

# **Maryland Coastal Bays' Water-Use Assessment: Understanding Users' Behaviors, Attitudes, and Perceptions**



**State of Maryland  
Department of Natural Resources  
Fisheries Service  
Annapolis, MD**

**April 2002**

# **Maryland Coastal Bays' Water-Use Assessment: Understanding Users' Behaviors, Attitudes, and Perceptions**

Prepared by:

James M. Falk  
and  
Paul C. Gerner

University of Delaware  
Sea Grant Marine Advisory Service  
Lewes, DE

Prepared for:

State of Maryland  
Department of Natural Resources  
Fisheries Service  
Annapolis, MD

April, 2002

This publication is the result of research supported by the State of Maryland Department of Natural Resources, Fisheries Service under MOU #20001226 to the University of Delaware Sea Grant College Program. The University of Delaware Sea Grant College Program is supported cooperatively by the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and the State of Delaware. Delaware Sea Grant Reference: **DEL-SG-03-02**

## **EXECUTIVE SUMMARY**

### **INTRODUCTION AND METHODS**

The University of Delaware Sea Grant Marine Advisory Service was contracted by the Maryland Department of Natural Resources (MDDNR) to conduct a study of water users on Maryland's coastal bays during the 2000 boating season.

Interviews were collected from boaters using various access points throughout the coastal bays. Interviews began in early July, 2000 and continued into the middle of September. Two hundred and one field interviews were completed during the time period. Nearly three-fourths (73%) of all the field interviews were conducted at the West Ocean City Ramps, the most heavily used ramps used by owners of trailerable boats.

Another major component of the study was to engage in a comprehensive mail survey of a subset of Maryland boaters who were likely to boat on Maryland's coastal bays. A sample of 1,500 boaters residing within the coastal bays area was surveyed by mail. Based on total boats registered in each of the identified geographic areas, the following sample sizes were selected: Wicomico County (n=500), Worcester County (n=300), Berlin, MD (n=400), and Ocean City, MD (n=300).

Eight hundred and ninety-five surveys were returned with usable information. This represented an overall response rate of 61%. The response rate for each geographic area was fairly consistent. Fifty-nine percent of boaters from Wicomico and Worcester Counties responded to the survey, as did 60% of Ocean City, and 65% of Berlin, Maryland boaters.

In the two survey efforts (field and mail), a number of similar questions were asked of each boating group. This was done intentionally in order to merge the two data sets into one so that frequency responses and comparisons from all the boaters who were interviewed could be analyzed collectively.

### **STUDY RESULTS**

#### **Profile of Maryland Coastal Bays' Boaters**

Based on responses from all boaters (field and mail survey), 41% of respondents noted they kept their boats in the water (in-water boaters) and 59% indicated they trailered their boats (trailerable boaters). Those individuals who kept their boats in the water at the various locations are considered "local" residents and the majority of them live in the Ocean City and Ocean Pines communities. Trailerable boaters lived both out-of-state and in various cities and towns in Maryland. Many of the boaters resided in towns and cities in Worcester and Wicomico counties.

The average age of boaters in the study was 54 years. In-water boaters were older than trailerable boaters. In-water boaters also tended to be more educated than trailerable boaters. Boaters who trailer their boats to the bays were more apt to be employed full-time (64% versus 47%), whereas in-water boaters reported a higher incidence of retirees (46% versus 29%). The boating segment that kept their boats in the water also had a greater tendency to have memberships in boating or sportfishing organizations (27% versus 20%). Boaters owned their current boat an average of 7 years.



Boaters in the study were fairly experienced, with an average of 22 years of boating activity. Forty-four percent of all boaters had greater than 20 years of experience boating on Maryland's coastal bays and other bodies of water.

Nearly two-thirds of all boaters consider themselves advanced (48%) or expert (17%) in their boating skills. Almost one-third consider their skill level to be intermediate (30%), and only 5% consider themselves novice boaters.

### **Profile of Boats Used in Maryland's Coastal Bays**

Two-thirds (66%) of all boats in the mail and field portion of the study were mid-sized boats (between 16 and 25 feet in length), and 30% were under 16 feet in length. The average size boat in the study was slightly greater than 18 feet. As expected, boats kept in the water (marinas or private docks) during the boating season were larger in size than trailered boats (20'4" versus 16'10").

Overall, 63% of the boats in the study were categorized as powerboats. Jonboats, skiffs, and bass boats made up 14% of the total, and pontoon boats represented 10% of the total. Personal watercraft, or jetskis, represented 6% overall, and sailboats made up 3% of the total. The overall average horsepower of boats in the survey was 129 horsepower (137 hp -- in-water; 126 hp -- trailer). Overall, a majority of all boaters carried the following equipment on their boats: depth finder (79%), compass (69%), cell phone (59%), and VHF radio (53%).

### **Boating Activity Patterns**

Overall, boaters boated an average of 35 days on Maryland's coastal bays in 2000. About one-half (52%) boated 20 days or less, with the remaining 48% boating more than 20 days. There is a major difference for days boating in 2000 between in-water and trailerable boaters. In-water boaters (50 days average) indicated they spent more than twice as many days boating on the bays than trailerable boaters (23 days average).

Of those boaters who spent time boating on Maryland's coastal bays in 2000, two-thirds (67%) spent between 76 and 100 percent of their total boating time on the bays. One-half boated exclusively on the bays, and 4% indicated they did not boat on the bays in 2000.

When overall boating on the bays was examined by seasonality, a typical pattern emerges. During the major boating months of May through September, between 74% and 95% of boaters are participating in activities on Maryland's coastal bays. Peak boating months are similar for the two segments of boaters, but for most months the level of trailer boating is less than that for in-water boats.

Overall, boaters select Maryland's coastal bays as a boating destination because the bays are close to where they live, or where they are staying while visiting the area (88%). Although a distant second choice, good fishing is suggested as a reason by one-half of all boaters (50%). Three attributes that relate to the tranquility of the bays (scenic qualities, peacefulness, and observing wildlife) were identified next by boaters, however they were only selected by between 26% and 39% of the boaters who responded.

Maryland coastal bays' boaters engage in two primary activities, cruising and fishing. After these two main activities, there are several activities that they engage in, such as crabbing, clamming, watersking/tubing, or swimming from their boats.

### **Fishing in Maryland's Coastal Bays**

Field-surveyed boaters were asked questions related to their fishing experiences in the bays. The average number of days spent fishing in the bays the previous twelve months was 13 days. About one-half (51%) of these anglers indicated they would not favor a coastal bays' fishing license, even if the money was used to improve fishing in the bays. Forty-five percent noted that they would support such a license if the funds were used in the bays. Boaters were generally pleased with their fishing experiences on the bays, however more than one-half (53%) indicated they would visit Maryland's coastal bays even if they did not plan to fish. When asked to provide responses about their fishing trip experiences, fishermen were very complimentary. Their responses to a series of statements about their trip were rated on a 5-point scale (1 = Strongly Disagree and 5 = Strongly Agree). The highest rated response was that they would fish Maryland's coastal bays again (4.7 rating). A large percentage of fishermen wished they had caught more fish (4.3 rating), but others felt they would have been happy even if they had not caught any fish (3.6 rating).

### **Recreational Crabbing in Maryland's Coastal Bays**

Forty-four percent of all boaters engaged in recreational crabbing in the bays at sometime during the year. In-water boaters (56%) were significantly more inclined to participate than trailerable boaters (36%).

In-water boaters (57%), who are mostly bay residents, have a greater inclination to use crab pots as opposed to trailerable boaters (17%). This may be due to the fact they can tie the pots to their docks or bulkheads if they own waterfront property. In-water boaters spent almost three times as many days, on average, crabbing during the year than trailerable boaters (26 days versus 9 days). Even though trailerable boaters spent fewer days, on average, crabbing in the bays than their waterfront resident counterparts, they reported a higher per trip catch. Trailerable boaters harvested an average of 23 crabs per trip compared to 14 crabs per trip for in-water boaters. Both segments of boaters agreed that blue crab stocks in Maryland's coastal bays appear to be decreasing (73% -- in-water; 66% -- trailer).

### **Spatial Analysis of Boating Distribution and Patterns**

Assessing Peak Boating Activity Through Aerial Observations: On seven dates during the summer of 2000, MDDNR staff conducted aerial flights over the coastal bays to determine activity during peak boating times. A total of 1,987 boats were observed during the peak boating hours between 10 a.m. and 2 p.m. (an average of 283 vessels were counted each day). Overall, four types of activities observed from the air represented 88% of the total activity recorded. Drifting and anchored boats were the most observed activity (43% of total activity recorded). The next most observed activity was cruising boats (24%). Jetskiing represented 13% of the total activity for the seven flight days, and boats anchored to shore represented 8% of the total activity.

#### Field Mapping Boating Activity:

This spatial analysis focused on map data collected from the field interviews of the 201 boaters interviewed during the summer 2000. Boaters furnished information about their boating activity on the day they were interviewed by marking a number of different items on a map of the coastal bays. As expected, fishing (n = 259) dominated the various sites on the maps, with clamming (n = 7), waterskiing (n = 7), swimming (n = 3) and crabbing (n = 2) being other activities that were mentioned by boaters. The activity points were fairly dispersed throughout the bays, with major concentrations of fishing activity occurring in the Ocean City Inlet area, throughout Isle of Wight Bay, and dispersed throughout Sinepuxent Bay. Waterskiing occurred mostly in the open expanses of Isle of Wight Bay, with limited clamming and crabbing activity depicted in Isle of Wight Bay and Sinepuxent Bay.

Another series of map data began identifying areas of the bays that boaters “most enjoyed” or “least enjoyed”. This information is helpful to assess boaters’ attitudes and preferences for what contributes to an enjoyable boating experience, or what components may lead to an unsatisfactory experience.

Overall, boaters reported more likes (n = 103), than dislikes (n = 55) however, their preferences varied by geographic location in the bays. For instance, in Assawoman Bay and St. Martin River area, boaters were very complimentary about the lack of crowds, nice scenery, and calm water. In the Isle of Wight Bay, there was more diversity from boaters about the areas they most, and least, enjoyed. The primary reasons for enjoying the area were based on good fishing and less crowding (northern end of Isle of Wight Bay). The main reasons boaters least enjoyed the area was

because of too many other boaters, shallow water, and rough water.

The Ocean City Inlet area also brought mixed responses, with boaters indicating they liked the area because of good fishing, but those who disliked it felt it was too crowded. In Sinepuxent Bay there were numerous reasons why boaters enjoyed the area, with the most popular responses being less crowded, good fishing, and calm water. The main reason boaters were least impressed with Sinepuxent Bay was because of too many jetskiers.

#### **Perceptions of Boating Experiences**

Sixteen percent of boaters rated their overall boating experiences “excellent” or “perfect”. The majority of boaters indicated they thought boating was “good” (32%) or “very good” (36%). In general, the majority (57%) of boaters sensed that the quality of their boating experience had remained the same over the past 5 years. Almost one-third (29%) indicated they thought it had decreased, and 14% suggested that it had increased. Respondents were especially concerned about boaters operating their vessels in an unsafe manner (4.4 rating on a 5-point scale), boaters operating vessels under the influence of alcohol or drugs (4.1 rating) and the overcrowding of navigable waterways (4.1 rating). Also of note was the importance boaters attached to water quality (4.0 rating on a 5-point scale).

One-half of all boaters felt that there were conflicts between users in the coastal bays. There were differences observed between in-water boaters (57%) and trailerable boaters (41%), with more sensitivity to conflicts being observed by the local population who keep their boats in slips or marinas around the bays.

About one-third (36%) of all boaters indicated that they had observed boating accidents, near accidents, or unsafe boating practices within the previous year which could be attributed to conflicting uses on the bays.

Since the Ocean City Inlet/Route 50 Bridge area is heavily used by boaters, a series of problems that could be encountered at the inlet were listed on the survey instrument, and respondents were asked to provide their input. Overall, the highest-rated problem mentioned by boaters was jetskis zig-zagging in the inlet (4.1 rating on a 5-point scale). This was followed closely by inexperienced boat operators in the inlet (4.0 rating). Other highly-rated problems that were mentioned dealt with the physical features of the inlet and water body. These included: fast moving current (3.6), water turbulence and wave action (3.6), and narrow passageway (3.5).

### **Boating Safety Concerns**

Seventy-seven percent of all boaters indicated that they familiarize themselves with new Coast Guard regulations each year. Thirty-one percent receive a Coast Guard Auxiliary courtesy safety inspection annually, and 59% have taken a boater safety training course at some time. A majority of all boaters (63%) had taken a boating safety course since 1990. One-third (32%) had completed a course during the 1970s and 1980s.

### **Environmental Concerns**

The largest segment of boaters (40%) perceived that water quality in the bays had not changed very much over the last five years. Slightly more than one-quarter (28%) thought it was deteriorating. A majority (61%) of all boaters felt living resources in the bays (e.g. crabs, clams, and

fish) had deteriorated over the last five years. Only 8% felt the resources had improved during that time period. Boaters were asked to provide their perceptions of environmental impacts caused by recreational users and commercial fishing boats on the bays. Recreational boaters thought they were more apt to create excess water turbulence (57% versus 31%), cause prop scouring of bottom sediment (53% versus 39%), create shoreline erosion (47% versus 26%), disturb nesting shorebirds (41% versus 9%), and dump porta-potties and MSDs in the bays (38% versus 21%) more often than commercial boaters. They perceived that commercial boats were more responsible for discharging oil/gas into the water (50% versus 45%) and disturbing bay sea grasses (65% versus 36%).

### **Management Considerations**

Although it is apparent that boaters for the most part do not solidly support many of the management options that were presented, they were in agreement that limiting the number of jetskis using the bays (3.9 rating on a 5-point scale) was an option that a majority of them would support. There was also moderate support for adding regulations if they improved water quality in the bays (3.5 rating), restricting boat use in shallow waters (3.3 rating), and imposing stricter limits on harvesting of the bays' living resources (3.3 rating). The least favored option overall was limiting the number of boats using the bays (2.2 rating).

Boaters in the mail survey were asked how they would react if the bays became more crowded. Three specific responses were provided with individuals selecting as many of the options as they desired. Almost two-thirds (63%) of boaters indicated that they would spend less time boating on the bays; one-half (50%) indicated that they would boat at different

times than usual, and 25% percent said that they would participate less frequently in certain activities.

## **CONCLUSIONS**

This report provides one of the most complete studies of recreational boaters who boat on Maryland's coastal bays. The social and environmental issues that were examined can be used to address a multitude of management concerns facing coastal bays' officials. The perceptions, attitudes, and opinions of boaters provide a helpful view of conditions in a multi-use environment. The information provides an important baseline by which to measure future changes. MDDNR officials and Maryland Coastal Bays Program staff should continue to work with all interest groups to insure that the bays remain a safe, enjoyable resource for current and future generations.

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	iii
ACKNOWLEDGMENTS .....	xiv
INTRODUCTION .....	1
Maryland's Coastal Bays .....	1
Background .....	3
METHODS .....	4
STUDY RESULTS .....	8
Profile of Maryland Coastal Bays Boaters.....	9
Profile of Boats Used in Maryland's Coastal Bays .....	12
Boating Activity Patterns .....	15
Fishing in Maryland's Coastal Bays .....	21
Recreational Crabbing in Maryland's Coastal Bays .....	24
Spatial Analysis of Boating Distribution and Patterns .....	27
Assessing Peak Boating Activity Through Aerial Observations .....	27
Field Mapping Boating Activity .....	29
Perceptions of Boating Experiences .....	37
Boating Safety Concerns.....	40
Environmental Concerns.....	42
Management Considerations.....	44
CONCLUSIONS.....	47
MARYLAND COASTAL BAYS PLANNING, MANAGEMENT, AND POLICY RECOMMENDATIONS .....	53

## APPENDICES

APPENDIX A: On-site Field Survey Instrument .....	56
APPENDIX B: Additional Comments Regarding Flounder Regulation Options .....	65
APPENDIX C: Additional Comments Regarding Improving Fishing in Maryland's Coastal Bays.....	67
APPENDIX D: Additional Comments From Maryland Coastal Bays' Boaters (Field Survey Boaters) .....	70
APPENDIX E: Supplemental Mail Survey Instrument (Field Survey Boaters).....	74
APPENDIX F: Mail Survey Instrument .....	80
APPENDIX G: Other Equipment Carried on Boat.....	88
APPENDIX H: Other Reasons for Boating on Maryland's Coastal Bays.....	90
APPENDIX I: Reasons for Increase or Decrease in Boating Quality on Maryland's Coastal Bays.....	92
APPENDIX J: Other Important Boating Concerns .....	97
APPENDIX K: Comments From Boaters Regarding Conflicts Between Maryland Coastal Bays' Users.....	99
APPENDIX L: Comments From Boaters Regarding Observed Accidents or Unsafe Boating Practices as a Result of Bay Conflicts .....	109
APPENDIX M: Other Route 50 Bridge and Ocean City Inlet Boating Problems.....	116
APPENDIX N: Boaters' Responses to Crowding on Maryland's Coastal Bays .....	119
APPENDIX O: Sportfishing or Recreational Boating Organizations Mentioned by Boaters....	123
APPENDIX P: Additional Comments From Maryland Coastal Bays' Boaters (Mail Survey Boaters).....	125
APPENDIX Q: Maps and Table for Seven Aerial Flights Conducted During Summer 2000 ...	145
APPENDIX R: Tables for Most Enjoyed and Least Enjoyed Areas in Maryland's Coastal Bays.....	154

APPENDIX S: Survey Instruments For Private Commercial Operators in Maryland's Coastal Bays.....	159
APPENDIX T: Maryland Coastal Bays Private Commercial Operators' Summary .....	164
APPENDIX U: Maryland Coastal Bays Commercial Harvest by Month (1998 – 2000).....	167
APPENDIX V: Maryland Coastal Bays Boat Slip Increases (1991 – 2001).....	171



## LIST OF TABLES

Table 1.	Maryland Boat Registrations by State and Geographic Area, 2000 .....	6
Table 2.	Mail Sample by Boat Size and Geographic Area .....	6
Table 3.	Mail Survey Response Rate .....	7
Table 4.	Demographic Profile of Maryland Coastal Bays' Boaters .....	10
Table 5.	Years Owned Current Boat .....	11
Table 6.	Years of Boating Experience .....	11
Table 7.	Boaters' Self-Rating .....	12
Table 8.	Boaters' Self-Rating by Years Boating Experience .....	12
Table 9.	Size of Boat Owned by Respondents .....	13
Table 10.	Type of Boat Owned by Respondents .....	13
Table 11.	Horsepower of Boat .....	14
Table 12.	Equipment Carried on Boat .....	15
Table 13.	Number of Days Boating in 2000 .....	15
Table 14.	Percent of Total Boating Activity Spent on Maryland Coastal Bays .....	16
Table 15.	When Most of Boating Occurs .....	17
Table 16.	Months Boating on Maryland Coastal Bays .....	18
Table 17.	Reason for Boating on Maryland Coastal Bays .....	19
Table 18.	Boating Activity and Average Percent of Time Spent on Activity During Typical Boating Season .....	21
Table 19.	Preferred Fish Species .....	22
Table 20.	Fishing Trip Statements .....	24
Table 21.	Boaters Who Crab in Maryland Coastal Bays and Type of Crabbing Gear Used .....	25
Table 22.	Days Per Year Spent Crabbing on Maryland Coastal Bays .....	25
Table 23.	Average Number of Crabs Caught Per Trip .....	26
Table 24.	Perception of Blue Crab Stocks in Maryland Coastal Bays .....	27
Table 25.	Total Activity Counts for Seven Aerial Flights Conducted Between 7/19/00 and 9/17/00 .....	28
Table 26.	Rate Boating on Maryland Coastal Bays .....	37
Table 27.	Quality of Boating Experience During Past 5 Years .....	37
Table 28.	Concerns of Boaters on Maryland Coastal Bays .....	38
Table 29.	Observed Conflicts or Accidents Among Boaters .....	39
Table 30.	Problems Encountered at Rt. 50 Bridge/Inlet .....	40
Table 31.	Boating Safety Issues .....	41
Table 32.	Year of Last Safety Course .....	41
Table 33.	Perception of Water Quality Over Last 5 Years .....	42
Table 34.	Perception of Living Resources Over Last 5 Years .....	42
Table 35.	Perception of Negative Impacts Caused by Recreational Users and Commercial Boats .....	43
Table 36.	Potential Management Options for Maryland Coastal Bays .....	45
Table 37.	Mail Survey Boaters' Actions If Bays Become More Crowded .....	46

## LIST OF FIGURES

Figure 1. Maryland Bays Coastal Watershed .....	2
Figure 2. On-site Field Interview Locations .....	5
Figure 3. Location of Maryland Coastal Bays Boats During 2000 Boating Season.....	9
Figure 4. Activities of Boaters Interviewed in the On-Site Field Survey .....	20
Figure 5. Preferred Bay Fishing Methods of Field-Survey Boaters .....	22
Figure 6. Map of Maryland Coastal Bays Study Areas .....	30
Figure 7. Point Pattern Map of Reported Activity Sites, Maryland Coastal Bays.....	31
Figure 8. Map of PWC Routes and Activity Locations North of Ocean City Inlet .....	33
Figure 9. Map of PWC Routes and Activity Locations, Ocean City Inlet and South .....	33
Figure 10. Point Pattern Map of Reported Desirability Sites, Maryland Coastal Bays.....	34
Figure 11. Point Pattern Map of Most and Least Enjoyed Areas in Assawoman Bay and St. Martin River.....	35
Figure 12. Point Pattern Map of Most and Least Enjoyed Areas in Isle of Wight Bay.....	35
Figure 13. Point Pattern Map of Most and Least Enjoyed Areas in Ocean City Inlet and Route 50 Bridge Area.....	36
Figure 14. Point Pattern Map of Most and Least Enjoyed Areas in Sinepuxent Bay.....	36

## ACKNOWLEDGMENTS

This study was conducted by the University of Delaware Sea Grant Marine Advisory Service through a grant provided by the Maryland Department of Natural Resources, Fisheries Service. The authors wish to acknowledge a number of individuals for assistance during various phases of the project.

First, we would like to recognize Bob Abele and other members of the Maryland Coastal Bays Water-Based Activities Subcommittee. They provided helpful comments and suggestions at every stage of the project and their contributions were invaluable to the success of the project.

We also want to thank Susan Bunsick and Gerhard Kuska, Marine Policy Graduate Students at the University of Delaware College of Marine Studies for interviewing boaters at coastal bays' access points. Dave Blazer and Dave Wilson of the Maryland Coastal Bays Program deserve mention for their support and helpful review comments. Eric Stiles with the National Park Service assisted in the preparation of GIS maps.

We would like to thank Rita Baty, our Marine Advisory Service secretary, for typing countless review drafts and the final report and Pam Donnelly of the University of Delaware, Marine Public Education Office for handling various printing jobs and production of the final report.

A special thank you is extended to Eric Schwaab and Tom O'Connell, Maryland Department of Natural Resources, Fisheries Service for seeing the benefit of this project and providing financial support. Tom deserves special mention for the many hours of support and assistance he provided. We greatly appreciate all you did, Tom.

To others we may have overlooked or failed to mention by name, we are also most appreciative of the input you provided in seeing this project through to completion.

Finally, this study would not have been possible if not for the time and effort of the boaters who participated in both the field and mail surveys. We would like to thank you for all of your helpful comments. Your contributions should help resource managers and coastal bays' officials better appreciate the concerns of boaters in seeking solutions for keeping the bays healthy and safe for current and future users.

## INTRODUCTION

### MARYLAND'S COASTAL BAYS

Maryland's coastal bays' watershed lies in one of the most ecologically diverse regions in the state. The bays encompass approximately 175 square miles of Maryland's coastal plain (Figure 1). The bays, and their surrounding watershed, support numerous rare and threatened plant and animal species, forests and wetlands vital to migratory shorebirds and waterfowl, and numerous important commercial<sup>1</sup> and recreational fin and shellfish species. The region also is experiencing the most rapid population increases in the entire state. A countywide population of some 40,000 is expected to almost double by the year 2020.

As the area continues to grow, additional stress is being placed on this coastal ecosystem. More than 12 million seasonal visitors support the watershed's \$2 billion tourism industry. Recreational attractions like swimming, boating, fishing, and birding are all dependent upon healthy natural resources. As recreational use of the coastal bays grows and diversifies, balancing resource protection with public use will become increasingly complex.

Boating in the coastal bays is a very popular activity, particularly during the summer months. Many of the primary waterways, especially in the northern bays, are often congested. Recreational boating concerns include unpredictable boating conditions caused by strong currents, congestion and overcrowding near the Ocean City Inlet and Route 50 Bridge, non-compliance with existing operational, safety, and resource protection regulations, and direct resource impacts. As the number of recreational boaters in the coastal bays has increased, so too has the incidence of user conflicts. Many of the problems stem from the limited availability of deep water and resultant competition between users, such as with navigation channels and their use as both access corridors and fishing spots. In addition, there is a growing tension between the non-boating public and recreational boaters over use of the resource, particularly in the case of personal watercraft.<sup>2</sup>

The recently completed Comprehensive Conservation and Management Plan (CCMP) for the bays recognizes the importance of recreational boating and includes an action plan titled Recreation and Navigation. This action item includes a number of specific goals to address

---

<sup>1</sup> See Appendix U for tables showing the commercial harvest of important finfish and shellfish from coastal bays' waters between 1998 and 2000.

<sup>2</sup> This information has been excerpted from *Today's Treasures for Tomorrow: Towards a Brighter Future*, The Comprehensive Conservation and Management Plan for Maryland's Coastal Bays.

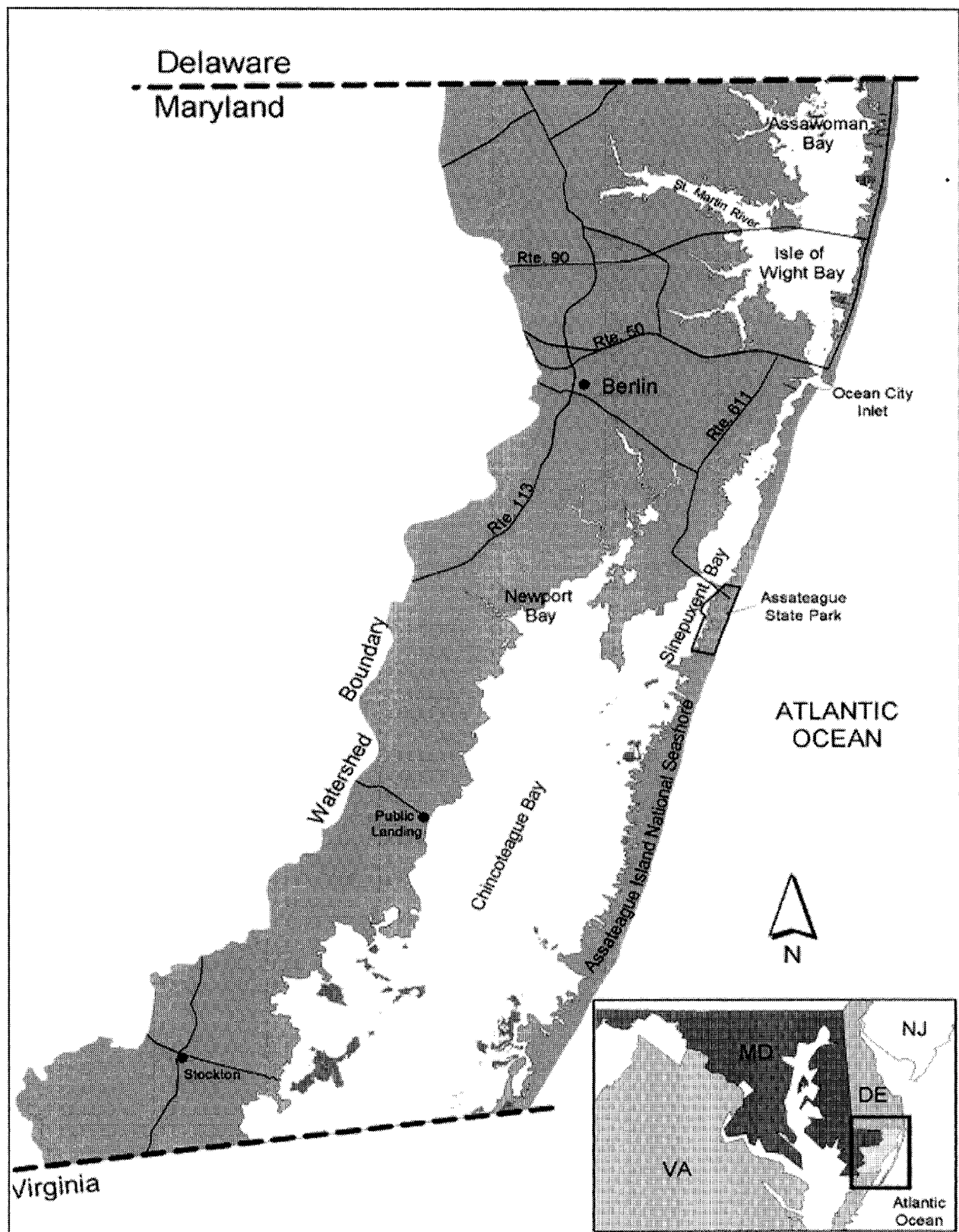


Figure 1. Maryland Coastal Bays Watershed

problems related to recreational boating on the bays. The goals that are particularly relevant to this study include: balancing resource protection with recreational use, improving boating safety, and improving water-based recreational opportunities and diversity of access to the coastal bays and tributaries<sup>3</sup>.

## BACKGROUND

During the summer of 1999 the University of Delaware Sea Grant Marine Advisory Service received a grant from the Maryland Coastal Bays Program to conduct a preliminary assessment of recreational boating activity on the bays. The effort was undertaken with the assistance of the Water-Based Activities Subcommittee of the Maryland Coastal Bays Program. Initially, the project was designed to simply develop an approach to investigate boating activity and to design a survey instrument that could eventually be used to obtain boaters' input about their activities and for them to voice their concerns related to their use of the bays. After discussions with Maryland Department of Natural Resource (MDDNR), Fisheries Service officials, fisheries questions were incorporated into the survey instruments. Pilot field and mail survey efforts were initiated during the summer and fall of 1999.

Volunteers interviewed boaters (n=193) at launch ramps and other access points around the bays on two weekends in late August 1999. The mail survey (n =78) that was initiated was distributed to members of local boating and recreational fishing organizations to test the functionality of the survey instrument. Both efforts collected useful information to demonstrate techniques of surveying recreational boaters to determine use patterns, perceptions of crowding, and potential user conflicts. In addition to the data collection efforts, MDDNR staff completed aerial surveys on selected days to gain a clearer understanding of activity patterns during peak boating periods.

Once the results of the pilot efforts were completed and presented to MDDNR officials, discussions ensued to conduct a more comprehensive examination of bay users beginning during the 2000 boating season. For a complete review of the 1999 pilot effort, see *A Preliminary Assessment of Recreational Boating on Maryland's Coastal Bays, 1999*.

---

<sup>3</sup> See Appendix B for an estimate of the growth in number of boat slips in Maryland's coastal bays watershed between 1991 and 2001.

## **METHODS**

The University of Delaware Sea Grant Marine Advisory Service was contracted by the Maryland Department of Natural Resources (MDDNR) to conduct a study of water users on Maryland's coastal bays during the 2000 boating season. The study had a number of components. Initially, field surveys of boaters using the waters of the bays were conducted during the summer of 2000. In addition, follow-up mail surveys were sent to a smaller segment of field respondents to gain additional information that could not be obtained during in-person interviews. As field interviews were being conducted, MDDNR staff engaged in aerial flights on key dates during the 2000 season to ascertain peak boating conditions. This information was vital to verify boating patterns and uses, as well as to document heavy use areas and areas of potential conflicts between users.

Interviews were collected from boaters using various access points throughout the coastal bays. Interviews began in early July 2000 and continued into the middle of September. Field surveys were limited mostly to boaters that used launch ramps around the bays. This was done since the major mail portion of the study was designed to gather insight from boaters who kept their boats at marinas or other in-water facilities around the coastal bays. Two hundred and one field interviews were completed during the time period. Nearly three-fourths (73%) of all the field interviews were conducted at the West Ocean City Ramps, the most heavily used ramps used by owners of trailerable boats. Other interview locations included: Ocean Pines White Horse Park boat ramp, Frontier Town, Assateague Island, Gum Point Road, Bering Road, and Talbot Street Pier. (See Figure 2)

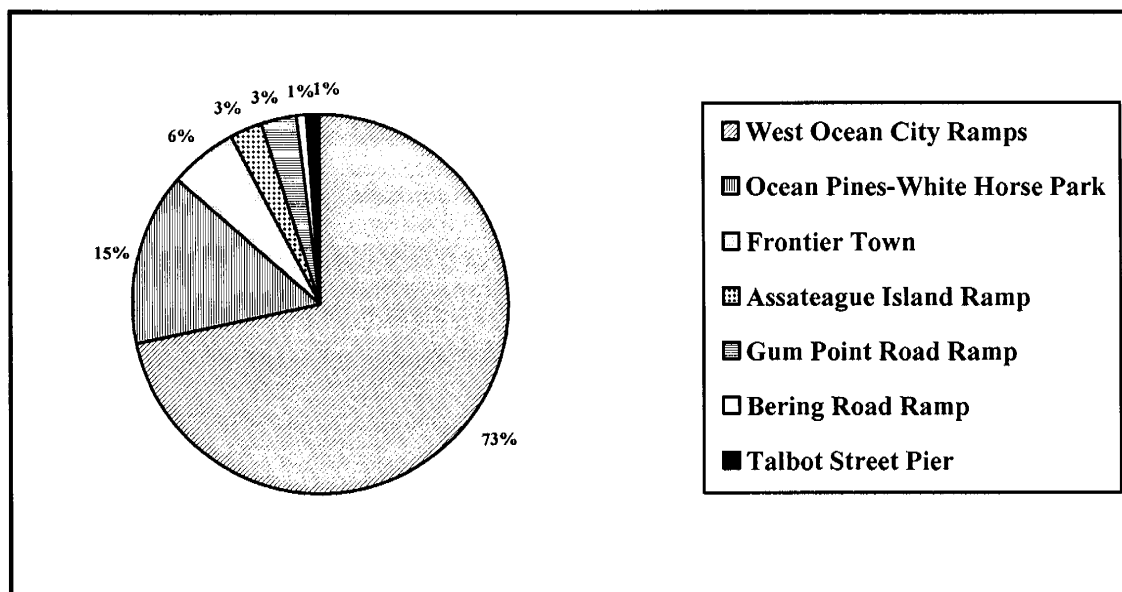


Figure 2. On-site Field Interview Locations

Since field interviews had to be kept relatively short in length, boaters were asked if they would agree to respond to a follow-up mail survey to obtain additional information on their boating habits and attitudes. One hundred and fifty of 190 boaters (79%) indicated that they would answer a follow-up mail survey, and those individuals provided their complete addresses to the interviewer. Mail surveys with a cover letter and postage-paid return envelope were mailed out within a week of the field interviews (See Appendix E). Sixty-seven completed questionnaires were returned with additional information from boaters who were also interviewed in the field.

Another major component of the study was to engage in a comprehensive mail survey of a subset of Maryland boaters who were likely to boat on Maryland's coastal bays.<sup>4</sup> A systematic approach was employed to draw the sample of boaters to be contacted in this mail survey. Initially, Maryland boat registrations were examined by boat size classification (under 16 feet, 16 to 25 feet, and over 25 feet) to determine the ratio of registered boats in each class. Next, total boat registrations (by size) were examined for the two counties closest in proximity to Maryland's coastal bays, Worcester and Wicomico. Finally, boat registrations (again by size) were examined for the two major cities near the bays, Ocean City and Berlin (including Ocean Pines Community). Table 1 identifies the number of boats registered in the state by size and the number of boats in each of the four geographic areas targeted for selecting the mail survey sample.

<sup>4</sup> A final component of the study sought to obtain information from private commercial businesses (PWC rentals, headboat operations, etc.) operating in the coastal bays. Two survey instruments were developed (Appendix S) and results of the responses that were received are summarized in Appendix T.



<b>Table 1. Maryland Boat Registrations by State and Geographic Area, 2000</b>										
<b>Boat Size</b>	<b>Maryland</b>		<b>Worcester Co.</b>		<b>Wicomico Co.</b>		<b>Berlin</b>		<b>Ocean City</b>	
	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
Under 16'	84,514	39	1,595	33	1,505	36	564	30	541	34
16' to 25'	97,823	45	2,934	61	2,351	57	1,205	65	966	60
Over 25'	33,842	16	264	6	314	7	93	5	99	6
<b>Total</b>	<b>216,189</b>	<b>100</b>	<b>4,793</b>	<b>100</b>	<b>4,170</b>	<b>100</b>	<b>1,862</b>	<b>100</b>	<b>1,606</b>	<b>100</b>

It was determined that a sample of 1,500 boaters residing within the defined geographic area would be an adequate sample to survey by mail. Based on total boats registered in each of the geographic areas and proximity to the coastal bays, the following sample sizes were selected: Wicomico County (n=500), Worcester County (n=300), Berlin, MD (n=400), and Ocean City, MD (n=300). Since the communities of Berlin and Ocean City are also located in Worcester County, care was taken to exclude boaters from these communities when the county sample was drawn. However, boaters who indicated on their registration forms that they resided in Ocean Pines or West Ocean City were included in the Worcester County sample. These samples were further stratified by boat size, proportional to the actual population of boats in each geographic area (Table 2).

<b>Table 2. Mail Sample by Boat Size and Geographic Area</b>					
<b>Boat Size</b>	<b>Wicomico Co.</b>	<b>Worcester Co.</b>	<b>Berlin</b>	<b>Ocean City</b>	<b>Total</b>
Under 16'	180	99	120	102	501
16' to 25'	285	183	260	180	908
Over 25'	35	18	20	18	91
<b>Total</b>	<b>500</b>	<b>300</b>	<b>400</b>	<b>300</b>	<b>1,500</b>

The first complete mailing of 1,500 survey instruments, a cover letter describing the survey, and a postage-paid return envelope (See Appendix F for survey materials) was sent via

first class mail on January 10, 2001. On January 19, 2001, postcard reminders were mailed to 1,494 individuals who had not returned their completed questionnaires. Another complete packet of survey materials (survey instrument, cover letter, and postage-paid return envelope) was mailed on February 1, 2001 to 906 boaters who had still not responded. This follow-up mailing further impressed upon boaters the importance of the survey and encouraged them to return their completed survey instruments as soon as possible.

By the deadline for receiving completed survey instruments, 895 were returned with usable information. This represented an overall response rate of 61%. The response rate for each geographic area was fairly consistent. Fifty-nine percent of boaters from Wicomico and Worcester Counties responded to the survey, as did 60% of Ocean City, and 65% of Berlin, Maryland boaters. Twenty-seven percent of the 895 respondents indicated they do not boat on Maryland's coastal bays. Although these individuals did not answer any questions pertaining to use of the bays, their responses to other general boating issue and concern questions are included in the study findings. See Table 3 for a complete response rate by geographic area and by boat size.

<b>Table 3. Mail Survey Response Rate</b>												
<b>Boat Size</b>	<b>Wicomico Co.</b>			<b>Worcester Co.</b>			<b>Berlin</b>			<b>Ocean City</b>		
	#	U	%	#	U	%	#	U	%	#	U	%
Under 16'	98	1	55	51	2	53	66	2	56	51	3	52
16' to 25'	175	2	62	113	3	63	177	5	69	110	7	64
Over 25'	22	--	63	10	1	59	11	--	55	11	1	65
<b>Total</b>	<b>295</b>	<b>3</b>	<b>59</b>	<b>174</b>	<b>6</b>	<b>59</b>	<b>254</b>	<b>7</b>	<b>65</b>	<b>172</b>	<b>11</b>	<b>60</b>
<b>Total Mailed</b>				<b>Undeliverable</b>			<b>Total Received</b>			<b>% Response</b>		
<b>1,500</b>				<b>27</b>			<b>895</b>			<b>61%</b>		

# represents number of completed surveys returned in each size classification

U represents undeliverable surveys due to address changes, expired forwarding, moved, etc.

% represents percent of surveys returned in each size classification

In the two survey efforts (field and mail), a number of similar questions were asked of each boating group (See Appendices A, E, and F for copies of all survey instrument questions.). This was done intentionally in order to merge the two data sets into one so that frequency responses and comparisons from all the boaters who were interviewed could be analyzed collectively.

## STUDY RESULTS

The study findings are presented in two forms. Initially, basic frequency data is reported for all boaters (combined mail and field survey respondents). This information provides an overall picture of how boaters in both surveys responded to questions about their boating experiences on Maryland's coastal bays. Another set of data is presented that compares two segments of boaters: (1) those who indicated they keep their boat in the water during the boating season, and (2) boaters who indicated they trailer their boat and use launch ramps around the bays to gain access to the water. The rationale for selecting these two segments of boaters is presented below.

The first group (in-water boaters) was comprised of all mail survey respondents and represented boaters who reside, seasonally or year-round, in bayside communities or live elsewhere in Maryland and keep their boats at a marina or dock on the bays during the boating season. The second group (trailerable boaters) includes all of the boaters who were interviewed in the field portion of the study and a significant portion of boaters responding to the mail survey.

Based on responses from all boaters (field and mail survey), 41% of all respondents noted they kept their boats in the water and 59% indicated they trailered their boats (Figure 3). Those individuals who kept their boats in the water at the various locations are considered "local" residents and the majority of them live in the Ocean City and Ocean Pines communities. Trailerable boaters lived both out-of-state and in various cities and towns in Maryland. Many of the boaters resided in towns and cities in Worcester and Wicomico counties.

Statistical tests were performed comparing the responses of the two boating segments and significant differences are noted between in-water and trailerable boaters.

