

# Wildlife Express

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# SCULPIN

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Sculpin: CC-BY Ryan Hagerty for USFWS



[idfg.idaho.gov](http://idfg.idaho.gov)

# IDAHO SCULPIN



There are many different species of sculpin in the world. Some sculpin live in saltwater and others live in freshwater. Saltwater sculpin may reach lengths of up to two feet. Freshwater sculpin are much smaller.

**In Idaho, there are ten species of sculpin. The species are:**

**Mottled, Paiute, Slimy, Shorthead, Bear Lake, Shoshone, Wood River, Torrent, Cedar, Columbia**

They can be very difficult to tell apart. Most sculpin live in freshwater rivers and streams. One exception is the Bear Lake sculpin, which as the name suggests, are found only in a lake, not a stream. These are the only sculpin in the western United States found in deep water lake habitat.

Sculpin can be hard to see. They go unnoticed for a few reasons. First, because of their small size (if they reach five inches that's a big sculpin). Second, they are well camouflaged, some even possessing the ability to change their color based on their surroundings like a chameleon. Third, they stay at the bottom of the streams and lakes by often wedging themselves amongst rocks and vegetation.

Sculpin are a bit different from other fish. 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 their time on the bottoms of rivers, streams and lakes.



Their front fins stick out from the sides of their bodies like little feet. They hold themselves up on their fins and use the fins to scoot across rocks. While sculpin don't have traditional scales like many other fish, they do have protective plates or spines sometimes called prickles which act like scales.

Sculpin fins are great for holding onto slippery rocks and help them wedge on the bottom of fast flowing streams. Their heads are big, broad and flat. Their bodies taper into narrow tails. This shape, sort of like a teardrop, helps them hug rocks. They are less likely to get moved around by the river's current.



Sculpin are well camouflaged (KAM uh flahzh); they blend into the rocks with their mottled skin. This is important, because many larger fish, like trout, eat sculpin.

Looking like a rock also helps sculpin catch their favorite food – insects. Sculpin eat a variety of food but predominantly focus on aquatic insects like caddisflies, mayflies and stoneflies. They have also been found to eat some types of fish eggs, earthworms and smaller fish.

Sculpin are important to the ecology of a stream. Not only are they important parts of the food web as predator and prey, but they also tell scientists if rivers are healthy. Sculpin are affected by even small changes in water quality. If there is too much sediment, they will lose their places to hide and spawn.

Sculpin are called an indicator species because they “indicate” a problem. Changes in sculpin behavior, or population size, help scientists figure out if rivers or lakes are polluted or changing.

Sculpin are fantastic fish. With their fat lips, big heads and scooter fins, you might even think they are cute!

Top Photo: CC-BY Idaho Fish and Game

Bottom Photo: CC-BY devra at Flickr





In Idaho, sculpin can be found in nearly all freshwater streams. However, not all 10 species can be found everywhere. As some of the species' names imply, some sculpin are found in very small sections of Idaho.

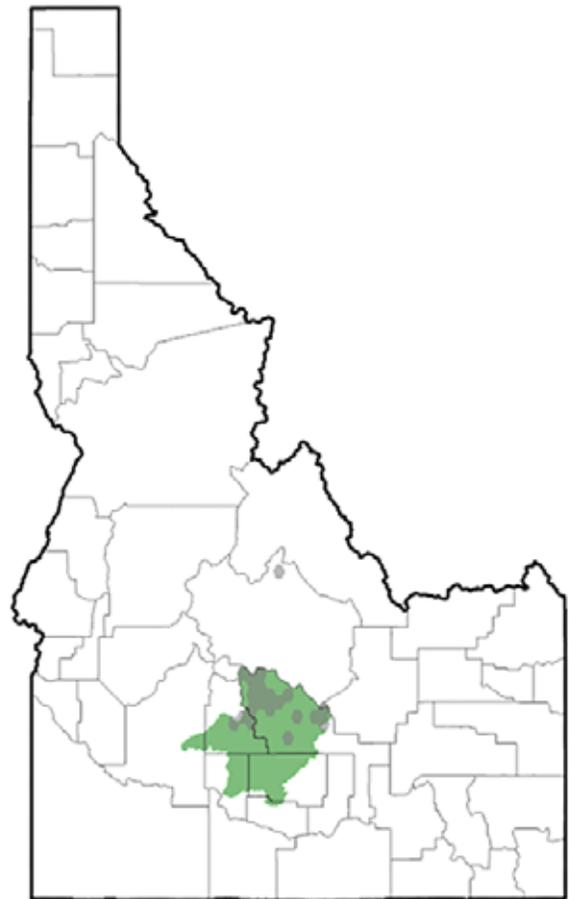
Range maps are helpful tools for wildlife managers, hunters, anglers and wildlife watchers. Knowing where a species has been seen before, or where a species might be seen can help people identify what they see or find what they want. Studying range maps over time can also tell us if wildlife populations are moving, expanding or shrinking.

