Atlantic salmon

Activity and Education Booklet

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE

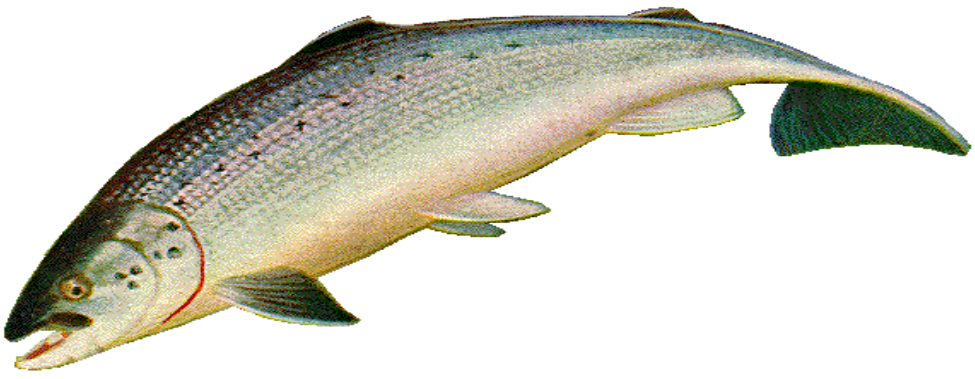
Atlantic salmon

Atlantic salmon are fish, born in fresh water. The Atlantic salmon **migrates** from fresh water to the ocean. **Migrate** means: to move from one place to another place. After the Atlantic salmon migrates to the ocean, it returns to fresh water to lay **eggs**. This is the Atlantic salmon **life cycle**.

Salmon start as **eggs**. The eggs are laid in nests called **redds in fall**. Over winter, the eggs develop into very small salmon called **alevin**. In two to three weeks, the alevins start to swim around in the redd looking for food. In the spring, they swim out of the redd. When this happens, they are called **fry**. Soon fry grow into **parr**. Parr are only two inches long and are camouflaged. For two to three years, the parr grow in fresh water, becoming **smolts**. Smolts are silver and in the spring, they swim to the ocean. In the ocean, the smolts grow for two to three years and become **adult Atlantic salmon**. Adult Atlantic salmon can weigh eight to 15 pounds!

The adult Atlantic salmon returns to the river where it was born to lay eggs. A **kelt** is an adult Atlantic salmon. After spawning in fresh water, the kelt will swim back to the ocean and possibly return to spawn again.

At one time, Atlantic salmon could be found in much of New England. Now, Maine is the only state with wild Atlantic salmon. For this reason, the Atlantic salmon is an **endangered species**. This means that there are very few wild Atlantic salmon, and without protection, the Atlantic salmon may be gone completely from the US. Therefore, Atlantic salmon are protected. With everybody helping, maybe one day the Atlantic salmon will no longer be an endangered species.

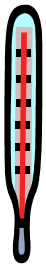


Why is the Atlantic salmon disappearing from Maine's rivers?

There is not one single reason why the very precious wild Atlantic salmon is disappearing from the rivers in Maine. The following are just some of the reasons why this species is now in danger of becoming extinct.

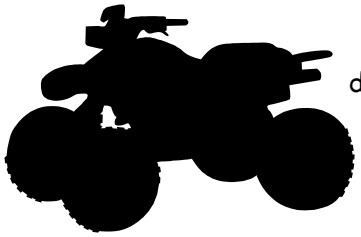
Dams – Dams block the water. This makes it impossible for the wild Atlantic salmon to swim upstream to spawn. If they cannot spawn, then there will be no young salmon to make the population grow.

Pollution – Pollution comes in many forms. It could be trash, gas, oil, chemicals or even acid rain. Pollution hurts all species.



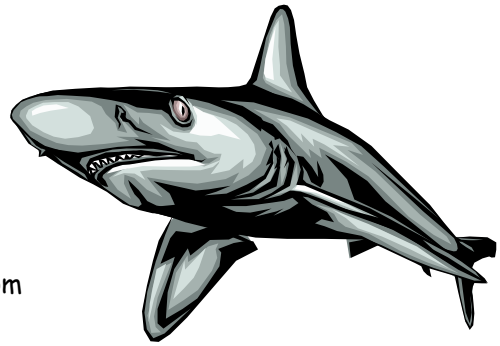
Water temperature – salmon require a certain temperature. If the water gets too warm, salmon will die.

Over fishing – Many years ago people and companies from all over the United State would come to Maine to fish for salmon. After years of this practice, there were more people fishing for salmon than there were salmon producing offspring.