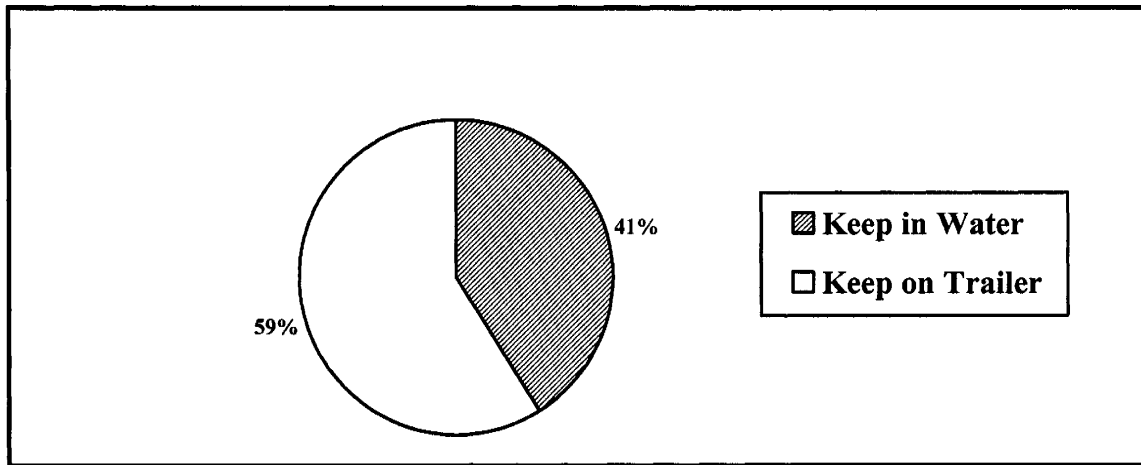


Figure 3. Location of Maryland Coastal Bays Boats During 2000 Boating Season

### PROFILE OF MARYLAND COASTAL BAYS BOATERS

The average age of all boaters in the study was 54 years. In-water boaters were older than trailerable boaters. Forty-seven percent of in-water boaters were 60 years of age or older, compared to 31% of trailer boaters. A larger percentage of trailerable boaters (40%) were between the ages of 30 and 49, than were in-water boaters (26%). In-water boaters (48% -- college graduate) tended to be more educated than trailerable boaters (34% -- college graduate). Boaters who trailer their boats to the bays were more apt to be employed full-time (64% -- trailer versus 47% -- in-water), whereas in-water boaters reported a higher incidence of retirees (46% -- in-water versus 29% -- trailer). The boating segment that kept their boats in the water also had a greater tendency to have memberships in boating or sportfishing organizations (27% -- in-water versus 20% -- trailer). See Appendix O for a list of the various organizations that boaters belong to. Overall, 96% of the respondents to the survey were males. (Table 4).

Boaters owned their current boat an average of 7 years. Fifty-eight percent owned their boats for 5 years or less, and only 4% had boats older than 20 years. There were no significant differences noted between the two segment of boaters with regard to age of boat, however trailerable boaters (7 years) tended to keep their boats a little longer than boaters who kept boats in the water (6 years) (Table 5).

<b>Table 4. Demographic Profile of Maryland Coastal Bays' Boaters (Values are in Percent)</b>			
<b>Age<sup>1</sup></b> (Average = 54 Years)	<b>All</b> <b>(n=942)</b>	<b>In-water</b> <b>(n=429)</b>	<b>Trailer</b> <b>(n=491)</b>
Less than 20	<1	<1	<1
20 – 29	3	2	3
30 – 39	13	8	17
40 – 49	21	18	23
50 – 59	25	24	25
60 – 69	24	29	19
70 – 79	14	17	10
80 and Greater	2	1	2
<b>Sex</b>	<b>(n=945)</b>	<b>(n=429)</b>	<b>(n=494)</b>
Percent Male	96	96	97
<b>Education<sup>1</sup></b>	<b>(n=876)</b>	<b>(n=429)</b>	<b>(n=492)</b>
Grade School	1	1	1
Some H. S.	5	2	7
H. S. Graduate	27	20	32
Some College	27	29	25
College Graduate	24	27	22
Post Graduate	16	21	12
<b>Employment<sup>1</sup></b>	<b>(n=948)</b>	<b>(n=432)</b>	<b>(n=494)</b>
Full-time	55	47	63
Part-time	4	3	5
Retired	38	46	29
Other	3	4	3
<b>Organization<sup>2</sup></b>	<b>(n=917)</b>	<b>(n=416)</b>	<b>(n=479)</b>
Percent Members	23	27	20

<sup>1</sup>Significant differences observed between boating groups at .01 level of significance

<sup>2</sup>Significant differences observed between boating groups at .05 level of significance

<b>Table 5. Years Owned Current Boat (Values are in Percent)</b>			
<b>Years</b>	<b>All (n=944)</b>	<b>In-Water (n=433)</b>	<b>Trailer (n=490)</b>
1	17	19	16
2 – 5	42	45	41
6 – 10	18	16	19
11 – 20	18	16	19
21 – 30	3	3	4
Greater than 30	1	1	1
<b>Average</b>	<b>7</b>	<b>6</b>	<b>7</b>

Boaters in the study were fairly experienced, with an average of 22 years of boating activity. About one-quarter (26%) of all boaters had fewer than 10 years of experience, and 29% had between 11 and 20 years. Forty-four percent of all boaters had greater than 20 years of experience boating on Maryland's coastal bays and other bodies of water. There were no significant differences observed between in-water or trailerable boaters (Table 6.).

<b>Table 6. Years of Boating Experience (Values are in Percent)</b>			
<b>Years</b>	<b>All (n=935)</b>	<b>In-Water (n=430)</b>	<b>Trailer (n=484)</b>
1 – 5	14	13	12
6 – 10	12	14	15
11 – 20	29	30	30
21 – 30	20	19	20
31 – 40	13	13	13
Greater than 40	11	12	10
<b>Average</b>	<b>22</b>	<b>22</b>	<b>22</b>

Nearly two-thirds of all boaters consider themselves advanced (48%) or expert (17%) in their boating skills. Almost one-third consider their skill level to be intermediate (30%), and only 5% consider themselves novice boaters. The skill level ratings were similar for both segments of boaters (Table 7).

<b>Table 7. Boaters' Self-Rating (Values are in Percent)</b>			
<b>Rating</b>	<b>All (n=945)</b>	<b>In-Water (n=435)</b>	<b>Trailer (n=488)</b>
Novice	5	4	5
Intermediate	30	30	30
Advanced	48	48	49
Expert	17	18	16

As one might expect, there is a direct relationship between years of boating experience and how boaters rate their skill level. Maryland coastal bays' boaters appear no different than most other boaters in this regard. The more experienced boaters, with greater than 20 years of boating experience, rated their skill level higher (59% -- advanced; 26% -- expert) than those boaters with 20 years or fewer years of experience (41% -- advanced; 10% -- expert) (Table 8).

<b>Table 8. Boaters' Self-Rating by Years Boating Experience (n=924)* (Values are in Percent)</b>		
<b>Rating</b>	<b>20 Years or Less Experience</b>	<b>Greater than 20 Years Experience</b>
Novice	8	1
Intermediate	42	15
Advanced	41	59
Expert	10	26

\*Significant differences observed between boaters' experience level at .01 level of significance

## **PROFILE OF BOATS USED IN MARYLAND'S COASTAL BAYS**

Two-thirds (66%) of all boats in the mail and field portion of the study were mid-sized boats (between 16 and 25 feet in length), and 30% were under 16 feet in length. The average size boat in the study was slightly greater than 18 feet. As expected, boats kept in the water (marinas or private docks) during the boating season were larger in size than trailered boats (average 20'4" -- in-water versus 16'10" -- trailer). Sixty-one percent of in-water boats were greater than 20 feet in length, compared to only 22% of trailered boats (Table 9).

<b>Table 9. Size of Boat Owned by Respondents* (Values are in Percent)</b>			
<b>Boat Size</b>	<b>All (n=1,095)</b>	<b>In-Water (n=438)</b>	<b>Trailer (n=630)</b>
Less than 16'	30	18	36
16' to 20 '	33	21	42
21 ' to 25	33	51	21
Greater than 25'	5	10	1
<b>Average</b>	<b>18'2"</b>	<b>20'4"</b>	<b>16'10"</b>

\*Significant differences observed between boating groups at .01 level of significance

Overall, 63% of the boats in the study were categorized as powerboats. A more exact breakdown in the mail survey identified 75% of the powerboats being powered by outboard engines and the remaining 25% being powered by inboard engines. Jonboats, skiffs, and bass boats made up 14% of the total and pontoon boats represented 10% of the total. Personal watercraft, or jetskis, represented 6% overall, and sailboats made up 3% of the total. There was a slightly higher percentage of trailerable powerboats (66%) than marina-based powerboats (60%). The small jonboats and skiffs were more apt to be trailered boats (19%), than kept in the water (4%). As expected, pontoon boats (21%) tended to be kept in the water more often than trailered (2%). This was also the case for sailboats (6% -- in-water versus 1% -- trailer) (Table 10).

<b>Table 10. Type of Boat Owned By Respondents (Values are in Percent)</b>			
<b>Type of Boat</b>	<b>All (n=1,088)*</b>	<b>In-water (n=436)</b>	<b>Trailer (n=629)*</b>
Powerboat	63	60	66
Jonboat/Skiff/Bass Boat	14	4	19
Pontoon Boat	10	21	2
Jetski/PWC	6	5	7
Sailboat	3	6	1
Jetboat	2	1	2
Other**	3	3	2

\*Does not add to 100% due to rounding

\*\*Includes: canoe, kayak, dinghy, inflatable, rowboat



The overall average horsepower of boats in the survey was 129 horsepower (137 hp -- in-water; 126 hp -- trailer). About one-third (32%) were less than 50 horsepower and almost one-half (45%) were greater than 100 horsepower. Only 9% of all the boats exceeded 250 horsepower. The majority of both in-water boats (54%) and trailerable boats (58%) were powered by engines under 100 horsepower. As expected, a greater number of in-water boats (12%) had engines greater than 250 horsepower than trailer boats (3%) (Table 11).

<b>Table 11. Horsepower of Boat* (Values are in Percent)</b>			
<b>Engine Horsepower</b>	<b>All (n=1,036)</b>	<b>In-Water (n=415)</b>	<b>Trailer (n=583)</b>
0	<1	--	<1
1 – 50	32	27	36
51 – 100	23	27	21
101 – 250	36	35	39
Greater than 250	9	12	3
<b>Average</b>	<b>129</b>	<b>137</b>	<b>126</b>

\*Significant differences observed between boating groups at .01 level of significance

Overall, a majority of all boaters carried the following equipment on their boats: depth finder (79%), compass (69%), cell phone (59%), and VHF radio (53%). Significant differences were observed between in-water and trailered boats for the following pieces of equipment: compass (76% -- in-water; 64% -- trailer), VHF radio (65% -- in-water; 44% --trailer), GPS (39% -- in-water; 28% -- trailer), and Loran (16% -- in-water; 9% --trailer). In-water boaters were more inclined to carry each of these pieces of equipment than trailerable boaters (Table 12). See Appendix G for a listing of other equipment mentioned by boaters.

<b>Table 12. Equipment Carried on Boat (Values are in Percent)</b>			
<b>Equipment</b>	<b>All (n=711)</b>	<b>In-Water (n=364)</b>	<b>Trailer (n=407)</b>
Depth Finder	79	80	78
Compass*	69	76	64
Cell Phone	59	62	56
VHF Radio*	53	65	44
GPS*	33	39	28
Loran*	12	16	9
CB Radio	12	10	13
Chart Plotter	8	10	7

\*Significant differences observed between boating groups at .01 level of significance

### BOATING ACTIVITY PATTERNS

Overall, boaters boated an average of 35 days on Maryland's coastal bays in 2000. About one-half (52%) boated 20 days or less, with the remaining 48% boating more than 20 days. There is a major difference between in-water and trailerable boaters. In-water boaters (50 days average) spent more than twice as many days boating on the bays than trailerable boaters (23 days average). For in-water boaters, 32% boated on the bays 20 days or less, with the remaining 68%, boating more than 20 days. Seventy percent of trailerable boaters boated 20 days or less on the bays, and 30% spent more than 20 days boating on the bays (Table 13).

<b>Table 13. Number of Days Boating in 2000* (Values are in Percent)</b>			
<b>Days</b>	<b>All (n=837)</b>	<b>In-water (n=368)</b>	<b>Trailer (n=460)</b>
0	4	2	5
1 – 5	12	3	20
6 – 10	15	7	22
11 – 15	10	7	12
16 – 20	12	13	11
21 – 25	5	5	6
26 – 50	24	34	15
51 – 75	8	11	5
76 – 100	6	10	2
Greater than 100	5	9	3
<b>Average</b>	<b>35</b>	<b>50</b>	<b>23</b>

\*Significant differences observed between boating groups at .01 level of significance

Of those boaters who spent time boating on Maryland's coastal bays in 2000, two-thirds (67%) spent between 76 and 100 percent of their total boating time on the bays. One-half boated exclusively on the bays, and 4% indicated they did not boat on the bays in 2000. There were significant differences noted between the two boating segments. Eighty-two percent of in-water boaters boated between 76 and 100 percent of their time on the bays with 63% boating exclusively on the bays. Slightly more than one-half (51%) of the trailerable boaters spent between 76 and 100 percent of their time on the bays, with 36% of them doing all of their boating on the bays (Table 14).

<b>Table 14. Percent of Total Boating Activity Spent on Maryland Coastal Bays*</b> (Values are in Percent)			
<b>Percent of Total Spent on Bays</b>	<b>All (n=695)</b>	<b>In-water (n=362)</b>	<b>Trailer (n=325)</b>
0	4	1	6
1 – 25	17	7	28
26 – 50	8	5	11
51 – 75	5	6	5
76 – 99	17	19	15
100	50	63	36
<b>Average</b>	<b>74</b>	<b>86</b>	<b>60</b>

\*Significant differences observed between boating groups at .01 level of significance

When boaters were asked when they do most of their boating during the course of a week, overall one-half indicated that they boated on either weekdays (22%) or weekends (28%). The other one-half (50%) split their boating time equally between weekdays/weekends. In-water boaters (55%) were more likely to indicate they boated on weekdays/weekends than trailerable boaters (44%). Trailerable boaters (33%) were more inclined to boat on weekends than in-water boaters (23%) (Table 15).

While it was expected that those boaters who indicated they were primarily either weekday or weekend boaters would have dissimilar views about many issues, especially those related to conflicts and congestion, this did not appear to be the case. When the attitudes and opinions of these two subsets of boaters were measured against a number of variables to assess their views, very few differences were observed.

Weekend boaters were more inclined to indicate that there was a lack of proper navigational aids in the bays (3.7 – weekend boaters versus 3.5 – weekday boaters; rating value based on a 5-point scale) and that there was overcrowding at popular launch ramps around the bays (3.6 – weekend boaters versus 2.9 – weekday boaters). Fifty-six percent of weekday boaters sensed that there were conflicts between bay users, compared with 42% of weekend boaters. This response is probably more of a reflection of local boaters' sentiments, who tend to boat during the week, than to the time period when they boated.

<b>Table 15. When Most of Boating Occurs* (Values are in Percent)</b>			
<b>Days Boat</b>	<b>All (n=707)</b>	<b>In-water (n=373)</b>	<b>Trailer (n=327)</b>
Weekdays	22	22	22
Weekends	28	23	33
Weekdays/Weekends	50	55	44

\*Significant differences observed between boating groups at .01 level of significance

When overall boating on the bays was examined by seasonality, a typical pattern emerges. During the major boating months of May through September, between 74% and 95% of boaters are participating in activities on Maryland's coastal bays. Peak boating months are similar for the two segments of boaters, but for most months the level of trailer boating is less than that for in-water boats. The only months when this varies is during the winter months of December (21% -- trailer; 13% -- in-water) and January (15% -- trailer; 5% -- in-water). This may coincide with activities related to waterfowl hunting when smaller skiffs and jonboats are using the bays' access ramps (Table 16).

<b>Table 16. Months Boating on Maryland Coastal Bays (Values are in Percent)</b>			
<b>Month</b>	<b>All (n=716)</b>	<b>In-water (n=376)</b>	<b>Trailer (n=331)</b>
January*	10	5	15
February	4	4	5
March	12	13	10
April*	42	47	35
May*	74	85	62
June*	89	97	80
July*	93	99	87
August*	95	99	91
September*	90	96	84
October*	63	71	55
November	33	34	31
December*	17	13	21

\*Significant differences observed between boating groups at .01 level of significance

Overall, boaters select Maryland's coastal bays as a boating destination because the bays are close to where they live, or where they are staying while visiting the area (88%). There is a notable difference between the two boating segments, with more in-water boaters (95%) mentioning this response than trailerable boaters (81%). Although a distant second choice, good fishing is suggested as a reason by one-half of all boaters (50%), and interestingly it is rated higher by trailerable boaters (56% -- trailer versus 44% -- in-water). Three attributes that relate to the tranquility of the bays (scenic qualities, peacefulness, and observing wildlife) were identified next by boaters, however they were only selected by between 26% and 39% of the boaters who responded. In-water boaters (42%) were more likely to suggest that the scenic qualities were more important to them than trailerable boaters (34%). Selecting the bays because of the lack of other boating traffic (15%) was the least favored item on the list. However, the trailerable boaters (18%) were more likely to state that this was a reason they selected the bays than in-water boaters (12%) (Table 17). For other reasons mentioned by responding boaters, see Appendix H.

<b>Table 17. Reason for Boating on Maryland Coastal Bays (Percent Responding YES)</b>			
<b>Reason</b>	<b>All (n=715)</b>	<b>In-water (n=375)</b>	<b>Trailer (n=332)</b>
Close to Home/Other Lodgings <sup>1</sup>	88	95	81
Good Fishing <sup>1</sup>	50	44	56
Scenic Qualities of Bays <sup>2</sup>	39	42	34
Peaceful Location	38	40	37
To Observe Wildlife	26	26	27
Good Water Quality	25	25	25
Adequate Channel Markers	22	24	19
Adequate Water Depth	18	17	19
Not a Lot of Other Boating Traffic <sup>2</sup>	15	12	18

<sup>1</sup>Significant differences observed between boating groups at .01 level of significance

<sup>2</sup>Significant differences observed between boating groups at .05 level of significance

Maryland coastal bays' boaters engage in two primary activities, cruising and fishing. After these two main activities, there are several activities that they engage in, such as crabbing, waterskiing/tubing, or swimming from their boats. The following figure and tables represent responses from both boaters interviewed in the field and through the major mail survey efforts. In the field interviews, 61% of boaters were engaged in fishing on the day they were interviewed, 33% had participated in pleasure cruising, and 18% were jetskiing. Less popular activities were clamming<sup>5</sup> (6%), swimming (4%), crabbing (2%), waterskiing/tubing (2%), and day sailing (1%) (Figure 4).

---

<sup>5</sup> When boaters in the field survey were asked if they had participated in recreational clamming the day they were interviewed, only 6% indicated that they had done so. In order to assess whether recreational clamming could be enhanced in the bays, those boaters who did not indicate they had clammed were asked a series of follow-up questions. The first question asked if they ever spent time clamming in the bays. Eighteen percent (34 of 189) of this group indicated that they did spend time clamming in the coastal bays. Those boaters who did not clam at any time in the bays were asked if they had more opportunities or knew of more areas to go clamming would they be more likely to participate in the future. Twenty-three percent (36 of 155) of the remaining non-clammers said they would be likely to go clamming if they had more opportunities or knew of more areas. Of the total 201 boaters interviewed in the field, 41% indicated they currently clammed in the bays, or would become active if opportunities or information was made available to them.

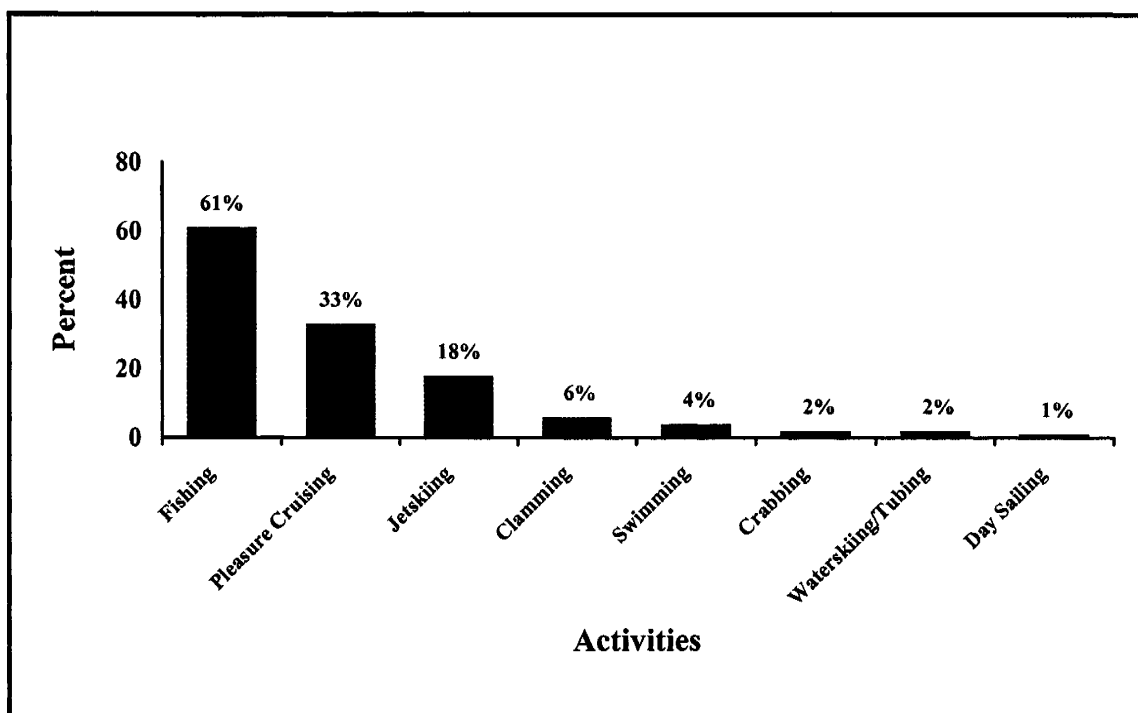


Figure 4. Activities of Boaters Interviewed in the On-site Field Survey

Respondents to the mail surveys were asked to identify what activities they participated in during the course of a year and then were asked to state what percentage of their total boating time was devoted to each activity they identified. Field survey respondents' (those who also replied to the supplemental mail survey) and mail survey respondents' activity responses were merged to understand the collective activity levels of the complete group of boaters. Like the field survey respondents who identified the activities they were engaged in on the day of their interview, mail respondents also stated that fishing was the predominant activity that they engaged in during a typical boating season. Almost three-quarters (72%) of all respondents indicated that fishing was their preferred activity. They also noted they spent, on average, about one-half (51%) of their total boating time engaged in that activity.

The only other dominant activity was pleasure cruising, with 62% of boaters indicating that they engaged in this activity. Those who participated in this activity spent an average of 43% of their total boating time doing it. There were limited numbers of jetskiers (7%) and day sailors (3%). However, as expected, they devote nearly all of their boating time exclusively to those activities (96% -- jetskiing; 100% -- day sailing) (Table 18).

<b>Table 18. Boating Activity and Average Percent of Time Spent on Activity During Typical Boating Season (n=716) (Values are in Percent)</b>		
<b>Activity</b>	<b>Percent of Boaters Indicating Participation in Activity</b>	<b>Average Percent of Boating Time Spent on Activity</b>
Fishing	72	51
Pleasure Cruising	62	43
Crabbing	26	21
Clamming	22	19
Swimming	15	16
Waterskiing/Tubing	14	16
Jetskiing	7	96
Day Sailing	3	100
Other	7	55

#### **FISHING IN MARYLAND'S COASTAL BAYS**

In addition to the field-surveyed boaters who fished the day they were interviewed (n=121), another 33 individuals, interviewed in the field, indicated that they fish at some time in Maryland's coastal bays, thus 78% of field-surveyed boaters were coastal bays' anglers. These boaters were asked some additional follow-up questions related to their fishing experiences. When asked how many days they fished from a boat, bridge, shore, or pier in the previous twelve months in the bays, the answers ranged from 0 to 100 days. The average for all respondents was 13 days. About one-half (51%) indicated they would not favor a coastal bays' fishing license, even if the money was used to improve fishing in the bays. Forty-five percent noted that they would support such a license if the funds were used in the bays. Overall, fishermen overwhelmingly preferred drift fishing (93%) to any other type of fishing they could do in the bays. This was followed by anchoring (18%), and trolling (2%) (Figure 5).



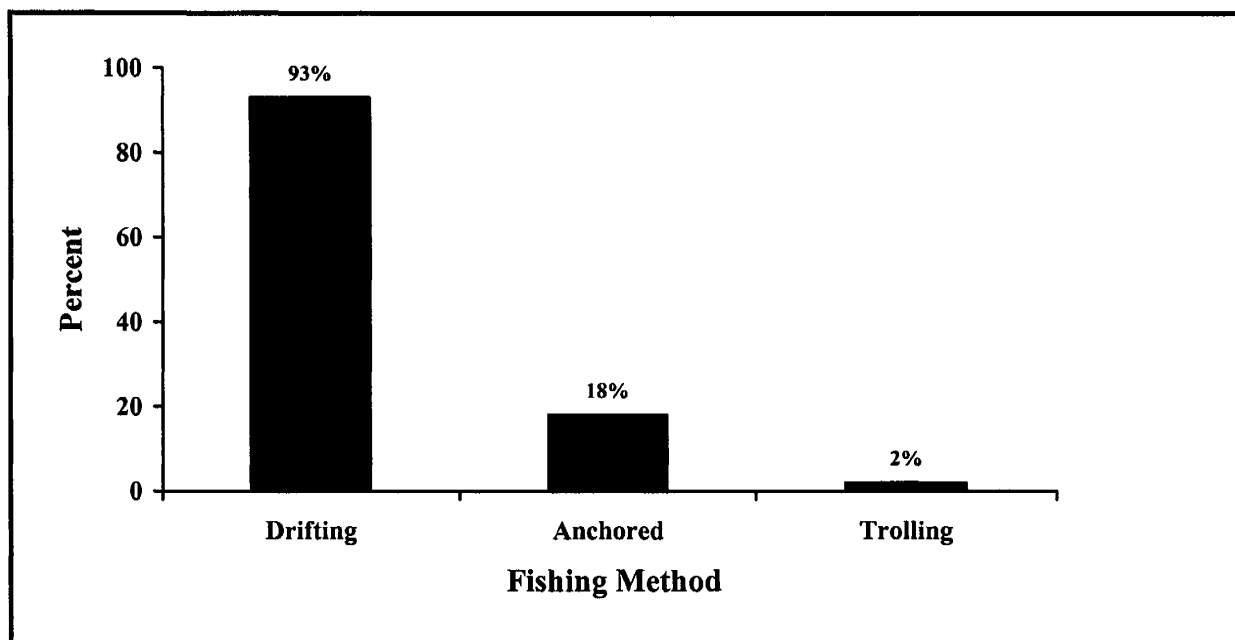


Figure 5. Preferred Bay Fishing Methods of Field-Survey Boaters

A large percentage of boaters who fish in the bays (80%) indicated that they target a specific species of fish while fishing in the coastal bays. The predominant species was flounder (81%), followed by sea trout (7%), and croaker (6%) (Table 19).

<b>Table 19. Preferred Fish Species (Values are in Percent)</b>	
<b>Target a Species (% Responding YES)</b>	<b>(n=120)</b>
	80
<b>Species Targeted</b>	<b>(n=96)</b>
Flounder	81
Sea Trout	7
Croaker	6
Bluefish	3
Rockfish	2
Sea Bass	1

Flounder were the most sought after fish in the bays and were under strict management measures during the 2000 fishing season. Fishermen were asked if they agreed with the current 2000 season regulations for flounder (15½" minimum size and 8 fish limit per day). Respondents were requested to answer using a 5-point scale (1 = Strongly Disagree and 5 = Strongly Agree). The average rating overall was 4.1 (81% agree/strongly agree). Those who disagreed with the regulations (11%) suggested other options they would prefer which included smaller minimum size limits (such as 14") or larger minimum size limits (such as 16").<sup>6</sup>

Boaters were generally pleased with their fishing experiences on the bays, however more than one-half (53%) indicated they would visit Maryland's coastal bays even if they did not plan to fish. When asked to provide responses about their fishing trip experiences, fishermen were very complimentary. Their responses to a series of statements about their trip were also rated on a 5-point scale (1 = Strongly Disagree and 5 = Strongly Agree). The highest rated response was that they would fish Maryland's coastal bays again (4.7 rating; 99% agree/strongly agree). A large percentage of fishermen wished they had caught more fish (4.3 rating; 86% agree/strongly agree), but others felt they would have been happy even if they had not caught any fish (3.6 rating; 66% agree/strongly agree). Issues that concerned fishermen the least were that noise and wakes from other boats interfered with their fishing experience (2.9 rating; 38% agree/strongly agree) and that too many people were fishing where they chose to fish (2.3 rating; 15% agree/strongly agree) (Table 20).

---

<sup>6</sup> Although fishermen voiced strong support for the 2000 summer flounder regulations, increased harvest by recreational anglers forced MDDNR to place more severe harvest restrictions on the species in 2001. Fishermen were required to adhere to a 17" minimum size limit and 8 fish limit per day. In addition, they had to comply with a closure period between July 25, 2001 and August 6, 2001. The estimates for Maryland landings of summer flounder in 2001 indicated that state was approximately 30% over its targeted number of allowable flounder that could be harvested for the year. Thus, anglers will be required to adhere to the same size and fish per day limits in 2002, as well as a closed season from July 25, 2002 through August 11, 2002.

**Table 20. Fishing Trip Statements (n=116) (Average ratings based on 5-point scale; 1=strongly disagree and 5=strongly agree)**

<b>Fishing Trip Statement</b>	<b>Average Rating</b>	<b>% Agree/Strongly Agree</b>
I will fish MD Coastal Bays again	4.7	99
I wish I had caught more fish	4.3	86
I thoroughly enjoyed fishing trip	4.2	88
The trip was well worth the money	3.8	75
I would have been happy if I had not caught any fish	3.6	66
I did not catch the kinds of fish I hoped for	3.3	52
Noise/wake from other boats interfered with my fishing	2.9	38
Too many people fished where I was fishing	2.3	15

#### **RECREATIONAL CRABBING IN MARYLAND'S COASTAL BAYS**

There has been concern voiced over the past few years that blue crab populations in Maryland's bays and tributaries have been on the decline. In order to obtain information on the harvest of blue crabs by recreational crabbers, a series of questions was posed to coastal bays' boaters. Although it was unclear at the onset what percentage of boaters engaged in recreational crabbing in the bays, a respectable 44% of all boaters noted that they do engage in the activity sometime during the year. In-water boaters (56%) were significantly more inclined to participate than trailerable boaters (36%). This fact becomes more obvious when gear type is examined. In-water boaters (57%), who are mostly bay residents, have a greater inclination to use crab pots as opposed to trailerable boaters (17%). This may be due to the fact they can tie the pots to their docks or bulkheads if they own waterfront property. Trailerable boaters are more likely to use hand lines (76% -- trailer versus 63% -- in-water) and trotlines (18% -- trailer versus 7% -- in-water) than are in-water boaters (Table 21).

**Table 21. Boaters Who Crab in Maryland Coastal Bays and Type of Crabbing Gear Used (Values are in Percent)**

	<b>All (n=1061)</b>	<b>In-water (n=424)</b>	<b>Trailer (n=613)</b>
Spend time crabbing in bays (% Responding YES)*	44	56	36
<b>Gear Type</b>	<b>All (n=472)</b>	<b>In-water (n=239)</b>	<b>Trailer (n=223)</b>
Hand Lines*	69	63	76
Pots*	38	57	17
Collapsible Traps	24	25	23
Dip Nets	19	16	21
Trotlines*	12	7	18
Other Gear	<1	--	<1

\*Significant differences observed between boating groups at .01 level of significance

It is also interesting to note that in-water boaters spent almost three times as many days, on average, crabbing per year than trailerable boaters (26 days -- in-water versus 9 days-- trailer). Again this is probably due to the fact that many in-water boaters have property on the water and have direct access to tidal waters for crabbing. Since trailerable boaters spend fewer days boating in the coastal bays than waterfront residents, it is understandable that they would crab fewer days than in-water boaters. Fifty-seven percent of the trailerable boaters spent between one and five days crabbing in the bays compared to 26% of the in-water boaters (Table 22).

**Table 22. Days Per Year Spent Crabbing on Maryland Coastal Bays\* (Values are in Percent)**

<b># Days</b>	<b>All (n=435)</b>	<b>In-water (n=216)</b>	<b>Trailer (n=210)</b>
1 – 5	41	26	57
6 – 10	22	23	21
11 – 15	8	10	6
16 – 20	10	13	8
21 – 25	2	2	1
26 – 50	9	12	6
Greater than 50	8	14	1
<b>Average</b>	<b>17 Days</b>	<b>26 Days</b>	<b>9 Days</b>

\*Significant differences observed between boating groups at .01 level of significance

Even though trailerable boaters spent fewer days on average crabbing in the bays than their waterfront resident counterparts, they reported a higher per trip catch. Trailerable boaters mentioned they harvested an average of 23 crabs per trip compared to 14 crabs per trip for in-water boaters (Table 23).<sup>7</sup>

<b>Table 23. Average Number of Crabs Caught Per Trip* (Values are in Percent)</b>			
<b># Crabs</b>	<b>All (n=441)</b>	<b>In-water (n=225)</b>	<b>Trailer (n=207)</b>
0	3	2	3
1 – 5	15	20	10
6 – 10	22	24	21
11 – 15	21	27	15
16 – 20	11	9	12
21 – 25	9	6	11
26 – 50	16	10	24
Greater than 50	3	2	5
<b>Average</b>	<b>18 Crabs/Trip</b>	<b>14 Crabs/Trip</b>	<b>23 Crabs/Trip</b>

\*Significant differences observed between boating groups at .01 level of significance

<sup>7</sup> Although the survey instrument used in the field portion of the study did not explicitly state “legal-size crabs (5” or larger)” should be reported when boaters were asked how many crabs they typically caught each crabbing trip, the average harvest figures reported here should be reliable. Only 10% of the total 441 boaters responding to this question were field-surveyed boaters. Thus, even if the field-survey boaters were reporting a portion of their catch that may be undersized, it is unlikely the averages presented here would change significantly.

Both segments of boaters, however, agreed that blue crab stocks in Maryland's coastal bays appear to be decreasing (73% -- in-water; 66% -- trailer). Thirteen percent of the overall respondents perceived the stocks were remaining steady (Table 24).

<b>Table 24. Perception of Blue Crab Stocks in Maryland Coastal Bays (Values are in Percent)</b>			
<b>Perception</b>	<b>All (n=466)</b>	<b>In-water (n=236)</b>	<b>Trailer (n=221)</b>
Increasing	3	2	5
Staying the Same	13	14	12
Decreasing	69	73	66
Unsure/Can't Tell	14	11	18

#### **SPATIAL ANALYSIS OF BOATING DISTRIBUTION AND PATTERNS**

Another method of analyzing boating distribution and activity patterns with resource managers in mind is through manual manipulation of hand-drawn maps or in a computer environment using a Geographic Information System (GIS). GIS mapping is designed to display digital spatial (and non-spatial) data and information for use in a decision-making, management, or planning-process framework. The following analysis is presented to provide resource managers with another tool to consider for managing boating in Maryland's coastal bays. It can be used with much of the other information presented to offer a clearer picture of activity patterns and to begin assessing possible conflicting uses between users. Two methods of spatial analysis were used in this study: (1) aerial observations and (2) field mapping.

Assessing Peak Boating Activity Through Aerial Observations: On seven dates during the summer of 2000, MDDNR staff conducted aerial flights over the coastal bays to determine activity during peak boating times. On each of the seven flights an observer recorded activities of boaters as clearly as possible. A total of 1,987 boats were observed during the peak boating hours between 10 a.m. and 2 p.m. (an average of 283 vessels were counted each day). Overall, four types of activities observed from the air represented 88% of the total activity recorded. Drifting and anchored boats were the most observed activity (43% of total activity recorded). In most cases, these were private boats engaged in sportfishing activity. The next most observed

activity was cruising boats (24%). These boats could have been cruising from one location to another to engage in a certain activity (such as fishing) or could have been engaged in cruising as their primary boating activity on the day they were observed. Jetskiing represented 13% of the total activity for the seven flight days and boats anchored to shore represented 8% of the total activity (Table 25). Maps and tables of the seven individual flights are presented in Appendix Q.

<b>Table 25. Total Activity Counts for Seven Aerial Flights Conducted Between 7/19/00 and 9/17/00 (n=1,987)*</b>		
<b>Activity</b>	<b>Number</b>	<b>Percent</b>
Drifting/Anchored Boats	854	43
Cruising Boats	481	24
Jetskiing	253	13
Boats Anchored to Shore	162	8
Canoe/Kayak	68	3
Sailing	27	1
Recreational Clamming	27	1
Commercial Crabbing	20	1
Swimming from Anchored Boats	16	1
Clamming (unknown)	15	1
Headboat (fishing)	11	1
Headboat (sightseeing)	10	1
Crabbing (unknown)	9	<1
Waterskiing/Tubing	8	<1
Parasailing	6	<1
Unknown	18	1

\*Source: Maryland Department of Natural Resources

Field Mapping Boating Activity: This GIS analysis focuses on map data collected from the field interviews of the 201 boaters interviewed during the summer 2000. Boaters were requested to furnish information about their boating activity on the day they were interviewed by marking a number of different items on a map of the coastal bays. First they were requested to trace the route of their boating activity for the day. Next they were requested to identify where they participated in certain activities by placing a letter code for each activity (e.g. F = Fishing, PC = Pleasure Cruising) on the map location. Boaters were also requested to indicate if there were areas on the bays that they “most” or “least” enjoyed and to state the reasons for their responses.

Figure 6 depicts a map of the coastal bays and identifies four distinct geographical areas that were created to better focus the results of the field mapping information. Area 1 includes the Assawoman Bay and St. Martin River; Area 2 includes all of Isle of Wight Bay; Area 3 highlights the Ocean City Inlet and Route 50 Bridge area; and Area 4 includes Sinepuxent Bay southward to the land area known as South Point.<sup>8</sup>

Figure 7 shows a map of activity sites as reported by boaters. Activity sites represent locations of boaters’ activities on the day they were interviewed. As expected, fishing dominates the various sites throughout the bays (n=259), with clamming (n=7), waterskiing (n=7), swimming (n=3) and crabbing (n=2) being other activities that were mentioned by boaters. Jetskiing or PWC activity is not depicted as points on this map, but will be shown on subsequent maps as boating routes, as opposed to a series of points. The activity points are fairly dispersed throughout the bays, with major concentrations of fishing activity located in the Ocean City Inlet area, throughout Isle of Wight Bay, and dispersed throughout Sinepuxent Bay. Waterskiing occurs mostly in the open expanses of Isle of Wight Bay, with limited clamming and crabbing activity depicted in Isle of Wight Bay and Sinepuxent Bay.

---

<sup>8</sup> Chincoteague Bay was not included in the study areas since the activity levels in this bay are significantly lower than the other areas. Development pressures are less along the Chincoteague Bay shoreline, with fewer access points and longer distances for boaters to travel from the more heavily used access sites to the north.



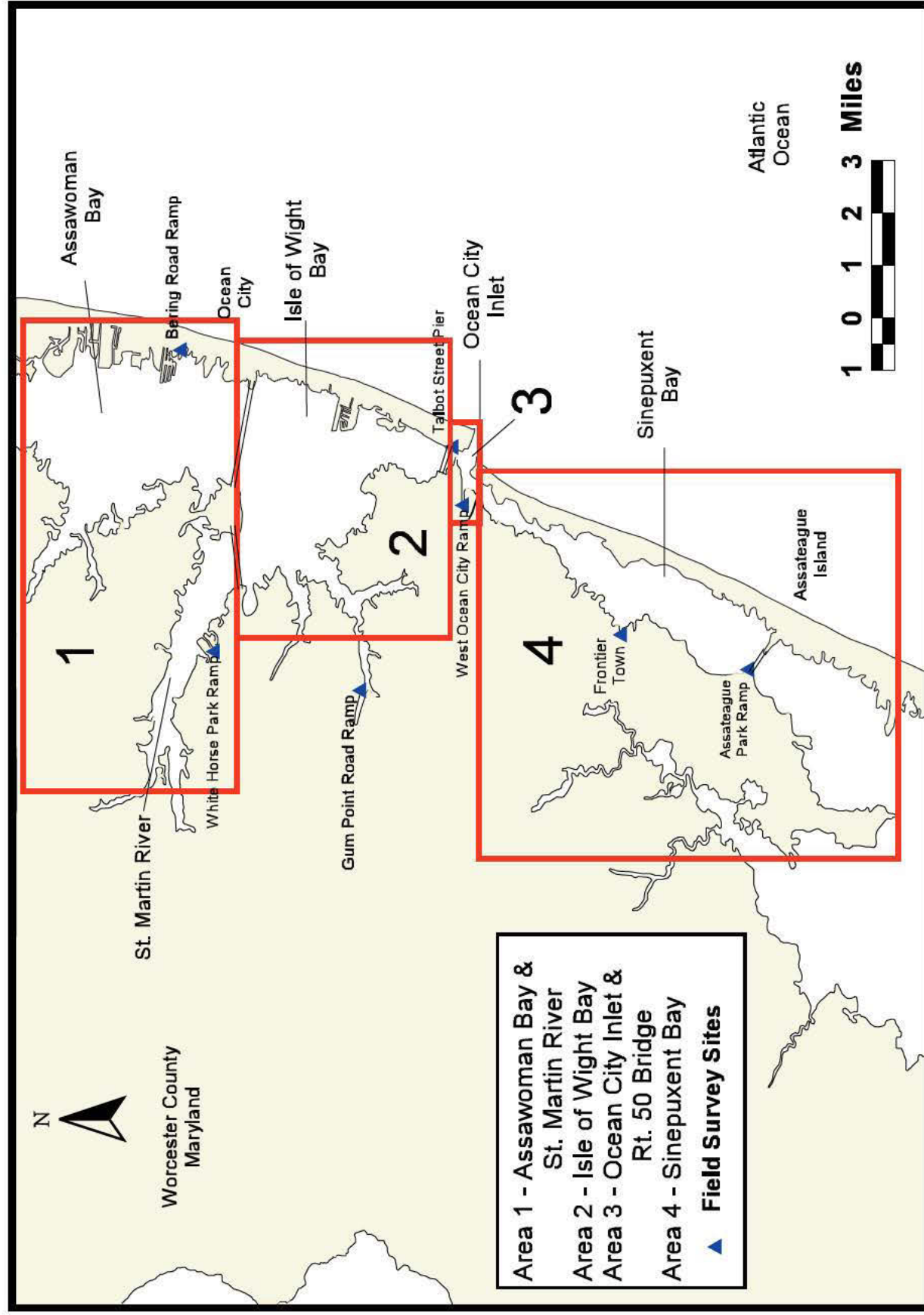


Figure 6. Maryland Coastal Bays Study Areas

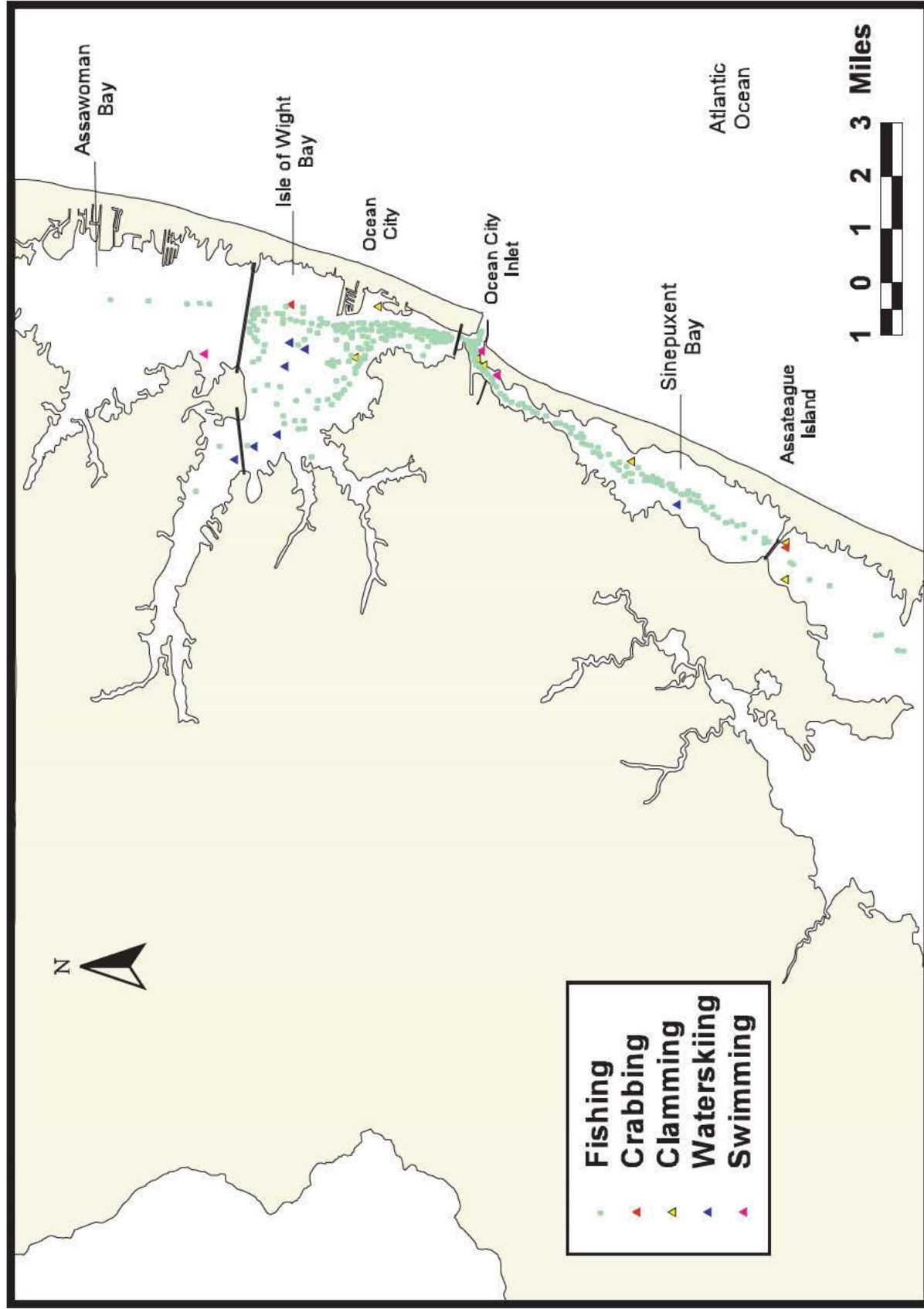


Figure 7. Point Pattern Map of Reported Activity Sites, Maryland Coastal Bays (Points are not to scale, but represent approximate location of activity sites.)

