

# FISHERIES DIVISION

## TECHNICAL REPORT

**Sportfishing Catch and Effort from the  
Michigan Waters of Lake Michigan and  
their Important Tributary Streams,  
January 1, 1985 - March 31, 1986  
(Appendices)**

Gerald P. Rakoczy  
and  
Roger N. Lockwood

Number 88 - 11b  
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**Michigan Department of  
Natural Resources**

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
FISHERIES DIVISION**

**Fisheries Technical Report No. 88-11b  
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OF LAKE MICHIGAN AND THEIR IMPORTANT TRIBUTARY STREAMS,  
JANUARY 1, 1985 - MARCH 31, 1986  
APPENDICES<sup>1</sup>**

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<sup>1</sup>Contribution from Dingell-Johnson Project F-53-R, Michigan

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**APPENDICES**

**SECTION I.**

**Lake Michigan Catch and Effort Estimates by Site**

Appendix 1. Estimated catch per hour, number caught, and effort (angler hours and trips) for New Buffalo, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0436 (0.0137)	3,251 (1,476)	5,242 (2,488)	1,125 (649)	1,147 (771)	363 (200)	199 (138)	477 (672)	11,804 (3,146)
Chinook salmon	0.0320 (0.0090)	1,461 (718)	1,330 (664)	260 (166)	2,781 (1,412)	1,851 (752)	698 (411)	300 (342)	8,681 (1,957)
Rainbow trout	0.0131 (0.0041)	146 (97)	764 (418)	533 (352)	1,319 (668)	463 (279)	260 (192)	74 (109)	3,559 (939)
Atlantic salmon	<0.0001 (<0.0000)	0 (0)	0 (0)	3 (7)	0 (0)	0 (0)	0 (0)	0 (0)	3 (7)
Brown trout	0.0027 (0.0015)	19 (26)	104 (102)	285 (279)	274 (239)	48 (68)	11 (16)	2 (5)	743 (389)
Lake trout	0.0068 (0.0026)	4 (7)	486 (280)	245 (166)	782 (500)	284 (173)	49 (100)	0 (0)	1,850 (629)
Northern pike	0.0026 (0.0017)	0 (0)	0 (0)	6 (13)	25 (39)	135 (135)	141 (141)	385 (385)	692 (434)
White sucker	<0.0001 (<0.0000)	3 (6)	9 (18)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (19)
Brown bullhead	0.0012 (0.0024)	0 (0)	17 (37)	0 (0)	317 (665)	0 (0)	0 (0)	0 (0)	334 (666)
Channel catfish	0.0001 (0.0002)	18 (37)	0 (0)	0 (0)	4 (10)	0 (0)	0 (0)	0 (0)	22 (38)
Rock bass	0.0001 (0.0002)	0 (0)	17 (37)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	17 (37)
Bluegill	0.0008 (0.0013)	0 (0)	0 (0)	58 (121)	151 (317)	0 (0)	0 (0)	0 (0)	209 (339)
Smallmouth bass	0.0002 (0.0003)	0 (0)	0 (0)	0 (0)	32 (67)	0 (0)	23 (47)	0 (0)	55 (82)
Largemouth bass	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	4 (9)	8 (17)	17 (42)	29 (46)
Yellow perch	1.0107 (0.3294)	0 (0)	549 (951)	45,689 (27,844)	150,241 (64,053)	60,851 (29,388)	13,797 (8,699)	2,669 (5,559)	273,796 (76,480)
Freshwater drum	0.0029 (0.0041)	0 (0)	0 (0)	15 (31)	434 (893)	331 (624)	0 (0)	0 (0)	780 (1,090)
Total	1.1170 (0.3393)	4,902 (1,645)	8,518 (2,793)	48,219 (27,856)	157,507 (64,090)	64,330 (29,407)	15,186 (8,714)	3,924 (5,624)	302,586 (76,592)
Angler hours		18,692 (7,623)	41,223 (16,804)	34,919 (14,181)	96,778 (35,370)	49,257 (12,064)	19,094 (8,389)	10,934 (7,777)	270,897 (45,486)
Angler trips		3,364 (1,285)	7,125 (2,695)	6,549 (2,368)	16,286 (5,735)	7,929 (1,888)	3,117 (1,338)	1,750 (1,268)	46,120 (7,374)

Appendix 2. Estimated catch per hour, number caught, and effort (angler hours and trips) for St. Joseph-Benton Harbor, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0166 (0.0062)	4,575 (2,897)	5,278 (3,201)	2,112 (1,769)	1,370 (1,149)	173 (222)	367 (492)	0 (0)	0 (0)	13,875 (4,835)
Chinook salmon	0.0426 (0.0141)	5,257 (2,965)	10,425 (5,570)	886 (1,069)	9,678 (7,139)	6,398 (4,285)	2,861 (2,084)	13 (26)	0 (0)	35,518 (10,707)
Rainbow trout	0.0024 (0.0017)	178 (166)	1,087 (1,055)	48 (98)	480 (880)	0 (0)	50 (72)	131 (81)	9 (11)	1,983 (1,392)
Brown trout	0.0055 (0.0035)	260 (276)	1,070 (1,667)	526 (494)	1,716 (1,702)	968 (1,436)	6 (11)	24 (33)	2 (4)	4,572 (2,839)
Brook trout	0.0001 (0.0002)	0 (0)	93 (193)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	93 (193)
Lake trout	0.0197 (0.0084)	0 (0)	5,120 (3,162)	3,344 (3,223)	5,058 (3,371)	2,951 (3,534)	0 (0)	0 (0)	0 (0)	16,473 (6,651)
Rainbow smelt	0.0001 (0.0002)	72 (145)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	72 (145)
White sucker	<0.0001 (<0.0000)	3 (7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (7)
Channel catfish	0.0090 (0.0161)	30 (37)	163 (122)	316 (351)	6,960 (13,288)	0 (0)	0 (0)	0 (0)	0 (0)	7,469 (13,293)
Bluegill	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	107 (222)	0 (0)	0 (0)	107 (222)
Smallmouth bass	0.0013 (0.0022)	0 (0)	0 (0)	6 (14)	1,070 (1,782)	0 (0)	0 (0)	4 (8)	0 (0)	1,080 (1,782)
Largemouth bass	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	3 (7)	0 (0)	0 (0)	0 (0)	3 (7)
Yellow perch	0.7965 (0.2566)	0 (0)	18,797 (14,373)	201,946 (98,149)	419,916 (165,084)	19,721 (11,916)	4,283 (7,777)	8 (15)	0 (0)	664,671 (193,119)
Walleye	0.0011 (0.0020)	0 (0)	0 (0)	0 (0)	846 (1,744)	0 (0)	107 (222)	0 (0)	0 (0)	953 (1,758)

Appendix 2. Continued:

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Freshwater drum	0.0352 (0.0203)	26 (53)	2,115 (1,442)	23,378 (16,020)	3,374 (3,201)	338 (485)	132 (221)	0 (0)	0 (0)	29,363 (16,409)
Lake whitefish	<0.0001 (<0.0000)	4 (8)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (8)
Bullhead spp.	<0.0001 (<0.0000)	10 (21)	18 (36)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	28 (42)
Crappie spp.	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	170 (344)	0 (0)	0 (0)	0 (0)	0 (0)	170 (344)
Other	0.0004 (0.0006)	0 (0)	0 (0)	322 (496)	0 (0)	3 (7)	0 (0)	8 (15)	0 (0)	333 (496)
Total	0.9309 (0.2669)	10,415 (4,161)	44,166 (16,244)	232,884 (99,525)	450,638 (165,871)	30,555 (13,236)	7,913 (8,076)	188 (94)	11 (12)	776,770 (194,782)
Angler hours		67,665 (28,405)	146,031 (54,166)	163,452 (44,610)	229,412 (62,361)	123,212 (47,751)	99,915 (39,662)	4,316 (973)	440 (243)	834,443 (116,077)
Angler trips		13,054 (5,178)	26,669 (9,061)	37,882 (9,054)	54,402 (13,895)	24,841 (8,816)	19,546 (6,806)	1,492 (355)	212 (117)	178,098 (22,542)



Appendix 3. Estimated catch per hour, number caught, and effort (angler hours and trips) for South Haven, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	9 (18)	0 (0)	9 (18)
Coho salmon	0.0066 (0.0026)	573 (541)	935 (414)	432 (478)	243 (249)	356 (286)	5 (11)	0 (0)	2,544 (915)
Chinook salmon	0.0437 (0.0139)	1,096 (1,203)	5,591 (2,892)	437 (322)	1,064 (650)	3,510 (1,810)	5,272 (3,000)	0 (0)	16,970 (4,755)
Rainbow trout	0.0035 (0.0015)	0 (0)	435 (282)	128 (214)	59 (87)	257 (240)	123 (165)	373 (288)	1,375 (548)
Brown trout	0.0024 (0.0014)	76 (84)	131 (83)	319 (452)	143 (175)	235 (217)	31 (31)	0 (0)	935 (545)
Brook trout	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	22 (44)	0 (0)	0 (0)	0 (0)	22 (44)
Lake trout	0.0128 (0.0046)	21 (48)	2,374 (1,230)	828 (547)	575 (472)	991 (640)	185 (378)	14 (21)	4,988 (1,609)
Rainbow smelt	0.0011 (0.0022)	0 (0)	0 (0)	446 (894)	0 (0)	0 (0)	0 (0)	0 (0)	446 (894)
Northern pike	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	66 (134)	0 (0)	66 (134)
White sucker	0.0002 (0.0004)	0 (0)	79 (166)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	79 (166)
Channel catfish	0.0015 (0.0032)	0 (0)	0 (0)	0 (0)	0 (0)	593 (1,260)	0 (0)	0 (0)	593 (1,260)
Smallmouth bass	0.0009 (0.0011)	0 (0)	27 (56)	0 (0)	104 (144)	0 (0)	198 (398)	33 (66)	362 (432)
Largemouth bass	<0.0001 (<0.0000)	0 (0)	7 (14)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (14)
Yellow perch	0.7528 (0.2410)	0 (0)	217 (65)	97,255 (48,558)	90,540 (39,379)	98,459 (53,650)	4,953 (5,152)	801 (1,624)	292,225 (82,560)
Walleye	0.0018 (0.0028)	0 (0)	0 (0)	0 (0)	200 (402)	482 (995)	0 (0)	0 (0)	682 (1,073)
Freshwater drum	0.0012 (0.0011)	0 (0)	233 (308)	202 (298)	25 (49)	0 (0)	0 (0)	0 (0)	460 (431)
Round whitefish	0.0005 (0.0012)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	206 (488)	206 (488)
Other	0.0007 (0.0008)	0 (0)	15 (31)	244 (302)	0 (0)	0 (0)	0 (0)	0 (0)	259 (304)
Total	0.8301 (0.2471)	1,766 (1,323)	10,044 (3,204)	100,291 (48,577)	92,975 (39,391)	104,883 (53,710)	10,842 (5,991)	1,427 (1,721)	322,228 (82,747)
Angler hours		15,566 (10,809)	65,462 (27,810)	59,828 (16,119)	72,238 (19,073)	106,209 (39,399)	58,139 (18,217)	10,758 (4,060)	388,200 (58,433)
Angler trips		3,498 (2,074)	11,361 (3,892)	13,088 (2,799)	17,020 (3,660)	18,175 (6,497)	13,819 (4,049)	2,736 (919)	79,697 (10,006)

