

STUDY PERFORMANCE REPORT

State: Michigan

Project No.: F-35-R-22

Study No.: 646

Title: Inland creel surveys

Period Covered: April 1, 1996 to March 31, 1997

Study Objective: To provide a consistent series of guidelines, data collection methods, and timely data analysis to fisheries managers and research biologists conducting access point creel surveys on inland waters.

Summary: Creel surveys were completed on one inland lake in the Upper Peninsula, three inland lakes in the Lower Peninsula, and one southern Michigan river during open water season, 1996. All inland sites were surveyed to estimate angling pressure and harvest by species. Brevoort Lake (Mackinac County), Sessions Lake (Ionia County) and Silver Lake (Oceana County) were surveyed with particular regards towards walleye. Elk Lake (Antrim, Grand Traverse and Kalkaska counties) was surveyed for harvest of all available species and two sites on the Clinton River (Macomb County) were surveyed with particular regards towards catch and harvest of steelhead salmon.

Job 1. Title: Examine creel survey sites.

Findings: District 4 fisheries personnel examined Brevoort Lake. This lake has several access sites in addition to numerous resorts and private residences. Elk Lake sites were examined with Elk Lake Association members and District 5 fisheries personnel. Due to the relatively large size of Elk Lake (8,300 acres), the lake was divided into grids and 11 association members counted specific lake grids. Sessions and Silver lakes were both examined with parks personnel and District 9 fisheries personnel. Sessions Lake is surrounded by State Park property and has no private residences. There is a single boat access site and several areas where anglers may fish from the shore. Silver Lake is partially bounded by State Park property, has several boat access sites (including road endings), and numerous private dwellings along its shores. Clinton River sites were examined by District 14 fisheries personnel. Two survey sites were selected: Ryan Road Bridge (T3N, R12E, Sec. 19 & 20) and Yates Road Bridge (T3N, R12E, Sec. 18).

Approximately 22 miles of the Au Sable River below Mio (Oscoda County) were examine for a potential creel survey in summer, 1997. Canoeing times between Mio (at the M-33 bridge), and the public launch site at Comins Flats, and from Comins Flats to the McKinley Road bridge were measured on two occasions. Mean canoeing times ($\pm 1SD$) from Mio to Comins were 98.5 min (± 2.1) and from Comins to McKinley were 101.5 min (± 2.1).

Job 2. Title: Sampling intensity, techniques and proposed level of statistical significance.

Findings: Statistical significance of 75% or greater was considered appropriate by each of the district managers conducting surveys. Error bounds (2SE) were calculated for each estimate and

provide statistical significance, depending on the distribution shape and $n \geq 10$, of 75% to 95% (Dixon and Massey 1957). Rates of precision (mean/2SE) were not predetermined for any of the surveys. All estimates in this report are $\pm 2SE$.

Inland creel surveys conducted in 1996 depended heavily upon volunteers and volunteer data. With surveys and data of this nature certain sampling and bias concerns must be recognized. The assumption has been made that the sample of voluntarily completed interview forms represents the average fishing experience for all angling parties fishing a chosen location. This includes the assumptions that anglers could correctly identify the fish they caught, anglers correctly reported the number of fish caught, and anglers reported their poor fishing trips as often as they reported their good fishing trips. If, for example, anglers tended to report their good fishing trips more often than their poor fishing trips, catch and harvest are overestimated. If avid anglers report their fishing trips more often than casual anglers, there is an affinity bias. And of course, there is the general honesty issue – did anyone fill out interview cards and knowingly lie about the information they reported?

The Clinton River sites were sampled using methods quite different from traditional Michigan access site creel surveys. Angling effort was estimated based on counts made at non-random times which were expanded by the frequency (probability) of angling parties being present (based on interviews). This method is described by McNeish and Trial (1991) and Parker (1956). The appropriateness of this method for use in Michigan is untested. However, it does seem like a very practical method for use with an all-volunteer creel survey when randomization of counting times is unacceptable to the volunteers. Further testing of this method for accuracy and potential use in Michigan is warranted.

Beginning and ending dates of each creel survey are given in Table 1.

