



Recreational Boating in New Jersey: An Economic Impact Analysis

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HDR

EXECUTIVE SUMMARY

- Survey results indicate that New Jersey's recreational boaters spent approximately \$2.1 billion on their pastime in 2006. Of the money spent, \$1.1 billion were trip-related expenditures and \$938 million were in annual boating purchases (such as registration fees, maintenance, etc.). After accounting for leakages to other states' economies (e.g. through the purchase of goods manufactured in another state) in-state recreational boating contributed \$1.8 billion to New Jersey's economy in 2006.
- New Jersey boaters reported an average of 28.1 boat outings per year. Powerboats that are less than 26 feet in length are the most commonly used boat type in New Jersey waters, used for approximately 76% of boat outings. Survey respondents indicated that fishing is the primary purpose for most (56%) recreational boat outings. The coastal counties of Ocean, Monmouth, Cape May, and Atlantic are the most popular boating destinations.
- New Jersey's recreational boating industry provides approximately 18,000 jobs.
- Additional substantial economic contributions not included in the study are out-of-state boaters that spend time and money in New Jersey as well as New Jersey's boat manufacturing industry. New Jersey has 23 boat manufacturers and 22 boat builders that provide economic contributions and employment opportunities.
- Recreational boating is a popular pastime in New Jersey. Approximately 148,707 New Jersey residents had at least one boat registered within the state in 2006. This figure does not include people that participate in boating without a registered boat, such as people who join friends and family on boats, or people who use unregistered canoes and kayaks.
- The majority of survey respondents were married men between the ages of 46 and 65. Survey respondents tended to be on the upper end of the income scale, with about one-half reporting an annual gross household income in excess of \$90,000.
- The number of recreational boats registered in New Jersey has decreased as much as 27% in the past five years, in contrast to a reported increase in boating nationwide during the same timeframe. Results of this analysis suggest that further decreases in the number of registered boats in New Jersey could adversely affect many sectors of both the State and local economies, particularly in the southern coastal region.
- The most commonly reported concerns about recreational boating in New Jersey were generally related to safety, water quality and the need for infrastructure improvements.

- Decisions about increased funding to address the concerns of the recreational boating population should be weighed against the economic contribution of recreational boating to New Jersey.
- This study was sponsored by the New Jersey Department of Transportation Office of Maritime Resources I BOAT NJ Program. The I BOAT NJ Program's mission is to benefit the boating public by promoting, improving and enhancing the marine industry in New Jersey through grant funding financed by the FY 2003 vessel registration fee increase.



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1.0 INTRODUCTION

Recreational boating is a pastime that allows people access to the waterways where they can spend time with their friends and family enjoying nature, fishing, dining, hunting, cruising, swimming or water skiing. Access to open waters and these water-dependant uses are extremely important to the quality of life in New Jersey. New Jersey is well known for its popular water-related recreational activities. The state boasts 127 miles of coastal shoreline along the Atlantic Ocean, 1,792 miles of tidal shoreline, and over 4,000 lakes, rivers, and bays. New Jersey has 83 miles of shoreline along the Raritan and Delaware Bays, making these areas ecological treasures within an urbanized setting. In addition, the state's bays, rivers, estuaries, and oceanic habitat help contribute to a recreational and commercial fishing industry which harvests more than 50 different aquatic species (NJDEP 2008).

In addition to providing enjoyment, the recreational boating industry contributes substantially to local and state economies. The industry provides jobs in many sectors of the work force, attracts tourism, and provides tax revenues. The industry consists of several types of maritime businesses, including marinas, boat manufacturers, boat dealers, marine parts and accessories manufacturers/retailers, boating publications, and boat repair facilities. The industry also impacts other types of businesses such as fishing supply stores, manufacturers and waterfront restaurants. Boating destinations and services attract tourism dollars to many businesses located all along New Jersey's waterways.

The purpose of this report is to characterize New Jersey's recreational boating population and to quantify the impact of recreational boating on New Jersey's economy. The following sections provide a profile of recreational boating in the United States and of New Jersey's recreational boating population.

1.1 NATIONAL BOATING PROFILE

Recreational boating is a popular activity throughout the United States, and in 2006 the National Marine Manufacturers Association (NMMA) estimated that nearly 73 million people spent time pursuing boating-related activities. In fact, the NMMA estimates that nearly one-third of the adult population of the United States went boating in 2006 (NMMA 2007b).