ATV – All-terrain vehicles that ride through water can cause a great deal of damage to redds by driving over them. If an ATV rides over a redd, then all the eggs are gone. It is best for ATVs not to be driven through water, especially in or anywhere near the eight listed rivers.

Predators- There are many other animals, and fish that feed on salmon. Some are seals, sharks, birds and striped bass.



Erosion – Erosion in rivers and streams can kill salmon. Mud from erosion can cause redds and older salmon to suffocate.

Vocabulary List:

- **Atlantic Salmon**: Is a fish born in fresh water. It then migrates to the ocean, and then returns to the fresh water to lay eggs. Atlantic salmon are an endangered species in Maine rivers.

- **Migrate**: to move from one place and to a new place

- **Life Cycle**: the stages of growth from birth to adult

- **Redds**: nests of salmon eggs that are laid in clean, fast moving rivers

- **Alevin**: salmon that emerge from eggs

- **Fry**: the third stage of the salmon's life cycle and are 1-2 inches in length

- **Parr**: the fourth stage of the salmon life cycle and have markings along its side - They are 2-5 inches long.

- **Smolts**: the fifth stage of the salmon life cycle - They turn silver and migrate from rivers to the ocean, and are about 6-9 inches long.

- **Adult Atlantic salmon**: a grown salmon returning from the ocean to fresh water to spawn – They are 71-75cm long.

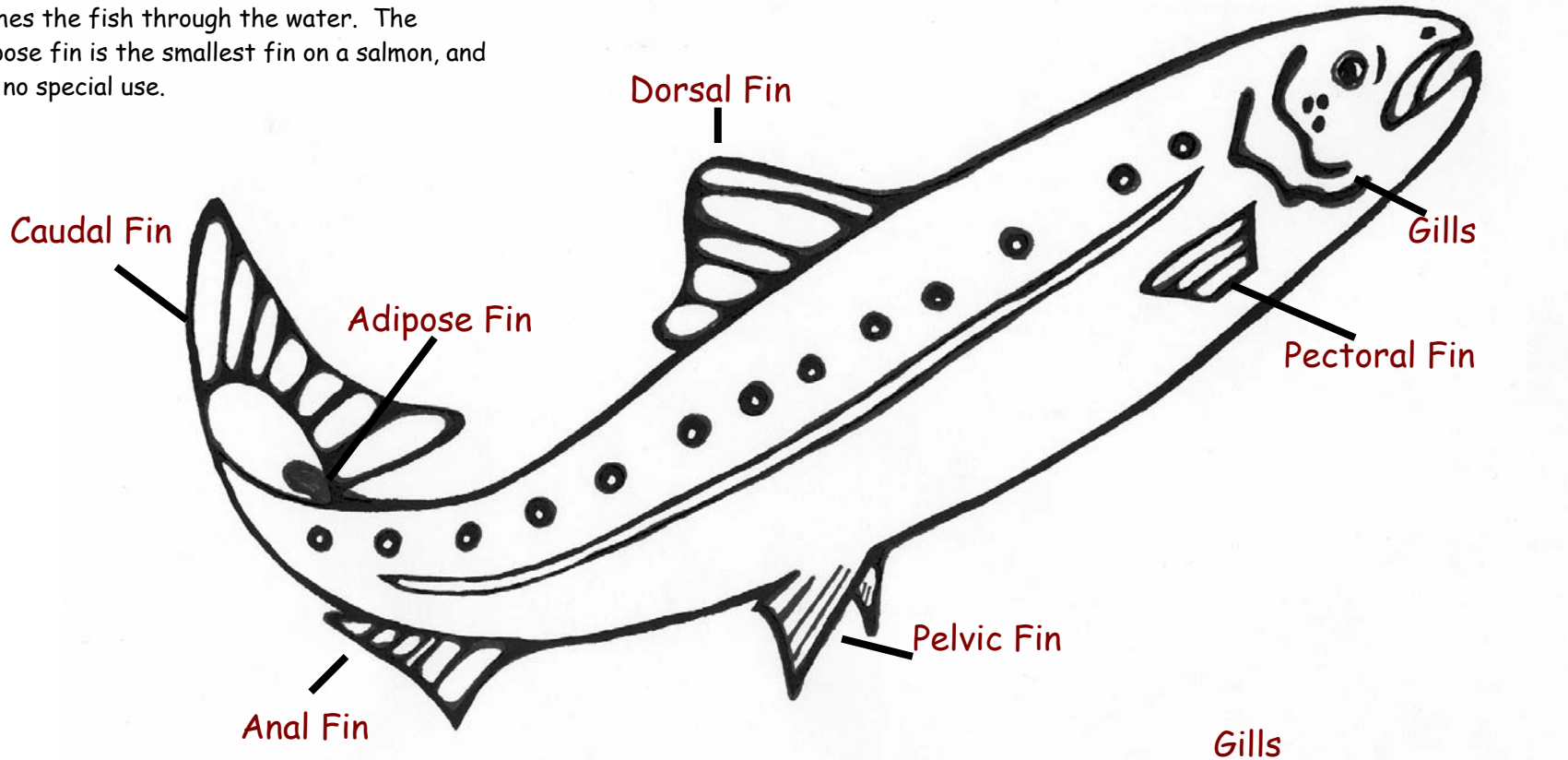
- **Kelt**: an Atlantic salmon that has spawned in fresh water and either returns to the ocean or lives in the river.

