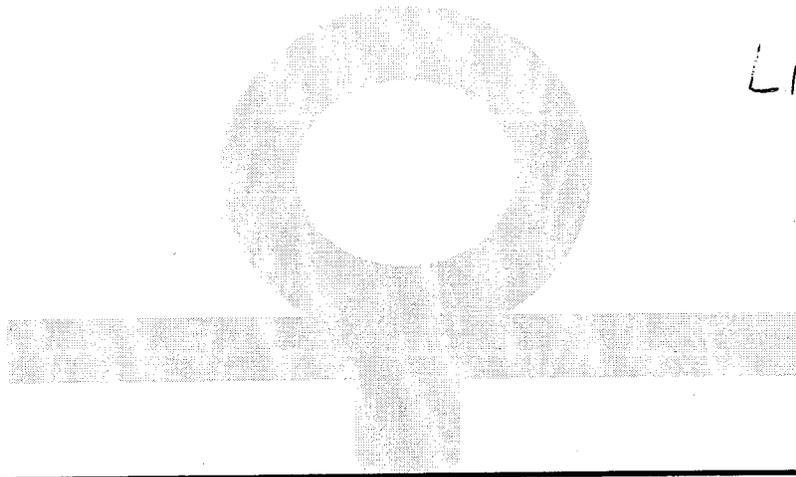


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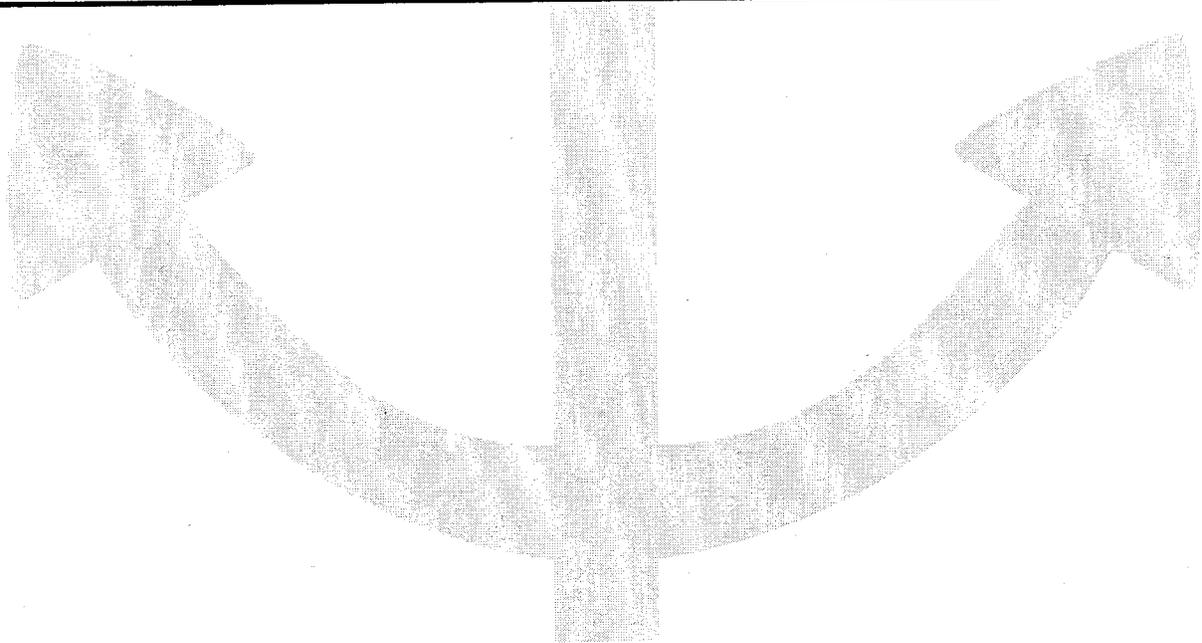


R E C R E A T I O N A L

BOATING

I N O H I O

An Economic Impact Study by Dr. Leroy J. Hushak



An Ohio Sea Grant Publication

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Executive Summary:

Profile of Recreational Boating in Ohio and Its Economic Impact

The economic impact of recreational boating on the Ohio economy was estimated in a study conducted during 1998-99. The study was jointly funded by the Division of Watercraft, Ohio Department of Natural Resources; the Boating Associations of Ohio/ Lake Erie Marine Trades Association; the Lake Erie Protection Fund, and the Ohio Sea Grant College Program. Its goal was to evaluate spending by recreational boaters and how that spending affected the state economy and Ohio businesses, from marine-related firms such as marinas and boat dealers to restaurants, hotels and other service establishments.

Boat-Owning Households

Ohio households registered 407,688 boats in 1998, from which a random sample of 5,544 boating households were surveyed. Responses were received from 2,339 for a response rate of 42 percent. The typical boat-owning household owned 1.7 boats; the primary boat was 16-21 feet long with a book value of \$8,900.

The average respondent made 15.6 trips to Ohio boating sites of which 4.3 were to Lake Erie sites, 1.3 were to Ohio River sites, 8.7 to inland lakes and reservoirs and 1.3 to inland rivers and streams. Another 2.1 trips were made to sites outside of Ohio. On average, boaters traveled 38 miles, one-way to their Ohio boating site. The largest portion of boating time was spent fishing (50%) followed by cruising (17%) and canoeing-kayaking-rowing (8%).

Sixty-nine percent of boat-owning households kept their boat(s) at home during the boating season and 74 percent during the off-season. Other locations during the boating season were equally split between private docks, and marinas or clubs; during the off-season, marinas or clubs, and other storage were the major alternatives to at home.

Expenditures by Boat-Owning Households

Total trip related expenditures were \$2,104 per household.

The typical boat-owning household spent \$134 per trip on trip-related items, the largest being food and lodging (\$55), followed by boat-related expenses on fuel, transient docking, etc. (\$37), and other (\$42).

Maintenance, fees and repair expenditures were \$920 per household
Equipment purchases were \$293 per household

Boat purchase expenditures were \$2,310 per household
Boat-loan payments were \$294 per household

Total spending per boat-owning household, excluding boat loan payments,
was \$5,627

Economic Activity (Estimated from IMPLAN Model)

Total boat related expenditures by Ohio boat-owning households was nearly \$1.4 billion during October 1, 1997 to September 30, 1998.

There were 234,303 boat-owning households owning 1.74 boats per household.

Ohio businesses received \$1.2 billion of the \$1.4 billion; the remainder was in boat transfers between individuals.

The total economic impact of recreational boater expenditures was \$1 billion in sales by Ohio businesses

The total economic impact includes direct, indirect and induced effects.

The direct economic effect was about \$673 million, i.e., of \$1.2 billion of boater expenditures, \$673 or 56% was retained by Ohio businesses and 44% was used to purchase goods from businesses outside of Ohio.

Recreational boater expenditures contributed nearly 19,500 jobs to the Ohio economy.

Recreational boater expenditures contributed \$386 million in income (employee compensation + proprietors income) and \$621 million in value added (income + other property income + indirect business taxes).

Each addition of 12 boating households results in the addition of one job.

These estimates do not include the spending of recreational boaters whose boats are registered in other states but who use Ohio waters and spend money at Ohio business establishments. Since Ohio is bordered by two major bodies of water (Lake Erie and the Ohio River) which attract substantial out-of-state boating, it is likely that the total contribution of recreational boating to the Ohio economy is higher than estimated in this study.

Introduction

What are the economic impacts of recreational boating activity on the Ohio economy? What is the relationship between spending on recreational boating and employment, income, and economic output in the State? These are core questions which this economic impact analysis set out to answer. The analysis takes into account that purchases of new and used boats, equipment, and the spending associated with recreational boating activity or trips create employment, income and tax revenues for the State and for counties. In turn, policies and programs that affect boat sales and the level of boating activity have an effect on the economic impact. For example, increased water quality or increased and improved public ramps, docks, beaches, etc. on Lake Erie, the Ohio River, and inland lakes, reservoirs, rivers or streams lead to increased cruising, fishing, swimming, skiing, etc., i.e., increased enjoyment of boaters, increasing the demand for recreational boating. In turn, the economy of the State, and particularly counties with a relatively large marine trades base, are positively affected. In contrast, events which reduce the demand for boating such as increased fuel costs, increased beach advisories or reduced stocks of fish have negative effects on the marine trades contribution to Ohio's economy.

Previous Studies of Recreational Boating Economic Activity

This study represents the first comprehensive study of the economic impacts of recreational boating in Ohio. It is similar to a study in Maryland (Lipton & Miller). In 1993 Maryland had 193,436 registered or documented boats. Boater expenditures were estimated at \$1.0 billion and an increase of \$980 million in sales by Maryland businesses. However, there was no adjustment for the number of boats per household, an adjustment that is critical in Ohio and may leave the Maryland study with a large upward bias.

Statewide studies in Michigan (Stynes et al., 1995) and Oregon (Boating Recreation, 1997) were also used as guides to developing the Ohio study. The analysis was also guided by Vilaplana (1991), an economic impact study of Lake Erie area recreation which used an earlier version of IMPLAN and incorporated earlier surveys of the marine trades industry (Hushak, 1990) and the charter industry (Lichtkoppler et al. 1987) in Ohio. Ohio Sea Grant has conducted previous charter industry surveys in 1980, 1985, 1990 and 1994.

Two previous surveys of the marine trades industry were conducted for the years 1988 (Hushak, 1990) and 1986. The 1988 study surveyed all 918 Ohio establishments identified by American Business Lists from yellow page directories; the response rate was 19 percent. The 1986 survey was of marinas and other businesses on Lake Erie only. Both studies were supported by Boating Associations of Ohio/Lake Erie Marine Trades Association.

In both cases, industry estimates probably contained some upward bias because large establishments tend to have higher response rates than smaller establishments. The 1988 industry estimate was \$1.7 billion in sales. A change of one large respondent (\$30 million in sales) to one small respondent (less than \$100,000 in sales) reduces the industry sales estimate by

\$200 million. The 1986 Lake Erie area estimate for a more limited scope of establishments was \$342 million in sales compared to \$1.2 billion from the 1988 survey.

T. L. Napier conducted a series of statewide Watercraft planning surveys with the goal of helping the Division of Watercraft better serve recreational boaters in Ohio. The most recent of these surveys (1996) included a question about boater expenditures in Ohio. Mean expenditures per respondent during 1995 were \$3,430. There were 394,885 registered boats in Ohio in 1995; respondents reported 1.6 boats per household yielding 246,803 households with boats registered in Ohio. Total expenditures were estimated at \$846.6 million.

Economic Impact Analysis--An Overview

To estimate the total economic contribution to the Ohio economy generated by an activity such as recreational boating, it is necessary to determine total spending that occurs on that activity. For an economic impact analysis of recreational boating, the total amount spent by recreational boaters in Ohio must be determined. Because of the diffuse nature of this spending, i.e., recreational boater expenditures include not only expenditures on boats and at marinas but also expenditures at restaurants and hotels and for groceries and fishing equipment, it is necessary to obtain estimates of spending and spending patterns directly from boaters. Boaters with boats registered in Ohio were surveyed regarding how much they spent on boating activities in Ohio during the period October 1, 1997 to September 30, 1998. These direct estimates of spending patterns are used to estimate total recreational boating expenditures within Ohio.

The sample included boaters who are residents of other states but have one or more boats registered in Ohio. However, expenditures in Ohio by boaters with boats registered in other states were not included because of the difficulty of identifying and surveying these boaters. For example, the owner of a boat registered in Ohio, whether a resident of Ohio, Michigan or some other state was in the data base from which the sample was drawn. On the other hand, the owner of a boat registered in Michigan, whether a resident of Michigan or Ohio, was not included in the sample. Since Ohio is bordered by two major bodies of water, Lake Erie and the Ohio River, there is probably a significant amount of expenditures within Ohio not captured by this study.

Using total estimated boating expenditures in Ohio, different components of economic activity are estimated. *Direct economic activity* is the amount of total expenditures that do not leave Ohio, i.e., are captured by Ohio businesses. For goods not manufactured in Ohio, the economic activity generated in Ohio includes only the retail and wholesale margins or value added (revenues minus the cost of goods sold). New boats are the prime example where Ohio businesses capture only the retail and some of the wholesale margin because nearly all boats sold in Ohio are manufactured outside of the state. For services and goods manufactured in Ohio, all or nearly all expenditures count toward direct economic activity. The portion of expenditures that leaves Ohio and does not contribute to economic activity is referred to as *leakage*.

Economic impacts also include indirect and induced impacts. When a boat is serviced by a marina-boat dealer, that marina purchases supplies and materials from other Ohio marine trades businesses. Those businesses make additional purchases from other Ohio businesses, and so on.

The additional rounds of spending initiated by the boater's initial expenditure are the *indirect economic activity* generated by recreational boating, i.e., it is a measure of the effect of the additional spending by those businesses directly impacted by recreational boater expenditures. To calculate the indirect activity generated by boater expenditures, it is necessary to account for the spending patterns of the marine trades industry in Ohio, i.e., identifying what sectors of the economy marine trades businesses deal with, and what proportion of marine trades revenues go to each sector. This information is also necessary to determine the wholesale and retail margins for the direct economic activity estimates.

The direct and indirect spending related to recreational boating leads to employment and income for the affected industry sectors. Employee wages and proprietor income in turn go to purchase other consumer goods and services in the economy. For example, persons employed at a marina might use some of their income for recreational boating; they might also use part of their income to buy food, housing, clothing, restaurant meals or a movie. These are examples of *induced economic activity*, activity resulting from increased income to labor and property owners.

