

**Attitudes and Behavior
of Anglers Fishing for Salmon
on Michigan Streams**

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ATTITUDES AND BEHAVIOR OF ANGLERS FISHING FOR
SALMON ON MICHIGAN STREAMS

By Leon M. Carl

Abstract

Characteristics of anglers fishing for salmon on Michigan streams were obtained and the effectiveness of the salmon foul-hooking regulation was evaluated. Study sites were distributed throughout the Michigan Department of Natural Resources regions II and III (the northern 33 counties and the southern 35 counties of the Lower Peninsula, respectively), but particular emphasis was placed on Tippy Dam, Manistee River, where retention of foul-hooked salmon was legal, and Foote Dam, Au Sable River, where retention of foul-hooked salmon was illegal.

The average age of anglers fishing for salmon on streams was 40 years. They reported an average income of about \$12,000 and most were employed as craftsmen, foremen, laborers, or general factory workers. About 9 out of 10 anglers were white males. There was little variation in these personal data between 33 sites throughout the Lower Peninsula.

The sites in Region II attracted more non-local people than did sites in Region III. Most anglers fished for the excitement and challenge (40-70%) or for relaxation (20-45%). Fewer than 1 in 10 regularly trolled for salmon on the Great Lakes, most often because the angler felt trolling was too expensive. About 8 out of 10 anglers felt stream fishing was as enjoyable or more so than trolling. Over 90% of all the anglers surveyed were aware of the stream fishing regulations and over 70% were in favor of keeping foul-hooked fish. About 7 out of 10 anglers felt some gear and area restriction was necessary but a majority of the anglers felt the 1975 regulations were too strict. Over 80% of the anglers indicated they ate the fish they caught. Although 2/3 of the anglers said they never sold salmon eggs, 60% agreed that anglers should be allowed to sell eggs if the angler was going to eat the fish.

The incidence of reefing (an uneven retrieve to foul hook fish) throughout most of the Lower Peninsula was over 50% while the use of illegal gear, such as weighted hooks or hooks larger than permitted, was generally less than 50%. At Foote and Tippy dams, about 1/2 the salmon had body wounds and female fish were not selectively taken. More anglers at sites where retention of foul-hooked fish was legal were opposed to

restrictions on the fishery. At Region II sites a significantly higher proportion of anglers reeled where retention of foul-hooked fish was legal. Prohibiting retention of foul-hooked fish probably decreased the amount of reeling slightly and may also have decreased the use of illegal gear.

Introduction

The successful introduction into Lake Michigan of the coho (Oncorhynchus kisutch) in 1966 and chinook salmon (O. tshawytscha) in 1967 created exceptional fishing. In the early years, migration patterns of the salmon were unknown. Anglers with boats did not know where to find the fish in the open water or the proper techniques for catching them, consequently large numbers of salmon entered streams to spawn. Even today, the high stocking rates necessary to provide enough fish in open water for the anglers' demands, result in large spawning concentrations of fish in deep pools and small areas below barriers in some streams.

Anglers using conventional fishing methods developed for other species have found salmon do not readily strike once they have migrated upstream from the lakes. The special fishing techniques necessary to catch salmon in streams have not been learned, and the low fishing pressure needed for success is not present in many places. This has led to a frustration resolved by snagging fish. Anglers can fill their creel limit in a comparatively short time by snagging rather than trying to make the salmon strike. Since many streams are stocked with smolts each spring, natural reproduction is not necessary for the continued existence of the salmon resource, and a complete harvest of adults is therefore desirable. Salmon anglers are aware of these concentrations of fish and the desirability of harvest. Many are enthusiastic about snagging.

During 1967 and 1968, fishing regulations prohibited the taking of foul-hooked salmon (Table 1). From 1969 to 1974 regulations for snagging were liberal with a long season and large treble hook (1/2- to 3/4-inch), point to shank allowed. In 1975, the largest size treble hook permitted was 3/8 inch (the salmon fishing regulations for 1975 are presented in

Appendix A). Along with gear restrictions, the areas where salmon may be foul hooked have been limited since 1973.

Controversy over the snagging¹ fishery instigated this study. The objectives were to learn the background of anglers fishing for salmon on streams, their opinions on snagging and related topics, and to observe their behavior. Information on the extent and degree anglers foul hook or snag salmon and the effectiveness of restrictive regulations were obtained. The two main study sites, Foote Dam, Au Sable River, and Tippy Dam, Manistee River, in the northern half of the lower peninsula of Michigan, provided the opportunity to observe the effectiveness of the foul-hooking regulations. At Foote Dam keeping foul-hooked fish was not legal while at Tippy Dam anglers were allowed to keep foul-hooked fish as part of their creel limit.

Methods

The salmon foul-hooking problem was examined using personal interviews of salmon anglers and observing angler behavior, both on streams where foul hooking was and was not permitted by law. Study sites were chosen on the basis of fishing pressure, salmon catch, and gear or area restrictions (Table 2). The study covered the areas corresponding to the Michigan Department of Natural Resources regions II and III. Region II is the northern 33 counties of the Lower Peninsula and Region III, the southern 35 counties. Stratified random sampling schedules were set up to minimize bias and travel time. The Region II schedules included three shifts covering all but 1 1/2 hours during the early morning. The Region III shifts ran from 6 am to 10 pm.

Four seasonal employees were hired for the Region II work. At either the Lake Huron or Lake Michigan sites one employee interviewed anglers and one, dressed as an angler, observed behavior. District

¹ Snagging is defined as the use of illegal (large weighted hooks) gear; foul hooking is defined as hooking a fish on any part of the fish's body with legal gear.

fisheries personnel conducted the Region III survey. All study personnel were given written instructions on interviewing techniques. The Region II personnel received additional individual instruction.

The interviewer read the questionnaire to the angler and recorded the answers (Appendix B). Questions covered salmon fishing in general, angler background, and specific questions on snagging. The interviewer noted the number, species, sex, and type of wound on salmonids he or she saw in possession of the angler being interviewed.

Angler behavior was measured using a standard form (Appendix C). All study personnel filled this form out at regular intervals during each working day. The two observers in Region II who were dressed as anglers completed this form to identify possible bias introduced by the "known" interviewers recording behavior data. The personnel filled in information on the number of anglers "reefing," ² the number using illegal gear, number of foul-hooked fish, plus questions on litter, the weather, crowding, and any conflicts.

Angling pressure was measured by the study interviewers (Appendix D) using a direct count with a stratified random schedule.

The Region II study personnel conducted a pilot test on September 12-14. Appropriate changes were then made to clarify questions and to facilitate use of the forms.

For the reefing and illegal gear data, from Region II, no difference was found using a two-way analysis of variance that could be attributed to "known" and "unknown" study personnel so the data were combined. For both Regions II and III analysis of variance was used for the reefing and illegal gear data to determine differences among sites and months.

² Uneven retrieve in which the fishing rod is periodically jerked back to foul hook fish.

Results

Region II

The average age of the anglers fishing at Region II sites was 40.3 years. Over 95% were white males who had fished on salmon streams 3.3 years prior to 1975 (Table 3). These anglers reported an average income of \$11,792 and were most often employed as craftsmen, foremen, laborers, or general factory workers (Table 4). At both Foote Dam on the Au Sable River and Tippy Dam on the Manistee River about 21% of the anglers were from the northern Lower Peninsula and 30% from the Metropolitan Detroit area (Table 5). Tippy Dam attracted more out-of-state anglers than Foote Dam (25.3% vs. 7.6%), while more anglers from Bay City and Flint fished at nearby Foote Dam. The higher income reported at Tippy Dam (Table 3) was probably a result of the greater number of out-of-state anglers who fished at Tippy Dam. The anglers at Region II sites fished 4.9 hours per trip and had fished on streams for salmon 4.2 times in 1975 (Table 3). Most of these anglers fished either for relaxation (22.7%) or for the excitement and challenge (66.5%) (Table 6). Very few anglers (3.4%) had trolled for salmon on the Great Lakes one or more times a week, and a majority (63.1%) had never trolled (Table 7). Over two-thirds (69.8%) felt trolling was too expensive (Table 8), and 77.1% of the anglers fishing at Region II sites felt stream fishing was just as enjoyable or more so than trolling (Table 9). As expected, nearly all the anglers (93.8%) were aware of the new foul-hooking regulations, and 26.0% were opposed to foul hooking salmon (Table 10). Of those in favor of foul hooking, nearly two-thirds felt the regulations were too strict; only 5.6% of these anglers believed the regulations were not strict enough (Table 11). Seven out of 10 anglers believed the regulations allowing salmon foul hooking should be restricted by gear and to a few streams (Table 12). Most anglers fishing at Region II sites would not fish frequently if they had to release all the fish they caught (Table 13). Over 80% indicated they ate the fish they caught (Table 14). Few anglers (8.9%) said they regularly sold eggs from the fish they caught, while a majority (62.3%) indicated they never sold the eggs (Table 15). About one-quarter (26.8%) of the anglers felt no one should sell salmon eggs (Table 16).

Anglers fished 254,829 hours in 110,375 fishing trips and caught 50,002 salmon at the Region II sites censused. Angling pressure appeared to be higher at Harrisville harbor and Manistee Lake than at the other Region II sites. Tippy Dam had nearly twice the angling pressure of Foote Dam (Table 17). Catch estimates, based on highly variable samples, were similar at Foote and Tippy dams (6,711 fish and 8,966 fish, respectively).

Observations of the study personnel indicate the percentage of anglers reefing was very similar at Tippy and Croton dams (78.0% and 74.0%, respectively). A smaller percentage of the anglers reefed at Harrisville harbor, the Au Gres River, and Foote Dam (48.4%, 1.8%, and 44.2%, respectively) (Table 18). The percentage of anglers using illegal gear was about 50% or greater at all Region II sites, except the Au Gres River, where very little illegal gear was observed. The examination of anglers' catch by the census clerks indicated the anglers did not keep more female than male fish (Table 19). Over one-half of the chinook examined had body wounds and 35 to 40% of the coho. Most fish landed during observer counts were foul hooked and very few were returned to the water (Table 18).

The Region II study personnel judged crowd conflicts to be limited to casting and landing interference. At Foote Dam minor fish landing and casting conflict was noted 11.5% (± 5.6) of the times the observer visited the site. At Tippy Dam this conflict was noted 4.7% (± 2.9) of the time, at Harrisville harbor 29.6% (± 17.6), and at the Au Gres River 14.6% (± 10.2).