- **Endangered Species**: a species that could possibly die out (become extinct), and is low in numbers

Atlantic salmon

Fins

Fish use their fins to swim. The dorsal and anal fins stabilize the fish. The pectoral and pelvic fins are on the sides of the body, and are used turning, backing up, stopping and also balance. The caudal or tail fin is like the motor. It pushes the fish through the water. The adipose fin is the smallest fin on a salmon, and has no special use.



Gills

People breathe oxygen and so do fish. Humans get oxygen from breathing air. Fish get the oxygen that they need from water that flows into their mouths and flows past their gills. Gills, which are found behind the head and under the gill flap, take oxygen from the water.

How Many Salmon Return

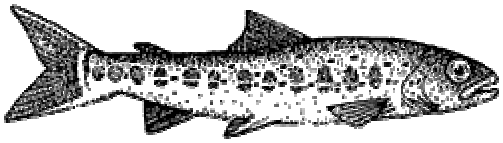
Subtract numbers as you go to get the final answer to question **14**.

1. A salmon deposits **5,000** eggs in a redd. _____
2. **500** eggs were not fertilized _____
3. **60** were washed out of the gravel when a 3-wheeler crossed the stream. _____
4. Mud from building a new subdivision eroded into the stream and suffocated **1,000**. _____
5. **300** alevins died because they were very weak. _____
6. After the alevins developed into fry, **500** were eaten by other fish in the stream. _____
7. Birds ate **41**. _____
8. **260** smolts died going through a turbine from a power plant. _____
9. **556** were eaten by birds. _____
10. In the ocean, bigger fish ate **1,500**. _____
11. Seals ate **95**. _____
12. Beaver Dams blocked **180** of them from swimming up stream. _____
13. **3** were dashed against the rocks trying to jump the waterfalls. _____
14. The rest of the salmon spawned. How many were left? _____

Match Game!

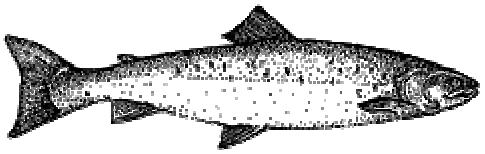
Match the stages of the Atlantic salmon's life cycle by drawing a line from the picture to the correct numbered stage.