Two nationwide studies have estimated the economic contribution of the recreational boating and related activities and have found that boating-related expenditures contribute billions of dollars to the nation's economy each year. The NMMA reports total retail

recreational marine expenditures of over \$39 billion for purchases of boats, trailers and accessories in 2006 (over \$37 billion in 2005). This represents a nearly 47% increase from 1997, when national boat equipment expenditures were reported at less than \$20 billion (NMMA 2007b).

Recreational fishing is a pastime tightly linked with boating. The NMMA reported that 52.3% of current boat owners engaged in fishing from their boats in 2006 (NMMA 2007a). In their 2006 National Survey of Fishing, Hunting and Wildlife Associated Recreation, the U.S. Fish and Wildlife Service (USFWS) reported that 57% of anglers fish from boats. Total fishing-related expenses were reported at \$42 billion. The USFWS estimated that nationwide boating-related expenses for anglers (i.e. launching, mooring, storage, maintenance, insurance, pump-out fees and fuel) accounted for about 15% of all fishing-related expenses. The USFWS reported that nationwide expenditures for these boating costs for anglers totaled \$3.4 million in 2006. This number probably underestimates the total boating costs, because it does not include many of the costs associated with boating, such as those to purchase equipment such as boats and trailers, ground transportation, or the costs of groceries or supplies (USFWS 2007).

There has been a significant increase in the number of boats registered in the United States in the past decade. Over the past 16 years, the number of people who spent time boating each year ranged between approximately 64 and 73 million. In 2005, the number of registered vessels increased approximately 8% from 12.1 million in 1996 to 13.1 million in 2005. Between 2004 and 2005, there was a 1.5% increase in registered vessels nationally (NMMA 2007a). The trend appears to be continuing, as the NMMA estimates that there were 13.6 million boats registered nationwide in 2006 (NMMA 2007b).

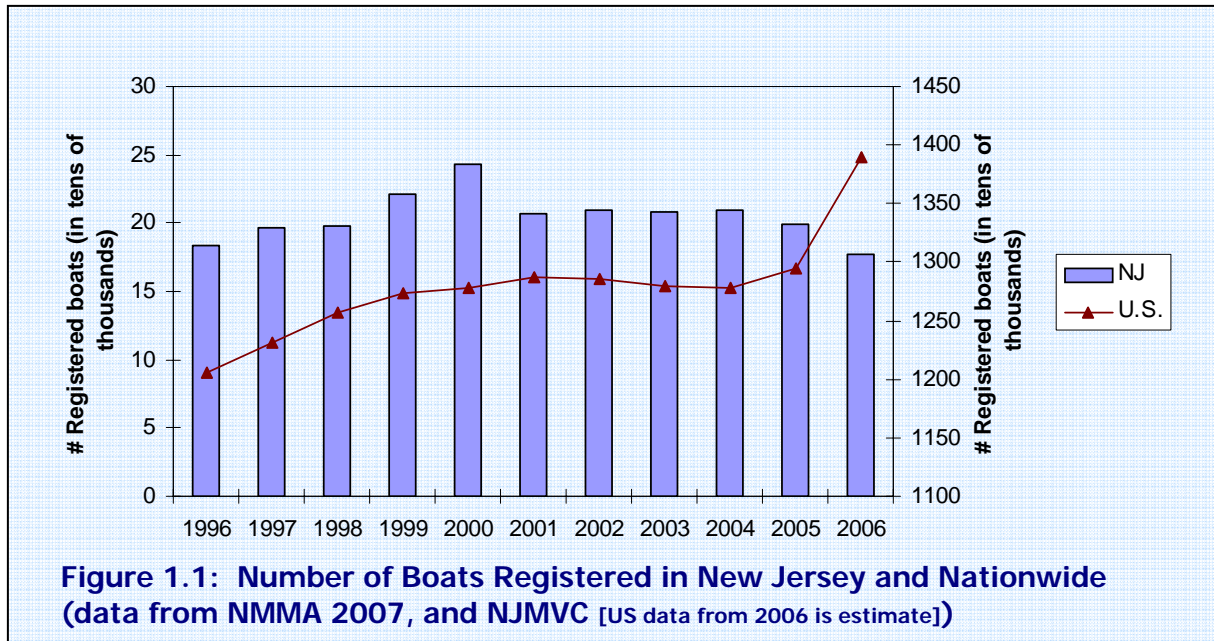
1.2 BOATING IN NEW JERSEY

Registered recreational boaters made up about 1.7% of New Jersey's population in 2006 according to the 2006 U.S. Census Population Estimates (U.S. Census 2008). This figure most likely represents a small percentage of the participants of boating activities in the State. The actual boating population also includes people who own non-registered boats (i.e. unregistered kayaks, canoes and rowboats), people that participate in boating without owning or registering a boat, as well as people who have boats registered out of state but use New Jersey's waterways. In 2006, 176,631 boats were registered in New Jersey by approximately 148,707 individuals.