To estimate the relationships between expenditures and how they impact economic activity, we use the IMPact Analysis for PLANning (IMPLAN) model, a computer based input-output program this is frequently used to estimate the impacts of expenditures on different sectors of an economy. An input-output model describes the technical relationships between the producing sectors of the economy (inputs) and the consuming sectors of the economy (outputs). *Indirect* and *induced* activity are estimated from the IMPLAN model. The Appendix gives a summary of the steps involved in the IMPLAN analysis and provides detailed results of this study.

Ohio Boating Activity and Expenditure Estimates

Three surveys were conducted to develop a comprehensive data base about recreational boating impacts in Ohio. The primary and largest survey was of recreational boating households with boats registered in Ohio. Second, a survey of the marine trades industry was conducted. Marine trades is comprised of marinas, boat dealers, and related businesses that support boating components, but excludes food service, hotels and other businesses where recreational boaters spend money on boating trips. The final survey was of charter fishing. This is technically a commercial, not recreational, boating sector, but one which uses and is linked closely to marine trades.

Recreational Boater Survey-- Obtaining Data on Expenditures

The survey of recreational boaters was conducted to obtain the database from which to estimate the economic impact of recreational boating in Ohio. The Division of Watercraft, Ohio Department of Natural Resources, maintains the data base of registered boaters in Ohio. The data base was sorted by county. If the county had 5,000 or more registered boats, a one-percent sample of boats, and by assumption boat owners, was randomly drawn from the 1998 boater registrations (In Ohio, boats must be registered every three years. To minimize bad addresses only 1998 registrants were used assuming that 1998 registrants were similar to those registering their boats in 1997 or 1996). If a county had less than 5,000 registered boats, a sample of 50 registered boats was randomly drawn. The result was a sample of 5,544 registered boats and a few less boat owning households (several households were drawn more than once) out of 407,688 registered boats in Ohio for 1998. A minimum of 50 was drawn to insure sufficient survey returns to calculate valid statistics for each county.

The survey was pre-tested by sending a preliminary questionnaire to a sample of 100 boaters. Based on the responses the questionnaire was finalized and mailed to the 5,544 boater households. Four variations of the questionnaires were used. The four versions differed in two items. First, boating households were asked how the number of boat trips in Ohio would change if trips costs changed by +5 percent, by +10 percent, by +15 percent and by -5 percent. Each version of the questionnaire contained one of these options. Second, a question was asked about how boating time was allocated among a list of activities such as fishing, cruising, water skiing, etc. In the four versions, the order of activities was changed to test for response variations depending on where the item was located in the list.

Sample members received up to three mailings. First, on October 22, 1998 they were mailed a copy of the questionnaire with cover letters from the Division of Watercraft and from the principal investigator and a return envelope. If they did not respond within two weeks, on November 4 they were mailed a post card reminding them to return their surveys. If they did not

respond after four weeks, on November 19 they were mailed a second questionnaire with a cover letter from the principal investigator and a return envelope. A total of 2,339 responses were received for a response rate of 42 percent. In addition 108 questionnaires could not be delivered to the addresses listed on boater registrations.

The questionnaire had four major sections. The first section asked for number of boats, boat characteristics, when purchased, value, and location during the boating season and during the off-season. If more than one boat was owned, respondents were asked to report on the two most used boats. The second section requested information about household boating trips, number, location, duration, distance to boating site and how boating time was allocated among alternative activities. In the third section, respondents were asked to report household boating expenses in two categories: boat trip expenses (fuel, lodging, food, transportation to boat site, etc.) and seasonal boat-related expenses (boat purchase, boat maintenance and repair, equipment, slip rental and storage, insurance, etc.). In the last question of this section, each respondent was asked to indicate how the number of trips would change in response one of the following changes in household boating trip expenses: a change of +5%, +10%, +15% or -5%. Demographic information about the household was requested in the final section, including age, years of schooling, marital and job status and income. Copies of the survey are available from the author or from the Division of Watercraft, ODNR.

Expenditures by recreational boater households for the October 1, 1997 to September 30, 1998 period are presented in three parts: 1) trip expenditures, 2) boat-related expenditures exclusive of boat purchases and loan payments, and 3) boat purchases and boat loan payments.

The typical respondent household owns 1.74 boats. The most frequently reported boat is an open motor boat 16-21 feet long with an outboard motor. Owners of more than one boat were asked to provide characteristics of the two most frequently used boats. The typical primary boat was a 1981 model year with a current book value of \$8,900, while the second boat was a 1981 model with a book value of \$3,000. Forty-three percent of these boats were originally purchased new from dealers. Approximately one-half of all boats were purchased used from other individuals. Seventy percent of the boats were kept at home when not in use during the boating season and 75 percent were kept at home during the off-season. Thirteen percent of primary boats were docked at a marina or club during the boating season and three percent were kept in dry-rack storage. Sixty percent of primary boat respondents and 50 percent of second boat respondents said they would replace their boats at some time in the future, while the remainder would not likely replace their boats.

The sample was checked for respondent bias by comparing the sample and respondent statistics on propulsion systems and boat length (Table 1). For both characteristics, the respondents represent the sample distributions very closely.

| Characteristic | Sample | Respondents |
|---------------------------|--------|-------------|
| <u>Propulsion System</u> | | |
| Outboard | 55 | 50 |
| Inboard | 9 | 7 |
| I/O | 11 | 15 |
| Jet | 7 | 6 |
| Hand-powered | 16 | 18 |
| Other | 2 | 4 |
| <u>Boat Length</u> | | |
| Less than 14 feet | 29 | 26 |
| 14, but less than 16 feet | 21 | 24 |
| 16, but less than 21 feet | 38 | 33 |
| 21, but less than 26 feet | 9 | 12 |
| Over 26 feet | 3 | 5 |

Annual Trip-Related Expenditures

In this section, information on the number of trips and expenditures per trip by households with boats registered in Ohio are used to estimate total recreational boat trip expenditures in Ohio for the period October 1, 1997 to September 30, 1998. Excluded are households with boats registered in other states. The typical boat owning household took 15.7 boating trips to Ohio sites during the survey period and 2.1 trips outside of Ohio. These averages include 13.5 percent of 1897 respondents who took zero boating trips during the period. Of the Ohio trips, 4.3 were to Lake Erie, 1.3 to the Ohio River, 8.7 to inland lakes and reservoirs, and 1.5 to inland rivers or streams. Three of the trips were overnight trips while 12.8 were day trips; the average trip duration was 1.7 days. The mean (average) one-way distance to the boating site was 38 miles. The largest portions of boating time were spent fishing (50 percent), cruising (17 percent) and canoeing-kayaking-rowing (8 percent).

The average boater expenditure per trip was \$134.3. At 15.7 trips per boating household, total trip expenditures per household are \$2,104 (Table 2). Food and lodging expenditures (which include restaurant expenditures) exceed boat-related expenditures (fuel and other boat related).

Total boater household trip expenditures in Ohio are the product of Ohio trip expenditures per household and the number of boating households with boats registered in Ohio. As noted above, non-residents of Ohio who have boats registered in Ohio are included in these estimates, but owners of boats registered in other states who boat in Ohio are not included. Also excluded are expenditures made on trips outside of Ohio, although some of these expenditures were probably made in Ohio. In 1998, there were 407,688 boats registered in Ohio. From the questionnaire, respondents reported an average of 1.74 boats owned per household, yielding an estimated 234,303 boat-owning households with boats registered in Ohio. Total household trip expenditures for Ohio trips is estimated at \$493 million (Table 3).

| Table 2. Average Ohio per Trip & Total Household Trip Expenditures, October, 1997- September, 1998, 1707 Respondents (\$) | | |
|---|----------|--------|
| Expenditure Category | per Trip | Total* |
| Food & Lodging | 55.7 | 873 |
| Fishing Supplies | 13.7 | 215 |
| Boat Fuel | 24.7 | 387 |
| Other Boat Related | 11.9 | 186 |
| Transportation | 17.2 | 270 |
| Other | 11.0 | 172 |
| Total Expenditures | 134.3 | 2,104 |
| *Total = per trip expenditures x 15.67 trips per boating household | | |

| Table 3. Total Ohio Trip Expenditures, October 1, 1997-September 30 1,998 (\$mil) | |
|--|-------------------------|
| Expenditure Category | Ohio Trip Expenditures* |
| Food & Lodging | 204.5 |
| Fishing Supplies | 50.4 |
| Boat Fuel | 90.7 |
| Other Boat Related | 43.7 |
| Transportation | 63.3 |
| Other | 40.4 |
| Total Expenditure | 493.0 |
| *Ohio trip expenditures = household trip expenditures x boat owning households, where boat owning households = 407,688 registered boats/1.74 boats per household | |

Annual Boat-Related Expenditures

Annual boat-related expenditures include all boating expenditures which are not trip-related, such as boat maintenance and repair, slip rental, insurance and equipment, whether made in Ohio or not (boat purchases and boat loan payments are addressed separately below). Boaters were asked to report their annual boat-related expenditures for the period October 1, 1997 to September 30, 1998.

Maintenance, fees and repairs expenditures totaled \$920 per household (Table 4). The largest categories of expenditures were slip rental, insurance, winterization-storage-utilities-haulout, and engine-outdrive-props. Equipment expenditures totaled \$293 per household. The largest categories were other equipment and boat equipment.

Total boater household expenditures equal expenditures per household times the 234,303 households with boats registered in Ohio. Maintenance, fees and repairs total nearly \$216 million while equipment expenditures total nearly \$69 million (Table 5) for the period October 1, 1997 to September 30, 1998.

| Expenditure Category | Maintenance, Fees, Repairs | Equipment |
|--|----------------------------|--------------|
| Hull repair, bottom paint | 82.2 | |
| Engine, outdrive, props | 102.6 | 29.3 |
| Electronics/batteries | 30.0 | 30.8 |
| Boat equipment (sails, covers, car racks, paddles, vests, etc.) | 50.3 | 82.6 |
| Other equipment (fishing, waterskiing, scuba, coolers, grills, etc.) | 52.8 | 92.9 |
| Slip rental | 170.0 | |
| Winterization, storage, utilities haul-out, etc. | 141.6 | |
| Boat/yacht club fees | 36.0 | 4.8 |
| Insurance | 146.5 | |
| Taxes/licenses | 64.8 | |
| Other (instruction, magazines, etc.) | 43.1 | 52.8 |
| TOTAL | 920.0 | 293.1 |

| Expenditure Category | Maintenance, Fees, Repairs | Equipment |
|--|----------------------------|-------------|
| Hull repair, bottom paint | 19.3 | |
| Engine, outdrive, props | 24.0 | 6.9 |
| Electronics/batteries | 7.0 | 7.2 |
| Boat equipment (sails, covers, car racks, paddles, vests, etc.) | 11.8 | 19.4 |
| Other equipment (fishing, waterskiing, scuba, coolers, grills, etc.) | 12.4 | 21.8 |
| Slip rental | 39.8 | |
| Winterization, storage, utilities haul-out, etc. | 33.2 | |
| Boat/yacht club fees | 8.4 | 1.1 |
| Insurance | 34.3 | |
| Taxes/licenses | 15.2 | |
| Other (instruction, magazines, etc.) | 10.1 | 12.4 |
| TOTAL | 215.6 | 68.7 |

Boat Purchases and Boat Loan Payments

Boat purchases and boat loan payments are discussed separately from boat-related expenses because of their unique characteristics. The average boater household made boat purchases of \$2,310 during the survey period, and a boat loan payment of \$294 (Table 6).

Multiplying by the estimated 234,303 boater households with boats registered in Ohio yields total expenditures of \$541 million on boats and nearly \$69 million in boat loan payments.

| Expenditure Category | Household (\$) | Total (\$ million) |
|------------------------|----------------|--------------------|
| Boat Purchases | 2,310.0 | 541.2 |
| From dealers (74%) | | 400.5 |
| New boats (86%) | | 344.4 |
| Used boats (14%) | | 56.1 |
| From individuals (26%) | | 140.7 |
| Boat Loan Payments | 293.7 | 68.8 |

To allocate the value of boat purchases between dealers and individuals and for dealers between new and used boats, reported average values of boat purchases were compiled for these groups. Boats purchased from dealers were 74 percent of the total value of boats purchased (Table 6); the remaining 26 percent were in transactions between individuals. Among dealer sales, 86 percent of the value was in new boats and 14 percent in used boats.

This breakdown is important in the economic impact model because none of the purchases from private individuals generate economic impacts because they do not generate sales at marine businesses. In addition, about 85 percent of the revenue from used boat sales by dealers goes to the previous owner, leaving about 15 percent in value added by the dealers. Finally, new boat sale revenues are split as about 19 percent to boat dealers and wholesalers and 81 percent to boat builders. Since only 1-2 percent of boats sold in Ohio are built in Ohio, even most new boat sales revenues leave Ohio as a leakage.

Boat loan payments are included in the economic impact model in addition to boat purchases. This may result in some double counting because boat purchases which were financed during the survey period are included as both a purchase and a loan payment.

