

**Survey Report for ELK LAKE, SKEGEMOG LAKE, Grand Traverse,
Kalkaska, Summer, 2008**

Waterbody	ELK_SKEGEMOG
Year	Summer, 2008
County	Grand Traverse, Kalkaska
Sites	ELK,SKEGEMOG
Survey period	April 26 to October 31
Survey design	Aerial-roving (aerial counts, roving interviews)
Interview type/mode	roving/boat
Count type/mode	aerial, progressive/boat
Clerk time	full time
Survey purpose	Characterize general effort and catch aspects of the fishery

Notes

Survey followed an aerial-roving (aerial counts, roving interviews) design. All funding was provided through Fisheries Division. Counts progressed along a predefined flight path from Marker xxx to Marker xxx or from Marker xxx to Marker xxx. Flight took approximately xxx min to complete. This sequence was randomized. Time of count was randomized to cover sample period. Only fishing boats were counted. Both weekend days and 3 randomly selected weekdays were selected for counting and interviewing during each week of the survey season. No holidays were sampled. Counting and interviewing were done on the same days, and one instantaneous count of fishing boats was made per day. One of two shifts was selected each sample day for interviewing (Table 5). One clerk worked full time to collect angler interview data. Starting location within a section and direction of travel were randomized for interviewing. Survey period for both counts and interviews was April 26 to October 31. Months were estimated separately. Estimates are given in Tables xxx.

