

Volume 22

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## BULL TROUT



Photo courtesy Bart Gammet USFS

# WHAT'S A FISH?

Fish are vertebrates. They have backbones, just like you. Fish also breathe through gills, have fins and live in water. That seems pretty simple, right? Well, in nature things aren't always as simple as we would like them to be.

Take the backbone for example. We know what our backbone is like, but in the fish world, not all backbones are created equal. Sharks and sturgeon have a backbone made of the same stuff that supports your nose and ears! It is called cartilage. Cartilage is not hard at all!

Fish need oxygen to survive. Most fish have a special way to get oxygen out of the water they live in – gills. Water, with oxygen in it, passes over the gills when the fish swims. The skin on the gills is thin. Oxygen can pass through the skin into the fish's bloodstream.

Does this mean that all fish use gills to get the oxygen they need? No, some fish actually have lungs! In fact, the African lungfish is so dependent upon breathing air above the water's surface that it will "drown" if kept under water. The Australian lungfish can survive out of water for

months if it is in a wet burrow. Lungfishes are examples of fish that break the "gill rule."

We usually think of fish as having fins on each side of their bodies, but what about lampreys? Lampreys look like eels. They don't have paired fins or jaws, but they are still fish. In fact, lampreys represent some of the first freshwater fish to appear on Earth.

So as you can see, a simple job like defining what is a fish isn't so simple. Fish have been a part of our planet for at least 450 million years. There are over 20,000 different species of fish worldwide. Over time, they have adapted to many underwater (and even out of water) habitats.

## ICY WATER!

What happens to fish in the winter? Most fish are cold-blooded. Their body temperatures are the same as the temperature of the water in which they live. So what happens to fish when ice starts to form on top of the water, and winter shows its bitter side?

For fish that live in rivers like the bull trout, things don't change too much. The temperature of the water does drop, but the moving water usually keeps ice from completely covering the surface of the river. Things are a bit different for ponds and lakes. Ice acts like a lid on top of the water. Light and oxygen can't get through the ice. Not only fish are affected, but everything living under the ice is too.

One thing that ice can do is lower the amount of oxygen in the water. Fish and other animals that live in the water need oxygen to survive. One way oxygen gets into the water is by waves and splashes. Water can't move if it is covered by a blanket of ice, so less oxygen gets into the water to replace the oxygen used by animals. To lessen the amount of oxygen they use, fish and other animals slow down. They become less active, so they use less oxygen. Some animals enter a sort of hibernation.

Just like many trees drop their leaves in the fall, so do many water plants. Plants need sunlight to make food. Ice acts like a curtain on top of a pond. It keeps much of the light from entering the water. This causes many plants to stop making food. Their leaves drop off. Sometimes even the stems die off. With their leaves gone, plants shut down and rest for the winter. Plants are no longer making oxygen. This can further decrease the amount of oxygen in the water. If there is not enough oxygen in the water, fish may begin to die. When this happens, it is called a "winterkill."

Next time you see a pond or lake in the winter, think about the creatures living in it. What are the animals going to do to make it through the winter?



*Photo courtesy Brenda Beckley*



*Photo courtesy Jacob Hughes*

## LET'S LOOK AT.....BULL TROUT



Bull trout are Idaho's largest native trout. They can grow to about 20 pounds. The biggest bull trout ever caught was 32 pounds! That's the average weight of a four year old kid. It was caught in 1949 out of Lake Pend Orielle (Pond-or-Ray) in Northern Idaho. Bull trout are in the salmon family. Within the salmon family they are in a group of fish called char. Char are dark colored from gray to brownish green and have light colored spots. Lake trout, brook trout and Dolly Varden are types of char. Bull trout are very closely related to Dolly Varden. In fact, it was once thought that Dolly Varden and bull trout were the same fish. They look alike, but have different habits. The scientific name for bull trout is *Salvelinus confluentus* (*Sal-ve-lee-nus Con-flew-en-tus*).

In Idaho, bull trout are a threatened species. This means very few bull trout live in our streams. We don't have as many bull trout as we once did. They could go extinct. The Idaho Fish and Game

manages these fish, and works to make sure we have more bull trout in the future. Right now people can't fish for bull trout in Idaho. If you accidentally catch a bull trout you must leave the fish in the water and release it back into the stream. We don't have as many bull trout as we once did.

