

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-81-R-5

Study No.: 230680

Title: Patterns in community structure, life histories, and ecological distributions of fishes in Michigan rivers

Period Covered: October 1, 2003 to September 30, 2004

Study Objectives: 1) To develop models that explain abundance patterns of the most common fishes in Lower Michigan streams; 2) to evaluate the role of landscape-scale characteristics of streams in favoring fishes having particular life history characteristics; 3) to develop an atlas describing the geographic and ecological distributions of fishes in Lower Michigan streams.

Summary: Analyses of relationships between species abundance and key habitat variables are essentially complete, and results are being prepared. A life history database for common Michigan stream fishes has been prepared for future analyses.

Findings: Job 6, publish report, was originally scheduled for 2003-04. However, an amendment was submitted for 2004-05 to extend the study to allow more time for writing the manuscript. Progress for Job 5, write report, is reported below. Job 6, publish manuscript, is rescheduled for 2005-06.

Job 5. Title: Write report. Analyses of relationships between species abundance and key habitat variables are essentially complete. Habitat suitability graphs have been developed that relate total standing crops of fishes (by species or family) to river size, temperature, and low-flow yield (Figures 1 and 2). These findings will be detailed in a MDNR Fisheries Division Research tentatively entitled, "An ecological atlas for Michigan stream fishes" that will be submitted for publication in the coming year.

Life history attributes were compiled for 68 common stream fishes in Michigan. When trait values were unavailable for some species, values for taxonomically similar (e.g., congeners) species were used as approximations. These data will be analyzed in the coming year and the results written up in a later report.