Figures 8 and 9 show PWC routes overlayed with the previous map of activity locations for areas north and south of Ocean City Inlet. As the maps clearly indicate, PWC activity throughout the bays occurs in the same locations as fishing, clamming, and crabbing. Although the maps seem to indicate there is constant conflict between jetskiers and boaters engaged in other activities, this may not be the case since these maps represent all of the reported PWC routes and activities from boaters interviewed in the field on 32 different dates during the summer of 2000. However, the information presented on the two maps suggests that the potential for conflicts, and possible safety concerns, does exist between PWC operators and other boaters. An important fact to note is that the PWC operators who were interviewed for this analysis represent only a small portion of the total population of jetskiers who operate on the bays. It does not include PWC rental customers.

Another interesting series of map data is presented to begin identifying areas of the bays that boaters “most enjoyed” or “least enjoyed”. This information begins to assess boaters’ attitudes and preferences for what contributes to an enjoyable boating experience, or what components may lead to an unsatisfactory experience. Overall, boaters reported more likes (n=103), than dislikes (n=55) however their preferences varied by geographic location in the bays (Figure 10).

For instance, in Assawoman Bay and St. Martin River area (Figure 11), boaters were very complimentary about the lack of crowds, nice scenery, and calm water. Only one respondent mentioned that the area was too crowded. In the Isle of Wight Bay (Figure 12), there was more diversity from boaters about the areas they most, and least, enjoyed. The primary reasons for enjoying the area were based on good fishing and less crowding (northern end of Isle of Wight Bay). The main reasons boaters least enjoyed the area was because of too many other boaters, shallow water, and rough water.

The Ocean City Inlet area (Figure 13) also brought mixed responses, with boaters indicating they liked the area because of good fishing, but those who disliked it felt it was too crowded. In Sinepuxent Bay (Figure 14) there were numerous reasons why boaters enjoyed the area, with the most popular responses being less crowded, good fishing, and calm water. The main reason boaters were least impressed with Sinepuxent Bay was because of too many jetskiers. For complete responses from boaters about their reasons they most enjoyed or least enjoyed certain geographic areas of the bays see Appendix R.

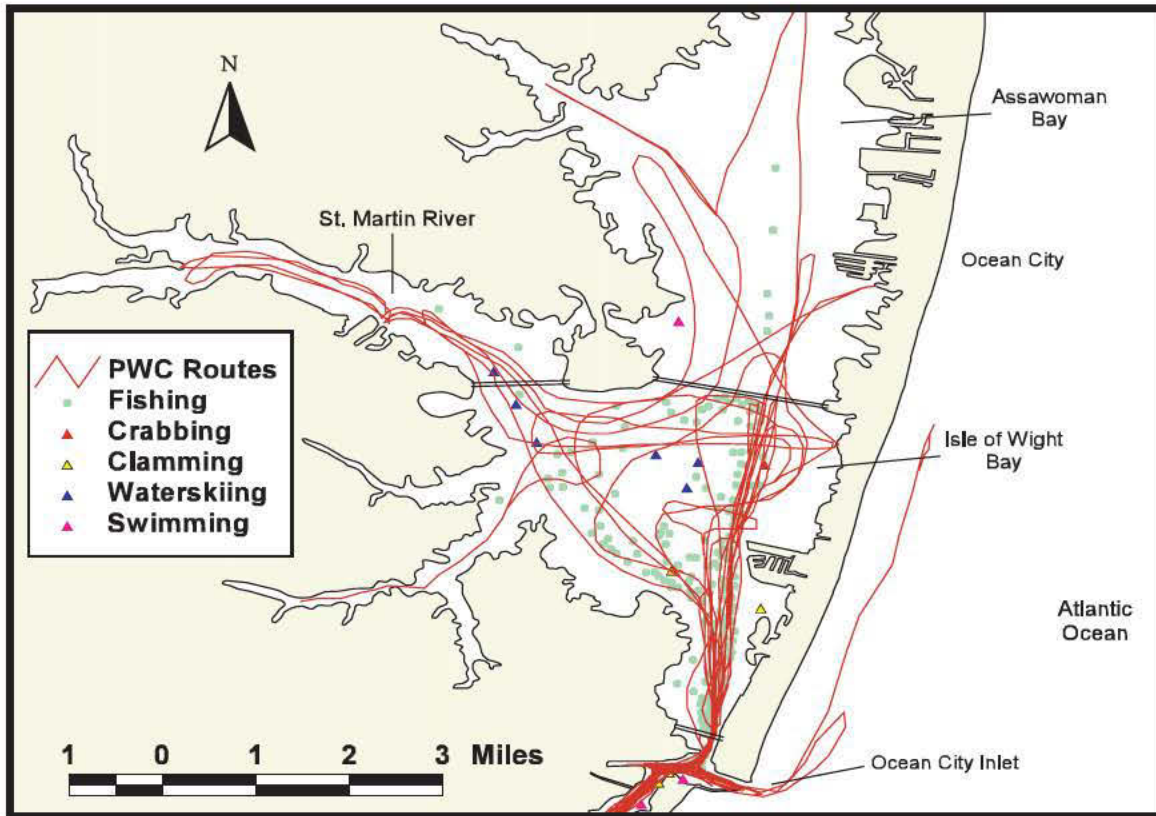


Figure 8. Map of PWC Routes and Activity Locations, North of Ocean City Inlet  
(Points and PWC routes are not to scale, but represent approximate locations.)

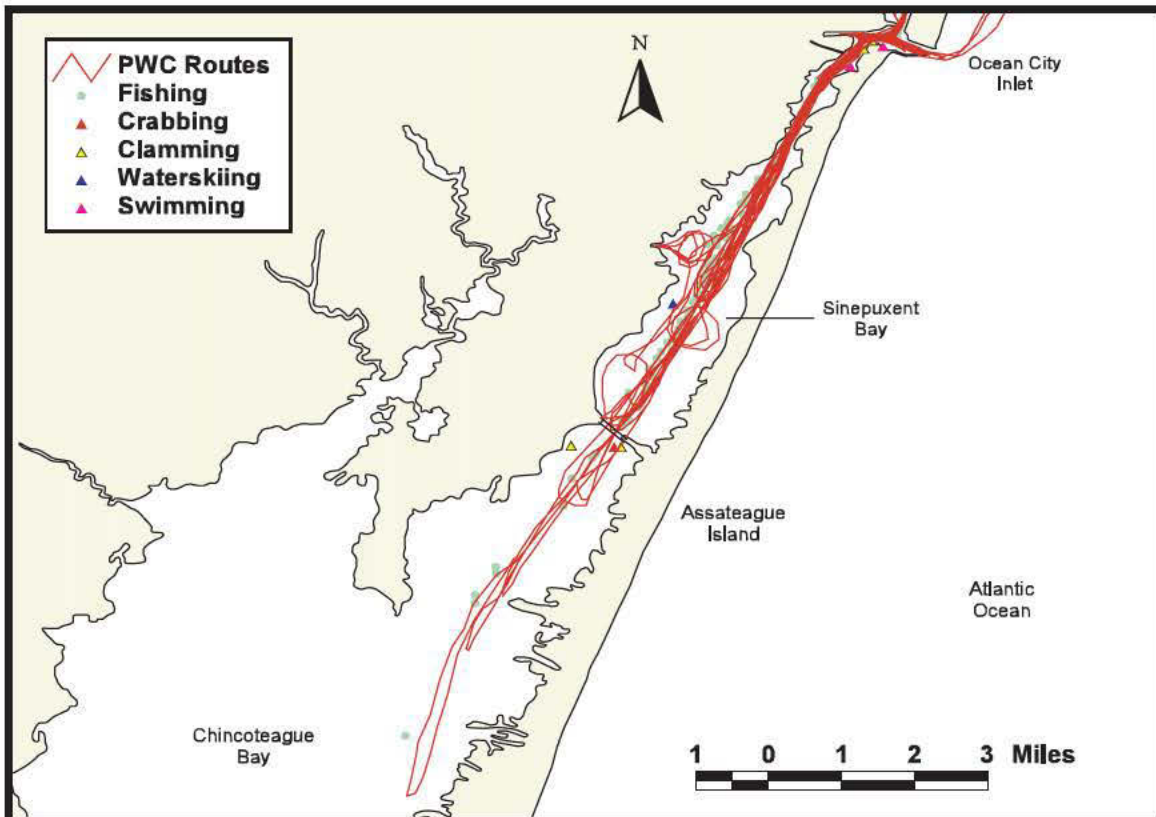


Figure 9. Map of PWC Routes and Activity Locations, Ocean City Inlet and South  
(Points and PWC routes are not to scale, but represent approximate locations.)



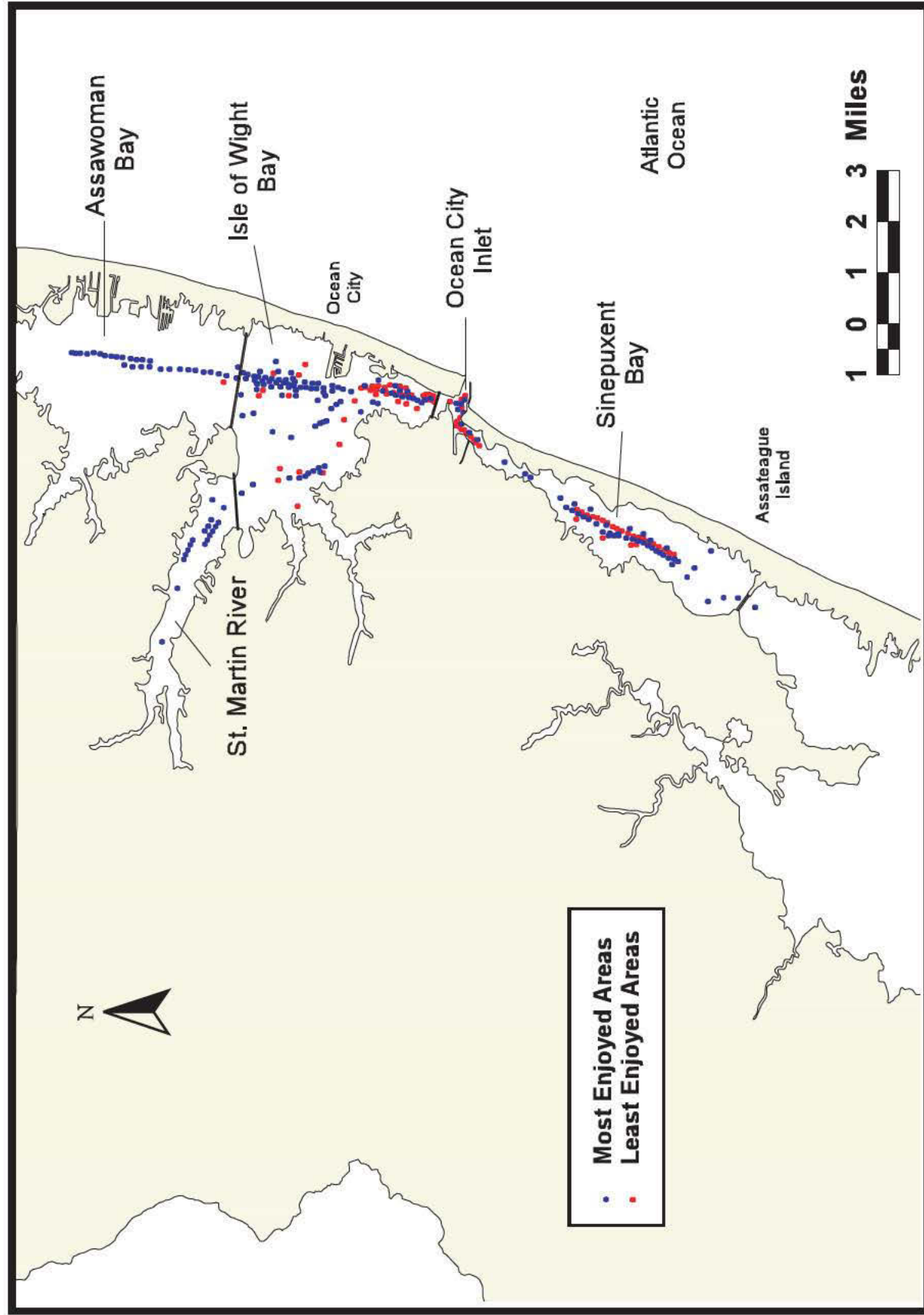


Figure 10. Point Pattern Map of Reported Desirability Sites, Maryland Coastal Bays (Points are not to scale, but represent approximate locations.)

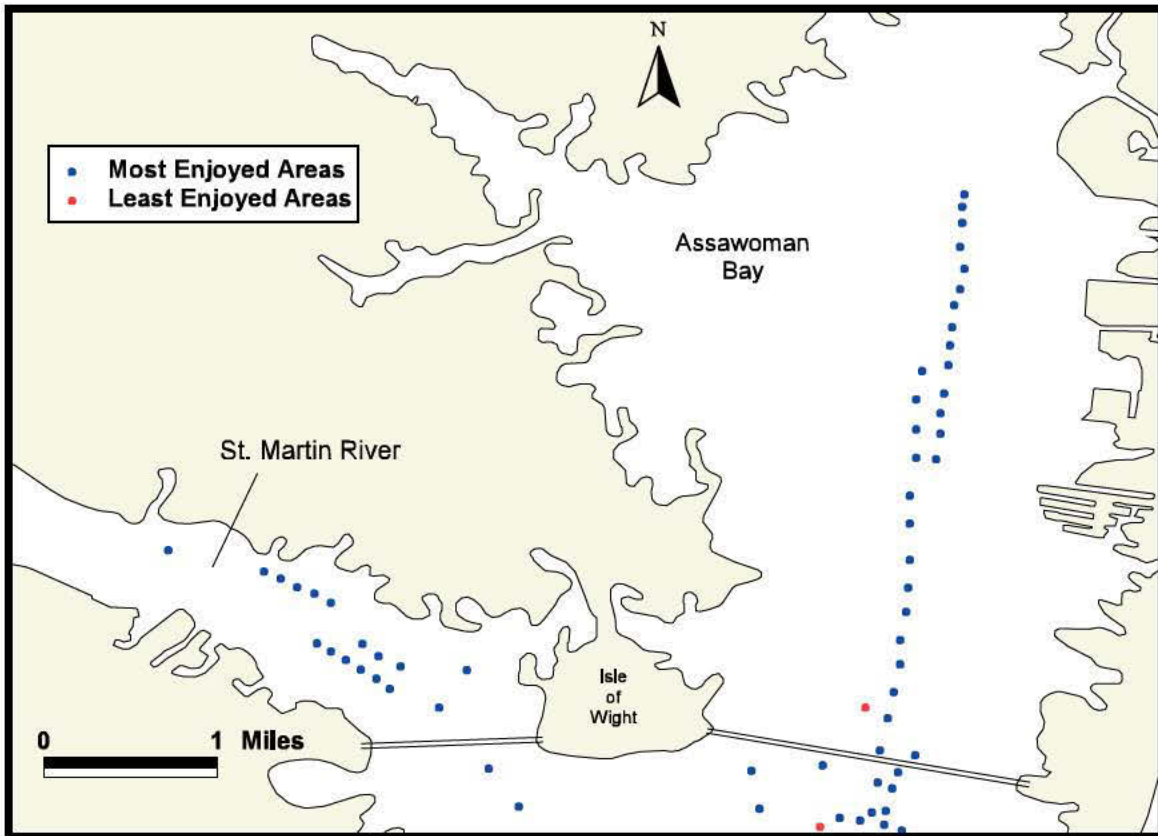


Figure 11. Point Pattern Map of Most and Least Enjoyed Areas in Assawoman Bay and St. Martin River (Points are not to scale, but represent approximate locations.)

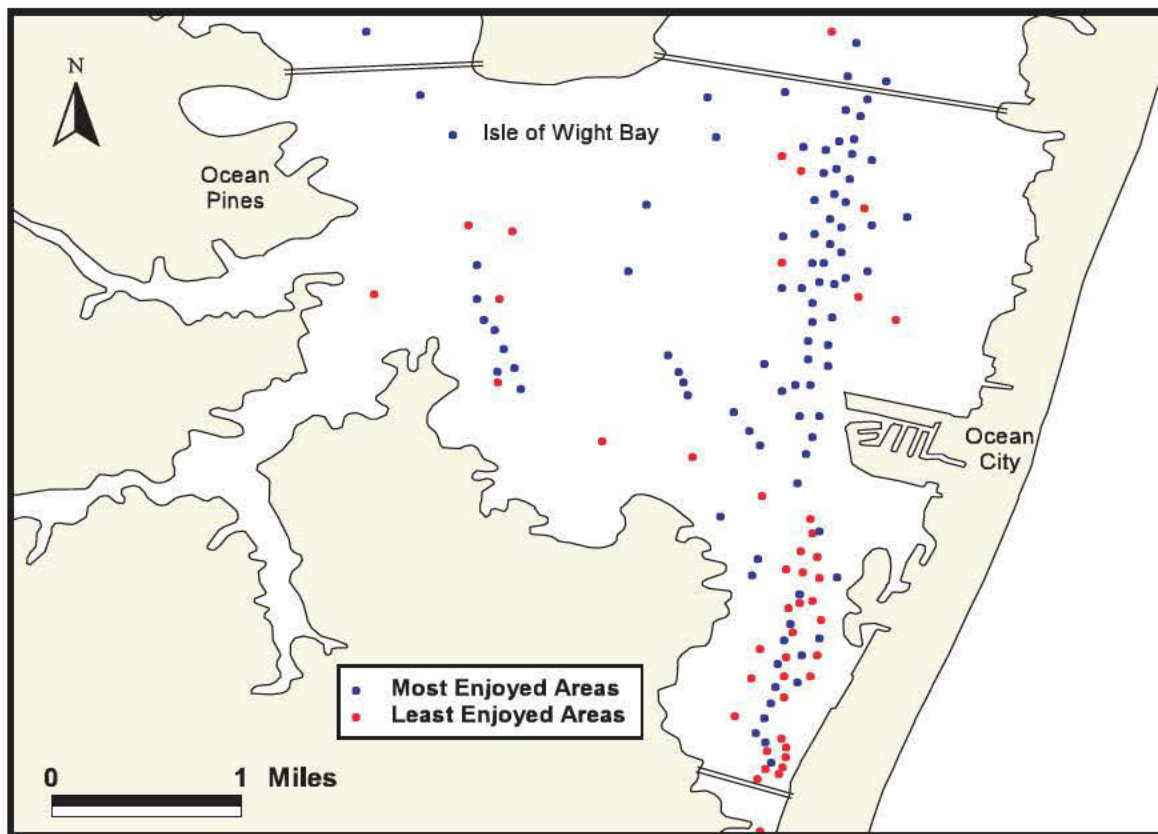


Figure 12. Point Pattern Map of Most and Least Enjoyed Areas in Isle of Wight Bay (Points are not to scale, but represent approximate locations.)

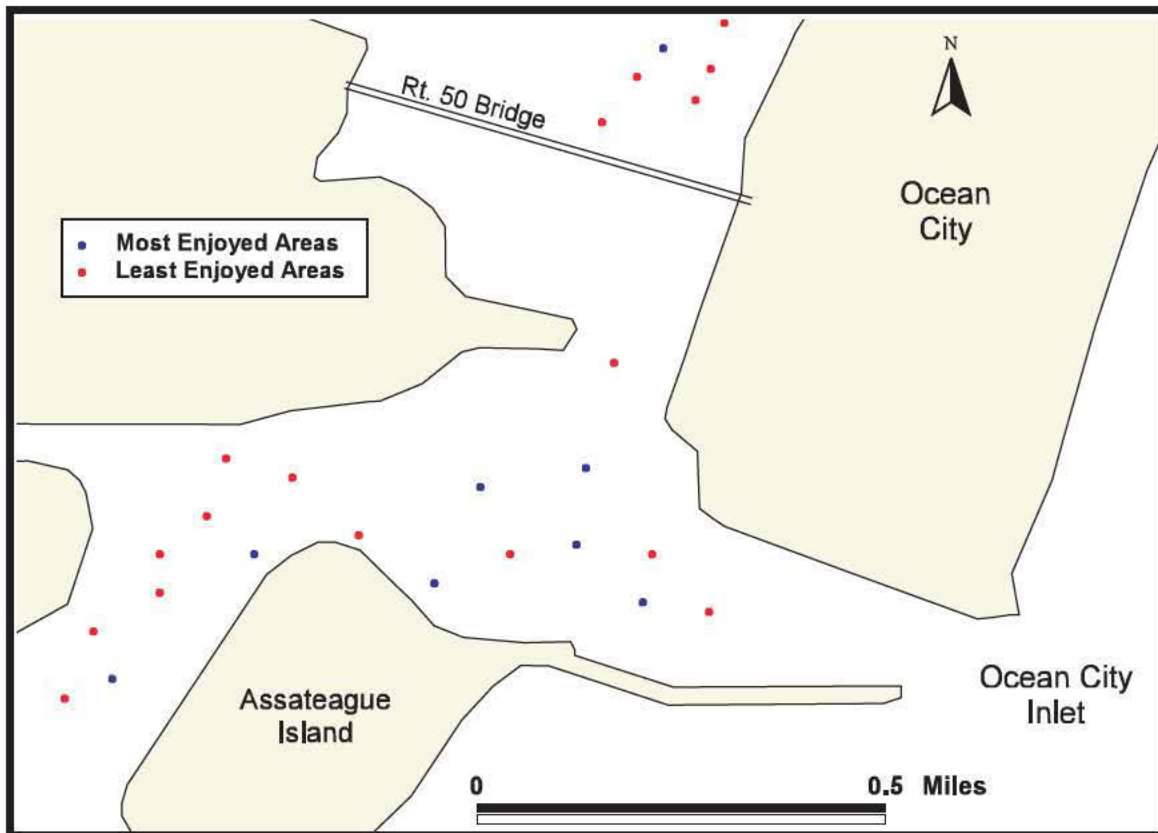


Figure 13. Point Pattern Map of Most and Least Enjoyed Areas in OC Inlet and Route 50 Bridge Area (Points are not to scale, but represent approximate locations.)

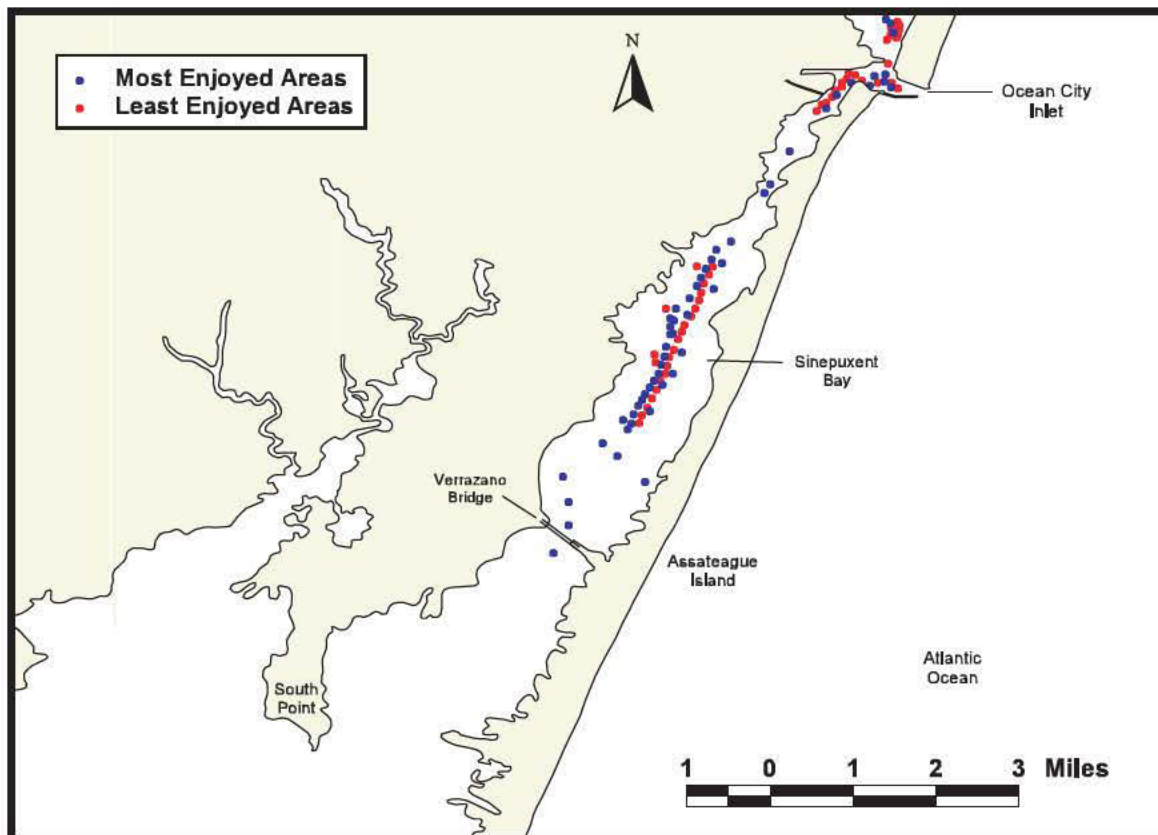


Figure 14. Point Pattern Map of Most and Least Enjoyed Areas in Sinepuxent Bay (Points are not to scale, but represent approximate locations.)

## PERCEPTIONS OF BOATING EXPERIENCES

When boaters were asked to provide their perceptions of how they would rate boating on the bays overall, 16% percent rated conditions “excellent” or “perfect”. The majority of boaters indicated they thought boating was “good” (32%) or “very good” (36%). Only 2% indicated they thought boating on the bays was “poor”. No discernable differences were noted between the two boating segments (Table 26).

<b>Table 26. Rate Boating on Maryland Coastal Bays (Values are in Percent)</b>			
<b>Rating</b>	<b>All (n=715)</b>	<b>In-water (n=375)</b>	<b>Trailer (n=331)</b>
Poor	2	2	2
Fair	14	15	11
Good	32	35	30
Very Good	36	35	38
Excellent	14	12	17
Perfect	2	2	3

In general, the majority (57%) of boaters sensed that the quality of their boating experience had remained the same over the past 5 years. Almost one-third (29%) indicated they thought it had decreased, and 14% suggested that it had increased. In-water and trailerable boaters responded similarly. See Appendix I to review specific reasons for these responses (Table 27).

<b>Table 27. Quality of Boating Experience During Past 5 Years (Values are in Percent)</b>			
<b>Quality Rating</b>	<b>All (n=702)</b>	<b>In-water (n=369)</b>	<b>Trailer (n=325)</b>
Increased	14	15	13
Stayed the Same	57	56	55
Decreased	29	28	32



Respondents overall were concerned about boaters operating their vessels in an unsafe manner (4.4 rating; 86% very/extremely important), boaters operating vessels under the influence of alcohol or drugs (4.1 rating; 75% very/extremely important) and the overcrowding of navigable waterways (4.1 rating; 74% very/extremely important). Also of note is the importance boaters attached to water quality (4.0 rating; 71% very/extremely important). Although many of the concerns were supported similarly by both boating segments, in-water boaters (typically larger vessels) were significantly more concerned about the adequacy of maintained navigation channels than trailerable boaters (3.7 -- in-water versus 3.5 -- trailer). As expected, trailerable boaters were significantly more concerned about crowding conditions at popular boat ramps (3.7 -- trailer versus 2.5 -- in-water) (Table 28).

<b>Table 28. Concerns of Boaters on Maryland Coastal Bays (Average ratings based on 5-point scale; 1=not at all important and 5=extremely important)</b>						
<b>Concern</b>	<b>All (n=684)</b>		<b>In-water (n= 362 )</b>		<b>Trailer (n= 315 )</b>	
	<b>Average Rating</b>	<b>% V/E Important</b>	<b>Average Rating</b>	<b>% V/E Important</b>	<b>Average Rating</b>	<b>% V/E Important</b>
Boaters operating in unsafe manner	4.4	86	4.4	87	4.4	85
Boaters operating under the influence	4.2	75	4.2	75	4.2	75
Overcrowding of navigable waters	4.1	74	4.0	73	4.1	74
Poor water quality affecting boating	4.0	71	4.0	73	3.9	69
Lack of adequate navigation channels <sup>2</sup>	3.6	56	3.7	61	3.5	50
Lack of proper navigational aids	3.5	54	3.6	55	3.5	53
Boats drifting/anchored in channels	3.4	48	3.4	50	3.3	45
Lack of marine enforcement	3.3	42	3.3	40	3.3	44
Overcrowding at popular boat ramps <sup>1</sup>	3.1	40	2.5	22	3.7	60

<sup>1</sup>Significant differences observed between boating groups at .01 level of significance

<sup>2</sup>Significant differences observed between boating groups at .05 level of significance

One-half of all boaters felt that there were conflicts between users in the coastal bays. The specific conflicts mentioned by boaters are included in Appendix K. There were differences observed between in-water boaters (57%) and trailerable boaters (41%), with more sensitivity to conflicts being observed by the local population who keep their boats in slips or marinas around the bays. About one-third (36%) of all boaters indicated that they had observed boating accidents, near accidents, or unsafe boating practices within the previous year which could be attributed to conflicting uses on the bays. Again, there was a greater likelihood for in-water boaters (40%) to have observed the accidents than trailerable boaters (31%) (Table 29). See Appendix L for specific comments concerning accidents and unsafe practices observed by boaters.

<b>Table 29. Observed Conflicts or Accidents Among Boaters</b>			
	<b>All (n=657)</b>	<b>In-water (n=343)</b>	<b>Trailer (n=307)</b>
Have observed conflicts (% Responding YES) <sup>1</sup>	50	57	41
	<b>All (n=692)</b>	<b>In-water (n=359)</b>	<b>Trailer (n=325)</b>
Have observed accidents/unsafe boating practices (% Responding YES) <sup>2</sup>	36	40	31

<sup>1</sup>Significant differences observed between boating groups at .01 level of significance

<sup>2</sup>Significant differences observed between boating groups at .05 level of significance

Since the Ocean City Inlet area is heavily used by boaters, a series of problems that could be encountered at the inlet was listed on the survey instrument and respondents were asked to provide their input. The question asked boaters whether they were aware of, or they had experienced any of the problems and how serious they thought the problems were. A 5-point scale was used to rate the problems, with 1 = Least Serious and 5 = Most Serious. Overall, the highest-rated problem mentioned by boaters was jetskis zig-zagging in the inlet (4.1 rating; 75% most serious), this was followed closely by inexperienced boat operators in the inlet (4.0 rating; 75% most serious). Other highly-rated problems that were mentioned dealt with the physical features of the inlet and water body. These included: fast moving current (3.6), water turbulence and wave action (3.6), and narrow passageway (3.5). See Appendix M for a listing of other problems mentioned by boaters. Significant differences were noted between boating segments

for problems related to fast-moving currents affecting boating and underpowered boats operating in the inlet area (Table 30).

<b>Table 30. Problems Encountered at Rt. 50 Bridge/Inlet (Average ratings based on 5-point scale; 1=least serious and 5=most serious)</b>						
<b>Problem</b>	<b>All (n=636)</b>		<b>In-water (n= 362 )</b>		<b>Trailer (n= 315 )</b>	
	<b>Average Rating</b>	<b>% Most Serious*</b>	<b>Average Rating</b>	<b>% Most Serious*</b>	<b>Average Rating</b>	<b>% Most Serious*</b>
Jetskis zig-zagging in inlet	4.1	75	4.0	72	4.2	79
Inexperienced operators	4.0	72	4.0	71	4.1	74
Fast moving current <sup>1</sup>	3.6	57	3.8	63	3.4	50
Turbulence and wave action	3.6	56	3.7	61	3.5	51
Narrow passageway	3.5	53	3.6	54	3.5	51
Boats not suitable for area	3.4	47	3.3	45	3.4	49
Excessive boat wakes	3.3	44	3.3	42	3.4	45
Overloaded boats	3.3	41	3.2	39	3.4	44
Boats ahead moving too slow for steerage	3.1	39	3.2	41	3.0	36
Underpowered boats <sup>2</sup>	3.0	33	3.0	33	3.0	33
Boats maneuvering until bridge opens	2.8	24	2.8	24	2.7	24

\*Percent values represent boaters who selected ratings of 4 and 5 on the 5-point scale

<sup>1</sup>Significant differences observed between boating groups at .01 level of significance

<sup>2</sup>Significant differences observed between boating groups at .05 level of significance

## BOATING SAFETY CONCERNS

Safety is a key ingredient in a quality boating experience and a series of safety-related questions was asked of boaters to gauge how they would respond. Seventy-seven percent of all boaters indicated that they familiarize themselves with new Coast Guard regulations each year. Thirty-one percent receive a Coast Guard Auxiliary courtesy safety inspection annually, and 59% have taken a boater safety training course at some time. The only significant difference observed with regard to these questions was that in-water boaters (68%) were more likely to have taken a safe boating course than trailerable boaters (52%) (Table 31).

<b>Table 31. Boating Safety Issues</b>			
<b>Safety Issues</b>	<b>All (n=708)</b>	<b>In-water (n=372)</b>	<b>Trailer (n=328)</b>
Familiar with Coast Guard regulations each year (% Responding YES)	77	75	80
	<b>All (n=706)</b>	<b>In-water (n=370)</b>	<b>Trailer (n=330)</b>
Receive annual Coast Guard Auxiliary safety inspection (% Responding YES)	31	30	32
	<b>All (n=846)</b>	<b>In-water (n=375)</b>	<b>Trailer (n=463)</b>
Taken a boater safety training course (% Responding YES)*	59	68	52

\*Significant differences observed between boating groups at .01 level of significance

A majority of all boaters (63%) had taken a boating safety course since 1990. One-third (32%) had completed a course during the 1970's and 1980's. There was very little difference in the time period when a safety course was taken between in-water boaters and trailerable boaters. A majority of both segments had taken a course since 1990 (67% -- in-water; 58% -- trailer) (Table 32).

<b>Table 32. Year of Last Safety Course</b>			
<b>Year</b>	<b>All (n=364)</b>	<b>In-water (n=223)</b>	<b>Trailer (n=137)</b>
Before 1960	2	1	3
1960s	4	3	5
1970s	12	9	15
1980s	20	20	19
1990s	56	59	53
2000s	7	8	5

## ENVIRONMENTAL CONCERNS

The largest segment of boaters (40%) perceived that water quality in the bays had not changed very much over the last five years. Slightly more than one-quarter (28%) thought it was deteriorating. Trailerable boaters were more inclined to state that water quality conditions had improved (21% -- trailer versus 13% -- in-water). In-water boaters were more apt to mention that water quality had deteriorated over the last 5 years (30% -- in-water versus 23% -- trailer). In-water boaters were also more inclined to suggest conditions had not changed very much over the years (43% -- in-water versus 37% -- trailer) (Table 33).

<b>Table 33. Perception of Water Quality Over Last 5 Years* (Values are in Percent)</b>			
<b>Perception</b>	<b>All (n=707)</b>	<b>In-water (n=373)</b>	<b>Trailer (n=326)</b>
Improving	17	13	21
Not Changing Very Much	40	43	37
Deteriorating	27	30	23
Don't Know/Not Sure	16	14	19

\*Significant differences observed between boating groups at .01 level of significance

A majority (61%) of all boaters felt living resources in the bays (e.g. crabs, clams, and fish) had deteriorated over the last five years. Only 8% felt the resources had improved during that time period. Trailerable boaters were slightly more inclined to indicate living resources had improved (10% -- trailer versus 7% -- in-water) or not changed very much (25% -- trailer versus 17% -- in-water). In-water boaters (65%) were more apt to indicate resources had deteriorated than trailerable boaters (54%) (Table 34).

<b>Table 34. Perception of Living Resources Over Last 5 Years* (Values are in Percent)</b>			
<b>Perception</b>	<b>All (n=709)</b>	<b>In-water (n=373)</b>	<b>Trailer (n=328)</b>
Improving	8	7	10
Not Changing Very Much	21	17	25
Deteriorating	60	65	54
Don't Know/Not Sure	11	11	11

\*Significant differences observed between boating groups at .01 level of significance

When boaters were asked to provide their perceptions of environmental impacts caused by recreational users and commercial fishing boats on the bays, there were a number of interesting results. Overall, recreational boaters thought they were more apt to create excess water turbulence (57% -- recreational versus 31% -- commercial), cause prop scouring of bottom sediment (53% -- recreational versus 39% -- commercial), create shoreline erosion (47% -- recreational versus 26% -- commercial), disturb nesting shorebirds (41% -- recreational versus 9% -- commercial), and dump porta-potties and MSDs in the bays (38% -- recreational versus 21% -- commercial) more often than commercial boaters. They perceived that commercial boats were more responsible for discharging oil/gas into the water (50% -- commercial versus 45% -- recreational) and disturbing bay sea grasses (65% -- commercial versus 36% -- recreational) (Table 35).

**Table 35. Perception of Negative Impacts Caused by Recreational Users and Commercial Fishing Boats (Percent Responding YES)**

Impact	Recreational Boats			Commercial Boats		
	All (n=621)	In-water (n=333)	Trailer (n=281)	All (n=621)	In-water (n=333)	Trailer (n=281)
Create excessive water turbulence	57	56	59	31	30	32
Prop scouring of bottom sediment	53	53	52	39	41	36
Shoreline erosion <sup>1,2</sup>	47	43	51	26	21	32
Discharges of oil/gas <sup>3</sup>	45	42	47	50	47	55
Disturb nesting shorebirds	41	41	42	9	11	6
Dump porta-potties/MSD's in bay	38	38	39	21	19	23
Disturb sea grasses <sup>1,3</sup>	36	32	41	65	69	61

<sup>1</sup>Significant differences observed between boating groups for recreational boat impacts at .05 level of significance

<sup>2</sup>Significant differences observed between boating groups for commercial boat impacts at .01 level of significance

<sup>3</sup>Significant differences observed between boating groups for commercial boat impacts at .05 level of significance

## MANAGEMENT CONSIDERATIONS

A series of statements in the survey questionnaires focused on management issues pertinent to the coastal bays. Respondents were instructed to indicate whether they felt the options would be important to addressing bay-related issues. A 5-point scale was used, with 1 = Strongly Oppose and 5 = Strongly Favor. The results also reveal the percentage of respondents who favored or strongly favored each option. Although it is apparent that boaters for the most part do not solidly support many of the options presented, they were in agreement that limiting the number of jetskis using the bays (3.9 rating; 66% favor/strongly favor) is an option that a majority of them would support. There was also moderate support for adding regulations if they improved water quality in the bay's (3.5 rating; 55% favor/strongly favor), restricting boat use in shallow waters (3.3 rating; 50% favor/strongly favor), and imposing stricter limits on harvesting of the bays living resources (3.3 rating; 46% favor/strongly favor). The least favored option overall was limiting the number of boats using the bays (2.2 rating; 14% favor/strongly favor).

In-water boaters (3.7 rating; 60% favor/strongly favor) were more supportive of adding regulations to improve water quality than trailerable boaters (3.4 rating; 49% favor/strongly favor). As expected, the trailerable boaters (3.3 rating; 46% favor/strongly favor) were significantly more supportive of developing additional boat access to the bays than the in-water boaters (2.6 rating; 22% favor/strongly favor). Furthermore, boaters responded to a direct question that asked whether they felt the current number of public boating access sites and launch ramps around the bays was adequate. Seventy-seven percent of the in-water boaters responded affirmatively compared to 62% of the trailerable boaters (Table 36).

