

Correlation between temperature and maturation of salmon louse

In this study we will compare the relative increase of mature female salmon louse (*Lepeophtheirus salmonis*) related to seasonally varying temperatures, and see if there is a significant correlation between increasing temperature and the amount of mature female louse

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Norway is home to the worlds largest salmon farming industry, and is consequently heavily affected by infestations of the salmon louse. Seasonally varying temperatures are thought to make the salmon louse mature faster during warmer periods. To investigate this, the study draws knowledge from two random salmon farming facilities located in different areas of Norway.

Hypothesis

A rise in temperature is associated with an increase in metabolic rate and therefore faster growth and maturation of the salmon louse.

Method

Study species

- *Lepeophtheirus salmonis*
- *Salmo Salar. L*

Locations

- Hammer, located in Steigen (Northern Norway)
- Vadholmen, located in Øygarden (West-coast of Norway)

Temperature

- Temperatures from January to August
 - 4°C-16°C

Results

Fastest growth and highest level of mature female salmon louse were found to be at 13,5°C (Figure 1).

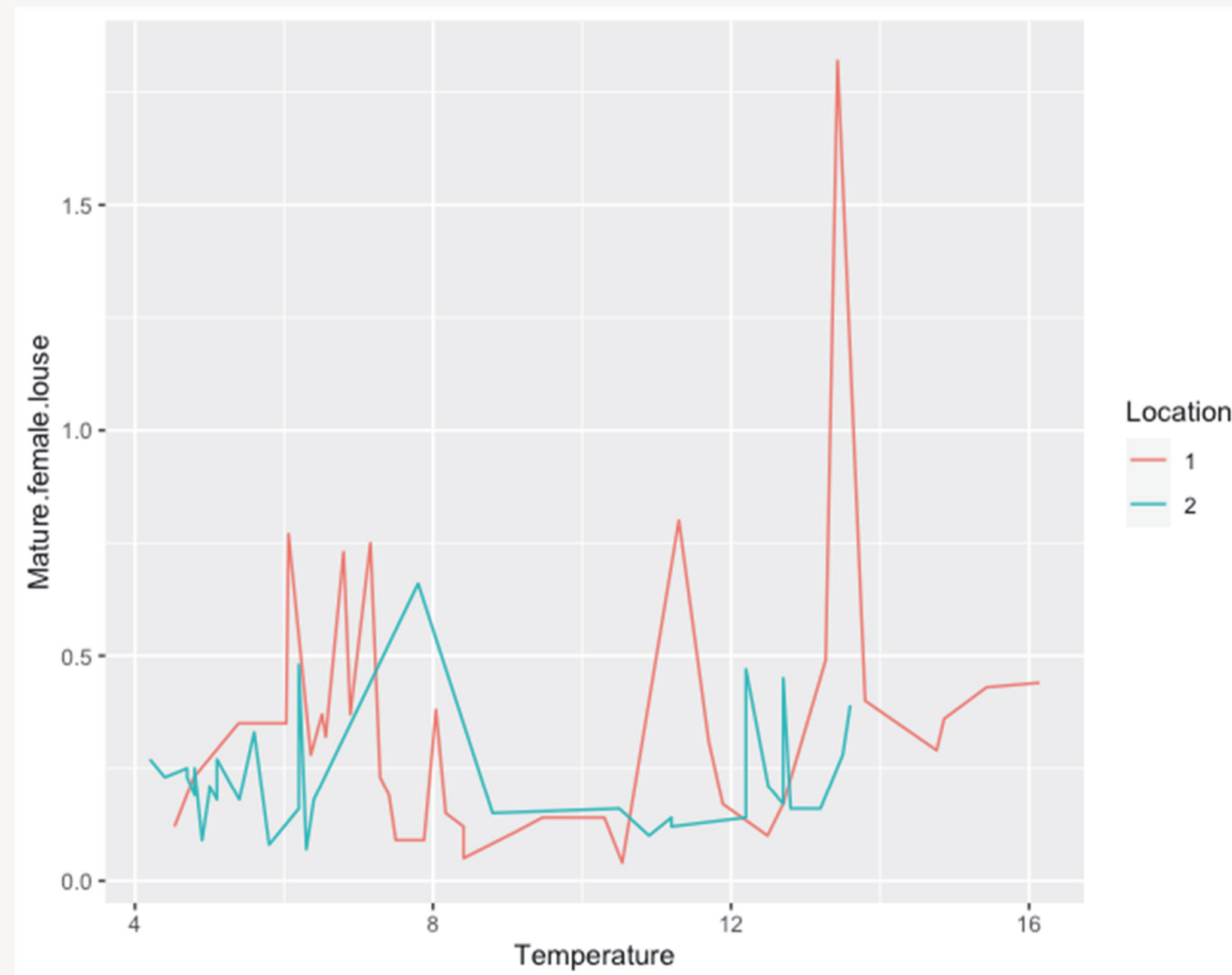


Figure 1: Number of mature salmon lice given temperature (°C) for the two locations between week 1-35 in 2021. Red line (location 1) represents Vadholmen and green line (location 2) represents Hammer. Delousing treatments have not been marked in the graph.

Conclusion

By doing an ANOVA test in R studios, we found that the correlation between the increase of temperature and number of mature female lice were not significant (ANOVA, $F = 2.058$, $p = 0.156$). Based on these results, this study concludes there are no significant correlation between increasing temperature and maturation of female salmon louse. It is worth to mention that previous studies have showed that higher temperature is an important abiotic factor for increased growth, and a source of error is delousing treatments which has not been taken into account.



REFERENCES

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