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ECONOMIC IMPACTS OF THE COASTAL MARINE TRADES INDUSTRY:
A CASE STUDY OF OHIO'S LAKE ERIE MARINAS

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ECONOMIC IMPACTS OF THE COASTAL MARINE TRADES INDUSTRY:

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Abstract

If Ohio's north coast marine trades industry is characteristic of the national coastal industry, marine trades may be in rapid transformation from a local family-owned industry to one dominated by a few large firms owned by outside investors. The number of marinas increased from 237 in 1979, to 383 in 1986. The only shift in the distribution of firms was the transfer of 7 percent of the firms from the $\$1.0$ to 2.0×10^6 in sales group to the over $\$2.0 \times 10^6$ group. This shift of large to very large firms can potentially generate major changes in the nature of marine trades. Marine services on Ohio's Lake Erie generated estimated gross sales of $\$342.4 \times 10^6$ which contributed $\$151.3 \times 10^6$ to regional value added sales, $\$56.1 \times 10^6$ to personal income, and 3,347 full-time equivalent jobs. The total economic impact attributable to marine trades in 1986 is $\$233.0 \times 10^6$ in value added sales, $\$158.2 \times 10^6$ in personal income and 5,121 full-time equivalent jobs, a significant industry in Ohio's Lake Erie coastal economy.

Introduction

The core of any coastal recreational economy is the marine trades industry. Marinas are the key firms providing access to the water and the services necessary for recreational boating. In areas where water recreation is increasing rapidly, such as Ohio's north coast where

sport fishing has grown rapidly (Anonymous 1988), the response of marine trades is critical in accommodating the increased demand for boating services and access to the water. In this study we document some of the changes which have occurred in marine trades on Ohio's north coast and estimate the economic impact of the marine trade industry on the region. Wenner (1982) identified a total of 237 boating businesses in the eight coastal counties of Ohio bordering Lake Erie in 1979. His figure included public and privately-owned facilities and private clubs that provided services to their members. In the current study a total of 383 Lake Erie marinas and access facilities were identified. These businesses include public and privately-owned facilities and private clubs, but in addition also include condominium associations providing Lake Erie access and services to their members.

Access to Lake Erie for recreational purposes has long been a primary concern of groups working with Lake Erie resource users including the Lake Erie Marine Trades Association, Ohio Sea Grant Extension Advisory Committees, and organized sport fishing associations. Millions of dollars of both public and private sector funds have gone into the development of new Lake Erie access facilities. Additional new marinas are planned. There is a need to document what a marina may mean in terms of jobs and income to a community in order to facilitate loan and permit applications. Land available for potential new marina development is scarce. A proposed

new marina may have to compete with traditional on-the-waterfront industries and new non-water based enterprises for scarce waterfront acreage.

Wenner reported that in 1979 Lake Erie marine businesses had average gross sales of \$561,000, paid a total of \$15,511 each in taxes, and had a payroll of \$68,513. With the identification of over 100 new marinas in the past five years, the need to reliably document the industry is evident. In the current survey the responding marinas had average sales of \$893,875, paid a total of \$21,898 in taxes, and had a payroll of \$95,080. In this paper we describe and characterize the Lake Erie marina industry and the economic impacts on the economy in which the industry operates.

Overview

A total of 383 Lake Erie marinas and access facilities were identified from the 1983 Ohio Department of Natural Resources Lake Erie access inventory, the 1987 Lake Erie Marine Trades Association membership list, and the current marina lists from the County Board of Health of each of Ohio's eight coastal counties. The marinas were mailed a questionnaire in the spring of 1987 and asked to respond with data from the 1986 boating season. A total of 117 usable questionnaires were returned after three mailings to each marina for a response rate of 30.5 percent. Each of Ohio's eight coastal counties were represented by respondents in the survey (Table 1). Confidentiality of the survey precluded any follow-up with non-

responding marinas to determine the representativeness of the respondents. A random telephone follow-up of 30 marinas yielded two no-answers, two refusals, and 26 marinas with estimated mean sales of \$609,519, which is 68 percent of the responding firm mean.

Ottawa County, in the middle of Lake Erie's western basin, has the greatest number of Lake Erie marinas and access sites. It also had the greatest number of responding marinas but had the lowest percent of potential respondents in the 1987 survey.

