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# WISCONSIN'S LAKE MICHIGAN 

AND
GREEN BAY

COMMERCIAL FISHERIES:
A STATISTICAL OVERVIEW
by

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INTRODUCTION

## INTRODUCTION

Siltation of spawning streams; DDT; increasing fishing pressure; sea lampreys; PCBs; declines in lake herring, chubs, and yellow perch; mushrooming populations of alewife; complex regulations; large-scale stocking of sainonids; and a whole host of other factors have given Wisconsin's fishing industry a turbulent history, yet the industry has survived. In 1976 , it produced fish with a dockside value of $\$ 2.6$ million and included nearly 300 licensed fishers and 600 crewmembers. Furthermore, except for continuing concern about PCBs and other microcontaminants, the outlook for comercial fishing in Wisconsin looks bright.

Whitefish have increased greatly in the middle and late 1970's and seem to be holding their own. The alewife curse has been turned into a 35 million pound per year commercial fishery with prospects for expansion. While the population of yellow perch is still small in comparison to the $1950^{\prime}$ s and early $1960^{\prime}$ s, the situation has at least stabilized and it continues to produce around 400,000 pounds per year. Chubs were so scarce in the mid-1970's that the DNR finally closed the fishery because of fear that continued fishing might prevent recovery. Now, however, substantial recovery is occurring and at least a limited comercial catch may soon be feasible.

Perhaps as important as all these trends are recent events in the Wisconsin Legislature. A recently passed bill has been signed into law by the Governor which clarifies the regulatory authority of the DNR and gives the fishers greater say in how they are regulated through the establishment of Commercial Fishing Boards for both Lake Michigan and Lake Superior. While this bill may not be all that the industry had hoped for, it does conmit the State of Wisconsin to the continued existence of an economical ly
viable, stable fishery in Lake Michigan.
This report is a statistical overview of the comercial fisheries of Wisconsin's Lake Michigan and Green Bay as they stood in 1976. Except as otherwise noted, the numbers have been gleaned from the files of the Wisconsin Department of Natural Resources. For a number of years, license holders have completed applications that include detailed questions about vessel, gear, crew members and other aspects of their operations. Additional data were accumulated from records which originate as monthly catch reports filed by the fishers and from various management reports. We gratefully acknowledge the cooperation of the Wisconsin Department of Natural Resources and particularly Ronald J. Poff. Examples of both report forms appear in the Appendix.

The body of the report consists of four sets of tables. Part I is about the fishers themselves. Nearly one-third of the licensees are located in Door County with the rest scattered along the shoreline between Marinette County and Kenosha County (Table 1). A minority of fishers are employed full-time in fishing. More than half the licensees ( $54.8 \%$ ) and crew members ( $68.6 \%$ ) consider fishing to be a part-time occupation (Table 2). Out of a total of 297 licensees only 213 reported any catch at all and more than half of these fished less than 50 days in 1976 (Table 3). The age distribution of licensees and crew members are given along with comparable figures for farm operators and farm laborers, respectively (Tables 4 and 5).

Part IL describes the vessels, gear, and real estate employed in fishing. Total investment in vessels, gear, and real estate amounted to $\$ 13.8$ million, with real estate alone accounting for nearly $\$ 10$ million
of this total (Table 6). A total of 270 vessels are described in Table 7 , ranging from rowboats without motors to diesel powered ships in excess of 40 feet in length, with average values in excess of $\$ 40,000$ each. Additional tables (8 and 9) report more details about length and tonnage of vessels. Gill nets in a variety of mesh sizes were the most popular gear, with 7.6 million feet valued at $\$ 1.2$ million 1 icensed in 1976 . Also licensed were nearly $\$ 900,000$ worth of pound nets, trap nets, fyke nets, trawls, and other gear (Table 10). If anything, this underestimates total investment, for some licensees do not include gear that they do not fish or do not report their gear's value.

By far the most detailed statistics currently available relate to the catch and these are summarized in Part III. More than $95 \%$ of the $\$ 2.6$ million catch value in 1976 was made up of five species, whitefish ( $54.8 \%$ of value), yellow perch ( $16.9 \%$ ), alewife ( $15.9 \%$ ), chubs ( $8.3 \%$ ), and smelt (1.2\%). The average price received by the fishers ranged from over Sl per pound for chubs to 1.2 cents for alewives (Table l1). Recently tabulated catch data for 1977 are also presented and can be found in Table 11A. 1976 production figures for major species can be viewed in a time perspective by referring to trends from 1940 to 1976 as reported in Table 12. Lake trout, which were once very important, were only a minor contributor in 1976 , because of closure of the fishery dating to 1962 following loss of naturally reproducing stocks to the sea lamprey and complete curtailment of sales of even incidental catches in mid-1976 as a result of the PCB problem. The chub fishery was but a shadow of its former self due to collapse of the stocks. This fishery was also closed during part of 1976 and remains closed at present except for a DNR sponsored contract fishery for stock
assessment. This fishery may be reopened on a limited basis in the near future. No such recovery appears in the offing for the lake herring fishery that once produced millions of pounds per year. Similar observations could be made about yellow perch were it not for occasional strong year classes. On the other hand, whitefish are doing very well for the present and the alewife fishery has displayed more or less steady growth since the late $1950^{\prime}$ s although low prices have caused stabilization of production at least for the time being.

As in other U.S. commercial fisheries, a relatively small number of operators produce a very large share of the catch. The top $10 \%$ of the licensees (decile $\# 1$ in Table 13 ) caught $55.5 \%$ of the fish in dollar terms. The top $40 \%$ of the licensees (first four deciles in the table) caught $94 \%$ of the fish.

Geographically, the most prolific area is lower Green Bay (Management District 1) which is repsonsible for $81 \%$ of the perch, $53 \%$ of the alewife, $13 \%$ of the whitefish, $46 \%$ of the smelt, and virtually all of the carp, bullheads, suckers and burbot. The whitefish industry is concentrated around the Door Pensinsula, with $29 \%$ of the catch coming from upper Green Bay (District 2) and $58 \%$ from northern Lake Michigan proper (District 3). Interestingly, outside of lower Green Bay, the most important perch producing area was the most southern portion of Lake Michigan (District 6), an area that has also been a mjor chub producing area. North central Lake Michigan (District 4) is a major alewife producing area with $41 \%$ of the catch in 1976. About $60 \%$ of the chub catch comes from south central Lake Michigan (District 5) (see Tables 14-20).

Table 21 shows that Wisconsin's fishers have significant production
in all months of the year. In fact, there were 31 individuals in 1976 who were licensed to fish only under the ice. Still production does tend to be concentrated in the warmer months.

Additional evidence of the importance of gill nets appears in the catch statistics (Tables $22-29$ ). Over $64 \%$ of the total catch measured in dollars in 1976 was caught by gill nets. Gill nets were important in the whitefish, yellow perch, chub, smelt, carp, and other segments of the industry. Pound nets were substantial contributors to the whitefish and alewtfe catches, although in the latter case pound nets were far less important than trawls. Fyke nets contributed substantial catches to the yellow perch harvest.

