

Appendix D

Miscellaneous angler survey data collected from 1928 to 1967 for the Tittabawassee River, its tributaries, and watershed lakes.

Miscellaneous angler survey results are presented in tables D.1 through D.7. These results include angler diary data (Table D.1), complemented surveys using counts and angler interviews (Table D.2), and counts of ice fishing shanties at various locations (tables D.3 through D.7).

Estimated catch rate and mean length of harvested fish are presented in tables D.8, D.10 through D.32 for rivers; and D.33, D.35 through D.50 for lakes. Multiple tables were necessary to accommodate the diverse fisheries found within the watershed. Table D.9 notes creel data by subwatershed, river, and time period, which are found in tables D.10 through D.32. Similarly, Table D.34 notes creel data by subwatershed, lake, and time period, which are found in tables D.35 through D.50.

Data presented in tables D.8 through D.50 are from the General Creel Census and were collected by MDNR conservation officers as they performed their normal duties (Ryckman 1981, Lockwood 2000). Limitations of these data must be clearly understood. While this data collection program was referred to as the General Creel Census, these angler survey data do not represent a true census (i.e., not every member of the population is sampled (Everitt 1998)), rather they are a subsample of the angling population at a given site at a given time. While these data provide historical evidence of species presence, they were not collected following traditional random sampling designs and are correctly referred to as convenience samples (Pollock et al. 1994). Originally, interview records were recorded by angler or angling party. Daily summaries were then prepared for each lake or river site. These daily summaries then contain the catch and effort information for one or multiple anglers. The original interview records have been discarded. As a result, variation between angler and angler party cannot be estimated. Variation (1 Standard Error) reported here is between days. Summaries of these interviews are archived at the Institute for Fisheries Research, Ann Arbor, MI.

Estimated catch rates presented in tables D.8, D.10 through D.32, D.33, and D.35 through D.50 were calculated using the ratio-of-means estimator. Specific formulae for estimating catch rate and catch rate Standard Error (SE) are given in Lockwood et al. (1999). Weighted mean length \bar{L} for species s was estimated as:

$$\bar{L}_s = \frac{\sum_{i=1}^N L_{si} C_{si}}{\sum_{i=1}^n C_{si}},$$

for C fish caught on day i and N days sampled. Standard Error SE of \bar{L} for species s

was estimated as:

$$SE_s = \sqrt{\frac{\sum_{i=1}^N (L_{si} - \bar{L}_s)^2 C_{si}}{\left(\sum_{i=1}^N C_{si}\right) \left(\left[\sum_{i=1}^N C_{si}\right] - 1\right)}}.$$

References

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Table D.1.—Diary angler creel data collected during spring and summer 1948. Estimates are given with 1 standard error in parentheses.

River	No. Anglers	Hours	Records	Catch per hour	
				Brook Trout	
Tittabawassee	6	30.0	3	0.30 (0.14)	

Table D.2.—Rainbow trout angler survey conducted during winter 1959–60. These estimates are from an April 7, 1960 letter from Max A. Hunt to M. J. DeBoar (Fisheries Division files). Confidence limits are given in parentheses. No definition for confidence limits was given in this letter. Typically, confidence limits (error bounds) are 2 standard errors, which represent 75–95% confidence limits. Rainbow trout catch is assumed to be harvest. Missing confidence limits are given as (–).

Subwatershed	Lake	Hours per trip	Angler		Rainbow trout	
			hours	trips	Harvest	Catch per hour
Main stem-headwaters	George	2.39	1,437	601	391	0.27
		(–)	(230)	(106)	(109)	(–)
Tobacco River	Arnold	3.33	3,016	906	14	<0.01
		(–)	(–)	(158)	(11)	(–)
Chippewa River	Littlefield	3.13	4,601	1,470	85	0.02
		(–)	(–)			(–)

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Table D.3.—Counts of ice fishing shanties by subwatershed for year 1962. All counts were made on February 12, 1962 and only one count was made per lake. Count data were retrieved from letters in Fisheries Division files and these letters did not specify if counts were of occupied shanties or of all shanties present on a lake (occupied and unoccupied shanties).

Subwatershed	Lake	Number of shanties
Main stem-headwaters	Elk	16
	Four	7
Main stem-middle	Sanford	147
	Secord	19
	Smallwood	13
	Wixom	201
Tobacco River	Arnold	14
	Budd	34
	Cranberry	1
	Five	41
	Little Long	0 ¹
	McGilvery	1
	Pratt	28
	Ross	0 ¹
	Sutherland	0
	Thirteen	9
Wiggins	33	
Chippewa River	Coldwater	52
	Eight Point	5
	Littlefield	14
	Stevenson	6

¹ Lake closed to fishing as result of chemical treatment.

² Pond was drawn down during year.

Table D.4.—Counts of ice fishing shanties by subwatershed for year 1963. All counts were made on February 15, 1963 and only one count was made per lake. Count data were retrieved from letters in Fisheries Division files and these letters did not specify if counts were of occupied shanties or of all shanties present on a lake (occupied and unoccupied shanties).

Subwatershed	Lake	Number of shanties
Main stem-headwaters	Elk	9
	Four	4
	Indian	1
Main stem-middle	Sanford	168
	Secord	23
	Smallwood	12
	Wixom	272
Tobacco River	Arnold	7
	Bertha	0
	Budd	40
	Cranberry	4
	Dodge	1
	Five	32
	Little Long	0 ¹
	McGilvery	1
	Pratt	49
	Ross	3
	Sutherland	6
	Thirteen	10
	Wiggins	0 ²
Chippewa River	Coldwater	40
	Big Mud	0
	Eight Point	7
	Littlefield	33
	Perch	1
	Stevenson	10
Pine River	Halls	0

¹ Lake closed to fishing as a result of chemical treatment.

² Lake chemically treated, fall, 1962.

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Table D.5.—Counts of ice fishing shanties by subwatershed for year 1965. All counts were made on February 19, 1965 and only one count was made per lake. Count data were retrieved from letters in Fisheries Division files and these letters did not specify if counts were of occupied shanties or of all shanties present on a lake (occupied and unoccupied shanties).

Subwatershed	Lake	Number of shanties
Main stem-headwaters	Elk	6
	Four	6
	Indian	1
Main stem-middle	Sanford	111
	Secord	13
	Smallwood ¹	1
	Smallwood ²	5
	Wixom	189
Tobacco River	Arnold	6
	Bertha	0
	Budd	42
	Cranberry	9
	Deer	1
	Dodge	3
	Five	15
	Little Long	0
	McGilvery	3
	Pratts	41
	Ross	1
	Sutherland	5
	Thirteen	39
Wiggins	7	
Chippewa River	Big Mud	3
	Coldwater	13
	Eight Point	13
	Littlefield	47
	Stevenson	8
	Townline	0
Pine River	Halls	6

¹ South of Highway 61.

² North of Highway 61.

Table D.6.—Counts of ice fishing shanties by subwatershed for year 1966. All counts were made on February 15, 1966 and only one count was made per lake. Count data were retrieved from letters in Fisheries Division files and these letters did not specify if counts were of occupied shanties or of all shanties present on a lake (occupied and unoccupied shanties).

Subwatershed	Lake	Number of shanties
Main stem-headwaters	Elk	2
	Four	7
	Indian	0
Main stem-middle	Sanford	102
	Secord	5
	Smallwood ¹	2
	Smallwood ²	2
	Wixom	118
Tobacco River	Arnold	11
	Bertha	0
	Budd	34
	Cranberry	3
	Deer	0
	Dodge	3
	Five	23
	Little Long	0
	McGilvery	0
	Pratts	32
	Ross	1
	Sutherland	1
	Thirteen	12
Wiggins	3	
Chippewa River	Big Cranberry	1
	Chippewa	51
	Coldwater	19
	Diamond	1
	Eight Point	10
	Littlefield	23
	Perch	1
	Pretty	4
	Stevenson	16
Townline	4	
Pine River	Halls	2

¹ South of Highway 61.

² North of Highway 61.

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Table D.7.—Counts of ice fishing shanties by subwatershed for year 1967. All counts were made on February 21, 1967 and only one count was made per lake. Count data were retrieved from letters in Fisheries Division files and these letters did not specify if counts were of occupied shanties or of all shanties present on a lake (occupied and unoccupied shanties).

Subwatershed	Lake	Number of shanties
Main stem-headwaters	Elk	7
	Four	9
	Indian	1
Main stem-middle	Sanford	123
	Secord	3
	Smallwood ¹	2
	Smallwood ²	0
	Wixom	165
Tobacco River	Arnold	15
	Bertha	0
	Budd	35
	Cranberry	2
	Deer	1
	Dodge	4
	Five	31
	Little Long	7
	McGilvery	1
	Pratts	48
	Ross	1
	Sutherland	3
	Thirteen	14
Wiggins	1	
Chippewa River	Big Cranberry	2
	Big Mud	0
	Chippewa	35
	Coldwater	26
	Diamond	0
	Eight Point	8
	Littlefield	24
	Perch	2
	Pretty	5
	Stevenson	23
Townline	1	
Pine River	Halls	8

¹ South of Highway 61.

² North of Highway 61.

Table D.8.—Direct contact lake angler creel data for the Tittabawassee River headwaters. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

River/Creek	Year	Total Days		Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Yellow perch		Northern pike		Bullhead sp.		Sucker sp.				
		hours	(N)	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL			
Chatman	1928	26.0	7									0.27	11.67	0.08				0.54					0.38	21.50						
												(0.14)	(0.67)	(0.08)				(0.56)					(0.30)	(0.00)						
Elk Lake	1937	3.5	2																											
	1945	4.0	1																											
Spring	1928	5.0	1	2.20	8.00																									
				(-)	(-)																									
	1929	38.0	10	1.84	7.87			0.05	8.00																					
				(0.41)	(0.04)			(0.03)	(0.50)																					
	1930	24.0	9	2.21	7.62																									
				(0.56)	(0.16)																									
	1931	10.0	6	0.90	7.56																									
				(0.60)	(0.18)																									
	1933	34.0	7	1.09	8.28																									
				(0.16)	(0.06)																									
	1934	3.0	2																											
	1938	7.5	2																											
	1944	3.0	1					0.33	10.00																					
								(-)	(-)																					
	1948	17.5	4	1.20																										
				(0.59)																										
	1949	20.3	3	0.84																										
				(0.14)																										
Spring	1953	10.0	1	0.10																										
				(-)																										
	1955	10.0	1	1.30																										
				(-)																										
	1956	9.0	1	0.33																										
				(-)																										

Table D.8.–Continued.

River/Creek	Year	Total Days		Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Yellow perch		Northern pike		Bullhead sp.		Sucker sp.		
		hours	(N)	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	
	1959	4.0	1	0.75																								
				(-)																								
	1960	41.0	1	0.66																								
				(-)																								
	1961	6.0	1																									
Tittabawassee, East Br.	1928	8.0	2	1.88	8.00																							
				(0.41)	(0.00)																							
	1929	45.5	7	0.76	8.37																	0.02						
				(0.41)	(0.03)																	(-)						
	1930	63.0	22	0.03					0.11				0.03		0.05					0.90	7.87	0.11	19.67					
				(0.03)					(0.07)				(0.02)		(0.03)					(0.30)	(0.09)	(0.05)	(2.33)					
	1932	28.0	7								0.11	14.00	1.14		0.39		0.14		1.11			0.07						
											(0.11)	(0.00)	(0.66)		(0.29)		(0.09)		(0.47)			(0.07)						
	1933	43.0	10	0.05					0.12				0.35	7.00	0.09		0.26		0.23			0.02			0.30			
				(0.04)					(0.08)				(0.23)	(0.00)	(0.09)		(0.20)		(0.12)			(0.02)			(0.24)			
	1934	50.8	13								0.10		0.59	7.00	0.14				0.04		0.20	22.67	0.06	8.00	0.02			
											(0.10)		(0.33)	(0.00)	(0.10)				(0.04)		(0.08)	(0.42)	(0.06)	(0.00)	(0.02)			
	1935	1.0	1	1.00	10.00																							
				(-)	(-)																							
	1937	23.0	1	0.78	8.50																							
				(-)	(-)																							
Tittabawassee, East Br.	1939	5.0	1														1.00	7.00										
																	(-)	(-)										
	1940	8.5	2										0.24	7.00														
													(0.06)	(0.00)														
	1941	70.5	3						0.03	14.00			0.91	7.40			0.01	7.00			0.03	21.50	0.13	12.00				
									(0.05)	(0.00)			(0.13)	(0.00)			(0.00)	(-)			(0.02)	(1.50)	(0.02)	(0.00)				
	1945	2.0	1	1.50	9.00			0.50	10.00																			
				(-)	(-)			(-)	(-)																			
	1948	3.0	1	1.00																								
				(-)																								
	1959	8.0	2					0.25									0.25		0.38									
								(0.06)									(0.44)		(0.66)									

Table D.8.–Continued.

River/Creek	Total Days			Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Yellow perch		Northern pike		Bullhead sp.		Sucker sp.		
	Year	hours	(N)	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	
Tittabawassee, Middle Br.	1928	1.0	1																									
	1929	2.0	1	2.00	10.00																							
	1930	5.0	1	0.80	9.00			0.40	9.00																			
	1933	28.5	8	(-)	(-)			(-)	(-)					0.11	7.00			0.07				0.04						
	1934	5.5	3	0.91	7.90	0.18	9.00							0.67	7.00			0.07				0.04						
	1948	1.0	1	(0.55)	(0.37)	(0.20)	(-)							(0.38)	(0.00)			(0.07)				(0.03)						
	1949	8.0	2	2.00														0.75	8.50									
	1959	1.5	1	(-)														(0.56)	(0.00)									
Tittabawassee, West Br.	1929	37.5	9	0.64	8.08																							
	1930	40.8	13	(0.21)	(0.08)																							
	1931	15.5	10	0.49	7.83					0.07	13.00											0.05						
	1932	41.5	7	(0.17)	(0.07)					(0.08)	(0.00)											(0.04)	(0.67)	(0.07)				
	1933	101.0	30	0.45	7.71																							
	1934	52.5	13	(0.19)	(0.18)									0.02	0.73	0.09		0.46	0.64			0.07	24.50	0.11				0.05
	1937	2.3	2	0.05	9.00									(0.02)	(0.25)	(0.05)		(0.11)	(0.18)			(0.04)	(0.67)	(0.07)				(0.05)
	1940	24.0	15	(0.07)	(0.00)									0.06	12.50			0.34	0.17			0.02	20.00	0.08				0.06
	1942	161.5	6	(0.06)	(0.00)									(0.06)	(0.00)			(0.17)	(0.12)			(0.02)	(-)	(0.08)				(0.04)
	1940	24.0	15															0.25	8.00			0.25	24.33					
	1942	161.5	6															(0.25)	(0.00)			(0.12)	(1.32)					
	1942	161.5	6											0.03	12.00	0.01	15.00	0.01	6.00			0.02	19.50					
				(0.03)	(0.00)	(0.01)	(-)	(0.00)	(-)					(0.06)	(0.00)			(0.06)	(0.00)			(0.01)	(0.50)					

Table D.8.–Continued.

River/Creek	Total Days		Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Yellow perch		Northern pike		Bullhead sp.		Sucker sp.			
	Year	hours	(N)	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	
	1954	2.0	1																									
	1955	43.5	3	1.20 (0.11)		0.46 (0.10)																						
	1956	55.0	3	0.09 (0.08)																								
	1957	45.0	1	0.16 (-)		0.09 (-)		1.22 (-)																				
	1958	2.0	1																									
Tittabawassee, West Br.	1959	25.0	3	0.20 (0.07)																								
	1962	6.0	1																									1.67 (-)

Table D.9.—To accommodate all species, creel data on the additional rivers within the Tittabawassee River subwatersheds have been separated into a series of tables. Tables 3–25 contain creel data for the subwatersheds, rivers, and time periods listed below.

Sub-watershed	River/creek	Years	Table
Main stem-headwaters	Black	1941–50, 1952–64	3
	Larrabee Lake	1935, 1937	4
	Little Molasses	1935, 1958	4
		1929–30, 1934–35, 1937, 1942, 1948, 1952, 1956–59	4
	Little Tobacco	1937	4
	Long Lake	1934–35, 1952, 1957, 1960	4
	Molasses	1929–30, 1932–35, 1937, 1939–45, 1947–62	4
	Sugar		
Main stem-middle	Tea	1934, 1954, 1957, 1959	5
	Tittabawassee	1928–39	6
	Tittabawassee	1940–43	7
	Tittabawassee	1944–49	8
	Tittabawassee	1950–59	9
	Tittabawassee	1960–64	10
	Varity	1943, 1946–50, 1953–64	11
Main stem-mouth	Tittabawassee	1945, 1948, 1954, 1956	12
Tobacco River	Bailey	1940	13
	Beaver	1950–51	13
	Black	1960	13
	Cedar	1929–33	13
	Cedar	1934–35	14
	Cedar	1937–48	15
	Cedar	1949–63	16
	Middle Br. Cedar	1933–34, 1939, 1953, 1955–58, 1962	17
	North Br. Cedar	1929–30, 1937, 1939, 1944, 1947, 1957, 1962	17
		1928–29, 1933–34, 1938, 1940, 1944, 1946–51, 1955–62	17
	West Br. Cedar	1930, 1935, 1948, 1956, 1958	17
	Elm	1938	17
	Five Lakes	1956	17
	Jose	1948	17
	McCurran	1933, 1949	17
	Popple	1951	17
	Sanford	1937, 1940	17
	Spike Horn	1929–30, 1932–35, 1937–40	18
	Tobacco	1941–46	19
	Tobacco	1947–64	20
		1929, 1934–35, 1939, 1945–46, 1948, 1950–51, 1953, 1955, 1957–61, 1963	21
	Middle Br. Tobacco	1928–30, 1932–35, 1937–38, 1943–48, 1950–55, 1957–62	22
	North Br. Tobacco	1929–30, 1933–35, 1939, 1945, 1948	23
South Br. Tobacco	1950–60	24	
South Br. Tobacco	1929, 1934–35	25	
West Br. Tobacco			

Table D.10.—Direct contact river angler creel data for the Tittabawassee River main stem-middle Black River. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp			
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1941	28	2													0.21	7.00												
															(0.11)	(0.00)												
1942	280	6			0.01	13.00	0.01	13.50	0.54	6.95	0.04	7.00			0.29	7.00												
					(0.01)	(0.00)	(0.01)	(0.50)	(0.11)	(0.01)	(0.04)	(0.00)			(0.03)	(0.00)												
1943	39	1											0.03	9.00	2.79	8.00	0.38	8.00										
					(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(0.00)	(-)	(0.00)	(-)	(0.00)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
1944	347.5	5			0.01	12.00			1.19	7.49	0.05	7.31			0.15	7.96	0.03	6.64			<0.01	26.00						
					(<0.01)	(0.00)			(0.14)	(0.02)	(0.04)	(0.09)			(0.05)	(0.04)	(0.01)	(0.18)			(<0.01)	(-)						
1945	45	4	<0.01		0.04	12.00			0.33	7.73					0.18	7.38												
			(<0.01)		(0.03)	(0.00)			(0.14)	(0.12)					(0.10)	(0.38)												
1946	394	20			<0.01	13.00			0.12	6.19			0.01	7.00	0.17	7.15	<0.01	7.00	0.01	28.00	0.01	20.00						
					(<0.01)	(-)			(0.06)	(0.05)			(<0.01)	(1.00)	(0.07)	(0.04)	(<0.01)	(-)	(0.01)	(0.00)	(0.01)	(0.00)						
1947	159.5	12							0.56		0.01				0.04								0.01					
									(0.17)		(0.01)				(0.02)								(0.01)					
1948	276	14			0.03				0.11				0.01		0.47								0.01			<0.01		
					(0.02)				(0.04)				(0.01)		(0.11)								(0.01)			(<0.01)		
1949	715	23							0.01				0.06		0.37		0.06		<0.01		0.01							
									(0.01)				(0.02)		(0.08)		(0.02)		(<0.01)		(<0.01)							
1950	306	20							0.12						2.55		0.67		<0.01		0.02							
									(0.05)						(0.31)		(0.11)		(<0.01)		(0.01)							
1952	39	2							0.49						1.03		0.15											
									(0.62)						(0.96)		(0.01)											
1953	75	6									0.23				3.88		0.29						0.05					
											(0.10)				(1.43)		(0.13)						(0.04)					
1954	404	31			<0.01		0.01		0.20		0.02		<0.01		1.18		0.04						0.01					
					(<0.01)		(0.01)		(0.05)		(0.01)		(<0.01)		(0.19)		(0.01)						(0.01)					
1955	118	17							0.25		0.05				0.36		0.02						0.03					
									(0.09)		(0.05)				(0.15)		(0.01)						(0.02)					
1956	182	18			0.01				0.10		0.01				1.38		0.01						0.01		0.11			
					(0.01)				(0.04)		(0.01)				(0.39)		(0.01)						(0.01)		(0.10)			
1957	292	24							0.20		<0.01				0.82		0.01						0.01					
									(0.10)		(<0.01)				(0.19)		(0.01)						(<0.01)					
1958	299	15			0.02		0.03		0.14		0.01		0.01		0.91		0.01						0.01		<0.01			
					(0.01)		(0.03)		(0.07)		(0.01)		(0.01)		(0.36)		(0.01)						(0.01)		(<0.01)			
1959	167	9							0.17		0.01		0.02		0.44		0.02											
									(0.12)		(0.01)		(0.01)		(0.12)		(0.01)											

Table D.10.–Continued.