Total Annual Boater Expenditures

Total annual boater expenditures are the sum of trip expenditures of \$493 million (Table 3), maintenance-fees-repairs of 215.6 million (Table 5), equipment purchases of \$68.7 million (Table 5), boat purchases of \$541.2 million (Table 6) and boat loan payments of \$68.8 million (Table 6). The total is \$1,387.3 million. Adjusting the boat purchases for sales between individuals (\$140.7 million) and the revenues transferred to individuals from used boats sold by dealers (85% of \$56.1 million = \$47.7 million) reduces the total by \$188.4 million leaving a total of \$1,198.9 million as estimated revenues to businesses.

The Marine Trades Industry in Ohio

To gain a more complete picture of recreational boating in Ohio, a survey was conducted of the marine trades industry. The marine trades industry was defined to include recreational boat or yacht building, repair, storage, covers-upholstery, trailers, transport, appraisals, instruction, excursions, rental and charter, and divers, fishing and related businesses, marinas and marine activities and scuba. Marine trades businesses sell goods and services to recreational boaters and to other persons who purchase their goods and services. There is a major but not complete overlap between marine trades sales and recreational boater purchases. Marine trades businesses sell goods and services to boaters and other consumers. Recreational boaters purchase goods and services from marine trades businesses and businesses in other sectors of the economy such as food stores, restaurants and hotels. Marine trades industry sales cannot be added to recreational boater expenditures because of this overlap between marine trades sales and boater expenditures.

In April, 1998, 1710 establishments (business sites) were identified through American Business Information (a company that compiles business lists from yellow page directories). Based on information in this data base, these establishments had sales of \$1.7 billion and employed 13,200 people. Mean sales per establishment were \$100,000 and employment per establishment was 7.7.

A stratified sample of 506 establishments was drawn from this data base. The 33 manufacturers (boat, sail, equipment etc.), the 36 canoe liveries, and the 17 excursion boats in the database were included plus 420 establishments randomly selected from the remaining list. The Division of Watercraft, ODNR, provided business lists from which 13 additional boat builders (manufacturers), 33 additional canoe liveries, and 13 additional excursion vessels were identified, which added 59 establishments to the sample for a total of 565. Business questionnaires were mailed to these establishments on July 30, August 14, August 31 and September 14. The July 30 mailing included cover letters from Norm Schultz, Ohio Boating Associations and the principal investigator plus a questionnaire and return envelope. The August 14 mailing was a post card. The August 31 and September 14 mailings included a cover letter from the principal investigator, a questionnaire and a return envelope.

A response rate of 12 percent was obtained with 69 usable questionnaires of 565; 37 could not be delivered. Mean sales reported by respondents was \$2.2 million; mean employment was 14 full-time, 8 full-time seasonal, and 8 part-time seasonal. These respondent establishments were much larger than the typical establishment in the data base. Because of the low response rate, this survey was not used to develop a marine trades sector in the economic impact model, nor was an industry estimate of total sales, employment and value added developed separate from that derived from the yellow pages data base.

The Charter Fishing Industry

Charter businesses are technically commercial businesses. However, they use recreational business facilities and serve anglers who want to fish on Lake Erie but in most cases

do not own recreational boats. Because there is very little overlap between recreational boating households and charter anglers, the economic impacts of the charter industry can be added to the economic impacts of recreational boating.

There were 957 licensed charter captains in 1998. One-third or 319 were surveyed. Mailings were made on March 17, March 31 and April 14, 1999. The first and third mailings included a cover letter, the questionnaire and a return envelop; the second was a post card reminder. There were 146 questionnaires returned for a response rate of 46 percent.

Of the 146 respondents, 116 (79%) operated a charter business while 30 (21%) were for-hire captains. The typical business operated 1.1 boats. For the population of 957 licensed charter captains, it is estimated that 756 operate businesses and 201 are for-hire captains. Charter fishing businesses generated an estimated \$12,700 of revenues per business and \$9.6 million in industry revenues during 1998. Expenses were \$11,000 per business and \$8.2 million for the industry, yielding net revenues of \$1,700 per business and \$1.3 million for the industry (Table 7). Net revenues represent returns to business operators for labor and the capital costs of owning their boats.

| Category (N) | per Business (\$) | Industry (\$ 000)* |
|--|-------------------|--------------------|
| Revenues, business (116) | 12,657 | 9,568.7 |
| Expenses, business (108) | 10,973 | 8,295.6 |
| Net revenues, business | 1,684 | 1.3 |
| For-hire earnings (30) | 4,352 | 874.8 |
| * per business x 756 businesses or 201 for-hire captains | | |

For-hire captains earned nearly \$875,000 during 1998 (Table 7). These earnings cannot be added to charter revenues. About \$312,000 is reported as labor costs by charter businesses, some of which goes to for-hire captains and some to mates. However, the largest component of for-hire earnings is probably earned from the head/party boat companies. None of these companies are part of the licensed captain list and their revenues are not included in these estimates, but the captains they employ are included.

Economic Impact of Recreational Boating on the Ohio Economy

Recreational boater expenditures are the starting point for the estimation of economic impacts. As discussed earlier, these expenditures must be adjusted for leakages. This adjustment yields the direct effect, from which indirect and induced effects can be estimated. When a boater makes an expenditure, part of that spending may go to a producer outside of Ohio; this is called a leakage. The part of the spending that stays in Ohio is the direct effect. It is used by the business to purchase goods from other businesses to keep in stock and to provide services to the boater; another part of the services is wages paid to labor. The portion used to purchase goods or services from other businesses generates new sales by other businesses, which are called indirect effects. The portion paid to labor or to management generates income which in turn is spent for goods and services, which may include boating expenditures, but more generally is spent on basic living activities such as food, housing, or transportation. Boater expenditures on meals at restaurants, clothing, boat supplies, or fishing tackle impact various parts or sectors of the economy such as producers, wholesalers, retailers, and transportation.

The IMpact Analysis for PLANning (IMPLAN) model, an input-output model for estimating these impacts, is used (see Appendix for a more detailed discussion and presentation of impacts). The IMPLAN model data base allows separation of direct (boater) expenditures to those sectors where they occur (the margins) and enables the estimation of leakages from the economy. In Table 8 the allocation of boater expenditures across various sectors is illustrated. For example, each dollar spent on gasoline is allocated to miscellaneous retail (20 cents), wholesale (15), transportation (2) and the producers, drilling, refining, etc., (63). The regional purchase coefficients (RPC) measure the amount of each expenditure dollar that remains in Ohio. For example, of each penny to miscellaneous retail, .949 cent remains in Ohio. For gasoline expenditures, about 69 cents remains in Ohio for each dollar spent. On a boat purchase, only 17 cents of every dollar stays in Ohio; for groceries, it is 57 cents on every dollar.

The Ohio economy has very low regional purchase coefficients in four sectors where recreational boaters make expenditures: boat building and repair, travel trailers and campers, sporting and athletic goods and wholesale trade. RPCs exceeding 0.9 are in motor freight and transportation, food stores, automotive dealers and services, and miscellaneous retail (see Appendix Table A).

Output, employment, income and value added impacts are summarized in this section. Details of the IMPLAN model and detailed sectoral impacts are presented in the Appendix.

Table 8. Use of IMPLAN Margins and Regional Purchase Coefficients to Allocate Expenditures Between Direct Effects and Leakages

| IMPLAN Sector | Margin (%)* | RPC# | Ohio Expenditure (%) |
|--|-------------|------|----------------------|
| <u>Gasoline</u> | | | |
| Miscellaneous retail | 20 | .949 | 18.98 |
| Wholesale | 15 | .089 | 1.33 |
| Transportation | 2 | .961 | 1.92 |
| Producer | 63 | .745 | <u>46.94</u> |
| TOTAL | | | 69.17 |
| <u>New boat purchase</u> | | | |
| Miscellaneous retail | 17 | .949 | 16.13 |
| Wholesale | 2 | .089 | 0.18 |
| Producer | 81 | .011 | <u>0.89</u> |
| TOTAL | | | 17.20 |
| <u>Groceries</u> | | | |
| Food stores | 21 | .949 | 19.93 |
| Wholesale | 9 | .089 | 0.80 |
| Transportation | 4 | .961 | 3.84 |
| Producer | 66 | .486 | <u>32.08</u> |
| TOTAL | | | 56.65 |
| *Margin = the allocation of expenditures among those sectors which add value to the product | | | |
| #RPC = regional purchase coefficient = the portion of the expenditure which remains within the Ohio economy; 1 - RPC = leakage | | | |

Output Impacts

The total output impact is comprised of the direct, indirect and induced effects. Households with boats registered in Ohio spent an estimated \$1,387.3 million in Ohio between October 1, 1997 and September 30, 1998. Of this, \$188.4 million was a transfer of revenues between individuals from the trading of used boats; either direct transfers between private individuals or the estimated revenues of the sellers of used boats when a dealer conducted the transactions, leaving a net of \$1,198.9 as revenues accruing to businesses. When the data was recompiled in IMPLAN, total revenues accruing to Ohio businesses were \$1,209.5 million, \$10.4 million greater than above. This latter number is used in the IMPLAN model. Leakages from Ohio businesses to other states were \$536.3 million, leaving a direct effect of \$673.2 million (Table 9). The total output impact, direct, indirect and induced, is over \$1 billion

Table 9. Output Impacts of Ohio Recreational Boating Expenditures, October 1, 1997 to September 30, 1998 (\$ million)

| | Direct | Indirect | Type I* | Induced | Total# |
|---|--------|----------|---------|---------|---------|
| Output | 673.2 | 156.5 | 829.8 | 191.1 | 1,020.9 |
| * Type I = direct + indirect effects | | | | | |
| # Total = Type III or Type Sam in IMPLAN = Type I + induced effects | | | | | |

Employment Impacts

Employment impacts are comprised of the direct, indirect and induced jobs resulting from recreational boater expenditures. Spending by boaters in Ohio resulted directly in nearly 15,000 (Table 10). Over 1,750 additional jobs are created in other sectors of Ohio's economy as a result of new activity in those sectors serving recreational boaters, the indirect effect. Finally, over 2,800 jobs are created from the additional spending by those employed by the sectors serving recreational boaters, for a total job impact of 19,500. Each addition of 12 boating households results in the addition of one job.

| | Direct | Indirect | Type I* | Induced | Total# |
|---|--------|----------|---------|---------|--------|
| Employment | 14,920 | 1,754 | 16,674 | 2,826 | 19,500 |
| * Type I = direct + indirect effects | | | | | |
| # Total = Type III or Type Sam in IMPLAN = Type I + induced effects | | | | | |

Income Impacts

Income is comprised of wages and compensation to individuals and proprietors income. Direct compensation is the wages and other compensation to persons employed in and proprietors income from sectors where recreational boating expenditures occur, such as restaurant, hotel, marina, or food store sectors. Direct compensation is nearly \$270 million (Table 11). Indirect and induced compensation increase the total compensation impact to over \$385 million. Nearly 38 percent of the total output impact of boater expenditures accrues as wages and compensation to employees and owners of businesses affected by these expenditures, \$386 million of \$1,021 million.

| | Direct | Indirect | Type I* | Induced | Total# |
|---|--------|----------|---------|---------|--------|
| Income | 269.2 | 49.2 | 318.4 | 67.8 | 386.2 |
| * Type I = direct + indirect effects | | | | | |
| # Total = Type III or Type Sam in IMPLAN = Type I + induced effects | | | | | |

Value Added Impacts

Value added is comprised of income plus other property income and indirect business taxes. Indirect business taxes consist of excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses, but exclude taxes on profit or income. Direct value added is nearly \$420 million (Table 12). Indirect and induced value added increase the total value added impact to over \$620 million. Over 60 percent of the \$1,021 million in total output impact accrues as value added to Ohio businesses, their employees and in tax revenues.

Table 12. Value Added Impacts of Ohio Recreational Boating Expenditures, October 1, 1997 to September 30, 1998 (\$ million)

| | Direct | Indirect | Type I* | Induced | Total# |
|---|--------|----------|---------|---------|--------|
| Value added | 419.1 | 86.0 | 505.1 | 115.8 | 620.9 |
| * Type I = direct + indirect effects | | | | | |
| # Total = Type III or Type Sam in IMPLAN = Type I + induced effects | | | | | |

Charter Fishing Impacts

The economic impacts of the charter fishing industry can be added to the recreational boating impacts because very little overlap is expected between the two groups. The charter industry, although a group of commercial businesses, provides services primarily to recreational anglers through the use of marine facilities that also serve recreational boaters. These estimated impacts are presented separately from the recreational boating impacts in the report.

Estimated charter industry sales were \$9.6 million in 1998 generating a total output impact of \$18.7 million (Table 13). Full-time equivalent employment was estimated at 318. To get this estimate, it was assumed that there were one-third as many mates as captains (315) and that each member of the industry worked 0.25 fte. The total employment impact is only 328 because the indirect and induced effects are very small.

Table 13. Economic Impacts of the Charter Fishing Industry, 1998.

| Impact | Output | Employment | Employee Compensation | Value Added |
|---|----------|------------|-----------------------|-------------|
| | (\$'000) | (#) | (\$'000) | (\$,000) |
| Direct | 9,568.7 | 318 | 1,030 | 2,300 |
| Indirect | 7,176.5 | 19 | 1,514 | 5,842 |
| Type I* | 16,745.2 | 319 | 2,544 | 8,142 |
| Induced | 1,913.7 | 9 | 536 | 1,886 |
| Total# | 18,659.0 | 328 | 3,080 | 10,028 |
| * Type I = direct + indirect effects | | | | |
| # Total = Type III or Type Sam in IMPLAN = Type I + induced effects | | | | |

Total employee compensation was estimated as \$874.8 thousand earned by for-hire captains plus 50 percent of the \$312.2 thousand (\$156.1 thousand) labor earnings reported by charter businesses. The remainder is assumed to overlap with earnings reported by for-hire captains. The total employee compensation impact is about \$3 million. Total value added is employee compensation plus \$1,273.1 returns to business owners management, labor and assets. The total value added impact, direct, indirect and induced, is \$10 million. The indirect and induced income effects are large compared to the indirect and induced employment effects.