The PCB problem has been alluded to previously and Part IV presents some recent findings from Wisconsin $D N R^{\dagger} s$ PCB testing program. Among commercially caught species, carp have been particularly hard hit although a smali fishery continues to exist based on catches of smaller, less mature carp. Of particular concern for Wisconsin is a proposal by the U.S. Food and Drug Administration to lower the permitted level of PCBS in comercially caught fish from the current 5 ppm to 2 ppm. Table 30 shows that whiteffsh, particularly in larger sizes, often do contain PCBs in excess of 2 ppm . Not shown in the table is the observation that the highest concentrations of PCBs tend to be found in fish from upper and Lower Green Bay. Looking back to Table 14 , we can see that $42 \%$ of the whitefish catch in 1976 came from these two districts. This would be the portion of catch that would be most affected by a shift to 2 ppm. Table 30 also raises concerns about the potential impact of the reduced tolerance on the chub fishery and hopes for using alewives in human food. Table 31
shows results of PCB tests on Wisconsin Lake Michigan salmonids. The apparent decline 1 n PCBs in lake trout between 1972 and 1976 does hold hope that the problem is decreasing, but should be regarded as tentative. Scientists believe that PCBs are very persistent, If they are correct, the apparent trend for lake trout may simply be a statistical illusion. Like all statistical reports this one is a long way from perfect. The reader should bear in mind that there were some missing data, particularly from the license application forms. For example, data on the fishing fleet include only those vessles described on the forms. Most forms had complete information in this regard but some did not. Thus, such numbers must be regarded as lower bounds. Furthermore, all dollar values in this report are the estimates of the 1 icensees themselves. No attempt was made by us to verify the accuracy of dollar values given for vessels, gear, real estate, or catch.

While errors no doubt have crept in, the figures in this report will still give the reader a basic idea of what Wisconsin's Lake Michigan and Green Bay comercial fisheries are all about. Actually the statistics discussed here were only the first step in a more ambitious effort to understand the econonics of commercial fishing in Wisconsin. Personal interviews are now (March, 1978) in progress that will begin where the present report leaves off. If Wisconsin citizens and public officials become better informed about the fisheries and if this leads to pubiic policies reflecting increased understanding of the industry our goals will have been achieved.

PART I

CHARACTERISTICS OF THE FTSHERS


TABLE 1
Lacation of Lake Michigan commercial fishing license holders by County of Home Port; 1976

Table 2. Full Time/Part Time Classification of Licensees and Crew, 1975-76

| Licensees | Crew |  |
| :--- | :---: | :---: |
| Full Time | 130 | 203 |
| Part Time | 154 | 443 |
| Total Reparting | 284 | 646 |
| $\%$ Full Time | 45.8 | 31.4 |
| \% Part Time | 54.2 | 68.6 |

Table 3. Distribution of Days Fished, 1976

| Days Fished | No. of Licensees* | \% of licensees* | Cumulative \% of Licensees* |
| :---: | :---: | :---: | :---: |
| 0-10 | 45 | 21.1 | 21.1 |
| 11-25 | 41 | 19.2 | 40.4 |
| $26-50$ | 35 | 16.4 | 56.8 |
| 51-75 | 23 | 10.8 | 67.6 |
| 76-100 | 26 | 12.2 | 79.8 |
| 101-150 | 23 | 10.8 | 90.6 |
| 151-200 | 11 | 5.2 | 95.8 |
| 201-250 | 7 | 3.3 | 99.1 |
| 251-300 | 1 | 0.5 | 99.5 |
| $300+$ | 1 | 0.5 | 100.0 |

*Numbers and percentages of licensees actually recording a catch in 1976.

Table 4. Age Distribution of Lake Michigan Licensees (1975-76) and of Wisconsin Farmers and Farm Managers (1970).

| Age | No. of <br> Licensees | $\%$ of Total <br> Licensees | No. of Farmers $\&$ <br> Farm Managers | \% of Total <br> Farmers $\&$ |
| :--- | :---: | :---: | :---: | :---: |
| 24 farm Managers |  |  |  |  |

${ }^{\text {a }}$ Six licensees gave no response.
${ }^{6}$ Taken from the $1970 \mathrm{U} . \mathrm{S}$. Census of Population.
${ }^{\text {C While }} 297$ persons held licenses, data were unavailable for 15 of them.

Table 5. Age Distribution of Lake Michigan and Green Bay Crew (1975-76) and of Wisconsin Farm Laborers and Foremen (1970)

| Age | No, of Lake Michigan Crew | $\%$ of Total Crew | No. of Farm Laborers and Foremen | \% of Farm <br> laborers, etc. |
| :---: | :---: | :---: | :---: | :---: |
| 24 \& under | 161 | 26.8 | 10,115 | 55.7 |
| 25-34 | 117 | 19.5 | 2,223 | 12.3 |
| 35-44 | 104 | 17.3 | 1,365 | 7.5 |
| 45-54 | 107 | 17.8 | 1,441 | 7.9 |
| 55-64 | 67 | 11.1 | 1,617 | 8.9 |
| $65+$ | 45 | 7.5 | 1,375 | 7.6 |
| Totals | 601 | 100.0 | 18,136 | 99.9 |

${ }^{\text {a }}$ From 1970 U.S. Census of Population.

PART II

VESSEL, GEAR, AND REAL ESTATE USED IN THE FISHFRY

Table 6. Value of Gear, Vessels, and Real Estate, 1975-76

| GEAR | $\$ \cdot 2,077,500$ |
| :--- | ---: |
| VESSELS | $1,713,000$ |
| REAL ESTATE | $9,967,000$ |
| TOTAL | $\$ 13,757,500$ |

Table 7. Description of Vesse1s, 1975-76

|  | Vessels 25 ft . or less |  |  | Vessel.s $26-40 \mathrm{ft}$, |  |  |  | Vessels Greater than 40 ft . |  |  |  | Tt1. <br> Vess. <br> by <br> Engn. <br> Type |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Engine Type | No. | Avg. <br> Act. <br> Lgth. | Average Value (\$) | No. | Avg. <br> Act. <br> Lgth. | Avg. <br> Gr. <br> Tons | $\begin{gathered} \text { Average } \\ \text { Value } \\ (\$) \\ \hline \end{gathered}$ | No. | Avg. <br> Act. <br> Lgth. | Avg. <br> Gr. <br> Tons | Average Value (\$) |  |
| Rowboat, no motor | 5 | 14 | 1,000 | 0 | -* | -- | -- | 0 | -- | -- | -- | 5 |
| Rowboat, with motor | 101 | 16 | 1,370 | 3 | 29 | 11 | 1,500 | 0 | -- | -- | -- | 104 |
| Inboard gasoline | 33 | 21 | 3,000 | 40 | 30 | 10 | 4,315 | 1 | 42 |  | a | 74 |
| Inboard diesel | 1 | 25 | 6,000 | 40 | 36 | 17 | 10,026 | 46 | 48 | 29 | 47,977 | 87 |
| Total Vessel by Size | 140 |  |  | 83 |  |  |  | 47 |  |  |  | 270 |

[^0]Table 8. Actual Length of Vessels

| Length (feet) | No. of Vessels | \% of Total Vessels* | Cumulative \% <br> of Total Vessels |
| :---: | :---: | :---: | :---: |
| 0-14 | 40 | 14.3 | 14.3 |
| 15-19 | 62 | 22.2 | 36.6 |
| 20-29 | 66 | 23.7 | 60.2 |
| 30-39 | 47 | 16.8 | 77.1. |
| 40-49 | 44 | 15.8 | 92.8 |
| 50-59 | 1.5 | 5.4 | 98.2 |
| 60-69 | 5 | 1.8 | 100.0 |
| Total* | 279 | 100.0 |  |

* Excludes approximately 20 vessels for which no response was given.