• Trends in Boat Registrations

The number of recreational boats registered in New Jersey has varied over the past eleven years, with a peak of 243,281 boats registered in 2000 (NMMA 2007a). Since then, the

number of boats registered in the state has decreased substantially, with the fewest registrations in 2006. The 176,631 boats registered in 2006 represent a 27% decrease in registrations since 2000. However, the number of boats registered in 2006 is not substantially different than the 183,204 boats registered in 1996. The number of boats registered per year between 1996 and 2006 is presented in Figure 1.1.



This trend in decreasing boat registrations is in contrast to the national trend. Similar decreases in registrations throughout the country occurred between 2001 and 2004. However, the highest number of boat registrations between 1996 and 2006 nationwide occurred in 2005 and 2006 (2006 data is an estimate) (NMMA 2007b).

When looking at other states within the northeast, some showed an increase in the number of registered recreational boats, while some showed a decrease between 2000 and 2005. The number of boats registered in Maryland, Pennsylvania and New York decreased during that period by 1.4%, 2.8% and 3.2% respectively. The number of registered boats increased by 11.6% in Delaware and by 3.4% in Virginia between 2000 and 2005 (NMMA 2007a).

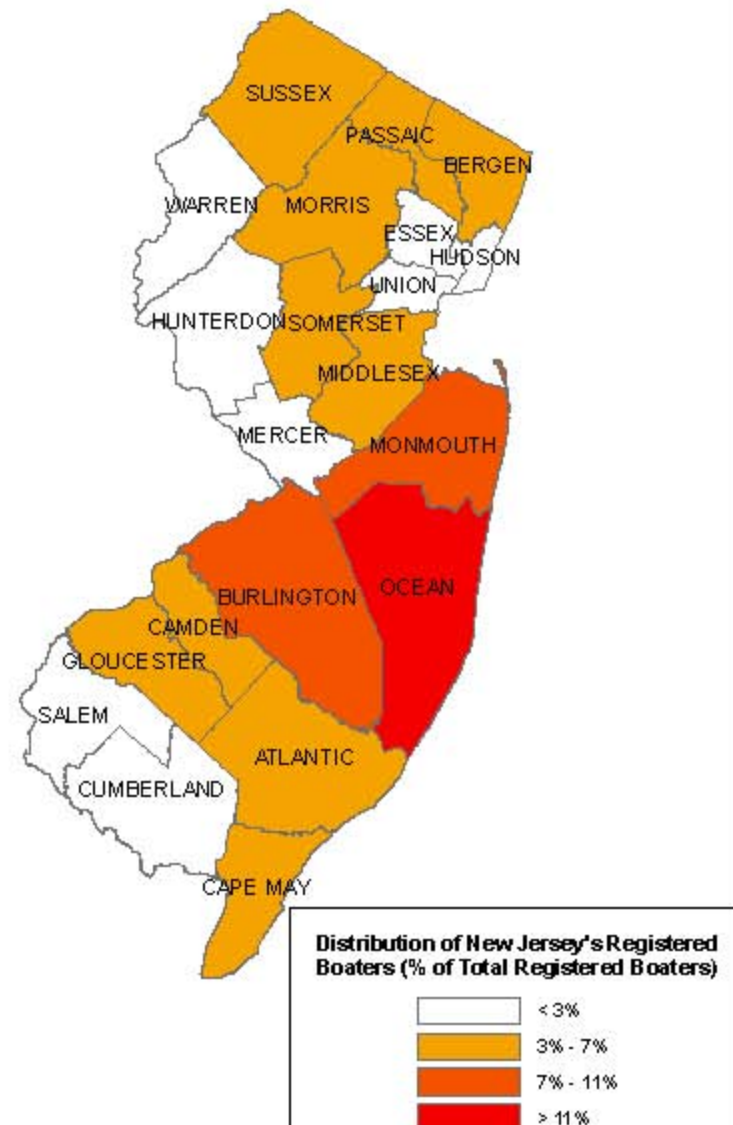
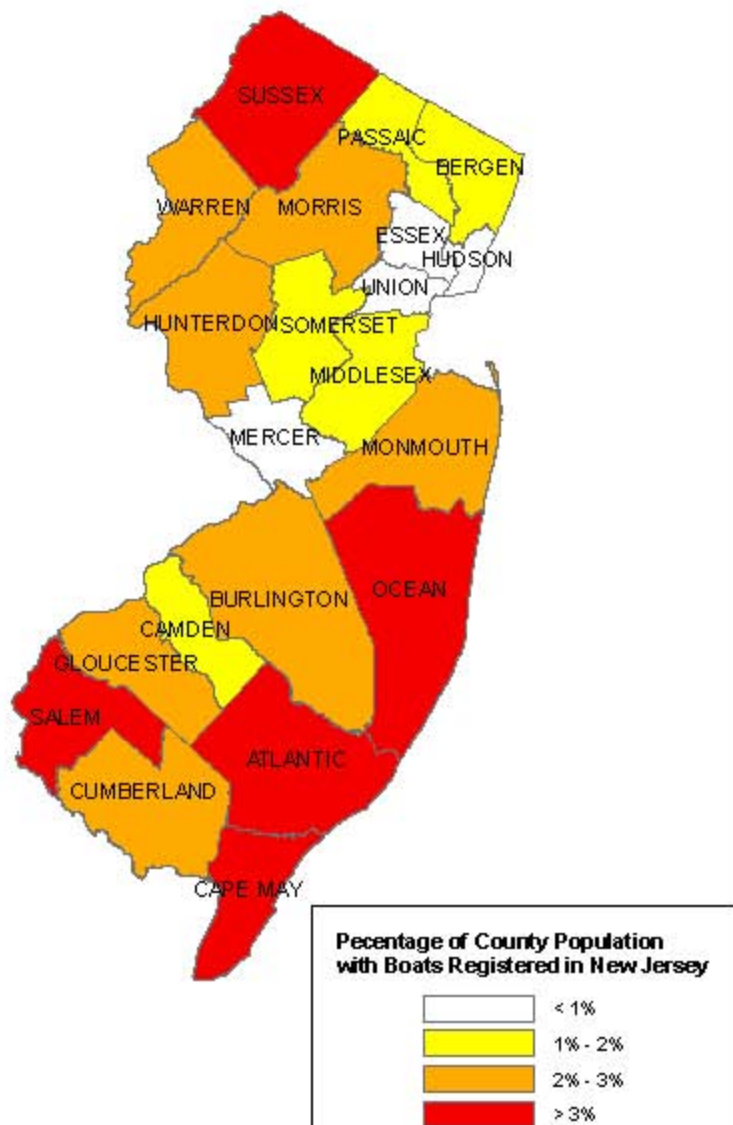
• Boat Registrations by County

