

Epidemiology of sea lice (Copepoda: Caligidae) infestations in three salmonid species farmed in net pens in southern Chile

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ABSTRACT: Sea lice infestations have become a major health problem for farmed salmonids throughout the world including Chile. Six geographical areas divided into 22 geographical zones with a total of 127 salmon farming centers and 1519 sea pens were regularly sampled from December, 1999 to April, 2002 in southern Chile.

A linear mixed model (LME) approach was used to describe the infestations of adult forms of sea lice on three salmonid species farmed in southern Chile. The variables fish species, water temperature, water salinity, fish weight, pre-adult parasite count, pen shape, treatment status in previous month and the interaction of previous and current month treatment were found as statistically significant fixed effects over all the population sampled. The most susceptible species to sea lice infestations was rainbow trout, while the least susceptible species was coho salmon. Fish in pens treated in the previous month with avermectins had the smallest sea lice count when compared to fish in pens not treated or treated with other products.

The variability in sea lice infestations at areas and zones within areas was not statistically significant when controlling for the previously mentioned fixed variables. The variability between centers, the within pen variability and the interaction between the within pen effect and the date of the measurement were large and not explained by the fixed effects. We conclude that the epidemiology of sea lice infestations in farmed salmonids in southern Chile is complex and need to be further studied.