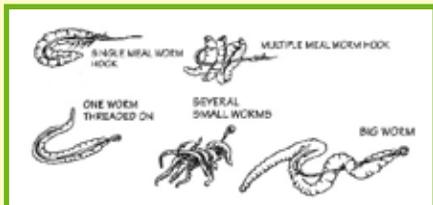
Animal Quiz Answers (from page 2)

- The wingspan of the Great Blue Heron is almost 7 feet.
- Oceans are salt-water habitats not found inland.
- The arrow-poison frog secretes its poison through its skin.
- Dog, Raccoon, Deer, and Fox footprints can all be found at Warm Springs.
- All of the fish can be found in places other than a pond.
- Riparian zone is the area between a stream and land.
- pH of freshwater is usually around (a 7).
- Loggerheads are a type of sea turtle found in oceans and saltwater environments.
- The palm tree is not native to Warm Springs. They are usually found in tropical environments.
- Backbones are missing from invertebrates. Our backs are supported by a column of bones called vertebrae, so that is why we are called vertebrates.

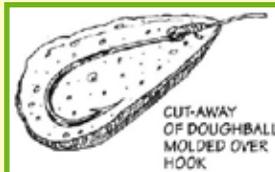
Baiting a Hook

Always check your **fishing regulations** to make sure the bait you choose is legal for the lake you are fishing.

Learn to hook bait the right way to catch the most fish! Check out the following proven methods for hooking all types of baits:



Worms- earthworms, manure worms, meal worms, grubs



Doughballs



Crayfish, shrimp



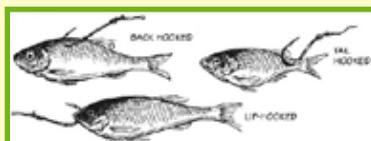
Cut bait (cut from fish, minnows, or eels)



Clams, mussels, other soft baits (chicken livers)



Insects- hoppers, crickets



Minnows

Artificial lures:



Jigs and spoons



Plastic baits and plugs

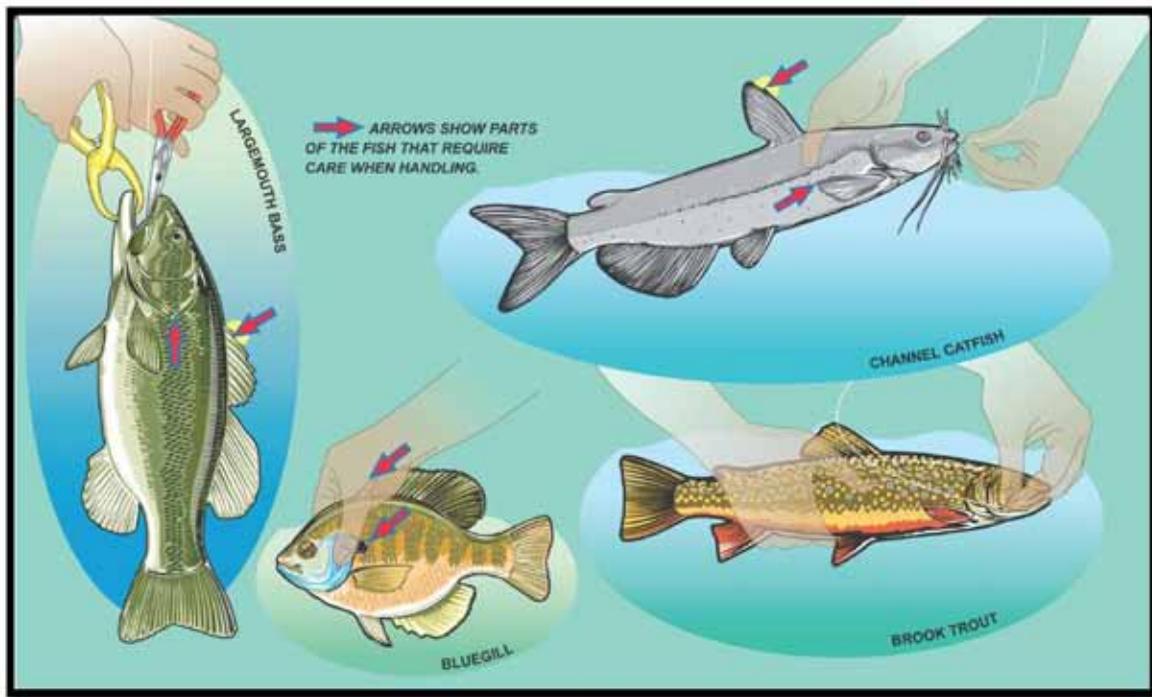


Spinners, spinnerbaits, POPPERS and flies

How to be a responsible angler:

