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Title: Pink Salmon as Sentinels for Climate Change in the Arctic

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Abstract: Pink salmon (*Onchorhynchus gorbuscha*) are not a new occurrence in the Arctic, yet over the past decade their relative abundance appears to be increasing. For instance, during 2008 the subsistence catch of adult pink salmon in Elson Lagoon near Barrow was relatively high compared to previous years. Relatively large catches of adult pink salmon in the Arctic are unusual, the questions are: 1) what conditions led to the high abundance (marine survival) of these salmon; and 2) can their favorable response be measured in ways that link to variability in sea ice, water temperature, salinity, and or prey availability? We address these questions by examining recent information on ecosystem function and fish response collected during integrated ecosystem surveys in the Chukchi Sea in 2007, 2012 and 2013. The surveys occurred during late summer, August through September. Relative abundance of juvenile pink salmon was high in the Chukchi Sea during 2007 and low in 2012 and 2013. Because pink salmon spend one year in the ocean before returning to spawn, the relatively high juvenile pink salmon abundance during 2007 could have been an indicator of high marine survival that year resulting in larger adult returns one year later (2008). Therefore, to understand if pink salmon can be used as a sentinel to climate change in the Arctic, we will compare relative abundance, size, energetic status, and diet of juvenile pink salmon among the three years and determine if these changes relate to sea ice variability, temperature, salinity, and zooplankton biomass.

Keywords: Pink salmon, Arctic, Integrated Ecosystem Survey

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