
The Great Lakes Charter Fishing Industry in 2011

Final Report

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ABSTRACT:

In support of the Great Lakes and Mississippi River Interbasin Study (GLMRIS), the Ohio State University Sea Grant Extension Office led a survey of charter captains in the Great Lakes Basin in order to establish the current economic value of the charter fishing industry in the U.S. waters of the Great Lakes Basin.

Informed by a literature review, a qualitative risk assessment identified 35 species that could pose a high or medium risk to the receiving basin, if they were to transfer and become established. Since targeted charter fishing species have not yet been exposed to the identified ANS, potential environmental, economic and social/political effects (consequences) were assessed at a basin scale (receiving basin), rather than an assessment of ANS at a species scale. Fish community responses to invading ANS are variable and difficult to predict in a scientifically defensible manner. Fisheries management techniques could also change the quality or quantity of available fisheries in the FWOP condition. Consequently, this baseline economic assessment demonstrates the charter fishing industry that *could* be affected if no Federal action is taken to prevent the transfer of ANS between the Great Lakes and Mississippi River Basins (i.e., the future without-project condition).

Further, USACE was not able to obtain a complete set of fisheries management plans from fisheries management agencies, which were sought to aid in the determination of future resource availability and regulations regarding charter fishing activities in the case where Federal action is taken to prevent the transfer of ANS between the basins (i.e., the future with-project condition). Since these management plans were not available, this assessment serves as a baseline of the charter fishing industry within the Great Lakes Basin that *could* be affected in the future with-project condition.

As part of the Great Lakes survey of the charter fishing industry, a total of 1,148 Great Lakes charter fishing captains were surveyed in 2012 about their 2011 fishing season, with about a 30 percent response rate. The survey aided in the identification of detailed business expenditures, the number of trips taken per charter captain, and the targeted species. In 2011, there were an estimated 1,904 active licensed charter captains in the Great Lakes. Of these, approximately 1,700 captains operated as an independent small business, while another estimated 200 were non-boat owning captains. Together they generated between \$34.4 million and \$37.8 million in annual sales and salary, in 2011 dollars. Due to the low number of respondents to the Mississippi River Basin (MRB) river guide survey, statistically reliable information is not presented for this group.

GLMRIS BACKGROUND INFORMATION

The United States Army Corps of Engineers (USACE), in consultation with other federal agencies, Native American tribes, state agencies, local governments and non-governmental organizations, is conducting the Great Lakes and Mississippi River Interbasin Study (GLMRIS). In accordance with the study authorization, USACE will evaluate a range of options and technologies (collectively known as "ANS controls") to prevent the spread of aquatic nuisance species between the Great Lakes and Mississippi River basins by aquatic pathways. An aquatic nuisance species (ANS) is a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural or recreational activities dependent on such waters. See 16 U.S.C. § 4702(1) (FY13). As a result of international commerce, travel and local practices, ANS have been introduced throughout the Mississippi River and Great Lakes basins. These two basins are connected by man-made channels that, in the past, exhibited poor water quality, which was an impediment to the transfer of organisms between the basins. Now that water quality has improved, these canals allow the transfer of both indigenous and nonindigenous invasive species.

USACE is conducting a comprehensive analysis of ANS controls and will analyze the effects each ANS control or combination of ANS controls may have on current uses of: i) the Chicago Area Waterway System (CAWS), the only known continuous aquatic pathway between the Great Lakes and Mississippi River basins; and ii) other aquatic pathways between these basins. Following the *Economic and Environmental Principles and Guidelines for Water and Related Land Resource Implementation Studies*, Water Resource Council, March 10, 1983, USACE will:

- Inventory current and forecast future conditions within the study area;
- Identify aquatic pathways that may exist between the Great Lakes and Mississippi River basins;
- Inventory current and future potential aquatic nuisance species;
- Analyze possible ANS controls to prevent ANS transfer, to include hydrologic separation of the basins;
- Analyze the impacts each ANS control may have on significant natural resources and existing and forecasted uses of the lakes and waterways within the study area; and
- Recommend a plan to prevent ANS transfer between the basins. If necessary, the plan will include mitigation measures for impacted waterway uses and significant natural resources.

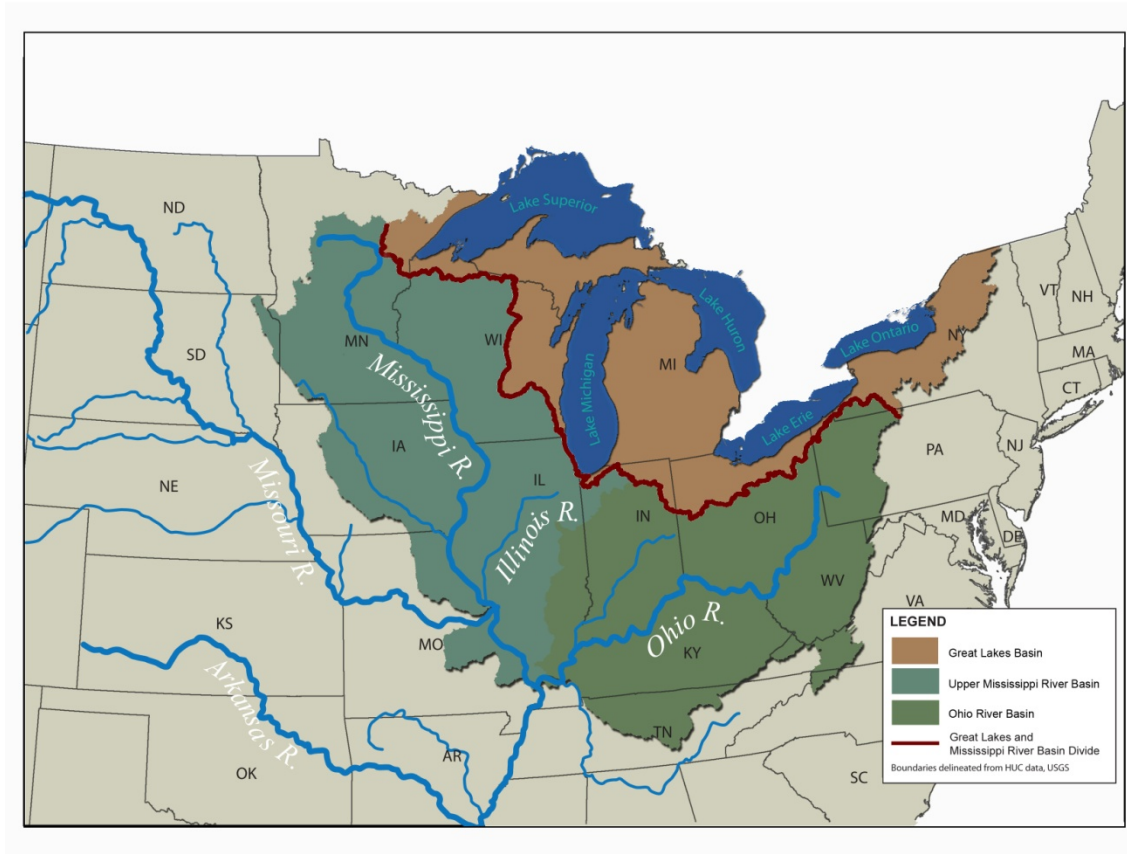
Significant issues associated with GLMRIS may include, but are not limited to:

- Significant natural resources such as ecosystems and threatened and endangered species;
- Commercial and recreational fisheries;
- Current recreational uses of the lakes and waterways;
- ANS effects on water users;
- Effects of potential ANS controls on current waterway uses such as flood risk management, commercial and recreational navigation, recreation, water supply, hydropower and conveyance of effluent from wastewater treatment plants and other industries; and
- Statutory and legal responsibilities relative to the lakes and waterways.

GLMRIS STUDY AREA

The GLMRIS study area includes portions of the Great Lakes, Mississippi River, and Ohio River Basins that fall within the United States.

Figure 1: GLMRIS Study Area Map



Potential aquatic pathways between the Great Lakes, Mississippi River, and Ohio River Basins exist along the basins' shared boundary (illustrated in *Figure 1: GLMRIS Study Area Map*). This shared boundary is the primary concentration of the study.

