Wildlife Express!

Volume 20 Issue 3 November 2006

IDAHO FISH & GAME

Let's Look At...

White Sturgeon

A fish dinosaur lives in Idaho. It has lived on the planet for at least 100 million (100,000,000) years! It's the largest freshwater fish in North America - the white sturgeon (*Acipenser transmontanus*). White sturgeon live in the Snake River, Salmon River and Kootenai River.

White sturgeon are huge fish. They can grow to 18 feet long and weigh over 1,500 pounds! At least, they used to. At one time, Idaho's sturgeon was a traveler. It was **anadromous** (ah-NAD-dro-mus). Sturgeon used to travel between Idaho and the Pacific Ocean. The Pacific Ocean is like a huge grocery store full of food. Now eight dams block the sturgeon's path to the ocean. With less food to eat, sturgeon are not as big as they once were.

The largest white sturgeon caught in Idaho weighed 1,500 pounds! It was caught in the Snake River in 1928. No person could reel in a 1,500 pound fish, so horses were used to pull it up on shore. White sturgeon get so big, because they live so long. A sturgeon may live to be over 100 years old.

White sturgeon are different from other fish. They do not have a boney skeleton. Their skeleton is made out of **cartilage**. Cartilage is what is found in your nose and ears. Sturgeon also are not covered by scales. A sturgeon is covered by a thick skin that feels like sandpaper. The side of the sturgeon's body is protected by five rows of boney plates, called scutes.

Sturgeon are bottom dwellers. They find their food on the bottoms of Idaho's rivers. The mouth of a sturgeon is located on the bottom of its head. It works just like a vacuum cleaner. The sturgeon sticks out its lips and sucks the food right into its mouth. Sturgeon can't see directly beneath themselves, so they have four whiskers, or barbels, to help them find their food. You won't find any teeth on sturgeon. They don't chew their food. They just suck it up. Sturgeon like to slurp up fish, mussels, crayfish and worms. They even eat some things you might not think a fish would eat. Sturgeon have been known to eat tin cans, onions and spilled wheat from grain elevators!

Sturgeon are pretty old before they become parents. Females don't lay their first eggs until they are over five feet long and 15 to 20 years old. Female sturgeon produce a lot of eggs. Anywhere from 300,000 to four million eggs are made. It all depends on the age and health of the female. During May and June, the female will deposit her eggs over rocky areas where the water is flowing swiftly. Males spray milt over the eggs, and the eggs sink to the bottom where they stick to plants or rocks.

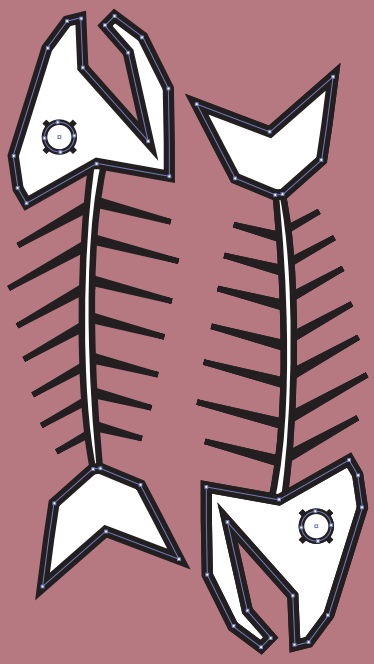
In only eight days, the eggs hatch. The tiny sturgeon look a bit like black tadpoles. At this young age, the sturgeon hide between rocks and are fed by a yolk sac that is attached to their bellies. Within 12 days, the yolk sac is gone, and they start to eat insects and other small foods. At 20 days old, they look like adults and begin to feed on the river bottom.

Sturgeon – a swimming dinosaur. What an awesome fish!

What is 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 a fish is, is not 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.

Freaky Fish!

Sturgeon are pretty special fish, but Idaho also has some other strange and unique fishes. Some are more difficult to find, but others can be found in just about every stream in Idaho.