Year	Total hours	Days (N)	Brook trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp			
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1960	182	13					0.01 (0.01)		0.12 (0.05)		0.03 (0.02)		0.27 (0.22)		0.40 (0.19)		0.07 (0.04)					0.01 (0.01)						
1961	122	13							0.02 (0.02)		0.04 (0.04)				1.79 (0.48)		0.46 (0.13)											
1962	147	10							0.03 (0.02)				0.01 (0.01)		0.75 (0.31)		0.11 (0.06)											
1963	57	6											0.04 (0.04)		3.68 (0.95)		0.07 (0.06)											
1964	11	1																										

Table D.11.—Direct contact river angler creel data for the Tittabawassee River main stem-middle Larrabee Lake, Little Molasses, Little Tobacco, Long Lake, Molasses, and Sugar rivers. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

River/Creek	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Bullhead sp.		Carp		Suckers sp.			
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Larrabee Lake	1935	4	2											1.50	7.00	2.75	7.50												
		1937	2.25	1										(1.50)	(0.00)	(2.75)	(0.00)												
Little Molasses	1935	1.5	1	0.67	17.25																								
		1958	1	1	(–)	(–)															1.00						1.00	(–)	
Little Tobacco	1929	9.5	4																	0.11	24.00								
		1930	25.5	10															0.20	(0.12)	(–)	0.20	20.00						
		1934	13	2															(0.18)	(0.06)	(2.00)	0.08	20.00						
		1935	3	5																									
		1937	6	5											0.17	7.00	0.17	8.00				0.17	26.00	0.17	9.00			0.17	20.00
		1942	6	1											(0.18)	(–)	(0.18)	(–)				(0.16)	(–)	(0.18)	(–)			(0.18)	(–)
		1948	1	1																									
		1952	16	2																									
		1956	11	3																									
		1957	7	3																									
		1958	10	2																									
	1959	8	2																										
Long Lake	1937	11.75	2	0.34	7.38																								
Molasses	1934	4	1	(0.17)	(0.07)																								
		1935	2.5	1																									

Table D.11.–Continued.

River/Creek	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Bullhead sp.		Carp		Suckers sp.		
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
Molasses	1952	1	1																									
	1957	2	1																									
	1960	1	1																									
	1929	199.5	34	0.21	7.40																							
				(0.06)	(0.06)																							
	1930	68.25	16	0.59	7.41																							
				(0.16)	(0.04)																							
	1932	64	13	0.58	7.81																							
				(0.13)	(0.09)																							
	1933	108	27	0.53	8.24			0.06	8.25			0.04				0.05				0.02						0.07		
				(0.14)	(0.07)			(0.04)	(1.25)			(0.04)				(0.05)				(0.02)						(0.07)		
	1934	47	9	0.34	8.84	0.02	13.00																					
				(0.16)	(0.43)	(0.02)	(-)																					
	1935	249.25	71	0.43	7.94			<0.01	8.00																			
				(0.09)	(0.04)			(<0.01)	(-)																			
	1937	230.75	56	0.15	7.75	<0.01	10.00																					
				(0.04)	(0.13)	(<0.01)	(-)																					
	1939	8	2	1.00	8.00																							
				(0.25)	(0.38)																							
	1940	117.25	34	1.01	7.58	0.01	10.00																					
				(0.28)	(0.06)	(0.01)	(-)																					
	1941	143	1			0.01	14.00	0.01	12.00																	0.02		
						(-)	(0.00)	(-)	(-)																	(-)		
	1942	5	2	1.00	7.80																							
				(<0.01)	(0.20)																							
	1943	174.5	6	0.15	8.11																							
				(0.07)	(0.11)																							
	1944	251	7	0.98	8.98																							
				(0.25)	(0.01)																							
	1945	212.5	6	0.47	8.00	<0.01	9.00	<0.01	9.00																			
				(0.09)	(0.00)	(<0.01)	(-)	(<0.01)	(-)																			
	1947	240	1	0.60		0.03																						
				(-)		(-)																						
	1948	676.5	8	0.75		0.08																						
				(0.13)		(0.01)																						
	1949	22	4	0.68				0.14																				
				(0.08)		(0.10)		(0.12)																				
	1950	16	1	0.13																								
				(-)																								

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Table D.11.–Continued.

River/Creek	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Bullhead sp.		Carp		Suckers sp.			
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Molasses	1951	98	2	0.69 (0.16)	0.00 (0.00)																								
	1952	65	4	0.54 (0.08)		0.03 (0.02)																							
	1953	43	3	0.33 (0.26)		0.05 (0.04)																							
	1954	87	5	0.48 (0.32)	0.00 (0.00)	0.10 (0.06)																							
	1955	42	3	0.81 (0.12)		0.02 (0.01)																							
	1956	63	4	0.79 (0.11)				0.02 (0.02)																					
	1957	99	9	0.29 (0.15)	0.00 (0.00)	0.28 (0.10)	0.00 (-)																						
	1958	160	12	0.94 (0.34)		0.48 (0.42)		0.01 (0.01)													0.01 (0.01)						0.01 (0.01)		
	1959	55	4	1.25 (0.48)																									
	1960	29	3	0.79 (0.07)																									
	1961	9	1			0.33 (-)																							
	1962	12	2	<0.01 (0.00)																									

Table D.12.—Direct contact river angler creel data for the Tittabawassee River main stem-middle Tea Creek. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

River/Creek	Year	Total hours	Days (N)	Crappie sp.		Northern pike	
				CPE	AL	CPE	AL
Tea	1934	2	1			5.50	25.00
						(-)	(0.00)
	1954	2	1				
	1957	2	1	1.50			
				(-)			
	1959	3	1				

Table D.13.—Direct contact river angler creel data for the Tittabawassee River main stem-middle 1928–39. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp		Suckers sp.				
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	
1928	63	6																				0.16	21.60	(0.06)	(0.70)						
1929	629	84			<0.01 (<0.01)	12.00 (-)							<0.01 (<0.01)				0.02	8.45 (0.01) (0.21)				0.07	22.31 (0.02) (0.49)								
1930	511.75	122			0.01 (0.01)				0.02 (0.01)	<0.01 (<0.01)	<0.01 (<0.01)	<0.01 (<0.01)			<0.01 (<0.01)			0.17	8.86 (0.06) (0.17)			0.12	22.13 (0.02) (0.35)	0.17 (0.08)	8.05 (0.20)						
1931	31	8	0.81 (0.45)		0.71 (0.39)												2.48 (0.94)		0.13 (0.13)			0.29	25.00 (0.12) (0.00)								
1932	117	26			0.09 (0.04)	14.00 (0.00)	0.03 (0.02)		0.68 (0.23)		0.13 (0.07)		0.26 (0.09)					0.80	7.18 (0.23) (0.25)			0.15	21.30 (0.04) (0.94)	0.22 (0.13)							
1933	144.5	27									0.05 (0.05)		0.33 (0.16)	7.00 (0.00)				0.28	7.00 (0.12) (0.00)			0.22	23.04 (0.07) (0.47)	0.03 (0.04)		0.01 (0.01)					
1934	511.25	92											0.25 (0.06)	7.00 (0.00)	0.02 (0.01)	8.00 (0.00)	0.07 (0.02)					0.04	27.79 (0.01) (1.51)	0.03 (0.02)	7.00 (0.00)			0.01 (0.01)	18.00 (0.00)		
1935	498.75	181			0.01 (0.01)	10.92 (0.27)	0.01 (0.01)	11.50 (0.50)	0.07 (0.04)	6.93 (0.05)	0.01 (0.01)	6.50 (0.00)	0.28 (0.08)	7.44 (0.05)	0.33 (0.09)	7.37 (0.07)	0.07 (0.02)	7.00 (-)	<0.01 (<0.01)	18.00 (-)		0.02	19.83 (0.01) (1.66)	0.08 (0.03)	8.39 (0.09)	<0.01 (<0.01)	10.00 (-)	0.03 (0.03)	12.13 (0.13)		
1936	235.5	90					<0.01 (<0.01)		<0.01 (<0.01)	7.00 (-)			0.06 (0.02)	7.14 (0.32)	3.16 (0.38)	7.70 (0.02)	0.06 (0.03)	7.33 (0.13)			<0.01		0.03 (<0.01)		0.01 (0.01)		0.11 (0.04)	16.56 (0.13)			
1937	290.5	128			<0.01 (<0.01)		0.01 (<0.01)						0.11 (0.04)		0.98 (0.18)	7.39 (0.04)	0.03 (0.02)	7.25 (0.11)	<0.01 (<0.01)	20.00 (-)		0.01	23.00 (0.01) (1.00)	0.04 (0.03)	7.95 (0.05)		<0.01 (<0.01)	18.00 (-)			
1938	12	2	<0.01 (<0.01)						0.42 (0.42)	7.00 (0.00)												0.17	17.50 (0.17) (0.00)								
1939	567	161			0.02 (0.01)	12.00 (0.00)	<0.01 (<0.01)	15.00 (0.00)	0.12 (0.07)	6.90 (0.05)	0.02 (0.01)	7.78 (0.22)	0.10 (0.02)	7.52 (0.08)	0.65 (0.14)	7.97 (0.02)	0.03 (0.01)	7.50 (0.16)	<0.01 (<0.01)	17.00 (-)		0.03	18.42 (0.01) (1.01)	0.01 (0.01)	10.00 (0.00)	0.02 (0.01)	17.60 (0.72)				

Table D.14.–Direct contact river angler creel data for the Tittabawassee River main stem-middle 1940–43. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Bullhead sp.		Carp		Sucker sp.		Bowfin		
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1940	930.5	358	<0.01 (<0.01)	10.33 (0.33)			0.08 (0.04)	6.72 (0.03)	<0.01 (<0.01)	7.00 (–)	0.12 (0.02)	7.50 (0.11)	1.67 (0.16)	7.23 (0.01)	0.02 (0.01)	7.80 (0.33)	0.02 (0.01)	24.57 (0.81)	<0.01 (<0.01)	10.17 (0.17)						<0.01 (<0.01)	19.00 (–)
1941	1011.5	26	0.03 (0.01)	11.75 (0.24)	<0.01 (<0.01)	15.50 (0.00)	0.04 (0.02)	6.01 (0.01)	<0.01 (<0.01)	6.00 (0.00)	0.03 (0.01)	7.67 (0.11)	0.41 (0.15)	7.93 (0.02)	0.02 (0.01)	7.85 (0.28)	0.01 (<0.01)	22.33 (1.82)	<0.01 (<0.01)	8.00 (–)	0.01 (0.01)	25.00 (0.00)	<0.01 (<0.01)				
1942	841.75	24	0.04 (0.02)	11.59 (0.09)	0.03 (0.02)	12.39 (0.12)	0.19 (0.10)	6.95 (0.02)	<0.01 (<0.01)	7.00 (–)	0.01 (0.01)	7.60 (0.00)	0.12 (0.05)	7.04 (0.06)	0.02 (0.01)	7.43 (0.12)	0.02 (0.01)	25.11 (0.99)	0.01 (<0.01)	9.00 (1.00)							
1943	735.5	20	0.02 (0.01)	12.50 (0.26)	<0.01 (<0.01)	11.00 (0.00)	0.40 (0.11)	7.12 (0.02)	<0.01 (<0.01)	6.50 (0.00)	<0.01 (<0.01)	7.25 (0.75)	0.37 (0.14)	7.33 (0.02)	0.01 (<0.01)	7.50 (0.29)	0.01 (0.01)	19.73 (1.04)									

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Table D.15.–Direct contact river angler creel data for the Tittabawassee River main stem-middle 1944–49. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brown trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp		Sucker sp.	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1944	843.5	33	<0.01 (<0.01)	15.00 (0.00)	0.03 (0.01)	11.65 (0.21)	0.01 (0.01)	13.48 (0.87)	0.08 (0.04)	6.75 (0.06)	0.05 (0.03)	6.95 (0.03)	0.04 (0.02)	7.00 (0.08)	0.17 (0.08)	7.48 (0.04)	0.04 (0.02)	7.71 (0.16)	0.01 (<0.01)	18.80 (0.92)	0.03 (0.01)	19.28 (0.77)	<0.01 (<0.01)	10.00 (–)				
1945	1575.25	83			0.03 (0.02)	13.15 (0.15)			0.08 (0.04)	6.66 (0.03)			0.01 (0.01)	8.35 (0.25)	0.73 (0.21)	8.14 (0.01)	0.05 (0.02)	8.18 (0.09)	<0.01 (<0.01)	22.00 (–)	0.03 (0.01)	18.95 (0.28)	<0.01 (<0.01)	11.00 (–)	<0.01 (<0.01)	20.00 (0.00)		
1946	308	13					<0.01 (<0.01)	18.00 (–)	0.06 (0.05)	7.04 (0.02)					0.72 (0.15)	7.14 (0.02)	0.02 (0.01)	6.40 (0.24)			<0.01 (<0.01)	18.00 (–)						
1947	1214.5	25							0.04 (0.03)				0.03 (0.02)	1.31 (0.30)	0.11 (0.04)	<0.01 (<0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)
1948	2499	69			0.01 (<0.01)		0.01 (<0.01)		0.12 (0.03)	<0.01 (<0.01)			0.04 (0.02)	0.50 (0.06)	0.08 (0.02)	0.08 (0.02)	<0.01 (<0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	0.01 (0.01)			
1949	2151.5	59			0.03 (0.01)		0.01 (<0.01)		0.19 (0.04)	<0.01 (<0.01)			0.06 (0.02)	0.90 (0.25)	0.09 (0.02)	0.09 (0.02)	<0.01 (<0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)	<0.01 (0.01)

Table D.16.—Direct contact river angler creel data for the Tittabawassee River main stem-middle 1950–59. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brown trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Sucker sp.				
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	
1950	403	16												<0.01 (<0.01)	1.81 (0.20)	0.12 (0.05)				0.02 (0.01)									
1951	236.5	17							0.01 (0.01)					0.21 (0.09)	2.00 (0.55)	0.16 (0.08)				<0.01 (<0.01)		<0.01 (<0.01)							
1952	390.5	24							0.18 (0.12)	0.01 (0.01)			0.01 (<0.01)	1.63 (0.49)	0.33 (0.25)					0.01 (0.01)		<0.01 (<0.01)							
1953	573.75	29			0.01 (<0.01)	0.01 (0.01)	0.01 (0.01)	0.13 (0.05)	0.04 (0.02)	0.07 (0.03)	1.65 (0.40)	0.28 (0.09)								<0.01 (<0.01)	0.05 (0.02)								
1954	152	10			0.02 (0.02)	0.02 (0.02)	0.11 (0.03)	0.02 (0.01)	0.01 (0.01)	1.48 (0.52)	0.07 (0.03)									0.02 (0.01)						0.18 (0.16)			
1955	1269	75			0.02 (<0.01)	0.01 (0.01)	0.10 (0.03)	0.03 (0.01)	0.04 (0.01)	1.04 (0.13)	0.14 (0.04)									0.01 (<0.01)		0.02 (0.01)		0.02 (0.01)		0.02 (0.01)			
1956	566	51			0.02 (0.01)	<0.01 (<0.01)	0.12 (0.05)	0.02 (0.01)	0.01 (<0.01)	1.36 (0.49)	0.06 (0.02)									0.01 (0.01)		<0.01 (<0.01)		0.02 (0.01)		0.02 (0.02)			
1957	755.5	44	<0.01 (<0.01)		0.04 (0.01)	0.01 (<0.01)	0.31 (0.08)	0.14 (0.04)	0.14 (0.05)	0.47 (0.09)	0.14 (0.05)									<0.01 (<0.01)									
1958	603	35			<0.01 (<0.01)	<0.01 (<0.01)	0.09 (0.03)	0.02 (0.01)	0.02 (0.01)	0.64 (0.17)	0.15 (0.07)									<0.01 (<0.01)	0.01 (<0.01)	<0.01 (<0.01)		<0.01 (<0.01)		0.02 (0.02)			
1959	349	14			<0.01 (<0.01)		0.06 (0.03)	0.04 (0.02)	0.04 (0.02)	1.80 (0.42)	0.06 (0.02)									0.01 (0.01)		0.01 (0.01)		0.01 (0.01)		0.01 (0.01)			

Table D.17.—Direct contact river angler creel data for the Tittabawassee River main stem-middle 1960–64. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Brown trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Bullhead sp.		Sucker sp.		
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1960	108	15					0.03 (0.02)	<0.01 (<0.01)	<0.01 (<0.01)	<0.01 (<0.01)	<0.01 (<0.01)	<0.01 (<0.01)	0.05 (0.04)	0.63 (0.24)	0.54 (0.32)	0.02 (0.01)	<0.01 (<0.01)										
1961	305.25	22					0.01 (0.01)		0.01 (0.01)	0.02 (0.01)	0.12 (0.05)	0.95 (0.41)	0.19 (0.06)	0.02 (0.01)											0.01 (0.01)		
1962	140	13					0.01 (0.01)		0.28 (0.14)	0.16 (0.14)	0.06 (0.03)	0.72 (0.22)	0.09 (0.04)	0.01 (0.01)													
1963	228	9	<0.01 (<0.01)	<0.01 (<0.01)					0.03 (0.03)	0.00 (0.00)	<0.01 (<0.01)	0.12 (0.09)	1.69 (0.56)	0.15 (0.09)	0.02 (0.01)												
1964	283	10					0.04 (0.04)		0.03 (0.02)	0.01 (0.01)	0.01 (0.01)	0.92 (0.76)	0.06 (0.03)														

