Poster Pitch:

My project is focused on trying to understand the dynamics of a multi-host parasite system that involves chum, pink and sockeye salmon, as well as two species of sea lice that infect them, a salmon specialist, L. salmonis, and a generalist parasite, C. clemensi.

So as juveniles, these salmon migrate from the Fraser River on the coast of British Columbia through the Discovery islands and Johnstone strait, and out to the north. Sea Lice are maintained in high abundance by in these regions by two reservoir hosts: pacfic herring and farmed atlantic salmon. As the juvenile salmon travel through this area they get infected via transmission from these other sympatric fish species. So as part of a larger project looking at juvenile salmon survival, a massive dataset was compiled over four years that included information about sea lice infections on these juveniles from both the Discovery Islands and Johnstone Strait. So I took these data and fit them to a series of generalized linear mixed-effects models with a negative-binomial distribution to look at both species-level and region-level differences in infection between our three salmon species and between the two regions.

So the first thing we found was that C. clemensi was present at much higher levels across almost all our samples, and across all of our salmon species. With regards to the salmon species themselves, we saw that pink salmon had the highest estimated levels of infection per fish for both C. clemensi and L. salmonis, and sockeye showed the largest differences in infection levels between the two lice species. In terms of region level results, we saw that L. salmonis showed higher infection levels in the Discovery Islands compared to Johnstone Strait, and C. clemensi showed the opposite.

Overall, what we took from all of this was that C. clemensi is probably more important in terms of accounting for overall infection pressure on these fish, as they’re present at higher average levels for all years and for all salmon species. And our region-level effects indicate that herring might be more of an important source of infection than we previously thought. This is important because it can help us to better inform our policy decisions surrounding the management of parasites in the region, and offer insight into what we can predict if we don’t manage the system properly.