Fishermen at Foote Dam and Harrisville were more likely to find crowded conditions than anglers at the Au Gres River and Tippy Dam (Table 20). This was probably due to the heavy fishing pressure and relatively small area available to the fishermen. The amount of litter appeared to be heavier and the percentage of full trash barrels higher at Foote Dam and Harrisville harbor (Tables 21 and 22). These data indicate that Foote Dam and Harrisville harbor were used relatively more intensely than the Au Gres River and Tippy Dam. It is interesting to note that the average number of full trash barrels at all sites was much less than one-half while ground litter was often moderate or heavy.

The total number of salmon carcasses in the area varied considerably between sites, with Foote Dam and Harrisville harbor having significantly more discarded carcasses (Table 22). The total number of watchers at each site did not vary greatly with an average of about nine present at each site (Table 22). A conservation officer was present less than 10% of the time at all sites when the observer was present (Table 23).

Region III

The average age of the Region III anglers was 38.4 years. White males predominated (89.1% of the anglers were white, 94.8% were male). (Table 24). Most anglers were craftsmen, foremen, or general factory workers. As in Region II, a large number were retired or unemployed (Table 4). The average income for anglers fishing at Region III sites combined was \$11,949, and was remarkably similar at the individual sites (Table 24). The personal data from Region III were similar to the personal data of anglers at Region II sites, and indicate the makeup of the angler population does not vary significantly throughout the Lower Peninsula. More local anglers fished at the Region III sites than at the two main study sites (Tippy and Foote dams) in Region II, possibly because Foote and Tippy dams have better reputations for salmon fishing which helped attract more distant anglers. In Region III, well over one-half of the anglers resided near the sites (Table 25) compared to one-fifth of the anglers at Tippy and Foote dams (Table 5). Region III anglers fished less time per trip (3.6 hours vs. 4.9 hours for Region II anglers), and had fished fewer years prior to 1975 (2.7 years vs. 3.3 years) than the anglers fishing in Region II. Anglers fishing at Region III sites completed more trips to the streams (9.0 vs. 4.2) than Region II anglers (Table 24). These data indicate a Region III angler population composed mainly of local fishermen. These anglers presumably found it convenient to make more trips because of the shorter drive, and, if fishing or weather was poor, they were more inclined to quit early than were the Region II anglers who had driven farther.

More anglers at Region III sites fished for relaxation than anglers from Region II sites (43.8% vs. 22.7%) and fewer Region III anglers fished for the excitement and challenge (42.2% vs. 66.5%) (Table 6). As with Region II anglers, very few anglers at Region III sites trolled for salmon on the Great Lakes, often because they felt it was too expensive (Tables 7 and 8). A higher percentage of Region III anglers felt stream fishing was more enjoyable than trolling on the Great Lakes, compared to Region II anglers (57.4% for Region III, 43.5% for Region II) (Table 9). Most of the Region III anglers were aware of the regulations and about one-third were opposed to foul hooking salmon (85.9% aware, 32.6% opposed) (Table 10). More anglers fishing at sites in Region III than in Region II (54.8% vs. 29.6%) felt the regulations were about right (Table 11). More Region III anglers believed the regulations should be extended to all salmon-run streams than did Region II anglers (43.1% vs. 28.1%) and the same percentage of Region II and Region III anglers felt intentional foul hooking should be restricted by gear (70.6% and 73.7%, respectively) (Table 12). Nearly twice as many Region III anglers would frequently fish for fun compared to Region II anglers (44.3% vs. 22.7%) (Table 13). The same percentage of anglers at sites in Region II and Region III ate fish they caught (81.3% and 83.4%, respectively) and always sold their salmon eggs (8.9% and 7.9%, respectively) (Tables 14 and 15). More Region III anglers said they never sold the eggs from fish they caught (81.2% vs. 62.3%) (Table 15). About 60% of the anglers at sites in Region II and Region III believed anglers should be able to sell eggs from fish taken for eating (Table 16). The percentage of fishermen reefing did not vary greatly from site to site in Region III (Table 26). The overall estimates from each site were between 45% and 65%. These results were similar to the Region II estimates. The percentage of anglers using illegal gear was below 10% (Table 26) at all rivers except the St. Joseph-Kalamazoo rivers (45.9%), where it was similar to Region II sites (Table 18). The estimates from the other three river systems may have been biased because counts were made by personnel driving state cars or wearing uniforms (a student was assigned to St. Joseph and Kalamazoo rivers). Some anglers may have changed to legal gear at these rivers when they sighted a Department of Natural Resources employee.

A majority of the fish landed during counts were snagged and none were returned to the water at any of the rivers (Table 26).

Fishing effort data from Region III were not included because of variable estimates obtained as a result of inadequate sample sizes. The exception was the Huron River where fishing effort was estimated to have been $106,510 \pm 8,740$ angler hours.

The Region III personnel judged crowd conflicts to be more numerous and severe than did Region II observers. On the Cass River minor conflicts in fish landings and casting were reported in 42.9% (± 33.0) of the observer reports. Conflicts on the St. Joseph and Kalamazoo rivers were limited to minor casting and fish landing interferences in 6.5% (± 7.3) of the observer counts. On the Grand River system legal salmon fishermen were in minor conflict with anglers using illegal gear during 12.8% (± 10.7) of the counts. Steelhead fishermen were judged to be in minor or moderate conflict with salmon anglers in 19.5% (± 12.4) of the counts. Conflicts between watchers and anglers arose in 7.0% (± 7.8) of the counts. During 37.2% (± 14.7) of the counts there was a minor or moderate amount of casting and fish landing interference. The observers noted conflicts between boat and shore anglers in 11.6% (± 9.8) of the counts. On the Huron River at Flat Rock, salmon anglers using legal gear (foul-hook anglers) were judged to be in minor or moderate conflict with snaggers in 20.4% (± 11.0) of the counts. Conflicts between steelhead and salmon anglers were reported in 5.6% (± 6.3) of the counts. Watchers versus fishermen conflicts were reported in 13.0% (± 9.1) of the counts and casting or landing interference arose during 20.4% (± 11.0) of the observer counts. Boat and shore anglers were judged to be in minor conflict in 7.5% (± 7.3) of the counts. Overall it appears that on the Huron and Grand rivers conflicts arose more often than elsewhere in the state.

The Region III anglers were less likely to be crowded than were the anglers in Region II. On all river systems in Region III fishermen were generally few in number and widely or moderately spread out (Table 20). Littler at all sites was not a problem, with very few reports of heavy litter (Table 21). At four of the five river systems (the Cass River being the

exception) watchers were present in fair numbers (Table 22). As in Region II conservation officers were generally not present during observer counts (Table 23).

Discussion

Angler response to questions on foul hooking differed at Tippy and Foote dams and may reflect differences caused by the regulations. A higher percentage of Foote Dam anglers were opposed to foul hooking, and more thought foul hooking should have been restricted by gear to a few streams (Tables 10 and 12). Possibly the no-foul-hooking rule at Foote Dam attracted more people in favor of limiting foul hooking.

Anglers at Tippy and Croton dams (where retention of foul-hooked fish was legal) reeled in significantly higher proportions than did anglers at Foote Dam, Harrisville harbor, and the Au Gres River (where retention of foul-hooked fish was illegal). The percentage of anglers using illegal gear was high at all sites (Table 18), but it appeared that more anglers used illegal gear at sites where foul hooking was legal. Unfortunately, the confidence limits on the percentage of anglers using illegal gear were high due to small sample size. Relatively small differences in the percentage of anglers using illegal gear were not detectable. Prohibiting the retention of foul-hooked fish probably decreased the amount of reefing a small but significant amount, and that same trend holds for the percentage of anglers using illegal gear.

The personal data on anglers in Region II and III were very similar. The small variation in personal data indicated a homogeneous angler population in both Regions II and III. The occupation of the stream salmon anglers differed from the overall population in Michigan. Data from the current population survey (1975) compiled by the Michigan Employment Security Commission were compared to the study data. The MESCS definition for white collar worker consisted of the categories from Table 4 of professional, manager, clerical, and sales worker, and for blue collar worker, craftsman, laborer, and factory worker. There were fewer white collar workers in

Region II (22.7% of the total anglers vs. 48.4% of the total Michigan work force) and in Region III (14.0% of the anglers vs. 48.4% of the Michigan work force) and more blue collar workers (42.4% of the Region II anglers and 52.3% of the Region III anglers vs. 34.6% of the total Michigan work force) than in the general Michigan work force. There were more blue collar and fewer white collar workers among the anglers at Region III than at Region II sites.

Regional attitudes toward foul hooking showed some differences. More anglers in Region III were opposed to any form of snagging (32.6% for Region III vs. 26.0% for Region II). Many more Region III anglers felt current regulations were about right or not strict enough compared to anglers from Region II (69.7% for Region III vs. 35.2% for Region II) with the exception that more Region III anglers (compared to Region II anglers) wanted all salmon-run streams open to foul hooking. These data, plus the lower incidence of illegal gear in Region III, indicate that more Region III anglers may have accepted limitations on stream salmon fishing.

The percentages of anglers reefing at Region III sites were similar to the overall Region II results and generally higher than the results from Harrisville harbor, Foote Dam, and the Au Gres River. This supports the concept that the amount of reefing is slightly lower at sites where foul-hooked fish may not be legally kept.

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Table 1. --Salmon foul-hooking regulations.

Year	Creel limit	Gear and area restrictions	Open season
1966		No snagging--no regulations on salmon.	
1967	5	No snagging.	
1968	3	No snagging.	
1969	5	1/2 inch maximum hook size, no weights exceeding 1/2 ounce may be attached within 18 inches of a hook or lure. No area restrictions.	8/1-12/31
1970	5	3/4-inch maximum hook size. No area restrictions.	8/1-2/15
1971	5	3/4-inch maximum hook size. No area restrictions.	8/1-2/15
1972	5	3/4-inch maximum hook size, except 7 problem areas. ¹	8/1-2/15
1973	5	3/4-inch maximum hook size, snagging allowed in 7 designated areas only. ²	9 1-10/31 or 9/1-11/15
1974	5	3/4-inch maximum hook size, snagging allowed in 8 designated areas only. ³	Varied, between 9/1-11/30
1975	5	3/8-inch maximum hook size; ⁴ foul hooking allowed in designated areas only. ⁵	Varied, between 9/1-12/31

¹ Problem areas where no foul hooking was allowed: Lake Michigan waters within 200 feet of the mouth of Thompson Cr.; Carp R. downstream from highway I-75 to mouth; Bear R. within corporate limits of city of Petoskey; Ocqueoc R. downstream from Ocqueoc Lake to its mouth; Thunder Bay R. downstream from 9th St. Dam in Alpena to its mouth; Au Sable R. downstream from Foote Dam to its mouth; in Grand Traverse Bay within 500 feet of the mouth of Brewery Cr.