The distribution of marinas by reported gross sales levels from the current survey and from Wenner (1982) are found in Table 2. The percent of respondents by sales levels was very similar between 1982 and the current survey. The biggest difference was a reduction of eight firms in 1986 in the $\$1 \times 10^6$ to $\$2 \times 10^6$ class and an increase of seven in the number of firms in 1986 that grossed $\$2 \times 10^6$ or more. From Table 2 we have 14 marinas in 1986 that reported gross sales of $\$2 \times 10^6$ or more. Six of these grossed between $\$2 \times 10^6$ and $\$2.99 \times 10^6$. Three grossed between $\$3 \times 10^6$ and $\$3.99 \times 10^6$. One grossed between $\$4 \times 10^6$ and $\$4.99 \times 10^6$. Two reported gross sales between $\$5 \times 10^6$ and $\$9.99 \times 10^6$ and two reported gross sales of over $\$10 \times 10^6$. Wenner (1982) reported seven marinas with gross sales of $\$2 \times 10^6$ or more but he did not break down this class any further.

With the increased boating activity on Lake Erie in the past few years, particularly in the central basin, one might have expected to see a reduction in the relative number of smaller marinas, i.e., that

all marinas shared in the growth in boating activities. If the two samples are not biased in their response rates, or are biased similarly, this suggests that the technology and structure of the marina industry on the Lake has not changed much in five years. The fact that only three respondents in the current survey (Lichtkoppler and Hushak, 1987) said that they have expanded dry stack storage capacity since 1982 tends to support this. Dry stack storage of boats is one of the newest technological developments in the marina industry on Lake Erie. During this same time 48 marinas reported expanding their wet slips. The major change found in the current survey is that a few large marinas have become very large. These super large marinas, although few in number, are of sufficient size that they may change the character of the industry.

Services and Facilities

The types of facilities and kinds of services offered by the respondents varied a great deal. The respondent marinas ranged from a small marina or condominium offering a boat ramp or dockage and minimal services to large scale full-service marinas with year-round inside storage facilities, boat sales, and extensive repair services.

In this paper low sales volume marinas are arbitrarily defined as those generating between \$0 and \$99,999 in gross sales. Middle sales volume marinas are defined as those generating between \$100,000 and \$699,999 in gross sales. The high volume marinas are those whose sales are greater than \$700,000 per year. The high sales volume marinas

offered, in general, more kinds of facilities and more kinds of services than did the middle and low sales volume marinas. The low sales volume marinas offered facilities such as boat ramps and auto and trailer parking more frequently than the middle or high groups, and they offered dockage facilities at a slightly higher frequency than the middle group. The middle sales group offered food service at a slightly higher rate than did either the high or low-sales groups. For all other facilities or services, the middle group was in the middle range of occurrence of services or facility offered. For more information on the characteristics of Lake Erie marinas see Lichtkoppler and Hushak (1987).

Table 3 lists the sources of income for responding Lake Erie marinas by: (1) management type, club, or commercial; (2) whether the business bought and/or sold boats; and (3) sales volume. Commercial marinas have less reliance on slip rental, supplies and fuel sales as a source of gross revenue and rely more on storage, repairs and boat sales than do club-type marinas. Of those marinas that sell boats, almost 42 percent of the gross revenue is from boat sales. Marinas that do not sell boats generate 58 percent of their sales (gross revenues) from slip rental.

The low sales volume marinas obtain almost three-fourths of their sales from slip rentals. This accounts for approximately one-fourth of the sales volume of middle sales marinas and only 8 percent of the revenues of the marinas grossing \$700,000 or more. Boat sales are the

most important source of gross revenues for the high sales volume marinas, accounting for 56 percent of their sales.

Table 4 shows the percent of gross expenditures that the marinas incur for various items. These sources of expenditures are grouped by management type, whether it buys and/or sells boats and by sales volume. Commercial marinas incur only one-fourth as much of their gross expenditures for facility maintenance as do clubs.

Estimation of Industry Sales

Marina industry sales in 1986 are estimated at $\$342.4 \times 10^6$ and expenses at $\$292.2 \times 10^6$ (Table 5). The estimated sales and expenses per firm are calculated as the sum of midpoints of each respondent's sales class divided by the number of respondents (100 firms reported sales and 90 reported expenses). The mean for the open ended $\$10 \times 10^6$ and over sales class is set at $\$12.5 \times 10^6$. Industry sales and expenses are the mean sales or expenses per firm times the 383 firms identified as belonging to the marina industry. These industry estimates are highly dependent on whether or not the sample respondents represent the industry. Over representation by even one or two large firms could bias the estimates severely. For example, the two firms in the $\$10 \times 10^6$ and over sales class contribute 28 percent of the total sales of the 100 responding firms. Table 5 also shows the estimates of 1986 gross sales and gross expenses grouped by management type, whether they buy/sell boats and by sales volume.