Table D.18.—Direct contact river angler creel data for the Tittabawassee River main stem-middle Varsity Creek. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook Trout		Smallmouth Bass		Largemouth Bass		Bluegill		Pumpkinseed Sunfish		Rock Bass		Crappie sp.		Yellow Perch		Walleye		Northern Pike		Bullhead sp.		Carp			
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1943	27.25	1													3.41	7.50												
															(–)	(0.00)												
1946	131.5	5			0.01	12.00									0.10	6.42					0.04	22.00						
					(0.01)	(–)									(0.09)	(0.01)					(0.02)	(0.00)						
1947	67	5													0.03	0.01												
															(0.03)	(0.01)												
1948	198	12			0.03				0.24				0.02		0.66	0.10					0.01					0.01		
					(0.02)				(0.10)				(0.01)		(0.17)	(0.09)					(<0.01)					(0.01)		
1949	147	7	<0.01										0.01		0.21	0.01					0.02							
			(<0.01)										(0.01)		(0.07)	(0.01)					(0.01)							
1950	218	13							0.10				<0.01		2.19	0.41					<0.01							
									(0.06)				(<0.01)		(0.27)	(0.10)					(<0.01)							
1953	70	5							0.24		0.23				3.30	0.49			0.01		0.07							
									(0.23)		(0.10)				(0.80)	(0.12)			(0.01)		(0.05)							
1954	261	15							0.13						2.23	0.02					<0.01							
									(0.05)						(0.31)	(0.01)					(<0.01)							
1955	75	15						0.01	0.16						0.49	0.08								0.05				
								(0.01)	(0.08)						(0.22)	(0.03)								(0.06)				
1956	200	15			0.01				0.06						0.56	0.04								0.13				
					(0.01)				(0.02)						(0.16)	(0.02)								(0.09)				
1957	152	14						0.01	0.03		0.03				0.78	0.04												
								(0.01)	(0.02)		(0.02)				(0.24)	(0.01)												
1958	201	11			0.00			0.01	0.02		0.00		<0.01		0.47	0.03					0.02							
					(0.00)			(0.01)	(0.02)		(0.01)		(0.01)		(0.16)	(0.02)					(0.01)							
1959	30	4							0.07		0.13				0.37	0.10												
									(0.06)		(0.13)				(0.18)	(0.05)												
1960	173	12							0.02		0.01		0.01		0.83	0.06												
									(0.02)		(0.01)		(0.01)		(0.30)	(0.03)												
1961	108	8											0.05		1.16	0.02												
													(0.05)		(0.35)	(0.02)												
1962	71	5							0.04		0.03				1.63	0.13					0.04							
									(0.04)		(0.03)				(1.04)	(0.06)					(0.03)							
1963	41	4													3.32	0.07												
															(1.11)	(0.09)												
1964	9	1													0.89													
															(–)													

Table D.19.—Direct contact river angler creel data for the Tittabawassee River main stem-mouth. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brown trout		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Northern pike		Bullhead sp.		Channel catfish		
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	
1945	9	1																	
1948	49	2	0.04 (<0.01)				0.27 (0.01)		0.08 (0.09)		0.04 (0.04)					0.04 (0.04)			
1954	31	2			0.06 (0.12)		0.10 (0.18)							0.03 (<0.00)				1.19 (0.15)	
1956	15	5					0.13 (0.13)												

Table D.21.—Direct contact river angler creel data for the Tobacco River subwatershed Cedar River 1934–35. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass	Pumpkinseed sunfish	Rock bass	Crappie sp.		Yellow perch	Northern pike	Bullhead sp.		Sucker sp.		Redhorse sp.		
			CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	
1934	237.25	47	0.56 (0.11)	8.27 (0.05)	0.03 (0.03)	9.88 (0.08)	0.13 (0.06)	9.13 (0.18)	0.02 (0.01)	0.03 (0.02)	0.03 (0.03)	0.02 (0.02)		0.04 (0.02)	0.01 (0.01)	0.03 (0.02)		0.01 (0.01)		<0.00 (<0.00)		
1935	66	15	0.33 (0.19)	8.73 (0.10)			0.06 (0.04)	10.00 (0.00)				0.15 (0.08)	9.00 (0.00)			0.03 (0.02)	9.50 (0.50)	0.02 (0.01)	14.00 #DIV/0!	0.11 (0.08)	12.00 (0.00)	

Table D.22.—Direct contact river angler creel data for the Tobacco River subwatershed Cedar River 1937–48. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Sucker sp.		Eastern sturgeon	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1937	229	103	0.10 (0.05)	9.25 (0.17)	0.11 (0.04)	9.15 (0.26)	0.09 (0.04)	9.38 (0.22)	<0.00 (<0.00)	10.50 (–)	<0.00 (<0.00)	15.00 (–)	0.01 (0.01)	7.00 (0.00)	<0.00 (<0.00)		0.02 (0.01)	6.50 (–)	0.69 (0.22)	7.75 (0.04)	<0.00 (<0.00)	7.00 (–)	<0.00 (<0.00)	25.00 (–)	0.01 (0.01)	14.50 (0.50)		
1938	174.2	47	0.21 (0.06)	8.62 (0.14)	0.35 (0.10)	10.51 (0.20)	0.16 (0.06)	11.11 (0.74)																				
1939	184.5	38	0.15 (0.05)	8.02 (0.16)	0.64 (0.16)	10.69 (0.12)	0.33 (0.11)	9.60 (0.11)			0.03 (0.02)	11.83 (0.48)			0.01 (0.01)	8.00 (0.00)	0.02 (0.02)	6.88 (0.13)			0.02 (0.01)	9.00 (1.00)				0.12 (0.06)	15.00 (0.00)	0.01 (0.01)
1940	234.2	63	0.22 (0.05)	7.88 (0.11)	0.66 (0.12)	10.42 (0.09)	0.12 (0.04)	9.21 (0.20)																		0.08 (0.06)	14.33 (0.30)	
1941	173.5	16	0.27 (0.12)	8.43 (0.10)	0.11 (0.05)	10.26 (0.21)	0.06 (0.02)	11.27 (0.09)																				
1942	59	10	0.22 (0.22)	9.00 (0.00)	0.27 (0.15)	9.38 (0.31)	0.08 (0.06)	8.20 (0.20)	0.02 (0.02)	11.00 (–)			0.05 (0.05)	7.00 (0.00)							0.02 (0.02)	10.00 (–)						
1943	171	12	0.07 (0.03)	8.42 (0.29)	0.26 (0.12)	9.48 (0.32)	0.04 (0.02)	9.82 (0.26)																				
1944	197.5	19	0.21 (0.15)	8.78 (0.08)	0.50 (0.08)	10.06 (0.14)	0.06 (0.02)	9.67 (0.58)																				
1945	471.2	38	0.37 (0.10)	9.22 (0.08)	0.17 (0.06)	10.18 (0.15)	0.27 (0.11)	7.75 (0.09)																		0.03 (0.03)	14.67 (0.25)	
1946	297.5	28	0.24 (0.10)	9.17 (0.03)	0.29 (0.10)	9.82 (0.11)	0.50 (0.13)	9.05 (0.08)																				
1947	220	19	0.01 (0.01)		0.52 (0.09)		0.11 (0.06)																					
1948	288.5	21	0.07 (0.02)		0.40 (0.10)		0.22 (0.10)																			0.02 (0.02)		

Table D.23.—Direct contact river angler creel data for the Tobacco River subwatershed Cedar River 1949–63. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 standard errors could not be estimated and are reported as (-). No length data were collected. CPE = Catch per hour.

Year	Total Hours	Days (N)	Brook trout CPE	Brown trout CPE	Rainbow trout CPE	Rock bass CPE	Crappie sp. CPE	Yellow perch CPE	Walleye CPE	Northern pike CPE	Sucker sp. CPE
1949	875.5	17	0.09 (0.04)	0.10 (0.04)	0.05 (0.03)	0.23 (0.14)	0.40 (0.22)	0.19 (0.10)	0.01 (0.01)	0.01 (0.01)	<0.00 (<0.00)
1950	126	6	0.03 (0.09)	0.06 (0.18)	0.02 (0.04)						0.01 (0.02)
1951	187.5	10	0.02 (0.01)	0.10 (0.06)	0.07 (0.05)						
1952	191	12	0.02 (0.01)	0.48 (0.14)	0.02 (0.01)						
1953	162	11	0.17 (0.14)	0.85 (0.19)	0.01 (0.01)						
1954	170	5		0.46 (0.29)		0.05 (0.05)	0.15 (0.15)				0.02 (0.02)
1955	213	14	0.05 (0.04)	0.43 (0.09)	0.03 (0.02)						
1956	111	13	0.06 (0.04)	0.32 (0.15)	0.09 (0.08)						
1957	422	27	0.06 (0.04)	0.15 (0.06)	0.35 (0.13)	0.01 (0.01)	0.02 (0.02)	<0.00 (<0.00)			0.01 (0.01)
1958	297	24	0.22 (0.15)	0.11 (0.03)	0.22 (0.06)						0.02 (0.02)
1959	203	10	<0.00 (<0.00)	0.30 (0.10)	0.22 (0.06)						
1960	176	12	0.12 (0.08)	0.27 (0.04)	0.13 (0.06)						
1961	141	7	0.04 (0.03)	0.04 (0.02)	0.11 (0.06)						
1962	155	12	0.08 (0.07)	0.11 (0.06)	0.30 (0.22)						0.03 (0.02)
1963	131	8		0.24 (0.08)	0.31 (0.19)			0.19 (0.17)			

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Table D.24.—Direct contact river angler creel data for the Tobacco River subwatershed Middle Branch Cedar, North Branch Cedar, West Branch Cedar rivers, Elm, Five Lakes, Jose, McCurran, Popple, Sanford, and Spike Horn creeks. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

River/Creek Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Suckers sp.	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Cedar , Middle Branch												
1933	48.5	16	2.82 (0.84)	7.56 (0.06)	0.06 (0.05)	8.00 (0.00)	0.12 (0.11)	8.00 (0.00)				
1934	2.0	1										
1939	21.5	5			0.60 (0.27)	10.35 (0.42)	0.65 (0.17)	8.96 (0.22)	0.05 (0.04)	11.00 (-)		
1953	9.0	1			2.78 (-)							
1955	12.0	1			1.67 (-)							
1956	10.0	1			0.10 (-)							
1957	4.0	1					0.25 (-)					
1958	34.0	3			1.29 (0.52)		0.06 (0.08)					
1962	2.0	1					0.50 (-)					
Cedar , North Branch												
1929	19.0	4	0.84 (0.16)	8.72 (0.15)								
1930	34.5	9	0.61 (0.15)	7.93 (0.11)			0.09 (0.09)	9.00 (0.00)				
1937	19.0	6	0.05 (0.05)	7.00 (-)	0.21 (0.15)	12.63 (0.38)	0.16 (0.10)	9.00 (0.00)				
1939	6.3	1			0.32 (-)	8.00 (-)						
1944	13.3	1	0.98 (-)	7.40 (-)								
1947	2.0	1			3.50 (-)							
1957	67.0	3			0.33 (0.24)							
1962	11.0	1	0.09 (-)		0.09 (-)		0.73 (-)					
Cedar , West Branch												
1928	4.0	1	0.50 (-)	8.50 (-)			0.25 (-)	8.50 (-)				
1929	259.5	22	0.43 (0.12)	7.93 (0.07)			0.07 (0.05)	8.47 (0.19)				
1933	5.0	1	0.60 (-)	7.00 (-)	0.80 (-)	7.00 (-)						
Cedar , West Branch												
1934	1.3	1										
1938	5.0	2			2.80 (1.20)	10.36 (0.06)	1.20 (0.00)	8.63 (0.17)				

Table D.24.–Continued.

River/Creek Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Suckers sp.	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1940	6.0	3	0.33 (0.21)	10.00 (0.00)	0.83 (0.09)	9.80 (0.96)	0.50 (0.07)	10.83 (1.59)				
1944	33.0	6	0.03 (0.03)	8.50 (–)	0.73 (0.44)	9.40 (0.13)	0.03 (0.02)	14.00 (–)			0.21 (0.15)	12.00 (0.00)
1946	5.0	1			0.20 (–)	9.00 (–)	0.80 (–)	9.00 (–)				
1947	102.0	16	0.50 (0.20)		0.19 (0.06)		0.09 (0.02)					
1948	14.0	6			0.29 (0.08)							
1949	6.0	1			2.33 (–)							
1950	10.0	1					0.20 (–)					
1951	4.0	1			0.25 (–)							
1955	52.0	4	0.02 (0.01)		0.10 (0.01)		0.06 (0.02)					
1956	101.0	7			0.36 (0.10)							
1957	16.0	5					0.06 (0.05)					
1958	35.0	2			0.09 (0.00)		0.23 (0.01)				0.03 (0.06)	
1959	24.0	1			0.17 (–)		0.08 (–)					
1960	22.0	2			0.32 (0.17)		0.36 (0.20)					
1961	30.0	2			0.13 (0.02)		0.03 (0.03)					
1962	34.0	4			0.09 (0.07)							
Elm												
1930	2.0	1			0.50 (–)	8.00 (–)						
1935	2.0	1	0.50 (–)	7.50 (–)								
1948	40.0	4	0.13 (0.08)		0.03 (0.02)		0.05 (0.03)					
1956	7.0	1										
1958	4.0	1	1.50 (–)									
Five Lakes												
1938	4.0	1	0.50 (–)	7.50 (–)								
Jose												
1956	10.0	1	2.30 (–)									
McCurran												
1948	27.0	2									0.63 (0.31)	

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Table D.24.–Continued.

River/Creek Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Suckers sp.	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Popple												
1933	4.0	1	1.75 (-)	8.00 (-)								
1949	1.0	1	1.00 (-)									
Sanford												
1951	1.5	1			2.00 (-)							
Spike Horn												
1937	15.0	3										
1940	17.0	5	0.35 (0.15)	7.25 (0.11)								

Table D.25.—Direct contact river angler creel data for the Tobacco River 1929–40. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total Days hours (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill	Pumpkinseed sunfish	Rock bass	Crappie sp.		Yellow perch		Northern pike		Bullhead sp.		Carp		Suckers		Redhorse sp.	Cisco sp.	
		CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE
1929	323.3 49	0.29 (0.11)	7.96 (0.10)					<0.01 (<0.01)	13.00 (–)						<0.01 (<0.01)	8.00 (–)	0.01 (<0.01)	0.03 (0.02)	25.33 (1.15)	0.06 (0.03)	8.00 (1.08)	0.01 (0.01)	21.00 (0.00)	0.04 (0.04)	12.77 (0.23)				
1930	191.8 60	0.21 (0.10)	8.59 (0.07)	0.02 (0.01)	11.33 (1.33)	0.02 (0.01)	9.00 (0.71)			0.02 (0.02)				0.04 (0.03)				0.10 (0.06)	7.00 (–)	0.10 (0.02)	21.50 (1.01)	0.10 (0.06)	11.00 (0.00)			0.03 (0.02)		0.01 (0.01)	0.12 (0.08)
1932	157.0 35	0.07 (0.05)				0.01 (0.01)		0.17 (0.05)	10.40 (0.24)	0.06 (0.05)	14.00 (0.00)	0.08 (0.04)	0.20 (0.09)	0.42 (0.09)		0.53 (0.14)		0.43 (0.09)	0.04 (0.03)	23.67 (1.67)	0.31 (0.16)	22.00 (0.00)	0.03 (0.02)			0.08 (0.05)		0.10 (0.06)	
1933	345.0 77							0.01 (0.01)		0.02 (0.01)		0.01 (0.01)	0.14 (0.04)	0.12 (0.03)	8.00 (–)	0.43 (0.16)	8.63 (0.11)	0.36 (0.08)	7.00 (0.00)	0.02 (0.01)	27.00 (3.00)	0.42 (0.10)	6.71 (0.08)	0.01 (0.01)	20.00 (0.00)	0.03 (0.02)			
1934	530.0 138	0.01 (0.01)	9.00 (–)	0.03 (0.02)	7.18 (0.25)	<0.01 (<0.01)		0.01 (0.01)	12.50 (0.00)	0.01 (<0.01)	11.00 (–)	0.03 (0.01)	0.07 (0.03)	0.07 (0.02)	7.00 (0.00)	0.56 (0.10)	7.22 (0.04)	0.15 (0.04)	7.00 (0.00)	0.02 (0.01)	23.67 (1.67)	0.15 (0.05)	6.24 (0.07)	<0.01 (<0.01)		0.04 (0.02)	18.00 (0.00)	0.02 (0.01)	
1935	63.5 24							0.02 (0.02)	11.00 (–)	0.36 (0.17)	14.00 (0.00)	1.80 (0.67)			0.02 (0.02)	7.00 (–)	0.11 (0.09)	6.50 (0.00)	0.13 (0.10)		0.17 (0.06)		0.02 (0.02)						
1937	165.8 65													0.05 (0.03)	7.94 (0.15)	0.54 (0.18)	7.42 (0.04)	0.06 (0.04)	7.30 (0.21)	0.02 (0.01)	20.67 (3.71)					0.02 (0.01)	14.33 (0.33)		
1938	31.0 10	0.10 (0.07)	8.17 (0.33)	0.06 (0.06)	12.00 (0.00)	0.03 (0.03)	8.00 (–)																						
1939	80.0 24	0.40 (0.20)	8.16 (0.12)	0.18 (0.13)	8.21 (0.11)									0.01 (0.01)	7.00 (–)	1.20 (0.59)	7.43 (0.07)	0.06 (0.04)	7.50 (0.00)	0.01 (0.01)	18.00 (–)								
1940	221.8 68	0.08 (0.03)	7.57 (0.13)					<0.01 (<0.01)	18.00 (–)					0.15 (0.14)	7.00 (0.06)	0.79 (0.25)	7.93 (0.04)	0.08 (0.04)	7.89 (0.16)							0.04 (0.03)	10.50 (0.33)		

Table D.26.—Direct contact river angler creel data for the Tobacco River 1941–46. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Largemouth bass		Bluegill		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Suckers sp.		Redhorse sp.			
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1941	132.0	17	0.08 (0.07)	8.00 (-)	0.06 (0.05)	10.50 (0.50)	0.02 (0.02)	8.00 (0.00)					0.01 (0.01)	8.00 (-)	0.80 (0.41)	7.46 (0.01)			0.01 (<0.01)	18.00 (-)	0.01 (0.01)	18.00 (-)								
1942	142.8	32	0.03 (0.02)	9.00 (0.00)	0.22 (0.07)	9.92 (0.17)	0.11 (0.05)	9.00 (0.11)			0.01 (0.01)	7.00 (-)	0.01 (0.01)	7.00 (0.00)	0.43 (0.15)	7.54 (0.06)	0.01 (0.01)	10.00 (0.00)					0.01 (0.01)	10.00 (-)						
1943	81.0	22	0.10 (0.05)	7.69 (0.16)	0.14 (0.08)	8.64 (0.54)	0.16 (0.05)	10.08 (0.87)																						
1944	174.0	23	0.03 (0.02)	7.50 (0.22)	0.14 (0.05)	9.00 (0.16)	0.10 (0.05)	10.18 (0.35)	0.01 (0.01)	11.00 (0.00)	0.01 (0.01)	7.00 (-)	0.02 (0.02)	7.75 (0.25)	0.44 (0.19)	7.43 (0.06)	0.01 (0.01)	9.00 (0.00)								0.01 (0.01)	12.00 (0.00)			
1945	484.5	40	0.08 (0.06)	8.97 (0.10)	0.09 (0.03)	9.78 (0.12)	0.03 (0.01)	8.25 (0.17)					0.01 (0.01)	7.33 (0.21)	1.53 (0.50)	7.68 (0.02)	0.03 (0.01)	8.18 (0.26)	0.00 (<0.01)	16.00 (-)	<0.01 (<0.01)	23.00 (-)			0.08 (0.06)	15.88 (0.37)	<0.01 (<0.01)	7.50 (-)		
1946	107.0	20	0.05 (0.04)	9.20 (0.49)	0.23 (0.16)	9.48 (0.19)	0.24 (0.17)	8.54 (0.19)	0.01 (<0.01)	14.00 (-)	0.10 (0.04)	6.80 (0.00)			0.15 (0.06)	8.00 (0.00)	0.04 (0.02)	7.20 (0.00)												

Table D.27.—Direct contact river angler creel data for the Tobacco River 1947–64. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 standard errors could not be estimated and are reported as (-). No length data were collected. CPE = Catch per hour.

