

Status of Lake Sturgeon in Michigan Waters of Lake Huron, Reported by Commercial Fisheries 2002

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INTRODUCTION

For introduction information please see previous year reports.

METHODS

Michigan state-licensed and tribal commercial fishers sometimes catch lake sturgeon as by-catch while using trap nets to harvest lake whitefish (*Coregonus clupeaformis*), yellow perch (*Perca flavescens*), and channel catfish (*Ictalurus punctatus*). These incidentally caught lake sturgeon were used to collect biological data for this species. Total length (TL), fork length (FL), and girth were measured for most captured lake sturgeon using a soft measuring tape and the leading (marginal) ray of the left pectoral fin was removed from some fish using a fin ray saw. All sturgeon were returned to the water live. U.S. Fish and Wildlife Service personnel from the Alpena Fishery Resource Office (FRO) cross-sectioned each ray to determine fish age (Figure 1). Alpena FRO has recently acquired new digital aging equipment to aide in the aging process.

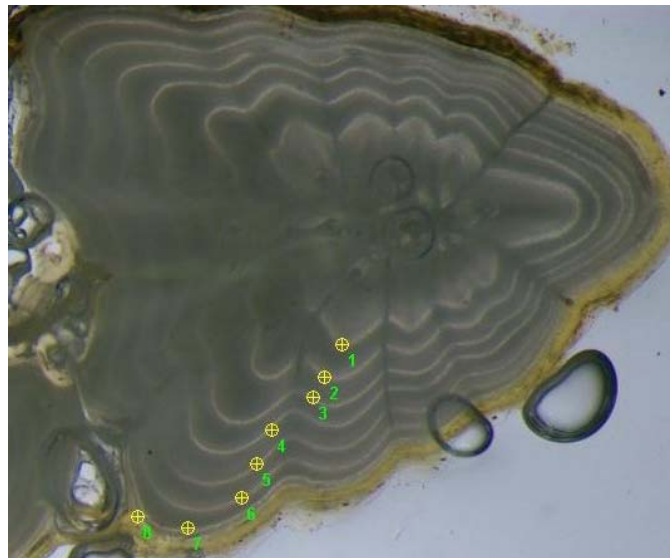


Figure 1. Cross-section of a lake sturgeon fin ray showing annuli to estimate age (8yrs old).

The distal portion of each fin ray collected is being utilized for genetic analysis. Fish were tagged in the dorsal fin with a serially numbered cinch floy tag (Floy tag and Manufacturing Inc, Seattle, Washington). All lake sturgeon were handled by the commercial fishers, including data collection and fish tagging. All materials necessary to collect the biotic information were provided by the Alpena FRO (Figure 2). Each fisher was provided a box containing instructions for fish tagging and fin ray removal, tags and an applicator, fin ray saw, data note book and cards, fin ray envelopes, a soft measuring tape, and a disposable camera. Abiotic data recorded at the capture site for each lake sturgeon included date, latitude/longitude, water depth, water temperature, and bottom type. In addition tag type, agency, and identification number of tag applied or observed (if fish was previously tagged) were recorded.



Figure 2. Equipment provided by Alpena FRO to each commercial fisherman for taking and recording data from captured lake sturgeon.

To maximize the information collected on Lake Huron lake sturgeon, the Alpena FRO has been working closely with the Ontario Ministry of Natural Resources-Lake Huron Management Unit (LHMU). Coordination between LHMU and the Alpena FRO resulted in standardized data collection for lake sturgeon. This coordination enhanced the chances of recovering tag information lake wide and allowed a better understanding of the seasonal movement patterns of Lake Huron lake sturgeon.

RESULTS

Since 1995, 302 lake sturgeon have been tagged from U.S. waters of Lake Huron. This would not have been possible without the assistance of commercial fishers (Table 1). During the 2002 season, sturgeon were most frequently caught during the months of May and October (Figure 3). Figure 4 illustrates the months sturgeon were most frequently captured from 1995-2002.

Table 1. Number of lake sturgeon caught by commercial fishers. (-) indicates the fisher was not participating.