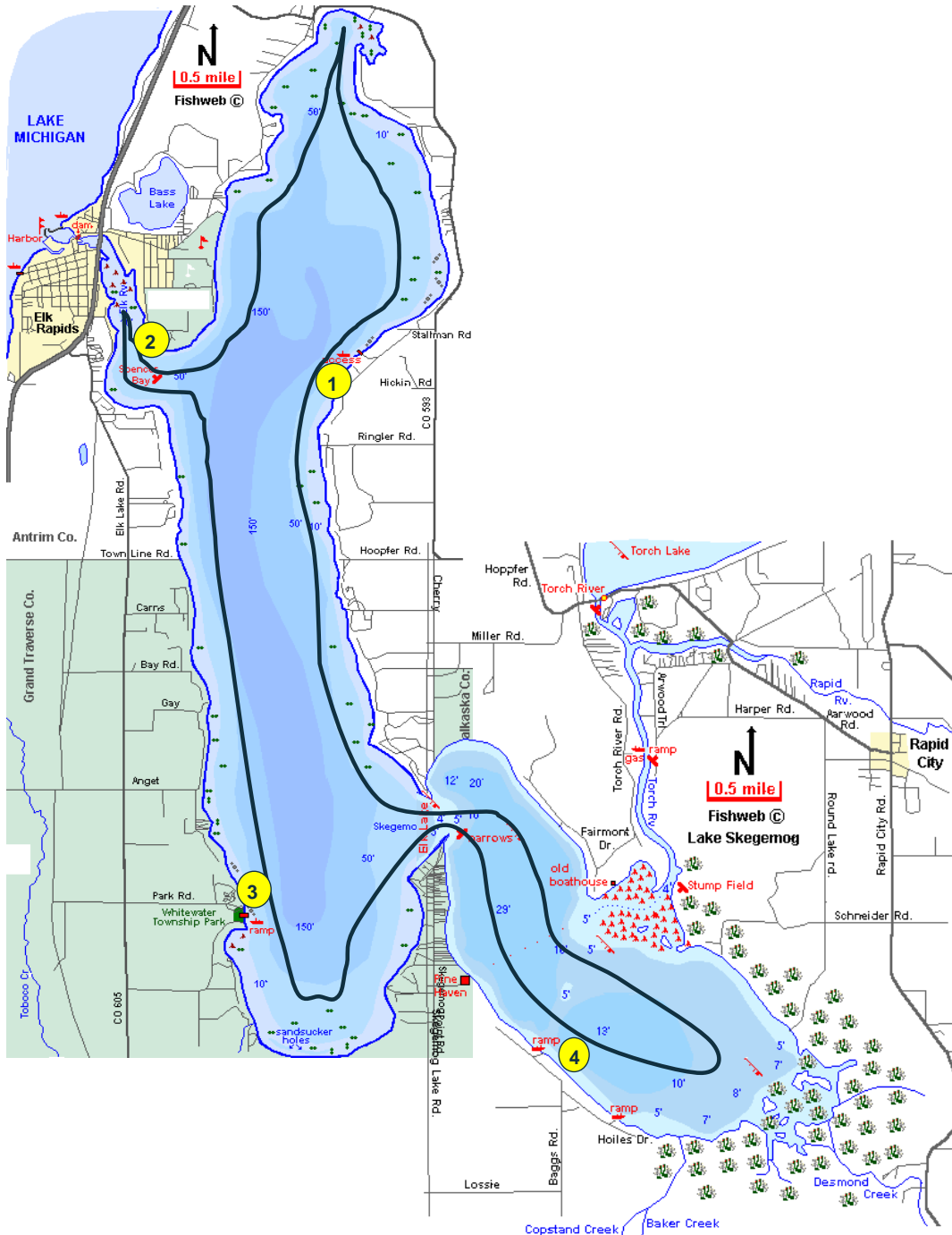


Table –Work shifts used to estimate catch and effort at ELK LAKE, SKEGEMOG LAKE, April 26 to October 31, Summer, 2008

	Year	Month	F
1	2008	4	14
2	2008	5	15
3	2008	6	16
4	2008	7	17
5	2008	8	16
6	2008	9	15
7	2008	10	14

Estimated harvest, catch per hour, and fishing pressure for Elk Lake, boat. Two standard errors are given in parentheses.

Species	C/H	April-May	June	July	August	September	October	Season	Win C/H	Win Season	Sum C/H	Sum Season
HARVEST												
Walleye	0.0015 (0.0030)	0 (0)	0 (0)	22 (44)	0 (0)	0 (0)	0 (0)	22 (44)	NAN (0)	0 (0)	0.0015 (0.0030)	22 (44)
Northern pike	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	NAN (0)	0 (0)	0 (0)	0 (0)
Largemouth bass	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	NAN (0)	0 (0)	0 (0)	0 (0)
Smallmouth bass	0.0298 (0.0159)	23 (50)	6 (14)	78 (98)	231 (171)	80 (74)	12 (20)	430 (218)	NAN (0)	0 (0)	0.0298 (0.0159)	430 (218)
Yellow Perch	0.1289 (0.0581)	18 (36)	16 (33)	0 (0)	890 (600)	507 (336)	433 (351)	1,864 (774)	NAN (0)	0 (0)	0.1289 (0.0581)	1,864 (774)
Bluegill	0.0026 (0.0032)	0 (0)	0 (0)	0 (0)	14 (28)	25 (36)	0 (0)	38 (45)	NAN (0)	0 (0)	0.0026 (0.0032)	38 (45)
Pumpkinseed	0.0015 (0.0022)	0 (0)	0 (0)	0 (0)	0 (0)	22 (31)	0 (0)	22 (31)	NAN (0)	0 (0)	0.0015 (0.0022)	22 (31)
Rock bass	0.0180 (0.0253)	6 (13)	0 (0)	68 (102)	174 (349)	12 (17)	0 (0)	260 (364)	NAN (0)	0 (0)	0.0180 (0.0253)	260 (364)
Lake trout	0.0048 (0.0049)	6 (12)	0 (0)	36 (42)	28 (55)	0 (0)	0 (0)	69 (71)	NAN (0)	0 (0)	0.0048 (0.0049)	69 (71)
TOTAL HARVEST	0.1871 (0.0696)	53 (64)	23 (36)	203 (154)	1,337 (718)	646 (348)	445 (352)	2,706 (888)	NAN (0.0000)	0 (0)	0.1871 (0.0696)	2,706 (888)
RELEASED												
Northern pike	0.0014 (0.0015)	0 (0)	0 (0)	9 (14)	5 (10)	0 (0)	6 (12)	20 (21)	NAN (0)	0 (0)	0.0014 (0.0015)	20 (21)
Largemouth bass	0.0039 (0.0066)	0 (0)	46 (93)	10 (20)	0 (0)	0 (0)	0 (0)	57 (95)	NAN (0)	0 (0)	0.0039 (0.0066)	57 (95)
Smallmouth bass	0.2614 (0.0869)	23 (33)	423 (338)	1,093 (675)	1,011 (482)	1,154 (579)	76 (65)	3,781 (1,069)	NAN (0)	0 (0)	0.2614 (0.0869)	3,781 (1,069)
Yellow Perch	0.4243 (0.1746)	0 (0)	90 (107)	1,386 (1,419)	2,341 (1,300)	1,851 (1,175)	469 (362)	6,137 (2,286)	NAN (0)	0 (0)	0.4243 (0.1746)	6,137 (2,286)
Bluegill	0.0143 (0.0168)	0 (0)	0 (0)	2 (5)	24 (35)	180 (238)	0 (0)	207 (240)	NAN (0)	0 (0)	0.0143 (0.0168)	207 (240)
Pumpkinseed	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	NAN (0)	0 (0)	0 (0)	0 (0)