Year	Total hours	Days (N)	Brook trout CPE	Brown trout CPE	Rainbow trout CPE	Smallmouth bass CPE	Largemouth bass CPE	Bluegill CPE	Pumpkinseed sunfish CPE	Rock bass CPE	Crappie sp. CPE	Yellow perch CPE	Northern pike CPE	Bullhead sp. CPE	Carp CPE	Suckers sp. CPE
1947	543.3	45	0.05 (0.03)	0.12 (0.05)	0.01 (0.01)	0.00 (0.00)		0.08 (0.07)	0.03 (0.03)	0.03 (0.02)	1.31 (0.36)	0.12 (0.05)	0.01 (0.01)		0.00 (0.00)	
1948	1635.0	31		0.00 (0.00)		0.01 (0.01)	0.00 (0.00)	0.07 (0.05)	0.00 (0.00)	0.04 (0.01)	1.00 (0.15)	0.11 (0.03)	0.01 (0.01)			0.02 (0.02)
1949	811.0	20	0.00 (0.00)					0.05 (0.03)		0.06 (0.03)	1.52 (0.23)	0.17 (0.04)	0.03 (0.01)			
1950	144.0	8	0.00 (0.00)								1.35 (0.37)	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)		0.01 (0.01)
1951	356.5	14		0.01 (0.01)						0.00 (0.00)	1.53 (0.20)	0.28 (0.09)				
1952	154.0	12					0.01 (0.00)	0.19 (0.11)	0.08 (0.05)	0.03 (0.04)	0.95 (0.62)	0.38 (0.22)				
1953	223.0	9		0.03 (0.03)		0.00 (0.00)		0.06 (0.05)		0.07 (0.04)	1.65 (0.50)	0.14 (0.07)				
1954	82.0	2		0.00 (0.00)						0.45 (0.34)	0.65 (0.49)	0.62 (0.28)				
1955	401.5	35				0.00 (0.01)		0.16 (0.07)	0.02 (0.02)	0.01 (0.01)	1.87 (0.28)	0.21 (0.08)				0.01 (0.01)
1956	247.0	21	0.17 (0.11)	0.06 (0.04)	0.01 (0.01)	0.01 (0.01)		0.09 (0.05)	0.01 (0.01)		0.86 (0.23)	0.03 (0.02)	0.01 (0.01)			0.04 (0.04)
1957	382.5	25	0.06 (0.04)	0.00 (0.00)		0.03 (0.02)	0.00 (0.00)	0.07 (0.03)	0.05 (0.03)	0.19 (0.05)	0.38 (0.19)	0.15 (0.05)	0.01 (0.01)			0.19 (0.11)
1958	477.5	28	0.00 (0.00)	0.05 (0.05)	0.01 (0.01)					0.01 (0.00)	0.58 (0.24)	0.01 (0.01)	0.01 (0.00)			0.38 (0.11)
1959	11.0	1	1.18 (-)													
1960	92.0	5		0.01 (0.01)		0.02 (0.02)				0.03 (0.03)	2.05 (1.31)		0.01 (0.01)			0.04 (0.03)

Table D.27.–Continued.

Year	Total hours	Days (N)	Brook trout CPE	Brown trout CPE	Rainbow trout CPE	Smallmouth bass CPE	Largemouth bass CPE	Bluegill CPE	Pumpkinseed sunfish CPE	Rock bass CPE	Crappie sp. CPE	Yellow perch CPE	Northern pike CPE	Bullhead sp. CPE	Carp CPE	Suckers sp. CPE
1961	32.0	1								0.28 (-)	3.44 (-)	1.66 (-)	0.03 (-)			0.03 (-)
1962	206.0	3					0.03 (0.02)	0.05 (0.04)			2.18 (0.67)	0.03 (0.01)	0.00 (0.01)	0.06 (0.05)		0.07 (0.07)
1963	11.0	1														0.09 (-)
1964	28.0	2		0.32 (0.13)	0.11 (0.11)											

Table D.28.—Direct contact river angler creel data for the Middle Branch Tobacco River 1929–63. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Rock bass	Crappie sp.	Yellow perch	Bullhead sp.	Suckers sp.		Redhorse sp.
			CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	CPE	CPE	AL	CPE
1929	9.0	3	1.78 (0.36)	8.00 (0.00)											
1934	30.5	9	0.03 (0.04)	10.00 (–)			0.03 (0.04)	10.00 (–)	0.16 (0.08)	0.26 (0.26)	0.20 (0.10)	0.43 (0.19)	0.23 (0.14)	20.00 (0.00)	0.03 (0.03)
1935	19.0	2	0.11 (0.19)	8.50 (0.00)	0.37 (0.03)	9.71 (0.29)									
1939	3.5	1			0.57 (–)	9.00 (–)	0.57 (–)	8.00 (–)							
1945	17.0	4	1.65 (0.89)	8.00 (0.00)	1.35 (1.00)	8.00 (0.00)									
1946	6.0	1	0.33 (–)	8.00 (–)	0.17 (–)	17.00 (–)									
1948	40.5	5	0.20 (0.18)										0.02 (0.01)		
1950	16.0	2	0.06 (0.03)		0.19 (0.21)										
1951	35.0	1			0.11 (–)										
1953	7.0	1			0.29 (–)										
1955	62.0	4			0.58 (0.53)		0.02 (0.01)								
1957	62.0	2	0.02 (0.02)		0.15 (0.15)										
1958	133.0	7	0.04 (0.03)		0.09 (0.04)		0.14 (0.07)								
1959	76.0	2	0.09 (0.02)		0.01 (0.02)										

Table D.28.–Continued.

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Rock bass CPE	Crappie sp. CPE	Yellow perch CPE	Bullhead sp. CPE	Suckers sp.		Redhorse sp.	
			CPE	AL	CPE	AL	CPE	AL					CPE	AL	CPE	
1960	116.0	5	0.03 (0.02)		0.05 (0.03)		0.13 (0.08)									
1961	71.0	3	<0.01 (<0.01)		0.27 (0.10)								0.04 (0.02)			
1963	43.0	1	0.09 (–)		0.02 (–)											

Table D.29.—Direct contact river angler creel data for the North Branch Tobacco River 1928–62. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass	Rock bass	Yellow perch	Bullhead sp.	Suckers sp.		Redhorse sp.		Chubs
			CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	CPE	CPE	AL	CPE	AL	CPE
1928	12.0	4	0.67 (0.11)	7.64 (0.09)			0.08 (0.06)	7.50 (–)									
1929	33.0	5	0.39 (0.33)	7.81 (0.16)			0.03 (0.03)	7.50 (–)									
1930	64.5	22	0.96 (0.26)	8.90 (0.09)			0.14 (0.10)	8.89 (0.35)					0.03 (0.03)	12.00 (0.00)	0.09 (0.09)	14.00 (0.00)	0.03 (0.03)
1932	7.0	2	0.57 (0.65)	10.00 (0.00)			1.86 (1.59)	9.00 (0.00)									
1933	2.5	2	1.60 (0.64)	8.00 (0.00)				0.40 (0.16)									
1934	16.8	7							0.42 (0.22)	0.30 (0.16)	0.60 (0.25)	0.48 (0.35)					
1935	121.5	24	0.29 (0.09)	8.79 (0.14)	0.06 (0.03)	9.14 (0.34)	0.05 (0.03)	9.17 (0.40)									
1937	3.5	1															
1938	6.0	1					0.67 (–)	8.00 (–)									
1943	4.0	1					0.25 (–)	10.00 (–)									
1944	12.5	2	0.32 (0.26)	8.00 (0.00)	0.08 (0.10)	10.00 (–)	0.24 (0.29)	8.00 (0.00)									
1945	56.3	12	0.21 (0.14)	8.00 (0.00)	0.52 (0.15)	8.38 (0.11)	0.16 (0.09)	8.67 (0.20)					0.02 (0.02)	15.00 (–)			
1946	45.5	8	0.09 (0.09)	8.00 (0.00)	0.13 (0.06)	9.67 (0.21)	0.31 (0.12)	8.43 (0.10)									

Table D.29.–Continued.

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Yellow perch	Bullhead sp.	Suckers sp.		Redhorse sp.		Chubs
			CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE		
1947	44.0	10	0.25 (0.12)		0.18 (0.08)		0.34 (0.14)										
1948	49.0	6	0.06 (0.06)		0.04 (0.02)		0.08 (0.05)										
1950	141.0	2	0.03 (<0.01)		0.09 (0.13)												
1951	52.5	3	0.34 (0.20)		0.19 (0.16)		0.02 (0.02)										
1952	37.0	1			0.11 (-)												
1953	8.0	1			0.13 (-)												
1954	4.0	1			0.75 (-)												
1955	97.0	3			0.61 (0.19)						0.01 (0.01)		0.02 (0.01)				
1957	16.0	2			0.19 (0.16)		0.06 (0.07)										
1958	111.0	8	0.03 (0.02)		0.11 (0.03)		0.46 (0.22)										
1959	69.0	4			0.04 (0.03)		0.04 (0.02)										
1960	12.0	1					0.75 (-)										
1961	35.0	1			0.23 (-)												
1962	35.5	2			0.70 (0.06)												

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Table D.30.—Direct contact river angler creel data for the South Branch Tobacco River 1929–48. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length. Carp were also caught in small numbers (CPE=<0.01 ±<0.01).

Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass	Bluegill	Pumpkinseed Rock sunfish bass		Crappie sp.		Yellow perch	Northern pike		Bullhead sp.		Suckers sp.		Redhorse sp.	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1929	12.0	2	1.25 (0.42)		<0.01 (<0.01)																				
1930	18.8	6	0.21 (0.21)	8.00 (0.00)						0.05 (0.05)					0.11 (0.10)			0.05 (0.05)							
1933	7.0	2								0.14 (0.16)					0.57 (0.65)		0.29 (0.33)								
1934	257.8	72	0.01 (0.01)	8.00 (0.00)			<0.01 (<0.01)	7.00 (-)	0.03 (0.01)			0.03 (0.02)	0.06 (0.03)	8.00 (0.00)	0.05 (0.02)	0.24 (0.07)	7.59 (0.14)	0.02 (0.01)	0.02 (0.01)	37.00 (1.00)	0.05 (0.03)	7.00 (0.00)	0.07 (0.02)		0.05 (0.02)
1935	33.0	18	0.15 (0.14)	8.00 (0.00)															0.03 (0.03)	32.00 (-)			0.55 (0.23)	16.00 (0.00)	0.85 (0.33)
1939	36.0	10	0.06 (0.05)	8.00 (0.00)	0.36 (0.20)	8.38 (0.14)			0.06 (0.06)	13.50 (0.00)															
1945	58.0	2	1.66 (0.11)	8.30 (0.00)	0.14 (0.01)	8.30 (0.00)	0.16 (0.01)	8.80 (0.00)																	
1948	462.5	44	0.10 (0.02)		0.12 (0.05)		0.06 (0.01)								<0.01 (<0.01)								<0.01 (<0.01)		

Table D.31.—Direct contact river angler creel data for the South Branch Tobacco River 1950–60. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1, standard errors could not be estimated and are reported as (–). No length data were collected. CPE = Catch per hour.

Year	Total hours	Days (N)	Brook trout CPE	Brown trout CPE	Rainbow trout CPE	Bluegill CPE	Rock bass CPE	Crappie sp. CPE	Yellow perch CPE	Northern pike CPE	Bullhead sp. CPE	Channel catfish CPE	Suckers sp. CPE
1950	317.0	25	0.01 (0.01)	0.04 (0.02)	<0.01 (<0.01)					0.03 (0.02)			
1951	205.0	7	0.11 (0.08)	0.18 (0.10)	<0.01 (<0.01)		0.02 (0.02)	0.22 (0.23)	0.05 (0.05)	0.01 (0.01)			0.05 (0.04)
1952	166.0	19	0.02 (0.02)	0.12 (0.03)				0.18 (0.16)	0.02 (0.03)		0.01 (0.01)		0.01 (0.01)
1953	110.0	7		0.15 (0.04)					0.02 (0.02)				0.24 (0.20)
1954	129.0	12	<0.01 (<0.01)	0.03 (0.02)		0.01 (0.01)	0.20 (0.12)	1.06 (0.36)	0.09 (0.07)	0.01 (0.01)			
1955	207.0	15	0.01 (0.01)	0.14 (0.06)	0.01 (0.01)	<0.01 (0.01)	0.01 (0.01)	0.03 (0.03)	0.10 (0.07)	0.02 (0.01)	<0.01 (0.01)		0.03 (0.02)
1956	48.0	5		0.08 (0.03)	0.10 (0.07)								
1957	273.0	13	0.01 (<0.01)	0.09 (0.03)	0.15 (0.04)		0.01 (0.01)		<0.01 (<0.01)	<0.01 (<0.01)			0.08 (0.06)
1958	302.0	16	0.01 (0.01)	<0.01 (<0.01)	0.22 (0.12)		0.02 (0.02)	0.09 (0.06)	0.01 (0.01)	0.01 (0.01)		0.01 (0.01)	0.06 (0.03)
1959	116.0	5	0.03 (0.02)	0.03 (0.02)	0.15 (0.12)								
1960	76.0	3		0.39 (0.24)	0.39 (0.10)				0.01 (0.02)				

Table D.32.—Direct contact river angler creel data for the West Branch Tobacco River 1929, 1934–35. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

River/Creek	Year	Total hours	Days (N)	Brook trout		Rainbow trout		Crappie sp.	
				CPE	AL	CPE	AL	CPE	AL
Tobacco, West Branch	1929	21.5	5	0.37 (0.20)	7.81 (0.31)	0.09 (0.11)	8.00 (0.00)		
	1934	30.5	8					0.69 (0.22)	7.57 (0.11)
	1935	4.0	1	2.75 (–)	10.00 (–)				

Table D.33.—Direct contact lake angler creel data for the Tittabawassee River main stem-headwaters. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

County	Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Warmouth								
					CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL							
Gladwin	Cedar	1932	14	4																			5.64	7.11															
		1937	1	2																			(0.69)	(0.02)															
		1942	6	1											0.50	7.00						0.33	7.00																
															(–)	(–)						(–)	(–)																
Elk	Elk	1928	8	1											1.25	8.00																							
		1930	5	2											(–)	(–)																							
		1932	6	2																				0.50															
																							(0.50)																
		1933	11	3																			0.55	8.00															
																							(0.45)	(0.00)															
		1935	9	3																																			
		1942	4	1																																			
		1944	6	1																																			
		1945	6	1																																			
		1948	5	3																																			
		1949	20	2																																			
		1950	48	1																																			
		1951	10	1																																			
		1953	22	1																																			
		1954	20	2																																			
		1957	5	1																																			

Table D.33.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.			Yellow perch		Walleye		Northern pike		Bullhead sp.		Warmouth			
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE				
Gladwin																																		
Elk	1958	47	5											0.70 (0.42)										0.09 (0.05)				0.02 (0.01)						
	1961	91	2					0.46 (0.60)																										
	1962	25	1					0.08 (-)																										
	1963	54	3					0.22 (0.19)						0.61 (0.51)										0.11 (0.09)										
	1964	22	1					0.18 (-)						0.09 (-)										0.23 (-)										
Indian	1932	14	4										0.29 (0.17)		0.21 (0.22)								3.21 (0.43)	6.46 (0.10)										
	1933	6	2																									0.17 (0.11)						
	1934	16	4																								0.31 (0.09)		0.13 (0.11)					
	1940	4	1																															
	1941	13.5	3																					1.75 (-)	9.00 (-)									
	1942	6	1																					0.96 (0.81)	10.00 (0.00)									
	1944	23	2					0.67 (-)	11.00 (-)					0.22 (0.28)	15.60 (0.00)													0.17 (0.23)	20.00 (0.00)					
	1949	8	1												2.13 (-)													0.13 (-)						
	1950	4	1																															
	1953	27	1												0.07 (-)											0.15 (-)								
	1954	6	1																							2.17 (-)								
	1956	9	1												0.11 (-)											1.33 (-)								
	1932	2	1												1.00 (-)	7.00 (-)																		
	1941	20	1												1.85 (-)	9.00 (-)																		

Table D.33.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Warmouth												
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE											
Gladwin																																										
Lake Four	1932	13.5	3										1.11 (0.59)		0.52 (0.26)								1.41 (0.50)																			
	1942	2	1																																							
	1948	66	1										1.18 (-)		0.15 (-)								0.21 (-)				0.02 (-)															
	1949	72	2										1.11 (0.21)										0.07 (0.06)				0.14 (0.09)															
	1957	80	4						0.04 (0.03)				1.09 (0.39)														0.11 (0.10)															
	1958	13	2										0.23 (0.28)																													
	1959	10	1										0.40 (-)														0.10 (-)															
	1961	35	4										0.83 (0.22)						1.34 (1.03)																							
	1964	35	1										1.66 (-)										0.37 (-)				0.06 (-)															
Mud	1930	3	1																								1.67 (-)	16.00 (-)														
	1931	3	1																																							
	1940	1	1																																							
	1941	3	1																																							
	1944	20	2																								0.10 (0.12)	16.00 (0.00)														
	1945	19	2																																							
	1948	2	1																																							
	1951	2	1																																							
	1964	16	1																																							