Brevoort Lake—Sampling was done by one creel clerk. Each weekend day and three randomly selected week days were sampled, and two counts were made each sample day. Two holidays, May 27 and July 4, occurred during this survey and each were sampled. Two shifts were used during May, 5:00 a.m. to 2:00 p.m. and 12:00 p.m. to 9:00 p.m., and two shifts during June, July and August, 5:00 a.m. to 2:00 p.m. and 1:00 p.m. to 10:00 p.m. Brevoort Lake was stratified into four grids (Figure 1) and estimated angling effort and catch was calculated for each one. Estimates and their variances were summed to provide lake-wide estimates. Estimated angling effort (hours and trips) were calculated using the methods found in Ryckman (1981) and Ryckman and Lockwood (1985). The creel clerk interviewed anglers at access sites. Interview forms were supplied to resorts and private residences for voluntary completion because these anglers were not readily accessible for interviewing by the clerk. Only completed trip angler party interviews were collected by either method.

Walleye catch rates and walleye angling success were compared between the two interview sources to evaluate potential biases (Tables 2 and 3). On one occasion in grid 120 walleye catch per hour was significantly greater for clerk-interviewed anglers and on one occasion in grid 123 walleye catch per hour was significantly greater for voluntary interviews. Based on catch of walleye, percentage of successful angling parties was never significantly different between these two interview sources. Walleye catch rates from these two sources were not considered different and interviews collected by the clerk and by volunteers were pooled. Catch per hour rates were calculated using the mean of ratios estimator for completed trip interviews (Lockwood 1996).

Elk Lake—This creel survey was conducted cooperatively with the Elk Lake Association. Counting and interviewing were done by members of the Elk Lake Association. Each weekend day and three

randomly selected week days were sampled, and one count was made each sample day. Counts were made by grid (Figure 2) and total estimated angling effort for the lake from the sum of grid estimated effort. Counts were made between 7:00 a.m. and 8:00 p.m. Estimated angling effort (hours and trips) were calculated using the methods found in Ryckman (1981) and Ryckman and Lockwood (1985). Interview forms were distributed to lake residents. Catch rates from these volunteer interviews were assumed to be representative of the entire lake (all grids) and of all lake anglers during the month of August. Catch per hour rates were calculated using the mean of ratios estimator for completed trip interviews (Lockwood 1996).

Sessions Lake—This was a cooperative creel survey between Fisheries Division and Ionia Recreation Area (MDNR Parks Division). Park employees counted boat trailers (and any other vehicles which appeared to have transported water craft) at the launch site and shore anglers for the entire lake. Each day within the beginning and ending survey dates (Table 1) was sampled and three counts were made each day. Interview post cards were made available at the launch site and cards were distributed to shore anglers. Cards could be dropped off at the Park office or in a drop box at the launch site. Caught-and-released fish as well as harvested fish were recorded. Estimated angling effort (hours and trips) were calculated using the methods found in Ryckman (1981), and Ryckman and Lockwood (1985). Catch per hour rates were calculated using the mean of ratios estimator for completed trip interviews (Lockwood 1996).

Silver Lake—Similar to Sessions Lake, this was a joint survey between Fisheries Division and Silver Lake State Park. Park employees counted fishing and non-fishing water craft twice each day between the beginning and ending survey dates (Table 1). Interview post cards were available to anglers at eight access locations around the lake. Cards could be dropped off at the Park office or in any of eight drop boxes at the access sites. Caught-and-released fish as well as harvested fish were recorded. Estimated angling effort (hours and trips) were calculated using the methods found in Ryckman (1981), and Ryckman and Lockwood (1985). Catch per hour rates were calculated using the mean of ratios estimator for completed trip interviews (Lockwood 1996).

Clinton River Sites—Similar to the Elk Lake survey, the Clinton River creel survey was a cooperative survey between Fisheries Division and members of a local sportfishing club. Volunteers visited the two sites as often as possible during the survey period, and counted vehicles at the access sites and placed post-paid interview cards on the windshields of any vehicles present. Both number of harvested and released steelhead were voluntarily recorded on the interview cards. Interviews and vehicle counts were recorded separately for each site, no pooling of data was done. Hourly counts were expanded by the probability of a vehicle being present. Probabilities were derived from the distribution of angler party interviews for a given time period. These methods follow those described by McNeish and Trial (1991) and Parker (1956). Catch per hour rates were calculated using the mean of ratios estimator for completed trip interviews (Lockwood 1996).

