# Forecast Area: Alaska Peninsula, Bear Lake (Late Run)

**Species: Sockeye Salmon**

**Preliminary forecast of the 2020 run**

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| --- | --- | --- |
| Total Production | Forecast Estimate (thousands) | Forecast Range (thousands) |
| Total Run Estimate | 408 | 106–706 |
| Escapement Goal a | 156 | 117−195 |
| Harvest Estimate | 252 |  |

a The escapement estimate is the midpoint of the escapement goal range (117,000–195,000) in 2019.

**Forecast Methods**

The 2020 forecast of the Bear Lake sockeye salmon late run was prepared using simple linear regressions of sibling age classes. Models were evaluated with standard regression diagnostics. Prediction intervals (80%) for the regression estimates were calculated using the variances of the regression models. The age classes that could not be estimated with one of these models were estimated using pooled medians and the 10th and 90th percentiles of the data were used to calculate the 80% prediction interval of the medians.

Ocean-age-3 sockeye salmon were predicted from prior year ocean-age-2 returns from outmigration years 1990 to present. Remaining age-class components of the run were predicted by calculating median returns from the most recent ten years.

Regression and median estimates were summed to estimate the total Bear Lake late-run sockeye salmon run for 2020. The range was estimated as the sum of the 80% prediction intervals and 10th and 90th percentiles intervals for each age class forecasted.

**Forecast Discussion**

The 2020 Bear Lake late-run forecast of 408,000 sockeye salmon is 8,000 fish more than the 10-year average of approximately 400,000 fish and 41,000 fish less than the 2019 run of 449,000 sockeye salmon. The 2020 late run is expected to be composed of 3% ocean-age-1, 63% ocean-age-2, and 34% ocean-age-3 fish. The projected harvest of 252,000 fish is based on achieving the midpoint of the late-run escapement goal range (156,000 fish) and adequate run strength. The wide range around the point forecast is a result of large fluctuations in age-2.2 sockeye salmon returns. Over the last 10 years, age-2.2 fish have comprised an average of 50% of the annual run, but this proportion has varied from 16% (2011) to 78% (2014). Based on uncertainty associated with the variable predictive capabilities of sibling age class, our confidence in this forecast is fair.

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