

MARK CLYMER
BOX 62
CEDARVILLE, MI 49719

**EVALUATION OF THE YELLOW PERCH FISHERY AND
ITS IMPORTANCE TO THE LOCAL ECONOMY OF
THE LES CHENEAUX ISLANDS AREA**

**James S. Diana, Carol A. Jones, and David O. Lucchesi
School of Natural Resources
The University of Michigan**

and

**James C. Schneider
Institute for Fisheries Research
Michigan Department of Natural Resources**

FINAL REPORT

**GRANT LRP-8C-7
COSTAL MANAGEMENT PROGRAM
DEPARTMENT OF NATURAL RESOURCES**

MARCH 1987

**EVALUATION OF THE YELLOW PERCH FISHERY AND
ITS IMPORTANCE TO THE LOCAL ECONOMY OF
THE LES CHENEAUX ISLANDS AREA**

James S. Diana, Carol A. Jones, and David O. Lucchesi

**School of Natural Resources
The University of Michigan**

and

James C. Schneider

**Institute for Fisheries Research
Michigan Department of Natural Resources**

FINAL REPORT

**GRANT LRP-8C-7
COASTAL MANAGEMENT PROGRAM
DEPARTMENT OF NATURAL RESOURCES**

MARCH 1987

INTRODUCTION

The Les Cheneaux area of northern Lake Huron is well known for its scenic beauty and its yellow perch¹ fishery (Fig. 1). Since the 1940s it has attracted large numbers of tourists, mostly families who want to catch and eat perch while they relax for a week or two. A substantial summer resort industry developed, based primarily on cottage and boat rentals. These resorts are the economic backbone of the Cedarville-Hessel area.

In recent years there have been many complaints about declines in perch fishing, tourism, and the economic health of this area. Many resort owners believe that large perch are becoming rare and that, as a result, perch fishermen are taking their business elsewhere. They attribute this change in the perch population to a variety of reasons: harvesting with gill nets by native Americans, competition for perch between winter resident anglers and summer tourist anglers, general overfishing, environmental change, or other causes. Other observers suspect that a decline in family-oriented fishing vacations may be occurring statewide—i.e., the tourist market is changing. Thus, the key questions were (1) is there a problem? (2) is it mostly biological or sociological? and (3) can it be solved?

Extensive biological data on this yellow perch population have been collected since 1969 by the Michigan Department of Natural Resources (MDNR). In addition, a survey of sportfishing pressure (days/hours of fishing) and catch was made from April 1979 to March 1981.² When compiled and carefully scrutinized, these data did not substantiate the claim that a significant decline in the perch population or fishery had taken place.³ However, these data were not adequate to detect subtle changes, or ones which began prior to 1969.

Convincing evidence for a fishery problem was provided by a 1985 tagging study. Perch exploitation was found to be relatively high, about 40% per year. This high rate, coupled with prior data showing that anglers were harvesting relatively small-sized perch, suggested overfishing. This was substantiated by a mathematical simulation of the population and fishery.⁴ The model pinpointed "growth overfishing" and indicated the best solution to the fishery problem was to increase the minimum size limit from none (current regulation) to 7 inches (October 1986), then to 8 inches (October 1987). It was reasoned that this stepwise increase would temper the initially harsh effect on the fishery and allow time to monitor both

¹See Table 1 for the common and scientific names of fishes mentioned in this report.

²J. R. Ryckman and R. N. Lockwood. 1985. On-site creel surveys in Michigan, 1975-82. Michigan Department of Natural Resources, Fisheries Research Report 1922.

³MDNR, Fisheries Division Interoffice Communication from J. R. Ryckman and J. C. Schneider to W. C. Latta, December 1, 1983.

⁴MDNR, Fisheries Division Interoffice Communication from J. C. Schneider to John Schrouder, November 15, 1985.

public reaction and the perch population. These size limit changes were approved by the Natural Resources Commission.

This study was initiated for five reasons. The first reason, with regard to the perch fishery, was to determine if fishing pressure, catch, catch rate, and perch size had changed since the 1979-81 creel census, and by perch tagging in spring 1986, to confirm that exploitation rate was as high as indicated by the 1985 tagging. The second reason was to update estimates of fish population parameters such as growth rate, movements, and population size which are important ingredients in the mathematical model. The third reason was to determine the types of participants in the fishery and tourist industry and to measure their value to the local economy. The fourth reason was to provide the baseline data needed to measure any future changes brought about by the new size limits. The fifth reason was to provide the information needed to make the best policy and management decisions for the Les Cheneaux area.

A cooperative study was designed by Dr. W. C. Latta. Main contributors were University of Michigan faculty (Dr. James Diana and Dr. Carol Jones) and students (primarily Dave Lucchesi, Beth Schoner, Susan Allin, Gerald Broda, and Robert Springborn), Institute for Fisheries Research staff (principally Dr. W. C. Latta and J. C. Schneider), and MDNR Newberry personnel (principally John Schrouder, William Gruhn, Cheryl Holbrook, and Betty Sheffield). Aspects of the study dealing with economics were directed by Dr. Jones; aspects dealing with biology and fisheries were delegated to David Lucchesi for his Master of Science thesis (to be completed spring 1987) and were directed by Dr. Diana and James Schneider. The study was funded by MDNR, Division of Land Resource Programs, Coastal Management Program Contract LRP-8C-7.

Results of the study are presented in two major chapters, entitled: "An analysis of the Les Cheneaux fishery in 1986" (pages 4 to 25) and "Tourism related to recreational fishing in Les Cheneaux Islands: Demographic profile and economic impact" (pages 26 to 54). General trends and conclusions are discussed in Chapter 3 (pages 55 to 58).

CHAPTER 1. AN ANALYSIS OF THE LES CHENEAUX FISHERY IN 1986

INTRODUCTION

This aspect of the study was designed to determine the status of the yellow perch population and fishery. The data we collected were compared to data from previous surveys to determine if changes have occurred and if the mathematical model developed by Schneider in 1985 was still an appropriate guide to fishery management.

METHODS

Fishery data were collected by means of a standard MDNR on-site creel survey (Appendix 1 and 2). The survey was taken on a randomized schedule, 5:30 A.M. to 10:00 P.M., and stratified by month, day (weekday vs weekend), and type of fishing (boat vs pier vs shore). It consisted of two parts. First, fishermen were randomly interviewed at the end of each trip on the lake to determine catch (species, number, and size), hours fished, species sought, gear, and residence. In addition, anglers were asked if they would prefer to catch seven perch averaging 7.5 inches long or five perch averaging 9 inches, and if they would support regulations to improve the fishery. Second, periodic counts of fishing boats, pier anglers, and shore anglers were made from ground vantage points to determine average fishing pressure. In addition, counts of fishing boats were made from an airplane from May 19 through August, five times per week, weather permitting. The interview and count data were then integrated to produce estimates of total fishing pressure in number of angler trips and hours, catch by species, and catch per hour. Further details on general creel census methodology are given in the Ryckman and Lockwood report.² Some anglers were interviewed more than once because the probability of being interviewed (randomly) depended upon the amount of time each angler fished.

Several types of data about the perch population were collected including growth, total mortality, exploitation, movements, and population size. Growth and total mortality data were derived from stratified-random scale samples collected during spring trap netting and fall gill netting following standard procedures. We calculated average length at age and age frequency, and estimated of total mortality from catch curves.³

Data on exploitation rate, movements, and population size were derived by tagging 4,969 perch from April 22 to May 5, 1985 and 6,680 perch from April 14 to April 29, 1986. The perch were mostly adults, 7.0 inches and larger, captured while spawning in Mackinac, Flower,

²W. E. Ricker. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada Bulletin 191.

and Sheppard bays. The perch were captured in trap nets and tagged with serially numbered Floy FD-68B Anchor tags (orange in 1985, yellow in 1986, with overlapping numbers). Recaptures were summarized by month, locality (bay number) and type of gear (angling or netting). To encourage tag returns by anglers, in 1985 a one dollar reward was offered for each tag plus a chance to win monetary prizes in a lottery. In 1986, the one dollar reward was dropped and a lottery with five prizes of \$100 each was promoted. Extensive publicity and assistance were provided by local sporting goods stores, resorts, and other businesses. The reward system offered in 1985 seemed to encourage better angler cooperation than the reward system offered in 1986.

RESULTS

Winter catch and effort

Estimates of ice fishing pressure and catch extended from January 1 to April 14, when the ice became unsafe. The creel census covered the entire season except for a small amount of ice fishing during late December.

Shanty fishermen fished an estimated 21,189 hours and open-ice anglers fished an estimated 12,310 hours (Tables 2 and 3). The total ice fishing hours, 34,000, represented 8% of the yearly total (Table 4).

Yellow perch comprised 95% of the fish caught. Winter perch catch was estimated at 49,283, which was 11% of the yearly total. Cisco, northern pike, and other species made up the other 5% of the winter catch.

The quality of the ice fishery in 1986 was similar to that in 1981 but much poorer than in 1980 (Table 5). Estimated fishing hours were similar for all years (27,000 to 33,000) but catch was about two times higher in 1980 (109,000) than in 1981 (51,000) and 1986 (49,000). Correspondingly, the average number of perch caught per hour for 1980 (3.44) was double the rates for 1981 (1.86) and 1986 (1.47).

Summer catch and effort

The open-water creel census extended from the beginning of open-water fishing (April 23) through August. September data collected by the MDNR is presented also to complete the picture of the open-water fishery, as very little fishing takes place in October and November.²

An important finding was that counts of fishing boats made from vantage points on the ground were much less (factor of 2.52 ± 0.225) than counts made from an airplane. This was determined by comparing counts made in similar time strata. Apparently, a surprising number of boats were hidden in the myriad of islands and bays, or were located far enough offshore to be out of sight. Consequently, we made boat fishing estimates based on both ground and air counts (ground counts $\times 2.52$). The estimates based on air counts are believed to be the most

realistic; however, the estimates based on ground counts are useful for comparisons to previous surveys which used only ground counts.

The airplane was not able to make accurate counts of pier and shore fishermen. Consequently, the estimates of pier and shore fishing effort were based on ground counts—as was done in previous creel census surveys. This caused no important bias in the total estimates because both fisheries were very small.

The open-water fishery totaled about 373,000 hours, of which 97.8% was by boat anglers, 1.6% by shore anglers, and 0.6% was by pier anglers (Tables 6–8). This represented 92% of the yearly fishing effort.

Yellow perch comprised 82% of the fish caught. Summer (open-water) perch catch was estimated at nearly 390,000, which was 89% of the yearly total (Table 4). Perch catch peaked in June.

By comparison, in 1979 and 1980 the peak perch catch occurred in July and the summer totals were estimated at 84,000 and 92,000, respectively (Table 5). The totals suggest that a tremendous increase in summer perch catch took place in 1986; however this increase is due in part to the use of airplanes to count boats in 1986. The 1986 estimate of summer perch catch based entirely on ground counts of boats was 145,000 (Tables 5 and 8)—a statistically significant increase of 39% over the 1979–80 average. Comparable estimates of summer fishing hours were 88,000 in 1979, 41,000 in 1980, and 143,000 in 1986—a statistically significant increase of 63 to 249%. However, the perch catch rate in 1986 (1.02 ± 0.21 per hour) was the same as in 1979 (0.96 ± 0.43 per hour), and both rates were significantly below that of 1980 (2.27 ± 0.33). Overall, the summer perch fishery in 1986 was comparable to, or better than, that in 1979–82.

A partial creel census in May and June 1985 provided additional estimates for comparison (J. Ryckman, personal communication). These estimates were based on ground counts of fishing pressure. For May and June combined, the estimates of perch catch were 32,000 for 1985 and 61,000 for 1986. Corresponding estimates of fishing hours were 28,000 in 1985 and 54,000 in 1986. Thus for those 2 months, the perch fishery was about twice as good in 1986 as in 1985.

Species of secondary frequency in the summer fishery were rock bass, cisco, northern pike, sunfish, and menominee (Table 8). Compared to estimates in 1980 and 1981, 1986 catches were up for rock bass, down for cisco (herring), up for pike, up for sunfish, and up for menominee. The menominee fishery was new; it began off Boot Island and the Middle Entrance in the summer of 1982.

Several other species were important to the fishery in 1986. The popularity of smallmouth bass had increased since 1979–80 and the 1986 catch was estimated at 3,056 (Table 4). Chinook salmon and brown trout, cold-water species stocked by MDNR, were beginning to

account for a larger fraction of the angling pressure and catch. In July and August, as many as 50 boats trolled the outer bays and channel mouths for salmon and trout. Estimated catches for 1986 were 2,651 salmon and 513 brown trout (Table 4). The discontinued stocking of lake trout and an Indian commercial fishery have resulted in a steep decline in the lake trout sport fishery. Catch estimates were over 5,000 in 1979, too low to estimate in 1980, and 164 in 1986.

A potential error in all the summer creel census data collected to date is that residents who live along the water were sampled less than tourists because they did not use the public access points as frequently. Since it is likely that these local residents are more familiar with the fishery and could catch fish at a higher rate, this may lead to underestimates of catch rate and total catch. This potential source of error should be evaluated in future censuses.

Length frequency of perch in sport catch

From May through August, the creel census clerk measured representative samples of yellow perch kept by fishermen (Table 9). Jumbo yellow perch (>10 inches) comprised about 6% of the total perch harvest. Perch less than 7 inches long comprised 17% of the perch catch and perch less than 8 inches long made up 65% of the catch. By comparison, for 1979-81 these percentages were 40% and 80%, respectively. Thus, perch were of larger size in 1986.

Residence of anglers

The residences of anglers were determined from 2,530 interview slips. Anglers were interviewed randomly, in proportion to the amount of time they fished. Approximately 77% of the ice fishing effort was by residents of Mackinac and Chippewa counties, 17% was by residents of the Lower Peninsula, and 6% was by out-of-state residents.

The majority of the summer fishing effort was by residents of the Lower Peninsula (60%) or other states (26%). Residents of Mackinac and Chippewa counties accounted for only 13% of the total open-water interviewees and residents of other Upper Peninsula counties comprised only 14%.

Overall, 21% of the fishing was by local anglers (Chippewa and Mackinac counties), 22% was by out-of-state anglers, and the majority (51%) was by anglers residing in the Lower Peninsula.

Species sought

Most (95%) interviewees during the winter creel census said they were fishing for yellow perch. Northern pike (1%) and cisco (1%) were also targeted by ice anglers.

A large proportion (61%) of the summer interviewees fished for yellow perch. Northern pike were popular (15%), especially in the month of May (32%). Cisco (herring) were also popular (12%), especially during July (31%). Trout and salmon fishing were listed as

important on 4% of the total angler interviews; chinook salmon were especially important (17%) during August.

Overall, yellow perch attracted a wide majority of the fishing effort (68%). Pike (12%) and cisco (9%) were of secondary importance. Less than 5% of the fishing effort was directed at any other species. Correspondingly, 87% of the interviewees were still fishing with bait and 12% were casting or trolling with artificial lures.

Angler size preferences

The response of anglers to the question regarding catch preferences was as follows: overall, 55% preferred five 9-inch perch, 27% preferred seven 7-inch perch, and 18% had no opinion. Winter fishermen, who were predominately local residents, were more inclined to select the more but smaller option than summer anglers, who were predominately tourists. Among ice angler interviewees, 49% preferred five 9-inch perch, 43% preferred seven 7-inch perch, and 8% had no opinion. Among open-water interviewees, the corresponding statistics were 58%, 21%, and 21%, respectively. In addition, most interviewees (48%) indicated they would support restrictive fishing regulations which would produce larger but fewer perch. About 27% were against such regulations and 25% had no opinion. These percentages did not vary seasonally.

Perch growth

Growth data were compiled from scale samples collected during the annual fall assessment and the 1985-86 spring perch tagging projects (Table 10). The average length of spring fish of a given age should be compared with the average length of fall fish which are 1 year younger since virtually no growth in length occurred overwinter. For example, the length of a 3-year-old perch collected in spring 1986 should be the same as the length of a 2-year-old fish collected in fall 1985 (if the samples did not have sampling bias). Comparison of the 1985 and 1986 fall growth data with growth data taken prior to 1983 show growth rates have slowed significantly. The spring 1985 length-age data further support this conclusion. However, the spring 1986 growth data suggest that growth rates have not changed. Consequently, all the scale samples are being re-aged and final results of the growth analysis will be discussed in Lucchesi's thesis.

Perch exploitation rates

From April 1985 to April 1986, sport fishermen returned 1,401 orange tags from a total of 4,969 tagged fish. These returns indicate a minimum sportfishing exploitation rate of 28.2%. We judge that about another 8% of the tags were lost by fish or anglers; this inflates the exploitation rate to about 36%. A high annual exploitation rate (36%) and a moderate

annual total mortality indicate that these yellow perch have a relatively low natural mortality. The April through October return of 1986 yellow perch tags was 17%, which was about three-fourths the rate of return for 1985 perch tags. The decreased rate of return was more likely due to the discontinuation of the one dollar reward for each tag returned and a decreased interest in the tagging study after the first year rather than an actual decrease in exploitation rate of perch. This opinion was reinforced by the high total catch of perch in 1986.

In addition to sportfishing, the Les Cheneaux perch supported a native assessment fishery. The Chippewa tribe used 2 1/2-inch mesh gill nets to take yellow perch. Most of the perch were larger than 8.5 inches in length. During 1985, Indian netters returned 23 (0.5%) of the orange tags. This represented 1.6% of the combined tag returns by sport and commercial fishermen from April 1985 to April 1986 (combined total = 1,424 or 28.6% of the number released in 1985). Native American netters fished more intensively in 1986, returning 151 yellow tags (2.3%) plus 98 (2.0%) of the orange tags. This represented 11.8% of the combined yellow tag returns by sport and assessment fishermen from April 1986 to October 1986 (combined total = 1,277 or 19.2% of the number released in 1986). The 98 orange tags returned by native American netters represented 25% of the combined orange tag returns by both types of fishermen from April to October 1986. Approximately 3,800 perch (1,516 pounds, in the round) were harvested by native American nets in 1986 (G. Fleischer, personal communication).

Perch movements

The distribution of returned tags suggested that although some individual perch travel over a large area, most tended to remain in a limited area. A majority of the yellow perch tagged in Mackinac Bay were caught by anglers in Hessel Bay and adjoining bays on the west side of the islands (Fig. 2). Likewise, perch tagged in Flower Bay tended to remain on the east side (Fig. 3). Perch spawning in Sheppard Bay, centrally located, were recaptured over a wide area later in the year (Fig. 4). The patterns for perch tagged in 1985 and 1986 were very similar. Furthermore, perch tagged in 1985 usually returned to the same bay to spawn in 1986. Of those recaptured then, 96% (253 fish) were recaptured in MDNR trap nets in the same bay they were tagged. These data indicate that perch stocks are fairly discrete within portions of the Les Cheneaux area.

Perch population estimates

Two methods were used to calculate perch population size. First, the population in April 1986 was calculated by comparing the ratio of tagged (in 1986) to untagged perch actually observed by the census clerk in the June 1986 sport catch. Using an adjusted Peterson formula, and assuming negligible growth and tag loss during May, the population was calculated to

contain 524,296 yellow perch over 7 inches in length. If it was assumed that perch grew 0.2 inches in May, this estimate was reduced to 351,116.

In the second method, the perch population in April 1985 was calculated. This was done by comparing the ratio of tagged (in 1985) to untagged yellow perch captured in trap nets in April 1986. Using an adjusted Peterson formula, and assuming that yellow perch grew an average of 0.5 inches in a year, the population was calculated at 79,930 perch over 7 inches long. However, a basic assumption of the method, that the tagged perch were randomly mixed with other fish in the population at the time of recapture, was probably violated. It was mentioned earlier that many Les Cheneaux yellow perch appear to return ("home") to the same spawning bay year after year. Consequently, only those particular spawning stocks of yellow perch were estimated and the total perch population was probably underestimated by the second method.

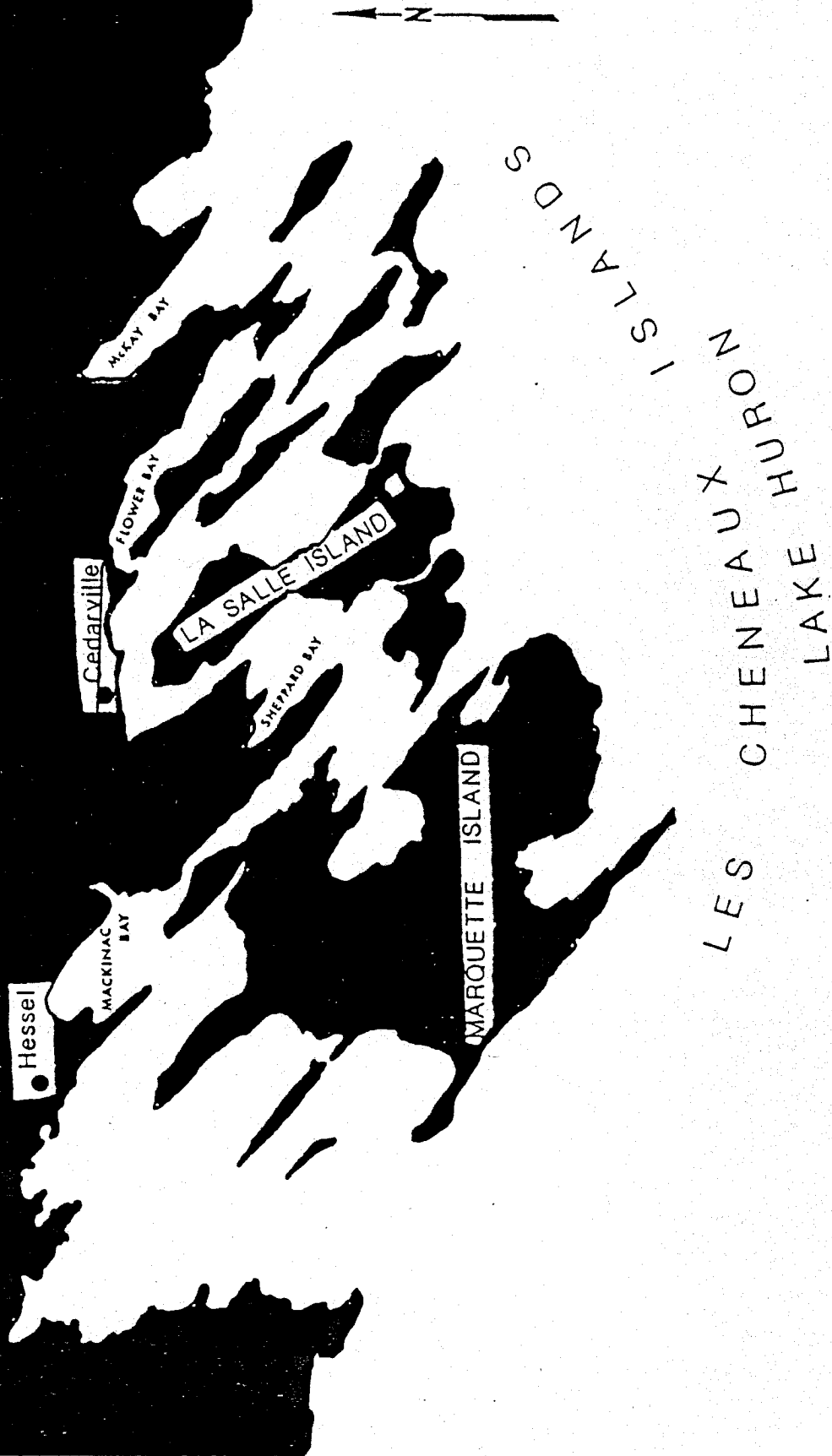


Figure 1. The Les Cheneaux Island area of northern Lake Huron.

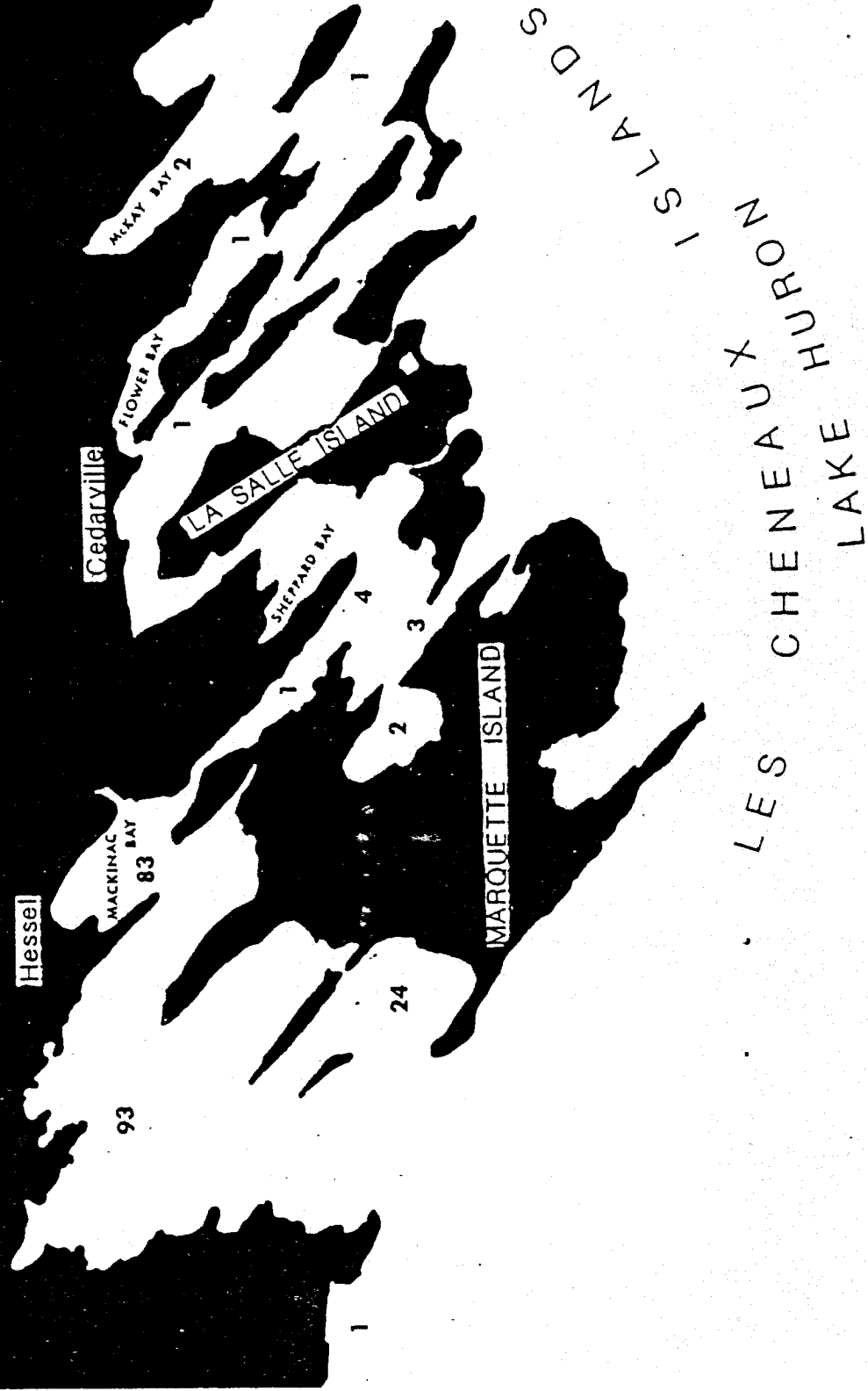


Figure 2. Distribution of tag returns, June 1985 through December 1985, of yellow perch tagged Mackinaw Bay, April 1985.

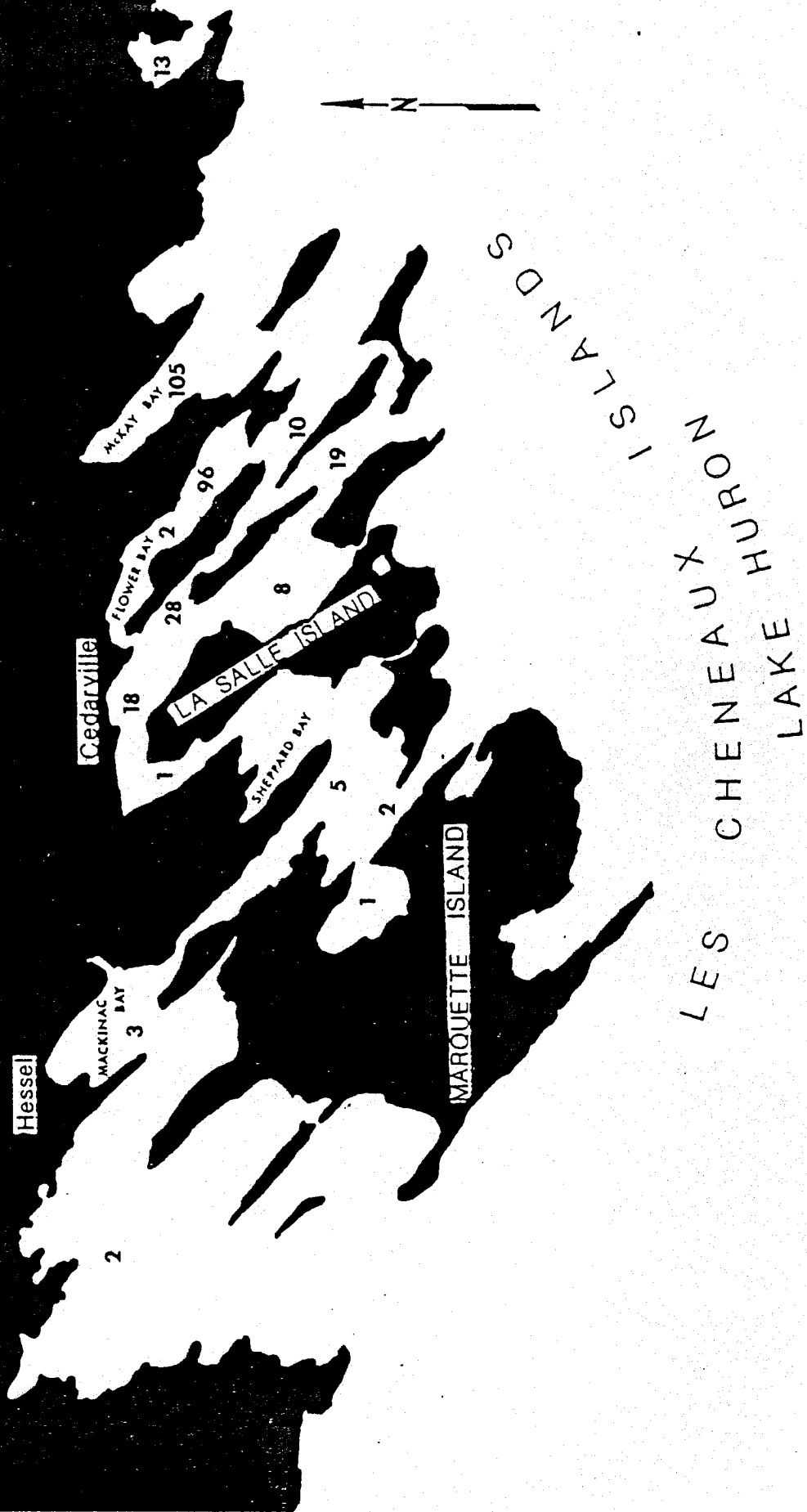


Figure 3. Distribution of tag returns, June 1985 through December 1985, of yellow perch tagged in Flower Bay, April 1985.