Table 9. Gross Tonnage of Vessels

| Gross <br> Tons | No. of Reporting Vessels* | \% of Reporting Veasels | Cumutative \% of Reporting Vessels | $\begin{aligned} & \text { Total } \\ & \text { Tonnage } \end{aligned}$ | \% of Total <br> Tonnage | Cumulative <br> \% of Total <br> lonnage |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1-5 | 28 | 20.1 | 20.1 | 74 | 3.1 | 3.1 |
| 6-10 | 17 | 12.2 | 32.4 | 146 | 6.1 | 9.2 |
| 11-15 | 24 | 17.3 | 49.6 | 310 | 13.0 | 22.2 |
| 16-20 | 23 | 16.5 | 66.2 | 413 | 17.3 | 39.5 |
| 21-25 | 1.4 | 10.1 | 76.3 | 324 | 13.6 | 53.1 |
| 26-30 | 11 | 7.9 | 84.2 | 304 | 12.7 | 65.8 |
| 31-35 | 11 | 7.9 | 92.1 | 353 | 14.8 | 80.6 |
| 36-40 | 3 | 2.2 | 94.2 | 119 | 5.0 | 85.6 |
| 41-45 | 8 | 5.8 | 100.0 | 344 | 14.4 | 100.0 |
| Total | 139 | 100.0 |  | 2,387 | 100.0 |  |

*There are over 270 vessels on Lake Michigin; only 139 are included in this figure as "reporting vessels" because most licensees with rowboats do not have a sufficient gross tonnage to report--i.e., the gross tonnage is less than 1 ton.

| Gear Type | No. of Licensees | Total length(gill nets) No. of nets (other gear) | Total Value(\$) |
| :---: | :---: | :---: | :---: |
| Gill Nets, $13 / 8^{\prime \prime}-11 / 2^{\prime \prime}$ | 55 | $429,710 \mathrm{ft}$. | \$ 72,000 |
| Gill Nets, 2 1/4"-2 3/4" | 152 | 1,900,590 | 296,200 |
| G111 Nets, $21 / 2^{\prime \prime}-23 / 4^{\prime \prime}$ | 140 | 2,598,610 | 380,300 |
| Gil1 Nets, $4^{\prime \prime}$ + | 173 | 2,626,880 | 462,000 |
| Gill Nets, Subtotal | a | 7,555,790 | \$1,210,500 |
| Pound Nets | 56 | 575 | \$ 473,300 |
| Submarine Trap Nets | 16 | 110 | 47,200 |
| Fyke Nets | 28 | 153 | 66,300 |
| Drop Nets | 39 | 796 | 220,400 |
| Seines | 13 | 18 | 41,900 |
| Traw1s | 3 | 15 | 17.900 |
| Other Gear, Subtotal |  |  | \$ 867,000 |

${ }^{a}$ A total of 255 licensees indicated owning some gill nets of at least one size. Many have gill nets of more than one size. Thus, a subtotal here would not be particularly meaningful.

PART III

THE CATCH

Table ll. Production and Value for Wisconsin's Lake Michigan and Green Bay, 1976

| Species | Pounds Produced | \% <br> of Total <br> Pounds | Average Value/lb. $\qquad$ (c) | Total Value $\qquad$ (\$) | ```% of Total Value``` | Cumulative <br> \% of Total <br> Value |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Whitefish | 1,612,491 | 4.2 | 89.6 | 1,445,577 | 54.8 | 54.8 |
| Yellow Perch | 448,688 | 1.2 | 99.6 | 446,866 | 16.9 | 71.7 |
| Alewife | 34,589,768 | 90.1 | 1.2 | 419.124 | 15.9 | 87.6 |
| Chubs ${ }^{\text {a }}$ | 214,859 | 0.56 | 101.5 | 218,123 | 8.3 | 95.9 |
| Smelt | 204,333 | 0.53 | 15.8 | 32,345 | 1.2 | 97.1 |
| Carp | 748,407 | 1.95 | 3.4 | 25,697 | 0.97 | 98.1 |
| Bullheads | 119,875 | 0.31 | 13.0 | 15,633 | 0.59 | 98.7 |
| Menominee | 19,655 | 0.05 | 48.3 | 9,486 | 0.36 | 99.2 |
| Suckers ${ }^{\text {b }}$ | 281,097 | 0.73 | 2.5 | 6,994 | 0.27 | 99.3 |
| Burbot | 130,254 | 0.34 | 4.2 | 5,507 | 0.21 | 99.5 |
| Walleye | 5,913 | 0.02 | 83.0 | 4,910 | 0.19 | 99.7 |
| Northern Pike | 15,659 | 0.04 | 17.9 | 2,803 | 0.11 | 99.8 |
| Lake Trout | 3,690 | 0.010 | 45.2 | 1,669 | 0.06 | 99.9 |
| White Bass | 4,165 | 0.011 | 39.6 | 1,648 | 0.06 | 99.96 |
| Lake Herriag | 1,599 | 0.004 | 58.7 | 938 | 0.04 | 99.99 |
| Catfish | 353 | 0.0009 | 36.5 | 129 | 0.005 | 99.996 |
| Sheepshead | 1,292 | 0.0034 | 8.6 | 111 | 0.004 | 100.00 |
| Bowf in | 25 | 0.00007 | -- | 0 | 0.0 | 100.00 |
| Gizzard Shad | 11 | 0.00003 | -- | 0 | 0.0 | 100.00 |
| Buffalo Fish | 6 | 0.00002 | -- | 0 | 0.0 | 100.00 |
| TOTAL | 38,402,140 | 100 |  | 2,637,560 | 100 | 1.00 |

[^1]Table llA. Production and Value for Wisconsin's Lake Michigan and Green Bay, 1977

| Spectes | Pounds Produced |  | Average Value/1b. (c) | Total Value $\qquad$ (\$) | $\%$ of Total Value | Cumulative <br> \% of Total <br> value |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Whitefish | 1,554,396 | 3.30 | 94.0 | 1,460,478 | 49.5 | 49.5 |
| Alewife | 43,929,276 | 92.30 | 1.6 | 695,845 | 23.6 | 73.1 |
| Yellow Perch | 622,293 | 1.30 | 70.5 | 438,988 | 14.9 | 88.0 |
| Chubs ${ }^{\text {a }}$ | 259,033 | . 50 | 96.6 | 250,204 | 8.5 | 96.5 |
| Bullheads | 118,240 | . 20 | 30.1 | 35,556 | 1.2 | 97.7 |
| Smelt | 119,405 | . 30 | 22.4 | 26,750 | . 90 | 98.6 |
| Carp | 526,598 | 1.10 | 1.8 | 9,237 | .30 | 98.9 |
| Menominee | 19,273 | . 04 | 47.3 | 9,108 | . 30 | 99.2 |
| Walleye | 10,947 | . 02 | 80.0 | 8,754 | . 30 | 99.5 |
| Suckers | 204,050 | . 40 | 2.2 | 4,501 | . 20 | 99.7 |
| Burbot | 189,231 | . 40 | 2.3 | 4,309 | . 10 | 99.8 |
| Northern Pike | 16,295 | . 03 | 18.0 | 2,934 | . 10 | 99.9 |
| Whitebass | 1,869 | . 004 | 35.3 | 660 | . 02 | 99.92 |
| Catfish | 886 | . 002 | 37.8 | 335 | . 01 | 99.93 |
| Lake Herring | 825 | . 002 | 27.0 | 223 | .008 | 99.938 |
| Sheephead | 568 | . 001 | 9.9 | 56 | . 002 | 99.940 |
| Lake Trout Lean | 05 | . 00001 |  | 0 |  | 100.00 |
| TOTAL 4 | 47,573,191 | 100. |  | 2,947,938 | 100. | 100. |