<b>Table 36. Potential Management Options for Maryland Coastal Bays (Average ratings based on 5-point scale; 1=strongly oppose and 5=strongly favor)</b>						
<b>Management Options</b>	<b>All (n=677)</b>		<b>In-water (n= 362 )</b>		<b>Trailer (n= 315 )</b>	
	<b>Average Rating</b>	<b>% Favor/ Str. Favor</b>	<b>Average Rating</b>	<b>% Favor/ Str. Favor</b>	<b>Average Rating</b>	<b>% Favor/ Str. Favor</b>
Limit number of jetskis using bays	3.9	66	3.8	65	3.9	69
Add regulations if they improve bays' water quality <sup>1</sup>	3.5	55	3.7	60	3.4	49
Restrict boat use in shallow waters	3.3	50	3.4	53	3.2	47
Stricter limits on harvesting of fish, clams, and crabs	3.3	46	3.4	48	3.2	44
Zone waters to provide for certain uses in certain areas	3.0	42	3.0	42	3.0	42
Develop additional boat access to bays <sup>2</sup>	2.9	33	2.6	22	3.3	46
Require baywide SWFL, with money going to improve bay fishing	2.5	29	2.4	26	2.5	32
Require seasonal boating permit to bays, with money used for bay improvements <sup>2</sup>	2.4	26	2.5	28	2.3	24
Limit number of boats using bays	2.2	14	2.3	14	2.2	14

<sup>1</sup>Significant differences observed between boating groups at .05 level of significance

<sup>2</sup>Significant differences observed between boating groups at .01 level of significance

Boaters in the mail survey were asked if the bays became more crowded with boats, how that condition would affect their use of the bays. Three specific responses were provided with individuals selecting any of the options they desired. In addition, respondents could provide additional information to clarify their responses. Overall, almost two-thirds (63%) of boaters indicated that they would spend less time boating on the bays; one-half indicated that they would boat at different times than usual, and 25% percent said that they would participate less frequently in certain activities. Trailerable boaters (70%) indicated they were more apt to spend less time boating on the bays than in-water boaters (58%), whereas in-water boaters (55%) noted they were more likely to boat at different times than trailerable boaters (42%). See Appendix N for additional comments that clarify boaters' responses to this question (Table 37).



<b>Table 37. Mail Survey Boaters' Actions if Bays Become More Crowded (Could select more than one response) (Values are in Percent)</b>			
<b>Action</b>	<b>All (n=551)</b>	<b>In-water (n=311)</b>	<b>Trailer (n=233)</b>
Spend less time boating on the bays <sup>1</sup>	63	58	70
Boat at different times than usual <sup>1</sup>	50	55	42
Participate less frequently in certain activities	25	26	23

<sup>1</sup>Significant differences observed between boating groups at .01 level of significance

## CONCLUSIONS

This report provides one of the most complete studies of recreational boaters who boat on Maryland's coastal bays. The variety of social and environmental issues that were examined can be used to address a multitude of management concerns facing coastal bays' officials.

Information such as boater demographics, boating activities and locations, frequency of use, type of boats, their sizes and engine horsepower are described to help resource managers better understand boater characteristics and the diversity of boats using the resource.

The survey questions also measured attitudes about safety, aspects of crowding, elements of boater displacement, and other behavioral factors. Whatever activity boaters engage in they are searching for a safe and satisfactory experience. If their expectations are not being met, they may choose to relocate to a different boating environment or pursue other recreational pursuits altogether.

In addition, the data demonstrate that boaters are not all homogeneous. Responding boaters were classified and analyzed by how they gained access to the bays to enjoy their activities. **In-water boaters** were those individuals who indicated they kept their boats in the water during the boating season. As previously noted, these boaters are primarily "local" boaters who live in the waterfront communities surrounding the bays. They tend to be older, better educated, and more of them are retirees than the other boating group. **Trailerable boaters** were identified as boaters who used boat ramps around the bays or revealed that they kept their boats on trailers during the boating season. This group was more likely to be employed full-time, owned smaller boats, and boated less frequently on the bays than in-water boaters.

This level of detailed analysis allows resources managers to take into account boater differences based on two distinct segments of users. This classification is one of many that could have been selected to distinguish key segments of the boating public. Another segment could be have been based on boater's ages (e.g. those under 50 versus those over 50). Boaters could have also been classified based on experience level or the number of days they boat on an annual basis. Resource managers must determine which segmentation schemes are most important and provides the best information to effectively manage multiple users on the bays.

A further level of analysis used Geographic Information System (GIS) mapping to identify boating activity locations, as well as to suggest where potential conflicts between different activity users may exist. Although use of GIS techniques to evaluate users in marine environments is relatively new (compared to land-based systems), valuable information can be obtained. The GIS mapping data used in this study had two distinct components: (1) aerial observations of peak boating use activity, and (2) field mapping by on-site boaters who identified locations of activities and desirability sites. These spatial analyses can help resource managers predict where boating activity will be the greatest or where conflicts may occur in the future. In anticipation of heavier use pressures or conflicts, managers can impose measures to control boating activity in certain areas, post warnings, provide additional educational messages, and/or employ greater numbers of enforcement personnel to prevent conflicts and insure safety.

Some of the more important data generated from the study relates to attitudes and perceptions of boaters about their boating experiences. Maryland Department of Natural Resources managers and coastal bays officials may have their own opinions and impressions about existing boating condition on the bays, but prior to this study they had no reliable data regarding boaters' perceptions and their levels of satisfaction. Thus, while managers may base their decisions on any criteria they consider relevant (e.g. biological, environmental, economic), data on boater perceptions and attitudes provides one additional source of information for decision-making.

If resource managers determine that additional regulations or controls need to be enacted to better manage boating activity on the bays, these study results provide boaters' opinions about certain measures. If regulations are considered that are supported by a majority of boaters, there should be wider acceptance and less likelihood of non-compliance. Conversely, if management measures are considered that do not have widespread support, additional education and/or stronger enforcement may be necessary.

Overall, it appears that boaters are satisfied with their boating experiences on the bays. More than one-half of all responding boaters rated boating on Maryland's coastal bays "very good" to "perfect". Another one-third rated conditions "good". These ratings seem to indicate that boaters are quite satisfied with their experiences and they enjoy the opportunities they have to boat on the bays. Even though boaters appear satisfied, when they were asked to rate the

quality of their boating experiences over the past five years, or since they began boating on the bays, a different picture emerges. Only 14% indicated that the quality of their boating experience had increased over the time period. The majority of boaters (57%) indicated their experiences had remained the same, and 29% reported that the quality of their boating experience had actually decreased over time.

There are a number of explanations for why boaters did not rate their current boating experiences higher. Ratings of this kind can be very subjective, but it is important for resource managers to understand why user satisfaction levels are not increasing substantially. Responding boaters commented that crowding, greater numbers of PWC's, and shoaling conditions in the bays have led to decreases in the quality of their boating experiences. Conversely, boaters who indicated the quality of their experience had increased, mentioned that they were more experienced as a boater and were more familiar with the bays' environment. From a manager's position, boaters' satisfaction should be a major factor that is considered when planning for, and managing, recreational boating in Maryland's coastal bays.

One of the key elements of a quality boating experience is safety for the boat captain, as well as the passengers. It is not surprising that the top boating concern mentioned by respondents was that other boaters were operating their vessels in an unsafe manner. Eighty-six percent of all respondents mentioned that this was a "very" or "extremely" important concern. Considerable open-ended comments focused on boaters being unfamiliar with the "rules of the road," traveling too fast, and operating unsafely in crowded areas. Another safety concern voiced by respondents was the abuse of alcohol and/or drugs by boaters. Three-quarters of all respondents suggested that boaters operating under the influence of alcohol or drugs was a "very" or "extremely" important concern. DNR enforcement officials, as well as Coast Guard officials have been enforcing boating under the influence (BUI) laws for many years, yet there is a perception by many boaters that a problem still exists. It is difficult to determine how widespread the problem actually is, and it should be the responsibility of every boater to report those suspected of operating a boat while impaired.

Since boating safety is seen as an important concern, a majority of boaters reported that they familiarize themselves with new Coast Guard regulations each year. Seventy-seven percent of all boaters mentioned that they kept current on new regulations. The regulations could be related to safety concerns, new equipment requirements, or environmental protection issues.

When asked whether they had taken a safe boating course, 59% of all responding boaters reported that they had. In-water boaters (68%) were more likely than trailerable boaters (52%) to have taken a course. This could be a function of more in-water boaters being retired and having the necessary time to take a course, or since they own larger boats they feel a stronger need to become familiar with proper handling, navigation, and safety issues related to boat ownership.

Another interesting fact concerning boating safety training is that 37% of the boaters indicated they completed their last course before 1990. This may not be a concern if these boaters are also keeping abreast of new safety regulations that are implemented by state or federal authorities. However, it is always beneficial for boaters to take “refresher” courses when available.

Respondents also voiced serious concerns about overcrowding on the bays, with 74% mentioning that it was a “very” or “extremely” important concern to them. Although it appears crowding conditions in the bays are concentrated in certain bay locations (e.g. Ocean City Inlet/Route 50 Bridge, lower Isle of Wight Bay, and Sinepuxent Bay), these are also the areas that are popular to a number of different users. These areas are in, or near, navigation channels where fishermen are drift fishing, many boats are cruising, and personal watercraft may be traveling at high rates of speed. All of these conditions may lead to the perception that bays are becoming overcrowded. In the report, *Preliminary Assessment of Recreational Boating on Maryland’s Coastal Bays, 1999* published in April 2000, boaters were asked to rate their perceptions of crowding at key locations in the bays using a 9-point scale (1=Not at all crowded and 9=Extremely crowded). Boaters felt that the Ocean City Inlet area (6.5 on the 9-point scale) was most crowded, followed by Isle of Wight Bay (6.1) and Sinepuxent Bay (5.0). Aerial survey observations conducted both in 1999 and 2000 confirm that these areas are the most congested with boat traffic, especially during peak times. Although these levels of crowding are relative and no doubt vary based on whether it is a weekday or weekend, perceptions of boaters concerning crowding can have an impact on a quality boating experience.

One key finding addressed why individuals chose to boat on Maryland’s coastal bays. A series of options was presented, and the top motive for boating in the bays was that the bays are close to their home, or other lodgings if they are visitors to the area. Eighty-eight percent of all respondents mentioned this as the main reason for boating on the bays. This fact is very

important and should not be overlooked by resource managers. It appears boaters are most comfortable when they can boat close to home. Boaters who prefer to keep their boats in the water will often choose a residence based on access to their favorite boating waters. Trailerable boaters mention close proximity to home since they do not want to spend excessive time traveling to their ultimate destination to participate in their leisure-time pursuit. Even though other attributes for selecting the bays as a boating destination were not as well-supported, resource managers still need to direct attention to the bays' other qualities that make it so appealing to boaters (e.g. good water quality, adequate fishery resources, marked and maintained boating channels).

Fishing is the dominant activity that boaters participated in while boating in the bays; overall, 72% of boaters engaged in sportfishing in the bays at some time during the year. Fifty percent of boaters selected “good fishing” as a primary reason for boating on the bays. Fishermen seem to be very satisfied with their activity in the bays. Ninety-nine percent of the on-site field respondents who answered questions about their fishing experience “agreed” or “strongly agreed” that they would fish in the bays again, and 88% noted that they thoroughly enjoyed their fishing trip. Even though 86% wished they had caught more fish on the day they fished, two-thirds noted that they would have been happy even if they had not caught any fish. On-site field boaters were also very supportive of the 2000 flounder fishing regulations (15 ½” minimum; 8 fish/day limit) with 81% agreeing with the regulations. This could be due to the fact that 60% of all respondents feel that the bays’ living resources (e.g. fish, crabs, clams) have deteriorated over the past five years and that they are doing their part to help protect and restore the fishery.

Conflicts between bay users can be a very subjective perception by boaters. When asked directly if they felt there were conflicts between users, 50% responded affirmatively. In-water boaters were more sensitive to this statement than trailerable boaters (57% -- in-water versus 41% -- trailer). This could be due to the fact in-water boaters spend more than twice as many days annually boating on the bays than trailerable boaters. Those boaters who indicated they felt conflicts existed provided many open-ended comments about the nature of the perceived conflicts. The majority of the comments were directed at jetski and personal watercraft operators, speeding boats, and commercial clam dredgers. Slightly more than one-third of all

boaters mentioned that they had observed accidents, near accidents, or unsafe boating practices which were the result of conflicts between users.

Although boaters overall were not enthusiastic about supporting a range of management options that were presented to them, there was strong support to limit the number of jetskis using the bays. Sixty-six percent of all boaters either “favored” or “strongly favored” this option to minimize the potential conflicts and impacts caused by personal watercraft. Many of the open-ended comments about jetskiers did not implicate PWC owners, but focused on PWC operators on rented watercraft. It is unlikely that a regulation limiting jetskis would be imposed, but there seems to be strong sentiment voiced by boaters about jetskiers that their actions need to be closely monitored by management officials. There may be a need for managers to consider zoning jetskiers to specified locations if it is determined that these bay users' actions cause impacts to the environment or threaten the safety of others.

The perceptions, attitudes, and opinions of boaters in this study provide a helpful view of conditions in a multi-use environment. The information provides an important baseline by which to measure future changes. MDDNR officials, along with Maryland Coastal Bays Program staff, should continue to work with all interest groups to insure that the bays remain a safe, enjoyable resource for current and future generations to enjoy.

## **MARYLAND COASTAL BAYS PLANNING, MANAGEMENT, AND POLICY RECOMMENDATIONS**

- Two distinct user groups were identified and analyzed as part of these study findings: (1) boaters who keep their boats in-water during the boating season and (2) boaters who trailer their boats to the bays and use available access ramps. The study findings suggest that there are key distinctions between these two subsets of boaters' use of the resource and how they perceive certain aspects of the bays. The MDDNR should consider the needs of both of these groups, or other user groups, and determine how to address their concerns in future planning and management of the bays.
- There is no substantial evidence, based on this current user perception survey, to indicate that crowding problems exist on the bays as a whole. Even though 74% of all the respondents reported that crowding of navigable waterways was a concern to them while boating on the bays, it appears crowding is isolated to 3 or 4 "hot spots" (e.g. Ocean City Inlet, Route 50 Bridge, Lower Isle of Wight Bay, Upper Sinepuxent Bay) where activity levels and density levels are higher than in other areas. These areas must be closely monitored by MDDNR personnel to observe whether safety concerns or environmental impacts become critical to users or the resource.
- The highest rated concern voiced by boaters on Maryland's coastal bays was that boaters operated their vessels in an unsafe manner. Eighty-six percent of all boaters expressed this concern. Many open-ended responses by boaters focused on the need for education about boating "rules of the road", and common boating courtesy. MDDNR, the MCBP, the U. S. Coast Guard Auxiliary, the U. S. Power Squadron, and other boating organizations, should consider methods of strengthening their educational efforts to create more boating safety awareness on the bays. A major focus should be to target non-resident visitors who recreate on the bays.
- Jetskis received much attention as being a major concern in the coastal bays due to noise, unsafe handling practices, and damage to sensitive shallow water areas. Two-thirds of all respondents suggested limiting the number of jetskis on the bays. Although all jetskiers need to practice caution while operating on the bays, based on responses from boaters, the major problem appear to be those who rent the vessels for brief periods of time. There is concern that jetski renters are not adequately trained and instructed in the safe operation of the watercraft while on the bays, nor do they understand the principles of safe, courteous boating. While jetski rental operators have been doing a much better job in recent years to educate their clientele, additional training should be provided. MDDNR, in cooperation with other boating organizations, should assist rental operations to provide additional training to their renters. Thus, helping to insure that renters are fully prepared to operate the vessels on the often-congested bays. MDDNR should also develop a system to monitor and assess jetski activity on the bays during the busy summer months.



- Open-ended comments by survey respondents indicated a need to control and regulate crab pots in boating channels and other areas of the bays. MDDNR should review its current policies related to crab pot usage in the bays. It should consider establishing off-limit areas in, and adjacent to, marked navigation channels and a crab pot marking system should be instituted to control violators.
- Dredging boating channels and other areas of the bays was an issue mentioned by many survey respondents in open-ended suggestions. MDDNR, along with the MCBP should develop a dredging plan for the bays. The plan would address concerns boaters have regarding maintenance dredging to insure safe vessel operations on the bays. Additional education and awareness about shallow areas in the bays and the exact location of maintained navigational channels needs to be better communicated to boaters. This may help alleviate some of the concern associated with this issue. This recommendation should be coordinated with the MCBP Dredging and Navigation Advisory Committee.
- Education is a key ingredient in making user groups more aware as they use the resource in a safe and environmentally conscious manner. The MCBP has been doing a commendable job providing education to key user groups. The MCBP and MDDNR should use appropriate findings of this study to reach targeted user audiences with additional information to insure that bays resources are conserved.
- Educational displays should be developed and placed at key locations throughout the bays' watershed (state access ramps, state and national parks, marinas, information centers). These displays should educate the various users groups about the sensitivity of the bays' resources and uniqueness of the watershed. Information should also be developed to educate users about safety issues and to minimize potential use conflicts among competing groups. The MCBP should take the lead on this recommendation.
- Sixty percent of trailerable boaters who responded to the survey expressed concerns that popular boats ramps faced crowding situations during the boating season (probably associated with peak weekends and holiday periods). MDDNR officials, along with local planning and management agencies should closely monitor this situation to insure that safety is maintained during heavy use periods. A need exists to plan additional access points in an effort to direct certain user groups to less crowded areas in the bays.
- More than two-thirds (67%) of respondents noted that water quality in the bays was deteriorating or not changing. Additionally, more than one-half of responding boaters (55%) indicated that they would support additional regulations if they improved the bays' water quality. Although this is not an overwhelming endorsement to incorporate additional regulations on boaters to improve water quality in the bays, it should demonstrate to MDDNR and MCBP officials that a majority of boaters support policies to improve the quality of the bays' water.

- MDDNR should develop a method to incorporate the GIS map findings related to boating activities and boaters' perceptions of desirable activity locations into a data base. It is important to maintain baseline data of this kind for tracking potential user conflicts and motives for boating in the bays. A monitoring system should be developed to periodically measure boaters' satisfaction levels in order to track the quality of their boating experiences over time.
- On major water-use days (i.e. holiday periods and weekends) additional law enforcement personnel should patrol the areas identified as "hot spots" (e.g. Route 50 Bridge/Ocean City Inlet, Isle of Wight Bay, etc.) to maintain a safe and enjoyable experience for all users. The MCBP Dredging and Navigation Advisory Committee should work with appropriate state and federal agencies to investigate the possibility of dredging additional channels under the Route 50 Bridge.
- While investigating boat slip and dock construction in the coastal bays during the past ten years, it became apparent that there is a lack of adequate record-keeping to easily document this information. Local planning officials responsible for permitting dock and pier structures should work with the Maryland Department of the Environment, to develop a computerized system to track the growth and development of boat docking facilities around the bays' perimeter.
- As growth, development, and use patterns continue around the coastal bays, modifications should be made to these recommendations. Long-term monitoring of boating and other recreational activities, changes in land use, and perceptions of users all need to be considered for state and local officials to make these modifications. Conducting additional studies of bay users every three to five years is recommended to insure their concerns and needs are understood.
- Although support for zoning the bays' waters for certain activities was rated neutral by all responding boaters (3.0 rating on a 5-point scale) there is still the need to investigate this tool to control certain uses. Zoning can be an effective tool to limit activities (e.g. jetskiing) in a specified area to reduce conflicts or to prevent motorized craft from entering sensitive habitat areas (e.g. marine protected areas) to reduce environmental impacts. Considerable information exists in freshwater systems where these controls have been enforced. MDDNR and the MCBP should form a work group to study the "pros and cons" of zoning key areas of the bays.



## **APPENDIX A**

### **ON-SITE FIELD SURVEY INSTRUMENT**



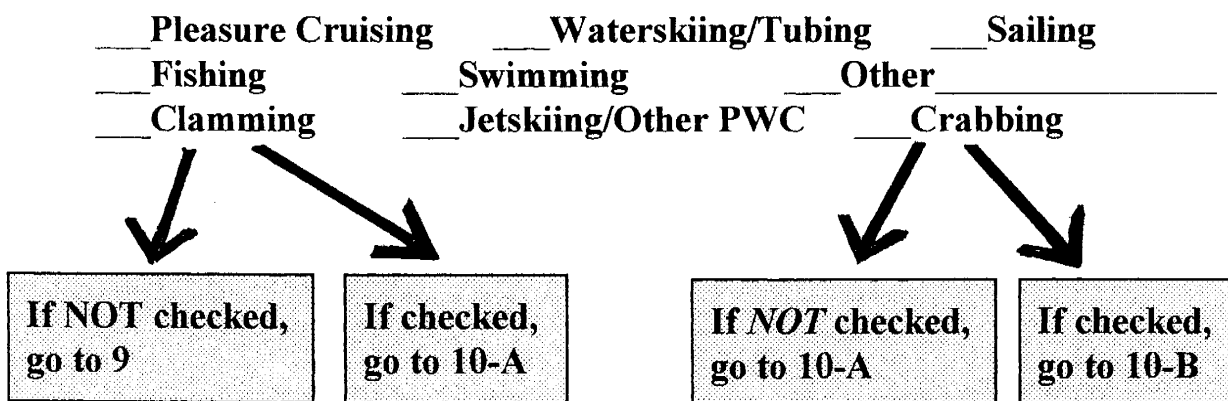
SURVEY # \_\_\_\_\_  
LOCATION \_\_\_\_\_  
DATE \_\_\_\_\_  
SURVEY START TIME \_\_\_\_\_  
INTERVIEWER \_\_\_\_\_  
STATE OF BOAT REG. \_\_\_\_\_

Or, do you have a summer residence?

3. (a) What is the **length** of your boat? \_\_\_\_\_ **Feet**  
 (b) What is the **total horsepower** of this boat? \_\_\_\_\_ **HP**  
 (c) **[OBSERVE]** What type of boat is this? (*ask if unknown*)  
     \_\_\_\_\_ Powerboat                      \_\_\_\_\_ Jetski/Other PWC  
     \_\_\_\_\_ Jetboat                              \_\_\_\_\_ Sailboat  
     \_\_\_\_\_ Skiff/Jon Boat/Bass Boat      \_\_\_\_\_ Other (specify) \_\_\_\_\_  
     \_\_\_\_\_ Pontoon Boat
4. How many **years** have you boated on Maryland's Coastal Bays? \_\_\_\_\_ **Yrs.**
5. How many **days** do you estimate that you will boat on Maryland's Coastal Bays this year (2000)? \_\_\_\_\_ **Days**
6. Have you ever taken a **certified boater safety course** from the Power Squadron, the Coast Guard Auxiliary, a state DNR or other such group?  
**YES** \_\_\_\_\_ **NO** \_\_\_\_\_

**NOW I WOULD LIKE TO ASK YOU ABOUT  
TODAY'S BOATING EXPERIENCES**

7. What time did you start your boating trip today? \_\_\_\_\_
8. **[GIVE PROMPT SHEET TO BOATER - See Question 8, "Activities"]**  
 Of these activities, which did you participate in today?



### CLAMMING

[If clamming was NOT checked as an activity today]

9-A. Do you ever spend time clamming in Maryland's coastal bays?

\_\_\_ YES

Go to 10

\_\_\_ NO

Continue

9-B. If you had more opportunities or knew of more areas to go clamming in the bays, would you be likely to go clamming in the future?

Yes \_\_\_ No \_\_\_ Unsure \_\_\_

### CRABBING

[If crabbing was NOT checked as an activity today]

10-A. Do you ever spend time crabbing in Maryland's coastal bays?

\_\_\_ YES

Continue

\_\_\_ NO

Go to  
question 11

10-B. How many days per year do you crab in the bays? \_\_\_\_\_ Days

10-C. What type of gear do you usually use for crabbing?

[Check all that apply]

\_\_\_ Pots

\_\_\_ Trotlines

\_\_\_ Collapsible Traps

\_\_\_ Dip Nets

\_\_\_ Hand Lines

\_\_\_ Other (specify) \_\_\_\_\_

10-D. On average, how many crabs would you estimate that you usually catch per trip? \_\_\_\_\_ Crabs

10-E. In your estimation, do you think Blue crabs in the coastal bays are:

\_\_\_ Increasing in number

\_\_\_ Decreasing in number

\_\_\_ Staying about the same

\_\_\_ Unsure



**REFER TO COASTAL BAYS MAP**

- 11-A. On this map**, please trace the route you took today on your boat trip.  
Do the best you can.
- 11-B. [SEE PROMPT SHEET - “Activities”]**  
Now, referring to this list of activities, please mark on the map where you did any of these today, using the corresponding letters.
- 11-C.** Mark with the letter “C” any areas you felt were crowded or congested, and could you rate the level of crowding at these locations **on a scale of 1 to 9**, with 1 being **not at all crowded** and 9 being **extremely crowded**.  
[See “*Crowding Scale*” on PROMPT SHEET]
- 11-D.** Please indicate the areas you **MOST** enjoyed today and mark them with an “E.”  
[ASK WHY] \_\_\_\_\_
- 11-E.** Also, please indicate the areas you **LEAST** enjoyed and mark them with an “L.”  
[ASK WHY] \_\_\_\_\_

**NOW I WOULD LIKE TO ASK YOU A FEW  
QUESTIONS ABOUT FISHING IN THE BAYS**

- 12. [IF THEY DID NOT INDICATE THEY FISHED ON THE BAYS TODAY]**

Do you ever spend time fishing on Maryland’s Coastal Bays?

\_\_\_ YES

**If YES,  
Continue**

\_\_\_ NO

**If NO, Go to  
Question 21**



13. In the last 12 months, how many days did you fish from either a boat, bridge, shore, or pier in Maryland's coastal bays? \_\_\_\_\_ Days

14. There has been talk about requiring all fishermen in Maryland's coastal bays to buy a fishing license, would you favor such a license if the money were used to improve fishing in the bays?

\_\_\_ YES, if money is used for the bay

\_\_\_ NO, not in favor of license at all

ASK QUESTIONS 15 - 19  
IF THEY FISHED IN  
BAYS TODAY

GO TO QUESTION 21  
IF THEY DID NOT  
FISH IN BAYS TODAY



15. How many hours did you spend fishing today? \_\_\_\_\_ Hours
16. What method(s) of fishing were you primarily doing today?  
\_\_\_ Drifting \_\_\_ Trolling \_\_\_ Anchored \_\_\_ Other (specify) \_\_\_\_\_
17. Were you fishing for any particular species today? \_\_\_ YES \_\_\_ NO  
[If Yes] 1<sup>st</sup> Species Targeted \_\_\_\_\_  
2<sup>nd</sup> Species Targeted \_\_\_\_\_
18. Would you have still made a trip to Maryland's Coastal Bays if you did not plan to fish?  
\_\_\_ YES \_\_\_ NO  
\_\_\_ Live on or near the bays (either year-round or seasonal)
- 19-A. [SEE PROMPT SHEET - Question 19, "Fishing Statements"]  
Using the 5 - point scale on the sheet, please indicate whether you agree or disagree with the state's current Flounder regulation of 15 1/2" minimum size and 8 fish limit per day?

SD      D      N      A      SA

[If either is selected, ask]:

Are there other options you would prefer? \_\_\_\_\_

**19-B. [SEE PROMPT SHEET - Question 19, "Fishing Statements"]**  
**DO YOU AGREE OR DISAGREE WITH THE FOLLOWING**  
**STATEMENTS ABOUT YOUR FISHING TRIP TODAY**  
**(1 = STRONGLY DISAGREE; 2 = DISAGREE; 3 = NEUTRAL,**  
**4 = AGREE; 5 = STRONGLY AGREE)**

I thoroughly enjoyed the fishing trip.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
I did not catch the kinds of fish I had hoped.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
I wish I had caught more fish.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
The fishing trip was well worth the money I spent.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
There were too many people fishing where I was fishing.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
Noise and wake from other boats interfered with my fishing	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
I will fish in Maryland's Coastal Bays again	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
I would have been just as happy on this trip if I had not caught a fish.	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>

20. What **one thing** would you most like to see done to improve fishing in Maryland's coastal bays? \_\_\_\_\_

21. Do you have **any other comments** about Maryland's Coastal Bays?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

To get more input from you as to how the Maryland coastal bays might be improved, would you be willing to provide us with more information if we sent you a survey in the mail that would ask you some additional questions about your boating experiences on the Bays? ☐ Yes ☐ No

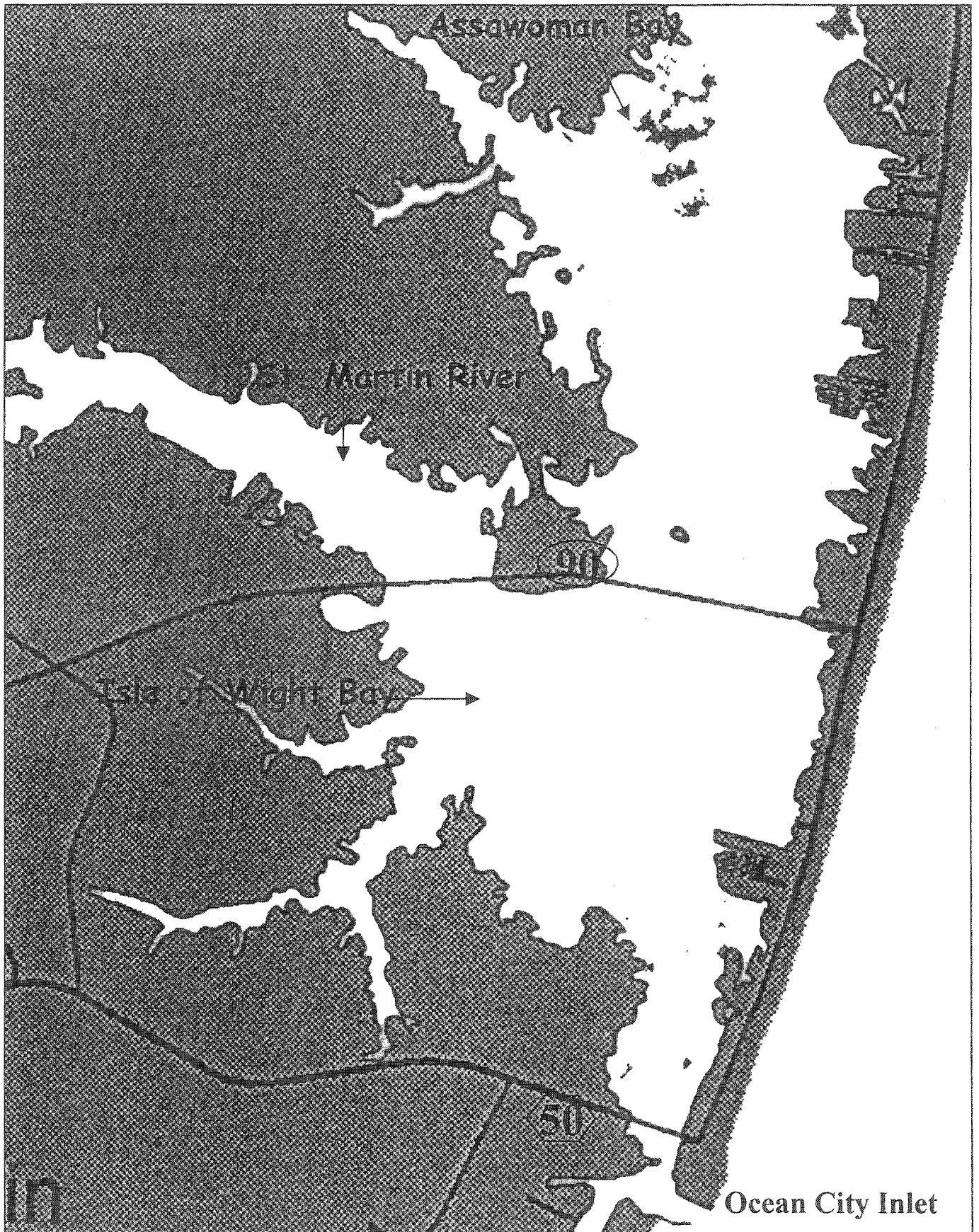
If so, could we have your mailing address so we could send that survey to you in the next couple of weeks?

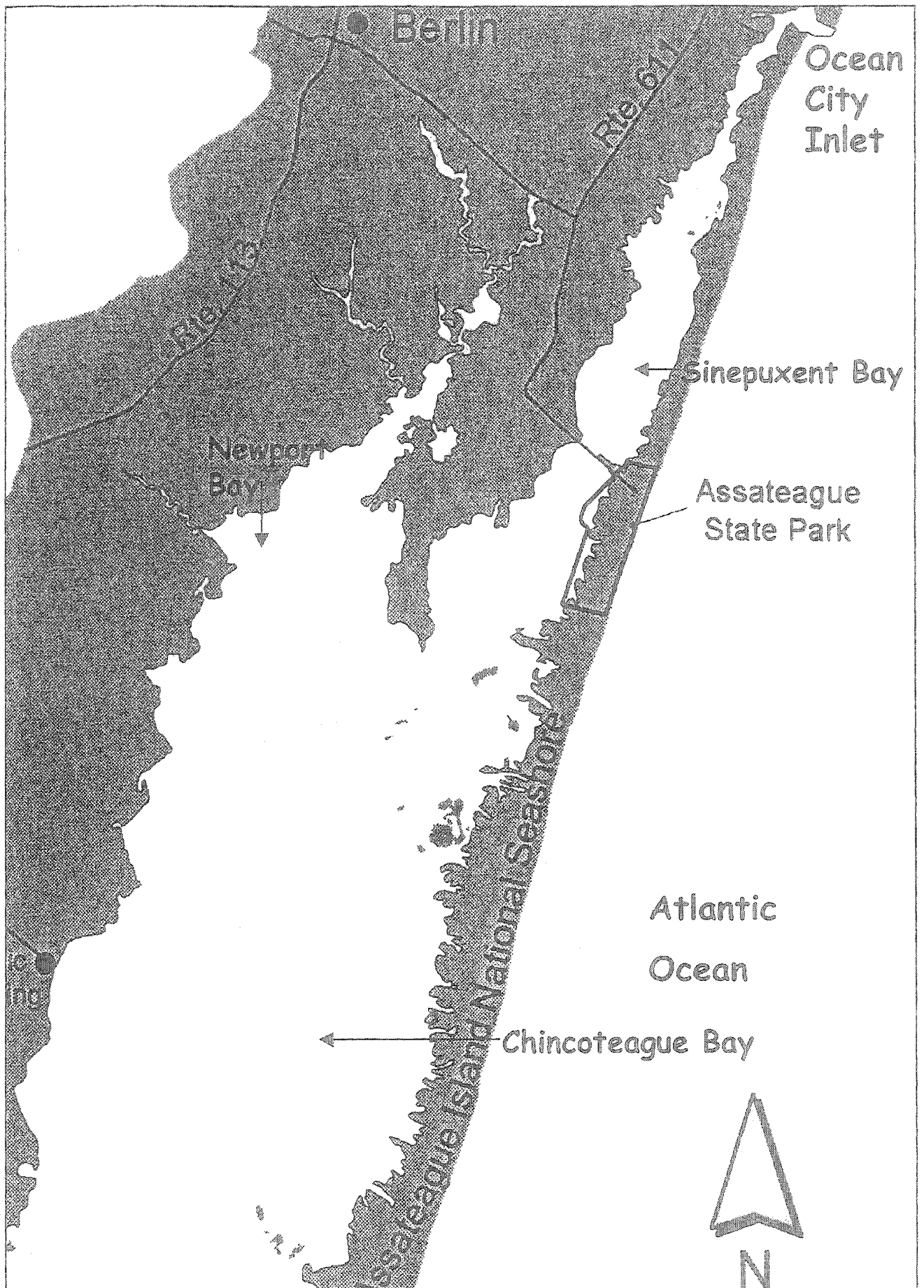
Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

**\*\* THAT CONCLUDES OUR SURVEY; THANK YOU FOR YOUR TIME. \*\***





## **APPENDIX B**

### **ADDITIONAL COMMENTS REGARDING FLOUNDER REGULATION OPTIONS (FIELD SURVEY BOATERS)**



**ADDITIONAL COMMENTS REGARDING FLOUNDER REGULATION OPTIONS  
(QUESTION #19A)**

- Increase Flounder minimum size to 17"
- Delaware has 14½" Flounder limit; should coordinate with neighboring states;  
    need commercial fishing limits.
- Need slightly smaller flounder size limit
- Need smaller flounder size limits; limit netters to further offshore
- Need to be equitable with (equal to those for) commercial fishermen
- Smaller size minimum
- Should be 16"
- Minimum size should be 16"
- Lower regulation size
- Should be 14"





## **APPENDIX C**

### **ADDITIONAL COMMENTS REGARDING IMPROVING FISHING IN MARYLAND'S COASTAL BAYS (FIELD SURVEY BOATERS)**



**ADDITIONAL COMMENTS REGARDING IMPROVING FISHING  
IN MARYLAND'S COASTAL BAYS  
(QUESTION #20)**

- Need more spot checks by DNR police to enforce fishing regulations
- Keep commercial fishermen out of the bays
- Disagrees with Flounder regulations because he believes regulations are "not enforced for commercial and party boats; too much commercial bycatch"
- Ban or regulate jetskis
- Should have a fewer-fish limit but smaller minimum size
- Keep netters out
- Dredge the sand bars
- Stop fishing for 1-2 years
- Need speed limit on other (North) side of Rt. 50 bridge; too many fast cigarette boats
- Improve/create artificial reefs in the bays
- Need jetski control; they are a nuisance
- Need to reduce/less pollution
- Get rid of jetboats; enforce speed limits
- Limit fishing severely – like rockfish
- Agree with the regulations and sizes
- Large boats need to watch speeds around drifting fishing boats
- Fishing license won't change commercial fishing impact; Need to make all states uniform on flounder regulations; get rid of/limit commercial fishing
- Need lanes for jetskis
- Stop commercial fishing
- Need stricter enforcement of minimum size – check each boat
- Limit jetskis; limit development
- Need to dredge channels
- Go after commercial fishermen – keep tightening the regulations; jetskis a problem
- Get rid of the netters
- One lane for just jetskis, especially renters
- Limit/stop commercial fishing for some length of time – recreational fishermen aren't taking that many fish
- Need updated charts/maps
- Need speed limits in channels; people have no regard for other boats
- Enforce rules of the road; people/other boaters need to observe safety and courtesy
- Buy out commercial fishermen
- No license
- Decrease creel limits, increase minimum size limits
- Try to regulate traffic; need better enforcement of "rules of the road"
- License should be for all MD bays; depends on price
- License OK if combined with boat registration – covers the boat
- Get rid of netters; higher minimum size, lower creel limit
- Need a 6-mile limit for commercial boats
- Get rid of jetskis and cigarette boats
- Need to clean up the waterway
- Clean up the waters
- Many boats come too close and too fast

- Improve PWC regulations, raise ages (minimum age of operators)
- Lose the PWCs
- Too many sandbars/may need dredging; need better marking for canals
- Regulate jetski areas
- Water could be cleaner
- Licenses for statewide saltwater
- Cut back on commercial fishing
- Advertise fishing clubs/organizations

## **APPENDIX D**

### **ADDITIONAL COMMENTS FROM MARYLAND COASTAL BAYS' BOATERS (FIELD SURVEY BOATERS)**



## **ADDITIONAL COMMENTS FROM MARYLAND COASTAL BAYS' BOATERS (QUESTION #21)**

- Get rid of the jetskis
- Channel to Chincoteague not well marked other boaters were too close; not being courteous or observing speed regulations; all water and shore areas were very clean, better than they used to be
- We enjoy fishing here
- Water is very clean
- Too many jetskis
- 100% cleaner than New Jersey
- Stop commercial fishing
- Regulate the jetskiers
- Need 6 knot speed limit all the way up the channel above Rt. 50 bridge
- Nice place, but too much congestion; Nice down by Assateague
- With present size limit on fish, many fish thrown back don't survive
- Zone waverunners
- The bays are a great asset for the state of Maryland, they need good conservation
- Heavy boat traffic; make crab pot floats more visible
- Against commercial clamming in winter
- Need dredging in channels
- Stricter enforcement of jetskis
- Nice to fish here without a license
- Enjoy the bays; clean; nice day on the bay
- Really clean
- Love it here
- Less complicated (legally) than the Chesapeake
- Need to mark boundary with Delaware; need someone on bridge (Rt. 50) watching. Police board boats, but no one polices bridge; post regulations on bridge
- Beautiful waters
- Like the public dock at West OC ramp
- Clean bays
- Crowded by inlets; not many fish; don't go fishing much.
- Enjoyed clamming
- Much better than New Jersey; this is our 14<sup>th</sup> year; we keep coming back
- PWC regulations should be increased
- Clean water; many fish; saw many people catching and releasing fish
- Water is clean; on weekends, there are too many jetskis and cigarette boats go too fast in narrow areas
- Good conditions; clean water
- Need to improve ramps; need more ramps; need more parking at ramps
- Good launch ramp (West OC ramp); nice to see so many Ospreys
- Clean; good ramp (West OC ramp); enough parking
- Bays getting cleaner; much less garbage; there are more kinds of fish in the bays
- I love the bays; they need to dredge the channels more often
- Drift fishing in the channels is a hazard to navigation and shouldn't be allowed; DNR police often not present during the busiest times and in the busiest areas



- Waverunners don't know what they're doing; DNR police are doing a good job but need to regulate waverunners more
- I caught dinner
- Need area for jetskis; need restrictions; clean waters
- Bays better than expected; well-marked channels; caught many fish
- Counted about 7 jetskis parked at Assateague – signs are posted, but DNR doesn't do anything; no clams or crabs off Assateague; water is clean
- Runoff/bacteria is a problem
- No trash floating; enjoy the bays
- Bays are great
- Bays are getting cleaner
- Waverunner groups get in the way
- I wouldn't fish if I had to buy a license
- Worried about number of jetskis, especially rentals; congestion in narrow areas
- Fishing has gotten better
- Enforce or stop people from throwing trash into bays
- Should have some speed restrictions behind Assateague – maybe 10-15 knots; big boats go too fast in small channels and make big wakes
- Need to dredge; need to change channel markers more often; bays are filling in with sand
- All nice; just enjoy boating
- Very clean; getting cleaner; well-maintained; cleaner than New Jersey
- Nice, clean; need markers for entrances to different lagoons; need signs to guide unfamiliar boaters back to ramps; need certifications/classes for jetskiers
- Bays are clean; keep the bays clean
- Need Coast Guard and DNR Police to enforce regulations more often and more consistently
- Out-of-staters should pay ramp fees; commercial fishermen are raping the ocean
- Good Flounder fishing this year; enjoy the bays; the bays are gorgeous; on weekends, there are far too many boats going too fast and too close together; jetskis are also a problem
- Need more dredging
- Enjoy all of it (the bays)
- Get rid of jetskis or create an area for them
- Water is nice and clean; saw lots of trash on beach at Assateague
- Beautiful, clean; no more regulations than there are already
- People need to clean up their trash more
- Jetskis interfered with fishing
- Love being out on the water
- Outlaw jetskis
- Glad to see DNR Police patrolling; bays are beautiful
- Bays are cleaner than they used to be
- Get rid of jetskis
- West OC is a great ramp
- Confine jetskis to certain areas; jetskis don't observe courtesy and rules of the road
- Would like to have a required boating license; need more enforcement personnel
- Big boat wakes are terrible; control PWCs
- Don't like restrictions on jetskis; I think jetskis are being unfairly targeted; many jetskiers are being respectful of the rules and regulations; can't clam on a jetski but can on a boat

- Lots of seaweed toward Assateague; therefore don't go there as much
- Too much DNR Police harassment
- There are no crabs anymore; people are inconsiderate in and around the boat launch areas
- Need to enforce speed regulations better
- Restrict jetskis; enforce restricted areas on Assateague; good fishing areas; grasses growing again
- Enjoy all of it
- Clean, free of debris; need more channel markers – so many sand bars aren't marked; there is a lot of risk to boats and jetskiers with shallow areas
- Enjoy the bays
- Need more public ramps
- Well marked
- Too many shallow areas
- Many people don't know the rules and regulations
- Bays are getting clear; still crowded
- Keep jetskis away/restrict jetskis
- Channels should be marked better
- Cigarette boats go too fast in channels; jetskis get in the way; jetskis sometimes splash other boats and are very rude
- Love the bays; all PWC users should have safety courses; jetski rental groups are not courteous and get too close to shore
- The bays are beautiful, very nice; we come here as often as possible
- The (SAV) grasses are coming back
- Bothered by some people leaving trash; the trash will ruin the area; otherwise, the bays are very nice
- Enjoyed the bay
- Have a big problem with commercial clambers ripping up the bays
- Reduce number of jetskis; too many reckless boaters; boats go too fast near boats fishing
- Water seems cleaner
- Too much development; water quality is much lower than it used to be; otherwise bays are wonderful
- Clean water; not too much junk floating
- Bays are well kept; water is clean
- Need fewer PWCs
- Out-of-state fishermen are negligent, abusing fish
- Get rid of jetskis; PWC users are not as courteous, and they are noisy; most PWC users don't know the "rules of the road"; cigarette boats are a real nuisance, too noisy
- Bays are beautiful, marvelous; good markings; beautiful inlet
- Ramps too crowded in summer
- Not much boater courtesy on the water; need more monitoring of boats speeding through narrow channels; too much boat traffic; it's dangerous when people put children in tubes in heavily traveled channels



## **APPENDIX E**

### **SUPPLEMENTAL MAIL SURVEY INSTRUMENT (FIELD SURVEY BOATERS)**



PH: 302/645-4235  
FAX: 302/645-4213  
E-Mail: jfalk@udel.edu

July 26, 2000

«FirstName» «LastName»  
«Address1»  
«City», «State» «PostalCode»

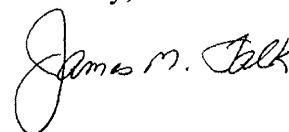
Dear «Salutation» «LastName»:

Thank you for participating in the Maryland Coastal Bays recreational boating survey on «Survey\_Date». The information you provided was valuable in learning more about how recreational boaters use this resource. You indicated that you would be willing to answer a few additional questions to better understand your use of the bays. At the present time, little information is available concerning activity patterns and attitudes of Coastal Bays' boaters. The information you provide will be especially useful in planning for the state's recreational boating needs in the future.