Table D.33.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.			Yellow perch		Walleye		Northern pike		Bullhead sp.		Warmouth	
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	
Ogemaw																																
Chatman (Chatlan)	1930	21	4										0.24 (0.29)	7.00 (0.00)														0.05 (0.04)	26.00 (-)			
Frost	1928	2	1																				2.50 (-)	9.00 (-)								
	1930	4	1										1.50 (-)										1.00 (-)									
	1936	5.25	2																							0.19 (0.22)	17.00 (-)					
	1949	5.5	2																													
	1951	1.5	1																													
	1954	9	2									0.11 (0.12)																				
Lake George																																
	1948	31	5											0.13 (0.06)									0.32 (0.08)									
	1949	7.75	1																				3.35 (-)									
	1950	1	1																				<0.01 (-)									
	1951	8.5	2													0.12 (0.03)							1.65 (0.39)									
	1953	14.5	1																				0.28 (-)									
	1954	34.5	2																				0.06 (<0.01)									
	1955	93	3																				0.01 (0.01)	0.19 (0.11)								
	1956	95.5	5																				0.08 (0.05)					0.01 (0.01)				
	1957	61.5	5																				0.03 (0.02)									
	1958	115.5	5																				0.12 (0.03)									
	1959	91	6																										0.02 (0.03)			0.01 (0.01)
	1960	40	4																													

Table D.33.-Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.			Yellow perch		Walleye		Northern pike		Bullhead sp.		Warmouth							
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE							
Ogemaw																																						
Lake George	1961	27	3					0.07 (0.04)																														
	1962	15	1					0.07 (-)															0.07 (-)															
	1964	18	1																				<0.01 (-)															
Mud	1965	15	1					0.07 (-)														0.13 (-)																
	1928	3	1										2.67 (-)									1.00 (-)																
	1929	3	1	2.67 (-)	9.00 (-)																																	
Tee	1931	3	1																			6.67 (-)	1.00 (-)															
	1928	2	1																								0.50 (-)	19.00 (-)										
Roscommon	1930	3	1													2.00 (-)	6.50 (-)																					
	1934	4	1							0.75 (-)	1.25 (-)												0.75 (-)															
	1936	5	2										0.20 (0.16)	6.00 (-)									0.20 (0.16)	7.00 (-)			0.20 (0.16)	14.00 (-)										
	1945	27	1					0.04 (-)	14.00 (-)				1.67 (-)	7.00 (-)	1.67 (-)	7.00 (-)																						
	1948	13	3																																			
	1949	19	2								0.11 (0.01)						0.11 (0.01)																					
	1951	15	1														1.60 (-)	0.20 (-)																				
	Clear	1929	4	1									1.50 (-)														0.75 (-)											
Roscommon	1930	19	7					0.58 (0.13)	12.50 (5.59)					0.32 (0.30)		0.42 (0.39)							0.58 (0.26)															
	1931	24	5											0.83 (0.52)		0.83 (0.52)		0.46 (0.29)																				

Table D.33.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Warmouth				
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE			
Roscommon																																		
Clear	1932	4	1																															
	1933	35	8					0.06	12.00	0.54	11.82	0.31		0.57									0.57											
	1935	4	2					(0.05)	(0.00)	(0.25)	(0.10)	(0.31)		(0.57)									(0.57)											
West Twin	1932	2	1					0.75	12.00	0.25	12.00																							2.50
								(1.13)	(0.00)	(0.13)	(-)																							(-)

Tittabawassee River Assessment

Table D.34.—To accommodate all species, creel data on the additional lakes within the Tittabawassee River subwatersheds have been separated into a series of tables. Tables 28–43 contain creel data for the subwatersheds, lakes, and time periods listed below.

Sub-watershed	Lake	Years	Table
Main stem-middle	Molasses	1939	28
	Round	1929–30, 1932, 1950–52, 1954	28
	Sanford	1932–35, 1937, 1940–43, 1945, 1950, 1952–63	29
	Secord	1929–30, 1932–35, 1939–41, 1945–46, 1954, 1957–61, 1963	30
	Smallwood	1932, 1934–35, 1937, 1946, 1954, 1957–61, 1963–64	31
	Wixom	1932–35, 1939–40, 1942–43, 1945–47, 1950, 1952–65	32
Tobacco River	Arnold	1929, 1934, 1938–39, 1942, 1944, 1947–62	33
	Bailey	1940–41	33
	Beebe	1941, 1954–55	33
	Blue	1932–34, 1937, 1939, 1942, 1958	33
	Boathouse	1935, 1940, 1947, 1957	33
	Lower Brennan	1951–52, 1957–58	33
	Upper Brennan	1950	33
	Budd	1929–30, 1932–35, 1937, 1939–45, 1947–51, 1953, 1955–64	34
	Cranberry (Clare & Missaukee Co.)	1939, 1944, 1948–56, 1958–59, 1961–62, 1964	35
	Cranberry (Clare Co.)	1928–30, 1932, 1934, 1937–38, 1942–43, 1946–64	35
	Deadman	1935, 1956	36
	Decker	1938	36
	Deer	1942	36
	Dodge	1929–30, 1935, 1937–41, 1947, 1952, 1955–57	36
	Dunham	1959–60	36
	Elbow	1930	36
	Five	1928–30, 1933, 1935, 1948–51, 1953, 1955, 1957–61, 1964	36
	Gut	1947, 1950	36
	Hoister	1934, 1948–49, 1953, 1956–64	37
	House	1956–58, 1961–64	37
	Howland	1949, 1958	37
	Lily	1950–62	37
	Little Long	1930, 1934–35, 1939–64	37
	Big Loon	1932–33, 1940	38
	Little Loon	1929–30, 1935, 1943, 1951–53, 1955, 1957–58	38
	McGilvery	1930, 1933, 1940–45, 1953, 1955, 1957–60	38
	McWatty	1949	38
Mill Pond	1929, 1938–39	38	

Table D.34.—To accommodate all species, creel data on the additional lakes within the Tittabawassee River subwatersheds have been separated into a series of tables. Tables 28–43 contain creel data for the subwatersheds, lakes, and time periods listed below.

Sub-watershed	Lake	Years	Table
Tobacco River	Mud	1935	38
	Nestor	1951, 1956–59	38
	Otter	1949–55, 1957–58	38
	Pratt	1930, 1932–35, 1939–44, 1948–64	38
	Puro	1941–44, 1948, 1950, 1953–54, 1956–59, 1961, 1963	39
	Ross	1929–30, 1932–35, 1939–47, 1953–54, 1956–65	39
	Round	1928, 1930, 1934, 1937, 1939	39
	Schoolhouse	1939–40, 1942	39
	South	1938, 1952, 1958	39
	Streaked	1932–35, 1937, 1939–40, 1961, 1964	40
	Sutherland	1934, 1939–40, 1945–48, 1950, 1952–62	40
	Thurston	1943, 1950–55, 1957	40
	Townline	1937–41, 1948, 1952, 1954–55, 1957	40
	Trout (Clare Co.)	1933, 1938–39	41
	Trout (Gladwin Co.)	1934, 1962–64	41
	Wiggins	1929–30, 1932–35, 1939–49	42
	Wiggins	1950–64	43

Tittabawassee River Assessment

Table D.35.—Direct contact lake angler creel data for the Tittabawassee River main stem-middle Molasses and Round lakes, Gladwin County. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Lake	Year	Total hours	Days (N)	Smallmouth bass		Bluegill		Rock bass		Crappie sp.	Yellow perch		Northern pike	
				CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	AL
Molasses	1939	2.3	1					1.33	7.00					
								(-)	(-)					
Round	1929	30.5	3			0.33	9.00						0.10	30.00
						(0.44)	(0.00)						(0.05)	(0.00)
	1930	2.5	2	1.60	14.00									
				(0.64)	(0.00)									
	1932	7.0	3								1.00	5.00	0.29	
											(0.65)	(0.00)	(0.24)	
	1950	5.0	1							1.20				
										(-)				
	1951	14.0	1							1.07	0.14			
										(-)	(-)			
	1952	6.0	1							0.83				
										(-)				
	1954	4.0	1											

Table D.36.—Direct contact lake angler creel data for the Tittabawassee River main stem-middle Sanford Lake, Midland County. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp		Suckers sp.	White bass	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1932	19.0	5												2.26 (1.08)	7.00 (0.00)	1.16 (0.51)	6.00 (0.00)							0.05 (0.05)			
1933	53.0	12									0.06 (0.02)		0.43 (0.14)														
1934	99.5	33	0.01 (0.01)						0.02 (0.02)		0.01 (0.01)		0.40 (0.25)	6.50 (0.00)	0.24 (0.14)		0.01 (0.01)							0.02 (0.01)			
1935	96.0	31	0.15 (0.11)	17.36 (0.88)	0.21 (0.20)	11.05 (0.05)			0.01 (0.01)	6.50 (-)	0.01 (0.01)	7.00 (-)	0.95 (0.28)	7.05 (0.04)	0.11 (0.07)	6.64 (0.12)							0.20 (0.14)	8.00 (0.00)			
1937	491.8	161	<0.01 (<0.01)	11.25 (0.75)	<0.01 (<0.01)	15.00 (5.00)	0.01 (0.01)	6.67 (0.11)	<0.01 (<0.01)	7.00 (-)	0.02 (0.01)	6.61 (0.29)	1.70 (0.29)	7.43 (0.01)	0.06 (0.01)	7.11 (0.10)							0.01 (<0.01)	11.90 (3.28)	<0.01 (<0.01)	24.00 (-)	
1940	83.8	21	0.01 (0.01)	16.00 (-)			0.10 (0.07)	6.50 (0.50)					0.08 (0.06)	6.79 (0.21)	0.07 (0.06)	8.00 (-)			0.01 (0.01)	22.00 (-)	0.01 (0.01)	7.00 (-)					
1941	497.8	20					0.01 (<0.01)	6.67 (0.17)			0.01 (<0.01)	6.60 (0.00)	0.67 (0.11)	7.26 (0.02)	0.01 (<0.01)	6.75 (0.25)			0.01 (0.01)	23.50 (1.19)							
1942	576.0	12	<0.01 (<0.01)	11.50 (-)			1.39 (0.41)	7.00 (0.00)	<0.01 (<0.01)	7.00 (-)	0.01 (<0.01)	7.00 (0.00)	0.28 (0.16)	6.84 (0.01)	0.01 (<0.01)	6.70 (0.10)											
1943	61.5	1	0.02 (-)	12.00 (-)	0.07 (-)	11.00 (-)	0.13 (-)	6.00 (-)					0.50 (-)	7.00 (-)			0.05 (-)	15.30 (-)	0.02 (-)	18.00 (-)							
1945	125.0	16	0.09 (0.06)	11.31 (0.08)			0.02 (0.01)	6.50 (0.00)			0.02 (0.03)	7.00 (0.00)	0.25 (0.09)	8.03 (0.16)	0.01 (0.01)	8.00 (-)							0.06 (0.04)	21.86 (0.55)			
1950	205.0	13					0.20 (0.09)						3.04 (0.46)	0.56 (0.17)									0.03 (0.01)				
1952	771.0	26	0.05 (0.02)				0.16 (0.06)	<0.01 (<0.01)	<0.01 (<0.01)			<0.01 (<0.01)	1.18 (0.16)	0.08 (0.01)			<0.01 (<0.01)	0.01 (<0.01)				<0.01 (<0.01)					
1953	88.0	5											0.31 (0.08)														
1954	427.0	39	0.02 (0.01)		0.03 (0.01)		0.26 (0.05)	0.03 (0.01)		0.03 (0.01)			0.99 (0.14)	0.15 (0.03)									0.03 (0.01)			0.06 (0.06)	
1955	36.0	4	0.14 (0.16)				0.17 (0.21)	0.06 (0.07)					1.06 (0.49)	0.08 (0.10)													
1956	139.0	15					0.12 (0.06)	0.01 (0.01)		0.01 (0.01)			1.31 (0.42)	0.06 (0.04)									0.01 (0.01)				
1957	461.0	24	0.02 (0.02)				0.01 (<0.01)	0.02 (0.01)		0.03 (0.02)			1.63 (0.50)	0.10 (0.03)									<0.01 (<0.01)				
1958	307.0	10			<0.01 (<0.01)		0.08 (0.04)	0.01 (0.01)		0.02 (0.01)			1.39 (0.47)	0.01 (0.01)									0.01 (0.01)				

Table D.36.—Continued.

Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp		Suckers sp.	White bass		
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE
1959	336.0	11					0.03 (0.03)		0.02 (0.01)		<0.01 (<0.01)		1.84 (0.46)		0.19 (0.09)													
1960	508.0	17	<0.01 (<0.01)				0.02 (0.01)		<0.01 (<0.01)		0.01 (0.01)		0.91 (0.18)		0.27 (0.10)		<0.01 (<0.01)		<0.01 (<0.01)									
1961	162.0	8											1.19 (0.28)		0.53 (0.27)													
1962	519.0	18	0.01 (<0.01)				0.01 (0.01)		0.01 (0.01)		<0.01 (<0.01)		1.84 (0.29)		0.21 (0.08)										0.01 (0.01)		0.01 (0.01)	
1963	57.0	5											2.61 (0.47)		0.26 (0.11)													

Table D.37.—Direct contact lake angler creel data for the Tittabawassee River main stem-middle Secord Lake, Gladwin County. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brook trout	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Bullhead sp.	
			CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1929	28	3																0.39	21.35		
																		(0.17)	(0.30)		
1930	4.5	2																			
1932	39	7		0.13		0.05		1.36		0.21		0.26				2.15		0.08	22.00		
				(0.10)		(0.06)		(0.31)		(0.11)		(0.20)				(1.06)		(0.05)	(0.00)		
1933	140	28				0.01		0.09		0.05		0.51		0.03		0.50	8.50	0.06	20.00	0.11	8.00
						(0.01)		(0.05)		(0.05)		(0.30)		(0.03)		(0.20)	(0.00)	(0.03)	(1.15)	(0.11)	(0.00)
1934	4.5	3																			
1935	147.5	74				0.08	10.75	1.26	6.82	0.02		0.05	7.00			0.07	7.00				
						(0.03)	(0.41)	(0.30)	(0.03)	(0.02)		(0.03)	(0.00)			(0.04)	(0.00)				
1939	41	12		0.15	15.50			0.98	7.00			0.07	8.00					0.05	16.25		
				(0.08)	(0.50)			(0.51)	(0.00)			(0.05)	(-)					(0.03)	(1.75)		
1940	20	3		0.50	14.00	0.05	12.00					0.15	8.00					0.05	21.00		
				(0.47)	(0.00)	(0.04)	(-)					(0.06)	(1.00)					(0.05)	(-)		
1941	50	3		0.14	14.00	0.02	17.00					0.02	7.00								
				(0.15)	(0.00)	(0.02)	(-)					(0.02)	(-)								
1945	9	1						2.22	7.00					0.22	7.00						
								(-)	(-)					(-)	(-)						
1946	264	4				<0.01	12.00	0.03	7.00	<0.01	6.00	0.04	7.00	0.06	7.00	0.03	7.03	0.01	31.00		
						(<0.01)	(-)	(0.03)	(0.00)	(<0.01)	(-)	(0.02)	(0.00)	(0.05)	(0.00)	(0.02)	(0.21)	(0.01)	(1.00)		
1954	100	2						0.78						0.79				0.03			
								(0.84)						(0.05)				(<0.01)			
1957	86	6						0.20		0.01				0.67		0.13					
								(0.11)		(0.01)				(0.20)		(0.05)					
1958	213	6						0.11						0.38		0.04		0.01			
								(0.05)						(0.33)		(0.03)		(0.01)			
1959	6	1						2.83						2.50							
								(-)						(-)							
1960	1	1																			
1961	38	1						0.82								0.08		0.03			
								(-)								(-)		(-)			
1963	48	2				0.06		0.29		0.02				0.13				0.02			
						(0.03)		(0.12)		(0.01)				(0.18)				(0.03)			

Table D.38.—Direct contact lake angler creel data for the Tittabawassee River main stem-middle Smallwood Lake, Gladwin County. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.	Suckers sp.	
			CPE	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1932	5	1							1.60		1.20				0.60							1.40	
									(–)		(–)				(–)							(–)	
1934	8	2													0.38								
															(0.42)								
1935	114	56	0.01	0.05	11.67	0.44	6.82	0.03	0.01	7.00	0.07	7.43	0.04	8.00					0.06	23.00			
			(0.01)	(0.02)	(1.20)	(0.14)	(0.07)	(0.03)	(0.01)	(–)	(0.03)	(0.30)	(0.02)	(–)					(0.03)	(1.00)			
1937	84	55											0.57	6.92	0.01	20.00			0.01	24.00			
													(0.24)	(0.04)	(0.01)	(–)			(0.01)	(–)			
1946	38	3									0.21	7.50	0.05	7.00					0.08	32.00			
											(0.11)	(0.09)	(0.05)	(0.00)					(0.07)	(0.00)			
1954	40	2											1.18										
													(1.18)										
1957	163	13				0.15		0.02	0.15		0.76		0.25								0.02	0.01	
						(0.08)		(0.02)	(0.08)		(0.27)		(0.17)								(0.02)	(0.01)	
1958	113	8	0.01			0.15			0.02		0.71		0.04						0.02		0.02		
			(0.01)			(0.11)			(0.02)		(0.21)		(0.03)						(0.01)		(0.02)		
1959	72	3	0.01			0.96		0.11	0.03		0.86		0.06										
			(0.01)			(0.51)		(0.07)	(0.03)		(0.15)		(0.05)										
1960	73	5									0.53		0.04										
											(0.38)		(0.02)										
1961	39	4									0.82									0.10			
											(0.41)									(0.04)			
1963	41	2							0.02		0.46									0.05			
									(0.03)		(0.52)									(0.05)			
1964	13	2									0.62		0.08										
											(0.62)		(0.08)										

Table D.39.—Direct contact lake angler creel data for the Tittabawassee River main stem-middle Wixom Lake, Gladwin County. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp		Suckers sp.		
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1932	109.0	26	0.13 (0.05)				0.20 (0.08)	0.05 (0.04)	0.34 (0.13)	8.00 (0.00)	0.28 (0.16)	0.50 (0.15)					0.01 (0.01)	28.00 (-)	1.56 (0.38)	6.26 (0.07)							
1933	315.5	79	0.01 (0.01)		0.01 (0.01)			0.02 (0.02)	0.07 (0.03)	0.17 (0.08)	7.06 (0.07)	0.18 (0.08)		0.01 (0.01)	22.67 (1.33)	0.08 (0.02)	22.57 (0.70)	0.81 (0.23)	7.48 (0.08)	0.01 (0.01)	25.00 (0.00)	0.01 (0.01)					
1934	291.0	65	0.02 (0.01)	13.50 (0.29)	<0.01 (<0.01)		0.03 (0.02)	0.06 (0.03)	0.01 (0.01)	0.17 (0.06)	7.88 (0.04)	0.17 (0.06)	7.50 (0.00)				0.07 (0.02)	23.74 (0.70)	0.20 (0.08)	8.00 (0.00)							
1935	172.0	88			0.08 (0.04)	12.08 (0.29)	0.07 (0.04)	6.67 (0.11)	0.05 (0.03)	7.00 (0.00)	0.06 (0.03)	6.56 (0.24)	1.72 (0.33)	7.15 (0.03)	0.09 (0.04)	8.00 (-)											
1939	52.0	18	0.13 (0.07)	14.00 (0.31)			0.23 (0.19)	6.92 (0.08)			0.04 (0.04)	6.00 (0.00)	0.35 (0.24)	7.00 (0.00)	0.12 (0.09)	7.83 (0.17)	0.02 (0.02)	30.00 (-)	0.04 (0.02)	17.00 (3.00)							
1940	16.0	3								0.50 (0.47)	8.00 (0.00)																
1942	2.0	1	0.50 (-)	11.00 (-)																							
1943	2.0	1					0.50 (-)	6.00 (-)																			
1945	8.0	1																									
1946	345.0	4	<0.01 (<0.01)	8.00 (-)			0.02 (<0.01)	6.79 (0.06)					1.01 (0.15)	7.75 (0.00)	0.01 (0.01)	7.00 (0.00)			0.01 (0.01)	28.00 (1.10)							
1947	131.5	4					0.04 (0.03)				0.02 (0.01)	1.96 (0.77)	0.05 (0.05)		0.01 (0.01)			0.01 (0.01)									
1950	75.0	2										3.13 (0.02)	0.71 (0.19)														
1952	282.0	7	0.07 (0.07)				0.38 (0.20)				<0.01 (<0.01)	1.88 (0.76)	0.17 (0.08)					<0.01 (<0.01)		<0.01 (<0.01)							
1953	69.0	5										0.71 (0.24)	0.41 (0.27)													0.09 (0.11)	
1954	321.0	9	0.01 (0.01)				0.15 (0.08)	0.02 (0.02)	0.05 (0.03)	1.49 (0.40)	0.22 (0.08)							0.01 (0.01)									
1955	136.0	6	0.05 (0.02)				0.29 (0.16)	0.03 (0.02)			0.74 (0.33)	0.08 (0.04)															
1956	275.5	12	0.02 (0.02)				0.36 (0.06)	<0.01 (<0.01)	0.03 (0.02)	0.29 (0.11)	0.44 (0.28)																
1957	967.0	45	0.01 (<0.01)		<0.01 (<0.01)		0.14 (0.04)	0.03 (0.01)	0.04 (0.01)	0.94 (0.14)	0.25 (0.05)	<0.01 (<0.01)		0.02 (0.01)							<0.01 (<0.01)				<0.01 (<0.01)		

Table D.39.—Continued.

Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Carp		Suckers sp.		
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1958	1975.2	39	0.02 (0.01)				0.05 (0.02)		0.02 (0.01)		0.02 (0.01)		0.81 (0.13)		0.17 (0.03)				0.02 (0.01)						<0.01 (<0.01)		
1959	2561.5	36	<0.01 (<0.01)				0.07 (0.02)		0.05 (0.01)		0.08 (0.02)		1.17 (0.11)		0.12 (0.01)	<0.01 (<0.01)			0.01 (<0.01)					<0.01 (<0.01)		<0.01 (<0.01)	
1960	1780.5	31	0.01 (<0.01)		0.01 (<0.01)		0.12 (0.04)		0.05 (0.01)		0.11 (0.04)		1.15 (0.19)		0.14 (0.04)				0.01 (<0.01)							0.02 (0.01)	
1961	1456.0	27	0.03 (0.01)				0.02 (0.01)		0.01 (<0.01)		0.04 (0.02)		1.31 (0.32)		0.21 (0.07)				0.02 (0.01)		<0.01 (<0.01)				<0.01 (<0.01)		
1962	1248.2	32	0.01 (<0.01)				0.02 (0.01)		0.02 (0.01)		0.10 (0.02)		1.34 (0.15)		0.23 (0.10)				0.04 (0.01)		0.01 (0.01)					0.05 (0.04)	
1963	381.5	10					<0.01 (<0.01)		0.03 (0.02)		0.04 (0.03)		1.69 (0.33)		0.08 (0.06)				0.06 (0.04)		0.01 (0.01)					0.03 (0.03)	
1964	692.0	14	0.01 (<0.01)				0.01 (0.01)		0.03 (0.01)		0.14 (0.04)		1.56 (0.46)		0.14 (0.04)				0.01 (<0.01)		<0.01 (<0.01)						
1965	231.0	5							0.10 (0.05)		0.14 (0.03)		1.45 (0.51)		0.26 (0.08)				0.01 (0.01)								

Table D.40.—Direct contact lake angler creel data for Arnold, Bailey, Beebe, Blue, Boathouse, Lower Brennan, and Upper Brennan lakes. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout	Rainbow trout	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Sucker sp.		
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
Clare																										
Arnold	1929	91.0	9					0.04 (0.02)	12.00 (–)	0.02 (0.02)		0.03 (0.03)		0.01 (0.01)									0.09 (0.03)	20.50 (1.50)		
	1934	12.0	4					0.33 (0.41)		0.92 (0.10)	12.05 (0.63)															
	1938	24.0	6					0.04 (0.04)	11.00 (–)			0.38 (0.35)	6.00 (–)								0.17 (0.18)		0.04 (0.04)	28.00 (–)		
	1939	4.5	1																							
	1942	31.0	3							0.19 (0.15)	14.33 (0.33)	0.97 (0.70)	8.00 (0.00)													
	1944	41.5	2							0.12 (0.15)	12.00 (0.00)	0.10 (0.03)	7.25 (0.25)								0.02 (0.02)	7.00 (–)				
	1947	7.0	1									0.43 (–)														
	1948	12.0	1									2.08 (–)		0.67 (–)		0.17 (–)										
	1949	23.0	3																					0.09 (0.04)		
	1950	51.0	3										1.45 (0.42)		0.12 (0.13)							0.22 (0.13)				
	1951	180.0	13							0.05 (0.04)		1.20 (0.42)										0.04 (0.03)		0.03 (0.03)		
	1952	50.0	5									1.32 (0.18)										0.02 (0.02)		0.04 (0.05)		
	1953	36.0	6								0.03 (0.03)			0.47 (0.37)								0.06 (0.05)		0.14 (0.07)		
	1954	52.0	3		0.04 (0.05)		0.25 (0.06)	0.06 (0.02)					0.35 (0.48)													
	1955	141.0	13					0.02 (0.02)					0.25 (0.16)						0.01 (0.01)			0.01 (0.01)		0.06 (0.03)		
1956	117.0	11				0.06 (0.04)	0.05 (0.03)			0.03 (0.03)		0.62 (0.27)									0.07 (0.07)		0.01 (0.01)			
1957	192.5	15				0.01 (0.01)	0.02 (0.02)					0.98 (0.30)							0.02 (0.02)		0.03 (0.02)		0.04 (0.03)			

Table D.40.—Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout	Rainbow trout	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Sucker sp.	
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Clare																									
Arnold	1958	127.0	12			0.02 (0.03)						1.10 (0.33)									0.02 (0.02)				
	1959	22.0	3				0.05 (0.05)							0.32 (0.22)							0.09 (0.06)		0.05 (0.03)		
	1960	78.5	2				0.01 (<0.01)					0.61 (0.06)						0.24 (0.09)			0.01 (<0.01)		0.03 (0.02)		
	1961	35.0	3																		0.06 (0.04)		0.11 (0.08)		
	1962	27.0	2				0.04 (0.03)					0.30 (0.33)									0.07 (0.08)		0.07 (0.08)		
Bailey	1940	61.5	16									5.50 (1.18)	7.69 (0.02)	0.88 (0.63)	7.00 (0.00)			0.54 (0.18)	8.33 (0.12)	0.07 (0.07)					
	1941	96.5	13									0.07 (0.04)	7.14 (0.14)					0.03 (0.01)	8.00 (1.15)						
Beebe	1941	31.0	5									0.16 (0.15)	7.00 (0.00)	0.03 (0.03)	6.00 (-)							0.03 (0.03)	20.00 (-)		
	1954	1.0	1									1.00 (-)		2.00 (-)											
	1955	4.0	1																						
Gladwin																									
Blue	1932	9.0	2	0.22 (0.25)	10.00 (0.00)																				
	1933	9.0	3	1.78 (0.90)	8.22 (0.06)																				
	1934	4.5	1	0.44 (-)	8.50 (-)																				
	1937	4.3	2																						
	1939	1.5	1																						
	1942	20.0	1							0.40 (-)	12.00 (-)	0.05 (-)	6.00 (-)				0.25 (-)	6.50 (-)			0.30 (-)	7.00 (-)			
	1958	2.0	1																						

Table D.40.—Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout	Rainbow trout	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Northern pike		Sucker sp.	
				CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Clare																									
Boathouse	1935	6.0	1							0.67	12.00														
										(-)	(-)														
	1940	2.0	1																		4.50	9.00			
																					(-)	(-)			
	1947	18.0	1							0.28		2.22													
										(-)		(-)													
	1957	11.0	1																		0.09				0.09
																					(-)				(-)
Brennan, Lower	1951	25.0	3									0.08									0.28		0.04		
												(0.04)									(0.35)		(0.05)		
	1952	2.0	1																		2.00				
																					(-)				
	1957	5.0	2																						
	1958	24.0	2									0.42									0.38				0.29
												(0.31)									(0.28)				(0.51)
Brennan, Upper	1950	3.0	1									1.33													
												(-)													

Table D.41.—Direct contact lake angler creel data for Budd Lake, Clare County. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

Year	Total hours	Days (N)	Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.	Muskellunge	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1929	233.0	54					0.05	11.80	0.04	11.67	0.27	6.86	0.08	8.00					0.09	7.50						0.02	
							(0.02)	(0.20)	(0.01)	(0.67)	(0.07)	(0.08)	(0.03)	(0.00)					(0.03)	(0.00)					(0.02)		
1930	211.0	37					0.18	13.45	0.16	15.00	0.89	8.08	0.01		0.01				0.02						0.05		
							(0.08)	(0.16)	(0.06)	(0.50)	(0.40)	(0.03)	(0.01)		(0.01)				(0.01)						(0.06)		
1932	4.0	2					0.25	18.00					6.25														
							(0.38)	(-)					(3.13)														
1933	441.0	4					0.05		0.04		2.57		0.40						0.04								
							(0.01)		(<0.01)		(0.24)		(0.05)						(0.01)								
1934	402.6	77					0.11	12.43	0.04	14.00	3.89	7.59	0.61	7.00	0.06	6.00			0.41					<0.01	36.00		
							(0.03)	(0.37)	(0.02)	(0.00)	(0.33)	(0.04)	(0.14)	(0.00)	(0.03)	(0.00)			(0.17)					(<0.01)	(-)		
1935	19.0	7									3.16	7.60															
											(0.85)	(0.05)															
1937	95.8	56					0.16	11.04			1.01	7.32	0.24	7.43	0.01	7.00			0.11	8.80							
							(0.09)	(0.04)			(0.18)	(0.06)	(0.11)	(0.12)	(0.01)	(-)			(0.06)	(0.39)							
1939	20.5	11					0.10	12.50	0.68	12.18	0.83		0.10		0.15	7.00											
							(0.06)	(2.50)	(0.35)	(0.41)	(0.66)		(0.08)		(0.13)	(0.00)											
1940	93.5	25					0.15	11.79	0.29	11.59	0.61	7.12	0.41	7.93	0.17				0.11	11.00							
							(0.06)	(0.31)	(0.08)	(0.25)	(0.18)	(0.06)	(0.14)	(0.03)	(0.09)				(0.10)	(0.00)							
1941	95.0	15					0.12	11.64			1.61	8.85	0.16	7.17				0.08	10.00								
							(0.07)	(0.15)			(0.80)	(0.04)	(0.12)	(0.17)				(0.09)	(0.00)								
1942	733.5	40					0.08	11.72	0.05	11.53	2.06	7.99	0.06	8.33	<0.01	8.00	0.03	9.54					<0.01	12.00			
							(0.02)	(0.14)	(0.01)	(0.08)	(0.18)	(0.01)	(0.05)	(0.07)	(<0.01)	(-)	(0.03)	(0.03)					(<0.01)	(-)			
1943	238.0	18					0.07	11.13	0.06	12.00	1.13	7.94	0.17	7.98	0.13	6.73	0.02	10.00	<0.01	8.00							
							(0.02)	(0.17)	(0.03)	(0.48)	(0.18)	(0.01)	(0.04)	(0.02)	(0.05)	(0.08)	(0.01)	(0.00)	(<0.01)	(-)							
1944	608.5	29	<0.01	19.00	<0.01	12.00	0.07	11.95	0.09	11.96	1.50	7.92	0.14	7.79	0.03	6.88	0.02	10.00	0.01	8.50							
			(<0.01)	(-)	(<0.01)	(-)	(0.02)	(0.03)	(0.02)	(0.09)	(0.18)	(0.01)	(0.02)	(0.06)	(0.01)	(0.08)	(0.01)	(0.00)	(<0.01)	(1.19)							
1945	225.0	15					0.04	11.11	0.05	12.27	1.75	7.57	0.06	7.00	0.02	7.00	0.06	10.14	0.03	7.86							
							(0.01)	(0.31)	(0.02)	(0.18)	(0.11)	(0.03)	(0.02)	(0.00)	(0.01)	(0.00)	(0.02)	(0.10)	(0.01)	(0.55)							
1947	107.0	1					0.02		0.02		1.02		0.13		0.17		0.08		0.25								
							(-)		(-)		(-)		(-)		(-)		(-)		(-)								
1948	274.0	13					0.04		0.01		1.11		0.16		0.03		<0.01		0.05								
							(0.02)		(0.01)		(0.25)		(0.05)		(0.01)		(<0.01)		(0.02)								
1949	107.8	3					0.04		0.02		1.74		0.14		0.02				0.02								
							(0.01)		(0.01)		(0.54)		(0.10)		(<0.01)				(0.01)								
1950	4.0	1									7.50																
											(-)																

Table D.41.—Continued.

Year	Total hours	Days (N)	Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.	Muskellunge	
			CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
1951	86.0	6									2.84 (0.99)		0.21 (0.18)					0.28 (0.21)									
1953	57.0	2									1.26 (1.31)		0.28 (0.29)							0.04 (0.04)							
1955	138.0	4					0.05 (0.03)		0.02 (0.02)		0.88 (0.25)		0.01 (0.01)							0.04 (0.03)							
1956	151.0	7							0.01 (<0.01)		2.30 (1.02)		0.05 (0.04)		0.01 (<0.01)					0.15 (0.09)							
1957	161.0	9							0.03 (0.01)		1.19 (0.43)				0.01 (0.02)		0.02 (0.03)			0.07 (0.05)							
1958	147.0	5									0.35 (0.14)		0.11 (0.14)							0.21 (0.04)							
1959	129.0	7							0.05 (0.03)		0.45 (0.23)		0.04 (0.02)		0.01 (<0.01)					0.16 (0.12)						0.05 (0.04)	
1960	81.0	4									1.07 (0.25)							0.02 (0.02)		0.25 (0.12)							
1961	149.5	7							0.01 (0.01)		1.18 (0.23)							0.01 (0.01)		0.18 (0.16)							
1962	240.0	4							0.03 (0.03)		1.45 (0.32)		0.01 (0.01)		0.01 (0.01)					0.02 (0.02)							
1963	118.0	2							0.01 (0.01)		1.47 (0.58)		0.03 (0.03)							0.16 (0.08)							
1964	51.0	1							0.06 (-)		0.84 (-)									0.27 (-)							

Table D.42.—Direct contact lake angler creel data for Cranberry Lake (Clare and Missaukee counties) and Cranberry Lake (Clare County). Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

County Lake	Total Year	Days hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie	Yellow	Walleye		Northern pike		Bullhead	Sucker	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	CPE	
Clare & Missaukee																						
Cranberry	1939	33.3	10	0.18 (0.18)	12.00 (0.00)	0.21 (0.09)	11.29 (0.18)			0.09 (0.09)	7.00 (0.00)	0.03 (0.03)	7.00 (–)						0.15 (0.08)	16.20 (0.20)		
	1944	17.0	2			0.59 (0.35)	12.00 (0.00)												0.18 (0.25)	22.00 (0.00)		
	1948	1.0	1																			
	1949	59.0	5																0.27 (0.07)			
	1950	90.0	3																0.12 (0.06)			
	1951	57.0	4																0.05 (0.04)			
	1952	87.5	7																0.33 (0.11)			
	1953	68.0	4													0.68 (0.19)			0.38 (0.07)			0.03 (0.04)
	1954	29.0	2																0.55 (0.17)			
	1955	14.0	1																0.14 (–)			
	1956	28.0	3																0.29 (<0.01)			
	1958	38.0	3													0.32 (0.36)			0.03 (0.03)			
	1959	12.0	1																0.33 (–)			
	1961	27.0	2													0.04 (0.01)			0.15 (0.03)			
	1962	18.0	1																0.11 (–)			
	1964	8.0	1																			

Table D.42.–Continued.

County Lake	Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.	Yellow perch	Walleye		Northern pike		Bullhead sp.	Sucker sp.	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	CPE	
Clare																						
Cranberry	1928	48.0	3			0.02 (0.03)		0.73 (0.37)										0.38 (0.24)				
	1929	228.0	20			0.01 (0.01)				0.03 (0.03)								0.25 (0.05)	19.40 (0.27)			
	1930	27.5	7	0.04 (0.03)		0.07 (0.07)		0.47 (0.41)								0.18 (0.18)	19.00 (0.00)	1.02 (0.44)	16.33 (0.14)	0.04 (0.04)		
	1932	8.5	2	0.35 (0.33)	15.00 (0.00)	0.24 (0.25)	17.00 (0.00)															
	1934	93.0	14	0.02 (0.02)		0.35 (0.15)	12.60 (0.15)	0.53 (0.16)	6.44 (0.12)	0.19 (0.12)					0.14 (0.08)				0.01 (0.01)			
	1937	2.0	1			1.50 (-)	12.00 (-)															
	1938	13.0	2																			
	1942	37.0	4			0.41 (0.17)	12.33 (0.41)	1.11 (1.03)	8.00 (0.00)						0.05 (0.04)				0.03 (0.03)	15.00 (-)		
	1943	39.0	3			0.31 (0.25)	12.00 (0.00)	0.87 (0.61)	8.00 (0.00)										0.08 (0.10)	18.00 (0.00)		
	1946	10.0	1			0.10 (-)	14.00 (-)															
	1947	60.0	1					0.17 (-)		0.02 (-)					0.08 (-)				0.05 (-)			
	1948	212.5	11	<0.01 (<0.01)		0.03 (0.03)		0.18 (0.06)		0.05 (0.02)					<0.01 (<0.01)				0.16 (0.10)		0.06 (0.05)	
	1949	394.5	12	0.03 (0.01)				0.24 (0.17)		0.06 (0.03)					<0.01 (<0.01)				0.18 (0.06)			
	1950	89.0	5	0.15 (0.13)						0.02 (0.02)						0.01 (0.01)			0.04 (0.02)			
	1951	166.0	6			0.02 (0.01)		0.45 (0.36)							0.04 (0.01)				0.08 (0.01)			
	1952	175.0	13			0.02 (0.01)		0.06 (0.05)		0.01 (0.01)									0.20 (0.03)			
1953	266.0	17			<0.01 (<0.01)		0.71 (0.30)		0.02 (0.02)					0.26 (0.23)				0.24 (0.07)				
1954	134.0	6					0.36 (0.19)		0.01 (0.02)									0.33 (0.05)				

Table D.42.–Continued.