When looking at the distribution of registered boats and boaters by county, there are thousands of boaters in every county. However, the boating population is especially concentrated in Ocean and Monmouth counties, which account for nearly 25% of the registered boaters in the state. In contrast, the fewest number of registered boaters reside in more urban eastern counties and in western New Jersey. Boat registrations in Warren,

Salem, Cumberland, Hunterdon, Mercer, Union, Hudson and Essex counties, individually amount to 3% or less of the total for the state. Table 1.1 provides a complete breakdown of the number of registered boat owners and boats by New Jersey county. The distribution of registered boaters across New Jersey is also depicted in Figure 1.2.

Table 1.1: Number and percent of individual registered boaters and boats by New Jersey county.

NJ County	<u>Individual Owners</u>		<u>Individual Boats</u>	
	Number	% of Total	Number	% of Total
Atlantic	8,647	5.81%	10,276	5.82%
Bergen	9,238	6.21%	11,181	6.33%
Burlington	10,679	7.18%	12,657	7.17%
Camden	7,656	5.15%	8,837	5.00%
Cape May	5,443	3.66%	6,659	3.77%
Cumberland	3,274	2.20%	3,865	2.19%
Essex	3,894	2.62%	4,527	2.56%
Gloucester	6,639	4.46%	7,740	4.38%
Hudson	2,050	1.38%	2,402	1.36%
Hunterdon	3,785	2.55%	4,434	2.51%
Mercer	3,436	2.31%	4,042	2.29%
Middlesex	8,823	5.93%	10,171	5.76%
Monmouth	14,868	10.00%	17,710	10.03%
Morris	9,932	6.68%	11,673	6.61%
Ocean	22,596	15.19%	28,231	15.98%
Passaic	5,538	3.72%	6,263	3.55%
Salem	3,003	2.02%	3,600	2.04%
Somerset	5,085	3.42%	5,956	3.37%
Sussex	6,819	4.59%	7,982	4.52%
Union	4,383	2.95%	5,133	2.91%
Warren	2,916	1.96%	3,289	1.86%
Unknown	3	0.00%	3	0.00%
Totals:	148,707		176,631	