Appendix 4. Estimated catch per hour, number caught, and effort (angler hours and trips) for Saugatuck, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	50 (105)	0 (0)	50 (105)
Coho salmon	0.0067 (0.0034)	56 (73)	767 (464)	109 (167)	0 (0)	1,392 (1,139)	297 (387)	78 (123)	2,699 (1,308)
Chinook salmon	0.0619 (0.0222)	777 (620)	13,852 (6,468)	369 (499)	2,652 (3,007)	5,496 (2,919)	1,547 (1,210)	128 (278)	24,821 (7,847)
Rainbow trout	0.0028 (0.0017)	46 (58)	344 (360)	24 (51)	181 (327)	58 (122)	329 (395)	143 (150)	1,125 (660)
Brown trout	0.0035 (0.0020)	32 (42)	567 (390)	102 (213)	151 (196)	498 (566)	31 (67)	16 (33)	1,397 (751)
Lake trout	0.0213 (0.0101)	0 (0)	4,710 (2,310)	2,205 (2,406)	544 (1,032)	1,096 (1,454)	0 (0)	0 (0)	8,555 (3,782)
Northern pike	0.0018 (0.0012)	0 (0)	0 (0)	4 (8)	2 (4)	282 (432)	432 (175)	3 (9)	723 (466)
White sucker	<0.0001 (<0.0000)	0 (0)	8 (17)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	8 (17)
Brown bullhead	<0.0001 (<0.0000)	0 (0)	0 (0)	4 (7)	0 (0)	0 (0)	0 (0)	0 (0)	4 (7)
Channel catfish	0.0089 (0.0095)	0 (0)	828 (809)	609 (627)	71 (108)	1,862 (3,618)	217 (308)	0 (0)	3,587 (3,774)
Rock bass	0.0009 (0.0013)	0 (0)	23 (47)	112 (224)	0 (0)	236 (484)	0 (0)	0 (0)	371 (535)
Bluegill	0.0042 (0.0043)	0 (0)	103 (128)	271 (392)	40 (81)	760 (1,456)	466 (754)	33 (95)	1,673 (1,695)
Smallmouth bass	0.0048 (0.0044)	0 (0)	0 (0)	777 (1,033)	818 (1,328)	0 (0)	320 (505)	26 (71)	1,941 (1,758)
Largemouth bass	0.0031 (0.0024)	0 (0)	96 (193)	19 (34)	112 (209)	424 (556)	458 (619)	129 (270)	1,238 (920)
Yellow perch	0.5998 (0.2876)	0 (0)	73 (89)	37,973 (27,031)	151,236 (71,894)	51,366 (76,045)	37 (79)	0 (0)	240,685 (108,085)
Walleye	0.0024 (0.0023)	0 (0)	220 (271)	370 (512)	22 (47)	354 (722)	0 (0)	9 (22)	975 (927)
Freshwater drum	0.0033 (0.0026)	0 (0)	487 (410)	222 (427)	360 (729)	216 (314)	25 (52)	0 (0)	1,310 (992)
Round whitefish	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (8)	3 (8)
Crappie spp.	0.0005 (0.0005)	0 (0)	117 (153)	31 (63)	0 (0)	0 (0)	54 (114)	3 (8)	205 (201)
Sunfish spp.	0.0008 (0.0012)	0 (0)	0 (0)	104 (146)	0 (0)	0 (0)	199 (419)	0 (0)	303 (444)
Bowfin	<0.0001 (<0.0000)	0 (0)	0 (0)	1 (3)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3)
Other	0.0003 (0.0006)	0 (0)	8 (17)	104 (213)	0 (0)	0 (0)	0 (0)	0 (0)	112 (214)

## Appendix 4. Continued:

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Total	0.7271 (0.2969)	911 (628)	22,203 (6,975)	43,410 (27,184)	156,189 (71,982)	64,040 (76,234)	4,462 (1,821)	571 (451)	291,786 (108,557)
Angler hours		8,215 (4,300)	67,402 (22,461)	63,014 (25,648)	115,116 (40,772)	108,672 (35,923)	34,025 (20,173)	4,832 (3,365)	401,276 (67,468)
Angler trips		1,692 (925)	12,766 (4,345)	12,348 (4,936)	24,300 (8,884)	22,452 (7,348)	5,493 (3,207)	861 (599)	79,912 (13,699)

Appendix 5. Estimated catch per hour, number caught, and effort (angler hours and trips) for Holland, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month					Season total
		Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0030 (0.0026)	146 (314)	0 (0)	194 (242)	345 (493)	112 (245)	797 (678)
Chinook salmon	0.0351 (0.0174)	440 (544)	1,975 (2,680)	5,349 (2,795)	1,598 (1,424)	86 (171)	9,448 (4,165)
Rainbow trout	0.0057 (0.0044)	10 (21)	0 (0)	612 (504)	292 (544)	623 (861)	1,537 (1,137)
Brown trout	0.0014 (0.0012)	49 (79)	0 (0)	192 (209)	42 (98)	100 (221)	383 (329)
Lake trout	0.0168 (0.0099)	998 (829)	2,652 (2,215)	808 (687)	48 (61)	16 (18)	4,522 (2,464)
Channel catfish	0.0009 (0.0018)	0 (0)	0 (0)	226 (463)	0 (0)	11 (24)	237 (464)
Rock bass	0.0001 (0.0001)	0 (0)	0 (0)	0 (0)	23 (33)	0 (0)	23 (33)
Bluegill	0.0210 (0.0433)	0 (0)	0 (0)	5,650 (11,571)	0 (0)	0 (0)	5,650 (11,571)
Smallmouth bass	0.0004 (0.0006)	0 (0)	0 (0)	79 (161)	40 (46)	0 (0)	119 (167)
Largemouth bass	0.0003 (0.0006)	0 (0)	0 (0)	84 (172)	3 (6)	2 (5)	89 (172)
Yellow perch	0.3919 (0.2789)	15,325 (8,604)	79,964 (70,475)	9,287 (5,169)	822 (1,765)	0 (0)	105,398 (71,208)
Walleye	0.0037 (0.0052)	0 (0)	0 (0)	920 (1,391)	81 (187)	3 (6)	1,004 (1,404)
Round whitefish	0.0008 (0.0005)	0 (0)	0 (0)	0 (0)	0 (0)	209 (126)	209 (126)
Other	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	3 (7)	3 (7)
<b>Total</b>	<b>0.4812 (0.2897)</b>	<b>16,968 (8,667)</b>	<b>84,591 (70,561)</b>	<b>23,401 (13,094)</b>	<b>3,294 (2,394)</b>	<b>1,165 (947)</b>	<b>129,419 (72,333)</b>
<b>Angler hours</b>		<b>24,201 (10,661)</b>	<b>109,744 (47,156)</b>	<b>78,538 (26,601)</b>	<b>42,066 (22,535)</b>	<b>14,404 (8,009)</b>	<b>268,953 (60,141)</b>
<b>Angler trips</b>		<b>6,953 (3,129)</b>	<b>27,034 (11,379)</b>	<b>20,773 (6,349)</b>	<b>10,578 (6,102)</b>	<b>3,835 (1,850)</b>	<b>69,173 (14,840)</b>

Appendix 6. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Port Sheldon boat fishery, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month					Season total
		Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0103 (0.0240)	23 (35)	0 (0)	280 (1,256)	38 (177)	216 (212)	557 (1,286)
Chinook salmon	0.0388 (0.0264)	85 (103)	0 (0)	1,708 (1,256)	202 (177)	99 (212)	2,094 (1,290)
Rainbow trout	0.0082 (0.0125)	0 (0)	0 (0)	119 (156)	6 (12)	315 (639)	440 (658)
Brown trout	0.0026 (0.0048)	11 (31)	0 (0)	12 (24)	0 (0)	117 (251)	140 (254)
Lake trout	0.0094 (0.0074)	302 (318)	0 (0)	206 (194)	0 (0)	0 (0)	508 (373)
Northern pike	0.0044 (0.0099)	0 (0)	0 (0)	0 (0)	240 (535)	0 (0)	240 (535)
Smallmouth bass	0.0039 (0.0088)	0 (0)	0 (0)	0 (0)	213 (476)	0 (0)	213 (476)
Yellow perch	0.3203 (0.3158)	1,821 (1,974)	0 (0)	14,325 (16,076)	1,131 (1,837)	0 (0)	17,277 (16,301)
Total	0.3980 (0.3253)	2,242 (2,003)	0 (0)	16,650 (16,176)	1,830 (1,988)	747 (749)	21,469 (16,437)
Angler hours		8,150 (6,110)	9,414 (6,862)	21,977 (10,866)	11,088 (5,440)	3,314 (2,442)	53,943 (15,429)
Angler trips		1,717 (1,292)	1,798 (1,363)	4,160 (2,239)	3,501 (2,096)	816 (673)	11,992 (3,659)

Appendix 7. Estimated catch per hour, number caught, and effort (angler hours and trips) for Grand Haven, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Pink salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	66 (136)	0 (0)	66 (136)
Coho salmon	0.0098 (0.0036)	147 (196)	599 (498)	462 (419)	95 (194)	2,489 (1,645)	843 (600)	929 (595)	232 (419)	5,796 (2,024)
Chinook salmon	0.0664 (0.0337)	3,361 (2,239)	8,118 (3,250)	3,373 (1,737)	4,479 (3,639)	15,441 (18,481)	3,823 (1,780)	582 (413)	2 (4)	39,179 (19,409)
Rainbow trout	0.0050 (0.0113)	83 (76)	34 (57)	203 (283)	255 (402)	351 (6,534)	283 (384)	1,416 (617)	314 (420)	2,939 (6,607)
Brown trout	0.0032 (0.0014)	936 (508)	95 (74)	343 (279)	204 (417)	235 (345)	63 (128)	16 (30)	1 (1)	1,893 (807)
Lake trout	0.0164 (0.0064)	0 (0)	1,178 (644)	3,501 (1,641)	4,174 (3,056)	808 (882)	0 (0)	0 (0)	0 (0)	9,661 (3,637)
Splake	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	33 (68)	0 (0)	33 (68)
Rainbow smelt	<0.0001 (<0.0000)	0 (0)	11 (22)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	11 (22)
Redhorse spp.	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (3)	2 (3)
Channel catfish	0.0003 (0.0004)	0 (0)	0 (0)	198 (295)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	198 (295)
Bluegill	0.0001 (0.0002)	0 (0)	8 (16)	0 (0)	0 (0)	47 (95)	5 (9)	0 (0)	0 (0)	60 (97)
Yellow perch	0.1865 (0.0452)	39 (56)	1,482 (1,495)	23,666 (8,904)	67,103 (21,427)	13,144 (3,054)	4,649 (2,696)	0 (0)	1 (3)	110,084 (23,606)
Round whitefish	0.0020 (0.0010)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,144 (602)	50 (51)	1,194 (604)
Other	0.0001 (0.0002)	0 (0)	0 (0)	57 (115)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	57 (115)

Appendix 7. Continued:

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Total	0.2899 (0.0628)	4,566 (2,306)	11,525 (3,670)	31,803 (9,243)	76,310 (21,956)	32,515 (19,929)	9,666 (3,311)	4,186 (1,137)	602 (595)	171,173 (31,560)
Angler hours		29,487 (9,443)	66,486 (12,841)	71,103 (13,188)	134,543 (26,870)	206,961 (55,333)	61,356 (16,176)	16,705 (2,737)	3,730 (1,532)	590,371 (66,957)
Angler trips		8,069 (2,190)	16,168 (3,031)	16,216 (2,859)	38,815 (6,714)	45,471 (10,794)	12,575 (2,966)	4,810 (819)	1,251 (511)	143,375 (13,910)

Appendix 8. Estimated catch per hour, number caught, and effort (angler hours and trips) for Muskegon, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0232 (0.0212)	237 (222)	6,982 (10,001)	95 (193)	0 (0)	2,618 (2,181)	1,157 (1,926)	692 (292)	11,781 (10,424)
Chinook salmon	0.1059 (0.0505)	810 (583)	31,248 (20,882)	853 (779)	2,620 (2,200)	13,758 (7,706)	4,516 (3,445)	54 (58)	53,859 (22,652)
Rainbow trout	0.0020 (0.0010)	186 (259)	16 (32)	0 (0)	0 (0)	16 (33)	9 (18)	771 (335)	998 (426)
Brown trout	0.0105 (0.0085)	847 (514)	3,165 (3,456)	143 (363)	64 (132)	1,059 (2,150)	0 (0)	51 (62)	5,329 (4,121)
Lake trout	0.0168 (0.0155)	0 (0)	7,384 (7,581)	743 (769)	425 (392)	0 (0)	0 (0)	0 (0)	8,552 (7,630)
Northern pike	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	10 (20)	0 (0)	10 (20)
Redhorse spp.	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	16 (33)	0 (0)	0 (0)	16 (33)
Rock bass	0.0002 (0.0004)	0 (0)	79 (163)	0 (0)	0 (0)	0 (0)	16 (32)	0 (0)	95 (166)
Bluegill	0.0042 (0.0062)	0 (0)	959 (1,962)	0 (0)	0 (0)	1,197 (2,457)	0 (0)	0 (0)	2,156 (3,144)
Smallmouth bass	0.0019 (0.0019)	0 (0)	0 (0)	74 (150)	309 (630)	361 (622)	237 (243)	0 (0)	981 (930)
Black crappie	0.0001 (0.0002)	47 (95)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	47 (95)
Yellow perch	0.1080 (0.0485)	1,358 (2,233)	2,375 (3,429)	21,307 (17,438)	1,148 (2,312)	4,205 (8,601)	80 (109)	24,450 (7,492)	54,923 (21,361)
Walleye	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (15)	7 (15)
Round whitefish	0.0015 (0.0009)	154 (130)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	605 (410)	759 (430)
Sunfish spp.	<0.0001 (<0.0000)	0 (0)	8 (16)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	8 (16)
Total	0.2742 (0.0912)	3,639 (2,394)	52,216 (24,922)	23,215 (17,478)	4,566 (3,279)	23,230 (12,213)	6,025 (3,956)	26,630 (7,517)	139,521 (34,123)
Angler hours		17,775 (4,132)	209,062 (99,119)	36,526 (11,199)	25,162 (9,259)	130,142 (48,227)	72,957 (27,438)	17,114 (3,510)	508,738 (114,646)
Angler trips		5,397 (1,213)	49,077 (25,757)	16,389 (3,446)	7,333 (2,393)	25,282 (9,212)	16,203 (6,647)	4,515 (840)	124,196 (28,500)