Job 3. Title: Prepare stratified-random schedules.

Schedules were prepared and distributed to appropriate district personnel. Random numbers used in schedule preparation were derived from the dBase IV random number function or tables of random numbers found in Arkin and Colton (1962).

Sampling of Clinton River sites did not follow a schedule.

Job 4. Title: Train creel clerks.

Brevoort Lake survey was the only survey utilizing a Fisheries Division employed creel clerk. That clerk was instructed by district fisheries personnel on how to properly approach anglers, how to ask questions and the appropriate etiquette for a creel clerk. Additional training with regards to completion of time and attendance payroll forms and vehicle logs was also done by district fisheries personnel.

Written instructions were prepared with information pertinent to each lake or river and distributed to appropriate personnel for Elk, Sessions and Silver lakes, and Clinton River sites.

Job 5. Title: Supervise count and interview data processing, and quality control.

Count and interview data were sent to the Institute for Fisheries Research bi-weekly. Each form was inspected, within two weeks of receipt, for completeness and possible coding errors (incorrect site code for example). Data were then entered onto computer media, range checked where applicable (month for example), and randomly selected records were spot-checked for accuracy.

Job 6. Title: Calculate and distribute catch and pressure estimates.

Estimates for each inland creel survey were calculated using the expansion factors given in Table 4, referred to as "f" by Ryckman (1981). Expansion factors, f, were multiplied by the days, either week days or weekend days, within a given month. These expansion factors are representative of the hours sampled at each site or lake and of the possible fishing hours per day.

Unless otherwise noted, catch estimates are estimated harvest.

Brevoort Lake boat anglers fished 26,329 ($\pm 2,363$) hours and harvested 383 (± 123) walleye (Table 5). Yellow perch were the dominant species harvested and anglers harvested 7,106 ($\pm 2,482$).

Elk Lake boat anglers fished 11,509 ($\pm 1,927$) hours during the month of August and harvested 59 (± 81) steelhead and 114 (± 89) lake trout (Table 6). Yellow perch predominated, with a harvest of 2,853 ($\pm 1,295$).

Boat and shore anglers fished 37,801 ($\pm 3,974$) hours on Sessions Lake and harvested 1,847 (± 661) walleye (Table 7). Anglers released approximately four times as many fish as they harvested. An estimated 9,166 ($\pm 2,336$) fish were harvested while 39,636 ($\pm 10,543$) were caught and released.

Silver Lake boat anglers fished 21,332 ($\pm 3,927$) hours and harvested 3,208 ($\pm 1,199$) walleye (Table 8). Estimated number of fish harvested was not significantly different from number caught and released. Boat anglers harvested 6,466 ($\pm 2,005$) fish and caught-and-released 6,025 ($\pm 1,602$) fish. Pleasure craft usage was 154,738 ($\pm 74,378$) person hours (Table 9) and was significantly greater than estimated boat angler hours.

Clinton River anglers fishing at the Yates Road site fished 15,216 ($\pm 3,119$) hours and harvested 164 (± 92) steelhead (Table 10). An additional 1,025 (± 395) steelhead were caught and released. Anglers fishing at the Ryan Road site fished 6,047 ($\pm 2,065$) hours and harvested 75 (± 84) steelhead (Table 11). These anglers also caught-and-released 532 (± 292) steelhead.

Job 7. Title: Prepare annual report.

This report was prepared on schedule.