Fisher	Enrolled	1995	1996	1997	1998	1999	2000	2001	2002	Total
Barbeaux Fishery	1996	-	1	7	0	0	0	7	0	15
Bay Port Fish Company	1995	13	7	10	8	12	3	2	0	55
Beardsley Fishery	1997	-	-	0	0	0	0	1	0	1
Cedarville Fishery	1997	-	-	1	7	9	4	7	2	30
Gauthier-Spaulling Fishery	1995	2	0	2	2	4	1	0	0	11
Kuhl Fishery	1999	-	-	-	-	1	0	2	1	4
Lentz Fishery	1995	3	8	8	9	10	6	7	14	65
M & W Fish Company	1995	1	3	4	4	2	14	17	21	66
Sebewaing Fish Company	2001	-	-	-	-	-	-	2	6	8
Serafin Fishery	1996	-	10	17	3	4	8	20	13	75
Warren Beers Fishery	1995	2	0	1	0	0	0	2	0	5
Whytes Fishery	1995	2	7	3	4	3	3	2	0	24
Total		23	36	53	37	45	39	69	57	359

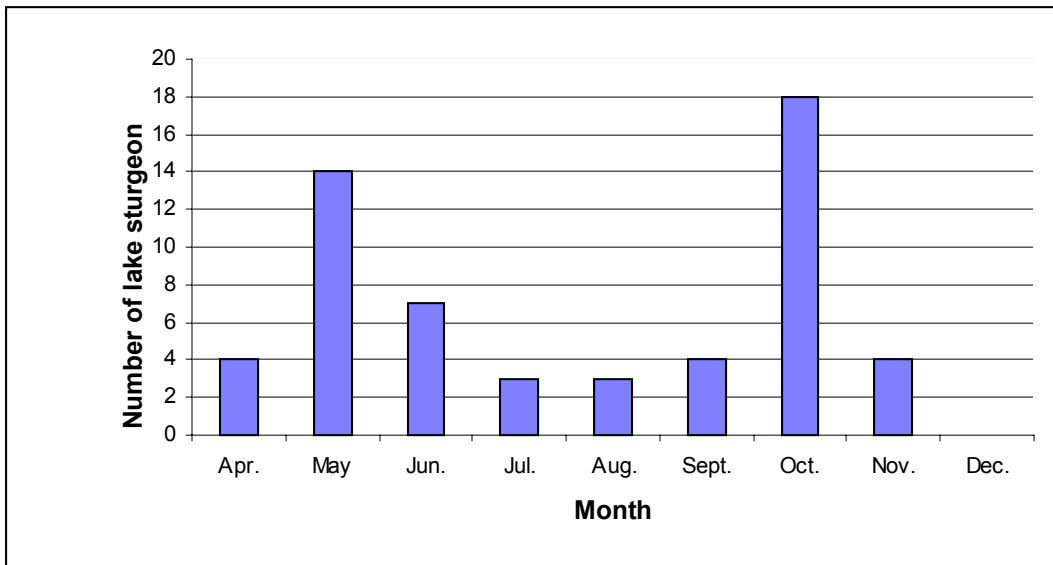


Figure 3. Number of sturgeon caught by month in Lake Huron by commercial fishers during the 2002 fishing season.