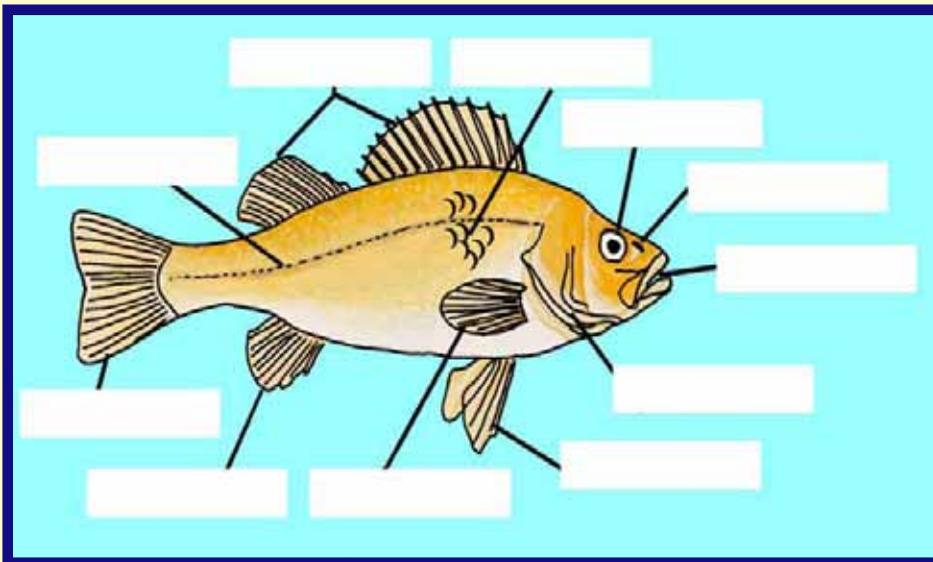
- Throw litter in trash receptacle.
- Never waste fish. Keep only the amount of fish that you will use. Practice catch and release.
- Know and follow fishing regulations.
- Report violators.
- Protect the area around the waters.
- Continually seek new knowledge and skills.
- Share your knowledge.
- Participate in community projects.

Fish Handling



How to properly handle fish.

There are more than 24,000 known fish species in the world, and many of them look very different from one another. The fishes you observe will probably not look exactly like the fish in the diagram, and may not have all the fins described.

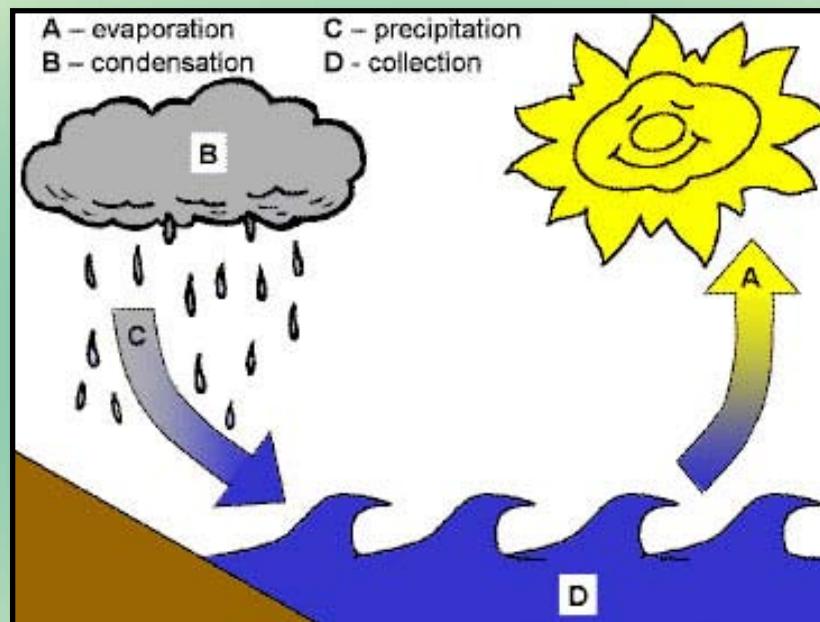


- mouth
- eye
- gill
- lateral line
- anal fin
- caudal fin
- nares (nose hole)
- dorsal fin
- pectoral fin
- pelvic fin
- scales

Match the fish body part with the missing block on the fish diagram.

