GO GREEN OR STAY ROUTINE?

A deeper look in organic and conventional farming; comparing sea lice and lice treatments numbers

Sea lice

Sea lice are one of the main welfare and sustainability challenges in Norwegian salmon farming.
Sea lice harm salmon by eroding skin, causing osmotic stress and increasing susceptibility to infections.

Background

Frequent delousing is associated with increased stress, injuries and mortality.

Organic production emphasizes improved fish welfare and reduced environmental impact. It requires low densities (≤10 kg/m³), long fallowing, minimal chemical use, and sustainably sourced organic feed.

Few comparisons exist between organic and conventional farms in similar environments. Additionally, there is little information about whether organic production methods have any measurable effect on lice dynamics or fish welfare.

We wanted to test whether the organic principals translate into real-world differences in lice levels and treatment intensity.

Main findings

- Organic farms had a median value of 0,1128 adult female lice per fish, compared to 0.1480 in conventional systems - a small difference, but one that followed a consistent trend. Using an ANOVA test it was found that the result was not significant $p > 0.05$.
- More notably, organic farms required fewer treatments, averaging 15,1, while conventional farms averaged 19.5, a statistically difference was found not significant, confirmed by ANOVA.
- Organic systems also tended to use less invasive treatments, such as freshwater and feed-based methods, supporting the idea that organic practices/organic management may reduce stress and improve welfare in salmon.

Method

Paired-site design of 30 organic and 30 conventional farms along the Norwegian coast in the period 2022-2024. Each organic site was paired with a nearby conventional farm to control for environmental variation.

DATA SOURCES

Barentswatch · Geonorge · Debio

We compared

- Average number of adult female lice per fish
- Total number and type of delousing treatments used

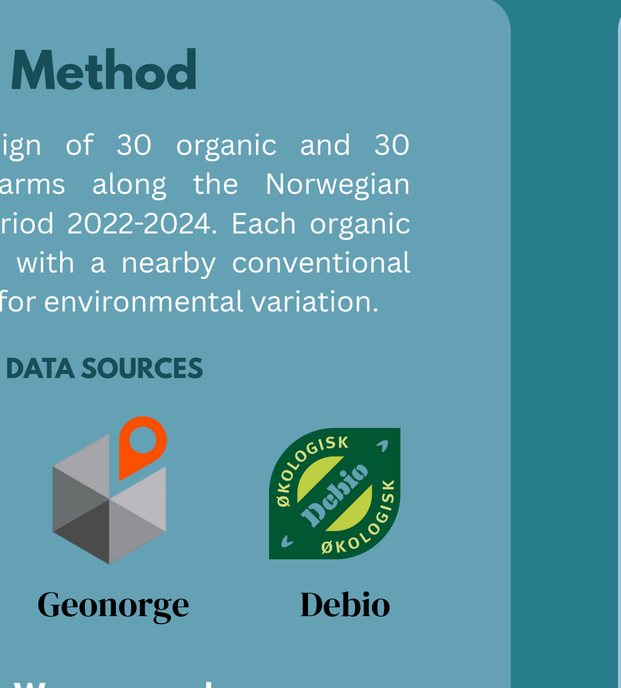

Figure 1: A) Average number of delousing treatments in non-organic and organic farms. B) Percentages of each delousing treatment type for organic- and non-organic farms in 2024

Figure 2: Average number of female lice in non-organic and organic salmonfarms.

Conclusion

Although organic farms show lower average female lice counts and fewer treatments, the high variability in the data prevents any statistically conclusive statement about significant differences between organic and conventional systems.

Emma Hovland, Sanna Olsen, Synne Kolding, Mailin Løland, Øystein Knag, Otto Kristiansen

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