Literature Cited:

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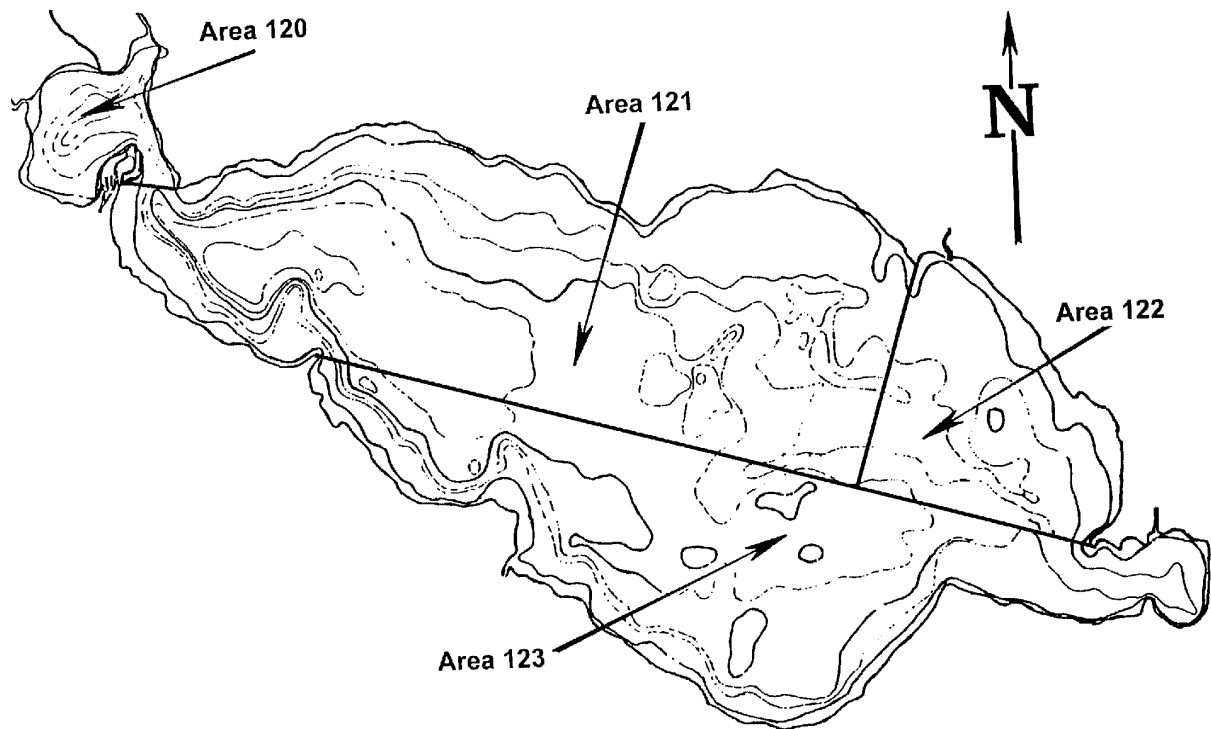


Figure 1.—Brevoort Lake grids used to estimate boat angling pressure and harvest, 1996. Grid counting order was randomly varied.

