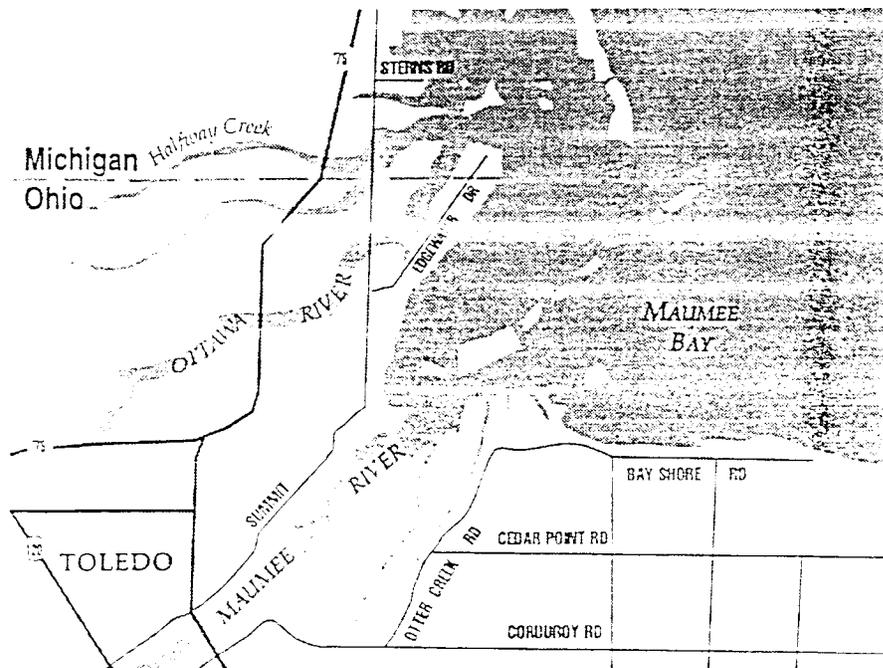


VALUING THE OTTAWA RIVER: THE ECONOMIC VALUES AND IMPACTS OF RECREATIONAL BOATING



Prepared for the
Ottawa River Action Group of
the Maumee RAP (Remedial Action Plan)

by
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FOREWORD

At the outset of this project, steps were in progress that when carried to completion would improve and restore Ottawa River water quality and would identify riverbed areas containing contaminated sediments. The Ottawa River Action Group of the Maumee RAP agree with these actions. A next phase would be dredging river sediments for the purpose of improved navigation for boaters and also for environmental remediation and ecosystem improvement.

The Ottawa River Action Group of the Maumee RAP was interested in a study of the local economic impact of the river's boating activity and the river's recreational value. They wished to determine the impacts of river boating on the area's economy and what monetary contribution local users are willing to make for dredging the river. Ohio State University (OSU) Sea Grant Extension offered to conduct this economic study. The Point Place Business Association and the river boating community also support the study. The Action Group proceeded to obtain a grant and voted for monetary support for the study.

OSU Sea Grant Extension prepared the study format, developed questionnaires, and interviewed boaters and Ottawa River area businesses. Questions presented to boaters included boating trip frequency, purchases, taxes, environmental concerns, opinions, and perceived boating trip frequency if environmental and navigational dredging were to occur.

Local user responses provided positive answers that included support of a monetary contribution for dredging. A summary of these values follows in a digest form in the Executive Summary and in their entirety in the main body of the report.

It is our conviction the study results show sound economic benefits and economic growth potential for the City of Toledo and Ohio by restoring the river's navigability, ecology and recreational use through long-needed dredging.

James Haren, Representative

Ottawa River Action Group (ORAG) Member
Jolly Roger Sailing Club ORAG Representative
Ottawa River Affiliated Yacht Clubs ORAG Representative

ACKNOWLEDGEMENTS

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VALUING THE OTTAWA RIVER: THE ECONOMIC VALUES AND IMPACTS OF RECREATIONAL BOATING

EXECUTIVE SUMMARY

The purpose of this research is to provide the basis to build the necessary local financial support to make dredging of the Ottawa River possible. The study provides input for justification and financial support for both navigational dredging and contaminated sediment dredging. Previous Army Corps of Engineers studies in 1976 and 1991 found sufficient benefit-to-cost ratios existed to justify navigational dredging of the Ottawa River and channel to Lake Erie, but each project lacked a local sponsor to cost share it causing the Corp's deferment to dredge.

The Ottawa River area includes the Ottawa River downstream from the Suder Avenue bridge to the connecting channel in the north Maumee Bay plus Halfway Creek and Hooper Run in Michigan. Of the 16 yacht clubs and marinas, 11 are in Lucas County. The survey questions were addressed to Ottawa River stakeholders who are area residents, club members, marina occupants, and launch site users and businesses.

Existing Conditions

- The use of the lower Ottawa River for activities such as swimming, fishing, and related water activity was banned in the 1990's by the Toledo Department of Health and the Ohio Department of Health.
- Sedimentation and lake hydrologic effects are causing shallow Ottawa River channel depths resulting in diminished boater activity and decreasing dock occupancy.

Research Findings

- The estimated economic impact from current Ottawa River boater activity to the local economy is \$14 million in total annual sales of which \$8 million is value added from current boaters. (Reference Figure 4.)
- The direct economic impact to local area businesses of dredging the Ottawa River and a connecting channel to Lake Erie, for navigational and environmental purposes, is nearly \$5 million of additional annual sales. Nearly \$3 million of this is additional income from new or higher paying jobs at these businesses at full current capacity use. With increased capacity, the increase in economic activity would be greater. In addition, if the dredging does not occur, the \$14 million in current annual sales, of which \$8 million is current annual income, will erode as navigation of the river becomes more difficult. (Reference Figure 4.)
- The estimated mean economic value to area boaters and businesses at full use of current capacity of dredging the Ottawa River and a connecting channel to Lake Erie for navigational and environmental purposes is nearly \$750,000. (Reference Figure 3.)

- **The estimated median economic value to area boaters and businesses of dredging the Ottawa River** and a connecting channel to Lake Erie for navigational and environmental purposes is over \$400,000 for a 10-year time horizon. Current boaters and businesses are willing to pay a minimum of \$25 and \$100, respectively, per year for 10 years for navigational dredging. (Reference Figure 3.)
- **The Ottawa River boater values both navigational and environmental dredging.** Based on willingness to pay, boaters placed higher value on navigational dredging, but four of the six top ranked new activities respondents indicated they would participate in after the river was dredged involve water contact sports and fishing. (Reference Figure 2.)

Three surveys were conducted to obtain the information to make these estimates of economic impact and economic value. Economic impacts and economic values are not additive, but are two different ways of looking at the effects of dredging. Economic impacts are measures of how the recreational boating expenditures made by boaters' affect sales of local businesses and incomes of employees and property owners. Economic value measures the satisfaction recreational boaters obtain from their sport. It is the "willingness to pay" for boating over and above, or in excess of, what they spend to participate.

Recommendations

The Ottawa River Action Group of the Maumee RAP proposes to build local support for dredging the Ottawa River by presenting the results of this research to boaters, businesses and other stakeholders, as well as local, state, and federal government representatives and by pursuing the following actions in its dredging strategy over the next 18-24 months:

- Identify and obtain a local government sponsor to provide partial financial support for a dredging project. This will involve communicating with local and state officials initially and on a regular basis as progress is made.
- Develop a local revenue program for dredging with area marinas and yacht clubs based on current boaters willingness to pay for dredging. Initial steps include communicating with stakeholders to strengthen their willingness to join in a local sponsor partnership for environmental and navigational dredging. This will involve communicating with the stakeholder partnership as a whole, rather than target special interests.
- Request and develop the support of the Toledo Lucas County Port Authority Seaport Division for providing local disposal facilities for Ottawa River dredged material.
- Request and develop the financial support of the Army Corps of Engineers after local sponsorship has been determined and a commitment made.
- Expand the support base for this project by seeking the involvement of new people representing the Ohio Division of Watercraft, banking community, colleges and universities, economic development agencies, and other private and public sector participation.
- Advertise progress and positive stakeholder attributes to the media.

VALUING THE OTTAWA RIVER: THE ECONOMIC VALUES AND IMPACTS OF RECREATIONAL BOATING

INTRODUCTION

Purpose of Study

The purpose of this research is to provide the basis to build the necessary local financial support to make dredging of the Ottawa River possible. The study provides input for justification and financial support for navigational dredging and environmental remediation of the Ottawa River. Previous Army Corps of Engineers studies (1976, 1991) found sufficient benefits-to-costs ratios existed to justify navigational dredging, but each study lacked a required local sponsor to cost share the project resulting in the Corps deferment to dredge.

This study provides quantified estimates of the positive economic impact of current Ottawa River boating activity and the additional economic impact that would occur if the river were dredged. It also provides quantified estimates of the positive economic value of the Ottawa River resource to current boaters and area businesses and the additional economic value to potential new boaters and area businesses if the river were dredged.

Background of the Ottawa River Navigational and Environmental Conditions

The Ottawa River is 41 miles long and has a drainage basin of 178 square miles in Ohio and Michigan. The lower section of the river (river miles 1-9) is located primarily within the city of Toledo, Lucas County, Ohio except for an extensive broad estuary leading to the mouth in the north Maumee Bay which is in Erie County, Michigan. Marinas and yacht clubs as well as residential docks are located downstream from Suder Avenue, primarily below river mile 2. This area plus Halfway Creek and Hooper Run in Michigan is referred to as the "Ottawa River area" throughout this report.

Ottawa River community residents, businesses and other stakeholders face two critical problems related to Lake Erie. During periods of low lake levels and resulting shallow depths in the Ottawa River, passage by all but small boats with the shallowest draft is prohibited. Even during periods of higher lake levels, river depths often restrict the classes of pleasure craft able to safely navigate the river. In addition, the water quality of the Ottawa River is classified as highly polluted in the lower reach, which washes into the mouth of the river, and into Lake Erie. Pollution derives from leaching industrial and municipal landfills, abandoned industrial sites, and combined storm and sanitary sewer overflows located in the lower reach. The use of the lower Ottawa River for activities such as swimming, fishing, and related water activity was banned in the 1990's by the Toledo Department of Health and the Ohio Department of Health. In order to build local and other support for addressing these issues, economic information is needed by stakeholders.

Background of the Ottawa River Action Group

The Ottawa River Action Group developed as a cooperative effort between citizens, industry, and government to address these environmental problems and the resulting negative impact on the local economy. One of several focuses of the Action Group is investigating the possibility of dredging the river downstream of Suder Avenue for improved navigation.

Dredging of contaminated sediments primarily concentrated upstream of Suder Avenue is also under consideration as a possible course of action, although other methods of remediation are being considered by various local, state, and federal agencies involved with Ottawa River remediation activities. The upstream pollution will need to be addressed as part of any downstream navigational dredging plan.

The group meets regularly and operates as part of a larger coalition called the Maumee River Remedial Action Plan, or Maumee RAP. This larger organization is also a coalition of citizens, businesses, stakeholders and local governments attempting to restore the health of the Maumee River and Bay ecosystem. In 1985, the lower Maumee River basin was classified as an "Area of Concern" along with 42 other Great Lakes areas. This designation from the International Joint Commission (IJC) was assigned to geographic areas with degraded water quality. The Maumee RAP formed to identify sources of water quality problems and to implement activities that restore beneficial uses of these bodies of water. The Maumee RAP also oversees and supports a number of other Action Groups concerned with environmental restoration, preservation and remediation.

Brief Description of the Ottawa River Boating and Marine Trades Industry

The Ottawa River area, consisting of facilities on the Ottawa River plus those on Halfway Creek and Hooper Run in Michigan, is comprised of 16 marinas or yacht clubs, two boat launch ramps, one public and one private, and 60 additional businesses serving recreational boaters. Of the 16 marinas and yacht clubs, 11 are on the Ottawa River, one of which, Lost Peninsula, is in Michigan, and five serve Halfway Creek and Hooper Run in Michigan. The marinas and yacht clubs on the Ottawa River have a total of 1,642 slips or docks, 908 at Ohio facilities and 734 at Lost Peninsula in Michigan. The Halfway Creek and Hooper Run marinas in Michigan have 530 slips, providing a total of 2,172 slips for area boaters.

The two launch ramps are located in Michigan. The private launch ramp is at State Line Marina where boaters must pay a fee to launch their boats; 1,000 launches were estimated during 1998. The public ramp is at Halfway Creek where attendants were present on weekends from Memorial Day through August 23. When an attendant is present, a launch or ramp fee is charged. The attendants recorded 984 boat launches on weekends during 1998. Since boaters use the public ramp during the week and on weekends before and after the attendants are present, we assume that the number of launches during unattended periods is equal to those during attended weekends, yielding an estimated 2,000 launches during 1998. The total boat launches during 1998 is estimated at 3,000 for the two ramps.

A total of 77 businesses serving the Ottawa River area were identified by the co-investigator with the assistance of members of the Ottawa River Action Group. When surveyed, one of the businesses no longer existed because of the death of the owner.

Past Army Corps of Engineers Studies & Findings

Ottawa River area residents have long desired dredging of the Ottawa River and a channel into Lake Erie. The Army Corps of Engineers, as the primary federal agency responsible for dredging of navigable waters, undertook feasibility studies to determine if a sufficient benefits-to-costs ratio existed to warrant further federal interest in a dredging project.

Both the Detroit District (1976) and the Buffalo District (1991) of the Army Corps of Engineers have undertaken studies in the past. With both studies, the Corps found a sufficient benefits-to-costs ratio existed, but because of a lack of a local sponsor to cost share the project, the Corps terminated their efforts. The identification of a local sponsor, usually a local or state government agency, is key to the progress of the local dredging project. Without this local sponsor, Corps policy dictates deferment.