The questionnaire should only take about 10 minutes of your time. Once you have answered the questions, please place the questionnaire in the enclosed postage-paid envelope and return it as quickly as possible. Any information you provide will be strictly confidential. Only group totals will ever be published. Your name or individual responses will never be reported in any way.

If you would like a copy of a summary report of the study, please check the box at the end of the questionnaire. Information from boaters, like yourself, is vital to insure that recreational boating continues to be a safe and enjoyable activity in Maryland's Coastal Bays. We greatly appreciate your help and interest in this study.

Sincerely,



James M. Falk  
Project Coordinator

Enclosures

## Maryland Coastal Bays Boating Study

Maryland Coastal Bays Program ♦ University of Delaware Sea Grant Marine Advisory Service

Please answer the following questions related to the use of your \_\_\_\_\_  
on Maryland's Coastal Bays.

1. Does your boat have any of the following specialized equipment?  
\_\_\_\_ Depth finder \_\_\_\_ LORAN \_\_\_\_ Compass \_\_\_\_ GPS \_\_\_\_ VHF Radio \_\_\_\_ CB  
\_\_\_\_ Cell Phone \_\_\_\_ Other (specify) \_\_\_\_\_
2. How long have you owned this particular boat? \_\_\_\_\_ Years
3. How long have you participated in recreational boating as a boat owner? \_\_\_\_\_ Years
4. How would you rate yourself as a boater? \_\_\_\_ Novice \_\_\_\_ Intermediate \_\_\_\_ Advanced \_\_\_\_ Expert
5. Below is a list of boating activities you may participate in with this boat. Please estimate what percent of time you spend on each of the following activities, on Maryland's Coastal Bays, during a typical boating season? (**Make sure total selections add to 100%**)  
\_\_\_\_ Pleasure Cruising \_\_\_\_ Waterskiing/Tubing \_\_\_\_ Fishing \_\_\_\_ Crabbing \_\_\_\_ Clamming  
\_\_\_\_ Swimming \_\_\_\_ Sailing \_\_\_\_ Jetskiing/Other PWC \_\_\_\_ Other (Specify) \_\_\_\_\_
6. When you consider all of the boating that you do in a typical year, what percent is done on Maryland's Coastal Bays? \_\_\_\_\_ %
7. When do you do most of your boating? (**Check only one**)  
\_\_\_\_ Weekdays \_\_\_\_ Weekends \_\_\_\_ Weekdays/Weekends equally
8. What months of the year do you boat on Maryland's Coastal Bays? (**Check all that apply**)  
\_\_\_\_ Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec
9. Why do you choose to engage in boating activities on Maryland's Coastal Bays? (**Check all that apply**)  
\_\_\_\_ Good water quality \_\_\_\_ Close to home/other lodgings \_\_\_\_ Adequate water depth  
\_\_\_\_ Adequate channel markers \_\_\_\_ Scenic qualities of the bays \_\_\_\_ Good fishing  
\_\_\_\_ Peaceful location \_\_\_\_ Not a lot of other boating traffic \_\_\_\_ To observe wildlife  
\_\_\_\_ Other (specify) \_\_\_\_\_
10. Overall, how would you rate boating on Maryland's Coastal Bays?  
\_\_\_\_ Poor \_\_\_\_ Fair \_\_\_\_ Good \_\_\_\_ Very Good \_\_\_\_ Excellent \_\_\_\_ Perfect
11. During the past five years, or since you have boated on Maryland's coastal bays, do you feel the quality of boating overall has:  
\_\_\_\_ Increased, if so why \_\_\_\_\_  
\_\_\_\_ Stayed the same \_\_\_\_\_  
\_\_\_\_ Decreased, if so why \_\_\_\_\_

12. As a recreational boater in Maryland's Coastal Bays, please indicate which of the following concerns are of most importance to you. Circle the number that corresponds to your answer.  
(1 = Not at all Important; 2 = Slightly Important; 3 = Moderately Important; 4 = Very Important; 5 = Extremely Important)

	Not at all Important			Extremely Important	
Poor water quality affecting my boating experience.....	1	2	3	4	5
Overcrowding of navigable waters.....	1	2	3	4	5
Boaters operating under the influence of alcohol/drugs.....	1	2	3	4	5
Boaters operating in an unsafe manner.....	1	2	3	4	5
Lack of state marine enforcement.....	1	2	3	4	5
Lack of adequately maintained navigational channels.....	1	2	3	4	5
Lack of proper navigational aids (buoys, lights, etc).....	1	2	3	4	5
Overcrowding at popular boat ramps.....	1	2	3	4	5
Boats drifting/anchored in navigational channels.....	1	2	3	4	5
Other (specify) _____ ...	1	2	3	4	5

**Safety is a key ingredient for enjoyable boating. Please answer the following questions as they pertain to safe boating.**

13. Do you familiarize yourself with new Coast Guard regulations each year? \_\_\_\_ Yes \_\_\_\_ No
14. Do you annually receive a Coast Guard Auxiliary courtesy safety inspection? \_\_\_\_ Yes \_\_\_\_ No
15. Have you ever taken a boating safety training course? \_\_\_\_ Yes \_\_\_\_ No  
If Yes, what year did you last take a course? \_\_\_\_\_ From what organization? \_\_\_\_\_
16. Do you feel that all boaters should be required to take a boating safety training course?  
\_\_\_\_ Yes \_\_\_\_ No
17. In an effort to improve safety of navigation at the Rt. 50 bridge and inlet, we would like your help in identifying any problems of which you are aware or have experienced. (Please indicate the importance of the following by selecting 1 = Least Serious and 5 = Most Serious.)

	Least Serious			Most Serious	
Fast moving current.....	1	2	3	4	5
Turbulence and wave action.....	1	2	3	4	5
Narrow passageway.....	1	2	3	4	5
Underpowered boats.....	1	2	3	4	5
Boats not suitable for this area.....	1	2	3	4	5
Inexperienced operators.....	1	2	3	4	5
Overloaded boats.....	1	2	3	4	5
Boats ahead moving too slow for your steerage.....	1	2	3	4	5
Excessive boat wakes.....	1	2	3	4	5
Boats maneuvering until bridge opens.....	1	2	3	4	5
Jetskis zig-zagging in inlet.....	1	2	3	4	5
Other (specify) _____ .....	1	2	3	4	5



18. Do you feel there are any conflicts between users of Maryland's Coastal Bays?  
 \_\_\_\_ Yes \_\_\_\_ No If yes, please explain \_\_\_\_\_
- 
19. Have you observed any boating accidents, near accidents, or unsafe boating practices within the last year which you believe were a direct result of conflicting uses on the bays?  
 \_\_\_\_ Yes \_\_\_\_ No If yes, please explain \_\_\_\_\_
- 

**Environmental concerns are very important to boaters. Please answer the following questions to make us aware of your concerns and feelings about the coastal environment.**

20. Since you have been boating on Maryland's Coastal Bays, do you think the **water quality** of the bays has been:  
 \_\_\_\_ Improving \_\_\_\_ Not changing very much \_\_\_\_ Deteriorating \_\_\_\_ Don't know/Not sure
21. Since you have been boating on Maryland's Coastal Bays, do you think the bay's **living resources** (fish, crabs, clams, etc.) have been:  
 \_\_\_\_ Improving \_\_\_\_ Not changing very much \_\_\_\_ Deteriorating \_\_\_\_ Don't know/Not sure
22. Both recreational and commercial users may negatively impact the resources of Maryland's Coastal Bays in certain ways. Please identify which impacts you are aware of that may be caused by these bay users. **(Check all that apply)**

	Recreational Boats	Commercial Boats
Disturbing sea grasses	_____	_____
Creating excessive water turbulence	_____	_____
Dumping of porta-potties or MSD's in bay waters	_____	_____
Shoreline erosion	_____	_____
Propeller scouring of bottom sediment	_____	_____
Disturbing nesting shorebirds	_____	_____
Discharges of oil/gas	_____	_____

23. Would you favor or oppose each of the following issues for Maryland's Coastal Bays? Circle the number that corresponds to your answer. **(1 = Strongly Oppose; 2 = Oppose; 3 = Neutral; 4 = Favor; 5 = Strongly Favor)**

		Strongly Oppose			Strongly Favor
a.	Additional regulations if they improve the bay's water quality. ....	1	2	3	4 5
b.	Limit the number of boats using the bays .....	1	2	3	4 5
c.	Zoning the waters to provide for certain uses at specific places .....	1	2	3	4 5
d.	Restricting boat use in excessively shallow waters or around sensitive bay resources .....	1	2	3	4 5
e.	Require the purchase of a seasonal boating permit for bay use, if the money were used for bay improvements.....	1	2	3	4 5
f.	Develop additional boat access facilities to the bay's waters.....	1	2	3	4 5
g.	Stricter limits on the size and/or number of fish, clams, and crabs that can be taken from the bay's waters .....	1	2	3	4 5
h.	Require a baywide saltwater fishing license, if the money were used to improve fishing in the bay .....	1	2	3	4 5
i.	Limit the number of jetskis using the bays .....	1	2	3	4 5

24. If you were spending your own money to improve Maryland's Coastal Bays, how would you rank the importance of the following items: (Assign "1" to the item that you feel has the highest priority and "8" to the item you feel has the lowest priority.)

☐ Provide more marine enforcement on the water  
☐ Take steps to improve the water quality of the bays  
☐ Create new habitat for fish, birds, and other animals  
☐ Deepen and widen the bay's navigational channels  
☐ Build more and better launch ramps  
☐ Provide more and better channel markings  
☐ Protect existing fish, bird, and wildlife habitat  
☐ Other (specify) \_\_\_\_\_

**The following questions are about you personally and will help us to know more about boaters. We should stress that all of your answers are strictly confidential.**

25. What is your age? \_\_\_\_\_
26. Are you: ☐ Male ☐ Female
27. How much formal education have you had? ☐ Grade School ☐ Some High School  
☐ High School Graduate ☐ Some College ☐ College Graduate ☐ Post Graduate
28. Which best describes your present employment status?  
☐ Employed Full-Time ☐ Not Employed ☐ Student ☐ Employed Part-Time  
☐ Retired ☐ Other (specify) \_\_\_\_\_
29. Are you a member of a sportfishing club or recreational boating organization?  
☐ Yes ☐ No If yes, name the organization(s) \_\_\_\_\_

Please feel free to add any additional comments you desire.

---

---

---

---

**That concludes the survey. Thank you for your time.**

**Please return the completed survey form  
in the stamped, self-addressed envelope provided.**

☐ Check here to receive a copy of the summary report when it is completed.



## **APPENDIX F**

### **MAIL SURVEY INSTRUMENT**





SEA GRANT  
COLLEGE PROGRAM

Winter 2001

University of Delaware  
Hugh R. Sharp Campus  
Lewes, Delaware 19958-1298

PH: 302/645-4235  
FAX: 302/645-4213  
E-Mail: jfalk@udel.edu

Dear Maryland Boater:

We are conducting a study of recreational boating on Maryland's Coastal Bays. At the present time, little information is available concerning activity patterns and attitudes of boaters using these waters. The information you provide is especially important since it will be useful in planning for the state's recreational boating needs in the future.

The accuracy of this study depends on the number of questionnaires returned. It should only take between 10 and 15 minutes of your time to complete the survey. Once you have answered the questions, please place the questionnaire in the enclosed postage-paid envelope and return it as quickly as possible. Any information you provide will be strictly confidential. Only group totals will ever be published. Your name or individual responses will never be reported in any way.

If you would like a copy of a summary report when the study is completed, please write your name and address on a separate sheet of paper and enclose it in the return envelope along with your questionnaire, or send it separately if you wish. Information from boaters, like yourself, is vital to insure that recreational boating continues to be a safe and enjoyable activity in Maryland waters. We greatly appreciate your help and interest in this study.

Sincerely,

James M. Falk  
Project Coordinator

Dear Maryland Boater:

About a week ago you should have received a questionnaire seeking your opinions about boating on Maryland's Coastal Bays. At the time this postcard was mailed, we had not yet received your response. Your answers are very important and will be used to represent the opinions of many other boaters with views similar to yours.

We would greatly appreciate it if you would take a few minutes to complete the questionnaire and return it in the postage-paid envelope we provided. If you have misplaced the questionnaire, or did not receive it, we will send you another one if we do not hear from you.

Thank you for your time and cooperation.

Sincerely,



James M. Falk

Project Coordinator

**Note:** If you have already completed and returned the questionnaire, please disregard this reminder. Thank you for your prompt response.



SEA GRANT  
COLLEGE PROGRAM

University of Delaware  
Hugh R. Sharp Campus  
Lewes, Delaware 19958-1298  
Ph: 302/645-4235  
Fax: 302/645-4213  
E-Mail: jfalk@udel.edu

Winter 2001

Dear Maryland Boater:

About three weeks ago, we sent you a questionnaire about your boating experiences on Maryland's Coastal Bays. If you have already replied we thank you for your prompt response. If you have not yet completed the questionnaire, would you please take the time to do so now? It should only take about 15 minutes.

At the present time, little information is available concerning activity patterns and attitudes of boaters who use these waters. The information you provide is especially important since it will be useful in planning for the state's recreational boating needs in the future.

We are writing to you again because if our results are to be as reliable and useful as possible, it is important that each questionnaire be completed and returned. Remember, all responses will be summarized and handled in strict confidentiality.

A copy of the questionnaire and reply envelope are enclosed in case you did not receive, or have misplaced the original materials we sent you. Once the survey has been completed, just seal it in the postage-paid envelope and drop it in any mailbox.

Your time and cooperation are greatly appreciated.

Sincerely,

A handwritten signature in cursive script that reads 'J. M. Falk'.

James M. Falk  
Project Coordinator





# MARYLAND COASTAL BAYS BOATING STUDY — 2000

University of Delaware Sea Grant Marine Advisory Service  
700 Pilottown Road ♦ Lewes, DE 19958-1298



Your 20' BOAT has been selected in our random sample of Maryland registered boaters. Please answer the following questions with regards to this boat.

1. What type of boat is this?

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Sailboat                     | <input type="checkbox"/> Inboard Power Boat  | <input type="checkbox"/> Pontoon Boat             |
| <input type="checkbox"/> Kayak/Canoe                  | <input type="checkbox"/> Outboard Power Boat | <input type="checkbox"/> Jon Boat/Duck Boat/Skiff |
| <input type="checkbox"/> Personal Watercraft (Jetski) | <input type="checkbox"/> Jet Boat            | <input type="checkbox"/> Other (specify) _____    |

2. If this boat has a motor(s), what is the total horsepower? \_\_\_\_\_ Horsepower

3. How long have you owned this particular boat? \_\_\_\_\_ Years

4. How long have you participated in recreational boating as a boat owner? \_\_\_\_\_ Years

5. How would you rate yourself as a boater? ☐ Novice ☐ Intermediate ☐ Advanced ☐ Expert

6. Does your boat have any of the following specialized equipment? (Check all that apply)

- |   |  |  |                              |                                    |                                   |
|---|--|--|------------------------------|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Depth Finder   | <input type="checkbox"/> LORAN         | <input type="checkbox"/> Compass               | <input type="checkbox"/> GPS | <input type="checkbox"/> VHF Radio | <input type="checkbox"/> CB Radio |
| <input type="checkbox"/> Cellular Phone | <input type="checkbox"/> Chart Plotter | <input type="checkbox"/> Other (specify) _____ |                              |                                    |                                   |

7. During the boating season, do you usually keep this boat:

- ☐ In the water (private marina, dock, or boat lift) ☐ On a trailer?

8. Do you ever spend time boating on Maryland's Coastal Bays (Assawoman, Isle of Wight or Sinepuxent Bays)?

- ☐ Yes → **If YES, Please Continue** ☐ No → **If NO, Please Go to Question 30**

9. Below is a list of boating activities you may participate in with this boat. Please estimate what percent of time you spent on each of the following activities on Maryland's Coastal Bays during the 2000 boating season. (Make sure that your total selections add to 100%)

- |                         |                          |                            |
|-------------------------|--------------------------|----------------------------|
| ____ Pleasure Cruising  | ____ Swimming            | ____ Diving                |
| ____ Waterskiing/Tubing | ____ Day Sailing         | ____ Other (specify) _____ |
| ____ Fishing            | ____ Jetskiing/Other PWC |                            |
| ____ Crabbing           | ____ Clamming            |                            |

**100% Total**

10. How many days did you boat on Maryland's Coastal Bays in 2000? \_\_\_\_\_ Days

11. When you consider all of the boating you did during the 2000 boating season, please estimate the percent of time you spent boating on Maryland's Coastal Bays. \_\_\_\_\_ %

12. When do you do most of your boating? (Check only one) ☐ Weekdays ☐ Weekends ☐ Weekdays/Weekends equally

13. What months of the year do you boat on Maryland's Coastal Bays? (Check all that apply)

- ☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

14. Why do you choose to engage in boating activities on Maryland's Coastal Bays? (Check all that apply)

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Good water quality       | <input type="checkbox"/> Close to home/other lodgings       | <input type="checkbox"/> Adequate water depth |
| <input type="checkbox"/> Adequate channel markers | <input type="checkbox"/> Scenic qualities of the bays       | <input type="checkbox"/> Good fishing         |
| <input type="checkbox"/> Peaceful location        | <input type="checkbox"/> Not a lot of other boating traffic | <input type="checkbox"/> To observe wildlife  |
| <input type="checkbox"/> Other (specify) _____    |   |   |

15. Overall, how would you rate boating on Maryland's Coastal Bays?

- ☐ Poor ☐ Fair ☐ Good ☐ Very Good ☐ Excellent ☐ Perfect

16. During the past five years, or since you have boated on Maryland's Coastal Bays, do you feel the quality of your boating experience overall has:

- ☐ Increased, if so why \_\_\_\_\_
- ☐ Stayed the same
- ☐ Decreased, if so why \_\_\_\_\_

17. Do you feel that the current number of public boating access sites and launch ramps around Maryland's Coastal Bays is adequate for boaters? ☐ Yes ☐ No

18. As a recreational boater on Maryland's Coastal Bays, please indicate which of the following concerns are most importance to you. Circle the number that corresponds to your answer. (1 = Not at all Important; 2 = Slightly Important; 3 = Moderately Important; 4 = Very Important; 5 = Extremely Important)

		Not at all Important			Extremely Important
Poor water quality affecting my boating experience . . . . .	1	2	3	4	5
Overcrowding of navigable waters . . . . .	1	2	3	4	5
Boaters operating under the influence of alcohol/drugs . . . . .	1	2	3	4	5
Boaters operating in an unsafe manner . . . . .	1	2	3	4	5
Lack of state marine enforcement . . . . .	1	2	3	4	5
Lack of adequately maintained navigational channels . . . . .	1	2	3	4	5
Lack of proper navigational aids (buoys, lights, etc) . . . . .	1	2	3	4	5
Overcrowding at popular boat ramps . . . . .	1	2	3	4	5
Boats drifting/anchored in navigational channels . . . . .	1	2	3	4	5
Other (specify) _____ . . . . .	1	2	3	4	5

19. Do you familiarize yourself with new Coast Guard regulations each year? ☐ Yes ☐ No

20. Do you annually receive a Coast Guard Auxiliary courtesy safety inspection? ☐ Yes ☐ No

21. Have you ever taken a boating safety training course? ☐ Yes ☐ No

If Yes, what year did you last take a course? \_\_\_\_\_ From what organization? \_\_\_\_\_

22. Do you feel there are any conflicts between users of Maryland's Coastal Bays? ☐ Yes ☐ No

If yes, please explain \_\_\_\_\_

23. Have you observed any boating accidents, near accidents, or unsafe boating practices within the last year which you believe were a direct result of conflicting uses on the bays? ☐ Yes ☐ No

If yes, please explain \_\_\_\_\_

24. In an effort to improve safety of navigation at the Rt. 50 bridge and inlet, we would like your help in identifying any problems of which you are aware, or have experienced. (Please indicate the importance of the following by selecting 1 = Least Serious and 5 = Most Serious.)

	Least Serious			Most Serious	
Fast moving current . . . . .	1	2	3	4	5
Turbulence and wave action . . . . .	1	2	3	4	5
Narrow passageway . . . . .	1	2	3	4	5
Underpowered boats . . . . .	1	2	3	4	5
Boats not suitable for this area . . . . .	1	2	3	4	5
Inexperienced operators . . . . .	1	2	3	4	5
Overloaded boats . . . . .	1	2	3	4	5
Boats ahead moving too slow for your steerage . . . . .	1	2	3	4	5
Excessive boat wakes . . . . .	1	2	3	4	5
Boats maneuvering until bridge opens . . . . .	1	2	3	4	5
Jetskis zig-zagging in inlet . . . . .	1	2	3	4	5
Other (specify) . . . . .	1	2	3	4	5

**Environmental concerns are very important to boaters. Please answer the following questions to make us aware of your concerns and feelings about the coastal environment.**

25. During the last five years, or since you have been boating on Maryland's Coastal Bays, do you think the **water quality** of the bays has been:

- ☐ Improving    ☐ Not changing very much    ☐ Deteriorating    ☐ Don't know/Not sure

26. During the last five years, or since you have been boating on Maryland's Coastal Bays, do you think the bays' **living resources** (fish, crabs, clams, etc.) have been:

- ☐ Improving    ☐ Not changing very much    ☐ Deteriorating    ☐ Don't know/Not sure

27. Both recreational and commercial users may negatively impact the resources of Maryland's Coastal Bays in certain ways. Please identify which impacts you are aware of that may be caused by these bay users. **(Check all that apply)**

**Recreational Boats    Commercial Boats**

- |   |                          |                          |
|---|--------------------------|--------------------------|
| Disturbing sea grasses . . . . .                          | <input type="checkbox"/> | <input type="checkbox"/> |
| Creating excessive water turbulence . . . . .             | <input type="checkbox"/> | <input type="checkbox"/> |
| Dumping of porta-potties or MSD's in bay waters . . . . . | <input type="checkbox"/> | <input type="checkbox"/> |
| Shoreline erosion . . . . .                               | <input type="checkbox"/> | <input type="checkbox"/> |
| Propeller scouring of bottom sediment . . . . .           | <input type="checkbox"/> | <input type="checkbox"/> |
| Disturbing nesting shorebirds . . . . .                   | <input type="checkbox"/> | <input type="checkbox"/> |
| Discharges of oil/gas . . . . .                           | <input type="checkbox"/> | <input type="checkbox"/> |

28. Would you favor or oppose each of the following issues for Maryland's Coastal Bays? Circle the number that corresponds to your answer. **(1 = Strongly Oppose; 2 = Oppose; 3 = Neutral; 4 = Favor; 5 = Strongly Favor)**

- |  |   | <b>Strongly<br/>Oppose</b> |   |   | <b>Strongly<br/>Favor</b> |
|--|---|----------------------------|---|---|---------------------------|
| a. Additional regulations if they improve the bay's water quality . . . . .  | 1 | 2                          | 3 | 4 | 5                         |
| b. Limit the number of boats using the bays . . . . .  | 1 | 2                          | 3 | 4 | 5                         |
| c. Zoning the waters to provide for certain uses at specific places . . . . .  | 1 | 2                          | 3 | 4 | 5                         |
| d. Restricting boat use in excessively shallow waters or around sensitive bay resources . . . . .                        | 1 | 2                          | 3 | 4 | 5                         |
| e. Require the purchase of a seasonal boating permit for bay use, if the money were used for bay improvements . . . . .  | 1 | 2                          | 3 | 4 | 5                         |
| f. Develop additional boat access facilities to the bays' waters . . . . .   | 1 | 2                          | 3 | 4 | 5                         |
| g. Stricter limits on the size and/or number of fish, clams, and crabs that can be taken from the bays' waters . . . . . | 1 | 2                          | 3 | 4 | 5                         |
| h. Require a baywide saltwater fishing license, if the money were used to improve fishing in the bays . . . . .          | 1 | 2                          | 3 | 4 | 5                         |
| i. Limit the number of jetskis using the bays . . . . .  | 1 | 2                          | 3 | 4 | 5                         |

29. If Maryland's Coastal Bays became **more** crowded with boats, how would it affect your use of the bays? **(Check all that apply)**

- ☐ I would spend less time boating on the bays.
- ☐ I would boat at different times than I usually do (When: \_\_\_\_\_).
- ☐ I would participate less frequently in certain boating activities.
- (Which activities: \_\_\_\_\_)
- \_\_\_\_\_)

30. To help us better understand the level of recreational crabbing in Maryland's Coastal Bays, please answer the following questions.

a. Do you ever spend time recreational crabbing on Maryland's Coastal Bays from either a boat, pier, dock or bridge?

☐ Yes →

☐ No →

b. How many days per year do you spend recreational crabbing on Maryland's Coastal Bays? \_\_\_\_\_ Days

c. What type of gear do you usually use for crabbing? (Check all that apply)

☐ Pots

☐ Trotlines

☐ Collapsible Traps

☐ Dip Nets

☐ Hand Lines

☐ Other (specify) \_\_\_\_\_

d. On average, how many legal size crabs (5" or larger) would you estimate that you usually catch when you go crabbing? \_\_\_\_\_ Crabs

e. In your estimation, do you think Blue Crabs in Maryland's Coastal Bays are:

☐ Increasing

☐ Staying the Same

☐ Decreasing

☐ Unsure/Can't Tell

The following questions are about you personally and will help us to know more about boaters.  
We should stress that all of your answers are strictly confidential.

31. What is your age? \_\_\_\_\_

32. Are you: ☐ Male ☐ Female

33. How much formal education have you had? ☐ Grade School ☐ Some High School ☐ High School Graduate  
☐ Some College ☐ College Graduate ☐ Post Graduate

34. Which best describes your present employment status?

☐ Employed Full-Time

☐ Not Employed

☐ Student

☐ Employed Part-Time

☐ Retired

☐ Other (specify) \_\_\_\_\_

35. Are you a member of a sportfishing club or recreational boating organization? ☐ Yes ☐ No

If yes, name the organization(s): \_\_\_\_\_

Please feel free to add any additional comments you desire.

That concludes the survey. Thank you for your time.

Please return the completed survey form  
in the stamped, self-addressed envelope provided.



## **APPENDIX G**

### **OTHER EQUIPMENT CARRIED ON BOAT (MAIL SURVEY BOATERS)**



**OTHER EQUIPMENT CARRIED ON BOAT  
(QUESTION #6)**

- Radar (4)
- Remote steering, Auto pilot (2)
- Local Police/Fire/EMS radio 800 MHz
- SSB Radio
- Radio scanner
- Echo sounder
- Speed indicator and water temperature gauge
- Voltmeter gauge to keep check on battery





## **APPENDIX H**

### **OTHER REASONS FOR BOATING ON MARYLAND'S COASTAL BAYS (MAIL SURVEY BOATERS)**



**OTHER REASONS FOR BOATING ON MARYLAND'S COASTAL BAYS  
(QUESTION #14)**

- Duck Hunting (5)
- Live here all year/live on waterfront (4)
- Crabbing (2)
- Occupation/Work (2)
- Dad loves to fish; I try to get him out as much as possible (days off/after work)
- Good Crabbing (when water is clear)
- Convenient area for fishing; weekdays less busy
- Live in Maryland
- To take clients on fishing charters (I'm a charter captain)
- Home is on the Assawoman Bay
- Transportation (summer months)
- Ocean access
- Because I am a commercial fisherman
- Visit Ocean City Restaurants
- Peaceful until the tourists hit
- Access to restaurants; relatively safe
- Not a lot of laws and restrictions
- Boat Access to isolated areas
- Costs



## **APPENDIX I**

### **REASONS FOR INCREASE OR DECREASE IN BOATING QUALITY ON MARYLAND'S COASTAL BAYS (MAIL SURVEY BOATERS)**



**REASONS FOR INCREASE OR DECREASE IN BOATING QUALITY  
ON MARYLAND'S COASTAL BAYS  
(QUESTION #16)**

**Increased Quality**

- Have better knowledge of the bay waters (e.g. depth, channels, fishing areas, tides) (12)
- More experienced as a boater (10)
- More time for boating (6)
- Water quality has improved; cleaner water (3)
- Nicer boat
- New equipment
- Frequent use of boat
- More confidence as a boater
- Learned to maneuver the boat better
- Semi retired
- I've gotten used to the boat
- The bay water are safe to enjoy diverse boating activities
- I've purchased a larger boat
- The rockfish have come back
- Pleasure cruising
- Learned more about fish habits and decreased quantity of fishing
- Joined OC Power Squadron and have attended many boating educational classes
- Have become more proficient and enjoy fishing
- My wife now participates
- Better educated boating public
- Continued increase in abilities and knowledge
- Fish sizes are larger and more plentiful
- Have become better boater
- Spoken with many people familiar with waters
- Increased skill and knowledge of apparatus
- Learned where to go and stay away from congested areas
- Dredging of channels and better marker/buoy location
- Always learn something new everyday
- Each time I go out I become more familiar with the surroundings
- Learned more about boating and safety



## **Decreased Quality**

### Jetskis/Personal Watercraft

- Too many Jetskis (27)
- Noise due to jetskis (3)
- Personal watercraft are a nuisance
- Increase in PWC's with too many inexperienced operators
- No jet skis allowed on Assateague Island
- Too many jet skis not following rules
- Too many PWC leasing agents
- PWCs Annoyance
- Increased boat traffic, particularly jetskis
- Increased usage especially by personal watercraft
- Too many jetskis and people go too fast
- Too many inconsiderate jetskiers
- Cannot use my PWC near Assateague

### Crowding/Congestion

- Increased in boat traffic (14)
- Too many boats (14)
- Too crowded (8)
- Too busy in summer months
- You can't get near ramp on weekends because of boat traffic and jetskis
- Increased boat traffic and jetskis increases my awareness
- In summer too much traffic for locals
- Too many boats, too little fishing spots
- Getting too crowded— More boats each year
- Much more congested
- Too crowded on weekends
- As quantity increases, quality decreases
- Decreases when the tourists arrive; they are a problem
- Too many "weekend renters"
- Too many boats in channel (drifting)
- Increased boats and personal watercraft

### Unsafe/Inconsiderate/Uneducated Boaters

- Too many boats without regard to other boaters
- Danger increased due to drunk operators
- Undereducated boaters
- Unsafe hunting from boats
- Experience in watching "out of state" boaters, and their mistakes, causes me to proceed with more caution
- Increasing number of uneducated boaters
- High speed of other boats

- Increase in boaters that don't know rules
- More inexperienced boaters and rude and/or ignorant boaters
- Too many novice boaters and personal watercraft without education
- Rude boaters
- Lack of boating knowledge and courtesy of the boating public
- Rude and dangerous boaters on the increase
- No respect for other boaters
- More inexperienced boaters and jetskiers
- Other non-safety minded and inconsiderate boaters
- Too many incompetent boaters tying up launch ramps
- Quantity of novice boater during summer weekends

### Shallow Water/Shoaling

- Bays silting in (3)
- Bay getting shallow (3)
- The bays are filling up with sand and are very hazardous to maneuver
- Less water depth in channels
- Low water/sand bars need dredging
- Due to shallow water, night markers are fine but can't see cans
- Shallow and shoals
- Bay shallow, shifting bottom
- Channels and bays are filling in
- Shifting sand bars, I will place markers every year, entrance and exit from my main canal to Cape Isle of Wight always clogged, needs to be dredged every year and is not passable at low or mid tide.
- Too many sandbars; shallow water
- Channel markers and water depth
- Small creeks have filled in
- Silting in the already shallow/narrow channels
- Poor water depth in channel
- Shoaling

### Bays' Living Resources

- Overfished by recreational fisherman
- Less fish and crabs
- Crabbing and fishing decline
- Crab and fish take reduced
- Recreational fishing poorer
- Poor fishing and crabbing
- Not as good fishing and crabbing
- Not as many crabs
- Reduction of fish and crabs
- Decline in crabbing
- No crab populations anymore
- Bays overcrabbed
- Move crab traps

- Less crabs, fishing is poorer
- Fishing and crabbing quality
- No fishing; waters are overfished
- Poor fishing
- Much harder to catch fish

### Commercial Clamming

- Due to hydraulic clam dredging (2)
- Hydraulic clamming has destroyed fish habitat
- Fishing trawlers allowed too close to shore, affects amount of fish entering the bays (less)
- Commercial clamming in Bay area excessive; bottom ecology being destroyed
- Hydraulic clambers
- Clammers tearing up bottom

### Water Quality and Habitat

- Poor Water Quality (7)
- Dirty water
- Bay is in bad shape
- Lack of habitat (not so good)
- Lot's of sea grass and some algae blooms

### Regulations and Restrictions

- Too many boating restrictions (2)
- Overly checked by DNR
- Restrictions on fish size and regulations.
- Fishing regulations
- Regulations and license fees

### Age/Health Issues

- Getting old/Aging (2)
- Now I am 84 years old, we have other interests
- Medical reasons

### Miscellaneous

- More landside development (2)
- Work schedule (2)
- We have a pontoon boat and can no longer land on the shore of Assateague
- Traffic and waterway problems
- Need night access to boat ramps
- Accessibility to sandbars and Assateague Island
- It seems that the inland fishing was better

## **APPENDIX J**

### **OTHER IMPORTANT BOATING CONCERNS (MAIL SURVEY BOATERS)**



## **OTHER IMPORTANT BOATING CONCERNS (QUESTION #18)**

- Wave runner and jetski noise
- Depth
- Bay is in desperate need of main dredging of western channels
- Good duck hunting
- Lack of Coast Guard towing disabled boats
- Crab pots in mid channel
- Fishermen at Rt. 50 bridge
- Can't see cans at night; dangerous for night fishing
- Jetskis with overcrowding, noise, pollution
- Lots of large debris (pier pilings, boards, etc.)
- Sand bars everywhere
- Boaters using basic rules of road and respect for other boaters
- Speeding large boats, recklessly
- More control needed for PWC's
- Boaters not obeying speed limits
- Sliding in of inlet areas
- Marine officers are frequently in my area
- OC back bay; needs to be changed, made deeper to endure less boating problems
- Boaters unfamiliar with the bays
- Personal watercraft and boats cruising over 50 mph
- Shallow water
- Cars parked in public library parking lot not being used as tow vehicle for watercraft
- Lighted buoys and pilings
- Restriction and ban of PWC and jet skis, in traffic and environmental quiet areas
- Wave runner rentals
- PWC Limits
- Not enough monitoring of PWC's
- Clam boats fishing bay
- Dirty water
- Speed
- Too many jetskis
- Too many jetskis operated too close to people fishing
- Most problems relate to area crowding and PWC's
- Clam dredging – damaging SAV
- Jetskis operating like boating is a game
- Channels kept dredged; too many fishermen in channels
- PWC tearing up the bays
- Poorly marked channels
- Crab pots
- Destruction of ambience by jetskis
- Disapprove of hydraulic clam boats
- PWC virtually uncontrolled
- Ban on hydraulic clammers
- Insufficient navigable waters
- Commercial over use



## **APPENDIX K**

### **COMMENTS FROM BOATERS REGARDING CONFLICTS BETWEEN MARYLAND COASTAL BAYS' USERS (MAIL SURVEY BOATERS)**





**COMMENTS FROM BOATERS REGARDING CONFLICTS  
BETWEEN MARYLAND COASTAL BAYS' USERS  
(QUESTION #22)**

**PWC Conflicts**

- Jetskis and waverunners
- No jetskis allowed on Assateague Island; boats are ok
- Jetskis--who needs them and why does everyone who owns one get in front of my charter boat
- Jetskis and hot rod powerboats are a real problem
- Jetski operating unsafely
- Speedboats, fishing boats and PWC operate with no regard for each other
- Improper use of jetskis.
- Jetskis should be controlled better; should be used out in the ocean waters only
- Jetskiers, most of our problems; no respect for others on water; from the highway to our waterway and just as fast
- Between rude (75%) PWC operators and everyone else
- Obnoxious jetskiers --not all just some
- Jetski usage
- Jetskis/waverunners competing with boats
- Jetskis, overpowered boats
- Speed of boats and jetskiers
- Also too many crazy jetskis going too fast
- Jet skiers and speed boaters don't have a clue
- Owner/operators PWC
- Personal watercraft vs boaters
- PWC's and speed boats
- PWC users renters monopolize the bay – it is not worth going boating during summer days
- Rental jetski companies operating Assateague Island
- PWC's vs pleasure vs fishing/crabbing
- Speeding PWC's
- Jetskis
- Jetski users do not follow boating rules and most are not responsible boaters
- Too many PWC users leading to too much havoc
- Waverunners and jetskiers following too close or cutting across in front of or behind your boat to closely causing near miss accidents
- Personal watercraft
- Jetski operators and fishermen.
- Poor manners and reckless behavior by jetskiers
- Jetski operators are a danger to real boaters
- The PWC owners need to stay out of the channels and the inlet
- Jetskis unsafe use
- PWCs and boats
- Jetskiers and all other boating interests
- Jetskiers
- Jetskis and recreational boaters

- Just too many of us-jetskis buzzing fishermen
- Jetskis are so noisy and irritating that it decreases pleasure in any other activity on (or around) the bays
- Personal watercraft users near OC inlet
- Personal watercraft and conventional boating
- Personal watercraft carelessness
- Jet ski rentals vs sail & other motorless rentals
- General annoyance of PWC's and jet boats around fishermen, as well as swimmers
- Pleasure and fishing boats vs PWC
- Boats and PWC's
- More marine enforcement for PWC's
- Jetskis too fast and too loud
- Fishermen and jetskis constant conflict
- Operation of PWC; operators totally lack knowledge of rules
- PWC's and uncontrolled big boats throwing wakes without concern for small boats
- Stop the jetskis
- Jetski renters who have no idea
- PWC and speedboats and recreational boaters; jetskiers get in the wetlands
- Disagree with PWC restrictions even though I don't own one
- Personal watercraft disregarding or not knowing water regulations
- Jetskis out-of-control
- Speed of jetskis
- Idiot jetskiers; jetskis vs fishing boats
- Jetskis
- Jetskis and all other boats
- Jetski users who don't have any training and get too close to boaters and jetskis
- Jetskis operated in the channels are inviting disaster
- Large numbers of personal watercraft
- Jetski rentals--unsafe and noise annoying
- Jetskis just go and do anything they want; no 100' or 6 mph limits are recognized
- High speed boats and jetskis tend to show little concern for other boaters, particularly those fishing
- Jetskiers very poor control of very inexperienced operators
- Too many jetskis going too fast
- Jetskis with operators who have little or no knowledge of rules of the road, channel markers, etc.
- Jetskis and larger boats in same area
- Jetskiers vs fishermen
- Recreational fishing and jetskis
- DNR lets jetskis break the law
- Between PWCs, kayakers, small boaters, big boaters
- Personal watercraft are becoming a major problem--too many, too much speed, etc.
- Jetskis driven by novice boaters or rentals vs fishing
- Jetskis/boats not obeying the law
- Personal watercraft with inexperienced operators and the traditional boat owners
- Jetskis are annoying, commercial fishing boats and charter boats flying through the inlets without regard for those fishing in the inlet
- "Jetski cowboys"

