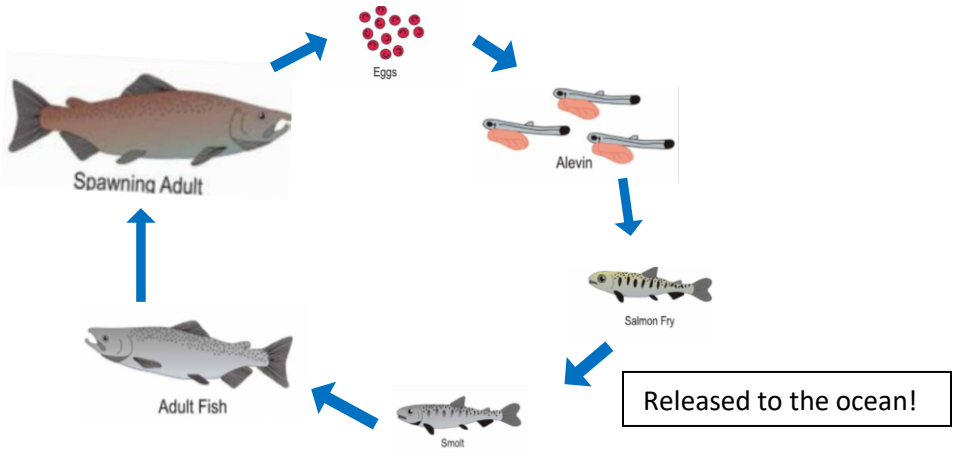
Science Bite
Alevin to Fry

At the Science Center, we are able to closely observe only some of the stages of the salmon life cycle - spawning adult, eggs, alevin, and fry.

Salmon Life Cycle



In the fall, spawning adults return to the hatchery. Eggs are saved, fertilized, and incubated in incubation trays for the next several months. Finally, in early winter, pink and chum young emerge from the eggs and are called, **alevin.** They carry their food with them in a yolk sac. Because they have this weighty lunch box attached, alevin are not very **buoyant** and stay at the bottom of the incubation tray just like they would do in the gravel of a stream. Only later, when the yolk sac is absorbed are the alevin able to push themselves to the surface of the water to gulp some air to fill their **swim bladder**. The swim bladder provides **buoyancy**.

Watch the videos of the alevin, the early swimming fry. and the net pen fry to observe the differences in each of these growth stages.

Life Stage	Markings and Color	Swimming Ability	Feeding Behavior
Alevin (non-swimming)			
Fry (early swimming)			
Fry (net pens)			

Buoyancy Exploration

Fish are heavy enough to sink in the water, yet they swim in the water column easily and often can be seen at the surface. How do they do it?

Think for a minute about what you do if you are swimming and want to float higher in the water.

Did you remember? You take a big breath (fill your lungs) and hold your breath. This means you become more buoyant!

Alevins cannot float in the water. They have to first get to the surface and take a gulp of air. Remember, fish do not have lungs. But they do have an organ that serves a purpose for buoyancy – a swim bladder.

Try some buoyancy experiments:

1. Obtain a small plastic container that you can close tightly. Fill up your sink or a large container with water.
   What does your container do if you close it tightly (with nothing in it) and put it in the water?

   Remove the container and fill it with sand or small gravel. Put it back into the basin of water. Does it sink to the bottom?

   Can you make the container float in the water just below the surface but not touching the bottom? Try it.

   Experiment with different size containers. See if you can predict how much sand or gravel you have to add to the container to get it to "flink" (float without sinking!).

2. Go to the following link for a great exploration of buoyancy produced by the Alaska Department of Fish and Game.
   https://www.adfg.alaska.gov/static/education/educators/curricula/pdfs/salmon_in_the_classroom_unit_7_fry.pdf