Appendix 9. Estimated catch per hour, number caught, and effort (angler hours and trips) for White Lake, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0171 (0.0098)	502 (715)	286 (375)	647 (1,283)	130 (152)	2,978 (2,187)	2,087 (2,124)	2 (5)	6,632 (3,408)
Chinook salmon	0.1083 (0.0438)	929 (998)	9,557 (5,259)	2,259 (1,503)	8,180 (5,910)	16,608 (9,903)	4,357 (3,894)	13 (22)	41,903 (13,382)
Rainbow trout	0.0029 (0.0021)	40 (43)	345 (313)	356 (645)	6 (9)	168 (233)	124 (218)	97 (81)	1,136 (790)
Atlantic salmon	<0.0001 (<0.0000)	0 (0)	10 (20)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	10 (20)
Brown trout	0.0069 (0.0033)	428 (440)	1,050 (708)	529 (458)	362 (478)	291 (303)	0 (0)	0 (0)	2,660 (1,107)
Brook trout	<0.0001 (<0.0000)	3 (7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (7)
Lake trout	0.0272 (0.0128)	6 (13)	1,657 (1,104)	3,083 (2,244)	3,932 (2,706)	1,839 (1,985)	0 (0)	0 (0)	10,517 (4,185)
Northern pike	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	7 (14)	0 (0)	0 (0)	7 (14)
White sucker	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	21 (44)	0 (0)	21 (44)
Rock bass	0.0004 (0.0004)	0 (0)	0 (0)	0 (0)	50 (77)	93 (127)	21 (44)	0 (0)	164 (155)
Bluegill	0.0002 (0.0003)	0 (0)	0 (0)	0 (0)	46 (95)	0 (0)	28 (58)	0 (0)	74 (111)
Smallmouth bass	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	4 (8)	14 (29)	0 (0)	0 (0)	18 (30)
Largemouth bass	0.0001 (0.0001)	0 (0)	0 (0)	0 (0)	34 (64)	17 (25)	0 (0)	0 (0)	51 (69)
Black crappie	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	20 (41)	0 (0)	0 (0)	20 (41)
Yellow perch	0.0389 (0.0187)	281 (247)	946 (828)	6,240 (4,817)	4,618 (3,116)	2,942 (2,132)	25 (44)	11 (23)	15,063 (6,181)
Freshwater drum	0.0003 (0.0003)	0 (0)	0 (0)	0 (0)	70 (107)	40 (64)	0 (0)	0 (0)	110 (125)
Round whitefish	0.0013 (0.0010)	209 (179)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	306 (315)	515 (362)
Sunfish spp.	<0.0001 (<0.0000)	0 (0)	2 (4)	0 (0)	0 (0)	12 (23)	0 (0)	0 (0)	14 (23)
Total	0.2040 (0.0651)	2,398 (1,340)	13,853 (5,505)	13,114 (5,725)	17,432 (7,228)	25,029 (10,560)	6,663 (4,442)	429 (327)	78,918 (15,763)
Angler hours		15,248 (6,975)	50,934 (23,303)	49,035 (24,213)	67,269 (34,982)	132,606 (68,920)	64,598 (45,847)	7,112 (3,782)	386,802 (96,270)
Angler trips		4,074 (1,690)	10,274 (4,474)	11,165 (5,356)	14,750 (6,857)	26,330 (12,744)	13,005 (8,769)	2,033 (1,068)	81,631 (18,413)

Appendix 10. Estimated catch per hour, number caught, and effort (angler hours and trips) for Pentwater, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0137 (0.0093)	0 (0)	2 (4)	665 (961)	324 (377)	1,680 (1,519)	62 (90)	82 (124)	2,815 (1,843)
Chinook salmon	0.1088 (0.0402)	155 (195)	3,750 (2,440)	3,822 (2,317)	3,509 (2,283)	8,750 (5,767)	2,345 (1,448)	88 (146)	22,419 (7,208)
Rainbow trout	0.0043 (0.0021)	80 (100)	60 (92)	118 (198)	17 (35)	77 (104)	0 (0)	533 (315)	885 (411)
Brown trout	0.0129 (0.0070)	30 (45)	1,408 (1,028)	872 (799)	215 (324)	129 (152)	0 (0)	0 (0)	2,654 (1,351)
Brook trout	<0.0001 (<0.0000)	0 (0)	0 (0)	9 (18)	0 (0)	0 (0)	0 (0)	0 (0)	9 (18)
Lake trout	0.0331 (0.0145)	36 (79)	345 (402)	4,008 (2,301)	1,939 (1,241)	494 (591)	0 (0)	0 (0)	6,822 (2,711)
Northern pike	0.0004 (0.0007)	0 (0)	0 (0)	0 (0)	0 (0)	58 (124)	20 (40)	0 (0)	78 (130)
Black crappie	0.0094 (0.0137)	644 (1,056)	0 (0)	1,273 (2,594)	14 (23)	0 (0)	0 (0)	0 (0)	1,931 (2,801)
Yellow perch	0.0594 (0.0497)	0 (0)	18 (37)	436 (525)	8,785 (8,594)	3,003 (5,079)	0 (0)	0 (0)	12,242 (9,997)
Round whitefish	0.0016 (0.0011)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	323 (219)	323 (219)
Total	0.2436 (0.0778)	945 (1,082)	5,583 (2,680)	11,203 (4,390)	14,803 (8,992)	14,191 (7,859)	2,427 (1,451)	1,026 (429)	50,178 (13,135)
Angler hours		3,550 (1,493)	21,952 (9,981)	48,838 (13,202)	45,935 (15,031)	45,771 (25,826)	33,165 (15,673)	6,796 (1,246)	206,007 (37,633)
Angler trips		1,080 (346)	5,209 (1,946)	10,994 (2,771)	12,246 (3,401)	9,486 (4,834)	8,885 (3,440)	2,942 (456)	50,842 (7,653)

Appendix 11. Estimated catch per hour, number caught, and effort (angler hours and trips) for Ludington, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0142 (0.0061)	74 (64)	692 (671)	809 (512)	2,525 (1,452)	4,306 (3,130)	1,719 (1,197)	13 (33)	10,138 (3,749)
Chinook salmon	0.1226 (0.0401)	1,123 (557)	11,132 (5,706)	10,533 (3,420)	23,541 (9,926)	31,079 (17,429)	10,158 (5,409)	43 (86)	87,609 (21,820)
Rainbow trout	0.0033 (0.0015)	127 (165)	161 (190)	210 (193)	786 (592)	612 (564)	101 (113)	392 (313)	2,389 (938)
Atlantic salmon	0.0005 (0.0007)	0 (0)	239 (504)	49 (99)	87 (177)	0 (0)	0 (0)	0 (0)	375 (543)
Brown trout	0.0100 (0.0043)	748 (490)	2,198 (1,459)	2,308 (1,949)	869 (630)	942 (808)	51 (103)	0 (0)	7,116 (2,688)
Lake trout	0.0201 (0.0096)	8 (17)	143 (148)	3,028 (1,308)	10,779 (6,039)	393 (327)	29 (61)	0 (0)	14,380 (6,190)
Splake	0.0002 (0.0003)	50 (101)	0 (0)	0 (0)	0 (0)	74 (158)	0 (0)	0 (0)	124 (188)
Northern pike	0.0004 (0.0006)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	261 (392)	0 (0)	261 (392)
White sucker	0.0003 (0.0006)	0 (0)	180 (373)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	180 (373)
Rock bass	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	19 (39)	0 (0)	0 (0)	19 (39)
Black crappie	0.0002 (0.0004)	0 (0)	0 (0)	134 (246)	0 (0)	0 (0)	0 (0)	0 (0)	134 (246)
Yellow perch	0.1697 (0.0800)	0 (0)	180 (373)	15,759 (17,188)	92,208 (45,792)	13,083 (14,551)	0 (0)	0 (0)	121,230 (51,031)
Round whitefish	0.0006 (0.0005)	0 (0)	0 (0)	157 (320)	0 (0)	0 (0)	0 (0)	294 (237)	451 (398)
Total	0.3421 (0.1068)	2,130 (770)	14,925 (5,977)	32,987 (17,695)	130,795 (47,274)	50,508 (22,943)	12,319 (5,556)	742 (403)	244,406 (56,051)
Angler hours		14,173 (3,847)	67,523 (30,762)	94,828 (26,559)	231,965 (93,656)	198,468 (107,842)	95,923 (28,821)	11,562 (5,400)	714,442 (151,419)
Angler trips		3,864 (1,014)	16,550 (6,980)	17,867 (4,884)	52,936 (19,023)	40,496 (20,658)	18,182 (5,060)	3,957 (1,524)	153,852 (29,835)

Appendix 12. Estimated catch per hour, number caught, and effort (angler hours and trips) for Manistee, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	<0.0001 (<0.0000)	0 (0)	7 (14)	0 (0)	0 (0)	0 (0)	0 (0)	6 (8)	13 (16)
Coho salmon	0.0212 (0.0075)	0 (0)	279 (240)	471 (496)	1,787 (1,952)	7,294 (3,400)	2,407 (1,177)	1,103 (964)	13,341 (4,241)
Chinook salmon	0.1080 (0.0294)	622 (445)	2,504 (1,324)	3,922 (1,540)	16,378 (6,887)	37,076 (13,232)	5,187 (2,232)	2,226 (1,573)	67,915 (15,307)
Rainbow trout	0.0134 (0.0038)	94 (117)	79 (70)	264 (229)	428 (343)	1,301 (928)	178 (180)	6,062 (1,709)	8,406 (2,001)
Atlantic salmon	0.0013 (0.0021)	0 (0)	0 (0)	3 (6)	28 (57)	0 (0)	815 (1,334)	0 (0)	846 (1,335)
Brown trout	0.0178 (0.0061)	1,344 (843)	4,655 (2,582)	3,359 (1,836)	819 (588)	880 (793)	4 (9)	125 (214)	11,186 (3,431)
Lake trout	0.0116 (0.0042)	0 (0)	708 (756)	989 (567)	4,569 (2,087)	1,014 (582)	0 (0)	0 (0)	7,280 (2,364)
Northern pike	0.0005 (0.0010)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	320 (644)	0 (0)	320 (644)
Channel catfish	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	28 (56)	0 (0)	0 (0)	28 (56)
Rock bass	0.0001 (0.0001)	0 (0)	0 (0)	0 (0)	38 (60)	0 (0)	25 (51)	0 (0)	63 (79)
Smallmouth bass	0.0002 (0.0003)	0 (0)	0 (0)	0 (0)	40 (83)	72 (145)	0 (0)	0 (0)	112 (167)
Yellow perch	0.0354 (0.0301)	0 (0)	903 (1,323)	2,554 (3,027)	10,348 (7,213)	8,481 (16,852)	0 (0)	0 (0)	22,286 (18,626)
Walleye	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	51 (105)	0 (0)	51 (105)
Round whitefish	0.0081 (0.0037)	71 (104)	0 (0)	49 (102)	0 (0)	0 (0)	100 (105)	4,857 (2,157)	5,077 (2,164)
Total	0.2176 (0.0519)	2,131 (966)	9,135 (3,287)	11,611 (3,942)	34,435 (10,397)	56,146 (21,737)	9,087 (2,936)	14,379 (3,320)	136,924 (25,050)
Angler hours		18,358 (6,278)	44,788 (20,939)	56,479 (17,194)	111,968 (32,767)	265,357 (82,437)	86,500 (23,292)	45,676 (10,569)	629,126 (96,422)
Angler trips		4,797 (1,553)	12,824 (5,668)	14,966 (4,050)	28,666 (7,338)	53,872 (15,862)	21,104 (5,276)	11,729 (2,618)	147,958 (19,776)

