PERFORMANCE REPORT

STATE: Alaska **GRANT NO.:** F-10-33

GRANT TITLE: Sport Fish Investigations in Alaska

PERIOD COVERED: July 1, 2017 – June 30, 2018

STUDY NO. AND TITLE: RT-04 Biometrics

STUDY OBJECTIVES:

1. To provide technical review of Sport Fish Division project operational plans.
2. To provide consultation and training to project leaders on proper experimental design and methods of data analysis.
3. To analyze data collected by certain projects and provide the required estimates to the project leaders.
4. To gain a better understanding of specific fishery and biological populations for which standard methodologies are not appropriate and determine appropriate experimental designs, methods of analysis, and variance estimates.

RESULTS/DISCUSSION:

Objective 1. Operational plans were completed for 56 projects fielded during the 2018 calendar year. Additionally, biometric staff consulted on a total of 27 projects with continuing field activities that were covered in previous year's operational plans covering multiple year activities.

Objective 2. Staff provided consultation for 431 projects covering the 1975-2017 calendar years.

Staff worked interactively with Division and Department staff to assist and train them in the use of end-user statistical software, specialized workbooks, and data summary tools.

Objective 3. Analyses were conducted for 78 projects.

Objective 4. Project staff evaluated, developed, or continued to refine the following specialized estimators or tests to address non-standard problems:

- Development of GIS techniques to analyze radio telemetry data.
- Development and evaluation of Bayesian credible intervals and variance estimates for 3-step removal method abundance estimators.
- Variance estimators for age composition parameters in multi-stage catch sampling projects for marine boat sport fisheries, that factor in both the multi-stage nature of sampling and the non-proportional stratum and sample weights.
- Bayesian State Space models for setting salmon escapement goals.

- Modelling the effects of introducing of YY Northern Pike into Anchorage area lakes.

FINAL REPORT STATUS:

This report constitutes the final report for this project. Biometrics staff review, edit, or write sections of Fishery Data Series and other reports for projects that they support.

PREPARED BY: Pat Hansen **DATE**: September 4, 2018