Profit marinas generate significantly more economic activity than do clubs or condos. Marinas that sell boats generate the highest estimated gross sales. Marinas managed as businesses account for almost 95 percent of the marina industry's estimated sales and 96 percent of the expenses. Marinas with boat sales accounted for almost 88 percent of the industry's estimated sales and 89 percent of the expenses. Marinas grouped in the high sales volume category accounted for over 86 percent of the industry's estimated 1986 sales and 86 percent of the estimated expenses.

Twenty-nine marinas reported that their ramp fees (for launching a boat in and out) were within a range of \$2.00 to \$5.00 and averaged \$3.67 in 1986. Sixty-four marinas reported their summer wet/dock rental was an average of \$21.86 per foot. This value ranged from \$2.62/foot to \$46.10/foot. Generally dockage at the clubs was much less expensive than the private business dockage.

Upper and lower-bound estimates of industry sales and expenses are presented in Table 6. These estimates are calculated by (1) summing industry sales and expenses, respectively, by assuming that respondents' sales or expenses are at the upper or lower bound of their responding class and dividing by the number of responding firms, and (2) multiplying each mean by the 383 firms identified in the marina industry. The upper bound for the open-ended class of firm sales is set at $\$15 \times 10^6$.

In Tables 5 and 6 the sum of the industry estimates for sales and expenses broken down by sell boats and sales level may not equal the total industry estimates due to rounding errors. The sum of the industry estimates for management type in Tables 5 and 6 do not equal the total industry figure because not all respondents indicated their management type. If the three firms not indicating their management type are added into the sum of the club, business and condo estimates, then the sum is equal to the total industry estimates for sales and expenses.

A particularly critical component of the marina industry is the employment and payroll that it generates. Based on the sample, the marina industry generated 3,347 full-time equivalent jobs in 1986 with a payroll of $\$36.4 \times 10^6$. The estimates for marina industry employment and payroll are given in Table 7. Since the typical marina was open 6.6 months per year, we multiply the number of seasonal full-time jobs by 0.55 to get 918.5 full-time equivalent jobs. We assume the part-time seasonal worker works an average of 20 hours per week and multiply the estimated number of part-time jobs by 0.275 (0.5×0.55) to get the estimated 311.9 full-time equivalent jobs. This gives us a total of 3,347 full-time equivalent jobs.

Economic Impact of Marine Trades

In this section, sales (output), income and employment impacts of the marine trades are developed. There are two components: total

industry impacts and the expected effects of a typical firm on a local municipality.

Industry Impacts

The impact multipliers and the direct and indirect income and employment effects from the input-output model of Hushak et al. (1984) are used as the basis for computing total economic impacts of the marine trades industry. Hushak et al. (1986) used this same model to estimate the relative impacts of allocating the Lake Erie fishery to sport vs. commercial fishing interests. The role of economic impacts in estimating the economic value of a fishery is discussed in Hushak (1987). The marine trades sector coefficients in the input-output model were developed from a survey of marinas, boat dealers and licensed bait dealers for the year 1981.

While the Hushak et al. (1984) study was conducted for the year 1978, the impact coefficients or multipliers are not as subject to change as are industry sales, and are likely to remain reasonably accurate. The impact coefficients of the Hushak et al. (1984) model are for a 17-county region of Northern Ohio which includes all the counties bordering Lake Erie and the next tier of counties bordering the lake-front counties: Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Lucas, Mahoning, Ottawa, Seneca, Summit, Trumbull, Wood, Portage, and Sandusky.

Before the economic impact of marine trades can be estimated, an estimate of the value added by the industry must be derived from the

sales and expenses estimates of Table 5. Value added by marine trades is that portion of sales which accrues to labor and management as income, to capital as interest, to economic profits, and as additional taxes to local governments. Otherwise, in the total model where other economic sectors are contained along with marine trades, double counting of transactions and impacts would occur. For example, the value added in production of boats is included in the "boat-ship building and repair" sector of the input-output model (Hushak et al, 1984). Therefore, the costs of boats to marine trades must be deducted from total sales to derive value added by marinas. Total industry sales and expenses in Table 5 are used along with the breakdowns of sales and expenses in Tables 3 and 4 to arrive at an estimate of value added in Table 8.

Estimated marine industry sales exceed expenses by $\$50.2 \times 10^6$ (Table 8). This excess of sales over expenses corresponds to the earnings or profits as reported by firms in the Wall Street Journal or on a firm's 10K form. It includes the return on invested capital which is owned by marina businesses plus net economic profit or surplus, where economic profit is equal to sales minus full expenses or costs including the opportunity cost of owned capital invested in the business. This return on owned capital plus economic profit is part of the value added by the marine trades. It contributes to the economy of the region to the extent that the return on capital and economic profit accrues to residents of the region, i.e., that the owners of the marina

businesses reside in the region and do not spend these returns outside of the region of interest.

