

## STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-53-R-14

Study No.: 490

Title: Assessment of steelhead and brown trout populations in eastern Lake Michigan.

Period Covered: April 1, 1997 to March 31, 1998

**Study Objectives:** To evaluate the status and health of steelhead and brown trout stocks by assessing growth, abundance, diet composition, general health, and incidence of disease.

**Summary:** Small numbers of steelhead and brown trout were collected in assessment netting operations in 1997. Only 15 steelhead and 39 brown trout were collected from all nets set in Michigan's waters of Lake Michigan from May through September in 1997.

**Job 1. Title: Evaluate relevant literature on steelhead.**

**Findings:** Literature on steelhead physiology, behavior, and habitats are being collected and catalogued in an Endnote bibliographic software library. Current Contents searches are being conducted twice a month on current issues of relevant fisheries journals to identify journal articles and publications that might be of interest.

**Job 2. Title: Establish the distribution pattern and origin of steelhead trout and brown trout during spring and summer in eastern Lake Michigan.**

**Findings:** Few brown trout or steelhead have been observed in the northernmost statistical district MM-3 (Table 1). Brown trout are more evenly distributed across statistical districts MM-5 through MM-8 (Table 1). The largest steelhead catch rates have occurred in the southernmost districts (MM-7 and MM-8) over the last three years (Table 1). Most steelhead and brown trout are captured in surface gill nets when compared to catch rates in suspended or bottom gill nets (Table 2).

**Job 3. Title: Determine relative abundance and survival rates of steelhead and brown trout in eastern Lake Michigan.**

**Findings:** For steelhead and brown trout the samples sizes and abundance estimates in gill net catches are highly variable from year to year. It will be difficult to establish mortality estimates or attribute catch rates to abundance until multi-state lake wide assessments are implemented. As members of the Lake Michigan Technical Committee, we are in the process of designing a lake-wide assessment plan for trout and salmon populations. We have much to learn regarding the movement patterns and distributions of brown trout and steelhead within Lake Michigan. It is difficult distinguish distributional anomalies from density and abundance factors.

**Job 4. Title: Obtain data on diets of steelhead and brown trout in eastern Lake Michigan.**

**Findings:** Stomachs have been collected from all steelhead and brown trout collected in 1996 and 1997. We have archived stomach samples collected in 1996 and 1997 and have not yet evaluated the stomach specimens. We have completed the laboratory analysis of stomachs collected in 1995, but have not yet analyzed the data.

**Job 5. Title: Monitor the general health and prevalence of BKD in populations of steelhead and brown trout in eastern Lake Michigan.**

**Findings:** We have been conducting FELISA testing for BKD on brown trout and steelhead from 1995 to the present. Since this time, brown trout collected in lake wide assessments have never tested positive for BKD. Of the steelhead tested in 1995, 30 of 103 fish tested positive. In 1996, 41 of 411 fish tested positive and in 1997, 5 of 15 fish tested positive.

**Job 6. Title: Coordinate with other studies, process and analyze data; write reports.**

**Findings:** Data collection for this project is closely coordinated with studies 486 and 485. Some fish collected for the current study 490 will also apply to study 487.

Table 1.—Total catch of steelhead and brown in trout statistical districts (MM-3 through MM-8) listed from north to south.

|      | 1995        |           | 1996        |           | 1997        |           |
|------|-------------|-----------|-------------|-----------|-------------|-----------|
|      | Brown Trout | Steelhead | Brown Trout | Steelhead | Brown Trout | Steelhead |
| MM-3 | 1           | 1         | 2           | 1         |             | 1         |
| MM-5 | 1           | 7         | 8           | 41        | 18          | 1         |
| MM-6 | 2           | 31        | 1           | 44        | 5           | 3         |
| MM-7 | 1           | 16        | 8           | 85        | 6           | 4         |
| MM-8 |             | 50        | 2           | 240       | 10          | 5         |

Table 2.—Number of steelhead and brown trout captured in surface, suspended and bottom gill nets.

|             | 1994-96    |               |             | 1997       |               |             |
|-------------|------------|---------------|-------------|------------|---------------|-------------|
|             | Bottom Net | Suspended Net | Surface Net | Bottom Net | Suspended Net | Surface Net |
| Brown Trout | 0          | 2             | 9           | 3          | 4             | 29          |
| Steelhead   | 0          | 2             | 184         | 0          | 4             | 11          |

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**Date:** March 31, 1998