² Designated areas: Manistique R., Paper Mill Dam to mouth; Manistee R., Tippy Dam to 1 mile downstream; Muskegon R., Croton Dam to 1 mile downstream and from US-31 to mouth excluding Muskegon L. and channel; Grand R. below Weber Dam; Kalamazoo R. below Allegan Dam; St. Joseph R. between Berrien Springs Dam and US-31 bridge at Berrien Springs; Cass R. below Caro Dam.

³ Same as footnote 2 plus: Sable R. (special permit-only fishery), Hamlin Dam to signs above highway M-116 bridge.

⁴ Artificial lure or natural bait only; prior to 1975 bare hooks were allowed.

⁵ Same as footnotes 2 and 3 plus: Manistee L.; Pere Marquette R., 1/4 mile above to 3/4 mile below Scottville Br.; Muskegon R., High Rollways Public Access Site, Shaw Park to Old Woman's Bend; Muskegon L. and channel; Thornapple R., Ada Dam to mouth; Fish Cr., Hubbardston Dam to mouth; Maple R., Elsie Dam to mouth; St. Joseph R., Buchanan Dam to 1/2 mile downstream; Huron R., Belleville Dam to mouth.

Table 2. --Salmon foul-hooking study sites.

Sites	Retention of foul-hooked fish was	
	Legal	Illegal
REGION II		
<u>Lake Huron sites</u>		
Oqueoc River at US-23 Bridge		X
Mill Creek at Harrisville Harbor		X
Au Sable River at mouth		X
Au Sable River at Foote Dam		X
Au Gres River at mouth		X
Au Gres River at US-23 Bridge		X
<u>Lake Michigan sites</u>		
Manistee River at High Bridge Rd.		X
Manistee River at Tippy Dam	X	
Manistee Lake at Stronach	X	
Pere Marquette River at Scottville	X	
Muskegon River at Newaygo	X	
Muskegon River at Pine Ave. launch site	X	
Muskegon River at Croton Dam	X	
Muskegon Lake at Giddings Ave. launch site	X	
REGION III		
<u>Lake Huron (Saginaw Bay) sites</u>		
Cass River at Frankenmuth	X	
<u>Lake Erie sites</u>		
Huron River at Flat Rock Dam	X	
Huron River at mouth	X	
<u>Lake Michigan sites</u>		
Grand River in Grand Rapids from 6th St. Dam to Wilson Ave.	X	
Rogue River at Childsdale Dam		X
Thornapple River at Ada	X	
Flat River at Kingsville Dam	X	
Maple River at Elsie Dam	X	
Maple River at Lyons	X	
Kalamazoo River at Allegan Dam	X	
St. Joseph River at Shamrock Park		X
St. Joseph River at Berrien Springs	X	
St. Joseph River at Lake Chapin		X
St. Joseph River above Lake Chapin		X
St. Joseph River at Buchanan Dam	X	

Table 3.--Characteristics of salmon anglers interviewed in Region II.*

	Au Sable R. Foote Dam		Manistee R. Tippy Dam		Harris- ville		Au Gres R.		Total **	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>Sex</u>										
Male	94.9 ±1.8	593	97.9 ±1.2	559	81.8 ±8.2	72	96.4 ±5.0	54	95.6 ±1.1	1378
Female	5.1 ±1.8	32	2.1 ±1.2	12	18.2 ±8.2	16	3.6 ±5.0	2	4.4 ±1.1	63
<u>Race</u>										
White	96.1 ±1.5	596	96.6 ±1.5	543	98.8 ±2.3	84	98.1 ±3.7	52	96.5 ±1.0	1369
Black	2.8 ±1.3	17	2.7 ±1.4	15	0.0 ±0.0	0	0.0 ±0.0	0	2.6 ±0.8	37
Other	1.1 ±0.8	7	0.7 ±0.7	4	1.2 ±2.3	1	1.9 ±3.7	1	0.9 ±0.5	13

	Au Sable R. Foote Dam		Manistee R. Tippy Dam		Harris- ville		Au Gres R.		Total **	
	Mean	Num- ber	Mean	Num- ber	Mean	Num- ber	Mean	Num- ber	Mean	Num- ber
Age (years)	36.6 ±1.1	617	41.8 ±1.2	590	52.2 ±3.4	87	43.9 ±3.9	56	40.3 ±0.8	1447
Income (dollars)	11, 225	520	13, 361	373	7, 127	79	9, 730	50	11, 792	1094
Prior years fished streams for salmon	2.8 ±0.1	620	3.6 ±0.2	578	2.9 ±0.4	87	3.6 ±0.5	56	3.3 ±0.1	1443
Number trips to streams in 1975	4.1 ±0.4	624	3.7 ±0.4	590	5.8 ±1.8	87	6.0 ±1.4	56	4.2 ±0.3	1458
Trip length (hours)	4.3 ±0.3	298	5.5 ±0.4	242	4.3 ±1.2	17	5.2 ±1.3	29	4.9 ±0.2	628

* With 95% confidence limit listed below each value.

** Totals include all Region II sites listed in Table 2.

Table 4. --Occupation of salmon anglers fishing at the study sites.

Occupation	Region II* (Percent)	Region III** (Percent)
Housewives	3.3 ± 1.0	3.1 ± 1.2
Professional and technical workers	6.7 ± 1.4	6.1 ± 1.7
Managers, officials and proprietors	9.4 ± 1.6	3.6 ± 1.3
Clerical workers	1.3 ± 0.6	1.1 ± 0.7
Sales workers	5.3 ± 1.2	3.2 ± 1.2
Craftsmen, foremen, and related workers	18.5 ± 2.1	27.0 ± 3.1
Factory and related workers	11.2 ± 1.7	20.9 ± 2.9
Laborers	12.7 ± 1.8	4.4 ± 1.5
Service workers	1.2 ± 0.6	1.9 ± 0.9
Farmers	1.0 ± 0.5	0.5 ± 0.5
Armed Forces	0.6 ± 0.4	0.4 ± 0.4
Students	5.2 ± 1.2	9.0 ± 2.0
Unemployed and retired	23.6 ± 2.3	18.8 ± 2.7
	100.0	100.0

* N = 1,360

** N = 808

Table 5. --Residence of salmon anglers fishing at Region II sites.
(Numbers of anglers in parentheses)

Residence	Foote Dam Au Sable R. (percent) (613)	Tippy Dam Manistee R. (percent) (585)
<u>Southern Lower Peninsula</u> ^{1/}		
Metropolitan Detroit area	32.0 ± 3.8	28.1 ± 3.7
Flint-Bay City area	23.1 ± 3.4	4.3 ± 1.7
Mid-southern counties	9.3 ± 2.3	9.1 ± 2.4
Southern Lake Michigan counties	0.5 ± 0.6	5.0 ± 1.8
Thumb area counties	3.6 ± 1.5	1.9 ± 1.1
Southern border counties	1.5 ± 1.0	0.9 ± 0.8
Lake-less counties	0.2 ± 0.4	4.1 ± 1.6
Northern Lower Peninsula	21.4 ± 3.3	21.3 ± 3.4
Upper Peninsula	0.8 ± 0.7	0.0 ± 0.0
Ohio	2.3 ± 1.2	9.8 ± 2.5
Illinois	0.2 ± 0.4	1.5 ± 1.0
Indiana	0.5 ± 0.6	5.3 ± 1.9
New York	2.4 ± 1.2	0.7 ± 0.7
Pennsylvania	0.0 ± 0.0	0.9 ± 0.8
Ontario	0.8 ± 0.7	4.8 ± 1.8
Other states	1.4 ± 0.9	2.3 ± 1.2
Total	100.0	100.0

^{1/} Metropolitan Detroit area included Macomb, Oakland, and Wayne counties; Flint-Bay City area, Bay, Genesee, Midland, and Saginaw counties; Mid-southern counties, Calhoun, Ingham, Jackson, Kalamazoo, Livingston, and Washtenaw; Southern Lake Michigan counties, Allegan, Berrien, Kent, Muskegon, Ottawa, and Van Buren; Thumb area counties, Huron, Lapeer, Sanilac, St. Clair, and Tuscola; Southern border counties, Branch, Cass, Hillsdale, Lenawee, Monroe, and St. Joseph; Lake-less counties, Barry, Clinton, Eaton, Gratiot, Ionia, Montcalm, and Shiawassee.

Table 6.--Angler response to the question: Is salmon fishing primarily something you do for (a) relaxation, (b) excitement and challenge, (c) help on groceries, or (d) other?

Site	Answer							
	(a)		(b)		(c)		(d)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>								
Foote Dam (Au Sable R.)	16.7 ±3.1	99	77.4 ±3.4	459	5.4 ±1.9	32	0.5 ±0.6	3
Tippy Dam (Manistee R.)	29.0 ±4.1	141	52.6 ±4.5	255	12.4 ±3.0	60	6.0 ±2.2	29
Harrisville	12.7 ±7.5	10	84.8 ±8.1	67	2.5 ±3.5	2	0.0 ±0.0	0
Au Gres R.	27.5 ±12.5	14	70.6 ±12.8	36	1.9 ±3.9	1	0.0 ±0.0	0
Total*	22.7 ±2.3	296	66.5 ±2.6	865	7.6 ±1.5	99	3.2 ±1.0	42
<u>REGION III</u>								
Cass R.	55.5 ±16.6	20	38.9 ±16.2	14	5.6 ±7.6	2	0.0 ±0.0	0
St. Joseph- Kalamazoo R.	45.2 ±10.9	38	41.7 ±10.8	35	11.9 ±7.1	10	1.2 ±2.4	1
Grand R. system	26.4 ±6.6	47	61.8 ±7.3	110	7.9 ±4.0	14	3.9 ±2.9	7
Huron R.	50.6 ±4.8	220	34.3 ±4.6	149	9.4 ±2.8	41	5.7 ±2.2	25
Total*	43.8 ±3.6	334	42.2 ±3.6	322	9.1 ±2.1	69	4.9 ±1.6	37

* Includes responses from all sites in the Region listed in Table 2.

Table 7. --Angler response to the question: How often have you trolled for salmon on waters of the Great Lakes during the fishing season, (a) once or more per week, (b) once or more per month, (c) about once per year, (d) not at all?