Figure 4. Distribution of tag returns, June 1985 through December 1985, of yellow perch tagged in Sheppard Bay, April 1985.

Table 1. List of common and scientific names of fish observed in this study.

Common name	Scientific name
Smelt	<u>Osmerus mordax</u>
Northern pike	<u>Esox lucius</u>
Muskellunge	<u>Esox masquinongy</u>
Brown bullhead	<u>Ictalurus nebulosus</u>
Channel catfish	<u>Ictalurus punctatus</u>
Burbot	<u>Lota lota</u>
Lake whitefish	<u>Coregonus clupeaformis</u>
Cisco (herring)	<u>Coregonus artedii</u>
Menominee	<u>Prosopium cylindraceum</u>
Lake trout	<u>Salvelinus namaycush</u>
Chinook salmon	<u>Oncorhynchus tshawytscha</u>
Brown trout	<u>Salmo trutta</u>
Common carp	<u>Cyprinus carpio</u>
White sucker	<u>Catostomus commersoni</u>
Rock bass	<u>Ambloplites rupestris</u>
Pumpkinseed	<u>Lepomis gibbosus</u>
Smallmouth bass	<u>Micropterus dolomieu</u>
Largemouth bass	<u>Micropterus salmoides</u>
Black crappie	<u>Pomoxis nigromaculatus</u>
Yellow perch	<u>Perca flavescens</u>

Table 2. Estimated catch per hour, number of fish caught, and angler hours and trips by open-ice fishermen in the Les Cheneaux area, winter 1986 (two standard errors in parentheses).

Species	Total catch per hour	Catch				
		Jan	Feb	Mar	Apr	Total
Whitefish	0.0010 (0.0011)	—	—	12 (13)	—	12 (13)
Cisco	0.0013 (0.0014)	—	—	16 (17)	—	16 (17)
Smelt	0.0039 (0.0049)	—	—	48 (60)	—	48 (60)
Northern pike	0.0021 (0.0022)	26 (27)	—	—	—	26 (27)
Yellow perch	1.6703 (0.2747)	6,317 (1,487)	1,224 (555)	6,422 (1,442)	6,599 (1,947)	20,562 (2,896)
Burbot	0.0004 (0.0007)	—	—	4 (9)	1 (2)	5 (9)
Angler hours		4,409 (663)	1,741 (292)	4,320 (637)	1,840 (403)	12,310 (1,405)
Angler trips		1,188 (197)	437 (71)	1,097 (163)	555 (127)	3,277 (294)

Table 3. Estimated catch per hour, number of fish caught, and angler hours and trips by shanty fishermen in the Les Cheneaux area, winter 1986 (two standard errors in parentheses).

Species	Total catch per hour	Catch				
		Jan	Feb	Mar	Apr	Total
Brown trout	0.0004 (0.0004)	— —	8 (8)	— —	— —	8 (8)
Whitefish	0.0004 (0.0007)	— —	— —	8 (15)	— —	8 (15)
Cisco	0.0933 (0.0563)	29 (22)	1,617 (1,149)	153 (91)	— —	1,799 (1,153)
Smelt	0.0019 (0.0018)	— —	— —	41 (37)	— —	41 (37)
Northern pike	0.0168 (0.0021)	36 (27)	314 (136)	7 (16)	— —	357 (140)
Yellow perch	1.3554 (0.3347)	6,005 (2,317)	13,884 (3,467)	8,689 (3,548)	143 (173)	28,721 (5,478)
Burbot	0.0013 (0.0010)	— —	24 (20)	— —	— —	24 (20)
Angler hours		5,093 (1,844)	11,998 (2,261)	4,024 (1,589)	74 (34)	21,189 (3,322)
Angler trips		1,117 (412)	3,115 (596)	1,103 (423)	34 (12)	5,369 (839)

Table 4. Best estimates of catch per hour, number of fish caught, and angler hours and trips by all types of Les Cheneaux fishermen, January-September 1986 (two standard errors in parentheses).¹

Species	Total catch per hour	Catch											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total		
Brown trout	0.0013 (0.0012)	—	8 (8)	—	—	—	10 (23)	35 (71)	460 (492)	—	—	513 (498)	
Lake trout	0.0004 (0.0007)	—	—	—	—	48 (101)	—	116 (248)	—	—	—	164 (268)	
Chinook salmon	0.0065 (0.0038)	—	—	—	—	—	—	700 (698)	1,881 (1,335)	70 (78)	—	2,651 (1,508)	
Smelt	0.0005 0.0004	—	—	89 (70)	—	—	—	—	—	—	—	89 (70)	
Whitefish	0.0001 (0.0001)	—	—	20 (20)	—	—	—	—	—	—	—	20 (20)	
Menominee	0.0187 (0.0118)	—	—	—	—	—	958 (1,062)	6,618 (4,596)	—	—	—	7,603 (4,717)	
Cisco	0.0349 (0.0246)	29 (22)	1,617 (1,149)	169 (93)	—	—	4,614 (2,528)	7,750 (9,487)	—	—	6 (13)	14,185 (9,886)	
Northern pike	0.0291 (0.0121)	62 (38)	314 (136)	7 (16)	—	4,315 (3,082)	642 (625)	4,062 (3,374)	2,272 (1,836)	168 (130)	—	11,842 (4,968)	
Musky	0.0072 (0.0015)	—	—	—	—	—	—	293 (610)	—	—	—	293 (610)	
Yellow perch	1.0799 (0.2085)	12,322 (2,753)	15,108 (3,511)	15,111 (3,830)	48,929 (19,413)	31,555 (14,540)	132,610 (41,465)	93,071 (32,235)	78,934 (35,774)	11,087 (4,215)	—	438,727 (68,402)	
Smallmouth bass	0.0075 (0.0055)	—	—	—	—	247 (405)	720 (1,046)	629 (793)	1,443 (1,742)	17 (34)	—	3,056 (2,223)	
Largemouth bass	0.0010	—	—	—	—	12	306	101	—	—	—	419	

Table 4. Continued:

Species	Total catch per hour	Catch												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep				
Rock bass	(0.0017)	—	—	—	—	(25)	(673)	(205)	—	—	—	—	—	(704)
	0.0456	—	—	—	—	244	9,349	7,141	1,754	29	18,517	—	—	—
	(0.3194)	—	—	—	—	(367)	(11,824)	(4,331)	(2,293)	(59)	(12,805)	—	—	—
Sunfish	0.0249	—	—	—	60	384	1,054	2,219	6,413	—	10,130	—	—	—
	(0.0140)	—	—	—	75	(413)	(1,178)	(3,739)	(3,914)	—	(5,555)	—	—	—
Crappie	0.0001	—	—	—	—	—	—	38	—	10	48	—	—	—
	(0.0002)	—	—	—	—	—	—	(75)	—	(20)	(78)	—	—	—
Carp	0.0001	—	—	—	27	—	—	—	—	—	27	—	—	—
	(0.0001)	—	—	—	(55)	—	—	—	—	—	(55)	—	—	—
White sucker	0.0006	—	—	—	70	156	—	12	—	—	238	—	—	—
	(0.0007)	—	—	—	(115)	(236)	—	(27)	—	—	(263)	—	—	—
Bullhead	0.0100	—	—	—	—	397	688	2,940	53	—	4,078	—	—	—
	(0.0092)	—	—	—	—	(782)	(400)	(3,622)	(86)	—	(3,727)	—	—	—
Channel catfish	0.0002	—	—	—	—	—	—	76	—	—	76	—	—	—
	(0.0004)	—	—	—	—	—	—	(152)	—	—	(152)	—	—	—
Burbot	0.0001	—	24	4	1	—	—	—	—	—	29	—	—	—
	(0.0001)	—	(20)	(9)	(2)	—	—	—	—	—	(22)	—	—	—
Angler hours		9,502	13,739	8,344	24,001	32,866	107,874	114,694	91,716	3,544	406,280	—	—	—
		(1,960)	(2,280)	(1,711)	(7,653)	(6,552)	(30,413)	(21,767)	(25,039)	(942)	(46,261)	—	—	—
Angler trips		2,305	3,552	2,200	6,045	12,718	33,306	44,827	36,614	1,010	142,517	—	—	—
		(452)	(600)	(453)	(1,617)	(2,985)	(8,924)	(8,309)	(8,885)	(274)	(15,491)	—	—	—

¹ Estimates are based on counts from airplane for boat fishermen and counts from shore for other types of fishermen. Very little fishing occurred in December, prior to the census, and in October and November, after the census.

Table 5. Comparison of creel census estimates of yellow perch catch, perch caught per angler hour, and total angler hours and trips.

Season and year	Perch catch	Perch per hour	Total angler	
			Hours	Trips
<u>Winter</u>				
1980	109,000	3.44	32,000	7,700
1981	51,000	1.86	27,000	6,200
1986	49,000	1.47	33,000	8,600
<u>Summer</u>				
1979	84,000	0.96	88,000	22,100
1980	92,000	2.27	41,000	12,300
1986 ¹	145,000	1.02	143,000	51,500
1986 ²	389,000	1.02	373,000	133,900

¹ Estimates are based on counts of boats from shore (Table 7), the same method used in summer 1979 and 1980.

² Estimates are based on counts of boats from airplane (Table 4). These are the best estimates available.

Table 6. Estimated catch per hour, number of fish caught, and angler hours and trips by shore fishermen, April-August 1986, based on counts from shore.

Species	Total catch per hour	Catch					Total
		Apr	May	Jun	Jul	Aug	
Northern pike	0.0059 (0.0085)	— (—)	15 (30)	20 (40)	— (—)	— (—)	35 (50)
Yellow perch	2.7821 (1.9620)	254 (189)	705 (327)	7,844 (3,709)	6,901 (10,598)	669 (1,027)	16,373 (11,281)
Rock bass	0.0764 (0.0720)	— (—)	178 (341)	272 (242)	— (—)	— (—)	450 (418)
Sunfish	0.0226 (0.0387)	27 (55)	106 (220)	— (—)	— (—)	— (—)	133 (227)
Carp	0.0045 (0.0094)	27 (55)	— (—)	— (—)	— (—)	— (—)	27 (55)
White sucker	0.0126 (0.0196)	19 (30)	55 (112)	— (—)	— (—)	— (—)	74 (115)
Bullhead	0.0053 (0.0068)	— (—)	18 (30)	13 (27)	— (—)	— (—)	31 (40)
Angler hours		487 (179)	437 (291)	2,812 (563)	1,382 (413)	767 (424)	5,885 (885)
Angler trips		155 (80)	168 (117)	1,118 (294)	252 (107)	162 (111)	1,855 (361)

Table 7. Estimated catch per hour, number of fish caught, and angler hours and trips by pier fishermen, April-August 1986, based on counts from shore.

Species	Total catch per hour	Catch					Total
		Apr	May	Jun	Jul	Aug	
Cisco	0.1599	—	—	373	—	—	373
	(0.1068)	—	—	(230)	—	—	(230)
Yellow perch	1.1517	—	603	2,044	—	40	2,687
	(0.5664)	—	(625)	(934)	—	(43)	(1,125)
Rock bass	0.0519	—	—	121	—	—	121
	(0.0644)	—	—	(147)	—	—	(147)
Angler hours		331 (236)	600 (312)	716 (380)	262 (207)	424 (407)	2,333 (602)
Angler trips		49 (62)	235 (127)	245 (129)	100 (81)	213 (221)	842 (303)

Table 8. Estimated catch per hour, number of fish caught, and angler hours and trips by boat fishermen, April-August 1986, based on counts from shore, Les Cheneaux area. For catch and pressure based on airplane counts, multiply by 2.52 ± 0.225 (see Table 4).

Species	Total catch per hour	Catch					Total
		Apr	May	Jun	Jul	Aug	
Brown trout	0.0023 (0.0018)	— —	4 (9)	14 (28)	182 (194)	133 (154)	333 (249)
Lake trout	0.0005 (0.0007)	— —	19 (40)	— —	46 (98)	— —	65 (106)
Chinook salmon	0.0072 (0.0042)	— —	— —	— —	277 (275)	744 (524)	1,021 (592)
Menominee	0.0210 (0.0132)	— —	— —	379 (419)	2,618 (1,803)	— —	2,997 (1,851)
Cisco	0.0609 (0.0278)	— —	— —	1,678 (985)	7,022 (3,701)	— —	8,700 (3,830)
Northern pike	0.0312 (0.0142)	— —	1,701 (1,210)	246 (246)	1,607 (1,327)	899 (722)	4,453 (1,951)
Musky	0.0008 (0.0017)	— —	— —	— —	116 (241)	— —	116 (241)
Yellow perch	1.0155 (0.2175)	19,437 (7,442)	11,966 (5,646)	48,549 (15,752)	34,089 (11,655)	30,946 (13,876)	144,987 (25,763)
Smallmouth bass	0.0084 (0.0062)	— —	98 (160)	285 (413)	249 (313)	571 (690)	1,203 (878)
Largemouth bass	(0.0062) (0.0020)	— —	(160) (10)	(413) (266)	(313) (81)	(690) —	(878) (278)
Rock bass	0.0496 (0.0358)	— —	26 (54)	3,543 (4,666)	2,825 (1,695)	694 (905)	7,088 (5,046)
Sunfish	0.0222 (0.0155)	13 (21)	110 (138)	417 (468)	878 (1,477)	2,537 (1,532)	3,165 (2,183)
Crappie	0.0001 (0.0002)	— —	— —	— —	15 (30)	— —	15 (30)
White sucker	0.0005 (0.0007)	20 (44)	40 (82)	— —	5 (11)	— —	65 (94)
Bullhead	0.0112 (0.0104)	— —	150 (309)	267 (156)	1,163 (1,429)	21 (35)	1,601 (1,471)
Channel catfish	0.0002 (0.0004)	— —	— —	— —	30 (60)	— —	30 (60)
Angler hours		8,411 (2,926)	12,587 (2,331)	41,265 (11,450)	44,707 (7,632)	35,799 (9,373)	142,769 (17,065)
Angler trips		2,077 (609)	4,870 (1,096)	12,632 (3,343)	17,588 (12,889)	14,331 (3,273)	51,498 (4,814)

Table 9. Monthly size frequency (%) of perch harvested from Les Cheneaux, May-August 1986.

Length (inches)	Month				Total
	May	Jun	Jul	Aug	
≤5.0	1.0	—	—	—	0.2
5.0-5.4	—	0.3	—	4.8	0.4
5.5-5.9	—	—	1.6	—	0.4
6.0-6.4	4.5	5.0	1.6	—	3.8
6.5-6.9	11.2	14.8	9.6	4.8	12.5
7.0-7.4	14.6	34.0	32.8	19.0	29.8
7.5-7.9	15.6	16.1	21.6	23.8	17.8
8.0-8.4	12.2	12.1	17.6	23.8	13.9
8.5-8.9	9.0	6.2	6.4	19.0	7.2
9.0-9.4	9.0	4.8	3.2	—	4.9
9.5-9.9	6.7	2.0	4.0	—	3.2
10.0-10.4	4.4	2.4	—	—	2.1
10.5-10.9	4.4	0.3	0.8	—	1.1
11.0-11.4	4.4	1.7	0.8	—	1.9
11.5-11.9	—	—	—	—	—
12.0-12.4	1.0	—	—	4.8	0.4
12.5-12.9	—	—	—	—	—
13.0-13.4	—	0.3	—	—	0.2
13.5-13.9	—	—	—	—	—
14.0-14.4	—	—	—	—	—
14.5-14.9	1.0	—	—	—	0.2
Total number of fish	89	291	125	21	526

Table 10. Average length at age of Les Cheneaux perch based on fall and spring scale samples, 1969-86. (Number of fish sampled in parentheses.)

Age	Fall samples			Spring samples	
	1969-82	1985	1986	1985	1986
II	6.0 —	5.9 (13)	5.7 (13)	5.1 (2)	4.8 (13)
III	7.0 —	6.7 (38)	6.7 (8)	5.5 (19)	6.4 (18)
IV	8.2 —	7.7 (33)	7.6 (58)	6.8 (44)	7.9 (26)
V	9.2 —	8.5 (26)	8.5 (32)	8.1 (38)	9.0 (8)
VI	10.8 —	9.0 (9)	9.4 (18)	8.7 (36)	10.1 (4)
VII	11.6 —	9.9 (14)	10.4 (10)	9.7 (16)	10.3 (3)
VIII	12.1 —	10.4 (1)	10.9 (10)	10.6 (11)	11.1 (1)
IX	— —	12.4 (2)	11.8 (3)	11.1 (9)	— —
X	— —	— —	12.0 (2)	12.1 (18)	— —
XI	— —	— —	12.3 (1)	— —	— —
XII	— —	— —	13.9 (1)	— —	12.8 (1)

CHAPTER 2. TOURISM RELATED TO RECREATIONAL FISHING IN LES CHENEAUX ISLANDS: DEMOGRAPHIC PROFILE AND ECONOMIC IMPACT

INTRODUCTION

This chapter examines demographic and economic characteristics of tourism related to recreational fishing in the Les Cheneaux area. Relevant information was collected on-site in two economic surveys during the 1986 fishing seasons. The primary economic questions addressed in this report are: (1) What are total non-local angler expenditures in the area? (2) How much is the income of residents in the area increased as a result of the fishery?

In addition, this chapter provides information about angler demographics, trip characteristics, and anglers' evaluation of their recreation experience in the Les Cheneaux area. This information should be useful to local economic development planners and local business owners.

The next section describes survey procedures and discusses associated sampling issues. The third section presents demographic information about anglers fishing during the open-water season, during which most of the non-local fishing occurs. The fourth section presents comparable information for the ice fishing season. The fifth section reports on estimated tourist expenditures and provides estimates of the increases in local income induced by the tourist industry under current circumstances. It also examines the potential economic impact of alternative proposals to regulate the fishery.

SURVEY DESIGN

The major focus of this chapter is the economic impact on the Les Cheneaux area of fishing-related tourism. Because most of the tourism occurs during the open-water fishery, collection of the data relevant to this analysis occurred primarily in the summer months. The economic impact survey (Survey 2) was in the field from May 6 through August 16, 1986. The questionnaire and the codebook are provided as attachments to the report (Appendices 3 and 4). The survey was designed to provide a random sample of angler days. However, we have identified two different sampling problems in achieving this goal which may offset one another.

The first problem is associated with the difficulties of gaining multiple interviews from an angler when he is on-site for multiple days. In order to achieve a random sample of angler-days, individuals should be interviewed more than once if the interviewer encountered them at interview sites more than once during their stay. In practice, however, individuals generally refused to participate in a second (or subsequent) interview. As a result, the probability of

sampling an angler-day of any angler declined with the number of days on the site. This effect implies that an angler-day of a day visitor had the highest probability of being sampled.

The second sampling problem occurred due to differential access to different types of anglers. Respondents were interviewed at land sites identified as good locations to find recreational anglers. Resorts, public launches, campgrounds/RV parks, and a few shoreline fishing sites were included. Overnight tourists at resorts were very cooperative, whereas users of the public launches were in a great hurry to launch and land their boats and were more likely to refuse to answer. "Summer resident" is the other major non-local group we identified. Many summer residents use the public launches to launch their boats when they arrive in Les Cheneaux, then keep their boat at their own dock for the rest of the summer. Alternatively, if their local residency is intermittent, they may take their boat in and out of the water several times. Some of the most wealthy summer residents have their own launches and so would never appear at the public launch.

For generating a random sample of representative angler-days, for day-visitors and overnight tourists, this differential access works in the opposite direction of the previous bias, so it is unclear for which group the probability of sampling an angler-day is lower. In contrast, both effects suggest undersampling of angler-days for summer residents.

Due to the differences in sampling rates of angler days by category of tourist, we report the frequency distributions of angler characteristics separately by category of tourist (overnight tourists, summer residents, and day visitor). The estimates of local and tourist shares of angler-days for the economic impact analysis are derived from creel census interviews, which were not subject to these sampling biases.

Anglers from both the ice fishing and open-water seasons were interviewed with a survey instrument designed to assess the value of the fishery to the recreational anglers (Survey 1, Appendices 5 and 6). The survey also provided information on angler demographics and trip characteristics. To characterize the ice-fishing season, we examined demographic data from Survey 1. To estimate tourist expenditures during the winter season, we employed expenditure estimates based on the open-water season data. The estimated number of non-local angler days in the ice-fishing season was very small (2,324) relative to the number in the open-water season (82,673). Consequently, we chose not to field the non-local expenditures survey for the winter fishery.

Survey 1 was designed to be a representative sample of anglers, (not angler-days as with Survey 2). It is inevitable, however, that the sampling probability varied with the frequency of participation: local residents with more than 20 trips during the season may have had a probability approaching one of being in the sample. For this report, we were primarily interested in non-local participants, who fish much less frequently than local residents in the winter. Within the non-local group, the variation in sampling probability was far lower.

In reporting the ice-fishing season results, we separate the data into three categories: "overnight stays", "day visits", and "local residents". The "overnight stays" category includes anglers staying at resorts as well as anglers staying at their second homes. We were not able to identify separately these latter two groups of anglers, as we did in Survey 2. In other words, the winter category "overnight stays" is comparable to the combined summer categories, "overnight tourists" and "summer residents". Unlike Survey 2, Survey 1 provides information about local anglers because we were interested in assessing the recreational value of the fishery accruing to all participants.

RESULTS

PROFILE OF PARTICIPATION—SUMMER FISHERY

In this section we report data for the summer fishery from Survey 2. We provide data on demographic characteristics of anglers, anglers' history of visiting the Les Cheneaux area, trip characteristics, and anglers' reasons for coming to Les Cheneaux. As noted above, the survey was designed to provide a representative sample of angler-days (not anglers). In practice, however, it looks more like a survey of anglers due to respondents' refusals to participate in multiple interviews. Of the total sample of 137, 105 were overnight tourists, 27 were summer residents, and 5 were day visitors.

Demographic profile

Most summer anglers interviewed were from Michigan (Table 11). Of the 40 out-of-state anglers interviewed (29% of the total anglers), 28 were from Ohio, 4 were from Indiana, 2 were from each of Florida, Kentucky, and Illinois, and 1 was from Wisconsin. The one out-of-state day visitor was passing through to another site. For the distribution of interviewees by city of origin, see page 4 of Appendix 4.

Family income was in the \$25,001-50,000 range for half of the interviewees; for an additional 16%, family income exceeded \$50,000 (Table 12). The income distribution was similar across the three categories of anglers—overnight tourists, summer residents, and day visitors. The overnight tourist group, however, included more families with incomes at high and low ends of the distribution than the other categories.

History of visits to the Les Cheneaux area

Only 8% of the summer anglers interviewed had not been to the Les Cheneaux before 1986. This pattern was observed across all three categories of anglers. The earliest occurrence of an interviewee's first trip to Les Cheneaux was 1926 (Table 13). The first trip to Les Cheneaux occurred in the 1960's or later for a substantial portion of current anglers. The

largest single category (34% of all interviewees) included individuals whose first trip occurred in the 1980s. Overnight tourists were more likely to have started coming recently than summer residents or day visitors.

Sixty percent of the interviewees learned about the Les Cheneaux area from friends (Table 14). However, the summer homeowners were quite different from the other groups: most learned about it from their families.

Trip characteristics

Of all those interviewed, 60% expected to make only one trip to the Les Cheneaux area in 1986 and 18% expected to make two trips (Table 15). Day visitors and individuals who own homes (summer residents) had the highest visitation rates. Their mean numbers of trips were 4.2 and 4.3, respectively, compared to 1.4 for overnight tourists.

Fishermen were asked how long they expected to stay in the Les Cheneaux area (Table 16). Data were sorted by number of nights a person stayed, so day visitors reported zero nights. Overnight tourists tended to stay in increments of weeks. The mean number of nights for overnight tourists and summer residents were 9 and 10, respectively. Of the 40 overnight tourists staying for 1 week, 34 stayed in a rental cottage or cabin. Of the 21 overnight tourists staying for 2 weeks, 17 stayed in a rental cottage or cabin. The summer residents we interviewed were far more likely than overnight tourists to take trips of less than 1 week.

Anglers were asked how many other people came with them to the Les Cheneaux area on this trip (Table 17). Groups of two, three, or four people were the most common, accounting for 75% of all interviewed. Across all interviewees, 33% of their groups included children: 15 groups brought 1 child, 19 groups brought 2 children, 7 groups brought 3 children, and 5 groups brought 4 children. Mean group size across all categories was 4.1 individuals; groups visiting only for the day tended to be smaller (mean = 2.4). The respondent typically was not paying for all members of the party. The average numbers of people whose expenses were paid by respondent were 2.8 for overnight tourists, 2.3 for summer residents, and 1.4 for day visitors. The number of adults whose expenses were covered by the respondent were yet smaller for overnight tourists (2.1) and summer residents (1.7).

Fishermen were asked which species of fish they came to catch (Table 18). Some indicated they were targeting multiple species. Perch were most often sought, with 70% of the interviewees indicating they directed partial or total fishing time to this species. Fifty-eight percent of all respondents indicated they directed partial or total fishing time to species other than those identified in the questionnaire; they usually were referring to bass and pike. Among all interviewees from the open-water season, 29% directed at least some of their fishing effort to herring, 15% directed effort to trout/salmon, and 3% directed effort to smelt.

Evaluation of recreation experience

Summer anglers were asked to rank the relative importance of six reasons for coming to the Les Cheneaux area (Table 19). Across all categories of anglers, the following reasons for coming to the Les Cheneaux area were cited as the primary one by the percentage of respondents (across all groups) indicated below:

Quality of fishing	51.1%
Beauty of area	26.6%
Visit relatives or friends	12.2%
Familiarity of site	5.0%
Quality of swimming or boating	4.3%
Quality of services	0.7%

Overall, quality of fishing was the most important criterion for coming to the Les Cheneaux area—50% of the respondents listed it as their first reason, and 80% of the respondents listed it as their first or second reason. Beauty of the area was most often cited as the second reason for coming to the Les Cheneaux area. Note in Table 19 that summer residents reversed the order of the primary reasons: "beauty of the area" topped "quality of fishing" by a factor of 2:1. All day visitors said that quality of fishing was their primary reason for coming to Les Cheneaux. Only seven overnight tourists noted "other influences" on their decision to visit Les Cheneaux, which included: "relax, vacation, hunting, escape, protected waters, new area, like the area, and non-polluted area."

PROFILE OF PARTICIPATION - WINTER FISHERY

In this section we report data on the winter fishery from Survey 1. The discussion follows the same categories as above. However, Survey 1 was designed for a different purpose so the variables are somewhat different. In particular, anglers in the 1985-86 fishery were asked about their participation in the fishery during the previous year (1984-85) because we wanted to know about actual participation in two full seasons. As noted above, the survey was designed to provide a representative sample of anglers though it is inevitable that the probability of an angler being interviewed increased with the frequency (and duration) of visits. Of the total sample of 130 respondents, 45 were overnight tourists, 39 were non-local day visitors, and 46 were local residents. The local proportion, 35%, was comparable to the 36% local share observed in the creel survey.

Demographic profile

All 130 of the fishermen interviewed during the winter economic survey lived in Michigan. For their city of origin, see pages 14-18 in the codebook (Appendix 4).

The majority of the winter anglers interviewed were white males. Exceptions included six native American males among the day visitors, accounting for 15.4% of that group, and three white females in the local group, accounting for 6.5% of that group.

The two most frequent answers for occupation were "other craftsmen, and kindred workers" and "unskilled non-farm laborers".⁶ Each of the above occupations included 19% of the day visitors. Among overnight interviewees, 30% were craftsmen and 11% were laborers. For local anglers, the most common occupation was unskilled non-farm laborers (30.4% of respondents).

Fishermen who took overnight trips tended to have higher family incomes and higher wages than the other two groups (Tables 20 and 21). Among the respondents, the median income category for overnight tourists was \$25,001-35,000 compared to \$20,001-25,000 for day visitors and \$15,000-20,000 for local residents.

