

Phenotypic Characterization of Chinook Salmon in the Yukon River Subsistence Harvest

Subsistence fishers from the villages of the lower and middle Yukon River harvest Chinook salmon (*Oncorhynchus tshawytscha*) that they describe as *whitenose*, *blueback*, and *blackhead* salmon. Moncrieff and Klein (2003) speculated that these fish may represent distinct runs that may include Canadian origin fish. The run and harvest timing of these types of fish are reportedly predictable, which implies they may be different stocks. If these fish can be identified as separate stocks, direct phenotypic identification of fish stocks could prove to be a useful fishery management tool, with implications for studies in fish biology, stock status and trends, and harvest monitoring. This project combined traditional ecological knowledge (TEK) to classify Chinook salmon sampled from a test fishery in the lower Yukon River, with the scientific method of genetic analysis to determine stock of origin. The phenotypes of sampled fish were identified by a technician from the village of Marshall on the Yukon River. Using allozyme baseline data, *blackhead* and *whitenose* Chinook salmon phenotypes did not appear to subdivide into large regional groups of US versus Canadian origin stocks. This may be because phenotypic identification of the salmon was not verified by multiple observers or because phenotypes are not strongly correlated with large-scale stock groups. Therefore, the use of these phenotypes does not appear to have an immediate management application for large-scale aggregates. A goal of this project was to learn how Yukon fishers characterize phenotypes of Chinook salmon and to learn through TEK specific information regarding each phenotype including run quality, run timing, spawning, meat quality and local uses. Additional Yukon River Chinook salmon phenotypes identified in this study include: *whitenose*, *blueback*, *blackhead*, *blacknose*, *red king* and *grayback*.

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