

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Trout Population Modeling and Annual Assessment of Suppression Netting on Yellowstone Lake

Discipline: Natural

Type of Project: Technical Assistance

Funding Agency: National Park Service

Other Partners/Cooperators: USGS, Montana Cooperative Fishery Research Unit

Student Involvement: Yes, GRA/Ph.D and undergraduate technician

Effective Dates: 09/01/2016 - 08/31/2021

Funding Amount: \$183,300

Investigators and Agency Representative:

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Project Abstract: The Native Fish Conservation Plan (National Park Service 2010) proposed a framework for conserving native fish in Yellowstone National Park from 2011-2031. An important component of the Native Fish Conservation Plan is to continue suppression of nonnative lake trout in Yellowstone Lake for the conservation benefit of native Yellowstone cutthroat trout. The National Park Service desires to restore Yellowstone cutthroat trout abundance to the level present at the early stages of lake trout invasion. Quantifiable goals for abundance of lake trout and Yellowstone cutthroat trout (see Methods) were defined in the Native Fish Conservation Plan. Additionally, a panel of experts in fisheries science, lake trout ecology, and population dynamics convenes each year to evaluate the progress of lake trout suppression relative to management goals and provide recommendations for improving effectiveness (Gresswell et al. 2012). Annual analyses of lake trout and Yellowstone cutthroat trout population data are necessary to assess whether lake trout suppression is achieving objectives in the Native Fish Conservation Plan and whether the amount of fishing effort in a given year is adequate to reduce lake trout abundance. Targets for fishing effort are included in the Native Fish Conservation Plan; however, results from population models that provide these targets change as new data are incorporated. The proposed budget would fund annual analyses to determine whether lake trout suppression is attaining objectives outlined in the Native Fish Conservation Plan.

Objectives:

- 1) Evaluate the efficacy of lake trout suppression relative to Native Fish Conservation Plan performance metrics.
- 2) Use population models to determine the amount of fishing effort required to reduce lake trout abundance.
- 3) Evaluate the response of Yellowstone cutthroat trout to lake trout suppression.

Keywords: Yellowstone National Park, Montana State University, Lake Trout, m Native Fish Conservation Plan, annual assessment