A local sponsor will be necessary in order for the Action Group to proceed with dredging the river and a channel to Lake Erie. It is therefore critical that the Action Group interest a local government agency in the importance of dredging the Ottawa River. Future strategies for the Action Group in regard to building local public and private sector support for dredging of the river and a connecting channel to Lake Erie are addressed in the *Action Group Recommendations section* at the end of this report.

CURRENT SURVEY RESEARCH PROJECT

Background

In this research project information is developed to support local strategies to address the siltation and pollution problems of the Ottawa River. First, the effects of dredging on the recreational value of boating on the Ottawa River are estimated. Second, the effects of changes in water quality on the recreational value of boating are estimated. And finally the direct economic (sales, income and employment) and fiscal (tax revenue) impacts on the local economy of dredging the Ottawa River for recreational navigation purposes and of water quality changes are estimated.

The purpose of these quantitative estimates is to provide input to the Maumee River (Area Of Concern) RAP (Remedial Action Plan) and, specifically, their Ottawa River Action Group, to build local interest, justification and financial support for environmental remediation and navigational dredging of the river. Stakeholders believe the current river conditions adversely impact the economic, social and environmental climate of the area. It is expected that environmental remediation and navigational dredging of the river will have positive economic and environmental impacts. This in turn will improve the environmental quality of the nearby Maumee Bay portion of Lake Erie.

The results from this project provide information for local residents to better understand the effects of dredging and water quality changes on the recreational value of boating in the area and also on the economic and fiscal impacts of dredging (or not dredging) the Ottawa River. These estimates also help local government and other decision makers to better allocate scarce resources to address the siltation and pollution problems present in the Ottawa River. In addition, this research furthers the Maumee River RAP goals of improving area water quality.

Although the Army Corps of Engineers previously conducted an evaluation of six possible dredging scenarios of the Ottawa River and identified one with a sufficient benefits-to-costs ratio to warrant further Federal interest, research to establish the basis for local support was not conducted. The purpose of this research is to provide the basis to build the necessary local financial support to make dredging of the Ottawa River possible.

Objectives

The general objective of this research is to provide economic information about the effects of dredging the Ottawa River on recreational boating on the Ottawa River and related waters and the resulting impacts on area businesses. In this study, the Ottawa River area includes the Ottawa River plus Halfway Creek and Hooper Run in Southeastern Michigan which would benefit from a dredged channel to Lake Erie for access to the Lake. There are four objectives:

1. Estimate the economic value of dredging the Ottawa River and a connecting channel to Lake Erie to recreational boaters who used the Ottawa River area during 1998.
2. Estimate the economic value of dredging the Ottawa River and a connecting channel to area recreational boaters who would use the Ottawa River area if dredged.
3. Estimate the direct economic and fiscal impacts of dredging the Ottawa River and a connecting channel by recreational boaters who used the Ottawa River area during 1998.
4. Estimate the economic and fiscal impacts of dredging the Ottawa River and a connecting channel by area recreational boaters who would use the Ottawa River area if dredged.

Research Methods

To accomplish these general objectives, three surveys were conducted:

1. A survey of 301 recreational boaters who used the Ottawa River area during the 1998 boating season, called the *contact survey* or CS.
2. A survey of 300 recreational boaters who resided within the Ottawa River area during the 1998 boating season, called the *participant survey* or PS.
3. A survey of 77 area recreational businesses who serve the Ottawa River area.

Economic values and economic and fiscal impacts are not additive, but are two different ways of looking at the effects of dredging. Economic value measures the satisfaction recreational boaters obtain from their sport. It is the "willingness to pay" for boating over and above, or in excess of, what they spend to participate in recreational boating. The contingent value approach is used to estimate economic values from responses to the *Improving the Ottawa River Resource section (questions 22-26)* of the two questionnaires. Economic impacts, on the other hand, are measures of how the recreational boating expenditures made by boaters affect a local or regional economy and the resulting effects on employment, and income to labor, management and property. Economic impact estimates are limited to direct impacts; multiplier impacts are not estimated in this study.

Often, economic values are State or National in scope because participants in an activity or users of a resource are statewide or national in scope. In the present case, most users of the Ottawa River area are people from the local area, so the economic value of dredging the Ottawa River and connecting channel to Lake Erie is generated locally. Economic impacts are nearly

always local even when economic values are state or national in scope. It is local businesses and their employees who are most affected by changes in use of a resource, even a national resource.

Overview of Surveys

Three surveys were conducted. For each survey, sample members received up to three mailings. First, they were mailed a copy of the questionnaire with cover letters from the Ottawa River Action Group and from the principal investigator along with a return envelope. If they did not respond within two weeks, they were mailed a post card reminding them to return their surveys. If they did not respond after four weeks, they were mailed a second questionnaire with a letter from the principal investigator and a return envelope. Action group members also followed up with area businesses to increase the response rate for the business survey.

A total of 301 recreational boaters who used the Ottawa River during 1998 were contacted at sites in Ohio and Michigan during late May through July of the 1998 boating season and asked for their address. These boaters then received the respective mailings on October 22, November 5 and November 19. Of the 301 boaters, 110 returned questionnaires for a response rate of 37 percent; 12 questionnaires could not be delivered. This survey is referred to as the *contact survey* (CS) throughout the report.

The second boater survey, called the *participant survey* (PS), was sent to 300 area boaters randomly selected from boat registration lists in Ohio and Michigan. Of the 300 boaters, 200 were randomly selected from Lucas (150), Fulton (25) and Wood (25) Counties, and 100 from Monroe County, Michigan. There were over 21,000 registered boats in these three Ohio counties and 11,000 in Monroe County, Michigan. Mailings were made on October 22, November 2 and November 19. A total of 58 responses were received for a response rate of 19 percent; 13 questionnaires could not be delivered.

A total of 77 area businesses were identified as recreation oriented, of which one was out of business at the time of the survey. The business owners/managers received mailings on October 13, October 27 and November 10, after which the co-investigator and members of the Action Group followed up with personal calls to increase the response rate. A total of 28 questionnaires were returned for a response rate of 37 percent.

Survey Highlights

Boater Surveys

The two boater surveys are highlighted in this section, and differences in respondent characteristics are pointed out. A complete tabulation of the two questionnaires is in Appendices A and B. We look at boat characteristics, trip frequency, boater expenditures, and demographics of boat-owning households.

Boat Characteristics

The typical respondent household in the *contact survey* (CS) owned 1.6 boats compared to 1.7 in the *participant survey* (PS). Respondents who owned more than one boat were asked to report on two boats. In the CS, 108 respondents reported primary boats and 46 reported second boats while in the PS, 55 respondents reported primary boats and 24 reported second boats.

Table 1 highlights boat characteristics reported by the two groups. For example in the CS, the largest group of the primary boats were cabin motor boats (65 percent), and the largest group of the second boats were inflatable (30 percent). In the PS, 27 percent of primary boats were cabin motor boats and 25 percent of second boats were open motor boats. Only 9 personal watercraft were reported in the two surveys combined which reflects the contaminated state of Ottawa River water. Fourteen sailboats were reported in the CS compared to 8 in the PS.

In the *contact (or user) survey*, propulsion systems were equally divided between inboard and inboard/outboard (I/O) drives for the primary craft (35 percent each) but second boats were dominated by outboards with 58 percent. The median length of primary boat was in the 26-32 foot class; the second boat was in the 14-16 foot class. In the *participant (or area boater) survey*, primary boats were comprised of 33 percent I/O and 26 percent outboard while 49 percent of second boats were outboard. The median length of the primary boats was 16-21 feet and of second boats 14-16 feet. The book values of the primary and second boats from the CS are substantially higher than the PS. A majority of CS primary boats are kept at the boating site both in season and off-season while a majority of CS second boats and both primary and second boats in the PS are kept at home.

Table 1: Boat Characteristics

Characteristics	Contact Survey		Participation Survey	
	Primary Boat	Second Boat	Primary Boat	Second Boat
Most frequent boat (%)	Cabin Motor (65)	Inflatable (30)	Cabin Motor (27)	Open Motor (25)
Propulsion-- 1 (%)	I/O (36)	Outboard (58)	I/O (33)	Outboard (40)
Propulsion-- 2 (%)	Inboard (35)	I/O (18)	Outboard (26)	Hand Power (26)
Median length, ft	26-32	14-16	16-21	14-16
Mean book value, \$	26,604	7,408	16,044	3,342
Most frequent location				
In Season (%)	Ottawa River Area (74)	At home (49)	At home (56)	At home (67)
Off-Season (%)	Ottawa River Area (57)	At home (74)	At home (53)	At home (67)
I/O= Inboard/Outboard				

Trip Frequency

The typical *contact survey* (CS) boater reported over 50 household trips during 1998 of which 33, or 66 percent, were to Ottawa River area sites. The typical *participant survey* (PS) boater reported about 26 trips during 1998 of which 5 were to Ottawa River area sites (Table 2). Only 24 of 53 respondents reported trips to the Ottawa River area, making about 11 such trips. However, 20 of 26 PS trips were to Lake Erie. In both surveys, about one in four trips was an overnight trip. The mean and median distances traveled were shorter for the *contact survey* (CS), but in both cases boaters did not travel far to their boating site. Ottawa River area boaters spent the largest amount of time cruising while the *participant survey* respondents spent the most time fishing.

In both surveys, the number of trips varied depending on where the boat was kept during the boating season. The joint response of boaters who answered both questions 13 (location of boat during boating season) and 19 (number of trips to the Ottawa River area) was tabulated. From the CS, 16 respondents kept their primary boat at home and made an average of 38 trips to Ottawa River area sites. This compares with 32 trips for 73 of the CS respondents who kept their primary boat docked at an Ottawa River area marina or club and 30 trips for 9 of the CS respondents who kept their primary boat at a marina or club somewhere else. In the PS, 28 respondents kept their primary boat at home and made an average of 18 trips to all sites. This compares with 8 PS respondents who kept their boat at an Ottawa River area site and made an average of 28 trips, and 16 PS respondents who kept their boat elsewhere and made an average of 41 trips. Thirteen PS respondents who kept their primary boat at home reported making 9 trips on average to Ottawa River area sites. The greatest difference in the two samples is in respondents who kept their primary boat at home, those in the CS made many more trips to Ottawa River area sites than PS respondents made to all sites.

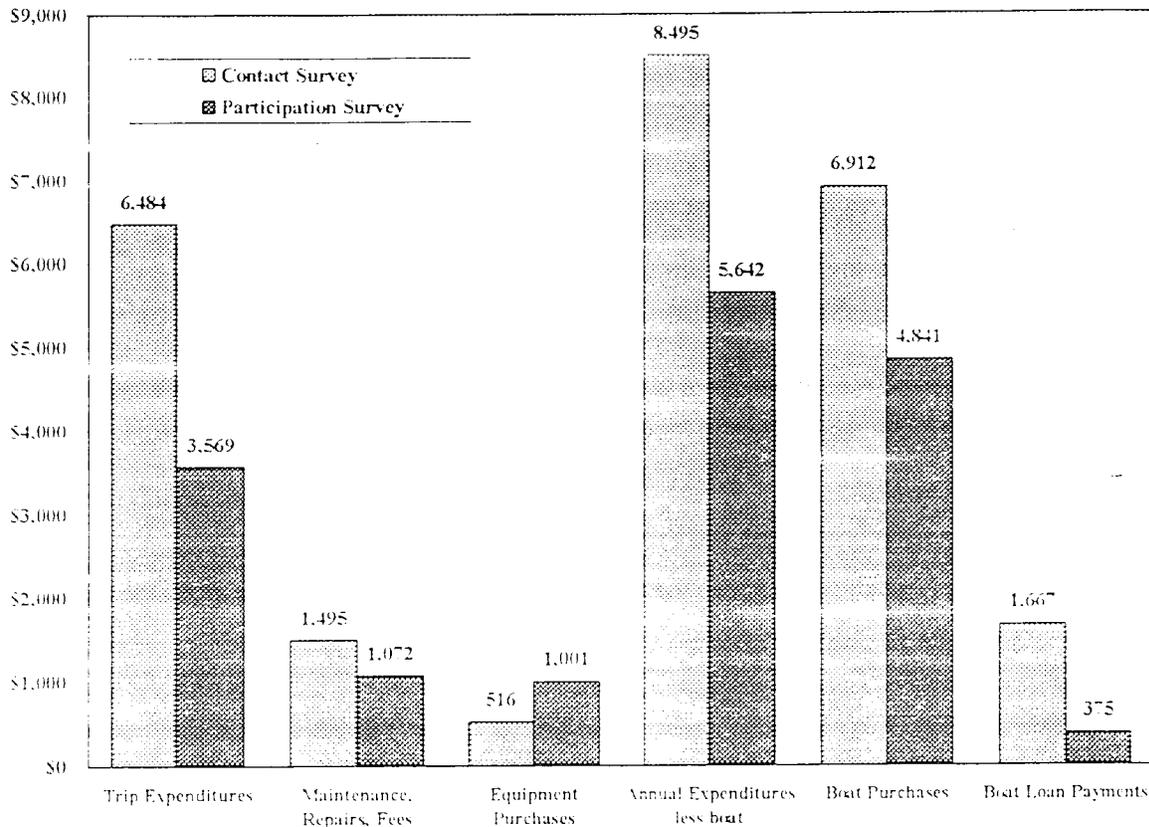
Table 2: Trip Characteristics

	Contact Survey	Participation Survey
Mean trips to Ottawa River Area	32.8	4.9
to other sites	17.7	21.3
Trip duration		
Day trips	29.3*	20.5
Overnight trips	9.6*	7.4
Distance traveled to site, mi.		
Median	less than 10*	10 to 20
Mean	13.6*	22.8
Primary activities (%)	Cruising (38)* Fishing (21)*	Fishing (41) Canoeing etc. (14)
*Ottawa River Area only		

Boater Expenditures

Average trip expenditures per household for Ottawa River area trips from the Ottawa River area *contact survey* (CS) were \$197.39 per trip, and at 32.8 trips per household, nearly \$6,500 per year (Figure 1). In addition, CS boaters spent about \$2,000 on maintenance, fees and repairs, and equipment purchases exclusive of boats, yielding household expenditures of nearly \$8,500 in 1998. By contrast, *participant survey* (PS) households spent \$135.41 per trip, and took 26.4 total trips for total trip expenditures of \$3,569. They spent an additional \$2,080 on maintenance, fees and repairs, and equipment purchases for total expenditures exclusive of boat purchases of nearly \$5,650.