The *Detailed Study Area* is the area where the largest economic, environmental and social impacts from alternative plans are anticipated to occur. The *Detailed Study Area* consists of the Upper Mississippi and Ohio River Basins (green shaded areas) and the Great Lakes Basin (brown shaded area).

NAVIGATION AND ECONOMICS PRODUCT DELIVERY TEAM

In support of the Great Lakes and Mississippi River Interbasin Study, the Navigation and Economics Product Delivery Team (PDT) was formed. The PDT was tasked with assessing the current value of *economic* activities within the GLRMIS detailed study area that *could* change with the implementation (FWP condition) or lack of implementation (FWOP condition) of a GLMRIS project. The PDT is comprised of several sub-teams, each of which focuses on a specific economic activity within the GLRMIS study area. These categories include:

Navigation Related Economic Categories

- Commercial Cargo
- Non-Cargo Related Navigation

Other Related Economic Categories

- Flood Risk Management
- Hydropower
- Commercial and Recreational Fishery¹
- Water Quality
- Water Supply
- Regional Economics

Fisheries Economics Team:

The Fisheries Economics Team (Team) was formed in order to assess the current *economic* value of commercial, recreational, charter, and subsistence fishing activities, as well as pro-fishing tournaments within the Great Lakes Basin, Upper Mississippi River and Ohio River Basins. The results of these analyses serve to demonstrate the various economic activities could be impacted in the future.

Informed by a literature review, a qualitative risk assessment identified 35 species that could pose a high or medium risk to the receiving basin, if they were to transfer and become established. Since native and commercial fish species have not yet been exposed to the identified ANS, potential environmental, economic and social/political effects (consequences) were assessed at a basin scale (receiving basin), rather than an assessment of ANS at a species scale. Fish community responses to invading ANS are variable and difficult to predict in a scientifically defensible manner. Consequently, this baseline economic assessment demonstrates the charter fishing industry that *could* be affected if no Federal action is taken to prevent the transfer of ANS between the Great Lakes and Mississippi River Basins (i.e., the future without-project condition).

Further, USACE was not able to obtain a complete set of fisheries management plans from fisheries management agencies, which were sought to aid in the determination of future resource availability and regulations in the case where Federal action is taken to prevent the transfer of ANS between the basins (i.e., the future with-project condition). Since these management plans

¹ Charter and subsistence fishing, as well as pro-fishing tournaments are also addressed.

were not available, this assessment serves as a baseline of the charter fishing industry within the Great Lakes, Upper Mississippi River, and Ohio River Basins *could* be affected in the future with-project condition.

Charter Fishing Focus:

This *Great Lakes Charter Fishing Industry – Baseline Economic Assessment* report establishes the current economic value associated with commercial fisheries within the three basins. Specifically, this report exhibits the value of the charter fishing industry (valued via charter fishing annual sales and salary), within the Great Lakes Basin, that could be affected with the implementation (FWP condition) or lack of implementation (FWOP condition) of a GLMRIS project.

INTRODUCTION

The development and status of the Great Lakes charter fishing industry has been well documented previously by Dawson et al. (1995) and Kuehn, Pistis and Lichtkoppler (2005). This paper presents the results of the most recent Great Lakes wide survey of the charter fishing industry. In the summer of 2012 the Great Lakes Sea Grant Network (GLSGN), led by Ohio Sea Grant, conducted a comprehensive survey of the charter fishing industry in each of the Great Lakes states. The survey was an effort to update the status, characteristics and economics of the charter fishing industry in the Great Lakes and is modeled after a similar survey effort conducted in 1994 and 2002. The data reported here are adjusted for inflation to 2011 dollars. The results of a limited response (12 response out of 44 guides surveyed) to an exploratory survey of MRB river guides are presented in Appendix I.

The Great Lakes charter industry originated in the 1970's with the stocking of non-native salmonids in Lakes Superior, Michigan, Huron and Ontario and the rehabilitation of the natural reproducing walleye and yellow perch stocks in Lake Erie (Dawson, Lichtkoppler and Pistis 1989). Additionally fishery management policies designed to favor sport fishing over commercial fishing were implemented (Kuehn, Lichtkoppler and Pistis 2005). The number of active charter captains grew explosively in the 1980's, peaked in the early 1990's, declined by over 27 percent in the mid-1990's, declined another 12 percent by 2002 (Dawson, Lichtkoppler and Pistis 1989; Kuehn, Lichtkoppler and Pistis 2005) and declined another 1.4 percent by 2011. The percentage of captains planning to quit the charter business has inched up from 16 percent in 1994 to 21 percent in 2011. The percent of captains planning no major changes in their charter business also increased from a low of 22 percent in 2006 to 25 percent in 2011. Based on the responses to the 2011 survey, in the face of the current slow growth economy, the impacts of aquatic invasive species on the Great Lakes ecosystem, and the threat of additional invasions of non-native invasive species, a continued modest decline in the number of Great Lakes charter captains would not be surprising. Table 1 presents a brief history of the charter fishing industry in the Great Lakes.

Table 1: History of Charter Fishing Industry in the Great Lakes

	1970s*	1980s*	1994*	2002*	2011
Number of Active Charter Captains	599	3,304	2,205	1,932	1,904
Percent Change (+/-)	N/A	+406.5%	-27.3%	-12.4%	-1.4%
Estimated Total Revenue ¹ (\$Million)	N/A	N/A	\$38.77	\$43.57	\$37.87
Percent Change (+/-)	N/A	N/A	N/A	+12.4%	-13.1%
Estimated Number of Charter Trips per Captain Annually	N/A	N/A	44.2	53.4	45.4
Percent of Captains Indicating that they Plan to Quit the Charter Business	N/A	N/A	16%	18%	21%
Percent of Captains Indicating No Changes Planned	N/A	N/A	23%	22%	25%
1. Adjusted for inflation to 2011 dollars (U.S. Department of Labor 2013).					
*Note that all data is from Kuehn, Lichtkoppler and Pistis 2005, and Dawson et al. 1995.					

One theory concerning the trends in the Great Lakes charter industry is that the industry appears to reflect angler participation in the Great Lake fishery in general (Kuehn, Lichtkoppler and Pistis 2005). Angler participation may be related to a number of factors that may have positive or negative impacts on the industry including the weather, changes in fish populations, fish consumption advisories, positive or negative perceptions of the Great Lakes, extent of harmful algal blooms, a poor economy, impacts of non-native invasive species, an ageing angler population, lack of recruitment of young anglers into recreational fishing, and more. For example, in 2011 the Great Lakes experienced an unusually rainy summer that some Captains say may have caused more charter cancelations than in a year with a more typical weather pattern. Additionally, in unsettled economic times the affordability of a charter trip will likely decline as households focus on their personal finances rather than recreation. Finally, fish stocks that are stressed and depressed by non-native species (sea lamprey, zebra and quagga mussels, et al.) may not be as attractive to the angling public. The timing and magnitude of the impacts from aquatic nuisance species on the charter fishing industry are difficult to quantify due to the complexities listed above.

METHODS

In coordination with the United States Army Corps of Engineers (USACE) and the GLSGN, two standard surveys were developed and approved by the USACE and the Office of Management and Budget, which included: (1) the Great Lakes Charter Captains Survey 2011 and (2) the Mississippi River Basin Fishing Guide Survey 2011. Both surveys were exempted from review by the Institutional Review Board (IRB) of the Office of Responsible Research Practices at The Ohio State University. Once all necessary approvals and exemptions were obtained, the study commenced.

Lists of Great Lakes charter captains were obtained by GLSGN colleagues from all eight Great Lakes states and were provided to Ohio Sea Grant (OHSG), with the exception of Michigan. The lists of captains were obtained from state agencies, charter associations and from publicly available listings and advertisements for charter services. A total of 1,984 Great Lakes charter captains were identified. From past experience we knew that a small percentage of these captains would no longer be in business and validation of the lists would be accomplished by seeing how many undeliverable returns we would receive. Only the captains' names and addresses were on the lists we received. This information was entered into an Access™ file to produce the mailing labels. From these lists, a stratified (by state) random sample of 900 captains was drawn and OHSG mailed out 900 surveys to all states but Michigan. Michigan Sea Grant (MISG) drew a sample of 300 Michigan-based captains and mailed these captains the survey².