Stage 1



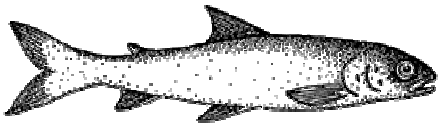
Parr

Stage 2



Adult Atlantic Salmon

Stage 3

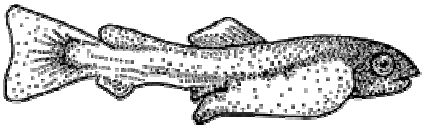


Smolt

Stage 4

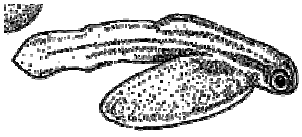
Egg

Stage 5



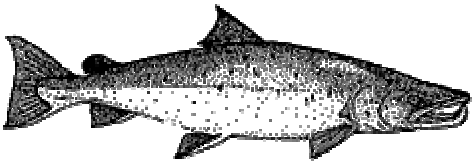
Fry

Stage 6



Alevin

Stage 7



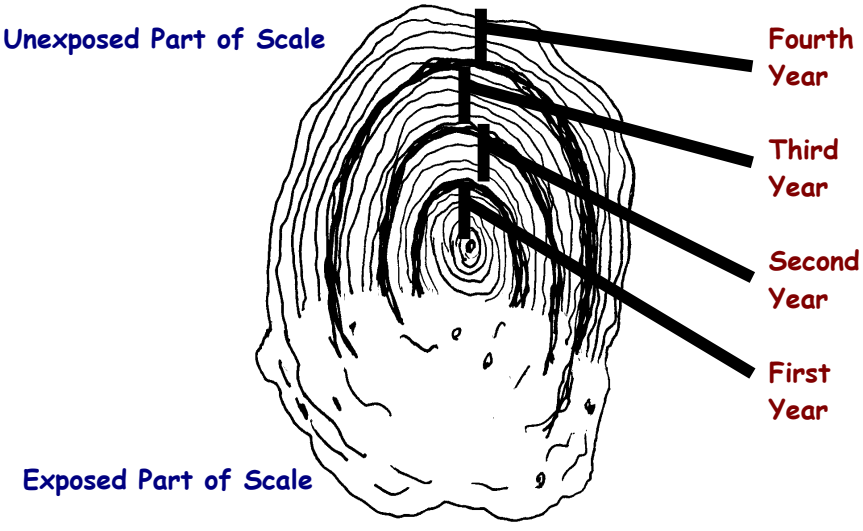
Kelt

What do salmon and trees have in common?

Did you know that you could tell how old a tree is by counting its rings? It's true! When looking at a cross-section of a tree, you can count the number of rings from the inside out. The total numbers of rings equals the age of the tree.

Salmon scales also have rings, and when you count the rings, you can tell the age of the salmon.

Cross Section of Tree



When growing conditions are good, like in the summer, a salmon will grow faster. This means the rings will be further apart. If the living conditions are not as good, like in winter, the salmon will not grow as fast and the rings will be closer together.

True or False

Place a 'T' for true and 'F' for false by the statements below.

1. The US Atlantic salmon is an endangered species. _____

2. Atlantic salmon never migrates to the ocean. _____

3. A redd is a nest of salmon eggs. _____

4. A kelt is a young salmon. _____

5. Atlantic salmon lives a portion of its life in Maine's rivers. _____

6. There are plenty of wild Atlantic salmon in Maine's rivers. _____

7. Fry is the third stage of the Atlantic salmon's life cycle. _____

8. Life cycle is the stages of growth in a lifetime. _____

9. There are 40 stages to the Atlantic salmon's life cycle. _____

10. Salmon return to the same river where they were born. _____

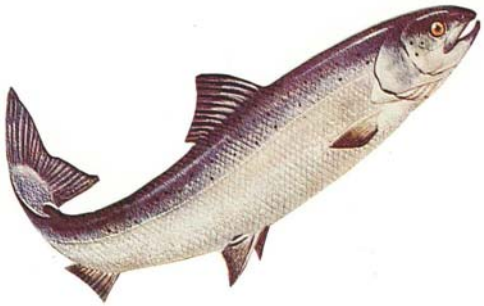
Did you know!

Did you know there are eight rivers that have endangered Atlantic salmon living in them? The eight rivers are the Narraguagus, Dennys, Machias, East Machias, Ducktrap, Cove Brook, Pleasant and Sheepscot.

Each of these rivers provides a home or **habitat** for Atlantic salmon. Each of these rivers is protect by state and federal law.

Did you also know that the Atlantic salmon you buy in a grocery store is not wild Atlantic salmon, but are usually salmon grown on a fish farm? Farmed Atlantic salmon are different from wild Atlantic salmon.

Word Find



A W E N D A N G E R E D A E

S T R E A M U G R M A I N E

E B Y S B J O O E K E R G O

R G I Z H A B I T A T I K I

T U G X Y O E F I S H V Y A

P A R R O E L Y R W O E E L

F K M O C A N T I Y O R B E

G E J P E H F O L R Y G O V

H L O P A C D L A R P G Z I

A T L A N T I C S A L M O N

Can you find the following words?

