

IDAHO DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

Job Performance Report

Project F-73-R-11



Subproject II: STATUS AND ANALYSIS OF SALMONID FISHERIES
Study II, Job 1: Kokanee Population Dynamics-Generalized
Kokanee Stock-recruitment Model

By

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JOB PERFORMANCE REPORT

State of: Idaho

Name: Status and Analysis of
Salmonid Fisheries

Project No.: F-73-R-11

Title: Kokanee Population Dynamics-
Generalized Kokanee Stock-
Recruitment Model

Subproject No.: II

Study No.: II

Job No: I Period Covered:

March 1, 1988 to February 29, 1989

OBJECTIVES

To develop a functional stock-recruitment model for Idaho's kokanee fisheries for use in determining density-dependent factors and predator limitation.

ACTIVITIES

Kokanee densities were determined for Payette Lake and Dworshak Reservoir in 1988. A relationship between spawner numbers and spawner size was developed for Dworshak Reservoir (Figure 1).

The number of spawners escaping Anderson Ranch Reservoir was determined by operation of a weir on the South Fork Boise River near Pine, Idaho, again in 1989 to duplicate 1988 effort (Figure 2). Low pool levels at Anderson Ranch precluded use of the trawler in 1988. The size of spawners in Anderson Ranch of 300-350 mm in indicative of low densities. Egg deposition was estimated from weir counts at 1.9 million and will be compared to 1989 0+ kokanee densities to estimate egg through first summer survival. Payette Lake was trawled in 1988 and densities of kokanee estimated. A weir was installed in August 1989 to count adult escapement and spawning ground surveys to estimate adult was complete. A fry trap was installed in December to monitor emigration to Payette Lake but warm temperature, rains, and high water precluded this activity. Trawl estimates of kokanee will be undertaken in 1989 to estimate egg to fall survival.

Information from kokanee systems in Washington, Oregon, California, Montana, and British Columbia was solicited and is being summarized to combine with Idaho data to develop the kokanee stocking guidelines.

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ANDERSON RANCH WEIR Cummulative Kokanee Count

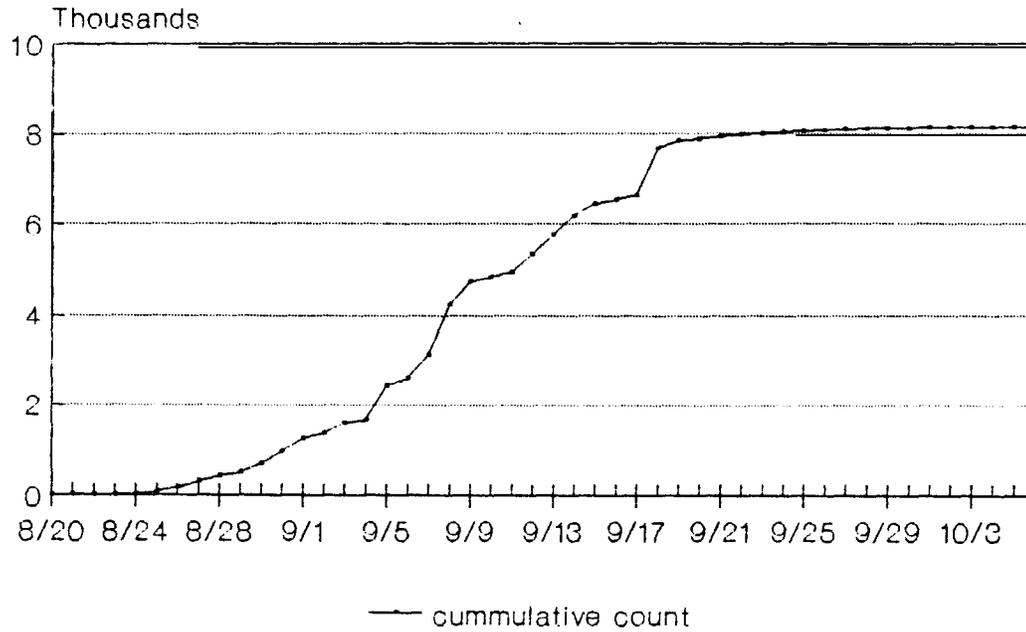


Figure 1. Kokanee spawners counted from Anderson Ranch Reservoir past the weir on the South Fork Boise River near Pine, Idaho for 1989.

