SEA LICE

Sea lice represent a significant challenge for the salmon industry. Infestations of sea lice can impact the health and welfare of farmed fish, which can serve as hosts for the parasites and increase the infection pressure on wild salmon stocks.

CERMAQ’S POSITION

• Cermaq recognizes the importance of controlling sea lice abundance in fish farming facilities, both to uphold productivity and to avoid negative impact on wild salmon and sea trout stocks.

• Cermaq believes that area management is crucial for effective, preventive management and control of sea lice and disease, and has implemented the principles of Integrated Pest Management in farming operations.

• Cermaq invests in research in functional feeds to find new and more effective tools for controlling sea lice abundance in fish farming facilities.

BACKGROUND

Sea lice are naturally-occurring parasites found throughout the world’s oceans on many species of fish. They latch themselves to marine fish and feed off slime, skin and blood from their hosts. They can cause lesions on the host fish, increasing stress levels, affecting the fish’s salt balance and making it more susceptible to infections. The sea lice species of concern for the salmon industry are *Lepeophtieirus salmonis* (Norway and British Columbia), which prey only on salmon, and *Caligus rogercresseyi* (Chile), which prey on various species including salmon.

Salmon farming and sea lice

Sea lice only live in saltwater. Farm-raised salmon enter saltwater free of lice. Infections on farmed salmon occur when sea lice are transferred from wild fish or from other farmed fish. While sea lice rarely reach levels where they threaten the health of farmed salmon, high sea lice counts can impact the fish’s welfare and growth, reducing productivity at the farm. However, the greater concern is the role of salmon farms as sources of infection to wild fish, particularly out-migrating juvenile salmon which are far more vulnerable to sea lice infections than adult fish. Sea lice can also be carriers of pathogens.

Fish farms must monitor and report sea lice levels regularly. Authorities set trigger levels for treatments against sea lice, with special focus on outmigration of wild salmon.

SEA LICE ARE SMALL CRUSTACEANS NATURALLY OCCURRING ON WILD FISH

EWOS assist farmers in managing sea lice issues and offers a classification tool for identifying sea lice in different life stages.

Sea lice in Norway

Industry efforts to reduce sea lice levels in recent years have helped control the number of lice per farmed salmon. Meanwhile, the overall expansions of salmon farming and high ratio of farmed to wild salmon in Norway have increased the infection pressure on wild salmon stocks. According to the Norwegian Directorate of Nature Management’s Scientific Advisory Board on Wild Salmon research has deemed probable that sea lice from fish farming has impacted negatively the return of spawning wild salmon in regions where farming is most dense. Still there are several factors impacting wild salmon stocks, including food availability in the ocean.
Sea lice levels vary greatly between the regions in Norway. Mainstream’s salmon farming activities are located in Nordland and Finnmark where sea lice levels are low. Farms report sea lice levels regularly and the results are made public at www.lusedata.no

Sea lice in British Columbia, Canada
In its Sea Lice Management Strategy 2007/2008, the British Columbia Ministry of Agriculture concluded: “...the effect of Pacific Ocean sea lice on salmon in BC is minimal compared to the consistent severe damage caused by Atlantic Ocean sea lice in farms of the Atlantic Ocean”. There can be several reasons for this. One is a genetic difference between the Pacific L. salmonis and the louse found in the Atlantic Ocean. Another reason is the high ratio of wild to farmed salmon in BC. Also, other species of salmon, local to BC waters, seem less vulnerable to sea lice infections than the Atlantic salmon.

No direct cause and effect relationship between sea lice, salmon farming and wild salmon populations has been established. There are large natural fluctuations in salmon return numbers from year to year in BC. The fluctuations have been recorded for nearly 60 years, both before and after the introduction of salmon farms. Mainstream reports sea lice levels on www.mainstreamcanada.com

Sea lice in Chile
Chilean salmon farming faces many of the same challenges from sea lice as Norway and Canada, but from a different parasite: Caligus rogercresseyi. Unlike the L. salmonis, the C. rogercresseyi will not only prey on salmon, but a large number of species. This means it will reproduce without the presence of salmon farms or migrating salmon, and therefore is more difficult to control. On the other hand, Chile has no native stocks of salmon or sea trout, meaning that the major concern related to sea lice in Chile is the impact they have on the welfare and growth of farmed salmon and rainbow trout.

Measures against sea lice
Functional feeds and biological treatment (cleaner fish such as wrasse) are preferred tools. Cleaner fish are not available in all regions. Research on vaccines and breeding as a preventative measure against sea lice is on-going, but no such solutions are expected to be available in the near future.

Much research and testing is done on membranes that would allow water flow but not sea lice larvae as well as laser, electricity and other measures to avoid sea larvae entering the pens.

Medicinal treatment remains an essential control strategy, but it should only be used when strictly necessary. Exposing sea lice to medication without killing them involves the risk of the lice developing resistance to the treatment. It is important to alternate between different delousing methods, to execute them with great care and to coordinate measures within the same geographical area to reduce pressure of lice while controlling resistance.


READ MORE
EWOS (2009): Spørsmål og svar om lakselus (NO only)
Norwegian Seafood Federation: Fact sheet on sea lice
BC Salmon Farmers Association: Fact sheet on sea lice and pink salmon
Institute of Marine Research: Lakselusinfeksjonen på vill laksefisk langs Norskekysten i 2010 (NO only)

www.cermaq.com