Bull trout require special habitat. An animal's habitat is where the animal lives. For a bull trout, their habitat is a stream or river. What is special about what they need? Bull trout are more sensitive than other types of trout. They need very cold and clean water. The water can't be polluted or too warm. Bull trout can't survive in water that is warmer than 60 degrees Fahrenheit. The water should be so cold that your fingers would get numb in just a few minutes. Within the rivers, they need deep pools with slow-moving water for resting. They require fast-moving water with riffles and waves to bring in the oxygen they need. Logs and boulders in the water are important components of habitat and provide shelter for fish. These places are where bull trout hide from predators like bald eagles.

A healthy stream makes a good place for bull trout to lay eggs. Adult bull trout lays spawns when about age six. Spawning takes place in September and early October. The female builds the nest or "redd." She builds her nest where the eggs will get enough oxygen to breathe. Eggs can't breathe where dirt or silt can cover them. She turns the gravel with her tail to clean the eggs. She then digs down several inches before burying her eggs in the gravel. The eggs begin to grow over the winter into tiny fish called fry. The fry eat aquatic insects that live in the water. The fry stay hidden under rocks and pebbles in the water until spring. In the spring, these tiny fish move into bigger streams or travel to lakes to grow into adult fish.

## RIVER SHARKS

Bull trout have big appetites. You could say they are the sharks of our rivers and streams. They are well known for their ability to eat all kinds of foods like fish, aquatic insects, fish eggs and crayfish. They are what biologists call opportunistic (op-portune-IS-tick) eaters. This means if food is in front of them, they eat it! Yum! All species of trout eat eggs, but bull trout are known to raid trout nests. It's no wonder they can grow to 20 pounds!

Young bull trout feed on aquatic insects that live on the rocks, logs and plants in the water. The aquatic insects that the bull trout eat need very clean water. Some of their favorite insects are caddisflies and mayflies. These types of aquatic insects can only live in clean water.

A bull trout's huge appetite was why some people used to kill them. A long time ago people thought that bull trout were eating all the other fish. People didn't think that bull trout were important. People now understand that predators play an important role in our environment. Now, we want more bull trout in our rivers and streams. We need predators to keep nature in balance. We need bull trout.



Photo courtesy Tom Curet

# SNOW FLAKES

It's January and we hope that Mother Nature will bring us deep piles of white snowflakes. Playing in the snow is part of the fun in the winter. But, did you know that snow is needed for farming? And gardens? And drinking water? The snow melts and fills our lakes, rivers, and streams with water. This is the water that we all need to live. People, animals, fish...everyone!

Here is what happens. In the winter, the snow falls in the mountains and stays frozen until spring. When the weather warms up in the spring the snow begins to melt. The melted snow is now water that flows off the hills into our streams and rivers. The snow melts all summer long. In August when it is hot where we live, high in the mountains the snow is still melting slowly, filling our streams and rivers. If we didn't get very much snow, our rivers would not have very much water in them.

It isn't surprising that some people call the snow in the Idaho mountains "liquid gold". Why gold? Gold is very precious and hard to find. Our snow is precious too.

We need water in our rivers and streams for all kinds of things. Idaho farmers need to water their crops. Potatoes, beets and the apples that we farm in Idaho need water to grow. The water fills wetlands and ponds where many animals build their dens and nests to have their babies. Water is needed for everyone. Now, go do the snow dance so we can have more liquid gold!



## SL<sup>SNOW</sup> THE FL<sup>WATER</sup>W

One thing we can do to help fish is to use less water. Yes, that's right! Every drop of water counts. When we use water from our faucets, showers and hoses it comes from water deep in the ground, or from our local lakes and rivers. The more we use, the less water is flowing in nature for fish and wildlife.

Sometimes after we use our water we pollute it with oil and soap and other icky things. The water flows down the drain or toilet to a water treatment plant or maybe to a field next to your house. Did you know that we have to use this water again? Yes, water circulates the earth over and over. We drink the same water the dinosaurs used. At the water treatment plant the water is cleaned, but this process doesn't always take out all of the yucky stuff we put into it.

What should we do? Use only the water that you need. When you brush your teeth turn the water off until you need it. If you see someone wasting water tell them that fish need it. Avoid dumping oil or soap down drains. Use only the amount of soap you need to keep clean. Stores sell soaps that are better for our environment too. If we all do our part we will have a cleaner, safer world for animals and people.