A fish you might have hard time finding is the Pacific lamprey. Pacific lamprey are anadromous. They travel between Idaho and the Pacific Ocean. Lamprey look more like a snake or eel than a fish. They have long thin bodies. Just like sturgeon, lamprey have been around for hundreds of million of years. They also have a skeleton made of cartilage, not bone. Lamprey do not have jaws like other fish. Instead, they have a round mouth that looks like a suction cup with teeth. Pacific lamprey are parasitic; they live off of other animals! They use their suction cup mouth to attach to fish in the ocean. They chew through the skin with their special teeth and suck the juices out of the fish. Lamprey usually drop off before they kill the fish, but they do leave a scar.

Have you ever been looking into a stream and thought you saw a rock hop? What you may have been looking at was another unique fish in Idaho – sculpin. These little fish look a bit like rocks, and they do hop! At least it looks like they are hopping. Sculpin are unique, because they don't have scales or swim bladders. Swim bladders help fish float and move up and down in the water. Since sculpin don't have swim bladders, they spend almost all of their time on the bottoms of rivers, streams and lakes. Sculpin are small. A big sculpin would be about six inches in length.

Guess what? A cod lives in Idaho. It is the burbot, and it is the only freshwater cod in the world. Every other species of cod is found in the ocean. Burbot are only found in the Kootenai River in northern Idaho. This fish is an endangered species. It likes to live in deep, cold waters.

See, Idaho has more than just trout swimming in its waters. There are many unique and special fish. Do some research and discover other strange fish that live in Idaho.

Pacific lamprey mouth

Warm Fins


Bullhead catfish

Some fish like their fins to be warm. You can find warm water habitats in shallow ponds where the sun warms the water and in some places in southern Idaho.

Warm water usually has less oxygen in it compared to colder water. The warmer water gets, the harder it is for water to hold oxygen. Warm water usually has fish living in it that have interesting ways to get the oxygen they need to survive.

Catfish, called brown bullheads, are fish that you can find living in warm water. Bullheads can breathe through their skin. They can even use their swim bladders as an emergency lung by coming up to the surface of the water and gulping air. They hold the air in their swim bladders then "burp" the air out. The air can pass over their gills, so they can get oxygen out of the air. Pretty amazing!

Warm water is usually murky. This is where the catfish's whiskers come in handy. Their whiskers help them find their way around and "smell" the water for food.

Water warm is usually still. Farm ponds, shallow ponds and reservoirs on the lower part of the Snake River are examples of warm water habitats.


Ice fishing

Fish and Winter

What happens to fish in the winter? If you are wondering about this question, you are not the only one! Many people wonder what happens to fish during the cold winter months.

Most fish are cold-blooded. Their body temperatures are the same as the temperature of the water they live in. Only tunas and mackerel sharks are able to keep their body temperatures much higher than the water around them. So what happens to fish when ice starts to form on top of the water and winter shows its bitter side?

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 affected, 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. How are animals adapted to survive the winter?

Fish On!

Imagine a chilly winter day in a boat on the Snake River. You have on your long-johns, warmest coat, hat and gloves. You're baiting a giant hook with bait so stinky it makes you gag. Could all of this be worth it? Once a sturgeon is on your line, you will know the answer. Yes!

Sturgeon fishing is fun and challenging. It's not like trout fishing. For one thing, sturgeon are huge. A small hook and thin fishing line won't work on these monsters. Sturgeon are also protected. In Idaho, you are not allowed to keep a sturgeon or lift it out of the water. A sturgeon's body is not designed to be out of the water. They need the water to help support their weight. Lifting them out of the water will crush their organs. All pictures and removing of hooks must take place with the fish in the water.

Winter is a good time to go sturgeon fishing. Sturgeon are not as active, and they tend to stay in deeper holes. Look for swirling water below rapids or narrow chutes. Swirling water is a sign of a deep hole, and this is where sturgeon like to hang out. The Snake River is a good place to go.