Again the overnight tourists had a fairly different employment pattern than anglers in the other groups: over 80% were employed and about 15% were retired (Table 22). Among day visitors about 1 of 5 were unemployed. The share of retirees was the same as for overnight tourists, but the employment rate was lower. By contrast, more local winter fishermen were retired or unemployed than were employed.

The average age of winter anglers was 45 years, with no significant difference among overnight tourists, day visitors, and local residents. Day visitors spanned the widest range, from 22 to 79 years old.

Trip characteristics

The number of fishing trips anglers made to the Les Cheneaux during winter 1984-85 varied markedly across the different types of winter anglers we interviewed. For day visitors, the total number of ice fishing trips ranged from 1 to 100, with an average of 24.7 trips (N = 39). Local anglers had taken approximately the same range in trips (4-130), but averaged twice as many trips (55.3, N = 46). In contrast, overnight tourists took an average of 2.4 trips (N = 45) with a range of 1 to 8 trips.

Non-local fishermen who also ice fished in the Les Cheneaux area during the 1984-85 season were asked how long they stayed in the area per trip. They (N = 43) reported an average stay of 4.44 nights and 3.86 days on the first trip last season.

The primary purpose of trips to the site was, overwhelmingly, fishing (Table 23). Five choices which were never marked as a primary purpose were hiking, boating, camping, touring, and hunting. The category "other" was most often chosen by people who had come to visit friends in the area.

⁶Tables with complete occupational distributions by type of participant are not presented in the text, but are available upon request from the Dr. Jones.

Winter non-local anglers were asked how many people drove with them to the Les Cheneaux area. For day visitors, the average was 2.2 people per party (N = 39). For overnight tourists, the average was 3.3 people per party (N = 45). Thus, groups of tourist fishermen who traveled greater distances and stayed overnight were much larger. Among local winter anglers, the average size of the fishing party was 1.33 anglers (N = 46).

Perch was the species most often targeted by participants in the winter fishery (Table 24). A small percentage of these people fished for trout/salmon or herring (usually during other seasons). Local anglers were apparently the most diverse fishers - perch accounted for fewer than half of their responses.

Evaluation of recreation experience

Fishermen were asked to rank the relative importance of four reasons for coming to the Les Cheneaux area: number of fish caught, size of fish caught, familiarity with the area, and quality of the tourist services (Table 25). Size of fish and number of fish were the most important reasons to all categories of fishermen. Familiarity of site was identified as important much more frequently by overnight tourists than by day visitors.

TOURIST EXPENDITURES AND ECONOMIC IMPACT

Tourist expenditures

A major goal of Survey 2 was to generate data from which we could estimate total fishing-related tourist expenditures in the Les Cheneaux area. In the survey, we asked individuals to report the expenses they incurred for their party during the last 24 hours. We specifically distinguished expenses (costs allocated to the period) from expenditures (cash outlay in the period). In other words, if they ate their meals at a restaurant, we recorded how much they spent. However, if they bought groceries for the week, we asked them to estimate the pro-rata share of groceries for the last day. The exception was for large capital items which they take home with them after the short trip period. In this case, we asked for capital expenditures. Results are reported in Table 26.

Day visitors spent very little money relative to the other two groups. Their average expenses were \$11/day, with fuel representing almost half of that amount. Overnight tourists incurred the highest average expenses, \$87/day. Summer residents spent on average \$54/day for their parties. When the \$25 mean lodging costs are deducted from overnight tourists' expenses, the two groups expenses were very similar.

Summer residents also contribute to the community through property tax payment. Though part-year residences comprise a significant portion of the tax base, it was beyond the scope of this study to examine the extent to which property ownership is influenced by the

quality of the fishery. The results reported in Table 19 suggest that beauty of the area is the most important reason for angler/summer residents to visit the site. Quality of the fishing is a close second among the second-home owners who are anglers, but we do not know what proportion of all second-home owners the anglers represent.

The single largest expense category was food and beverage, averaging \$34/day (excluding day-visitors). Lodging costs varied by type of lodging, as illustrated in Table 28. Respondents staying in hotels or cabins spent \$31 per night on average whereas those staying in tents or trailers spent only \$7 per night on average. In addition, individuals purchased bait and tackle (fishing expenses) and, in a few cases, fishing rods and other capital equipment. A few individuals purchased capital equipment for recreation, including one summer resident who bought a boat for \$6,500. Excluding the boat purchase, average capital and operating expenditures for fishing and recreation were \$14/day for overnight tourists and \$10/day for summer residents.

These daily expense estimates are comparable to estimates derived from a statewide study of anglers.⁷ For yellow perch anglers in the MDNR study, overnight trip expenditures in the local (tourist) area were \$97 per day, with an average trip length of 7 days. Day trip expenditures for yellow perch anglers were \$7 per day.

We did not collect information about expenses incurred by anglers in the winter fishery. We assume that expenses are comparable across both seasons for each category of tourist. This treatment is consistent with the MDNR study (which does not report expenses separately by season).

Economic impact

The direct economic impact to the local community of tourist purchases depends upon the share of total expenditures which accrues to members of the community as income (in the form of wages, rents, or profits) rather than being paid out to external suppliers or owners. Further indirect income effects will occur as that incremental local income is spent. The process potentially will cycle through several rounds of effects. For small geographic areas, however, this income multiplier effect will be very small because income rapidly leaks away to other parts of the national economy in the form of payments for goods manufactured outside of the area and profits, interest and rent to owners of property who live elsewhere. Various studies have produced income multiplier estimates ranging from 0.25 to 0.80; in other words,

⁷Page 200 in Travel and Tourism in Michigan: A statistical profile. Research Monograph 1. Michigan State University, Travel Tourism and Recreation Resource Center. First Edition 1986.

local income increased \$0.25-\$0.80 per \$1 tourist expenditure in the area.³ Given the range of multiplier estimates, we calculated a range for the local income effect with upper and lower bounds of 0.70 and 0.35.

To complete the calculation we needed an estimate of the number of tourist angler-days at Les Cheneaux. We derived our estimate from plane counts for the open-water season and from ground counts for the ice fishing season (Chapter 1). We calculated the tourist and local shares of anglers from the creel census. Unfortunately, we were not able to derive participation rates for our more detailed categories from the creel census. We therefore assumed that the sampling shares observed for the non-local groups in the surveys were representative of the actual population. As discussed in the section on survey design, the estimated shares of day visitors and overnight tourists are subject to biases which work in opposite directions. The net effect is unclear. Because day visitors incur significantly lower expenses than the other groups, an underestimate of the day visitor share would result in overestimating expenses, but we do not think this is a serious problem.

Finally, we need to make an adjustment to the estimated expenditures per angler day for number of anglers in the tourist party whose expenses were paid by the survey respondent. Because this information was not directly solicited from respondents, we bracket our estimate by reasonable upper and lower bounds. Case I assumes the respondent is the only angler in the tourist party paid for by the respondent; Case II assumes all adults in the party were anglers. Under the second assumption, overnight tourists averaged 2.1 anglers per party, summer residents 1.7, and day visitors 1.4.

Table 28 reports our estimate that local income in Les Cheneaux was augmented by \$1.2-\$4.4 million as a result of non-local fishing-related expenditures. Ninety-eight percent of the increase in income accrues during the summer season. We have also estimated the value of the perch caught (and presumably consumed) by local anglers. Because local residents are primarily retired, their fish catch may be an important supplement to their diet. We assigned the wholesale value of \$1.25 per perch to the local catch. The estimated contribution to local income is \$63,000 in the summer and \$48,000 in the winter, based on the 1985-86 local catch.

As noted above, the quality of the fishery may have a small effect on property tax revenues. Examining this effect was beyond the scope of the study.

³B. H. Archer and C. B. Owen, "Towards a Regional Multiplier", Regional Studies, Volume 5, pages 289-294 (income multiplier = 0.25).

R. J. Kalter and W. B. Lord. "Measurement of the impact of recreational investments on a local economy". American Journal Agriculture Econ, 50:243-257 (income multiplier = 0.80).

H. B. Gamble. "Community income from outdoor recreation" Governor of Maryland's Recreation Conference 1965 (income multiplier = 0.48 for hunter-fishermen; 0.35 for tourists, 0.50 for summer homeowners).

Implications of alternative policy proposals

In Survey 1, we asked a series of questions to assess how participation in the yellow perch fishery would change under expected catch scenarios associated with alternative policy proposals of a 7-inch minimum size limit and an 8-inch minimum size limit. We also presented a hypothetical situation, referred to as "the downside case", in which the perch population and its sport catch were reduced by 50%. For each context, we derived from the fishery model the expected equilibrium (long-term) catch scenarios (Table 29). For the baseline case, we employed the catch actually observed during the 1980 creel census survey of the Les Cheneaux area when, as now, there was no minimum size limit on perch. It was assumed that the current fishery would be similar to that in 1980.

A substantial majority (70%) of the interviewees preferred perch catches from the 7-inch minimum size limit scenario to the baseline case, only a slight majority of respondents (53%) preferred the 8-inch size limit to the baseline case, and an overwhelming majority preferred the base case to the downside case (Tables 30-32). However, despite the strong preferences for the first scenario and against the third scenario, relatively few respondents indicated they would change the number or length of trips they took if the predicted change in catch were to occur. Of 89 anglers who answered questions about the 7-inch minimum size limit, 5 (6%) indicated they would take more trips and 5 (6%) indicated they would take fewer trips. In addition, one individual indicated he would take longer trips (Table 30). Among 89 anglers answering the questions about the 8-inch minimum size limit, 4 anglers indicated they would take more trips, 11 would take fewer trips, and 3 would take shorter trips (Table 31). For the downside case, 17 (23%) of the 77 anglers who gave usable answers said they would take fewer trips or stop fishing here and 2 others said they would take shorter trips (Table 31). No one said they would make more trips.

The willingness to sacrifice some quantity to catch larger fish displayed in this series of questions is consistent with the creel survey responses about catch preferences (page 8). The surprising result from Survey 1 was how little participation rates would change in response to changes in fishing quality. Many of the respondents who preferred the 7-inch minimum size limit scenario indicated a strong preference for the size limit catch rate. In response to another question, 45/55 indicated a willingness to travel farther to get to a hypothetical "new" site which offered this type of fishery. The range in the travel distance was 2-200 miles, with a median of 20 miles. Apparently, time constraints (particularly on vacations and weekends) would substantially limit increases in the participation rate despite preferences for the 7-inch minimum size limit context. Whether or not better fishing would attract new anglers to the area is unclear.

Even with the substantial, (50%), decline in quality in the downside case, only 23% of the anglers would decrease the numbers of trips. This result suggests the importance of other

factors, such as the beauty of the area and habitual behavior in maintaining participation in the Les Cheneaux fishery.

It is important to note that these data were derived from individuals' responses to hypothetical questions. Approximately 25% of questionnaires were missing responses on how the number of trips would change and approximately 2-5% of the responses were inconsistent, suggesting how difficult it is for individuals to respond to hypothetical situations. Consequently, the survey results may not be precise measures of how anglers would actually respond if perch size limits were changed.

Table 11. State of origin for summer anglers in the Les Cheneaux area.

Origin	Overnight tourists		Summer residents		Day visitors	
	N	%	N	%	N	%
Michigan	73	69.5	20	74.1	4	80.0
Out-of-state	32	30.5	7	25.9	1	20.0
Total	105	100.0	27	100.0	5	100.0

Table 12. Total annual family income for summer anglers in the Les Cheneaux area.

Income range (in thousands)	Overnight tourists		Summer residents		Day visitors	
	N	%	N	%	N	%
5-10	3	2.9	1	3.7	0	0.0
10-15	6	5.7	0	0.0	0	0.0
15-20	8	7.6	2	7.4	0	0.0
20-25	5	4.8	4	14.8	1	20.0
25-35	26	24.8	8	29.6	2	40.0
35-50	25	23.8	8	29.6	1	20.0
50-75	13	12.4	2	7.4	1	20.0
75+	4	3.8	2	7.4	0	0.0
No response	15	14.3	0	0.0	0	0.0
Total	105	100.0	27	100.0	5	100.0

Table 13. Year of first fishing trip to the Les Cheneaux area for summer anglers.

Year	Overnight tourists		Summer residents		Day visitors	
	N	%	N	%	N	%
1920-29	0	0.0	1	3.7	0	0.0
1930-39	0	0.0	1	3.7	0	0.0
1940-49	0	0.0	3	11.1	0	0.0
1950-59	8	8.2	2	7.4	0	0.0
1960-69	16	16.5	7	25.9	2	40.0
1970-79	27	27.8	2	7.4	2	40.0
1980-85	37	38.1	9	33.3	1	20.0
1986 ¹	9	9.3	2	7.4	0	0.0
Total	97	100.0	27	100.0	5	100.0

¹All of these persons were visiting the area for the first time.

Table 14. How summer visitors learned about the Les Cheneaux area.

Source	Overnight tourists		Summer residents		Day visitors	
	N	%	N	%	N	%
Family	22	21.0	14	51.9	1	20.0
Friends	68	64.8	11	40.7	3	60.0
Advertisement	6	5.7	1	3.7	0	0.0
Other	9	8.6	1	3.7	1	20.0
Total	105	100.0	27	100.0	5	100.0

Table 15. Expected number of trips to the Les Cheneaux area in 1986 for summer anglers.

Trips	Overnight tourists		Summer residents		Day visitors	
	N	%	N	%	N	%
1	73	69.5	8	29.6	1	20.0
2	18	17.1	4	14.8	2	40.0
3	11	10.5	2	7.4	0	0.0
4	1	1.0	7	25.9	0	0.0
5	1	1.0	3	11.1	0	0.0
6	0	0.0	2	7.4	1	20.0
10	0	0.0	0	0.0	1	20.0
12	1	1.0	0	0.0	0	0.0
39	0	0.0	1	3.7	0	0.0
Total sampled	105	100.0	27	100.0	5	100.0
Mean number of trips	1.4		4.3		4.2	

Table 16. Expected length of current trip for anglers staying overnight.

Number of nights	Overnight tourists		Summer residents	
	N	%	N	%
1	2	1.9	1	3.7
2	6	5.7	3	11.1
3	8	7.6	7	25.9
4	6	5.7	1	3.7
5	1	1.0	2	7.4
6	4	3.8	2	7.4
7	40	38.1	3	11.1
8-14	31	29.6	6	22.2
15-21	3	3.0	0	0.0
22+	4	3.9	2	7.4
Total sampled	105	100.0	27	100.0
Mean number of nights		8.9		9.9

Table 17. Group size for summer anglers in the Les Cheneaux area.¹

Group size	Overnight tourists		Summer residents		Day visitors	
	N	%	N	%	N	%
1	0	0.0	1	3.7	0	0.0
2	32	30.5	10	37.0	4	80.0
3	17	16.2	6	22.2	0	0.0
4	25	23.8	5	18.5	1	20.0
5	12	11.4	2	7.4	0	0.0
6-10	15	14.3	2	7.4	0	0.0
11-20	2	2.0	1	3.7	0	0.0
25	2	1.9	0	0.0	0	0.0
Total sampled	105	100.0	27	100.0	5	100.0
Mean group size	4.3		3.6		2.4	

¹ Group size refers to number of people who travelled to Les Cheneaux with questionnaire respondent.

Table 18. Type of fish targeted during this trip for summer anglers in the Les Cheneaux area.

Species	Overnight tourists		Summer residents		Day visitors	
	N	%	N	%	N	%
Yellow perch	77	73.0	17	63.0	2	40.0
Trout/salmon	10	9.5	8	29.6	2	40.0
Herring	30	28.6	9	33.3	0	0.0
Smelt	1	1.0	3	11.1	0	0.0
Other species	65	61.0	13	48.1	1	20.0
Total anglers interviewed	105 ¹		27 ¹		5 ¹	

¹ Column totals exceed the number sampled because multiple responses occurred. Percentage refer to percent of anglers sampled (not percent of responses).

Table 19. Priority ranking of reasons for visiting the Les Cheneaux area by summer fishermen (number of respondents in parentheses).¹

Rank and reason	Overnight tourists (N = 105)		Summer residents (N = 27)		Day visitors (N = 5)	
	N	%	N	%	N	%
<u>First priority</u>						
Quality of fishing	59	56.2	6	22.2	5	100.0
Beauty of area	25	23.8	11	40.7	0	0.0
Visit relatives/friends	7	6.7	9	33.3	0	0.0
Familiarity of site	5	4.8	1	3.7	0	0.0
Quality of swimming or boating experience	6	5.7	0	0.0	0	0.0
Quality of services	1	1.0	0	0.0	0	0.0
<u>Second priority</u>						
Quality of fishing	31	29.5	11	40.7	0	0.0
Beauty of area	43	41.0	9	33.3	2	40.0
Visit relatives/friends	9	8.6	2	7.4	1	20.0
Familiarity of site	6	5.7	2	7.4	0	0.0
Quality of swimming or boating experience	5	4.8	1	3.7	0	0.0
Quality of services	1	1.0	0	0.0	0	0.0
<u>Third priority</u>						
Quality of fishing	10	9.5	6	22.2	0	0.0
Beauty of area	16	15.2	2	7.4	1	20.0
Visit relatives/friends	2	1.9	1	3.7	0	0.0
Familiarity of site	13	12.4	6	22.2	0	0.0
Quality of swimming or boating experience	8	7.6	4	14.8	0	0.0
Quality of services	4	3.8	1	3.7	0	0.0
<u>Fourth priority</u>						
Quality of fishing	0	0.0	1	3.7	0	0.0
Beauty of area	1	1.0	0	0.0	0	0.0
Visit relatives/friends	12	11.4	2	7.4	1	20.0
Familiarity of site	1	1.0	1	3.7	0	0.0
Quality of swimming or boating experience	8	7.6	5	18.5	1	20.0
Quality of services	7	6.7	6	22.2	0	0.0

¹ Respondents to surveys often can rank first couple of reasons and a last reason. Consequently, the sum of the N's for each of the three columns does not equal 4 times the number of respondents and the percentages do not total to 100% or 400%. The percentages are percent of total respondents: they were calculated by dividing each N by the number of respondents (and multiplying by 100 to get percent).

Table 20. Total annual family income for winter anglers in the Les Cheneaux area.

Income range (in thousands)	Overnight tourists		Day visitors		Local residents	
	N	%	N	%	N	%
0-5	1	2.2	1	2.6	3	6.5
5-10	0	0.0	5	12.8	6	13.0
10-15	6	13.3	8	20.5	9	19.6
15-20	4	8.9	3	7.7	9	19.6
20-25	4	8.9	5	12.8	4	8.7
25-35	15	33.3	7	17.9	7	15.2
35-50	9	20.0	5	12.8	4	8.7
50-75	3	6.7	4	10.3	1	2.2
75+	1	2.2	0	0.0	0	0.0
Missing	2	4.4	1	2.5	3	6.5
Total	45	100.0	39	100.0	46	100.0

Table 21. Wage from primary job for winter anglers in the Les Cheneaux area.

Hourly wage	Overnight tourists		Day visitors		Local residents	
	N	%	N	%	N	%
\$0-2.50	0	0.0	0	0.0	0	0.0
2.51-5.00	0	0.0	2	5.1	4	8.7
5.01-7.50	2	4.4	5	12.8	10	21.7
7.51-10.00	3	6.7	5	12.8	6	13.0
10.01-12.50	5	11.1	2	5.1	5	10.9
12.51-15.00	6	13.3	2	5.1	1	2.2
15.01-20.00	5	11.1	4	10.3	3	6.5
20.01-30.00	0	0.0	1	2.6	0	0.0
30.01+	0	0.0	2	5.1	0	0.0
Missing	24	53.3	16	41.0	17	37.0
Total	45	100.0	39	100.0	46	100.0

Table 22. Current employment status for winter anglers in the Les Cheneaux area.

Status	Overnight tourists		Day visitors		Local residents	
	N	%	N	%	N	%
Employed	37	82.2	25	64.1	20	43.5
Retired	7	15.6	6	15.4	13	28.3
Unemployed	1	2.2	8	20.5	13	28.3
Total	45	100.0	39	100.0	46	100.0

Table 23. Primary purpose of trip for winter anglers in the Les Cheneaux area.

Purpose	Overnight tourists		Day visitors		Local residents	
	N	%	N	%	N	%
Fishing	40	88.9	38	97.4	45	97.8
Other	5	11.1	0	0.0	0	0.0
No response	0	0.0	1	2.6	1	2.2
Total	45	100.0	39	100.0	46	100.0

Table 24. Species of fish targeted (in either summer or winter) by winter anglers in the Les Cheneaux area.

Species	Overnight tourists		Day visitors		Local residents	
	N	%	N	%	N	%
Yellow perch	30	66.7	19	48.7	11	23.6
Trout/salmon	7	15.6	4	10.3	4	8.7
Herring	8	17.8	5	12.8	6	13.0
Smelt	2	4.4	1	2.6	1	2.2
Other	5	11.1	6	15.4	4	8.7
Total	45 ¹		39		46	

¹ Column totals may exceed the number sampled because multiple responses occurred. Percentages refer to percent of anglers interviewed (not percent of responses).

Table 25. Priority of reasons for visiting the Les Cheneaux area by winter fishermen.
(Number of respondents in parentheses.)¹

Rank and reason	Overnight tourists (45)		Day visitors (39)		Local residents (46)	
	N	%	N	%	N	%
<u>First priority</u>						
Number of fish	12	26.7	10	25.6	13	28.3
Size of fish	17	37.8	12	30.8	10	21.7
Familiarity of site	14	31.1	4	10.3	7	15.2
Quality of tourist services	1	2.2	0	0.0	0	0.0
<u>Second priority</u>						
Number of fish	10	22.2	7	17.9	9	19.6
Size of fish	10	22.2	4	10.3	10	21.7
Familiarity of site	0	0.0	1	2.6	1	2.2
Quality of tourist services	0	0.0	1	2.6	0	0.0
<u>Third priority</u>						
Number of fish	0	0.0	1	2.6	1	2.2
Size of fish	0	0.0	0	0.0	0	0.0
Familiarity of site	2	4.4	0	0.0	1	2.2
Quality of tourist services	0	0.0	0	0.0	0	0.0
<u>Fourth priority</u>						
Number of fish	0	0.0	0	0.0	0	0.0
Size of fish	0	0.0	0	0.0	0	0.0
Familiarity of site	0	0.0	0	0.0	0	0.0
Quality of tourist services	0	0.0	1	2.6	0	0.0

¹ Respondents to surveys often can rank first couple of reasons and a last reason. Consequently, the sum of the N's for each of the three columns does not equal 4 times the number of respondents and the percentages do not total to 100% or 400%. The percentages are percent of total respondents: they were calculated by dividing each N by the number of respondents (and multiplying by 100 to get percent).

Table 26. Expenses for the 24-hour period prior to interview and capital expenditures incurred during the last 24 hours for nonresident summer anglers.

Class of expenditure	Overnight tourists			Summer residents			Day visitors		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Expenses for current 24-hour period									
Food/beverage	34.11	0	220.00	34.70	0	180.00	1.00	0	5.00
Fuel	11.57	0	59.00	10.22	0	100.00	5.00	0	15.00
Lodging	21.96	0	68.00	0	0	0	0	0	0
Fishing expenses ¹	13.09	0	300.00	5.89	0	100.00	0	0	0
Launch fee	0.24	0	2.00	0.74	0	2.00	1.70	0	2.00
Other	2.86	0	120.00	0.19	0	5.00	3.60	0	18.00
Capital expenditures incurred in last 24 hours									
Fishing equipment	0.48	0	50.00	1.85	0	50.00	0	0	0
Recreation equipment	0.19	0	20.00	240.7 ²	0	6,500.00 ²	0	0	0
Mean total expenditures	87.40			53.59 ³			10.80		

¹ Fishing expenses include bait and tackle and other operating expenses.

² One person bought a \$6,500.00 boat.

³ Mean does not include boat expenditures.

Table 27. Lodging expenses per night for summer overnight tourists, by type of accommodations.

Accommodation	N	Mean expense per night
Hotel	5	30.80
Trailer	22	7.36
Tent	4	6.50
Cabin	74	31.16
Total	105	24.86

Table 28. Estimated local economic impact of Les Cheneaux summer and winter recreational fisheries in 1986.

Source, season, and case type ¹	Estimated number of non-local fishing days	Estimated non-local expenditures	Estimated increase in local income with multipliers 0.35-0.70
Tourist expenditures:			
Summer (4/22/86-9/30/86)	80,349		
Case I		6,215,789	2,175,526-4,351,052
Case II		3,180,210	1,113,074-2,226,147
Winter (12/20/85-4/14/86)	2,324		
Case I		120,944	40,392-80,784
Case II		63,145	22,100-44,201
Total	82,673		
Case I		6,336,733	2,215,918-4,431,836
Case II		3,243,355	1,135,174-2,270,348
Value of local catch:			
Summer		50,700	63,375
Winter		38,000	47,500
Total		88,700	110,875

¹ Case I assumes the survey respondent is the only angler in his tourist party; Case II assumes that all adults in the party were anglers.

Table 29. Predicted distribution of perch catch by size, under alternative policy scenarios.¹

Option	Size group (inches)			Total
	5-7	7-8	8-11	
Current fishery (baseline)	4	3	2	9
7-inch minimum size limit	0	4	3	7
8-inch minimum size limit	0	0	6	6
Downside case	2	1	1	4

¹ The downside case is a hypothetical situation in which the population and sport catch were reduced by 50% from the baseline case.

Table 30. Assessment of relative preferences for baseline fishery and 7-inch minimum size limit policy.

Question and option	Baseline		7-inch minimum size limit		Missing ¹	
	N	%	N	%	N	%
Which fishery would you prefer?						
	24	30	56	70	42	—
If the 7-inch minimum size limit were imposed at Les Cheneaux:						
A. Would you change the number of trips you made to the site?						
More trips	—	—	4	7	1	2
Same number	19	80	23	41	39	93
Fewer trips	1	4	—	—	1	2
Missing	4	16	28	50	—	—
Inconsistent	—	—	1	2	—	—
No opinion	—	—	—	—	1	2
Total anglers	24	100	56	100	42	100
B. Would you change the length of your trips?						
Longer	—	—	1	2	—	—
Same	18	75	27	48	41	98
Shorter	—	—	—	—	—	—
No trips	1	4	—	—	—	—
Missing	5	20	28	50	—	—
No option	—	—	—	—	1	2
Total anglers	24	100	56	100	42	100

¹ In the early version of the questionnaire, we did not ask which fishery they would prefer.

Table 31. Assessment of relative preferences for baseline fishery and 8-inch minimum size limit policy.

Question and option	Baseline		8-inch minimum size limit		Missing ¹	
	N	%	N	%	N	%
Which fishery would you prefer?	36	47	41	53	42	—
If the 8-inch minimum size limit were imposed at Les Cheneaux:						
A. Would you change the number of trips you made to the site?						
More trips	—	—	2	5	2	5
Same number	25	69	14	34	29	71
Fewer trips	1	3	—	—	10	24
Missing	9	25	22	54	—	—
Inconsistent	1	3	3	7	—	—
No opinion	—	—	—	—	1	2
Total anglers	36	100	41	100	42	100
B. Would you change the length of your trips?						
Longer	—	—	—	—	—	—
Same	25	69	19	46	38	93
Shorter	2	6	—	—	1	2
No trips	—	—	—	—	—	—
Missing	9	26	22	54	1	2
No opinion	—	—	—	—	1	2
Total anglers	36	100	41	100	42	100

¹ In the early version of the questionnaire, we did not ask this question.

Table 32. Assessment of relative preferences for baseline fishery and downside case.¹

Question and option	Baseline		Downside case	
	N	%	N	%
Which fishery would you prefer?				
	75	91	7	9
If the very downside case were imposed at Les Cheneaux:				
A. Would you change the number of trips you made to the site?				
More trips	—	—	—	—
Same number	57	76	3	43
Fewer trips	17	23	3	43
Missing	1	1	—	—
Inconsistent	—	—	1	14
No opinion	—	—	—	—
Total anglers	75	100	7	100
B. Would you change the length of your trips?				
Longer	—	—	—	—
Same number	62	83	4	57
Shorter	2	3	—	—
No trips	9	12	3	43
Missing	1	1	—	—
Inconsistent	1	—	—	—
No opinion	—	—	—	—
Total anglers	75	100	7	100

¹ The downside case is a hypothetical situation in which the population and sport catch are reduced by 50%.

CHAPTER 3. DISCUSSION

The five primary objectives of this study (page 3) were met to varying degrees. However, two of these objectives (to provide baseline data for future regulations and to provide information for the best policy and management decisions) cannot be evaluated here. These objectives will be evaluated in the future by MDNR and other management entities interpreting these data in light of existing policies to make decisions for future management.

Objective 1

The first objective was to determine if fishing pressure, catch, catch rate, and perch size have changed for the perch fishery since 1979 and if exploitation rate was as high in 1986 as in 1985. Angling pressure in the winter was essentially the same, but catch in winter 1980 (109,000) was double that for the winters of 1981 and 1986 (about 50,000). This corresponded with a higher catch rate in 1980 (3.4 vs about 1.6 fish per hour). These data are difficult to interpret unless either the fish population or fishery changed drastically between the years or else the survey for winter 1980 was in error. These possibilities are further evaluated below.

The summer fishery for perch also differed among years. Fishing pressure in summer 1986 was 1.6 to 3.5 times higher than in the summers of 1979 and 1980 (143,000, 88,000, and 41,000 hours, respectively). These estimates of effort were based entirely on shore counts of boats. We found in summer 1986 that airplane counts were on average 2.5 times higher than shore counts. Thus, total effort and total catch data for the summers of 1979 and 1980 may have been greatly underestimated. For comparability we used shore count data to make annual comparisons.

