

**Research in the Broughton Archipelago**  
**Dr. Lawrence M. Dill, Behavioural Ecology Lab**  
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MSc. student Paul Mages is examining the effect that sea lice infection (and load) has on the vulnerability of juvenile pink and chum salmon to predation by coho smolts and piscivorous birds. He will examine burst and sustained swimming ability, schooling behaviour, vigilance, and the willingness of fish to expose themselves to predators while foraging. He will also experimentally measure predation rates on uninfected and infected fish in small enclosures. As part of this work we also hope to develop a technique to experimentally inoculate salmon with lice, so as to eliminate the possibility that infested individuals (collected in the field or batch- infected in the lab) had compromised immune systems or differed in other ways that may have predisposed them to infection, thus confounding the results.

We also intend to study the influence of sea lice infection on juvenile salmonid salinity preference. There is evidence that sea lice infected Atlantic salmon and sea trout seek out freshwater, either to rid themselves of lice or to facilitate osmoregulation, given their damaged epidermis. Preliminary results in our lab suggest that infected pink salmon also prefer lower salinity than their uninfected cohorts. We plan to extend this finding (using the experimentally infected fish mentioned above) and examine its consequences for the distribution of infected juvenile pink salmon in the field. If infected fish prefer low salinity environments, such as the top layer of the water column or near stream inflows) this will bias survey results, as well as potentially increasing the fishes' vulnerability to certain types of predators, particularly diving birds.