Prepared by: Troy G. Zorn

Date: September 30, 2003

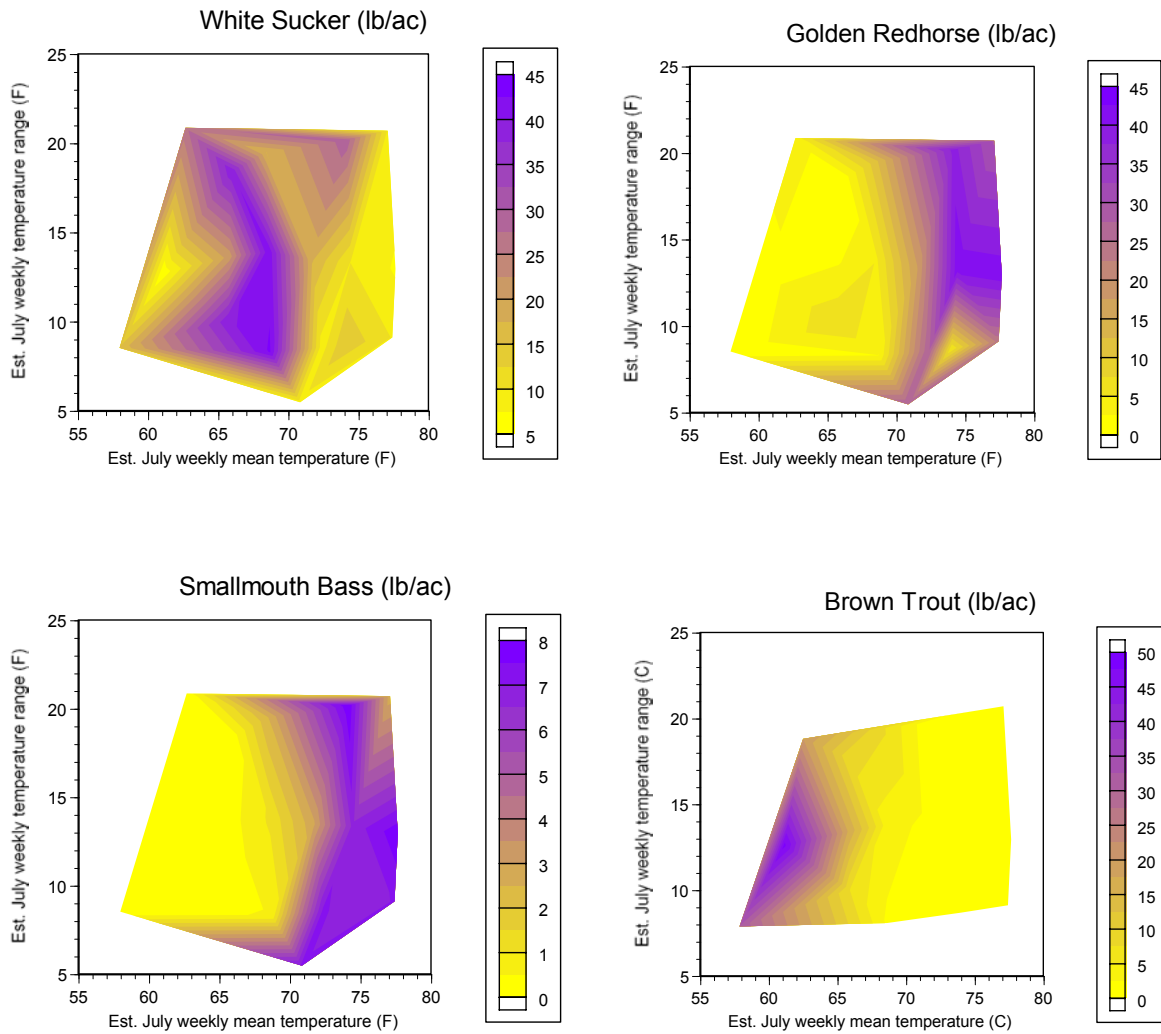


Figure 1.—Relationships between monthly mean and weekly range in July water temperatures and standing crops of four fish species in Michigan rivers.

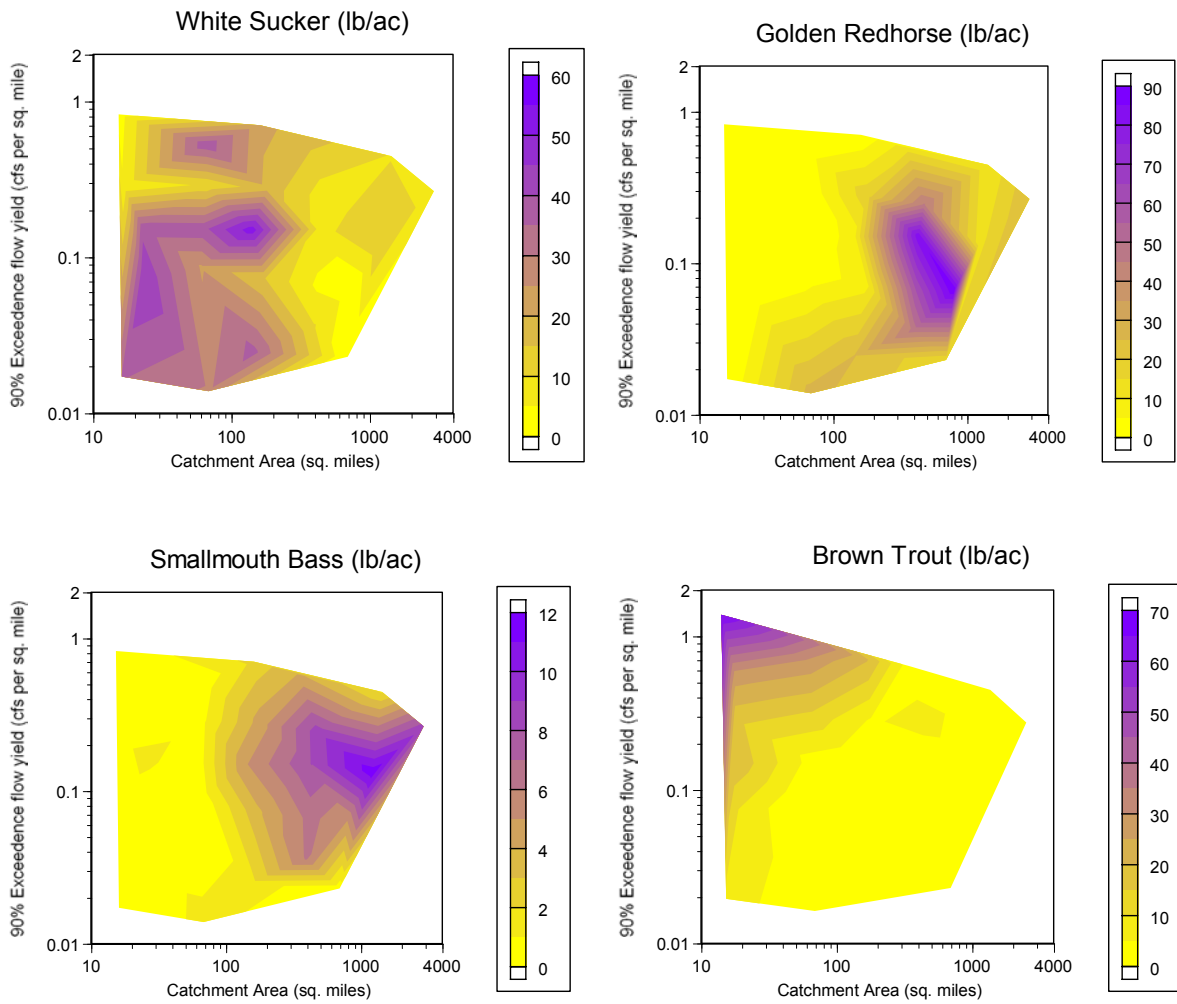


Figure 2.—Relationships between catchment area, 90% exceedence flow yield, and standing crops of four fish species in Michigan rivers.