Total catch and catch rate also varied among years for the summer fishery. Total catch in 1986 was about 1.4 times higher than in 1979 and 1980. As in the winter fishery, catch rates in the summers of 1986 and 1979 were similar (about 1.0 fish per hour), and were about half of the catch rate in summer 1980 (2.3 fish per hour).

The proportion of the total annual catch taken during the summer was very high in 1986, and varied in 1979 to 1981.

Either large fish population changes, changes in use of the area, or errors in the creel census influenced differences in catch statistics from 1979 to 1981 (Table 5). Tourism probably declined in 1980 due to large increases in the price of gasoline, and this may have drastically reduced total fishing pressure during the summer 1980. Fish density, estimated by fall gill net surveys, was reasonably similar from 1979 to 1981, indicating no large scale population changes (MDNR unpublished records). Also, age structure analyses did not indicate presence of any strong year classes during this time period (also unpublished MDNR records). Creel census data are variable, but confidence limits on catch rate data do not

indicate any change in census accuracy from 1979 to 1981. The actual perch fishery is undoubtedly highly variable, depending on weather and other environmental factors, and we believe that the variability in Table 5 probably reflects actual changes in fishing pressure and success rather than sampling error or fish population changes. Considering this inherent variability in the historic data, it is difficult to estimate the degree of change in the fishery since 1979.

Size of perch caught in 1986 was generally small, with 17% of the fish caught being less than 7 inches and 65% less than 8 inches. But the perch were larger than in 1979-81, when 40% of the catch was less than 7 inches and 80% was less than 8 inches. Small size of fish in the catch can reflect several population characteristics, including slow growth rate or a high exploitation (and low survival) rate.

Exploitation rate, estimated from tag returns, was at least 26.2%, and more likely around 36%. Total mortality rate was probably about 50%, indicating a very high exploitation rate and a low natural mortality.⁴

Growth rate appears to have declined somewhat since 1980. However, the current growth is fairly close to the statewide average for perch. Growth estimates are usually conservative for populations with high exploitation rates and size-selective fisheries. This occurs because faster growing fish are removed from the population earlier by fishing. These data indicate that high mortality rates, rather than poor growth rates, are most likely responsible for the small average size in the Les Cheneaux area perch fishery.

The catch of anglers averaged 3.08 perch per trip with a median size of only 7.3 inches. By contrast, most anglers preferred to catch fewer, larger perch (five 9-inch perch) to more, smaller perch (seven 7-inch fish). Thus, both the size and that quantity of the catch was low, and that could likely lead to a poor recreational experience.

Objective 2

The second objective was to update fish population parameters for mathematical modeling, particularly growth rate, movements, and population size. This objective has been partially met. Growth rate data are complete (Table 10); however, population data from tagging are incompletely analyzed. Tagging data for 1985 are complete for 1 year (the most useful time scale), but 1986 tags have only been at-large for 6 months and returns are still occurring. Also, the tag return rate for 1986 appears to be only three-fourths of the 1985 rate, apparently due to a change in the reward system. We need to evaluate these biases before presenting final population data from tagging. This evaluation will be done in David Lucchesi's thesis, which should be completed by summer 1987.

Population size was estimated to be between 520,000 and 350,000 fish, assuming various growth rates and no in-or-out migration of fish. We plan to refine this estimate in Lucchesi's

thesis using several methods involving return of tags. However, movement data indicate that we are probably dealing with two localized stocks of perch, one around Mackinac Bay and one around Flower Bay. If these stocks are discrete, there may also be additional ones in nearby bays that have been untouched in our tagging but contribute to the total catch. Thus our tag return data may provide only minimum population estimates for the area as a whole.

In summary, we are providing preliminary data for Objective 2 in this report, and plan a complete analysis and population model in a thesis by David Lucchesi in summer 1987.

Objective 3

The third objective was to determine types of participants in the fishery, their importance to the tourist industry, and their value to the local economy.

The winter fishery was equally represented by local residents, day visitors, and overnight tourists. Local residents and day visitors (who live nearby) were often unemployed or retired, so fish caught may well be an important supplement to their diet. The winter fishery was estimated to increase income in the local area by \$88,000 to 128,000, which includes the value of fish as food to local residents. This relatively low economic impact was due to the small number of non-local anglers bringing money into the community to spend on lodging, food, etc., by the anglers who were mainly residents. Winter anglers ranked fish size and number as most important to them, with tourist services being considered unimportant. These anglers mainly came to the area to fish, and perch was their main target species.

The summer fishery was dominated by tourists. A special category of this group is summer residents, who own property in the area but do not live in the area year round or make their living in the area. The creel census indicated that only 13% of the summer anglers resided locally. Over 70% of the summer anglers surveyed in the economic analyses were overnight visitors, 20% were summer residents, and only 4% were day visitors. Year-round residents were excluded from this analysis. It is likely we underestimated the numbers of day visitors and, particularly, the number of summer residents in our analysis.

The summer fishery increased local incomes in the range of \$2.2-4.4 million dollars—about 50 times the effect of the winter fishery. Most of the expenditures were made by overnight tourists for lodging and food with summer residents also making a contribution. Obviously, summer fishing is very important to the local economy.

Summer anglers mainly visited the area for high quality fishing and for the natural beauty of the area. The majority of summer anglers targeted yellow perch as their main species, although herring and other (bass, pike, and salmon/trout) were also important. Many of these people had fished the area before, and learned about it through word-of-mouth.

The economic data largely reflected our previous information about the area (see Introduction). Certainly the catch of fish per trip (cited by both summer and winter anglers as

most important) is low. Anglers' indicated a strong preference for an "improved" fishery (7-inch size limit) over the current fishery, but indicated they would not really change their use of the area under either of these two conditions. Only the "downside" fishery, in which catch declined 50%, elicited a perceived change in angler use. The main reason for this poor fishing appears to be a high exploitation rate by summer and winter anglers.

APPENDICES

- Appendix 1. Creel census schedules.
- Appendix 2. Creel census questionnaire.
- Appendix 3. Economic questionnaire #2 (summer).
- Appendix 4. Codebook for questionnaire #2
- Appendix 5. Economic questionnaire #1 (winter)
- Appendix 6. Codebook for questionnaire #1.

APPENDIX 1

Creel census schedules

Cedarville January 1986 Schedule

Shift A = 6am - 3pm
 Shift B = 10am - 7pm

January 7-31, 1986

<u>Date</u>	<u>Shift</u>	<u>Counts</u>
January 8	A	7am, 11am
9	B	2pm, 5pm
10	A	8am, 12N
11	B	1pm, 4pm
12	A	7am, 11am
13		
14	A	7am, 10am
15	A	8am, 1pm
16	B	3pm, 5pm
17		
18	A	9am, 1pm
19	B	2pm, 4pm
20	B	1pm, 3pm
21		
22		
23	B	3pm, 5pm
24	A	7am, 11pm
25	B	3pm, 5pm
26	A	8am, 12N
27	A	8am, 12N
28		
29	A	9am, 1pm
30		
31	B	1pm, 4pm

Les Cheneaux Creel Census Schedule

May 4 - September 1, 1986

Shift A: May - July 5:30 am - 2:30pm; August 6 am - 3 pm

Shift B: May 12N - 9 pm; June - August 1 pm - 10 pm

Date	Shift	Counts	Date	Shift	Counts	Date	Shift	Counts
May 4			June 11	A	9am, 1pm	July 31	B	1pm, 5pm
5			12	B	3pm, 7pm	Aug. 1		
6			13	A	6am, 10am	2	A	7am, 11am
7	A	8am, 12N	14	A	9am, 1pm	3	B	3pm, 7pm
8	B	2pm, 6pm	15	B	3pm, 7pm	4	B	4pm, 8pm
9	A	6am, 10am	16			5	A	6am, 10am
10	A	7am, 11am	17	A	8am, 12N	6		
11	B	1pm, 4pm	18	B	3pm, 7pm	7		
12			19	B	1pm, 4pm	8	A	8am, 12N
13	A	7am, 11am	20			9	B	
14	B	4pm, 8am	21	B	5pm, 9pm	10	A	6am, 10am
15	A	8am, 12N	22	A	7am, 11am	11		
16			23	B	7pm, 6pm	12	A	7am, 11am
17	B	2pm, 6pm	24	A	7am, 11am	13		
18	A	8am, 12N	25			14	B	2pm, 6pm
19	B	3pm, 7pm	26	A	6am, 10am	15	B	4pm, 8pm
20	B	1pm, 5pm	27			16	B	1pm, 5pm
21			28	B	3pm, 7pm	17	A	6am, 10am
22			29	B	1pm, 5pm	18	A	9am, 1pm
23	A	7am, 11am	30	A	8am, 12N	19		
24	A	6am, 10am	July 1	B	2pm, 6pm	20	B	3pm, 7pm
25	A	9am, 1pm	2			21	A	7am, 11am
26			3			22		
27	A	8am, 12N	4	A	7am, 11am	23	A	8am, 12N
28	A	9am, 1P	5	B	1pm, 5pm	24	B	4pm, 8pm
29			6	B	4pm, 8pm	25		
30	B	4pm, 8pm	7			26	B	2pm, 6pm
31	B	3pm, 7pm	8	B	5pm, 9pm	27	A	9am, 1pm
June 1	B	4pm, 8pm	9			28	B	1pm, 5pm
2	B	2pm, 6pm	10	B	4pm, 8pm	29		
3	B	1pm, 5pm	11	A	8am, 12N	30	B	2pm, 6pm
4			12	A	6am, 10am	31	A	7am, 11am
5	A	6am, 10am	13	B	2pm, 6pm	Sept. 1	A	8am, 12N
6			14	B	4pm, 8pm			
7	A	6am, 10am	15					
8	A	8am, 12N	16	A	6am, 10am			
9			17					
10			18	B	3pm, 7pm			
			19	B				
			20	A	8am, 12N			
			21	A	8am, 12N			
			22	A	7am, 11am			
			23					
			24	B	5pm, 9pm			
			25					
			26	A	9am, 12N			
			27	A	8am, 12N			
			28					
			29	B	4pm, 8pm			
			30	A	8am, 12N			

Cedarville - February 9 - May 3, 1986

Shift A: Feb - May 3 = 6 am - 3 pm

Shift B: Feb = 10 am - 7 pm; March = 11 am - 8 pm; April-May = 12N - 9 pm

Date	Shift	Counts	Date	Shift	Counts
- Feb 9	A	7am, 11am	April 1	A	7am, 9am
10	A	8am, 12N	2		
11			3	B	2pm, 4pm
* 12 WED.	B	2pm, 5pm W→E	4		
13			5	A	7am, 9am
wk. 14	A	7am, 11am	6	B	2pm, 4pm
* 15 SAT.	B	1pm, 4pm E→W	7		
16	A	8am, 11am	8	A	6am, 8am
17			9	B	4pm, 6pm
18	B	3pm, 5pm	10		
19			11	A	8am, 10am
20	A	9am, 1pm	12	B	1pm, 3pm
wk. 21	B	1pm, 3pm	13	A	6am, 8am
22	A	8am, 11am	14	A	7am, 9am
23	B	2pm, 5pm	15		
24			16		
* 25 TUES.	A	6am, 10am W→E	17	A	10am, 12N
26	A	7am, 11am	18	B	5pm, 7pm
27	B	2pm, 5pm	19	A	10am, 12N
wk. 28			20	B	4pm, 6pm
March * 1 SUN	B	12N, 2pm E→W	21		
2	A	6am, 10am	22	B	2pm, 4pm
3			23	A	8am, 10am
4	B	2pm, 4pm	24	B	5pm, 7pm
5			25		
6	B	4pm, 6pm	26	B	6pm, 8pm
wk. 7	A	9am, 11am	27	A	9am, 11am
8	A	8am, 11am	28	B	1pm, 3pm
9	B	2pm, 5pm	29		
10	A	6am, 8am	30	B	6pm, 8pm
11			May 1		
* 12 WED.	A	10am, 12N W→E	2	A	9am, 11am
13			3	A	6am, 8am
wk. 14	B	5pm, 7pm			
* 15 SAT	B	4pm, 6pm E→W			
16	A	7am, 9am			
17	B	3pm, 5pm			
18					
19	A	8am, 10am			
20	A	7am, 9am			
wk. 21					
22	A	6am, 10am			
23	B	12N, 2pm			
24					
25	B	1pm, 3pm			
26					
* 27 THURS.	A	9am, 11am W→E			
wk. 28	A	6am, 8am			
29	B	5pm, 7pm			
30	A	8am, 11am			
31	B	3pm, 5pm			

APPENDIX 2

Creel census interview form

1 2 3 SITE 4 5 MONTH 6 7 DAY OF MONTH 8 9 YEAR 10 DAY OF WEEK
 11 BOAT 1 SHORE 2 PIER 5 RESIDENCE 12 13 14 Trips per day 15 16 17 18 COMPLETE
 19 20 LIC. ♂ 21 22 UNLIC. ♂ 23 24 LIC. ♀ 25 26 UNLIC. ♀ 27 28 BAIT USED 29 30 SPECIES SOUGHT

31 32 33 TIME FISHED 34 35 36 37 START 38 39 40 41 FINISH 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 AM MORNING NOON EVENING PM

SPECIES	CODE	# OF FISH	LGTH	WT	LGTH	WT	LGTH	WT	LGTH	WT	LGTH	WT
Rainbow Tr.	0 1											
Brown Tr.	0 2											
Lake Trout	0 4											
Splake	0 5											
Chinook S.	0 8											
Pink Salmon	1 0											
L. Whitefish	1 1											
Menominee	1 2											
Cisco	1 3											
Smelt	1 4											
N. Pike	1 5											
Musky	1 6											
Y. Perch	1 8											
Walleye	1 9											
S. M. Bass	2 1											
L. M. Bass	2 2											
Bluegill	2 3											
Rockbass	2 4											
Sunfish Sp.	2 5											
Crappie Sp.	2 6											
White Bass	2 7											
Drum	2 9											
Carp	3 0											
Bowfin	3 2											
White Sucker	3 3											
Redhorse Sp.	3 4											
L. H. Sucker	3 5											
Bullhead Sp.	3 6											
Channel Cat	3 7											
Gar Sp.	3 9											
Burbot	4 1											

15/ Would you prefer to catch: Seven 7.5" perch(); five 9" perch(); No opinion(). "Check one"
 16/ Would you support regulations to produce larger but fewer perch? "Check one"
 Yes(); No(); No opinion().

APPENDIX 3

Economic questionnaire #2 (summer)

LES CHENEAUX FISHING SURVEY: ECONOMICS 2

Date _____ (Mo/day/yr) Site _____ (mo) (day) (yr) 1
 Time _____ Interviewing Site _____ (site) _____ 2
 (time) _____ 3

Hello! My name is _____ and I am with The University of _____ 4
 Michigan. We are doing a survey to collect information about
 how users of the Les Cheneaux fishery value the site currently
 and how the value would change if the quality of the fishing
 changed. The information you provide will be kept strictly
 confidential. If you like we will send you a summary of the
 results of the survey.

Results requested: Yes: ___ No: ___

Mailing address:

Number/Street/RFD: _____ Apt. No. _____
 City: _____ State: _____ Zip: _____

I. BASIC INFORMATION

1. Where do you live? (Do not repeat if provided mailing address).
 - City: _____ 5
 - State: _____ Zip: _____ 6
2. a) When did you arrive in the Eastern U.P.? (date) _____ 7
 - Date _____ Time of day _____ (in 24-hr time) (time) _____ 8
 - (mo) (day) _____ 9
- b) When do you plan to leave the Eastern U.P.? (date) _____ 10
 - Date _____ Time of day _____ (in 24-hr time) (time) _____ 11
 - (mo) (day) _____
3. a) Have you fished in the Les Cheneaux area before this year? (Yes=1) _____ 12
 - (no=2) _____
- [IF NO: GO TO 4]
- b) What year was your first fishing trip to Les Cheneaux? _____ 13
- c) What percentage of years between [year of first trip] _____ 14
 - and 1986 did you come to Les Cheneaux? _____ 14
4. How many trips do you expect to make to Les Cheneaux this year? _____ 15

5. What characteristics of Les Cheneaux led you to come here instead of going to another area? (NOT CODED)

6. How would you rank the following in influencing your choice (1=higher rank).

- ___ Quality of fishing fishing ___ 16
- ___ Beauty of area beauty ___ 17
- ___ Quality of tourist services tourist ___ 18
- ___ Visit relatives, friends friends ___ 19
- ___ Quality of swimming, boating swimming ___ 20
- ___ Familiarity of site, habit familiarity ___ 21
- ___ Other other ___ 22

7. How did you hear about Les Cheneaux? ___ 23
P ___ 24

8. What types of fish are you targeting to catch while in Les Cheneaux? T/S ___ 25
H ___ 26
S ___ 27
D ___ 28

9. How many people were in the group you came here with, including yourself? ___ 29

10. How many people's expenses, including yourself, are you covering during your visit to the Les Cheneaux area? ___ adults ___ children A ___ 30
C ___ 31

11. I'd like to itemize your expenses during the previous 24 hours made in the Les Cheneaux area for the group whose expenses you are covering. Include sales tax in your figures. [Les Cheneaux "area" includes all of Eastern UP.] For big ticket items (boats, clothes, fishing rods) bought in the last day, count whole expenditure amount. Otherwise, attempt to elicit the costs for the 24-hour period, even if expenditures were not made in the 24-hour period or expenditures exceed costs for day.

Let's talk first about food. Have you been eating meals out or buying food at grocery store?

- FOOD:
- a) Restaurant/Snack Shop:
 - Breakfast \$ _____ 32
 - Lunch \$ _____ 33
 - Dinner \$ _____ 34
 - Other \$ _____ 35
 - b) Grocery Store \$ _____ 36

Now let's talk about lodging expenses. In what kind of place are you staying during your stay at Les Cheneaux?

LODGING:	a) Hotel/Motel	\$ _____	37	38
	b) Rental cottage/cabin	\$ _____	39	40
	c) Rental Space for Camper/Trailer (Public or Park) _____	\$ _____	41	42
	d) Rental space for tent (Private Camp)	\$ _____	43	44
	e) Own House/Cabin _____		45	
FUEL:	a) Oil and gas for Boat	\$ _____		46
	b) Car	\$ _____		47
	c) Snowmobile	\$ _____		48
APPAREL:		\$ _____		49
FISHING EQUIPMENT OR BAIT:	Operating Equipment	\$ _____		50
	Capital Equipment	\$ _____		51
What investment item?	boat _____ rod _____ other _____			52
BOAT LAUNCHING FEE:		\$ _____		53
BEVERAGES: (bars, taverns)		\$ _____		54
CHARTER BOAT FEES:		\$ _____		55
ENTERTAINMENT: Movies, miniature golf, etc.		\$ _____		56
RECREATION: Operating Equipment		\$ _____		57
	Capital Equipment	\$ _____		58
What investment item?	boat _____ ski _____ other _____			59
OTHER: (specify) _____		\$ _____		60
12. Are you satisfied with your vacation experience?				
	[CALL OFF CATEGORIES]			
	Very satisfied	_____		61
	Somewhat satisfied	_____		62
	Satisfied	_____		63
	Somewhat dissatisfied	_____		64
	Dissatisfied	_____		65

13. What would make your experience more enjoyable, or cause you to lengthen your stay?

[DO NOT PROMPT UNLESS NECESSARY]

Hiking trails _____	_____	66
Windsurfing/sailboat rentals _____	_____	67
Interpretive nature trails _____	_____	68
Snowmobile/cross country trails _____	_____	69
more? _____ better? _____	more = 1 better = 2 both = 3	70
Better restaurants _____	_____	71
Better tourist services _____	_____	72
Better entertainment _____	_____	73
Nothing more required _____	_____	74
Other [PLEASE SPECIFY] _____	_____	75

14. Do you plan to return next year?

Yes = 1
No = 2 _____ 76

Yes _____ No _____

If no, why not?

15. Here is a list of household income categories. Would you call off the code that best describes the total combined income that you and all other members of your family received during 1985? Please be sure to include wages and salaries, and net income from your business or pensions, dividends, interest, and any other sources. _____ 77

APPENDIX 4

Codebook for economic questionnaire #2

CODEBOOK FOR
QUESTIONNAIRE 2
THE EXPENDITURE SURVEY

December 1986

TABLE OF CONTENTS

	Page
A. Number of question and corresponding variable numbers.....	1
B. List of variables.....	2
C. Variable name, information and codes for variables with descriptive data, and results.....	3

A. Number of Question and Corresponding Variable Numbers

<u>Question</u>	<u>Variable(s)</u>	
1	5-7	
2a	8-9	
2b	10-11	
3a	12	
3b	13	
3c	14	
4	15	
5	not coded	
6	16-22	
7	23	
8	24-28	
9	29	Questions yielding variables 1-4, 78 are not numbered (interviewer fills out beforehand).
10	30-31	
11 (food)	32-36	
11 (lodging)	37-45	
11 (fuel)	46-48	
11 (apparel)	49	
11 (fishing equip.)	50-52	
11 (rest)	53-60	
12	61-65	
13	66-75	
14	76	
15	77	

C. List of Variables

- | | | |
|--------------|---------------|----------------|
| 1. DATE | 27. SMLT | 53. \$LCHFEE |
| 2. SITE | 28. OTRFS | 54. \$BEVG |
| 3. TIME | 29. #GROUP | 55. \$CHRTR |
| 4. ID | 30. ADLTS | 56. \$ETRM |
| 5. CITY | 31. CHLDRN | 57. \$RECOPEQ |
| 6. ST | 32. BRKFST\$ | 58. \$RECCAPEQ |
| 7. ZIP | 33. LNCH\$ | 59. RECITMS |
| 8. DTAR | 34. DNNR\$ | 60. OTR\$ |
| 9. TMAR | 35. OTRFD\$ | 61. VSAT |
| 10. DTDPT | 36. GRCERY\$ | 62. SSAT |
| 11. TMDPT | 37. HDTL | 63. SAT |
| 12. FSHBFR | 38. \$HTL | 64. SDISS |
| 13. FRSTYR | 39. CABN | 65. DISS |
| 14. %YR | 40. \$CABN | 66. TRAIL |
| 15. #TRIPS | 41. TRLR | 67. SURF |
| 16. QUALFSH | 42. \$TRLR | 68. NATTRL |
| 17. BEAUTY | 43. TENT | 69. SNWTRL |
| 18. QUALSERV | 44. \$TENT | 70. MORE |
| 19. VISIT | 45. HOUSE | 71. RESTS |
| 20. QUALSWIM | 46. \$GASBT | 72. TOUR |
| 21. FAMILR | 47. \$GASCR | 73. ENTMT |
| 22. OTRINF | 48. \$GASSNW | 74. NOTHNG |
| 23. HEAR | 49. \$APPL | 75. OTHER |
| 24. PERCH | 50. \$FSOPEQ | 76. RETURN |
| 25. TRT/S | 51. \$FSCAPEQ | 77. WAGE |
| 26. HERR | 52. FSITMS | 78. QUEST# |

C. Variable Name, Information and Codes for Variables with Descriptive Data

RESULTS

1. DATE (6) [number of digits in variable] Sample Size = 139
 Date of interview Range 5/6/86 - 8/16/86
 Month/day/year (2 digits for each) (see page 3a)

2. SITE (3)
 Fishing site
 3-digit code for site

<u>Code</u>	<u>Sites</u>	<u>n</u>
346	Hessel Bay -	21
347	Mackinac Bay -	14
348	Muskie Bay -	23
349	Shepherd Bay -	0
350	Cedarville -	15
351	Flower Bay -	5
352	Moscoe Channel -	20
353	Government Bay -	7
354	McKay Bay -	26
400	Lake Huron -	8

3. TIME (4)
 Time of interview
 24-hour basis (e.g., 1 p.m. is 1300)

700	[3]
800	[6]
900	[5]
1000	[10]
1100	[14]
1200	[8]
1300	[16]
1400	[12]
1500	[20]
1600	[13]
1700	[10]
1800	[8]
1900	[2]
2000	[8]
2100	[3]
2200	[1]

4. ID (2) - Q#2 _____
 Interview site

<u>Code</u>	<u>Interview Site</u>	<u>n</u>
5	Cedarville R.V. Park -	1
6	Les Cheneaux Motel -	0
7	Bearfoot Resort -	0
8	Cedar Point Cottages -	8
9	Hills Point Resort -	6

DATE	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
50686	1	0.7	1	0.7
50886	1	0.7	2	1.4
51086	1	0.7	3	2.2
51186	1	0.7	4	2.9
51586	1	0.7	5	3.6
51986	2	1.4	7	5.0
52386	1	0.7	8	5.8
52486	2	1.4	10	7.2
52686	3	2.2	13	9.4
52886	1	0.7	14	10.1
53086	2	1.4	16	11.5
53186	2	1.4	18	12.9
60386	1	0.7	19	13.7
60586	2	1.4	21	15.1
60786	1	0.7	22	15.8
60886	2	1.4	24	17.3
61186	2	1.4	26	18.7
61286	1	0.7	27	19.4
61386	1	0.7	28	20.1
61586	1	0.7	29	20.9
61786	2	1.4	31	22.3
61886	6	4.3	37	26.6
61986	3	2.2	40	28.8
62186	4	2.9	44	31.7
62286	2	1.4	46	33.1
62386	6	4.3	52	37.4
62486	4	2.9	56	40.3
62686	3	2.2	59	42.4
62886	4	2.9	63	45.3
62986	2	1.4	65	46.8
63086	2	1.4	67	48.2
70186	3	2.2	70	50.4
70486	4	2.9	74	53.2
70586	5	3.6	79	56.8
70686	3	2.2	82	59.0
70886	4	2.9	86	61.9
71086	5	3.6	91	65.5
71186	4	2.9	95	68.3
71386	3	2.2	98	70.5
71686	2	1.4	100	71.9
71786	4	2.9	104	74.8
71886	2	1.4	106	76.3
72086	1	0.7	107	77.0
72186	4	2.9	111	79.9
72386	2	1.4	113	81.3
72486	3	2.2	116	83.5
72686	1	0.7	117	84.2
72786	1	0.7	118	84.9
72986	2	1.4	120	86.3
73186	2	1.4	122	87.8
80286	1	0.7	123	88.5
80386	1	0.7	124	89.2
80486	4	2.9	128	92.1
80586	2	1.4	130	93.5
80886	1	0.7	131	94.2
80986	1	0.7	132	95.0
81086	1	0.7	133	95.7
81486	3	2.2	136	97.8
81686	3	2.2	139	100.0

C. Variable Name, Information and Codes for Variables with Descriptive Data (continued).

4. (continued)

<u>Code</u>	<u>Interview Site</u>	<u>n</u>
10	Island View Resort -	2
11	Larys Cabins -	0
12	Bayview Cottages -	0
13	Don's Place -	0
14	Les Cheneaux Park Ctgs. -	0
16	Patrick's Landing -	1
17	Paul's Waterfront Ctgs. -	1
18	Shoberg's Resort -	0
19	Waterlawn Harbor -	0
20	Hessel Public Launch -	21
21	Cedarville Public Launch -	21
22	Cedarville Public Docks -	0
23	Mertanghs Docks -	0
24	Hill Island Causeway -	6
25	Island Eight Causeway -	0
26	McKay Creek Bridge -	17
27	Sunset Cabins -	3
28	Les Cheneaux Landing -	15
29	Shady Side -	15
30	Spring Lodge -	13
31	Torsky's Resort -	0
32	Ford's Cottages -	1
33	Wilson's Cabins -	0
34	Trail's End -	9

5. CITY (3)

Where do you live (city)?
3-digit code for city (and non-Michigan
state, where applicable)

<u>Code</u>	<u>Site</u>	<u>n</u>
049	Adrian -	0
001	Ann Arbor -	1
107	Allan Park -	2
046	Allegan -	0

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
077	Alto - 0	
122	Augres - 1	
002	Battle Creek - 2	
003	Bay City - 4	
089	Beaverton - 1	
113	Bently - 1	
057	Burnips - 0	
088	Caro - 1	
004	Cedar Springs - 0	
005	Cedarville - 0	
006	Charlotte - 1	
066	Cheboygan - 1	
110	Clinton - 0	
007	Comstock Park - 1	
060	Conklin - 0	
082	Concord - 0	
098	Corunna - 0	
128	Croswell - 1	
008	Dear Township - 0	
009	Dearborn - 1	
119	Deckerville - 1	
010	Detour - 0	
011	Detroit - 5	
123	Dewitt - 0	
064	Durand - 1	
012	East Lansing - 0	
047	Edmore - 0	
076	Elsie - 1	
062	Evert - 1	
115	Fairgrove - 0	
129	Farmington Hills - 1	
052	Ferndale - 0	

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
058	Fibre -	0
013	Flatrock -	0
084	Fleshing -	1
014	Flint -	4
095	Fountain -	1
087	Frazier -	1
092	Garden City -	1
061	Gobels -	0
015	Gower -	0
016	Grand Rapids -	11
017	Grandville -	0
018	Grayling -	2
103	Hale -	1
111	Harbor Beach -	0
109	Harbor Springs -	1
114	Harrison -	1
117	Harrisville -	0
116	Hazel Park -	0
019	Hessel -	0
081	Highland Township -	0
020	Holland -	2
108	Howard City -	1
048	Howell -	1
050	Jackson -	2
021	Jension -	1
022	Kalamazoo -	0
023	Kincheloe -	0
100	Kinross -	0
072	Lake City -	1
024	Lansing -	3
106	Lennon -	1
025	Lewiston -	0