County Lake	Year	Total hours	Days (N)	Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.	Yellow perch	Walleye		Northern pike		Bullhead sp.	Sucker sp.
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	AL	CPE	AL	CPE	CPE
Clare																					
Cranberry	1955	191.0	11			0.01 (0.01)		0.57 (0.30)		0.04 (0.03)					0.03 (0.02)				0.11 (0.04)		
	1956	119.0	9			0.01 (0.01)		0.03 (0.02)							0.01 (0.01)				0.15 (0.02)		
	1957	148.0	6					0.07 (0.07)							0.01 (0.01)				0.14 (0.05)		
	1958	52.0	5					0.17 (0.19)							0.10 (0.10)				0.04 (0.02)		
	1959	43.0	2					0.30 (0.17)		0.09 (0.05)				0.09 (0.05)	0.12 (0.06)				0.14 (0.15)		
	1960	31.0	1					0.03 (-)							0.03 (-)				0.03 (-)		
	1961	27.0	2												0.30 (0.36)				0.07 (0.09)		
	1962	19.0	2					0.16 (0.03)							0.05 (0.01)						
	1963	91.0	3					0.36 (0.30)													
	1964	10.0	1																		

Table D.43.—Direct contact lake angler creel data for Deadman, Decker, Deer, Dodge, Dunham, Elbow, Five, and Gut lakes. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

County Lake	Year	Total hours	Days (N)	Brook trout		Rainbow trout	Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.	Yellow perch		Northern pike	Bullhead sp.
				CPE	AL	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	CPE
Clare																			
Deadman	1935	3.0	1	2.00 (-)	13.00 (-)														
	1956	12.0	1						1.67 (-)										
Decker	1938	1.0	1						12.00 (-)	7.00 (-)									
Deer	1942	16.0	2				0.31 (0.02)	15.00 (0.00)											
Dodge	1929	2.0	1													3.00 (-)	8.00 (-)		
	1930	5.0	1						8.20 (-)	4.75 (-)									
	1935	23.5	14				0.72 (0.22)	12.50 (0.49)									0.26 (0.15)	8.67 (0.21)	
	1937	14.3	5				0.42 (0.34)	15.50 (0.50)											
	1938	24.0	8				0.25 (0.11)	11.50 (0.18)	0.29 (0.14)	6.43 (0.20)				0.25 (0.24)	6.00 (0.00)		0.46 (0.42)	7.09 (0.09)	
	1939	9.5	3									0.53 (0.21)	7.00 (0.00)				0.74 (0.22)	7.71 (0.18)	
	1940	19.0	5														1.11 (0.48)	8.29 (0.12)	
	1941	6.0	1										0.17 (-)	7.00 (-)			0.33 (-)	11.00 (-)	
	1947	15.0	1														1.53 (-)		
	1952	7.0	1														0.29 (-)		0.14 (-)
	1955	24.0	1							0.29 (-)						0.04 (-)			
	1956	8.0	3							0.38 (0.35)									
1957	6.0	1																	

Table D.43.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Rainbow trout		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.	Yellow perch		Northern pike	Bullhead sp.
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
Roscommon																				
Dunham	1959	146.0	4			0.10 (0.09)														
	1960	34.0	1			0.74 (–)														
Clare																				
Elbow	1930	0.8	1														14.67 (–)	7.50 (–)		
Five	1928	38.0	2						0.03 (0.03)								2.45 (0.84)	8.00 (0.00)		
	1929	24.0	2																	
	1930	4.0	1						1.50 (–)									1.50 (–)		
	1933	4.0	1																	
	1935	16.0	6						4.38 (1.20)	7.70 (0.04)										
	1948	290.5	10					0.04 (0.01)	0.92 (0.12)		0.02 (0.02)						0.13 (0.03)		<0.01 (<0.01)	<0.01 (<0.01)
	1949	21.0	2										0.14 (0.20)				0.10 (0.05)			
	1950	233.0	6					0.01 (0.01)	0.52 (0.18)								0.01 (0.01)		<0.01 (<0.01)	
	1951	12.0	1					0.58 (–)	0.58 (–)											
	1953	41.0	4						0.17 (0.16)								0.44 (0.25)			
	1955	1.0	1																	
	1957	27.0	1						2.74 (–)								0.15 (–)			
	1958	50.0	3					0.02 (0.01)	0.66 (0.08)										0.02 (0.03)	
	1959	209.0	5					0.12 (0.07)	0.90 (0.27)		0.07 (0.02)						0.01 (0.01)		0.07 (0.05)	
	1960	472.0	11						0.94 (0.10)		0.09 (0.04)						0.03 (0.02)		0.02 (0.02)	

Table D.43.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Rainbow trout		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.	Yellow perch		Northern pike	Bullhead sp.
				CPE	AL	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	CPE	CPE
Clare																				
Five	1961	47.0	2																	
	1964	90.5	4				0.06 (0.04)		0.34 (0.25)		0.01 (0.01)								0.03 (0.02)	
Gut	1947	15.0	1						1.73 (-)											
	1950	4.0	1				0.50 (-)		0.75 (-)											

Table D.44.—Direct contact lake angler creel data for Hoister, House, Howland, Lily, and Little Long lakes. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass	Crappie sp.	Yellow perch		Northern pike	Bullhead sp.	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
Gladwin																								
Hoister	1934	24.0	5	0.08 (0.08)														0.25 (0.27)		2.21 (0.31)	8.34 (0.04)			
	1948	6.0	1																					
	1949	13.0	1	0.08 (–)																				
	1953	6.0	1	0.67 (–)																				
	1956	13.0	2	0.38 (0.24)																				
	1957	110.5	5	0.49 (0.04)																				
	1958	134.0	4	0.50 (0.07)																				
	1959	95.0	5	0.42 (0.06)																				
	1960	93.0	3	0.58 (0.11)																				
	1961	95.0	9	0.05 (0.04)					0.37 (0.17)															
	1962	97.0	7	0.88 (0.19)																				
	1963	52.0	1	0.52 (–)																				
	1964	2.0	1																					
	House	1956	7.0	1											0.43 (–)									
1957		9.5	3																					
1958		10.0	2												0.20 (0.04)									
1961		42.0	5	0.38 (0.21)				0.07 (0.06)																
1962		112.0	6			0.04 (0.04)		0.45 (0.15)																

Table D.44.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass	Crappie sp.	Yellow perch		Northern pike	Bullhead sp.	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
Gladwin																								
House	1963	22.0	1					0.45																
	1964	62.0	6					(-)																
								0.56																
								(0.15)																
Clare																								
Howland	1949	13.0	1											0.15									0.08	
														(-)									(-)	
	1958	18.0	1											0.06										
														(-)										
Lily	1950	109.0	8						0.02		0.05			1.38		0.17					0.03			
									(0.02)		(0.04)			(0.70)		(0.11)					(0.03)			
	1951	35.0	5								0.03			0.31		0.06								
											(0.04)			(0.25)		(0.03)								
	1952	248.0	8								0.05			0.88		0.01			<0.01				0.02	
											(0.05)			(0.26)		(0.01)			(<0.01)				(0.01)	
	1953	396.0	13						<0.01		0.02			1.16		0.09					0.07			
									(<0.01)		(0.02)			(0.16)		(0.05)					(0.03)			
	1954	300.0	11						0.01		0.01			0.76		0.03					0.07			
									(0.01)		(0.01)			(0.22)		(0.02)					(0.04)			
	1955	264.0	15								0.01			1.06							0.14			
											(0.01)			(0.30)							(0.06)			
	1956	252.0	13						0.01		0.03			1.05							0.07			
									(0.01)		(0.02)			(0.22)							(0.03)			
	1957	230.0	8								0.02			1.13							0.03			
											(0.01)			(0.30)							(0.01)			
	1958	362.5	13								0.01			1.20		0.01					0.01			
											(0.01)			(0.16)		(0.01)					(0.01)			
	1959	19.0	1											2.05										
														(-)										
	1961	179.0	5											0.09		0.01						0.05	0.03	
														(0.07)		(0.01)						(0.02)	(0.04)	
	1962	36.0	2																		0.06			
																					(0.01)			
Long, Little																								
	1930	3.0	1			0.33	24.00																	
						(-)	(-)																	
	1934	7.0	2							0.29		0.43	19.50											
										(0.24)		(0.08)	(-)											
	1935	3.0	1								0.33	0.00	1.33											
											(-)	(-)	(-)											
	1939	17.0	5							1.06	9.56	0.59	12.25	2.82	9.23	0.06	9.00							
										(0.96)	(0.32)	(0.15)	(0.07)	(0.89)	(0.09)	(0.05)	(-)							(-)

Table D.44.–Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass	Crappie sp.	Yellow perch		Northern pike	Bullhead sp.	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	CPE	AL	CPE	CPE	
Clare																								
Long, Little	1940	65.8	24							0.09	10.50	0.24	11.63	3.42	7.81	0.02	7.00				0.06	7.50		
										(0.03)	(0.34)	(0.06)	(0.39)	(0.50)	(0.05)	(0.02)	(-)				(0.05)	(0.50)		
	1941	51.5	9			0.16	17.75			0.02	12.00			0.76	9.56						0.02	13.00		
						(0.08)	(0.49)			(0.02)	(-)			(0.45)	(0.08)						(0.02)	(-)		
	1942	352.0	21			0.07	17.53			0.01	10.75			1.17	8.01									
						(0.03)	(0.25)			(0.01)	(0.25)			(0.19)	(0.01)									
	1943	108.0	8			0.05	16.40			0.03	11.33	0.02	12.00	1.78	8.06									
						(0.04)	(0.60)			(0.02)	(0.67)	(0.02)	(0.00)	(0.21)	(0.01)									
	1944	159.5	10			0.04	17.43			0.02	11.33	0.03	12.00	1.89	8.47									
						(0.02)	(0.95)			(0.01)	(0.67)	(0.02)	(0.55)	(0.63)	(0.03)									
	1945	487.0	22	<0.01	15.00	0.15	16.26	0.03	21.19	<0.01	12.00	0.01	10.98	0.47	7.96									
				(<0.01)	(0.00)	(0.03)	(0.10)	(0.01)	(0.15)	(<0.01)	(-)	(0.01)	(0.68)	(0.15)	(0.02)									
	1946	527.0	17			0.28	13.39	<0.01	24.50					0.16	8.54						<0.01	12.00		
						(0.03)	(0.09)	(<0.01)	(0.00)					(0.12)	(0.07)						(<0.01)	(-)		
	1947	84.0	6			0.23								0.39							0.01			
						(0.07)								(0.31)							(0.01)			
	1948	257.0	6			0.51								0.05							<0.01			
						(0.16)								(0.05)							(<0.01)			
	1949	472.0	10			0.20				0.01				0.06		<0.01							0.03	
						(0.04)				(0.01)				(0.05)		(<0.01)							(0.02)	
	1950	151.0	7			0.16				0.01		0.02		0.48		0.01							0.01	
						(0.09)				(0.01)		(0.01)		(0.20)		(<0.01)							(<0.01)	
	1951	221.0	12			0.24								0.04										
						(0.07)								(0.04)										
	1952	137.5	5			0.24								0.40										
						(0.12)								(0.25)										
	1953	133.0	6			0.15								0.09										0.14
						(0.05)								(0.07)									(0.12)	
	1954	69.0	4			0.17		0.03				0.01										0.01		
						(0.14)		(0.03)				(0.01)										(0.01)		
	1955	134.0	7			0.10						0.12		0.77										
						(0.05)						(0.10)		(0.21)										
	1956	247.0	10			0.06				0.04		<0.01		0.52		0.03	<0.01				0.01		0.01	
						(0.05)				(0.02)		(<0.01)		(0.15)		(0.02)	(<0.01)				(<0.01)		(0.01)	
	1957	65.0	4			0.29								1.31							0.06			
						(0.19)								(0.72)							(0.04)			
	1958	62.5	5											0.62							0.02		0.03	
														(0.36)							(0.01)		(0.02)	
	1959	28.0	2											0.71										
														(0.31)										

Table D.44.—Continued.

County Lake	Year	Total hours	Days (N)	Brook trout		Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass	Crappie sp.	Yellow perch		Northern pike	Bullhead sp.
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE
Clare																							
Long, Little	1960	200.0	7			0.01 (0.01)		0.04 (0.02)			0.06 (0.04)		0.24 (0.08)		0.05 (0.04)					0.01 (<0.01)	0.01 (0.01)		
	1961	54.0	5					0.17 (0.10)															
	1962	14.0	1																				
	1963	82.0	2			0.33 (0.01)																	
	1964	24.0	1			0.17 (-)																	

Table D.45.—Direct contact lake angler creel data for Hoister, House, Howland, Lily, and Little Long lakes. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

County Lake	Year	Total hours	Days (N)	Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		crap sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.					
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE			
Clare																													
Loon, Big	1932	6.0	2				1.67	15.00											0.17										
							(<0.01)	(0.00)											(0.17)										
	1933	12.0	4		0.42		0.17		2.08			1.92							(0.32)	(0.16)						1.75			
											(1.18)		(0.55)						(0.55)							1.33			
	1940	10.5	3																(0.49)	9.21						(0.11)			
Loon, Little	1929	8.0	1						0.25										3.13							(–)			
									(–)										(–)										
	1930	5.0	1				0.40																				(–)		
							(–)																						
	1935	2.0	1		1.50							1.50															(–)		
					(–)							(–)																	
	1943	8.0	1				0.13	14.00	1.25	9.00																			
							(–)	(–)	(–)	(–)																			
	1951	10.0	1						0.10											0.10									
									(–)											(–)									
1952	32.0	2						0.50			0.16								0.03										
								(0.06)			(0.06)								(0.01)										
1953	16.0	2						0.25																					
								(0.06)																					
1955	18.0	2						1.78											0.22										
								(1.47)											(0.02)										
1957	3.0	1						2.33											0.33										
								(–)											(–)										
	1958	2.0	1																										
Gladwin																													
McGilvery	1930	13.0	5		0.08		0.08		1.69	8.00	1.46		1.85						4.08										
					(0.08)		(0.08)		(1.24)	(–)	(1.02)		(1.41)						(2.66)										
	1933	4.0	1						2.25	8.00																			
									(–)	(–)																			
	1940	50.3	17						1.89	8.20			0.02						0.12	7.33			0.08	23.75					
								(1.13)	(0.03)			(0.02)						(0.07)	(0.33)			(0.05)	(1.44)						
1941	41.0	2						0.37	8.00									0.15	8.30										
								(0.14)	(0.00)									(0.09)	(0.13)										
1942	171.0	6		0.01	12.00	0.08	13.08	0.88	7.79	0.05	8.00											0.04	21.67						
				(0.01)	(–)	(0.04)	(0.35)	(0.22)	(0.03)	(0.05)	(0.00)											(0.02)	(2.01)						

Table D.45.–Continued.

County Lake	Year	Total hours	Days (N)	Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		crap sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Gladwin																									
McGilvery	1943	120.0	5							2.22 (0.17)	8.00 (0.01)														
	1944	5.0	2																						
	1945	20.0	2															0.25 (0.30)	11.00 (0.00)			0.05 (0.06)	19.00 (-)		
	1953	18.0	2			0.33 (0.04)				0.83 (0.09)	0.06 (0.01)								0.22 (0.02)						
	1955	20.0	1							3.35 (-)													0.10 (-)		
	1957	11.0	1							0.45 (-)									0.09 (-)				0.09 (-)		
	1958	3.0	1																						
	1959	5.0	1																						
1960	3.0	1																							
Clare																									
McWatty	1949	1.0	1																						
Mill Pond	1929	1.5	1	0.67 (-)																					
	1938	4.0	3																						
	1939	13.5	5			0.07 (0.09)	12.00 (-)									0.07 (0.05)	9.00 (-)								
Mud	1935	0.5	1																				2.00 (-)	22.00 (-)	
Nestor																									
	1951	7.0	3																						
	1956	2.0	1																						
	1957	35.0	2																						
	1958	42.0	3							1.40 (0.51)								0.17 (0.11)				0.03 (<0.01)	0.02 (0.03)	0.02 (0.02)	
	1959	4.0	1							2.50 (-)															

Table D.45.–Continued.

County Lake	Year	Total hours	Days (N)	Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass crap sp.			Yellow perch		Walleye		Northern pike		Bullhead sp.		
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
Clare																									
Otter	1949	60.0	4																					1.27 (0.31)	
	1950	28.0	3									0.04 (0.04)												1.54 (1.20)	
	1951	27.0	4																					1.37 (0.57)	
	1952	14.0	2									0.07 (0.04)												1.50 (0.71)	
	1953	14.0	4																					0.43 (0.42)	
	1954	6.0	1								0.17 (-)														
	1955	9.0	1									0.67 (-)												1.33 (-)	
	1957	6.0	2																					0.50 (0.50)	
	1958	2.0	1																						
Gladwin																									
Pratt	1930	37.5	7		0.11 (0.10)	15.25 (0.25)	0.05 (0.06)			0.03 (0.03)														0.08 (0.09)	
	1932	11.0	3		0.09 (0.11)					0.91 (0.06)		0.36 (0.41)												0.45 (0.13)	
	1933	67.0	14		0.03 (0.02)		0.15 (0.05)	16.00 (-)	2.87 (0.31)			0.03 (0.03)		0.04 (0.05)						0.01 (0.02)	0.01 (0.02)			0.01 (0.01)	
	1934	74.3	27		0.13 (0.07)	13.50 (0.00)	0.19 (0.07)	13.60 (0.40)	1.47 (0.46)	6.75 (0.03)	0.05 (0.04)														
	1935	73.5	53				0.18 (0.07)	11.67 (0.33)	1.88 (0.35)	7.01 (0.02)	0.29 (0.16)	8.00 (-)	0.10 (0.10)	0.03 (0.03)				0.11 (0.07)	7.50 (-)	0.01 (0.01)					
	1939	31.5	10		0.16 (0.09)	12.00 (0.00)	0.25 (0.17)	15.75 (0.65)	1.40 (0.56)	6.00 (0.00)	0.13 (0.07)	6.00 (-)								0.29 (0.16)	8.00 (-)	0.03 (0.03)	14.00 (-)		
	1940	5.5	1																						
	1941	7.5	1							3.87 (-)	7.00 (-)														
	1942	114.0	5		0.02 (0.02)	14.00 (0.00)	0.07 (0.06)	11.80 (0.00)	0.20 (0.05)	7.77 (0.08)							0.01 (0.01)	7.00 (-)	0.02 (0.01)	7.00 (0.00)					
	1943	136.8	3		0.14 (0.07)	11.61 (0.09)	0.01 (0.01)	12.00 (0.00)	0.64 (0.20)	8.11 (0.06)											0.06 (0.01)	8.49 (0.39)			
1944	16.0	1		0.44 (-)	12.00 (-)																				

Table D.45.–Continued.

