

INFLUENCES OF THE LONGNOSE SUCKER ON THE EARLY
LIFE STAGES OF CUTTHROAT TROUT IN TRIBUTARIES
OF YELLOWSTONE LAKE,
YELLOWSTONE NATIONAL PARK, WYOMING

George T. Baxter and Richard D. Swanson
Department of Zoology and Physiology
University of Wyoming

Purpose

The purpose of this study was to determine what, if any, influences the longnose sucker (*Catostomus catostomus*) have upon the cutthroat trout (*Salmo clarkii*) population in Yellowstone Lake, Yellowstone National Park, with special reference to early life stage interactions. The specific objective of this investigation was to determine if the introduced sucker was having a deleterious effect upon the growth and survival of indigenous trout fry.

Cutthroat trout and longnose suckers use tributaries of Yellowstone Lake as spawning areas and the potential for intraspecific competition between fry of both species is considerable. The maintenance of an ecologically sound population of cutthroat trout in Yellowstone Park is a prerequisite to the National Park Service policy of maintaining native flora and fauna in national parks.

Proposed Work Accomplished

Spawning site selection and behavior. Further observations into possible interactions of longnose suckers and cutthroat trout in Solution Creek revealed a complete separation of spawning sites. Longnose suckers were observed to inhabit the pool areas (min 23 cm) of the stream while trout occupied the riffle areas. Occasional intermingling of the two species was noted, however, no antagonistic behavior was observed.

Observations of downstream migration of sucker fry. Measurement of downstream migration of sucker fry was accomplished by use of two drift nets placed in Arnica Creek. Preliminary data indicates that sucker fry migrate downstream soon after the swim-up stage. Migration is heaviest during the first few hours of darkness. It appears that migration is strongly correlated with water temperature and the onset of nightfall. Data indicates that the majority of sucker fry migrate within the first 48 to 60 hours following swim-up. (This would seem to imply that migration is the result of loss of sight orientation rather than an inherited characteristic).

Food and feeding relationships among fry and fingerling trout and suckers. Possible feeding overlap between the two species is being monitored in Arnica Creek Lagoon. Fish collected during the sampling period will be examined for food preference and quantity consumed.

Estimates of available food resources (zooplankton; Fig. 1 and 2, and benthic organisms) were collected on a bi-weekly sampling period.

Upon completion of the analysis of food preferences and structure components of the benthic community, feeding overlaps will be calculated.

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Figure 1. Population dynamics by volume of 4 zooplanktons in Arnica Creek Lagoon

- - Ceriodaphnia sp.
- - Diaptomus shoshonii
- - Daphnia sp.
- - Bosmina sp.

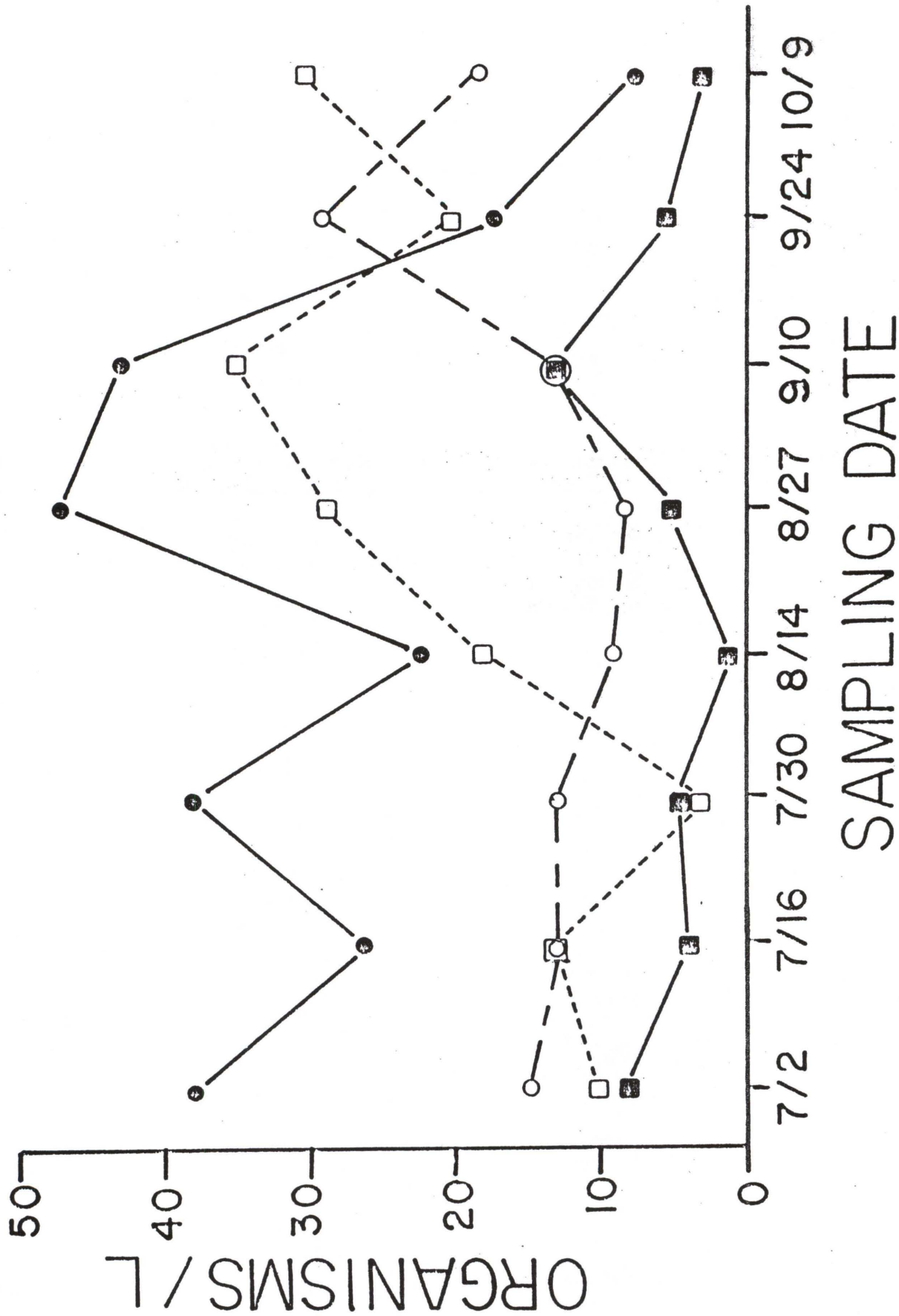


Figure 2. Population dynamics by volume of 4 zooplanktons in Yellowstone Lake adjacent to Arnica Creek Lagoon

- - Ceriodaphnia sp.
- - Diaptomus shoshonii
- - Daphnia sp.
- - Bosmina sp.