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
026	Lindon	- 0
073	Livonia	- 3
027	Mackinaw City	- 0
028	Mackinaw Island	- 0
054	Madison Hts.	- 1
068	Manton	- 0
029	Marion	- 0
125	Marlette	- 1
079	Marne	- 1
091	Marshall	- 0
030	Martin	- 0
124	Melvindale	- 1
085	Midland	- 0
031	Millersburg	- 0
093	Mt. Clemens	- 1
032	Moran	- 0
033	Mulliken	- 0
075	Muskegon	- 1
090	New Lothrop	- 1
053	Newaggo	- 0
034	Newberry	- 0
097	Niles	- 0
063	Oscoda	- 2
059	Ostego	- 0
096	Otisville	- 1
126	Port Huron	- 1
035	Petoskey	- 0
065	Pellston	- 1
036	Pickford	- 0
071	Plymouth	- 2
037	Pontiac	- 0
086	Rochester	- 1

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
118	Rogers City	- 0
055	Rudyard	- 0
038	Saginaw	- 2
099	St. Clair Shores	- 1
039	St. Ignace	- 1
131	St. Johns	- 0
040	Sault Ste. Marie	- 1
041	Sears	- 0
056	South Haven	- 0
074	South Gate	- 0
127	Southfield	- 1
105	Standish	- 1
042	Stanwood	- 0
070	Sterling Hts.	- 0
069	Swartz Creek	- 0
101	Taylor	- 2
112	Tecumseh	- 0
132	Three Rivers	- 1
043	Traverse City	- 1
094	Trenton	- 1
044	Troy	- 1
121	Union Lake	- 1
067	Utica	- 0
045	Wadsworth	- 0
104	Warren	- 1
078	Westland	- 1
083	Ypsilanti	- 0
102	Zeeland	- 2
<u>Other States</u>		
301	Akron, OH	- 0
302	Miamisburg, OH	- 0
303	West Milton, OH	- 2

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
304	Rocksbury, OH	- 1
305	Ft. Wayne, IN	- 1
306	Miami Township, OH	- 1
307	Dayton, OH	- 5
308	Columbus, OH	- 4
309	Richmond, IN	- 0
310	Macy, IN	- 1
311	Hillsboro, IL	- 1
312	Bradenton, FL	- 0
313	Arcada, FL	- 0
314	Fort Thomas, KY	- 1
315	Houston, OH	- 1
317	Xenia, OH	- 1
318	Louisville, KY	- 1
319	Toledo, OH	- 3
320	Bowling Green, OH	- 1
321	Bloomington, IL	- 1
322	Marion, OH	- 2
323	Kittering, OH	- 1
324	South Bend, IN	- 1
325	Findley, OH	- 1
326	Smithville, OH	- 1
327	St. Johns, OH	- 0
328	Eleva, WI	- 1
329	Davenport, IA	- 1
330	Hammelton, OH	- 2
331	St. Petersburg, FL	- 1
332	Sandusky, OH	- 1
333	Bellview, FL	- 1
334	Plano, TX	- 0
335	Batavia, OH	- 1
336	Middlebury, IN	- 1
337	Seville, OH	- 0

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

RESULTS

6.	ST (2) Where do you live (state)? 3-digit code for state [see back of codebook]	Michigan [99] Florida [2] Illinois [2] Indiana [4] Iowa [1] Kentucky [2] Ohio [28] Wisconsin [1]
7.	ZIP (5) Where do you live (Zip Code)?	(see page 10a)
8.	DTAR 4 Date you arrived Month/day (2-digits for each)	Range 5/5/86 - 8/16/86 (see page 10b)
9.	TMAR 4 Time of day you arrived 24-hour basis (e.g., 1 p.m. is 1300)	(see page 10b)
10.	DTDPT 4 Date you will depart Month/day (2-digits for each)	Range 5/8/86 - 9/15/86 (see page 10c)
11.	TMDPT 4 Time of day you will depart 24-hour basis (e.g., 1 p.m. is 1300)	(see page 10c)
12.	FSHBFR 1 Have you fished here before? 1. Yes 2. No	Yes [120] No [19]
13.	FRSTYR 2 What year did you first fish here? Last two digits of year if yes in #12 If no in #12 -- 'missing'	Range 1926 - 1986 (see page 10d)

DTAR	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT	TMAR	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
505	1	0.7	1	0.7	100	2	1.4	2	1.4
508	1	0.7	2	1.4	130	1	0.7	3	2.2
509	1	0.7	3	2.2	230	1	0.7	4	2.9
510	1	0.7	4	2.9	300	1	0.7	5	3.6
514	1	0.7	5	3.6	330	1	0.7	6	4.3
515	2	1.4	7	5.0	430	1	0.7	7	5.0
520	2	1.4	9	6.5	500	1	0.7	8	5.8
522	1	0.7	10	7.2	600	4	2.9	12	8.6
523	2	1.4	12	8.6	700	1	0.7	13	9.4
524	4	2.9	16	11.5	800	3	2.2	16	11.5
525	1	0.7	17	12.2	830	2	1.4	18	12.9
528	2	1.4	19	13.7	930	2	1.4	20	14.4
530	1	0.7	20	14.4	1000	1	0.7	21	15.1
602	2	1.4	22	15.8	1100	6	4.3	27	19.4
603	2	1.4	24	17.3	1130	2	1.4	29	20.9
606	2	1.4	26	18.7	1200	18	12.9	47	33.8
607	3	2.2	29	20.9	1230	1	0.7	48	34.5
609	1	0.7	30	21.6	1300	13	9.4	61	43.9
614	6	4.3	36	25.9	1330	1	0.7	62	44.6
615	3	2.2	39	28.1	1400	14	10.1	76	54.7
616	1	0.7	40	28.8	1430	3	2.2	79	56.8
618	4	2.9	44	31.7	1500	11	7.9	90	64.7
619	2	1.4	46	33.1	1530	4	2.9	94	67.6
621	12	8.6	58	41.7	1600	15	10.8	109	78.4
623	1	0.7	59	42.4	1630	3	2.2	112	80.6
625	1	0.7	60	43.2	1700	3	2.2	115	82.7
626	2	1.4	62	44.6	1730	2	1.4	117	84.2
628	15	10.8	77	55.4	1800	4	2.9	121	87.1
703	4	2.9	81	58.3	1830	1	0.7	122	87.8
704	4	2.9	85	61.2	1900	2	1.4	124	89.2
705	8	5.8	93	66.9	1930	1	0.7	125	89.9
706	1	0.7	94	67.6	1950	1	0.7	126	90.6
707	1	0.7	95	68.3	2000	5	3.6	131	94.2
710	1	0.7	96	69.1	2030	1	0.7	132	95.0
712	8	5.8	104	74.8	2100	3	2.2	135	97.1
713	2	1.4	106	76.3	2200	1	0.7	136	97.8
715	1	0.7	107	77.0	2300	1	0.7	137	98.6
718	1	0.7	108	77.7	2330	2	1.4	139	100.0
719	7	5.0	115	82.7					
720	1	0.7	116	83.5					
724	1	0.7	117	84.2					
725	1	0.7	118	85.0					
726	8	5.8	126	90.6					
802	4	2.9	130	94.2					
803	1	0.7	131	95.0					
809	5	3.6	136	97.8					
816	3	2.2	139	100.0					

ZIP	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT	ZIP	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	11	7.9	11	7.9	48219	1	0.7	72	51.8
32620	1	0.7	12	8.6	48224	1	0.7	73	52.5
33703	1	0.7	13	9.4	48422	1	0.7	74	53.2
40222	1	0.7	14	10.1	48427	1	0.7	75	54.0
40613	1	0.7	15	10.8	48429	1	0.7	76	54.7
41075	1	0.7	16	11.5	48433	1	0.7	77	55.4
43204	1	0.7	17	12.2	48449	1	0.7	78	56.1
43209	1	0.7	18	12.9	48453	1	0.7	79	56.8
43212	1	0.7	19	13.7	48460	1	0.7	80	57.6
43221	1	0.7	20	14.4	48463	1	0.7	81	58.3
43302	2	1.4	22	15.8	48504	3	2.2	84	60.4
43402	1	0.7	23	16.5	48506	1	0.7	85	61.2
43612	1	0.7	24	17.3	48602	1	0.7	86	61.9
43613	1	0.7	25	18.0	48603	1	0.7	87	62.6
43615	1	0.7	26	18.7	48612	1	0.7	88	63.3
44677	1	0.7	27	19.4	48625	1	0.7	89	64.0
44870	1	0.7	28	20.1	48658	1	0.7	90	64.7
45013	2	1.4	30	21.6	48703	1	0.7	91	65.5
45103	1	0.7	31	22.3	48706	3	2.2	94	67.6
45333	1	0.7	32	23.0	48708	1	0.7	95	68.3
45383	2	1.4	34	24.5	48723	1	0.7	96	69.1
45423	1	0.7	35	25.2	48750	2	1.4	98	70.5
45426	1	0.7	36	25.9	48813	1	0.7	99	71.2
45429	1	0.7	37	26.6	48831	1	0.7	100	71.9
45449	2	1.4	39	28.1	48843	1	0.7	101	72.7
45830	1	0.7	40	28.8	48906	1	0.7	102	73.4
45840	1	0.7	41	29.5	48910	1	0.7	103	74.1
46540	1	0.7	42	30.2	48915	1	0.7	104	74.8
46614	1	0.7	43	30.9	49015	1	0.7	105	75.5
46825	1	0.7	44	31.7	49017	1	0.7	106	76.3
46951	1	0.7	45	32.4	49093	1	0.7	107	77.0
48018	1	0.7	46	33.1	49203	1	0.7	108	77.7
48026	1	0.7	47	33.8	49210	1	0.7	109	78.4
48034	1	0.7	48	34.5	49312	1	0.7	110	79.1
48043	1	0.7	49	35.3	49329	1	0.7	111	79.9
48060	1	0.7	50	36.0	49333	1	0.7	112	80.6
48063	1	0.7	51	36.7	49410	1	0.7	113	81.3
48071	1	0.7	52	37.4	49423	2	1.4	115	82.7
48083	1	0.7	53	38.1	49428	1	0.7	116	83.5
48085	1	0.7	54	38.8	49435	1	0.7	117	84.2
48091	1	0.7	55	39.6	49442	1	0.7	118	84.9
48101	1	0.7	56	40.3	49464	2	1.4	120	86.3
48122	1	0.7	57	41.0	49503	1	0.7	121	87.1
48124	1	0.7	58	41.7	49504	2	1.4	123	88.5
48128	1	0.7	59	42.4	49505	2	1.4	125	89.9
48135	1	0.7	60	43.2	49508	2	1.4	127	91.4
48150	1	0.7	61	43.9	49631	1	0.7	128	92.1
48152	1	0.7	62	44.6	49651	1	0.7	129	92.8
48154	1	0.7	63	45.3	49684	1	0.7	130	93.5
48170	2	1.4	65	46.8	49721	1	0.7	131	94.2
48178	1	0.7	66	47.5	49738	2	1.4	133	95.7
48180	2	1.4	68	48.9	49740	1	0.7	134	96.4
48183	1	0.7	69	49.6	49769	1	0.7	135	97.1
48185	1	0.7	70	50.4	52806	1	0.7	136	97.8
48186	1	0.7	71	51.1	54738	1	0.7	137	98.6
					60108	1	0.7	138	99.3
					62049	1	0.7	139	100.0

DTDPT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT	TMDPT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
508	1	0.7	1	0.7	0	1	0.7	1	0.7
509	1	0.7	2	1.4	100	1	0.7	2	1.4
511	1	0.7	3	2.2	500	1	0.7	3	2.2
514	1	0.7	4	2.9	600	3	2.2	6	4.3
516	1	0.7	5	3.6	700	1	0.7	7	5.0
521	1	0.7	6	4.3	800	58	41.7	65	46.8
526	2	1.4	8	5.8	900	13	9.4	78	56.1
527	1	0.7	9	6.5	1000	19	13.7	97	69.8
528	2	1.4	11	7.9	1100	2	1.4	99	71.2
530	2	1.4	13	9.4	1200	10	7.2	109	78.4
531	2	1.4	15	10.8	1300	2	1.4	111	79.9
601	2	1.4	17	12.2	1400	5	3.6	116	83.5
603	2	1.4	19	13.7	1500	5	3.6	121	87.1
608	2	1.4	21	15.1	1600	6	4.3	127	91.4
609	1	0.7	22	15.8	1700	3	2.2	130	93.5
611	1	0.7	23	16.5	1800	3	2.2	133	95.7
612	1	0.7	24	17.3	1830	1	0.7	134	96.4
614	2	1.4	26	18.7	1900	1	0.7	135	97.1
615	1	0.7	27	19.4	2000	2	1.4	137	98.6
618	1	0.7	28	20.1	2030	1	0.7	138	99.3
619	1	0.7	29	20.9	2100	1	0.7	139	100.0
620	1	0.7	30	21.6					
621	6	4.3	36	25.9					
622	2	1.4	38	27.3					
624	2	1.4	40	28.8					
625	1	0.7	41	29.5					
626	1	0.7	42	30.2					
627	1	0.7	43	30.9					
628	9	6.5	52	37.4					
629	5	3.6	57	41.0					
704	1	0.7	58	41.7					
705	5	3.6	63	45.3					
706	5	3.6	68	48.9					
707	5	3.6	73	52.5					
709	1	0.7	74	53.2					
710	2	1.4	76	54.7					
712	11	7.9	87	62.6					
713	2	1.4	89	64.0					
714	1	0.7	90	64.7					
716	1	0.7	91	65.5					
719	7	5.0	98	70.5					
720	2	1.4	100	71.9					
721	1	0.7	101	72.7					
726	7	5.0	108	77.7					
727	3	2.2	111	79.9					
801	1	0.7	112	80.6					
802	8	5.8	120	86.3					
803	1	0.7	121	87.1					
807	1	0.7	122	87.8					
808	1	0.7	123	88.5					
809	5	3.6	128	92.1					
810	1	0.7	129	92.8					
816	4	2.9	133	95.7					
823	5	3.6	138	99.3					
915	1	0.7	139	100.0					

FRSTYR	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	16	11.5	16	11.5
26	1	0.7	17	12.2
39	1	0.7	18	12.9
41	1	0.7	19	13.7
42	1	0.7	20	14.4
46	1	0.7	21	15.1
50	1	0.7	22	15.8
52	1	0.7	23	16.5
54	1	0.7	24	17.3
56	5	3.6	29	20.9
57	1	0.7	30	21.6
58	1	0.7	31	22.3
59	1	0.7	32	23.0
60	2	1.4	34	24.5
61	1	0.7	35	25.2
63	4	2.9	39	28.1
65	1	0.7	40	28.8
66	8	5.8	48	34.5
67	3	2.2	51	36.7
68	4	2.9	55	39.6
69	2	1.4	57	41.0
70	1	0.7	58	41.7
71	5	3.6	63	45.3
72	3	2.2	66	47.5
73	2	1.4	68	48.9
74	3	2.2	71	51.1
75	1	0.7	72	51.8
76	3	2.2	75	54.0
77	3	2.2	78	56.1
78	6	4.3	84	60.4
79	4	2.9	88	63.3
80	6	4.3	94	67.6
81	5	3.6	99	71.2
82	10	7.2	109	78.4
83	10	7.2	119	85.6
84	4	2.9	123	88.5
85	13	9.4	136	97.8
86	3	2.2	139	100.0

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

	RESULTS
14. %YR	0 [19]
3	20 [3]
What percent of years between	25 [2]
first trip and 1986?	30 [1]
Fill in %, e.g., 060 if 60%	50 [10]
100 if 100%	66 [2]
If no in #12 -- 'missing'	70 [1]
	75 [6]
	78 [1]
	86 [1]
	90 [2]
	95 [6]
	97 [1]
	100 [84]
15. #TRIPS	1 [83]
3	2 [25]
How many trips expected this year?	3 [13]
	4 [8]
	5 [4]
	6 [3]
	10 [1]
	12 [1]
	39 [1]
16. QUALFSH	0 [8] (not a factor, or missing)
1	1 [71]
Rank this in influencing your	2 [43]
choice to come to Les Cheneaux:	3 [16]
Quality of fishing (1=highest)	4 [1]
17. BEAUTY	0 [27] (not a factor, or missing)
1	1 [37]
Rank this in influencing your	2 [54]
choice to come to Les Cheneaux:	3 [20]
Beauty of area (1=highest)	4 [1]
18. QUALSERV	0 [117] (not a factor, or missing)
1	1 [1]
Rank this in influencing your	2 [1]
choice to come to Les Cheneaux:	3 [5]
Quality of tourist services (1=highest)	7 [15]
19. VISIT	0 [92] (not a factor, or missing)
1	1 [17]
Rank this in influencing your	2 [12]
choice to come to Les Cheneaux:	3 [3]
Visit relatives, friends (1=highest)	7 [15]

C. Variable Name, Information and Codes for Variables with Descriptive Data (continued).

		<u>RESULTS</u>
20.	QUALSWIM	0 [101] (not a factor, or missing)
	1	1 [6]
	Rank this in influencing your	2 [6]
	choice to come to Les Cheneaux:	3 [12]
	Quality of swimming, boating (1=highest)	7 [14]
21.	FAMILR	0 [105] (not a factor, or missing)
	1	1 [7]
	Rank this in influencing your	2 [8]
	choice to come to Les Cheneaux:	3 [19]
	Familiarity of site, habit (1=highest)	
22.	OTRINF	0 [130] (not a factor, or missing)
	1	1 [6]
	Rank this in influencing your	2 [3]
	choice to come to Les Cheneaux:	
	Other (1=highest)	
		<u>Comments</u>
		"relax" (2 responses)
		"vacation"
		"get away"
		"hunting"
		"protected waters"
		"some place have not been before"
		"like the area, non-polluted"
23.	HEAR	
	1	
	How did you hear about Les Cheneaux?	
		<u>n</u>
	1. No one - 11	
	2. Family - 38	
	3. Friends - 83	
	4. Advertisement - 7	
24.	PERCH	
	1	
	Type of fish you are targeting? (perch)	
	1. Yes	Yes [98]
	2. No	Missing or no [41]
	Not fishing? 'missing'	
25.	TRT/S	
	1	
	Type of fish you are targeting?	
	(trout/salmon)	
	1. Yes -	Yes [21]
	2. No	Missing or no [118]
	Not fishing? 'missing'	

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

RESULTS

26.	HERR		
	1	Type of fish you are targeting? (herring)	
	1.	Yes	Yes [39]
	2.	No	Missing or no [100]
		Not fishing? 'missing'	
27.	SMLT		
	1	Type of fish you are targeting? (smelt)	
	1.	Yes	Yes [4]
	2.	No	Missing or no [135]
		Not fishing? 'missing'	
28.	OTRFS		
	1	Type of fish you are targeting? (other)	
	1.	Yes	Yes [79] (usually pike, bass)
	2.	No	Missing or no [60]
		Not fishing? 'missing'	
29.	#GROUP		
	2	How many people in your group, including yourself?	1 [1]
			2 [48]
			3 [23]
			4 [31]
			5 [14]
			6 [8]
			7 [5]
			8 [2]
			9 [2]
			11 [1]
			15 [1]
			17 [1]
			25 [2]
30.	ADLTS		
	2	How many adults' expenses you are covering?	1 [31]
			2 [91]
			3 [12]
			4 [4]
			7 [1]
31.	CHLDRN		
	2	How many children's expenses you are covering?	0 [93]
			1 [15]
			2 [19]
			3 [7]
			4 [5]

C. Variable Name, Information and Codes for Variables with Descriptive Data (continued).

		RESULTS
32.	BRKFST\$	\$0 [117]
	3	\$3 [1]
	Dollars spent in restaurant on	\$4 [1]
	breakfast for group (last 24 hours).	\$5 [8]
		\$7 [1]
		\$10 [4]
		\$11 [1]
		\$12 [3]
		\$14 [1]
		\$15 [1]
		\$20 [1]
33.	LNCH\$	\$0 [119]
	3	\$2 [1]
	Dollars spent in restaurant on	\$3 [1]
	lunch for group (last 24 hours).	\$5 [1]
		\$7 [1]
		\$8 [3]
		\$10 [6]
		\$15 [4]
		\$20 [1]
		\$30 [1]
		\$50 [1]
34.	DNNR\$	(see page 14a)
	3	
	Dollars spent in restaurant on	
	dinner for group (last 24 hours).	
35.	OTRFD\$	\$0 [134]
	3	\$2 [2]
	Dollars spent in restaurant on	\$5 [1]
	'other' for group (last 24 hours).	\$12 [1]
		\$25 [1]
36.	GRCERY\$	(see page 14a)
	3	
	Estimate cost of groceries consumed	
	in last 24 hours for group.	
37.	HDTL	
	1	Yes [5]
	Are you staying in a hotel/motel?	No [132]
	1. Yes	Missing [2]
	2. No	
38.	\$HTL	\$0 [132]
	3	\$28 [2]
	Dollars spent on hotel for group	\$30 [1]
	in last 24 hours?	\$32 [1]
	(average out a package-bill)	\$36 [1]
	If no in #37 -- 'missing'	Missing [2]

DINNER	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	95	68.3	95	68.3
5	1	0.7	96	69.1
8	2	1.4	98	70.5
9	3	2.2	101	72.7
10	5	3.6	1	76.3
12	4	2.9		79.1
14	1	0.7		9
15	5	3.6		
16	1	0.7		
18	1	0.7		
20	7	5.0		
21	1	0.7		
25	4	2.9		
30	2	1.4		
35	1	0.7		
40	2	1.4		
55	1	0.7		
60	2	1.4		
100	1	0.7		

GRcery	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	39	28.1	39	28.1
2	1	0.7	40	28.8
3	1	0.7	41	29.5
5	7	5.0	48	34.5
6	5	3.6	53	38.1
7	2	1.4	55	39.6
8	1	0.7	56	40.3
10	11	7.9	67	48.2
11	1	0.7	68	48.9
12	3	2.2	71	51.1
15	1	0.7	72	51.8
20	26	18.7	98	70.5
25	6	4.3	104	74.8
30	10	7.2	114	82.0
31	1	0.7	115	82.7
35	3	2.2	118	84.9
37	1	0.7	119	85.6
40	4	2.9	123	88.5
50	6	4.3	129	92.8
55	1	0.7	130	93.5
60	1	0.7	131	94.2
74	1	0.7	132	95.0
80	1	0.7	133	95.7
100	4	2.9	137	98.6
120	1	0.7	138	99.3
150	1	0.7	139	100.0

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

RESULTS

39.	CABN	
	1	
	Renting a cottage/cabin?	Yes [74]
	1. Yes	No [63]
	2. No	Missing [2]
40.	#CABN	(see page 15a)
	3	
	Dollars spent on rented cabin for group in last 24 hours (average out a weekly bill) If no in #39 - 'missing'	
41.	TRLR	
	1	
	Renting a space for camper/trailer?	Yes [22]
	1. Yes	No [115]
	2. No	Missing [2]
42.	\$TRLR	\$0 [116]
	3	\$2 [1]
	Dollars spent on trailer space in last 24 hours?	\$4 [1]
	If no in #40 -- 'missing'	\$5 [1]
		\$7 [3]
		\$8 [11]
		\$9 [2]
		\$12 [2]
		Missing [2]
43.	TENT	
	1	
	Renting a space for a tent(s)?	Yes [4]
	1. Yes	No [133]
	2. No	Missing [2]
44.	\$TENT	\$0 [133]
	3	\$4 [1]
	Dollars spent on tent space in last 24 hours?	\$5 [1]
	If no in #43 -- 'missing'	\$8 [1]
		\$9 [1]
		Missing [2]
45.	HOUSE	
	1	
	Do you own a house or cabin?	Yes [27]
	1. Yes	No [110]
	2. No	Missing [2]
46.	\$GASBT	(see page 15a)
	3	
	Dollars spent on oil and gas for boat in last 24 hours? If no boat -- 'missing'	

DOLCABN	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	66	47.5	66	47.5
20	2	1.4	68	48.9
21	1	0.7	69	49.6
23	3	2.2	72	51.8
24	2	1.4	74	53.2
25	6	4.3	80	57.6
26	8	5.8	88	63.3
28	12	8.6	100	71.9
30	7	5.0	107	77.0
31	5	3.6	112	80.6
32	2	1.4	114	82.0
34	1	0.7	115	82.7
35	8	5.8	123	88.5
36	4	2.9	127	91.4
38	2	1.4	129	92.8
40	2	1.4	131	94.2
41	2	1.4	133	95.7
42	1	0.7	134	96.4
46	2	1.4	136	97.8
50	1	0.7	137	98.6
57	1	0.7	138	99.3
68	1	0.7	139	100.0

GASBT	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	77	55.4	77	55.4
4	2	1.4	79	56.8
5	9	6.5	88	63.3
6	6	4.3	94	67.6
7	4	2.9	98	70.5
8	3	2.2	101	72.7
9	1	0.7	102	73.4
10	12	8.6	114	82.0
12	8	5.8	122	87.8
13	1	0.7	123	88.5
15	5	3.6	128	92.1
16	1	0.7	129	92.8
18	1	0.7	130	93.5
20	3	2.2	133	95.7
23	1	0.7	134	96.4
24	1	0.7	135	97.1
30	1	0.7	136	97.8
40	2	1.4	138	99.3
42	1	0.7	139	100.0

GASCR	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	100	71.9	100	71.9
7	1	0.7	101	72.7
8	1	0.7	102	73.4
10	7	5.0	109	78.4
12	1	0.7	110	79.1
14	3	2.2	113	81.3
15	2	1.4	115	82.7
17	2	1.4	117	84.2
18	1	0.7	118	84.9
19	1	0.7	119	85.6
20	12	8.6	131	94.2
22	1	0.7	132	95.0
24	1	0.7	133	95.7
25	1	0.7	134	96.4
26	1	0.7	135	97.1
30	2	1.4	137	98.6
40	1	0.7	138	99.3
100	1	0.7	139	100.0

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

RESULTS

47.	\$GASCR 3 Dollars spent on gas for car in last 24 hours? If no car -- 'missing'	(see page 15a)
48.	\$GASSNW 3 Dollars spent on gas for snowmobile in last 24 hours? If no snowmobile -- 'missing'	\$0 [139]
49.	\$APPL 3 Dollars spent on apparel in last 24 hours? (do not allocate - treat as capital good)	\$0 [139]
50.	\$FSOPEQ 3 Dollars spent on fishing operating equipment (bait) in last 24 hours? (allocate cost of previous expenditures)	(see page 16a)
51.	\$FSCAPEQ 5 Dollars spent on fishing capital equipment (rod, tackle/box) in last 24 hours?	\$0 [137] \$50 [2]
52.	FSITMS 3 What capital items were purchased in last 24 hours? 1. boat - 0 ⁿ 2. rod - 1 3. tackle/box - 0 4. other - 1	Missing or no items [137]
53.	\$LCHFEE 3 Dollars spent on boat launching fee in last 24 hours?	\$0 [112] \$1 [3] \$2 [24]
54.	\$BEVG 3 Dollars spent on beverages in last 24 hours?	\$0 [132] \$6 [1] \$10 [1] \$15 [1] \$25 [1] \$50 [1] \$60 [1] \$100 [1]

FSOPEQ	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
0	49	35.3	49	35.3
1	2	1.4	51	36.7
2	7	5.0	58	41.7
3	16	11.5	74	53.2
4	8	5.8	82	59.0
5	13	9.4	95	68.3
6	4	2.9	99	71.2
7	2	1.4	101	72.7
8	4	2.9	105	75.5
10	7	5.0	112	80.6
12	2	1.4	114	82.0
15	2	1.4	116	83.5
16	2	1.4	118	84.9
18	1	0.7	119	85.6
20	5	3.6	124	89.2
25	2	1.4	126	90.6
30	4	2.9	130	93.5
38	1	0.7	131	94.2
40	1	0.7	132	95.0
45	2	1.4	134	96.4
46	1	0.7	135	97.1
70	1	0.7	136	97.8
100	1	0.7	137	98.6
180	1	0.7	138	99.3
300	1	0.7	139	100.0

C. Variable Name, Information and Codes for Variables with Descriptive Data
(continued).

RESULTS

55.	\$CHRTR 5 Dollars spent on charter boat fees in last 24 hours?	\$0 [139]
56.	\$ETRMT 3 Dollars spent on entertainment in last 24 hours?	\$0 [138] \$7 [1]
57.	\$RECOPEQ 3 Dollars spent on recreation operating equipment in last 24 hours? (allocate cost of previous expenditures)	\$0 [139]
58.	\$RECCAPEQ 5 Dollars spent on recreation capital equipment in last 24 hours?	\$0 [137] \$20 [1] \$6500 [1]
59.	RECITMS 3 What recreation capital items were purchased in the last 24 hours? 1. boat - $\frac{n}{1}$ 2. skis - 0 3. ropes - 0 4. ice chest- 0 5. other - 0	
60.	OTR\$ 3 Dollars spent on other items in last 24 hours?	\$0 [130] \$4 [1] \$5 [1] \$7 [1] \$9 [1] \$18 [1] \$20 [1] \$40 [1] \$100 [1] \$120 [1]

FOR QUESTIONS 61 - 76 -- SAMPLE SIZE = 56

61.	VSAT 1 Answer yes if very satisfied w/vacation (y=1)	Yes [12] No [41] Missing [3]
62.	SSAT 1 Answer yes if somewhat satisfied w/vacation (y=1)	Yes [14] No [39] Missing [3]

C. Variable Name, Information and Codes for Variables with Descriptive Data (continued).

		<u>RESULTS</u>
63.	SAT 1 Answer yes if satisfied w/vacation (y=1)	Yes [21] No [32] Missing [3]
64.	SDISS 1 Answer yes if somewhat dissatisfied w/vacation (y=1)	Yes [5] No [48] Missing [3]
65.	DISS 1 Answer yes if dissatisfied w/vacation (y=1)	Yes [1] No [52] Missing [3]
66.	TRAIL 1 Answer yes if interviewee wants trails	No [56]
67.	SURF 1 Answer yes if interviewee wants windsurfing and/or sailboat rentals	No [56]
68.	NATTRL 1 Answer yes if interviewee wants interpretive nature trail (trail with signs about plants, etc.)	No [56]
69.	SNWTRL 1 Answer yes if interviewee wants snowmobile and/or cross-country trails	No [56]
70.	MORE 1 Answer '1' if more trails are wanted Answer '2' if better trails are wanted Answer '3' if more and better trails are wanted [Refers only to V69]	No [56]
71.	RESTS 1 Answer yes if interviewee wants better restaurants available	Yes [2] one response specified "more stores" No [54]
72.	TOUR 1 Answer yes if interviewee wants better tourist services	Yes [1] - specified an information center on current fish conditions No [55]

C. Variable Name, Information and Codes for Variables with Descriptive Data (continued).

	<u>RESULTS</u>
73. ENTMT 1 Answer yes if interviewee wants better entertainment available	No [56]
74. NOTNG 1 Answer yes if interviewee requires nothing additional	Yes [21] No [35]
75. OTHER 1 Answer yes if interviewee indicates needs	Yes [32] No [24] <u>Comments</u> "better fishing" (12 responses) "public boat slips for people not at resorts but on the water" "topless bar" "new lodging, new cabins" "hard for kids to catch fish" "decrease out-of-state fishing licenses" "more bass" "increase numbers caught" "get rid of nets: 'nets all over out there'" "stock more salmon, beautiful place to fish but no fish" "more herring" "rental jet ski, 3-wheelers" "waterslide, fun world type stuff" "more bass/perch" "better parking for people on island" "stock more salmon"
76. RETURN 1 Does interviewee plan to return next year 1. Yes 2. No	Yes [41] No [8] Missing [7]
77. INCOME 1 Total combined income of whole family	(see page 20)
78. QUEST# Questionnaire number	139 observations

Codes for Household Income (V77)

<u>Category</u>	<u>Code</u>	<u>Income</u>
A [0]	1	\$ 0 - 5,000
B [4]	2	5,001 - 10,000
C [6]	3	10,001 - 15,000
D [10]	4	15,001 - 20,000
E [11]	5	20,001 - 25,000
F [36]	6	25,001 - 35,000
G [35]	7	35,001 - 50,000
H [16]	8	50,001 - 75,000
I [6]	9	75,001 +
Missing [15]		

Codes for States (V6)

- | | |
|--------------------------|--------------------|
| 1. Michigan | 27. Montana |
| 2. Alabama | 28. Nebraska |
| 3. Alaska | 29. Nevada |
| 4. Arizona | 30. New Hampshire |
| 5. Arkansas | 31. New Jersey |
| 6. California | 32. New Mexico |
| 7. Colorado | 33. New York |
| 8. Connecticut | 34. North Carolina |
| 9. Delaware | 35. North Dakota |
| 10. District of Columbia | 36. Ohio |
| 11. Florida | 37. Oklahoma |
| 12. Georgia | 38. Oregon |
| 13. Hawaii | 39. Pennsylvania |
| 14. Idaho | 40. Rhode Island |
| 15. Illinois | 41. South Carolina |
| 16. Indiana | 42. South Dakota |
| 17. Iowa | 43. Tennessee |
| 18. Kansas | 44. Texas |
| 19. Kentucky | 45. Utah |
| 20. Louisiana | 46. Vermont |
| 21. Maine | 47. Virginia |
| 22. Maryland | 48. Washington |
| 23. Massachusetts | 49. West Virginia |
| 24. Minnesota | 50. Wisconsin |
| 25. Mississippi | 51. Wyoming |
| 26. Missouri | |

APPENDIX 5

Economic questionnaire #1 (version 1.4, winter)

LES CHENEAUX FISHING SURVEY: ECONOMICS 1.4

_____ 1
 (Mo) (Day) (Yr)

Date _____ (Mo/day/yr) Site _____ (Site) _____ 2

Time _____ Interviewer ID. No. _____ 3

_____ (ID) _____ 4

Hello! My name is _____ and I am with the The University of Michigan. We are doing a survey to collect information about how users of the Les Cheneaux fishery value the site currently and how the value would change if the quality of the fishing changed. The information you provide will be kept strictly confidential. If you like we will send you a summary of the results of the survey.