Site	Answer							
	(a)		(b)		(c)		(d)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>								
Foote Dam (Au Sable R.)	3.9 ±1.6	24	15.8 ±2.9	97	20.9 ±3.3	129	59.4 ±4.0	366
Tippy Dam (Manistee R.)	2.8 ±1.4	16	10.6 ±2.6	60	16.0 ±3.1	90	70.6 ±3.8	399
Harrisville	1.2 ±2.3	1	18.6 ±8.4	16	18.6 ±8.4	16	61.6 ±10.5	53
Au Gres R.	0.0 ±0.0	0	32.7 ±13.0	17	19.2 ±10.9	10	48.1 ±13.9	25
Total*	3.4 ±1.0	48	14.7 ±1.9	208	18.8 ±2.1	266	63.1 ±2.6	894
<u>REGION III</u>								
Cass R.	6.5 ±8.8	2	22.6 ±15.0	7	25.8 ±15.7	8	45.1 ±17.9	14
St. Joseph- Kalamazoo R.	11.9 ±7.1	10	14.3 ±7.6	12	26.2 ±9.6	22	47.6 ±10.9	40
Grand R. system	4.9 ±3.2	9	14.2 ±5.2	26	8.2 ±4.1	15	72.7 ±6.6	133
Huron R.	10.0 ±3.0	40	11.0 ±3.1	44	12.8 ±3.3	51	66.2 ±4.7	265
Total*	8.8 ±2.1	64	12.7 ±2.5	93	13.6 ±2.5	99	64.9 ±3.5	474

* Includes responses from sites in the Region listed in Table 2.

Table 8. --Angler response to the question: Which of the following best explains why you rarely or never fish Great Lakes waters for salmon? (a) not as enjoyable as stream fishing, (b) too expensive, (c) stream fishing increases chance of catch, (d) not enjoyable when water gets rough, or (e) other.

Site	Answer									
	(a)		(b)		(c)		(d)		(e)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>										
Foote Dam	3.5	16	78.5	357	2.6	12	6.6	30	8.8	40
Au Sable R.	±1.7		±3.9		±1.5		±2.3		±2.7	
Tippy Dam	14.4	63	60.2	263	1.8	8	8.7	38	14.9	65
Manistee R.	±3.4		±4.7		±1.3		±2.7		±3.4	
Harrisville	3.2	2	79.1	49	3.2	2	4.8	3	9.7	6
	±4.5		±10.3		±4.5		±5.5		±7.5	
Au Gres R.	2.7	1	81.1	30	5.4	2	2.7	1	8.1	3
	±5.3		±12.9		±7.4		±5.5		±9.0	
Total*	8.5	90	69.8	738	2.3	24	7.8	83	11.6	123
	±1.7		±2.8		±0.9		±1.7		±2.0	
<u>REGION III</u>										
Cass R.	26.9	7	50.0	13	3.9	1	15.3	4	3.9	1
	±17.4		±19.6		±7.5		±14.2		±7.5	
St. Joseph- Kalamazoo R.	9.8	6	41.0	25	6.6	4	22.9	14	19.7	12
	±7.6		±12.6		±6.3		±10.8		±10.2	
Grand R. system	16.6	27	39.9	65	4.9	8	9.2	15	29.4	48
	±5.8		±7.7		±3.4		±4.5		±7.1	
Huron R.	10.7	35	25.2	82	8.0	26	6.4	21	49.7	162
	±3.4		±4.8		±3.0		±2.7		±5.5	
Total*	13.0	78	32.2	193	6.7	40	9.6	58	38.5	231
	±2.7		±3.8		±2.0		±2.4		±4.0	

* Includes responses from sites in the region listed in Table 2.

Table 9. --Angler response to the question: Is your salmon fishing experience on streams (a) more enjoyable, (b) about the same, or (c) less enjoyable than Great Lakes fishing?

Site	Answer					
	(a)		(b)		(c)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>						
Foote Dam (Au Sable R.)	34.6 ±5.7	98	46.7 ±5.9	132	18.7 ±4.6	53
Tippy Dam (Manistee R.)	68.8 ±8.3	86	12.0 ±5.8	15	19.2 ±7.0	24
Harrisville	31.3 ±16.4	10	31.3 ±16.4	10	37.4 ±17.1	12
Au Gres R.	32.0 ±18.7	8	28.0 ±18.0	7	40.0 ±19.6	10
Total*	43.5 ±4.4	220	33.6 ±4.2	170	22.9 ±3.7	116
<u>REGION III</u>						
Cass R.	76.9 ±23.4	10	7.7 ±14.8	1	15.4 ±20.0	2
St. Joseph- Kalamazoo R.	34.5 ±17.7	10	48.3 ±18.6	14	17.2 ±14.0	5
Grand R. system	63.9 ±12.3	39	14.8 ±9.1	9	21.3 ±10.5	13
Huron R.	58.6 ±8.2	85	24.1 ±7.1	35	17.3 ±6.3	25
Total*	57.4 ±6.2	147	23.8 ±5.3	61	18.8 ±4.9	48

* Includes responses from sites in the Region listed in Table 2.

Table 10. --Angler response to the question: Are you aware of the new foul-hooking regulation, and are you opposed to foul-hooking or snagging in any form?

Site	Aware				Opposed			
	Yes		No		Yes		No	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>								
Foote Dam (Au Sable R.)	92.8 ±2.3	464	7.2 ±2.3	36	27.0 ±4.0	130	73.0 ±4.0	352
Tippy Dam (Manistee R.)	94.2 ±2.1	485	5.8 ±2.1	30	18.5 ±3.5	92	81.5 ±3.5	404
Harrisville	93.9 ±5.3	77	6.1 ±5.3	5	56.0 ±10.8	47	44.0 ±10.8	37
Au Gres R.	100.0 ±0.0	40	0.0 ±0.0	0	44.7 ±16.1	17	55.3 ±16.1	21
Croton Dam (Muskegon R.)	89.7 ±9.7	35	10.3 ±9.7	4	27.8 ±14.9	10	72.2 ±14.9	26
Ocqueoc R.	100.0 ±0.0	10	0.0 ±0.0	0	30.0 ±29.0	3	70.0 ±29.0	7
Manistee L.	97.0 ±6.0	32	3.0 ±6.0	1	31.3 ±16.4	10	68.7 ±16.4	22
Pere Marquette R.	91.7 ±16.0	11	8.3 ±16.0	1	9.1 ±17.3	1	90.9 ±17.3	10
Total*	93.8 ±1.4	1158	6.2 ±1.4	77	26.0 ±2.5	310	74.0 ±2.5	883
<u>REGION III</u>								
Cass R.	94.3 ±7.8	33	5.7 ±7.8	2	16.7 ±12.4	6	83.3 ±12.4	30
St. Joseph- Kalamazoo R.	84.3 ±8.0	70	15.7 ±8.0	13	29.7 ±10.6	22	70.3 ±10.6	52
Grand R. system	96.7 ±2.6	177	3.3 ±2.6	6	26.1 ±6.6	46	73.9 ±6.6	130
Huron R.	81.0 ±3.8	354	19.0 ±3.8	83	38.4 ±4.9	150	61.6 ±4.9	241
Total*	85.9 ±2.5	662	14.1 ±2.5	109	32.6 ±3.5	231	67.4 ±3.5	477

* Includes responses from sites in the Region listed in Table 2.

Table 11.--Angler response to the question: Are the new foul-hooking regulations placed on stream fishing for salmon (a) not strict enough, (b) about right, (c) too strict?

Site	Answer					
	(a)		(b)		(c)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>						
Foote Dam (Au Sable R.)	5.5 ±2.1	26	24.6 ±4.0	115	69.9 ±4.2	327
Tippy Dam (Manistee R.)	5.5 ±2.1	25	33.3 ±4.4	152	61.2 ±4.6	280
Harrisville	8.1 ±9.0	3	35.1 ±15.7	13	56.8 ±16.3	21
Au Gres R.	5.4 ±7.4	2	27.0 ±14.6	10	67.6 ±15.4	25
Croton Dam (Muskegon R.)	8.0 ±10.9	2	52.0 ±20.0	13	40.0 ±19.6	10
Ocqueoc R.	0.0 ±0.0	0	33.3 ±38.5	2	66.7 ±38.5	4
Manistee L.	11.1 ±14.8	2	11.1 ±14.8	2	77.8 ±19.6	14
Pere Marquette R.	0.0 ±0.0	0	40.0 ±31.0	4	60.0 ±31.0	6
Total*	5.6 ±1.4	60	29.6 ±2.8	314	64.8 ±2.9	688
<u>REGION III</u>						
Cass R.	13.8 ±12.8	4	44.8 ±18.5	13	41.4 ±18.3	12
St. Joseph- Kalamazoo R.	9.8 ±8.3	5	58.8 ±13.8	30	31.4 ±13.0	16
Grand R. system	16.9 ±5.8	28	50.6 ±7.8	84	32.5 ±7.3	54
Huron R.	15.5 ±4.5	40	58.5 ±6.1	151	26.0 ±5.5	67
Total*	14.9 ±3.1	79	54.8 ±4.3	290	30.3 ±4.0	160

* Includes responses from sites in the Region listed in Table 2.

Table 12.--Angler response to the questions: (1) Should new foul-hooking regulations be (a) extended to all salmon-run streams or (b) restricted to a few streams? and (2) Should intentional foul hooking, that is snagging, be allowed (a) in any form, or (b) restricted by gear?

Site	Question (1)				Question (2)			
	(a)		(b)		(a)		(b)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>								
Foote Dam (Au Sable R.)	22.1 ±3.9	99	77.9 ±3.9	348	24.1 ±4.1	106	75.9 ±4.1	333
Tippy Dam (Manistee R.)	33.0 ±4.5	145	67.0 ±4.5	295	34.5 ±4.5	152	65.5 ±4.5	289
Harrisville	34.3 ±16.0	12	65.7 ±16.0	23	30.6 ±15.4	11	69.4 ±15.4	25
Au Gres R.	21.6 ±13.5	8	78.4 ±13.5	29	25.0 ±14.4	9	75.0 ±14.4	27
Croton Dam (Muskegon R.)	39.1 ±20.4	9	60.9 ±20.4	14	13.0 ±14.0	3	87.0 ±14.0	20
Ocqueoc R.	33.3 ±38.5	2	66.7 ±38.5	4	33.3 ±38.5	2	66.7 ±38.5	4
Manistee L.	52.6 ±22.9	10	47.4 ±22.9	9	57.9 ±22.9	11	42.1 ±22.9	8
Pere Marquette R.	20.0 ±25.3	2	80.0 ±25.3	8	30.0 ±29.0	3	70.0 ±29.0	7
Total*	28.1 ±2.8	287	71.9 ±2.8	733	29.4 ±2.9	298	70.6 ±2.9	716
<u>REGION III</u>								
Cass R.	25.8 ±15.7	8	74.2 ±15.7	23	16.7 ±13.6	5	83.3 ±13.6	25
St. Joseph- Kalamazoo R.	30.0 ±13.0	15	70.0 ±13.0	35	19.6 ±11.1	10	80.4 ±11.1	41
Grand R. system	39.6 ±7.8	63	60.4 ±7.8	96	34.0 ±7.6	53	66.0 ±7.6	103
Huron R.	51.0 ±6.2	132	49.0 ±6.2	127	22.6 ±5.2	59	77.4 ±5.2	202
Total*	43.1 ±4.3	226	56.9 ±4.3	298	26.3 ±3.8	138	73.7 ±3.8	386

* Includes responses from sites in the Region listed in Table 2.