Check out these range maps of two of Idaho's sculpin species.

You can see all the range maps for Idaho's sculpin on the Idaho Fish and Game website by searching for "Idaho Fish and Game Species Catalog."



**SHORTHEAD SCULPIN**



**WOOD RIVER SCULPIN**



# SCULPIN LIFE CYCLE

Sculpin spawn mostly in the spring but spawning can range from late winter through early summer. Water temperature can cause this timeframe to slow down or speed up.

The male chooses a nesting spot under a rock or log. He guards his spot from other males and will fight to keep it. Once a male sculpin has his spot ready, he tries to get the attention of a female. The male may shake his head and dart quickly around the nest. He may even bite the female and pull her toward the nest!

If a mature female likes the male's nest site, she lays her eggs on the underside of the rocks where they stick. She lays 50 to 200 eggs while upside down! At about the same time, the male, who fertilizes the eggs gets to work doing his part of the spawning process.

After spawning is complete, the male sculpin guards the nest and even fans it to keep the eggs oxygenated. The eggs hatch into sac-fry. A sac-fry is a new fish that has a yolk-sac attached to its body for food. They stay in the rocks until their yolk-sac is absorbed and they must come out to find food. This process takes a few weeks. The young sculpin are on their own once they are swimming around the rocks and riffles.

Sculpin lifespan varies, some species not living much over two years and others living up to eight years.

## Can you fish for sculpin?

This is a bit of a developing situation. If you have heard of sculpin you likely heard about them through fishing, but probably by using a sculpin pattern fly or lure. It has long been known that sculpin pattern streamers are great ways to hook into larger trout species such as cutthroat and bull trout.

But, in recent years, something called micro-fishing has come onto the scene. Pretty wild, but some anglers are starting to target these small non-game species with even smaller hook and line. It's not taken the angling world by storm just yet, but is another way to investigate, experience and learn about our underwater environments. We have heard of some angling successes from the Idaho micro-fishing community and thank those of you who've sent in pictures of their catch.

Fish and Game has non-game fishes in our Catch-and-Release record program, so take a look at eligible species and get out there to put your name in the record book!



# WHAT IS A FISH?



**Pacific Lamprey**  
No paired fin or jaw!

Fish are vertebrates and have backbones, just like you. Fish also breathe through gills, have fins and live in water. That seems simple, right?

Well, in nature, things aren't always as simple as we would like them to be. Take that backbone for example. We know what our backbone is like. 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 do

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. Lungfish are examples of fish that break the gill rule. There are no lungfish in Idaho.

We usually think of fish as having fins on each side of their bodies, but what about Pacific lampreys? Lampreys look like eels. They don't have paired fins or jaws, yet they are still fish.

As you can see, defining what a fish is may not be so simple.

Fish have been a part of our planet for 450 million years. There are over 20,000 different kinds of fish worldwide. They have had time to adapt to many underwater (and even out of water) habitats.



**Sturgeon**  
With a cartilage backbone!



# WHAT HAPPENS TO FISH IN WINTER?

## Have you ever wondered what happens to fish during the cold winter months?

Most fish are ectothermic (cold blooded). Their body temperatures are the same temperature as the water in which they live. Only tunas and some sharks can 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 are fish 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 and don't eat as much. Some animals enter a dormant period.

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 light from entering the water. This causes many plants to stop making food. Their leaves drop off. Sometimes even the stems die.

With their leaves gone, plants shut down and rest for the winter. Bacteria break down the dead leaves and stems. Bacteria use oxygen to break down the plants, and this uses up even more oxygen available to fish and other animals.