Economic Impacts vs. Economic Value

There are two concepts used to measure recreator activities. Economic impacts, as presented in this study, are measures of how recreator expenditures affect the local economy, in this case how recreational boater expenditures in Ohio affect the Ohio economy. Economic value, on the other hand, is a measure of how recreators value their sport over and above what they spend on it. Net willingness to pay, a measure of economic value, is the total amount recreators are willing to spend on the activity minus the amount they actually spend. In this case, it is the total amount recreational boaters are willing to spend on recreational boating in Ohio rather than go without boating in Ohio less the amount they actually spend. Economic value is estimated using travel cost or contingent value methods. Responses to the questions about how boaters would change the number of trips if the cost of a trip changes is a contingent value type question from which partial estimates of economic value can be derived. Travel cost models estimate economic value from the relationship between number of trips and the cost of traveling to the boating site. Estimates of economic value of recreational boating will be the subject of another report.

Appendix A

Economic Impact Analysis

The Process

Converting estimates of expenditures to estimates of economic activity requires a series of steps. First, total boating expenditures in Ohio were obtained through a survey of households with boats registered in Ohio. Two categories of expenditures were collected; trip-related and boat-related expenditures. Included in the survey were residents of other states with boats registered in Ohio; it was assumed that all of their boat related expenditures were made in Ohio. Excluded were households who boated in Ohio but registered their boats in another state. Boat purchase expenditures were adjusted to exclude transactions between private individuals and to exclude the portion of used boat sales through dealers that went to previous owners.

Adjusted recreational boating expenditures are entered into the IMPLAN model to obtain direct, indirect and induced estimates of economic activity (output, employment, employee compensation and value added). Each expenditure was first allocated to the appropriate sectors using the margin coefficients in the IMPLAN model (Table 8). Regional purchase coefficients (RPCs) from IMPLAN are then used to adjust each allocated expenditure between the portion accruing to Ohio businesses (the RPC for the sector) and the portion leaving the Ohio economy (the leakage = 1 - RPC). These adjustments yield the direct economic impacts of recreational boater expenditures. The direct impacts are then multiplied by the appropriate multipliers (output, employment, income, value added) from IMPLAN to obtain Type I and Total (Type III or Type Sam) economic impacts.

IMPLAN Model

Total recreational boating expenditures in Ohio are the starting point for estimation of the economic impact using the IMPLAN model. IMPLAN (IMpact Analysis for PLANning) was initially developed by the U.S. Forest Service and is widely used for the estimation of economic impacts.

IMPLAN divides the national economy into 528 sectors comprised of agriculture, mineral extraction, manufacturing, transportation and transmission, wholesale trade, retail trade, services and government. Data for these 528 sectors is derived from the national input/output or industry transactions tables (MIG, 1999). The input/output matrix uses national coefficients. It is assumed that these coefficients are applicable to the Ohio economy for those sectors which exist in Ohio. The Ohio economy contains 494 of the 528 sectors in the national economy; 51 sectors are aggregated into one food and food products sector (#58 in Appendix Table A) because there is not sufficient information to allocate food purchases to the disaggregated sectors.

To estimate economic activity, boater expenditures must be matched to one or more of the IMPLAN sectors. For example, boater expenditures for lodging are matched to the IMPLAN sector Hotels and Lodging Places. In most cases the matching is straight forward. Expenditures at marine trades businesses are allocated to Boat Building and Repairing, Wholesale and Miscellaneous Retail; the survey of marine trades businesses did not yield a sufficient response rate to develop an explicit marine trades sector to substitute for miscellaneous retail in IMPLAN. Appendix Table A shows a list of IMPLAN sectors to which boating household purchased goods and services we allocated, the level of those purchases and the total number of employees or jobs generated by those expenditures.

| Sector | Sector # | Purchases | Employment | RPC |
|---|----------|----------------------|------------|--------|
| Food and Food Products | 58 | 54,426,000 | 178.7 | 0.4856 |
| Canvas Products | 128 | 4,369,000 | 64.4 | 0.8275 |
| Periodicals | 175 | 1,382,000 | 9.0 | 0.2333 |
| Petroleum Refining | 210 | 115,172,000 | 68.8 | 0.7452 |
| Internal Combustion Engines, N.E.C. | 308 | 4,596,000 | 16.4 | 0.6855 |
| Motor Vehicle Parts and Accessories | 386 | 13,142,000 | 61.8 | 0.3460 |
| Boat Building and Repairing | 393 | 278,996,992 | 2794.2 | 0.0111 |
| Travel Trailers and Camper | 397 | 4,394,000 | 37.8 | 0.0328 |
| Search & Navigation Equipment | 400 | 4,541,000 | 27.6 | 0.2586 |
| Sporting and Athletic Goods, N.E.C. | 421 | 32,745,000 | 321.5 | 0.0303 |
| Motor Freight Transport and Warehousing | 435 | 8,341,000 | 79.9 | 0.9611 |
| Gas Production and Distribution | 444 | 27,422,000 | 44.0 | 0.6180 |
| Wholesale Trade | 447 | 26,123,000 | 247.3 | 0.0894 |
| Food Stores | 450 | 17,317,000 | 591.3 | 0.9486 |
| Automotive Dealers & Service Stations | 451 | 36,562,000 | 626.6 | 0.9486 |
| Eating & Drinking | 454 | 68,843,000 | 2138.7 | 0.8486 |
| Miscellaneous Retail | 455 | 271,846,016 | 9534.2 | 0.9486 |
| Banking | 456 | 68,821,000 | 461.1 | 0.5896 |
| Insurance Agents and Brokers | 460 | 34,428,000 | 784.8 | 0.5611 |
| Hotels and Lodging Places | 463 | 55,529,000 | 1108.5 | 0.4421 |
| Automobile Repair and Services | 479 | 36,213,000 | 450.1 | 0.7850 |
| Amusement and Recreation Services, N.E.C. | 488 | 12,337,000 | 397.0 | 0.6394 |
| Other Educational Services | 497 | 718,000 | 17.9 | 0.6360 |
| Business Associations | 503 | 11,640,000 | 291.7 | 0.7194 |
| State & Local Government - Non-Education | 523 | 19,641,000 | 473.2 | 1.0000 |
| Total | | 1,209,545,008 | | |

*RPC = regional purchase coefficient = proportion of sales captured by Ohio businesses

Margins --- Dividing Expenditures into Sectors

Boater expenditures are made at the retail level. To properly examine the impact of these expenditures in an input/output model, these retail expenditures must be allocated to the retail sector, the wholesale sector, the transportation sector and the production sector in proportion to the value added by each of these sectors to the final product or service. This allocation is necessary because each of these sectors has its own multipliers and locations of adding value within or outside of the relevant economy (in this case, the Ohio economy). IMPLAN includes margins based on national averages for many commodities such as gasoline and electronic equipment.

Margins or expenditure-shares reflect the value-added by each sector as the good moves from production through wholesale to final purchase by a boater. Appendix Table B shows the margin or expenditure-share coefficients for those boater expenditures where value is added in

two or more sectors. In all other expenditure categories, i.e., lodging, restaurants, entertainment, equipment rental, boat repair services, insurance, club fees, taxes and education, the margin accruing to the IMPLAN sector is equal to one.

| Expenditure Category | Producer* | Transportation# | Wholesale** | Retail## |
|---|-----------|-----------------|-------------|----------|
| Expenditures | | | | |
| Groceries/food | 0.66 | 0.04 | 0.09 | 0.21 |
| Fishing supplies/equipment | 0.42 | 0.01 | 0.13 | 0.44 |
| Boat/auto fuel/transit/docking | 0.63 | 0.02 | 0.15 | 0.2 |
| Purchases | | | | |
| Boat | 0.81 | | 0.02 | 0.17 |
| Engine/outdrive/prop | 0.67 | 0.01 | | 0.32 |
| Electronic/battery | 0.63 | | 0.07 | 0.3 |
| Sails/rigging/covers | 0.5 | 0.01 | | 0.49 |
| Trailer/car rack | 0.75 | 0.01 | 0.01 | 0.23 |
| Boat/water ski/other equipment | 0.59 | 0.02 | 0.05 | 0.34 |
| Magazines/publications | 0.67 | | | 0.33 |
| * Producers sectors are 58, 128, 175, 210, 308, 393,397, 400 and 421, App Table A | | | | |
| # Transportation sector is 435 | | | | |
| ** Wholesale sector is 447, and 444 for transient docking and boat/auto fuel | | | | |
| ## Retail sectors are 450, 455, see App Table A | | | | |

The allocation of expenditures by margins can affect the ultimate impact of expenditures in important ways. While concentrated in the retail sector, a high proportion of expenditures are ultimately allocated to producing sectors for many commodities. Producing sectors tend to have higher multipliers than retail sectors, but also to have lower regional purchase coefficients (RPCs) because production activity is often located in another state. The retail sector on the other hand tends to have high RPCs, lower multipliers, and a high proportion of sales accruing as income or value added. New boat purchases, illustrated in Table 8, have a large allocation to the producer (81 percent), most of which leaks out of Ohio (98.9 percent).

Regional Purchase Coefficients (RPC)

The regional purchase coefficient (RPC) indicates how much of a boater purchase is supplied by businesses in Ohio. It is the proportion of sales revenue ultimately captured by Ohio businesses. For example, when margin allocations and RPCs are combined in Table 8, Ohio businesses capture about 17 cents of every dollar boaters spend on new boat purchases compared to 69 cents of every dollar on gasoline and 57 cents on groceries. Appendix Table A shows the RPCs for each IMPLAN sector in which boaters made expenditures in Ohio.

Multipliers

Multipliers measure the total impacts of each dollar of expenditure by recreational boaters in Ohio. They are the final piece of information needed to generate the total economic impacts of

recreational boating in Ohio. Two types of multipliers are presented: Type I and Type SAM. Type I multipliers are the ratio of direct + indirect effects to direct effects. The indirect effect is the additional sales, employment, income or value-added from additional spending by businesses to supply the goods and services directly purchased by boaters. Type SAM multipliers incorporate the economic activity resulting from the additional spending generated by the income received by employees and owners of the businesses selling goods and services to boaters. These induced effects plus the direct and indirect effects are divided by the direct effects to obtain Type SAM multipliers. The Type SAM multiplier differs from other multipliers incorporating induced effects through adjusting for expected leakages in new spending of the increased income.

Type I and Type SAM multipliers are estimated for output or sales, employment, income (employee compensation + proprietors income), and value added (income + other property income + indirect business taxes, where indirect business taxes consist of excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses, but exclude taxes on profit or income). The direct, indirect and induced effects for the output, income and value added multipliers are change in sales, income or value added per one dollar change in sales; the employment effects are in terms of employment per \$1 million of output. The multipliers are total change per unit change in direct effect, i.e., total employment per unit change in employment, total output per unit change in output, etc.

Output, employment, income and value added multipliers are presented in Appendix Tables C, D, E and F. In each table, the direct effects, the indirect effects, the induced effects, the Type I multipliers and the Type SAM multipliers are presented. In Table C, the direct effect of each one dollar expenditure is one dollar. The direct + indirect effect yields the Type I output multiplier. For example, the miscellaneous retail output multiplier is $1.0 + 0.13 = 1.13$. The Type SAM multiplier adds the induced effect of 0.36 for an output multiplier of 1.49. The direct employment effect in Table D is per one million dollars of sales. For example, the direct employment effect for eating and drinking is 31.07 jobs per one million dollars of sales. The indirect and induced effects are also per one million dollars of sales. However, the multipliers are the total employment change per direct change; the Type I employment multiplier for eating and drinking is $(31.07 + 3.83)/31.07 = 1.12$ total jobs per additional job in eating and drinking. The Type SAM employment multiplier adds the induced effect of 4.02 to the numerator for a multiplier of 1.25.

Detailed Economic Impacts of Recreational Boating

Appendix Tables G, H, I and J present detailed economic impact estimates by sector for output, employment, income and value added. In each table, direct effect, indirect effect, induced effect, Type I (direct + indirect) effect and Type SAM (direct + indirect + induced) effect are presented. In Table G, the direct output effect for each sector is total purchases times the RPC from Table A. The direct employment effect in Table H is similarly derived. For example, in Table G the direct effect of boating building and repair (\$3.1 million), is the product of expenditures (\$279 million) and the RPC (0.0111). The indirect effect is the product of the direct effect (\$3.1 million) and the indirect multiplier effect in Table C (0.37) = \$1.16 million

(subject to rounding). The Type I output impact is the sum of direct and indirect effects (\$3.1 million + \$1.16 million = \$4.26 million). In Table H, the direct employment effect for miscellaneous retail is employment in Table A before leakages (9,534) times the RPC (0.9486) = 9,044. The indirect employment effect is the direct effect (9,044) times the employment multiplier minus one ($1.05 - 1.0 = 0.05$) = 430 jobs.