Appendix 13. Estimated catch per hour, number caught, and effort (angler hours and trips) for Portage Lake, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month						Season total
		May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0229 (0.0175)	0 (0)	20 (57)	105 (172)	3,066 (3,234)	1,389 (843)	150 (325)	4,730 (3,363)
Chinook salmon	0.1493 (0.0846)	7,500 (5,627)	611 (897)	3,345 (2,660)	17,247 (13,649)	2,150 (1,567)	0 (0)	30,853 (15,109)
Rainbow trout	0.0164 (0.0147)	0 (0)	39 (114)	322 (463)	2,462 (2,794)	160 (216)	397 (353)	3,380 (2,864)
Atlantic salmon	0.0004 (0.0008)	0 (0)	0 (0)	0 (0)	0 (0)	76 (155)	0 (0)	76 (155)
Brown trout	0.0037 (0.0033)	98 (123)	7 (19)	247 (345)	174 (315)	245 (448)	0 (0)	771 (659)
Lake trout	0.0097 (0.0099)	1,275 (1,840)	50 (123)	237 (259)	439 (640)	0 (0)	0 (0)	2,001 (1,969)
Northern pike	0.0007 (0.0015)	0 (0)	0 (0)	0 (0)	0 (0)	140 (295)	0 (0)	140 (295)
Redhorse spp.	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	23 (47)	0 (0)	23 (47)
Brown bullhead	0.0001 (0.0002)	29 (61)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	29 (61)
Rock bass	0.0084 (0.0111)	0 (0)	0 (0)	903 (1,957)	0 (0)	824 (1,048)	0 (0)	1,727 (2,220)
Bluegill	0.0148 (0.0284)	2,947 (5,816)	19 (55)	0 (0)	0 (0)	97 (149)	0 (0)	3,063 (5,818)
Smallmouth bass	0.0015 (0.0030)	0 (0)	0 (0)	22 (53)	0 (0)	280 (590)	0 (0)	302 (592)
Largemouth bass	0.0020 (0.0043)	0 (0)	0 (0)	0 (0)	0 (0)	420 (885)	0 (0)	420 (885)
Yellow perch	0.0411 (0.0366)	29 (61)	23 (59)	5,064 (5,171)	2,174 (4,771)	1,200 (1,285)	0 (0)	8,490 (7,153)
Round whitefish	0.0003 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	56 (60)	56 (60)
Sunfish spp.	0.0035 (0.0050)	438 (908)	0 (0)	0 (0)	0 (0)	295 (477)	0 (0)	733 (1,026)
Other	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	45 (91)	0 (0)	45 (91)
Total	0.2751 (0.1192)	12,316 (8,350)	769 (918)	10,245 (6,171)	25,562 (15,094)	7,344 (2,769)	603 (484)	56,839 (18,557)
Angler hours		57,234 (26,342)	4,905 (5,988)	41,046 (29,174)	65,138 (41,971)	36,691 (10,905)	1,568 (437)	206,582 (58,835)
Angler trips		10,565 (4,963)	1,121 (1,341)	8,156 (5,198)	13,194 (8,168)	9,260 (2,488)	499 (147)	42,795 (11,242)

Appendix 14. Estimated catch per hour, number caught, and effort (angler hours and trips) for Frankfort-Elberta, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Pink salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	39 (79)	0 (0)	0 (0)	0 (0)	39 (79)
Coho salmon	0.0144 (0.0056)	0 (0)	10 (20)	141 (252)	274 (180)	2,026 (860)	1,879 (1,299)	370 (541)	0 (0)	4,700 (1,678)
Chinook salmon	0.0851 (0.0234)	150 (291)	724 (513)	2,341 (1,089)	7,619 (3,278)	15,235 (5,204)	1,293 (1,023)	220 (354)	176 (342)	27,758 (6,376)
Rainbow trout	0.0256 (0.0103)	21 (34)	84 (92)	25 (31)	380 (288)	818 (458)	581 (665)	6,222 (2,976)	211 (244)	8,342 (3,108)
Atlantic salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	25 (52)	0 (0)	0 (0)	0 (0)	25 (52)
Brown trout	0.0063 (0.0020)	105 (131)	327 (257)	313 (159)	513 (274)	702 (383)	10 (22)	17 (36)	66 (79)	2,053 (582)
Lake trout	0.0242 (0.0070)	0 (0)	1,658 (878)	2,275 (1,102)	2,148 (1,089)	1,803 (809)	0 (0)	0 (0)	0 (0)	7,884 (1,956)
Northern pike	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	34 (79)	0 (0)	0 (0)	0 (0)	34 (79)
Redhorse spp.	<0.0001 (<0.0000)	0 (0)	0 (0)	8 (17)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	8 (17)
Rock bass	0.0001 (0.0002)	0 (0)	0 (0)	22 (45)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	22 (45)
Bluegill	0.0008 (0.0016)	0 (0)	247 (515)	10 (19)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	257 (515)
Smallmouth bass	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	26 (41)	0 (0)	0 (0)	0 (0)	26 (41)
Yellow perch	0.0148 (0.0087)	0 (0)	0 (0)	500 (717)	2,800 (1,732)	1,539 (2,002)	0 (0)	0 (0)	0 (0)	4,839 (2,743)
Round whitefish	0.0162 (0.0108)	0 (0)	25 (50)	0 (0)	0 (0)	0 (0)	0 (0)	3,452 (3,028)	1,819 (1,610)	5,296 (3,430)

Appendix 14. Continued:

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Sunfish spp.	0.0028 (0.0058)	0 (0)	906 (1,887)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	906 (1,887)
Total	0.1907 (0.0398)	276 (321)	3,981 (2,222)	5,635 (1,734)	13,734 (3,889)	22,247 (5,732)	3,763 (1,782)	10,281 (4,295)	2,272 (1,666)	62,189 (8,968)
Angler hours		5,119 (4,692)	26,525 (9,992)	38,390 (11,634)	55,648 (20,648)	116,529 (36,047)	41,078 (17,481)	38,833 (10,809)	3,974 (1,933)	326,096 (49,082)
Angler trips		1,326 (1,368)	6,945 (2,388)	9,623 (2,514)	13,519 (4,222)	22,857 (6,681)	8,877 (3,231)	8,421 (2,419)	700 (319)	72,268 (9,631)

Appendix 15. Estimated catch per hour, number caught, and effort (angler hours and trips) for Platte Bay, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.1660 (0.0440)	4 (9)	0 (0)	0 (0)	36 (74)	996 (533)	13,472 (3,566)	146 (196)	14,654 (3,612)
Chinook salmon	0.0397 (0.0195)	14 (28)	10 (21)	43 (87)	221 (169)	807 (388)	2,396 (1,629)	16 (34)	3,507 (1,686)
Rainbow trout	0.0109 (0.0054)	43 (65)	5 (8)	0 (0)	69 (138)	0 (0)	398 (343)	446 (281)	961 (469)
Atlantic salmon	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (14)	0 (0)	7 (14)
Brown trout	0.0093 (0.0040)	138 (148)	121 (82)	0 (0)	355 (272)	166 (115)	44 (72)	0 (0)	824 (348)
Round whitefish	0.0017 (0.0022)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	146 (191)	146 (191)
Total	0.2276 (0.0508)	199 (164)	136 (85)	43 (87)	681 (356)	1,969 (669)	16,317 (3,936)	754 (394)	20,099 (4,033)
Angler hours		3,603 (1,015)	1,684 (445)	1,163 (268)	3,086 (662)	6,172 (1,940)	66,652 (7,960)	5,935 (2,243)	88,295 (8,596)
Angler trips		972 (331)	396 (120)	282 (87)	744 (220)	1,507 (480)	12,118 (1,580)	1,092 (445)	17,111 (1,762)



Appendix 16. Estimated catch per hour, number caught, and effort (angler hours and trips) for Leland, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month			Season total
		Jun	Jul	Aug	
Chinook salmon	0.2202 (0.2788)	292 (427)	2,310 (3,488)	9,307 (11,945)	11,909 (12,451)
Rainbow trout	0.0011 (0.0022)	0 (0)	0 (0)	62 (117)	62 (117)
Brown trout	0.0030 (0.0061)	0 (0)	70 (165)	93 (266)	163 (313)
Brook trout	<0.0001 (<0.0000)	0 (0)	2 (7)	0 (0)	2 (7)
Lake trout	0.0228 (0.0369)	488 (583)	0 (0)	747 (1,694)	1,235 (1,792)
Yellow perch	0.0026 (0.0032)	0 (0)	140 (140)	0 (0)	140 (140)
Total	0.2499 (0.2933)	780 (723)	2,522 (3,495)	10,209 (12,068)	13,511 (12,585)
Angler hours		3,523 (3,231)	15,966 (23,129)	34,586 (30,741)	54,075 (38,606)
Angler trips		795 (710)	3,067 (4,375)	6,104 (6,553)	9,966 (7,911)

Appendix 17. Estimated catch per hour, number caught, and effort (angler hours and trips) for West Grand Traverse Bay, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0005 (0.0014)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	150 (425)	0 (0)	150 (425)
Coho salmon	0.0136 (0.0083)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2,624 (1,614)	1,225 (1,666)	3,849 (2,320)
Chinook salmon	0.0288 (0.0120)	0 (0)	0 (0)	85 (124)	732 (640)	2,046 (2,046)	2,106 (1,643)	3,170 (1,958)	8,139 (3,338)
Rainbow trout	0.0037 (0.0033)	208 (356)	0 (0)	49 (100)	0 (0)	0 (0)	43 (55)	750 (859)	1,050 (937)
Brown trout	0.0018 (0.0025)	7 (14)	0 (0)	62 (125)	309 (641)	125 (265)	0 (0)	16 (33)	519 (706)
Brook trout	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (7)	3 (7)
Lake trout	0.0239 (0.0098)	0 (0)	1,207 (1,014)	1,107 (839)	3,949 (2,264)	151 (169)	25 (52)	330 (665)	6,769 (2,708)
Northern pike	0.0003 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	88 (89)	0 (0)	88 (89)
White sucker	0.0021 (0.0022)	596 (633)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	596 (633)
Redhorse spp.	0.0004 (0.0008)	105 (219)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	105 (219)
White bass	0.0007 (0.0015)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	187 (404)	0 (0)	187 (404)
Rock bass	0.0077 (0.0114)	0 (0)	24 (48)	0 (0)	0 (0)	1,513 (3,070)	213 (435)	437 (917)	2,187 (3,234)
Smallmouth bass	0.0232 (0.0328)	29 (61)	30 (60)	4,649 (8,886)	107 (170)	1,245 (2,622)	309 (444)	202 (423)	6,571 (9,287)
Yellow perch	0.2067 (0.0887)	214 (456)	789 (836)	904 (952)	376 (734)	3,794 (5,500)	26,732 (17,084)	25,644 (16,838)	58,453 (24,657)
Walleye	0.0001 (0.0002)	35 (73)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	35 (73)
Lake whitefish	0.1106 (0.0726)	0 (0)	546 (1,108)	5,851 (6,605)	24,273 (19,237)	522 (548)	0 (0)	76 (160)	31,268 (20,377)
Round whitefish	0.0118 (0.0065)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	533 (583)	2,799 (1,715)	3,332 (1,811)
Lake herring	0.0017 (0.0026)	0 (0)	0 (0)	0 (0)	0 (0)	306 (627)	187 (404)	0 (0)	493 (746)
Other	0.0007 (0.0008)	0 (0)	187 (215)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	187 (215)
<b>Total</b>	<b>0.4385 (0.1250)</b>	<b>1,194 (890)</b>	<b>2,783 (1,734)</b>	<b>12,707 (11,146)</b>	<b>29,746 (19,406)</b>	<b>9,702 (7,178)</b>	<b>33,197 (17,275)</b>	<b>34,652 (17,184)</b>	<b>123,981 (33,910)</b>
Angler hours		12,406 (1,831)	10,480 (2,804)	47,971 (9,423)	70,079 (11,042)	50,562 (9,984)	56,497 (9,469)	34,763 (10,086)	282,758 (22,650)
Angler trips		2,500 (580)	3,714 (916)	13,888 (4,011)	20,771 (4,928)	13,189 (3,124)	18,597 (3,764)	16,365 (2,187)	89,024 (8,382)

Appendix 18. Estimated catch per hour, number caught, and effort (angler hours and trips) for East Grand Traverse Bay (including Elk Rapids), by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	<0.0001 ( <0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (18)	6 (18)
Coho salmon	0.0027 (0.0017)	0 (0)	0 (0)	0 (0)	49 (102)	0 (0)	247 (210)	191 (205)	487 (311)
Chinook salmon	0.0214 (0.0073)	0 (0)	0 (0)	0 (0)	1,274 (709)	1,137 (807)	1,064 (615)	450 (437)	3,925 (1,313)
Rainbow trout	0.0058 (0.0036)	476 (594)	81 (87)	110 (148)	126 (150)	0 (0)	147 (0)	125 (176)	1,065 (660)
Brown trout	0.0035 (0.0029)	83 (172)	0 (0)	0 (0)	90 (187)	0 (0)	0 (0)	473 (458)	646 (524)
Lake trout	0.0196 (0.0115)	0 (0)	59 (122)	1,253 (1,438)	1,027 (734)	1,167 (1,322)	83 (125)	16 (17)	3,605 (2,094)
White sucker	0.0029 (0.0025)	0 (0)	525 (457)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	525 (457)
Redhorse spp.	0.0029 (0.0030)	4 (9)	526 (545)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	530 (545)
Channel catfish	0.0005 (0.0010)	0 (0)	0 (0)	0 (0)	84 (174)	0 (0)	0 (0)	0 (0)	84 (174)
Rock bass	0.0014 (0.0021)	0 (0)	0 (0)	225 (366)	0 (0)	0 (0)	26 (53)	0 (0)	251 (370)
Smallmouth bass	0.0085 (0.0083)	0 (0)	0 (0)	424 (318)	613 (1,247)	0 (0)	534 (841)	0 (0)	1,571 (1,537)
Yellow perch	0.1179 (0.0622)	1,557 (2,376)	1,942 (1,599)	6,946 (6,589)	2,612 (5,395)	1,891 (3,813)	6,683 (5,695)	30 (42)	21,661 (11,300)
Lake whitefish	0.3189 (0.0936)	0 (0)	131 (203)	12,344 (5,270)	21,272 (12,832)	9,575 (6,185)	6,278 (3,878)	8,998 (5,437)	58,598 (16,593)
Round whitefish	0.0069 (0.0080)	0 (0)	312 (357)	616 (1,248)	0 (0)	337 (684)	10 (21)	0 (0)	1,275 (1,467)
Other	0.0004 (0.0007)	0 (0)	73 (133)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	73 (133)
Total	0.5132 (0.1178)	2,120 (2,455)	3,649 (1,809)	21,918 (8,664)	27,147 (14,016)	14,107 (7,461)	15,072 (6,973)	10,289 (5,481)	94,302 (20,375)
Angler hours		8,546 (2,018)	14,651 (3,351)	21,036 (3,914)	54,175 (9,614)	35,601 (6,136)	30,674 (5,261)	19,064 (3,754)	183,747 (14,229)
Angler trips		2,591 (682)	3,533 (837)	5,903 (1,012)	12,428 (2,385)	8,602 (1,360)	5,956 (1,163)	9,494 (2,721)	48,507 (4,299)