Water Basics

- Water is essential for life on Earth and covers more than 70% of the Earth's surface.
- Water from a sea or ocean is known as seawater.
- The longest river in the USA is the Mississippi River; it reaches 6275 kilometers in length (3902 miles).
- The water cycle involves water evaporating (turning into a gas), rising to the sky, cooling and condensing into tiny drops of water or ice crystals that we see as clouds, falling back to Earth as rain, snow or hail before evaporating again and continuing the cycle.
- Pure water has no smell and no taste; it also has a pH level around 7.
- Most people around the world have access to clean drinking water but it is a major problem in poorer areas of the world. Water pollution and low quality water can lead to dangerous bacteria, disease and viruses.
- Drinking water is needed for humans to avoid dehydration and 5% of drinking water comes from rivers and streams. Water is also used for fun. Water sports are a very popular recreational activity and include things like swimming, surfing and waterskiing. Ice and snow is also used in ice skating, ice hockey, skiing and snowboarding.

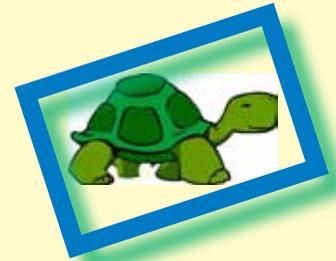


Earth's water cycle.

Aquatic Habitats

Clean Water

Animals and plants need healthy water to live and grow. Unscramble the letters to find out who we are. Use the pictures as clues.



H S I F _____

R G O F _____

T L R U E T _____

G B S U _____

L A P N S T _____

National Fish Hatchery System

The National Fish Hatchery System was begun over one hundred forty years ago to produce fish to add to dwindling wild fish populations. As with other kinds of wildlife, many fish populations suffered from human activity and impacts on their habitats. Aquatic habitats are places where animals and plants live in freshwater. Three types of freshwater ecosystems are lentic, lotic and wetlands.

At the Warm Springs National Fish Hatchery, do you observe lentic (still water) or lotic (flowing water) habitats, or both?

Is the water warm or cold? Why?

Look under rocks, and use a net to see if there are any macroinvertebrates in the water. Can you identify what they are?

Look at the plants in this habitat. Are many of them growing in the water?

Do you see fish? Do you know the species? Do you think warmwater fish or coldwater fish would live here?

List some ways fish have adapted to each habitat?

Hints:

What do they eat?

How might they hide?

Do they survive best in warm or cold water?

Do they survive best in moving or still water?

Where might they go to spawn/reproduce?

