

Illinois Department of Natural Resources  
Division of Fisheries

# Charter Boat Fishing in Lake Michigan: 2012 Illinois Reported Harvest

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## **Executive Summary**

Illinois charter boat operator permits were issued to 109 individuals in 2012. Illinois residents accounted for approximately 81% of 19,602 sport anglers who fished on charter boats and harvested a reported 50,872 salmon and trout and 3,474 yellow perch from the Illinois waters of Lake Michigan. Coho salmon comprised the greatest portion (58%) of the charter boat angler harvest; Chinook salmon (24%), lake trout (11%), rainbow trout (6%), and brown trout (1%) constituted smaller percentages of the harvest. The percentage of coho in the harvest was typical (1979-2012 average 65.1%; range 43-83%). The total harvest increased slightly from the previous year and effort increased slightly. The 2012 overall harvest rate (51 fish per 100 angler-hours) was slightly lower than the 53 fish per 100 angler-hours in 2011.

## Introduction

Non-native salmonids have become an integral part of the Lake Michigan fish community and the sport fishery. Pacific salmon and various trout species have been stocked in Lake Michigan since the late 1960s; 12.4 million salmonid fingerlings are annually stocked lakewide (10-year mean). Chinook salmon have comprised the greatest portion of salmonids stocked in Lake Michigan since 1978. Lake trout, which are native to Lake Michigan, also are stocked to meet criteria set forth by *A Fisheries Management Implementation Strategy for the Rehabilitation of Lake Trout in Lake Michigan*. In some years, Atlantic salmon and tiger trout also have been stocked in low numbers, and splake, a hybrid of lake trout and brook trout, were stocked in Wisconsin waters between 1984 and 2007 and Michigan waters between 1987 and 2008. Salmonid stocking in Illinois waters (Table 1) constitutes approximately 6.4% of the salmonids stocked lakewide.

The purposes for stocking these fish are to re-establish self sustaining lake trout populations and provide sport fishing opportunities. The expansion of the Welland Canal bypassed Niagara Falls which acted as a natural barrier to aquatic invaders from the Atlantic Ocean. The alewife, a fish native to the Atlantic Ocean first discovered in Lake Michigan in 1950, drastically altered the Lake Michigan food web and negatively impacted native planktivores. The original introduction of the Pacific salmon was to control alewife population growth.

Charter boat operators receive a fee to provide sport anglers access to offshore fishing opportunities for salmonids. A catch reporting system is mandated through Illinois statutes governing charter boat licensees that engage in such activities in Illinois waters (Fish and Wildlife Code of Illinois, Section 5/10-135). This report summarizes the reported charter boat

angler effort and salmonid harvest from the Illinois waters of Lake Michigan in 2012.

### **Methods**

Lake Michigan Charter Boat Operator permits were issued to 109 individuals in 2012. In addition, operators also received standardized catch report forms (Appendix). Data requested on the catch report included: date of fishing trip, jurisdictional grid fished, number of resident and non-resident sport anglers, number of fishing lines used, total number of hours fished (excluding running time), and number and species of harvested fish. State regulations require that charter boat operators submit these completed catch reports on a monthly basis, even in months when no charter trips occur.

Harvest and fishing effort data from 3,825 charter boat excursions were summarized by season, month, and statistical grid, and trends in harvest and effort were compared between years. These harvest data represent reported fishing effort by 15,929 Illinois residents and 3,673 non-residents that chartered boats to fish in the Illinois waters of Lake Michigan in 2012. Since the number of fishing lines per angler was not equivalent among trips, fishing effort was instead expressed as angler-hours and calculated by multiplying the total number of anglers by number of hours fished. Seasonal harvest rate was calculated by dividing the total harvest of all salmonids by total effort for the season. Harvest rate for each statistical grid was based on total number of salmonids harvested within the grid divided by the fishing effort within the grid. All harvest rates were then standardized to 100 angler-hours because harvest rates were typically less than 1 fish per angler-hour.