Appendix 19. Estimated catch per hour, number caught, and effort (angler hours and trips) for Charlevoix, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0034 (0.0053)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	533 (818)	0 (0)	0 (0)	533 (818)
Chinook salmon	0.0664 (0.0297)	0 (0)	0 (0)	0 (0)	2,904 (2,252)	5,563 (2,360)	1,784 (2,305)	124 (192)	0 (0)	10,375 (3,999)
Rainbow trout	0.0049 (0.0068)	0 (0)	0 (0)	0 (0)	13 (27)	46 (95)	641 (1,033)	14 (29)	54 (152)	768 (1,049)
Brown trout	0.0009 (0.0013)	0 (0)	68 (162)	0 (0)	0 (0)	46 (95)	32 (71)	0 (0)	0 (0)	146 (201)
Brook trout	0.0004 (0.0008)	0 (0)	0 (0)	0 (0)	0 (0)	61 (123)	0 (0)	0 (0)	0 (0)	61 (123)
Lake trout	0.0974 (0.0605)	0 (0)	1,327 (1,582)	2,086 (1,550)	7,859 (8,190)	3,944 (2,338)	0 (0)	0 (0)	0 (0)	15,216 (8,800)
Yellow perch	0.4160 (0.2185)	0 (0)	0 (0)	0 (0)	1,413 (2,191)	0 (0)	0 (0)	45,548 (28,298)	17,998 (11,907)	64,959 (30,779)
Total	0.5895 (0.2461)	0 (0)	1,395 (1,590)	2,086 (1,550)	12,189 (8,772)	9,660 (3,327)	2,990 (2,656)	45,686 (28,299)	18,052 (11,908)	92,058 (32,290)
Angler hours		603 (391)	3,454 (1,512)	12,354 (6,253)	63,717 (31,114)	53,570 (14,907)	15,214 (4,003)	6,256 (1,323)	988 (478)	156,156 (35,353)
Angler trips		492 (386)	1,436 (712)	4,376 (1,940)	37,633 (26,832)	13,479 (3,693)	7,725 (3,036)	2,617 (717)	478 (261)	68,236 (27,346)

Appendix 20. Estimated catch per hour, number caught, and effort (angler hours and trips) for Petoskey, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0012 (0.0017)	0 (0)	0 (0)	66 (134)	0 (0)	51 (94)	0 (0)	0 (0)	0 (0)	117 (164)
Chinook salmon	0.0290 (0.0147)	0 (0)	0 (0)	135 (192)	798 (550)	673 (416)	539 (496)	669 (1,082)	0 (0)	2,814 (1,389)
Rainbow trout	0.0303 (0.0228)	0 (0)	37 (79)	0 (0)	33 (72)	583 (1,195)	1,258 (1,689)	789 (667)	233 (93)	2,933 (2,178)
Brown trout	0.0036 (0.0035)	149 (249)	96 (146)	100 (161)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	345 (331)
Lake trout	0.1171 (0.0335)	0 (0)	3,294 (2,000)	5,663 (2,001)	1,692 (846)	656 (448)	0 (0)	46 (93)	0 (0)	11,351 (2,988)
Smallmouth bass	0.0006 (0.0009)	0 (0)	25 (53)	0 (0)	35 (71)	0 (0)	0 (0)	0 (0)	0 (0)	60 (89)
Yellow perch	0.1202 (0.0967)	0 (0)	0 (0)	495 (331)	2,041 (3,149)	3,803 (2,534)	5,316 (8,351)	0 (0)	0 (0)	11,655 (9,284)
Burbot	0.0004 (0.0009)	0 (0)	42 (90)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	42 (90)
Total	0.3024 (0.1096)	149 (249)	3,494 (2,010)	6,459 (2,048)	4,599 (3,308)	5,766 (2,869)	7,113 (8,535)	1,504 (1,274)	233 (93)	29,317 (10,097)
Angler hours		2,032 (722)	14,379 (7,230)	25,852 (4,637)	22,756 (5,020)	12,023 (3,164)	11,179 (2,299)	7,531 (2,108)	1,193 (626)	96,945 (10,937)
Angler trips		842 (820)	4,273 (2,138)	7,365 (1,375)	5,771 (1,276)	4,253 (1,366)	4,300 (1,090)	2,748 (909)	503 (418)	30,055 (3,580)

Appendix 21. Estimated catch per hour, number caught, and effort (angler hours and trips) for Harbor Springs, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total	
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		
Coho salmon	0.0010 (0.0021)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	34 (70)	0 (0)	34 (70)
Chinook salmon	0.0040 (0.0051)	0 (0)	0 (0)	0 (0)	0 (0)	50 (112)	93 (140)	0 (0)	0 (0)	0 (0)	143 (179)
Rainbow trout	0.0101 (0.0180)	43 (70)	0 (0)	0 (0)	0 (0)	0 (0)	10 (21)	309 (637)	0 (0)	0 (0)	362 (641)
Brown trout	0.0283 (0.0282)	884 (974)	0 (0)	0 (0)	0 (0)	0 (0)	66 (125)	0 (0)	60 (127)	1,010 (990)	
Rainbow smelt	0.0002 (0.0005)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (14)	6 (14)	
Smallmouth bass	0.0034 (0.0067)	0 (0)	0 (0)	0 (0)	110 (239)	0 (0)	13 (28)	0 (0)	0 (0)	0 (0)	123 (241)
Yellow perch	0.1138 (0.1310)	0 (0)	407 (863)	0 (0)	0 (0)	98 (218)	3,160 (4,423)	0 (0)	397 (982)	4,062 (4,617)	
Round whitefish	0.0022 (0.0046)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	77 (159)	0 (0)	77 (159)	
Burbot	0.0010 (0.0021)	0 (0)	34 (71)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	34 (71)	
Total	0.1639 (0.1371)	927 (977)	441 (866)	0 (0)	110 (239)	148 (245)	3,342 (4,427)	420 (660)	463 (990)	5,851 (4,779)	
Angler hours		2,340 (1,229)	2,448 (830)	2,790 (1,365)	8,422 (4,272)	6,576 (3,881)	7,016 (1,609)	5,669 (1,309)	438 (334)	35,699 (6,464)	
Angler trips		708 (412)	707 (269)	1,012 (577)	2,920 (1,824)	1,816 (1,100)	1,917 (480)	1,758 (464)	146 (113)	10,984 (2,360)	

Appendix 22. Estimated catch per hour, number caught, and effort (angler hours and trips) for Manistique-Thompson, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0744 (0.0578)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	879 (667)	0 (0)	879 (667)
Chinook salmon	0.0278 (0.0174)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	159 (128)	170 (152)	329 (199)
Rainbow trout	0.0096 (0.0067)	89 (73)	24 (24)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	113 (77)
Brown trout	0.0141 (0.0129)	54 (89)	2 (4)	0 (0)	0 (0)	0 (0)	111 (121)	0 (0)	167 (150)
Redhorse spp.	0.0048 (0.0097)	57 (115)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	57 (115)
Walleye	0.0028 (0.0056)	33 (66)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	33 (66)
Total	0.1335 (0.0656)	233 (176)	26 (24)	0 (0)	0 (0)	0 (0)	1,149 (690)	170 (152)	1,578 (729)
Angler hours		1,756 (435)	370 (320)	0 (0)	0 (0)	0 (0)	7,434 (1,378)	2,257 (1,308)	11,817 (1,975)
Angler trips		460 (132)	96 (83)	0 (0)	0 (0)	0 (0)	2,104 (385)	733 (426)	3,393 (595)

Appendix 23. Estimated catch per hour, number caught, and effort (angler hours and trips) for Big Bay de Noc, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month		Season total
		Apr	May	
Rainbow smelt	0.0007 (0.0015)	16 (34)	0 (0)	16 (34)
Brown bullhead	0.0024 (0.0041)	59 (98)	0 (0)	59 (98)
Yellow perch	6.2960 (2.7215)	139,639 (43,696)	13,397 (17,288)	153,036 (46,992)
Total	6.2990 (2.7221)	139,714 (43,696)	13,397 (17,288)	153,111 (46,992)
Angler hours		20,071 (5,631)	4,236 (4,794)	24,307 (7,395)
Angler trips		4,802 (1,345)	1,295 (1,394)	6,097 (1,937)



Appendix 24. Estimated catch per hour, number caught, and effort (angler hours and trips) for Little Bay de Noc, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0006 (0.0005)	0 (0)	0 (0)	25 (40)	0 (0)	0 (0)	55 (62)	5 (11)	85 (75)
Brown trout	0.0001 (0.0002)	0 (0)	0 (0)	16 (35)	0 (0)	0 (0)	0 (0)	0 (0)	16 (35)
Northern pike	0.0112 (0.0060)	0 (0)	37 (72)	722 (590)	240 (267)	174 (254)	319 (308)	0 (0)	1,492 (764)
Channel catfish	0.0001 (0.0002)	0 (0)	17 (36)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	17 (36)
Rock bass	0.0111 (0.0083)	16 (35)	852 (960)	360 (417)	148 (258)	63 (97)	43 (64)	0 (0)	1,482 (1,085)
Smallmouth bass	0.0147 (0.0227)	0 (0)	258 (273)	14 (30)	88 (179)	141 (288)	1,471 (3,002)	0 (0)	1,972 (3,034)
Largemouth bass	0.0002 (0.0004)	0 (0)	0 (0)	0 (0)	21 (42)	0 (0)	0 (0)	0 (0)	21 (42)
Yellow perch	0.4830 (0.2167)	12,712 (8,454)	9,396 (5,462)	10,303 (14,304)	15,351 (18,179)	6,623 (5,508)	9,729 (8,616)	495 (726)	64,609 (27,230)
Walleye	0.1022 (0.0413)	0 (0)	6,750 (4,584)	1,886 (1,034)	3,163 (1,807)	1,475 (802)	273 (215)	126 (146)	13,673 (5,105)
Crappie spp.	0.0058 (0.0074)	8 (17)	474 (866)	0 (0)	63 (63)	199 (446)	26 (42)	0 (0)	770 (977)
Sunfish spp.	0.0609 (0.0579)	67 (130)	5,563 (6,907)	1,517 (3,105)	383 (495)	477 (900)	145 (305)	0 (0)	8,152 (7,649)
Bullhead spp.	0.0061 (0.0081)	0 (0)	413 (586)	0 (0)	0 (0)	399 (892)	0 (0)	0 (0)	812 (1,067)
Other	0.0004 (0.0009)	0 (0)	0 (0)	53 (113)	0 (0)	0 (0)	0 (0)	0 (0)	53 (113)
Total	0.6964 (0.2416)	12,803 (8,455)	23,760 (10,032)	14,896 (14,692)	19,457 (18,280)	9,551 (5,740)	12,061 (9,137)	626 (741)	93,154 (28,968)
Angler hours		6,727 (3,022)	32,975 (14,370)	35,673 (10,224)	18,887 (5,150)	23,633 (7,527)	13,674 (4,342)	2,204 (878)	133,773 (20,566)
Angler trips		1,885 (820)	11,136 (4,169)	11,171 (3,109)	5,160 (1,416)	6,567 (1,957)	3,839 (1,301)	623 (241)	40,381 (5,942)