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, lake or creek in the winter, think about the creatures living under the ice. How are animals adapted to survive the winter?

# COLD & WARM WATER HABITATS

Many sculpin like to live in cold, clean water.

Cold water is different from warm water. More than just the temperature is different. One big difference is that 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.

Water like this is usually found in mountain streams, lakes and streams that start as springs or snowmelt.

Good cold-water habitats need fallen logs, rocks or other plants to give fish hiding places. Usually, cold water is moving.

The Boise River, Salmon River and Selway River would be examples of cold-water habitats.

Some fish like warm water. You can find warm water habitats in shallow ponds where the sun

warms the water and in some places in southern Idaho.

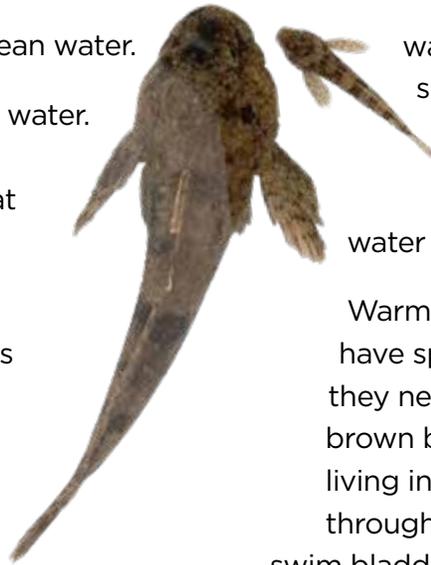
Warm water holds less oxygen. The warmer water gets the harder it is for water to hold onto oxygen.

Warm water usually has fish living in it that have special adaptations to get the oxygen they need. For example, 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 also 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.

Fish live in specific habitats that they are adapted to living in, just like other animals. Knowing this will help you to determine where to fish.



# FISHING IN WINTER? YOU BET!



Winter is a great time to get out and enjoy the fresh, crisp air. Don't let the cold and ice slow you down. Fishing in the winter can be a blast!

Fishing regulations can be different from one part of the year to the next so be sure to check the fishing regulations for where you're headed before leaving for your adventure.

Another great winter angling opportunity is ice fishing at a frozen lake or pond. Google "Ice Fishing, IDFG" to find more information.

Ice fishing is fun, but so is being safe! Here are some important things to remember when ice fishing.

Never venture onto the ice alone. Ice fishing is best done in pairs or groups; make sure you have an adult along.

Ice is usually safe for walking when three to four inches thick. You will need eight to 10 inches of clear, solid ice if you venture out with an ATV or snow machine.

It is important to stay dry and warm when fishing in winter. You should wear layers of clothing; wear waterproof snow pants and a coat; warm winter boots; and don't forget gloves and a hat. It's also a good idea to bring along an extra set of clothes and a pair of shoes just in case you get wet.



Most important of all - don't forget the thermos of hot chocolate! Hot chocolate always has a way of making even the coldest day feel warm!

There are some special pieces of equipment you will need to ice fish - an ice auger and ladle. The ice auger is for drilling holes in the ice, and the ladle is used to scoop out ice that forms in your holes.

There are special ice fishing poles, but you really don't need one. Any simple rod and reel will work fine. You can even use a stick with fishing line wrapped around the stick!

Some fish, like perch, tend to be in deep water (up to 40 feet) in the winter. So, you will need to add some weight to the fishing line. Now all

you need is a hook and bait. Natural bait, like a worm, will work well. You can even try a lure if you like.

To get started, drill a series of test holes. For safety's sake, no hole may be larger than 10 inches in diameter.

Try different locations at different depths until you find a fish. You can drop in your line and wait for a strike or jig. To jig, drop the bait to the bottom then reel up about 2 feet of line. Slowly raise the rod tip about twelve inches and then drop it back down. Repeat this until a fish strikes.

Now that you know a bit about ice fishing, grab an adult and go fishing! It's exciting, fun and rewarding!



# FISH REPRODUCTION

Did you find it fascinating that male sculpin build a nest, hoping to attract a female? Other fish in Idaho that do this are smallmouth and largemouth bass. The males also protect the nests after eggs are laid.