Figure 1: Comparison of Contact and Participant Survey Boater Expenditures



Boat purchases added substantially to total boater expenditures in 1998. On average, user or CS respondents spent \$6,912 purchasing new or used boats compared to \$4,841 for area or PS respondents. Boat loan payments averaged \$1,667 from the CS survey compared to \$375 for PS survey respondents. Boat purchase revenues are only partially captured by boat dealers because about 85 percent of the price of a boat goes to the manufacturer distributor for new boats or to the previous owner in the case of used boats. The remaining 15 percent of boat purchases from area boat dealers represent services provided by the dealers and are direct economic impacts to the local economy; boat loans contribute to economic activity in the financial sector. Boater expenditures are graphically presented in Figure 1.

Contact survey respondents reported making 74 percent of their boating expenditures within the Ottawa River area. Thirty-four percent of *participant survey* respondents made 46 percent of expenditures within the area, or about 16 percent (0.74×0.46) of all respondent expenditures.

Demographics

Demographic details of the two sets of respondents are in Appendices A and B. The demographic characteristics of the two groups are very similar with respect to age, education level, household size, employment status and income, i.e., the background characteristics of these households are similar.

Business Survey

The *business survey* tabulation is found in Appendix C. The median business responding to the survey had sales of \$100,000 to 300,000 in 1997, or \$200,000 at the mid-point of this sales class. The median sized business is the central or middle business, i.e., of the 26 businesses reporting sales, the median business is the 13th or 14th business when ranked by sales. Using the mid-point of the sales classes, mean sales were about \$492,000. The mean is larger than the median because of 4 large businesses with sales between \$1 and 3 million. The typical business employs 7.3 permanent full-time, seasonal full-time and seasonal part-time people. Over one-half of the respondents reported that over 50 percent of gross revenues in 1997 were derived from Ottawa River area activity.

Property, income, workers comp, and unemployment taxes reported by the 28 responding businesses totaled \$253,441. In addition, 13 of these businesses reported collecting \$228,890 in sales taxes. The mean total book value reported by 17 of the businesses (real property, buildings, docks, equipment, inventory) was nearly \$450,000, with a replacement cost of about \$1 million. Because only 4 to 13 businesses reported itemized tax information, the fiscal contribution of these businesses is not estimated. Water depth and marina dredging needs were two top-ranked limitations to business expansion.

Seventeen responding businesses reported a total of 2,095 slips or docks compared to 2,172 at 16 marinas and yacht clubs reported earlier from a phone survey of marinas and yacht clubs by the co-investigator. Some of the docks reported in the survey are temporary docks which belong to restaurants or other facilities needing temporary dockage for boating customers. Fourteen of the respondents reported an average occupancy rate of 64 percent; three reported a waiting list. However, there is a wide variation in occupancy rates and the larger marinas tend to have higher occupancy rates. Lost Peninsula in particular has over one-third of the total docks and a high occupancy rate. As an alternative an occupancy rate weighted by number of docks was calculated. Thirteen of the 14 respondents reporting occupancy also reported numbers of docks; the weighted average occupancy rate for these 13 respondents is over 78 percent. Several facilities reported low occupancy rates because of low water, a condition which will get worse unless the river is dredged. Total boating households with docked boats in 1998 was estimated at 1,700 ($2,172 \times 0.78 = 1694$).

Key Results

The critical results of the study are those which are used to estimate the economic value and economic impacts of dredging the Ottawa River to current boaters using the river and to the potential of attracting additional boaters. These results are developed by focusing on each of the study objectives. Two results are needed for estimation of economic values and economic impacts of Ottawa River area activity. First, an estimate of Ottawa River area capacity is needed, which is the 2,172 docks reported by marinas, and the 1998 use of that capacity, which is the estimated 78 percent occupancy rate or 1,700 boating households (Table 3).

Second, an estimate of the use and capacity of the two ramps is needed. The estimated use during 1998 is the 3,000 launches estimated above. The average respondent in the *contact survey* (CS) made 33 trips to Ottawa River area sites; those who kept their primary boats at home made an average of 38 trips. Using 38 trips for these respondents, about 80 different CS boating

households account for these launches during 1998 (Table 3). However, *participant survey* (PS) respondents who kept their primary boats at home reported 9 trips to area sites, suggesting over 300 boating households could be making these 3,000 launches. Increased use must come from PS type respondents.

The private ramp does 50 launches per week while the public ramp does 75-80 launches over a 3-day weekend, which makes them appear to be greatly underutilized. The estimated capacity of these two ramps is easily 6,000 launches per year, double the estimated 3,000 in actual use (Table 3). An additional 300 boating households of the PS respondent type could easily be accommodated at these ramps, assuming they don't come at the same time.

Table 3: Values Used to Estimate Ottawa River Area Dock/Ramp Use and Capacity

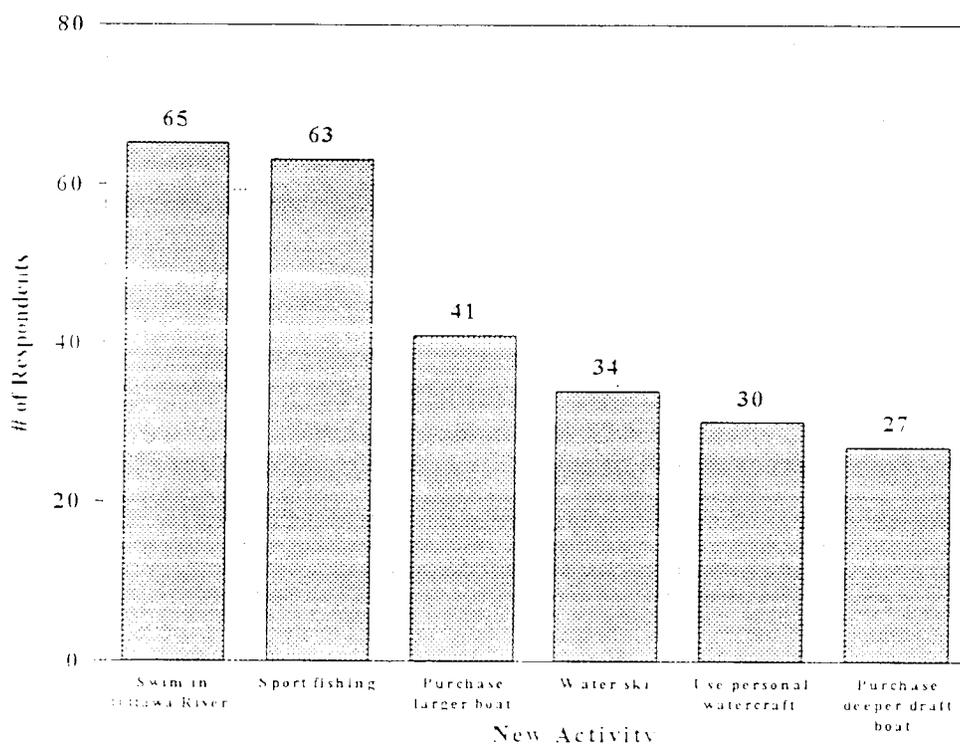
Factors	Value
Dock Capacity	2,172
1998 Dock Occupancy Rate (%)	78
1998 Dock Usage = # of Boater Households Using Docks	1,700
Current Unused Dock Capacity	470
# of Launches at Ramps per Boating Season	3,000
Launch Capacity at Ramps per Boating Season	6,000
Current Unused Launch Capacity	3,000
# of "Contact Survey" Households Using Ramps	80
# of "Participant Survey" Households Using Ramps	300
Total # of Michigan Registered Boats (Monroe County)	11,000
Total # of Ohio Registered Boats (Lucas, Wood and Fulton Counties)	21,000
Average # of Boats per Ottawa River Area Household	1.7
Total # of Boater Households (Monroe County)	6,500
Total # of Boater Households (Lucas, Wood and Fulton Counties)	12,000

Objective 1

Economic value of dredging the Ottawa River and a connecting channel to Lake Erie to recreational boaters who used the Ottawa River area during 1998. To accomplish objective 1, we use information from the section *Improving the Ottawa River Resource, questions 22-26, of the contact survey* (CS), Appendix A. Respondents indicated they would increase Ottawa River area trips by an average of 16.5 percent in response to dredging for safe recreational navigation (question 22) and by an average of 16 percent in response to dredging of contaminated sediments (question 24). From (22), 78 percent would increase trips by an average 21.2 percent while 22 percent would make no change for navigational dredging; from (24), 72 percent would increase trips by an average 22.2 percent while 28 percent would make no change. While these changes cannot be added, area boaters can be expected to increase trips to Ottawa River area sites by 15 to 20 percent (5 to 7 trips per year) in response to either navigational, environmental, or joint dredging.

Activity changes boaters would make in response to navigational and contaminated sediment dredging (question 26) suggest environmental dredging is of greater importance to more respondents than navigational dredging. Of 101 respondents, 65 would swim in the Ottawa River, 63 would sport fish, 41 would purchase a larger boat, 34 would water ski, 30 would use a personal watercraft, and 27 would purchase a boat with a deeper draft (Figure 2). Four of these six involve contact with water, activities currently prohibited because of contaminated water.

Figure 2: New Actions of Current Boaters in Response to Dredging



The responses to the willingness to pay questions suggest that navigational dredging has the greater value, however. In question 23, the median (or middle) respondent household would pay \$25 per year for 10 years for navigational dredging; the mean of responses is \$42.55. One-fourth of 104 respondents said they would not pay anything for navigational dredging. Both median and mean estimates are presented because it is the median that is used to design a referendum which would be expected to pass; it is also the more conservative estimate. For example, if a referendum on navigational dredging were designed for Ottawa River area boaters, one would expect a referendum which asked boaters to pay \$25 per year for 10 years to pass because the median voter is the last vote needed for a majority.

In question 25, the median respondent household would pay \$10 per year for 10 years for dredging to remove contaminated sediments from the Ottawa River; the mean willingness to pay is \$37.59. Thirty-one percent of respondents would not pay anything for contaminated sediment dredging.

Since respondents were asked for the maximum payment level for a 10-year period, the median and mean payments per year are then converted to the present value of an annuity for 10 years. At a discount (interest) rate of 5 percent, the present value of a one dollar annuity for 10 years is \$7.72. For navigational dredging, the present value of the median payment of \$25 is ($\25×7.72) \$193; the present value of the mean payment of \$42.55 is ($\42.55×7.72) \$328 (Table 4). For contaminated sediment dredging, the present value of the median payment of \$10 is ($\10×7.72) \$77, and the present value of the mean payments of \$37.59 is ($\37.59×7.72) \$290.

Since the navigational and contaminated sediment dredging estimates cannot be added, the larger of the two for navigational dredging is used to estimate total value. Multiplying the net present value of the median (\$193) or mean (\$328) willingness to pay by the 1,780 boating households who used the Ottawa River area during 1998 yields the total willingness to pay for navigational dredging of the Ottawa River and a channel to Lake Erie. The total of boating households is comprised of 1,700 who docked boats and 80 who used the two boat ramps. The total willingness to pay estimate for the median is ($\$193 \times 1,780$) \$343,540, and for the mean is ($\$328 \times 1,780$) \$583,840 (Table 4).

**Table 4: Estimated Economic Value of Dredging
Measured by Willingness To Pay***

Willingness-to-Pay	Navigational Dredging		Environmental Dredging	
	Per Household or Business	Ottawa River Area	Per Household or Business	Ottawa River Area
Current Users				
median	\$193	\$343,540	\$77	N/A
mean	\$328	\$583,840	\$290	N/A
Potential Users				
median	\$0	\$0	\$0	\$0
mean	\$39	N/A	\$62	\$47,740
Businesses				
median	\$772	\$58,672		
mean	\$1,513	\$114,988		

*Willingness To Pay = Present Value of the Annual Payment for the 10 Year Period Discounted at 5%

In addition to boating households, Ottawa River area businesses were asked how much they would be willing to pay each year for 10 years to have the river and connecting channel dredged for navigation and contaminated sediment removal (See *Business Survey*, Appendix C, question 25). The median willingness to pay was \$100 while the mean was \$196; 23 of 28 businesses responded. In question 26, 13 business respondents said navigation and contaminated

sediment removal were of equal importance, 7 said navigation was more important and 3 said contaminated sediment removal was more important.

Using the same 5 percent discount rate for 10 years which yields an annuity factor of 7.72, the present value of the median willingness to pay is $(\$100 \times 7.72)$ \$772 and the present value of the mean willingness to pay is $(\$196 \times 7.72)$ \$1,513. If these estimates apply to all 76 businesses, the willingness to pay for dredging is $(\$772 \times 76)$ \$58,672 at the median and $(\$1,513 \times 76)$ \$114,988 at the mean (Table 4).

Objective 2

Potential economic value of dredging the Ottawa River and a connecting channel to area recreational boaters who would use the Ottawa River area if dredged. To accomplish objective 2, information from the section *Improving the Ottawa River Resource, questions 22-26, of the participation survey (PS)*, Appendix B is used. Although there is some inconsistency in responses across questions 19a, 22, 23 and 25, it is concluded that about 40 percent of sample respondents used the Ottawa River area for boating during 1998; the responses of these users to the dredging alternatives are similar to those from the *contact survey*. Another 42 to 44 percent responded that they would not use the Ottawa River area even if it is dredged. The remaining 16 to 18 percent are potential users under the dredging alternatives. In (23) 18 percent (10 of 56) said they would use the area for 25 percent of trips (6 to 7 trips) if dredged for navigation. In (25), 16 percent (9 of 57) said they would use the area for 15 percent of trips (4 trips) if contaminated sediments were removed.