## Results and Discussion

Similar to previous years, most salmonids harvested from Illinois waters of Lake Michigan in 2012 were coho salmon (Figure 1). Coho salmon accounted for 58% of the 2012 salmonid harvest and have comprised the greatest portion (65%<sup>1</sup>) of the salmonid harvest since 1979. The percentage of coho in the harvest was less than in 2011 (65%). Lake trout (11%), rainbow trout (6%), and brown trout (1%) constituted smaller percentages of the 2012 harvest. Both the number harvested and the percentage of Chinook salmon in the harvest increased compared to 2011. Harvests of Chinook salmon, lake trout, and brown trout increased between 2011 and 2012; harvests of coho salmon and rainbow trout declined.

Charter boat angler effort (98,891 angler-hours) increased slightly from 2011 (95,376 angler-hours). Non-charter salmonid fishing effort increased by 20% between 2011 and 2012. Charter boat sportfishing accounted for approximately 21%<sup>2</sup> of the total fishing effort directed at salmonids in the Illinois portion of Lake Michigan prior to 1999. More recently, charter boats have comprised 29%<sup>3</sup> of the total angler effort for salmonids, due to a slow decline in shore-based salmon fishing since 1988 and declines in non-charter boat effort since 1998 (Figure 2). Overall harvest rate was highly influenced by the number of coho salmon in the harvest. There was a decrease in harvest rate from 53 fish per 100 angler-hours in 2010 to 51 fish per 100 angler-hours in 2012 due to a slight decrease in the harvest of coho salmon. Similar to previous years, the harvest rate of anglers fishing on charter boats was approximately twice that of anglers fishing on non-chartered boats (Figure 3).

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<sup>1</sup> Average 1979-2012; <sup>2</sup> Average 1988-1998; <sup>3</sup> Average 1999-2012.

Most chartered fishing trips typically occur during the months of May and June (Table 2). The spring coho season, as typical, was extended into June; most coho salmon (46%) were harvested in May. Chinook salmon harvest was nearly evenly spread across May through August. Data from previous years indicated that coho salmon harvests are usually highest in spring, while other salmonids are more equally represented in the late-summer harvests. Catches, adjusted for effort, of other salmonids were variable throughout the fishing season.

No fishing was reported in five statistical grids (2305, 2406, 2502, 2506, 2606, and 2703). Approximately 54% of the salmonids were harvested from Grid 2302 however 49% of the fishing effort was focused in that grid (Table 3). The highest harvest rate (125 fish per 100 angler-hrs) occurred in Grid 2405 however only 5 fish were harvested from that grid in a single charter trip (4 angler-hrs). In general, harvest rates are usually highest in the north and in grids closest to shore (i.e., 2302 and 2402). In addition to the typically high catch rate in grid 2302 (57 fish / 100 angler-hours) during 2012, higher catch rates were observed in offshore grids (e.g., 2304, 2403, 2404, 2504, and 2604).

### **Literature Cited**

Brofka, W. A. and S. J. Czesny. 2013. A survey of sportfishing in the Illinois portion of Lake Michigan. Aquatic Ecology Technical Report 2013(X). Illinois Natural History Survey. xxpp.

### **Acknowledgements**

I wish to thank Pat Bevell, Lake Michigan Program office coordinator, for entering data and monitoring reporting compliance.

Table 1. Number of salmon and trout stocked in the Illinois waters of Lake Michigan, 1990-2012.

Year	Coho Salmon	Chinook Salmon	Lake Trout	Rainbow trout (Arlee)	Rainbow trout (Skamania)	Brown Trout	Total
1990	302,600	479,400	27,843	51,100	55,084	102,510	1,018,537
1991	312,731	496,338	101,000	80,175	53,543	113,912	1,157,699
1992	308,581	352,669	100,033	52,076	53,195	100,107	966,661
1993	117,789	364,197	96,000	159,028	0	105,657	842,671
1994	328,004	285,583	96,700	51,618	46,080	100,528	908,513
1995	308,204	362,718	59,605	50,026	49,042	98,211	927,806
1996	305,581	365,427	60,900	50,071	51,980	85,160	919,119
1997	320,288	360,117	120,000	41,500	50,178	90,066	964,149
1998	305,835	366,172	60,000	50,050	52,933	99,748	874,738
1999	301,589	304,645	64,000	84,660	0	102,665	857,559
2000	302,300	305,706	0	100,000	0	100,000	808,006
2001	300,900	304,000	59,240	87,608	0	72,316	824,064
2002	300,932	305,341	61,024	46,003	60,461	100,000	873,761
2003	249,066	299,462	60,771	50,886	75,968	100,000	836,153
2004	300,076	302,673	60,300	48,423	64,300	100,000	875,772
2005	301,006	295,242	62,832	55,338	56,058	100,000	870,476
2006	304,242	242,542	67,849	49,462	55,201	93,000	812,276
2007	301,377	252,265	56,381	50,982	66,334	100,000	827,339
2008	282,201	253,809	120,000	51,003	56,040	100,144	817,297
2010	300,559	236,983	118,160	45,285	56,714	100,550	858,251
2011	281,429	235,972	120,000	101,789	0	104,579	843,769
2012	300,748	253,244	120,000	49,261	52,160	99,460	874,873



