


CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: March 27, 1990

File Ref: #3600

To: Ron Bruch- Oshkosh

From: Lee S. Meyers- LMD 

Subject: 1990 Lake Sturgeon Harvest, Lake Winnebago

The 1990 sturgeon spearing season started on February 10 and ran for 20 days. Season length varies each year from 16 to 22 days depending upon when the second Saturday of February falls.

Water clarity and travel conditions were excellent prior to and throughout the 1990 season. In general spearers could see to bottom in most parts of the lake and with little snow cover, travel was not restricted except for some areas near the islands which had ice shuvs and weak ice (water currents?).

A record harvest 2,908 sturgeon were registered surpassing the "old" record of 2,238 sturgeon taken in 1982 (Figure 1). These recent high harvests have lead to concern about over-harvest of this unique population. The third highest harvest (1,505) occurred 35 years ago (1955) the first year of total registration records. In 1955, there was a 40-inch length limit and 3 bag limit, compared to the present 45-inch length and 1 bag limit.

The average size of the sturgeon taken in 1990 was 56 inches and 41 pounds. Since 1974, the first season with the 45 inch length limit, the average length of the sturgeon has consistently ranged between 55 and 56 inches. From 1974 to 1984 the average sturgeon ranged from 41 to 47 pounds. From 1985 to 1989 the average weight ranged from 35 to 39 pounds suggesting the sturgeon were in poorer condition. However, the condition appears to be improving.

The majority (74%) of the sturgeon are speared in the 45 to 59 inch range with the remainder in the 60 to 80 inch range. From 1974 to 1983, 22.8% of the fish ranged 45-49 inches, whereas in 1990 this length group represented only 16.2% of the harvest (Figure 2). Therefore in 1990 there was a 6.6% shift from the 45-49 inch group into the 50 to 59 inch group. This indicates that spearers in 1990 tended to select fish 6-10 inches above the 45 inch minimum length (Figure 3).

At the present the 1990 license sales have not been tabulated, however the shanty count of 3,100 would indicate about 8,000 to 10,000 spearers. Recent spearer numbers have averaged about 8,000 compared to 4,500 in the 1960's and there is a trend toward

increase in pressure (Figure 4). Although spearer numbers are increasing the success rate still averages about 13% (Figure 5). In most situations as fishing pressure increases success decreases, however this has not been the case for sturgeon harvest lending support evidence to an increase in the sturgeon population of Lake Winnebago.

A population estimate was calculated from tag returns during the 1990 spearing season. " Sturgeon For Tomorrow " offered a \$10 incentive to spearers for tag returns. Methods for the estimate were similar to those of past, 1955-59 and 1975-82. Sturgeon were captured by the Calumet trawler during the openwater period, marked and released by the crew. Estimates were calculated by length group due to differences in the length frequency of mark versus capture. The trawler captures a higher frequency of fish in the 45-49 inch range than the spearer harvest and lower amounts of the larger size ranges (Figure 6). The Bailey modification of the Peterson is the standard formula used:

$$\text{Pop. Estimate: } N = \frac{M(C+1)}{(R+1)}$$

$$\text{Variance: } V(N) = \frac{N^2 (C-R)}{(C+1)(R+2)}$$

$$95\% \text{ Conf Limits} = N \pm 2\sqrt{V(N)}$$

Estimates were calculated for each size range, rounded to the nearest hundred and totalled to estimate the number of sturgeon over 45 inches in Lake Winnebago.

This estimate equalled 40,600 lake sturgeon with a 95% Confidence Interval of $\pm 40\%$. The estimate meets the Robson & Regier test for an unbiased estimate ($MC > 4N$) and it supports previous estimates which indicate an increasing sturgeon population in Lake Winnebago (Figure 7).

Recommendations for the 1990 openwater and 1991 spearing season:

1. The Calumet Harbor crew should tag all legal size sturgeon captured, measure all sublegals and collect a subsample of fin bones to determine age frequency of sublegals.

Length - sample size

40-45"	20
35-39"	20
30-34"	10
25-29"	10
20-24"	5
15-19"	5
10-14"	5

TOTAL 75

2. Registration stations should collect at least 350 fin bones during the 1991 spearing season.

Regulation Alternatives if pressure & harvest continue increasing:

A. Shorten Season Length. At present, season length is variable, 16 to 22 days averaging 19 days. Establish a standard 2 week(14 day) season; this would cut off 5 days(about a 25% reduction).
(> 1,500 Harvest in 1991)

B. License or Permit Quota. Limit the number of licenses to be sold prior to the season using an anticipated success rate to produce an acceptable harvest level. This is flexible however it may be difficult to estimate the success rate several months prior to the season.

C. Adjustable Emergency Harvest Cap. For four years following a high harvest season (2,000?), the Department close the season when the harvest reaches 1,000 (cap). Following the four year period, the cap is removed until a high harvest season occurs.

D. Increase License Fee. The present \$7.25 price does not prohibit spearers from buying licenses for non-spearers in order to get an extra sturgeon. A higher fee (\$15.00) may eliminate this activity, reduce pressure some and also be more in line with the price one should pay for this unique experience(how much is a deer license?).

These regulation changes are just some ideas which could be expanded upon or better defined or stored for the future or trashed.

cc: Jim Moore- LMD