There is an obvious response bias in the *participant survey* with a much higher proportion of boaters who use the Ottawa River area responding than boaters who have no interest in the area. Lucas, Fulton and Wood Counties in Ohio have over 21,000 registered boats, which at 1.7 boats per household means there are over 12,000 boating households in these three counties. Monroe County, Michigan adds about 11,000 registered boats or nearly 6,500 boating households at 1.7 boats per household, yielding over 18,000 boating households within the area.

At capacity of about 2,172 docks, Ottawa River area marinas could accommodate about 12 percent of boater households. In addition, the two public ramps in the area could accommodate an additional 300 boaters, or 2 percent of area boating households. This leaves 86 percent who cannot be accommodated at current Ottawa River area facilities, in contrast to 60 percent of survey respondents. If it is further assumed that respondents to the PS who are interested in using the Ottawa River area responded at twice the rate as those who would not use it under any conditions, then the proportion of those who would use the area if dredged is reduced from 16-18 percent to 8-9 percent. Eight percent of 18,000 households is 1,400 potential households as users of Ottawa River area facilities, which far exceeds the current unused capacity of the area.

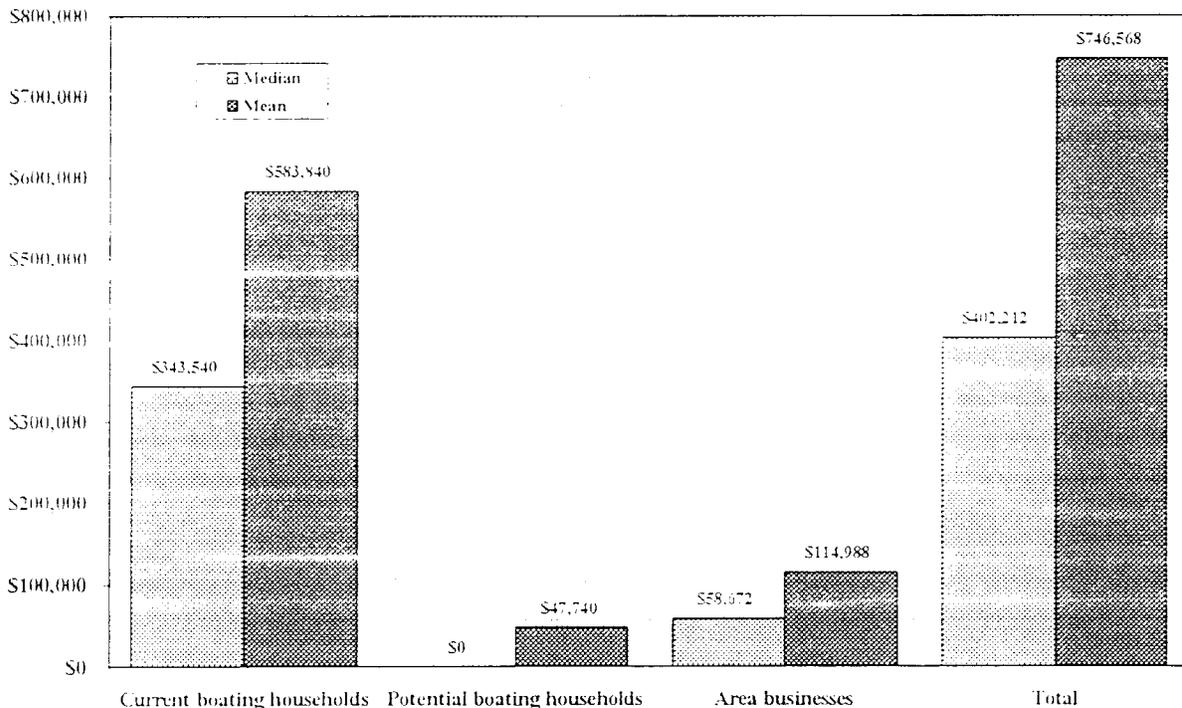
Unfortunately, these potential boaters are not willing to pay very much for dredging the Ottawa River and connecting channel to Lake Erie. Six of 10 would pay nothing for navigational dredging and 5 of 9 would pay nothing for environmental dredging. The resulting median willingness to pay from both types of dredging is zero. The median willingness to pay for both types of dredging is also zero for all sample respondents, i.e., more than 50 percent of

respondents said they would pay zero in each dredging question, because those who would never use the Ottawa River area would pay zero for its dredging. The mean willingness to pay for navigational dredging by the 10 potential users is \$5.00, and for environmental dredging by the 9 potential users is \$7.55. The mean willingness to pay by all respondents is much higher. (see Appendix B, questions 24 and 26), but is driven by the respondents who use the area and whose valuation is accounted for in the *contact survey* results above.

The net present value of the median willingness to pay per year is zero. The net present value of the mean willingness to pay for navigational dredging is ($\$5 \times 7.72$) \$39 and for environmental dredging is ($\$8 \times 7.72$) \$62 (Table 4).

The larger economic value of environmental dredging is used to estimate the total value as the product of the present value of the willingness to pay and the number of new boating households the Ottawa River area is able to absorb to reach capacity. This increase is estimated at 770 households, comprised of 470 households who would use the open docks and 300 additional households who keep their primary boats at home and trailer them to the public ramps. The estimated economic value of potential new users is zero at the median willingness to pay and ($\$62 \times 770$) \$47,740 at the mean willingness to pay.

Figure 3: Estimated Economic Value of Dredging Measured by Willingness To Pay:
Present Value of Annual Payment for 10-Year Period Discounted at 5 Percent



The estimated economic value of dredging the Ottawa River to current and potential boaters and to area businesses from objectives 1 and 2 is graphically presented in Figure 3. The total economic value is \$402,212 at the median and \$746,568 at the mean willingness to pay of respondents.

Objective 3

Direct economic and fiscal impacts of dredging the Ottawa River and connecting channel by recreational boaters who used the Ottawa River area during 1998. The direct economic and fiscal impacts of recreational boating in the Ottawa River area are comprised of boater expenditures in the area and the tax revenues generated by those expenditures. The direct economic and fiscal impacts of dredging are the expected new expenditures by current boaters as a result of navigational or environmental dredging. The impacts of new boaters are estimated under objective 4. The contact or user survey data on boater expenditures provides the basic information for direct economic impacts, supplemented by the business survey. Fiscal impact information comes primarily from the business survey, which unfortunately is poorly reported and not estimated.

From the *contact survey* (CS), the average boater household spent \$8,495 on boat trips to the Ottawa River area and on maintenance, fees and repair and equipment purchases (Figure 1). In addition each household spent an average of \$6,912 purchasing boats and \$1,667 on boat loan payments. Using information from questions 9 and 10, about one-third of the boats were purchased as new boats and about one-half were purchased from dealers (the remaining boats were purchased from other individuals). In addition, about 85 percent of the retail cost of new boats goes to the boat manufacturer and wholesaler, leaving 15 percent to be captured by the boat dealer or marina. For used boats sold by dealers, it is assumed that 85 percent of the price goes to the previous owner and 15 percent to the dealer. Since 50 percent of boats were purchased through dealers, 15 percent of the 50 percent of boats sold by dealers is included, or 7.5 percent of the boat purchases reported by survey respondents. This amount is $(\$6,912 \times 0.075) = \518 per household. The total estimated expenditure per boating household during 1998 is $\$8,495 + 518 = \$9,013$.

From this expenditure of \$9,013 per boating household who used the Ottawa River area during 1998, total expenditures can be estimated as the product of per household expenditure and the estimated number of households who used Ottawa River area facilities during 1998. This is $\$9,013 \times 1,780 = \$16,043,140$. In other words, area boaters are estimated to have spent \$16.0 million on Ottawa River area recreational boating trips during 1998. In addition, $(\$1,667 \times 1,780)$ nearly \$3.0 million was paid to financial institutions as boat loan payments.

However, not all of these expenditures were made at Ottawa River area businesses. The CS respondents indicated they made an average of 74 percent of their expenditures in the area. Expenditures made by these boaters in the local Ottawa River area economy are estimated at $(\$16,043,140 \times .74) = \11.9 million. The local share of boat loan payments is estimated at $\$3.0$ million $\times .74 = \$2.2$ million.

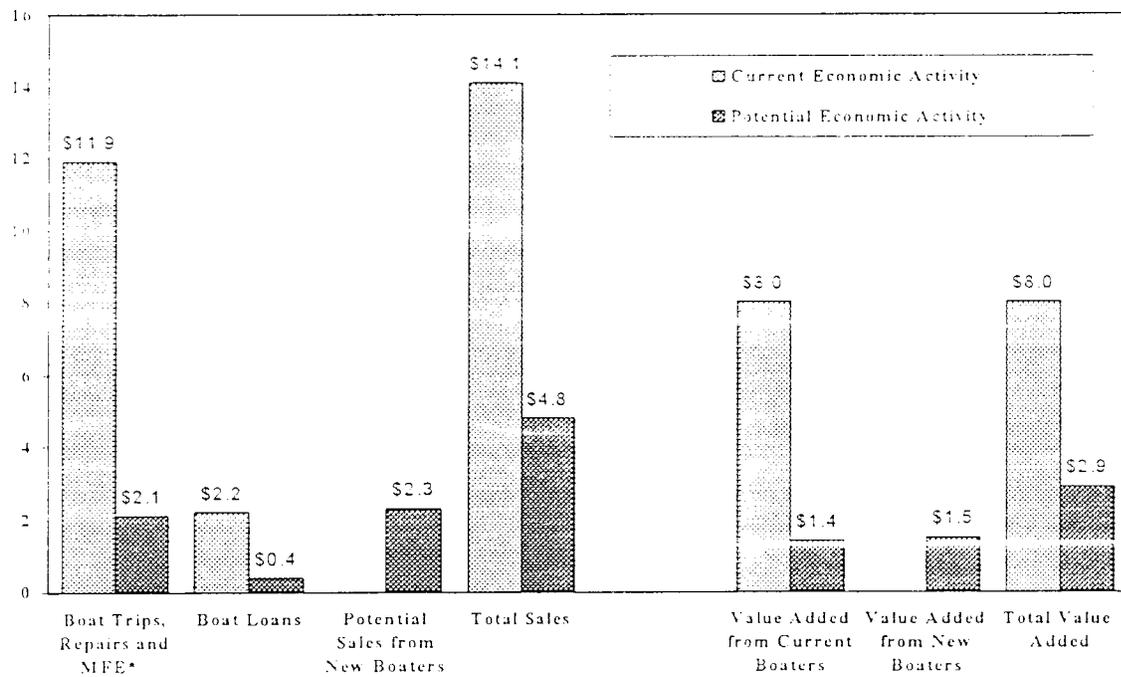
If Ottawa River area trips increase by 15 to 20 percent, then trip, maintenance, fees, repair and equipment expenditures are likely to increase by 15 to 20 percent, or by \$1.8 million to \$2.4 million, or about \$2.1 million. Initial impacts from boat purchases could be larger if boaters follow through by purchasing larger, deeper-draft boats. After the initial impacts, it is not clear that an increase of 15 to 20 percent would be maintained for boat purchases and boat loan payments. Boat loan payments would increase an expected \$330,000 to \$440,000, or about \$0.4 million.

The businesses which serve the Ottawa River area are for the most part labor intensive, i.e., depending on the business 50 to 85 percent of sales or revenues accrue as income to labor, management and property. At the midpoint, 67 percent, about \$8 million of the \$11.9 million of local boater expenditures accrues locally as wages to employees, as returns to management and as payments for real property and property taxes, i.e., this is called value added in economic impact models. An increase of \$2.1 million in expenditures from dredging would generate estimated value added (new wages and returns to management and real property) of \$1.4 million.

Objective 4

Direct economic and fiscal impacts of dredging the Ottawa River and connecting channel by area recreational boaters who would use the Ottawa River area if dredged. The direct economic and fiscal impacts of potential recreational boating households to the Ottawa River area are comprised of expenditures made by boaters attracted to the area as a result of dredging the river and the tax revenues generated by those expenditures. *The participant or area boater survey* data on boater expenditures provides the basic information for estimation of direct economic impacts. Fiscal impacts are not estimated. The estimated sales and value added (economic) impacts to the local economy of current and potential (if dredging occurs) boating activity from objectives 3 and 4 is shown in Figure 4.

Figure 4: Estimated Annual Sales and Value Added Impacts of Current and Potential Boating Activity (In Millions of Dollars)



From the PS, average boater expenditures for all trips; maintenance, fees and repair; and equipment are \$5,642. (Figure 1). In addition, these boaters spent on average \$4,841 on new boat purchases and \$375 on boat loan payments. Using information from questions 9 and 10, about 40 percent of boats were purchased new and 52 percent of boats were purchases from

dealers. Using the same approach used in objective 3, excluding 85 percent of the cost of boats as manufacturing cost or to previous owners, 15 percent of the 52 percent of boats sold by dealers is included, or 7.8 percent of the boat purchases reported by respondents. This amount is $(\$4,841 \times 0.078)$ \$378 per household. The total expected expenditure for boating during 1998 was $\$5,642 + 378 = \$6,020$. In addition, there are boat loan payments of \$375 per household.

New boaters will not make all of their trips to Ottawa River area sites. Current boaters made two-thirds of their 1998 trips to area sites. Nor will they make all their expenditures at area businesses for those trips they do make to the area. Current boaters made 74 percent of their expenditures at area businesses. Current boaters make close to 50 percent of their boating expenditures at Ottawa River area businesses (.66 of trips x .74 of expenditures) assuming that expenditures are proportional to trips. For discussion purposes, it is assumed that new boating households to the Ottawa River area would make 50 percent of their 1998 boating expenditures at area businesses, or \$3,010 per household.