The tackle you use is important. A bait shop will be able to help you find the right equipment. You need a fishing rod built for big fish. Big circle fishing hooks are a must. Only use fishing hooks that will rust (no stainless steel), so the hook will rust out if you can't get it out of the fish's mouth. You also need heavy fishing line. Choose a line with at least a 60-pound test. That means it should not break until 60-pounds of pressure is applied to the line. Use a braided Dacron line. Monofilament line, used for trout fishing, will not decompose without sunlight. It will lay on the bottom of the river forever. A sturgeon may get tangled in it and cut off its tail. Ouch!

Sturgeon fishing can be a blast. The cold fingers, hard work, and stinky smell of the bait are well with it. So, grab an adult and don't let them forget their license and sturgeon fishing permit, get your gear, and bundle up. You may get a chance to yell, "Fish On!" and reel in a big one.

Cold Fins

Rainbow trout

Many of Idaho's fishes like their fins to be cold. They like to live in cold water. Cold water is different from warm water. More than just the temperature is different.

One big difference is cold water can hold more oxygen than warm water. Fish that live in cold water habitats usually have no problem getting all the oxygen they need from the water. Cold water is also usually a bit cleaner and clearer.

Cutthroat trout, our state fish, is an example of a fish that lives in cold water habitats. They need clean water with lots of oxygen in it. Water like this is usually found in mountain streams, lakes and streams that start as springs.

Trout like clear water, but they don't like to see their neighbors. Trout can live pretty close to each other. They just need enough food and a "wall" between them. Fallen logs or rocks make nice "walls" between neighbors. Good cold water habitats need fallen logs, rocks or other plants to give fish hiding places.

In Idaho, cold water is usually moving swiftly. The Boise River, Salmon River and Selway River would be examples of cold water habitats.

How Old is That?

How can you tell the age of an animal? Knowing the ages of animals is important. Biologist like to know the ages of animals within a group. In a group, or population, of animals, there needs to be both older and younger animals for the group to be healthy. If all the animals in a group are young or old, something might be wrong. Animals can't tell us how old they are, and unless we see an animal being born, it can be hard to guess. How do biologists figure out the age of an animal?

It's all in the rings. Many animals and plants have structures that "tell" us their age. Have you ever looked at a tree stump? If you have, you have probably seen the "growth rings." These are circles radiating out from the center of the stump. Each ring represents one year of growth. Some fish leave growth rings on their scales. Trout and salmon scales are thin and translucent. You can see right through them. A fish biologist with lots of experience can even tell how many years a salmon spent in the ocean by looking at the rings on its scales.

What about fish that don't have scales – like sturgeon? Sturgeon leave growth rings on their fin rays. The rays are the stiff pokey parts of a fin that look a bit like toothpicks. Each year a new layer of cartilage is laid down on the fin rays. Counting the layers gives a good estimate of the sturgeon's age.

Fish also have bones in their inner ears called otoliths. These bones help fish keep their balance. Otoliths never stop growing, so looking at them will give a pretty accurate age of a fish.

Fish aren't the only animals that have growth rings. Bears have growth rings in their teeth! Scientists pull a tooth and cut the tooth into a thin horizontal slice. Then they put a drop of blue dye on the tooth slice. The blue dye allows biologists to see the growth rings in the tooth. Turtles have growth rings on the scales that cover their shells.

Even though animals can't tell us how old they are, we sure can get an idea of their age by looking at the clues their bodies leave.

Fish scale

Pucker Up!

There are about 20,000 different species of fish that live on Earth. That's a lot of fish! Every fish is specially adapted to live in its habitat. A fish's mouth can tell you a lot about its habitat, and what it likes to eat.

A sturgeon's mouth is found under its head. The upper lip is longer than the lower lip, and it is rounded down. Sturgeon look down for their food and this shape helps them suck up their lunch.

Other fish have a lower jaw that is longer than the upper jaw. A barracuda has a mouth like that. Barracuda live in the ocean. They have long, thin mouths with lots of sharp pointy teeth. Barracuda like to eat other fish that they see swimming above their heads. A small upper jaw lets them see their food clearly.

