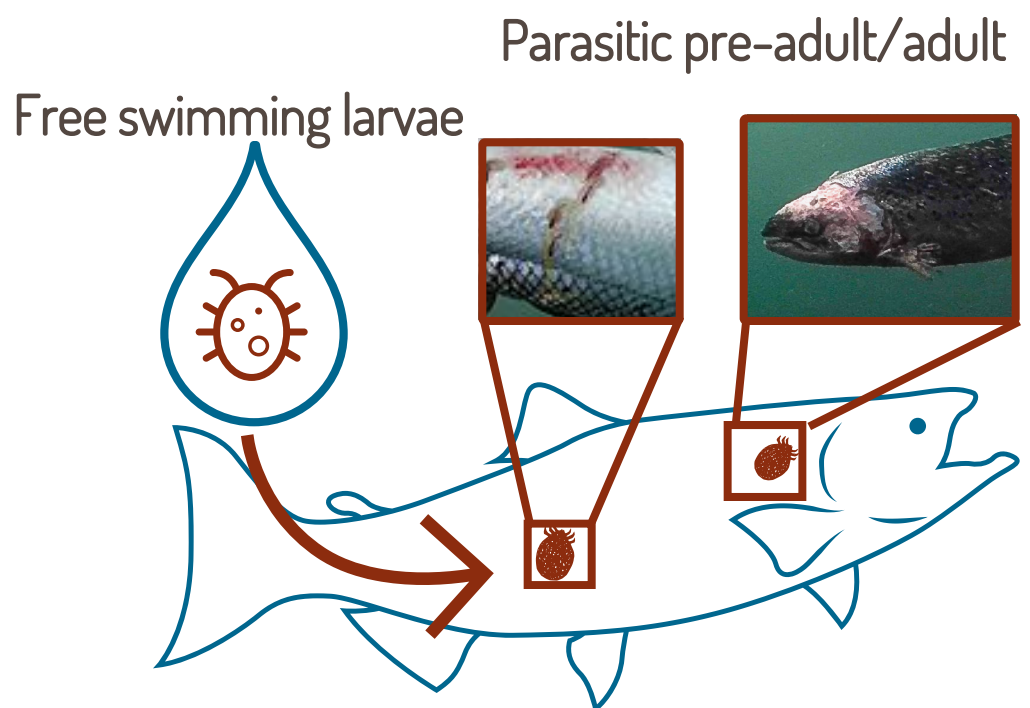


The problem of sea lice

Salmon Welfare

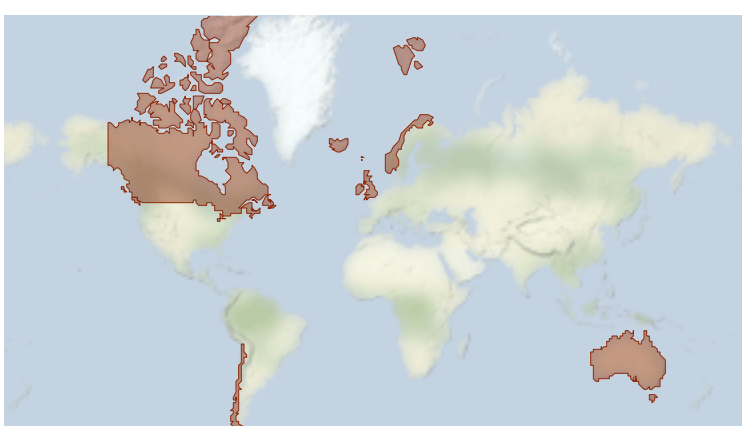
Sea lice are a big problem in salmon farming. They also transfer to wild salmon and threaten wild populations

Sea lice cause injury and death

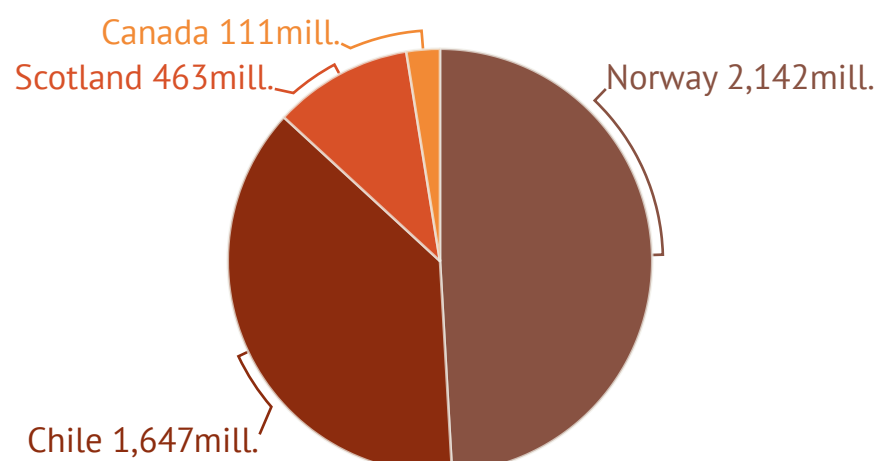


A global problem

Countries with reported sea lice infections in salmon farms



Sea lice has cost the industry an estimated \$4.36 billion from 2013 to 2019. The majority of the costs are in:



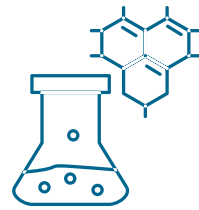
Sea lice treatments through the years...

past

Original treatments

Although they are still used, their popularity is declining because sea lice have developed a resistance to them, making them less effective.

Chemotherapeutic



Chemotherapeutics are pesticides or medication that are toxic to sea lice

Causes damage to gills, stress and high mortality
They are damaging to the environment.

Hydrogen peroxide



Hydrogen peroxide kills sea lice

Causes damage to mucous and gills, stress and high mortality

present

Modern (but flawed) treatments

In recent years, new delousing treatments have gained in popularity due to their low environmental impact but salmon welfare suffers.

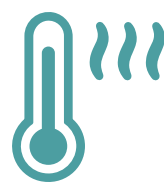
Cleaner fish



Cleaner fish, which eat sea lice from off infected salmon are widely used

Welfare of cleaner fish is often poor because they are purposefully left hungry
Wild populations can be depleted

Thermolicer/Optilicer



When exposing salmon to extreme hot or cold water, pre-adult sea lice fall off

Causes injuries, stress and high mortality

Mechanical



Salmon are exposed to water jets which dislodge the sea lice

Causes injuries, stress and high mortality

future

Promising new treatments

New technologies are being tested and developed which do not harm salmon and have a low environmental impact

Ultrasound



Ultrasonic waves are sent through the sea cage and kill sea lice

This treatment is currently being studied and risks to salmon welfare are low. Risks to dolphins and whales must be considered before using this technology

Selective breeding



Research is underway to make salmon resistant to sea lice through selective breeding

Changes in salmon need to be monitored closely to safeguard their welfare

Electric fence



Electrical pulses are transmitted through the water and inactivate lice before they attach onto salmon

This technology is starting to be used by industry and no risks to salmon welfare are known