Answers to word unscramble: fish, frog, turtle, bugs, plants

Importance of Aquatic Habitats

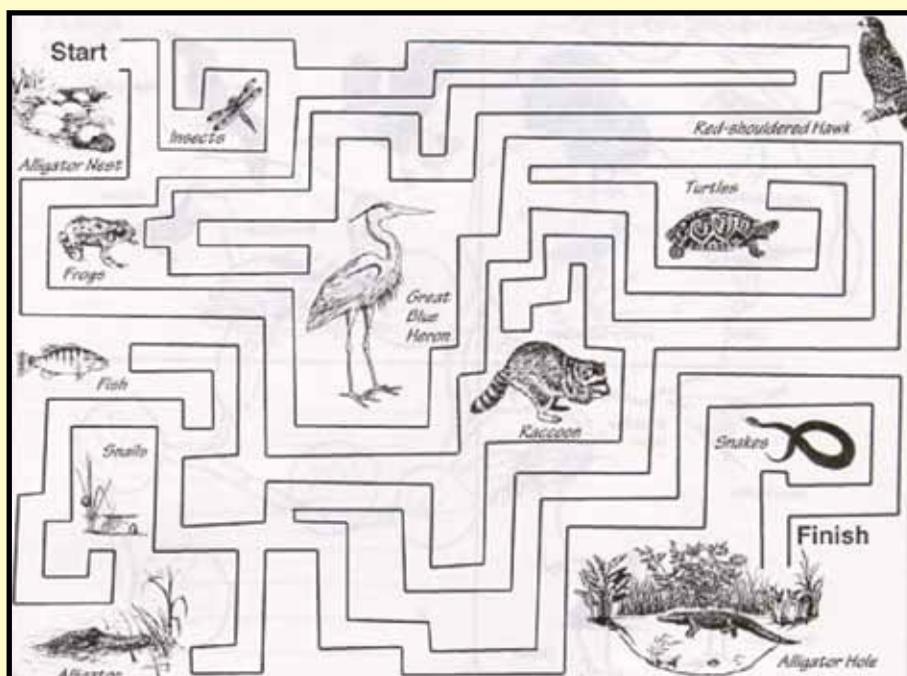
Word Search

Q	S	R	H	A	T	C	H	E	R	Y	M	T
A	T	S	A	B	H	V	N	W	N	H	V	H
W	R	E	B	A	L	L	I	G	A	T	O	R
F	I	W	I	S	T	Z	F	O	H	M	P	E
M	P	G	T	H	W	M	W	K	N	S	L	A
N	E	M	A	I	I	H	A	S	R	T	U	T
V	D	J	T	F	L	G	R	E	F	U	G	E
W	B	H	W	P	D	O	M	A	I	R	J	N
M	A	M	M	A	L	F	S	D	S	G	L	E
B	S	J	V	B	I	K	P	N	H	E	B	D
C	S	E	L	N	F	B	R	S	W	O	C	E
D	Y	G	A	D	E	M	I	F	L	N	M	G
L	X	R	M	S	J	K	N	H	N	P	D	L
I	E	E	N	D	A	N	G	E	R	E	D	S
P	R	T	O	I	X	T	S	L	D	X	A	E

- ALLIGATOR
- EGRET
- ENDANGERED
- FISH
- HABITAT
- HATCHERY
- MAMMAL
- REFUGE
- STRIPED BASS
- STURGEON
- THREATENED
- WARM SPRINGS

All of the animals listed in this word search depend on aquatic habitats. It is important to conserve and protect aquatic habitats for these animals as well as for clean water for human use. Humans use aquatic habitats for a drinking water source and also for recreational activities such as fishing, boating, skiing and canoeing.

Alligator Crawl: Can you help the hatchlings find their way to the alligator hole?

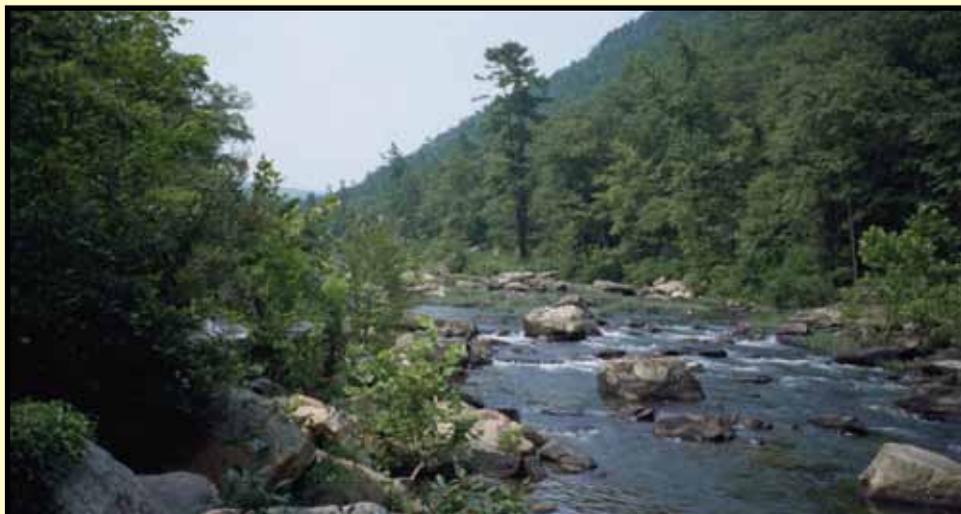




An example of an aquatic habitat.

Why are aquatic habitats important?

