

Salmon in the Classroom



The Problem: Alewives

- Not native to Great Lakes (exotic species)
- Native to the ocean, but can live in freshwater
- Came in through Welland Canal around Niagara Falls and swam into Lake Erie
- Alewife overpopulation occurred – they didn't have natural predators in Great Lakes
- Occasional die-offs littered Lake Michigan beaches with millions of rotting fish – not great for tourism



The Solution: Salmon

- An introduced species - not native to Great Lakes
 - Coho and Chinook salmon were imported from Pacific Northwest
 - During its lifetime, one salmon can eat a huge number of alewives
 - Cold blooded – body temp matches the temp of surrounding water – cold water deep in Lake MI ideal
 - Life span of 3-5 years
 - Salmon don't repopulate very well in Michigan on their own – population maintained through hatchery program
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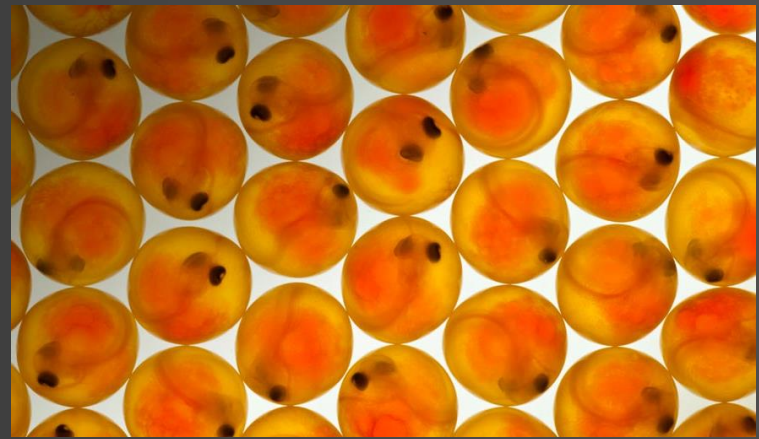
Did it work?

- Salmon help control the alewife population, keeping our beaches clean
 - Sport fishing is a major part of our economy – brings money to our region
 - Salmon have become a food source for people
 - Although they were originally an introduced species, they now play an important role in the Great Lakes ecosystem
 - Now threatened by quagga mussels and looming Asian Carp invasion
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Salmon Life Cycle



1 - Eggs



- Salmon lay eggs in the fall
- Eggs hatch around mid December (30-60 days)
- Live eggs are orange with 2 eyes and red blood vessels. Dead eggs are white.
- Dead eggs float in salt water; live eggs sink in salt water because they're more dense
- Eggs are hidden under gravel (6-24 inches deep) in cold water. This protects them from predators and light.

2 - Alevin (a-lu-vin)



- Yolk sac provides nutrients so the alevin can grow (it's like a sack lunch packed by its mom)
- Oxygen goes into the body through the vitelline vein
- Alevin remain burrowed in the gravel to avoid predators and light
- When yolk sac is gone, alevin pushes up through gravel and becomes a fry

3 - Fry

- Fry eat small aquatic invertebrates (bugs)
- Live in backwater pools along rivers or at the edges of smaller streams
- Start to develop dark lines called *parr marks* on their sides for camouflage



4 - Fingerling

- Fish are about length of a finger
- Live in riffles of stream, which helps camouflage them from predators.
- Eat a variety of aquatic invertebrates (caddis fly larvae, dragonfly larvae, etc.)

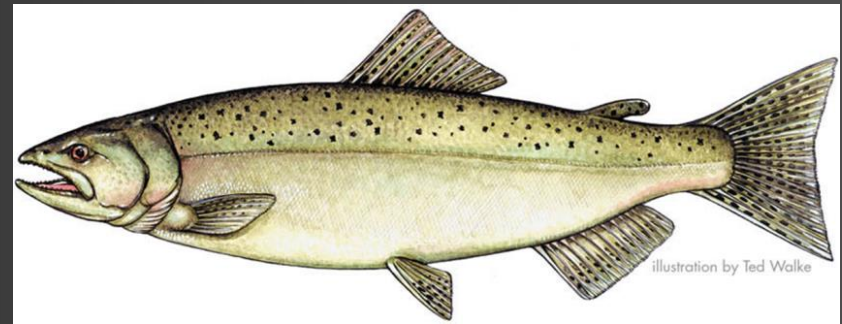


5 - Smolt

- Smolt imprints the chemical “smell” of its home stream before migrating downstream to Lake Michigan
- Parr marks disappear
- Turns silvery on bottom and remains dark on top, a color scheme that serves as camouflage in Lake Michigan



6 - Adult



- Spends its 3-4 year adult life out in Lake Michigan
- Follows food sources, which often leads it south towards Chicago
- Top predator in Lake Michigan – eats alewives and other small fish
- Grows a lot during this stage

7 - Spawner



- Guided by chemical imprint, seeks out its home river
- doesn't eat once it enters the river
- Swims upstream to location of nest where it was hatched
- Female lays eggs in a **redd** (nest), male deposits **milt** (sperm) on eggs to fertilize
- Changes color - silver to reddish/pink
- Physical change - hooked jaw in male
- Dies within about 2 weeks of entering river