Declines in mean body size of exploited fishes are relatively widespread and may negatively impact fisheries by decreasing yields (REF) and altering community dynamics (REF). Such declines may be linked to reduced individual growth due to unfavorable environmental conditions (e.g. altered prey community, increased competition) or fisheries that selectively remove larger individuals (REF). In the case of Pacific salmon, many populations have exhibited relatively strong temporal trends in size, as well as regionally coherent shifts in growth, age-at-maturity, and survival (REF), suggesting large-scale environmental drivers moderate interannual variation in traits such as body size. Unsurprisingly, identifying the processes that drive this variability is of considerable interest to management, both as a means of improving forecasts and by bounding expected levels of future productivity.

Evidence suggest that both bottom-up and top-down drivers can regulate salmon growth during marine residence. For example, changes in sea surface temperature may influence metabolic rate (REF), as well as the quantity and quality of prey available to salmon. Salmon growth and survival is often associated with indices such as the Pacific Decadal Oscillation, North Pacific Gyre Oscillation, and ENSO, which integrate environmental conditions over relatively large spatial and temporal scales (REF). Although population-level responses to these temperature indices are regionally coherent, they vary across the species range with northern populations responding positively to temperature increases and southern populations the opposite. Wind stress indices, such as ALPI, may also be correlated with growth by moderating nutrient transport to surface layers (REF). Investigations into top-down effects have largely focused on changes in the abundance of potential competitors during marine residence, which may result in density-dependent declines in growth or survival. In recent years, pink salmon abundance has garnered particular attention due to increased hatchery production that has been associated with reduced productivity and size-at-maturity across many Pacific salmon populations (REF).

Although previous investigations provide important clues as to how salmon populations are influenced by large scale environmental drivers, our understanding is limited to a finite number of observations over a limited range of environmental conditions. As a result, it is unclear whether salmon populations may exhibit non-linear responses to conditions outside those recently observed. Put more simply, are Pacific salmon dynamics normally regulated by factors such as sea surface temperature and interspecific competition? We used age-structured length data collected during the first half of the 20th century to explore how Pacific salmon populations responded to abiotic and biotic drivers prior to widespread increases in sea surface temperature or hatchery development. These data originated from extensively sampled nearshore fisheries targeting Nass (northern British Columbia) and Rivers Inlet (central BC) sockeye salmon (*Oncorhynchus nerka*). Additionally we compare historical changes in Nass sockeye salmon body size to those observed in recent years using data collected during in-river sampling.

*Methods*