- Jetskis
- PWC's and high speed boats are becoming more of a danger every year
- Jetskis think fishermen should stay out of their way and speed boats have no regard for people
- PWC's
- Jetski use
- Too many jetskiers not being safe
- Western shore inexperience on boats and blame the jetskiers
- Jetski rentals
- Fishermen and jetskiing don't mix
- Jetskis
- Jetskiers in fishing areas
- Jet/cigarette boats vs. Fishing boats; jetskis vs wildlife and general boating population
- Jetski operators are generally inconsiderate at best and dangerous at worst
- Jetskis are creating serious threats to all boaters and are damaging our short lives; they should be banned or restricted to certain areas
- Jetski boats disturb fishermen, shallow areas and residents who live on the water
- Jetskis operated by people completely ignorant of marine safety and laws
- Jetski and personal watercraft show no courtesy in that they disregard most safe laws and courtesy to other boaters
- Jetboats seem to be only speed
- Fishing vs jetski use
- Too many people renting and buying jetboats and running them with having no training in boat handling; many of them have no regard for anybody but themselves
- Jetskis vs fishermen vs cruisers
- Between personal watercraft and fishing or pleasure boats
- PWC intrusion on fishing
- Jetskis
- Too many jetskiers
- PWC (jetskis) and boats
- Skidoos (jetskis) vs the world
- Personal watercraft being operated in unsafe manner
- Jetskis and pleasure cruisers not slowing down or giving fishermen a wide berth
- Restrict seadoos
- PWC/Fishing
- Jetboats

### **Commercial Clamming**

- Somewhat concerned about clam harvesting by power dredges
- Dredgers should be banned
- Hydro-clamming should be eliminated; should be used out in the ocean waters only
- Dredging craft are destroying the bay bottom
- Professional clam boats digging up the bays
- Increased number of out-of-local area clam dredgers & commercial crabbing
- Between clammers and everyone else
- Clam boat operators in large numbers for long periods
- Hydraulic clamming has been destructive to the marine environment and muddies the water for fishing

- The clam dredges are ruining our waterways
- Commercial clambers are eliminating mother natures water quality and sea grass
- Too many clammer boats working small areas in the bays
- Clam dredging vs marine vegetation
- I see commercial clambers tearing up the bay destroying the grasses and affecting the fishing and crabbing
- Too many commercial crabbers and clambers with hydraulic sweeping gear
- Out of county commercial fishing boats dredge the bay from October to April completely straining all bottom life
- Commercial clam dredgers are destroying aquatic vegetation and depleting clam populations
- Too much clam dredging flattening bottom
- Hydraulic clam dredgers destroying SAV and other habitat also clouding water with sediment
- Over clamming
- Too many clambers
- Clam dredgers – Assawoman Bay.
- Clammers in Assawoman
- Commercial clambers are destroying Assawoman Bay
- Clam boats
- Hydraulic clambers
- Too much commercial clamming (kills the blue crabs)
- Clammers tearing up bottom and muddying waters
- Clam boats dredging the bays
- Hydraulic clam dredgers--damaging aquatic grass beds and causing sedimentation to suspend in water
- Clam dredging is very destructive to these beautiful waters
- Hydraulic clambers and everyone and the environment; they are a menace to the coastal bays; clambers muddy the shallow bay waters excessively
- Clam boats cause fouling of fish gear
- Also they destroy SAV and bay bottoms
- Clam dredgers during the clamming season
- Commercial clambers destroying bay grass beds
- Clammers destroying the bottom grasses
- Commercial clambers etc, tearing up the bottom
- Clam dredging
- Stop the commercial clambers
- Hydraulic clambers are creating big problems
- Vacuum clambers churning and disturbing the bottom
- Clammers and crabbers
- Between clambers dredging the bay bottom and recreational clamming, crabbing and fishing; clambers are ruining the Assawoman Bay for flounder fishermen
- Clam dredging in winter
- Hydraulic clambers versus rest of users
- Clam dredging destroys SAV's
- Use of power dredging for clams
- Clam dredgers tearing up the delicate bay bottom ecosystem
- Too many commercial clambers
- Clam dredgers damaging habitat
- Should not allow commercial or personal dredging in the bays

- Commercial clamming destroying SAV beds
- Commercial dredging activities; too many commercial crabbers
- Clammers (professional) seriously tear up submerged grasses
- If you wish to maintain sea grasses, winter clamming must be reduced or better--eliminated
- Hydraulic clam dredging is noisy, creates turbidity, and damages bay bottom
- Clam dredgers vs. fishermen
- Too much clamming
- I see clammers digging and killing small crabs; these clammers have come from other MD bays they have already ruined
- Hydraulic clamming activity (commercial) is damaging the environment
- The area is too small to allow both recreational usage and commercial clam dredgers; the SAV cannot stand the assault

### **Commercial vs Recreational**

- Commercial watermen and recreational boaters
- Recreational interests versus commercial
- Clammers and sport fishermen
- Recreational vs commercial
- Commercial vs recreational
- Between sportfishermen and commercial
- Recreational vs commercial
- Commercial vs pleasure
- Commercial watermen and recreational fisherman
- Between watermen and recreational boaters
- Recreational versus commercial
- Commercial and recreational activities
- Recreational vs commercial dredging (clamming)
- Commercial fishing boats vs recreational fishing boats
- Between sportfishermen and commercial watermen
- Commercial clammers and commercial fishermen with recreational fishermen
- Pleasure vs commercial; I believe we should share the resources of our bays not overuse and abuse them
- Recreational fishermen vs commercial fishermen, clammers, crabbers, etc.
- Probably commercial fishing/crabbing and pleasure boaters and fishermen (sportfishing)
- Conflicts between commercial crabbers, clammers, oystermen, and recreational crabbers and fishermen
- Commercial and recreational users
- Conflict of recreational boating vs watermen or workboat operators
- Between the commercial fishermen and the hook/line fishermen; also, we need to minimize the regulations and try not to confuse and discourage our youth
- There are always conflicts when some do it for a living and some do it for fun
- Commercial users vs pleasure users
- Pleasure fishermen vs commercial fleets
- Commercial/recreational fishing
- Recreational fishermen vs commercial fishermen (clammers)

## **Recreational Users**

- Large boats don't seem to care about small boats and I have been swamped by some and some are deliberate
- Pleasure boaters and recreational fishermen
- Fishing in channels where only larger boats can navigate pushing them into going aground
- Large boats travel too fast and have no regard toward smaller craft
- Recreational fishermen are causing major problems by drifting in narrow channels and especially near Rt. 50 bridge
- Between fast boats and slower boats
- Between novice boaters and more experienced boaters
- Between respect of powerboats for sailboats and personal watercraft and jetskiers for all boats; bigger vessels feel the power to do what they want
- Large boats have no regard for smaller boats
- Fishermen vs high speed powerboats
- Different users – PWC, fishing (recreational vs commercial); environmentalists vs hunters/fishermen
- Recreation (water skiing and personal watercraft) mix poorly with fishing; creates hazards
- Speedboats unsafe around fishing areas
- Some want to play-some want to fish-some want to cruise
- Jetskis, speed boats, waterskiers, etc. vs fishing and pleasure boats
- Conflicts between sail and motor power
- Power boaters lack respect for sailboats in many cases
- Boat riding vs fishing
- Not all have the same interests in mind, especially the interests of the other boaters
- Sailboaters seem to think there is no one on the water but them
- Near beach areas--fishing tends to conflict with sport boaters (ex. speed boats) larger boats have little courtesy for boats my size (17 foot)
- Should not bring the big fishing boats into the bay area

## **Uneducated, Inconsiderate Boaters**

- Boaters who do not understand the rules of the road
- Uneducated boaters
- Between conscientious, educated, experienced boaters and arrogant, inexperienced, and uneducated boaters
- When people are inconsiderate
- Lack of nautical knowledge, especially right-of-way
- Many inexperienced boaters
- Inconsiderate boaters and jetskiers
- Lack of courtesy and knowledge of boating rules
- Boaters that do not obey boating rules
- Boaters are not considerate of other boaters and speed of boats
- Boaters should know the right way to pass an anchored boat
- Appalled by number of boaters on waterways that have no idea of proper navigation and boating procedures
- Too many untrained or unsafe users
- Too many unqualified boaters

- People not knowing all the rules and changes each year
- Lack of knowledge regarding safe boating and “rules of the road”
- Inexperienced boaters trolling across anchors and not slowing down upon approach
- People don’t understand right of ways
- There are many people who own big, powerful boats, with no idea how to operate them
- The one thing that I have seen is the lack of respect for others

### **Navigation Channel Conflicts**

- Powerboat operators who feel they own the navigation channels
- Hard to cruise when fishing boats in channel
- With whoever refuses to maintain the channels in the middle and west side; the Bay is almost completely dammed off at the Rt. 50 bridge resulting in poor fishing, crabbing, etc.
- People are not courteous, especially in channels and anchoring in channels and when drifting in rotation
- Drifting anglers in channel vs. anchored fishermen and both of above vs. those using the channel for travel
- Fishing and pleasure boaters both using the same channel
- People fishing in channels
- Boats drifting in main channels
- Small boats drifting in channels blocking area so big boats cannot pass in channel, channel too shallow to maneuver
- Ocean racers operating at high speeds in congested channels and boat fishing in channels needed for travel
- When big boats come in the inlet at OC, they need to slow down for the other boats
- Should enforce speeding boats near fishing channels
- There is a conflict between fishermen and “speed” boats (fishermen anchored/drift near or in channels--speed boats zoom by and create scary wakes
- Fishing in channels
- Boaters anchoring in channels
- People with large boats think they own the channel with no regard for safety to people fishing on shoreline

### **Speed Conflicts**

- Not enough speed limits
- Speed/fast boats and fishermen--not enough respect for each other
- The fast speed boats in OC inlet area and bay are a hazard to other water craft in the area
- Larger, faster boats headed to inlet usually do not slow down when passing close to drifting or anchored boats
- Offshore sportfishing vessels speeding through “drift fishing” areas (i.e. Thorofare)
- Boats going over 50-60 mph in back bay. Need 20 mph speed limit
- Super hp speedboaters along with jetskis--noise and danger to others
- People going too fast on any type of watercraft in crowded areas
- What I hear most is the “crazy” boaters speeding close and cutting off
- Too fast, boaters
- Travel too fast in crowded situations
- Speedboats too loud, too fast, making big wakes while others are fishing



- Boats speeding in area that has many boats in the same area creating unsafe conditions
- Loud big “go fast” boats

### **Commercial Crabbing**

- Crab pots near channels infringe on pleasure cruising
- Number of crab pots makes night navigation hazardous
- Commercial crab pots in open water in the bay
- Crab pots too numerous
- Crab pots poorly marked in navigable channels
- Grays Creek--too many crab pots away from shoreline; even out in channel
- Way too many crab pots; too much commercial crabbing; should not allow keeping female crabs; crabbers vs others
- We feel there should not be a license requirement to place 1-2 crab pots out in the bay, as long as the owners personal information is on a bottle and follow the rules and regulations of crabbing; too much commercial crabbing
- Commercial crabbers
- Crab pots in channel
- Professional crabbers set traps in channels--a danger to other boaters

### **Too Many People; Too Crowded**

- In and around OC, too many boaters
- Too many people
- Too many boats, too little water
- Overcrowding in some areas
- Bays in the Ocean City and Assateague area are just too small for all users during the summer months
- Too many boat and PWC's in the northern bays
- Too many fishermen in the channels
- Overcrowding

### **Commercial Fishing Conflicts—General**

- Too many commercial craft
- Commercial interests believe bays belong to them and can do what they want
- Need more restrictions on commercial boats
- Commercial overuse
- I don't want netters fishing near me
- Clammers, crabbers, and commercial fishermen
- Sometimes crabbers and clammers between Maryland and Virginia Waters

## **Perceived Visitor Conflicts**

- The tourists are the biggest problems. They don't care and think they can do anything and over-run our ramps
- Out-of-state boaters may not have good boating safety courses as required by MD state law
- Outsiders coming in and speeding around drifting boats--people fishing and jetskis
- Out of state people come in and take all our small crabs; this is the reason for the crab shortage
- Tourists not knowing the area or how to operate watercraft properly
- Vacationers are not familiar with local sand bars, etc.
- Out-of- state boaters should be charged same fees as they charge in their domiciled state

## **Miscellaneous**

- I have experienced few problems during winter months (duck hunting) but sold my ski boat due to numerous close encounters with dangerous, inconsiderate boaters in summer
- Unfair to be a resident of county buy a boat license yearly and then have to pay to launch a boat on a county launch
- I would like to see more access ways on to Assateague; paths that would not endanger species down closer to bridge
- Pollution of waters with 2-cycle outboard exhaust/oil/gas; closing channels because of anti-dredging activists
- Government trying to shut down use of bays
- Politics
- Wildlife protection/SAVs/recreational boating
- Designated off limits areas (such as Assateague, etc.) where boaters aren't allowed
- Recreational overfishing vs fish populations
- You used to be able to enjoy yourself by spending the whole day on the bay fishing when tide is right and clamming or picnic on some island that you do not dare to go near anymore
- Keeping ingress/egress from waterfront neighborhoods; clear (deep enough) to get in and out during low to mid tides, lots of people get aground and keep other traffic at a halt, including victims; specifically Cape Isle of Wight North



## **APPENDIX L**

### **COMMENTS FROM BOATERS REGARDING OBSERVED ACCIDENTS OR UNSAFE BOATING PRACTICES AS A RESULT OF BAY CONFLICTS (MAIL SURVEY BOATERS)**



**Comments from Boaters Regarding Observed Accidents or  
Unsafe Boating Practices as a Result of Bay Conflicts  
(Question #23)**

**PWC Conflicts**

- Jetskis (10)
- Jetskis crossing channels not giving way, fishing boats drifting into oncoming boat traffic
- Jetski activity in channels
- Jetskis & riders falling off in front of my charter boat in the inlet
- Jetskis jumping wake and operating too close to drifting fishing boats
- Jumping wakes by jetski
- I saw a speedboat almost run down a PWC while working as a certified PWC guide
- Observed jetskis cutting between a boat and it's tow. Have been aware of 2 jetski deaths in past two years within a few 100 yards of my boat
- I have had jetskis and kayaks run into my boat because they have no idea what to do
- Close calls with people who rent jetskis and don't learn how to use them properly
- Jetskis and boats going wherever they want with no regard for any other boater
- Jetskis being operated in unsafe manner
- I have seen several boats and jetskis run up on sand bars the past few years
- Jetskiers operated by, I assume, first time users
- Jetskis going 50+ mph all the time
- Jetskis too close to boats
- Jetskis going too fast and too close to boats
- Near collision between a boat and jetski
- PWC users (especially from rental operations) operating in unsafe manner
- Jetskis cutting in front of other watercraft and not following boating rules of the road
- Careless use of jetskis; jetskis running too fast in crowded areas
- Jetski operators operating with no regard to safety
- PWC poorly operated
- Unsafe operation of jetskis and personal watercraft
- PWC rental groups passing boats unsafely and too close
- Jetski accident due to negligent operation
- I have seen numerous PWC owners put themselves and others at risk
- Jetskiers just being reckless and not caring about surroundings
- Jetskis driving unsafe
- Jetskis not properly being used and too many close calls with boats
- Jetskis operating too close to other vessels
- Jet boats
- Speeding by personal watercraft and other
- I have had inexperienced PWC operators run into my boat on the open water
- Unsafe PWC use
- Jetskis too close to channel and other boats
- Personal watercraft wake-jumping conventional craft
- Jetski and too fast boats (cigarette) speeding too close to anchored small boats—don't seem to understand rules
- A rental jetski and a pontoon boat—near collision
- Jetskis jumping boat wakes in the inlet during peak hours

- PWC collision
- Jetskis in and around inlet and bridges in OC, MD
- Jetskis always operate unsafely around the OC inlet
- Personal watercraft buzzing fishing craft
- Jetski accidents
- Personal watercraft with inexperienced operators and the traditional boat owners
- Jetskis too fast--too close at high speed--No regard for other boaters
- Jetskis driven by novice boaters or rentals vs fishing
- Two near misses; jetski to jetski and jetski to boat
- PWC's cutting across waves
- Reckless use of jetskis
- Jetskis and personal watercraft
- Jetski rentals still speed close to shore and under bridges
- Unsafe PWC use
- Unsafe operation of jetskis
- Jetski operation unsafe in channels
- Jetskiers have no respect for boaters; all they want to do is go fast and make noise
- Jetski operating too close to bow or stern of moving boats
- Inexperience jetskis in OC near inlet (rentals)
- Jetski near accidents on a regular basis
- Unsafe jetski operation resulting in a near accident
- Close call (nearly missed being hit) by skidoo jetski
- Inadequate regulations for jetskis
- Inexperienced PWC operators
- PWC, inexperienced operators
- Jetboats; summer inexperienced operators
- Improper use of jetskis
- I have, on numerous occasions had to take course changes and slowings because of PWCs
- Jetskis too close to other boats or skiers
- Nearly everytime I am on the water a jetski will cut directly in front of me without looking—  
its only a matter of time until he hits me
- Jetski novices or rentals; often these people are totally unfamiliar with marine safety and regulations; PWC's need their own area to use
- I am a firefighter in OC, been to many PWC vs boats accidents
- Poorly operated personal watercraft are more often operated by drunk and inconsiderate operators
- Boaters on waverunners not giving to the right of way
- I've seen PWC come too close to boats and even saw one turnover because of wake from  
large boat; PWC not using navigational rules of common sense
- Jetskis should operate in designated areas
- Personal watercraft cutting off boating traffic
- Jetski use will become a greater problem
- PWC hit piling at 30 mph, medivac victim
- PWC are unsafe and drivers are unsafe
- Jetski usage is at an all time high; I do not fish directly in the bay during the summer due  
to packs of jetski tourists
- Yes, generally by jetskis including: speeding, unsafe crossings, jumping waves; we have had  
many close calls; should be banned, particularly rentals

- PWC rented to unknowledgeable operators
- PWC jumping boat wake near Assateague and OC inlet
- Careless jetskiers; neighbor had jetskier run in front of their boat and they ran over her
- Many jetski operators operating with total disregard of others
- Personal watercraft interfering with right of way; jetskiers from other states
- Jetskis crossing wakes without observing other traffic
- Jetskis going too close and fast towards boats
- Inexperienced jetski operators
- Reckless and negligent operation of jetskiers (and boaters) in fishing areas
- Almost got hit by jetski and I was anchored
- Many wave runners (jetskis) cutting in and out of boat traffic
- Rented jetskis ride dangerously close to other watercraft
- Near accidents with PWC near commercial fishing boats
- PWC improperly handled
- I was moving at 35-40 mph (minimum to stay on plane) in the Thorofare when a jetski came in a path perpendicular to the channel directly in front of me. I pulled off both throttles, pulled the trim tabs down and engine trim in to stop as quickly as possible. He passed so close to my hull that I couldn't see him as he passed under my bow even though I was standing. He never even looked back. A 15 second delay in my reaction would have killed him and he was totally oblivious to the event.

## **Speed Conflicts**

- Speed (3)
- Speed hot rod power boats excessive speed
- High speed powerboats making wakes
- People do not slow down when approaching other boats
- Fast boats speeding thru channels where people are fishing and drifting
- Large boats going too fast in narrow channels—with heavy wakes
- Boats going 50+ mph and untrained pilots
- An ocean racer cruising at least 45 mph tried to cut between 2 drifting pontoon boats when he hit a wake; before he regained control he nearly crushed a small yellow rental boat
- Commercial fishing boats entering O.C. inlet at high rate of speed with booms extended
- Fast speed boats are so long in the front they are unable to see in front of them--up in the air
- Many persons with fast boats, feel the fastest boat has the right of way
- Large, high-hp vessels causing large wake that endangers the small craft
- A powerboat traveling at high speed swerved to avoid a crab trap marker and nearly collided with an oncoming boat
- Numerous near accidents at high speeds in the Thorofare area of Assawoman Bay - Isle of Wight
- Large boats throwing large wakes thru clusters of drifting small boats
- Always near accidents because of speeding boats
- Boat cut us off and almost hit us; boater had gone in boat with him and was inattentive at high speed
- Boaters create wakes when passing anchored boats
- Speeding in limited speed zones/no courtesy of boaters
- Unsafe speed of other boaters
- Small craft running too fast near docks and marinas



- Passing too close and too fast
- Speed unreasonable for location
- It is only a matter of time before a boat going 70 mph+ hits a small craft or PWC
- Speed boats weaving thru drifting fishing boats at full speed
- Boats going too fast around other boats sitting still
- People going too fast where people are drift fishing
- Speed of boaters around fishing areas
- What I hear most is the “crazy” boaters speeding close and cutting off other boaters
- Boats going too fast, large boats overrunning small boats, verbal arguments among boaters
- People going too fast past drifting fishing vessels; you should cause minimal wake when passing any boat drifting, no matter where they are in bay--go to ocean if you want to “fly around” water
- Speeding in canals
- Boaters not slowing for small boats
- Big wakes from big pleasure boats while anchored fishing681-Near crashes due to high-speed, inexperience or neglect
- Drifting boats being overtaken by speeding motor boats that fail to give way
- When these heavy commercial boats go past you drifting and fishing, their deep wake in shallow water throws you around and if you are standing up catching a rockfish, it could throw you overboard

### **Unsafe Boating/Uneducated/Inexperienced Boaters**

- People driving unsafe and not paying attention
- Boater not knowing rules of navigation; not passing on the right is the most abused rule
- Operators of boats underway not watching where they are going and not knowing rules of road
- Small rental boats defying the rules of safe boating
- Unsafe operation by inexperienced operators
- From lack of safe boating practices
- People don't understand buoys in Sinepuxent Bay
- Inexperienced boat operators
- Boaters not following rules of the road
- People with no training operating boats
- People who do not practice safety on the water
- Failure to use rules of the road--appears some boaters do not know that boat coming from their right, have the right-of-way
- Too many weekend party people ignorant of the marine safety and laws
- Inexperienced boaters--Ocean City area
- Unsafe operations
- Young boaters too reckless; parents often the problem
- People with no experience at all
- Craft do not obey right-of-way
- Boaters not knowing basic navigational rules, basic boat handling and seamanship
- Unsafe boat handling practices
- Jetskiers, tourists, novice boaters, lack of knowledge, lack of experience, lack of courtesy

## **Navigation Channels**

- Boating outside specified channels; channels are narrow
- Boats fishing in navigational channels (several near accidents)
- Large craft taking entire channel
- People drifting and fishing in the channels of the Sinepuxant Bay because channels are poorly marked
- Channels not marked properly
- Crowded channels -- fishing in the channels
- Boaters unfamiliar with our shallow waters often end up in trouble
- We were struck by a speed boat while anchored out of the channel; they weren't looking – stated they didn't see us
- Fishing boats drifting in channels
- Improper boating between channel markers
- We were within 1.5 feet of being run over by a cigarette boat that was speeding just outside of channel
- I have had power boaters pass me in narrow channels without concern for how their wake would affect me
- Boaters drifting in channels
- Have noticed several boats stranded in channels due to propellers tangled in traps or markers

## **Recreational Users**

- I have seen fishermen cast their hooks at pleasure boaters and create extensive wakes at pleasure boaters
- Powerboats and personal watercraft delight in cutting off wind and speed for sailboat
- Bridge fishermen and boaters
- Large boats (25'+) cutting in front of boats and throwing large wakes
- Pleasure cruising without a care
- Overloaded boats and pontoon boats
- Pontoon boat trying to overtake sailboat and cutting in front of the bow; sailboat had to take evasive action
- Several times sailboats pull in front of me and I have to change course to miss their boat
- A powerboat not giving the right of way to a boat under sail/power

## **Route 50 Bridge/Ocean City Inlet**

- The OC Inlet should be open and clear for incoming and outgoing boat traffic; PWC users may cause a serious accident soon, they act like they own the waterway and those of us who do obey safe boating laws are at serious risk
- Poor Rt. 50 bridge rules (passing thru)
- Rt 50 bridge channel, too swift for navigation at 6 mph; excessive currents very dangerous
- Big tour boat almost swamped us with its wake on OC inlet
- I have almost been hit sitting still and moving thru channel near Rt. 50 Bridge
- Many boats (especially in the summer) operating unsafely near Rt. 50 Bridge
- Small boats passing under Rt. 50 bridge nearly swamped jetski boats in the inlet in the way of large sport fishing boats returning
- Charter boat swamped smaller boat fishing in the inlet

- I have observed many times, large commercial vessels in the inlet area have to stop because of boats drifting in channel; this area is an accident waiting to happen

### **Shallow Areas/Running Aground**

- Boaters running aground. Not only in the middle of Assawoman bay, but clogged (undredged) entrance ways to canals causing backups and angry boaters
- Person almost ran into me in the channel; he crossed in the channel
- Boats run aground at mouth of Thorofare trying to get around drifting boats in channel
- Boats grounding due to lack of water except channels and lack of intelligence
- In Assawoman Bay--so many sand bars--needs to be dredged now; they run aground
- Bay is very shallow; recreation boats get stuck on sand bars

### **Boating And Alcohol**

- Alcohol and boating
- Drunk driving
- Excessive speed and alcohol and night time operation contributing to a collision with a breakwater near my house
- Alcohol in clear view and use
- We have seen a few over the years (no examples) and alcohol and drugs have been a big part of the problems

### **Crowding/Too Many Boaters**

- Overcrowding--small boats drifting or anchored (fishing) in the channels; many boats get swamped when the marlin boats go to and from the ocean
- Boaters do not slow down in crowded areas
- Not enough space for all competing users
- I avoid overcrowded areas

### **Miscellaneous**

- Near collisions almost everyday
- Tourists not caring; something should be done about them
- Called DNR while my boat was rocking and rolling at the dock; nothing was done and my boat held-up due to proper lines being doubled to prevent them from breaking many times as before

## **APPENDIX M**

### **OTHER ROUTE 50 BRIDGE AND OCEAN CITY INLET BOATING PROBLEMS (MAIL SURVEY BOATERS)**



## **OTHER ROUTE 50 BRIDGE AND OCEAN CITY INLET BOATING PROBLEMS (QUESTION #24)**

- People fishing from bridge in channel at night
- Idiots on jetskis
- Need to open more passageways
- No channel for jetskis shielding them from fisherman on top of bridge
- Jet boats not allowed to use main channel-ok., but have to fight fishing tackle from people using top of bridge to fish
- Fishing lines hanging over bridge. Afraid someone is going to take my eye out with a hook
- Fishermen drifting in front of Rt. 50 Bridge obstructing channel, sometimes very dangerous
- Just too many darn people and no water-- they need to begin dredging immediately
- Back to basic common sense and rules of road
- Hard to control boat at 6 mile limit under Rt 50 bridge
- Too many boaters exceed speed limit- no enforcement BJ's to Inlet
- New bridge and dredging
- Get jetskis out of channel
- Boaters leaving channels
- Commercial boats (incoming/outgoing) inlet area
- Make a channel on far end of bridge for smaller boats
- Foreigners to the ways of fishing the drift, i.e. anchoring in drift areas. Tying up to markers, in general Pennsylvanians
- I do not travel to Rt. 50 Bridge on Inlet, stay in bay
- West and North of bridge channel
- Jetskis in large groups
- Jetski operators jumping wakes of boats
- Getting too close to your boat
- Jetskis must use special opening or go under bridge where fishing lines are often in use
- 6 knots is not fast enough to get through current
- Sandbars
- I am docked at Talbot Street pier, next to the Rt. 50 Bridge and I see it all
- A separate channel under bridge for small boats under 16' and jet skis should be marked and enforced
- Just too crowded
- Wrong speed limit; too low
- Jetskis
- Shallow water
- Operators not knowing what they are doing
- Boats moving too fast near inlet
- Don't go past Rt. 50 Bridge
- Don't go to that area with my little boat
- Slow operation of bridge
- Some tour boats with inexperienced captains such as "Bay Queen" out of Shanty Town
- Buoys should be fluorescent so they can be seen at night; this is a big problem for us
- Inexperienced PWC operators
- Big boats going very fast once out of 5 mph area
- Overcrowding at site (Rt. 50 Bridge)

- Boats speeding under the bridge
- All boats don't have to use main passage under bridge. It should have markers on other areas to pass under bridge
- Boats (fishermen) drifting into the channel
- Big power boats (racing boats); traveling too fast with little or no regard for others
- Stone dumped under bridge to save it causing shoaling North and South of bridge and the state not taking responsibility
- Sport boat speeds of 5 mph+ in the inlet and just outside the 6 mph zones in crowded conditions
- Wake is not the problem, startled boaters and collision avoidance is
- Boats wedged in pilings on south side of 50 bridge and anchored too close to main passage restricts width for passing boats which is dangerous with size differences
- Boats with excessive speed
- Operator familiar with area
- Navigation aids not lighted at night
- Jetski rentals to inexperienced operators
- To navigate under bridge you have to go faster than the limit allows
- Maintaining control of your boat without the marine police saying your wake was too big; my safety comes first not boats tied up to a dock
- Narrow channels
- One channel east under Rt. 50 Bridge and an additional, unmarked channel west under Rt. 50 Bridge
- Overcrowded channels; more boats means more inexperienced boaters; jetskiers and other boats not observing rules of road and rights of way; oblivious boaters completely obstructing the Thorofare by anchoring in the channel
- Too many jetskis with no respect for boaters
- Speed limit is unrestricted from 3<sup>rd</sup> St. on up; people are drifting for fish in the same area

## **APPENDIX N**

### **BOATERS' RESPONSES TO CROWDING ON MARYLAND'S COASTAL BAYS (MAIL SURVEY BOATERS)**





## **BOATERS' RESPONSES TO CROWDING ON MARYLAND'S COASTAL BAYS (QUESTION #29)**

### **When Boating Would Occur if Bays Became More Crowded**

- Weekdays (58)
- Evenings/Night (24)
- Mornings (15)
- Off season (12)
- Weekends (5)
- Fishing on weekends (2)
- Not July or August
- During week, not on weekends
- Would not boat on weekends
- At night-but need bay-can/markers "lite up" the cans
- When crowding is not a problem
- September and October
- Earlier, later (in the day), less weekends
- After work everyday
- I would not use mid-day hours
- Earlier in season
- I do not boat on weekends due to overcrowding
- Weekdays, Sept-Oct
- No different
- 7:00 am- 3:00 pm
- I live on the bay; when its empty, I'll go out
- Monday thru Friday
- I live on the bay; I go when I want and if it is "too whatever" for me I come home and do something else
- Early or late in day
- I would have to find another location for recreation, I think we have reached our limit
- Early and late
- It's already crowded, that's why I fish weekdays; I guess I would do my fishing under the stars
- Mid-week and avoid mid-days
- I already choose Sat. over Sun. I believe there is less boat traffic on Sat. when the weekly visitors are coming and going from OC
- I live in O.C. and I retired here for boating (fishing and crabbing); I also have a jet ski; It's almost an unsolvable problem; we are a resort town I guess the jet ski and boat rentals could be stopped, but is that fair
- When the crowds are gone
- When they're gone
- No holidays
- Go to the ocean instead
- When the bay was busy
- Crowding has not been, nor do I think will become a problem
- Whenever possible; If traffic wasn't too heavy
- Depends on tide

- Spend little or no time north of Snug Harbor
- No choice (deal with it)
- Low activity times
- Not weekends
- January
- Sept.- May
- Non Holidays and weekdays
- During the week
- Less in August
- Go to VA
- I already spend less time because of the idiots in the summer; I would boat before summer and after Labor Day; the only thing I do is enjoy the water and fish until the summer season with the tourists; they should be limited so the people that live here can enjoy boating in the summer instead of worrying of a drunk tourist
- Less weekends
- I would stay away from OC area and spend more time in Newport & Chincoteague bays
- Never on weekends
- I stay in the Newport Bay as much as possible; no problem
- Holidays
- Middle of the week
- Later in the day
- Off weekends
- Later afternoon
- It would not affect my boating activity
- Real early or late
- Later in the day
- Less traffic
- Already go to river instead
- During week; will not go to Sinepuxent Bay Fourth of July weekend ever again
- Fishing depends on time and tide, it dictates when and where you have to be
- Less time in bay, more in ocean
- I would probably frequent the less crowded areas
- Fishing during the summer or go outside the inlet

### **Activities Boaters Would Participate in Less Frequently if Bays Became More Crowded**

- Fishing (35)
- Pleasure cruising (14)
- Crabbing (12)
- Waterskiing/Tubing (5)
- I don't have much choice as I make my living on the bay waters
- Clamming, swimming, wildlife observation
- Trips up to Ocean City weekend fishing
- Would do more fresh water fishing
- Birdwatching
- I would fish less in the bay and spend all of my time in the ocean fishing
- Pontoon boating in the bay
- Swimming
- Restaurant trips
- Raft-ups
- Clamming
- Go to Virginia fishing
- I would probably stop fishing and just continue crabbing
- Kayaking
- Sightseeing
- Anchoring and swimming on Bay Side of North Assateague
- Fish ocean, not bay
- Less fishing when crowded
- Day sailing
- I would not fish on summer weekends
- I would select different sites to fish and travel
- Fishing near the inlet
- Sailing on the bay
- Use my small motor boat less and use my kayaks more
- I already have enough trouble getting through the thorough fare and Rt 50 bridge and inlet to get offshore where there's enough room for everyone and I prefer offshore fishing
- I would fish different spots
- I would still fish and hunt in afternoon in the bay



## **APPENDIX O**

### **SPORTFISHING OR RECREATIONAL BOATING ORGANIZATIONS MENTIONED BY BOATERS (MAIL SURVEY BOATERS)**



**SPORTFISHING OR RECREATIONAL BOATING ORGANIZATIONS**  
**(QUESTION #35)**

- Maryland Saltwater Sportfishing Association (26)
- Ocean Pines Boat Club (15)
- Ocean Pines Anglers Club (13)
- AMSA (13)
- Boat U.S. (13)
- OC Marlin Club (11)
- Recreational Fishing Alliance (7)
- IGFA (6)
- Coastal Conservation Association (CCA) (5)
- BASS Anglers Sportsman Society (4)
- Ducks Unlimited (3)
- U.S. Coast guard Auxiliary (3)
- Ocean City Power Squadron (3)
- Maryland Waterman's Association (2)
- O.C. Fishing Center Capt. Association
- The Billfish Foundation
- Tri-Sportsmen Hunting and Fishing
- North Point Yacht Club
- St. Lucie Sailing Club
- National Boat Owners Association
- APBA
- O.C. Lite Tackle Club
- Stuart Sail Fish Club
- MS Marine Traders Association
- Chesapeake Bay Foundation
- Ocean City Reef Foundation
- Riverside Boat Club
- ACC
- AFA
- Ocean Pines Marine Activities Advisory Committee
- North American Fishing Club (life member)
- Bass Off Shore Fishing
- WCMBA
- Fishing Club of Wilmington DE
- North American Fishing Club
- Somers Cove Yacht Club
- Eastern Shore Sailing Association
- Southern MD Sailing Association
- Wicomico Yacht Club





## **APPENDIX P**

### **ADDITIONAL COMMENTS FROM MARYLAND COASTAL BAYS' BOATERS (MAIL SURVEY BOATERS)**



## **Additional Comments from Maryland Coastal Bays' Boaters**

### **Regulations, Enforcement, Safety, Information & Education**

There is room for all types of users. Over-regulating is not the answer. Education and Information is the most important. Safety, courtesy and common sense are desperately needed. This cannot be achieved through new regulations. If you love the bays then push for mandatory licensing of boat operators. Strengthen laws against unsafe boaters and polluters.

We have enough regulations and do not need any more.

Inexperienced/haphazard boaters are a big problem with safety on our waterways.

People are rude. They do not obey current laws--no wake zones, 6 mph zones, jetskis 6 mph within 100 feet of piers and bulkheads. If current laws were enforced it would be a more enjoyable experience for all of us.

Why do marine police always come at a time when nobody is breaking the law?

The number of out-of-state boats is increasing and should require a state fishing license for use in MD waters. Money collected to be used to help clean up waterways.

Due to the significant difference in size, the same laws and restrictions should not apply to both the Chesapeake and MCB. The MCB's are so small, commercial crabbing, clamming and fishing quickly depletes the living resources. I believe that these bays are so small that they should be restricted to recreational use only.

More law enforcement is needed to uphold laws that are on the books. Turtle excluder devices in recreational crab pots (Ocean Pines). That we must all work together to preserve our bay; not just get rid of one user group.

I think out-of-state boaters should have to buy a permit to use our bays, and the money should be used to improve the bays.

I think more emphasis on enforcing existing boating laws is needed. Boater education needs attention plus minimum qualifications of knowledge (i.e. licensing and testing) should be instituted.

I strongly favor regulations that will improve the health of the bays, even if it means greater fees or restrictions on use.

More law enforcement is needed especially in piers and bulkheads for undersize fish, crabs, etc.

I am strongly opposed to more laws and regulations. All that will do for me is force me into more restrictions in an attempt to make the scofflaws obey today's and tomorrow's regulations. Every issue is covered by the laws and regulations that exist. Enforce!

The most noticeable thing that happens in the bays is very little enforcement of the rules (any kind). There should be very strict enforcement of this versus more DNR people, get them. A good boater would pay the tax. Also, the fines would help offset the cost. Make the fines stiff and collectible.

Stop now--disband--no government regulations. You will screw it up.

I don't favor regulations that aren't enforced. We probably don't need more we need better enforcement and education. Many people both recreational and commercial seem to have total disregard for our bay environment.

I am generally in favor of legal restrictions being used for minimizing drinking and unsafe boating, not regulations that prohibit or restrict use of waters. I also feel boaters could be offered opportunity to directly assist in areas beneficial to the bay. They have seldom been brought into the loop as individuals are on land. (i.e. roadside cleanup, service projects, etc.).

I have been nearly run over by speeding boats that apparently could not see me because their bow was too high.

Let the coast guard do their job by keeping fish trawlers ten miles at sea and the inland waters will survive. All marine life runs in cycles.

I think the \$40.00 I spend each year for a bay sport pleasure boat license plus the \$10.00 non-tidal is enough to help clean-up both coastal bays and inland bays and state and local taxes money should come from land developers, hotels, etc.

More effort should be made to promote and protect grass beds. Restricted areas would probably be the most effective.

Don't need additional rules and regulations--enforce what you got.

People should respect boaters that are anchored and bottom fishing, instead of running nearby at a high rate of speed and throwing a large wake into them.

The greatest danger to the boating public is the consumption of alcohol by boaters.

I believe in safety very strongly. I used to drive racing hydro for sport. Rules were very strict.

I think we need to focus on how we can promote our water activities to our youth to preserve-not only the sport- but our resources. This can only be achieved through better understanding of the resources and limiting the amount of regulations we have to follow. This makes it harder to teach our youth and keep their interest.

I think boater safety should be addressed first, then other issues.

Many boaters large as well as small boat users need more education on the "rules of the road" Some form of life preserver protection should be mandatory to be worn while boating.

While I oppose licensing or usage restrictions, I would support a 2% sales tax increase with the revenue going exclusively to the benefit of all MD tidal waters.

Fishing license and boating permits should be reciprocal from state to state. Retirees should fish free.

Too much harassment by MD DNR police while fishing; sometimes four times a day.

Feel it is unfair that I buy a fishing license and have to pay a launch fee on Maryland state docks when I am a resident of MD.

Everyone needs to understand rules are rules. Without them, we won't enjoy fishing, crabbing, and other water activities. So for those who won't listen, stiffer penalties.

I feel people 70 years old and over should not need to buy a fishing license.

I'm concerned about (or afraid of) more regulations, fees, and restrictions of MD waterways.

I wish the DNR had some way of knowing when a boat driver was drinking to help prevent fatalities. Maybe some better ski regulations for safety's sake.

Adding more regulations like mentioned in question #28 is just another way to tax and try to control people. There should already be enough money to do whatever is humanly possible. Adding more laws and fees will just deter people from boating therefore decreasing the amount of money that is currently being collected. People need to understand that nature would be perfect if left alone.

Buoys for commercial traps should all be florescent colors so they can be seen at night or water is rough, not black like most are. People should take more care when people are drifting (fishing) to cause minimum wake.

Stricter enforcement of wake limits, especially jetskis. Can't report neighbors. Need hotline for weekends and system of alerting officials to observe repeat offenders.

The DNR does not need to treat all hunters as criminals. Stop the police state tactics.

The DNR does not check out-of-state people enough.

Drunken boaters should be treated like drunken drivers.

Speed reduction and channel markers will have to occur with the excess number of boats...

Too much traffic, too many "high speed" boats being captained by inexperienced and sometimes intoxicated drivers.

I feel there should be a mandatory license for all boaters, not just a boating course.

I question the value of licensing process for fishing or boat use on the bays.

## **PWC Issues**

Wave runners and jetskis are a menace for boaters and on shore (noise and speed). Most are careless and inexperienced and immature. Age for their use should be raised to 18 years!

As a charter captain, there is too much jet ski traffic in the inlet and inexperienced boat handlers in the channels. There needs to be more patrols out there to keep these idiots out of the way of my 57' charter boat.

Family owns 10 boats. Had first Hobie rental in bays (1970). Have seen jetskis degrade quality of boating for fishermen and sailors and kayakers.

I am strongly opposed to the regulations being imposed on PWC behind Assateague Island. I believe the clam boats are doing more damage to the bottom than PWC. It will also push all the rental companies into the northern bays which will definitely cause more accidents. That's not good law making.

Current laws and proposals are biased against PWCs. We have more requirements, (training, age, etc.) and more restrictions than those that can afford a 40-footer without any license, knowledge, training, etc.

All my life I've been on the water (MD Eastern Shore). I believe that jetskiers, from all walks of life need to take a mandatory test to qualify to be on our waterways. This is our largest problem. I love to jetski--with respect to my fellow man and my waterways.

More controls should be placed on PWC leasing agents; PWCs are unsafe when used in an integrated boating environment; Many are first time renters and do not receive proper instruction or training; This is one industry we can live without.

Jetskis and jetboats are going where no boat has ever gone. Enforce the shoreline minimum distance. Please stop more PWC rentals from being opened. Make the inlet for throughfare and fishing only. No jetskis in the inlet! Ban all PWCs!!

Jetskis not practicing safe boating.

Eliminate all jetskis from bay (none of these people obey laws meant to protect them). They are plain dangerous. They tie-up on wetlands

As you can probably tell by my answers so far, I am very much in favor of limiting PWC use in our bays (it's gotten way out of hand).

Jetski use in the bays has become increasing and more dangerous. These must be controlled for everyone's safety on the waterways.

There should be more restrictions on the waverunners.

Jetski operations need to be limited to specific areas away from high traffic areas and out of federal and state parks. Speed limits enforced and licenses required to keep private operators in line.

I think that jetskiing/PWC should not be allowed in the OC inlet, its ok to transit from the ocean to the bay and vice versa, but this jumping of boat wakes and cutting across your bow should not be allowed in the OC inlet.