[^2]Table 12. Production Trends in Pounds for the Major Lake Michigan and Green Bay Fisheries, 1940-1976

| Year | Lake Trout | Whitefish | Chubs | Herring | Perch | Smelt | Alewife |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1940 | 2,508,550 | 199,196 | 817,689 | 1,205,865 | 1,771,065 | 1,790,098 | 0 |
| 1941 | 2,742,868 | 400,217 | 943,301 | 1,105,904 | 1,551,411 | 1,755,044 | 0 |
| 1942 | 2,692,696 | 279,336 | 1,030,205 | 693,606 | 1,865,643 | 1,116,708 | 0 |
| 1943 | 2,824,277 | 253,835 | 1,251,414 | 1,024,395 | 2,617,814 | 497,002 | 0 |
| 1944 | 2,851,642 | 343,061 | 1,647,310 | 712,193 | 2,475,717 | 4,344 | 0 |
| 1945 | 2,515,075 | 330,893 | 2,379,013 | 1,528,089 | 857,385 | 57,698 | 0 |
| 1946 | 1,648,408 | 734,044 | 2,607,865 | 3,001,913 | 935,191 | 201,044 | 0 |
| 1947 | 1,177,321 | 1,806,174 | 2,519,667 | 3,654,850 | 816,482 | 449,815 | 0 |
| 1948 | 540,101 | 984,390 | 2,507,137 | 5,100,334 | 1,003,574 | 504,321 | 0 |
| 1949 | 107,715 | 484,308 | 3,672,554 | 4,336,990 | 824,443 | 487,974 | 0 |
| 1950 | 16,768 | 258,836 | 5,604,296 | 4,045,951 | 747,307 | 791,900 | 0 |
| 1951 | 2,710 | 242,254 | 6,578,057 | 3,392,840 | 854,726 | 954,978 | 0 |
| 1952 | 596 | 289,435 | 6,775,125 | 5,959,117 | 1,247,648 | 1,072,206 | 0 |
| 1953 | 140 | 187,861 | 6,329,762 | 3,616,366 | 1,457,336 | 1,014,731 | 0 |
| 1954 | 56 | 196,676 | 5,885,738 | 3,775,757 | 1,476,615 | 1,040,706 | 0 |
| 1955 | 0 | 97,213 | 5,895,099 | 3,257,871 | 2,177,932 | 539,898 | 0 |
| 1956 | 0 | 18,295 | 5,723,846 | 3,070,398 | 2,161,627 | 1,472,460 | 0 |
| 1957 | 0 | 12,272 | 5,561,554 | 2,091,032 | 2,093,486 | 1,627,880 | 299,725 |
| 1958 | 0 | 9,219 | 5,353,509 | 1,318,153 | 2,308,826 | 2,933,230 | 950,221 |
| 1959 | 0 | 19,524 | 3,833,465 | 720,196 | 1,218,731 | 2,106,022 | 762,529 |
| 1960 | 0 | 67,784 | 3,809,063 | 147,579 | 1,793,836 | 1,060,417 | 691,076 |
| 1961 | 16 | 143,436 | 4,071,997 | 97,788 | 3,248,363 | 911,483 | 2,113,171 |
| 1962 | 64 | 79,112 | 3,721,625 | 60,941 | 2,782,046 | 458,266 | 3,347,493 |
| 1963 | 426 | 42,300 | 2,324,033 | 16,906 | 3,573,599 | 234,474 | 3,815,386 |
| 1964 | 117 | 192,931 | 2,233,616 | 13,282 | 2,839,493 | 166,253 | 8,409,986 |
| 1965 | 174 | 162,785 | 3,871,460 | 18,902 | 396,200 | 225,222 | 10,868,679 |
| 1966 | 97 | 1.41,201 | 3,983, 302 | 19,824 | 241,258 | 91,457 | 23,930,726 |
| 1967 | 7,227 | 97,306 | 4,758,220 | 5,657 | 731,152 | 123,952 | 27,831,099 |
| 1968 | 4,837 | 65,824 | 6,222,572 | 20,194 | 271,249 | 129,556 | 18,156,290 |
| 1969 | 2,686 | 205,880 | 5,337,816 | 15,267 | 336,464 | 417,732 | 21,757,813 |
| 1970 | 3,403 | 304,649 | 5,007,124 | 10,318 | 425,961 | 276,224 | 27,478,679 |
| 1971 | 2,933 | 470,666 | 3,107,938 | 5,765 | 273,336 | 213,485 | 26,148,095 |
| 1972 | 3,318 | 696,810 | 2,245,358 | 2,209 | 324,909 | 88,091 | 25,824,662 |
| 1973 | 2,363 | 719,708 | 1,849,222 | 2,752 | 308,468 | 162,085 | 28,930,620 |
| 1974 | 23,347 | 1,174,208 | 1,251,978 | 6,112 | 834,924 | 336,483 159,245 | $39,725,524$ $31,498,462$ |
| 1975 | 24,640 | 1,267,270 | 343,273 | 3,180 | 548,304 | 159,245 | 31,498,462 |
| 1976 | 3,690 | 1,586,372 | 201,264 | 1,599 | 446,192 | 204,281 | 34,589,133 |

Table 13. Distribution of Catch among Wisconsin Lake Michigan Commercial Fishermen, 1976*

| Decile \# | Total Value of Catch (\$). | Average Value (\$) | $\begin{array}{r} \text { Range in } \\ \text { Values (\$) } \end{array}$ | $\qquad$ | Cumulative <br> \% of Total Value |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1,463,765 | 69,703 | $\begin{aligned} & 36,200- \\ & 100,000+ \end{aligned}$ | 55.5 | 55.5 |
| 2 | 532,195 | 25,343 | $\begin{array}{r} 18,476- \\ 35,038 \end{array}$ | 20.2 | 75.7 |
| 3 | 317,663 | 15,127 | $\begin{array}{r} 11,554- \\ 18,382 \end{array}$ | 12.0 | 87.7 |
| 4 | 172,723 | 8,225 | $\begin{array}{r} 5,626- \\ 11,505 \end{array}$ | 6.5 | 94.3 |
| 5 | 85,244 | 4,059 | $\begin{array}{r} 3,044- \\ 5,370 \end{array}$ | 3.2 | 97.5 |
| 6 | 40,648 | 1,936 | $\begin{array}{r} 1,067- \\ 2,880 \end{array}$ | 1.5 | 99.0 |
| 7 | 16,229 | 773 | $\begin{aligned} & 555- \\ & 1,029 \end{aligned}$ | 0.6 | 99.7 |
| 8 | 7,312 | 348 | $162 \underbrace{}_{570}$ | 0.3 | 99.93 |
| 9 | 1,649 | 79 | $23-160$ | 0.1 | 99.99 |
| 10 | 132 | 6 | $0^{0-}$ | 0.005 | 100.00 |
| Total | 2,637,560 |  |  |  |  |

*This table is based strictly on the value of catch reported by 213 fishermen active during calender year 1976. Any fisherman licensed for the 1975-76 or $1976-77$ license year who did not report a catch is excluded. There are 21 fishermen per decile in the table.