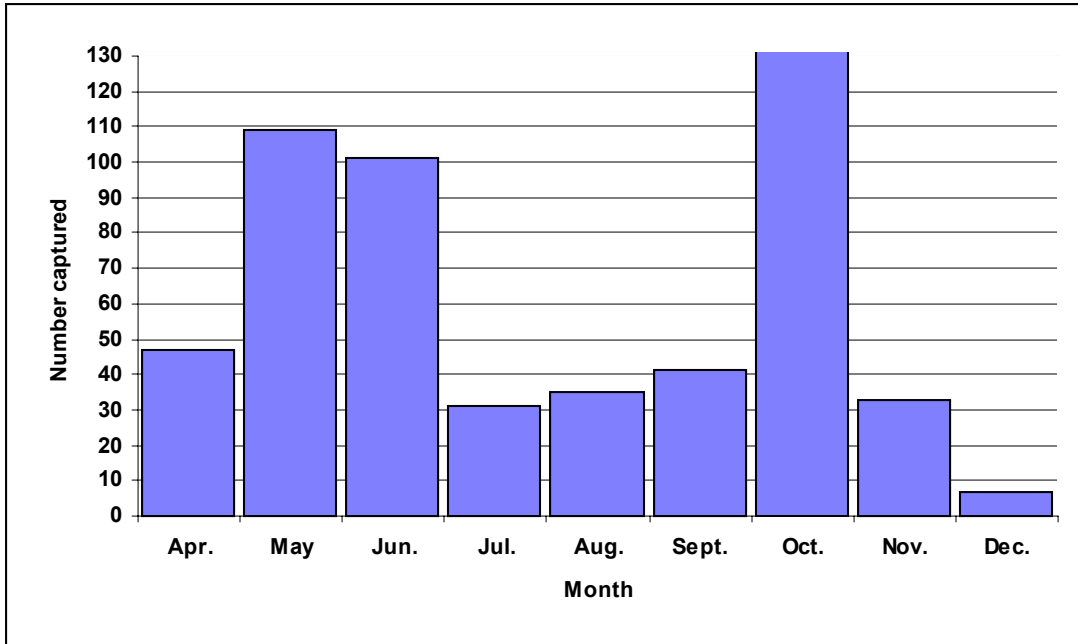


Figure 4. Number of sturgeon caught by month during the fishing seasons from 1995-2002 in Lake Huron by commercial fishers.

Figure 5 illustrates the length frequency for lake sturgeon captured in 2002. Lake sturgeon in the 120 cm range were most frequently caught. Figure 6 illustrates the length frequency of lake sturgeon captured from 1995 through 2002. Lake sturgeon in the 110 cm range were most frequently caught. Mean total length of lake sturgeon captured during the 1995 - 2002 Period was 115 cm (46-200). Lake sturgeon of length 90-110 cm are usually sexually immature for both sexes and average 11 yrs old. The age structure of lake sturgeon in Saginaw Bay reveals that 11-20 yr old fish are most frequently encountered (Figure 7). The sex and state of maturity of these fish is unknown. The next age group most frequently captured was ages 1 to 10 (Figure 7). It is very unlikely that any of these fish would be sexually mature.

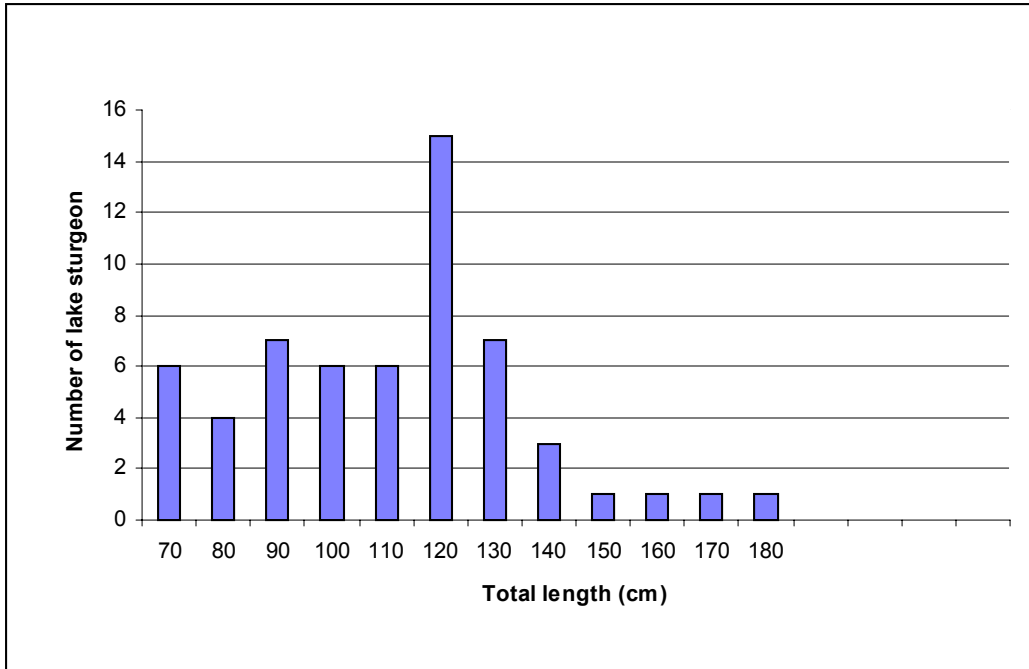


Figure 5. Length frequency distribution of lake sturgeon caught by commercial fishers in U.S. waters of Lake Huron in 2002.