We initially planned to have MISG mail and code the Michigan captains' surveys for several reasons, the major one being that MISG was planning to add survey items that would be specific to Michigan captains. But for various coordination, timing, and logistic reasons adding more items to the survey was not possible thus having the surveys returned to MISG became a moot point. Additionally, in the past it has taken some time to get permission to use the MI DNR's list of licensed captains and we expected that MISG could get clearance to do the mailing more quickly than OHSG. Because of the unavoidable delays in receiving the funding this was not possible. All surveys, including those mailed by MISG, were returned to OHSG for database development and analysis. The data was entered into an Excel™ database. Once the data was verified the database was imported into SPSS™ software for analysis.

We utilized a relatively large sample of 1,200 of the 1,984 identified captains because from past experience we knew some of the captains that were identified would no longer be in business and we needed a large sample to get a sufficient number of responses for analysis. We did not survey all of the captains due to cost, time and labor constraints imposed by the short deadline to produce a report. Using a modified Dillman (1978, 2000) mail survey technique OHSG and MISG initiated the survey in May 2012. The survey was planned to go out prior to the start of the 2012 charter season, but logistic issues between USACE and NOAA-Sea Grant resulted in a delay. This could have had an effect on response rate.

² Note that all charter fishing captain surveys were administered in the summer 2012. Despite attempts to distribute the surveys prior to the 2012 charter fishing season, due to logistics issues regarding the Economy Act agreement between USACE and NOAA-Sea Grant, the survey did not take place until after the 2012 charter fishing season began.

In order to maximize the response rate, OHSG and MISG made up to four contacts by mail. OHSG mailed out the initial contact to 900 captains on May 9, 2012 with follow up contacts to non-respondents on May 30, June 13 and a final contact on June 27, 2012. MISG mailed out surveys to their sample of 300 captains on May 16, with follow up mailings to non-respondents sent on May 30, July 6 and July 27. A severe funding issue was responsible for the one month gap between the May and July mailings by MISG. The contact letters are found in Appendix III and were essentially the same excepting for the dates for the OHSG and the MISG mailings.

The initial mailing contained the first contact letter, a copy of the survey instrument, a pre-addressed and pre-stamped return envelope and a slip of paper where the respondent could provide their name and address and ask for a copy of the results of the survey. The second and final mailings consisted of only the second and fourth reminder letters respectively. The third mailing contained the third contact letter, a copy of the survey instrument, a pre-addressed and pre-stamped return envelope and a slip of paper where the respondent could provide their name and address and ask for a copy of the results of the survey.

RESULTS

Of the 1,984 identified charter captains 80 were identified as out of business in 2011 giving us an estimated 1,904 active licensed charter captains in the Great Lakes in 2011. OHSG and MISG mailed a combined total of 1,200 Great Lakes surveys to charter captains in the Great Lakes study area. Of this total, 52 (4.3 percent) were either returned as undeliverable, did not charter in 2011, or refused to respond. Therefore, a total of 1,148 Great Lakes charter fishing captains received surveys in the summer of 2012 and constituted our sample population.

In our current study, of the responding captains who indicated a home state, 35 percent were based in Ohio, 28 percent were based in Michigan, 16 percent were from Wisconsin, 5 percent were from New York, 5 percent were from Illinois, 4 percent were from Pennsylvania, 4 percent were from Indiana, and 3 percent were from Minnesota. The timing of the MISG mailings did not appear to adversely impact the response rate of MI charter captains as MI captains had the highest response rate of any state. No state appeared to dominate the responses disproportionately when compared to the size of its charter fleet. This is demonstrated in Table 2.

Table 2: Percent of Active Captains by State

State	# of Active Captains	% of Active Captains	# of All Captains Surveyed	% of All Captains Surveyed	Percent of Captains Responding
New York	89	5%	93 ^a	8%	4.8%
Pennsylvania	45	2%	44	4%	4.2%
Ohio	726	38%	401	33%	34.8%
Michigan	515	27%	300	25%	28.3%
Indiana	46	2%	45	4%	3.9%
Illinois	106	6%	85	7%	4.8%
Wisconsin	343	18%	200	17%	16.1%
Minnesota	35	2%	32	3%	3.3%
TOTAL	1,904	100%	1,200	100%	100%

^a From a list of a total of 113 New York captains we surveyed 93 and found that a significant number were no longer active thus the number surveyed was larger than the number of active captains offering charter services in 2011.

Dillman (2000) identifies sampling error, coverage error, measurement error and non-response error as sources of errors that would reduce the value of a survey. Linder, Murphy and Briers (2001) explain that sampling error always exists when a random sample is drawn and cannot be eliminated unless a census is taken. Our large sample size (1,200) relative to the total charter captain population (1,904) helps to reduce sampling error. We avoid coverage error by including all known licensed legal Great Lakes charter captains in our potential survey population. We reduce measurement error by utilizing many of the same survey items from previous Great Lakes charter surveys that have provided information in the past.

Social science research has recognized that failure to address non-response error is an issue (Linder, Murphy and Briers, 2001) particularly when response rates are less than 85 percent

(Linder and Wingenbach 2002) and that comparing early and late respondents was an acceptable method of addressing non-response error (Linder and Wingenbach 2002, Linder, Murphy and Briers 2001, Miller and Smith 1983). Two other procedures for addressing non-response errors: 1) days to respond as a regression variable, or; 2) comparing respondents to non-respondents were also recommended by Linder and Wingenbach (2002). We did not collect the data necessary to utilize the days to respond method. The comparison of respondents to non-respondents method was deemed too labor and time intensive to implement in the abbreviated time available to us to generate our findings for the USACE. Comparing early and late respondents is consistent with how non-response errors have been addressed in our previous charter industry surveys and that is the technique we again used in this study.

For the Great Lakes charter survey we defined our late respondents as those returns that came in after the third contact by mail. This would allow a sufficient number of late responses for a statistical analysis according to Linder and Wingenbach (2002). We compared the responses from captains operating their own charter business who provided economic data to the responses of early respondents (n=211) and late respondents (n=93), using a one-way ANOVA. There were no significant differences ($p \leq 0.05$) for the five demographic variables tested including boat size, model year, years of captain's experience and numbers of trips chartered in 2011. There were no significant differences ($p \leq 0.05$) for the 28 economic variables tested. We then compared the responses of early respondents (n= 231) to late respondents (n=111) of all responding captains to 22 attitudinal variables. A significant difference between the respondent groups was found for just two of 22 attitudinal variables. The importance of obtaining new clients was significantly higher for early respondents than for the late respondents ($F=5.28$, $df=331$, $p \leq 0.05$). The perceived impact of aquatic nuisance species on their business for early respondents was also significantly higher than for the late respondents ($F=5.77$, $df=307$, $p \leq 0.05$). By random chance one would expect to see significant differences at the $p \leq 0.05$ level for one out of 20 variables.

One might expect that a higher response rate would yield significantly different results if we were able to compare one year's results to another. In 2010 we surveyed the Ohio Lake Erie charter industry and achieved a response rate of almost 48.9 percent (234 out of 479) (Lucente et al. 2012). Thus we may compare the results for just the 116 Ohio respondents in the 2011 survey to the results of the 234 Ohio charter captains in the 2010 survey. Of 23 demographic and economic variables that could be tested only the cost of drug testing was significantly different ($F=5.255$, $df=224$, $p \leq 0.05$) between the two surveys. Significant differences between early and late responders in 2011 were found in only two out of the 55 variables were able to test. Only one significantly different variable out of 23 tested variables comparing the 2011 and 2010 charter survey data for Ohio charter captains were found. The researchers conclude that the results reported in this paper are credible and are generally representative of the Great Lakes charter fishing industry in 2011.

Business

Business organization and boat ownership patterns are presented in Table 3. Over 89 percent of the responding captains own their boat and operate as a small business and more than 77 percent operate their firm as a sole proprietorship. The typical Great Lakes charter fishing captain in

2011 has been licensed for 12.8 (SD, ± 10.5) years. About 11 percent of captains responding did not operate their own charter firm but rather were hired out as employees on a temporary or seasonal basis. Most businesses (about 85 percent) operated only one boat, which was typically 8.96 meters (29.4 feet) long, over 20.8 years old, and 72% of the boats were powered by an inboard motor.