___ Atlantic salmon

___ Parr

___ Alevin

___ Kelt

___ NOAA

___ Ocean

___ River

___ Endangered

___ Fry

___ Egg

___ Maine

___ Fish

___ Stream

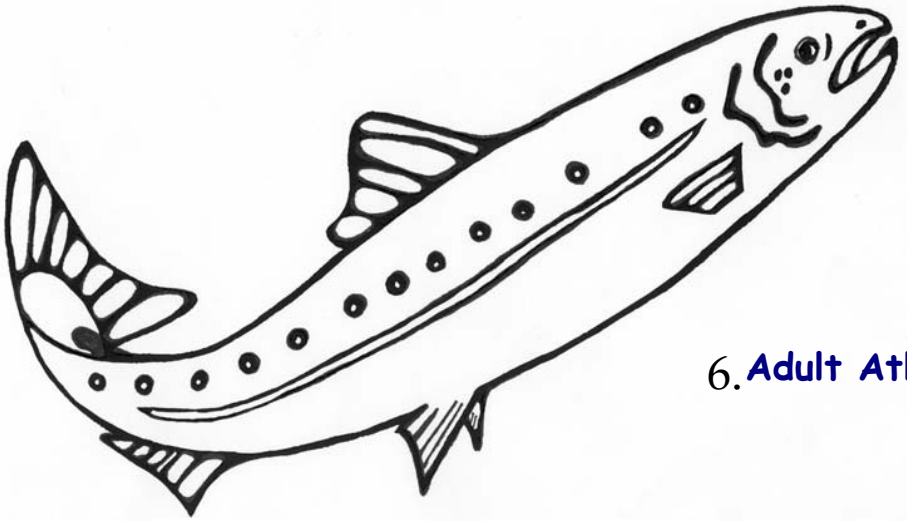
___ Habitat

NOAA Fisheries

Atlantic salmon

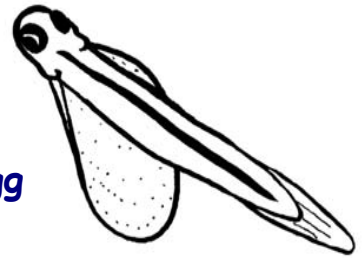
Coloring Pages

Atlantic salmon Life Cycle



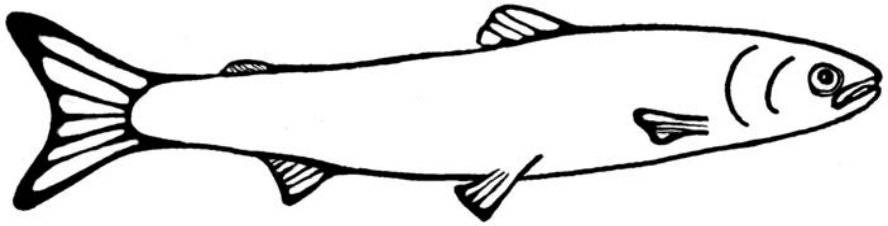
6. Adult Atlantic salmon

1. Egg

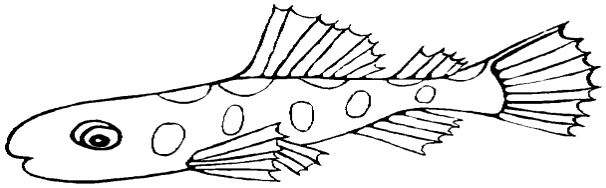


2. Alevin

