STUDY PERFORMANCE REPORT

State: Michigan   **Project No.:** F-80-R-5

Study No.: 230736   **Title:** Response of an aquatic invertebrate community to reduced summer streamflows in a northern Michigan stream

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

Study Objectives: The objective of this study is to evaluate the response of the aquatic invertebrate community in Hunt Creek, Michigan to simulated irrigation withdrawals. Specifically, we wish to determine the effects of dewatering on aquatic invertebrate density, taxon richness, and functional feeding group composition. In addition, we wish to compare predicted changes in weighted usable area (WUA) from an Instream Flow Incremental Methodology (IFIM) model (Baker and Coon 1995) to observed changes in the abundance of invertebrate families.

Summary: I assembled archived data from studies 642 and 655 to begin comparisons of invertebrate abundance in treatment and reference zones of Hunt Creek between years when either 50% or 90% of summer baseflow was diverted. At the time that this report is being written, I am checking these data for errors and formatting consistency. I intend to complete this task, as well as final data analyses and report writing, by December 31, 2004.

Findings: Jobs 1, 2, 3, and 4 were scheduled for 2003-04, and progress is reported below.

Job 1. Title: <u>Assemble and format archived data.</u>–I assembled the data from previous studies 642 and 655 so that invertebrate abundance and other characteristics in treatment and reference zones can be compared between years when either 50% or 90% of summer baseflow was diverted. I am in the process of checking these data for errors and formatting consistency at the time that this report is being written.

Job 2. Title: <u>Analyze data to determine the aquatic invertebrate community response to dewatering in Hunt Creek.</u>–I have not conducted final analyses to compare aquatic invertebrate densities, taxon richness, and functional feeding group composition to determine if significant differences exist between the treatment and reference zones at two levels of flow reduction; nor have I examined the relations between predicted changes in WUA for invertebrate families to observed changes in abundance of invertebrate families. I intend to complete these analyses by December 31, 2004.

Job 3. Title: <u>Write research manuscript.</u>–Since data analyses are not complete, I have not written a research report summarizing the findings of this study. I intend to complete a research report by December 31, 2004.

Job 4. Title: <u>Write annual performance report.</u>–This progress report was prepared.

Literature Cited:

Baker, E. A., and T. G. Coon. 1995. Comparison of predicted habitat change and benthic macroinvertebrate response to a simulated irrigation withdrawal in Hunt Creek, Michigan. Michigan Department of Natural Resources Fisheries Research Report 2019, Ann Arbor.

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Date: September 30, 2004