Table 3: Charter Operation and Business Organization of Great Lakes Six-Pack (Six Passengers Or Less) Charter Boat Fishing Businesses

Business Organization	# of Respondents	% of Respondents
Charter Firms		
Owned a Boat	291	86.4%
Leaded/Rented Boat	3	0.9%
Other Arrangement (LCC)	6	1.8%
Work for Hire Captains		
Freelance hire per trip	32	9.5%
Salaried Employee	5	1.5%
Total	337	100.0%
Charter Firm Ownership		
Sole proprietorship	215	77.1%
Partnership	7	2.5%
Corporation	47	16.8%
Other (LLC)	10	3.6%
Total	279	100.0%

The average replacement cost for a charter vessel was \$101,184 (SD, $\pm 128,025$), and \$15,408 (SD, $\pm 14,200$) for onboard business-related equipment. About 48 percent of the respondents used a tow vehicle for towing their boat or other charter-related business. The average replacement cost of the tow vehicle was \$32,056 (SD, $\pm 15,016$), and \$4,475 (SD, $\pm 3,035$) for the tow trailer. The tow vehicle was used for boat towing almost 17 percent of the time and for other charter business 27 percent of the time.

Captains

Most of the 304 responding captains operating a small business were “Six-Pack” operators, licensed by the US Coast Guard to carry no more than six passengers. Notably, very few captains (11.1 percent) relied on the charter business as their primary source of income (Table 4). Only 14.2 percent of responding captains chartered in a state or water body other than where their home port was located. Of those captains only 13.5 percent of their charters were run away from their home port.

Table 4: Reasons Why People Are Great Lakes Charter Fishing Captains

Reason	# of Respondents	% of Respondents
Help people enjoy fishing	267	78.1%
Like the work	201	58.8%
Secondary source of income	157	45.9%
Other	53	15.5%
Primary income source	38	11.1%
*Respondents were asked to check all items that applied and multiple choices were allowed.		
*Number of respondents = 342.		

Trips and Revenues

Responding captains operating their own business averaged 25.4 full-day and 20.0 half-day paid charter trips for the year. Most of these were for salmon or trout, followed by walleye, yellow perch, smallmouth bass and other fish species (Table 5). Using the response data, the total population of 1,696 active charter firms were estimated to have made 76,981 charter trips, of which 43,044 (55.9 percent) were full-day trips and 33,937 (44.1 percent) were half-day trips (Table 6). A full day trip is defined as seven hours long from dock to dock or a limit catch of the target species.

Table 5: Average Trips, Charge, Revenues

Fish Species	Trip Length	Average Number of Trips per Business ^a	Average Charge per Trip ^b (N= Number of Respondents)	Revenues Earned per Business ^c
Trout or Salmon	Full Day	9.6	\$566 (102)	\$5,452
	Half Day	16.3	\$448 (116)	\$7,315
Walleye	Full Day	11.1	\$484 (91)	\$5,386
	Half Day	2.5	\$365 (34)	\$893
Yellow Perch	Full Day	3.2	\$419 (83)	\$1,332
	Half Day	0.9	\$377 (18)	\$331
Smallmouth Bass	Full Day	1.0	\$500 (22)	\$480
	Half Day	0.2	\$331 (6)	\$73
Other Fish Species	Full Day	0.5	\$404 (7)	\$190
	Half Day	0.1	\$405 (2)	\$49
Subtotal	Full Day	25.4		\$12,841
	Half Day	20.0		\$8,661
Totals		45.4		\$21,502
*Great Lakes six-passenger charter firm by species sought and trip length.				
^a Rounded to the nearest tenth (N=275)				
^b Rounded to the nearest dollar				
^c Revenues are estimated by multiplying the average number of trips times the average charge per trip.				

Table 6: Number of Trips and Revenues in GL Charter Fishing Industry 2011

Fish Species	Trip Length	Estimated # of Trips	Average Charge per Trip^a	Revenues Earned^b	Percent of Total Revenues
Trout or Salmon	Full Day	16,349	\$566	\$9,246,916	34.0%
	Half Day	27,713	\$448	\$12,406,672	34.0%
Walleye	Full Day	18,876	\$484	\$9,134,140	25.0%
	Half Day	4,155	\$365	\$1,514,820	4.2%
Yellow Perch	Full Day	5,393	\$424	\$2,259,784	6.2%
	Half Day	1,492	\$377	\$562,172	1.5%
Smallmouth Bass	Full Day	1,628	\$500	\$814,454	2.2%
	Half Day	373	\$331	\$123,439	0.3%
Other Fish Species	Full Day	797	\$404	\$322,368	0.9%
	Half Day	204	\$405	\$82,426	0.2%
Subtotal	Full Day	43,044			
	Half Day	33,937			
Totals		76,981		\$36,467,091	100%

^a Rounded to the nearest dollar

^b The numbers of trips are extrapolations of respondent trip rates applied to the estimated population of 1,696 active Great Lakes charter firms (excluding party and head boats). Revenues are calculated from the number of trips multiplied by the average charge per trip.

August was the busiest month, with an average of 12.4 (SD, ±11.5) trips per captain. This was followed by July at 12.0 (SD, ± 9.4) and June 9.6 (SD, ±7.3). Captains averaged 7.7 (SD, ±7.2) trips in May, 6.3 (±6.4) trips in April, about 6.1 (SD, ±5.8) trips in September, 4.4 (SD, ±4.7) trips in October and just 4.2 (SD, ±3.2) trips in March.

Charter fees varied according to target species, length of the charter, and services offered. The most popular trip was the half-day trout or salmon charter; its cost averaged \$448 (SD, ±\$95) per boat (range \$150 to \$800) with an average of 4.4 (SD, ±1.2) clients. The reported total revenue for the 58 captains operating their own business firms providing their gross sales figures was \$19,478 (SD, ±20,776). This is \$2,024 less than the \$21,502 estimated revenue found in Table 6 but well within one standard deviation from the reported mean.

Total calculated revenues for the Great Lakes charter firms is almost \$36.5 million (Table 6). The estimated 1,904 active Great Lakes charter captains in 2011 brought in an estimated \$34,440,560 to \$37,874,960 in gross income in 2011 (1,696 firms x reported sales of \$19,478 per firm or calculated sales of \$21,503 per firm + 208 captains for hire x \$6,759 in average gross earnings).

Costs and Returns

The 11 percent of responding non-business owning captains who ran a charter boat owned by someone else reported average gross earnings of \$6,759 (SD, ±13,507). For boat owning captains operating their own business firm, the largest annual operating expenses were boat fuel, boat dockage, and equipment repair (Table 7).

Table 7: Average Annual Operating Costs

	All Firms		Firms with Boat Loan		Firms with Depreciation		Firms without Boat Loan or Depreciation	
Item	Expense	N	Expense	N	Expense	N	Expense	N
Boat Fuel	\$4,183	236	\$4,136	67	\$4,867	50	\$4,028	134
Boat Dockage	\$1,757	242	\$1,783	71	\$1,565	49	\$1,762	137
Equipment repair	\$1,413	243	\$1,402	72	\$1,772	48	\$1,230	138
Boat Maintenance and Repair	\$1,231	248	\$1,350	71	\$1,537	49	\$1,181	143
Miscellaneous	\$818	225	\$862	66	\$1,161	47	\$697	126
Advertising	\$1,120	236	\$1,060	69	\$1,406	48	\$1,070	133
Insurance	\$906	250	\$919	72	\$978	50	\$887	143
Boat storage fees	\$970	237	\$982	71	\$984	50	\$957	131
Office and Communications	\$684	228	\$690	69	\$773	49	\$639	125
Labor (hired)	\$1,186	212	\$1,204	67	\$843	46	\$1,250	113
Boat Repair not Covered by Insurance	\$477	212	\$415	68	\$519	44	\$459	113
License fees	\$295	231	\$297	70	\$366	49	\$263	127
Drug Testing/Professional Dues	\$124	231	\$121	67	\$163	46	\$112	132
Boat launch fees	\$51	218	\$52	69	\$45	46	\$50	118
Total Operating Costs^a	\$14,819	216	\$15,723	61	\$16,160	40	\$13,930	128
Standard Deviation	±\$13,468		±\$13,244		±\$8,892		±\$14,222	
<p>* Average annual operating costs for all reporting boat-owning captains, for captains reporting boat loans, for captains reporting depreciation and for captains not reporting a boat loan or depreciation. Responses includes only 6 pack charter firms that own, lease or have other boat arrangements. N= number of respondents.</p> <p>^a Estimated by taking the mean of the sum of the individual operating costs (where all individual operating costs were given) and the estimated total operating costs (where all operating costs were not given and an estimate of the total operating costs were given). If both were provided we used the sum of the individual operating costs for the estimate of the total cost.</p>								

The average cash requirement to operate the charter firm is the operating expenses plus the boat loan payments. Over 65% of the 211 reporting captains did not have a boat loan. Of the 72 responding captains that had a boat loan the annual average payment was \$5,064 (±3,406). The average total cash needed to operate the charter firm is \$16,547 for all firms (Table 8). This means that the typical charter firm that owned and operated a single vessel would have to generate sales of \$ 16,547 just to meet the cash needs of the firm.