Table 2. Monthly totals of fishing effort and salmonid harvest from the Illinois waters of Lake Michigan by charter boat anglers in 2012.

Month	Trips	Number residents	Number non-residents	Effort (angler-hours)	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total Catch
Mar	0	0	0	0	0	0	0	0	0	0
Apr	164	607	258	4,466.0	1,313	178	337	32	108	1,968
May	938	3429	1,458	23,482.5	13,562	2,978	904	375	32	17,851
June	874	3996	536	23,069.5	10,218	2,080	1,160	954	41	14,453
July	731	2992	681	18,924.0	3,247	3,624	898	818	59	8,646
Aug	691	2934	562	17,806.0	1,016	2,512	1,154	535	135	5,352
Sept	353	1610	168	9,070.0	139	915	707	312	82	2,155
Oct	60	309	7	1,750.5	4	37	253	3	26	323
Nov	14	52	3	322.0	38	3	72	10	1	124
<b>Total</b>	<b>3,825</b>	<b>15,929</b>	<b>3,673</b>	<b>98,890.5</b>	<b>29,537</b>	<b>12,327</b>	<b>5,485</b>	<b>3,039</b>	<b>484</b>	<b>50,872</b>

Table 3. Number of salmonids, by Lake Michigan statistical grid <sup>a</sup>, harvested by charter boat anglers in 2012. No salmonids were harvested from grids 2305, 2406, 2502, 2506, 2606, and 2703.

Grid	Coho salmon	Chinook salmon	Lake trout	Rainbow trout	Brown trout	Total harvest	Effort (angler-hours)	Harvest rate <sup>b</sup>
2302	17,217	6,290	2,170	1,552	236	27,465	48,480.5	57
2303	1,038	520	164	183	18	1,923	4,333.0	44
2304	135	96	18	27	4	280	505.0	55
2305	0	0	0	0	0	0	0	na
2306	104	15	15	5	0	139	1,679.0	8
2402	3,768	2,427	620	426	112	7,353	16,238.0	45
2403	1,660	731	310	261	15	2,977	5,849.5	51
2404	14	52	17	17	1	101	202.0	50
2405	5	0	0	0	0	5	4.0	125
2406	0	0	0	0	0	0	0	na
2502	0	0	0	0	0	0	0	na
2503	1,491	660	645	95	56	2,947	7,967.5	37
2504	503	227	217	50	14	1,011	2,217.5	46
2505	4	15	28	3	0	50	282.0	18
2506	0	0	0	0	0	0	0	na
2603	957	188	357	86	17	1,605	2,711.0	59
2604	1,831	654	850	208	8	3,551	5,630.5	63
2605	274	194	62	70	3	603	1,219.0	49
2606	0	0	0	0	0	0	0	na
2703	0	0	0	0	0	0	0	na
2704	208	151	1	31	0	391	820.0	48
2705	328	107	11	25	0	471	752.0	63

<sup>a</sup> See Appendix for grid map of Illinois waters.

<sup>b</sup> Harvest rate (fish per 100 angler-hours) = total harvest / effort x 100.