Rock bass	0.0592	0	198	300	264	95	0	856	NAN	0	0.0592	856
	(0.0322)	(0)	(208)	(291)	(203)	(158)	(0)	(441)	(0)	(0)	(0.0322)	(441)
Rainbow trout	0.0023	0	33	0	0	0	0	33	NAN	0	0.0023	33
	(0.0046)	(0)	(66)	(0)	(0)	(0)	(0)	(66)	(0)	(0)	(0.0046)	(66)
Lake trout	0.0012	0	0	18	0	0	0	18	NAN	0	0.0012	18
	(0.0017)	(0)	(0)	(25)	(0)	(0)	(0)	(25)	(0)	(0)	(0.0017)	(25)
Channel catfish	0.0019	0	0	0	0	27	0	27	NAN	0	0.0019	27
	(0.0038)	(0)	(0)	(0)	(0)	(54)	(0)	(54)	(0)	(0)	(0.0038)	(54)
Muskellunge	0.0025	0	0	0	13	10	13	35	NAN	0	0.0025	35
	(0.0025)	(0)	(0)	(0)	(22)	(19)	(20)	(35)	(0)	(0)	(0.0025)	(35)
TOTAL RELEASED	0.7723	23	791	2,817	3,659	3,316	564	11,170	NAN	0	0.7723	11,170
	(0.2236)	(33)	(427)	(1,598)	(1,402)	(1,342)	(369)	(2,577)	(0.0000)	(0)	NAN	(2,577)
TOTAL CATCH	0.9593	76	813	3,021	4,996	3,962	1,008	13,876	NAN	0	0.9593	13,876
	(0.2524)	(72)	(428)	(1,606)	(1,575)	(1,386)	(509)	(2,726)	(0)	(0)	NAN	(2,726)
ANGLER HOURS		863	2,802	2,892	4,069	2,820	1,018	14,464		0		14,464
		NAN	(1,013)	(1,537)	(1,305)	(1,030)	(502)	(2,531)		(0)		(NAN)
ANGLER TRIPS		222	523	1,273	1,078	740	267	4,103		0		4,103
		NAN	(405)	(720)	(816)	(605)	(234)	(1,330)		(0)		(NAN)

Estimated harvest, catch per hour, and fishing pressure for Skegemog Lake, boat. Two standard errors are given in parentheses.

