

## STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-80-R-7

Study No.: 230696

Title: Comparison of the recreational fisheries produced by stocking of spring and fall yearling brown trout, Lake Huron.

Period Covered: October 1, 2005 to September 30, 2006

### Study Objective:

- (1) To test the hypothesis that yearling brown trout stocked in fall will contribute more to angler harvest than smaller yearlings stocked in spring in Thunder and Tawas bays, Lake Huron;
- (2) Determine whether the return to creel of fall-stocked brown trout is sufficient to compensate for their higher cost;
- (3) To examine food habits and distribution of yearling brown trout during their first 30 days after stocking.

**Summary:** This was the fifth year of funding for this project. The stocking phase of this study was completed two years ago. Creel census was conducted each year. Brown trout *Salmo trutta* harvest increased at both ports from 2001-03, particularly at Tawas Bay, but declined again, to near record low numbers in Alpena in 2005 and to half the 1992-2005 average at Tawas. To date there has been little difference in observed harvest of spring- and fall-stocked brown trout in the Thunder Bay area, but brown trout stocked as spring yearlings were seen nearly twice as often as fall-stocked fish in the creel of south-central Lake Huron. Biological data from 2005-06 creel surveys are still being entered. When the creel data are all available we will be able to draft the final report.

**Findings:** Jobs 3 and 4 were scheduled for 2005-06, and progress is reported below.

**Job 3. Title: Determine return to creel of stocked fish.**—Recreational harvest estimates of brown trout were conducted as per the study plan in 2002 through 2005 at Tawas (Tawas Bay) and Alpena (Thunder Bay) and other Lake Huron ports. Harvest of brown trout had declined at both Tawas and Alpena from 1996 through 2001, but rose in 2002 and again in 2003. The magnitude of increase was greater at Tawas than Thunder Bay. However, harvest at both ports declined in 2004 and 2005, to 49% of the 1992-2004 average at Tawas and 7.3% of the 13-year average at Alpena (Table 1). Biological data were recorded from brown trout observed during creel census activities. Scales from the creel census biological data collected through 2004 were aged, the data entered and verified by Study 230427 personnel. Biological data from 2005 are expected to be ready for use by December 15, 2006. A total of 159 study brown trout (with ventral fin clips) was entered in the biological data for the period 2001-04, almost all from north-central Lake Huron (Table 2). Unfortunately, scales from only 4 of 288 study (fin clipped) brown trout observed by creel clerks from south-central Lake Huron were collected in 2002, 2003, and 2004. Only fin clips and lengths were recorded on the balance of the catch (Table 2). Because almost no scales were taken, it was necessary to assign ages to these fish based on length distributions and month of capture. The resulting contribution by study group (Table 3) suggests brown trout from spring-yearling stockings at Tawas produced nearly twice the harvest of 2- and 3-year-old brown trout as those stocked as fall yearlings. At Alpena, on the other hand, there appears to be little difference

in the contributions of the two study groups (spring, fall) to observed brown trout harvest (Table 4). To augment creel observations of brown trout, Alpena Fisheries Research Station personnel were assigned to monitor recreational catch during the annual Alpena Brown Trout Festival during July 2002-05. However, almost no fin-clipped brown trout were seen during these efforts. The collapse of the alewife *Alosa pseudoharengus* population in 2003 appears linked to exceptionally low brown trout post-stocking survival rates. Consequently, neither test group survived well and collecting sufficient sample sizes to meet study objectives has been challenging.

**Job 4. Title: Data analysis, preparation of annual and final reports, and presentation of findings at technical and public meetings.**—Creel survey biological data from 2004 were entered and verified at the Charlevoix Fishery Research Station (Creel Survey, Study 230427) and summarized by the project leader. Data from 2005 are still being verified, but should be ready for analysis in December 2006. This annual progress report was prepared as scheduled.

**Prepared by: James E. Johnson**

**Date: September 30, 2006**

Table 1.–Estimated brown trout recreational harvest, Tawas and Thunder Bays, 1986-2005 (Study 230427).

Year	Tawas Bay	Thunder Bay
1986	6,782	3,873
1987	1,445	3,107
1988	578	656
1989	127	–
1990	–	–
1991	205	500
1992	310	2,284
1993	286	3,908
1994	1,864	3,698
1995	3,805	3,524
1996	4,647	2,069
1997	1,354	896
1998	776	869
1999	671	161
2000	1,030	330
2001	460	56
2002	2,019	277
2003	2,361	677
2004	568	265
2005	709	102

Table 2.—Study (fin clipped) brown trout observed in the recreational catch, by creel survey port, 2002-04 (from Study 230427 data).

Port	Number fin clipped brown trout	
	With scale samples and biological data	With length data but no scales (Tawas area)
North Shore	1	
Rogers City	0	
Presque Isle	1	
Rockport	1	
Alpena	84	
Harrisville	19	
Oscoda	23	
Tawas	4	238
E. Br. Au Gres River		5
Au Gres	0	35
Pt. Austin	9	6
Harbor Beach	9	3
Port Sanilac	6	
Lexington	2	

Table 3.—Angler harvest observed by creel census personnel from south-central Lake Huron, by estimated age and stocking period (spring and fall).

Stocking period	Estimated age at capture <sup>1</sup>	Number observed	Average Length (mm)
Spring	1	1	254
	2	186	467
	3	40	660
	4	2	782
		229	
Fall	1	0	—
	2	38	411
	3	21	638
	4	1	795
		59	

<sup>1</sup> Scales were not taken, thus age was estimated by length and date of capture.

Table 4.–Contribution of the two study groups (spring, fall) to observed recreational catch in north-central Lake Huron through 2004, Study 230427.

Stocking time	Age <sup>1</sup>	Number observed	Average weight (kg)
Spring	1	3	1.1
	2	52	4.5
	3	27	8.3
	4	4	10.4
		86	
Fall	1	0	–
	2	49	5.3
	3	22	7.9
	4	2	12.9
		73	

<sup>1</sup> Ages based on scales.