Appendix 25. Estimated catch per hour, number caught, and effort (angler hours and trips) for Ford River, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month						Season total
		Apr	May	Jun	Jul	Aug	Sep	
Chinook salmon	0.0150 (0.0113)	0 (0)	0 (0)	0 (0)	173 (220)	193 (152)	0 (0)	366 (267)
Brown trout	0.0045 (0.0066)	70 (123)	39 (100)	0 (0)	0 (0)	0 (0)	0 (0)	109 (159)
Smallmouth bass	0.0610 (0.0373)	0 (0)	899 (776)	484 (353)	54 (58)	50 (108)	0 (0)	1,487 (861)
Yellow perch	0.0208 (0.0430)	0 (0)	0 (0)	40 (85)	468 (1,043)	0 (0)	0 (0)	508 (1,046)
Sunfish spp.	0.0128 (0.0286)	0 (0)	0 (0)	0 (0)	312 (695)	0 (0)	0 (0)	312 (695)
Total	0.1141 (0.0676)	70 (123)	938 (782)	524 (363)	1,007 (1,274)	243 (186)	0 (0)	2,782 (1,554)
Angler hours		724 (586)	4,617 (2,373)	7,912 (2,862)	4,555 (1,975)	4,050 (1,902)	2,526 (1,288)	24,384 (4,831)
Angler trips		225 (185)	1,406 (727)	2,135 (834)	960 (414)	1,117 (444)	624 (372)	6,467 (1,329)

Appendix 26. Estimated catch per hour, number caught, and effort (angler hours and trips) for Cedar River, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Chinook salmon	0.0033 (0.0036)	0 (0)	0 (0)	0 (0)	68 (95)	10 (21)	18 (37)	0 (0)	96 (104)
Brown trout	0.0143 (0.0096)	342 (257)	23 (23)	3 (3)	48 (62)	0 (0)	0 (0)	0 (0)	416 (265)
Brook trout	0.0005 (0.0011)	14 (32)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	14 (32)
Splake	0.0001 ( $<0.0001$ )	0 (0)	3 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (0)
Northern pike	0.0177 (0.0165)	0 (0)	21 (32)	50 (102)	262 (281)	180 (355)	0 (0)	0 (0)	513 (465)
Redhorse spp.	0.0002 (0.0004)	0 (0)	0 (0)	5 (10)	0 (0)	0 (0)	0 (0)	0 (0)	5 (10)
Brown bullhead	0.0002 (0.0004)	0 (0)	0 (0)	6 (13)	0 (0)	0 (0)	0 (0)	0 (0)	6 (13)
Rock bass	0.0160 (0.0153)	0 (0)	165 (309)	121 (140)	178 (269)	0 (0)	0 (0)	0 (0)	464 (433)
Smallmouth bass	0.0343 (0.0192)	0 (0)	53 (52)	521 (381)	303 (276)	93 (195)	25 (52)	0 (0)	995 (515)
Black crappie	0.0001 (0.0002)	0 (0)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	0 (0)	3 (6)
Yellow perch	0.2351 (0.1202)	0 (0)	1,505 (1,552)	560 (406)	4,119 (2,653)	643 (667)	0 (0)	0 (0)	6,827 (3,171)
Total	0.3217 (0.1324)	356 (259)	1,770 (1,584)	1,269 (583)	4,978 (2,698)	926 (781)	43 (64)	0 (0)	9,342 (3,288)
Angler hours		5,100 (3,593)	3,296 (1,610)	4,558 (1,660)	9,659 (3,810)	4,395 (2,070)	1,596 (764)	435 (870)	29,039 (6,197)
Angler trips		1,348 (967)	890 (467)	1,439 (554)	2,812 (1,142)	1,601 (916)	361 (187)	93 (187)	8,544 (1,917)

Appendix 27. Estimated catch per hour, number caught, and effort (angler hours and trips) for Menominee, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0007 (0.0008)	0 (0)	0 (0)	0 (0)	16 (25)	2 (3)	7 (12)	0 (0)	25 (28)
Chinook salmon	0.0189 (0.0089)	3 (5)	0 (0)	3 (7)	148 (121)	416 (280)	127 (82)	0 (0)	697 (316)
Rainbow trout	0.0016 (0.0013)	15 (22)	0 (0)	0 (0)	3 (6)	29 (37)	13 (23)	0 (0)	60 (49)
Brown trout	0.0703 (0.0226)	416 (202)	48 (96)	470 (297)	1,053 (578)	570 (335)	37 (39)	0 (0)	2,594 (766)
Brook trout	0.0007 (0.0010)	9 (13)	0 (0)	0 (0)	0 (0)	16 (32)	0 (0)	0 (0)	25 (35)
Lake trout	0.0002 (0.0003)	0 (0)	2 (5)	4 (9)	0 (0)	0 (0)	0 (0)	0 (0)	6 (10)
Splake	0.0021 (0.0017)	61 (56)	13 (27)	0 (0)	3 (6)	0 (0)	0 (0)	0 (0)	77 (62)
Northern pike	0.0004 (0.0008)	0 (0)	0 (0)	0 (0)	0 (0)	13 (27)	0 (0)	0 (0)	13 (27)
White sucker	0.0007 (0.0015)	0 (0)	27 (57)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	27 (57)
Channel catfish	0.0001 (0.0002)	0 (0)	4 (7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (7)
White bass	0.0039 (0.0081)	0 (0)	0 (0)	0 (0)	145 (299)	0 (0)	0 (0)	0 (0)	145 (299)
Rock bass	0.0176 (0.0237)	0 (0)	464 (842)	129 (203)	55 (81)	0 (0)	0 (0)	0 (0)	648 (870)
Smallmouth bass	0.0053 (0.0079)	0 (0)	156 (285)	19 (24)	20 (36)	0 (0)	0 (0)	0 (0)	195 (288)
Black crappie	0.0039 (0.0059)	0 (0)	0 (0)	133 (216)	0 (0)	10 (21)	0 (0)	0 (0)	143 (217)
Yellow perch	0.2086 (0.0873)	535 (680)	4,288 (2,652)	2,134 (1,302)	600 (439)	136 (240)	7 (14)	0 (0)	7,700 (3,073)
Walleye	0.0047 (0.0045)	0 (0)	68 (115)	0 (0)	103 (118)	4 (9)	0 (0)	0 (0)	175 (165)
Burbot	0.0003 (0.0006)	12 (25)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (25)
Sauger	0.0001 (0.0002)	0 (0)	0 (0)	0 (0)	2 (3)	0 (0)	0 (0)	0 (0)	2 (3)
<b>Total</b>	<b>0.3399 (0.1000)</b>	<b>1,051 (712)</b>	<b>5,070 (2,802)</b>	<b>2,892 (1,368)</b>	<b>2,148 (808)</b>	<b>1,196 (502)</b>	<b>191 (95)</b>	<b>0 (0)</b>	<b>12,548 (3,338)</b>
<b>Angler hours</b>		<b>5,028 (1,585)</b>	<b>5,065 (1,442)</b>	<b>6,345 (2,022)</b>	<b>9,389 (3,046)</b>	<b>6,844 (1,734)</b>	<b>3,435 (741)</b>	<b>813 (275)</b>	<b>36,919 (4,646)</b>
<b>Angler trips</b>		<b>1,525 (516)</b>	<b>2,025 (637)</b>	<b>2,508 (757)</b>	<b>2,929 (778)</b>	<b>2,278 (562)</b>	<b>1,193 (277)</b>	<b>299 (110)</b>	<b>12,757 (1,502)</b>

**SECTION II.**

**River Catch and Effort Estimates by Site**

Appendix 28. Estimated catch per hour, number caught, and effort (angler hours and trips) for the St. Joseph River (Buchanan to the Berrien Springs Dam), by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Coho salmon	0.0014 (0.0022)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	23 (34)	22 (47)	45 (58)
Chinook salmon	0.0127 (0.0152)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	16 (27)	380 (320)	396 (321)
Redhorse spp.	0.0080 (0.0111)	28 (34)	43 (66)	0 (0)	135 (249)	15 (32)	29 (58)	0 (0)	250 (268)
Channel catfish	0.0101 (0.0153)	23 (30)	0 (0)	0 (0)	58 (123)	10 (21)	222 (362)	0 (0)	313 (384)
Rock bass	0.0040 (0.0074)	7 (14)	0 (0)	0 (0)	0 (0)	17 (20)	99 (200)	0 (0)	123 (201)
Bluegill	0.0060 (0.0085)	0 (0)	78 (158)	108 (133)	0 (0)	1 (1)	0 (0)	0 (0)	187 (207)
Smallmouth bass	0.0282 (0.0457)	1 (3)	288 (384)	56 (125)	409 (1,116)	22 (29)	101 (128)	0 (0)	877 (1,194)
Black crappie	0.0017 (0.0036)	0 (0)	0 (0)	0 (0)	0 (0)	5 (12)	0 (0)	49 (103)	54 (104)
Walleye	0.0037 (0.0058)	0 (0)	0 (0)	0 (0)	33 (89)	0 (0)	58 (117)	25 (39)	116 (152)
Other	0.0115 (0.0162)	115 (189)	156 (315)	28 (63)	58 (123)	0 (0)	0 (0)	0 (0)	357 (392)
<b>Total</b>	<b>0.0874 (0.0896)</b>	<b>174 (195)</b>	<b>565 (525)</b>	<b>192 (193)</b>	<b>693 (1,160)</b>	<b>70 (53)</b>	<b>548 (454)</b>	<b>476 (342)</b>	<b>2,718 (1,422)</b>
<b>Angler hours</b>		<b>768 (266)</b>	<b>2,393 (942)</b>	<b>1,740 (640)</b>	<b>15,471 (27,328)</b>	<b>1,668 (522)</b>	<b>3,239 (776)</b>	<b>5,818 (1,374)</b>	<b>31,097 (27,403)</b>
<b>Angler trips</b>		<b>302 (131)</b>	<b>1,107 (507)</b>	<b>870 (439)</b>	<b>2,146 (3,134)</b>	<b>350 (135)</b>	<b>832 (252)</b>	<b>2,075 (629)</b>	<b>7,682 (3,281)</b>

Appendix 29. Estimated catch per hour, number caught, and effort (angler hours and trips) for the St. Joseph River (Berrien Springs Dam to 7 miles downstream), by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0012 (0.0011)	14 (22)	103 (171)	79 (103)	0 (0)	0 (0)	17 (29)	0 (0)	0 (0)	213 (203)
Chinook salmon	0.0240 (0.0101)	49 (60)	238 (319)	37 (54)	2 (3)	57 (38)	1,024 (304)	2,736 (1,663)	0 (0)	4,143 (1,723)
Rainbow trout	0.0146 (0.0076)	69 (79)	46 (57)	48 (54)	0 (0)	0 (0)	10 (11)	1,493 (1,229)	847 (398)	2,513 (1,297)
Brown trout	0.0083 (0.0050)	70 (50)	92 (110)	30 (26)	2 (4)	12 (13)	384 (200)	766 (814)	68 (89)	1,424 (852)
Lake trout	0.0007 (0.0011)	0 (0)	90 (187)	15 (33)	2 (4)	0 (0)	3 (6)	11 (15)	0 (0)	121 (191)
White sucker	0.0038 (0.0019)	646 (322)	1 (3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	647 (322)
Redhorse spp.	0.0127 (0.0044)	1,540 (619)	408 (381)	156 (106)	30 (23)	17 (20)	30 (60)	0 (0)	0 (0)	2,181 (738)
Brown bullhead	0.0001 (0.0001)	7 (14)	0 (0)	4 (7)	10 (21)	1 (2)	0 (0)	0 (0)	0 (0)	22 (26)
Channel catfish	0.0378 (0.0296)	73 (59)	4,896 (5,050)	1,040 (362)	162 (98)	40 (30)	308 (480)	0 (0)	0 (0)	6,519 (5,087)
Rock bass	0.0068 (0.0094)	176 (163)	909 (1,589)	77 (54)	1 (3)	0 (0)	0 (0)	0 (0)	0 (0)	1,163 (1,598)
Bluegill	0.0230 (0.0056)	191 (178)	1,229 (559)	1,095 (488)	480 (287)	701 (364)	274 (269)	0 (0)	0 (0)	3,970 (932)
Smallmouth bass	0.0032 (0.0015)	1 (2)	137 (99)	237 (204)	83 (63)	37 (47)	48 (67)	0 (0)	14 (20)	557 (250)
Largemouth bass	0.0001 (0.0001)	0 (0)	2 (4)	2 (3)	9 (11)	0 (0)	0 (0)	0 (0)	0 (0)	13 (12)
Black crappie	0.0432 (0.0334)	1,859 (2,309)	4,653 (5,236)	601 (276)	174 (222)	86 (74)	67 (119)	0 (0)	0 (0)	7,440 (5,735)
Yellow perch	<0.0001 (<0.0000)	6 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (11)
Walleye	0.0043 (0.0022)	2 (5)	261 (301)	61 (36)	45 (41)	87 (105)	134 (126)	128 (160)	22 (30)	740 (383)
Freshwater drum	0.0088 (0.0090)	0 (0)	1,131 (1,539)	128 (87)	55 (40)	85 (69)	117 (187)	0 (0)	0 (0)	1,516 (1,555)
Sunfish spp.	0.0493 (0.0830)	88 (118)	8,103 (14,305)	259 (173)	51 (52)	0 (0)	0 (0)	0 (0)	0 (0)	8,501 (14,307)
Quillback	0.0001 (0.0001)	0 (0)	11 (15)	3 (4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	14 (16)
Gar spp.	<0.0001 (<0.0000)	0 (0)	4 (6)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (6)
Other	0.0060 (0.0024)	256 (161)	390 (344)	214 (103)	135 (121)	27 (27)	11 (18)	0 (0)	0 (0)	1,033 (413)

