The following supplement accompanies the article

Sea lice infestation level alters salmon swimming depth in sea-cages

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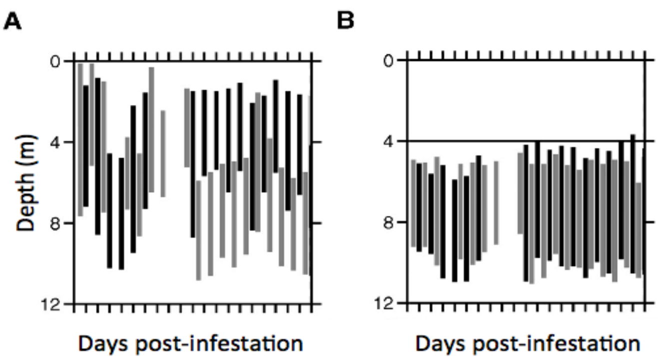

Fig. S1. Depth-distribution data, adapted from the concurrent study by Stien et al. (2016), of an Atlantic salmon school in adjacent sea-cages at the same farm site as our experimental fish. Position during the day (grey bars) and night (black bars) in unmanipulated sea-cages (A) and 'snorkel' cages (B) are shown for the 3-week period concurrent to the present study, where fish in snorkel cages were denied access to the upper 4 m except through a chamber impermeable to seawater exchange

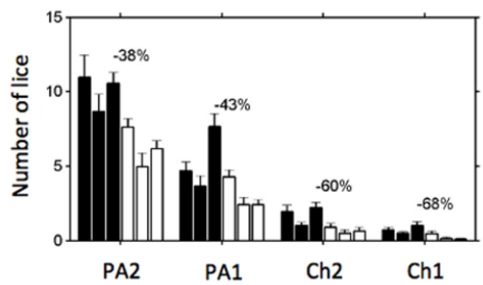

Fig. S2. Sea lice load data, adapted from the concurrent study by Stien et al. (2016), of Atlantic salmon in sea-cages adjacent to our experimental group. Parasite loads of *Lepeophtheirus salmonis* are shown for fish held in unmanipulated sea-cages (black bars) and 'snorkel' cages (white bars) after the 3-week period concurrent to the present study. Salmon in snorkel cages were prevented from accessing the upper 4 m of the cage except through a chamber impermeable to seawater exchange. Percentage differences between the two cage types are indicated above each sea lice stage (PA2 = pre-adult 2, PA1 = pre-adult 1, Ch2 = chalimus 2, Ch1 = chalimus 1)

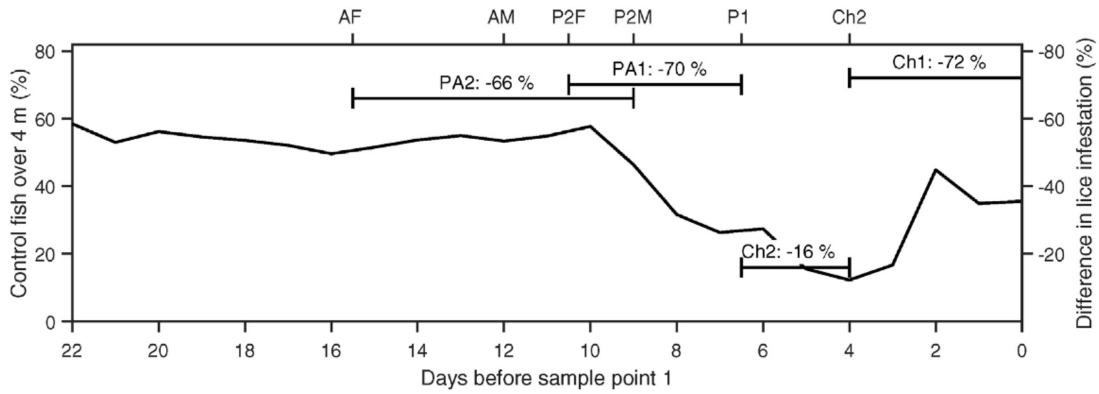

Fig. S3. The depth preference of a group of Atlantic salmon held in standard sea-cages at the same farm site as our experimental fish, adapted from the concurrent study by Stien et al. (2016). The percentage time that these fish spent shallower than 4 m depth (left y-axis), over the 22-day period prior to a sampling point (bottom x-axis), is represented by the continuous line. At the sample point, parasite loads of *Lepeophtheirus salmonis* were recorded, with the percentage difference compared to salmon held in snorkel sea-cages represented by the vertical positioning of bars for each sea lice life-history stage (PA2 = pre-adult II, PA1 = pre-adult I, Ch2 = chalimus II, Ch1 = chalimus I) in relation to the right y-axis, along with the label accompanying each bar. Location and length of these horizontal bars correspond to the likely days for when each stage is likely to have initially attached to the host, according to theoretical moulting times. Back-calculated theoretical time points, from sample point 1, when sea lice were likely to have moulted to their next life-history stage (Ch2 = moulting from chalimus 1 to chalimus 2, P1 = moulting to pre adult, P2M = moulting to pre adult 2 male, P2F = moulting to pre adult female, AM = moulting to adult male and AF = moulting to adult female) are indicated on the top x-axis. Essentially, the lowest difference in infestation acquired occurred (at Ch 2) when salmon in normal sea-cages occupied similar depths to the salmon held in snorkel cages, naturally avoiding the upper 4 m depth. In this period when both groups largely swam below 4 m, similar rates of new infestations are observed, indicating the influence of swimming depth on parasite avoidance.

LITERATURE CITED

Stien LH, Dempster T, Bui S, Glaropoulos A, Fosseidengen JE, Wright DW, Oppedal F (2016) 'Snorkel' sea lice barrier technology reduces sea lice loads on harvest-sized Atlantic salmon with minimal welfare impacts. Aquaculture 458:29–37