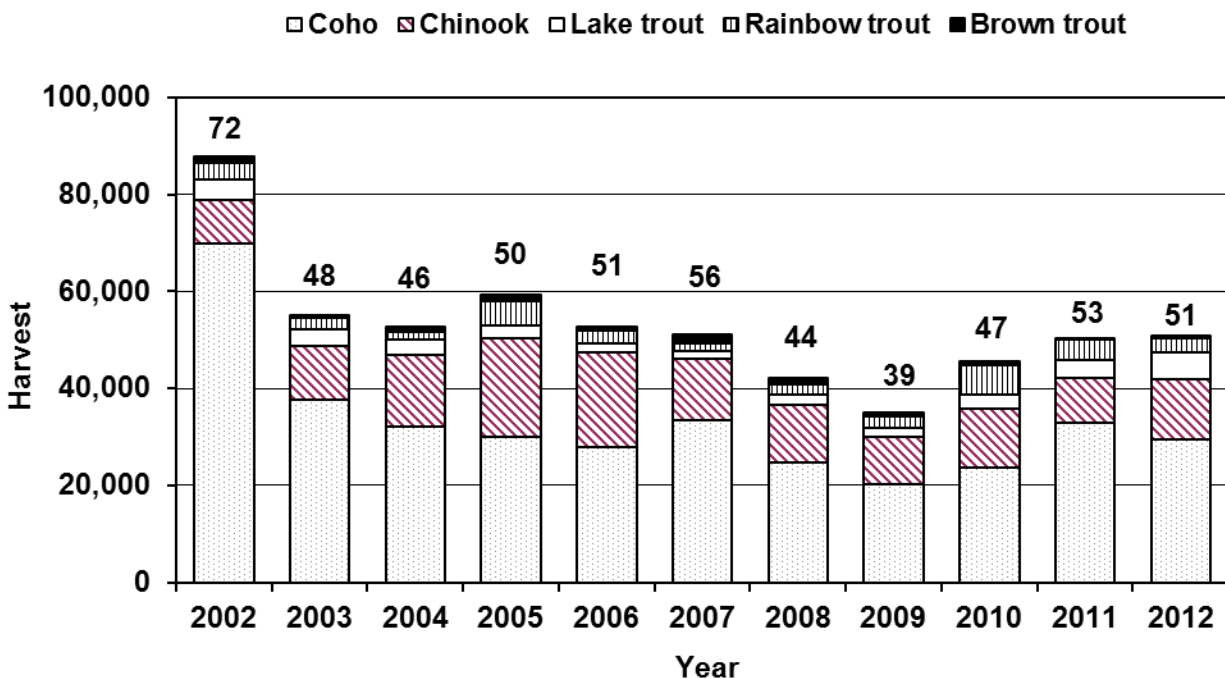


Figure 1. Reported harvest of salmonids, by species, by charter boat sport anglers, 2002-2012. The numbers above the columns indicate the charter boat angler catch rate (number salmonids per 100 angler-hrs) in each year.

