

Salmon Lifecycle

Subject

Science

Objectives

The student will (1) learn the stages of the salmon lifecycle, and (2) be able to fill in the lifecycle chart correctly.

Materials

Students for Salmon Journal
Art Supplies

Size/Setting/Duration

Whole class/classroom/~45 min.

Background

In Whatcom County there are five pacific salmon species of commercial importance. Many other species of salmon and trout exist in the *Salmonidae* family (generally referred to as salmonids), however we will focus on these five: Chinook, Chum, Coho, Pink, and Sockeye.

The salmon lifecycle is similar for all salmonids. However, the length of time spent in fresh water and saltwater varies to some extent for each species. The salmon is an anadromous species; this means that the salmon spends part of their life in fresh water and part of their life in saltwater.

When spawning salmon enter the stream in the summer or fall, the female lays her eggs in the streambed and the male fertilizes her eggs with milt (sperm). The eggs are laid in the gravel and hidden from predators and direct sunlight. Approximately 3,000 eggs are deposited in the gravel. The eggs remain hidden in the streambed two to four months and acquire nutrients from their yolk sacs. In this stage of the lifecycle they are known as alevin. The alevin rapidly grow in the gravel for one to three months. It is very important in the egg and alevin stages of the salmonids lifecycle to have clean, cold, flowing water and clean gravels. Clean gravel is

imperative; otherwise the eggs/alevins will suffocate if there is too much suspended sediment in the stream.

Once the alevins have absorbed their yolk sacs, they surface from the gravel in spring and early summer as fry. Fry nourish themselves by feeding on plankton and small insects (macroinvertebrates) in the stream. At this stage of life it is important for the fry to have good streamside cover for protection from predators and to keep water temperatures cool. Chum and pink salmon migrate to the ocean very soon after emerging from the gravel. Coho and sockeye remain in the stream for at least one year. Sockeye prefer to live in lakes while Coho favor small stream/side channels. Chinook are in the stream for three to eighteen months before migrating toward the ocean.

After spending time in fresh water, smolts, four- to six-inch-long fish, head to the ocean. The smolts acclimate to the saltwater by staying in the estuary for one to three months. The process of acclimating is called smolting. The smolts feed on plankton, insect larvae, and small insects in the estuary. Once the adjustment from fresh water to saltwater is complete the smolts move into the open ocean. Ocean life for salmonids lasts one to seven years, depending on the species. During this stage of life, the salmonids grow large and feed on plankton, insects, and small fish such as herring.

Activity

1. Explain to your students what a salmon is. Discuss that there are many different salmon species in the world and that we have five pacific salmon in Whatcom County. Talk about the five different types.

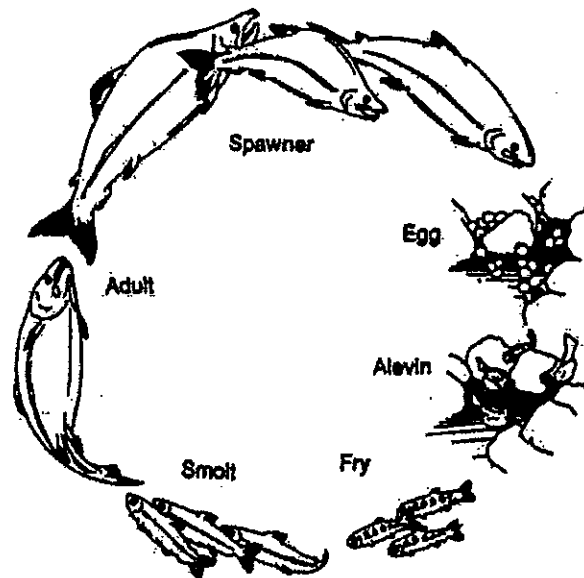
2. Continue your lecture by starting the salmon lifecycle with spawning salmon and carry on with eggs, alevin, fry, smolts, and ocean-phase salmon. Have your students take notes. Refer to the picture in the *Student Journal* on page 13. This picture gives a good visual representation of the salmon lifecycle.

3. It would be helpful to demonstrate the salmon lifecycle on the board or overhead along with your students. This will ensure comprehension.

4. Once you bring your lecture to a close, and the students have completed their notes on the salmon lifecycle with aid from the board/overhead and good listening skills, the students should fill out the *Salmon Lifecycle Chart* on page 15 of the *Student Journal*.

*Additional exercises to enhance student understanding of salmon lifecycle could include student artwork such as a diorama, posters, paintings, puppets and a play, life-sized costumes and a play, etc.