Table 8: Average Revenue

Income/Expenses	All Businesses	Businesses	Businesses	Businesses not
-----------------	----------------	------------	------------	----------------

			reporting boat loan		reporting depreciation		reporting boat loan or depreciation	
	Amount	N	Amount	N	Amount	N	Amount	N
Average revenue	\$19,478	258	\$19,872	68	\$20,958	48	\$19,142	157
Standard Deviation (SD)	±\$20,776		±\$20,506		±\$14,203		±\$22,212	
Cash flow needs								
Average operating costs	\$14,819	216	\$15,723	61	\$16,160	40	\$13,930	128
Boat-loan payments	\$1,728	211	\$5,064	72	\$1,970	45	\$0	109
Cash needed ^a	\$16,547		\$20,787		\$18,130		\$13,930	
Net cash flow ^b	\$2,931		(-\$915)		\$2,828		\$5,212	
<p>* Average revenue, cash flow needs and net cash flow to the firm for Great Lakes charter boat businesses in 2011 estimated by all businesses, businesses reporting boat loan payments, businesses reporting depreciation, and businesses not reporting boat loan payments and/or depreciation. Negative numbers are indicated in parentheses. N is the number of actual respondents. Responses include only 6 pack charter firms that own, lease, or have other boat arrangement.</p> <p>^a Sum of Average operating costs and average boat loan payments</p> <p>^b Average revenue minus the cash needed to operate the business</p>								

Using the reported revenues, the resulting net cash flow is positive for all businesses, businesses reporting depreciation and for businesses with no boat loan and no depreciation (Table 8). Only the firms reporting a boat loan had a negative cash flow. Those firms with a positive annual cash flow could pay the day-to-day bills to operate the charter business. Those with a negative cash flow would need resources outside the charter firm to meet the cash needs of the firm.

Economic costs include all the costs of operating the charter firm, plus the capital costs (Table 9). Boat loan costs are a cash requirement if a loan exists, but are not part of the economic costs. Capital costs include depreciation of the boat, and the opportunity cost of owning a boat instead of investing in stocks, bonds, or some other enterprise. In addition, owner labor and management receive revenues in excess of operating and capital costs.

Table 9: Economic Cost Components

Income/Expenses	All Businesses	Businesses reporting boat loan	Businesses reporting depreciation	Businesses not reporting boat loan or depreciation
-----------------	----------------	--------------------------------	-----------------------------------	--

	Amount	N	Amount	N	Amount	N	Amount	N
Average revenue	\$19,478	258	\$19,872	68	\$20,958	48	\$19,142	157
Economic Cost								
Average operating costs	\$14,819	216	\$15,723	61	\$16,160	40	\$13,930	128
Capital Costs								
Opportunity Costs ^a	\$5,958	265	\$6,172	64	\$6,521	48	\$5,769	166
Depreciation	\$3,684	91	\$6,572	20	\$6,723	50	NA	NA
Total Capital Costs	\$9,642		\$12,743		\$13,244		\$5,769	
Total economic cost^b	\$24,461		\$28,466		\$29,404		\$19,699	
Net return to operator^c	(-\$4,983)		(-\$8,594)		(-\$8,446)		(-\$557)	
<p>* Economic cost components, total economic cost and net return to the operator for Great Lakes charter boat businesses in 2011 estimated by all businesses, businesses reporting boat loan payments, businesses reporting depreciation, and businesses not reporting boat loan payments and/or depreciation. Negative numbers are indicated in parentheses. N is the number of actual respondents. Responses include only 6 pack charter firms that own, lease or have other boat arrangement.</p> <p>^a Opportunity costs are estimated at 5% of the average estimated replacement cost of the boat and on board equipment.</p> <p>^b Total economic cost equals average operating costs plus total capital costs (opportunity cost plus depreciation)</p> <p>^c Net return is equal to the average revenue minus the total economic cost</p>								

Responding captains report average depreciation of \$3,684 ($\pm 6,191$). Interest costs are estimated at five percent of the value of the capital equipment. A total of 265 captains provided estimates for both the replacement cost of their primary charter boat and all of the onboard equipment. Estimated replacement cost of the boat and equipment is \$119,161 ($\pm 136,504$); five percent of this is \$5,958 ($\pm 6,825$). Therefore, capital costs are \$9,642. The total economic cost of operating a typical Great Lakes charter firm is \$24,461. Any revenue in excess of \$24,461 is the return to owner labor and management.

On average, a charter business would have had to generate sales of over \$24,461 to provide a positive return to the operating captains' time and labor, and charter firms operated at a negative net return of \$4,983 for the owners' time and labor (Table 9). Charter fishing is an enterprise that may help to subsidize the costs of owning and operating a Great Lakes seaworthy boat. Table 9 shows that on average none the four groupings of charter business firms actually makes money for the firm owner. Thus they are subsidizing the firm with their own funds or in-kind labor and/or management. On average, there is no net return to the firm for the owner. However, every charter firm is a unique business enterprise and some firms will make money. As reported earlier just over 11 percent of the captains rely on their charter work for their primary income.

Plans for the Future

We asked respondents a series of items about their plans for the coming five years and the results are presented in Table 10. In 2002 and 2011, the majority of charter captains (55 percent and 57 percent respectively) stated that they plan to increase their number of trips, and approximately 19 percent in 2002 and almost 17 percent in 2011 plan to buy a new (larger) boat. While these results indicate a potential expansion of the charter industry, it is important to note that over 4 out of 10 of respondents (41 percent in 2002) and almost half (48 percent) in 2011 plan to raise prices of charter services, while roughly one-fifth (21 percent) plan to leave the charter business compared to 18 percent in 2002. Over all, the 2011 results are not much different from the responses we received in our 2002 Great Lakes charter industry survey (see Table 10).

The captains in 2011 saying that they plan to quit the business have been in business 7.6 years longer than the 2011 captains who did not indicate that they plan to quit in the next five years. The home states of those captains planning to quit chartering in the 2011 survey are roughly represented in the same proportion as the percentage of overall respondents with Ohio, Michigan and Wisconsin ranking 1, 2, and 3 respectively in both the total number of respondents and in the number of respondents planning to quit the charter business.

Table 10: 5-Year Plans

Activity	Percent of Respondents Selecting a Change Planned for their Charter Activities in the Next 5 Years	
	2002	2011
Number of Respondents	868	342
Increase number of annual trips	58.5%	56.7%
Increase prices of charter services	41.0%	48.2%
No major changes	21.8%	24.9%
Quit the charter business	17.7%	21.1%
Buy/operate a newer boat	19.2%	16.7%
Buy/operate a bigger boat	14.1%	14.0%
Branch out into other fishing related businesses	9.6%	12.3%
Decrease number of annual trips	6.5%	11.1%
Hire additional first mate(s)	7.7%	11.1%
Expand into multi-activity and/or non-fishing charters	8.5%	10.8%
Hire additional charter captain(s)	5.8%	9.9%
Buy/operate an additional boat	4.8%	8.5%
Other	7.8%	7.0%
Buy your own charter boat	2.2%	3.2%
Decrease prices	0.7%	0.6%
*Five-year plans of Great Lakes charter captains (number of respondents =342). Respondents were asked to select all the plans that applied to them. N= 342.		