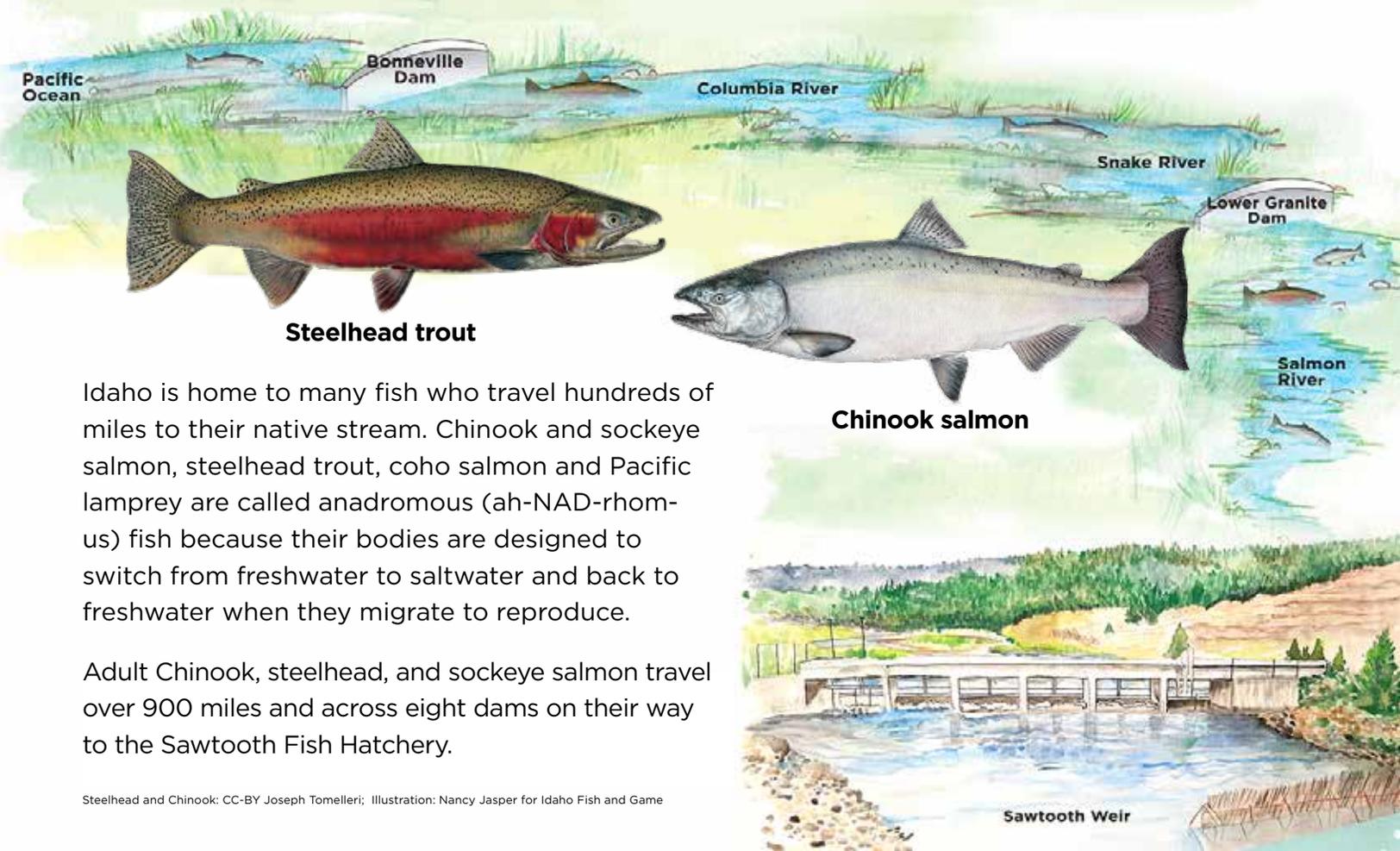
When you think about it, fish are a lot like birds who are seeking a mate. Fish courtship rituals can range from battles to show dominance, changing to vibrant colors, “dancing” to get the attention of the female and travelling long distances to spawning grounds. All of these play a crucial role in the reproductive cycle of fish. It’s the fish’s way to communicate their intentions, their readiness to mate and sometimes establishes who is the strongest mate.