Marine trades expenses are separated into three components in Table 8: intermediate inputs, purchased services, and value added expenses. In the case of marinas, intermediate inputs are items purchased for resale to customers of the firm. Included from Table 4 are the costs of boats, fuel/oil and supplies, which may include some purchased services. The unknown "other" class of expenses has also been included in intermediate inputs. Intermediate inputs comprised 23.4 percent of reported expenses. Purchased services are inputs needed to run the business. Included in this category are advertising, equipment and facility maintenance, insurance, and new construction. New construction could be considered an intermediate input rather than a purchased service. The total of purchased services comprised 42 percent of expenses. These two classes of expenses have the common characteristic that they do not contribute to value added by the marina industry, but rather are inputs or services purchased from other sectors or industries of an economy or imported from outside of the region.

The final class of expenses in Table 8 is value-added expenses. Included are rent paid to the owners of the real estate in which the business is located, taxes to local, state or federal governments, and wages or income to labor and management. These expenses are not paid to other industries for the purchase of externally produced inputs or

services, but rather are new output in the form of returns to capital or labor and returns paid out of profits to governments as a result of operating the business. As such, they are also components of value added. They contribute to the regional economy to the extent that the business owners and employees are residents of the region. The value added expenses comprise 34.6 percent of expenses or $\$101.1 \times 10^6$. The sum of return on capital and economic profit plus value-added expenses is $\$151.3 \times 10^6$. This is the value added sales or output attributable to the marine trade industry, and is the appropriate sum to which to apply output, income, and employment multipliers. This estimate of value added is subject to the same potential response bias discussed earlier where estimates of industry sales and expenses were presented. Value added estimates by management type, boat sales and sales level are in Table 9.

The economic impacts of marine trades can now be obtained as the product of the multipliers times the value added of the industry. The adjusted sales or output multiplier for the industry (the multiplier which can be applied to sales rather than to final demand) from Hushak et al. (1984) is 1.54 ($1.92/1.243$ where 1.243 is the total marine trades value added generated per \$1.00 of value added sales to final demand or marina customers). This means that for each \$1.00 of value added sales by marine trades, an additional \$0.54 for a total of \$1.54 in value added sales is generated in the 17 county regional economy from this economic activity. The value added or sales impact of marine

trades on these 17 counties in 1986 is estimated at $\$233.0 \times 10^6$ as shown in Table 10 where estimates for 1981 are also provided.

The direct income generated by each \$1.00 of value added was estimated at \$0.28 in Hushak et al. (1984). Based on this estimate, marine trades paid $\$42.4 \times 10^6$ in wages and salaries to its employees and management. This compares to the industry estimate from the questionnaire respondents of $\$56.1 \times 10^6$ in income paid to labor ($\$43.0 \times 10^6$) and management ($\13.1×10^6) based on the percent of expenses reported in Table 4. The direct estimate of payroll paid to labor only from the respondents is $\$36.4 \times 10^6$. The employment multiplier from Hushak et al. (1984) is 2.82. Multiplication of the direct income payments of $\$56.1 \times 10^6$ by the employment multiplier yields a total income impact estimate of $\$158.2 \times 10^6$.

The direct employment in marine trades generated by each $\$1 \times 10^6$ is estimated at 41.2 by Hushak et al. (1984). Based on this estimate, marine trades employed 6,530.2 persons in 1986. The questionnaire used in the survey of marinas, boat dealers and bait dealers on which the 1981 estimate is based requested only the number of persons employed. Adjustment for full-time equivalents was not made. Hushak et al. (1984) concluded that the full-time equivalency of their estimate was approximately 50 percent, which means that the full-time equivalent employment estimate for 1986 using Hushak et al. (1984) is about 3,400 persons. The 1981 estimates in Table 10 are also adjusted by the 50 percent full-time equivalency assumption.

Based on the questionnaire respondents, marine trades employed an estimated total of 4,921 persons on full-time, seasonal full-time or seasonal part-time basis in 1986 (Table 7). This represents an estimated 3,347 full-time equivalent persons. The employment multiplier from Hushak et al. (1984) is 1.53. The product of marine trades employment in 1986 and the employment multiplier yields a total employment impact of marine trades of 5,121 full-time equivalent persons.