AKNOWLEDGEMENTS

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APPENDIX I: MISSISSIPPI RIVER BASIN (MRB) GUIDES SURVEY

We believe the MRB fishing guide business to be a small cottage type industry that is not well organized or on a scale comparable to that of the Great Lakes charter industry. The GLSGN had a difficult time locating MRB fishing guides to survey. OHSG could not identify any Ohio based MRB fishing guides. All Ohio professional fishing guides must have a state license. Phone calls to Ohio Department of Natural Resources game protectors located in three counties bordering on the Ohio River resulted in no identifiable river fishing guides. When asked, one Ohio bait shop owner located near the Ohio River could not identify any Ohio River fishing guides.

Professional fishing guides in Illinois that use a boat must obtain a Passenger Boat License. IL-IN Sea Grant submitted a Freedom of Information Act (FOIA) request to obtain a listing of the passenger boat licensees from the Illinois Department of Natural Resources, in the hopes that at least a partial list of Mississippi River guides could be generated from this information. The FOIA request resulted in IL-IN Sea Grant receiving the Illinois passenger boat list. However, not one captain on the list identified themselves as a Mississippi River charter captain. One known Illinois-based Mississippi River guide was contacted directly via email by IL-IN Sea Grant for contact information, but no mailing information was provided.

A list of 63 MRB fishing guides was developed by WISG colleagues and 50 guides with identifiable mailing addresses were mailed the (MRB) fishing guide survey. Three of the surveys were returned as undeliverable. Three surveys were returned with the respondents indicating that they did not offer fishing guide services in 2011. Thus we have a sample size of 44. To date only 12 MRB surveys have been returned with useful data providing a response rate of about 27%.

Because of the small sample size and low number of returns a statistically valid summary of the responses is not possible and we are thus unable to provide reliable information on the MRB river guide businesses. That said, none of twelve MRB Survey respondents use the CAWS and nine of eleven respondents support the separation of the Mississippi River / Great Lakes basins. Eight of twelve MRB survey respondents selected zero (\$0) as the amount they would be willing to pay annually for basin separation.

APPENDIX II: GREAT LAKES CHARTER INDUSTRY SURVEY INSTRUMENT

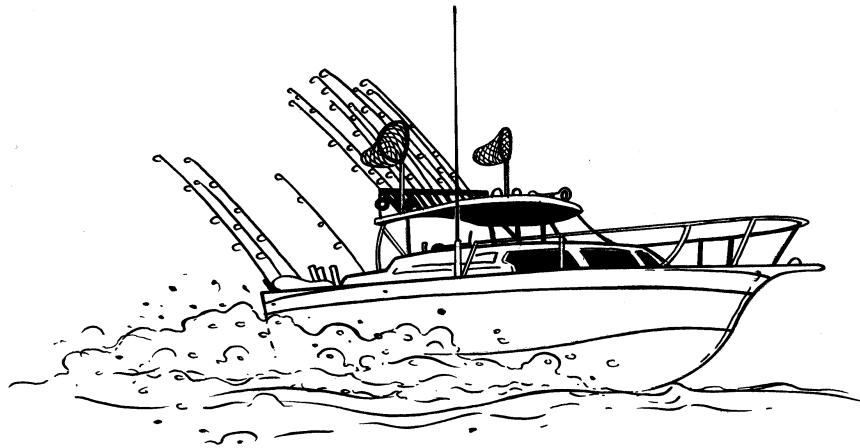


**Great Lakes Sea Grant Network
in cooperation with the
U.S. Army Corps of Engineers**



Great Lakes Charter

Captains Survey2011



Please return your completed survey to:

Great Lakes Charter Captains Survey

Ohio State University

Ohio Sea Grant

99 East Erie Street

Painesville, Ohio 44077

U.S Army Corps of Engineers Agency Disclosure Notice
OMB Number 0710-0001

The public report burden for this data collection effort is estimated at 20 minutes per survey, including the time for reviewing instructions, searching existing data sources, gathering and maintaining data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this data collection, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Executive Services Directorate, Information Management Division, 1155 Defense Pentagon, Washington DC, 20301-1155 and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, Attn: Desk Officer for US Army Corps of Engineers. Respondents should be aware that notwithstanding any other provision of law, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR SURVEY RESPONSE TO THE ABOVE ADDRESS.

Statement of Purpose: The United States Army Corps of Engineers (USACE), in consultation with other agencies, is conducting the Great Lakes and Mississippi River Interbasin Study (GLMRIS). USACE will evaluate a range of options and technologies designed to prevent the spread of aquatic nuisance species (ANS) between the Great Lakes (GL) and Upper Mississippi River (UMR) basins. GLMRIS will analyze the potential effects of each alternative plan on the current uses of the aquatic pathways. The goal of the study is to identify potential solutions to reduce the risk of the transfer of invasive species. The charter fishing industry has changed over the years. The Great Lakes Sea Grant Network is coordinating with USACE for a Great Lakes wide charter captain survey to better assist decision-makers in this GLMRIS evaluation.

Participation in this survey is completely voluntary and all information you provide will be kept strictly confidential. Your responses will remain strictly confidential and will in no way be associated with you or your business. Your responses to the following questions will be aggregated with other responses to help us determine the impacts from alternatives that address the spread of aquatic nuisance species. Responses and comments provided will be shared with the project delivery team. The information collected will be managed in accordance with AR 25-400-2 records retention requirements.

If you have any questions about the Great Lakes Mississippi River Interbasin Study, please contact the Project Manager, David Wethington at (312) 846-5522. For questions about the Charter Captains survey, please contact the Project Lead Economist, Dena Abou-el-Seoud, at (312) 846-5584 or Frank Lichtkoppler, Extension Specialist for the Ohio Sea Grant College Program at (440) 350-2267

Great Lakes Charter Captains Survey 2011

Please answer all questions completely.

(1) What type of charter boat did you operate in 2011? *(Please circle one response.)*

- A. Six passengers or less (six pack)
- B. More than six passengers (party boat)

(2) How did you work or operate in 2011? *(Please circle your response.)*

- A. I owned my own boat (or boats) and operated my own charter business. **(GO TO Question 4.)**
 - B. I leased or rented a boat and operated my own charter business or guide service.
 - C. I worked full time during fishing season as a salaried employee.
 - D. I worked for one or more boat owners receiving a fee for each trip run or day worked.
 - E. Other, please explain
-

(3) If you were a non-boat owning, work for hire charter captain, what were your wages or salary (total fees paid to you) for your Great Lakes charter captain services in 2011? *(Please fill in amount.)*

\$ _____

(4) My homeport is located: *(Please circle best choice).*

(4a) on (or nearest to) the (4b) in the state of: *(circle choice).*

following water body:

- | | |
|----------------------|------------------|
| A. Lake Superior | A. Minnesota |
| B. Lake Michigan | B. Wisconsin |
| C. Lake Huron | C. Michigan |
| D. Lake St. Clair | D. Illinois |
| E. Lake Erie | E. Indiana |
| F. Lake Ontario | F. Missouri |
| G. Mississippi River | G. Iowa |
| H. Ohio River | H. Ohio |
| I. Other _____ | I. Kentucky |
| | J. Pennsylvania |
| | K. New York |
| | L. West Virginia |
| | M. Other _____ |

(5) In 2011, did you charter in any states or on any water body other than where your homeport is located? *(Please circle your response.)*

- A. YES
- B. NO **If NO, GO TO Question 6**

5a. If yes, what percentage of your charters were conducted in other states and /or on other water bodies? *(Please fill in Water body, state and percent.)*

Other State Water body: _____

Other State _____

Percent: of charters _____%

Other State Water body: _____

Other State _____

Percent: of charters _____%

(6) How many charter boats do you own, rent, or operate as part of your business? *(Please fill in the number of boat(s).)*

_____ BOAT(S)

(7) Please write in the length and model year of your primary charter boat.

- A. _____ FEET
- B. _____ MODEL YEAR
- C. _____ DRAFT (including propeller)

(8) How is your primary charter vessel powered? *(Please circle your response.)*

- A. INBOARD
- B. OUTBOARD
- C. INBOARD / OUTDRIVE
- D. OTHER, PLEASE LIST _____

If you were a non-boat owning, work for hire charter captain, please skip to Question 14.