Total impacts are the sum of sectoral impacts. In Appendix Table G, the total direct impact is \$673 million, the total Type I impact is \$830 million and the Type SAM impact is just over \$1 billion, also shown in Table 9. The average Type I output multiplier (the ratio of the Type I impact to the direct impact) is 1.23 and the average Type SAM output multiplier (the ratio of the Type SAM impact to the direct impact) is 1.52. The miscellaneous retail sector, containing marine trades businesses, generates the largest output impact followed by petroleum refining.

The direct employment effect is over 14,900 jobs, with a total Type SAM effect of 19,500 jobs (Appendix Table H). Miscellaneous retail generates the largest employment impact followed by eating and drinking and hotels and lodging places. Total labor income generated is \$386 million and total value added generated is \$621 million (Tables I and J). In both measures of income, miscellaneous retail and eating and drinking are the two largest contributors.

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|--------|----------|
| 58 | Food and Food Products | 1 | 0.46 | 0.15 | 1.46 | 1.61 |
| 128 | Canvas Products | 1 | 0.19 | 0.27 | 1.19 | 1.46 |
| 175 | Periodicals | 1 | 0.32 | 0.25 | 1.32 | 1.57 |
| 210 | Petroleum Refining | 1 | 0.31 | 0.07 | 1.31 | 1.38 |
| 308 | Internal Combustion Engines, N.E.C. | 1 | 0.30 | 0.17 | 1.30 | 1.47 |
| 386 | Motor Vehicle Parts and Accessories | 1 | 0.26 | 0.22 | 1.26 | 1.48 |
| 393 | Boat Building and Repairing | 1 | 0.37 | 0.23 | 1.37 | 1.60 |
| 397 | Travel Trailers and Camper | 1 | 0.25 | 0.23 | 1.25 | 1.48 |
| 400 | Search & Navigation Equipment | 1 | 0.41 | 0.26 | 1.41 | 1.67 |
| 421 | Sporting and Athletic Goods, N.E.C. | 1 | 0.26 | 0.20 | 1.26 | 1.46 |
| 435 | Motor Freight Transport and Warehousing | 1 | 0.60 | 0.32 | 1.60 | 1.92 |
| 444 | Gas Production and Distribution | 1 | 0.30 | 0.11 | 1.30 | 1.41 |
| 447 | Wholesale Trade | 1 | 0.22 | 0.29 | 1.22 | 1.51 |
| 450 | Food Stores | 1 | 0.12 | 0.37 | 1.12 | 1.48 |
| 451 | Automotive Dealers & Service Stations | 1 | 0.20 | 0.32 | 1.20 | 1.52 |
| 454 | Eating & Drinking | 1 | 0.36 | 0.27 | 1.36 | 1.64 |
| 455 | Miscellaneous Retail | 1 | 0.13 | 0.36 | 1.13 | 1.49 |
| 456 | Banking | 1 | 0.25 | 0.20 | 1.25 | 1.45 |
| 460 | Insurance Agents and Brokers | 1 | 0.27 | 0.42 | 1.27 | 1.69 |
| 463 | Hotels and Lodging Places | 1 | 0.37 | 0.30 | 1.37 | 1.67 |
| 479 | Automobile Repair and Services | 1 | 0.30 | 0.25 | 1.30 | 1.55 |
| 488 | Amusement and Recreation Services, N.E.C. | 1 | 0.35 | 0.29 | 1.35 | 1.64 |
| 497 | Other Educational Services | 1 | 0.39 | 0.33 | 1.39 | 1.72 |
| 503 | Business Associations | 1 | 0.27 | 0.42 | 1.27 | 1.69 |
| 523 | State & Local Government - Non-Education | 1 | 0.00 | 0.49 | 1.00 | 1.49 |
| 527 | Charter fishing | 1 | 0.56 | 0.27 | 1.56 | 1.83 |

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|--------|----------|
| 58 | Food and Food Products | 3.28 | 4.45 | 2.27 | 2.36 | 3.05 |
| 128 | Canvas Products | 14.75 | 2.09 | 3.94 | 1.14 | 1.41 |
| 175 | Periodicals | 6.53 | 3.75 | 3.73 | 1.57 | 2.15 |
| 210 | Petroleum Refining | 0.60 | 2.50 | 1.08 | 5.19 | 6.99 |
| 308 | Internal Combustion Engines, N.E.C. | 3.58 | 2.59 | 2.54 | 1.72 | 2.43 |
| 386 | Motor Vehicle Parts and Accessories | 4.70 | 2.39 | 3.25 | 1.51 | 2.20 |
| 393 | Boat Building and Repairing | 10.02 | 3.06 | 3.39 | 1.31 | 1.64 |
| 397 | Travel Trailers and Camper | 8.60 | 2.27 | 3.33 | 1.26 | 1.65 |
| 400 | Search & Navigation Equipment | 6.08 | 4.87 | 3.88 | 1.80 | 2.44 |
| 421 | Sporting and Athletic Goods, N.E.C. | 9.82 | 2.66 | 2.96 | 1.27 | 1.57 |
| 435 | Motor Freight Transport and Warehousing | 9.58 | 6.49 | 4.68 | 1.68 | 2.17 |
| 444 | Gas Production and Distribution | 1.60 | 2.97 | 1.62 | 2.85 | 3.86 |
| 447 | Wholesale Trade | 9.47 | 2.91 | 4.33 | 1.31 | 1.77 |
| 450 | Food Stores | 34.15 | 1.48 | 5.40 | 1.04 | 1.20 |
| 451 | Automotive Dealers & Service Stations | 17.14 | 2.48 | 4.79 | 1.14 | 1.42 |
| 454 | Eating & Drinking | 31.07 | 3.83 | 4.02 | 1.12 | 1.25 |
| 455 | Miscellaneous Retail | 35.07 | 1.67 | 5.31 | 1.05 | 1.20 |
| 456 | Banking | 6.70 | 3.11 | 2.99 | 1.46 | 1.91 |
| 460 | Insurance Agents and Brokers | 22.79 | 4.13 | 6.16 | 1.18 | 1.45 |
| 463 | Hotels and Lodging Places | 19.96 | 5.43 | 4.46 | 1.27 | 1.50 |
| 479 | Automobile Repair and Services | 12.43 | 3.32 | 3.65 | 1.27 | 1.56 |
| 488 | Amusement and Recreation Services, N.E.C. | 32.18 | 4.85 | 4.30 | 1.15 | 1.28 |
| 497 | Other Educational Services | 24.91 | 5.14 | 4.85 | 1.21 | 1.40 |
| 503 | Business Associations | 25.06 | 3.40 | 6.25 | 1.14 | 1.38 |
| 523 | State & Local Government - Non-Education | 24.09 | 0.00 | 7.21 | 1.00 | 1.30 |
| 527 | Charter fishing | 83.95 | 5.09 | 4.00 | 1.06 | 1.11 |

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|--------|----------|
| 58 | Food and Food Products | 0.14 | 0.12 | 0.05 | 1.86 | 2.25 |
| 128 | Canvas Products | 0.39 | 0.06 | 0.09 | 1.15 | 1.40 |
| 175 | Periodicals | 0.30 | 0.12 | 0.09 | 1.40 | 1.70 |
| 210 | Petroleum Refining | 0.06 | 0.06 | 0.03 | 2.13 | 2.58 |
| 308 | Internal Combustion Engines, N.E.C. | 0.19 | 0.09 | 0.06 | 1.47 | 1.78 |
| 386 | Motor Vehicle Parts and Accessories | 0.28 | 0.09 | 0.08 | 1.31 | 1.59 |
| 393 | Boat Building and Repairing | 0.28 | 0.11 | 0.08 | 1.38 | 1.68 |
| 397 | Travel Trailers and Camper | 0.30 | 0.08 | 0.08 | 1.27 | 1.54 |
| 400 | Search & Navigation Equipment | 0.29 | 0.15 | 0.09 | 1.53 | 1.86 |
| 421 | Sporting and Athletic Goods, N.E.C. | 0.25 | 0.09 | 0.07 | 1.34 | 1.63 |
| 435 | Motor Freight Transport and Warehousing | 0.33 | 0.20 | 0.11 | 1.60 | 1.94 |
| 444 | Gas Production and Distribution | 0.10 | 0.08 | 0.04 | 1.85 | 2.25 |
| 447 | Wholesale Trade | 0.41 | 0.08 | 0.10 | 1.21 | 1.46 |
| 450 | Food Stores | 0.57 | 0.04 | 0.13 | 1.07 | 1.30 |
| 451 | Automotive Dealers & Service Stations | 0.47 | 0.07 | 0.11 | 1.15 | 1.39 |
| 454 | Eating & Drinking | 0.35 | 0.10 | 0.10 | 1.30 | 1.58 |
| 455 | Miscellaneous Retail | 0.55 | 0.05 | 0.13 | 1.08 | 1.32 |
| 456 | Banking | 0.24 | 0.10 | 0.07 | 1.44 | 1.75 |
| 460 | Insurance Agents and Brokers | 0.58 | 0.11 | 0.15 | 1.19 | 1.45 |
| 463 | Hotels and Lodging Places | 0.36 | 0.14 | 0.11 | 1.39 | 1.69 |
| 479 | Automobile Repair and Services | 0.31 | 0.10 | 0.09 | 1.32 | 1.61 |
| 488 | Amusement and Recreation Services, N.E.C. | 0.35 | 0.13 | 0.10 | 1.39 | 1.68 |
| 497 | Other Educational Services | 0.40 | 0.15 | 0.12 | 1.37 | 1.66 |
| 503 | Business Associations | 0.61 | 0.10 | 0.15 | 1.16 | 1.41 |
| 523 | State & Local Government - Non-Education | 0.82 | 0.00 | 0.17 | 1.00 | 1.21 |
| 527 | Charter fishing | 0.30 | 0.15 | 0.10 | 1.50 | 1.82 |

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|--------|----------|
| 58 | Food and Food Products | 0.29 | 0.19 | 0.09 | 1.65 | 1.97 |
| 128 | Canvas Products | 0.51 | 0.10 | 0.16 | 1.20 | 1.52 |
| 175 | Periodicals | 0.42 | 0.18 | 0.15 | 1.42 | 1.78 |
| 210 | Petroleum Refining | 0.15 | 0.17 | 0.04 | 2.10 | 2.38 |
| 308 | Internal Combustion Engines, N.E.C. | 0.27 | 0.13 | 0.10 | 1.51 | 1.90 |
| 386 | Motor Vehicle Parts and Accessories | 0.31 | 0.12 | 0.13 | 1.39 | 1.82 |
| 393 | Boat Building and Repairing | 0.28 | 0.16 | 0.14 | 1.58 | 2.08 |
| 397 | Travel Trailers and Camper | 0.30 | 0.11 | 0.14 | 1.38 | 1.83 |
| 400 | Search & Navigation Equipment | 0.30 | 0.21 | 0.16 | 1.70 | 2.23 |
| 421 | Sporting and Athletic Goods, N.E.C. | 0.47 | 0.13 | 0.12 | 1.27 | 1.53 |
| 435 | Motor Freight Transport and Warehousing | 0.42 | 0.29 | 0.19 | 1.70 | 2.16 |
| 444 | Gas Production and Distribution | 0.31 | 0.17 | 0.07 | 1.53 | 1.74 |
| 447 | Wholesale Trade | 0.69 | 0.13 | 0.18 | 1.18 | 1.44 |
| 450 | Food Stores | 0.86 | 0.07 | 0.22 | 1.08 | 1.34 |
| 451 | Automotive Dealers & Service Stations | 0.76 | 0.12 | 0.20 | 1.16 | 1.42 |
| 454 | Eating & Drinking | 0.49 | 0.18 | 0.16 | 1.37 | 1.71 |
| 455 | Miscellaneous Retail | 0.84 | 0.08 | 0.22 | 1.10 | 1.36 |
| 456 | Banking | 0.69 | 0.14 | 0.12 | 1.21 | 1.39 |
| 460 | Insurance Agents and Brokers | 0.66 | 0.16 | 0.25 | 1.25 | 1.63 |
| 463 | Hotels and Lodging Places | 0.55 | 0.23 | 0.18 | 1.43 | 1.76 |
| 479 | Automobile Repair and Services | 0.49 | 0.16 | 0.15 | 1.32 | 1.63 |
| 488 | Amusement and Recreation Services, N.E.C. | 0.57 | 0.21 | 0.18 | 1.37 | 1.68 |
| 497 | Other Educational Services | 0.49 | 0.22 | 0.20 | 1.45 | 1.86 |
| 503 | Business Associations | 0.61 | 0.16 | 0.26 | 1.26 | 1.68 |
| 523 | State & Local Government - Non-Education | 1.00 | 0.00 | 0.30 | 1.00 | 1.30 |
| 527 | Charter fishing | 0.31 | 0.27 | 0.16 | 1.89 | 2.42 |

