AFSC/ABL: Population structure of odd- and even-broodline Asian pink salmon

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Electrophoretic analysis of Asian even brood-year pink salmon stocks has shown regional heterogeneity (Noll et al. in review). Hypothetical mixed fisheries were created using data from 24 variable loci from Noll et al. in review. The mixture was analyzed to test the accuracy and precision of this baseline data for potential use in mixed fishery analyses. Thirteen stocks were separated into four management regions: Japan, Sakhalin, eastern Kamchatka, and western Kamchatka. Simulations were varied in sample size, number of loci, and percent regional contribution. The simulated mixtures were analyzed using the Conditional Maximum Likelihood Estimate (MLE). The mean estimate, standard deviation, and coefficient of variation were calculated for standardized comparison by both stock and region. Computed MLEs showed that estimates for the Noll et al. baseline improved in accuracy and precision with increased sample size and retention of important loci. When 24 loci and a minimum of 200 samples in a mixture were used, the baseline was approximately 80% accurate in its ability to distinguish regions from a mixture.