TABLE 14

| Table 15. | Production (Management | and Value of District 1), | Catch from Lowe 1976 | Green Bay |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Species | Pounds | $\%$ of Dist. <br> Total lbs. | $\%$ of Species Total for L. Mich. | Value | \% of Dist. <br> Total Value |
| White fish | 206,083 | 1.0 | 12.8 | \$184,751 | 21.8 |
| $\begin{aligned} & \text { Yellow } \\ & \text { Perch } \end{aligned}$ | 362,594 | 1.8 | 80.8 | 361,122 | 42.7 |
| Alewife | 18,328,411 | 90.5 | 53.0 | 222,085 | 26.3 |
| Chub | 0 | 0 | 0 | 0 | 0 |
| Smelt | 94,073 | 0.5 | 46.0 | 14.891 | 1.8 |
| Carp | 747,207 | 3.7 | 99.8 | 25,656 | 3.0 |
| Bullhead | 119,839 | 0.6 | 100.0 | 15,628 | 1.8 |
| Sucker | 263,375 | 1.3 | 93.7 | 6,553 | 0.8 |
| Burbot | 109,000 | 0.5 | 83.7 | 4,608 | 0.5 |
| Others | 28,860 | 0.1 | 54.6 | 10,431 | 1.2 |
| TOTAL | 20,259,442 | 100.0 | 52.8 | 845,725 | 100.0 |


| Species | Pounds | \% of Dist. Total 1 bs . | $\begin{aligned} & \text { \% of } \\ & \text { Species Total } \\ & \text { for L. Mich. } \end{aligned}$ | Value | \% of Dist. Total Value |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Whitefish | 467,284 | 91.8 | 29.0 | \$418,914 | 99.2 |
| Yellow Perch | 80 | 0.0 | 0.0 | 80 | 0.0 |
| Alewife | 966 | 0.2 | 0.0 | 12 | 0.0 |
| Chubs | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Smelt | 5,011 | 1.0 | 2.5 | 793 | 0.2 |
| Carp | 691 | 0.1 | 0.1 | 24 | 0.0 |
| BuIlhead | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Sucker | 11,214 | 2.2 | 4.0 | 279 | 0.1 |
| Burbot | 20,478 | 4.0 | 15.7 | 866 | 0.2 |
| Others | 3, 128 | 0.6 | 5.9 | 1,463 | 0.3 |
| total | 508,852 | 100.0 | 1.3 | \$422,431 | 100.0 |

Table 17. Production and Value of Catch from Northern Lake Michigan (Management District 3), 1976

| Species | Pounds | \% of Dist. <br> Total 1bs. | ```% of Species Total for L. Mich.``` | Value | \% of Dist. <br> Total Value |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Whitefish | 938,629 | 95.2 | 58.2 | \$841,468 | 96.3 |
| Yellow Perch | 5,544 | 0.6 | 1.2 | 5,521 | 0.6 |
| Alewife | ],261 | 0.1 | 0.0 | 15 | 0.0 |
| Chubs | 17.427 | 1.8 | 8.1 | 17,692 | 2.0 |
| Smelt | 2,027 | 0.2 | 1.0 | 321 | 0.0 |
| Carp | 500 | 0.1 | 0.1 | 17 | 0.0 |
| Bullhead | 32 | 0.0 | 0.0 | 4 | 0.0 |
| Sucker | 1,151 | 0.1 | 0.4 | 29 | 0.0 |
| Burbot | 664 | 0.1 | 0.5 | 28 | 0.0 |
| Others | 18,596 | 1.9 | 35.2 | 8.799 | 1.0 |
| TOTAL | 985,831 | 100.0 | 2.6 | \$873,894 | 100.0 |

Table 18. Production and Value of Catch from North Central Lake Michigan (Management District 4), 1976

| Spectes | Pounds | \% of DIst. <br> Total lbs. | $\%$ of <br> Species Total for L. Mich. | Value | \% of Dist. <br> Total Value |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Whitefish | 472 | 0.0 | 0.0 | \$ 423 | 0.2 |
| Yellow Perch | h 18,037 | 0.1 | 4.0 | 17,964 | 8.2 |
| Alewife | 14,192,127 | 99.1 | 41.0 | 171,966 | 78.3 |
| Chubs | 12,373 | 0.1 | 5.8 | 12,561 | 5.7 |
| Smelt | 98,573 | 0.7 | 48.2 | 15,604 | 7.1 |
| Carp | 9 | 0.0 | 0.0 | 0 | 0.0 |
| Bullhead | 4 | 0.0 | 0.0 | 1 | 0.0 |
| Sucker | 4,252 | 0.0 | 1.5 | 106 | 0.1 |
| Burbot | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Others | 1,795 | 0.0 | 3.4 | 865 | 0.4 |
| TOTAL | 14,327,642 | 100.0 | 37.3 | \$219,490 | 100.0 |

Table 19. Production and Value of Catch from South Central Lake Michigan (Management District 5). 1976

| Species | Pounds | \% of Dist. <br> Total lbs. | ```% of Species Total for L. Mich.``` | Value | \% of Dist. <br> Fotal Value |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Whitefish | 23 | 0.0 | 0.0 | \$ 21 | 0.0 |
| $\begin{aligned} & \text { Yellow } \\ & \text { Perch } \end{aligned}$ | 11,735 | 0.5 | 2.6 | 11,687 | 7.0 |
| Alewife | 2,065,974 | 93.4 | 6.0 | 25,033 | 14.9 |
| Chubs | 128,527 | 5.8 | 59.8 | 130,479 | 77.7 |
| Smelt | 3,971 | 0.2 | 1.9 | 629 | 0.4 |
| Carp | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Butlhead | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Sucker | 1,092 | 0.1 | 0.4 | 27 | 0.0 |
| Burbot | 112 | 0.0 | 0.1 | 5 | 0.0 |
| Others | 472 | 0.0 | 0.9 | -126 | 0.1 |
| TOTAL | 2,211,906 | 100.0 | 5.8 | \$168,007 | 100.0 |

Table 20. Production and Value of Catch from Southern Lake Michigan (Management District 6), 1976

| Species | Pounds | \% of Dist. <br> Total 1bs. | $\%$ of <br> Species <br> for L. M | Value | \% of Dist. <br> Total Value |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Whitefish | 0 | 0.0 | 0.0 | \$ 0 | 0.0 |
| Yellow Perch | 50,698 | 46.5 | 11.3 | 50,492 | 46.7 |
| Alewife | 1,029 | 0.9 | 0.0 | 13 | 0.0 |
| Chubs | 56,532 | 51.9 | 26.3 | 57,391. | 53.1 |
| Smelt | 678 | 0.6 | 0.3 | 107 | 0.1 |
| Carp | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Bullhead | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Sucker | 13 | 0.0 | 0.0 | 0 | 0.0 |
| Burbot | 0 | 0.0 | 0.0 | 0 | 0.0 |
| Others | 23 | 0.0 | 0.0 | 10 | 0.0 |
| TOTAL | 108,973 | 100.0 | 0.3 | \$108,013 | 100.0 |