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|---------|-----------|
| 58 | Food and Food Products | 26.429 | 12.158 | 4.051 | 38.587 | 42.639 |
| 128 | Canvas Products | 3.615 | 0.697 | 0.962 | 4.312 | 5.274 |
| 175 | Periodicals | 0.322 | 0.103 | 0.081 | 0.425 | 0.506 |
| 210 | Petroleum Refining | 85.826 | 26.434 | 6.249 | 112.260 | 118.508 |
| 308 | Internal Combustion Engines, N.E.C. | 3.151 | 0.933 | 0.540 | 4.084 | 4.624 |
| 386 | Motor Vehicle Parts and Accessories | 4.547 | 1.186 | 1.000 | 5.733 | 6.733 |
| 393 | Boat Building and Repairing | 3.097 | 1.158 | 0.710 | 4.255 | 4.965 |
| 397 | Travel Trailers and Camper | 0.144 | 0.037 | 0.032 | 0.181 | 0.213 |
| 400 | Search & Navigation Equipment | 1.174 | 0.477 | 0.308 | 1.651 | 1.959 |
| 421 | Sporting and Athletic Goods, N.E.C. | 0.992 | 0.254 | 0.199 | 1.247 | 1.445 |
| 435 | Motor Freight Transport and Warehousing | 8.017 | 4.836 | 2.537 | 12.853 | 15.390 |
| 444 | Gas Production and Distribution | 16.947 | 5.147 | 1.856 | 22.093 | 23.950 |
| 447 | Wholesale Trade | 2.335 | 0.515 | 0.685 | 2.851 | 3.535 |
| 450 | Food Stores | 16.427 | 1.945 | 6.000 | 18.372 | 24.372 |
| 451 | Automotive Dealers & Service Stations | 34.683 | 6.879 | 11.225 | 41.562 | 52.787 |
| 454 | Eating & Drinking | 58.420 | 21.244 | 15.873 | 79.664 | 95.537 |
| 455 | Miscellaneous Retail | 257.873 | 34.397 | 92.541 | 292.270 | 384.811 |
| 456 | Banking | 40.577 | 9.942 | 8.218 | 50.519 | 58.737 |
| 460 | Insurance Agents and Brokers | 19.318 | 5.253 | 8.049 | 24.570 | 32.619 |
| 463 | Hotels and Lodging Places | 24.549 | 9.159 | 7.404 | 33.708 | 41.113 |
| 479 | Automobile Repair and Services | 28.427 | 8.598 | 7.010 | 37.025 | 44.035 |
| 488 | Amusement and Recreation Services, N.E.C. | 7.888 | 2.777 | 2.292 | 10.665 | 12.957 |
| 497 | Other Educational Services | 0.457 | 0.180 | 0.150 | 0.637 | 0.787 |
| 503 | Business Associations | 8.374 | 2.236 | 3.540 | 10.610 | 14.149 |
| 523 | State & Local Government - Non-Education | 19.641 | 0.000 | 9.579 | 19.641 | 29.220 |
| | Total | 673.231 | 156.543 | 191.092 | 829.774 | 1,020.866 |

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|----------|----------|
| 58 | Food and Food Products | 86.76 | 117.64 | 59.91 | 204.40 | 264.31 |
| 128 | Canvas Products | 53.32 | 7.55 | 14.23 | 60.87 | 75.10 |
| 175 | Periodicals | 2.10 | 1.21 | 1.20 | 3.31 | 4.52 |
| 210 | Petroleum Refining | 51.24 | 214.50 | 92.40 | 265.74 | 358.14 |
| 308 | Internal Combustion Engines, N.E.C. | 11.27 | 8.17 | 7.99 | 19.45 | 27.43 |
| 386 | Motor Vehicle Parts and Accessories | 21.39 | 10.87 | 14.78 | 32.26 | 47.04 |
| 393 | Boat Building and Repairing | 31.02 | 9.47 | 10.50 | 40.48 | 50.98 |
| 397 | Travel Trailers and Camper | 1.24 | 0.33 | 0.48 | 1.57 | 2.05 |
| 400 | Search & Navigation Equipment | 7.14 | 5.71 | 4.56 | 12.86 | 17.42 |
| 421 | Sporting and Athletic Goods, N.E.C. | 9.74 | 2.64 | 2.94 | 12.38 | 15.32 |
| 435 | Motor Freight Transport and Warehousing | 76.76 | 52.02 | 37.52 | 128.78 | 166.30 |
| 444 | Gas Production and Distribution | 27.18 | 50.27 | 27.45 | 77.45 | 104.90 |
| 447 | Wholesale Trade | 22.11 | 6.80 | 10.12 | 28.91 | 39.03 |
| 450 | Food Stores | 560.94 | 24.34 | 88.72 | 585.29 | 674.01 |
| 451 | Automotive Dealers & Service Stations | 594.44 | 86.08 | 165.99 | 680.51 | 846.51 |
| 454 | Eating & Drinking | 1814.88 | 223.46 | 234.73 | 2038.34 | 2273.07 |
| 455 | Miscellaneous Retail | 9044.18 | 430.40 | 1368.46 | 9474.58 | 10843.04 |
| 456 | Banking | 271.86 | 126.37 | 121.52 | 398.24 | 519.76 |
| 460 | Insurance Agents and Brokers | 440.32 | 79.69 | 119.02 | 520.02 | 639.04 |
| 463 | Hotels and Lodging Places | 490.07 | 133.39 | 109.49 | 623.46 | 732.95 |
| 479 | Automobile Repair and Services | 353.30 | 94.45 | 103.66 | 447.76 | 551.42 |
| 488 | Amusement and Recreation Services, N.E.C. | 253.86 | 38.27 | 33.90 | 292.12 | 326.02 |
| 497 | Other Educational Services | 11.37 | 2.35 | 2.22 | 13.72 | 15.94 |
| 503 | Business Associations | 209.86 | 28.43 | 52.34 | 238.30 | 290.64 |
| 523 | State & Local Government - Non-Education | 473.25 | 0.00 | 141.64 | 473.25 | 614.89 |
| | Total | 14919.61 | 1754.41 | 2825.80 | 16674.02 | 19499.82 |

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|---------|----------|
| 58 | Food and Food Products | 3.636 | 3.123 | 1.438 | 6.759 | 8.197 |
| 128 | Canvas Products | 1.400 | 0.211 | 0.342 | 1.611 | 1.952 |
| 175 | Periodicals | 0.097 | 0.039 | 0.029 | 0.136 | 0.165 |
| 210 | Petroleum Refining | 4.887 | 5.516 | 2.218 | 10.403 | 12.621 |
| 308 | Internal Combustion Engines, N.E.C. | 0.614 | 0.289 | 0.192 | 0.903 | 1.095 |
| 386 | Motor Vehicle Parts and Accessories | 1.271 | 0.397 | 0.355 | 1.668 | 2.023 |
| 393 | Boat Building and Repairing | 0.858 | 0.330 | 0.252 | 1.188 | 1.440 |
| 397 | Travel Trailers and Camper | 0.043 | 0.012 | 0.012 | 0.054 | 0.066 |
| 400 | Search & Navigation Equipment | 0.337 | 0.178 | 0.109 | 0.515 | 0.625 |
| 421 | Sporting and Athletic Goods, N.E.C. | 0.248 | 0.085 | 0.071 | 0.333 | 0.403 |
| 435 | Motor Freight Transport and Warehousing | 2.632 | 1.586 | 0.900 | 4.218 | 5.119 |
| 444 | Gas Production and Distribution | 1.669 | 1.424 | 0.659 | 3.093 | 3.752 |
| 447 | Wholesale Trade | 0.947 | 0.197 | 0.243 | 1.144 | 1.387 |
| 450 | Food Stores | 9.350 | 0.677 | 2.130 | 10.027 | 12.157 |
| 451 | Automotive Dealers & Service Stations | 16.367 | 2.393 | 3.986 | 18.760 | 22.746 |
| 454 | Eating & Drinking | 20.416 | 6.108 | 5.636 | 26.524 | 32.160 |
| 455 | Miscellaneous Retail | 142.082 | 11.964 | 32.846 | 154.047 | 186.892 |
| 456 | Banking | 9.546 | 4.195 | 2.918 | 13.741 | 16.659 |
| 460 | Insurance Agents and Brokers | 11.135 | 2.163 | 2.855 | 13.298 | 16.152 |
| 463 | Hotels and Lodging Places | 8.840 | 3.478 | 2.628 | 12.319 | 14.946 |
| 479 | Automobile Repair and Services | 8.786 | 2.853 | 2.487 | 11.639 | 14.127 |
| 488 | Amusement and Recreation Services, N.E.C. | 2.747 | 1.060 | 0.813 | 3.807 | 4.620 |
| 497 | Other Educational Services | 0.183 | 0.068 | 0.053 | 0.251 | 0.304 |
| 503 | Business Associations | 5.102 | 0.824 | 1.257 | 5.925 | 7.182 |
| 523 | State & Local Government - Non-Education | 16.051 | 0.000 | 3.402 | 16.051 | 19.453 |
| | Total | 269.243 | 49.167 | 67.831 | 318.410 | 386.241 |

| Sector # | Sector | Direct Effect | Indirect Effect | Induced Effect | Type I | Type SAM |
|----------|---|---------------|-----------------|----------------|---------|----------|
| 58 | Food and Food Products | 7.623 | 4.973 | 2.455 | 12.596 | 15.051 |
| 128 | Canvas Products | 1.847 | 0.376 | 0.583 | 2.223 | 2.806 |
| 175 | Periodicals | 0.137 | 0.057 | 0.049 | 0.193 | 0.243 |
| 210 | Petroleum Refining | 13.160 | 14.431 | 3.786 | 27.592 | 31.378 |
| 308 | Internal Combustion Engines, N.E.C. | 0.836 | 0.425 | 0.327 | 1.261 | 1.588 |
| 386 | Motor Vehicle Parts and Accessories | 1.428 | 0.558 | 0.606 | 1.986 | 2.592 |
| 393 | Boat Building and Repairing | 0.868 | 0.505 | 0.430 | 1.373 | 1.803 |
| 397 | Travel Trailers and Camper | 0.044 | 0.016 | 0.020 | 0.060 | 0.080 |
| 400 | Search & Navigation Equipment | 0.354 | 0.247 | 0.187 | 0.601 | 0.788 |
| 421 | Sporting and Athletic Goods, N.E.C. | 0.466 | 0.126 | 0.120 | 0.593 | 0.713 |
| 435 | Motor Freight Transport and Warehousing | 3.357 | 2.358 | 1.538 | 5.716 | 7.253 |
| 444 | Gas Production and Distribution | 5.293 | 2.799 | 1.125 | 8.092 | 9.217 |
| 447 | Wholesale Trade | 1.613 | 0.297 | 0.415 | 1.910 | 2.325 |
| 450 | Food Stores | 14.059 | 1.169 | 3.635 | 15.228 | 18.864 |
| 451 | Automotive Dealers & Service Stations | 26.310 | 4.134 | 6.801 | 30.444 | 37.246 |
| 454 | Eating & Drinking | 28.442 | 10.612 | 9.618 | 39.054 | 48.671 |
| 455 | Miscellaneous Retail | 216.010 | 20.670 | 56.073 | 236.680 | 292.753 |
| 456 | Banking | 27.859 | 5.809 | 4.979 | 33.668 | 38.647 |
| 460 | Insurance Agents and Brokers | 12.700 | 3.167 | 4.878 | 15.867 | 20.744 |
| 463 | Hotels and Lodging Places | 13.437 | 5.723 | 4.487 | 19.160 | 23.647 |
| 479 | Automobile Repair and Services | 13.858 | 4.469 | 4.248 | 18.327 | 22.575 |
| 488 | Amusement and Recreation Services, N.E.C. | 4.497 | 1.665 | 1.389 | 6.162 | 7.551 |
| 497 | Other Educational Services | 0.222 | 0.101 | 0.091 | 0.323 | 0.414 |
| 503 | Business Associations | 5.084 | 1.310 | 2.145 | 6.394 | 8.539 |
| 523 | State & Local Government - Non-Education | 19.641 | 0.000 | 5.803 | 19.641 | 25.444 |
| | Total | 419.146 | 85.999 | 115.787 | 505.145 | 620.933 |

Appendix B

1998 Ohio Recreational Boater Survey

Public boating infrastructure (boat ramps, parks, docks, etc.) resources and regulations depend increasingly on the importance of boating to Ohio's economy. Documentation of the size of recreational boating in Ohio depends on owners of registered boats such as you completing this survey (1).