{ Did you fish at Les Ch last year?
 { Have we interviewed you before?

Results requested: Yes: ___ No: ___

Mailing address:

Number/Street/RFD: _____ Apt. No. _____
 City: _____ State: ___ Zip: _____

I. BASIC INFORMATION

1. Where do you live? (Do not repeat if provided mailing address).

City: _____ 5
 State: _____ Zip: _____ 6

2. Is this zip code for:

Your residence? ___ (Want residence zip code). 7
 P. O. Box? ___ 8
 Unknown? ___

2A. Where are you staying during your present trip? _____ 241

- 1 = Day-tripper, public launch-user, not staying
- 2 = Staying at resort or campground
- 3 = Staying in own cottage, summer house, or year-round house located in Les Ch., using public launch

3. Have we interviewed you before? Yes: ___ No: ___ 9

[IF YES: STOP INTERVIEW]

4. Did you fish in the Les Cheneaux area last year? Yes: ___ No: ___ 10

[IF YES, GO TO Q. 5]

IF NO:

4A. What made you decide to come this year, when you didn't come last year? Was there something different this year?

[IF ANSWERED NO, SKIP SECTION II: MOVE TO PAGE 6]

II. TRAVEL COST: FOR LAST YEARS' TRIPS

I'd like to talk to you about the trips you made to Les Cheneaux last year.

- 5. Did you make more than five fishing trips to Les Cheneaux islands last year? _____ 11
Yes: ___ No: ___

[IF NO: GO TO Q24]

FOR RESPONDENTS WITH MORE THAN FIVE TRIPS LAST YEAR

It is very important that we get an accurate count of the number of trips. To make it easier to recall, I would like to separate the two seasons: ice fishing and open water fishing.

ICE FISHING:

- Let's talk first about ice fishing: I am referring to the previous ice fishing season (i.e., December 1984 to April 1985). Did you ice fish then? _____ 12

[IF NO: SKIP TO Q13]

[IF YES: CONTINUE AND SHOW CALENDAR CARD]

- 6. In what week did you ice fish for the first time?
Date: _____ (Mo/day/yr). _____ 13

- 7. What was the last week you ice fished?
Date: _____ (Mo/day/yr). _____ 14

- 8. Did you go:
 - a) according to a regular pattern: (such as, every Saturday; two times per week (every Saturday, Sunday); every weekday; or once a month? _____ 15
_____ (Go to Q9).

- b) every now and again, but no regularity to it: _____ (Skip to Q12).

- 9. If Regularly: Approximately how many times per week? _____ or per month? _____ 16

IF ANSWER ON MONTHLY BASIS, DIVIDE BY 4.3 (WEEKLY BASIS)

HOW WAS ANSWER GIVEN? _____ 17

WEEK = 1 }
MONTH = 2 }

10. Were certain weeks exceptions to that pattern?

How about:

Thanksgiving Week: Same__ Less__ More__

Christmas Week: Same__ Less__ More__

New Years Week: Same__ Less__ More__

Other weeks: Same__ Less__ More__

11. So that adds up to about ___ trips. Does that seem about right? Too many? Too few?

Adjusted number of trips: _____ (Skip over Q12 and Q13).

_____ 18

12. If Not Regularly: Can you identify week by week approximately how many times you visited the site?

_____ 19

[SHOW RESPONDENT WEEKLY VISITS CARD]

13. So that adds up to about ___ trips. Does that seem about right? Too many? Too few? Adjusted number of trips: _____.

_____ 20

_____ 21

OPEN-WATER FISHING:

14. (+) Now lets talk about open water fishing last year. Did you fish here then? _____

_____ 22

[IF NO: SKIP TO Q23]

[IF YES: CONTINUE AND SHOW CALENDAR CARD]

15. In what week did it start for you?

Date: _____ (Mo/day/yr).

_____ 23

16. What was the last week you did open-water fishing?

Date: _____ (Mo/day/yr).

_____ 24

17. Did you go:

a) according to a regular pattern: for example, every Saturday, twice a week, or once a month _____ (Go to Q18).

_____ 25

b) every now and again, but no regularity to it _____ (Skip to Q21).

18. If Regularly: Approximately how many times per week? _____ or per month? _____.

_____ 26
weekly

IF ANSWER IN MONTHLY BASIS, FOR #26, DIVIDE BY 4.3

HOW WAS ANSWER GIVEN?

_____ 27

WEEK = 1
MONTH = 2

19. Were certain weeks exceptions to that pattern?

How about:

Memorial Day Week: Same__ Less__ More__

July 4th Week: Same__ Less__ More__

Other Weeks: (specify)_____ Same__ Less__ More__

20. So that adds up to_____. Does that seem about right? Too many? Too few? _____ 28

Adjusted number of trips_____ (Skip to Q23). _____ 29

21. If Not Regularly: Can you recall week by week approximately how many times you visited the site? [Refer to weekly card]

22. So that adds up to_____ one-day trips? Does that seem about right? _____ 30

Adjusted number of trips_____ _____ 31

23. The combination of open-water and ice-fishing trips then is_____ [Clerk add]. Too many? Too few? Adjusted total trips:_____ _____ 32

_____ _____ 33

[GO TO Q25]

ADDITION PROBLEMS:

_____ 34

FOR RESPONDENTS WITH FIVE OR FEWER TRIPS LAST YEAR

24. How many trips did you make to site last year? _____ 35

How many ice fishing trips? _____ 36

How many open-water fishing trips? _____ 37

ALL RESPONDENTS:

26. How many hours per day did you usually fish during summer? _____ winter? _____ 38

27. Were all your trips day trips? _____ or were some overnight? _____ 39

[IF ALL WERE DAY TRIPS: _____ 40

25. What was the primary purpose of visiting Les Cheneaux?

(fishing) Yes:___ No:___

Other (specify): _____

[SEE CODES IN Q31]

ENTER CODE
OF PRIMARY
PURPOSE

_____ 41

[DAY TRIPPER. SKIP TO Q32]

OVERNIGHT RESPONDENTS

28. How many days were you in the area for each trip? 1: __, 2: __, 3: __, 4: __, 5: __.

29. On how many of these days did you fish? 1: __, 2: __, 3: __, 4: __, 5: __.

31. What was the primary purpose of each trip? (label as 1 in appropriate column), secondary purpose? (label as 2), and tertiary purpose? (label as 3).

____ 42
 ____ 43
 Q28 ____ 44
 ____ 45
 ____ 46
 ____ 47
 ____ 48
 Q29 ____ 49
 ____ 50
 ____ 51

	<u>First trip</u>	<u>Second trip</u>	<u>Third trip</u>	<u>Fourth trip</u>	<u>Fifth trip</u>						
Fishing	_____	_____	_____	_____	_____	PUR-POSES	1	2	3	4	5
Hiking	_____	_____	_____	_____	_____	PRIM.	52	53	54	55	56
Boating	_____	_____	_____	_____	_____	SEC.	57	58	59	60	61
Camping	_____	_____	_____	_____	_____	TERT.	62	63	64	65	66
Touring	_____	_____	_____	_____	_____						
Hunting	_____	_____	_____	_____	_____						
Other (Specify)	_____	_____	_____	_____	_____						

ALL RESPONDENTS:

32. For your trips last year, how did you travel to the area from home? (use percentages or numbers, depending upon which is easier). CODER: CALCULATE #

	<u>Winter</u>		<u>Summer</u>			
	(%)Trips	(#)Trips	(%)Trips	(#)Trips		
Snowmobile	_____	_____	_____	_____	S	67
Car	_____	_____	_____	_____	C	68
Boat (rent)	_____	_____	_____	_____	B(R)	69
Boat (own)	_____	_____	_____	_____	B(O)	70
Walk	_____	_____	_____	_____	W	71
Other (specify)	_____	_____	_____	_____	O	72
					C	73
					B(R)	74
					B(O)	75
					W	76
					O	77

[IF "WALK": SKIP TO Q36]
 or snowmobile

33. Did you come ^{from home} in a group? Yes: __ No: __ (If no, skip to Q36).

34. How many people in group? ^{including yourself} _____

35. Did you split expenses? Yes: __ No: __

____ 78
 ____ 79
 ____ 80

36. Did you live in the same place last year as you do now? Yes: ___ No: ___.

[IF YES, SKIP TO Q39]

37. Where did you live last year? _____ 81

City: _____

State: _____ Zip: _____

82

83

84

38. Is this zip code:

For your residence? _____

P. O. Box? _____

Unknown? _____

85

39. How many miles was trip from home to the Les Cheneaux fishing site one-way?

40. A. How much time did it take you to get here (if you traveled directly to area)? _____ hrs _____ min _____ 86

[IF IT TOOK 1-2 HOURS, ASK B; MORE THAN 2 HOURS, ASK B AND C]

_____ 87
(MINUTES)

III. CONTINGENT VALUATION

40.1. What fish do you target in your trips? [DO NOT READ CATEGORIES]
What percentage of your time on average do you target for each type fish?

_____ Perch; _____ Trout, Salmon; _____ Herring; _____ Smelt;
_____ Other [FILL BLANKS WITH PERCENTAGES.]

40.2. We are interested in knowing what factors you value in a perch fishery?

[OPEN-ENDED: DO NOT PROMPT WITH CATEGORIES INITIALLY; WRITE DOWN COMMENTS]

P _____ 90
T/S _____ 91
H _____ 92
SM _____ 93
O _____ 94

_____ Number of fish [WHAT'S ACCEPTABLE? _____ per _____ hr]

_____ Size of fish [WHAT'S PREFERRED? WHAT'S ACCEPTABLE?]

_____ Familiarity of site

_____ Quality of tourist services _____ 95

[IF PEOPLE SAY 'CLOSENESS,' SAY: "WE ARE LOOKING FOR CHARACTERISTICS THAT MIGHT MAKE YOU WILLING TO TRAVEL TO A SITE"] _____ 96
_____ 97
_____ 98

[FOR THE CODER: What contingency version is this?] _____ 88

* * * * *

We are interested in knowing how changes in the number and size of your perch catch would affect how much you value the perch fishing at Les Cheneaux.

44./ Downside Case: [Card 4]

This comparison case is a hypothetical one. In this case, the catch declines by 50%, as presented on the card.

[ASK RESPONDENT TO LOOK AT CATCH CARD]

A. Which fishing opportunity would you prefer? Les Ch. ___ Other ___ Why? ___ 225

If this change occurred in your expected perch catch at Les Cheneaux last year, would you have taken a different number of trips?

[FOR OVERNIGHTS: Or would you have changed the length of your stay?]

B. more trips? ___; fewer trips? ___; same number trips? ___; no opinion? ___ 226

If more or less: how many trips would you have taken? ___ 227

C. longer trips? ___; shorter trips? ___; same length trips? ___; no opinion? ___ 228

If longer or shorter: how many days would you have stayed? ___ 229

___ number of one-day trips?

___ number of ___-day trips?

___ number of ___-day trips?

{ NO. ___ 230

{ DAY ___ 231

D. Why did you [CHANGE, NOT CHANGE] the number of trips?

{ NO. ___ 232

{ DAY ___ 233

If in 44A, said "prefer other":

Now think of the improved site as another fishery, with all features — except number and size of perch catch — exactly the same as at Les Cheneaux.

E. If your only two choices were Les Cheneaux in its current state or this alternative site represented on the card, would you be willing to travel further to this alternative site to make the [NUMBER IN B] trips? ___ Yes ___ No [ONLY IF YES, GO TO F] 234

F. So you would take (number in B) trips to the improved site.

How much further would you be willing to travel to improved site if your only other alternative were to take the same number of trips to Les Cheneaux? In other words, what (greater) distance (to other site) would leave you just indifferent between the two alternatives: [NUMBER IN B] trips to improved site and [NUMBER IN B] trips to Les Cheneaux?

___ min/hrs. or ___ miles

MINUTES ___ 235

If in 44A, said "prefer Les Cheneaux":

MILES ___ 236

E. If your only alternative to the current site is the other (worse) site represented on the card, would you be willing to travel farther to Les Cheneaux than you currently do, for the (number in Q23 or Q24) number of trips you took last year? ___ Yes ___ No [ONLY IF YES, GO TO F] 237

F. So you take [NUMBER IN Q23 OR Q24] trips to Les Cheneaux.

How much further would you be willing to travel to Les Cheneaux if your only other alternative were to take the same number of trips to the other site? In other words, what (greater) distance (to Les Cheneaux) would leave you just indifferent between the two alternatives?

___ min/hrs. or ___ miles

MINUTES ___ 238

MILES ___ 239

V. PERSONAL BACKGROUND

Now I need some background information. Let me remind you that all information is strictly confidential.

53. Sex: Male Female (Interviewer determines) 144

54. In what ethnic group would you classify yourself? (Interviewer determines) 145

White

Black

Hispanic

American Indian

Asian

55. Age: _____ 146

56. Employment status last year: (Multiple statuses are possible) 146

<u>Ice-fishing season</u>	<u>Summer fishing season</u>	<u>ICE</u>	<u>SUMMER</u>
<input type="checkbox"/> Employed	<input type="checkbox"/> Employed		
<input type="checkbox"/> Retired	<input type="checkbox"/> Retired	147	148
<input type="checkbox"/> Student	<input type="checkbox"/> Student	149	150
<input type="checkbox"/> Unemployed	<input type="checkbox"/> Unemployed	151	152

If employed:

	<u>Job 1</u>	<u>Job 2</u>	<u>Job 3</u>	<u>153</u>	<u>154</u>
57. Self-employed? (y/n)	_____	_____	_____		
Occupation (as specific as possible)	_____	_____	_____	155	156 157
Industry	_____	_____	_____	_____	158
How many wks/yr employed (or engaged in self-employment activity)?	_____	_____	_____	_____	159 160
	_____	_____	_____	_____	161
	_____	_____	_____	_____	162
	_____	_____	_____	_____	163
If less than full-year indicate period of employment	_____	_____	_____	_____	164
	_____	_____	_____	_____	165
	_____	_____	_____	_____	166
When employed, how many hrs/wk?	_____	WINTER=1	SUMMER=2	167	168 169
	_____	_____	_____	_____	170
	_____	_____	_____	_____	171
	_____	_____	_____	_____	172

60. During the time you fished last year, what would you have been doing if you weren't fishing? If multiple activities are indicated, rank them by relative likelihood, with 1 = highest priority.

0 = Not mentioned as alternative activity

Working for pay? _____ If yes:	PRIORITY CODE	WHICH JOB	
		MOST LIKELY	2ND MOST
Working regular time? _____ (which job: _____)			
Working overtime? _____ (which job: _____)	173	174	175
Self-employment? _____ (which job: _____)	176	177	178
Visiting another fishing site? _____ Specify: _____	179	180	181
Doing some other recreation? _____ Specify: _____	182	183 (SITE)	
Relaxing at home _____	184	(REC.)	185
Other _____ (SEE Q31 FOR CODE FOR 185)	186		
INDIVIDUAL HOURLY OPPORTUNITY COSTS:	187		

*WAGE RATE: Here is a list of wage categories.

[HAND RESPONDENT HOURLY WAGE CARD]

61. Would you call off the code of the category that best defines the wage you earned per hour when working regular-time in your jobs last year? when last working? [IF WORK ON A SALARY BASIS, ASK THEM TO READ OFF C FROM INCOME SIDE OF CARD.]

[CONTINUE IF: OVERTIME MENTIONED IN Q60; GO TO Q62 IF SELF-EMPLOYMENT MENTIONED; OTHERWISE GO TO Q64]

Would you call off the code for overtime in your jobs last year?

	Job 1	Job 2	Job 3	JOB		
	_____	_____	_____	1	2	3
Regular time wage	_____	_____	_____	188	189	190
Salary	_____	_____	_____			
Year of last work	_____	_____	_____	191	192	193
Overtime wage	_____	_____	_____	194	195	196

*SELF-EMPLOYMENT INCOME:

197 198 199

HERE IS A LIST OF INCOME CATEGORIES [TURN WAGE CARD OVER]

62. What is net annual income from self-employment only? [CALL OUT CATEGORY]	Job 1	Job 2	1	2
	_____	_____	_____	_____
	_____	_____	200	201

		JOB	
		1	2
63.	Does that represent work effort by others in family? How many others? # _____ # _____	204	205
		206	207
For each family worker:			
	Identify relationship: #1 _____ #1 _____	208	209
	wks/yr worked: _____	210	211
	hrs/wk worked: _____		
	Identify relationship: #2 _____ #2 _____	212	213
	wks/yr worked: _____	214	215
	hrs/wk worked: _____		
	Identify relationship: #3 _____ #3 _____	216	217
	wks/yr worked: _____	218	219
	hrs/wk worked: _____		
HOUSEHOLD INCOME:		220	221
64.	Here is a list of household income categories [TURN WAGE CARD OVER]	222	223
Would you call off the code number that best describes the total combined income that you and all other members of your family received during 1985. Please be sure to include wages and salaries, and net income from your business or pensions, dividends, interest, and any other sources. _____			
			224

[STOP]

APPENDIX 6

Codebook for questionnaire #1

CODEBOOK FOR
QUESTIONNAIRE 1
LES CHENEUX STUDY

November 1986

TABLE OF CONTENTS

	Page
A. Format and abbreviations.....	1
B. Numbers of the questions and numbers of the corresponding variables.....	2
C. List of variables.....	3
D. List of variable names (with explanations).....	5
E. Names, information, and codes for variables ('codebook entries') with descriptive data.....	12
F. Summary.....	55

A. Format and Abbreviations

1. Format for codebook entries

- X. VARNAME (y = # characters in variable)
Question or definition of variable
Explanation (if necessary)
Code (if necessary)

2. Key abbreviations used in variable names

- IF = Ice fishing
- OW = Open water fishing
- TS = Trips
- T = Trip
- VA = Unadjusted
- LC = Les Cheneaux

B. Numbers of the Questions and Numbers of the Corresponding Variables

<u>Question</u>	<u>Variable(s)</u>	<u>Question</u>	<u>Variable(s)</u>
1	5-7	31	52-66
2	8	32	67-77
2a	241	33	78
3	9	34	79
4	10	35	80
5	11	36	81
6	13	37	82-84
7	14	38	85
8	15	39	86
9	16-17	40	87
11	18-19	40.1	90-94
13	20-21	40.2	95-98
14	22	41	99-113
15	23	42	114-128
16	24	43	129-143
17	25	53	144
18	26-27	54	145
20	28-29	55	146
22	30-31	56	147-154
23	32-34	57	155-172
24	35-37	60	173-187
26	38-39	61	188-199
27	40	62	200-201
25	41	63	202-223
28	42-46	64	224
29	47-51	44	225-239

Notes:

1. The questions yielding variables 1-4 and 12 are not numbered.
2. Questions 10, 12, 19, and 21 were not coded.
3. The questionnaire number = variable 240.
4. Variable 88 is not a numbered question: for coder's use only.

C. List of Variables

1. DATE	34. ADDPROB	67. SNOWWIN	100. CHNGNUM7
2. SITE	35. TS5	68. CARWIN	101. NUM7
3. TIME	36. IFTS5	69. BOATRWIN	102. CHNGLEN7
4. ID	37. OWTS5	70. BOATOWIN	103. DAYTS7
5. CITY	38. HRSSUM	71. WALKWIN	104. NUM7A
6. ST	39. HRSWIN	72. OTHWIN	105. LEN7A
7. ZIP	40. DAYT	73. CARSUM	106. NUM7B
8. ZC	41. PUR	74. BOATRSUM	107. LEN7B
9. INT	42. DAYST1	75. BOATOSUM	108. FUR7
10. LC85	43. DAYST2	76. WALKSUM	109. MIN7
11. LC5	44. DAYST3	77. OTHSUM	110. MI7
12. IF	45. DAYST4	78. GRP	111. FARLC7
13. IFBEG	46. DAYST5	79. NUMGRP	112. MINLC7
14. IFEND	47. FISHT1	80. SPLEXP	113. MILC7
15. IFREG	48. FISHT2	81. SAME	114. LCOR8
16. IFPRWK	49. FISHT3	82. CITY85	115. CHNGNUM8
17. IFWM	50. FISHT4	83. ST85	116. NUM8
18. IFTSRUA	51. FISHT5	84. ZIP85	117. CHNGLEN8
19. IFTSR	52. P1T1	85. ZC85	118. DAYTS8
20. IFTSNUA	53. P1T2	86. MITOLC	119. NUM8A
21. IFTSN	54. P1T3	87. MINTOLC	120. LEN8A
22. OW	55. P1T4	88. CNTNGY#	121. NUM8B
23. OWBEG	56. P1T5	89. BLNK89	122. LEN8B
24. OWEND	57. P2T1	90. PERCH%	123. FUR8
25. OWREG	58. P2T2	91. TRSAL%	124. MIN8
26. OWPRWK	59. P2T3	92. HERR%	125. MI8
27. OWWM	60. P2T4	93. SMLT%	126. FARLC8
28. OWTSRUA	61. P2T5	94. OTH%	127. MINLC8
29. OWTSR	62. P3T1	95. NUMFISH	128. MILC8
30. OWTSNUA	63. P3T2	96. SZFISH	129. LCORD
31. OWTSN	64. P3T3	97. FAMSITE	130. CHNGNUMD
32. TSUA	65. P3T4	98. QUALTOUR	131. NUMD
33. TS	66. P3T5	99. LCOR7	132. CHNGLEND

C. List of Variables (continued).

133. DAYTSD	166. WKSyr3	199. OTWG3	232. NUMVB
134. NUMDA	167. WS1	200. SEY1	233. LENVB
135. LENDA	168. WS2	201. SEY2	234. FURV
136. NUMDB	169. WS3	202. FAM1	235. MINV
137. LENDB	170. HRSWK1	203. FAM2	236. MIV
138. FURD	171. HRSWK2	204. NUMFAM1	237. FARLCV
139. MIND	172. HRSWK3	205. NUMFAM2	238. MINLCV
140. MID	173. PCRT	206. ID1J1	239. MILCV
141. FARLCD	174. RTJ1	207. ID1J2	240. QUEST#
142. MINLCD	175. RTJ2	208. WK1J1	241. WHERSTAY
143. MILCD	176. PCOT	209. WK1J2	
144. SEX	177. OTJ1	210. HR1J1	
145. RACE	178. OTJ2	211. HR1J2	
146. AGE	179. PCSE	212. ID2J1	
147. EMPWIN	180. SEJ1	213. ID2J2	
148. EMPSUM	181. SEJ2	214. WK2J1	
149. RETWIN	182. PCFS	215. WK2J2	
150. RETSUM	183. FSIT	216. HR2J1	
151. STUWIN	184. PCRC	217. HR2J2	
152. STUSUM	185. REC	218. ID3J1	
153. UNWIN	186. PCRX	219. ID3J2	
154. UNSUM	187. PCOR	220. WK3J1	
155. SE1	188. WG1	221. WK3J2	
156. SE2	189. WG2	222. HR3J1	
157. SE3	190. WG3	223. HR3J2	
158. OCC1	191. SAL1	224. HHY	
159. OCC2	192. SAL2	225. LCVRV	
160. OCC3	193. SAL3	226. CHNGNUMV	
161. IND1	194. YR1	227. NUMV	
162. IND2	195. YR2	228. CHNGLENV	
163. IND3	196. YR3	229. DAYTSV	
164. WKSyr1	197. OTWG1	230. NUMVA	
165. WKSyr2	198. OTWG2	231. LENVA	

D. List of Variable Names (With Explanations)

1. DATE
2. SITE
3. TIME
4. ID
5. CITY
6. ST
7. ZIP
8. ZC (what is zip code for?)
9. INT (interviewed before?)
10. LC85 (fished at LC in 1985?)
11. LC5 (more than 5 trips in 1985?)
12. IF (ice fishing in previous season?)
13. IFBEG (when did season begin for you?)
14. IFEND (when did season end for you?)
15. IFREG (regular pattern?)
16. IFPRWK (times per week?)
17. IFWM (how answer given: per week or month?)
18. IFTSRUA (total if trips by a regular -- unadjusted)
19. IFTSR (total if trips by a regular -- adjusted)
20. IFTSNUA (total if trips by a nonregular -- unadjusted)
21. IFTSN (total if trips by a nonregular -- adjusted)
22. OW
23. OWBEG
24. OWEND
25. OWREG
26. OWPRWK
27. OWWM
28. OWTSRUA
29. OWTSR
30. OWTSNUA
31. OWTSN
32. TSUA (total trips -- unadjusted)
33. TS (total trips -- adjusted)
34. ADDPROB (addition problem)
35. TS5 (total trips -- 5 or fewer in 1985)
36. IFTS5 (IF trips -- 5 or fewer trips totally)

For explanation of variable n,
see variable n-10 and substitute
'OW' for 'IF'. [OW refers to
open water fishing.]