Table 21. Production in Pounds by Month and Species, 1976

|  | Whitefish | Ye11ow Perch | Alewife | Chubs | Smelt | Carp | Bul1heads | Suckers | Burbot | Others | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Jan. | 70,453 | 5,019 | 986 | 55,424 | 1,072 | 33,761 | 245 | 1,337 | 18,436 | 1,626 | 188,359 |
| Feb . | 107,727 | 2,627 | 1,070 | 67,251 | 18,776 | 38,285 | 65 | 1,193 | 15,701 | 1,763 | 254,458 |
| Mar. | 54,787 | 661 | 0 | 210 | 21,573 | 37,695 | 27 | 4,377 | 17,339 | 1,134 | 137,803 |
| Apr. | 147,119 | 2,871 | 1,315,922 | 15,320 | 128,332 | 6,255 | 55 | 70,675 | 15,188 | 2,282 | 1,704,019 |
| May | 209,665 | 23,607 | 6,796,336 | 5,485 | 7,760 | 157,725 | 3,228 | 50,945 | 2,241 | 5,341 | 7,262,333 |
| Jun. | 172,011 | 29,793 | 11,996,975 | 0 | 4,374 | 134,915 | 22,498 | 77,529 | 5,539 | 6,164 | 12,449,798 |
| Jul. | 161,092 | 31,180 | 6,590,285 | 0 | 2,249 | 85,179 | 31,223 | 15,607 | 2,900 | 8,136 | 6,927,851 |
| Aug. | 111,151 | 53,804 | 2,291,602 | 14,942 | 9,347 | 97,425 | 32,407 | 14,867 | 8,035 | 8,977 | 2,642,557 |
| Sep. | 170,102 | 118,306 | 1,998,330 | 33,822 | 2,133 | 79,503 | 16,232 | 18,705 | 15,327 | 9,110 | 2,461,570 |
| Oct. | 344,894 | 136,502 | 1,437,191 | 5,920 | 3,874 | 17,013 | 9,781 | 21,659 | 19,462 | 4,585 | 2,000,881 |
| Nov, | 2 | 40,381 | 2,159,755 | 8,075 | 4,380 | 161 | 3,680 | 2,269 | 9,223 | 1,751 | 2,229,677 |
| Dec. | 63,488 | 3,937 | 1,316 | 8,410 | 463 | 60,490 | 434 | 1,934 | 863 | 1,499 | 142,834 |
| Total | 1,612,491 | 448,688 | 34,589,768 | 214,859 | 204,333 | 748,407 | 119,875 | 281,097 | 130,254 | 52,368 | 38,402,140 |

Table 22. Production in Dollars by Gear and Species, 1976

| $\text { Gear }^{\text {a }}$ | Whitefish | Yellow <br> Perch | Alewives | Chubs | Sme1t | Carp | Bull- <br> heads | Suckers | $\begin{aligned} & \text { Bur- } \\ & \text { bot } \end{aligned}$ | Others | Totals |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  | Value | Percent |
| $\begin{aligned} & 1 \text { fach gill } \\ & \text { net } \end{aligned}$ | 250 | 21 | 1,969 | 0 | 11,171 | 0 | 0 | 0 | 0 | 69 | 13,480 | 0.5 |
| $\begin{aligned} & 2 \text { inch gill } \\ & \text { net } \end{aligned}$ | 33 | 230,602 | 132 | 212,142 | 810 | 0 | 245 | 396 | 50 | 9,296 | 453,706 | 17.2 |
| $\begin{aligned} & 4 \text { inch gill } \\ & \text { net } \end{aligned}$ | 1,211,938 | 8 | 4 | 5,966 | 832 | 37 | 0 | 1,570 | 1,339 | 3,894 | 1,225,588 | 46.5 |
| $\begin{aligned} & 7 \text { inch gill } \\ & \text { net } \end{aligned}$ | 0 | 0 | 0 | 0 | 0 | 13,407 | 0 | 0 | 37 | 0 | 13,444 | 0.5 |
| Pound net | 209,253 | 517 | 77,296 | 0 | 9,206 | 0 | 0 | 77 | 0 | 529 | 296,878 | 11.3 |
| $\begin{aligned} & \text { Deep trap } \\ & \text { net } \end{aligned}$ | 18,398 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 8 | 18,416 | 0.7 |
| Submarine trap net | 5,692 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,692 | 0.2 |
| Fyke net | 0 | 215,657 | 727 | 0 | 955 | 907 | 15,388 | 2,915 | 4,034 | 7,893 | 248,477 | 9.4 |
| Seines | 0 | 0 | 0 | 0 | 0 | 10,558 | 0 | 0 | 0 | 0 | 10,558 | 0.4 |
| Trawls | 13 | 61 | 338,996 | 15 | 9,371 | 788 | 0 | 2,025 | 47 | 5 | 351,321 | 13.3 |
| Totals | 1,445,577 | 446,866 | 419,124 | 218,123 | 32,345 | 25,697 | 15,633 | 6,994 | 5,507 | 21,694 | 2,637,560 | 100.0 |

$a_{\text {Gill }}$ net size designations indicate minimum size for that category. For example, the 1 inch designation refers to net from 1 inch up to less than 2 inches, 2 inch nets are between 2 inches and 4 inches, and so on.
Table 23. Species Production In Pounds by Gear, 1976

| $\text { Gear }^{\mathrm{a}}$ | Whitefish | Yellow Perch | Alewives | Chubs | Smelt | Carp | Bullheads | Suckers | Burbot | Others | Totals |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  | Pounds | \% |
| $\begin{aligned} & 1 \text { inch gill } \\ & \text { net } \end{aligned}$ | 250 | 42 | 179,090 | 0 | 35,105 | 0 | 0 | 65 | 15 | 115 | 214,682 | . 06 |
| $\begin{aligned} & 2 \text { inch gill } \\ & \text { net } \end{aligned}$ | 43 | 228,624 | 25,046 | 208,568 | 3,936 | 216 | 2,136 | 13,107 | 2,025 | 19,476 | 503,177 | 1.30 |
| $\begin{aligned} & 4 \text { inch gill } \\ & \text { net } \end{aligned}$ | 1,299,421 | 12 | 1,737 | 6,274 | 7,842 | 1,259 | 0 | 51,616 | 70,197 | 9,567 | 1,447,925 | 3.80 |
| $\begin{aligned} & 7 \text { inch gill } \\ & \text { net } \end{aligned}$ | 0 | 0 | 0 | 0 | 0 | 170,487 | 0 | 0 | 146 | 0 | 170,633 | 0.40 |
| Pound net | 277,633 | 586 | 6,696,602 | 0 | 101,160 | 0 | 0 | 5,272 | 0 | 1,186 | 7,082,439 | 18.40 |
| Deep trap net | 25,630 | 0 | 0 | 0 | 0 | 0 | 0 | 206 | 0 | 12 | 25,848 | 0.10 |
| Submarine trap net | 9,486 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,486 | 0.0 |
| Fyke net | 0 | 219,365 | 102,898 | 0 | 8,760 | 43,200 | 117,739 | 103,855 | 50,185 | 22,004 | 668,006 | 1.7 |
| Seines | 0 | 0 | 0 | 0 | 0 | 484,600 | 0 | 0 | 0 | 0 | 484,600 | 1.3 |
| Trawls | 28 | 59 | 27,584,395 | 17 | 47,530 | 48,645 | 0 | 106,976 | 7,686 | 8 | 27,795,344 | 72.4 |
| TOLALS | 1,612,491 | 448,688 | 34,589,768 | 214,859 | 204,333 | 748,407 | 119,875 | 281,097 | 130,254 | 52,368 | 38,402,140 | 100.0 |