Table 13.--Angler response to the question: Suppose you couldn't keep any of the fish you catch, would you now fish (a) many times, (b) a few times, (c) not at all, or (d) not sure?

Site	Answer							
	(a)		(b)		(c)		(d)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>								
Foote Dam (Au Sable R.)	20.9 ±3.4	122	41.6 ±4.1	243	31.7 ±3.9	185	5.8 ±1.9	34
Tippy Dam (Manistee R.)	22.3 ±3.5	128	29.3 ±3.8	168	44.9 ±4.2	257	3.5 ±1.5	20
Harrisville	33.7 ±10.4	28	26.5 ±9.7	22	16.9 ±8.2	14	22.9 ±9.2	19
Au Gres R.	11.5 ±8.9	6	59.6 ±13.6	31	21.2 ±11.3	11	7.7 ±7.4	4
Total*	22.7 ±2.2	316	35.4 ±2.6	492	36.0 ±2.6	500	5.9 ±1.3	82
<u>REGION III</u>								
Cass R.	47.2 ±16.6	17	27.8 ±14.9	10	25.0 ±14.4	9	0.0 ±0.0	0
St. Joseph- Kalamazoo R.	24.7 ±9.4	21	24.7 ±9.4	21	38.8 ±10.6	33	11.8 ±7.0	10
Grand R. system	40.2 ±7.2	74	23.4 ±6.2	43	31.5 ±6.9	58	4.9 ±3.2	9
Huron R.	50.2 ±4.8	222	17.7 ±3.6	78	29.6 ±4.3	131	2.5 ±1.5	11
Total*	44.3 ±3.6	345	20.5 ±2.9	160	31.2 ±3.3	243	4.0 ±1.4	31

* Includes responses from sites in the Region listed in Table 2.

Table 14.--Angler response to the question: When you catch salmon do you usually (a) take them home and eat them, (b) give them to neighbors, (c) throw them back, (d) use them for fertilizer, or (e) other?

Site	Answer									
	(a)		(b)		(c)		(d)		(e)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>										
Foote Dam	76.7	477	18.8	117	1.9	12	0.3	2	2.3	14
Au Sable R.	±3.4		±3.1		±1.1		±0.5		±1.2	
Tippy Dam	86.0	490	4.0	23	1.2	7	0.5	3	8.3	47
Manistee R.	±2.9		±1.6		±0.9		±0.6		±2.3	
Harrisville	82.6	71	14.0	12	0.0	0	0.0	0	3.4	3
	±8.2		±7.5		±0.0		±0.0		±4.0	
Au Gres R.	72.2	39	25.9	14	1.9	1	0.0	0	0.0	0
	±12.2		±11.9		±3.7		±0.0		±0.0	
Total*	81.3	1161	11.9	170	1.5	22	0.3	5	5.0	71
	±2.1		±1.7		±0.7		±0.3		±1.1	
<u>REGION III</u>										
Cass R.	91.7	33	8.3	3	0.0	0	0.0	0	0.0	0
	±9.2		±9.9		±0.0		±0.0		±0.0	
St. Joseph R. - Kalamazoo R.	83.5	71	9.4	8	0.0	0	0.0	0	7.1	6
	±8.0		±6.3		±0.0		±0.0		±5.6	
Grand R. system	75.8	141	15.6	29	3.2	6	0.5	1	4.9	9
	±6.3		±5.3		±2.6		±1.1		±3.1	
Huron R.	86.4	374	7.8	34	3.5	15	0.0	0	2.3	10
	±3.3		±2.6		±1.8		±0.0		±1.4	
Total*	83.4	641	10.0	77	3.0	23	0.1	1	3.5	27
	±2.7		±2.2		±1.2		±0.3		±1.3	

* Includes responses from sites in the Region listed in Table 2.

Table 15. --Angler response to the question: How often do you sell the eggs from salmon you take, (a) all the time, (b) sometimes, or (c) never?

Site	Answer					
	(a)		(b)		(c)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>						
Foote Dam (Au Sable R.)	11.3 ±2.6	69	32.9 ±3.8	200	55.8 ±4.0	339
Tippy Dam (Manistee R.)	8.0 ±2.3	45	25.0 ±3.6	141	67.0 ±4.0	379
Harrisville	4.7 ±4.5	4	33.7 ±10.2	29	61.6 ±10.5	53
Au Gres R.	3.7 ±5.1	2	33.3 ±12.8	18	63.0 ±13.1	34
Croton Dam (Muskegon R.)	7.7 ±8.5	3	15.4 ±11.6	6	76.9 ±18.5	30
Ocqueoc R.	0.0 ±0.0	0	30.0 ±29.0	3	70.0 ±29.0	7
Manistee L.	0.0 ±0.0	0	12.5 ±11.7	4	87.5 ±11.7	28
Pere Marquette R.	25.0 ±25.0	3	25.0 ±25.0	3	50.0 ±28.9	6
Total*	8.9 ±1.5	126	28.8 ±2.4	406	62.3 ±2.6	878
<u>REGION III</u>						
Cass R.	0.0 ±0.0	0	16.7 ±12.4	6	83.3 ±12.4	30
St. Joseph- Kalamazoo R.	8.1 ±6.3	6	20.3 ±9.3	15	71.6 ±10.5	53
Grand R. system	18.3 ±5.8	33	16.7 ±5.6	30	65.0 ±7.1	117
Huron R.	3.0 ±1.7	13	6.5 ±2.4	28	90.5 ±2.8	389
Total*	7.9 ±2.0	59	10.9 ±2.3	82	81.2 ±2.9	609

* Includes responses from sites in the Region listed in Table 2.

Table 16.--Angler response to the question: Do you think fishermen should be able to sell salmon eggs, (a) when the fish are caught for the purpose of selling the eggs, (b) when the fish are caught for the purpose of eating the fish, (c) both of the above, or (d) at no time should the eggs be sold?

Site	Answer							
	(a)		(b)		(c)		(d)	
	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber
<u>REGION II</u>								
Foote Dam (Au Sable R.)	2.2 ±1.3	11	56.8 ±4.4	284	12.8 ±3.0	64	28.2 ±4.0	141
Tippy Dam (Manistee R.)	3.0 ±1.5	15	65.7 ±4.3	327	6.4 ±2.2	32	24.9 ±3.9	124
Harrisville	0.0 ±0.0	0	45.1 ±11.0	37	9.8 ±6.6	8	45.1 ±11.0	37
Au Gres R.	2.5 ±4.9	1	60.0 ±15.5	24	12.5 ±10.5	5	25.0 ±13.7	10
Croton Dam (Muskegon R.)	2.9 ±5.2	1	73.5 ±13.8	25	11.8 ±10.0	4	11.8 ±10.0	4
Ocqueoc R.	40.0 ±31.0	4	20.0 ±31.0	2	20.0 ±31.0	2	20.0 ±31.0	2
Manistee L.	3.6 ±7.0	1	75.0 ±16.4	21	0.0 ±0.0	0	21.4 ±15.5	6
Pere Mar- quette R.	0.0 ±0.0	0	81.8 ±23.3	9	9.1 ±17.3	1	9.1 ±17.3	1
Total*	2.7 ±0.9	33	60.9 ±2.8	737	9.6 ±1.7	116	26.8 ±2.6	325
<u>REGION III</u>								
Cass R.	2.9 ±5.6	1	68.6 ±15.7	24	5.7 ±7.8	2	22.8 ±14.2	8
St. Joseph- Kalamazoo R.	0.0 ±0.0	0	76.5 ±9.4	62	3.7 ±4.2	3	19.8 ±8.8	16
Grand R. system	1.8 ±2.0	3	62.3 ±7.4	106	21.8 ±6.3	37	14.1 ±5.3	24
Huron R.	4.7 ±2.1	19	54.1 ±5.0	218	7.5 ±2.6	30	33.7 ±4.7	136
Total*	3.2 ±1.3	23	59.1 ±3.7	424	10.6 ±2.3	76	27.1 ±3.3	195

* Includes responses from sites in the Region listed in Table 2.

Table 17.--Summaries of fishing effort for Region II sites

Site and month	Angler hours	Angler trips
<u>Foote Dam</u> (Au Sable R.)		
September	5,875 ± 1,885	1,278 ± 438
October	11,567 ± 4,099	2,753 ± 843
November	1,077 ± 563	369 ± 220
Total	18,519 ± 4,547	4,400 ± 975
<u>Tippy Dam</u> (Manistee R.)		
September	12,223 ± 2,397	3,385 ± 829
October	20,466 ± 3,612	5,291 ± 780
November	2,583 ± 1,319	360 ± 217
Total	35,272 ± 4,531	9,036 ± 1,159
<u>Harrisville</u>		
September	53,472 ± 31,762	13,863 ± 8,236
October	31,657 ± 8,816	7,318 ± 2,393
November	10,260 ± 720	4,170 ± 536
Total	95,389 ± 32,971	25,351 ± 8,593
<u>Au Gres R.</u>		
September	7,426 ± 5,035	1,213 ± 892
October	17,935 ± 7,770	4,428 ± 2,676
November	1,561 ± 1,190	624 ± 610
Total	26,922 ± 9,334	6,265 ± 2,885
<u>Croton Dam</u> (Muskegon R.)		
September	6,240 ± 1,867	2,080 ± 4,206
October	10,267 ± 3,204	8,290 ± 9,957
November	1,696 ± 865	1,331 ± 672
Total	18,203 ± 3,808	11,701 ± 10,830
<u>Manistee Lake</u>		
September	51,610 ± 36,576	51,610 ± 82,591
October	8,914 ± 7,026	2,012 ± 1,810
November		
Total	60,524 ± 37,245	53,622 ± 82,610

Table 18. --Observations of angler behavior in Region II.