To estimate the number of new boaters, two estimates are made. First, under the assumption that all unused docks would be utilized, it is estimated that new boating households would use all of the 470 unused docks, bringing 470 new boating households to the area. Second, it is assumed the two boat ramps double their use, adding 3,000 launches per year. At 18 trips per household for those who keep their boats at home, this means the ramps could serve an additional 300 households making one-half or 9 of their trips to area sites. The additional 770 households spending \$3,010 per household at area businesses would generate an estimated \$2.3 million in revenues or sales to area businesses. This estimated impact is similar in size to the increased activity of current users of Ottawa River area facilities. The local value added (wages, management, property income, taxes) would be similar to that generated by current boaters, i.e., about 67 percent or \$1.5 million.

Conclusions

Dredging the Ottawa River area and a connecting channel to Lake Erie would generate significant increases in the economic value of the Ottawa River area resource and increase

Table 5: Economic Value of Dredging the Ottawa River and a Connecting Channel to Lake Erie*

	Median	Mean
Current boating households	\$343,540	\$583,840
Potential boating households	0	47,740
Area businesses	58,672	114,988
Total	\$402,212	\$746,568
* Present Value for a 10 Year Period at Median and Mean Values of Dredging to Boaters and Businesses		

significantly the economic activity of area businesses. Economic value estimates are over \$400,000 at the median value reported by area boaters and businesses, and nearly \$750,000 at the mean values (Table 5).

These represent estimates of the present value of willingness to pay for dredging over and above recreational expenditures for Ottawa River area boating to improve the boating environment of the river for a 10 year period.

The estimated impacts on the local economy are the annual changes in sales or revenues resulting from dredging the river and connecting channel and the annual income from new jobs and profits as a result of these sales. Current sales are over \$14 million annually which generate \$8 million in value added income to labor, management and property. The estimated increase in economic activity is nearly \$5 million in annual sales and \$3 million in annual income (Table 6).

Table 6: Current and Expected New Annual Sales and Income Impacts of Dredging the Ottawa River and a Connecting Channel to Lake Erie

	Current Activity	New Activity
Sales		
Current boating households		
Trip, maint. repair, fees, equip.	\$11.9m	\$2.1m
Boat loans	2.2m	0.4m
Potential boating households		2.3m
Total Sales	\$14.1m	\$4.8m
Value added		
Current boating households		
Trip, maint. repair, fees, equip.	\$8.0m	\$1.4m
Boat loans	???	???
Potential boating households		1.5m
Total Sales	\$8.0m	\$2.9m

The estimates in Tables 5 and 6 are made under the assumption that the Ottawa River area would be used at current capacity after the dredging is completed. If the dredging does not occur, the \$11.9 million in current activity will erode as the river continues to silt over time, reducing the already limited navigation on the river. If the capacity of area facilities were increased through improvements of existing facilities or the construction of new ones, then the estimated economic value and economic impacts would be larger.

ACTION GROUP RECOMMENDATIONS

The Ottawa River Action Group of the Maumee RAP proposes to build local support for dredging the Ottawa River by presenting the result of this research to boaters, businesses and other stakeholders, as well as local, state, and federal government representatives and by pursuing the following actions in its dredging strategy over the next 18-24 months:

- Identify and obtain a local government sponsor to provide partial financial support for a dredging project. This will involve communicating with local and state officials initially and on a regular basis as progress is made.
- Develop a local revenue program for dredging with area marinas and yacht clubs based on current boaters willingness to pay for dredging. Initial steps include communicating with stakeholders to strengthen their willingness to join in a local sponsor partnership for environmental and navigational dredging. This will involve communicating with the stakeholder partnership as a whole, rather than target special interests.
- Request and develop the support of the Toledo Lucas County Port Authority Seaport Division for providing local disposal facilities for Ottawa River dredged material.
- Request and develop the financial support of the Army Corp of Engineers after local sponsorship has been determined and a commitment made
- Expand the support base for this project by seeking the involvement of new people representing the Ohio Division of Watercraft, banking community, colleges and universities, economic development agencies, and other private and public sector participation.
- Advertise progress and positive stakeholder attributes to the media.

APPENDIX A: RECREATIONAL BOATER CONTACT SURVEY TABULATIONS

1998 Ottawa River Area Recreational Boater Contact Survey

(N=110)

The Ottawa River Action Group is developing the case for dredging the Ottawa River Area for recreational use and sediment removal.

The purpose of this survey is to learn about your boating activities and the role of the Ottawa River, Halfway Creek or Hooper Run in your boating. The Ottawa River Area includes all recreational facilities on the Ottawa River plus those on Halfway Creek and Hooper Run in Southeastern Michigan which use the same channel to access Lake Erie.

Please answer all questions completely. All responses will remain completely confidential and will be reported only as averages; names and data for individuals will not be disclosed.

Your Boat(s)

1. How many boats do you or other members of your household own? 1-61 boats N=109
2. Of these boats, are you or other members of your household:
 - 106 Sole owner
 - 2 Co-owner with a person who is not a member of your household
 If co-owner, what is the percent of ownership?
40% (N=2)

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>
3. What is the type of boat (please check one)?		
a. Rowboat/Johnboat	3	3
b. Canoe/Kayak	0	3
c. Inflatable boat	0	14
d. Personal watercraft (Jet Ski, etc.)	3	3
e. Open motor boat	16	9
f. Cabin motor boat	70	9
g. Pontoon boat	0	1
h. Houseboat	2	0
i. Sailboat	12	2
j. Other (please specify) _____	2	2
N=	108	46

	<u>Boat #1</u>	<u>Boat #2</u>
4. What is the primary type of propulsion for this boat (please check one)?		
a. Gasoline engine, outboard	15	26
b. Gasoline engine, inboard	<u>38</u>	<u>5</u>
c. Gasoline engine, inboard/outboard	39	8
d. Gasoline engine, jet drive	<u>3</u>	<u>2</u>
e. Diesel engine	2	0
f. Air	<u>0</u>	<u>0</u>
g. Electric engine (e.g., trolling motor)	1	0
h. Sail/wind	<u>2</u>	<u>2</u>
i. Hand powered (oars, paddle, etc.)	<u>0</u>	<u>2</u>
	N= 107	45
5. What is the length of this boat in feet (please check one)?		
a. Less than 14 feet	1	20
b. 14 but less than 16 feet	<u>8</u>	<u>7</u>
c. 16 but less than 21 feet	16	9
d. 21 but less than 26 feet	<u>28</u>	<u>3</u>
e. 26 but less than 32 feet	26	5
f. 32 but less than 40 feet	<u>24</u>	<u>1</u>
g. 40 but less than 65 feet	0	0
h. 65 feet and over	<u>0</u>	<u>0</u>
	N= 107	45
6. What is the draft of this boat (please check one)?		
a. Less than 2 feet	15	32
b. 2 to 4 feet	<u>76</u>	<u>11</u>
c. 4 to 6 feet	14	3
d. Over 6 feet	<u>1</u>	<u>0</u>
	N= 106	46
7. What is the model year of this boat?	<u>1981</u> (N=107)	<u>1985</u> (N=46)
8. In what year was this boat purchased?	<u>1992</u> (N=106)	<u>1993</u> (N=45)
9. Was this boat purchased: new?	<u>22%</u>	50%
used?	<u>78%</u> (N=107)	<u>50%</u> (N=46)
10. Was this boat purchased: from a dealer/broker?	<u>45%</u>	<u>60%</u>
from another individual?	<u>55%</u> (N=107)	<u>40%</u> (N=45)
11. What was the purchase price of this boat, including all accessories (trailer, fish finder, etc.)	<u>\$28,276</u> (N=94)	<u>\$7,674</u> (N=39)
12. What is the estimated current book value of this boat, including all accessories?	<u>\$26,604</u> (N=93)	<u>\$7,408</u> (N=36)
13. During the boating season, where is this boat usually kept (please check one)?		
a. at home	18	22
b. at an Ottawa River Area marina or club	79	18
c. at a marina or club elsewhere	<u>10</u>	<u>2</u>
	107 = N =	45

	<u>Boat #1</u>	<u>Boat #2</u>
14. During the 1998 boating season, in what location was this boat usually kept?		
City	<u>L=Lucas, M=Monroe, O=Other</u>	
County	<u>L(66) M(15) O(2)</u>	<u>L(24) M(5) O(3)</u>
State Ohio	81	33
Michigan	23	11
Other(Please list)	<u>1(IN)</u>	<u>1(IN)</u>
	105 = N =	45
15. During the off-season, where is this boat usually kept (please check one)?		
a. at home	30	34
b. in dry storage at an Ottawa River Area marina, club or other storage facility?	60	6
c. moored/docked elsewhere	3	1
d. in dry storage elsewhere	<u>12</u>	<u>5</u>
	105 = N =	46
16. During the 1998-99 off-season, in what location will this boat be kept?		
City	<u>L=Lucas, M=Monroe, O=Other</u>	
County	<u>L(59) M(17) O(5)</u>	<u>L(22) M(7) O(3)</u>
State Ohio	76	31
Michigan	27	12
Other(Please list) _____	<u>1(IN)</u>	<u>1(IN)</u>
	104 = N =	44
17. Is this boat (please check one):		
a. titled and registered in Ohio?	<u>77</u>	<u>32</u>
b. titled and registered in Michigan	<u>27</u>	<u>11</u>
c. documented?	3	1
d. Other _____	<u>11</u>	<u>1</u>
	107 = N =	44
18. When do you expect to replace this boat (check the most likely)?		
a. within 3 years	41	8
b. in 3 to 5 years	<u>27</u>	<u>11</u>
c. in 6 to 10 years	16	6
d. more than 10 years	3	3
e. not at	<u>19</u>	<u>16</u>
	106 = N =	44

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

19. How many boating trips or outings did you or 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 your dock or not..)

0 None

(N=99) 32.8 # of trips TO OTTAWA RIVER AREA (including Halfway Creek and Hooper Run)

(N=101) 17.7 # of trips TO OTHER SITES

19a. Of your OTTAWA RIVER AREA trips only *how many* were:
14.5 **overnight trips** (A trip where you used your boat and stayed away from home for
 (N=62) one or more nights)?
29.3 **day trips** (A trip where you left home, used your boat, and returned on the same
 (N=94) day)?
 (The sum should equal total OTTAWA RIVER AREA TRIPS)

19b. On average, how many nights did you stay on an **overnight trip** to the OTTAWA RIVER AREA (question 19a)?
2.4 # of nights (N=55)

19c. What was the length in hours of your typical OTTAWA RIVER AREA **day trip**, question 19a (from when you left home to when you returned)?
3.7 hours (N=74)

20. How many miles were traveled from your home by you or other household members, **ONE WAY**, to your most frequent OTTAWA RIVER AREA boating site?
56 a. less than 10 miles N=108
42 b. 10 to 20 miles
6 c. 21 to 40 miles Mean = 13.6 miles
1 d. 41 to 70 miles
2 e. 71 to 100 miles
1 f. more than 100 miles

21. Please break down total boating time on OTTAWA RIVER AREA trips during 1998 into the following activities:
21.2 % Fishing 4 reported 90-100%
2.2 % Water skiing, knee boarding, etc.
1 % Scuba diving, snorkeling, etc. N=103
4.0 % Swimming
2.7 % Using a personal watercraft
6.2 % Canoeing, kayaking, rowing
27.3 % Cruising 15 reported 90-100%
4.2 % Sailing
5.3 % Sailboat racing
18.8 % Overnight on board 8 reported 75-100%
4.1 % Other (Please specify) _____

Improving the Ottawa River Resource

22. If the Ottawa River and the connecting channel to Lake Erie were dredged to depths needed for safe recreational navigation of your boat, how would the number of trips made by your household from Ottawa River Area locations **CHANGE** from use during 1998? (Designate your **ONE** most likely action) (35)
85 a. Increase by (**circle one**) 1%, 5%, 10%, 15%, 25%, more than 25% Mean=21.2%
24 b. No change
0 c. Decrease by (**circle one**) 1%, 5%, 10%, 15%, 25%, more than 25%

23. The dredging of the Ottawa River and navigation channel for safe boating will require a local financial share of the dredging costs. Please check the largest amount you would be willing to pay EACH YEAR FOR 10 YEARS to help finance navigational dredging.

- | | | |
|-------------------|------------------------------|---|
| <u>26</u> a. \$0 | <u>3</u> g. \$75 | N=104
Mean=\$42.55
Median = \$25 |
| <u>5</u> b. \$3 | <u>20</u> h. \$100 | |
| <u>6</u> c. \$5 | <u>0</u> i. \$150 | |
| <u>8</u> d. \$10 | <u>1</u> j. \$200 | |
| <u>11</u> e. \$25 | <u>2</u> k. over \$200 (250) | |
| <u>22</u> f. \$50 | | |

24. If the Ottawa River were dredged to remove all known contaminated sediments from the river, how would the number of trips made by your household from Ottawa River Area locations CHANGE from use during 1998? (Designate your ONE most likely action)

(35)

- | | |
|--|-------------------|
| <u>76</u> a. Increase by (circle one) 1%, 5%, 10%, 15%, 25%, more than 25% | Mean=22.2% |
| <u>29</u> b. No change | |
| <u>0</u> c. Decrease by (circle one) 1%, 5%, 10%, 15%, 25%, more than 25% | |

25. The dredging of contaminated sediments from the Ottawa River will also require a local financial share of the dredging costs. Please check the largest amount you would be willing to pay EACH YEAR FOR 10 YEARS to help finance removal of contaminated sediments (independent of the navigational dredging project).