When looking at the percent of the county population that has boats registered in New Jersey, on a per capita basis, Cape May County has the greatest percentage of registered boaters (Table 1.2). More than 5% of the population of Cape May County has at least one boat registered in the state. The populations of Salem, Sussex and Ocean also have a high percentage of registered boaters. More than 4% of the population of each of these counties have at least one boat registered in the state. In contrast, less than 1% of the population of Hudson, Essex, Mercer and Union counties has a boat registered in New Jersey (Figure 1.1).

Table 1.2: New Jersey Population and Distribution of Registered Boaters

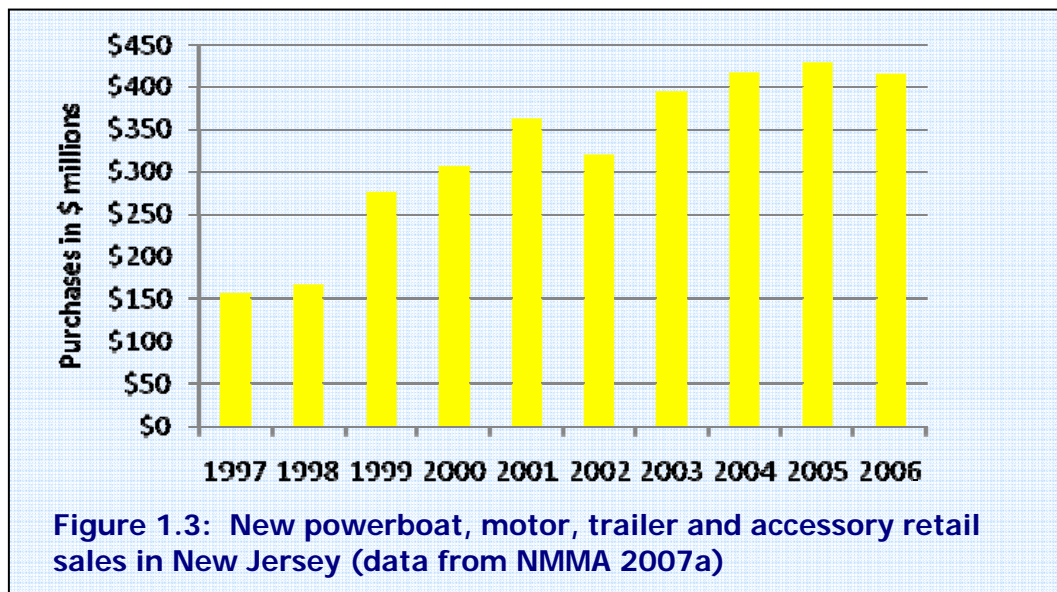
County	County Population	Number of Registered Boaters	% of County Population	% of NJ Registered Boaters
Atlantic	271,620	8,647	3.18%	5.81%
Bergen	904,037	9,238	1.02%	6.21%
Burlington	450,627	10,679	2.37%	7.18%
Camden	517,001	7,656	1.48%	5.15%
Cape May	97,724	5,443	5.57%	3.66%
Cumberland	154,823	3,274	2.11%	2.20%
Essex	786,147	3,894	0.50%	2.62%
Gloucester	282,031	6,639	2.35%	4.46%
Hudson	601,146	2,050	0.34%	1.38%
Hunterdon	130,783	3,785	2.89%	2.55%
Mercer	367,605	3,436	0.93%	2.31%
Middlesex	786,971	8,823	1.12%	5.93%
Monmouth	635,285	14,868	2.34%	10.00%
Morris	493,160	9,932	2.01%	6.68%
Ocean	562,335	22,596	4.02%	15.19%
Passaic	497,093	5,538	1.11%	3.72%
Salem	66,595	3,003	4.51%	2.02%
Somerset	324,186	5,085	1.57%	3.42%
Sussex	153,384	6,819	4.45%	4.59%
Union	531,088	4,383	0.83%	2.95%
Warren	110,919	2,916	2.63%	1.96%
Unknown		3		0.0%
Totals:	8,724,560	148,707		1.70%

Notes: - "Unknown" represents the individuals that did not provide complete information in the NJMVC database.

- Each registered boater may own more than one boat.