Site and month	Percent of fishermen reefing	Percent of total fishermen using illegal gear	Percent foul-hooked fish of total fish caught	Percent foul-hooked fish released
<u>Foote Dam (Au Sable R.)</u>				
September	25.3 ± 2.8	26.4 ± 15.2	85.0	0.0
October	64.9 ± 2.8	59.2 ± 14.0	90.3	0.6
November	2.7 ± 2.9	12.0 ± 3.5	0.0	0.0
Total	44.2 ± 2.7	44.1 ± 12.9		
<u>Tippy Dam (Manistee R.)</u>				
September	70.9 ± 2.8	50.5 ± 16.2	82.6	3.1
October	93.6 ± 2.7	78.4 ± 16.2	94.7	0.5
November	9.2 ± 2.9	0.0 ± 0.0	8.6	100.0
Total	78.0 ± 2.7	63.3 ± 13.2		
<u>Harrisville</u>				
September	20.1 ± 3.5	19.7 ± 19.0	86.0	0.0
October	63.4 ± 3.0	70.3 ± 14.3	97.9	2.1
November	37.3 ± 5.9	54.1 ± 20.1	0.0	0.0
Total	48.4 ± 2.9	52.5 ± 13.3*		
<u>Au Gres R.</u>				
September	0.4 ± 2.9	1.7 ± 24.7	0.0	0.0
October	3.6 ± 2.9	8.8 ± 3.5	21.4	0.0
November			100.0	0.0
Total	1.8 ± 2.8	4.5 ± 24.9		
<u>Croton Dam (Muskegon R.)</u>				
September	63.8 ± 3.1	43.3 ± 3.6	70.8	0.0
October	87.5 ± 2.9	70.8 ± 73.1	90.4	0.0
November	44.1 ± 3.3	44.1 ± 3.7	59.2	0.0
Total	74.0 ± 2.8	58.7 ± 73.1		

* Harrisville is part of the Great Lakes and therefore not subject to a gear restriction of 3/8-inch treble hook.

Table 19. --Percentage (with 95% confidence limits) of male and female salmon examined in the anglers' catch in Region II. * (Number of fish in parentheses.)

Site, and wound location	Male	Female	Unknown	Total
<u>CHINOOK</u>				
<u>Lake Huron sites (706)</u>				
Mouth wound	5.5 ± 1.7	4.9 ± 1.6	0.6 ± 0.6	11.0 ± 2.4
Body wound	36.8 ± 3.6	29.5 ± 3.4	1.7 ± 1.0	68.0 ± 3.5
Both	1.4 ± 0.9	1.3 ± 0.8	0.0 ± 0.0	2.7 ± 1.2
Uncertain	9.3 ± 2.2	6.9 ± 1.9	2.1 ± 1.1	18.3 ± 2.9
Total	53.0 ± 3.8	42.6 ± 3.7	4.4 ± 1.5	100.0
<u>Lake Michigan sites (216)</u>				
Mouth wound	3.7 ± 2.6	3.7 ± 2.6	0.9 ± 1.3	8.3 ± 3.8
Body wound	27.3 ± 6.1	24.1 ± 5.8	1.4 ± 1.6	52.8 ± 6.8
Both	1.4 ± 1.6	3.2 ± 2.4	0.0 ± 0.0	4.6 ± 2.9
Uncertain	8.8 ± 3.9	3.3 ± 2.4	22.2 ± 5.7	34.3 ± 6.5
Total	41.2 ± 6.7	34.3 ± 6.5	24.5 ± 5.9	100.0
<u>COHO</u>				
<u>Lake Huron sites (25)</u>				
Mouth wound	16.0 ± 14.7	8.0 ± 10.9	16.0 ± 14.7	40.0 ± 19.6
Body wound	24.0 ± 17.1	4.0 ± 7.8	12.0 ± 13.0	40.0 ± 19.6
Both	8.0 ± 10.9	8.0 ± 10.9	0.0 ± 0.0	16.0 ± 14.7
Uncertain	4.0 ± 7.8	0.0 ± 0.0	0.0 ± 0.0	4.0 ± 7.8
Total	52.0 ± 20.0	20.0 ± 16.0	28.0 ± 18.0	100.0
<u>Lake Michigan sites (112)</u>				
Mouth wound	4.5 ± 3.9	4.4 ± 3.9	0.0 ± 0.0	8.9 ± 5.4
Body wound	25.9 ± 8.3	6.2 ± 4.6	2.7 ± 3.1	34.8 ± 9.0
Both	1.8 ± 2.5	0.0 ± 0.0	0.0 ± 0.0	1.8 ± 2.5
Uncertain	10.7 ± 5.8	5.4 ± 4.3	38.4 ± 9.2	54.5 ± 9.4
Total	42.9 ± 9.4	16.0 ± 6.9	41.1 ± 9.3	100.0

* Not enough steelhead (Salmo gairdneri) were examined for an estimate.

Table 20. --Angler distribution in percent of occurrence at salmon fishing sites.
(Number of observations in parentheses)

	REGION II site			
	Foote Dam Au Sable R. (132)	Tippy Dam Manistee R. (209)	Harris- ville (26)	Au Gres R. (49)
<u>Few</u>				
Widely spaced	6.8 ± 4.4	28.2 ± 6.2	0.0	14.3 ± 10.0
Moderately spaced	28.0 ± 7.8	20.6 ± 5.6	15.4 ± 14.2	40.8 ± 14.0
Crowded together	15.9 ± 6.4	4.3 ± 2.8	0.0	8.2 ± 7.8
<u>Average number</u>				
Moderately spaced	22.0 ± 7.2	23.9 ± 5.9	19.2 ± 15.5	18.3 ± 11.1
Crowded together	9.8 ± 5.2	3.4 ± 2.5	11.5 ± 12.5	0.0
<u>Many</u>				
Moderately spaced	6.1 ± 4.2	6.2 ± 3.3	23.1 ± 16.5	10.2 ± 8.6
Crowded together	7.6 ± 4.6	1.4 ± 1.6	30.8 ± 18.1	8.2 ± 7.8
<u>No fishermen</u>	3.8 ± 3.3	12.0 ± 4.5	0.0	0.0
<hr/>				
	REGION III site			
	Cass R. (8)	St. Joseph - Kalamazoo R. (46)	Grand R. system (42)	Huron R. (57)
<u>Few</u>				
Widely spaced	37.5 ± 34.2	54.3 ± 14.7	33.3 ± 14.5	22.8 ± 11.1
Moderately spaced	50.0 ± 35.4	2.2 ± 4.3	26.2 ± 13.6	26.3 ± 11.7
Crowded together	0.0	0.0	9.5 ± 9.1	7.0 ± 6.8
<u>Average number</u>				
Moderately spaced	12.5 ± 23.4	32.6 ± 13.8	14.3 ± 10.8	35.1 ± 12.6
Crowded together	0.0	2.2 ± 4.3	14.3 ± 10.8	3.5 ± 4.9
<u>Many</u>				
Moderately spaced	0.0	6.5 ± 7.3	2.4 ± 4.7	5.3 ± 5.9
Crowded together	0.0	2.2 ± 4.3	0.0	0.0
<u>No fishermen</u>	0.0	0.0	0.0	0.0

Table 21. --Amount of litter on the ground, in percent of occurrence, at salmon fishing sites. (Number of observations in parentheses)

Site	Light	Moderate	Heavy
<u>REGION II</u>			
Foote Dam (109) (Au Sable R.)	10.1 ± 5.8	43.1 ± 9.5	46.8 ± 9.6
Tippy Dam (182) (Manistee R.)	38.4 ± 7.2	27.5 ± 6.6	34.1 ± 7.0
Harrisville (25)	16.0 ± 14.7	48.0 ± 20.0	36.0 ± 19.2
Au Gres R. (45)	33.3 ± 14.1	57.8 ± 14.7	8.9 ± 8.5
<u>REGION III</u>			
Cass R. (9)	88.9 ± 21.0	0.0	11.1 ± 21.0
St. Joseph- Kalamazoo R. (41)	53.7 ± 15.6	41.4 ± 15.4	4.9 ± 6.7
Grand R. system (38)	57.9 ± 16.0	26.3 ± 14.3	15.8 ± 11.8
Huron R. (57)	40.4 ± 13.0	57.9 ± 13.1	1.7 ± 3.5

Table 22. --Conditions at study sites.

	Region II								
	Au Sable R. Foote Dam		Manistee R. Tippy Dam		Harris- ville		Au Gres R.		Total
	Mean Num- ber		Mean Num- ber		Mean Num- ber		Mean Num- ber		Mean
Percent of total trash barrels in area, full	27.3		19.0		34.7		5.1		23.3
	±7.9		±4.1		±16.3		±4.1		
Number of salmon car- casses in area	1.4	94	0.2		1.8	22	0.1	47	
	±0.7		±0.1		±1.4		±0.1		
Number of watchers at site	9.4	110	6.5	169	17.7	22	9.9	44	
	±2.0		±0.9		±6.6		±4.9		
	Region III								
	Cass R.		St. Joseph- Kalamazoo R.		Grand R. system		Huron R.		
	Mean Num- ber		Mean Num- ber		Mean Num- ber		Mean Num- ber		
Number of watchers at site	5.0	7	21.4	34	23.1	32	22.3	50	
	±1.9		±16.9		±12.2		±6.3		

Table 23. --Percent occurrence of conservation officer at site.
(Number of observations in parentheses)

Site	Present	Not present	Uncertain
<u>REGION II</u>			
Foote Dam (131) (Au Sable R.)	3.8 ± 3.3	78.6 ± 7.2	17.6 ± 6.6
Tippy Dam (221) (Manistee R.)	1.3 ± 1.6	77.4 ± 5.6	21.3 ± 5.5
Harrisville (28)	7.1 ± 9.7	89.3 ± 11.7	3.6 ± 7.0
Au Gres R. (49)	0.0	100.0 ± 0.0	0.0
<u>REGION III</u>			
Cass R. (9)	0.0	100.0 ± 0.0	0.0
St. Joseph- Kalamazoo R. (46)	2.2 ± 4.3	95.6 ± 6.0	2.2 ± 4.3
Grand R. system (43)	9.3 ± 8.9	86.0 ± 10.6	4.7 ± 6.4
Huron R. (57)	8.8 ± 7.5	49.1 ± 13.2	42.1 ± 13.1