- | | | |
|-------------------|------------------------|---|
| <u>32</u> a. \$0 | <u>1</u> g. \$75 | N=102
Mean=\$37.59
Median=\$10 |
| <u>6</u> b. \$3 | <u>16</u> h. \$100 | |
| <u>4</u> c. \$5 | <u>0</u> i. \$150 | |
| <u>12</u> d. \$10 | <u>2</u> j. \$200 | |
| <u>10</u> e. \$25 | <u>2</u> k. over \$200 | |
| <u>17</u> f. \$50 | | |

26. If the Ottawa River were dredged to depths needed for safe recreational navigation and elimination of contaminated sediments, which of the following changes would you undertake as NEW ACTIONS (check all that apply)

- | | |
|--|----------------|
| <u>41</u> a. Purchase a larger boat | (N=101) |
| <u>27</u> b. Purchase a boat with deeper draft | |
| <u>34</u> c. Water ski on the Ottawa River | |
| <u>30</u> d. Use a personal watercraft on the Ottawa River | |
| <u>65</u> e. Swim in the Ottawa River | |
| <u>11</u> f. Sail on the Ottawa River | |
| <u>16</u> g. Canoe, kayak or row on the Ottawa River | |
| <u>63</u> h. Sport fish in the Ottawa River | |
| <u>9</u> i. Other (please list) _____ | |

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

27. Please estimate your household expenses for *a typical trip* reported in 19 to the OTTAWA RIVER AREA during October 1, 1997 to September 30, 1998, and the percent spent at businesses in the OTTAWA RIVER AREA: (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, Ottawa River Area
Lodging (hotel, camping etc.)	\$4.11	% Alternate calculation
Restaurant meals	<u>\$49.35</u>	% sum of (trips *
Entertainment	\$15.55	% exp/trip) divided by
Groceries, misc food purchases	<u>\$19.14</u>	% # of respondents =
Fishing supplies	\$8.82	% \$6,837.27 total trip
Boat launch fees	<u>\$2.27</u>	% expenditures (N=84)
Transient overnight docking fees	\$7.98	%
Race/regatta fees	<u>\$4.42</u>	% Exp. trip = \$208.15
Equipment rental	\$0	%
Other boat trip supplies	<u>\$8.87</u>	%
Boat fuel costs	<u>\$70.28</u>	%
Pump out	\$.60	%
Transportation to/from boat site	<u>\$3.89</u>	%
Other _____	<u>\$2.11</u>	%
	\$197.39 (N=95) X 32.8 trips = \$6,483.95	

28. Please estimate your total household boat-related expenses from October 1, 1997 to September 30, 1998.

Type of Expense	Maintenance, Repairs, Fees	Purchases
Purchase of Boat		<u>\$6,912</u>
Boat Loan Payment	<u>\$1,667</u>	
Hull repair bottom paint	\$88	
Engine outdrive, props	<u>\$171</u>	<u>\$120</u>
Electronics, batteries	\$51	\$64
Sails/rigging/covers	<u>\$55</u>	<u>\$85</u>
Trailer, car racks	\$24	\$10
Boat equipment & supplies (paddles, life vests, wetsuits, etc.)	<u>\$43</u>	<u>\$98</u>
Fishing equipment (rods, reels, nets, downriggers, etc.)	\$35	\$35
Waterskiing equipment	<u>\$0</u>	<u>\$8</u>
Other equipment (scuba gear, coolers, grills, etc.)	\$9	\$53

28. Continued

Type of Expense	Maintenance, Repairs, Fees	Purchases	
Seasonal slip rental	\$267		
Winterization & storage	\$164		
Boat/yacht club fees	<u>\$152</u>	<u>\$37</u>	
Miscellaneous marina services (utilities, haul-out, etc.)	\$28		
Insurance	<u>\$303</u>		
Taxes/licenses	\$86		
Education/instruction	<u>\$2</u>		
Magazines/publications	\$13		
Other(please list)			
	<u>\$5</u>	<u>\$0</u>	
<u>(N=95)</u>	<u>\$3,162</u>	<u>\$7,428</u>	w boat
	\$1,495	\$516	w/o boat

29. What percent of your household boat-related expenses were made at Ottawa River Area (including Halfway Creek and Hooper Run) businesses?
74 percent (N = 95)

Please tell us about you

30. What is your age? 49 years

31. What is your gender? 7 Female 100 Male

32. What is your education level?

- 7 a. less than high school graduate N=106
- 33 b. high school graduate
- 37 c. some college
- 16 d. bachelors degree
- 13 e. graduate or professional degree

33. What is your current marital status?

- 24 a. single N=107
- 81 b. married
- 2 c. widowed

34. Including yourself, how many persons reside in your household?

2.5 # of people N=104

35. What is your employment status?

- 79 a. employed full-time N=107
- 6 b. employed part-time
- 2 c. unemployed
- 20 d. retired

36. What was your approximate household income, before taxes, in 1997?

<u>4</u>	a. less than \$10,000	<u>27</u>	e. \$60,001-80,000	
6	b. \$10,000-25,000	13	f. \$80,001-110,000	N=96
<u>16</u>	c. \$25,001-40,000	<u>7</u>	g. \$110,001-150,000	Mean=\$66,458
19	d. \$40,001-60,000	4	h. over \$150,000	

37. Where do you get your information on the Ottawa River and recreational boating?

	<u>Ottawa River</u>	<u>Boating</u>
a. television	<u>37</u>	<u>25</u>
b. radio	16	15
c. marine radio	<u>28</u>	<u>27</u>
d. internet access	6	11
e. daily newspaper	<u>45</u>	<u>30</u>
f. weekly/monthly newspaper	10	17
g. 1-800-Buckeye	<u>1</u>	<u>1</u>
h. other (please specify) _____	20	19

Please provide your comments and concerns about this survey or about recreational boating in the Ottawa River Area.

Thank you for completing this survey. Please complete the West Marine form for your discount coupon and entry into the gift certificate drawing and return in the attached envelop.

Leroy J. Hushak
 Principal Investigator
 OHIO SEA GRANT
 1314 Kinnear Road
 Columbus, OH 43212
 614-292-3548

ottawacont

APPENDIX B: RECREATIONAL BOATER PARTICIPANT SURVEY TABULATIONS

1998 Ottawa River Area Recreational Boater Participation Survey

(N = 58)

The Ottawa River Action Group is developing the case for dredging the Ottawa River Area for recreational use and sediment removal. The purpose of this survey is to learn about your boating activities and whether the Ottawa River, Halfway Creek or Hooper Run play or could play a role. The Ottawa River Area includes all recreational facilities on the Ottawa River plus those on Halfway Creek and Hooper Run in Southeastern Michigan which use the same channel to access Lake Erie.

Please answer all questions completely. All responses will remain completely confidential and will be reported only as averages; names and data for individuals will not be disclosed.

Your Boat(s)

1. How many boats do you or other members of your household own? 1.7 boats
2. Of these boats, are you or other members of your household
 - 5.5 Sole owner
 - 1 Co-owner with a person who is not a member of your household
 If co-owner, what is the percent of ownership?
50%

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>
3. What is the type of boat (please check one)?		
a. Rowboat/Kinibout	<u>3</u>	<u>4</u>
b. Canoe/Kayak	<u>9</u>	<u>5</u>
c. Inflatable boat	<u>2</u>	<u>1</u>
d. Personal watercraft (Jet Ski, etc.)	<u>2</u>	<u>1</u>
e. Open motor boat	<u>14</u>	<u>6</u>
f. Cabin motor boat	<u>15</u>	<u>2</u>
g. Pontoon boat	<u>1</u>	<u>0</u>
h. Houseboat	<u>0</u>	<u>0</u>
i. Sailboat	<u>4</u>	<u>4</u>
j. Other (please specify) _____	<u>5</u>	<u>1</u>
Sum	<u>55</u>	<u>24</u>

	<u>Boat #1</u>		<u>Boat #2</u>
4. What is the primary type of propulsion for this boat (please check one)?			
a. Gasoline engine, outboard	15		7
b. Gasoline engine, inboard	<u>8</u>		<u>1</u>
c. Gasoline engine, inboard/outboard	10		2
d. Gasoline engine, jet drive	<u>1</u>		<u>2</u>
e. Diesel engine	1		1
f. Air	<u>0</u>		<u>0</u>
g. Electric engine (e.g., trolling motor)	4		1
h. Sail/wind	<u>1</u>		<u>3</u>
i. Hand powered (oars, paddle, etc.)	<u>8</u>		<u>6</u>
	57	= N =	23
5. What is the length of this boat in feet (please check one)?			
a. Less than 14 feet	8		6
b. 14 but less than 16 feet	<u>1</u>		<u>3</u>
c. 16 but less than 21 feet	20		9
d. 21 but less than 26 feet	<u>13</u>		<u>2</u>
e. 26 but less than 32 feet	7		0
f. 32 but less than 40 feet	<u>5</u>		<u>0</u>
g. 40 but less than 65 feet	0		1
h. 65 feet and over	<u>0</u>		<u>0</u>
	57	= N =	24
6. What is the draft of this boat (please check one)?			
a. Less than 2 feet	24		16
b. 2 to 4 feet	<u>22</u>		<u>6</u>
c. 4 to 6 feet	5		1
d. Over 6 feet	<u>2</u>		<u>0</u>
	53	= N =	23
7. What is the model year of this boat?	<u>1984.5</u>		<u>1981.7</u>
	57 = N =		22
8. In what year was this boat purchased?	<u>1992.2</u>		<u>1990.3</u>
	56 = N =		23
9. Was this boat purchased: new?	42%		38%
used?	<u>58%</u>		<u>62%</u>
	57 = N =		24
10. Was this boat purchased: from a dealer/broker?	58%		42%
from another individual?	<u>42%</u>		<u>58%</u>
	57 = N =		24
11. What was the purchase price of this boat, including all accessories (trailer, radio, etc.)	<u>\$16,874</u>		<u>\$3,913</u>
	48 = N =		19
12. What is the estimated current book value of this boat, including all accessories?	<u>\$16,044</u>		<u>\$3,342</u>
	42 = N =		18
13. During the boating season, where is this boat usually kept (please check one)?			
a. at home	32		16
b. at an Ottawa River Area marina or club	8		2
c. at a marina or club elsewhere	<u>17</u>		<u>6</u>
	57 = N =		24

	<u>Boat #1</u>	<u>Boat #2</u>
14. During the 1998 boating season, in what location was this boat usually kept?		
City	<u>L=Lucas, M=Monroe, O=Other</u>	
County	<u>L(31), M(8), O(9)</u>	<u>L(8), M(5), O(6)</u>
State Ohio	40	15
Michigan	<u>14</u>	<u>9</u>
Other(Please list) _____	_____	_____
	54 = N =	24
15. During the off-season, where is this boat usually kept (please check one)?		
a. at home	30	16
b. in dry storage at an Ottawa River Area marina, club or other storage facility?	<u>7</u>	<u>1</u>
c. moored/docked elsewhere	0	0
d. in dry storage elsewhere	<u>1</u>	<u>1</u>
	57 = N =	24
16. During the 1998-99 off-season, in what location will this boat be kept?		
City	<u>L=Lucas, M=Monroe, O=Other</u>	
County	<u>L(27), M(9), O(9)</u>	<u>L(8), M(6), O(5)</u>
State Ohio	38	16
Michigan	<u>14</u>	<u>8</u>
Other(Please list) _____	_____	_____
	52 = N =	24
17. Is this boat (please check one):		
a. titled and registered in Ohio?	44	16
b. titled and registered in Michigan	<u>12</u>	<u>5</u>
c. documented?	0	1
d. other _____	<u>1</u>	<u>2</u>
	57 = N =	24
18. When do you expect to replace this boat (check the most likely)?		
a. within 3 years	14	3
b. in 3 to 5 years	<u>13</u>	<u>6</u>
c. in 6 to 10 years	6	3
d. more than 10 years	2	4
e. never	<u>21</u>	<u>9</u>
	56 = N =	25

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

19. What is the total number of boating trips or outings you or other household members took 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 your dock or not.)

26.4 # of trips N = 53

19a. Of the total number of trips reported in question 19 above please indicate the following:
4.9/10.9 # of trips to OTTAWA RIVER AREA (include Halfway Creek and Hooper Run) N = 53/24*

21.3/22.6 # of trips to ALL OTHER SITES N = 53/50*

(The sum should equal total trips reported in question 19)

*Trips per all respondents/Trips per respondent reporting at least one trip

Reporting 19b. How many of your total trips were to each of the following types of water bodies?
 41 20.3 # of trips to Lake Erie (include tributaries such as the Ottawa River Area)
 8 0.2 # of trips to another Great Lake (please list) _____
 16 4.1 # of trips to inland lakes
 14 1.7 # of trips to inland rivers or streams
 4 0.6 # of trips to other water bodies (please list) _____
 N = 51 (The sum should equal total trips reported in question 19)

19c. In what locations did your household boating trips or outings occur most frequently?

	State	County	City/Town	# of trips
Most frequent	<u>O(40)M(10)</u>	<u>L(28)M(5)</u>	<u>O(10)</u>	<u>19.7(40)/17.5(53)</u>
2 nd most frequent	<u>O(15)M(13)</u>	<u>L(9)M(3)</u>	<u>O(12)</u>	<u>6.8(30)/3.9(53)</u>
3 rd most frequent	<u>O(10)M(6)</u>	<u>L(4)M(2)</u>	<u>O(3)</u>	<u>3.2(19)/1.1(53)</u>

(The sum should equal total trips reported in question 19)

O=Ohio, M=Michigan, L=Lucas, M=Monroe, O=Other

19d. Of your total trips in question 19 above, *how many* were:

10.2 **overnight trips** (A trip where you used your boat and stayed away from home for
 N = 35 one or more nights)?

20.5 **day trips** (A trip where you left home, used your boat, and returned on the same
 N = 48 day)?

(The sum should equal total trips reported in question 19)

19d/. On average, how many nights did you stay on an **overnight trip** (question 19d)?

2.1 # of nights N = 32

19d//. What was the length in hours of your typical **day trip**, question 19c (from when
 you left home to when you returned)?

7.1 # of hours N = 47

20. How many miles were traveled from your home by you or other household members, ONE
 WAY, to your most frequent boating site?