## Appendix 29. Continued:

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Total	0.2481 (0.0980)	5,047 (2,436)	22,704 (16,227)	4,087 (754)	1,241 (409)	1,150 (400)	2,427 (714)	5,134 (2,228)	951 (409)	42,741 (16,607)
Angler hours		9,381 (1,408)	38,741 (9,846)	11,799 (2,109)	6,349 (1,022)	8,254 (1,351)	40,069 (3,270)	49,521 (5,771)	8,165 (1,629)	172,279 (12,365)
Angler trips		2,805 (449)	7,087 (1,967)	2,774 (890)	1,701 (322)	2,274 (420)	8,123 (745)	9,221 (1,133)	1,987 (410)	35,972 (2,674)



Appendix 30. Estimated catch per hour, number caught, and effort (angler hours and trips) for Kalamazoo River near Allegan Dam, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0317 (0.0093)	90 (65)	0 (0)	0 (0)	0 (0)	0 (0)	9 (8)	673 (225)	92 (59)	864 (242)
Chinook salmon	0.0669 (0.0169)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	292 (126)	1,517 (417)	14 (15)	1,823 (436)
Rainbow trout	0.0317 (0.0093)	90 (65)	0 (0)	0 (0)	0 (0)	0 (0)	9 (8)	673 (225)	92 (59)	864 (242)
Brown trout	0.0207 (0.0073)	15 (19)	41 (62)	0 (0)	0 (0)	0 (0)	97 (50)	383 (173)	28 (26)	564 (193)
Lake trout	0.0024 (0.0039)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	63 (108)	3 (6)	66 (108)
White sucker	0.0002 (0.0004)	6 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (11)
Brown bullhead	0.0001 (0.0002)	4 (7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (7)
Channel catfish	0.0028 (0.0028)	71 (77)	6 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	77 (78)
Rock bass	0.0024 (0.0038)	48 (56)	17 (85)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	65 (102)
Bluegill	0.0146 (0.0096)	320 (245)	77 (83)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	397 (259)
Smallmouth bass	0.0003 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (3)	7 (10)	0 (0)	9 (10)
Black crappie	0.0122 (0.0106)	324 (288)	9 (18)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	333 (289)
Walleye	0.0021 (0.0019)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	23 (27)	34 (43)	0 (0)	57 (51)
Other	0.0062 (0.0066)	112 (173)	0 (0)	0 (0)	0 (0)	0 (0)	20 (14)	12 (16)	24 (36)	168 (178)
Total	0.1944 (0.0318)	1,080 (437)	150 (136)	0 (0)	0 (0)	0 (0)	452 (139)	3,362 (565)	253 (96)	5,297 (746)
Angler hours		4,316 (988)	1,002 (283)	0 (0)	0 (0)	0 (0)	4,648 (907)	15,699 (1,744)	1,580 (402)	27,245 (2,254)
Angler trips		1,186 (287)	194 (64)	0 (0)	0 (0)	0 (0)	895 (175)	3,542 (436)	406 (115)	6,223 (566)

Appendix 31. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Muskegon River (Croton Dam to Old Womans Bend), by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Pink salmon	<0.0001 (<0.0000)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (14)	0 (0)	7 (14)
Chinook salmon	0.0862 (0.0178)	7 (13)	0 (0)	0 (0)	0 (0)	24 (36)	2,758 (885)	14,674 (3,350)	36 (41)	17,499 (3,465)
Rainbow trout	0.0436 (0.0122)	4,824 (1,218)	341 (204)	0 (0)	0 (0)	17 (35)	521 (615)	2,737 (1,973)	403 (245)	8,843 (2,420)
Brown trout	0.0021 (0.0018)	102 (153)	83 (81)	0 (0)	0 (0)	0 (0)	22 (31)	167 (296)	44 (65)	418 (350)
Northern pike	0.0003 (0.0004)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	29 (59)	0 (0)	29 (59)	58 (83)
White sucker	0.0003 (0.0004)	52 (66)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	52 (66)
Yellow perch	0.0060 (0.0045)	224 (320)	0 (0)	0 (0)	0 (0)	26 (39)	14 (27)	0 (0)	961 (857)	1,225 (916)
Sunfish spp.	0.0002 (0.0003)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	47 (67)	47 (67)
Total	0.1387 (0.0230)	5,209 (1,270)	424 (219)	0 (0)	0 (0)	67 (64)	3,344 (1,080)	17,585 (3,899)	1,520 (899)	28,149 (4,341)
Angler hours		44,660 (4,181)	3,458 (962)	0 (0)	0 (0)	1,654 (644)	38,738 (4,395)	109,828 (10,547)	4,628 (1,091)	202,966 (12,271)
Angler trips		7,755 (823)	698 (205)	0 (0)	0 (0)	585 (307)	8,817 (1,132)	20,572 (2,111)	1,127 (303)	39,554 (2,577)

Appendix 32. Estimated catch per hour, number caught, and effort (angler hours and trips) for Pentwater Lake and river, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Chinook salmon	0.0013 (0.0015)	13 (15)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	13 (15)
Brown trout	0.0027 (0.0044)	27 (44)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	27 (44)
Yellow perch	0.0664 (0.0815)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	208 (466)	459 (661)	0 (0)	667 (809)
Sunfish spp.	0.1810 (0.3270)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,464 (3,187)	355 (722)	0 (0)	1,819 (3,268)
Total	0.2513 (0.3383)	40 (46)	0 (0)	0 (0)	0 (0)	0 (0)	1,672 (3,221)	814 (979)	0 (0)	2,526 (3,367)
Angler hours		1,458 (445)	3,571 (1,352)	0 (0)	0 (0)	0 (0)	1,596 (1,057)	2,710 (648)	716 (265)	10,051 (1,906)
Angler trips		561 (222)	1,192 (545)	0 (0)	0 (0)	0 (0)	468 (371)	775 (479)	208 (183)	3,204 (864)

Appendix 33. Estimated catch per hour, number caught, and effort (angler hours and trips) for Manistee Lake, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0155 (0.0110)	0 (0)	0 (0)	0 (0)	0 (0)	555 (441)	2,426 (2,040)	0 (0)	0 (0)	2,981 (2,087)
Chinook salmon	0.1882 (0.0567)	0 (0)	0 (0)	3 (6)	0 (0)	5,222 (1,952)	16,196 (8,902)	14,680 (4,380)	0 (0)	36,101 (10,111)
Rainbow trout	0.0154 (0.0136)	0 (0)	35 (41)	70 (85)	20 (40)	350 (318)	2,434 (2,556)	0 (0)	44 (47)	2,953 (2,578)
Atlantic salmon	0.0009 (0.0018)	0 (0)	0 (0)	0 (0)	0 (0)	176 (358)	0 (0)	0 (0)	0 (0)	176 (358)
Brown trout	0.0029 (0.0032)	0 (0)	31 (37)	278 (542)	0 (0)	155 (183)	95 (192)	0 (0)	0 (0)	559 (605)
Brook trout	0.0001 (0.0002)	0 (0)	0 (0)	19 (40)	0 (0)	9 (18)	0 (0)	0 (0)	0 (0)	28 (44)
Northern pike	0.0006 (0.0010)	0 (0)	0 (0)	18 (36)	95 (191)	0 (0)	0 (0)	0 (0)	0 (0)	113 (194)
Channel catfish	0.0010 (0.0016)	0 (0)	0 (0)	0 (0)	190 (303)	0 (0)	0 (0)	0 (0)	0 (0)	190 (303)
Rock bass	0.0152 (0.0100)	0 (0)	312 (331)	325 (269)	2,247 (1,839)	28 (62)	0 (0)	0 (0)	0 (0)	2,912 (1,889)
Bluegill	0.0038 (0.0042)	0 (0)	104 (210)	35 (54)	467 (774)	131 (125)	0 (0)	0 (0)	0 (0)	737 (813)
Smallmouth bass	0.0023 (0.0040)	0 (0)	0 (0)	67 (110)	378 (763)	0 (0)	0 (0)	0 (0)	0 (0)	445 (771)
Largemouth bass	0.0011 (0.0022)	0 (0)	208 (421)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	208 (421)
Black crappie	0.0046 (0.0067)	543 (1,139)	0 (0)	0 (0)	343 (588)	0 (0)	0 (0)	0 (0)	0 (0)	886 (1,282)
Yellow perch	0.0133 (0.0092)	0 (0)	640 (684)	192 (208)	1,426 (1,549)	284 (363)	0 (0)	0 (0)	0 (0)	2,542 (1,744)
Walleye	0.0012 (0.0016)	0 (0)	139 (280)	95 (153)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	234 (319)
Bowfin	0.0003 (0.0006)	0 (0)	0 (0)	0 (0)	52 (106)	0 (0)	0 (0)	0 (0)	0 (0)	52 (106)
<b>Total</b>	<b>0.2665</b> (0.0651)	<b>543</b> (1,139)	<b>1,469</b> (938)	<b>1,102</b> (677)	<b>5,218</b> (2,729)	<b>6,910</b> (2,102)	<b>21,151</b> (9,486)	<b>14,680</b> (4,380)	<b>44</b> (47)	<b>51,117</b> (11,121)
<b>Angler hours</b>		<b>855</b> (432)	<b>8,078</b> (1,445)	<b>10,150</b> (4,281)	<b>15,753</b> (3,079)	<b>29,938</b> (7,918)	<b>104,265</b> (18,258)	<b>22,010</b> (5,481)	<b>773</b> (262)	<b>191,822</b> (21,360)
<b>Angler trips</b>		<b>185</b> (122)	<b>1,622</b> (445)	<b>2,155</b> (876)	<b>3,118</b> (720)	<b>5,096</b> (1,405)	<b>20,211</b> (4,888)	<b>4,441</b> (1,471)	<b>163</b> (68)	<b>36,991</b> (5,434)

Appendix 34. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Manistee River (Tippy Dam to Bear Creek), by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0084 (0.0078)	0 (0)	0 (0)	0 (0)	0 (0)	343 (621)	1,054 (1,241)	150 (306)	0 (0)	1,547 (1,421)
Chinook salmon	0.0938 (0.0345)	0 (0)	93 (189)	0 (0)	0 (0)	0 (0)	10,536 (4,657)	6,687 (3,605)	55 (65)	17,371 (5,893)
Rainbow trout	0.0530 (0.0268)	1,120 (449)	188 (352)	53 (82)	0 (0)	0 (0)	120 (193)	6,186 (4,631)	2,147 (888)	9,814 (4,754)
Brown trout	0.0009 (0.0011)	14 (28)	0 (0)	69 (143)	0 (0)	0 (0)	0 (0)	0 (0)	90 (147)	173 (207)
Northern pike	0.0005 (0.0011)	0 (0)	0 (0)	0 (0)	0 (0)	94 (200)	0 (0)	0 (0)	0 (0)	94 (200)
White sucker	0.0260 (0.0259)	4,533 (4,713)	277 (517)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4,810 (4,741)
Redhorse spp.	0.0078 (0.0085)	1,402 (1,542)	15 (31)	12 (28)	7 (15)	0 (0)	0 (0)	0 (0)	0 (0)	1,436 (1,543)
Rock bass	0.0105 (0.0118)	0 (0)	565 (665)	376 (497)	8 (16)	993 (2,004)	0 (0)	0 (0)	0 (0)	1,942 (2,169)
Smallmouth bass	0.0167 (0.0061)	0 (0)	0 (0)	24 (52)	11 (16)	3,058 (1,047)	0 (0)	0 (0)	0 (0)	3,093 (1,048)
Yellow perch	0.0062 (0.0109)	0 (0)	157 (268)	0 (0)	0 (0)	993 (2,004)	0 (0)	0 (0)	0 (0)	1,150 (2,022)
Walleye	0.0037 (0.0053)	0 (0)	0 (0)	15 (31)	8 (16)	660 (968)	0 (0)	0 (0)	0 (0)	683 (969)
Sunfish spp.	0.0002 (0.0004)	0 (0)	31 (63)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	31 (63)
Longnose sucker	0.0007 (0.0015)	0 (0)	125 (262)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	125 (262)
Other	0.0003 (0.0006)	56 (114)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	56 (114)
Total	0.2285 (0.0619)	7,125 (4,981)	1,451 (1,007)	549 (528)	34 (32)	6,141 (3,239)	11,710 (4,823)	13,023 (5,877)	2,292 (902)	42,325 (9,758)
Angler hours		14,857 (3,113)	7,015 (1,973)	1,784 (680)	503 (119)	9,595 (3,916)	70,176 (16,676)	68,695 (19,231)	12,593 (4,529)	185,218 (26,416)
Angler trips		3,002 (806)	1,791 (617)	544 (239)	217 (79)	2,305 (980)	10,326 (2,983)	11,972 (3,432)	3,053 (1,244)	33,210 (4,927)