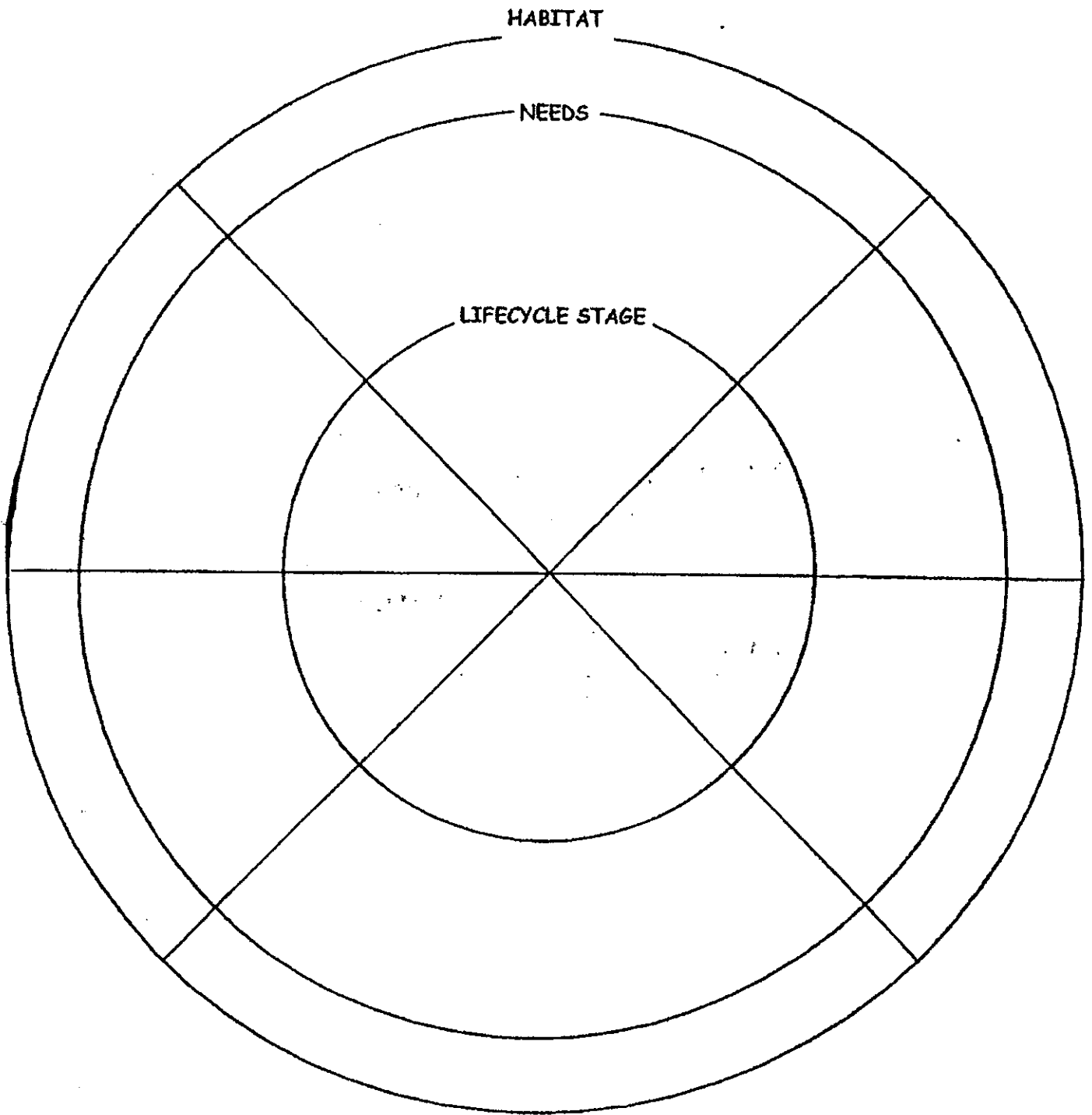
LIFE CYCLE



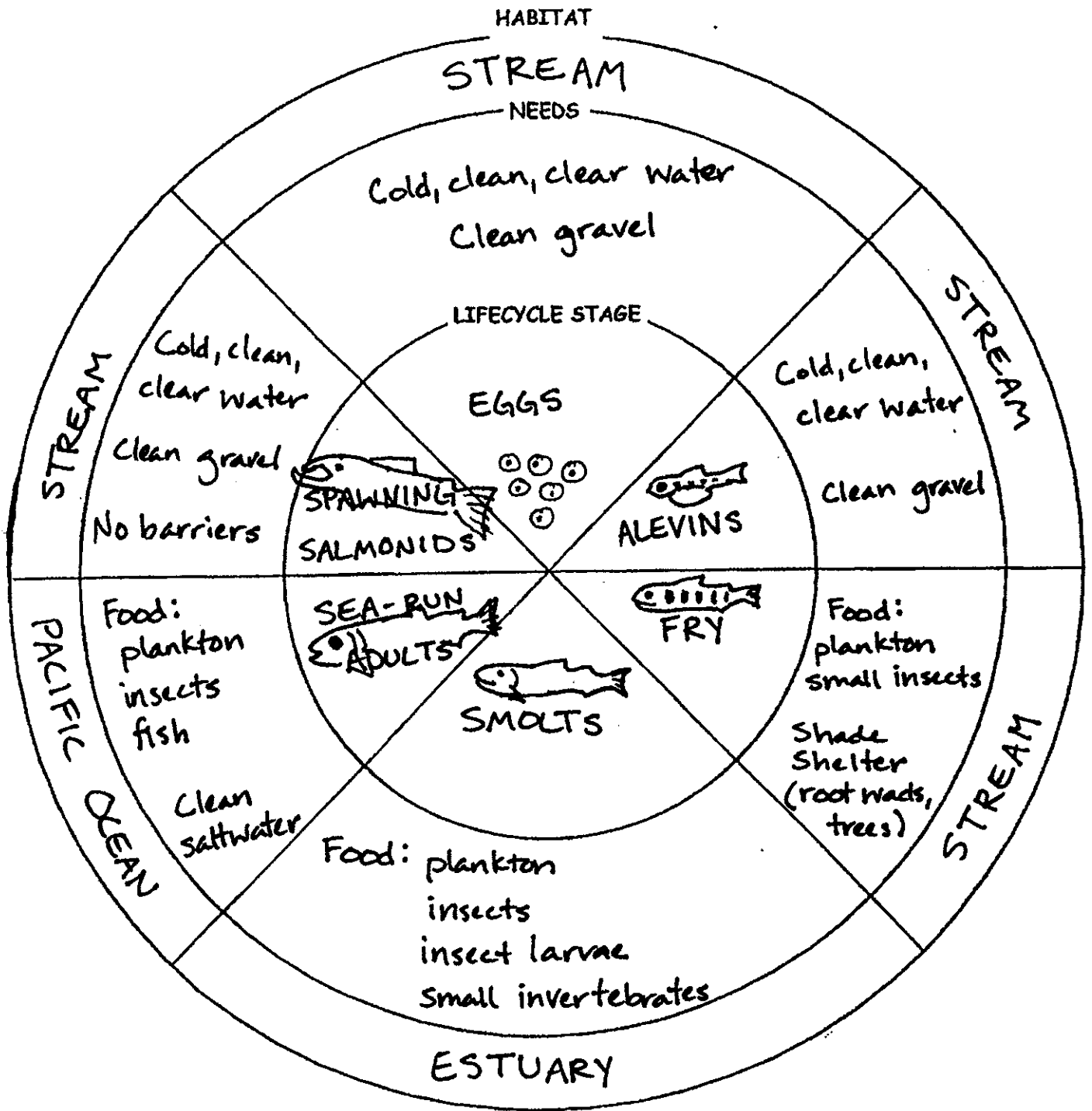
EALR Information**The Salmon Lifecycle**

Component	Benchmark	Assessment
1.1 Communication Focus Attention	Pay attention while others are talking	Students will listen and take notes on a lecture about the salmon lifecycle
1.1 Science Identify, describe, and categorize living things based on their physical characteristics	Identify physical characteristics that are used to classify living organisms	Students will complete the <i>Salmon Lifecycle Chart</i> in the <i>Student Journal</i> on page 15
1.5 Science Understand that interactions within systems cause changes in matter	Recognize the salmon lifecycle as a cyclic event	Students will complete the <i>Salmon Lifecycle Chart</i> in the <i>Student Journal</i> on page 15
4.1 Science Use listening and observing skills to obtain scientific information	Obtain scientific information by listening to a lecture	Students will listen and take notes on a lecture about the salmon lifecycle

Salmon Lifecycle



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SALMON FACTS

How big is the biggest salmon?

The largest salmon is a Chinook, which can grow to be 58 inches (147.3 cm) long and 135 pounds (61.2 kg).

How fast can salmon swim?

Salmon can swim at an estimated 14 miles per hour (22.3 km/h).

How high can a salmon leap?

Though fish passage barriers can be quite a challenge to overcome, chum salmon can jump up to 3 feet. Steelhead, an anadromous member of the *Salmonidae* family, can jump as high as 15 feet.

What predators eat salmon?

Juvenile salmon: larger trout, salmon, and other fish, sculpins, squawfish, crows, mergansers, osprey, kingfishers, terns, gulls, and other birds.

Adult salmon: eagles, gulls, seals, whales, halibut, dolphins, and people.

Why do salmon turn different colors when they spawn?

Scientists think that spawning colors help salmon find members of their own species to mate with.

How does a salmon find its home stream?

Fisheries scientists believe that salmon navigate at sea with an inner magnetic "map". They can also sense day length, which lets them know when the seasons are turning as the length of day changes. As a salmon approaches a stream, its sense of smell comes into play and it follows its nose toward the familiar smell of the stream it lived in during its juvenile phase of life.

Salmon are anadromous fish. What is an anadromous fish?

Anadromous means that they spend part of their lives in fresh water, part in salt water, and then return to fresh water to spawn and produce offspring.

