

Response of the Sea Louse *Lepeophtheirus salmonis* Infestation Levels on Juvenile Wild Pink, *Oncorhynchus gorbuscha*, and Chum, *O. keta*, Salmon to Arrival of Parasitized Wild Adult Pink Salmon

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Recent recurring infestations of Sea Lice, *Lepeophtheirus salmonis*, on juvenile Pacific salmon (*Oncorhynchus* spp.) and subsequent annual declines of these stocks have made it imperative to identify the source of Sea Lice. While several studies now identify farm salmon populations as sources of Sea Louse larvae, it is unclear to what extent wild salmonid hosts also contribute Sea Lice. We measured Sea Louse numbers on adult Pink Salmon (*Oncorhynchus gorbuscha*) migrating inshore. We also measured Sea Louse numbers on wild juvenile Pink and Chum salmon (*Oncorhynchus keta*) migrating to sea before the adults returned, and as the two age cohorts mingled. Adult Pink Salmon carried an average of 9.89 (SE 0.90) gravid lice per fish, and thus were capable of infecting the adjacent juveniles. Salinity and temperature remained favourable to Sea Louse reproduction throughout the study. However, all accepted measures of Sea Louse infestation failed to show significant increase on the juvenile salmon, either in overall abundance of Sea Lice or of the initial infective-stage juvenile lice, while the adult wild salmon were present in the study area. This study suggests that even during periods of peak interaction, wild adult salmon are not the primary source of the recent and unprecedented infestations of Sea Lice on juvenile Pacific Pink and Chum salmon in the inshore waters of British Columbia.

Key Words: Sea Lice, *Lepeophtheirus salmonis* Pink Salmon, *Oncorhynchus gorbuscha* Chum Salmon, *O. keta*, salmon farm, British Columbia