Appendix 35. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Manistee River (Bear Creek to Stronach), by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0091 (0.0089)	0 (0)	0 (0)	0 (0)	55 (111)	503 (608)	399 (694)	0 (0)	0 (0)	957 (929)
Chinook salmon	0.0762 (0.0453)	0 (0)	0 (0)	0 (0)	1,552 (1,410)	513 (443)	5,944 (4,445)	0 (0)	14 (20)	8,023 (4,684)
Rainbow trout	0.0702 (0.0293)	0 (0)	0 (0)	135 (192)	358 (489)	0 (0)	1,196 (969)	5,099 (2,758)	607 (186)	7,395 (2,976)
Brown trout	0.0008 (0.0015)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	75 (151)	6 (8)	81 (151)
White sucker	0.0130 (0.0197)	1,367 (2,070)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,367 (2,070)
Redhorse spp.	0.0033 (0.0037)	314 (379)	36 (74)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	350 (386)
Total	0.1725 (0.0602)	1,681 (2,104)	36 (74)	135 (192)	1,965 (1,497)	1,016 (752)	7,539 (4,602)	5,174 (2,762)	627 (187)	18,173 (6,010)
Angler hours		1,423 (545)	2,776 (618)	3,487 (1,348)	7,011 (1,705)	13,393 (5,204)	43,161 (8,117)	30,046 (6,340)	4,047 (981)	105,344 (11,812)
Angler trips		464 (240)	715 (282)	708 (314)	1,496 (485)	2,457 (946)	6,783 (1,690)	4,067 (927)	672 (157)	17,362 (2,260)

Appendix 36. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Little Manistee River, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month	Season total
		Sep	
Coho salmon	0.0024 (0.0049)	92 (187)	92 (187)
Chinook salmon	0.0808 (0.0425)	3,132 (1,498)	3,132 (1,498)
Rainbow trout	0.0024 (0.0049)	92 (187)	92 (187)
Northern pike	0.0012 (0.0024)	46 (93)	46 (93)
Yellow perch	0.0067 (0.0136)	259 (523)	259 (523)
Total	0.0935 (0.0464)	3,621 (1,611)	3,621 (1,611)
Angler hours		38,742 (8,536)	38,742 (8,536)
Angler trips		8,545 (1,954)	8,545 (1,954)

Appendix 37. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Betsie River, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month							Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	
Pink salmon	0.0043 (0.0082)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	448 (928)	42 (84)	490 (932)
Coho salmon	0.0268 (0.0229)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,878 (2,346)	1,206 (1,070)	3,084 (2,578)
Chinook salmon	0.0930 (0.0497)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3,856 (2,753)	6,831 (4,626)	10,687 (5,383)
Rainbow trout	0.0271 (0.0222)	6 (12)	0 (0)	0 (0)	0 (0)	0 (0)	1,192 (1,474)	1,919 (2,007)	3,117 (2,490)
Atlantic salmon	0.0039 (0.0081)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	448 (928)	0 (0)	448 (928)
Brown trout	0.0069 (0.0086)	0 (0)	29 (62)	0 (0)	0 (0)	0 (0)	448 (928)	313 (304)	790 (978)
White sucker	0.0075 (0.0059)	828 (662)	34 (72)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	862 (666)
Redhorse spp.	0.0001 (0.0002)	0 (0)	16 (33)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	16 (33)
Round whitefish	0.0060 (0.0089)	0 (0)	310 (665)	0 (0)	0 (0)	0 (0)	0 (0)	377 (768)	687 (1,016)
Total	0.1756 (0.0669)	834 (662)	389 (673)	0 (0)	0 (0)	0 (0)	8,270 (4,224)	10,688 (5,221)	20,181 (6,782)
Angler hours		2,625 (606)	787 (411)	0 (0)	0 (0)	0 (0)	49,901 (15,841)	61,637 (13,263)	114,950 (20,673)
Angler trips		837 (237)	200 (118)	0 (0)	0 (0)	0 (0)	10,727 (3,294)	8,811 (2,122)	20,575 (3,927)



Appendix 38. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Platte River, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0990 (0.1081)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	383 (399)	793 (1,211)	0 (0)	1,176 (1,275)
Chinook salmon	0.0397 (0.0320)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	230 (266)	242 (264)	0 (0)	472 (375)
Rainbow trout	0.0726 (0.0332)	72 (122)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	152 (234)	639 (269)	863 (377)
Brown trout	0.0002 (0.0005)	2 (5)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (5)
Northern pike	0.0157 (0.0096)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	12 (25)	0 (0)	175 (108)	187 (111)
Smallmouth bass	0.2221 (0.1218)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	637 (542)	1,187 (1,261)	814 (290)	2,638 (1,403)
Total	0.4494 (0.1766)	74 (122)	0 (0)	0 (0)	0 (0)	0 (0)	1,262 (724)	2,374 (1,784)	1,628 (410)	5,338 (1,972)
Angler hours		1,890 (323)	380 (168)	0 (0)	0 (0)	0 (0)	3,849 (1,084)	4,257 (1,011)	1,503 (446)	11,879 (1,590)
Angler trips		624 (228)	112 (89)	0 (0)	0 (0)	0 (0)	1,469 (717)	1,044 (647)	202 (70)	3,451 (999)

Appendix 39. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Bear River, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Pink salmon	0.0420 (0.0526)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,191 (1,486)	0 (0)	0 (0)	1,191 (1,486)
Coho salmon	0.0198 (0.0211)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	185 (378)	298 (428)	80 (167)	563 (595)
Chinook salmon	0.0875 (0.0806)	0 (0)	7 (14)	0 (0)	0 (0)	0 (0)	608 (694)	1,868 (2,160)	0 (0)	2,483 (2,269)
Rainbow trout	0.1250 (0.0630)	401 (322)	582 (566)	53 (108)	0 (0)	0 (0)	1,036 (862)	1,336 (1,347)	140 (167)	3,548 (1,738)
Brown trout	0.0029 (0.0036)	20 (41)	21 (44)	0 (0)	0 (0)	0 (0)	0 (0)	40 (80)	0 (0)	81 (100)
Brook trout	0.0053 (0.0094)	0 (0)	128 (264)	23 (46)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	151 (268)
Lake trout	0.0013 (0.0026)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	38 (76)	0 (0)	38 (76)
Rainbow smelt	0.0856 (0.1727)	0 (0)	2,430 (4,895)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2,430 (4,895)
Rock bass	0.0016 (0.0021)	0 (0)	20 (42)	25 (41)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	45 (59)
Smallmouth bass	0.0040 (0.0088)	0 (0)	0 (0)	113 (247)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	113 (247)
Total	0.3749 (0.2127)	421 (325)	3,188 (4,935)	214 (277)	0 (0)	0 (0)	3,020 (1,891)	3,580 (2,584)	220 (236)	10,643 (5,903)
Angler hours		5,501 (815)	3,982 (877)	1,470 (547)	675 (218)	2,899 (2,252)	6,304 (1,876)	7,028 (1,022)	528 (237)	28,387 (3,387)
Angler trips		1,796 (526)	1,224 (456)	588 (309)	270 (142)	1,309 (1,095)	2,847 (1,070)	3,665 (1,977)	296 (220)	11,995 (2,627)

Appendix 40. Estimated catch per hour, number caught, and effort (angler hours and trips) for the Boyne River, by all modes of fishing, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month								Season total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Coho salmon	0.0288 (0.0579)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	317 (635)	0 (0)	0 (0)	317 (635)
Chinook salmon	0.0617 (0.0585)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	81 (125)	598 (619)	0 (0)	679 (631)
Rainbow trout	0.1497 (0.1787)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	634 (1,270)	1,002 (1,471)	13 (31)	1,649 (1,944)
Brown trout	0.0199 (0.0344)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	35 (71)	184 (369)	0 (0)	219 (376)
Lake trout	0.0084 (0.0170)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	92 (185)	0 (0)	92 (185)
White sucker	0.0490 (0.0825)	540 (903)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	540 (903)
Round whitefish	0.0102 (0.0221)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	112 (242)	0 (0)	112 (242)
Total	0.3276 (0.2241)	540 (903)	0 (0)	0 (0)	0 (0)	0 (0)	1,067 (1,427)	1,988 (1,666)	13 (31)	3,608 (2,372)
Angler hours		821 (562)	0 (0)	0 (0)	0 (0)	0 (0)	4,953 (774)	5,010 (1,835)	228 (188)	11,012 (2,078)
Angler trips		328 (244)	0 (0)	0 (0)	0 (0)	0 (0)	1,077 (369)	1,089 (518)	50 (44)	2,544 (683)

**SECTION III.**

**Winter Catch and Effort Estimates by Site**

Appendix 41. Estimated catch per hour, number caught, and effort (angler hours and trips) for the winter ice fishery on Little Bay de Noc, 1985. Two standard errors in parentheses.

Species	Total catch per hour	Month			Season total
		Jan	Feb	Mar	
Rainbow smelt	0.2096 (0.0808)	15,977 (11,006)	41,563 (17,955)	43 (67)	57,583 (21,060)
Northern pike	0.0036 (0.0034)	393 (483)	605 (790)	0 (0)	998 (926)
Tiger musky	0.0008 (0.0017)	0 (0)	0 (0)	211 (442)	211 (442)
White sucker	0.0008 (0.0015)	0 (0)	198 (402)	26 (57)	224 (406)
Yellow perch	0.8241 (0.2156)	94,299 (28,454)	70,530 (38,514)	61,580 (21,459)	226,409 (52,473)
Walleye	0.0178 (0.0096)	2,758 (1,845)	2,132 (1,782)	0 (0)	4,890 (2,565)
Burbot	0.0023 (0.0037)	0 (0)	615 (988)	5 (9)	620 (988)
Crappie spp.	0.0033 (0.0046)	564 (1,152)	0 (0)	355 (569)	919 (1,285)
Total	1.0623 (0.2431)	113,991 (30,590)	115,643 (42,552)	62,220 (21,471)	291,854 (56,634)
Angler hours		116,085 (19,596)	131,558 (25,775)	27,102 (7,958)	274,745 (33,342)
Angler trips		32,379 (5,776)	30,217 (5,929)	6,758 (2,056)	69,354 (8,529)

Appendix 42. Estimated catch per hour, number caught, and effort (angler hours and trips) for the winter ice fishery on West Grand Traverse Bay, 1986. Two standard errors in parentheses.

Species	Total catch per hour	Month		Season total
		Feb	Mar	
Rainbow trout	0.0076 (0.0089)	0 (0)	307 (357)	307 (357)
Brown trout	0.0022 (0.0027)	70 (101)	17 (34)	87 (107)
Rainbow smelt	0.0108 (0.0132)	339 (491)	96 (194)	435 (528)
Yellow perch	2.2300 (0.6719)	13,868 (7,448)	75,732 (22,734)	89,600 (23,923)
Lake whitefish	0.0453 (0.0348)	476 (550)	1,343 (1,258)	1,819 (1,373)
Burbot	0.0211 (0.0427)	0 (0)	847 (1,710)	847 (1,710)
Total	2.3170 (0.6799)	14,753 (7,485)	78,342 (22,837)	93,095 (24,032)
Angler hours		18,360 (4,137)	21,819 (3,787)	40,179 (5,609)
Angler trips		5,221 (1,274)	5,349 (1,063)	10,570 (1,659)

Appendix 43. Estimated catch per hour, number caught, and effort (angler hours and trips) for the winter ice fishery on East Grand Travers Bay, 1986. Two standard errors in parentheses.

Species	Total catch per hour	Month		Season total
		Feb	Mar	
Brown trout	0.0008 (0.0011)	16 (31)	13 (26)	29 (40)
Yellow perch	0.4099 (0.2259)	9,074 (6,109)	5,664 (4,678)	14,738 (7,694)
Lake whitefish	0.5554 (0.2336)	6,040 (2,771)	13,934 (7,099)	19,974 (7,621)
Burbot	0.0006 (0.0012)	0 (0)	23 (47)	23 (47)
Total	0.9669 (0.3462)	15,130 (6,708)	19,634 (8,502)	34,764 (10,830)
Angler hours		9,774 (2,105)	26,181 (5,998)	35,955 (6,357)
Angler trips		2,185 (531)	5,937 (1,439)	8,122 (1,534)