I am not against personal watercraft as long as the people using them take a coast guard approved boating course and follow the rules of the road. Each year we see more and more idiots doing dangerous stunts in the inlet. Someone is going to get killed.

PWC's should not be in the channels or the inlet, especially from the rental places.

More emphasis should be made to shops that rent to jetskiers and boat rentals regarding the fragile nature of our environment.

One of the most important issues to me is the elimination or reduction of jetskis. Jetskis are the single biggest negative impact on the pleasure I get from using the bays. Perhaps fees could be assessed in proportion to the cleanliness of the motor (i.e. sail, 4-strokes--low fees; 2-stroke--high fees).

Jetskis should be banned from inlet waters and behind Assateague.

Jetskiers are generally unsafe in inlet area.

Jetskis and jetboats are problems.

One of the main concerns is unsafe watercraft, jetski and small boat operations.

I think the jetskis are getting out of hand.

I am a trauma nurse and see many serious jetski accidents. We need to regulate use of these better.

I don't think it is fair to restrict jetski usage--It may however help to require some form of safe usage course.

Rental PWC's are operated by thrill-seeking, inexperienced operators. They need one guide leading and a minimum of one guide following each group of not more than six rentals. 24 years of my career as a MD natural resource police officer was spent in Worcester County coastal bays.

I don't fish in the bays anymore because there are too many PWC's. They need their own area away from fishermen and the channels. I think PWC's have done more damage than boats ever will.



Jetskis are a dangerous problem in Ocean City and bays water, especially O.C. Inlet. Should be banned from the inlet.

Ban jetskis.

I think jetskis should be banned in fishing areas. The operators are mostly inexperienced and show-offs and some just go around in circles and churn up the water.

I would love to see jetskis banned from the bays. They disturb everything and everybody, pollute the bays with oil and noise, and are operated by a reckless population as a whole. Everybody should be required to pass a boat test. They are just as dangerous as automobiles.

If jetskis need to zigzag and run fast to have their fun they need special areas with marked courses set out for this type of running.

Jetskis should be banned or more severely restricted.

Jetski users should have to take a 2-hour course at least. Most do not know the rules of the water or navigation. They just go and rent as easy as that.

Jetskiers are a real problem--they need their own area.

Big problem with jetskis (particularly rental caravans going through channels). They conflict with boats and their wakes making their way through channels.

The main problems is jetskis.

### **Commercial Clamming Issues**

I would like to see hydraulic clam dredging outlawed in the coastal bays and all Maryland water. The increase in jet skis is due to the rental business. They should be more regulated and pay additional seasonal permit and fees as opposed to recreational boaters.

I strongly feel that commercial dredging should be banned in the Coastal Bays.

Commercial clammers in the winter destroy the bottom--crabs, sea life and grasses. Since the clam boats have been in the previously mentioned bays for the previous 7-8 years the quality of fishing and crabbing has diminished considerably. Every day that the clam boats are operating, the sea grasses wash up on the beach with the next tide.

Commercial clammers digging up bay bottom by using hydraulic dredging to get clams are destroying sea grasses and living things that are buried in sand for winter. They also turn larger areas of water dark by disturbing the bottom.

The greatest threat to bay fishing and boating and the use of boating channels north of Rt. 50 bridge is the use of hydraulics in the clamming process by commercial clammers. This process destroys the bottom ecology and generates large amounts of loose/soft dirt.

Hydraulic clam dredging must be stopped, or at the very least, restricted to be at least 1000 yards from any shoreline.

The commercial crabbers and clammers are fast killing off all supplies. They start early in the season and go late into the fall. They are disturbing the sea grasses and bay bottoms and are more like vacuum cleaners.

As you can probably tell by my answers so far, I am very much in favor of banning hydraulic clam dredging altogether. They are destroying our bays.

The clam dredgers are doing more damage than any boat or jetski could ever do; 22 operate in Assawoman and Isle of Wight Bays.

Why are commercial clammers (especially not from this area or MD) allowed to clam MD waters while being prohibited in VA and DE?

Commercial crabbing and clamming is hurting the OC bays. They are disturbing the bottom of the bay. You can see it from the air where they have dredged.

Unregulated commercial clamming (hydraulic) hurts water quality and habitat (SAV), impacting all three groups (fish, crabs, clams).

Remove clam boats from coastal bays; disturbing sea grasses.

I have a big problem with the commercial boats dredging the bay. The bay is murky enough, Please help.

Please ban hydraulic clam dredgers in the bays.

The hydraulic clammers in front of our property in Sinepuxent Bay have scoured probably every inch of the bay bottom and after this year I doubt there will be any sea life left on the bay bottom (crabs, clams, etc.). There is also SAV grass close to the mainland which the clammers have destroyed that you can't see from an airplane, but you can see the clam boats stop, raise their conveyors and rake the grass off their equipment.

If the coastal bays are going to continue to be a Maryland asset, hydraulic clammers in Maryland must be stopped. No other Atlantic seaboard state permits it.

The most important issue is the elimination of hydraulic clam dredging.

The commercial clammers are killing the crabbing. No grass, no crabs.

More damage has been done to the coastal bays in this area by the hydraulic clam dredgers than all other sources combined. They scour the bottom ruining grasses and wildlife habitat from dawn to dusk all year long (12 months per year) coming here from long distances and other states. This must be stopped, or there will be no more viable wildlife in these waters.

Hydraulic clam dredging should be banned also--the sediment covers existing grass beds.

I do not want the commercial hydraulic clam boats in the bay. A recent visit to Cape Isle of Wight, I found beaches covered with dead vegetation from the bay floor. As a clam boat runs 40' from shore, they destroy bottom habitat and create poor water quality.

They have got to get the clam boats that are here in the winter out of here. The bay can never recover with them digging up the bay floor. Most places have made them illegal so now they are all here in our little bay.

Also, commercial clammers are destroying bottom, killing dormant crabs and making clams rare. That should be stopped in these small shallow waterways.

Some of the grasses seem to be returning but clam dredging is still allowed and I believe that destroys the bottom. Coastal Bays are very shallow so the grasses can be easily destroyed.

I am strongly against commercial clammers from both this area and many other ports tearing up the bay and its bottom growth. I also believe that this cold season clamming is responsible for the decrease in the crab population in the bay.

Hydraulic clammers banned in VA and DE should be banned in the shallow coastal bays of MD. As soon as they started clamming, each of the last 4 years, grasses soon floated past my dock as well as the west OC harbor (at AKE's Marine Store).

Commercial clammers are destroying grasses.

I feel strongly and from personal experience that the commercial clammers are ruining the flounder fishing in the Assawoman Bay. You can see the grasses they are tearing up from their hydraulic use of getting clams.

Clamming dredges are the single most significant detriment to the quality of the coastal bays.

The clam dredgers are destroying the bay. At least limit dredgers to boats from the county in which they reside to dredge in that county water only.

I think that hydraulic clamming is destroying the bay and should be banned.

Clam dredging is a problem.

The main concern is clam dredging.

The clam boats that just tear the bottom up should not be allowed--what happened to the old clam rake?

I think the clammers tear up the bays and do damage to grass and small crabs.

Too many clam boats have ruined the crabbing and fishing and clamming. They should not be allowed to dredge between the Route 50 Bridge and Route 90 Bridge. Last fall there were 12 boats the same day. You had to wait to get into the canals for them to move. They are ruining the bays.

The clam dredging on the bottom of Chincoteague Bay should be stopped.

Power clammers (professional) most seriously affect underwater grasses in bays. I have personally witnessed their habits in the bays.

Hydraulic clam dredging--as many as 24 boats from Oct. to May churn up the bottom, create unfishable conditions, damage the bottom and are noisy. This is too much for such shallow waters and destroys recreational use and harms overwintering crabs.

Hydraulic dredges used for clamming should be restricted from using grass beds, these beds harbor crabs in the winter, dredging clams kills these crabs during the winter months. Also, these dredges destroy the grass on the bottoms, thus the grasses don't survive to filter water as well.

I believe that commercial clamming should be reduced in the bays.

### **Crabbing Issues**

We have put out approx. 6 crab pots at a time for over 25 years. We use the catch for our personal use. We have thought that a non-commercial crab license should be available at a smaller cost (at present we have to pay \$60 for a commercial license). During the period that we have crabbed, we have seen little change in the crabs available; however, the catch does vary during the season.

Commercial crabbers in the spring rape these coastal bays.

I no longer crab due to the lack of crabs and find that I spend much less time fishing.

Ten years ago, crabbing from my dock resulted in catching large crabs (3 dozen) in less than 2 hours. Now no crabs exist at all. They are overharvested--catch of female crabs.

In October, 8 pots yielded 4 keeper crabs after 2 days.

Every summer we put two crab pots in the water at the end of our pier. Prior to the last four years, crabs were abundant. Since then we have gotten a total of a dozen blue crabs. The last two years none. We also see dead blue crabs floating in the water, that's sad.

There was a flagellate organism that affected crabs in 1997-1998, at which time numbers were reduced dramatically. They seem to be recovering slowly, but year 2000 was still not up to pre-1997 conditions.

Again crabs, no female harvest whatsoever; either caught in Maryland, or caught in another state and sold in Maryland and stricter enforcement on Male size regulations. Also, this should apply to crab fishermen, wholesalers, and retailers. It does no good if restaurants can't sell anything.

I would like to see rules requiring the throwing back of female crabs by recreational crabbers.

As far as crabs, the commercial boats need to be limited on the number of female crabs they can keep.

We rarely crab anymore because there are so few. The same spots we would catch 1 dozen 5" crabs in an hour may yield anywhere from 0-2 crabs now of the same size. There is no doubt the population is rapidly decreasing.

I deplore crab pots at bridge access points.

Commercial crabbers during peeler run will eventually catch all the crabs.

Too many crab pots.

I think the same limits should be used for crabbing as were for rockfish.

I think the crab population would return if you restricted the harvesting of female crabs completely. At least for a couple of years to see if it really does have an impact on the male population.

License the commercial crabber can bring in per boat instead of per man--10 men in one boat, each with a license can bring in an overloaded boat, but if you license the boat each one can bring in only so many bushels. No crab dredging in the winter--everything should have a season.

Crabs will not be plentiful again until Virginia quits dredging "she-crabs". Maryland doesn't need more laws, Virginia does.

I think there should be no female crabs caught at all to save the species. The price watermen get for these crabs is not enough to make up for the loss. Stop scraping the bottom for peelers and soft crabs. You can't tell me it's not doing damage when you see all the dead grass floating and on shoreline.

For all purposes, we have stopped crabbing. There are so few it is not worth the effort to put my pots out.

I now go to Virginia waters for my crabbing pleasure. The crabbing in Maryland is so bad. The commercial crabbing boats are abusing the crabbing so bad it is ridiculous.

We need to spare the less than mature crabs; only mature females who have passed their last molt should be taken; put some limits on number of crab pots.

The crabbing season should be shortened a month in the beginning and a month at the end.

I would like to see a crabbing license available to residents that would limit each resident to 3 crab pots. This would fulfill the needs of the average person. There is no such license now. This would be the greatest improvement to my boating. I do not crab now because I have no license, and the only one available is a commercial license (50 crab pots).

I think we should limit the amount of female crabs that the commercial crabbers can keep.

Limit the amount of crab pots per boat; enforce the law on small crabs; small crabs make large crabs.

More restrictions on commercial crabbing in Chincoteague Bay are needed.

In the Assawoman and Chincoteague Bays, and tributaries, commercial crabbing has been outrageous. If the crabs suffer from some other problem, I have noticed a lack of sea grass. That's one thing, but commercial over-harvesting is without a doubt going on. They over-fished the Chesapeake, and now that they used it up, they have flooded our eastern bays. I resent that.

People taking crabs all sizes and not being checked.

### **Dredging, Shoaling and Navigation Issues**

The boating would not be overcrowded if the existing channels were dredged back to the original depth and width, especially on the west side of the bay and maintained regularly. We have been trying to get this done since the early 80's. The bay is now 80% blocked off on the north side of the Rt. 50 Bridge, resulting in poor fishing, poor water quality in the upper bay due to lack of water flow.

I do a lot of boating in a large boat that I own. The 14' boat is primarily a duck hunting boat. I think a major concern to boating is the filling in of sand and silt in the back bays and secondary channels North and West of the Rt. 50 Bridge.

Please start dredging the bay. It's closing in around us. Please address this!

Problem is sand in bay. There is so much sand in bay anymore the fish have no place to hide. They are restricted to channels which are getting narrower every year. Therefore most people fish in these channels, because if you don't you run aground.

One group is planting sea grass and oyster beds and simultaneously others are dredging for clams in nearby areas. Rep. Gilchrist and the US Army Corps of Engineers plan to dredge ocean sand onto N. Assateague while there are enormous sand bars growing larger in the Isle of Wight Bay, Assawoman Bay, etc. None of them growing sea grass.

I think this part of the bay has partially become a large shifting sandbar.

I would like to see the back bays in OC and DE made deeper so you're not limited to some areas. With last years Nor'easter, you can rebuild Assateague Island at the inlet. Many yards have been taken away. Make the bays more user-friendly. We have a beautiful place in OC. Let's keep it that way.

I'm very adamant about getting the exit from the canals specifically North Cape Isle of Wight exit. There are narrow, so boats that use this exit to the bay at the Thorofare. I believe years ago the Army Corps of Engineer took care of this. Now we all can't get through without stirring of the mud and ruining our props.

Bulkheading of canals and its spoil reduce depth and width of water in canals and hinders access to and from the bays. Riparian rights are in jeopardy. Dredging in the canals at this rate will be necessary as in the bays.

Channel is closing in especially at the mouth of the Assawoman and Thorofare channel. Needs to be dredged. All of Assawoman channel from 33<sup>rd</sup> St. to 4<sup>th</sup> St. needs to be dredged.

I wish there were better channel markers (buoys) on the Sinepuxent Bay. It is poorly marked.

A channel from St. Martin River to the Thorofare needs to be marked.

Need more channel markers in the bay and make the channel wider. It is really bad and overcrowded. An actual lane of green and red markers needs to be put from the Route 50 Bridge to the Ocean Pines Marina.

Lighted navigational buoys needed through to St. Martin River.

Drifting in the Thorofare is dangerous for thru traffic that is required to weave thru them. Not to mention lines extending on all sides. East channel is too narrow for full speed running.

Year 1999 and 2000 has been the greatest catch of young oyster in Sinepuxent bay and creek and guts. Mainly Bat Creek south of airport. I hear of plans to dredge Bat Creek to access the new development landings. It will surely disturb lots of young oysters.

The bays should be dredged deeper in many areas as they appear to be filling in.

A main concern is fishing in narrow channels.

The bays have filled in dramatically since I was a child. There was talk about using bay dredge for beach replenishment. Sounds reasonable to me. There was also talk about imposing a speed limit on the bay. I spoke at the hearing regarding the issue. It seems the answer may lie in limiting/eliminating anchoring in the channel. I wouldn't park my car in the middle of coastal highway to go to the store and expect cars to drive in the sidewalk to get around me. I can't be expected to drive over a sandbar in a 32' boat to go around a jonboat anchored in the channel.

Would like to see the canal opened up (Assawoman Canal) from Ocean City to Lewes, DE.

When you enter a channel like going south out of West Ocean City harbor there should be both red and green markers so you can tell whether you are entering or leaving a port (like should I put red or right on return).

St. Martin River really needs some attention (i.e. markers--deeper channels).

Water depth is a major problem and restricts the use of available water and leads to overcrowding of boats. Dredging of sediment of shallow boating areas should be a major priority.

Many navigable areas of the coastal bays (near OC inlet) are filling in badly with influx of sand--something needs to be done to keep channels open.

In the Carolinas they dredge--more aquatic life and safer boating. Do the math, face reality and dredge--dredge--dredge. Deeper water means more life and safer boating.

I would like to see dredging in creeks (back river) and canals.

### **GENERAL BOATING ISSUES**

We have moved our 28' boat to Chesapeake Bay due to deteriorating situation on the Coastal Bays. Low draft boats seemed to be the only enjoyable boating left.

I can only maintain steerage at certain speed. I can't steer in current when in neutral waiting for some fool to start his rental boat while his wife is telling him "I told you not to stop here."

In 1980 my family and I could row for pleasure in Sinepuxent Bay. No longer possible!

Sold 15' boat and bought 24' pontoon boat powered with same 85 hp engine. Bought pontoon boat partly because of unthinking boat operators that go too fast past drifting boats.

I don't know how it could be done, but somehow people should be licensed to go on the water on anything that is powered.

Common sense and respect to others is probably the biggest violation I've seen on the waterways. How can this be prevented or enforced.

I live in Ocean City, MD. I hope you can keep the bay clean and safe. I love the area.

The 1000 hp boats should not be allowed in bay (limit hp).

I have just been able to return to recreational boating -- after 20 years. I stay on the bay between OC, Assateague and my excursions are short, 1-2 hours max.

Need to keep small boats out of channel (drifting, fishing) so big boats can get through. I also have a 35' sportfisher.

Please look into a separate passage under Rt. 50 Bridge for small boats (under 16') and jetskiers; should be marked and enforced. I am sure there is enough water and it would be much safer under bridge. Crowding has not been or do I think it will become a problem.

As a park ranger at Assateague, I spend more time on the water working than in my spare time. The bays are overcrowded, overfished and exploited to the fullest. Please work to limit and reduce use so time spent on the bay will be more enjoyable in the future.



I enjoy fishing on Maryland's coastal bays more than any other fishing activity. Last year however, the number of boats, boater attitudes while on the water, and being overpowered by large boats forced me to seek more relaxing locations--freshwater fishing and fishing near Crisfield, MD away from tourist activities. I will however, be back next year and try again.

Overcrowding and jetskis have greatly diminished and almost eliminated our use of MCB--causing us to trailer our boat elsewhere.

Today the bays are overcrowded with inconsiderate boaters.

I think that boating in Chincoteague Bay should be neither encouraged nor discouraged.

I would like to know if there is a yardage limit on crab trotlines from shoreline. They extend almost into channel. Boating because of crab pots and shallow water is stressing more than relaxing in the Grays Creek area.

Speedboats (cigarette) are too loud.

The only place I have a problem with water current, overcrowding and markers is when I cross the O.C. Inlet marker. Between the Rt. 50 bridge and the south side of the commercial harbor is very crowded, swift current, and often poorly marked, mostly on the west side of the bay. All else is great. Keep up the good work and keep the bay alive for my children's children.

### **Water Quality Issues**

Comments apply to north of RT 90 Bridge only. Assawoman Bay has deteriorated in past years, particularly the last 4 years during which time the 4 commercial crabbers (40 plus pots) have left the bay. Only one crabbed there the last 2 years. Fertilized fields and discharge from chicken processing plants have ruined this bay. Also, commercial clammers scraping the bottom.

Also, need to open the canal between Rehoboth Bay and Little Assawoman bay to help flush out both bays. Good luck and let me know if I can help.

I believe to help the water quality in the Assawoman bay area and make it more navigable and the fishing better, take the politics out of it and open up the channels, dredge, do something under the Rt. 50 bridge to relieve the water pressure backup or resistance to water flow both in and out of the bay. Do something positive.

Algae blooms are becoming more frequent.

The large amount of runoff from buildings is a problem, especially in channels. There is no sign of grasses in bays.

Water Quality is very bad in summer months, I feel due to many treatment plants discharging poor quality treated water into bays and rivers.

My outboard motor is a new environmentally correct 4-stroke engine--ready for 2006 EPA standards--promotion of cleaner equipment such as these would go a long way toward helping our bays (promotes cleaner air and water).

Save the SAV and you'll save the bays! Runoff, dredging, depletion of shellfish that act as filters to clarify the water, erosion control, cleaner running engines, etc, SAVE the SAV! It's where life starts and flourishes.

I have always respected and enjoyed Maryland's coastal bays. I am concerned about water pollution and water quality.

I feel there is a need to dredge the creeks and shallow area to allow a better flushing, increase water quality, which would allow the return of marine life. The Route 50 Bridge needs to be an expansion bridge, to increase the flushing action in the tributaries.

### **Environmental/Living Resource Issues**

My family used to enjoy going to the island north of 50 Bridge for clamming and to enjoy the day!! You are not allowed near that island anymore because of birds. I think if they were disturbed out there they would probably all nest on Assateague, which is a wildlife refuge, or is supposed to be!! I cannot go near there!! But it never seems to be a problem for "Assateague Adventure" which lets people off the boat, and they walk all over (piping plovers).

Something needs to be done about the snow geese eating the marshland. They are killing the marsh.

People do not respect wildlife and wetlands (dogs on wetlands disturbing wildlife nests, etc, also people)

The last 4-5 years has been a constant deterioration in the bay crabbing and fishing. I blame most of this on too many clam boats trenching the bay, destroying the grass and too much commercial crabbing in any area that should be declared recreation. Also, overbuilding and destruction of wetlands. Charge a small fee -- \$10 for 2 crab pots for recreational crabbers and stop the commercial crabbing and clamming. Declare the bays recreational.

I think the bay was in good shape this year (2000). I had a good year of rock fishing and duck hunting. We should ticket people who pollute (put trash in the water and knowingly put oil in the water).

Crabs are declining, while fish (stripers, flounder) and clams are increasing due to better water quality.

We are loving the coastal bays to death. Limit development, construction and reduce commercial exploitation of the aquatic resources in the bays.

I enjoy the beauty of the natural world and feel that we should do much more to protect and preserve our natural environment. Nature's balance should be restored. Human use and

enjoyment is secondary to making the environment safe for all living things, so that the web of life is maintained.

There are no crabs or fish in bays.

### **Fishing Issues**

Putting more restrictions on these fish really doesn't matter!! The big one always gets away from me on my fishing pole!! But I do not think he gets away from those nets!! Which you people don't seem to care about!! I see people keeping illegal fish on Rt. 50 Bridge just about everyday!! There are no police there, why?

As a recreational fisherman who doesn't fish as often as I'd like, I feel the biggest threat to the fisheries are the constantly changing regulations - some state, most federal - which allow large commercial takes of bait fish (alewife, menhaden, etc.) as well as off season winter netting of flounder and other species, most of which takes place in the ocean along the DE, MD, VA and NC coasts. These interests are obviously protected by \$\$\$\$. Also winter dredging of blue crabs in VA and south is and always has been deadly to the population. Harvesting of sponge crabs should also be stopped.

I feel that non-commercial boats such as sport fishing boats cannot sell the catch. They need to keep better logs on boats catching tuna and from inshore (the Jackspot) and have a size limit of 50 pounds and over. They should have catch sheets at the boat ramps.

Don't fish Maryland Coastal Bays much, mostly VA and DE. Don't think the Atlantic States Marine Fisheries Commission (ASMFC) is too accurate or up-to-date to make the regulations that they make; persuaded by big money and politicians.

Ban fishing in bays

Out-of-state recreators fish and keep undersized fish, flounder, and crabs.

### **Miscellaneous Comments**

Never have been interested in fishing, crabs or clams. Have boated for 50 years use to waterski, but mostly boated in deep water. Big builders of condos and homes over wetlands contributed to most of the bay problems, politics is the big problem.

Parking at public ramps should be for boaters towing watercraft. On any given day, 25% or more of the spaces are taken up by vehicles not towing watercraft.

The biggest problems are jetskis, clamming in bay and too many crab pots in our bays. You have to have your eyes open all around, also some in the channels. Crab pots not taken up.

In respect to Maryland's crowded waterways, some are and some are still quiet and peaceful.

I also think taking away the privilege of driving on Assateague beach is wrong. That is one of the few places we can go to get away from the tourists. The people that don't reside on the

eastern shore shouldn't be able to go on the beach. And please leave the commercial fishermen alone. They need to make a living.

As all my income comes from commercial fishing in the open ocean off the east coast (gillnet and traps) I'm concerned about more laws and regulations that ultimately affect my family's financial security and put my job in permanent jeopardy. Naturally I'd feel for anyone that would lose his income fishing on inland waters from any unreasonable laws.

You should check on the cars in OC in the summer time after a big rain and you will see oil run down the storm drains in the bay (What are you going to do about that?). As far as erosion, my family farm has lost marsh for years because of northeast and southeast winds. Why don't you bulkhead these places? You should worry about Mother Nature.

Stay out of the bays' problems. Too many people involved; too many rules changed.

I believe that recreational boaters have always been responsible for monies that are put into back bays and its environment.

This bay is beautiful. It took 100 years for man to just about destroy it. Fishing, crabbing, clamming. It will take every watermen, boater, and homeowner and businessman to make the bay once again beautiful. We can all help. After all, we all destroyed it.

To promote clean air and water, Maryland should exempt from sales/use tax the sale of cleaner outboard engines that meet EPA 2006 standards (4-cycle and direct injection 2-cycle). This would be an additional incentive besides lower operating costs, to purchase this type of outboard.

Only Worcester county residence to clam and or crab in our bay commercially. Ramp at Whites Island on Rt. 90. Night use at Assateague Ramp and lights on bridge would make a great fishing spot. Quit putting tuna carcasses in inlet; take them out in the ocean.

The problem is not the bay, it's the people using them.

I am very happy to see many public boat ramps and many public areas for fishing and cruising. However, I do not understand how so many public areas are rented for duck hunting.

The overpopulation of recreational boaters, like the increase in the number of vehicles on our highways, has increased dramatically, not only the risk of operating such vehicles, but the pollution that these vehicles expel. Unless we all cut back, including myself, these effects will be detrimental to our environment. As we all know.

I believe the more respect we give each other and each other's property the more our resources will be around for others to enjoy.

I enjoy the coastal bays in the fall and winter when the waterways aren't so congested with other boaters.

I think in our area we have a lot of seasonal people who do not respect the waters as we who live and work around the bays.

Development along Chincoteague Bay needs to be more restricted.

We over-protect things; we over-protect rockfish, now rockfish are eating up crabs. Croaker numbers also have rebounded. We could not harvest snow geese thirty years ago, now they have destroyed habitat in the arctic tundra and the Canada goose numbers have declined.

I think that for the bays' sake no new marinas or boat ramps should be built below South Point.

Environmental improvement is 98% obstructed by political considerations--lobbyists for various economic interests call all the shots. Ask any congressman. What they offer is "feel good" legislation.

I feel that everyone has the right to enjoy the pleasure offered by the bays. Although those of us who have grown up on the waters must suffer from the ones who really don't know any boating manners. Also the more the DNR does to help marine life, the more they destroy it.

We may never see this bay look like it did 50 years ago, but that is no reason why we should not try. Many of the boaters themselves are a large part of the problem. They throw anything and everything in the bay. The bay is like an oversized trash can.

I believe the bays along the coast have been hit hard by over development (destroying wetlands) excessive personal watercraft and recreational boaters, community pollution from water treatment plants, and a few commercial fishermen.

Increased regulations on farmers (especially nutrient runoff/waste management) is not necessary. I do not want to see excessive regulation imposed on coastal bays as has been the case on the Chesapeake. The state of MD's *Pfiesteria* management philosophy is unfair to farmers and the poultry industry.

One of the main problems is people littering.

I suggest limiting the amount of federal and state dollars going into the coastal bays' program. The concept of the coastal bays program is good, but too much waste of financial resources when measured against the positive impact.

I feel the coastal bays program wants exactly the things I want, but I don't think we will agree on how to get them. I am not in favor of more regulation or fees--government agencies have a way of using funds for many different things like pay raises and justify it as it is "needed for water quality". It is turning into a bureaucracy--a bunch of big fluffy thinkers, big paychecks and no one actually doing anything.

I work for DNR and often see mismanagement of areas like this by state and federal governments. It is all part of a political "good old boy" system.

Overall the bays are a great place to boat and fish, but through the years a lot has changed. I grew up crabbing, floundering, fishing and just playing in the bays. Today it is overcrowded with ignorant boaters. The overstuffed boats, full coolers and sunburns keep me out of the bays I grew up on. To me, I would like to see more restrictions on the tourists that plague our waters.

Assawoman Bay is a beautiful bay and hatchery for fish, clams, crabs, and sea grasses. Until we address the problems of restricted water flow rocks under Rt. 50 Bridge, commercial clammers destroying grass beds, turning over bottom, depleting resource. Commercial crabbers, overfishing. There should be no commercial fishing North of Rt. 50 Bridge.

I am a duck hunter. But 95% of time in this boat is spent with the family, we go swimming and fishing.



## **APPENDIX Q**

**MAPS AND TABLE FOR SEVEN AERIAL FLIGHTS CONDUCTED  
DURING SUMMER 2000  
(OBSERVATIONS RECORDED BY MARYLAND DNR OFFICIALS)**





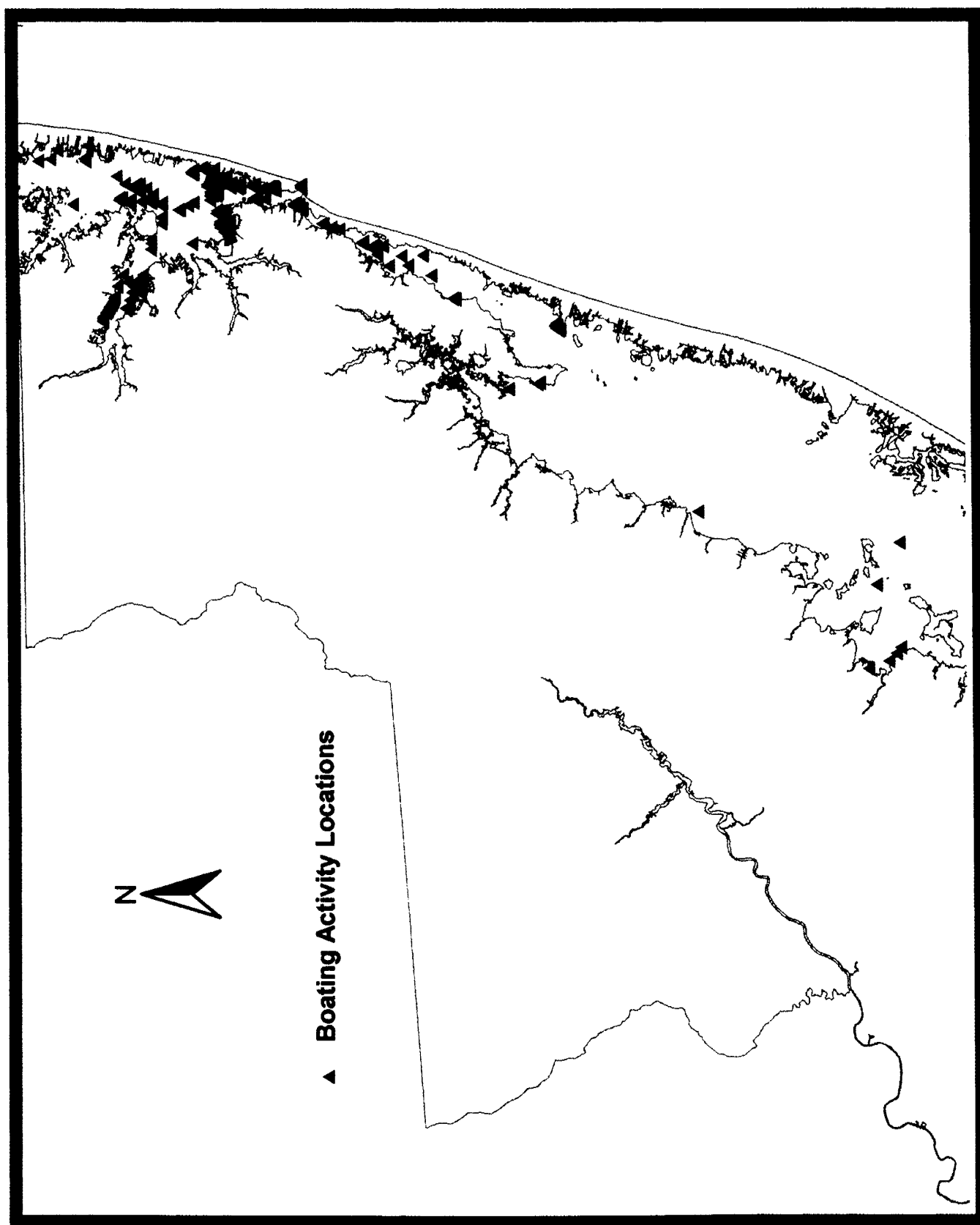


Figure Q-1. Map of peak boating activity recorded from aerial flights conducted by MDDNR on Wednesday, July 19, 2000

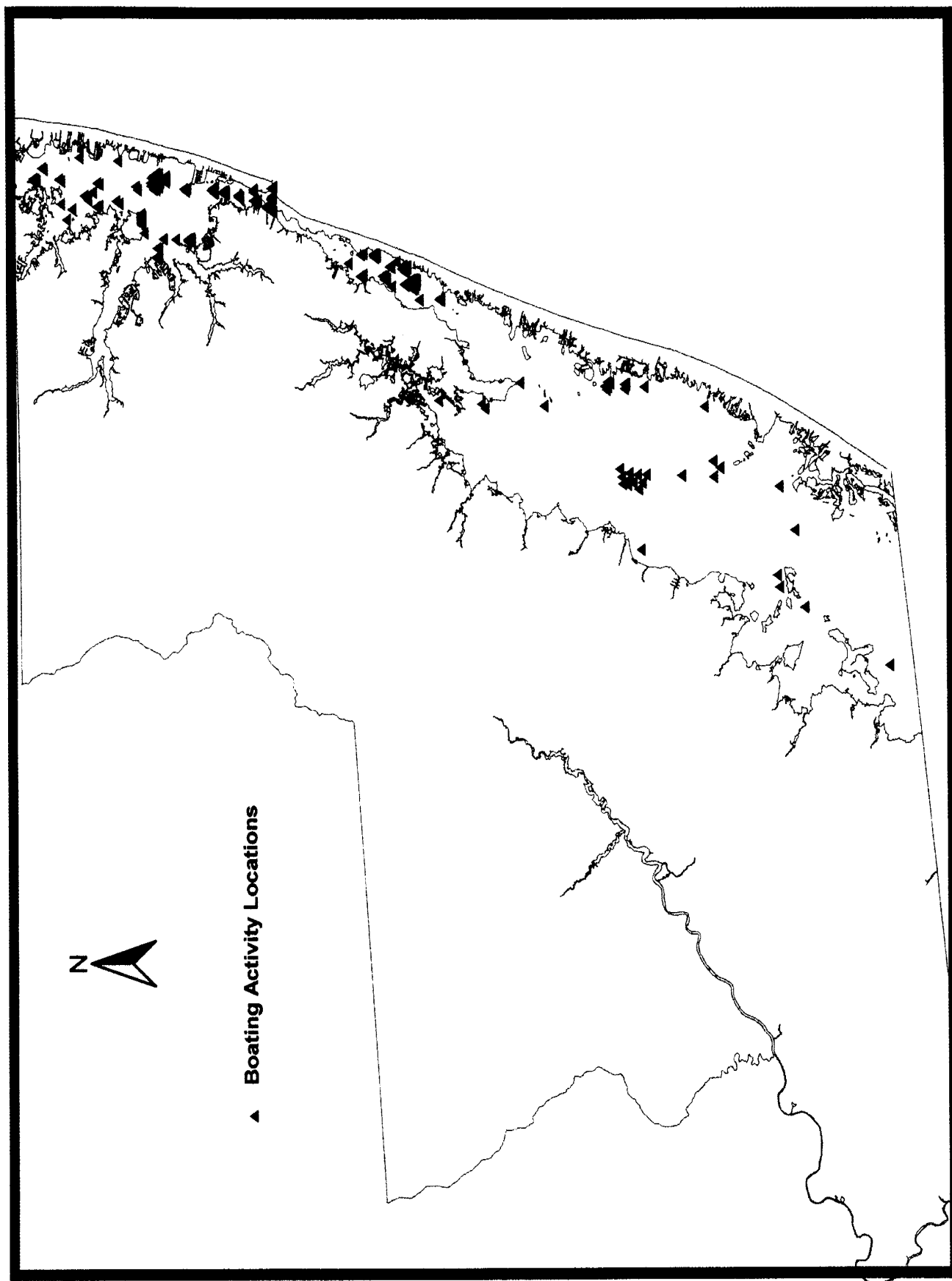


Figure Q-2. Map of peak boating activity recorded from aerial flights conducted by MDDNR on Saturday, July 22, 2000

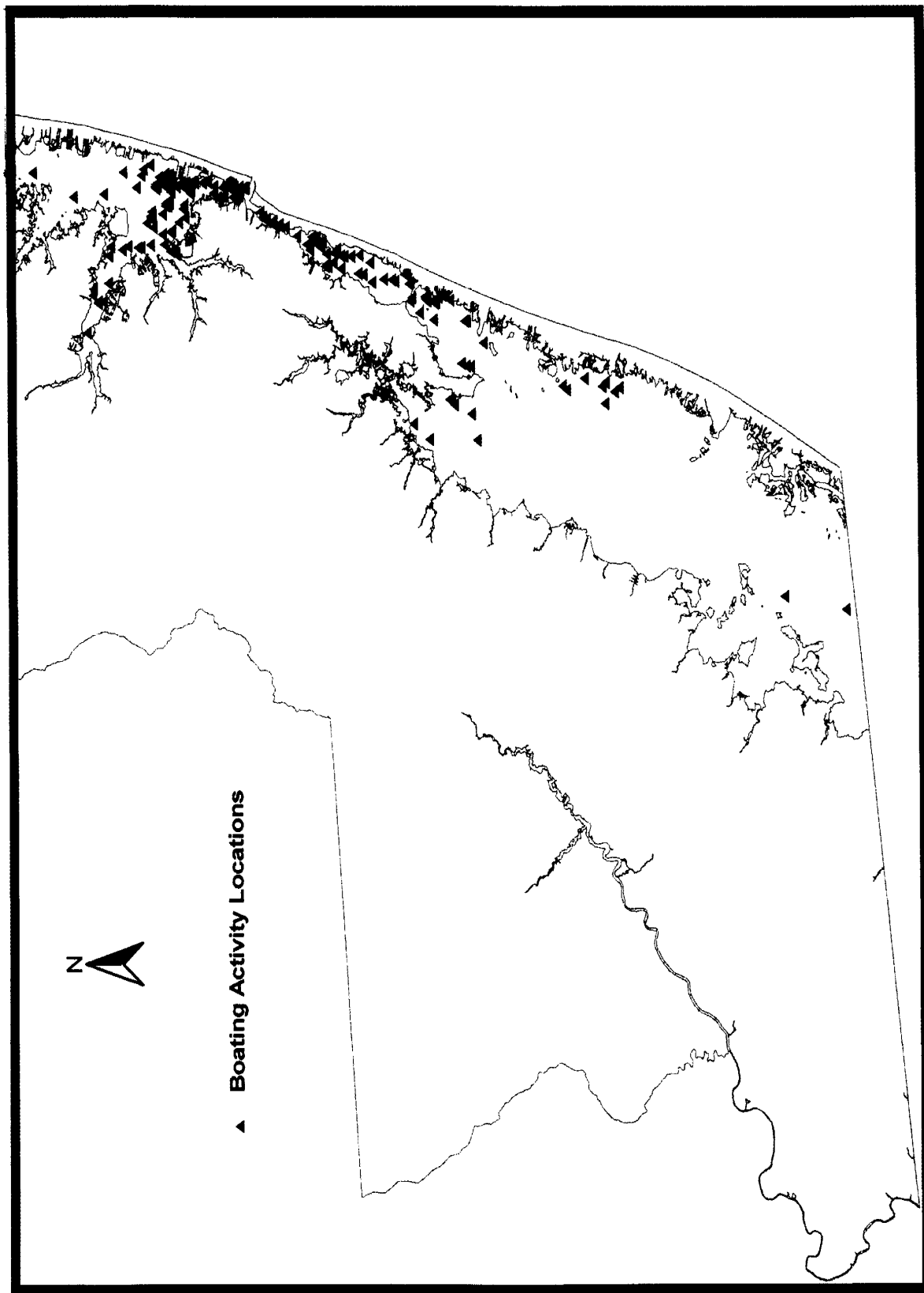


Figure Q-3. Map of peak boating activity recorded from aerial flights conducted by MDDNR on Saturday, August 5, 2000

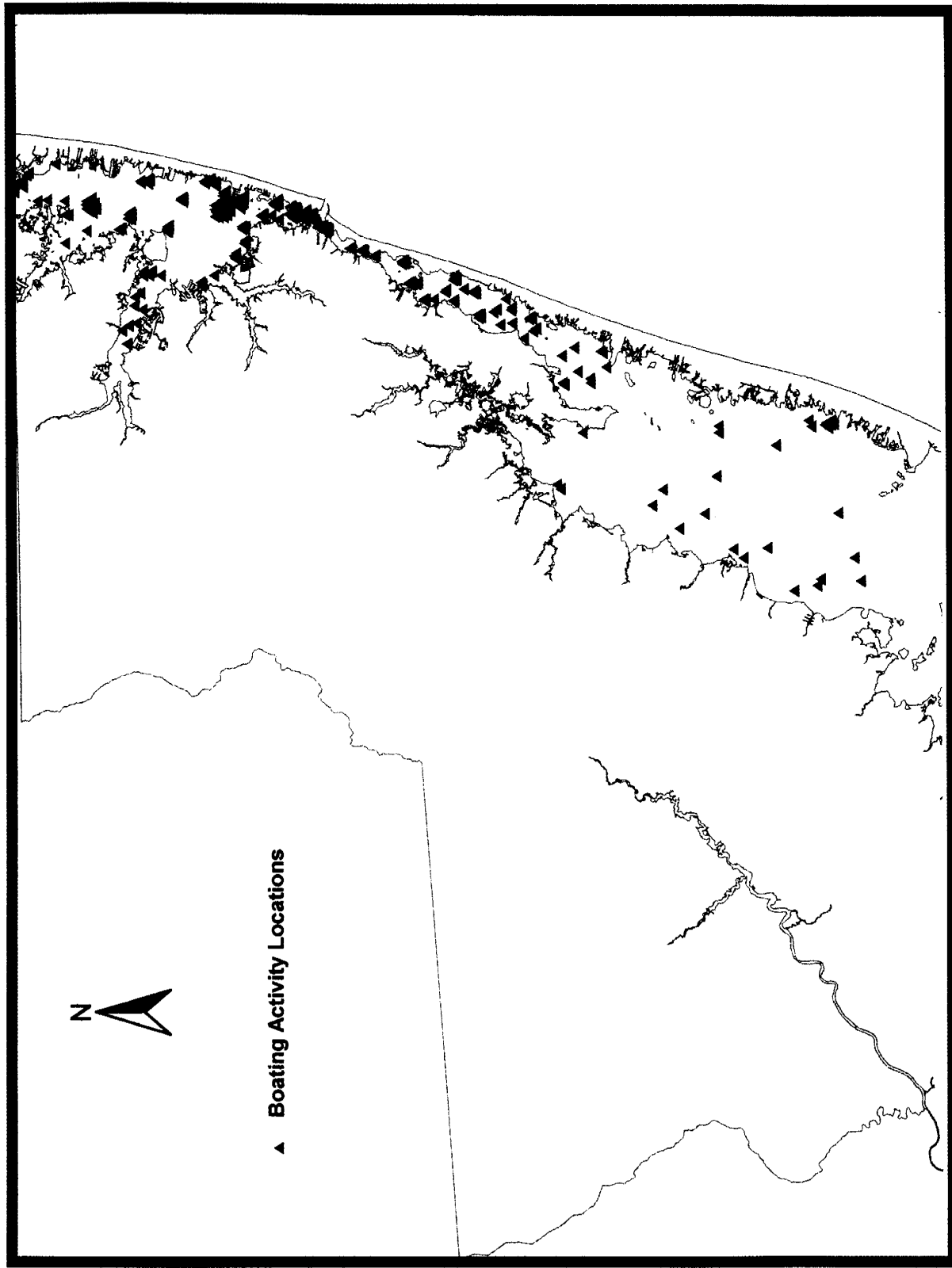


Figure Q-4. Map of peak boating activity recorded from aerial flights conducted by MDDNR on Saturday, August 19, 2000