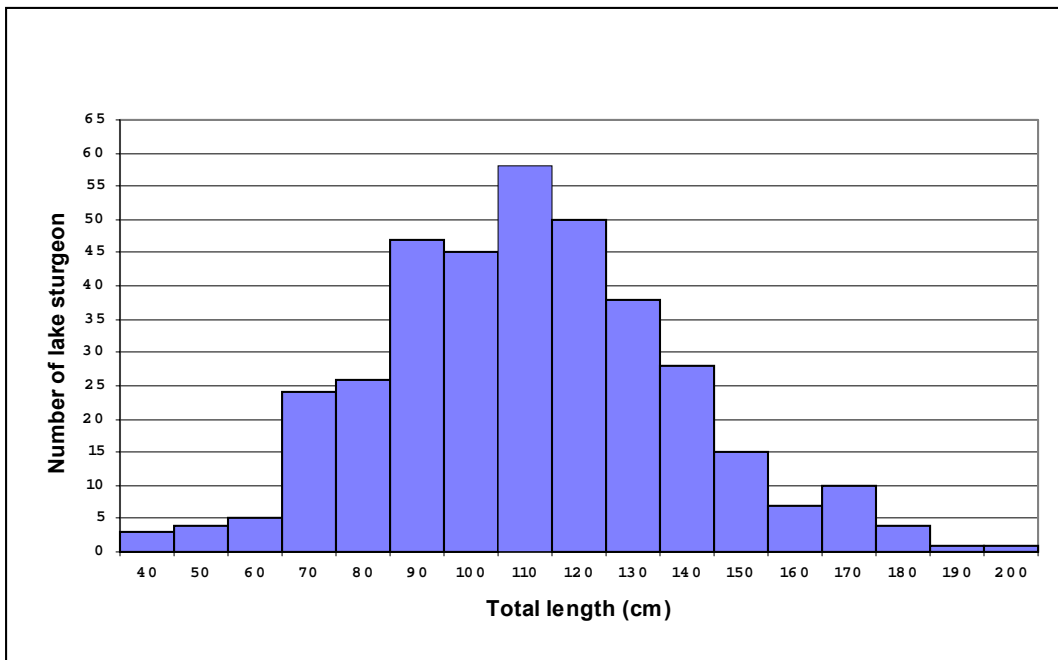


Figure 6. Length frequency of 254 Lake Huron lake sturgeon captured by commercial fishers in U.S. waters of Lake Huron from 1995 to 2002.