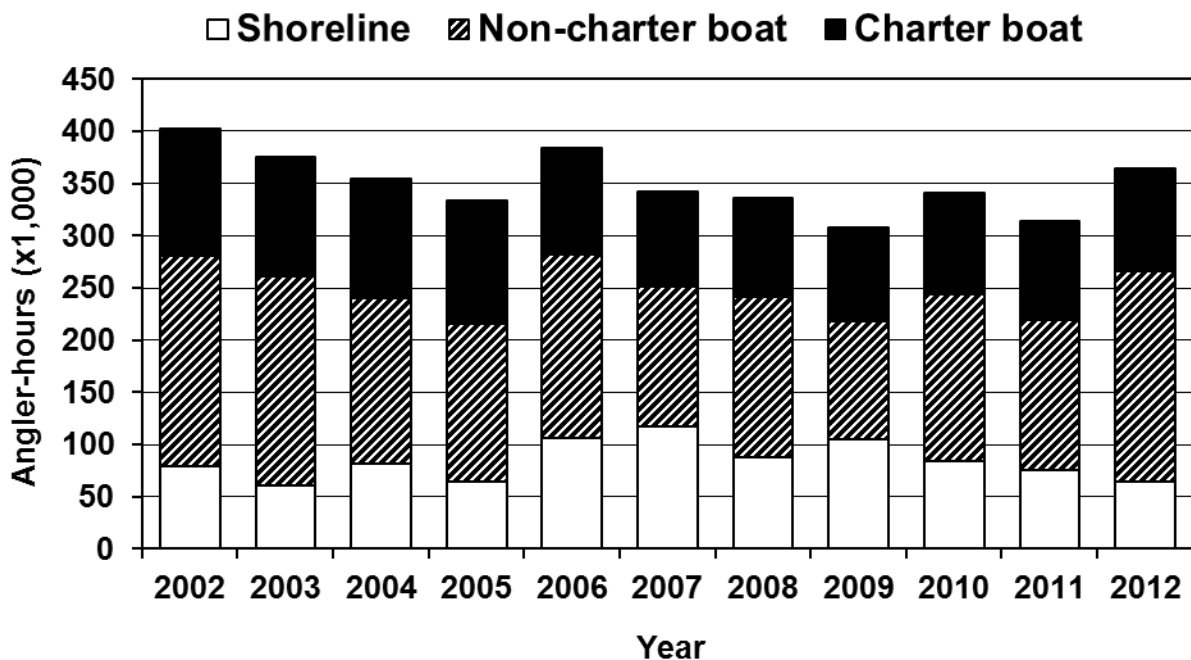


Figure 2. Fishing effort (angler-hours) by anglers fishing from shore, private boats, and from charter boats, 2002-2012. Non-charter effort estimates from Brofka and Czesny (2013).

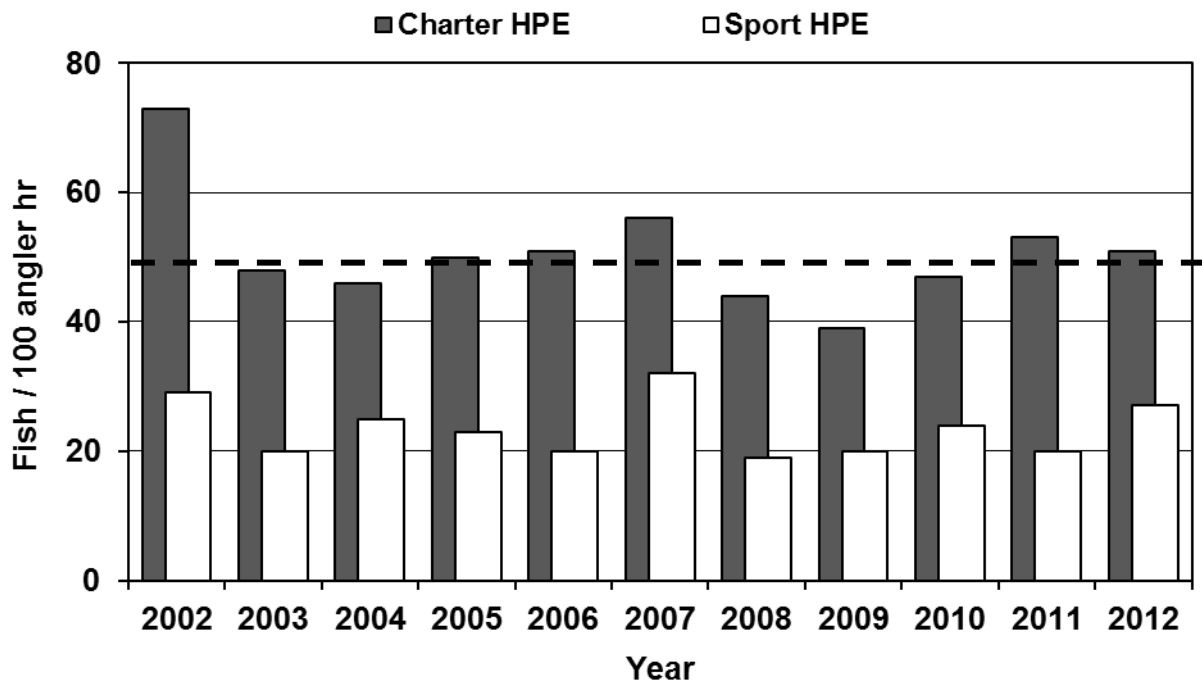
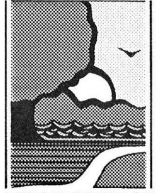


Figure 3. Illinois charter boat and non-charter boat harvest rates for all salmonids, 2002-2012. The dashed line represents the 1979-2012 average charter boat harvest rate. Non-charter harvest rate estimates from Brofka and Czesny (2013).

ILLINOIS



DEPARTMENT OF  
NATURAL  
RESOURCES

# LAKE MICHIGAN CHARTER BOAT OPERATOR MONTHLY CATCH REPORT

(See instructions for preparing this form on reverse side)

IL Charter Boat  
 Operator Permit # \_\_\_\_\_

Operator's Name \_\_\_\_\_  
 (Please print)

Port \_\_\_\_\_ Month \_\_\_\_\_ Year 20 \_\_\_\_\_

Date	Location by Grid No.	No. of Anglers		No. Lines	Hours Fished	Lake Trout	Coho	Brown	Rainbow	Chinook	Yellow Perch	Tag Numbers (if any)
		IL Res	NonRes									
<b>TOTAL</b>												

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE.