Species	C/H	April-May	June	July	August	September	October	Season	Win C/H	Win Season	Sum C/H	Sum Season
HARVEST												
Walleye	0.0008 (0.0011)	12 (24)	9 (17)	0 (0)	0 (0)	0 (0)	0 (0)	21 (30)	NAN (0)	0 (0)	0.0008 (0.0011)	21 (30)
Northern pike	0.0023 (0.0022)	31 (47)	12 (24)	9 (17)	10 (15)	0 (0)	0 (0)	61 (58)	NAN (0)	0 (0)	0.0023 (0.0022)	61 (58)
Largemouth bass	0.0007 (0.0009)	0 (0)	0 (0)	0 (0)	14 (20)	7 (13)	0 (0)	20 (24)	NAN (0)	0 (0)	0.0007 (0.0009)	20 (24)
Smallmouth bass	0.0190 (0.0083)	90 (97)	128 (106)	105 (109)	55 (45)	109 (83)	32 (31)	518 (206)	NAN (0)	0 (0)	0.0190 (0.0083)	518 (206)
Yellow Perch	0.0340 (0.0157)	135 (209)	0 (0)	77 (100)	105 (110)	273 (210)	333 (214)	924 (395)	NAN (0)	0 (0)	0.0340 (0.0157)	924 (395)
Bluegill	0.0231 (0.0131)	0 (0)	190 (234)	153 (171)	173 (129)	106 (113)	7 (14)	628 (337)	NAN (0)	0 (0)	0.0231 (0.0131)	628 (337)
Pumpkinseed	0.0034 (0.0045)	0 (0)	58 (117)	11 (22)	18 (26)	5 (10)	0 (0)	92 (122)	NAN (0)	0 (0)	0.0034 (0.0045)	92 (122)
Rock bass	0.0334 (0.0204)	67 (111)	585 (487)	194 (162)	52 (73)	6 (12)	5 (10)	910 (530)	NAN (0)	0 (0)	0.0334 (0.0204)	910 (530)
Lake trout	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	NAN (0)	0 (0)	0 (0)	0 (0)
TOTAL HARVEST	0.1166 (0.0355)	335 (261)	982 (563)	549 (279)	426 (194)	506 (254)	377 (217)	3,175 (783)	NAN (0.0000)	0 (0)	0.1166 (0.0355)	3,175 (783)
RELEASED												
Northern pike	0.0291 (0.0143)	119 (128)	216 (252)	162 (110)	134 (168)	146 (108)	14 (17)	792 (364)	NAN (0)	0 (0)	0.0291 (0.0143)	792 (364)
Largemouth bass	0.0096 (0.0055)	7 (12)	28 (37)	94 (76)	70 (102)	44 (43)	19 (23)	262 (142)	NAN (0)	0 (0)	0.0096 (0.0055)	262 (142)
Smallmouth bass	0.4223 (0.1257)	1,628 (1,279)	2,542 (1,310)	1,986 (849)	699 (384)	3,819 (1,748)	820 (439)	11,494 (2,733)	NAN (0)	0 (0)	0.4223 (0.1257)	11,494 (2,733)
Yellow Perch	0.0813 (0.0332)	7 (10)	29 (36)	106 (111)	509 (315)	1,066 (679)	496 (291)	2,213 (811)	NAN (0)	0 (0)	0.0813 (0.0332)	2,213 (811)
Bluegill	0.0686 (0.0298)	0 (0)	114 (115)	637 (344)	845 (587)	267 (266)	5 (11)	1,868 (740)	NAN (0)	0 (0)	0.0686 (0.0298)	1,868 (740)
Pumpkinseed	0.0023 (0.0021)	0 (0)	0 (0)	0 (0)	28 (40)	34 (40)	0 (0)	62 (57)	NAN (0)	0 (0)	0.0023 (0.0021)	62 (57)