One final characteristic of the marine trades impacts is that it is a labor intensive but low-paying industry. Using the questionnaire generated estimates of income of $\$56.1 \times 10^6$ and employment of 3,347, income per full-time equivalent employee is \$16,761. In contrast, manufacturing payroll per production worker in Ohio was \$22,422 in 1984, the latest year available.

The Typical Marina

To the extent that there is a typical marina, the characteristics of such a marina are presented in this section. Two types of marinas are characterized here: the mean characteristics of the medium sales group and the high sales group (Table 11). The typical marina in the medium-sales group has gross sales of about \$300,000, employs three persons full-time and another eight to ten persons on a part-time basis, generates a payroll of about \$85,000, and focuses its business on boating services such as slip rental and storage, repair, fuel and

supplies. It is not likely to sell boats although it may deal in used equipment.

The typical large marina in this sample, on the other hand, is characterized by a large business in new boat sales, generating over 50 percent of total sales from boat sales. The typical large marina has gross sales of about $\$3.7 \times 10^6$, employs about 15 persons full-time and another 15 on a seasonal basis, with a payroll of \$320,000 (Table 11). The large marina will also be a full-service marina in that it provides slip rental and storage services as well as a large boat service and repair business to handle the needs of its boat sales customers.

Multiplier impacts are not calculated for the typical marina. The multipliers from Hushak et al. (1984) are estimated for the 17-county study region. Local multipliers are highly variable depending on the location of the marina and the local area for which the multiplier is estimated. Multipliers for the urban centers and counties such as Cleveland or Toledo and Cuyahoga or Lucas can approach the regional multipliers in magnitude while those for the more rural areas such as Port Clinton or Sandusky may be close to one, i.e., there is a small local multiplier effect because most of the expenditures are made outside of the local area.

Conclusion

In 1986 Ohio's Lake Erie marine trades industry generated value added to the regional economy estimated at $\$151.3 \times 10^6$ and accounted for an estimated $\$233.0 \times 10^6$ in regional value added sales, $\$158.2 \times 10^6$ in

income and 5,121 full-time equivalent persons employed on Ohio's north coast. Even if response bias is as high as the 32 percent from our supplemental survey, these figures represent a significant recreation-based industry. The industry is made up of nearly 400 individual firms. However, the largest 20 percent of the firms account for 86 percent of the total sales. These sales are heavily influenced by the sale of new boats. These results document the important role of marine trades to coastal recreational economies.

Second and potentially more important are the implications of the rapid transition in Ohio from a locally-owned and controlled family-based marine trades industry to one dominated by a few large firms, most of which are likely controlled by investors from outside the region. If this transition is characteristic of marine trades in other recreational economies, it implies a rapid transfer of recreational areas from local to outside control, with the potential of drawing a significant portion of the regional value added away from local residents.

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REFERENCES

- Anonymous. 1988. Status and trend highlights: Ohio's Lake Erie fish and fisheries. Division of Wildlife, Ohio Department of Natural Resources, Columbus, OH, USA.
- Hushak, L. J. 1987. The use of input-output analysis in fisheries assessment. Transactions of the American Fisheries Society 116:441-449.
- Hushak, L. J., G. W. Morse and K. K. Apraku. 1984. An input-output analysis of the economic impact of Ohio's Lake Erie fishery and other resources on a northern Ohio regional economy. Ohio State University Sea Grant Program, Technical Bulletin OHSU-TB-19-84, Columbus.
- Hushak, L. J., G. W. Morse and K. K. Apraku. 1986. Regional impacts of fishery allocation to sport and commercial interests: a case study of Ohio's portion of Lake Erie. North American Journal of Fisheries Management 6:472-479.
- Lichtkoppler, F. and L. J. Hushak. 1987. Ohio's Lake Erie marina industry, 1986. Unpublished manuscript, Ohio Sea Grant, The Ohio State University, Columbus.
- U.S. Department of Commerce. 1987. Statistical Abstract of the United States. 107th ed., Bureau of the Census.
- Wenner, K. A., 1982. The economic value of recreational boating of Lake Erie. The Ohio State University Sea Grant Program, Technical Bulletin OHSU-TB-5-83, Columbus.

Table 1. Number and percent of the marinas by county responding to the 1987 Ohio Sea Grant marina survey.

County	Number responding	Total marinas	Percent of possible respondents
Ashtabula	7	20	35.0
Lake	10	30	33.3
Cuyahoga	8	26	30.3
Lorain	11	18	61.1
Erie	25	68	36.8
Sandusky	2	5	40.0
Ottawa	44	182	24.2
Lucas	<u>9</u>	<u>34</u>	<u>26.5</u>
All counties	117	383	30.5

Table 2. Gross sales levels for Lake Erie marinas in 1982 and 1986.