Recreational boating is clearly an established part of the New Jersey lifestyle and economy. According to the National Marine Manufacturing Association (NMMA), when compared to other states New Jersey ranks 8th for the number of marinas operating in the state. New Jersey had 489 operational marinas that provided a total of 34,868 slips in 2006 (NMMA 2007a). New Jersey has 22 boat builders and has 23 boat manufacturing facilities, ranking 22nd in the nation for each category (NMMA 2007a).

New Jersey is also a leader in the sales of boats and related equipment. In 2006, New Jersey ranked 14th in the nation for the number of powerboats, motors, trailers and accessories purchased in the state (NMMA 2007a). Figure 1.2 provides the total sales for these products between 1997 and 2006.



2.0 METHODOLOGY

A mail-in survey was conducted to characterize New Jersey's recreational boating population and to gather information about their boating-related expenditures. The survey provides a means to estimate these parameters without having to interview each boater. Inferences or estimates obtained from the survey pertain to the expenditures, characteristics and attitudes of these boaters. Boaters using water craft of any sort that are not registered in New Jersey either because legislation does not require that particular watercraft to be registered or the boat is registered in another state are outside the scope of this survey. Their spending habits are not factored into estimates derived from the survey. Information returned by the survey recipients was evaluated with an IMPLAN® model. A brief description of the survey methodology is provided in the following sections. For a more detailed account of the analyses performed, see Appendices B and C.

2.1 SAMPLE SIZE DETERMINATION

A key goal of the survey is to estimate the average annual expenditure for all New Jersey registered boaters. Based on a 2004 survey of 384 boaters New Jersey registered boaters, the sample variance of the average annual expenditures was used to estimate what the variance would be for the 2007 survey. The estimated variance in 2004 survey responses was used to determine the number of responses required to ensure confidence in the 2006 survey. Even though the sample size of the previous survey was very small, its variance estimate provides a guideline. In the 2004 survey, the average annual expenditure of a New Jersey boater was found to be \$2,744, with an associated sample standard deviation of \$3,585. Using this information, it was estimated that 1,200 completed surveys were required to achieve a margin of error for the average annual expenditures of \$202 at the 95 percent confidence level (for formula used and further details, see Appendix B).

2.2 RESTRICTED RANDOM SAMPLING

Contact information for the owners of all registered boats in New Jersey was obtained in a Microsoft Access database from the New Jersey Motor Vehicle Commission (NJMVC). The database contained information on 190,472 boats. Of these boats, 13,841 were registered to businesses and 176,631 were registered to individuals. Many of the individuals in the NJMVC database had more than one boat registered in the state. Based on the information provided from the NJMVC, there were 148,707 individuals with one or more boats registered in New Jersey as of January 2007 (Table 1.2). This set of boaters represents the study population for which the survey will provide estimates. A restricted random sample of registered boaters was selected from this population.

The registered boaters were divided by county of residence, and the study population was selected to include proportional numbers of survey recipients to the number of boaters registered in each county. For example, since 15% of the total registered boaters reside in Ocean County, 15% of the survey population was selected from these boaters. The survey population was further refined to identify differences in boating and spending patterns among boat size. The registered boaters in each county were divided by the number and size of their boats. Two size classes were selected for the analysis: boats less than 26 feet in length, and boats equal to or greater than 26 feet in length. If a boater had more than one boat, a count was given for those boaters with multiple registered boats.

2.3 SURVEY MAILINGS

The survey was executed in two phases, a test phase and the final survey execution. Initially, the survey was mailed to a test audience of 100 people from the survey recipient list. This test was used to estimate the survey response rate, to determine whether the survey recipients would fully understand the questions, and to determine the standard deviation of response. Based on an anticipated response rate of 30%, 4,000 questionnaires were mailed to individuals in the NJMVC database. Two weeks following the initial mailing, each person on the mailing list was mailed another survey, and a follow-up postcard from the NJDOT Office of Maritime Resources was sent to each two weeks following the second mailing. For each survey that was returned unopened, an additional survey recipient was randomly selected from the NJMVC database from the same county. Two surveys and a follow-up postcard were mailed to these recipients spaced two weeks apart. Survey recipients were also invited to fill the survey out on-line on the Marine Trades Association of New Jersey's website. Table 2.1 below displays the number of questionnaires mailed to boaters in each county.