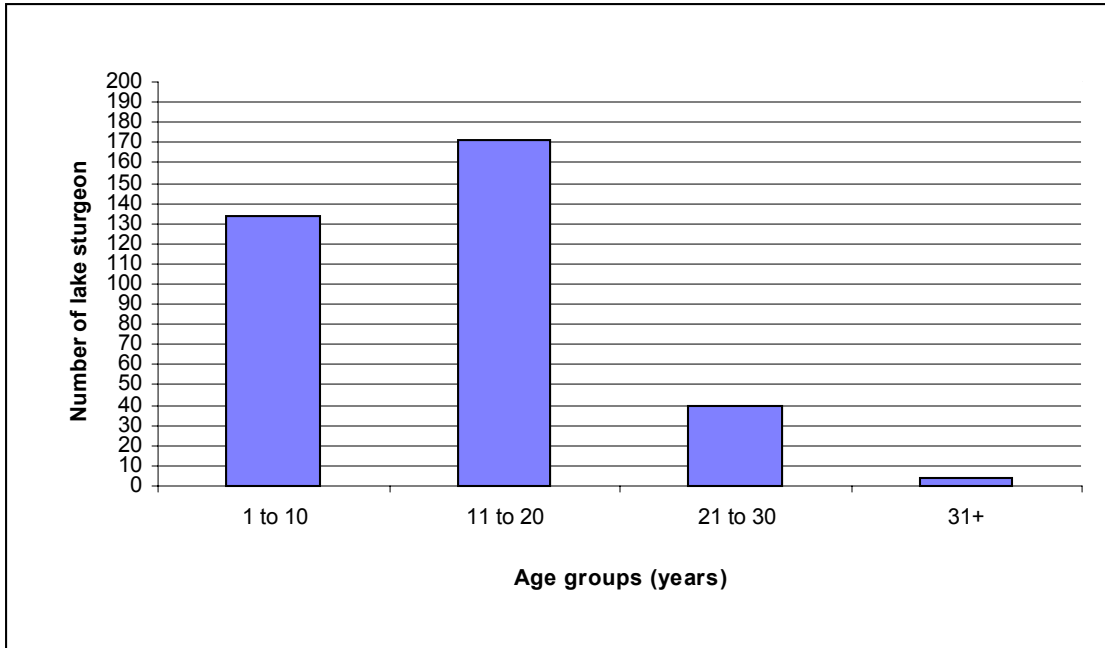


Figure 7. Age frequency of Lake Huron lake sturgeon caught by commercial fishers in Saginaw Bay from 1995 to 2002.

There were 9 lake sturgeon recaptured in 2002. Figure 8 shows the number of recaptured sturgeon from 1996 to 2002. Table 2 provides data on recaptured fish. Not all fish were measured at tagging and/or recapture.

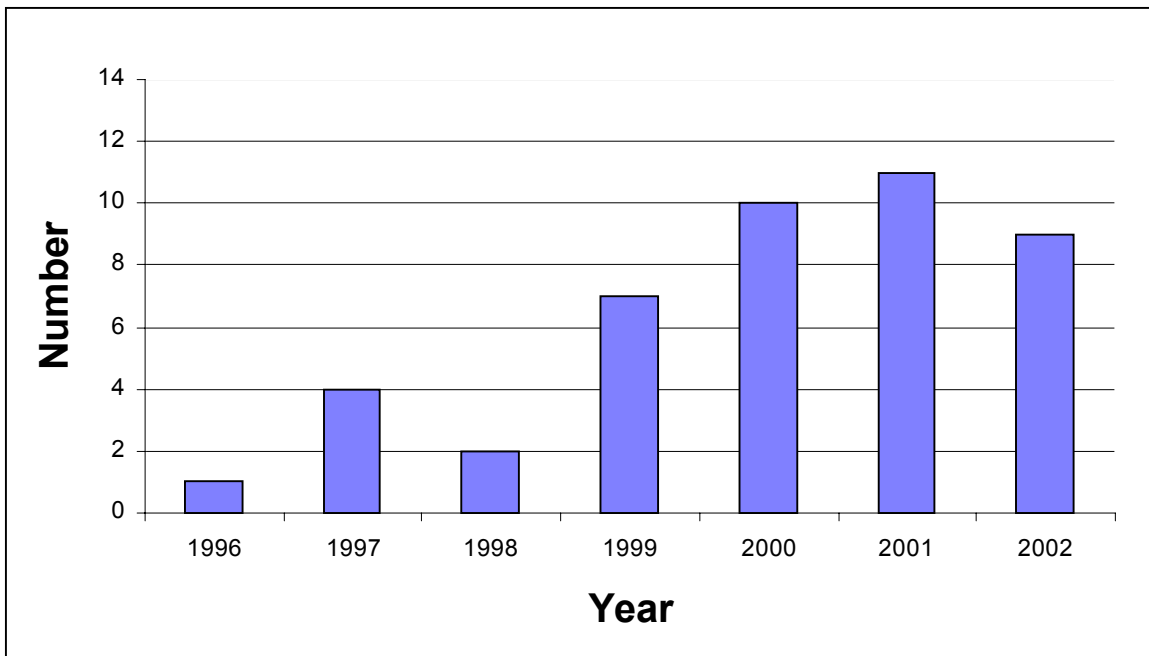


Figure 8. Number of lake sturgeon recaptured by Lake Huron commercial fishers from 1996 through 2002.