Table 24. --Characteristics of salmon anglers interviewed in Region III. *

	Cass R.		St. Joseph-Kalamazoo R.		Grand R. system		Huron R.		Total **	
	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber
<u>Sex</u>										
Male	94.1	32	91.7	77	97.1	168	94.5	445	94.8	745
	±8.1		±6.0		±2.5		±2.1		±1.6	
Female	5.9	2	8.3	7	2.9	5	5.5	26	5.2	41
	±8.1		±6.0		±2.5		±2.1		±1.6	
<u>Race</u>										
White	94.3	33	91.7	77	96.5	164	85.4	400	89.1	696
	±7.8		±6.0		±2.8		±3.3		±2.2	
Black	5.7	2	7.1	6	2.9	5	13.7	64	10.1	79
	±7.8		±5.6		±2.6		±3.2		±2.2	
Other	0.0	0	1.2	1	0.6	1	0.9	4	0.8	6
	±0.0		±2.4		±1.2		±0.9		±0.6	

	Cass R.		St. Joseph-Kalamazoo R.		Grand R. system		Huron R.		Total **	
	Mean	Num-ber	Mean	Num-ber	Mean	Num-ber	Mean	Num-ber	Mean	Num-ber
Age (years)	38.4	36	44.0	85	37.2	184	37.5	481	38.4	820
	±4.9		±3.3		±2.3		±1.4		±1.1	
Income (dollars)	12,591	33	12,840	75	11,363	168	12,063	384	11,949	690
Prior years fished streams for salmon	3.2	36	3.6	85	3.9	186	2.0	479	2.7	818
	±0.7		±0.5		±0.5		±0.2		±0.2	
Number trips to streams in 1975	4.4	36	7.3	85	10.4	185	9.1	478	9.0	816
	±1.6		±2.0		±2.0		±1.2		±0.9	
Trip length (hours)	2.4	8	4.9	19	3.5	48	3.6	169	3.6	250
	±1.3		±1.2		±1.1		±0.4		±0.3	

* With 95% confidence limit listed below each value.

** Totals include all Region III sites listed in Table 2.

Table 25. --Residence of salmon anglers fishing at Region III sites.

	Cass R. (35)	Huron R. (481)	St. Joseph- Kalamazoo R. (79)	Grand R. system (186)
<u>Southern Lower Peninsula</u> ¹ ∨				
Metropolitan Detroit area	5.7 ± 7.8	88.2 ± 2.9	0.0 ± 0.0	5.9 ± 3.5
Flint-Bay City area	68.6 ± 15.7	0.0 ± 0.0	0.0 ± 0.0	1.1 ± 1.5
Mid-southern counties	2.9 ± 5.7	2.3 ± 1.4	11.4 ± 7.2	8.1 ± 4.0
Southern Lake Michi- gan counties	0.0 ± 0.0	0.4 ± 0.6	29.1 ± 10.2	56.4 ± 7.3
Thumb area counties	22.8 ± 14.2	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Southern border counties	0.0 ± 0.0	4.6 ± 1.9	13.9 ± 7.8	0.0 ± 0.0
Lake-less counties	0.0 ± 0.0	0.0 ± 0.0	1.3 ± 2.5	21.0 ± 6.0
Northern Lower Peninsula	0.0 ± 0.0	0.2 ± 0.4	0.0 ± 0.0	1.1 ± 1.5
Upper Peninsula	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.5 ± 1.0
Ohio	0.0 ± 0.0	3.5 ± 1.7	5.1 ± 5.0	1.6 ± 1.8
Illinois	0.0 ± 0.0	0.0 ± 0.0	7.6 ± 6.0	0.0 ± 0.0
Indiana	0.0 ± 0.0	0.0 ± 0.0	31.6 ± 10.5	3.8 ± 2.8
New York	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Pennsylvania	0.0 ± 0.0	0.2 ± 0.4	0.0 ± 0.0	0.0 ± 0.0
Ontario	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.5 ± 1.0
Other states	0.0 ± 0.0	0.6 ± 0.7	0.0 ± 0.0	0.0 ± 0.0
Total	100.0	100.0	100.0	100.0

¹∨ See Table 5 footnote for individual counties.

Table 26. -- Observations of angler behavior in Region III.

Site and month	Percent of fishermen reefing	Percent of total fishermen using illegal gear	Percent foul-hooked fish of total fish caught	Percent foul-hooked fish released
<u>Cass R.</u>				
September 27-30				
October	56.8 ± 6.3	1.8 ± 5.3	100.0	0.0
November	62.5 ± ∞	0.0 ± ∞		
Total	57.4 ± 6.2	1.6 ± 5.1		
<u>St. Joseph-Kalamazoo R.</u>				
September 27-30	72.2 ± 6.9	41.7 ± 9.2	60.0	
October	69.5 ± 5.4	50.7 ± 4.4	68.5	
November	28.9 ± 5.6	36.6 ± 4.5	66.6	0.0
Total	58.3 ± 5.3	45.9 ± 4.3		
<u>Grand R. system</u>				
September 27-30	90.9 ± 11.5	0.0 ± 9.3	100.0	0.0
October	68.0 ± 5.5	6.9 ± 4.4	100.0	0.0
November	52.5 ± 6.0	1.8 ± 4.8	15.4	0.0
Total	65.6 ± 5.4	5.0 ± 4.4		
<u>Huron R.</u>				
September 27-30	29.9 ± 8.5	0.0 ± 6.8	0.0	0.0
October	43.1 ± 5.4	5.8 ± 4.3	54.3	0.0
November	68.9 ± 5.6	24.8 ± 4.6	80.0	0.0
Total	48.2 ± 5.3	9.8 ± 4.3		

APPENDIX A

1975 LIBERALIZED SALMON FISHING RULES

THE NATURAL RESOURCES COMMISSION, AT ITS AUGUST 15, 1975, MEETING, UNDER AUTHORITY OF ACT 165, P.A. 1929, AS AMENDED, ADOPTS THE FOLLOWING RULES EFFECTIVE THROUGH DECEMBER 31, 1975:

ON STREAMS DESIGNATED AS OPEN TO LIBERALIZED SALMON FISHING, FISHING IS LIMITED TO THE USE OF ARTIFICIAL OR NATURAL BAITS UTILIZING UNWEIGHTED DOUBLE- OR TREBLE-POINTED HOOKS NOT TO EXCEED $3/8$ INCH FROM POINT TO SHANK, OR UTILIZING UNWEIGHTED SINGLE-POINTED HOOKS NOT TO EXCEED $1/2$ INCH FROM POINT TO SHANK. FOUL-HOOKED COHO, CHINOOK AND OTHER PACIFIC SALMON MAY BE RETAINED AS PART OF THE 5 CREEL LIMIT PROVIDED BY LAW.

FOR THE PURPOSE OF THESE RULES:

- (A) "ARTIFICIAL BAIT" MEANS ANY COMMONLY ACCEPTED LURE OR FLY THAT IS MANUFACTURED IN IMITATION OF OR AS A SUBSTITUTE FOR NATURAL BAIT, AND USED TO ATTRACT FISH FOR THE PURPOSE OF TAKING THEM.
- (B) "UNWEIGHTED HOOKS" MEAN NO WEIGHT MAY BE ATTACHED TO ANY PART OF THE HOOK, NOR MAY HOOKS BE FASTENED RIGIDLY TO AN ARTIFICIAL LURE BY SOLDERING, GLUING, WRAPPING OR THE LIKE.

FOLLOWING ARE THE AREAS OPEN TO LIBERALIZED SALMON FISHING IN 1975:

	<u>AREA OPEN</u>	<u>DATES OPEN</u>
SABLE RIVER	HAMLIN DAM TO SIGNS ABOVE HIGHWAY M-116 BRIDGE (BY PERMIT ONLY)	SEPT. 15-OCT. 31
MANISTIQUE RIVER	PAPERMILL DAM TO MOUTH	SEPT. 1-OCT. 31
BIG MANISTEE RIVER	TIPPY DAM TO SIGNS (APPROX. ONE MILE DOWNSTREAM)	" "
*MANISTEE LAKE	MANISTEE LAKE, MANISTEE CO.	" "
*PERE MARQUETTE RIVER	FROM SIGNS 1/4 MILE ABOVE TO SIGNS 3/4 MILE BELOW THE SCOTTVILLE BRIDGE	" "
MUSKEGON RIVER (4 SECTIONS)	CROTON DAM TO PINE AVE. AT ACCESS SITE	" "
	*HIGH ROLLWAYS PUBLIC ACCESS SITE (1/2 MILE ABOVE AND BELOW--AREA WILL BE POSTED)	" "
	*SHAW PARK TO OLD WOMAN'S BEND (AREA WILL BE POSTED)	" "
	US-31 TO MOUTH, *INCLUDING MUSKEGON LAKE AND CHANNEL	" "
GRAND RIVER	WEBER DAM, IONIA CO. TO MOUTH	SEPT. 1-DEC. 31
*THORNAPPLE RIVER	ADA DAM, KENT CO. TO MOUTH	" "
*FLAT RIVER	LOWELL DAM, KENT CO. TO MOUTH	" "
*FISH CREEK	HUBARDSTON DAM, IONIA CO. TO MOUTH	" "
*MAPLE RIVER	ELSIE DAM, CLINTON CO. TO MOUTH	" "
KALAMAZOO RIVER	ALLEGAN DAM, ALLEGAN CO. TO MOUTH	" "
ST. JOSEPH RIVER	*BUCHANEN DAM TO SIGNS (APPROX. 1/2 MILE DOWNSTREAM)	" "
	BERRIEN SPRINGS DAM TO US-31 BRIDGE AT BERRIEN SPRINGS	" "
CASS RIVER	CARO DAM, TUSCOLA CO. TO MOUTH	" "
*HURON RIVER	BELLEVILLE DAM TO MOUTH	" "

*DENOTES NEW AREAS FOR 1975

GEAR RESTRICTIONS FOR STREAM FISHING
DURING SALMON AND STEELHEAD RUNS

THE NATURAL RESOURCES COMMISSION, AT ITS AUGUST 15, 1975, MEETING, UNDER AUTHORITY OF ACT 230, P.A. 1925, AS AMENDED, ADOPTED THE FOLLOWING RULE BEGINNING OCTOBER 1, 1975, FOR A PERIOD OF FIVE YEARS:

DOUBLE OR TREBLE POINTED HOOKS EXCEEDING $3/8$ INCH BETWEEN POINT AND SHANK AND SINGLE POINTED HOOKS EXCEEDING $1/2$ INCH BETWEEN POINT AND SHANK MAY NOT BE USED ON ANY STREAM EXCEPT ST. MARY'S, ST. CLAIR, AND DETROIT RIVERS BEFORE MAY 15 OR AFTER AUGUST 31 OF EACH YEAR.