24 a. less than 10 miles	4 e. 71 to 100 miles	Mean=22.8
12 b. 10 to 20 miles	0 f. 101 to 150 miles	N=57
11 c. 21 to 40 miles	0 g. 151 to 200 miles	
6 d. 41 to 70 miles	0 h. more than 200 miles	

21. Please breakdown total boating time on trips from October 1, 1997 to September 30, 1998
 into the following activities (Sum should equal 100%):

40.6 % Fishing 14 reported 90-100%
10.0 % Water skiing, knee boarding, etc.
9.2 % Scuba diving, snorkeling, etc.
3.1 % Swimming
1.3 % Using a personal watercraft N = 54
13.5 % Canoeing, kayaking, rowing
13.3 % Cruising
3.9 % Sailing
1.1 % Sailboat racing
12.1 % Overnight on board
0.9 % Other (Please specify) _____

Improving the Ottawa River Resource

22. Which of the following statements best reflects current and past use of the Ottawa River, Halfway Creek and Hooper Run by you and other members of your household? Circle the best answer.

- 18 a. We currently boat in one or more of these bodies of water.
 22 b. We have never boated in any Ottawa River area water body.
 16 c. We boated in one or more of these water bodies in the past, but no longer do. Please state why: _____

N = 56

23. If the Ottawa River and the connecting channel to Lake Erie were dredged to depths needed for safe recreational navigation of your boat, how would the number of trips made by your household from Ottawa River Area locations CHANGE from use during 1998? (Designate your ONE most likely action)

- 24 a. did not use the Ottawa River Area during 1998 and would not use it if dredged.
 10 b. did not use the Area during 1998 but if dredged would use it for 25.1 % of trips
 20 c. used the Area in 1998 and if dredged would INCREASE trips by
 (circle one) 1%, 5%, 10%, 15%, 25%, more than 25% Mean = +20%
 2 d. used the Area in 1998 and would make no change
 0 e. used the Area in 1998 and if dredged would DECREASE trips by
 (circle one) 1%, 5%, 10%, 15%, 25%, more than 25%

N = 56

24. The dredging of the Ottawa River and navigation channel for safe boating will require a local financial share of the dredging costs. Please check the largest amount you would be willing to pay EACH YEAR FOR 10 YEARS to help finance navigational dredging.

- | | | |
|----------------------|-----------------------------------|--------------|
| 34 <u> </u> a. \$0 | 1 <u> </u> g. \$75 | Mean=\$20.80 |
| 3 <u> </u> b. \$5 | 2 <u> </u> h. \$100 | Median=\$0 |
| 4 <u> </u> c. \$5 | 0 <u> </u> i. \$150 | N = 55 |
| 4 <u> </u> d. \$10 | 2 <u> </u> j. \$200 | |
| 2 <u> </u> e. \$25 | 1 <u> </u> k. over \$200 (=250) | |
| 2 <u> </u> f. \$50 | | |

25. If the Ottawa River were dredged to remove all known contaminated sediments from the river, how would the number of trips made by your household from Ottawa River Area locations CHANGE from use during 1998? (Designate your ONE most likely action)

- 25 a. did not use the Ottawa River Area during 1998 and would not use it if dredged.
 9 b. did not use the Area during 1998 but if dredged would use it for 15.2 % of trips
 20 c. used the Area in 1998 and if dredged would INCREASE trips by
 (circle one) 1%, 5%, 10%, 15%, 25%, more than 25% Mean=+17.4%
 3 d. used the Area in 1998 and would make no change
 0 e. used the Area in 1998 and if dredged would DECREASE trips by
 (circle one) 1%, 5%, 10%, 15%, 25%, more than 25%

N = 57

26. The dredging of contaminated sediments from the Ottawa River will also require a local financial share of the dredging costs. Please check the largest amount you would be willing to pay EACH YEAR FOR 10 YEARS to help finance removal of contaminated sediments (independent of the navigational dredging project).

<u>32</u> a. \$0	<u>1</u> g. \$75	Mean=\$21.00
<u>3</u> b. \$3	<u>4</u> h. \$100	Median=\$0
<u>3</u> c. \$5	<u>0</u> i. \$150	N = 54
<u>6</u> d. \$10	<u>1</u> j. \$200	
<u>1</u> e. \$25	<u>1</u> k. over \$200 (=250)	
<u>2</u> f. \$50		

Your 1998 Household Boating Expenses

(October 1, 1997 to September 30, 1998)

27. Please estimate your household expenses for a typical trip or outing made from October 1, 1997 to September 30, 1998, and the percent spent at businesses in the boating site area. (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 Site
Lodging (hotel, camping etc.)	\$ 4.88	% Alternate calculation
Restaurant meals	\$ 27.89	% Sum of (trips X
Entertainment	\$ 5.60	% exp/trip) divided by
Groceries, misc food purchases	\$19.20	% # of respondents
Fishing supplies	\$12.42	% = \$3,4\$1.66 total
Boat launch fees	\$ 3.11	% trip expenditures
Transient overnight docking fees	\$ 9.11	%
Race/regatta fees	\$ 1.11	%Exp trip = \$132.09
Equipment rental	\$ 1.22	%
Other boat trip supplies	\$ 3.11	%
Boat fuel costs	\$38.18	%
Pump out	\$.96	%
Transportation to/from boat site	\$ 8.36	%
Other	\$.27	%

135.41 (N=45) X 26.4 trips=\$3,569.23 total trip expenditures

28. Please estimate your total household boat-related expenses between October 1, 1997 and September 30, 1998.

Type of Expense	Maintenance, Repairs, Fees	Purchases
Purchase of Boat		\$ 4,841.11
Boat Loan Payment	\$374.80	
Hull repair/bottom paint	\$129.11	
Engine/outdrive/props	\$118.76	\$ 165.00

28. Continued

Type of Expense	Maintenance, Repairs, Fees	Purchases
Electronics/batteries	\$ 10.93	\$115.29
Sails/rigging/covers	<u>\$ 26.67</u>	<u>\$ 23.33</u>
Trailer/car racks	\$ 6.31	\$ 7.11
Boat equipment & supplies (paddles life vests, wetsuits, etc.)	<u>\$ 22.43</u>	<u>\$ 70.51</u>
Fishing equipment (rods, reels, nets, downriggers, etc.)	\$ 11.22	\$289.44
Waterskiing equipment	<u>\$ 7.33</u>	<u>\$ 24.44</u>
Other equipment (scuba gear, coolers, grills, etc.)	\$ 15.67	\$ 45.53
Seasonal slip rental	<u>\$105.27</u>	
Winterization & storage	\$164.11	
Boat yacht club fees	<u>\$ 64.78</u>	<u>\$225.56</u>
Miscellaneous marina services (utilities, haul-out, etc.)	\$ 65.33	
Insurance	<u>\$201.71</u>	
Taxes/licenses	\$ 49.75	
Education/instruction	\$ 1.67	
Magazines/publications	<u>\$ 12.46</u>	
Other(please list)		
	<u>\$ 22</u>	<u>\$ 35.07</u>
	<u>\$1,481.36 (N=45)</u>	<u>\$5,842.40(N=45)</u>
	Sum=\$1,071.74	Sum=\$1,001.29
	<u>w/o boat loan payment</u>	<u>w/o boat purchase</u>

29. Were any of your household boat trip or boat-related expenses in questions 27 and 28 made at Ottawa River Area (including Halfway Creek and Hooper Run) businesses?

66% No N = 56
34% Yes

29a. if Yes, approximately what percent of your household boat-related expenditures were made at Ottawa River Area businesses?

46.5% N = 18

Please tell us about you

30. What is your age? 46.6 years N = 56

31. What is your gender? 2 Female 54 Male

32. What is your education level?

- 1 a. less than high school graduate N = 55
15 b. high school graduate
23 c. some college
12 d. bachelors degree
4 e. graduate or professional degree

33. What is your current marital status?

- 9 a. single N = 55
- 46 b. married
- 0 c. widowed

34. Including yourself, how many persons reside in your household?

30 # of people N = 54

35. What is your employment status?

- 46 a. employed full-time N = 55
- 0 b. employed part-time
- 0 c. unemployed
- 9 d. retired

36. What was your approximate household income, before taxes, in 1997?

- | | | |
|--------------------------------|-------------------------------|---------------|
| <u>1</u> a. less than \$10,000 | <u>14</u> e. \$60,001-80,000 | Mean=\$66,359 |
| <u>3</u> b. \$10,000-25,000 | <u>4</u> f. \$80,001-110,000 | N = 48 |
| <u>14</u> c. \$25,001-40,000 | <u>0</u> g. \$110,001-150,000 | |
| <u>9</u> d. \$40,001-60,000 | <u>5</u> h. over \$150,000 | |

37. Where do you get your information on the Ottawa River and recreational boating?

	<u>Ottawa River</u>	<u>Boating</u>
a. television	<u>17</u>	<u>10</u>
b. radio	<u>9</u>	<u>6</u>
c. marine radio	<u>5</u>	<u>7</u>
d. internet access	<u>0</u>	<u>4</u>
e. daily newspaper	<u>14</u>	<u>14</u>
f. weekly/monthly newspaper	<u>8</u>	<u>6</u>
g. 1-800-Buckeye	<u>1</u>	<u>1</u>
h. other (please specify) _____	<u>4</u>	<u>4</u>

Please provide your comments and concerns about this survey or about recreational boating in the Ottawa River Area.

Thank you for completing this survey. Please complete the West Marine form for your discount coupon and entry into the gift certificate drawing and return in the attached envelop.

Leroy J. Hushak
 Principal Investigator
 OHIO SEA GRANT
 1314 Kinnear Road
 Columbus, OH 43212
 614-292-3548

APPENDIX C: OTTTAWA RIVER BUSINESS SURVEY TABULATIONS

N=28

1997 Ottawa River Area Business Survey

This Ottawa River Area survey is designed to quantify the importance of the Ottawa River in your total business activity. The area includes all water related businesses on the Ottawa River, Halfway Creek and Hooper Run, water related businesses in the area dependent on the nearby channel to Lake Erie, and other businesses we expect may depend heavily on Ottawa River activity.

Please answer all questions completely. All responses will remain completely confidential and will be reported only as averages; names of individual businesses and data for individual businesses will not be disclosed.

Section A. Characteristics of Establishment or Facility

1. Facilities in service in 1997. (Check all that apply and fill in the number if applicable.)

- | | | |
|--|------------|-----------------|
| a. (19) Access to water - direct or indirect | | |
| b. (18) In-the-water slips, docks or berths. | 116 Number | (17 responding) |
| c. (10) In-the-water transient slips, docks, or berths. | 15 Number | (8 responding) |
| d. (6) Boat launching ramps. | 14 Number | (5 responding) |
| e. (5) Restaurant | | |
| f. (2) Food Service Kitchen | | |
| g. (1) Groceries | | |
| h. (5) Bait and tackle fishing supplies | | |
| i. (17) Auto parking spaces. | 136 Number | |
| j. (6) Auto and trailer parking spaces | 276 Number | |
| k. (4) Production or sales of equipment | | |
| l. (6) Other. (Please list: retail hardware, storage, custom-made boats, sailmaker, retail sales | | |

2. Services offered in 1997. (Check all that apply.)

- | | |
|--|--|
| a. (4) Buy/Sell boats/brokerage | |
| b. (10) Sales of marine equipment, hardware, electronics | |
| c. (7) Repair boats/hulls, engines/electronics | |
| d. (8) Haul-out facilities, crane, track, ramp, lift | |
| e. (2) Boat rental/charter services | |
| f. (5) Sell bait/tackle | |
| g. (2) Food service bar/restaurant | |
| h. (3) Grocery/snacks/supplies/carryout | |
| i. (2) Inside winter storage | |
| j. (9) Outside winter storage | |
| k. (6) Pump out | |
| l. (6) Sell boat gas/diesel fuel | |
| m. (9) Utilities (water, electricity, telephone, etc.) | |
| n. (7) Club such as for sailing or yachting | |
| o. (5) Other services (Please list) _____ | |

3. Facility ownership/management (Circle the appropriate number.)
- a. Management type. (Circle one)
- 6 1. Private club not open to the general public except by membership.
- 22 2. Profit business open to the general public.
- 0 3. Condominium or other owner association.
- b. Indicate the type of ownership of your business facility. (Circle one)
- 11 1. Sole Proprietor
- 0 2. Partnership
- 13 3. Profit Corporation
- 4 4. Not-for-profit Corporation
- c. Who owns the land on which your business/marine facility is located. (Circle one)
- 16 1. Private landowner
- 8 2. Commercial business or corporation
- 4 3. Non-profit business or corporation
- 0 4. Local government
- 0 5. State government
- 0 6. Federal government
- 0 7. Other (Please list) _____

- 4 a. In what year was your present facility first opened: 1974 (1910-1994)
- b. How many years has it operated under current ownership/management?
21.5 Years

5. County of operation is Lucas (19), Monroe (6)

Section B: Economics

6. Employees in 1997
- a. Number of permanent full-time employees. Sum = 117 Did not compute mean.
- b. Number of full-time seasonal employees. Sum = 21 N is not clear.
- c. Number of part-time seasonal employees. Sum = 56
7. What percent of your employees are residents of Lucas or Monroe counties? 99% (N=20)
8. What is your facility's (establishment's) total annual payroll? \$89,200 (N=16)
9. What percent of your (owner/manager) wage/salary comes from this operation? 0 to 100%
10. What was the Gross Income (Receipts) from all operations for the 1997 calendar year or the tax year which contains the 1997 boating season if different from a calendar year? (Circle the appropriate choice)
- | | | | | |
|---|--------------------------|---|--------------------------------|--------------------|
| 3 | a. \$0 - \$24,999 | 2 | g. \$1,000,000 - \$1,999,999 | N=26 |
| 8 | b. \$25,000 - \$99,999 | 2 | h. \$2,000,000 - \$2,999,999 | Mean = \$491,827 |
| 5 | c. \$100,000 - \$299,999 | | i. \$3,000,000 - \$4,999,999 | Median = \$200,000 |
| 3 | d. \$300,000 - \$499,999 | | j. \$5,000,000 - \$9,999,999 | |
| 2 | e. \$500,000 - \$699,999 | | k. \$10,000,000 - \$49,999,999 | |
| 1 | f. \$700,000 - \$999,999 | | l. Over \$50,000,000 | |