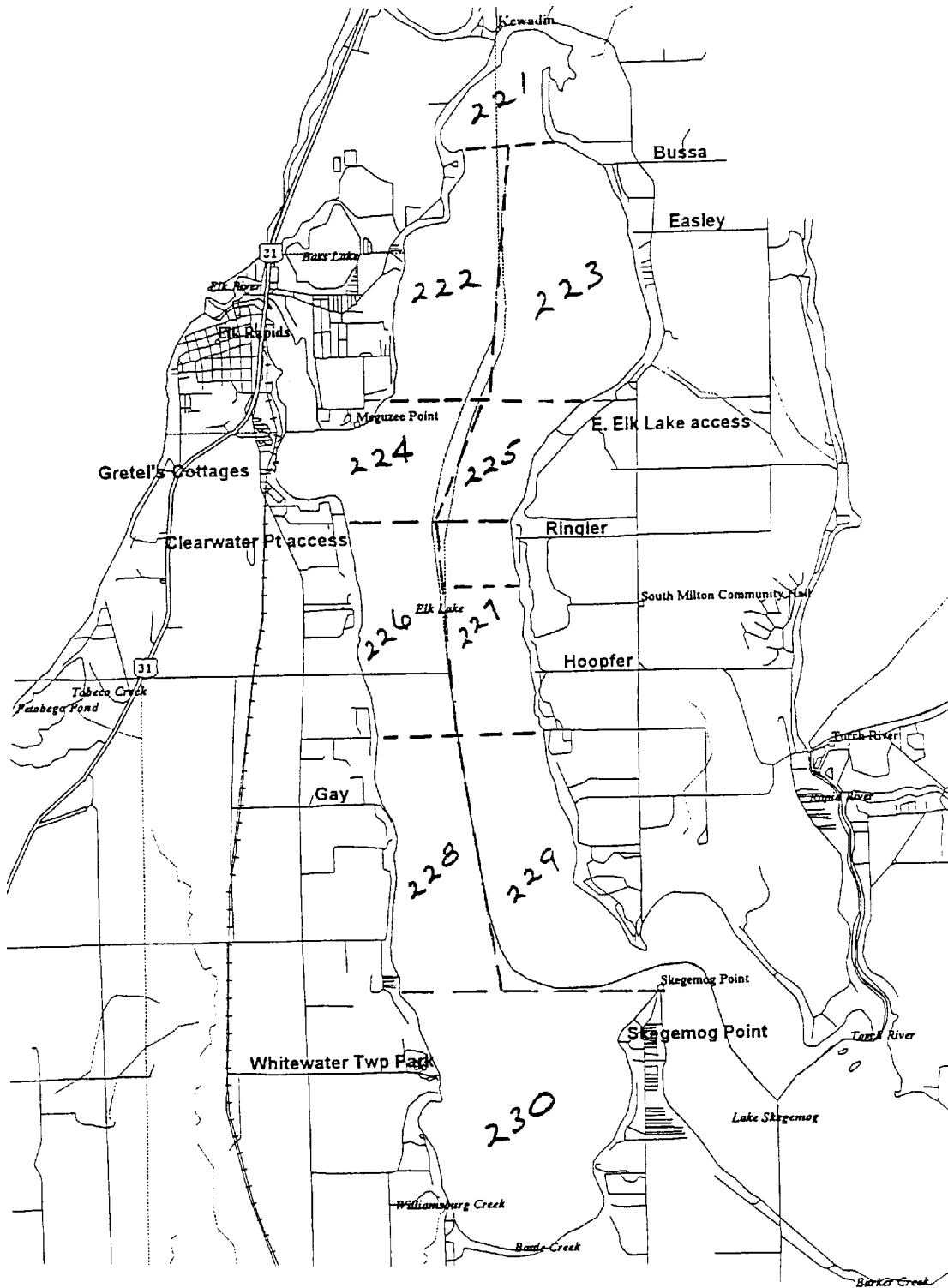


Figure 2.—Elk Lake grids used to estimate boat angling pressure, 1996. Boat counts were made simultaneously in each grid.

Table 1.–Beginning and ending dates of 1996 inland creel surveys.

Survey Location	Beginning Date	Ending Date
Brevoort Lake	May 15	August 31
Elk Lake	August 1	August 31
Sessions Lake	April 27	September 2
Silver Lake	April 27	September 2
Yates Road (Clinton River)	March 7	April 30
Ryan Road (Clinton River)	March 8	April 30

Table 2.–Frequency of significant differences in catch per hour (CPH) rates of walleye from clerk interviews and voluntary interviews. Frequencies represent week day and weekend day periods by month from May through August.

Lake Grid	Significantly Greater CPH		No Difference	No Comparison ¹
	Clerk	Voluntary		
120	1		6	1
121			7	1
122			2	6
123		1	7	

¹ Fewer than two interviews were collected for one or both interview source categories.

Table 3.—Percentage of successful angler party trips by month for each sampling grid on Brevoort Lake, 1996. Interviews were collected by creel clerk or voluntary interviews from resort and private residence anglers. An angling party trip was considered successful if one or more walleye were harvested. Two standard errors are given in parenthesis.

Interview Source	May	June	July	August
Grid 120				
Clerk	40 (31)	8 (15)	0 (0)	6 (8)
Voluntary	14 (26)	7 (14)	0 (0)	0 (0)
Grid 121				
Clerk	18 (23)	5 (10)	2 (5)	2 (4)
Voluntary	4 (8)	21 (9)	4 (6)	0 (0)
Grid 122				
Clerk	50 ¹ (71)	14 (26)	0 (-) ²	0 (-) ²
Voluntary	0 (0)	13 (9)	0 (0)	0 (0)
Grid 123				
Clerk	16 (17)	11 (15)	0 (0)	0 (0)
Voluntary	11 (10)	22 (10)	2 (4)	0 (0)

¹ Based on a sample size of two interviews.