Sales level (\$)	Number of respondents	
	1982	1986
0-24,999	24	25
25,000-99,999	22	22
100,000-299,999	19	20
300,000-699,999	11	12
700,000-999,999	4	4
1,000,000-1,999,999	11	3
2,000,000-up	<u>7</u>	<u>14</u>
Total	98	100

Table 3. Sources of marina sales grouped by all respondents, management type, boat sales and sales volume, 1986.^a

Items	Percent of gross revenues							
	All respondents	Management type		Boat sales		Sales volume		
		Club	Commercial	Yes	No	Low	Med	High
Number of respondents	79	8	69	27	52	32	31	15
Slip rent	43.2 (39.8)	58.0	39.8	14.1	58.2	72.1	28.1	8.1
Storage	8.1 (15.6)	3.5	8.9	10.3	7.0	4.8	12.4	6.8
Repairs	9.7 (19.0)	- ^b	11.1	14.7	7.1	3.5	12.4	18.0
Boat sales	14.5 (27.9)	-	16.6	42.3	-	0.6	9.0	56.3
Titles	-	-	-	0	0	0	-	0
Utilities	0.5 (2.6)	-	0.5	-	0.7	0.5	0.7	0
Pumpouts	0.1 (0.5)	-	-	-	-	0.1	0.2	0.1
Fuel sales	4.7 (9.3)	7.8	4.5	3.1	5.5	3.1	7.6	2.4
Supplies	8.7 (22.3)	23.9	7.2	6.0	10.0	7.5	13.3	2.4
Other	10.7 (20.5)	6.9	11.4	9.5	11.3	7.9	16.0	6.3

^aRespondents did not always identify their management type or sales volume. Thus, the number of total respondents is greater than the sum of respondents in the management type and sales volume categories. Columns may not sum to 100 due to rounding error.

^b(-) = less than 0.5%.

Table 4. Marina expenditures grouped by management type, boat sales and sales volume, 1986.^a

Items	Percent of total expenditures							
	All respondents	Management type		Boat sales		Sales volume		
		Club	Commercial	Yes	No	Low	Med	High
Number of respondents	66	11	51	20	46	29	24	10
Rent	9.9 (14.8)	8.7	10.9	8.2	10.6	8.6	13.1	10.1
Boat sales	9.6 (23.6)	-	12.4	31.7	0	0.7	10.3	36.6
Advertising	2.3 (4.3)	-	2.9	3.0	2.0	2.4	2.0	3.3
Equipment maintenance	7.5 (13.4)	1.6	8.6	6.5	7.9	10.6	5.9	2.4
Insurance	5.6 (5.4)	5.6	5.3	4.1	6.2	5.6	5.8	3.3
New construction	4.8 (13.5)	4.8	5.1	3.2	5.5	5.0	6.2	2.4
Facility maintenance	15.1 (25.8)	41.2	8.9	3.7	20.1	23.1	5.9	2.1
Fuel/oil	3.0 (6.6)	0.9	3.6	2.2	3.4	2.0	5.3	1.3
Supplies	5.8 (13.1)	6.6	6.0	5.1	6.1	6.0	6.1	5.7
Utilities	6.7 (7.0)	11.0	5.7	5.2	7.4	6.7	7.6	2.1
Taxes	5.5 (6.9)	7.4	5.5	8.1	4.4	5.0	4.8	7.4
Labor	14.7 (18.7)	7.1	14.8	12.6	15.7	16.1	14.7	15.3
Management	4.5 (9.2)	0	5.8	4.8	4.3	2.1	7.2	6.1
Other	5.2	4.5	4.6	2.8	6.3	6.3	5.7	2.3

^aRespondents did not always identify their sales level, thus the total number of respondents is greater than the sum of the respondents in the sales volume category. Columns may not sum to 100 because of rounding error.