2.4 ECONOMIC IMPACT ANALYSIS

To measure the direct, indirect and induced effects of recreational boating expenditures in New Jersey, we used the IMPLAN® model, which is an input-output based economic impact assessment model originally developed by the U.S. Forest Service. The model is now maintained by the Minnesota IMPLAN Group, Inc. The model's internal data files include transaction information (intra-regional and import/export) for more than 500 different industrial sectors (corresponding to four and five digit 1997 North American Industry Classification System [NAICS] codes). Data on 21 different economic variables – including employment, output, and employee compensation was included in the analysis. The model was calibrated for New Jersey with the most recent (2004) economic data available for the state of New Jersey at the time of conducting this analysis.

Table 2.1: Distribution of Questionnaires Mailed Per County

County	Number of Registered Boaters	Number of Questionnaires Mailed
Atlantic	8,633	233
Bergen	9,200	249
Burlington	10,649	287
Camden	7,655	206
Cape May	5,431	146
Cumberland	3,273	88
Essex	3,882	105
Gloucester	6,625	179
Hudson	2,049	56
Hunterdon	3,772	101
Mercer	3,421	93
Middlesex	8,802	238
Monmouth	14,851	400
Morris	9,905	266
Ocean	22,505	607
Passaic	5,530	149
Salem	2,994	80
Somerset	5,064	137
Sussex	5,064	184
Union	4,366	118
Warren	2,909	78

The model was further refined for use in this study with the following adjustments to help ensure that all impact estimates are truly incremental and specific to the study area:

1. Since the original IMPLAN input data numbers were expressed in 2004 dollars, they were adjusted for inflation to express the results in 2006 dollars.
2. Social Accounting Matrix (SAM) multipliers, used for estimating indirect and induced effects, were modified with regional purchase coefficients (RPCs) to ensure that imports were not counted.
3. Households were the only institutions considered when building type SAM multipliers. As a result, induced effects are based on New Jersey residents' income solely.
4. Because manufacturing represents a small part of New Jersey's economy as a whole, the following assumption was made: for all retail purchases (IMPLAN sectors 401 through 412) the manufacturers of the goods were assumed not to be local. In other words, all goods were assumed to be imported into New

Jersey and the money retailers had to spend to get the goods is lost to the overall impact (leakage).

5. To use IMPLAN, the user has to allocate the amount of expenditures that represents the change in demand or activities being assessed to certain (one or more) IMPLAN industrial sectors.

Each expenditure category from the survey was matched with an IMPLAN sector. It should be noted that some expenditure categories matched fairly well with an IMPLAN sector, for example expenditures on fuel. Other expenditure categories did not match as well because certain IMPLAN industrial sectors include a wide range of business activities and NAICS codes. Assumptions as to where and in what circumstances various expenditures were made in order to allocate them as closely as possible to an IMPLAN industrial sector. A complete list of expenditure categories and their corresponding IMPLAN sectors is provided in Table 1 of Appendix C.

The survey results were then used to estimate the amount of boating-related expenditures (by category of expenditures) that were made by all registered boaters in New Jersey. This method uses survey average expenditures by category of expenditure by county and by boat class together with weights to obtain total expenditures in New Jersey by county and boat class. The weights were developed on the assumption that the responsive boaters represent the entire population of boaters for a given county and boat types. The sum of expenditures across boat types and counties gave the total amount of expenditures by category of expenditures.

The total trip-related expenditures were developed using the survey average spending per trip by category of expenditures by boat class and in combination with (1) the number of trips made in New Jersey, and (2) the average use pattern of the various boats across the state.

3.0 RESULTS

Of the 4,000 surveys distributed, a total of 1,078 responses were received, representing a survey response rate of 26.9%. The following sections summarize the responses to the survey questions.