APPENDIX B

1975 Salmon Fishery Interview Form

Hi, I'm conducting a survey on salmon fishing in Michigan. I would appreciate it if you could take a few minutes to answer these questions for me. The Institute for Fisheries Research is interested in finding out what your opinions are on salmon fishing. (If yes, continue interview; if no, record and terminate interview._____)

Interviewer should fill out this part by observation:

Date_____ Time_____ AM_ PM_ Site:_____

Day of the week:_____ Form: Short_____ Long_____

Number of fish caught: Fishing type: Boat_____ Shore_____

1) Steelhead_____ 3) Coho_____ Sex: Male_____ Female_____

2) Chinook_____ 4) Other_____ Race: Black_____ White_____

Other_____

If you observe the fish close hand, fill out the following information:

CODE: Steelhead = 1; Chinook = 2; Coho = 3; Other = write in name of fish.

	1st fish	2nd fish	3rd fish	4th fish	5th fish
Fish species	_____	_____	_____	_____	_____
Mouth wound	_____	_____	_____	_____	_____
Body wound	_____	_____	_____	_____	_____
Both	_____	_____	_____	_____	_____
Can't tell	_____	_____	_____	_____	_____
Sex of fish	_____	_____	_____	_____	_____

1. *What time did you start fishing today?_____
2. *Are you through fishing for the day? Yes_____ No_____
3. *This year, how many times have you fished for salmon on streams in Michigan?_____

4. *How many years have you been fishing for salmon in Michigan? _____
5. *Which do you most enjoy fishing for? Muskies _____ Smelt _____ Salmon _____
Steelhead _____ Brook trout _____ Panfish _____ Bass _____ All of these _____
(Other) _____
6. Is salmon fishing primarily
 _____ a. something you do for relaxation?
 _____ b. something you do for the excitement and challenge? or
 _____ c. something you do to help on groceries?
 _____ d. (other) _____
- (If fisherman gives more than one answer, ask "which is most important?")

These next 3 questions are about trolling on Great Lakes waters and fishing on streams for salmon. (Do not use 7, 8, and 9 for lake shore fishermen.)

7. How often have you trolled for salmon on waters of the Great Lakes during the fishing season?
 _____ a. one or more times a week _____ c. about once a year
 _____ b. one or more times a month _____ d. (not at all)
- (If a or b, skip question 8. For c or d, go to question 8.)
8. Which of the following best explains why you rarely or never fish Great Lakes waters for salmon? (After this question, go to question 10.)
 _____ a. Great Lakes fishing is not as enjoyable for you as stream fishing.
 _____ b. Great Lakes fishing is too expensive for you.
 _____ c. Stream fishing increases your chance of catching fish, or
 _____ d. Great Lakes fishing is not enjoyable for you when the water gets rough.
 _____ e. (other) _____
9. Is your salmon fishing experience on streams:
 _____ a. more enjoyable than Great Lakes fishing?
 _____ b. about the same? or
 _____ c. less enjoyable than Great Lakes fishing?

10. Are you aware of the new foul-hooking regulation? Yes___(Go to 11);
No___(Go to 15)

These next 4 questions are on intentional foul-hooking, that is snagging.

11. Are you opposed to foul-hooking or snagging in any form? Yes__(Go to 15)
No__(Go to 12)
12. Are the new foul-hooking regulations placed on stream fishing for salmon:
___a. not strict enough?
___b. about right?
___c. too strict?
13. Should new foul-hooking regulations be:
___a. extended to all salmon-run streams? or
___b. restricted to a few streams?
14. Should intentional foul-hooking, that is snagging,
___a. be allowed in any form?
___b. be allowed but restricted by gear?
15. Suppose you couldn't keep any of the fish you catch, would you now fish:
___a. many times ___c. not at all
___b. a few times ___d. (not sure)
16. When you catch salmon do you usually:
___a. take them home and eat them? ___c. throw them back?
___b. give them to neighbors? ___d. use them for fertilizer?
___e. (other)_____
17. How often do you sell the eggs from salmon you take?
___a. all the time ___b. sometimes ___c. never

18. Do you think fishermen should be able to sell salmon eggs:
- a. when the fish are caught for the purpose of selling the eggs,
 - b. when the fish are caught for the purpose of eating the fish,
 - c. both of the above, or
 - d. at no time should the eggs be sold.
19. *What city, town, or township, and what county, do you live in? _____
 _____ . (If "outstate", what state?) _____
20. *How old are you? _____
21. *What is your occupation? _____
22. Could you indicate which of the following categories your personal income for a year would fall in?
- a. \$ 0-\$ 999 e. \$11,001-\$14,000 h. \$20,001-\$25,000
 - b. \$1,000-\$5,000 f. \$14,001-\$17,000 i. \$25,001-\$30,000
 - c. \$5,001-\$8,000 g. \$17,001-\$20,000 j. over \$30,001
 - d. \$8,001-\$11,000

APPENDIX C

Observer Criteria Form

Date: _____ Time: _____ AM _____ PM River or Lake: _____

Name of observer _____ Site: _____

Weather: Check those conditions prevailing.

<input type="checkbox"/> overcast	<input type="checkbox"/> rain	Temperature: <input type="checkbox"/> hot
<input type="checkbox"/> partly cloudy	<input type="checkbox"/> snow	<input type="checkbox"/> normal
<input type="checkbox"/> sunny	<input type="checkbox"/> windy	<input type="checkbox"/> cold

Comments: _____

The following information may be obtained while still some distance from the fishermen. Three counts should be made at each site for boat and stream anglers. The three counts should be made for both boat and shore fishermen in areas of average fishermen density. The shore counts should cover a length of 10 yards of the stream bank out to mid-stream. Boat counts should be of 10 boats per count. (No 10-yard length involved with boat count.)

At different times and places it may be possible to get complete counts of fishermen (Example: when there are few fishermen at a site.). The observer should use only part B of the casting technique forms and ignore the three counts. If a complete count of boats can be made, record the total number of boats as well as the casting technique of each fisherman--again ignore part A. If part A is used, do not try and use part B.

A) Shore count of fishermen OR B) Complete count of shore fishermen at site
(do when site is crowded)

A. Casting technique

Normal cast and retrieve

Reefing retrieve after cast

	1	2	3	
Normal cast and retrieve	_____	_____	_____	_____
Reefing retrieve after cast	_____	_____	_____	_____

A) Boat count of fishermen OR B) Complete count of boat fishermen at site
(do when site is crowded)

Casting technique

Normal

Reefing

Trolling

	1	2	3	
Normal	_____	_____	_____	_____
Reefing	_____	_____	_____	_____
Trolling	_____	_____	_____	_____

Comments: _____

For the following information close-hand inspection will be necessary. Make only one count in areas of average density for boat and shore fishermen.

B. <u>Gear used</u>	Shore count of fishermen (if possible)			Boat count of fishermen (if possible)		
	1	2	3	1	2	3
Illegal (large treble hook or weighted hook)	_____	_____	_____	_____	_____	_____
Legal (lure or natural bait; 3/8" size for treble, 1/2" for single hook)	_____	_____	_____	_____	_____	_____

Total number of fish landed during gear count time _____
 Number of foul-hooked fish landed during count time _____
 Number of foul-hooked fish released during count time _____
 Total time spent conducting counts _____
 Comments: _____

C. Number of watchers per 10 square yards _____ or, if possible, total watchers present at site _____. Comments: _____

D. Number of salmon in stream per 10 square yards of river (approximate) _____, water too murky (____). Comments: _____

E. Distribution of fishermen: (check only one)
 _____ few fishermen - widely spread out
 _____ few fishermen - moderately spread out
 _____ few fishermen - crowded in small groups
 _____ average number of fishermen - moderately spread out
 _____ average number of fishermen - crowded in small groups
 _____ many fishermen - moderately spread out
 _____ many fishermen - crowded in small groups
 Comment: _____

F. Crowd conflict: Code in each of the following areas whether the conflict is serious (1), moderate (2), minor (3), not present (4).

1. Foul-hooking fishermen (legal) vs snaggers (illegal)_____.

Comment: _____

2. Steelhead fishermen vs salmon fishermen_____.

Comment: _____

3. Watchers vs fishermen_____.

Comment: _____

4. Casting or fish landing interference_____.

Comment: _____

5. Boat fishermen vs shore fishermen_____.

Comment: _____

G. Conservation officer: Present___ Not present___ Uncertain___

Comment: _____

Commercial egg buyer: Present___ Not present___ Uncertain___

Comment: _____

Number of sellers per hour (estimated)_____

Comment: _____

H. Salmon carcasses discarded in area? Total_____ Females_____

Newly discarded_____, or beginning to decay_____.

Comment: _____

I. Litter:

Total number of trash barrels in area?_____

Number of trash barrels full?_____

Number of trash barrels per 10 square yards?_____

Approximate percentage of fishermen littering?_____

Approximate percentage of watchers littering?_____

Comment: _____

Litter on ground is: heavy___ moderate___ light___

J. Latrines or rest rooms are:

Overcrowded with fishermen also using the woods___

Overcrowded but no fishermen using the woods___

Adequate for needs of all___

Not used--fishermen using the woods, etc. ___

Comment: _____

K. Parking areas are:

Congested, with cars parked on lawns, driveways, etc. ___

Congested, without cars parked on lawns, etc. ___

Adequate for needs of all___

Not used--fishermen parking on lawns, driveways, etc. ___

At parking areas:

DNR Parks sticker needed? Yes___ No___

Is area a Waterways Commission launch site? Yes___ No___

Entrance fee at Waterways sites? Yes___ No___

Private or municipal site with entrance fee? Yes___ No___

Comments: _____

L. Uniform worn by observer? Yes___ No___

State car driven to the site by observer? Yes___ No___

Comment: _____

APPENDIX D

Complete Angler Count Form

This form should be used when making complete counts of anglers at each site. Time of the count should be determined by using a schedule similar to the example of the "Random creel census schedule." For uniformity, an angler will be defined as a person with a rod in, or near, the water. At each site the counter should determine the area he will consider part of the site. Thus, for each site a standard area should be used.

Name of counter: _____ River or lake: _____

Date: _____ Site: _____

Time of count: _____

Angler Count:	<u>Shore</u>	<u>Boat</u> (total number of anglers, not number of boats)
	_____	_____

Comments: _____