

Project Title: Landscape Genetics of AYK Salmon Populations

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Abstract: This study will combine landscape genetics with a comparative analysis of population structure to address the question “what are some of the spatial, environmental, ecological, and life history factors influencing genetic diversity of Chinook, chum, and coho salmon in the watersheds of Norton Sound and in the Yukon and Kuskokwim rivers?” The populations and associated genetic data will be mapped using a Geographic Information Systems (GIS) framework. GIS will be used to measure broad and fine scale environmental (e.g. stream gradient) and ecological (e.g. ecoregion) variables for each population. A combination of statistical methods will be used to evaluate the influence of these variables on the spatial distribution of genetic diversity in each species. A multispecies comparison of these results will be used to infer the extent to which demographic and life history differences among the species influence the distribution of genetic diversity. These analyses will provide insight into how, and at what spatial scale, changes in the environment will impact genetic diversity in each species. A primary product of this study will be a publicly available GIS database of genetic data for spatially-referenced Chinook, chum, and coho salmon populations.