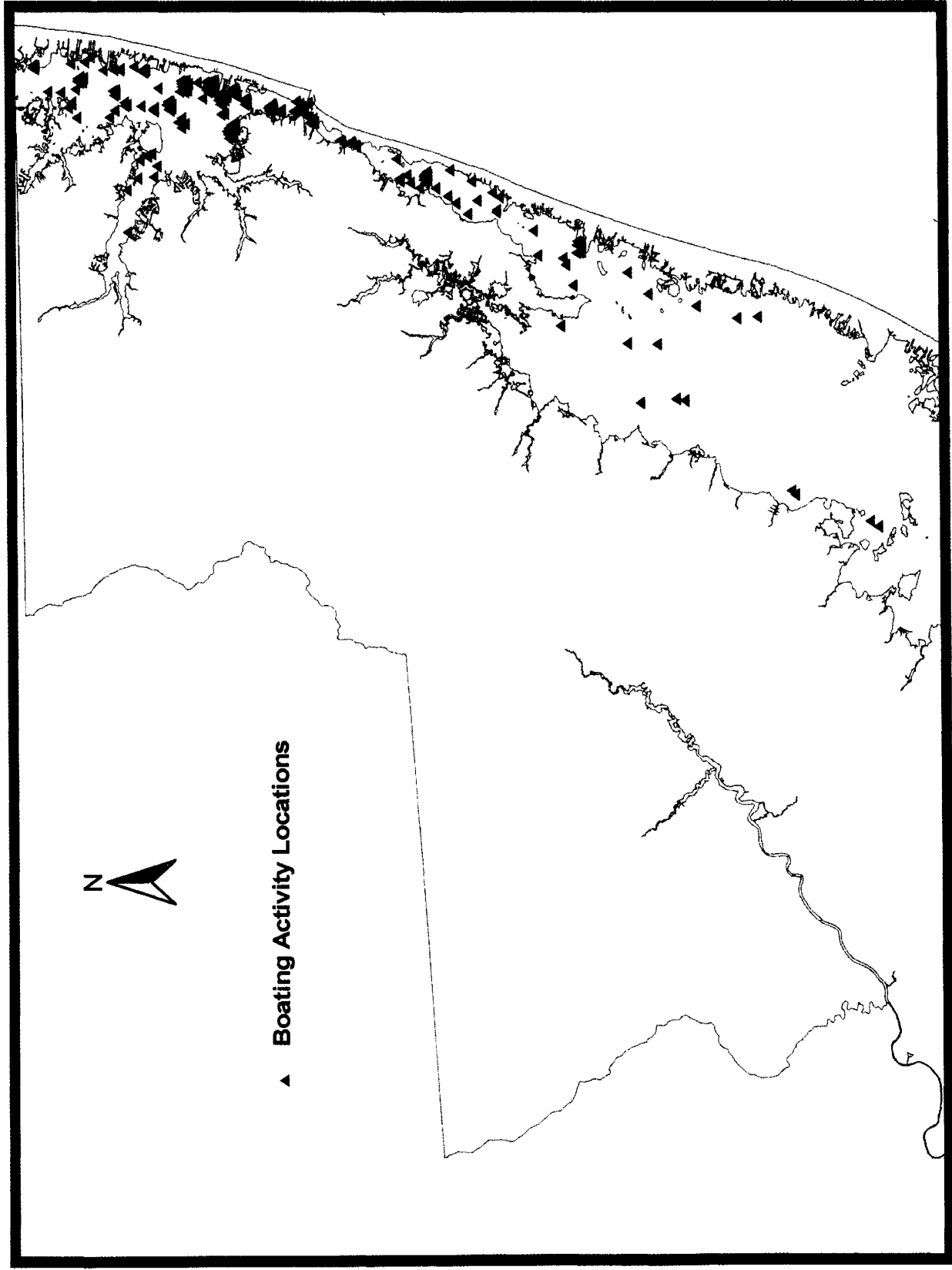


Figure Q-5. Map of peak boating activity recorded from aerial flights conducted by MDDNR on Monday, August 21, 2000

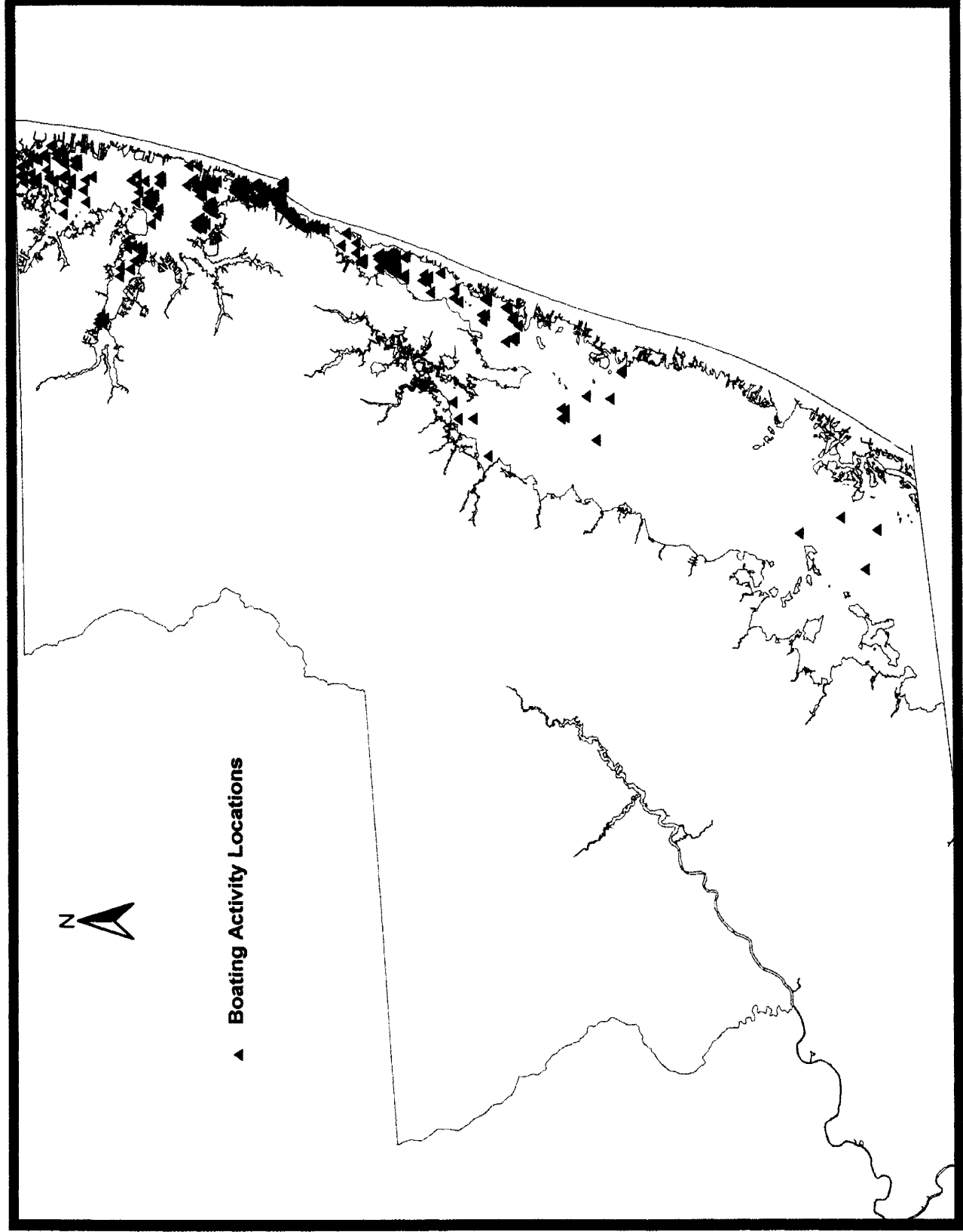


Figure Q-6. Map of peak boating activity recorded from aerial flights conducted by MDDNR on Saturday, August 26, 2000

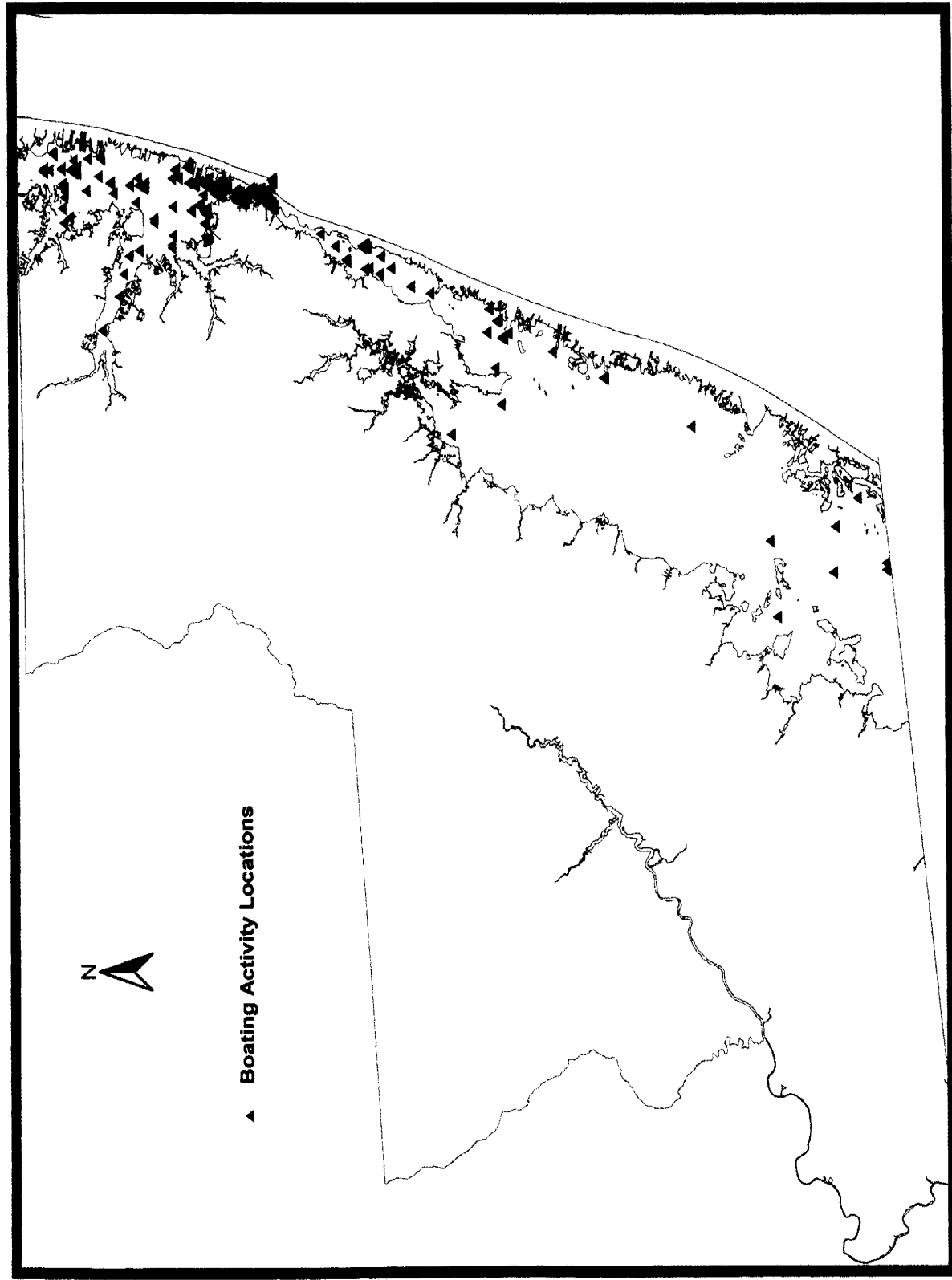


Figure Q-7. Map of peak boating activity recorded from aerial flights conducted by MDDNR on Sunday, September 17, 2000



Table Q-1 . Observed Boating Activity Based on Seven Aerial Flights Conducted by Maryland DNR														
Activity	Wednesday 7/19/00		Saturday 7/22/00		Saturday 8/5/00		Saturday 8/19/00		Monday 8/21/00		Saturday 8/26/00		Sunday 9/17/00	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Drifting/Anchored Boat	119	42	85	36	104	48	101	32	87	35	188	45	170	63
Cruising Boat	11	4	43	18	58	27	117	37	59	24	131	31	62	23
Jetski	40	14	29	12	20	9	42	13	59	24	54	13	9	3
Anchored to Shore	97	34	35	15	--	--	15	5	--	--	11	3	4	1
Canoe/Kayak	9	3	7	3	15	7	3	1	11	4	13	3	10	4
Sailing	1	<1	--	--	3	1	9	3	4	2	7	2	3	1
Clamming (Recreational)	--	--	13	6	--	--	4	1	6	2	--	--	4	1
Crabbing (Commercial)	1	<1	7	3	1	<1	3	1	5	2	1	<1	2	1
Swim from Anchored Boat	--	--	5	2	--	--	1	<1	10	4	--	--	--	--
Clamming (Unknown)	--	--	--	--	8	4	--	--	--	--	7	2	--	--
Headboat (Fishing)	2	1	2	1	1	<1	1	<1	--	--	2	<1	3	1
Headboat (Sightseeing)	2	1	--	--	1	<1	1	<1	4	2	2	<1	--	--
Crabbing (Unknown)	--	--	6	3	--	--	--	--	1	<1	2	<1	--	--
Waterskiing/Tubing	--	--	1	<1	3	1	2	1	--	--	1	<1	1	<1
Parasailing	2	1	2	1	1	<1	--	--	--	--	2	<1	1	<1
Unknown	--	--	--	--	--	--	18	6	--	--	--	--	--	--
Total	284	100	235	100	215	100	317	100	246	100	421	100	269	100

## **APPENDIX R**

### **TABLES FOR MOST ENJOYED AND LEAST ENJOYED AREAS IN MARYLAND'S COASTAL BAYS (FIELD SURVEY BOATERS)**



**Table R-1. Reasons for Most and Least Enjoyed Areas in Assawoman Bay and St. Martin River**

<b>Most Enjoyed Responses (n=11)</b>	<b>Number of Responses</b>	<b>Percent</b>
Less Crowded	5	33
Nice Scenery/View	4	27
Calmer Water	3	20
Peaceful	1	7
Observed Wildlife	1	7
More Open	1	7
<b>Least Enjoyed Responses (n=1)</b>	<b>Number of Responses</b>	<b>Percent</b>
Too Crowded/Too Many Boats/Congested	1	100

**Table R-2. Reasons for Most and Least Enjoyed Areas in Isle of Wight Bay**

<b>Most Enjoyed Responses (n=19)</b>	<b>Number of Responses</b>	<b>Percent</b>
Good Fishing/Caught Fish	24	50
Less Crowded	10	21
Calm Water	6	13
More Open	5	10
Peaceful	1	2
Clean Water	1	2
Good Depth	1	2
<b>Least Enjoyed Responses (n=17)</b>	<b>Number of Responses</b>	<b>Percent</b>
Too Crowded/Too Many Boats/Congested	18	53
Shallow Areas/Sand Bars	5	15
Rough Water	4	12
Too Many Jetskis/Nuisance	2	6
Strong Currents	2	6
Poor Water Quality/Turbid	1	3
Poor Fishing	1	3
Fishing Line Snags	1	3

**Table R-3. Reasons for Most and Least Enjoyed Areas in Ocean City Inlet and Route 50 Bridge Area**

<b>Most Enjoyed Responses (n=8)</b>	<b>Number of Responses</b>	<b>Percent</b>
Good Fishing/Caught Fish	5	63
Nice/Uncrowded Beach	2	25
Good Waves to Jump	1	12
<b>Least Enjoyed Responses (n=12)</b>	<b>Number of Responses</b>	<b>Percent</b>
Too Crowded/Too Many Boats/Congested	7	50
Strong Currents	3	21
Too Many Jetskis/Nuisance	2	14
Rough Water	1	7
Lost Tackle	1	7

<b>Table R-4. Reasons for Most and Least Enjoyed Areas in Sinepuxent Bay</b>		
<b>Most Enjoyed Responses (n=24)</b>	<b>Number of Responses</b>	<b>Percent</b>
Less Crowded	9	28
Good Fishing/Caught Fish	7	22
Calm Water	5	16
Nice Scenery	3	9
Observed Wildlife	2	6
Good Depth	2	6
Peaceful/Serene	1	3
Good Clamming	1	3
Good Crabbing	1	3
Nice Beach	1	3
<b>Least Enjoyed Responses (n=6)</b>	<b>Number of Responses</b>	<b>Percent</b>
Too Many Jetskis/Nuisance	4	67
Too Crowded/Too Many Boats/Congested	1	16
Shallow Areas/Sand Bars	1	16

## **APPENDIX S**

### **SURVEY INSTRUMENTS FOR PRIVATE COMMERCIAL OPERATORS IN MARYLAND'S COASTAL BAYS (PRIVATE OPERATORS AND RENTAL OPERATORS)**





PRIVATE OPERATOR

**Maryland Coastal Bays  
Water-Use Assessment Study**

University of Delaware Sea Grant Marine Advisory Service  
700 Pilottown Road ♦ Lewes, DE 19958-1298

1. What kind of vessel do you operate on Maryland's coastal bays? **(Check all that apply.)**  
☐ Sightseeing/tour boat   ☐ Headboat/fishing boat   ☐ Other (describe) \_\_\_\_\_
2. How many years have you operated this vessel on Maryland's coastal bays? \_\_\_\_\_ years
3. What months of the year do you operate this vessel on the bays? **(Check all that apply.)**  
☐ Jan   ☐ Feb   ☐ Mar   ☐ Apr   ☐ May   ☐ Jun   ☐ Jul   ☐ Aug   ☐ Sep   ☐ Oct   ☐ Nov   ☐ Dec
4. In a typical year, approximately how many days do you operate your vessel on the bays?  
\_\_\_\_\_ days
5. Please indicate where you operate your vessel. **(Check all that apply.)**  
☐ Assawoman Bay   ☐ Isle of Wight Bay   ☐ Sinepuxent Bay  
☐ Chincoteague Bay   ☐ Atlantic Ocean   ☐ Other (Describe) \_\_\_\_\_
6. If you do not operate exclusively on the bays, what percentage of time do you estimate you spend operating on Maryland's coastal bays? \_\_\_\_\_%
7. Over the years, the popularity of boating on the coastal bays has increased. Has crowding on the bays become a concern for you and the operation of your business?   ☐ Yes   ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
8. There have been many observations about the changing conditions of the navigation channels of the coastal bays. Are you concerned about the channels being adequately marked and maintained?   ☐ Yes   ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
9. The Maryland DNR marine police are tasked with enforcing boating and fishing regulations on the coastal bays. Do you feel that their enforcement efforts are adequate and effective?  
☐ Yes   ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
10. During the last five years, or since you have been operating your vessel on the bays, do you think the water quality of the bays has been:  
☐ Improving   ☐ Not changing very much   ☐ Deteriorating   ☐ Don't know/not sure

(continue on back)

11. As the popularity of boating on the coastal bays increases, the potential for bay user conflicts and negative impacts on bay resources increases. To address these problems, Maryland DNR may have to examine various management and policy options. Would you support any of the following options?
- a. Zoning the waters to provide for certain uses in specific areas. ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_
- b. Restricting boat access in sensitive bay habitat areas. ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_
- c. Restrictions on the number or use of personal watercraft on the bays. ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_
- d. Stricter fishing limits (e.g. size and/or number of fish and crabs). ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_
12. Do you feel there are any conflicts between users of Maryland's coastal bays? ☐ Yes ☐ No  
Explain. \_\_\_\_\_
13. Have you ever observed any boating accidents, near accidents or unsafe boating practices Within the last year which you believe were a direct result of conflicting uses of the bays?  
☐ Yes ☐ No Explain. \_\_\_\_\_
14. Are there any other safety concerns, or issues related to user conflicts, that you would like to describe? ☐ Yes ☐ No  
Explain. \_\_\_\_\_
15. Are there any suggestions or recommendations you would like to make to improve Maryland's coastal bays?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**That concludes the survey. Thank you for your time.**

**Please return the completed survey form in the stamped, self-addressed envelope provided.**

RENTAL OPERATOR

**Maryland Coastal Bays  
Water-Use Assessment Study**

University of Delaware Sea Grant Marine Advisory Service  
700 Pilottown Road ♦ Lewes, DE 19958-1298

1. What kind of business do you operate on Maryland's coastal bays? **(Check all that apply.)**  
☐ Small boat rental   ☐ PWC/jetski rental   ☐ Parasailing   ☐ Kayak/canoe rental  
☐ Sailboat/windsurfer rental   ☐ Other (describe) \_\_\_\_\_
2. How many years have you operated this business on Maryland's coastal bays? \_\_\_\_\_ years
3. What months of the year do you operate this business on the bays? **(Check all that apply.)**  
☐ Jan   ☐ Feb   ☐ Mar   ☐ Apr   ☐ May   ☐ Jun   ☐ Jul   ☐ Aug   ☐ Sep   ☐ Oct   ☐ Nov   ☐ Dec
4. In a typical year, approximately how many days do you operate your business on the bays?  
\_\_\_\_\_ days
5. Please indicate where you and/or your customers operate. **(Check all that apply.)**  
☐ Assawoman Bay   ☐ Isle of Wight Bay   ☐ Sinepuxent Bay  
☐ Chincoteague Bay   ☐ Atlantic Ocean   ☐ Other (Describe) \_\_\_\_\_
6. If you and/or your customers do not operate exclusively on the bays, what percentage of time do you estimate you/they spend operating on Maryland's Coastal Bays? \_\_\_\_\_ %
7. Over the years, the popularity of boating on the coastal bays has increased. Has crowding on the bays become a concern for you and the operation of your business? ☐ Yes   ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
8. There have been many observations about the changing conditions of the navigation channels of the coastal bays. Are you concerned about the channels being adequately marked and maintained? ☐ Yes   ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
9. The Maryland DNR marine police are tasked with enforcing boating and fishing regulations on the coastal bays. Do you feel that their enforcement efforts are adequate and effective?  
☐ Yes   ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
10. During the last five years, or since you have been operating your business on the bays, do you think the water quality of the bays has been:  
☐ Improving   ☐ Not changing very much   ☐ Deteriorating   ☐ Don't know/not sure

(continue on back)

11. As the popularity of boating on the coastal bays increases, the potential for bay user conflicts and negative impacts on bay resources increases. To address these problems, Maryland DNR may have to examine various management and policy options. Would you support any of the following options?
- a. Zoning the waters to provide for certain uses in specific areas. ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_  
\_\_\_\_\_
- b. Restricting boat access in sensitive bay habitat areas. ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_  
\_\_\_\_\_
- c. Restrictions on the number or use of personal watercraft on the bays. ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_  
\_\_\_\_\_
- d. Stricter fishing limits (e.g. size and/or number of fish and crabs). ☐ Yes ☐ No ☐ Unsure  
Explain. \_\_\_\_\_  
\_\_\_\_\_
12. Do you feel there are any conflicts between users of Maryland's coastal bays? ☐ Yes ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
13. Have you ever observed any boating accidents, near accidents or unsafe boating practices Within the last year which you believe were a direct result of conflicting uses of the bays?  
☐ Yes ☐ No Explain. \_\_\_\_\_  
\_\_\_\_\_
14. Are there any other safety concerns, or issues related to user conflicts, that you would like to describe? ☐ Yes ☐ No  
Explain. \_\_\_\_\_  
\_\_\_\_\_
15. Are there any suggestions or recommendations you would like to make to improve Maryland's coastal bays?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**That concludes the survey. Thank you for your time.**

**Please return the completed survey form in the stamped, self-addressed envelope provided.**

## **APPENDIX T**

### **MARYLAND COASTAL BAYS PRIVATE COMMERCIAL OPERATORS' SUMMARY**



## **Perceptions and Opinions of Maryland Coastal Bays' Private Commercial Operators**

In order to include the perceptions and opinions of the business sector that provides services to coastal bays' users, private business owners and commercial vessel operators were identified. Those businesses that operated personal watercraft (PWC) rentals, small boat rentals, windsurfer and kayak rentals, fishing headboat operations, sightseeing tour vessels, and parasailing operations were targeted to receive a mail survey instrument. See Appendix S for copies of the survey instruments.

These businesses were identified by searching telephone directories, tourist guides, and other advertisements and by visiting several businesses in person. Mailing addresses were obtained for 27 different business owners and vessel operators and a two-page questionnaire was mailed to them. Only five completed responses to the survey were received. The low response rate could be attributed to the seasonal nature of these businesses and the fact that the survey was conducted after most of these businesses had completed their business season. However, the results do provide a glimpse of how the private business sector feels about certain issues on the bays.

Initial questions in the survey focused on the nature of the business, how many months and days of the year they operate, and how many years the business has been in operation. Then all respondents were requested to answer the same questions regarding a variety of issues that have been identified as important to the coastal bays, including navigation issues, marine enforcement, resource use regulations, and safety-related concerns.

All of the respondents reported that they operate their business during the summer season (June, July and August), and a few indicated that they operate from mid-Spring through mid-Fall. The average number of days of seasonal business operation was 131 days. The respondents, or their customers, operated vessels on the bays 74% of the time. The rest of the time was spent in the Atlantic Ocean.

When asked if crowding of the bays has become a concern for the operation of their business, three indicated it was concern, and two replied that it was not a problem. Four of the five respondents felt that the navigation channels in the bays were adequately marked and maintained. However, all respondents indicated that improvements could be made, the most prominent of these being the need for more dredging in the channels. Four of the five respondents felt that the enforcement efforts of the MD DNR marine police are adequate and effective. Three of the five respondents felt that the water quality of the coastal bays was improving.



When asked if they would support various regulatory options for the coastal bays, the respondents indicated the following:

- Three of the five respondents were opposed to zoning the waters for certain uses in specific areas,
- Regarding restricting boat access in sensitive bay habitat areas, there was a mixed response with two individuals opposed, one in favor, one unsure, and one non-response.
- There was also a mixed response to the option of restricting the number, or use, of PWCs on the bays. Two business owners favored the option and two opposed it, and one did not respond.
- With regards to imposing stricter fishing limits, such as size and/or number of fish or crabs that could be harvested, there was a mixed response of two in favor, two opposed, and one non-response.

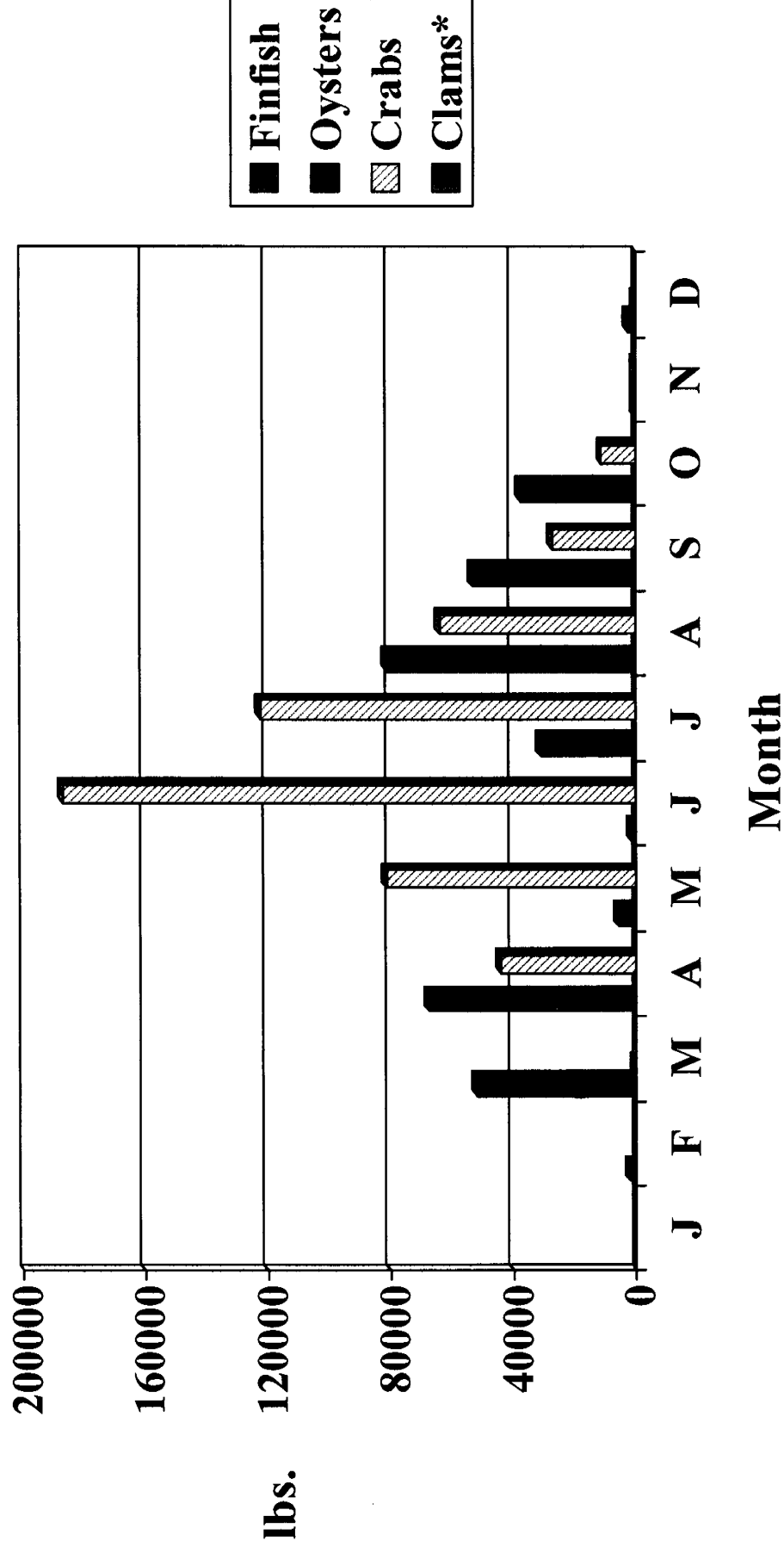
When owners were asked if they perceived any conflicts between users of the coastal bays, three did not indicate any perceived conflicts. One indicated that the number of PWCs caused conflicts, while another indicated a conflict between commercial clamming and recreational fishing. When asked if respondents had observed any boating accidents or unsafe practices on the bays, three had not observed such problems. Two business owners had observed unsafe practices, citing PWC users as operating unsafely in each response.

## **APPENDIX U**

### **MARYLAND COASTAL BAYS COMMERCIAL HARVEST BY MONTH (1998 – 2000) PROVIDED BY MARYLAND DNR, FISHERIES SERVICE**

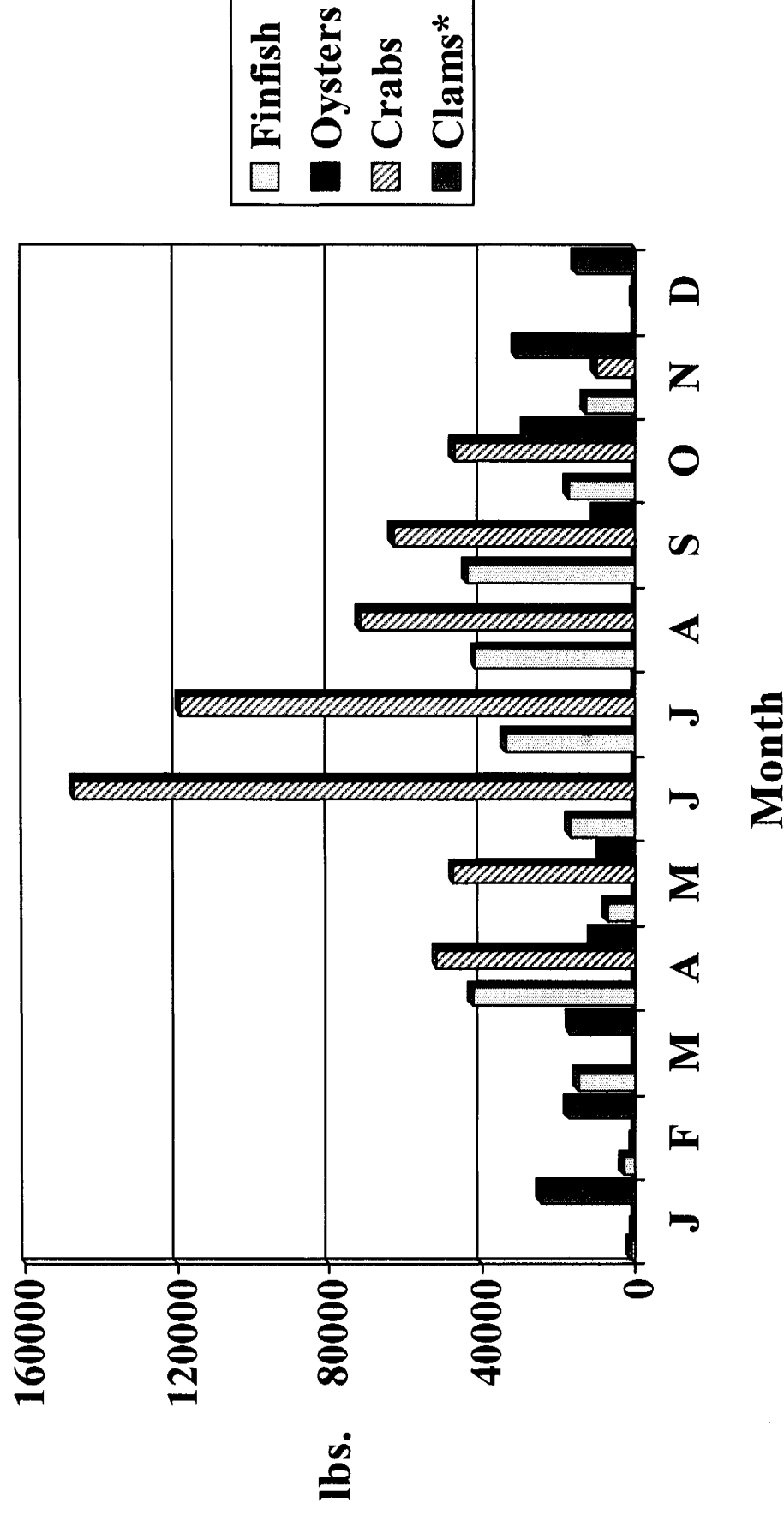


# MD Coastal Bays Commercial Harvest by Month--1998



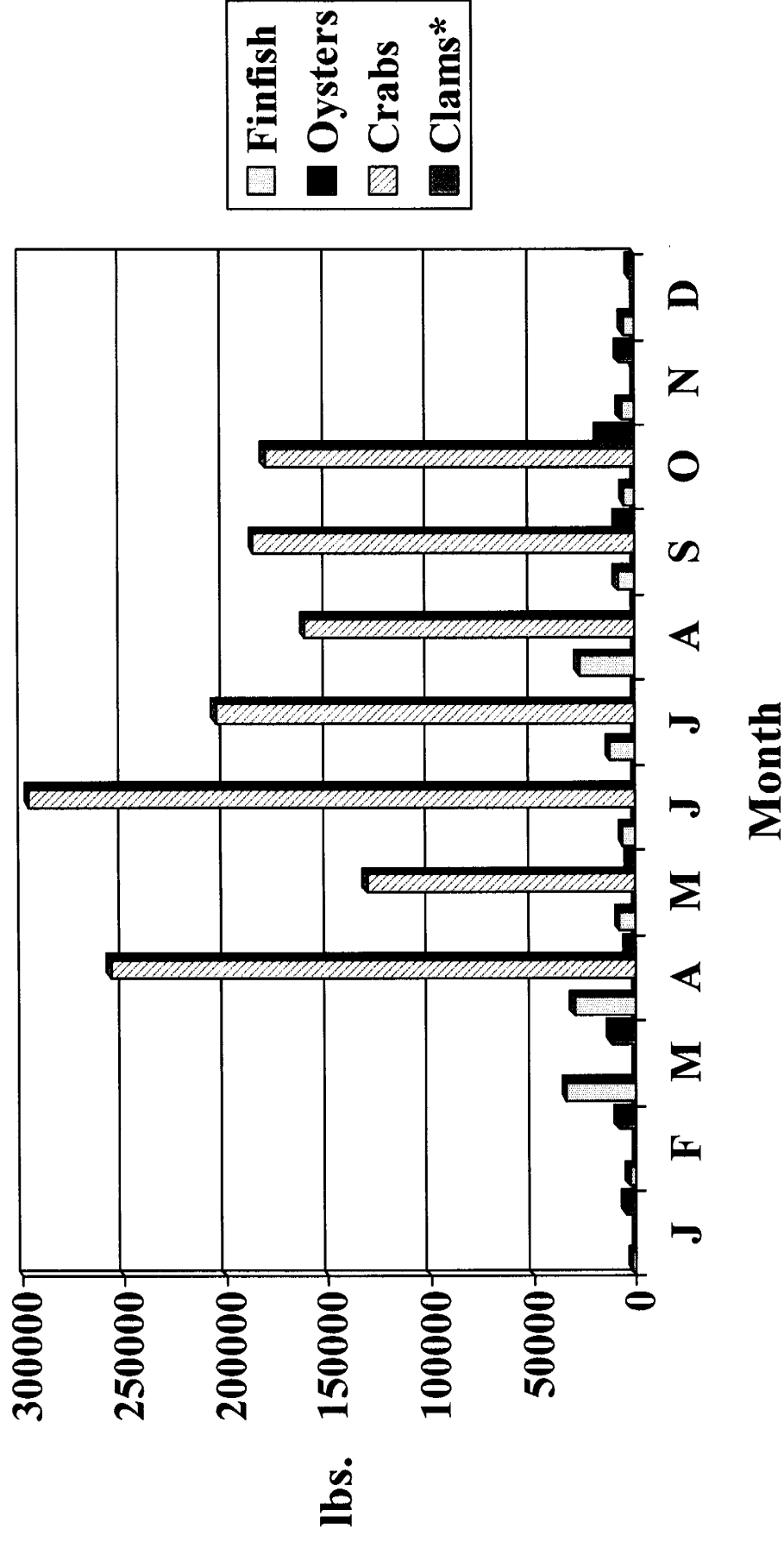
*\*Includes both hard and soft clams*

# MD Coastal Bays Commercial Harvest by Month--1999



*\*Includes both hard and soft clams*

# MD Coastal Bays Commercial Harvest by Month--2000



*\*Includes both hard and soft clams*



## **APPENDIX V**

### **MARYLAND COASTAL BAYS BOAT SLIP INCREASES (1991 – 2001)**





## **Maryland Coastal Bays' Boat Slip Increases Between 1991 and 2001**

A comprehensive study of boating facilities, including a count of all boat slips, in Maryland's coastal bays was completed in 1991 by researchers from the University of Maryland Eastern Shore campus. This was the last time an attempt was made to estimate the total number of boat slips in the bays. Table V-1 reports the 1991 total and estimates the number of boat slips in the coastal bays region in 2001. This estimate provides an approximation of the rate of growth in boat slip construction over the last decade.

Although a comprehensive field-based inventory of boat slips throughout the coastal bays was not undertaken, information was collected from various construction permit records and private sources to aid in the 2001 estimation. The major sources of records were Worcester County Shoreline Commission building permits, Ocean City Board of Port Wardens shoreline permits, and Ocean Pines boat slip permits. Other helpful information was obtained from the Maryland Department of the Environment, Maryland Department of Natural Resources, and the Maryland Coastal Bays Program.

In 1991, a total of 6,951 boat slips were counted in the coastal bays watershed. Approximately 92% (6,409) of these boat slips were counted in the northern bays, which include all waters from the commercial harbor of West Ocean City northward to the Delaware state line. Almost all of the significant growth in boat slip numbers over the last decade has occurred in this region. Ocean City experienced an increase of boat slips of almost 40% (approximately 1,858 new slips) since 1991 to an estimated total of 6,556 slips in 2001. The Ocean Pines community added approximately 1,250 new slips since 1991, including 200 slips in the Marina Village complex. Sunset Marina (204 slips) located near the West Ocean City was also developed during the last decade. Other unincorporated areas of Worcester County, especially the areas south of the West Ocean City commercial harbor, experienced less significant rates of growth than Ocean City and Ocean Pine.

In an Application for Federal No-Discharge Zone Designation prepared by the Maryland Department of Natural Resources (DNR) and submitted to the US Environmental Protection Agency in August 2001, an approximation of 10,000 boat slips was made for the northern bays region. This figure was also cited as one official estimate of slips in all the coastal bays. The 2001 total of 10,448 boat slips identified in Table V-1 is consistent with the estimate provided by Maryland DNR.

<b>Table V-1. Estimated Increase in Number of Boat Slips in Maryland Coastal Bays' Watershed (1991 – 2001)</b>			
<b>Geographic Area</b>	<b>Number of Slips 1991<sup>1</sup></b>	<b>Number of Slips 2001</b>	<b>Percent Increase</b>
Ocean City	4,698	6,556 <sup>2</sup>	40
Ocean Pines	949	2,054 <sup>3</sup>	116
Sunset Marina	--	204	--
Marina Village	--	200	--
Other unincorporated Worcester County – Northern region	762	838 <sup>4</sup>	10
Other unincorporated Worcester County – Southern region	542	596 <sup>4</sup>	10
<b>Total</b>	<b>6,951</b>	<b>10,448</b>	<b>50%</b>

<sup>1</sup>Numbers of boat slips estimated in 1991 University of Maryland Eastern Shore study.

<sup>2</sup>Estimate calculated from Ocean City shoreline permit applications.

<sup>3</sup>Total estimate calculated from known numbers for 1992 and between 1997 and 2001.

<sup>4</sup>Estimate calculated based on assumed growth of 10%.