Table 5. Estimated industry sales and expenses for Lake Erie marinas grouped by management type, boat sales and sales volume, 1986.^a

Group	Sales	Expenses
Total (N) ^b	(100)	(90)
Industry	\$342,353,937	\$292,196,896
Mean	\$ 893,875	\$ 762,916
Standard deviation	2,128,494	2,096,270
Management type		
Club (N)	(17)	(15)
Subtotal	\$ 16,660,467	\$ 8,723,858
Mean	\$ 255,881	\$ 136,667
Standard deviation	475,505	239,855
Business (N)	(76)	(67)
Subtotal	\$325,166,858	\$282,621,945
Mean per firm	\$ 1,117,105	\$ 991,231
Standard deviation	2,387,318	2,384,318
Condo (N)	(4)	(5)
Subtotal	\$ 191,492	\$ 265,962
Mean	\$ 12,500	\$ 12,500
Standard deviation	0	0
Boat sales		
No (N)	(68)	(61)
Subtotal	\$ 39,257,370	\$ 28,618,481
Mean	\$ 150,735	\$ 110,245
Standard deviation	239,656	179,915
Yes (N)	(32)	(29)
Subtotal	\$303,096,568	\$263,578,414
Mean	\$ 2,473,046	\$ 2,135,775
Standard deviation	3,219,999	3,284,628
Sales level		
Low (N)	(47)	(43)
Subtotal	\$ 6,463,035	\$ 5,425,744
Mean	\$ 35,904	\$ 30,357
Standard deviation	24,949	23,958
Medium (N)	(32)	(29)
Subtotal	\$ 37,533,939	\$ 32,235,772
Mean	\$ 306,250	\$ 261,206
Standard deviation	149,870	186,024
High (N)	(21)	(18)
Subtotal	\$298,356,964	\$254,482,188
Mean	\$ 3,709,532	\$ 3,322,222
Standard deviation	3,381,801	3,698,056

^aComputed as the number of firms by sales class times the midpoint of each sales or expenditure class, respectively; times 383 (the total number of marinas) divided by the number of firms responding (100 for sales and 90 for expenses). The mean for the open-ended sales class, \$10x10⁶ and over, is set at \$12.5x10⁶.

^bN = number of responses upon which the estimate is based.

Table 6. Upper and lower bounds of estimated gross sales and gross expenses for Lake Erie marinas grouped by management-type, boat sales and sales volume, 1986.^a

Group	Sales		Expenses	
	Low	High	Low	High
Total (N) ^b	(100)	(100)	(90)	(90)
Industry	\$260,248,500	\$424,459,375	\$226,395,556	\$357,998,237
Mean	\$ 679,500	\$ 1,108,249	\$ 591,111	\$ 934,721
Standard deviation	1,666,978	2,600,796	1,667,318	2,532,642
Management type				
Club (N)	(17)	(17)	(15)	(15)
Subtotal	\$ 10,724,000	\$ 22,596,935	\$ 6,064,167	\$ 11,383,547
Mean	\$ 164,706	\$ 347,058	\$ 95,000	\$ 178,332
Standard deviation	326,418	626,257	202,937	277,769
Business (N)	(76)	(76)	(67)	(67)
Subtotal	\$249,428,750	\$400,904,967	\$220,118,611	\$345,125,279
Mean	\$ 856,908	\$ 1,377,302	\$ 772,015	\$ 1,210,447
Standard deviation	1,870,739	2,916,238	1,896,405	2,880,953
Condo (N)	(4)	(4)	(5)	(5)
Subtotal	0	\$ 382,985	0	\$ 531,923
Mean	0	\$ 24,999	0	\$ 24,999
Standard deviation	0	0	0	0
Boat sales				
No (N)	(68)	(68)	(61)	(61)
Subtotal	\$ 24,416,250	\$ 54,098,490	\$ 17,554,167	\$ 39,682,796
Mean	\$ 93,750	\$ 207,720	\$ 67,623	\$ 152,868
Standard deviation	181,668	301,261	147,197	214,729
Yes (N)	(32)	(32)	(29)	(29)
Subtotal	\$235,832,250	\$370,360,885	\$208,841,389	\$318,315,440
Mean	\$ 1,924,219	\$ 3,021,874	\$ 1,692,241	\$ 2,579,309
Standard deviation	2,516,993	3,944,596	2,606,326	3,977,296
Sales level				
Low (N)	(47)	(47)	(43)	(43)
Subtotal	\$ 2,106,500	\$ 10,819,570	\$ 1,595,833	\$ 9,362,039
Mean	\$ 11,702	\$ 60,105	\$ 8,720	\$ 51,785
Standard deviation	12,475	37,424	11,915	35,936
Medium (N)	(32)	(32)	(29)	(29)
Subtotal	\$ 25,278,000	\$ 49,789,877	\$ 21,384,167	\$ 43,087,377
Mean	\$ 206,250	\$ 406,299	\$ 173,276	\$ 349,137
Standard deviation	149,870	149,870	166,341	208,079
High (N)	(21)	(21)	(18)	(18)
Subtotal	\$232,864,000	\$363,849,927	\$203,415,556	\$305,548,821
Mean	\$ 2,895,238	\$ 4,523,809	\$ 2,655,556	\$ 3,988,888
Standard deviation	2,636,100	4,158,973	2,915,709	4,500,357

^aComputed as the number of firms by sales class times the upper and lower bounds of each sales and expenditure class, respectively, times 383 (the number of marinas), divided by the number of firms responding (100 for sales and 90 for expenses). The upper bound of the open ended sales class, \$10x10⁶ and over, is set at \$15x10⁶.