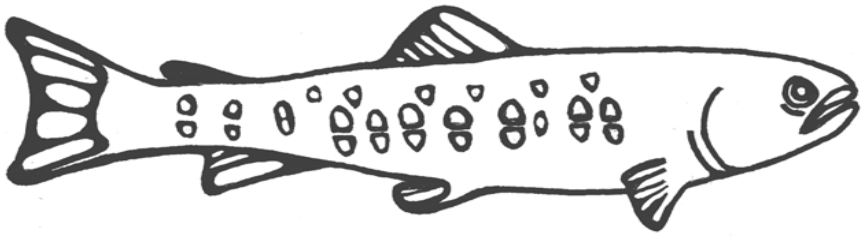
5. Smolt



3. Fry

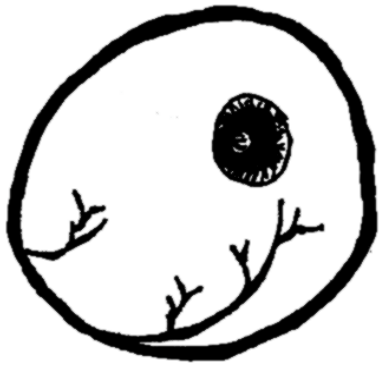


4. Parr

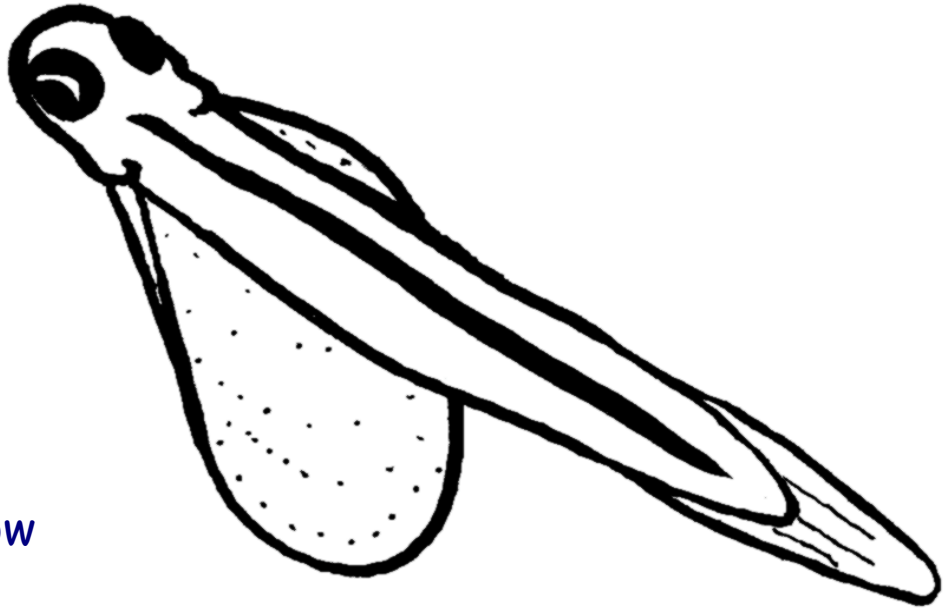


NOAA Fisheries

Atlantic salmon



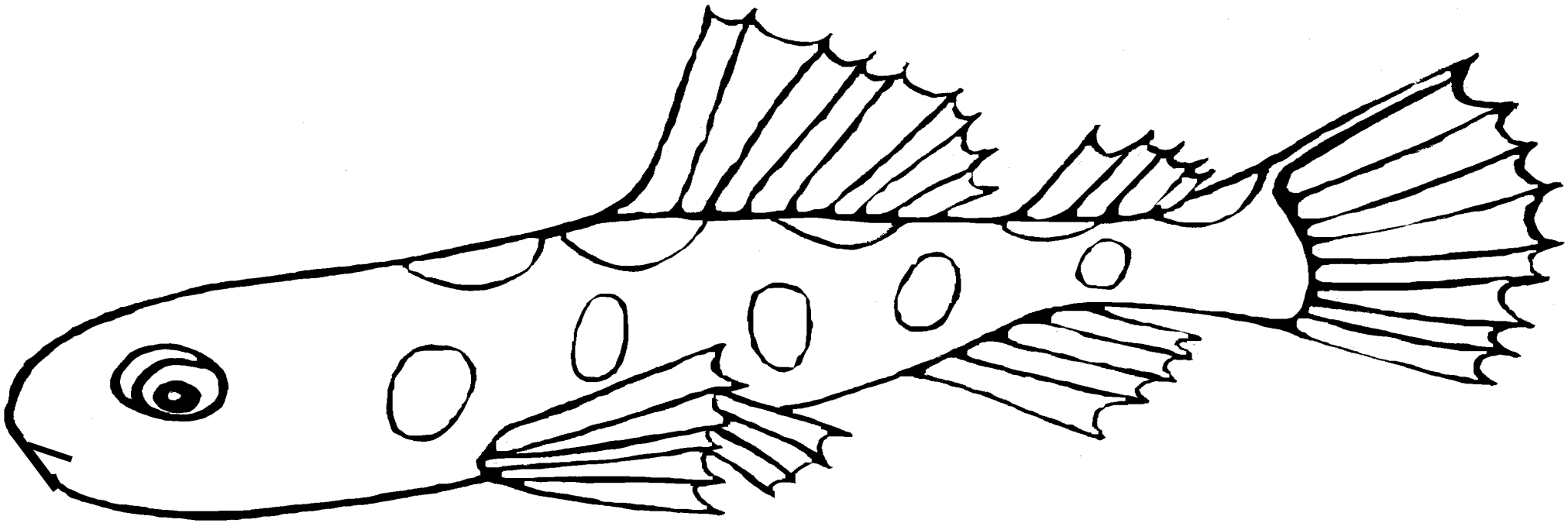
Salmon Egg – Salmon eggs are about the size of a pea. The eggs are laid in rivers.



Alevin or Sac-Fry – Alevin are tinny salmon that are about $\frac{1}{2}$ inch long. Alevin live in rivers and will grow into fry.