County Lake	Year	Total hours	Days (N)	Rainbow	Smallmouth		Largemouth		Bluegill		Pumpkinseed		Rock			Yellow perch		Walleye		Northern pike		Bullhead		
				trout	bass	AL	bass	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE
Gladwin																								
Pratt	1948	52.0	3		0.02 (<0.01)		0.02 (<0.01)		0.60 (0.03)								0.44 (0.03)							
	1949	180.0	6		0.01 (0.01)		0.02 (0.02)		0.66 (0.27)		0.03 (0.02)						0.40 (0.19)				0.01 (0.01)			
	1950	387.0	13		0.01 (0.01)				0.99 (0.19)		0.03 (0.02)		0.01 (0.01)	0.02 (0.01)			0.24 (0.06)				0.01 (0.01)			
	1951	40.0	2						0.30 (0.18)								0.08 (0.12)							
	1952	138.0	10						0.96 (0.30)				0.01 (0.01)				0.12 (0.07)				0.01 (0.01)			
	1953	179.0	8		0.01 (0.01)				0.64 (0.19)		0.01 (0.01)			0.03 (0.04)			0.08 (0.05)				0.14 (0.06)			
	1954	182.0	10						0.63 (0.33)		0.05 (0.05)						0.15 (0.09)				0.05 (0.03)			
	1955	119.0	8						1.50 (0.34)					0.04 (0.03)			0.02 (0.02)				0.04 (0.02)			
	1956	88.0	7		0.03 (0.02)				1.77 (0.16)					0.10 (0.10)			0.34 (0.14)				0.01 (0.01)			
	1957	312.3	15		0.02 (0.02)		0.01 (0.01)		0.94 (0.26)					0.03 (0.02)			0.08 (0.06)				<0.01 (<0.01)			
	1958	675.0	23		<0.01 (<0.01)				1.38 (0.15)		<0.01 (<0.01)		<0.01 (<0.01)	0.01 (<0.01)			0.03 (0.01)				0.01 (0.01)			
	1959	200.0	20				0.02 (0.01)		2.31 (0.23)					0.01 (0.01)			0.04 (0.02)				0.03 (0.01)			
	1960	188.0	15						1.81 (0.36)		0.02 (0.02)			0.03 (0.02)			0.03 (0.02)				0.03 (0.01)			
	1961	179.0	15				0.02 (0.02)		1.73 (0.38)					0.03 (0.03)			0.01 (0.01)		0.01 (0.01)		0.01 (0.01)			
	1962	151.0	11				0.06 (0.05)		1.93 (0.56)								0.02 (0.02)				0.02 (0.01)			
	1963	142.0	5				0.02 (0.02)		0.99 (0.42)		0.01 (0.01)		0.01 (0.01)	0.01 (0.01)			0.08 (0.04)		0.04 (0.04)		0.06 (0.05)			
1964	71.0	2						0.63 (0.41)								0.06 (0.04)				0.25 (0.16)				

Table D.46.—Direct contact lake angler creel data for Puro, Ross, Round, Schoolhouse, and South lakes. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

County	Lake	Total	Days	Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Sucker sp.		
				CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	
Gladwin																														
Puro																														
	1941	5.5	1																											
	1942	26.0	1																											
	1943	6.0	1																											
	1944	1.5	1																											
	1948	2.0	1																											
	1950	34.0	4																											
	1953	4.0	1																											
	1954	7.0	2																											
	1956	2.0	1																											
	1957	4.0	1																											
	1958	10.0	1																											
	1959	3.0	1																											
	1961	2.0	1																											
	1963	20.0	2																											
	1929	17.5	8																											

Table D.46.—Continued.

County	Lake	Year	Total hours	Days (N)	Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Sucker sp.			
					CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
509	Ross	1930	18.5	11			0.05	16.00										0.54	8.60								0.16	0.11				
		1932	2.0	1			(0.05)	(-)											(0.27)	(0.40)							(0.16)	(0.11)				
		1933	2.0	1														1.00		3.00		1.50										
		1934	24.0	7								0.08	7.00														0.13	23.33				
		1935	77.8	27								(0.09)	(0.00)					0.08	7.00	0.57	8.25	0.06	9.60								0.04	13.67
		1939	33.5	10			0.03	12.00	0.03	16.00	0.54							0.45	6.00	0.24		0.24					0.15	20.20				
		1940	57.8	21			(0.03)	(-)	(0.03)	(-)	(0.51)							0.43	(0.00)	(0.24)		(0.17)					0.12	23.14		0.24	14.00	
		1941	120.0	7							0.02	7.50						0.04	0.17	0.03	0.09	0.02	0.63				0.08	24.67		0.08	14.00	
		1942	79.5	7				0.01	11.00	0.03	8.00	0.13	0.09	6.14	0.83	7.09	0.08	7.00											0.04	10.00		
		1943	120.0	6				(0.01)	(-)	(0.03)	(0.00)	(0.07)	(0.04)	(0.14)	(0.27)	(0.04)	(0.04)	(0.00)											0.02	25.00	0.01	10.00
		1944	178.0	4								0.08	0.01	7.00	0.87	8.46											0.02	25.00	0.01	10.00		
		1945	200.5	9								(0.07)	(0.01)	(-)	(0.78)	(0.04)			0.03	7.00	0.53	7.04	0.06	8.83			0.01	24.00				
		1946	241.5	4																0.19	9.41	0.30	9.87				0.01	18.00		0.03	12.00	
		1947	76.0	3																	(0.07)	(0.17)	(0.11)	(0.04)			(0.01)	(0.00)		(0.04)	(0.00)	
		1953	53.0	6																								0.01	21.00			
		1954	57.0	5																0.07	0.25		0.65				0.02					

Table D.46.—Continued.

County	Lake	Total hours	Days (N)	Brown trout	Rainbow trout	Smallmouth bass	Largemouth bass	Bluegill	Pumpkinseed sunfish	Rock bass	Crappie sp.	Yellow perch	Walleye	Northern pike	Bullhead sp.	Sucker sp.
				CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	AL	CPE	AL
	1956	265.0	20					0.01 (0.01)	<0.01 (<0.01)	0.06 (0.05)	0.24 (0.08)	0.18 (0.08)		0.02 (0.01)	0.01 (0.01)	0.25 (0.09)
	1957	961.0	46			<0.01 (<0.01)	0.01 (<0.01)	0.04 (0.03)	0.02 (0.01)	0.16 (0.06)	0.61 (0.18)	0.12 (0.03)		0.01 (<0.01)		0.16 (0.05)
	1958	352.0	25		<0.01 (<0.01)	0.01 (0.01)		0.04 (0.04)	0.05 (0.04)	0.04 (0.02)	0.68 (0.13)	0.06 (0.03)		0.03 (0.01)		0.13 (0.07)
	1959	185.0	8					0.01 (0.01)	0.04 (0.04)	0.06 (0.03)	0.42 (0.17)	0.12 (0.05)		0.02 (0.01)		0.15 (0.09)
	1960	264.0	15	<0.01 (<0.01)			0.01 (0.01)		0.01 (0.01)	0.27 (0.12)	1.20 (0.32)	0.07 (0.03)		0.03 (0.01)		0.03 (0.03)
	1961	179.0	9					0.05 (0.05)	0.04 (0.02)	0.03 (0.01)	1.31 (0.39)	0.25 (0.08)		0.05 (0.02)	0.16 (0.15)	
	1962	131.0	4							0.04 (0.02)	1.31 (0.96)			0.01 (0.01)		0.45 (0.18)
	1963	119.0	5								0.32 (0.09)	0.03 (0.02)			0.17 (0.21)	0.15 (0.14)
	1964	110.0	3							0.06 (0.04)	0.55 (0.11)	0.05 (0.03)				
	1965	26.0	1								0.15 (-)	0.08 (-)		0.04 (-)		
Clare	Round															
	1928	9.0	2				0.11 (0.20)	1.44 (0.32)						0.11 (0.20)		
	1930	8.0	2					2.00 (2.00)				0.13 (0.13)				
	1934	0.5	1													
	1937	5.5	2											0.18 (0.19)		
	1939	8.5	2											0.24 (0.22)	21.50 (0.00)	

Table D.46.—Continued.

County	Lake	Total	Days	Brown trout		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Sucker sp.	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Gladwin																													
Schoolhouse																													
	1939	14.0	2					0.14	12.50																	0.29	17.44		
								(0.14)	(0.00)																	(0.14)	(0.81)		
	1940	7.0	2																	1.14	7.00								
																				(0.98)	(0.00)								
	1942	6.0	1																							1.00	25.00		
																										(-)	(-)		
Clare																													
South																													
	1938	2.5	1																										
	1952	2.0	1											3.00															
														(-)															
	1958	2.0	1																										

Table D.47.—Direct contact lake angler creel data for Streaked, Sutherland, Thurston, and Townline lakes. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

County	Lake	Year	Total Days hours (N)	Brook trout		Brown trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish	Rock bass		Yellow perch		Northern pike	Bullhead sp.		
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE	
Gladwin	Streaked	1932	15.0	4	1.60 (1.26)	8.00 (0.00)												1.13 (0.99)	6.18 (0.10)			
		1933	10.0	2	0.70 (0.04)	8.00 (0.00)																
		1934	4.0	1															1.25 (–)	7.00 (–)		
		1935	12.5	6	0.24 (0.23)	7.33 (0.17)				0.32 (0.22)	13.00 (0.00)											
		1937	2.3	2																		
		1939	26.5	13						0.23 (0.13)	11.63 (0.28)	0.04 (0.04)	6.00 (–)			0.30 (0.18)	7.38 (0.13)	0.38 (0.21)	9.00 (0.51)			
		1940	21.5	3					0.23 (0.12)	14.00 (0.00)									0.42 (0.15)	6.00 (0.00)		
		1961	8.0	3	0.13 (0.10)														0.25 (0.25)		0.13 (0.12)	
		1964	8.0	1															2.50 (–)			
Clare	Sutherland	1934	4.0	1				0.50 (–)	11.50 (–)													
		1939	1.0	1						1.00 (–)	17.00 (–)											
		1940	2.0	1					0.50 (–)	11.00 (–)			0.50 (–)	9.00 (–)								
		1945	100.0	12						0.25 (0.06)	12.30 (0.47)	1.25 (0.22)	6.98 (0.02)									
		1946	268.5	14						0.09 (0.03)	12.17 (0.18)	1.22 (0.16)	7.96 (0.03)									
		1947	147.0	5						0.13 (0.04)		1.06 (0.10)			0.01 (0.01)			0.01 (0.01)		0.01 (0.01)		

Table D.47.–Continued.

County	Lake	Year	Total Days hours (N)	Brook trout		Brown trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish	Rock bass		Yellow perch		Northern pike	Bullhead sp.	
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE
Clare	Sutherland	1948	18.5	2									0.59 (0.28)	0.05 (0.02)							
		1950	12.0	1						0.08 (-)	0.08 (-)										
		1952	5.0	1						0.40 (-)											
		1953	47.0	3						0.11 (0.06)	0.40 (0.33)									0.02 (0.01)	
		1954	52.0	3					0.10 (0.07)	0.08 (0.05)	1.00 (0.47)										
		1955	96.0	7						0.06 (0.05)	0.32 (0.21)			0.07 (0.06)		0.02 (0.02)				0.15 (0.09)	
		1956	146.5	9						0.05 (0.05)	0.35 (0.14)									0.05 (0.03)	
		1957	53.0	4							1.57 (0.80)									0.02 (0.02)	
		1958	37.5	4								0.40 (0.32)									
		1959	46.0	2							0.02 (0.02)	1.30 (0.34)			0.48 (0.35)						
		1960	98.0	1							0.02 (-)	0.38 (-)					0.02 (-)				0.01 (-)
		1961	18.0	2								0.56 (0.74)								0.11 (0.07)	
		1962	12.0	1																	
			Thurston	1943	8.0	1								3.00 (-)	7.00 (-)						
1950	22.0			3								1.00 (1.09)		0.18 (0.17)			0.23 (0.22)				
1951	17.0			2						0.06 (0.01)	1.18 (0.14)										
1952	31.0			5							0.45 (0.17)					0.03 (0.04)					

Table D.47.–Continued.

County	Lake	Year	Total Days hours (N)	Brook trout		Brown trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Yellow perch		Northern pike	Bullhead sp.			
				CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	CPE			
Clare	Thurston	1953	3.0	1									4.00											
													(-)											
		1954	21.0	2							0.14	1.38												
											(0.11)	(0.20)												
		1955	17.0	2										0.53					0.18					
														(0.12)					(0.04)					
		1957	4.0	1										2.50										
													(-)											
		Townline	1937	4.5	1						0.22	11.00								0.89	7.00			
											(-)	(-)								(-)	(-)			
	1938		5.0	3			0.20	30.00																
							(0.24)	(-)																
	1939		23.0	8			0.30	15.14				0.57	11.00											
							(0.16)	(0.26)				(0.29)	(0.00)											
1940	36.5		7	0.05	8.00	0.16	17.00																	
					(0.06)	(0.00)	(0.10)	(1.34)																
1941	24.5	4										1.92	8.50											
												(1.79)	(0.00)											
1948	12.0	1																						
1952	75.0	1										1.63		0.51										
												(-)		(-)										
1954	5.0	1										2.40												
												(-)												
	Townline	1955	10.0	1								2.10												
												(-)												
1957	1.0	1										<0.01												
												(-)												

Table D.48.—Direct contact lake angler creel data for Trout Lake (Clare County) and Trout Lake (Gladwin County). Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (-). CPE = Catch per hour; AL = Average length.

County	Lake	Year	Total hours	Days (N)	Brook trout	Brown trout	Smallmouth bass		Largemouth bass		Yellow perch		Bullhead sp.
					CPE	CPE	CPE	AL	CPE	AL	CPE	AL	CPE
Clare	Trout	1933	3.0	1							1.33		0.67
											(-)		(-)
		1938	4.0	1			0.25	10.00				1.75	8.00
						(-)	(-)				(-)	(-)	
		1939	1.5	1					2.67	14.00			
									(-)	(-)			
Gladwin	Trout	1934	2.5	1								4.00	
												(-)	
		1962	47.0	8	0.94								
						(0.17)							
		1963	15.0	1	2.13								
					(-)								
		1964	46.0	4		0.07							
						(0.03)							

Table D.49.—Direct contact lake angler creel data for Wiggins Lake 1929–49. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour; AL = Average length.

County Lake	Total Days		Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Sucker sp.		
	Year	hours	(N)	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
Gladwin																											
Wiggins																											
1929	60.0	3								0.05 (0.04)						0.02 (0.01)	7.00 (–)				0.27 (0.04)	18.50 (1.06)					
1930	2.0	1		1.50 (–)	14.00 (–)																						
1932	8.0	2		0.13 (0.13)															0.25 (<0.01)		0.38 (0.13)						
1933	34.0	14														0.09 (0.06)					0.32 (0.11)	19.20 (0.49)					
1934	69.0	16		0.07 (0.04)									0.03 (0.03)			0.22 (0.14)	9.00 (0.00)				0.20 (0.06)	20.40 (0.98)					
1935	0.5	1		<0.01 (–)																							
1939	45.0	14		0.20 (0.08)	13.89 (0.31)	0.04 (0.03)	15.00 (2.00)	0.93 (0.59)	7.00 (0.03)					0.02 (0.02)	8.00 (–)	0.11 (0.08)	7.00 (0.00)	0.04 (0.05)	20.00 (0.00)	0.04 (0.03)	30.00 (10.00)	0.04 (0.03)	10.50 (0.50)				
1940	29.0	10		0.07 (0.07)	12.00 (0.00)			0.07 (0.07)								1.00 (0.30)	7.70 (0.09)				0.07 (0.05)	22.50 (2.50)	0.03 (0.03)	10.00 (–)			
1941	388.0	14		0.01 (<0.01)	12.67 (1.17)			0.33 (0.10)	7.61 (0.04)	<0.01 (<0.01)	6.00 (–)			0.14 (0.09)	9.34 (0.08)	0.12 (0.03)	8.57 (0.11)				0.02 (0.01)	19.71 (1.43)	<0.01 (<0.01)	12.00 (–)	<0.01 (<0.01)	12.00 (–)	
1942	116.5	7				0.01 (0.01)	14.00 (–)	0.46 (0.45)	7.87 (0.05)				0.01 (0.01)	6.00 (–)	0.04 (0.05)	10.00 (0.00)	0.03 (0.01)	8.67 (0.83)			0.01 (0.01)						
1943	23.5	3															0.30 (0.12)	7.97 (0.17)									
1944	92.5	9		0.01 (0.01)	11.00 (–)					0.01 (0.01)	7.00 (–)						1.77 (0.75)	6.71 (0.09)									
1945	251.0	11												0.05 (0.03)	7.77 (0.39)	0.42 (0.15)	8.54 (0.07)				0.02 (0.01)	19.17 (1.79)					

Table D.49.–Continued.

County Lake	Total Days	Rainbow trout		Smallmouth bass		Largemouth bass		Bluegill		Pumpkinseed sunfish		Rock bass		Crappie sp.		Yellow perch		Walleye		Northern pike		Bullhead sp.		Sucker sp.		
		Year	hours	(N)	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL	CPE	AL
1946	64.5	4												0.03 (0.04)	8.00 (0.00)	0.37 (0.12)	7.03 (0.02)									
1947	92.0	5			0.09 (0.08)		0.24 (0.15)							0.39 (0.28)		0.16 (0.14)										
1948	111.0	8					0.03 (0.03)					0.05 (0.02)		0.62 (0.33)		0.24 (0.12)		0.01 (0.01)		0.04 (0.01)		0.01 (0.01)			0.03 (0.02)	
1949	82.5	5		0.01 (0.01)			1.10 (0.50)			0.06 (0.06)				0.16 (0.12)		0.18 (0.12)				0.01 (0.01)		0.01 (0.01)				

Tittabawassee River Assessment

Table D.50.—Direct contact lake angler creel data (CPE) for the Tributaries-Tobacco River Wiggins Lake 1929–64. Estimates are given with 1 standard error in parentheses. One or multiple angler interview records are included per Days (N). When Days (N) equaled 1 or when only 1 length was reported, standard errors could not be estimated and are reported as (–). CPE = Catch per hour. No length data were collected.

County	Lake	Total hours	Days (N)	Rainbow trout	Smallmouth bass	Largemouth bass	Bluegill	Pumpkinseed sunfish	Rock bass	Crappie sp.	Yellow perch	Northern pike	Bullhead sp.	Sucker sp.
Gladwin	Wiggins													
	1950	74.0	7				0.28 (0.12)			0.08 (0.08)	0.16 (0.14)			
	1951	24.0	2											
	1952	119.0	5				0.42 (0.10)			0.13 (0.10)	0.81 (0.06)	0.04 (0.01)		
	1953	35.0	2				0.20 (0.07)			0.11 (0.04)		0.06 (0.02)		
	1954	62.0	2				0.79 (0.64)			0.18 (0.05)	0.23 (0.10)	0.02 (0.01)		
	1955	41.0	3				0.29 (0.10)			0.10 (0.11)	0.07 (0.07)	0.02 (0.02)		
	1956	52.5	3		0.02 (0.02)		0.42 (0.42)			0.15 (0.11)	0.13 (0.06)			
	1957	64.0	8				0.22 (0.15)		0.03 (0.04)	0.16 (0.13)	0.05 (0.05)	0.02 (0.02)		
	1958	734.0	22		0.01 (<0.01)	<0.01 (<0.01)	0.36 (0.06)	0.03 (0.02)	0.01 (<0.01)	0.14 (0.06)	0.22 (0.07)	0.02 (0.01)		
	1959	186.0	17		0.02 (0.02)		0.47 (0.16)	0.09 (0.05)	0.08 (0.04)	0.16 (0.13)	0.29 (0.04)		0.02 (0.01)	
	1960	92.0	10				0.53 (0.21)			0.40 (0.18)	0.26 (0.08)	0.02 (0.01)		
	1961	52.0	8				1.90 (0.25)							0.06 (0.07)
	1962	15.0	5		0.07 (0.06)		1.07 (0.40)	0.20 (0.24)		0.20 (0.16)	0.07 (0.08)			
	1963	28.0	1	0.46 (–)										
	1964	26.0	1							0.12 (–)	0.42 (–)	0.04 (–)		