² Only one interview collected.

Table 4.—Expansion factors used to calculate inland creel survey estimates in 1996.

Month	Expansion Factor "f"					
	Brevoort	Elk	Sessions	Silver	Ryan	Yates
March					15	15
April			13	11	18	14
May	16		13	11		12
June	18		16	15		14
July	18		16	15		16
August	17	17	16	15		18
September			16	15		18

Table 5.—Estimated harvest, fishing pressure and seasonal catch per hour (CPH) for boat anglers by month and season on Brevoort Lake, 1996. Two standard errors are given in parenthesis.

Species	CPH	May	June	July	August	Season
Walleye	0.0146 (0.0048)	82 (60)	259 (101)	11 (13)	30 (34)	383 (123)
Yellow perch	0.2699 (0.0973)	88 (125)	290 (398)	1,314 (1,019)	5,415 (2,224)	7,106 (2,482)
Northern pike	0.0078 (0.0034)	49 (35)	70 (64)	45 (39)	40 (29)	204 (88)
Bluegill	0.0151 (0.0114)	0 (0)	4 (6)	127 (167)	267 (246)	398 (298)
Pumpkinseed	0.0025 (0.0019)	0 (0)	0 (0)	26 (30)	39 (38)	65 (49)
Rock bass	0.0137 (0.0068)	16 (22)	151 (102)	92 (120)	102 (77)	362 (177)
Smallmouth bass	0.0043 (0.0022)	0 (0)	36 (33)	37 (30)	40 (34)	113 (56)
Musky	0.0003 (0.0010)	0 (0)	9 (26)	0 (0)	0 (0)	9 (26)
Black crappie	0.0004 (0.0002)	0 (0)	2 (5)	8 (3)	0 (0)	10 (6)
Bullhead sp.	0.0008 (0.0013)	0 (0)	3 (6)	2 (3)	16 (32)	20 (33)
Total catch	0.3293 (0.0999)	234 (144)	826 (430)	1,661 (1,042)	5,949 (2,240)	8,670 (2,512)
Angler hours		3,419 (807)	8,531 (1,490)	6,582 (993)	7,797 (1,312)	26,329 (2,362)
Angler trips		934 (258)	1,882 (380)	2102 (353)	2,521 (465)	7,438 (743)

Table 6.—Estimated harvest, catch per hour (CPH) and angling effort by boat anglers fishing on Elk Lake during August, 1996. Two standard errors are given in parenthesis.

Species	CPH	Harvest
Steelhead	0.0051 (0.0071)	58 (80)
Lake trout	0.0097 (0.0077)	110 (85)
Smallmouth bass	0.1054 (0.0415)	1,200 (428)
Rock bass	0.1583 (0.0753)	1,802 (803)
Yellow perch	0.2459 (0.1196)	2,799 (1,278)
Cisco	0.0021 (0.0031)	24 (35)
Salmon sp.	0.0020 (0.0029)	22 (32)
Total catch	0.5285 (0.1642)	6,016 (1,574)
Angler hours		11,384 (1,908)
Angler trips		3,860 (737)

Table 7.—Estimated catch, harvest and effort by month and season, and seasonal catch per hour (CPH) by all anglers on Sessions Lake, 1996. Two standard errors are given in parenthesis.