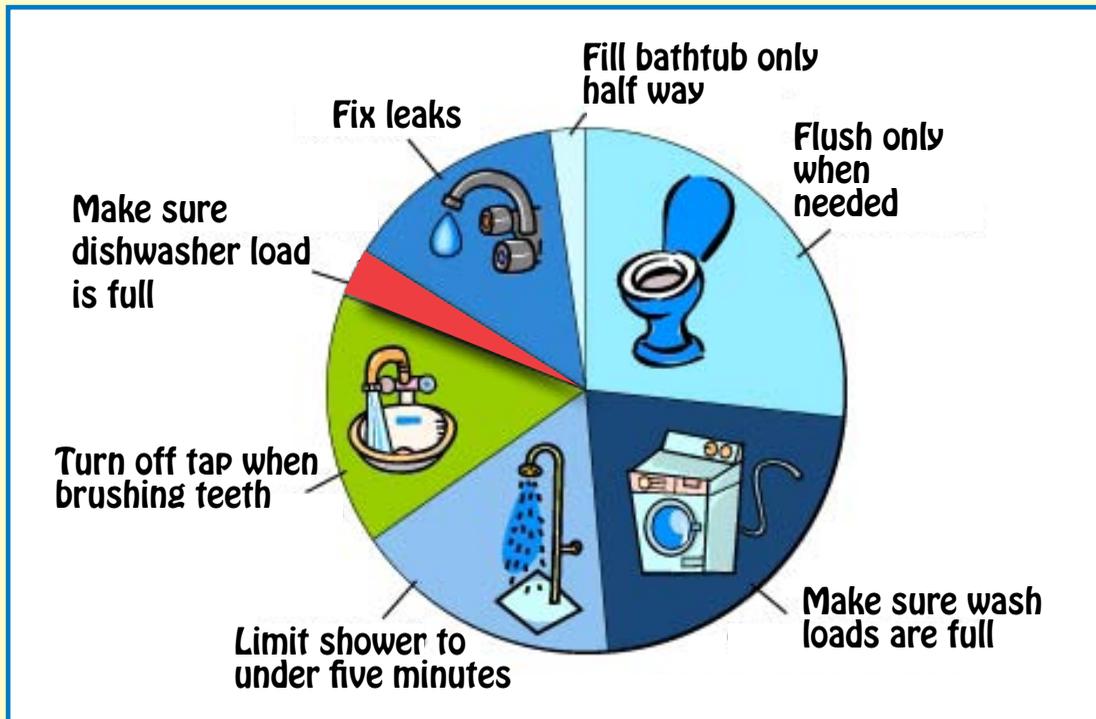
- Provide drinking water for you
- Boating, kayaking, skiing, swimming, snorkeling and other recreational activities including those important for tourism
- Plants need water to grow and survive
- Water source and living space for animals
- Earth's cycles (water, nutrients, etc.)
- Can be used for travel



Let's keep them clean and beautiful for everyone!

Conservation: How to Become a Steward

Here are simple tips for saving water and helping aquatic ecosystems. Here's how you can help at home:



Prevent Water Pollution

Garbage in the water looks bad and can cause problems for both wildlife that mistake it for food and eat it, and for boaters. A significant number of boaters have had cool-water intake valves clogged by plastic bags, causing engine overheating and expensive repairs. Others have had monofilament fishing line wrapped around their propeller, and others have seen enough trash in the water to see what direction the current flows.

Every drop counts!



SAVE WATER OUTDOORS.

Use a bucket of water when washing the car. Use the hose for rinsing only.

Only water the lawn and garden when they're really dry. Water when it's cool, not during the hottest part of the day.

Sweep the driveway instead of hosing it down.

The illustration shows a blue car being washed. A person in a yellow shirt and red bow is using a bucket of water to wash the car. Another person in a blue shirt is using a hose to rinse the car. There is a yellow bucket of water on the ground. The scene is set outdoors with a smiling sun in the background.



Which River looks better or healthier to you? Which one would you rather drink from?

Water pollution sources:

- Silt/sediment
- Agricultural wastes-manure, liquid and granular fertilizers, silo liquids and pesticides
- Acid Rain
- Sewage
- Industrial Waste
- Petroleum Products
- Trash
- Nuisance Species- biological pollutants- organisms that upset the delicate balance of an aquatic system



Largemouth Bass, Duane Raver

Top ten animals found at Warm Springs RFC

Listed below are the top ten species of animals found at the Warm Springs Regional Fisheries Center. Can you match them with their pictures?



striped bass
purple pitcherplant
yellow-bellied slider
copperhead
Piedmont blue
borrower crayfish
purple bankclimber
American alligator
Great blue heron
purple martin
bluegill





Junior Ranger learning to fish at Warm Springs Regional Fisheries Center.

**Special thanks to
Nicole Rankin for her
dedication to outreach
for the
U.S. Fish and Wildlife Service.**

**This booklet was originally developed by
U.S. Fish and Wildlife Service Fish Biologist, Allison Hernandez**

All images in this booklet, unless otherwise marked, are courtesy of the USFWS.

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August 2012



The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

We will continue to be a leader and trusted partner in fish and wildlife conservation, known for our scientific excellence, stewardship of lands and natural resources, dedicated professionals, and commitment to public service.

The Conservation Principles:

Stewardship - Our ethic is to conserve natural resources for future generations.

People - Our employees are our most valued asset.

Science - Our work is grounded in thorough, objective science.

Partnerships - We emphasize creative, innovative partnerships.

Professionalism - We hold ourselves to the highest ethical standards, strive for excellence and respect others.

Legacy - We ensure the future of natural resource conservation by connecting people with nature.

Service - It is our privilege to serve the American people.