Rock bass	0.1125	160	1,350	892	421	216	22	3,061	NAN	0	0.1125	3,061
	(0.0483)	(152)	(978)	(502)	(404)	(184)	(30)	(1,195)	(0)	(0)	(0.0483)	(1,195)
Rainbow trout	0	0	0	0	0	0	0	0	NAN	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Lake trout	0	0	0	0	0	0	0	0	NAN	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Channel catfish	0.0002	0	0	5	0	0	0	5	NAN	0	0.0002	5
	(0.0004)	(0)	(0)	(10)	(0)	(0)	(0)	(10)	(0)	(0)	(0.0004)	(10)
Muskellunge	0.0017	26	11	0	0	0	10	46	NAN	0	0.0017	46
	(0.0017)	(39)	(15)	(0)	(0)	(0)	(21)	(46)	(0)	(0)	(0.0017)	(46)
TOTAL RELEASED	0.7275	1,947	4,290	3,882	2,706	5,591	1,386	19,803	NAN	0	0.7275	19,803
	(0.1756)	(1,295)	(1,659)	(1,058)	(892)	(1,907)	(529)	(3,203)	(0.0000)	(0)	(0.1756)	(3,203)
TOTAL CATCH	0.8441	2,282	5,272	4,431	3,132	6,097	1,763	22,978	NAN	0	0.8441	22,978
	(0.1937)	(1,321)	(1,752)	(1,095)	(913)	(1,924)	(571)	(3,297)	(0)	(0)	(0.1937)	(3,297)
ANGLER HOURS		4,159	6,109	5,192	4,043	5,550	2,168	27,221		0		27,221
		(2,673)	(2,684)	(1,482)	(1,209)	(2,252)	(830)	(4,875)		(0)		(4,875)
ANGLER TRIPS		702	1,226	1,710	1,692	1,365	609	7,304		0		7,304
		(501)	(663)	(563)	(984)	(648)	(338)	(1,584)		(0)		(1,584)

Estimated harvest, catch per hour, and fishing pressure for Elk Lake, and Skegemog combined. Two standard errors are given in parentheses.

Species	C/H	April-May	June	July	August	September	October	Season	Win C/H	Win Season	Sum C/H	Sum Season
HARVEST												
Walleye	0.0010 (0.0013)	12 (24)	9 (17)	22 (44)	0 (0)	0 (0)	0 (0)	43 (53)	NAN (0)	0 (0)	0.0010 (0.0013)	43 (53)
Northern pike	0.0015 (0.0014)	31 (47)	12 (24)	9 (17)	10 (15)	0 (0)	0 (0)	61 (58)	NAN (0)	0 (0)	0.0015 (0.0014)	61 (58)
Largemouth bass	0.0005 (0.0006)	0 (0)	0 (0)	0 (0)	14 (20)	7 (13)	0 (0)	20 (24)	NAN (0)	0 (0)	0.0005 (0.0006)	20 (24)
Smallmouth bass	0.0227 (0.0076)	113 (109)	134 (107)	183 (146)	286 (177)	189 (111)	43 (37)	948 (300)	NAN (0)	0 (0)	0.0227 (0.0076)	948 (300)
Yellow Perch	0.0669 (0.0222)	153 (212)	16 (33)	77 (100)	995 (610)	780 (397)	766 (411)	2,788 (869)	NAN (0)	0 (0)	0.0669 (0.0222)	2,788 (869)
Bluegill	0.0160 (0.0084)	0 (0)	190 (234)	153 (171)	186 (132)	131 (119)	7 (14)	667 (340)	NAN (0)	0 (0)	0.0160 (0.0084)	667 (340)
Pumpkinseed	0.0027 (0.0030)	0 (0)	58 (117)	11 (22)	18 (26)	27 (33)	0 (0)	114 (126)	NAN (0)	0 (0)	0.0027 (0.0030)	114 (126)
Rock bass	0.0281 (0.0158)	73 (112)	585 (487)	262 (192)	226 (356)	18 (21)	5 (10)	1,170 (643)	NAN (0)	0 (0)	0.0281 (0.0158)	1,170 (643)
Lake trout	0.0017 (0.0017)	6 (12)	0 (0)	36 (42)	28 (55)	0 (0)	0 (0)	69 (71)	NAN (0)	0 (0)	0.0017 (0.0017)	69 (71)
TOTAL HARVEST	0.1411 (0.0327)	387 (269)	1,005 (565)	752 (319)	1,763 (743)	1,151 (431)	821 (413)	5,880 (1,184)	NAN (0.0000)	0 (0)	0.1411 (0.0327)	5,880 (1,184)
RELEASED												
Northern pike	0.0195 (0.0090)	119 (128)	216 (252)	171 (111)	139 (168)	146 (108)	20 (21)	812 (364)	NAN (0)	0 (0)	0.0195 (0.0090)	812 (364)
Largemouth bass	0.0076 (0.0042)	7 (12)	74 (100)	104 (78)	70 (102)	44 (43)	19 (23)	318 (171)	NAN (0)	0 (0)	0.0076 (0.0042)	318 (171)
Smallmouth bass	0.3664 (0.0821)	1,651 (1,279)	2,965 (1,353)	3,079 (1,084)	1,711 (616)	4,972 (1,842)	897 (444)	15,275 (2,934)	NAN (0)	0 (0)	0.3664 (0.0821)	15,275 (2,934)
Yellow Perch	0.2003 (0.0626)	7 (10)	120 (113)	1,492 (1,423)	2,850 (1,337)	2,917 (1,357)	965 (464)	8,350 (2,426)	NAN (0)	0 (0)	0.2003 (0.0626)	8,350 (2,426)
Bluegill	0.0498 (0.0195)	0 (0)	114 (115)	639 (344)	869 (588)	447 (357)	5 (11)	2,075 (778)	NAN (0)	0 (0)	0.0498 (0.0195)	2,075 (778)