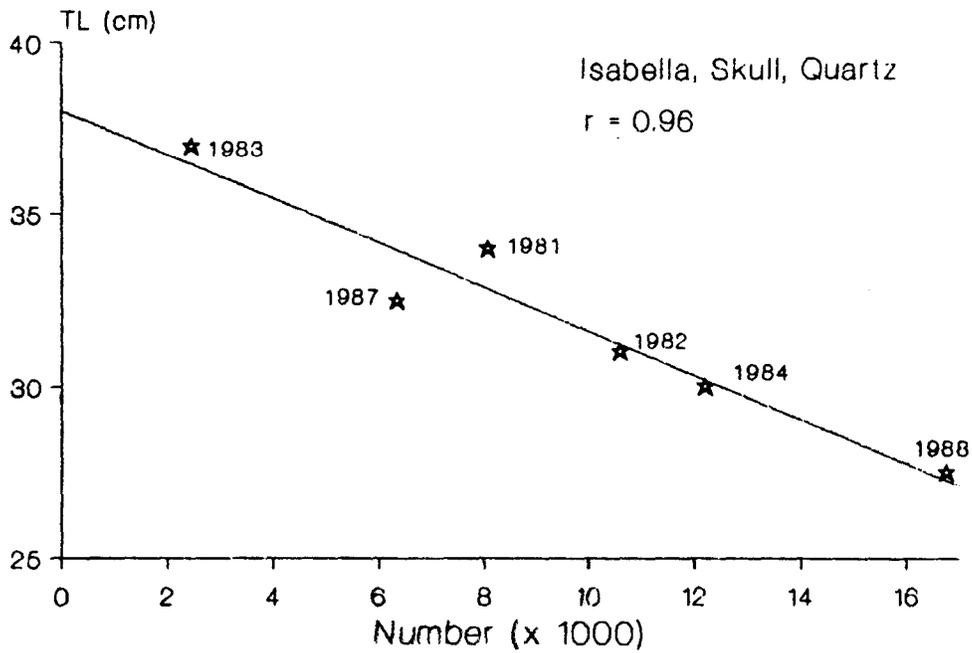
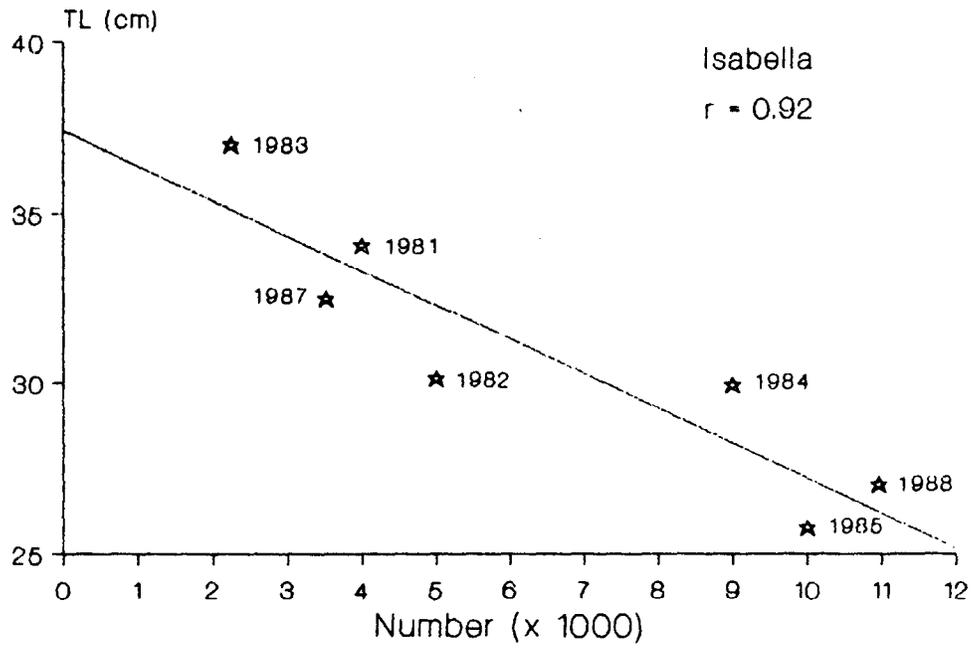


Figure 2. Correlation of mean length and number of kokanee spawners in selected tributaries and years in Dworshak Reservoir.