Species	CPH	April	May	June	July	Aug-Sep	Season
Bass harvested	0.0054 (0.0043)	0 (0)	78 (102)	52 (82)	74 (94)	0 (0)	204 (162)
Bass released	0.2386 (0.0765)	0 (0)	1,397 (961)	1,870 (1,071)	3,398 (1,467)	2,354 (1,800)	9,019 (2,732)
Crappie harvested	0.0658 (0.0320)	0 (0)	1,458 (1,101)	991 (423)	37 (73)	0 (0)	2,486 (1,182)
Crappie released	0.0504 (0.0259)	0 (0)	404 (446)	933 (622)	74 (105)	494 (564)	1,905 (957)
Panfish harvested	0.0794 (0.0399)	0 (0)	586 (678)	1,463 (1,193)	145 (101)	806 (529)	3,000 (1,474)
Panfish released	0.2157 (0.2102)	0 (0)	225 (190)	1,056 (891)	6,772 (7,844)	99 (162)	8,152 (7,898)
Walleye harvested	0.0489 (0.0182)	1 (2)	715 (338)	251 (190)	74 (81)	806 (529)	1,847 (661)
Walleye released	0.3256 (0.1120)	2 (5)	2,142 (979)	5,189 (3,025)	663 (696)	4,313 (2,381)	12,309 (4,033)
Y.Perch harvested	0.0379 (0.0317)	0 (0)	594 (498)	839 (1081)	0 (0)	0 (0)	1,433 (1,190)
Y.Perch released	0.2155 (0.1318)	0 (0)	865 (546)	5,368 (4,690)	680 (682)	1,234 (1,156)	8,147 (4,909)
Catfish sp harvested	0.0013 (0.0020)	0 (0)	0 (0)	14 (27)	37 (73)	0 (0)	51 (78)
Carp harvested	0.0038 (0.0009)	0 (0)	0 (0)	0 (0)	145 (32)	0 (0)	145 (32)
Carp released	0.0028 (0.0041)	0 (0)	104 (153)	0 (0)	0 (0)	0 (0)	104 (153)
Total harvest	0.2425 (0.0669)	1 (2)	3,431 (1,430)	3,610 (1,678)	512 (193)	1,612 (748)	9,166 (2,336)
Total released	1.0485 (0.2999)	2 (5)	5,137 (1,562)	14,416 (5,786)	11,587 (8,040)	8,494 (3,254)	39,636 (10,543)
Grand total	1.2910 (0.3163)	3 (5)	8,568 (2,117)	18,026 (6,024)	12,099 (8,042)	10,106 (3,339)	48,802 (10,798)
Angler hours		366 (88)	8,992 (1,319)	9,371 (1,558)	10,799 (2,969)	8,273 (1,675)	37,801 (3,974)
Angler trips		74 (26)	1,932 (408)	2,727 (675)	5,176 (2,257)	2,709 (1,851)	12,618 (3,024)

Table 8.—Estimated catch, harvest and effort by month and season, and seasonal catch per hour (CPH) by boat anglers on Silver Lake, 1996. Two standard errors are given in parenthesis.

Species	CPH	April	May	June	July	Aug-Sep	Season
Bass harvested	0.0063 (0.0065)	0 (0)	32 (68)	103 (118)	0 (0)	0 (0)	135 (136)
Bass released	0.0264 (0.0198)	33 (66)	193 (117)	190 (217)	0 (0)	148 (320)	564 (409)
Crappie harvested	0.0061 (0.0043)	0 (0)	130 (88)	0 (0)	0 (0)	0 (0)	130 (88)
Crappie released	0.0036 (0.0074)	0 (0)	76 (156)	0 (0)	0 (0)	0 (0)	76 (156)
Panfish harvested	0.0202 (0.0176)	0 (0)	155 (125)	127 (125)	0 (0)	148 (320)	430 (366)
Panfish released	0.0615 (0.0451)	0 (0)	200 (120)	534 (527)	0 (0)	578 (759)	1,312 (932)
Walleye harvested	0.1504 (0.0627)	130 (264)	882 (544)	1,362 (765)	834 (698)	0 (0)	3,208 (1,199)
Walleye released	0.0328 (0.0208)	0 (0)	271 (251)	214 (217)	214 (264)	0 (0)	699 (424)
Y.Perch harvested	0.0298 (0.0314)	0 (0)	214 (136)	127 (113)	0 (0)	295 (635)	636 (659)
Y.Perch released	0.0515 (0.0342)	0 (0)	182 (182)	195 (176)	279 (374)	443 (537)	1,099 (702)
N. Pike harvested	0.0419 (0.0415)	0 (0)	113 (97)	138 (157)	348 (566)	295 (635)	894 (870)
N.Pike released	0.1066 (0.0471)	98 (177)	1,025 (561)	615 (353)	537 (603)	0 (0)	2,275 (913)
Catfish sp. harvested	0.0484 (0.0527)	0 (0)	0 (0)	0 (0)	0 (0)	1,033 (1,108)	1,033 (1,108)
Total harvested	0.3031 (0.1093)	130 (264)	1526 (593)	1,857 (808)	1,182 (899)	1,771 (1,462)	6,466 (2,005)
Total released	0.2824 (0.0913)	131 (189)	1,947 (681)	1,748 (726)	1,030 (757)	1,169 (983)	6,025 (1,602)
Total catch	0.5856 (0.1615)	261 (325)	3,473 (903)	3,605 (1,086)	2,212 (1,175)	2,940 (1,762)	12,491 (2,566)
Angler hours		371 (430)	4,379 (1,003)	5,619 (1,960)	5,998 (2,592)	4,965 (1,916)	21,332 (3,927)
Angler trips		102 (123)	964 (309)	1,549 (605)	1,406 (690)	2,207 (920)	6,228 (1,341)
Fishing craft hours		165 (188)	1,893 (276)	2,550 (850)	2,614 (925)	2,482 (602)	9,704 (1,432)