Pumpkinseed	0.0015	0	0	0	28	34	0	62	NAN	0	0.0015	62
	(0.0014)	(0)	(0)	(0)	(40)	(40)	(0)	(57)	(0)	(0)	(0.0014)	(57)
Rock bass	0.0940	160	1,548	1,192	685	311	22	3,917	NAN	0	0.0940	3,917
	(0.0324)	(152)	(1,000)	(580)	(453)	(242)	(30)	(1,274)	(0)	(0)	(0.0324)	(1,274)
Rainbow trout	0.0008	0	33	0	0	0	0	33	NAN	0	0.0008	33
	(0.0016)	(0)	(66)	(0)	(0)	(0)	(0)	(66)	(0)	(0)	(0.0016)	(66)
Lake trout	0.0004	0	0	18	0	0	0	18	NAN	0	0.0004	18
	(0.0006)	(0)	(0)	(25)	(0)	(0)	(0)	(25)	(0)	(0)	(0.0006)	(25)
Channel catfish	0.0008	0	0	5	0	27	0	32	NAN	0	0.0008	32
	(0.0013)	(0)	(0)	(10)	(0)	(54)	(0)	(55)	(0)	(0)	(0.0013)	(55)
Muskellunge	0.0020	26	11	0	13	10	23	82	NAN	0	0.0020	82
	(0.0014)	(39)	(15)	(0)	(22)	(19)	(28)	(58)	(0)	(0)	(0.0014)	(58)
TOTAL RELEASED	0.7430	1,971	5,081	6,699	6,365	8,908	1,950	30,974	NAN	0	0.7430	30,974
	(0.1306)	(1,295)	(1,713)	(1,917)	(1,661)	(2,332)	(644)	(4,111)	(0.0000)	(0)	NAN	(4,111)
TOTAL CATCH	0.8841	2,358	6,085	7,452	8,128	10,059	2,771	36,854	NAN	0	0.8841	36,854
	(0.1445)	(1,323)	(1,803)	(1,943)	(1,820)	(2,372)	(766)	(4,278)	(0)	(0)	NAN	(4,278)
ANGLER HOURS		5,022	8,911	8,084	8,112	8,370	3,186	41,685		0		41,685
		NAN	(2,869)	(2,135)	(1,779)	(2,476)	(971)	(4,799)		(0)		(NAN)
ANGLER TRIPS		924	1,749	2,983	2,770	2,104	876	11,406		0		11,406
		NAN	(777)	(914)	(1,278)	(886)	(412)	(2,007)		(0)		(NAN)