NOAA Fisheries

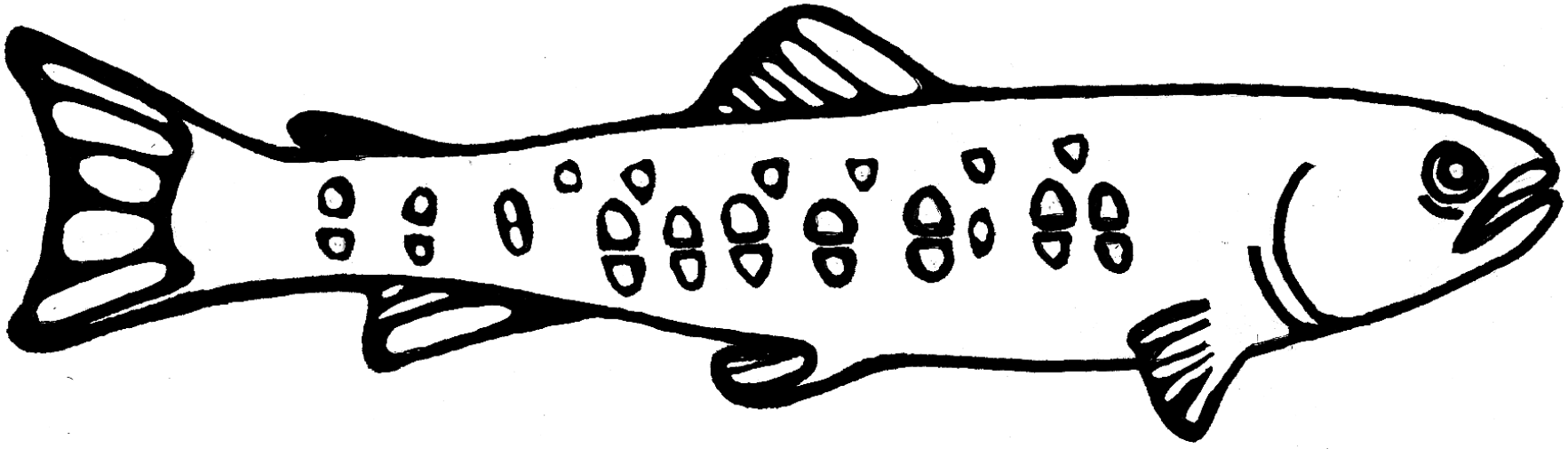
Atlantic salmon



Fry – Fry are only 1 to 2 inches long. They feed on plankton and small insects.

NOAA Fisheries

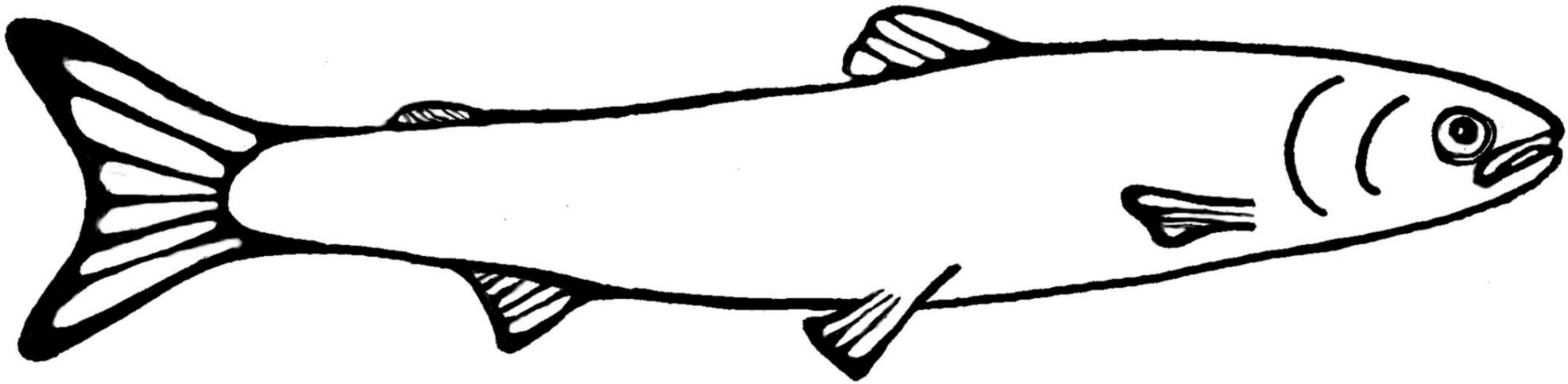
Atlantic salmon



Parr – Parr are young salmon that are camouflaged with parr marks, which helps to protect the small salmon from predators.

