Eastern North Slope Dolly Varden genetic stock identification and stock assessment

Abstract: This is the second Annual Report of a three-year study of anadromous Dolly Varden *Salvelinus malma* on the North Slope of the Brooks Range, and reports results of the second year of the full three-year study. Anadromous Dolly Varden is distributed widely in Beaufort Sea drainages of the North Slope of the Brooks Range between the Colville River and the Canadian border. Fish from these stocks are an important subsistence resource in the communities of Kaktovik, Nuiqsut, and Anaktuvuk Pass and also contribute to sport fisheries along the Dalton Highway and in the Arctic National Wildlife Refuge and Gates of the Arctic National Park. Although Dolly Varden distribution is widespread among North Slope drainages, the extent of their distribution within drainages and among drainages has not been completely cataloged. These fish have complicated migration patterns, and although some research has been done on life history and distribution, very little work has been done on stock assessment. Because resource development on the North Slope is often dependent on the use of large quantities of gravel and water, exploration and development is likely to have significant effects on these subsistence resources. This project is intended to investigate the validity of using aerial surveys as a stock assessment tool. The project will estimate the precision of aerial surveys of overwintering aggregations, and determine the relationship between aerial survey abundance estimates and traditional mark-recapture abundance estimates of the same overwintering aggregations.

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