

SEA LICE

Sea lice are small ocean-living parasites that live and feed on fish. A parasite is an organism that lives on or inside of another organism (the host), depends on its host for survival and is harmful to the host. Sea lice are naturally present in the ocean environment.

Lifecycle

Adult, female sea lice release their eggs into the ocean. Each egg hatches into a very small, free-swimming **nauplius**. Like a salmon alevin, the nauplius has a yolk sac as its food source. The nauplius uses up its yolk sac and grows into a **copepodid**. Now that it no longer has a yolk sac the copepodid must find a host (i.e. a fish) to act as a new source of food. If it does not find a host within a few days it will die. The copepodid stage and floats around the ocean hoping to come into contact with a fish. Once the copepodid lands on a fish it molts into a **chalimus** and develops an **attachment filament**. The attachment filament acts like a string to attach the sea louse to the fish. Sea lice attach to the outside of fish on the skin, gills or fins. The sea louse stays attached to the fish while it grows into a pre-adult and feeds on the fish's skin, mucus and blood. At the pre-adult stage the filament disappears and both the pre-adult and adult stage are able to move around the fish or move to another fish to live. Adult sea lice move around to find a mate and also in hopes of laying their eggs near a suitable host fish. Adult sea lice can stay attached to a fish because the shape of their body acts similar to a suction cup.

Sea lice do not appear to cause significant harm to adult salmon but they can be harmful to smolts or juvenile salmon. The feeding actions of sea lice create

wounds on the fish that can become infected. In addition, by creating holes in the fish's skin and blood vessels the feeding actions of sea lice can upset a fish's salt and water balance (**osmolarity**), which is also harmful. Scientists have also recently done studies that suggest that very small fish infected with sea lice cannot swim as well as uninfected fish.

People have recently become concerned about sea lice as there is some evidence fish farms are causing the number of sea lice to increase. This is because when sea lice eggs hatch in a fish farm, they are surrounded by hosts. In the ocean most sea lice copepodids die before they can find a host. In addition, the location of some fish farms makes it more likely that smolts and juvenile fish will be exposed to large numbers of sea lice. This would be harmful as small fish such as smolts and juveniles are most affected by sea lice. To help prevent this, some fish farm companies now close their fish farms at the time of year when smolts are migrating past the fish farms out to the ocean.

Name: _____

Date: _____

LESSON 2: Sea Lice

Describe an adult sea louse

Draw and label a scientific picture of an adult sea louse. Use all of the space available and add lots of details.



Examine your sea louse with a magnifying glass or microscope. How do you think sea lice attach to fish?

What do sea lice eat?

Sea lice only live in saltwater. What happened to the “fish” left in saltwater in last week’s experiment, did they gain or lose water?

Name: _____

Date: _____

How do fish living in the ocean keep their water and salt levels in balance?

To keep water levels balanced they: _____

To keep salt levels balanced they: _____

When sea feed on fish they eat holes through the fish's skin. How might this affect the fish? Would fish lose more or less water than normal?

What would a fish infected with sea lice have to do to keep their water and salt levels in balance?

Besides affecting salt and water balance, how else can sea lice affect salmon?

Will they have the same effect on salmon smolts as they do on adult salmon?

Why or why not?

What is the most interesting thing you learned about sea lice?

What questions do you still have about sea lice?