N=2386 Version #1=624, #2 = 606, #3 = 568, #4 = 588

Your Boat(s)

1 boat =1249, 55% 4 boats=90, 4%
 2 boats =649, 29% 5+ boats=60, 3%
 3 boats =207, 9%

1. How many boats do you and other members of your household own? 1.7 boats
 N=2255

(If there is more than one boat in your household, please answer the following questions about the boat used most frequently, boat #1, and the boat used second most frequently, boat #2.)

| | <u>Boat #1</u> | | <u>Boat #2</u> |
|---|------------------|-------|------------------|
| 2. What is the type of boat (please check one)? | (%) | | (%) |
| a. Rowboat/Johnboat | <u> 14 </u> | | <u> 21 </u> |
| b. Canoe/Kayak | <u> 11 </u> | | <u> 20 </u> |
| c. Inflatable boat | <u> <1 </u> | | <u> 4 </u> |
| d. Personal watercraft (Jet Ski, etc.) | <u> 5 </u> | | <u> 13 </u> |
| e. Open motor boat | <u> 40 </u> | | <u> 24 </u> |
| f. Cabin motor boat | <u> 12 </u> | | <u> 5 </u> |
| g. Pontoon boat | <u> 7 </u> | | <u> 4 </u> |
| h. Houseboat | <u> 1 </u> | | <u> <1 </u> |
| i. Sailboat | <u> 3 </u> | | <u> 4 </u> |
| j. Other (please specify) _____ | <u> 5 </u> | | <u> 3 </u> |
| | 2314 | = N = | 1018 |
| 3. What is the primary type of propulsion for this boat (please check one)? | (%) | | (%) |
| a. Gasoline engine, outboard | <u> 47 </u> | | <u> 38 </u> |
| b. Gasoline engine, inboard | <u> 8 </u> | | <u> 4 </u> |
| c. Gasoline engine, inboard/outboard | <u> 18 </u> | | <u> 6 </u> |
| d. Gasoline engine, jet drive | <u> 4 </u> | | <u> 12 </u> |
| e. Diesel engine | <u> <1 </u> | | <u> <1 </u> |
| f. Air | <u> <1 </u> | | <u> <1 </u> |
| g. Electric engine (e.g., trolling motor) | <u> 5 </u> | | <u> 7 </u> |
| h. Sail/wind | <u> 3 </u> | | <u> 4 </u> |
| i. Hand powered (oars, paddle, etc.) | <u> 14 </u> | | <u> 28 </u> |
| | 2296 | = N = | 986 |
| 4. What is the length of this boat in feet (please check one)? | (%) | | (%) |
| a. Less than 14 feet | <u> 19 </u> | | <u> 41 </u> |
| b. 14 but less than 16 feet | <u> 23 </u> | | <u> 26 </u> |
| c. 16 but less than 21 feet | <u> 37 </u> | | <u> 25 </u> |
| d. 21 but less than 26 feet | <u> 14 </u> | | <u> 6 </u> |
| e. 26 but less than 32 feet | <u> 4 </u> | | <u> 1 </u> |
| f. 32 but less than 40 feet | <u> 2 </u> | | <u> <1 </u> |
| g. 40 but less than 65 feet | <u> <1 </u> | | <u> <1 </u> |
| h. 65 feet and over | <u> <1 </u> | | <u> -- </u> |
| | 2339 | = N = | 1004 |

| | <u>Boat #1</u> | | <u>Boat #</u> |
|--|------------------------|-------|---------------|
| 5. What is the model year of this boat? | 19_81_ | | 19_81_ |
| | 2178 | = N = | 933 |
| 6. In what year was this boat purchased? | 19_88_ | | 19_88_ |
| | 2185 | = N = | 949 |
| 7. Was this boat purchased: new? | _44%_ | | _42%_ |
| used? | _56%_ | | _58%_ |
| | 2310 | = N = | 1008 |
| 8. Was this boat purchased: from a dealer/broker? | _52%_ | | _46%_ |
| from another individual? | _48%_ | | _54%_ |
| | 2305 | = N = | 1004 |
| 9. What was the purchase price of this boat, including all accessories (trailer, radio, etc.) | \$ _9,393_ | | \$ _3,650_ |
| | 2075 | = N = | 918 |
| 10. What is the estimated current book value of this boat, including all accessories? | \$ _8,902_ | | \$ _2,977_ |
| | 1626 | = N = | 745 |
| 11. During the boating season, where is this boat kept (please check one)? (%) | | | |
| a. at home | _69_ | | _72_ |
| b. private dock (home or elsewhere) | _15_ | | _19_ |
| c. moor/dock at a marina or club | _13_ | | _7_ |
| d. dry rack storage at a marina or club | _3_ | | _2_ |
| | 2316 | = N = | 1028 |
| 12. During the 1998 boating season, in what location was this boat usually kept? | | | |
| City | _Did not tab_ | | _Did_ |
| County | _See tabulation below_ | | _not_ |
| State: Ohio | _97%_ | | _tabulate_ |
| Other(Please list) _____ | _3%_ | | _--_ |
| 13. During the off-season, where is this boat kept (please check one)? (%) | | | |
| a. at home | _74_ | | _80_ |
| b. private dock (home or elsewhere) | _4_ | | _5_ |
| c. moored/docked at a marina or club | _2_ | | _1_ |
| d. dry storage at a marina or club | _9_ | | _6_ |
| e. other storage facility | _11_ | | _8_ |
| | 2319 | = N = | 1013 |
| 14. During the 1998-99 off-season, in what location will this boat be kept? | | | |
| City | _Did not tab_ | | _Did_ |
| County | _See tabulation below_ | | _not_ |
| State: Ohio | _97%_ | | _tabulate_ |
| Other(Please list) _____ | _3%_ | | _--_ |

| | <u>Boat #1</u> | <u>Boat #2</u> |
|--|----------------|----------------|
| 15. When do you expect to replace this boat (check the most likely)? (%) | | |
| a. within 3 years | _19_ | _18_ |
| b. in 3 to 5 years | _17_ | _12_ |
| c. in 6 to 10 years | _13_ | _10_ |
| d. more than 10 years | _10_ | _10_ |
| e. never | _40_ | _50_ |
| | 2267 | = N = 989 |

Your 1998 Household Trips or Outings (October 1, 1997-September 30, 1998)

16. How many boating trips or outings did you and other household members take from October 1, 1997 to September 30, 1998? (A trip or outing is a distinct occasion of boat use from the time you leave home until you return, whether the boat you use leaves the dock or not.)

13.5% None
 15.6 # of trips IN OHIO N = 1897
 2.1 # of trips OUTSIDE OF OHIO

16a. How many of the OHIO trips were to each of the following?

4.3 a. # of trips to Lake Erie
 1.3 b. # of trips to the Ohio River N = 1897
 8.7 c. # of trips to inland lakes, reservoirs, etc.
 1.5 d. # of trips to inland rivers or streams
 (The sum should equal total OHIO trips)

16b. In what OHIO locations did your household boating trips or outings occur most frequently?

| | <u>County</u> | <u>City/Town</u> | <u># of trips</u> |
|-------------------------------|---------------|------------------|-------------------|
| Most frequent | _See_ | _Did_ | _17.3_ (N=1662) |
| 2 nd most frequent | _tabulation_ | _not_ | _5.4_ (N=674) |
| 3 rd most frequent | _below_ | _tabulate_ | _3.4_ (N=237) |

(The sum should equal total OHIO trips)

16c. Of your OHIO household trips only *how many* were:

3.0 **overnight trips** (A trip where you used your boat and stayed away from home for one or more nights)?
 12.8 **day trips** (A trip where you left home, used your boat, and returned on the same day)?
 (The sum should equal total OHIO trips)

16ci. On average, how many nights was the OHIO household **overnight trip**?

2.0 # of nights

$$\text{Average days per trip} = 1.7$$

$$= \frac{\text{\#day trips} + \text{\#overnight trips (nights + 1)}}{\text{total trips}}$$

N = 1897

17. On average, how many miles were traveled from your home by you and other household members, one way, to your OHIO boating site(s)? (%)

- 26 a. less than 10 miles
- 22 b. 10 to 20 miles
- 21 c. 21 to 40 miles
- 17 d. 41 to 70 miles
- 6 e. 71 to 100 miles
- 4 f. 101 to 150 miles
- 1 g. 151 to 200 miles
- 2 h. more than 200 miles

Mean = 37.8 miles
N = 1856

18. Please breakdown total household boating time in OHIO from October 1, 1997 to September 30, 1998 into the following activities (Sum should equal 100%): *by questionnaire number*

| 1 | 2 | 3 | 4 | |
|----|----|----|----|-------------------------------------|
| 54 | 50 | 46 | 49 | % Fishing |
| 7 | 7 | 6 | 7 | % Water skiing, knee boarding, etc. |
| <1 | <1 | <1 | <1 | % Scuba diving, snorkeling, etc. |
| 4 | 5 | 3 | 4 | % Swimming |
| 5 | 5 | 12 | 5 | % Using a personal watercraft |
| 7 | 9 | 10 | 8 | % Canoeing, kayaking, rowing |
| 16 | 16 | 15 | 19 | % Cruising |
| 3 | 3 | 4 | 3 | % Sailing |
| 2 | 2 | 3 | 3 | % Overnight on board |
| 2 | 1 | <1 | 1 | % Other (Please specify) _____ |

483, 455, 440, 478 = N

Your 1998 Household Boating Expenses (October 1, 1997-September 30, 1998)

19. Please estimate your household expenses for a typical OHIO trip, outing, or occasion of use from October 1, 1997 to September 30, 1998. (For example, if on your typical trip several members of your household spent \$50 for dinner at a restaurant near your boat dock, enter \$50 for restaurant meals under spending per trip and 100 under percent spent at boating location; if you spent \$15 at home for gasoline for your vehicle to drive to the site and another \$15 at the site to drive home, enter \$30 for transportation to boating site under spending per trip and 50 under percent spent at boating location.)

| Type of expense | Spending per Trip | Percent Spent at Boating Location |
|----------------------------------|-------------------|-----------------------------------|
| Lodging (hotel, camping etc.) | \$ 15.1 | % |
| Restaurant meals | \$ 18.7 | % |
| Entertainment | \$ 2.9 | % |
| Groceries, food purchases | \$ 21.9 | % |
| Fishing supplies | \$ 13.7 | % |
| Boat launch fees | \$ 1.5 | % |
| Transient/overnight docking fees | \$ 3.9 | % |
| Race/regatta fees | \$ 0.7 | % |
| Equipment rental | \$ 0.2 | % |
| Other boat trip supplies | \$ 5.8 | % |
| Boat fuel costs | \$ 24.7 | % |
| Transportation to/from boat site | \$ 17.2 | % |
| Other | \$ 7.9 | % |
| Total trip expenditures | \$134.3 | |
| N | 1707 | |

19a. Were any of your OHIO household trip expenditures in question 19 made at discount stores such as Walmart, Kmart, Meijers or Target?

47% No

53% Yes N=1707

19ai. if Yes, approximately what percent of your household trip expenditures were made at these discount stores?

30% N=1015

20. Please estimate your total OHIO household seasonal boat-related expenses from October 1, 1997 to September 30, 1998. Exclude trip expenses reported in question 19.

| Type of Expense | Maintenance, Repairs, Fees | Purchases |
|---|-------------------------------|------------------|
| Purchase of Boat | | \$ <u>2310.0</u> |
| Boat Loan Payment | \$ <u>293.7</u> | |
| Hull repair/bottom paint | \$ <u>82.2</u> | |
| Engine/outdrive/props | \$ <u>102.6</u> | \$ <u>29.3</u> |
| Electronics/batteries | \$ <u>30.0</u> | \$ <u>30.8</u> |
| Sails/rigging/covers | \$ <u>11.4</u> | \$ <u>14.5</u> |
| Trailer/car racks | \$ <u>16.5</u> | \$ <u>20.5</u> |
| Boat equipment & supplies (paddles life vests, wetsuits, etc.) | \$ <u>22.4</u> | \$ <u>47.6</u> |
| Fishing equipment (rods, reels, nets, downriggers, etc.) | \$ <u>38.1</u> | \$ <u>67.9</u> |
| Waterskiing equipment | \$ <u>7.2</u> | \$ <u>13.6</u> |
| Other equipment (scuba gear, coolers, grills, etc.) | \$ <u>7.5</u> | \$ <u>11.4</u> |
| Seasonal slip rental | \$ <u>170.0</u> | |
| Winterization & storage | \$ <u>116.7</u> | |
| Boat/yacht club fees | \$ <u>36.0</u> | \$ <u>4.8</u> |
| Miscellaneous marina services (utilities, haul-out, etc.) | \$ <u>24.9</u> | |
| Insurance | \$ <u>146.5</u> | |
| Taxes/licenses | \$ <u>64.8</u> | |
| Education/instruction | \$ <u>2.6</u> | |
| Magazines/publications | \$ <u>8.8</u> | |
| Other(please list) | \$ <u>31.7</u> | \$ <u>52.8</u> |
| | \$ _____ | \$ _____ |
| Total | \$1,213.6 | \$2,603.1 |
| Total, excluding boat | \$920.0 | \$293.1 |
| N = 1650 | | |

20a. Were any of your seasonal household boat-related expenses in question 20 made at BOAT SHOWS from October 1, 1997 to September 30, 1998?

90% No N = 1605
44 Yes, purchased a boat at a boat show at a cost of \$ 14,777 .
103 Yes, purchased other equipment at a cost of \$ 233 .

20b. Were any of your seasonal household boat-related expenses in question 20 made at discount stores such as Walmart, Kmart, Meijers or Target?

50% No
50% Yes

20bi. if Yes, approximately what percent of these expenditures were made at these discount stores?