Table 9.—Estimated pleasure craft (non-fishing) activity by month and season on Silver Lake, 1996. Two standard errors are given in parenthesis.

Pleasure craft effort	April	May	June	July	Aug-Sep	Season
Person hours	0 (0)	2,875 (4,520)	21,576 (20,516)	61,642 (47,426)	68,645 (53,306)	154,738 (74,378)
Craft hours	0 (0)	599 (779)	4,590 (2,750)	13,422 (5,200)	14,633 (4,317)	33,244 (7,338)

Table 10.—Estimated catch, harvest and angling effort by month and season, and seasonal catch per hour (CPH) at the Yates Road survey site on the Clinton River, 1996. Two standard errors are given in parenthesis.

Species	CPH	March	April	Season
Steelhead harvested	0.0108 (0.0065)	69 (53)	95 (75)	164 (92)
Steelhead released	0.0674 (0.0294)	491 (200)	534 (341)	1,025 (395)
Steelhead total	0.0781 (0.0311)	560 (207)	629 (349)	1,189 (406)
Brown Trout harvested	0.0022 (0.0025)	5 (10)	29 (37)	34 (38)
Northern Pike harvested	0.0008 (0.0016)	0 (0)	12 (24)	12 (24)
Sucker sp. harvested	0.0460 (0.0330)	73 (71)	627 (476)	700 (481)
Walleye harvested	0.0060 (0.0063)	0 (0)	91 (94)	91 (94)
Carp harvested	0.0007 (0.0014)	11 (22)	0 (0)	11 (22)
Total catch	0.1338 (0.0501)	649 (220)	1,388 (599)	2,037 (638)
Angler hours		6,763 (1,580)	8,453 (2,689)	15,216 (3,119)
Angler trips		1,651 (407)	1,888 (639)	3,539 (758)

Table 11.—Estimated catch, harvest and angling effort by month and season, and seasonal catch per hour (CPH) at the Ryan Road survey site on the Clinton River, 1996. Two standard errors are given in parenthesis.

Species	CPH	March	April	Season
Steelhead harvested	0.0124 (0.0145)	75 (84)	0 (0)	75 (84)
Steelhead released	0.0880 (0.0569)	241 (147)	291 (252)	532 (292)
Steelhead total	0.1002 (0.0607)	316 (169)	291 (252)	607 (303)
Brown Trout harvested	0.0038 (0.0039)	17 (18)	6 (12)	23 (22)
Northern Pike harvested	0.0013 (0.0022)	8 (13)	0 (0)	8 (13)
Sucker sp. harvested	0.0549 (0.0520)	48 (60)	284 (287)	332 (293)
Walleye harvested	0.0010 (0.0022)	0 (0)	6 (13)	6 (13)
Total catch	0.1612 (0.0891)	389 (181)	587 (383)	976 (424)
Angler hours		3,312 (1,681)	2,735 (1,200)	6,047 (2,065)
Angler trips		905 (501)	546 (249)	1,451 (559)

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