Table 24. Catch ${ }^{1}$ and Effort ${ }^{2}$ in the Gill Net Fisheries

| Year | Chubs |  |  | Yellow Perch |  |  | Whitefish |  |  | Total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Catch | Effort | Catch/ Effort | Catch | Effort | Catch/ Effort | Catch | Effort | Catch Effort | Catch | Effort | Catch/ Effort |
| 1967 | 5,064 | 54.97 | 92.1 | 437 | 10.40 | 42.0 | 51 | 2.77 | 18.4 | 5,552 | 68.14 | 81.5 |
| 1968 | 6,208 | 55.43 | 112.0 | 176 | 7.31 | 24.1 | 16 | 1.48 | 10.8 | 6,400 | 64.22 | 99.7 |
| 1969 | 5,316 | 45.57 | 116.7 | 171 | 5.50 | 31.1 | 86 | 3.50 | 24.6 | 5,573 | 54.56 | 102.1 |
| 1970 | 5,180 | 47.05 | 110.1 | 227 | 7.88 | 28.8 | 171 | 5.51 | 31.0 | 5,578 | 60.43 | 92.3 |
| 1971 | 3,138 | 36.17 | 86.8 | 159 | 7.25 | 21.9 | 352 | 10.67 | 33.0 | 3,649 | 54.10 | 67.4 |
| 1972 | 2,214 | 35.36 | 62.6 | 183 | 7.26 | 25.2 | 513 | 15.01 | 34.2 | 2,910 | 57.62 | 50.5 |
| 1973 | 1,866 | 39.16 | 47.7 | 153 | 7.38 | 20.7 | 639 | 21.51 | 30.0 | 2,658 | 68.05 | 39.1 |
| 1974 | 1,235 | 38.36 | 32.2 | 480 | 12.43 | 38.6 | 1,030 | 24.97 | 41.2 | 2,745 | 75.76 | 36.2 |
| 1975 | 343 | 15.17 | 22.6 | 277 | 16.17 | 17.1 | 1,099 | 37.67 | 29.2 | 1,719 | 69.01 | 24.9 |
| 1976 | 209 | 6.03 | 34.7 | 229 | 13.64 | 16.8 | 1,299 | 43.66 | 29.8 | 1,737 | 63.33 | 27.4 |

${ }^{1}$ Catch in thousands of pounds taken in gill nets.
$2^{2}$ Effort in millions of feet of gill net effectively fished.
Wisconsin Department

Source: Poff, R. "Effective Management of Lake Michigan of Natural Resources.
Table 25. Whitefish Production by District and Gear, 1976

| Gear | District ${ }^{\text {a }}$ |  |  |  |  |  | Totals |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underline{1}$ | $\underline{2}$ | 3 | 4 | 5 | $\underline{6}$ | Pounds | Percent |
| 1 inch gill net | 250 | 0 | 0 | 0 | 0 | 0 | 250 | . 02 |
| 2 inch gill net | 2 | 6 | 0 | 35 | 0 | 0 | 43 | 0.00 |
| 4 inch gill net | 126,521 | 422,494 | 750,406 | 0 | 0 | 0 | 1,299,421 | 80.58 |
| Pound net | 44,168 | 44,784 | 188,223 | 437 | 21. | 0 | 277,633 | 17,22 |
| Deep Trap Net | 25,630 | 0 | 0 | 0 | 0 | 0 | 25,630 | 1.59 |
| Submarine Trap Net | 9,486 | 0 | 0 | 0 | 0 | 0 | 9,486 | 0.59 |
| Fyke net | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Trawls | 26 | 0 | 0 | 0 | 2 | 0 | 28 | 0.00 |
| TOTALS | 206,083 | 467,284 | 938,629 | 472 | 23 | 0 | 1,612,491 | 100.00 |

[^3]Table 26. Yellow Perch Production by District and Gear, 1976

Table 27. Alewife Production by District and Gear, 1976

| Gear | District ${ }^{\text {a }}$ |  |  |  |  |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1 | 2 | 3 | 4 | 5 | 6 | Pounds | Percent |
|  |  | 0 | 0 | 0 | 0 | 0 | 179,090 | 0.52 |
| 1 inch gill | 179,090 | 0 | 0 |  |  |  |  |  |
| 2 inch gill | 20,757 | 0 | 1,261 | 97 | 1,902 | 1,029 | 25,046 | 0.07 |
| t |  |  |  |  |  |  |  |  |
| 4 inch gill | 771 | 966 | 0 | 0 | 0 | 0 | 1,737 | 0.01 |
| net |  |  |  |  |  |  |  |  |
| Pound net | 5,072,525 | 0 | 0 | 618,255 | 1,005,822 | 0 | 6,696,602 | 19.36 |
|  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Deep trap net |  |  |  |  |  |  |  |  |
|  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| trap net |  |  |  |  |  |  |  |  |
| Fyke net | 102,898 | 0 | 0 | 0 | 0 | 0 | 102,898 | 0.30 |
| Trawls | 12,952,370 | 0 | 0 | 13,573,775 | 1,058,250 | 0 | 27,584,395 | 79.75 |
| Totals | 18,328,411 | 966 | 1,261 | 14,192,127 | 2,065,974 | 1,029 | 34,589,768 | 100.00 |

$a_{\text {See Table }} 14$ for location of management districts.
Table 28. Chub Production by District and Gear, 1976

| Gear |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

[^4]Table 29. Smelt Production by District and Gear, 1976


[^5]PART IV

PCBs IN COMMERCIALLY CAUGHT SPECIES AND SALMONIDS

$$
\begin{aligned}
& a_{\text {Fish tested were from Wisconsin waters but should not necessarily be considered representairve of the }} \text { commercial catch. } \\
& \text { Source: The table covers only fish tested by the Wisconsin Department of Natural Resources. }
\end{aligned}
$$

Table 31. PCB Analysis on Lake Michigan Salmonids from Wisconsin Waters

| Species <br> and | Number <br> of | Average <br> Iear | Fish |
| :---: | :---: | :---: | :---: |

LAKE TROUT*

| 1971 | 29 | 589.3 | 16.50 |
| ---: | ---: | ---: | ---: |
| 1972 | 10 | 544.3 | 22.40 |
| 1974 | 46 | 569.1 | 9.42 |
| 1975 | 59 | 548.6 | 8.50 |
| 1976 | 33 | 578.4 | 7.69 |

SALMON**

| 1974 | 33 | 660.1 | 7.18 |
| :--- | ---: | ---: | ---: |
| 1975 | 3 | 502.9 | 3.66 |
| 1976 | 8 | 704.5 | 9.48 |

*Includes a few Brown Trout
**IncIudes Chinook and Coho

Source: Wisconsin Department of Natural Resources testing program.

APPENDIX

License Application and Catch Report Forms

## State of Wisconoin $\$ department of natural resources

Anthony S. End Secretery
June 5, 1978

EOX 7921
MADISON, WISCONSIN 53767
IN REPLY REFER TO: 9400
$\qquad$

T0:
Comercial Pishermen
Enclosed is your application for the renewal of your Wisconsin commercial fiahing license which in valid on Lake Michigan and Green Bay. Aasembly Bill 1220 which wat made into law on May 18, 1978 as part of Chapter 418, Laws of 1977, has affected comercial fiahing licensing and operations.