11. Please distribute the Gross Income (Receipts) from question 10 to the following income items. (Fill in the appropriate percents with a sum of 100%)

24.3% Slip rental, launching, housing fees	0.5% Utilities	N=21
4.0% Storage	0.0% Pump-outs	
16.7% Maintenance and repair	2.9% Bait and tackle	
4.3% Boat sales	2.6% Fuel sales	
1.1% Engines, transmissions, etc.	10.8% Food service/restaurant.	
13.7% Canvas, electronics, etc.	0.1% Groceries	
0.3% Titles, licenses	14.1% Other marine related	
4.6% Dues/Memberships	(Please list) _____	

12. In your best judgment, what percent of your gross revenues in 1997 derived from Ottawa River, Halfway Creek or Hooper Run Area activity? (Circle the best choice)

- 2 a. 5 percent or less
- 2 b. 5-15 percent N=25
- 4 c. 15-30 percent
- 4 d. 30-50 percent
- 4 e. 50-75 percent
- 9 f. over 75 percent

13. Did your Gross Income increase or decrease between 1996 and 1997?

- a. Increased, by 12% N=16
- b. Decreased, by 13% N=3
- c. No change N=7

14. To what do you attribute this change (i.e., boat sales, dockage, service, Ottawa River changes, etc.)? (Please explain)

15. What were the Gross Expenses for the 1997 calendar year or the tax year which contains the 1997 boating season if different from a calendar year. (Circle the appropriate choice)

- | | | |
|----------------------------|--------------------------------|--|
| 3 a. \$0 - \$24,999 | 3 g. \$1,000,000 - \$1,999,999 | N=23
Mean = \$369,022
Median = \$200,000 |
| 8 b. \$25,000 - \$99,999 | h. \$2,000,000 - \$2,999,999 | |
| 4 c. \$100,000 - \$249,999 | i. \$3,000,000 - \$4,999,999 | |
| 3 d. \$250,000 - \$499,999 | j. \$5,000,000 - \$9,999,999 | |
| 1 e. \$500,000 - \$699,999 | k. \$10,000,000 - \$49,999,999 | |
| 1 f. \$700,000 - \$999,999 | l. Over \$50,000,000 | |

16. Please distribute Gross Expenses from question 15 to the following expense items. (Fill in the appropriate percents with a sum of 100%)

20.0% Cost of Sales (purchases of boats, raw materials, parts, etc.)	1.3% Fuel/oil	N=21
14.2% Rent/mortgage	1.1% Bait and tackle	
3.1% Advertising	1.9% Supplies	
6.7% Equipment/maintenance	7.0% Utilities	
9.2% Insurance	10.8% Taxes	
0.0% New construction	11.5% Labor	
9.1% Site/facility maintenance	1.0% Food supplies	
2.6% Other (Please list) _____	1.3% Management	

17. What was the amount of taxes paid by your business at this facility for 1997 or the tax year reported in questions 10 and 15?

N=11	\$6,895	Real Property Tax	N=7	\$16,080	Federal Income Tax
N=4	\$1,425	Inventory Property Tax	N=7	\$ 3,174	Workers Compensation
N=6	\$1,259	Local (City) Income Tax	N=8	\$ 1,659	Unemployment Tax
N=10	\$1,629	State Income Tax	Total taxes reported = \$253,441		

18. What was the total Sales Tax collected by your total business operation at this facility for 1997 or the tax year reported in questions 10 and 15? \$17,607

Total sales taxes collected = \$228,890 N=13

Section C: Outlook and Plans

19. What are the current book-value and replacement costs in the Ottawa River, Halfway Creek, Hooper Run Area of the following assets? N=17

	Current book-value	Replacement Cost
Real Property/Land	\$ _____	\$ _____
Buildings	\$ _____	\$ _____
Docks/Slips/Launch Ramps	\$ _____	\$ _____
Machinery/Equipment	\$ _____	\$ _____
Inventory	\$ _____	\$ _____
Mean of sum	\$448,251	\$1,028,824

20. Have you made capital improvements to your business in the past 5 years?

13 Yes, go to question 21.

10 No, go to question 22.

21. What kinds of improvements?

	<u>Number or percentage of present capacity that was added</u>		
Repaired/replaced existing buildings	N=4		Number
Repaired/replaced/upgraded slips, docks, berths	N=4	87	Number
Expanded wet slips, docks, berths capacity	N=1	4	Number
Expanded dry rack capacity	N=0		Number
Expanded repair and maintenance facility	N=3	55	% of capacity
Expanded storage facilities	N=3	37	% of capacity
Expanded sales facilities/retail area	N=3	30	% of capacity
Added profit center/product/restaurant	N=1	1	Number

22. Please rank the following items in order of importance which have limited your ability to expand your business. (Mean rank)

- N=9 3.2 Availability of land for expansion.
- N=10 2.9 Marina dredging requirement.
- N=16 1.5 Adequate water depth of Ottawa River, Halfway Creek or Hooper Run and Lake Erie navigation channel.
- N=10 3.9 Contaminated sediments in the Ottawa River
- N=10 3.8 Permitting process through the Corps of Engineers, the Department of Health, Environmental Protection Agency, etc.
- N=6 4.7 Local zoning codes.
- N=11 3.5 Available capital to expand.
- N=8 5.1 Reliable labor supply.
- N=8 6.0 Tax rates as compared to other states.
- N=3 5.0 Other (please specify) _____

23. Do you plan new capital developments in the next

- 1 year? 3 Yes 13 No
- 3 years? 10 Yes 11 No
- 5 years? 6 Yes 12 No

24. If the Ottawa River and connecting navigation channel to Lake Erie were dredged, how would your business and business plans change?

- 7 a. I would enlarge my business expansion plans N=25
- 5 b. I would implement my business expansion plans sooner than planned
- 4 c. I would make no change in current plans
- 9 d. I would keep my business as it is at present

25. If the Ottawa River and navigation channel were dredged to accomplish two goals: 1) to depths needed for safe navigation AND 2) to remove all contaminated sediments, please check the largest amount *your business* would be willing to pay EACH YEAR FOR 10 YEARS to help finance the navigational AND sediment removal dredging project.

- | | | |
|------------|---------------------------|----------------|
| 3 a. \$0 | 0 g. \$150 | N=23 |
| 1 b. \$10 | 4 h. \$200 | Mean = \$196 |
| 0 c. \$25 | 0 i. \$300 | Median = \$100 |
| 2 d. \$50 | 1 j. \$400 | |
| 0 e. \$75 | 5 k. over \$400 (= \$500) | |
| 7 f. \$100 | | |

26. Of the two goals, which is more important to your business:

- 7 a. Safe navigation N=23
- 3 b. Remove contaminated sediments
- 13 c. Of equal importance

27. What percent of your 1997 capacity for in-the-water boat dockage was utilized?

64% 3 No dockage

N=14

28. Do you have a waiting list for docking boats at your facility?

3 Yes 12 No 8 No dockage

If Yes, how many names are on your waiting list? 100 (N=1)

Comments: _____

Thank you for completing this survey. Please return in the envelop provided.

Leroy J. Hushak
Principal Investigator
OHIO SEA GRANT
1314 Kinnear Road
Columbus, OH 43212
614-292-3548

ottawabus

APPENDIX D: POTENTIAL FUNDING SOURCES FOR DREDGING

POTENTIAL FUNDING SOURCES FOR DREDGING

Waterways Safety Fund

Ohio Department of Natural Resources, Division of Watercraft

This fund is capitalized with fees collected by the Division of Watercraft for boat registrations, and titles and also from revenues deriving from one-half of one percent of the motor fuel tax collected in Ohio. Approximately \$2 million is available per year on a statewide basis from this fund for dredging. Grants are available on an annual basis for up to 75% of project costs. Applications are due April 1st of each year. Application processing may take up to six months and then grant monies are made available about one year after the application is approved. Contact: Dave Roseler, Ohio Department of Natural Resources, Division of Watercraft, 1630 Sycamore Lane, Sandusky, OH, 44870, 419-621-1302.

General Revenue Fund

State of Ohio

Monies for dredging have been made available in the past to political subdivisions from the State of Ohio General Revenue Fund through both their operational budget and their capital improvements budget. Contact: Local State Representative.

Clean Michigan Initiative

This new statewide initiative involves use of state monies for brownfield cleanup, waterfront development, contaminated sediment cleanup and nonpoint source pollution prevention and control. Contact: Local State Representative.

U.S. Army Corps of Engineers

A variety of dredging programs are available through the Corps of Engineers for purposes of both maintaining safe navigation and for environmental remediation. Varying local cost shares are required depending on the project. Contact: Steve Golyski, US Army Corps of Engineers, 1776 Niagara Street, Buffalo, NY 14207, 716-879-4355.

APPENDIX E: PARTICIPATING OTTAWA RIVER AREA BUSINESSES

BUSINESSES PARTICIPATING IN THE SURVEY

Ace Hardware

4767 N. Summit Street
Toledo, OH 43611
419-729-3969

American Marine Sea-Doo

2903 E. Sterns Road
Erie, MI 48133
734-848-8501

Bait Bucket

5809 Edgewater Drive
Toledo, OH 43611
419-729-2881

Bay Harbor Marina

7120 Summit Street
Erie, MI 48133
734-848-4550

Bayside Treasures

4852 N. Summit Street
Toledo, OH 43611
419-729-2097

Bi-State Marine Service

2969 Stern Road
Erie, MI 48133
734-848-4749

Boat US Marine Center

4441 N. Summit Street
Toledo, OH 43611
419-729-5400

Breakwater Café

2040 Ottawa River Road
Toledo OH 43611
419-726-0866

Bush Marine

5235 N. Summit Street
Toledo, OH 43611
419-726-0794

Canal Carryout

3058-131st Street
Toledo, OH 43611
419-726-1161

Cay Marina

6260 Edgewater Drive
Toledo, OH 43611
419-726-2092

Dieball Boat Co.

6061 Telegraph Road
Toledo, OH 43612
419-478-2425

Edgewater Canvas

5902 Edgewater Drive
Toledo, OH 43611
419-729-1201

Flag Sales and Repair

4849 N. Summit Street
Toledo, OH 43611
419-726-9571

Greiner Sails

5556 Edgewater Drive
Toledo, OH 43611
419-726-2933

Jo Jo's Marina

7371 Bass
Erie, MI 48133
734-848-2158

Jolly Roger Sailing Club

5961 Edgewater Drive
Toledo, OH 43611
419-729-4971

K & B Automotive

1368 Matzinger Rd.
Toledo, OH 43612
419-729-9591

Lost Peninsula Marina

6300 Edgewater Drive
Erie, MI 48133
734-723-7466

West Marine

6176 N. Summit Street
Toledo OH 43611
419-727-8989

Mobile Marine Canvas Co.

5228 1/2 N. Summit Street
Toledo, OH 43611
419-726-5609

Ottawa River Yacht Club

5844 Edgewater Drive
Toledo, OH 43611
419-729-9421

Outdoors Unlimited

5907 Edgewater Drive
Toledo, OH 43611
419-729-9252

Point Place Boat Club

5911 Edgewater Drive
Toledo, OH 43611
419-727-8747

River Run Marina

5815 Edgewater Drive
Toledo, OH 43611
419-727-1171

River View Yacht Club

5981 Edgewater Drive
Toledo, OH 43611
419-729-9251

Rudy's Hot Dog

6069 N. Summit Street
Toledo, OH 43611
419-729-5781

State Line Marina

7330 Perch Drive
Erie, MI 48133,
734-848-8137

APPENDIX F: NUMBER OF BOAT SLIPS AND LAUNCHES

NUMBER OF BOAT SLIPS AND LAUNCHES

FACILITY	SLIPS	TOTAL LAUNCHES FOR 1998 BOATING SEASON
Halfway Creek and Hooper Run (Michigan)		
American Marine Sea-Doo	80	
State Line Marina	143	1,000
Jo Jo's Marina	57	
Dallas Foiden Marina	23	
Bay Harbor Marina	227	
Halfway Creek Public Launch Ramp	0	2,000
Ottawa River (Ohio and Michigan)		
Lost Peninsula Marina	734	
Bush Marine	96	
Lockett's Marina	96	
River View Yacht Club	250	
Jolly Roger Sailing Club	80	
Point Place Boat Club	61	
Ottawa River Yacht Club	170	
Chet's Marine Service	50	
River Run Marina	60	
Cay's Marina	20	
Outings Unlimited	25	
TOTALS	2,172	3,000

APPENDIX G: OTTAWA RIVER ACTION GROUP CONTACTS

OTTAWA RIVER ACTION GROUP CONTACTS

Jeanette Ball

Co-chair Ottawa River Action Group
c/o Toledo Environmental Services
348 S. Erie Street
Toledo, Ohio 43602
Phone: 419-936-3761
Fax: 419-936-3959

Cherie Blair

Maumee RAP Coordinator
c/o Ohio EPA
Northwest District Office
347 North Dunbridge Street
Bowling Green, Ohio 43402
Phone: 419-373-3010
Fax: 419-352-8468

David Gedeon

TMACOG Representative
c/o Toledo Metropolitan Area Council of Governments
300 Central Union Plaza
Toledo, Ohio 43697-9508
Phone: 419-241-9155
Fax: 419-241-9116

James Haren

Ottawa River Affiliated Yacht Clubs Representative
712 Meadow Springs Court
Maumee, Ohio 43537