(9) Indicate the type of charter business for your primary charter vessel. *(Please circle your response.)*

- A. SOLE PROPRIETOR
- B. PARTNERSHIP
- C. CORPORATION
- D. OTHER, PLEASE LIST _____

(10) What were your gross sales (total charter fees paid to you) for your primary charter vessel in 2011? *(Please fill in total fees collected in 2011.)*

\$ _____

(11) Please itemize below your approximate annual charter business costs for 2011. Do your best to estimate these costs. If you have only a general idea of the total costs, fill in Question 11a.

- A. Boat fuel (include oil cost if outboard) \$ _____
- B. Boat dockage (slip fees) \$ _____
- C. Boat storage fees (winterizing, haul out, boat cleaning, etc.) \$ _____
- D. Boat launch fees \$ _____
- E. Boat maintenance, repair for normal servicing, i.e., oil changes, tune-ups, registrations, etc. \$ _____
- F. Equipment repair and replacement for fixing or replacing lost, worn or old equipment (i.e. tackle, electronics, etc.) \$ _____
- G. Boat repair for accidental damages or breakdowns not covered by insurance \$ _____
- H. Annual charter boat insurance premiums \$ _____
- I. Annual boat loan payments \$ _____
- J. Depreciation \$ _____
(Number of years depreciated: _____ years)
- K. Publicity/advertising (for ads, business cards, fliers, sport shows, signs etc.) \$ _____

- L. Office and business expenses
(communications, secretary, phone,
fax, tax advisor, postage, accounting,
stationary, computers, etc.) \$ _____
- M. Labor costs for payment of captain(s),
mates, etc. (include fully burdened
costs which include taxes, insurance,
and other benefits) \$ _____
- N. License fees (resident, non-resident,
FCC radio license, six-pack license,
Coast Guard fees, etc.) \$ _____
- O. Drug testing/Professional Assoc. dues \$ _____
- P. Miscellaneous (for all other incidental
expenses, e.g., ice, photos, food and
beverages, bait/tackle for customers, etc.) \$ _____

(11a) If you do not have information on the above costs, please estimate your total charter business costs for 2011. \$ _____

(12) In dollars, what is your best estimate of the current replacement cost (that is the cost of comparable new equipment) of your:

- A. Primary charter vessel \$ _____
- B. All business-related onboard equipment \$ _____
- C. The tow trailer (if any) \$ _____
- D. The tow vehicle (if any) \$ _____

(13) What proportion of time (given in percent) is your tow vehicle actually used for:

- A. Boat towing _____%
- B. Other charter business _____%
- C. Non-business / personal use _____%

These percentages should equal 100%

(14) Please indicate the species or group of species you target, the number of trips made in 2011, and the rate structure by filling in the appropriate blanks for your charter business in the table below:

FULL DAY TRIP - 7 HOURS OR LIMIT

	Fish species	Fish species	Fish species	Fish species	Fish species
	Trout or Salmon	Walleye	Yellow Perch	Small mouth Bass	Fill in Species
Please fill in number of trips made for each species in 2011					
Please fill in per person charge OR:	\$	\$	\$	\$	\$
Please fill in boat trip charge.	\$	\$	\$	\$	\$
Average Number of clients per trip.					

HALF DAY TRIP - LESS THAN 7 HOURS

	Fish species	Fish species	Fish species	Fish species	Fish species
	Trout or Salmon	Walleye	Yellow Perch	Small mouth Bass	Fill in Species
Please fill in number of trips made for each species in 2011					
Please fill in per person charge OR:	\$	\$	\$	\$	\$
Please fill in boat trip charge.	\$	\$	\$	\$	\$
Average Number of clients per trip.					

(15) In 2011, please indicate the charter boat trips by month for your primary vessel? (*Total charter boat trips should equal the number you indicated in question 14.*)

March	April	May	June	July	August	September	October

(16) What year did you first begin offering charter-fishing services in the Great Lakes, Upper Mississippi, or Ohio River basins under Coast Guard and/or DNR/DEC licensing? (*Please fill in the year.*)

YEAR _____

(17) What problems concern you the most about the charter fishing industry? *Please rate each of the issues below with 1 being the least important and 5 being most important to you.*

	Least Important				Most Important
A. Illegal fishing practices	1	2	3	4	5
B. Habitat loss	1	2	3	4	5
C. The economy	1	2	3	4	5
D. Interstate licensing	1	2	3	4	5
E. Fish consumption advisories	1	2	3	4	5
F. Overcrowding of the fishery	1	2	3	4	5
G. Low sport fish populations	1	2	3	4	5
H. Sport fish catch limits	1	2	3	4	5
I. Aquatic nuisance species					
(ANS)	1	2	3	4	5
J. Fisheries management	1	2	3	4	5
K. Decrease in the forage					

fish population	1	2	3	4	5
L. Harmful algal blooms	1	2	3	4	5
M. Poor weather	1	2	3	4	5
N. Cost of fuel	1	2	3	4	5
O. Obtaining new clients	1	2	3	4	5
P. Other Please list					
_____	1	2	3	4	5

The Corps of Engineers is considering basin separation as a means of combating the transfer of aquatic nuisance species (ANS) between the Great Lakes and the river system connections. Basin separation would reduce the risk of ANS transfer but would not eliminate all transfer pathways. Basin separation could include closure of one or more of the locks in the Chicago Area Waterway System (CAWS). The following questions concern your opinion of these basin separation alternatives.

(18) Do you use the Chicago Area Locks in a typical year? (Please circle response.)

A. YES B. NO

If a physical barrier were erected on the Chicago Area Waterway System, there would be **both positive and negative effects**.

A) During high flow or flood conditions, storm water and/or treated sewage which currently flow toward the Mississippi River **could** remain lakeward of the barrier, potentially causing odors and deterioration of Lake Michigan water quality if water treatment is not improved.

B) Traffic between Lake Michigan and the Mississippi and Ohio River basins **could** be reduced or eliminated.

C) Risk of transfer of ANS between Lake Michigan and the Mississippi and Ohio River basins **could** be reduced.

(19) Please choose a response that best describes how you feel about a basin separation measure that would reduce the risk of transfer of Aquatic Nuisance Species (ANS) but have the possibility of adverse impacts. *(Please check your response.)*

_____ **I support a basin separation.** _____ **I am opposed to basin separation.**

[19a] If it was necessary to impose a fee to support your response, what is the most you would be willing to pay **annually** to ensure that your choice is implemented and maintained? **(Please select one value from the list below that represents the maximum amount you would be willing and able to pay annually to keep the waterways open or closed.)**

- A. _____ \$2,500 to \$4,999
- B. _____ \$1,000 to \$2,499
- C. _____ \$750 to \$999
- D. _____ \$500 to \$749
- E. _____ \$250 to \$499
- F. _____ \$100 to \$249
- G. _____ \$50 to \$99
- H. _____ \$1 to \$49
- I. _____ \$0

[19b] Please choose the response that best describes your reason for the previous answer *(Please select **only one** response):*

- A. _____ That's what it is worth to me.

- B. _____ It's worth more to me, but it's all I can afford to pay
- C. _____ I didn't want to place a dollar value.
- D. _____ I object to paying.
- E. _____ Not enough information is provided.
- F. _____ Other reason:

(20) Please estimate the percentage of your charter patrons that come from 50 miles or further from your homeport? _____%

(21) Why are you a professional charter fishing captain? *(Circle all that apply.)*

- A. Primary source of income
- B. Secondary source of income
- C. Like the work
- D. Opportunity to help people enjoy fishing
- E. Other, please list reason: _____

(22) Do you think ANS will impact your business within the next five years?

YES _____ GO TO Question 22a

NO _____ GO TO Question 23

(22a) What percentage decline or increase in revenue do you think the ANS may have on your business in the next five years?

Fill in **the decline in revenue** if any

Percentage **DECLINE** _____%

Fill in **the increase in revenue** if any

Percentage **INCREASE** _____%

(23) Do you have plans to change your charter boat business operations over the next 5 years?
Please check all that apply to your charter activities.