Copien of this law are not available at this time, however, it ia hoped that we can forward a copy when you renew your codmercial fiahing license.

License fees can be determined by uning the following scale:

## Wiaconein Residente

Ice fishing only, the fee is $\$ 60.00$.
Boat not exceeding 25 feet, the licence fee is $\$ 60.00$ per year.
Boate in excess of 25 feet up to 40 feet, the 11 cense fee $18 \$ 200.00$ per yeat.

Boats over 40 feet in leagth, the license fee is $\$ 200.00$ plus $\$ 5.00$ for ench additional foot over 40 feet.

The maximum fee for Wisconsin reaidents ia $\$ 300.00$ per year per boat.
Please note that if you intend to fish for rough fish only and take these fiah under contract, apecial license is available for $\$ 25.00$ per boat. The above fees do not apply.

## Nonreaidente

Boats 25 feet or leas, $\$ 300.00$ plus $\$ 3.00$ per foot of the overall length.

Boats over 25 feet, the fee is $\$ 800.00$ plus $\$ 3.00$ per foot of overall length.

The maximum fee for a nonresident boat is $\$ 900.00$ per year.

I also wish to remind you that if you are delinquent in reporting your fishing activities with our Sturgeon Bay office, your license cannot be renewed.

If you have any further queations regarding the above fees or the new comercial fishing regulations, please feel free to contact this office or your local comercial fishing headquarters and enforcement office.

Sincerely,


Douglas E. Poole, Chief
License Section
DEP: 日h
Enc.: Form 9400-22


[^6]DATE $\qquad$ SIGNATURE OF APPLICANT $\qquad$
INFORMATION REQUESTEG MUST BE FURNISHED BEFQRE NEW LACENSE WHLL GE GSUED COMPLIANCE IN FURNISHING INFORMAYIOR will avoid delguy in feceivinc vour license.

## INSTRUCTIONS FOR PREPARNG FORMS

Wiscousin Alminastative Gode WCD 25.15 requires all who hold a commercial finhing license to report their fishing activity and catches. The law reads, "On or before the tenth day of each month each such licensee shall report for the preceding calendar month to the ate conservation comunnsion in writing, on blanks furnished by said commistion, the number of his license, the number of pounds of each kind of fish taken, the kind and amount of fishing gear employed, the tength of time (number of nights) each unit was fithed without being lifted, and such othcr data as the conservation commission may require to follow the trend of the fisheries. Such reports shall be made each month refardles of whether or rot any fish were taken or any fishing done duting the preceding month, and if no fish were taken or no fishing donc the foct shall te so reported naming the month.

FBHING LICENSE - Entct fishing license number in this space.
BOAT - Repistration Nutrber - Enter atate boat registarion number; or ff vessel is over five rons, enter U. S. Coast Guard registration number, Vescel Name - Glve name of vessel for which license was issued, or if row boat 4 ured, please state. Length-Wicight - Enter length of boat or vessel (feet) and weight (rons) If more than one ton.

ICE FEHING - If ice fishing, check box.
doAKE - Enter name of lake in which you fished.

PORT * Enter name of port from which fishing is done or if no port, give name of nearest port of post office.
DATE -Enter nance of month of operations covered by this teport, also year.

LICENSF ISSUED TO - Give name of parson or firm to whom fishing license was issued and post office address - do not enter name of person fishing', if other than holder of fishing license.

FSHDNG DATA - Use a seperate line for each day and gid you fished and for each type of gear used, such as gill net, pound net, etc. Also use a seperate line for each mesh size of gill net. Fishing for each license and/or with each boat should be reported out teperate forms.

DAI OF MONTH - Give complete tnformation on each day of fishing as required under various headings.
GRD - Refer to the lake chart with which you have been provided and determine the grid aumber where you were firhing. Enter this number in the column headed GRDD. If gear excended into more than one grid, such ar gill nets or trawling, enter grid where most gear was set or fishing done.

GEAR TYFE - Enter name of gear of number cortesponding to type of gear fished, such as ol for a gill net fisheri on the bottom or 91 for a floated gill net, ete.

SILE OF GEAR - Enter in units appropriate to type of gear fished; for gill nets enter the number of feet fished, for a pound net enter the pot depth in feet, etc. If several pots are lifted with different depths, in a given day and grid, enter the range, that is: $40^{\prime}-50^{\prime \prime}$

UNIT OF OFERATION - Enter in units appropriate to type of gear fished; for gill nets enter the number of nights out, for pound. :rap. fyke wionp nets enter number of lifts, for seines enter number of hauls, etc.

VESH SIZE - Enter mest size of gill nets, and mesh size of the pot, bag, or cod of other gear as appropriate; the mesh size to be entered should be stretched measure. If several pots are lifted with different mesh sizes, or gill nets with different mesh nezes, give the range, for example: $2 \mathrm{k}=2$.

MESH MATERIAL - Enter name or number corresponding to the material of nets; if a nyion net is fished, you can enter 1 . If more than one mesh material is used, enter both of them, for extmple: "nylon-mono" or "1-2."

BOTTOM DEPTH RANGE FISHED - Give the water depth range in which gear was fisbed (fathoms).
WEIGHT OF CATCH BY KINDS - Under each heading, enter the number of pounds by each kind taken cach day - do not enter the number of fish, except for undersized whitefish and laketrout. If kinds of fith are taken which are not covered in the seperate hcadings, blank columns are found at the right; enter name in heading and give weight below. Report all fish killed to your operations, [ncluding fish turted in to law enforcement or unsaleable fish such as small sucikers and lawyers. Enter a verage price per pound that you recelved during the month for each species caught, but if fish wre not sold enter "NS. "Indicate "R" for species. sold round weight and "D" for those sold dreased weight.
REPORTED BY - Enter signature of perion filling out catch reporting form.
REMARKS - Any unusual observations or commenti cas be repoited on revere side. The need for more formi can be noted bere.



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Unversity of Wiscorsin Sea Grant College Program Advisory Report $\ddagger 419$


[^0]:    a Not reported to protect privacy of this individual.

[^1]:    ${ }^{\text {a }}$ Includes both $\# 1$ and $\# 2$ chubs.
     and were caught in tributary streans.

[^2]:    ${ }^{a}$ Includes both $\# 1$ and \#2 chubs.

[^3]:    ${ }^{\text {a }}$ See Table 14 for location of management districts.

[^4]:    ${ }^{\text {a }}$ See Table 14 for location of management districts.

[^5]:    ${ }^{a_{\text {See }}}$ Table 14 for location of management districts.

[^6]:    I HERE日Y CERTIFY THRTI AM THE PERSON MAKING THIS APPLICATION: IHAT THE STATEMENTS THEREIN ARE TRUE: THAT IHAVE RESIOED INTHE STATE OF WISCONSIN FOR A PEAIOD OF THIRTY DAYS IMMEDHATELYPRECEDING THE DATE OF THIS APPLIGATION: THAT MYLICENSE PRIVILEGES ARE NOT NOW HEVOKEL BY REASON OF A CONVICTIUN FOR A VIOLATION OF THE FISH AND WILDEIFE LAWS. IFURTMEA GERTIFY THAT I AN NOT A MEMEER OF A PARTNERSHIP. ASSOLIATION OR CORPOHATION ANY OF WHOSE STOCK,
     IMME DIATELYPRIOH TO THE DAIE OF THIS APPLIEATION.