^bN = number of responses upon which the estimate is based.

Table 7. Employment grouped by type of job and payroll for Lake Erie marinas, 1986.

Group	Number	Full-time equivalent
Full-time jobs		
(N) ^a	(95)	
Industry	2,117	2,117.0
Mean	5.5	
Standard deviation	+9.5	
Seasonal full-time jobs		
(N)	(89)	
Industry	1,670	918.5
Mean	4.4	
Standard deviation	+7.6	
Seasonal part-time jobs		
(N)	(77)	
Industry	1,134	311.9
Mean	3.0	
Standard deviation	+4.6	
Total jobs	4,921	3,347.4
Payroll		
(N)	(76)	
Industry	\$36,415,654	
Mean	\$ 90,080	
Standard deviation	+ 157,190	

^aN = number of responses upon which the estimate is based.

Table 8. Computation of value added by Lake Erie marinas from industry sales and expenses, 1986.

Category	Sales/expenses (\$)	Value added (\$)
Marina industry sales	342.4x10 ⁶	
Marina industry expenses	292.2x10 ⁶	
Intermediate inputs ^a	68.4x10 ⁶	
Purchased services ^b	122.7x10 ⁶	
Value added expenses ^c		101.1x10 ⁶
Sales less expenses		
Net industry profit		<u>50.2x10⁶</u>
Total value added		151.3x10 ⁶

^aIntermediate inputs include boat sales (costs), fuel/oil, supplies and other (Table 4) with a total of 23.4 percent of expenses.

^bPurchased services include advertising, equipment maintenance, insurance, new construction, facility maintenance and utilities (Table 4) with a total of 42.0 percent of expenses.

^cValue added expenses include rent, taxes, labor and management (Table 4) with a total of 34.6 percent of expenses.

Table 9. Value added by Lake Erie marinas grouped by management type, boat sales and sales volume, 1986.^a

Group	Value added (\$)
Total value added	151.3x10 ⁶
Management type	
Club	10.0x10 ⁶
Business	147.2x10 ⁶
Condo	b
Boat sales	
No	20.6x10 ⁶
Yes	127.3x10 ⁶
Sales level	
Low	2.8x10 ⁶
Medium	18.0x10 ⁶
High	142.6x10 ⁶

^aSubgroup sums do not equal the total because of rounding errors and differences in firms reporting.

^bNot computed. The value added estimate is a very small number.

Table 10. Economic impacts of the marina industry, 1981 and 1986, in current and 1986 real dollars $\times 10^6$.

	1981 ^a	1981 in 1986 \$ ^b	1986
Value-added ($\times 10^6$)	91.9	110.8	151.3
Value-added impact ^c	141.9	171.1	233.0
Direct income ($\$ \times 10^6$)	25.5	30.8	56.1
Total income impact ^d	71.9	86.7	158.2
Direct employment (full-time equivalent persons)	1,895	1,895	3,347
Total employment impact ^e	2,900	2,900	5,121
Income/full-time equivalent employee (\$) ^f	13,450	16,221	16,761

^aThe Hushak et al. (1984) model was estimated for the year 1978. However, the data for marine trades was collected for the year 1981. All multipliers and direct coefficients are from Hushak et al. (1984).

^bThe 1981 value-added and income estimates restated in 1986 dollars using the consumer price index where the ratio of the all-items consumer price index for 1986 to 1981 is 1.206.

^cValue-added impact equals value-added times the adjusted sales (value-added) multiplier of 1.54 (the unadjusted or final demand output multiplier of 1.92 divided by total marina output per \$1.00 of sales to final demand of 1.243).

^dTotal income impact equals income times the income multiplier of 2.82.

^eTotal employment impact equals employment times the employment multiplier of 1.53.

^fDirect income \div direct employment (full-time equivalent persons).

Table 11. Characteristics of a typical medium-sized and large-sized marina.

	Medium	Large
Sales (\$)	300,000	3.7x10 ⁶
Employment (persons)		
Full-time	3	15
Part-time	8-10	13-17
Payroll (\$)	85,000	320,000
Services	Slips Storage Repairs Fuel	Boat sales Repairs Slips Storage