NOAA Fisheries

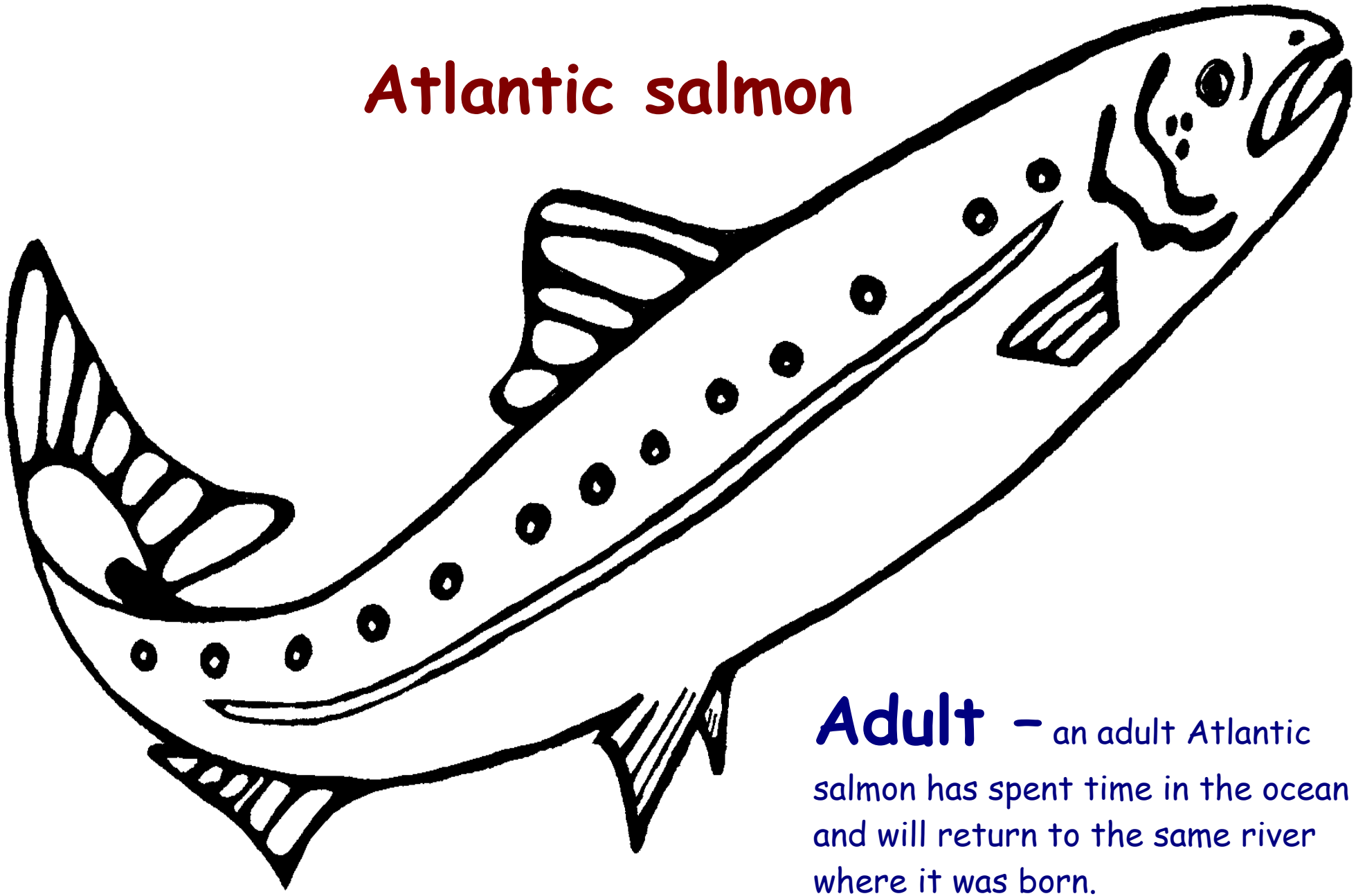
Atlantic salmon



Smolts – Smolts are salmon that will swim from fresh water rivers to the ocean. They are silver and thin.

NOAA Fisheries

Atlantic salmon



Adult – an adult Atlantic salmon has spent time in the ocean and will return to the same river where it was born.