Effect of exposure on salmon lice Lepeophtheirus salmonis population dynamics in Faroese salmon farms - DTU Orbit (31/12/2018)

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We assessed variations in salmon lice Lepeophtheirus salmonis population dynamics in Faroese salmon farms in relationship to their physical exposure to local circulation patterns and flushing with adjacent waters. Factors used in this study to quantify physical exposure are estimates of the freshwater exchange rate, the tidal exchange rate and dispersion by tidal currents. Salmon farms were ranked according to the rate of increase in the average numbers of salmon lice per fish. In a multiple linear regression, physical exposure together with temperature were shown to have a significant effect on the rate of lice infection. The sites with low exposure revealed higher rates of self-infection and internally driven outbreak dynamics, while high-exposure sites showed lower rates of self-infection, tending towards externally driven outbreak dynamics. The low-exposure sites also appeared to have a lower threshold of salmon stocking numbers for outbreaks of infection. The study presents a simple method of characterizing salmon farming fjords in terms of their different exposure levels and how they relate to potential self-infection at these sites

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