D. List of Variable Names (With Explanations) (continued).

- 37. OWTS5 (OW trips -- 5 or fewer trips totally)
- 38. HRSSUM (hours per day of fishing in summer)
- 39. HRSWIN (hours per day of fishing in winter)
- 40. DAYT (all trips day trips?)
- 41. PUR (primarily purpose of visits -- daytripper)
- 42. DAYST1 (days in area -- trip 1)
- 43. DAYST2 (days in area -- trip 2)
- 44. DAYST3 (days in area -- trip 3)
- 45. DAYST4 (days in area -- trip 4)
- 46. DAYST5 (days in area -- trip 5)
- 47. FISHT1 (how many days did you fish on trip 1?)
- 48. FISHT2 (how many days did you fish on trip 2?)
- 49. FISHT3 (how many days did you fish on trip 3?)
- 50. FISHT4 (how many days did you fish on trip 4?)
- 51. FISHT5 (how many days did you fish on trip 5?)
- 52. PIT1 (primary purpose -- trip 1)
- 53. PIT2 (primary purpose -- trip 2)
- 54. PIT3 (primary purpose -- trip 3)
- 55. PIT4 (primary purpose -- trip 4)
- 56. PIT5 (primary purpose -- trip 5)
- 57. P2T1 (secondary purpose -- trip 1)
- 58. P2T2 (secondary purpose -- trip 2)
- 59. P2T3 (secondary purpose -- trip 3)
- 60. P2T4 (secondary purpose -- trip 4)
- 61. P2T5 (secondary purpose -- trip 5)
- 62. P3T1 (tertiary purpose -- trip 1)
- 63. P3T2 (tertiary purpose -- trip 2)
- 64. P3T3 (tertiary purpose -- trip 3)
- 65. P3T4 (tertiary purpose -- trip 4)
- 66. P3T5 (tertiary purpose -- trip 5)
- 67. SNOWWIN (number of trips to area by snowmobile last winter)
- 68. CARWIN (by car)
- 69. BOATRWIN (by rented boat)
- 70. BOATOWIN (by own boat)
- 71. WALKWIN (by walking)

D. List of Variable Names (With Explanations) (continued).

- 72. OTHWIN (by other mode)
- 73. CARSUM (number of trips to area by car last summer)
- 74. BOATRSUM (by rented boat)
- 75. BOATOSUM (by own boat)
- 76. WALKSUM (by walking)
- 77. OTHSUM (by other mode)
- 78. GRP (come in group?)
- 79. NUMGRP (how many in group?)
- 80. SPLEXP (split expenses?)
- 81. SAME (same residence last year?)
- 82. CITY85
- 83. ST85
- 84. ZIP85
- 85. ZC85 (what is 1985 Zip Code for?)
- 86. MITOLC (miles to Les Cheneaux from home)
- 87. MINTOLC (minutes to Les Cheneaux from home)
- 88. CNTNGY# (which contingency lies)
- 90. PERCH% (% of time targeted for perch)
- 91. TRSAL% (for trout and salmon)
- 92. HERR% (for herring)
- 93. SMLT%
- 94. OTH% (for other fish)
- 95. NUMFISH (number of fish)
- 96. SZFISH (size of fish)
- 97. FAMSITE (familiarity of site) Do you value this aspect of a perch fishery?
- 98. QUALTOUR (quality of tourist services)
- 99. LCOR7 (prefer Les Cheneaux to 7" MSL?)
- 100. CHNGNUM7 (change no. of trips, with 7" MSL)
- 101. NUM7 (no. of trips, with 7" MSL)
- 102. CHNGLEN7 (change length of trips, with 7" MSL)
- 103. DAYTS7 (no. of day trips, with 7" MSL)
- 104. NUM7A
- 105. LEN7A number and length of trips that would have been made with 7" MSL
- 106. NUM7B
- 107. LEN7B

D. List of Variable Names (With Explanations) (continued).

- 108. FUR7 (willing to travel further to other site?)
- 109. MIN7 how much further? (in minutes -- V109,
- 110. MI7 or in miles -- V110)
- 111. FARLC7 (willing to go further to get to Les Cheneaux?)
- 112. MINLC7 how much further? (in minutes -- V112,
- 113. MILC7 or in miles -- V113)
- 114. LCOR8
- 115. CHNGNUM8
- 116. NUM8
- 117. CHNGLEN8
- 118. DAYTS8
- 119. NUM8A
- 120. LEN8A For explanation of variable n,
- 121. NUM8B see variable n-15, and substitute
- 122. LEN8B '8' for '7' (8" minimum size
- 123. FUR8 limit contingency case.)
- 124. MIN8
- 125. MI8
- 126. FARLC8
- 127. MINLC8
- 128. MILC8
- 129. LCORD
- 130. CHNGNUMD
- 131. NUMD
- 132. CHNGLEND
- 133. DAYTSD
- 134. NUMDA
- 135. LENDA For explanation of variable n,
- 136. NUMDB see variable n-30 and substitute
- 137. LENDB 'D' for '7' (and 'DOWNSIDE CASE'
- 138. FURD for '7" MSL').
- 139. MIND
- 140. MID
- 141. FARLCD
- 142. MINLCD
- 143. MILCD

D. List of Variable Names (With Explanations) (continued).

- 144. SEX
- 145. RACE
- 146. AGE
- 147. EMPWIN (employed last winter?)
- 148. EMPSUM (employed last summer?)
- 149. RETWIN (retired last winter?)
- 150. RETSUM (retired last summer?)
- 151. STUWIN (student last winter?)
- 152. STUSUM (student last summer?)
- 153. UNWIN (unemployed last winter?)
- 154. UNSUM (unemployed last summer?)
- 155. SE1 (self-employed at job 1)
- 156. SE2 (self-employed at job 2)
- 157. SE3 (self-employed at job 3)
- 158. OCC1 (occupation -- job 1)
- 159. OCC2 (occupation -- job 2)
- 160. OCC3 (occupation -- job 3)
- 161. IND1 (industry -- job 1)
- 162. IND2 (industry -- job 2)
- 163. IND3 (industry -- job 3)
- 164. WKSyr1 (weeks per year -- job 1)
- 165. WKSyr2 (weeks per year -- job 2)
- 166. WKSyr3 (weeks per year -- job 3)
- 167. WS1 (winter or summer job -- job 1?)
- 168. WS2 (winter or summer job -- job 2?)
- 169. WS3 (winter or summer job -- job 3?)
- 170. HRSWK1 (hours per week -- job 1)
- 171. HRSWK2 (hours per week -- job 2)
- 172. HRSWK3 (hours per week -- job 3)
- 173. PCRT (priority code -- regular time)
- 174. RTJ1 most likely/2nd most likely job at which
you might have worked regular time
- 175. RTJ2
- 176. PCOT (priority code -- overtime)
- 177. OTJ1
- 178. OTJ2
- 179. PCSE (priority code -- self-employed)

D. List of Variable Names (With Explanations) (continued).

- 180. SEJ1
- 181. SEJ2
- 182. PCFS (priority code -- fishing at other site)
- 183. FSIT (other fishing site)
- 184. PCRC (priority code -- other recreation)
- 185. REC (other type of recreation)
- 186. PCRX (relaxing at home)
- 187. PCOR (other activity)
- 188. WG1 (regular time wage -- job 1)
- 189. WG2 (regular time wage -- job 2)
- 190. WG3 (regular time wage -- job 3)
- 191. SAL1 (salary -- job 1)
- 192. SAL2 (salary -- job 2)
- 193. SAL3 (salary -- job 3)
- 194. YR1 (year of last work at job 1)
- 195. YR2 (year of last work at job 2)
- 196. YR3 (year of last work at job 3)
- 197. OTWG1 (overtime wage -- job 1)
- 198. OTWG2 (overtime wage -- job 2)
- 199. OTWG3 (overtime wage -- job 3)
- 200. SEY1 (self-employment income -- job 1)
- 201. SEY2 (self-employment income -- job 2)
- 202. FAM1 (work by other family members -- job 1?)
- 203. FAM2 (work by other family members -- job 2?)
- 204. NUMFAM1 (no. of other family members -- job 1)
- 205. NUMFAM2 (no. of other family members -- job 2)
- 206. ID1J1 (relationship: family worker #1, job 1)
- 207. ID1J2 (relationship: family worker #1, job 2)
- 208. WK1J1 (wks of work: family worker #1, job 1)
- 209. WK1J2 (wks of work: family worker #1, job 2)
- 210. HR1J1 (hrs/wk of work: family worker #1, job 1)
- 211. HR1J2 (hrs/wk of work: family worker #1, job 2)
- 212. ID2J1
- 213. ID2J2
- 214. WK2J1
- 215. WK2J2

D. List of Variable Names (With Explanations) (continued).

- 216. HR2J1
 - 217. HR2J2
 - 218. ID3J1
 - 219. ID3J2
 - 220. WK3J1
 - 221. WK3J2
 - 222. HR3J1
 - 223. HR3J2
 - 224. HHY (total household income -- 1985)
 - 225. LCORV
 - 226. CHNGNUMV
 - 227. NUMV
 - 228. CHNGLENV
 - 229. DAYTSV
 - 230. NUMVA
 - 231. LENVA
 - 232. NUMVB
 - 233. LENVB
 - 234. FURV
 - 235. MINV
 - 236. MIV
 - 237. FARLCV
 - 238. MINLCV
 - 239. MILCV
 - 240. QUEST# (questionnaire number)
 - 241. WHERSTAY (where are you staying during present trip?)
- For explanation of variable n,
see variable n-126 and substitute
'V' for '7' (and 'VERY DOWNSIDE CASE'
for '7" MSL').

E. Names, Information and Codes for Variables ('Codebook Entries')

RESULTS

Range: 2/27/86 - 8/16/86

1. DATE (6)
Date
Month/day/year (2 digits for each)
2. SITE (3)
Fishing site
3-digit code for site
3. TIME (4)
Time of interview
24-hour basis (e.g., 1 p.m. is 1300)

<u>Code</u>	<u>Sites</u>	<u>n</u>
0	Missing - 1	
346	Hessel Bay - 52	
347	Mackinac Bay - 10	
348	Muskie Bay - 42	
349	Shepherd Bay - 18	
350	Cedarville - 47	
351	Flower Bay - 2	
352	Moscoe Channel - 60	
353	Government Bay - 7	
354	McKay Bay - 30	
400	Lake Huron - 6	

6	[2]
7	[11]
8	[16]
9	[24]
10	[28]
11	[34]
12	[20]
13	[24]
14	[24]
15	[22]
16	[27]
17	[17]
18	[9]
19	[5]
20	[9]
21	[3]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

4. INTSITE (2): [only coded for open-water fishing; for winter fishing, interview site is the same as fishing site, recorded in var. 2]

<u>Code</u>	<u>Interview Site</u>	<u>n</u>	^{open water} (winter fishing)
0	Missing - 134		
5	Cedarville R.V. Park - 4		
6	Les Cheneaux Motel - 0		
7	Bearfoot Resort - 0		
8	Cedar Point Cottages - 8		
9	Hills Point Resort - 6		
10	Island View Resort - 3		
11	Larys Cabins - 0		
12	Bayview Cottages - 1		
13	Don's Place - 0		
14	Les Cheneaux Park Ctgs. - 0		
16	Patrick's Landing - 0		
17	Paul's Waterfront Ctgs. - 0		
18	Shoberg's Resort - 0		
19	Waterlawn Harbor - 0		
20	Hessel Public Launch - 13		
21	Cedarville Public Launch - 22		
22	Cedarville Public Docks - 0		
23	Mertaughs Docks - 0		
24	Hill Island Causeway - 5		
25	Island Eight Causeway - 0		
26	McKay Creek Bridge - 18		
27	Sunset Cabins - 2		
28	Les Cheneaux Landing - 14		
29	Shady Side - 15		
30	Spring Lodge - 14		
31	Torsky's Resort - 6		
32	Ford's Cottages - 0		
33	Wilson's Cabins - 0		
34	Trail's End - 10		

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

5. CITY (3)

Where do you live (city)?

3-digit code for city (and non-Michigan state, where applicable)

<u>Code</u>	<u>Site</u>	<u>n</u>
0	Missing -	1
049	Adrian -	1
001	Ann Arbor -	1
107	Allan Park -	2
046	Allegan -	2
077	Alto -	1
122	Au Gres -	1
002	Battle Creek -	2
003	Bay City -	3
089	Beaverton -	1
113	Bently -	1
057	Burnips -	1
088	Caro -	1
004	Cedar Springs -	1
005	Cedarville -	41
006	Charlotte -	3
066	Cheboygan -	1
110	Clinton -	1
007	Comstock Park -	2
060	Conklin -	1
082	Concord -	1
098	Corunna -	1
128	Croswell -	1
008	Dear Township -	1
009	Dearborn -	0
119	Deckerville -	1
010	Detour -	1
011	Detroit -	0
123	Dewitt -	1
064	Durand -	1
012	East Lansing -	0
047	Edmore -	1

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
076	Elsie - 0	
062	Evert - 3	
115	Fairgrove - 1	
129	Farmington Hills - 0	
052	Ferndale - 1	
058	Fibre - 2	
013	Flatrock - 1	
084	Fleshing - 1	
014	Flint - 2	
095	Fountain - 1	
087	Frazier - 1	
092	Garden City - 1	
061	Gobels - 3	
015	Gower - 1	
016	Grand Rapids - 7	
017	Grandville - 1	
018	Grayling - 4	
103	Hale - 0	
111	Harbor Beach - 1	
109	Harbor Springs - 1	
114	Harrison - 0	
117	Harrisville - 1	
116	Hazel Park - 1	
019	Hessel - 12	
081	Highland Township - 0	
020	Holland - 3	
108	Howard City - 1	
048	Howell - 2	
050	Jackson - 3	
021	Jension - 1	
022	Kalamazoo - 0	
023	Kincheloe - 2	
100	Kinross - 1	

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
072	Lake City	- 0
024	Lansing	- 3
106	Lennon	- 0
025	Lewiston	- 5
026	Lindon	- 1
073	Livonia	- 3
027	Mackinaw City	- 0
028	Mackinaw Island	- 2
054	Madison Hts.	- 0
068	Manton	- 1
029	Marion	- 3
125	Marlette	- 1
079	Marne	- 0
091	Marshall	- 1
030	Martin	- 1
124	Melvindale	- 0
085	Midland	- 2
031	Millersburg	- 1
093	Mt. Clemens	- 0
032	Moran	- 2
033	Mulliken	- 1
075	Muskegon	- 0
090	New Lothrop	- 0
053	Newaggo	- 1
034	Newberry	- 2
097	Niles	- 1
063	Oscoda	- 0
059	Ostego	- 3
096	Otisville	- 1
126	Port Huron	- 0
035	Petoskey	- 1
065	Pellston	- 0
036	Pickford	- 5

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

5.. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
071	Plymouth - 1	
037	Pontiac - 1	
086	Rochester - 1	
118	Rogers City - 1	
055	Rudyard - 2	
038	Saginaw - 1	
099	St. Clair Shores - 1	
039	St. Ignace - 22	
131	St. Johns - 1	
040	Sault Ste. Marie - 9	
041	Sears - 1	
056	South Haven - 1	
074	South Gate - 1	
127	Southfield - 1	
105	Standish - 0	
042	Stanwood - 1	
070	Sterling Hts. - 1	
069	Swartz Creek - 1	
101	Taylor - 1	
112	Tecumseh - 1	
132	Three Rivers - 1	
043	Traverse City - 2	
094	Trenton - 2	
044	Troy - 1	
121	Union Lake - 1	
067	Utica - 1	
045	Wadsworth - 1	
104	Warren - 2	
078	Westland - 1	
083	Ypsilanti - 1	
102	Zeeland - 3	

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

5.. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
<u>Other States</u>		
301	Akron, OH	- 1
302	Miamisburg, OH	- 2
303	West Milton, OH	- 2
304	Rocksburg, OH	- 0
305	Ft. Wayne, IN	- 0
306	Miami Township, OH	- 0
307	Dayton, OH	- 3
308	Columbus, OH	- 0
309	Richmond, IN	- 1
310	Macy, IN	- 0
311	Hillsboro, IL	- 0
312	Bradenton, FL	- 1
313	Arcada, FL	- 1
314	Fort Thomas, KY	- 1
315	Houston, OH	- 0
317	Xenia, OH	- 0
318	Louisville, KY	- 1
319	Toledo, OH	- 6
320	Bowling Green, OH	- 0
321	Bloomington, IL	- 1
322	Marion, OH	- 1
323	Kittering, OH	- 1
324	South Bend, IN	- 0
325	Findley, OH	- 1
326	Smithville, OH	- 1
327	St. Johns, OH	- 1
328	Eleva, WI	- 0
329	Davenport, IA	- 1
330	Hammelton, OH	- 2
331	St. Petersburg, FL	- 1
332	Sandusky, OH	- 0
333	Bellview, FL	- 1

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

5. (continued).

<u>Code</u>	<u>Site</u>	<u>n</u>
334	Plano, TX -	0
335	Batavia, OH -	0
336	Middlebury, IN -	1
337	Seville, OH -	1

6. ST (2)

Where do you live (state)?

2-digit code for state [see back of codebook]

- 0. Missing - 1
- 1. Michigan - 242
- 11. Florida - 4
- 15. Illinois - 1
- 16. Indiana - 2
- 17. Iowa - 1
- 19. Kentucky - 2
- 36. Ohio - 22

7. ZIP (5)

Where do you live (Zip Code)?

8. ZC (1)

What is this zip code for?

- 0. Missing - 26
- 1. Residence - 243
- 2. P.O. Box - 6
- 9. Unknown

9. INT

1

Have we interviewed you before?

- 1. Yes - 0
- 2. No - 275

10. LC85

1

Did you fish in the Les Cheneaux area last year?

- 1. Yes - 245
- 2. No - 30

11. LC5

1

Did you make more than 5 fishing trips
to Les Cheneaux Islands last year?

- 0. Missing - 30 (no trips last year)
- 1. Yes - 111
- 2. No - 134

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

12. IF (GT5 Only)

1
Did you ice fish between 12/84 and 4/85?
0. Missing - 164 (fewer than 5 trips or missing on var. 11)
1. Yes - 94
2. No - 17

13. IFBEG (GT5 Only)

6
In what week did you ice fish for the first time? 0 [208]
Month/day/year (2 digits for each) 11/25/84-3/15/84 [67]
1/1/85 median

14. IFEND (GT5 Only)

6
What was the last week you ice fished? 0 [209]
Month/day/year (2 digits for each) 2/1/85-4/25/85 [66]
4/15/85 median

15. IFREG (GT5 Only)

1
Did you go according to a regular pattern?
0. Missing - 182
1. Yes - 58
2. No - 35

16. IFPRWK (GT5 Only)

2
Approximately how many times per week?
Variable contains decimal point (X.X)
0 [217]
1 [5]
1.5 [1]
2 [9]
2.5 [4]
3 [12]
3.5 [2]
4 [7]
5 [10]
6 [5]
7 [3]

17. IFWM (GT5 Only)

1
How was answer that resulted in V16 given?
0. Missing - 217
1. Times per week - 58
2. Times per month - 0

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

18. IFTSRUA (GT5 Only) 0 [217]
3 15-132 [58]
Total ice-fishing trips (regular pattern) 30 median
Variable for anglers whose ice-fishing 55.10 mean
trips followed a regular pattern (31.25) std. dev.

19. IFTSR (GT5 Only)
3
Adjusted number of ice-fishing trips
(regular pattern)
0 [217]
15 [3]
16 [1]
20 [3]
24 [1]
25 [4]
30 [5]
35 [3]
40 [5]
45 [3]
50 [3]
55 [2]
60 [5]
65 [2]
70 [2]
75 [4]
80 [3]
90 [1]
100 [3]
120 [3]
130 [2]

20. IFTSNUA (GT5 Only) 0 [239]
3 1-130 [36]
Total ice-fishing trips (no regularity) 2 median
Variable for anglers whose ice-fishing 12.94 mean
trips did not follow a regular pattern (22.67) std. dev.

21. IFTSN (GT5 Only)
3
Adjusted number of ice-fishing trips
(no regularity)
0 [240] 12 [3]
1 [2] 15 [1]
2 [5] 20 [1]
3 [3] 22 [1]
4 [4] 25 [1]
5 [4] 40 [1]
6 [2] 50 [1]
7 [2]
8 [2]
10 [2]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

22. OW (GT5 Only)
1
Did you fish here during open-water
fishing last year?
0. Missing - 164
1. Yes - 81
2. No - 30
23. OWBEG (GT5 Only)
6
In what week did it start for you?
Month/day/year (2 digits for each) 0 [218]
4/5/85-9/15/85 [57]
5/1/85 median
24. OWEND (GT5 Only)
6
What was the last week you did open-water
fishing?
Month/day/year (2 digits for each) 0 [218]
7/1/85-12/1/85 [57]
10/1/85 median
25. OWREG (GT5 Only)
1
Did you go according to a regular pattern?
0. Missing - 196
1. Yes - 38
2. No - 41
26. OWPRWK (GT5 Only)
2
Approximately how many times per week?
Variable contains decimal point (X.X)
0 [237]
1 [6]
1.2 [1]
2 [10]
2.3 [1]
2.5 [1]
3 [6]
4 [5]
5 [6]
6 [1]
7 [1]
27. OWWM (GT5 Only)
1
How was answer that resulted in V26 given?
0. Missing - 237
1. Times per week - 35
2. Times per month - 3
28. OWTSRUA (GT5 Only)
3
Total open-water fishing trips
(regular pattern) 0 [239]
56.72 mean
Variable for anglers whose open-water 6-154 [36]
fishing trips followed a regular pattern (43.55) std. dev.

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

29. OWTSR (GT5 Only)

3
Adjusted number of open-water fishing
trips (regular pattern)

0	[246]
6	[2]
12	[1]
15	[3]
20	[1]
25	[2]
30	[4]
35	[2]
40	[2]
45	[3]
50	[3]
54	[1]
60	[1]
75	[1]
80	[2]
85	[1]
120	[1]
130	[2]
140	[2]
150	[1]

30. OWTSNUA (GT5 Only)

3
Total open-water fishing trips
(no regularity)
Variable for anglers whose open-water
fishing did not follow a regular pattern

0 [230]
1-100 [45]
17.62 mean
(20.29) std. dev.

31. OWTSN (GT5 Only)

3
Adjusted number of open-water fishing
trips (no regularity)

0	[237]	35	[2]
1	[2]	37	[1]
2	[2]	42	[1]
3	[1]	90	[1]
4	[1]	100	[1]
5	[3]		
6	[3]		
7	[2]		
8	[3]		
10	[3]		
12	[3]		
14	[1]		
15	[2]		
20	[2]		
22	[1]		
25	[2]		
30	[1]		

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

32. TSUA (GT5 Only) 0 [175]
3 5-230 [100]
Total fishing trips 57.23 mean
(52.98) std. dev.
33. TS (GT5 Only) 0 [167]
3 5-230 [108]
Adjusted total trips 58.62 mean
(54.31) std. dev.
34. ADDPROB (GT5 Only)
1
Problem involving clerk's addition of
open-water and ice-fishing trips
0. No problem - 262
1. Clerk did not add up trips during
interview to check total - 10
2. Clerk's sum is too high by 5% or more - 1
3. Clerk's sum is too low by 5% or more - 2
35. TS5 (LTE5 Only)
2
How many trips did you make to site
last year? (five or fewer)
Variable for anglers with five or fewer
trips to site last year
0 [141]
1 [79]
2 [30]
3 [12]
4 [4]
5 [9]
36. IFTS5 (LTE5 Only)
2
How many ice-fishing trips? (five or fewer)
0 [238]
1 [21]
2 [11]
3 [3]
4 [0]
5 [2]
37. OWT5 (LTE5 Only)
2
How many open-water fishing trips? (five or fewer)
0 [168]
1 [69]
2 [24]
3 [5]
4 [3]
5 [6]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

38. HRSSUM

1
How many hours per day did you usually
fish in summer?

0	[89]
2	[11]
3	[28]
4	[30]
5	[23]
6	[37]
7	[16]
8	[28]
9	[7]
10	[4]
12	[2]

39. HRSWIN

1
How many hours per day did you usually
fish in winter?

0	[146]
1	[1]
2	[4]
3	[15]
4	[21]
5	[19]
6	[25]
7	[10]
8	[21]
9	[11]
10	[1]
12	[1]

40. DAYT

1
Were all your trips day trips?

0.	Missing - 32
1.	Yes - 103
2.	No - 140

41. PUR

1
What was the primary purpose of visiting Les Cheneaux?

0.	Missing - 36
1.	Fishing - 218
2.	Hiking - 0
3.	Boating - 0
4.	Camping - 0
5.	Touring - 0
6.	Hunting - 0
7.	Other - 21

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

42-46. DAYST1, DAYST2, DAYST3, DAYST4, DAYST5

2

How many days were you in the area for each trip?
(overnight respondents)

V42 - 1st trip

0	[137]
1	[2]
2	[10]
3	[34]
4	[14]
5	[6]
6	[3]
7	[34]
8	[1]
9	[1]
10	[3]
14	[20]
30	[3]
31	[1]
35	[1]
45	[1]
50	[1]
120	[1]
122	[1]
150	[1]

V43 - 2nd

0	[213]
1	[1]
2	[7]
3	[22]
4	[8]
5	[2]
6	[1]
7	[11]
8	[1]
10	[1]
14	[6]
30	[2]

V43 - 3rd

0	[240]
2	[8]
3	[12]
4	[4]
5	[1]
7	[5]
8	[1]
13	[1]
14	[1]
30	[1]
75	[1]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

42-46..(continued).

V45 - 4th
0 [245]
2 [6]
3 [12]
4 [5]
7 [6]
30 [1]

V46 - 5th
0 [248]
2 [3]
3 [11]
4 [3]
5 [3]
7 [4]
14 [3]

47-51. FISHT1, FISHT2, FISHT3, FISHT4, FISHT5

2

On how many of these days did you fish

V47 - 1st trip

0 [137]
1 [6]
2 [14]
3 [30]
4 [13]
5 [9]
6 [6]
7 [27]
8 [3]
9 [1]
10 [1]
14 [18]
23 [1]
26 [1]
30 [2]
35 [1]
40 [1]
45 [1]
75 [1]
100 [2]

V48 - 2nd

0 [213]	8 [1]
1 [4]	10 [1]
2 [6]	14 [4]
3 [23]	25 [1]
4 [9]	30 [1]
5 [2]	
6 [1]	
7 [9]	

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

47-51. (continued).

V49 - 3rd
0 [240]
1 [3]
2 [8]
3 [11]
4 [3]
5 [1]
7 [4]
8 [1]
10 [2]
25 [1]
35 [1]

V50 - 4th
0 [248]
1 [2]
2 [6]
3 [11]
4 [3]
7 [5]

V51 - 5th
0 [250]
1 [1]
2 [4]
3 [10]
4 [2]
5 [3]
7 [4]
14 [1]

52-56. P1T1, P1T2, P1T3, P1T4, P1T5

1
What was the primary purpose of each trip?
(See V41 above for meaning of codes)

V52 - 1st trip
0 [138]
1 [118]
7 [19]

V53 - 2nd
0 [213]
1 [50]
6 [1]
7 [11]

V54 - 3rd
0 [240]
1 [26]
5 [1]
7 [8]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

52-56. (continued).

V55 - 4th
0 [245]
1 [19]
6 [3]
7 [8]

V56 - 5th
0 [248]
1 [17]
6 [2]
7 [8]

57-61. P2T1, P2T2, P2T3, P2T4, P2T5

1
What was the secondary purpose of each trip?
(See V41 for codes)

V57 - 1st trip
0 [202]
1 [17]
2 [2]
3 [3]
4 [1]
5 [1]
6 [1]
7 [48]

V58 - 2nd
0 [244]
1 [10]
2 [1]
3 [2]
4 [1]
7 [17]

V59 - 3rd
0 [258]
1 [6]
2 [1]
3 [2]
7 [8]

V60 - 4th
0 [260]
1 [6]
2 [1]
3 [1]
7 [7]

V61 - 5th
0 [262]
1 [6]
2 [1]
3 [1]
7 [5]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

62-66. P3T1, P3T2, P3T3, P3T4, P3T5

1
What was the tertiary purpose of each trip?
(See V41 for codes)

V62 - 1st trip

0 [270]
1 [1]
3 [3]
4 [1]

V63 - 2nd

0 [272]
1 [1]
3 [2]

V64 - 3rd

0 [272]
1 [1]
3 [2]

V65 - 4th

0 [272]
1 [1]
3 [2]

V66 - 5th

0 [272]
1 [1]
3 [2]

67-72. SNOWWIN, CARWIN, BOATRWIN, BOATOWIN, WALKWIN, OTHWIN

3
For your winter trips last year, how many times did you use this
mode of transportation to travel to the area from home?

V67 - snowmobile
0 [243]
1-130 [32]
57.38 mean
(36.0) std. dev.

V68 - car
0 [184]
1-100 [91]
15.35 mean
(22.42) std. dev.

V69 - boat (rent) 0 [275]

V70 - boat (own) 0 [275]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

67-72. (continued).

V71 - walk
0 [266]
12 [1]
19 [1]
35 [1]
50 [1]
60 [1]
70 [1]
100 [2]
120 [1]

V72 - other
0 [274]
2 [1]

73-77. CARSUM, BOATRSUM, BOATOSUM, WALKSUM, OTHSUM

3
For your summer trips last year, how many times did you use this
mode of transportation to travel to the area from home?

V73 - car
0 [112]
1-130 [163]
9.37 mean
(18.99) std. dev.