# WATER BUGS

When you hear the word “insect” what do you think of? You might think of mosquitoes, butterflies, bees, dragonflies, or beetles. Did you know that some of these insects start life in the water? They hatch from eggs to become either a nymph or a larva that lives in water. A nymph develops directly into an adult. This is called incomplete metamorphosis (met-a-MOR-fo-sis). Complete metamorphosis occurs when an egg hatches into a larva which then becomes a pupae which emerges as an adult---whew! As a group, these underwater insects are called “macro-invertebrates.”

Like other water creatures, macro-invertebrates are well adapted for life underwater. Many of these insects live in fast-moving water like many of Idaho’s rivers and streams. They have strong legs and feet that help them walk along the bottom of a river. Without these feet, they would be swept away by the current. Like fish, they also have gills to absorb oxygen from the water. But their gills might look like lots of tiny hairs on their abdomen or tail. In fact, macro-invertebrates do not resemble their adult forms at all!

A dragonfly nymph has no wings and is only about an inch long. A mosquito larva looks like a tiny segmented worm with little hairs on it and a snorkel on its tail. Pretty different than an adult mosquito!

These aquatic insects are very important food for small fish. A bird called a dipper dives underwater to catch these insects for its food. Fly fishermen learn about macro-invertebrates in the hope of finding the best fly to catch a trout!

*Mayfly photo  
courtesy Joyce Gross*



*Caddisfly photo courtesy Joyce Gross*



*Stonefly Larva  
photo courtesy Joyce Gross*



# ICE FISHING

Winter is a great time to be outside. You can do many things like skiing, snowshoeing, sledding, building snow forts, and fishing. Fishing? Believe it or not, ice fishing is a popular winter sport and Idaho has many great ice fishing opportunities.

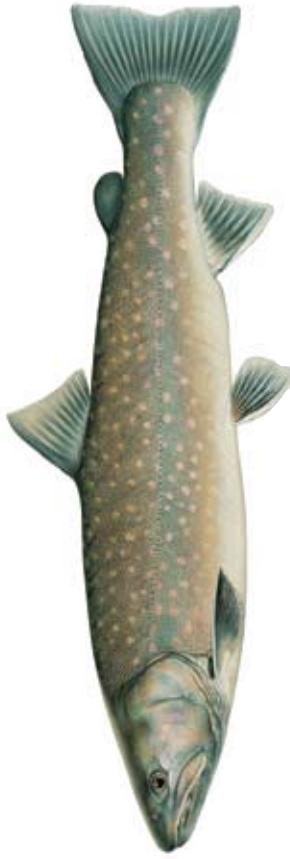
To enjoy ice fishing you need to think about safety. Make sure to dress warmly! Leave your jeans and tennis shoes at home and bundle up in layers that will keep you toasty out on the ice. You need to know ice conditions on the pond or lake where you plan to fish. In order to be safe, the ice should be at least four inches thick. It should also be clear or bluish in color and very hard. Never ice fish over running water because the ice will not be as strong. Ponds or lakes are the best ice fishing locations. Always ice fish with your family or friends, and not alone in case something happens and you need help.

When you have your ice fishing spot picked out, have an adult help you make a hole in the ice. Make sure to clear the floating ice off the water with an ice ladle. You can use just about any fishing gear, but many ice fishermen use a special ice fishing rod. It is shorter than a regular rod. This makes it easier to handle when fishing through the ice. Others use a tip-up. This is basically a spool on a rod that holds your baited line. When a fish takes the bait, it tips-up a flag so you know you have a bite. Fish often hit bait or lures very lightly in the winter, so you have to pay close attention to your line.

Fish and Game offers ice fishing derbies and clinics around the state during the winter months. These are great places to learn about ice fishing.



# FISH IDENTIFICATION



**Bull Trout**-salmon or cream spots on back and sides. Slightly forked tail. No black marks on dorsal fin. “**No Black, Put it Back**”



**Brown Trout** – black, brown or red spots on side – some circled with a light colored ring. Black spots on dorsal fin and back. Squared tail.



**Brook Trout**-Yellow or cream colored “worm tracks” on back, black marks on dorsal fin, squared fin, yellow tail, yellow and red spots on side- some circled with a blue ring.



**Lake Trout**-white or cream colored spots on side and back, no spots on dorsal fin, very forked tail.

*Fish drawings by Joe Tomelleri*

Find these words in the puzzle. Words can go in any direction.

**Bull trout**  
**Char**  
**Conservation**  
**Eggs**  
**Flow**  
**Fry**  
**Gravel**  
**Melt**

**Pollution**  
**River**  
**Salmon**  
**Snowflakes**  
**Spawn**  
**Water**  
**Winter**

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

## WILDLIFE EXPRESS

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