41 %

21. If your total household boating expenses per trip (from question 19) were to *increase by 5 percent*, how would the *number of boating trips* in OHIO made by your household (from question 16) **change**? (Designate your ONE most likely action) *by questionnaire number*

| <u>1</u> = +5% (percent) | <u>2</u> = +10% | <u>3</u> = +15% | <u>4</u> = -5% |
|--|-----------------|-----------------|----------------|
| <u>5.6</u> a. Increase by (circle one) 1%, 5%, 10%, 15%, more than 15% | 5.3 | 7.1 | 12.6 |
| 83.7 b. No change | 76.0 | 72.1 | 84.2 |
| <u>10.7</u> c. Decrease by (circle one) 1%, 5%, 10%, 15%, more than 15% | <u>18.9</u> | <u>20.6</u> | <u>3.4</u> |
| -1.52 Mean | -2.15 | -2.54 | +1.62 |
| 429 N | 420 | 402 | 399 |

Please tell us about you

22. What is your age? 53 years Range: 19-92
 N = 2305

23. What is your gender? 10% Female 90% Male
 N = 2311

24. What is highest year of schooling completed (check the appropriate choice)?

7% a. grades 1 to 11, circle the highest year completed
 (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11)

34% b. high school graduate/GED

23% c. some college N = 2246

6% d. associates degree

15% e. bachelors degree

14% f. graduate or professional degree

25. What is your current marital status?

14% a. single

83% b. married N = 2317

3% c. widowed

Location of Primary Boat during Boating Season (Question 12) and Off-Season (Question 14)

| | County | Boating Season | Off-Season | | County | Boating Season | Off-Season |
|----|------------|----------------|------------|----|------------|----------------|------------|
| 01 | Adams | 18 | 18 | 02 | Allen | 20 | 24 |
| 03 | Ashland | 23 | 22 | 04 | Ashtabula | 31 | 30 |
| 05 | Athens | 22 | 22 | 06 | Auglaize | 18 | 13 |
| 07 | Belmont | 16 | 16 | 08 | Brown | 25 | 22 |
| 09 | Butler | 25 | 28 | 10 | Carroll | 38 | 37 |
| 11 | Champaign | 16 | 15 | 12 | Clark | 15 | 17 |
| 13 | Clermont | 20 | 20 | 14 | Clinton | 17 | 17 |
| 15 | Columbiana | 18 | 18 | 16 | Coshocton | 17 | 17 |
| 17 | Crawford | 13 | 15 | 18 | Cuyahoga | 65 | 63 |
| 19 | Darke | 9 | 12 | 20 | Defiance | 11 | 11 |
| 21 | Delaware | 24 | 22 | 22 | Erie | 54 | 46 |
| 23 | Fairfield | 22 | 21 | 24 | Fayette | 17 | 17 |
| 25 | Franklin | 54 | 55 | 26 | Fulton | 10 | 14 |
| 27 | Gallia | 15 | 15 | 28 | Geauga | 12 | 12 |
| 29 | Greene | 15 | 15 | 30 | Guernsey | 24 | 27 |
| 31 | Hamilton | 54 | 55 | 32 | Hancock | 12 | 13 |
| 33 | Hardin | 13 | 15 | 34 | Harrison | 28 | 22 |
| 35 | Henry | 21 | 18 | 36 | Highland | 20 | 19 |
| 37 | Hocking | 17 | 16 | 38 | Holmes | 17 | 15 |
| 39 | Huron | 16 | 19 | 40 | Jackson | 14 | 16 |
| 41 | Jefferson | 12 | 14 | 42 | Knox | 25 | 22 |
| 43 | Lake | 38 | 41 | 44 | Lawrence | 12 | 14 |
| 45 | Licking | 15 | 22 | 46 | Logan | 52 | 38 |
| 47 | Lorain | 27 | 33 | 48 | Lucas | 41 | 48 |
| 49 | Madison | 15 | 15 | 50 | Mahoning | 22 | 25 |
| 51 | Marion | 14 | 16 | 52 | Medina | 8 | 12 |
| 53 | Meigs | 18 | 18 | 54 | Mercer | 28 | 28 |
| 55 | Miami | 14 | 17 | 56 | Monroe | 14 | 12 |
| 57 | Montgomery | 33 | 35 | 58 | Morgan | 15 | 13 |
| 59 | Morrow | 19 | 18 | 60 | Muskingum | 21 | 21 |
| 61 | Nobel | 18 | 15 | 62 | Ottawa | 120 | 96 |
| 63 | Paulding | 16 | 17 | 64 | Perry | 14 | 16 |
| 65 | Pickaway | 16 | 16 | 66 | Pike | 17 | 15 |
| 67 | Portage | 27 | 27 | 68 | Preble | 12 | 11 |
| 69 | Putnam | 11 | 15 | 70 | Richland | 8 | 10 |
| 71 | Ross | 13 | 15 | 72 | Sandusky | 15 | 19 |
| 73 | Scioto | 17 | 15 | 74 | Seneca | 14 | 20 |
| 75 | Shelby | 17 | 20 | 76 | Stark | 27 | 31 |
| 77 | Summit | 48 | 51 | 78 | Trumbull | 20 | 20 |
| 79 | Tuscarawas | 14 | 18 | 80 | Union | 10 | 10 |
| 81 | Van Wert | 12 | 13 | 82 | Vinton | 16 | 16 |
| 83 | Warren | 12 | 13 | 84 | Washington | 20 | 19 |
| 85 | Wayne | 12 | 16 | 86 | Williams | 21 | 22 |
| 87 | Wood | 19 | 15 | 88 | Wyandot | 11 | 13 |
| 89 | Not Ohio | 64 | 54 | | | | |
| N | | 1980 | 1989 | | | | |

Frequency of Household Boating Trips (Question 16b)

| | County | 1 | 2 | 3 | Sum | | County | 1 | 2 | 3 | Sum |
|----|------------|----|----|---|-----|----|------------|------|-----|-----|------|
| 01 | Adams | 12 | 5 | 0 | 17 | 02 | Allen | 6 | 1 | 1 | 8 |
| 03 | Ashland | 15 | 7 | 2 | 24 | 04 | Ashtabula | 41 | 18 | 9 | 68 |
| 05 | Athens | 21 | 7 | 2 | 30 | 06 | Auglaize | 21 | 9 | 1 | 31 |
| 07 | Belmont | 20 | 7 | 2 | 29 | 08 | Brown | 23 | 6 | 4 | 33 |
| 09 | Butler | 6 | 5 | 1 | 12 | 10 | Carroll | 35 | 4 | 1 | 40 |
| 11 | Champaign | 11 | 3 | 1 | 15 | 12 | Clark | 18 | 9 | 2 | 29 |
| 13 | Clermont | 36 | 13 | 3 | 52 | 14 | Clinton | 18 | 4 | 2 | 24 |
| 15 | Columbiana | 13 | 1 | 2 | 16 | 16 | Coshocton | 10 | 4 | 0 | 14 |
| 17 | Crawford | 2 | 2 | 0 | 4 | 18 | Cuyahoga | 43 | 17 | 6 | 66 |
| 19 | Darke | 0 | 0 | 1 | 1 | 20 | Defiance | 12 | 2 | 0 | 14 |
| 21 | Delaware | 64 | 30 | 3 | 97 | 22 | Erie | 75 | 39 | 11 | 125 |
| 23 | Fairfield | 18 | 5 | 2 | 25 | 24 | Fayette | 4 | 3 | 0 | 7 |
| 25 | Franklin | 29 | 17 | 4 | 50 | 26 | Fulton | 3 | 4 | 2 | 9 |
| 27 | Gallia | 16 | 7 | 1 | 24 | 28 | Geauga | 11 | 4 | 0 | 15 |
| 29 | Greene | 5 | 2 | 0 | 7 | 30 | Guernsey | 47 | 28 | 8 | 83 |
| 31 | Hamilton | 20 | 8 | 5 | 33 | 32 | Hancock | 8 | 3 | 1 | 12 |
| 33 | Hardin | 5 | 0 | 2 | 7 | 34 | Harrison | 42 | 12 | 4 | 58 |
| 35 | Henry | 16 | 4 | 1 | 21 | 36 | Highland | 43 | 14 | 5 | 62 |
| 37 | Hocking | 16 | 3 | 2 | 21 | 38 | Holmes | 1 | 2 | 4 | 7 |
| 39 | Huron | 9 | 4 | 0 | 13 | 40 | Jackson | 13 | 12 | 5 | 30 |
| 41 | Jefferson | 7 | 5 | 3 | 15 | 42 | Knox | 22 | 6 | 1 | 29 |
| 43 | Lake | 31 | 5 | 7 | 43 | 44 | Lawrence | 13 | 3 | 1 | 17 |
| 45 | Licking | 11 | 5 | 2 | 18 | 46 | Logan | 83 | 25 | 2 | 110 |
| 47 | Lorain | 31 | 11 | 4 | 46 | 48 | Lucas | 39 | 7 | 5 | 51 |
| 49 | Madison | 7 | 4 | 1 | 12 | 50 | Mahoning | 14 | 10 | 2 | 26 |
| 51 | Marion | 2 | 2 | 1 | 5 | 52 | Medina | 2 | 2 | 1 | 5 |
| 53 | Meigs | 23 | 3 | 2 | 28 | 54 | Mercer | 51 | 18 | 3 | 72 |
| 55 | Miami | 7 | 2 | 0 | 9 | 56 | Monroe | 9 | 2 | 2 | 13 |
| 57 | Montgomery | 5 | 5 | 2 | 12 | 58 | Morgan | 17 | 4 | 1 | 22 |
| 59 | Morrow | 6 | 3 | 2 | 11 | 60 | Muskingum | 16 | 9 | 5 | 30 |
| 61 | Nobel | 19 | 8 | 1 | 28 | 62 | Ottawa | 189 | 53 | 17 | 259 |
| 63 | Paulding | 6 | 1 | 1 | 8 | 64 | Perry | 12 | 1 | 0 | 13 |
| 65 | Pickaway | 19 | 5 | 5 | 29 | 66 | Pike | 11 | 3 | 2 | 16 |
| 67 | Portage | 37 | 15 | 3 | 55 | 68 | Preble | 9 | 5 | 0 | 14 |
| 69 | Putnam | 5 | 0 | 0 | 5 | 70 | Richland | 14 | 5 | 3 | 22 |
| 71 | Ross | 9 | 7 | 5 | 21 | 72 | Sandusky | 24 | 19 | 7 | 50 |
| 73 | Scioto | 14 | 5 | 3 | 22 | 74 | Seneca | 9 | 2 | 0 | 11 |
| 75 | Shelby | 8 | 2 | 1 | 11 | 76 | Stark | 9 | 4 | 1 | 14 |
| 77 | Summit | 26 | 9 | 5 | 40 | 78 | Trumbull | 29 | 16 | 4 | 49 |
| 79 | Tuscarawas | 8 | 4 | 0 | 12 | 80 | Union | 0 | 0 | 2 | 2 |
| 81 | Van Wert | 0 | 0 | 0 | 0 | 82 | Vinton | 18 | 6 | 2 | 26 |
| 83 | Warren | 38 | 16 | 3 | 57 | 84 | Washington | 16 | 11 | 1 | 28 |
| 85 | Wayne | 4 | 3 | 0 | 7 | 86 | Williams | 9 | 1 | 1 | 11 |
| 87 | Wood | 10 | 7 | 0 | 17 | 88 | Wyandot | 1 | 2 | 0 | 3 |
| | | | | | | N | | 1757 | 666 | 214 | 2637 |

1 = most frequent
 2 = 2nd most frequent
 3 = 3rd most frequent

Glossary

Boat related expenditures -- Boating expenditures that relate to the vessel itself, usually one-time or seasonal expenditures in contrast to expenditures that are incurred on each trip. Example items are slip rental, boat repairs, insurance, equipment or a boat purchase.

Direct economic activity -- The amount of recreational boater expenditures that are captured by businesses in Ohio in contrast to that amount which "leaks" out of the state to businesses in other states. It is the effect on the sectors of the economy where the boater expenditures are made.

Full time equivalent (fte) -- the number of jobs expressed as full time jobs converting those that are part time to full time. For example, a one half time job is one half fte; two one half time jobs equal one full time equivalent job.

IMPLAN (Impact Analysis for PLANning) --An input-output model of the U.S. economy and subregions of the U.S. economy including every state and county. The model was originally developed by the U.S. Forest Service to calculate national and regional economic activity measures.

Income -- wages and other compensation paid to employees plus proprietors income or income earned by business owners.

Indirect economic activity -- When boaters make expenditures at businesses (direct economic activity), these businesses in turn purchase goods and services from other businesses to support their own business. Marinas, restaurants or hotels purchase services from other sectors of the economy to support their sales to boaters. The sum of the additional activity in these supporting sectors is indirect economic activity.

Induced economic activity -- Some of the recreational boater expenditures and the resulting indirect activity is comprised of income to employees, profits to businesses and taxes to governments. When this compensation is spent in the economy, it results in new activity in the sectors in which it is spent and in the sectors where goods and services are purchased in response to the new spending, i.e., a new round of direct and indirect economic activity. The amount of this new spending that is captured by Ohio businesses is the induced economic impact.

Leakage -- The amount of boater expenditures used to import goods and services into Ohio from other states or nations. The economic impact of these expenditures occurs outside of Ohio, it leaks out of the local economy.

Margin -- The allocation of the final purchase price to the value added by each sector through which the good or service has passed. When a good is purchased, it has passed through the production stage (manufacturer, agriculture or mineral extraction), transportation, wholesaler and retailer. At each stage, the cost of the good increases as value is added. At each stage, the margin is the difference between the selling price of the good to the next stage and the cost of the good to that sector from the previous stage, stated in dollar terms or as a percent of retail purchase price.

Multiplier -- The amount by which expenditures expand output, employment, income or value added in the local economy after adjusting for leakages, margins and regional purchase coefficients. The multipliers are estimated from IMPLAN.

Regional purchase coefficient (RPC) -- The proportion of boater expenditures in each economic sector of the IMPLAN model which accrue to or are captured by businesses within the Ohio economy. If businesses in Ohio capture the full expenditure on some good or service, the RPC is one; if some of the expenditure leaks out to businesses in other states, the RPC is less than one.

Trip-related expenditures -- Boater expenditures that result from taking a recreational trip on which the household's boat(s) was used, to include boat fuel, groceries, lodging, fishing bait and tackle, or entertainment.

Value added -- income (wages and compensation to employees plus proprietors income) plus other property income plus indirect business taxes.

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