Prepared By	Date Prepared
-------------	---------------

The Illinois Department of Natural Resources is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined in the Fish Code of Illinois, Section 5/10-135. Disclosure of this information is required by law. Failure to provide such information could result in the denial of future charter boat permits under Section 5/20-35. This form has been approved by the Forms Management Center. Information given on this report is confidential and no information revealing private enterprise will be given out.

**Reports must be submitted for EACH month (March through November) and received on or before the 15<sup>th</sup> day of the following month, whether fishing occurred or not.**

**When no more fishing will occur for the season, the report must be submitted stating “NO MORE FISHING FOR CURRENT YEAR”, and reports will NOT have to be submitted for subsequent months.**

INSTRUCTIONS FOR PREPARING REPORT

CHARTER BOAT OPERATOR PERMIT NUMBER – Enter your **current** Illinois operator permit number.

PORT – Enter the port of your **departure**.

MONTH – Name of the month (and year) for which the report is being prepared.

DATE – Enter the date on which the fishing occurred. **Use a separate line for each trip.**

LOCATION BY GRID NUMBER – Refer to the lake chart below and determine the number of the grid in which most of the fishing was done. Enter this number in the space provided.

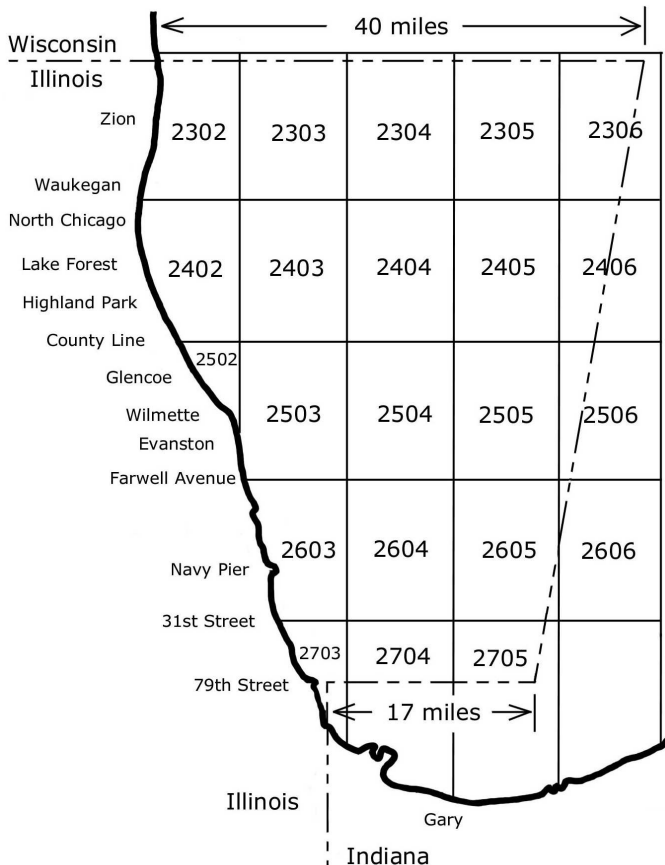
NUMBER OF ANGLERS, RESIDENT AND NON-RESIDENT – Enter the number of **Illinois** residents and non-resident anglers in the fishing party and include crew members if they fished.

NUMBER OF LINES – Enter the number of lines being fished from the boat.

HOURS FISHED – Enter the number of hours in which the party was engaged in fishing. **Do not include running time.**

CATCH DATA – Enter the number of fish of each species **kept** during the trip. Enter the color and number on any tags observed on those fish caught during the trip.

**Preparer of form must sign and date on the bottom of the form in the space provided.**



**Mail completed forms to:**

Illinois Department of Natural Resources  
 Division of Fisheries  
 Lake Michigan Program  
 9511 Harrison Street  
 Des Plaines, IL 60016

Unusual observations, comments, and requests for additional forms may be noted in the space below.

REMARKS:

Questions regarding this form? (847) 294-4134