V74 - boat (rent)
0 [274]
15 [1]

V75 - boat (own)
0 [260]
1 [1]
2 [1]
15 [1]
25 [1]
45 [4]
80 [2]
100 [1]
120 [1]
140 [2]
150 [1]

V76 - walk
0 [269]
1 [1]
25 [1]
30 [1]
40 [1]
100 [1]
125 [1]

V77 - other
0 [275]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

78. GRP

1
Did you come from home in a group?
0. Missing - 46
1. Yes - 191
2. No - 38

79. NUMGRP

2
How many people in group, including yourself?

0 [84]
1 [1]
2 [84]
3 [35]
4 [39]
5 [6]
6 [11]
8 [2]
9 [1]
10 [3]
15 [1]
16 [1]
17 [2]
18 [1]
20 [1]
25 [3]

80. SPLEXP

1
Did you split expenses?
0. Missing - 84
1. Yes - 106
2. No - 85

81. SAME

1
Did you live in the same place last year as you do now?
0. Missing - 39
1. Yes - 231
2. No - 5

82. CITY85

3
Where did you live last year (city)?
3-digit code for city (see code for V5)
0. Missing - 272
81. Highland Township - 1
86. Rochester - 1
303. West Milton, OH - 1

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

83. ST85
2
Where did you live last year (state)?
2-digit code for state
0. Missing - 271
1. Michigan - 2
19. Kentucky - 1
36. Ohio - 1
84. ZIP85
5
Where did you live last year (Zip Code)?
85. ZC85
1
What is this zip code for?
0. Missing - 273
1. Residence - 2
2. P.O. Box - 0
9. Unknown - 0
86. MITOLC 0 [6]
4 1-1650 [269]
How many miles was the trip from home 220.68 mean
to the Les Cheneaux fishing site (235.05) std. dev.
one way?
87. MINTOLC 0 [6]
4 1-2100 [269]
How much time did it take you to get 260.12 mean
here (if you traveled directly (283.18) std. dev.
Variable indicates number of minutes.
88. CNTNGY (1)
Which contingency (ies) did individual
answer? [For inputting purpose]
0. Missing - 1
1. 1 (7") - 53
2. 2 (8") - 51
3. 3 (slight down) - 0
4. 4 (very down) - 92
5. 1,2 (7", 8") - 72
6. 1,3 (7", slight down) - 4
7. 2,3 (8", slight down) - 2

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

90-94. PERCH%, TRSAL%, HERR%, SMLT%, OTH%

3

What percentage of your time on average do you target for each type of fish?

V90 - perch

0	[99]
1	[1]
5	[5]
10	[8]
12	[1]
20	[2]
25	[6]
30	[9]
33	[2]
35	[1]
40	[2]
45	[1]
50	[23]
60	[5]
70	[3]
75	[24]
80	[7]
85	[1]
90	[6]
98	[1]
100	[68]

V91 - trout and salmon

0	[244]
1	[1]
5	[2]
10	[10]
15	[2]
20	[1]
25	[2]
30	[1]
50	[2]
70	[1]
72	[1]
75	[3]
80	[1]
90	[2]
99	[1]
100	[1]

V92 - herring

0	[221]	40	[1]
1	[1]	45	[1]
5	[2]	50	[4]
10	[10]	60	[2]
15	[2]	75	[4]
16	[1]	80	[1]
20	[4]	90	[1]
25	[8]	95	[1]
30	[3]	100	[8]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

90-94. (continued).

V93 - smelt
0 [265]
5 [2]
10 [1]
20 [1]
25 [3]
40 [1]
50 [1]
75 [1]

V94 - other
0 [188]
5 [2]
10 [10]
15 [1]
20 [8]
25 [14]
30 [1]
40 [4]
45 [2]
50 [18]
52 [2]
55 [2]
60 [2]
70 [7]
75 [1]
90 [1]
95 [1]
100 [11]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

95-98. NUMFISH, SZFISH, FAMSITE, QUALTOUR

1
Do you value this aspect of a perch fishery?

Ranking, 1=highest

V95 - number of fish

0 [178]
1 [68]
2 [27]
3 [2]

V96 - size of fish

0 [160]
1 [91]
2 [94]

V97 - familiarity of site

0 [209]
1 [60]
2 [3]
3 [3]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

95-98. (continued).

V98 - quality of tourist services

0 [271]
1 [2]
2 [1]
4 [1]

99. LCOR7

1

Would you prefer Les Cheneaux or site with 7" MSL?

0. Missing - 195
1. Les Cheneaux - 24
2. Site with 7" MSL - 56

100. CHNGNUM7

1

If this change occurred at Les Cheneaux last year, would you have taken a different number of trips?

0. Missing - 185
1. More - 5
2. Fewer - 3
3. Same - 81
4. No opinion - 1

101. NUM7

3

If more or less, how many trips would you have taken?

0 [268]
2 [1]
3 [1]
4 [1]
5 [1]
10 [1]
13 [1]
16 [1]

102. CHNGLEN7

1

If this change occurred at Les Cheneaux last year would you have changed the length of stay?

0. Missing - 186
1. Longer trips - 1
2. Shorter trips - 0
3. Same length trips - 86
4. No opinion - 1
9. No trips - 1

103. DAYTS7

3

If longer or shorter, how many days would you have stayed? (number of one-day trips)

0 [274]
3 [1]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

104-107. NUM7A, LEN7A, NUM7B, LEN7B

2

If longer or shorter, how many _____-day

trips would you have taken?

V104 - number of trips - 0 [275]

V105 - length of trips - 0 [275]

V106 - number of trips - 0 [275]

V107 - length of trips - 0 [275]

108. FUR7

1

Would you be willing to travel further
to the alternative site?

Asked if V99 = 2

0. Missing - 221

1. Yes - 45

2. No - 9

109-110. MIN7, MI7

3

How much further would you be willing to
travel to the improved site?

Asked if V108 = 1

(interviewee gives time or distance)

V109 is in minutes

0 [274]

60 [1]

V110 is in miles

0 [231]

2 [1]

5 [6]

10 [12]

12 [1]

20 [8]

30 [2]

50 [1]

70 [1]

100 [8]

150 [1]

200 [3]

111. FARLC7

1

Would you be willing to travel further to
Les Cheneaux if your only alternative
were the worse site?

Asked if V99 = 1

0. Missing - [250]

1. Yes - 10

2. No - 15

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

112-113. MINLC7, MILC7

3

How much further would you be willing
to travel to Les Cheneaux?

Asked if V111 = 1

V112 is in minutes - 0 [275]

V113 is in miles

0 [265]

2 [1]

3 [1]

25 [2]

30 [1]

60 [2]

100 [2]

600 [1]

114. LCOR8

1

Would you prefer Les Cheneaux or
site with 8" MSL?

0. Missing - 198

1. Les Cheneaux - 36

2. Site with 8" MSL - 41

115. CHNGNUM8

1

If this change occurred at Les Cheneaux
last year, would you have taken a
different number of trips?

0. Missing - 187

1. More - 5

2. Fewer - 14

3. Same - 68

4. No opinion - 1

116. NUM8

3

If more or less, how many trips would
you have taken?

0 [265]

1 [1]

2 [3]

5 [1]

6 [1]

18 [1]

20 [2]

40 [1]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

117. CHNGLEN8

1
If this change occurred at Les Cheneaux
last year, would you have changed the
length of stay?

- 0. Missing - 189
- 1. Longer trips - 0
- 2. Shorter trips - 3
- 3. Same length trips - 82
- 4. No opinion - 1
- 9. No trips - 0

118. DAYTS8

3
If longer or shorter, how many days
would you have stayed? (number
of one-day trips)

- 0 [273]
- 12 [1]
- 75 [1]

119-122. NUM8A, LEN8A, NUM8B, LEN8B

2
If longer or shorter, how many
-day trips would you have taken?

- V119 - number of trips - 0 [275]
- V120 - length of trips - 0 [275]
- V121 - number of trips - 0 [275]
- V122 - length of trips - 0 [275]

123. FUR8

1
Would you be willing to travel further
to the alternative site?

- Asked if V114 = 2
- 0. Missing - 234
 - 1. Yes - 31
 - 2. No - 10

124-125. MIN8, MI8

3
How much further would you be willing
to travel to the improved site?

- Asked if V123 = 1
- V124 is in minutes
- 0 [274]
 - 60 [1]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

124-125. (continued).

V125 is in miles

0	[245]
1	[1]
2	[1]
5	[5]
10	[7]
12	[1]
20	[5]
30	[2]
70	[1]
100	[5]
200	[1]
999	[1]

126. FARCL8

1
Would you be willing to travel further
to Les Cheneaux if your only
alternative were the worse site?
Asked if V114 = 1
0. Missing - 240
1. Yes - 17
2. No - 18

127-128. MINLC8, MILC8

3
How much further would you be willing
to travel to Les Cheneaux?
Asked if V126 = 1
V127 is in minutes - 0 [275]
V128 is in miles
0 [258]
3 [1]
5 [1]
10 [4]
20 [2]
25 [1]
30 [1]
50 [2]
100 [4]
200 [1]

129. LCORD

1
Would you prefer Les Cheneaux
or site with fewer large fish
('downside case')?
0. Missing - 269
1. Les Cheneaux - 2
2. Site with fewer large fish - 4

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

130. CHNGNUMD
1
If this change occurred at Les Cheneaux
last year, would you have taken a
different number of trips?
0. Missing - 269
1. More - 0
2. Fewer - 0
3. Same - 6
4. No opinion - 0
131. NUMD
3
If more or less, how many trips would
you have taken?
0. Missing - 0 [275]
132. CHNGLEND
1
If this change occurred at Les Cheneaux
last year, would you have changed the
length of stay?
0. Missing - 269
1. Longer trips - 0
2. Shorter trips - 0
3. Same length trips - 6
4. No opinion - 0
9. No trips - 0
133. DAYTSD
3
If longer or shorter, how many days
would you have stayed?
(number of one-day trips)
0. Missing - 0 [275]
- 134-137. NUMDA, LENDA, NUMDB, LENDB
2
If longer or shorter, how many ____-day
trips would you have taken?
V134 - number of trips - 0 [275]
V135 - length of trips - 0 [275]
V136 - number of trips - 0 [275]
V137 - length of trips - 0 [275]
138. FURD
1
Would you be willing to travel further
to the alternative site?
Asked if V129 = 2
0. Missing - 272
1. Yes - 0
2. No - 3

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

139-140. MIND, MID

3
How much further would you be willing
to travel to the improved site?
Asked if V138 = 1
V139 is in minutes - 0 [275]
V140 is in miles - 0 [275]

141. FARLCD

1
Would you be willing to travel farther
to Les Cheneaux if your only
alternative were the worse site?
Asked if V129 = 1
0. Missing - 273
1. Yes - 0
2. No - 2

142-143. MINLCD, MILCD

3
How much further would you be willing
to travel to Les Cheneaux?
Asked if V141 = 1
V142 is in minutes - 0 [275]
V143 is in miles - 0 [275]

144. SEX

1
Sex of interviewee
0. Missing - 1
1. Male - 258
2. Female - 16

145. RACE

1
Ethnic group of interviewee
0. Missing - 1
1. White - 268
2. Black - 0
3. Hispanic - 0
4. American Indian - 6
5. Asian - 0

146. AGE

2
Age of interviewee

0 [1]
30-79 [274]
37 median
47.96 mean
(13.73) std. dev.

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

147,149, EMPWIN, RETWIN, STUWIN, UNWIN
151,153. 1

Employment status last year during
ice-fishing season
(multiple statuses possible).

V147 - employed - 0 [103]
 - 1 [172]

V149 - retired - 0 [204]
 - 1 [71]

V151 - student - 0 [274]
 - 1 [1]

V153 - unemployed - 0 [247]
 - 1 [28]

0. No or Missing
1. Yes

148,150, EMPSUM, RETSUM, STUSUM, UNSUM
152,154. 1

Employment status last year during summer fishing season.

V148 - employed - 0 [84]
 1 [191]

V150 - retired - 0 [209]
 - 1 [66]

V152 - student - 0 [274]
 - 1 [1]

V154 - unemployed - 0 [268]
 1 [7]

155-157. SE1, SE2, SE3

1
Self-employed?

V155 - job 1
 0 [91]
 1 [48]
 2 [136]

V156 - job 2
 0 [267]
 1 [6]
 2 [2]

V157 - job 3
 0 [275]

1. Yes
2. No

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

158-160. OCC1, OCC2, OCC3

2

Occupation

V158 - job 1

V159 - job 2

V160 - job 3

2-digit code for occupation

[See page 44a for frequencies]

161-163. IND1, IND2, IND3

2

Industry (2-digit SIC)

V161 - job 1

V162 - job 2

V163 - job 3

[See page 44b for frequencies]

164-166. WKSyr1, WKSyr2, WKSyr3

2

How many weeks per year employed?

V164 - job 1

0 [76]

10 [1]

17 [1]

21 [2]

22 [1]

24 [2]

26 [6]

28 [2]

29 [1]

30 [9]

35 [3]

36 [12]

38 [3]

40 [6]

45 [3]

46 [2]

47 [2]

48 [2]

50 [10]

52 [131]

V165 - job 2

0 [267]

3 [1]

12 [1]

30 [1]

45 [1]

52 [4]

V166 - job 3 - 0 [275]

Codes for Occupations (V158-160)	<u>OCC1</u>	<u>OCC2</u>	<u>OCC3</u>
0. Missing	93	268	275
<u>Professional, Technical and Kindred Workers</u>			
10. Physicians, dentists	1		
11. Other medical and paramedical	1		
12. Accountants and auditors	1		
13. Teachers, primary and secondary schools	8		
14. College teachers, social scientists, librarian	1		
15. Architects, chemists, engineers, physical and biological scientists	9		
16. Technicians (including pilots, draftsmen, foresters, and photographers)	2		
17. Public advisors (including clergymen, editors and reporters, and social workers)	3		
18. Judges, lawyers	1		
19. Other professional, technical and kindred workers	8		
<u>Managers, Officials, and Proprietors (except Farm)</u>			
20. Not self-employed	11		
31. Self-employed	31		
<u>Clerical and Kindred Workers</u>			
40. Secretaries, stenographers, typists	2		
41. Other clerical workers (including bank tellers and cashiers)	3		
<u>Sales Workers</u>			
45. Retail store salesmen and clerks, traveling salesmen, advertising agents and salesmen, insurance salesmen	13		
<u>Craftsmen, Foremen, and Kindred Workers</u>			
50. Foremen	10		
51. Other craftsmen and kindred workers	33	3	
52. Police officers, firefighters	7		
<u>Military Personnel</u>			
55. Member of Armed Forces	2		
<u>Operatives and Kindred Workers</u>			
61. Transport equipment operatives	12		
62. Other operatives	9		
<u>Laborers</u>			
70. Unskilled -- nonfarm	25	2	
71. Farm laborers			
<u>Service Workers</u>			
73. Household workers			
75. Other service workers	6	1	
80. <u>Farmers</u>	1	1	

<u>Codes for Industries (V161-163)</u>	<u>IND1</u>	<u>IND2</u>	<u>IND3</u>
0. Missing	99	268	275
1. Agriculture, Forestry, and Fisheries	5	2	
2. Mining	2		
3. Construction	23		
4. Manufacturing	39		
5. Transportation, Communications and Other Public Utilities	19	1	
6. Wholesale and Retail Trade	19		
7. Finance, Insurance, and Real Estate	6		
8. Business and Repair Service	14	3	
9. Personal Services	6	1	
10. Entertainment and Recreation Services	6		
11. Professional and Related Services	9		
12. Public Administration	28		

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

167-169. WS1, WS2, WS3

1
If less than full year,
indicate period of employment.

1. Winter

2. Summer

V167 - job 1

0 [256]

1 [3]

2 [16]

V168 - job 2

0 [274]

1 [1]

V169 - job 3

0 [275]

170-172. HRSWK1, HRSWK2, HRSWK3

2

When employed, how many hours per week?

0 [77]

18-84 [198]

40 median

V170 - job 1

0 [77]

18-84 [198]

40 median

V171 - job 2

0 [267]

10 [1]

14 [1]

20 [2]

24 [1]

40 [2]

60 [1]

V172 - job 3

0 [275]

173,176, PCRT, PCOT, PCSE, PCFS, PCRC, PCRX, PCOR

179,182, 1

184,186, and 187. During the time you fished last year,
what would you have been doing if you
weren't fishing?

Variables give priority

(1 = highest priority, 0 = not mentioned
as alternative activity).

V173 - working regular time

0 [228]

1 [45]

2 [1]

3 [1]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

173,176. (continued).

179,182,
184,186, and 187. V176 - working overtime
0 [274]
2 [1]

V179 - self-employment
0 [264]
1 [11]

V182 - visiting another fishing site
0 [177]
1 [91]
2 [7]

V184 - other recreation
0 [246]
1 [19]
2 [10]

V186 - relaxing at home
0 [179]
1 [86]
2 [9]
3 [1]

V187 - other
0 [269]
1 [6]

174-175. RTJ1, RTJ2
1
If you might have worked regular time,
at which job would you have?

Variable is job number (1, 2, or 3)

V174 - most likely job
0 [249]
1 [26]

V175 - 2nd most likely
0 [275]

177-178. OTJ1, OTJ2
1

If you might have worked overtime,
at which job would you have?

V177 - most likely job - 0 [275]
V178 - 2nd most likely - 0 [275]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

180-181. SEJ1, SEJ2

1
If you might have worked at a
self-employment job, which one?
V180 - most likely job - 0 [272]
 - 1 [3]

V181 - 2nd most likely - 0 [275]

183. FSIT

3
If you might have visited another
fishing site, which one?
3-digit code for fishing site
0 [264]
77 [1]
101 [1]
150 [1]
162 [1]
207 [3]
210 [1]
215 [1]
216 [1]
235 [1]

185. REC

1
If you might have done some other
recreation, what would it have
been?
(See V41 for codes)
0 [267]
4 [1]
6 [4]
7 [3]

188-190. WG1, WG2, WG3

1
Regular time wage category
V188 - job 1
V189 - job 2
V190 - job 3

Code	Wage	WG1	WG2	WG3
0	Missing	173	273	275
1	\$ 0 - 2.50			
2	2.51 - 5.00	8		
3	5.01 - 7.50	18		
4	7.51 - 10.00	21	1	
5	10.01 - 12.50	17		
6	12.51 - 15.00	18		
7	15.01 - 20.00	17		
8	20.01 - 30.00	1	1	
9	30.01 +	2		

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

191-193. SAL1, SAL2, SAL3

1
Salary
V191 - job 1
V192 - job 2
V193 - job 3

<u>Code</u>	<u>Income</u>	<u>SAL1</u>	<u>SAL2</u>	<u>SAL3</u>
0	Missing	201	274	275
1	\$ 0 - 5,000			
2	5,001 - 10,000	3	1	
3	10,001 - 15,000	4		
4	15,001 - 20,000	4		
5	20,001 - 25,000	9		
6	25,001 - 35,000	21		
7	35,001 - 50,000	23		
8	50,001 - 75,000	6		
9	75,001 +	4		

194-196. YR1, YR2, YR3

2
Year of last work (last 2 digits)

V194 - job 1
0 [222]
60 [1]
70 [4]
71 [1]
72 [1]
73 [1]
74 [3]
75 [3]
76 [2]
77 [5]
78 [1]
80 [6]
81 [5]
82 [5]
83 [5]
84 [5]
85 [3]
86 [2]

V195 - job 2 - 0 [275]

V196 - job 3 - 0 [275]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

197-199. OTWG1, OTWG2, OTWG3
 1
 Overtime wage category
 V197 - job 1
 V198 - job 2
 V199 - job 3

<u>Code</u>	<u>Wage</u>	<u>OTWG1</u>	<u>OTWG2</u>	<u>OTWG3</u>
0	Missing	253	275	275
3	5.01 - 7.50	2		
4	7.51 - 10.00	2		
5	10.01 - 12.50	5		
6	12.51 - 15.00	1		
7	15.01 - 20.00	7		
8	20.01 - 30.00	4		
9	30.01 +	1		

200-201. SEY1, SEY2
 1
 Net annual income category
 for self-employment
 V200 - job 1
 V201 - job 2

<u>Code</u>	<u>Income</u>	<u>SEY1</u>	<u>SEY2</u>
0	Missing	237	271
1	\$ 0 - 5,000	3	1
2	5,001 - 10,000	1	1
3	10,001 - 15,000	6	2
4	15,001 - 20,000	1	
5	20,001 - 25,000	6	
6	25,001 - 35,000	10	
7	35,001 - 50,000	4	
8	50,001 - 75,000	3	
9	75,001 +	4	

202-203. FAM1, FAM2
 1
 Does that net income represent work
 effort by others in the family?
 V202 - job 1 - 0 [275]
 V203 - job 2 - 0 [275]
 1. Yes
 2. No

204-205. NUMFAM1, NUMFAM2
 1
 How many others?
 V204 - job 1 - 0 [272]
 1 [3]
 V205 - job 2 - 0 [275]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

206,212, ID1J1, ID2J1, ID3J1
and 218. 1

For each family worker at job 1,
identify relationship.

V206 - worker #1
V212 - worker #2
V218 - Worker #3

	<u>ID1J1</u>	<u>ID2J1</u>	<u>ID3J1</u>
0. Missing			
1. Spouse	0 [272]	0 [275]	0 [275]
2. Child (18 or over)	1 [1]		
3. Child (under 18)	2 [1]		
4. Child's family	6 [1]		
5. Sibling and family			
6. Parent			

208,214, WK1J1, WK2J1, WK3J1
and 220. 2

How many weeks per year worked (job 1)?

V208 - worker #1 - 0 [272]
 - 35 [1]
 - 50 [1]
 - 52 [1]
V214 - worker #2 - 0 [275]
V220 - worker #3 - 0 [275]

210,216, HR1J1, HR2J1, HR3J1
and 222. 2

How many hours per week worked (job 1)

V210 - worker #1 - 0 [272]
 - 25 [1]
 - 45 [1]
 - 50 [1]
V216 - worker #2 - 0 [275]
V222 - worker #3 - 0 [275]

207,213, OD1J2, ID2J2, ID3J2
and 219. 1

For each family worker at job 2,
identify relationship.

V207 - worker #1 - 0 [275]
V213 - worker #2 - 0 [275]
V219 - worker #3 - 0 [275]
See V206 for codes

209,215, WK1J2, WK2J2, WK3J2
and 221.

How many weeks per year worked (job 2)

V209 - worker #1 - 0 [275]
V215 - worker #2 - 0 [275]
V221 - worker #3 - 0 [275]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

211,217, HR1J2, HR2J2, HR3J2
and 223.

How many hours per week worked (job 2)

V211 - worker #1 = 0 [275]

V217 - worker #2 = 0 [275]

V223 - worker #3 = 0 [275]

224. HHY

1

Total combined income received by
interviewee's family in 1986.

<u>Code</u>	<u>Income</u>	<u>Frequency</u>
0	Missing	12
1	\$ 0 - 5,000	7
2	5,001 - 10,000	13
3	10,001 - 15,000	37
4	15,001 - 20,000	28
5	20,001 - 25,000	23
6	25,001 - 35,000	66
7	35,001 - 50,000	48
8	50,001 - 75,000	21
9	75,001 +	9

225. LCORV

1

Would you prefer Les Cheneaux or site
with fewer large fish ('very
downside case')?

0. Missing - 193

1. Les Cheneaux - 75

2. Site with fewer large fish - 7

226. CHNGNUMV

1

If this change occurred at Les Cheneaux
last year, would you have taken a
different number of trips?

0. Missing - 194

1. More - 0

2. Fewer - 21

3. Same - 60

4. No opinion - 0

227. NUMV

3

If more or less, how many trips
would you have taken?

0 [266]

1 [3]

2 [1]

3 [2]

12 [1]

40 [1]

60 [1]

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

228. CHNGLENV
1
If this change occurred at Les Cheneaux
last year, would you have changed the
length of stay?
0. Missing - 194
1. Longer trips - 1
2. Shorter trips - 2
3. Same length trips - 66
4. No opinion - 0
9. No trips - 12
229. DAYTSV
3
If longer or shorter, how many days
would you have stayed (number of
one-day trips)? 0 [274]
7 [1]
230. NUMVA
2
If longer or shorter, how many
-day trips would you have taken?
V230 - number of trips 0 [274]
V231 - length of trips 1 [1]
V232 - number of trips
V233 - length of trips
231. LENVA
2 0 [274]
If longer or shorter, what length of
trips would you have taken in days? 12 [1]
232. NUMVB
2
If longer or shorter, how many of
trips would you have taken? 0 [275]
233. LENVB
2
If longer or shorter, what length
(in days) of trips would you have
taken? 0 [275]
234. FURV
1
Would you be willing to travel further
to the alternative site?
Asked if V225 =2
0. Missing - 268
1. Yes - 6
2. No - 1

E. Names, Information and Codes for Variables ('Codebook Entries') (continued).

235-236. MINV, MIV

3

How much further would you be willing
to travel to the improved site?

Asked if V234 = 1

V235 is in minutes - 0 [275]

V236 is in miles

0 [269]

20 [1]

75 [1]

100 [1]

150 [1]

200 [1]

300 [1]

237. FARLCV

1

Would you be willing to travel farther
to Les Cheneaux if your only
alternative were the worse site?

Asked if V225 = 1

0. Missing - 200

1. Yes - 38

2. No - 37

238-239. MINLCV, MILCV

3

How much further would you be willing
to travel to Les Cheneaux?

Asked if V237 = 1

V238 is in minutes

0 [270]

60 [3]

120 [2]

V239 is in miles

0 [242]

10 [1]

15 [3]

20 [2]

25 [1]

30 [5]

40 [1]

50 [3]

60 [2]

75 [2]

100 [8]

110 [1]

200 [2]

300 [2]

240. ID of survey

3

241. STAY

1

Where are you staying during your current visit to Les Cheneaux?

0. Missing - 212
1. Day-tripper, public launch-user, not staying - 12
2. Staying at resort or campground - 50
3. Staying in own cottage, summer house, or year-around house located in Les Cheneaux, using public launch - 1

F. Summary. Inconsistencies that showed up with frequencies of questionnaire # and log of what was done to correct them if needed.

1) 111 people said they took more than 5 trips last year (V11) (GT5) of these:

V12 94 said they ice fished
 17 said they didn't
 0 missing

V22 81 said they open water fished
 30 said they didn't
 0 missing

The three missings were mistakes in coding -- they were corrected in the data.

2) N=100 (V32) total trips for people who took about 5 trips.
N=108 (V33) total adjusted trips for GT5 trips.

Why discrepancy? Should be same sample.

- a) 9 cases where V32 is blank and V33 is filled in -- I checked all 9 cases and they were just coding errors. (V32 should have been filled in with same number in V33.)
- b) 1 case where V32 is filled in and V33 is not -- Question 38 -- this is also a coding error which I will fix in the data.

3) V40 105 all day trips
 140 not all day trips
 30 missing -- 30 people didn't fish at Les Cheneaux last year.

Before it was thought that people who took more than 5 trips took day trips but since 111 people who took more than 5 trips \neq 108 people who took all day trips, this is not correct.

- a) 25 cases where people took more than 5 trips but they were not all day trips.
 - 1) of these 23 people said they took some overnight.
 - 2) 2 were missing -- I looked at those, decided they were day trips and V40 was changed from 0 to 1 for them (so frequencies changed as in pencil).
- b) 17 cases where people said they took fewer than 5 trips and they were all day trips.

-- may be a problem then since we don't have trip information on the people who took more than 5 trips with some overnight trips since we assumed they were all day trips (is that night or if they said they took some overnight were the variables pertaining to trip information filled in?).

- 4) One case where data was 3 06 85 was mistake, was changed to 3 06 86.
- 5) Case where MI8 (miles person would be willing to go to site in 8" MSL (I think) was 999 -- looked fishy, but it is okay.
- 6) 3 cases where they took more than 5 trips (N for this variable is 111) but total adjusted number of trips is missing (N=108).
 - a) One of these cases was mentioned before -- Question 38 -- V33 just not filled in even though V32 was and this will be fixed in data.
 - b) Question 9 -- coding error again: person took 100 trips, but both V32 & V33 were not filled in. This will be changed in the data.
 - c) Question 53 same as for Question 9 -- coding error, V32 & V32 should have been filled in -- will be fixed in data.
- 7) 1 case where age and race = 0. This is okay -- Question 183 is not entirely filled in -- not an error in data.
- 8) 2 cases where site = 0
 - a) 1 is blank.
 - b) The other is site = open water. I changed the frequencies so that open water one was recoded to site 400, Lake Huron hasn't been changed in data, but will be.

Codes for States (V6, V83)

- | | |
|--------------------------|--------------------|
| 1. Michigan | 27. Montana |
| 2. Alabama | 28. Nebraska |
| 3. Alaska | 29. Nevada |
| 4. Arizona | 30. New Hampshire |
| 5. Arkansas | 31. New Jersey |
| 6. California | 32. New Mexico |
| 7. Colorado | 33. New York |
| 8. Connecticut | 34. North Carolina |
| 9. Delaware | 35. North Dakota |
| 10. District of Columbia | 36. Ohio |
| 11. Florida | 37. Oklahoma |
| 12. Georgia | 38. Oregon |
| 13. Hawaii | 39. Pennsylvania |
| 14. Idaho | 40. Rhode Island |
| 15. Illinois | 41. South Carolina |
| 16. Indiana | 42. South Dakota |
| 17. Iowa | 43. Tennessee |
| 18. Kansas | 44. Texas |
| 19. Kentucky | 45. Utah |
| 20. Louisiana | 46. Vermont |
| 21. Maine | 47. Virginia |
| 22. Maryland | 48. Washington |
| 23. Massachusetts | 49. West Virginia |
| 24. Minnesota | 50. Wisconsin |
| 25. Mississippi | 51. Wyoming |
| 26. Missouri | |

Codes for Wage (V188-V190, V197-V199) and
for Income (V191-V193, V200, V201, V224)

<u>Category</u>	<u>Code</u>	<u>Wage</u>
A	1	\$ 0 - 2.50
B	2	2.51 - 5.00
C	3	5.01 - 7.50
D	4	7.51 - 10.00
E	5	10.01 - 12.50
F	6	12.51 - 15.00
G	7	15.01 - 20.00
H	8	20.01 - 30.00
I	9	30.01 +

<u>Category</u>	<u>Code</u>	<u>Income</u>
A	1	\$ 0 - 5,000
B	2	5,001 - 10,000
C	3	10,001 - 15,000
D	4	15,001 - 20,000
E	5	20,001 - 25,000
F	6	25,001 - 35,000
G	7	35,001 - 50,000
H	8	50,001 - 75,000
I	9	75,001 +