- A. Buy your own charter boat _____
- B. Buy/operate a bigger boat _____
- C. Buy/operate a newer boat _____
- D. Buy/operate an additional boat _____
- E. Hire additional charter captain(s) _____
- F. Hire additional first mate(s) _____
- G. Increase the number of charter trips
made per year _____
- H. Decrease the number of charter
trips made per year _____
- I. Branch out into other fishing
related businesses _____
- J. Quit the charter business _____
- K. Expand into multi activity
and/or non-fishing charters _____
- L. No major changes planned
in my charter business _____
- M. Increase prices of charter services _____
- N. Decrease prices of charter services _____
- O. Other, please list _____

Aquatic nuisance species (ANS) are nonindigenous (not native to an area) species that threaten the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural or recreational activities dependent on such waters.

Below is a list of species of concern that are in the Mississippi River Basin and could impact the Great Lakes.

FISH

- skipjack herring (*Alosa chrysochloris*)
- northern snakehead (*Channa argus*)
- silver carp (*Hypophthalmichthys molitrix*) an Asian carp
- bighead carp (*Hypophthalmichthys nobilis*) an Asian carp
- black carp (*Mylopharyngodon piceus*) an Asian carp
- inland silverside (*Menidia beryllina*)

CRUSTACEAN

- scud (*Apocorophium lacustre*)

PLANTS

- dotted duckweed (*Landoltia [Spirodela] punctata*)
- marsh dewflower (*Murdannia keisak*)
- Cuban bulrush (*Oxycaryum cubense*)

(24) Please provide additional comments on the impact of Aquatic Nuisance Species on your charter fishing business in the space below.....

Thank you for completing the survey.



All answers will be kept strictly confidential and will not be associated with you or your business individually.

Please return the completed survey in the enclosed envelope to:

Ohio Sea Grant 99 East Erie Street Painesville, Ohio 44077

APPENDIX III: CONTACT LETTERS

First Contact Letter

May 9, 2012

Dear Great Lakes Charter Captain:

At the request of the US Army Corps of Engineers the Great Lakes Sea Grant Network led by the Ohio Sea Grant Program is coordinating this Great Lakes wide Charter Captains survey in order to better assist the Great Lakes charter fishing industry and to provide information for the Great Lakes and Mississippi River Interbasin Study (GLMRIS). The purpose of GLMRIS is to identify potential solutions to reduce the risk of the transfer of invasive species such as the Asian carps. This research will document the status of the Great Lakes charter fishing industry in 2011. This is the fifth Great Lakes wide charter industry survey since the mid 1970's. Our last Great Lakes wide survey of the charter industry was in 2002.

You have been randomly selected to participate in the 2011 Great Lakes Charter Captains Survey. Your participation in this research will help to provide an accurate and credible assessment of the Great Lakes Charter Industry's development. In order for the results to truly represent your industry, it is important that you complete and return the enclosed questionnaire. We estimate that it will take you 20 minutes to complete this survey. The survey is strictly voluntary and there are no consequences for not participating.

Your responses will remain strictly confidential and will in no way be associated with you or your business. All responses will be grouped together and reported as a group. There are no identification marks on the questionnaire. The return envelope has an identification number on it for mailing purposes only. This is so that we may check your name off the mailing list when your questionnaire is returned.

The results of this research will be made available to the US Army Corps of Engineers, Great Lakes Charter Associations, charter captains, key decision makers, researchers and interested citizens. You may receive a summary of results by checking "Copy of Results Requested" on the enclosed slip of paper and printing your name and address on the paper. Please do not put this information on the questionnaire.

I would be most happy to answer any questions you may have concerning this survey. Please call or e-mail me at 440/ 350-2267 or lichtkoppler.1@osu.edu respectively.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Thank you for your assistance.

Sincerely,

Frank Lichtkoppler
Professor OSU Extension and
Extension Specialist, Sea Grant

Joe Lucente
Asst. Professor
OSU Extension, Sea Grant

Tory Gabriel
Educator
OSU Extension, Sea Grant

Second Contact Letter (To Non-Respondents If Needed)

May 30, 2012

Dear Great Lakes Charter Captain:

Recently, a questionnaire seeking your input concerning the Great Lakes charter fishing industry was mailed to you. Your name was randomly drawn from a 2011 list of licensed Great Lakes charter captains.

If you have already completed and returned the questionnaire please accept our sincere thanks. If not, please complete it today. We estimate that it will take you 20 minutes to complete the survey. The survey is strictly voluntary and there are no consequences for not participating.

As only a small, but representative, number of Great Lakes charter captains received the survey it is extremely important for you to complete the questionnaire. All responses will be kept strictly and completely confidential and will not be associated with you or your business individually. All data is grouped together and reported as a group.

Your assistance in this research is needed to accurately document the Great Lakes charter captain's contribution to the Great Lakes fishing industry. This information will be used to help inform the US Army's Great Lakes and Mississippi River Interbasin study whose purpose is to identify potential solutions to reduce the risk of the transfer of invasive species such as the Asian carps.

If you have any questions or have misplaced your questionnaire please call me at 440/ 350-2267 or e-mail me at Lichtkoppler.1@osu.edu.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in The Ohio State University Office of Responsible Research Practices at 1-800-678-6251.

Sincerely,

Frank Lichtkoppler
Professor OSU Extension and
Extension Specialist, Sea Grant

Joe Lucente
Asst. Professor
OSU Extension, Sea Grant

Tory Gabriel
Educator
OSU Extension, Sea Grant

Third Contact Letter (To Non-Respondents If Needed)

June 13, 2012

Dear Great Lakes Charter Captain:

About a month ago, we wrote to you seeking responses to our 2011 Great Lakes charter captain's survey. As of today we have not received your completed questionnaire.

In order for the results to be accurate and representative of the industry it is essential that each captain in the sample return their completed questionnaire. Only a percentage of captains have the opportunity to respond. We estimate that it will take you 20 minutes to complete this survey. The survey is strictly voluntary and there are no consequences for not participating.

In the event that your questionnaire has been misplaced, a replacement is enclosed. Please fill it out and return it today.

Your assistance in this research is needed to accurately document the Great Lakes charter captain's contribution to the Great Lakes fishing industry. This information will be used to help inform the US Army's Great Lakes and Mississippi River Interbasin Study (GLMRIS) whose purpose is to identify potential solutions to reduce the risk of the transfer of invasive species such as the Asian carps.

Your responses will be completely confidential. All responses will be grouped and only reported as a group.

Your cooperation is greatly appreciated. If you have already sent in your completed questionnaire please disregard this notice.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Sincerely,

Frank Lichtkoppler
Professor OSU Extension and
Extension Specialist, Sea Grant

Joe Lucente
Asst. Professor
OSU Extension, Sea Grant

Tory Gabriel
Educator
OSU Extension, Sea Grant

Fourth and Final Contact Letter (To Non-Respondents If Needed)

June 27, 2012

Dear Great Lakes Charter Captain:

This is our last effort to encourage you to be a part of the 2011 Great Lakes Charter Captains Survey. Your completed questionnaire will help us to present an accurate and complete picture of the Great Lakes charter industry.

Please excuse us if you have already sent in your completed survey. If you need a copy of the survey please e-mail me at Lichtkoppler.1@osu.edu or me at 440 / 350-2267. **The survey is strictly voluntary and there are no consequences for not participating.**

At the request of the US Army Corps of Engineers the Great Lakes Sea Grant Network led by the Ohio Sea Grant Program is coordinating this Great Lakes wide Charter Captains survey. This work will inform the US Army Corps of Engineers Great Lakes and Mississippi River Interbasin Study (GLMRIS). The purpose of GLMRIS is to identify potential solutions to reduce the risk of the transfer of invasive species such as the Asian carps. It is important that the Great Lakes charter industry have a voice in the GLMRIS.

All responses are completely confidential and will be reported only as a group. For a copy of the results for your state please print your name and address on a separate sheet of paper. Please do not put your name on the questionnaire.

We estimate that it will take you 20 minutes to complete this survey. For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Sincerely,

Frank Lichtkoppler
Professor OSU Extension and
Extension Specialist, Sea Grant

Joe Lucente
Asst. Professor
OSU Extension, Sea Grant

Tory Gabriel
Educator
OSU Extension, Sea Grant