DNA analysis increases the utility of other stock identification methods in sockeye fisheries management

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Stock specific management of Fraser River sockeye has relied on scale-based stock identification methods for over fifty years. The scales of returning three year old sockeye were used to develop models to distinguish stock components of the predominantly four year old return the following year. This method has suited its purpose but recent trends impede achievement of objectives – the return of three year olds has decreased while at the same time scale patterns of some major stocks have converged. Other methods, including analysis of DNA, are being sought to complement scale data and combat these difficulties. Here we compare simulation results and results from known-samples for scale and DNA data. Molecular DNA analyses provide more accurate stock proportion estimates, greater resolution of substock components, and more reliable stock identification of individuals than are obtained using scales. But DNA techniques cannot fulfill all of our management needs. Instead, we have found that we can use results from DNA to improve our scale-based stock identification; we also look to apply the capability of DNA to identify the stock of individuals for the development of new stock identification tools. Progress on these fronts will be presented.