Like many of the other steps in spawning, fish lay eggs in different ways. As mentioned above, the sculpin lays her eggs upside down on the top of a rock ledge and the eggs stick there. Other fish dig a redd (nest) with their tails, lay their eggs and gently cover it back up with rocks.

Other fish lay eggs that drift in the water. They are called broadcast spawners. White sturgeon females release hundreds of thousands of eggs in the water. When the male sturgeon releases milt to fertilize the eggs, they become sticky and will attach to plants and rocks in the river.

Some fish give birth to live young such as guppies that you may see at a pet store. These fish usually live in warmer, tropical waters.

**Fish are fascinating and unique in so many ways!**



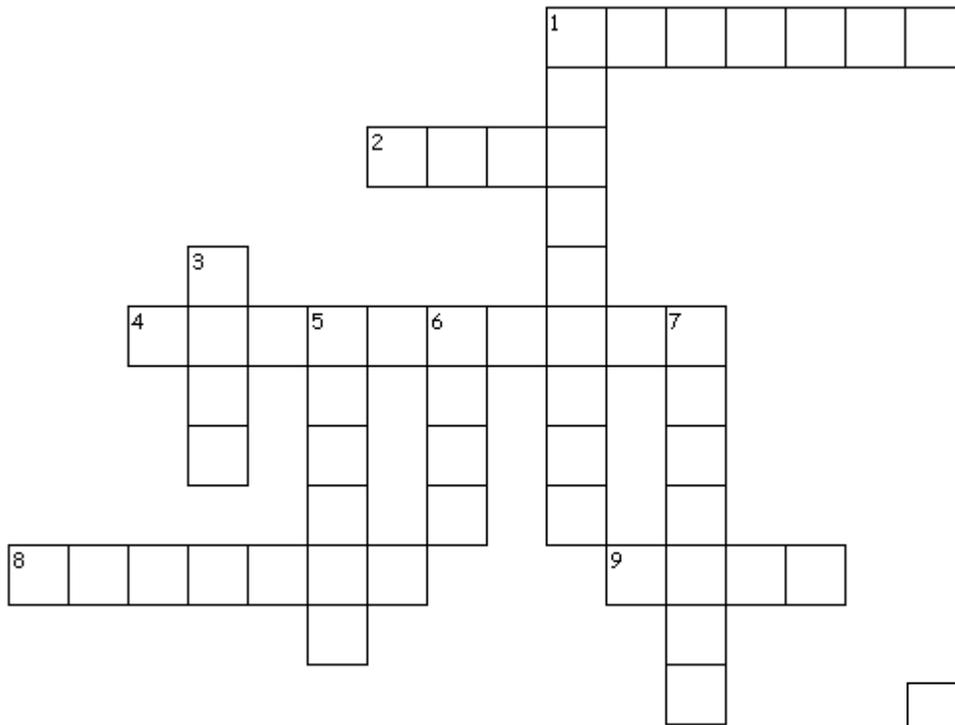
**Steelhead trout**

**Chinook salmon**

Idaho is home to many fish who travel hundreds of miles to their native stream. Chinook and sockeye salmon, steelhead trout, coho salmon and Pacific lamprey are called anadromous (ah-NAD-rhom-us) fish because their bodies are designed to switch from freshwater to saltwater and back to freshwater when they migrate to reproduce.

Adult Chinook, steelhead, and sockeye salmon travel over 900 miles and across eight dams on their way to the Sawtooth Fish Hatchery.

# SCULPIN PUZZLE



## Across

1. A sculpin's favorite food.
2. Sculpin like \_\_\_\_\_ water in Idaho.
4. This means to blend in and hide.
8. Sculpin do not have a swim \_\_\_\_\_.
9. Sculpin are camouflaged to look like this.

## Down

1. Sculpin are an \_\_\_\_\_ species.
3. \_\_\_\_\_ sculpin guard their nests.
5. Cold water can hold more \_\_\_\_\_.
6. Sculpin use these to scoot across rocks.
7. This is the study of how living and nonliving things interact.

## Words

Bladder  
Camouflage  
Cold  
Ecology  
Fins  
Indicator  
Insects  
Male  
Oxygen  
Rock

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## 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: [lori.wilson@idfg.idaho.gov](mailto:lori.wilson@idfg.idaho.gov) or Wildlife Express, Idaho Fish and Game PO Box 25, Boise, ID 83707