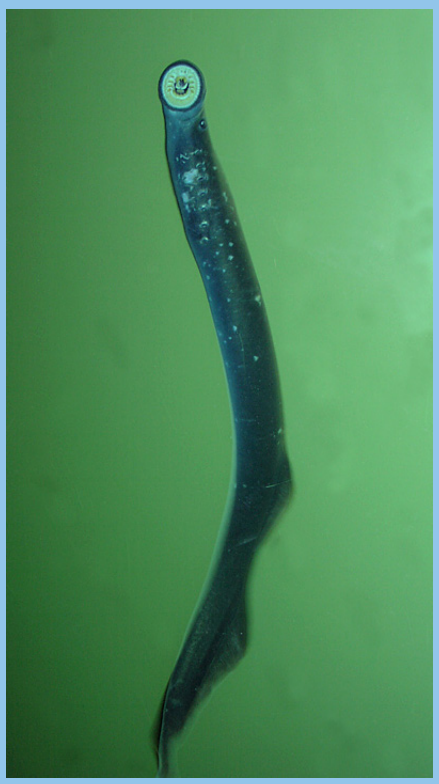
Have you ever caught a carp or sucker? They look like they are puckered up and ready for a kiss all the time! Their lips are large with rounded edges. Puckered lips are perfect for grabbing small plants and animals, which is just what these fish like to eat.

Some fish look like they have duckbills. Pike are large, predatory fish. They love to eat other fish. Have you grabbed a hold of a fish before? It can be difficult to get a good grip with the slime that covers fish. A pike's mouth might look like a duck's bill, but it has something ducks don't have on their bills – teeth! Pike open their big mouths and slam down on the fish. It's almost like closing a door on the fish.

Bass are gulp feeders. You need a large mouth to gulp food, and bass have a mouth that is huge. A bass will swim up behind a fish, crayfish or other creature, open its mouth, and surround its prey. Bass gulp up not only the prey, but also a big mouth of water. The water is pushed out of the mouth and flows over the gills.

Fish sure have some interesting mouths. Next time you catch a fish, look at its mouth and think about how that shape helps it get its food.

Young sturgeon



Pacific lamprey

Sturgeon Search

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

Words

Anadromous
Animals
Burbot
Cartilage

Live
Rings
Scales

Sculpin
Sturgeon
Vacuum

1. White _____ is Idaho's largest fish.
2. Sturgeon skeletons are made of _____.
3. White sturgeon may _____ to be over 100 years old.
4. Idaho sturgeon were _____ before dams blocked their path to the ocean.
5. Pacific lamprey fed off of other _____.
6. Many animals leave growth _____ on bones or other body parts.
7. Sturgeon mouths work like _____ cleaners.
8. _____ is the only freshwater cod.
9. Sturgeon are not covered by _____.
10. A hopping rock might be a _____.

WILDLIFE EXPRESS
Volume 20 ● Issue 3 ● *White Sturgeon* ●
November ● 2006
Wildlife Express is published nine times a year (September-May) by the Idaho Department of Fish and Game. Classroom subscriptions and an Educator's Guide are available for $30.00 per year and includes a classroom set of 30 copies mailed to your school each month. Subscriptions of five copies or less are available for $15.00. This publication is made possible through the sale of wildlife license plates.

Wildlife Express is also available on the Idaho Department of Fish and Game website at no charge at **http://fishandgame.idaho.gov**
For more information, call or write: ***Wildlife Express*, Idaho Department of Fish and Game, 600 South Walnut, PO Box 25, Boise, Idaho, 83707 (208) 287-2890.**

Lead Writer: Adare Evans
Layout: Eric Stansbury
Contributors: Vicky Runnoe ● Renai Brogdon ● Cristina Watson ● Lori Adams

WE WOULD LIKE TO HEAR FROM YOU !
If you have a letter, poem or question for Wildlife Express, it may be included in a future issue! Send it to the address printed above!