Table 2. Date and growth pattern of each lake sturgeon recaptured by Lake Huron commercial fishers from 1996 through 2002.

Tag Number	Date Tagged	TL tagged	Girth Tagged	Date Recap	TL Recap	Girth recap
650	09/29/02	120	45	10/8/02	120	45
4005	8/19/97	130	61	5/29/00	137	62
4016	10/11/01	119	41	11/19/02	122	46
4033	10/29/96	77	29	5/22/97	77	29
4036	4/26/97	104	38	4/26/00	112	39
4041	07/02/97	94	34	10/6/97	94	34
4043	08/25/97	118	43	8/28/98		
4047	10/06/97	116	48	6/3/99	117	46
4050	10/16/97	150	59	4/29/00	157	61
4054	4/28/97	103	39	2/28/01	128	49
4056	10/24/97	98	32	4/26/01	113	39
4059	5/4/98	90	33	5/20/99		
4064	9/25/99	89	31	5/22/00	91	32
4064				8/8/00	91	33
4066	10/24/00	107	38	12/2/2001	107	43
4068	10/22/01	130	44	5/1/2002	130	46
4087	10/04/98	147	57	10/10/98	147	57
4093	4/17/99	140	58	5/14/01	142	58
4110	11/17/98	152	56.	10/11/99	150	55
4110				11/25/99	150	58
4110				5/21/00	155	58
4114	9/20/98	75	24	4/26/99		
4125	6/23/97	88	33	9/29/97	94	33
4125				10/30/01	117	36
4159	10/12/98	116	38	4/20/99		
4168	10/31/99	132	51	11/1/99	132	51
4169	04/28/00	118	45	10/24/02	122	51
4204	10/25/98	98	36	6/13/00	102	39
4204				5/18/01	108	37
4204				6/6/01	108	37
4214	9/16/01	102	43	10/24/01	97	42
4214				4/19/02	97	44
4214				7/29/02	97	44
4216	5/14/01	61	25	5/30/02	71	32
4255	5/30/00	140	55	2/28/01	139	56
4258	4/11/00	145	53	4/27/00	145	53
4277	06/05/01	97	36	11/7/2001	79	28
4432	10/04/01	112	39	11/6/2001	105	36
4434	10/08/01	97	32	6/7/2002	95	32
9106	05/07/01	117		10/2/02	120	47
6270	10/19/98			6/13/00	121	45
6785	11/2/95			12/2/00	117	38
100036	10/04/95	81	30	8/17/96	81	30
100049	09/28/95	124	57	12/25/97		

DISCUSSION

Saginaw Bay seems to be an area occupied by juvenile to sub-adult lake sturgeon. This may be biased by the gear used to collect the lake sturgeon. Trap nets may not be big enough for a large lake sturgeon (the target species are lake whitefish and yellow perch). Larger lake sturgeon may be occupying different areas of the bay than are being fished with trapnets. Because limited numbers of adult lake sturgeon have been captured in the Bay and restoration of the species is dependent on spawning adults, future studies should focus on determining whether or not adult sturgeon occupy the bay.

One possible future study would be to use trap nets with a larger pot opening or large mesh gill nets to determine if adult lake sturgeon are encountered. This would allow us to assess whether gear bias is the reason for not catching adult sturgeon and whether or not adult sturgeon do occupy the bay.

The 2002 fishing season yielded 57 lake sturgeon, the second highest catch of sturgeon since 1995. The 2001 season was the highest season with 69 lake sturgeon caught. Of the 57 lake sturgeon caught nine were recaptures. Prior to the 2002 302 lake sturgeon had been tagged in Saginaw Bay. Nine recaptures represent 3% of the total tagged fish. This is a low percentage and may reflect a high population of lake sturgeon in the bay. Another explanation may be that because lake sturgeon move long distances, the same lake sturgeon are not always present in the bay and available for recapture.

ACKNOWLEDGEMENTS

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