3.1 NEW JERSEY'S REGISTERED BOATS

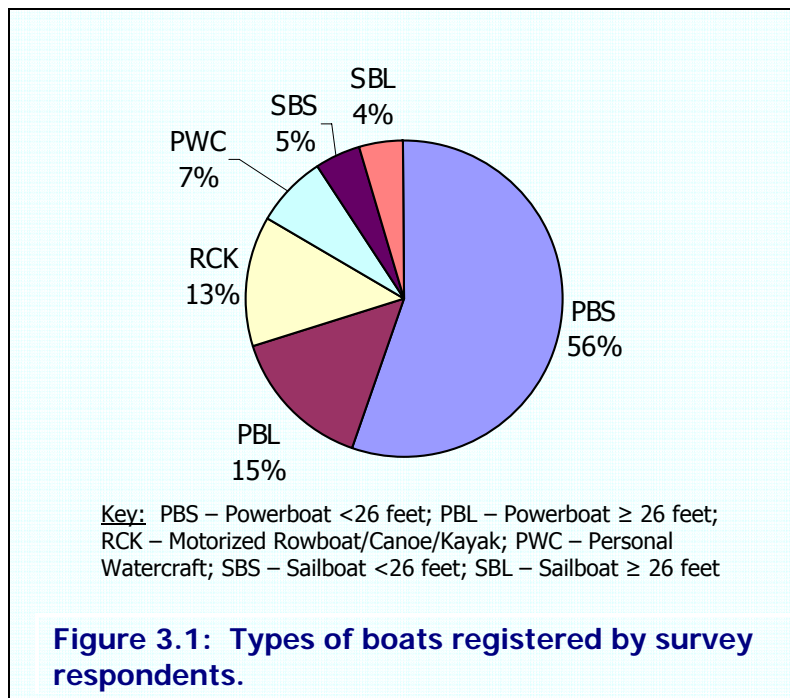
Survey respondents were asked how many boats they have registered in New Jersey, how many of these were purchased in New Jersey, and to indicate the class of each boat. Survey recipients reported an average of 1.2 registered boats per household. Based on this response, an estimate of the total number of New Jersey's individually-owned registered boats would be $177,064 \pm 2,571$ boats. The number retrieved from the New Jersey Motor Vehicle Commission database was 176,631, which falls nearly at the center of that range, fostering confidence in survey results.

- **Boat Class and Size**

Powerboats were the most common boat class, making up 69.9% of the registered boats reported by survey respondents. Motorized rowboats, canoes and kayaks collectively were the next most common boat class, accounting for 13.5% of the registered boats, and sailboats accounted for 9.1%. Personal watercraft was the least common boat class, making up 7.4% of the reported boats. Many non-motorized boats do not require registration by the NJMVC and are therefore not included in this analysis. These boats

include non-motorized boats that are used exclusively in lakes and canoes and kayaks.

When the boat classes are broken down further to consider the size of the vessels, small powerboats (< 26 feet) appear to be the most common class of boat, accounting for about 55.3% of the total number of reported boats. Large sailboats (≥ 26 feet) were the least common boat class. The

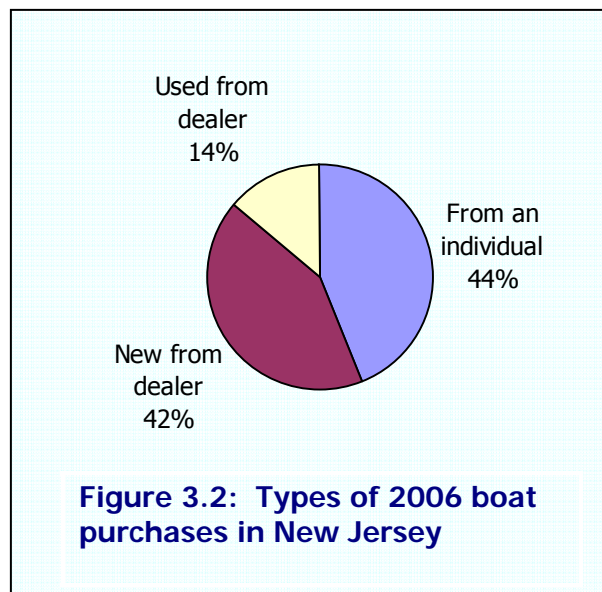


boat classes and the percent breakdown of registered boats by boat class are displayed in Figure 3.1.

- **Boat Purchase**

Survey respondents were asked to indicate how many of their registered boats they purchased in New Jersey, and the average response was slightly below 1.2 boats per person. Based on this result, it is estimated that approximately $173,719 \pm 4,516$ or about 98.1% of New Jersey's registered boats were purchased within the state. In a subsequent question, respondents were asked to indicate whether or not they actually purchased the boat that they used most commonly in New Jersey in the past year. The results indicate that 22.5% of the respondents purchased their boat in the state in 2006. The remaining 77.5% either purchased their boat in New Jersey prior to 2006 or purchased the boat in another state.

Survey respondents that purchased their boats in New Jersey in 2006 were then asked whether they purchased it new from a dealer, used from a dealer or from an individual. The purchase of boats from an individual as well as a new boat from a dealer were the top responses, accounting for 43.8% and 42.4% respectively, only 13.8% purchased used boats from a dealer. The responses are presented in Figure 3.2.



- **In-Season Boat Location**

Survey respondents were asked to name the county where they kept their most frequently used boat during the boating season. Respondents indicated that, during the boating season, 27.9% of these boats are kept in Ocean County, and approximately 11.9% are kept in Monmouth County. About 7.9% and 7.6% of the boats are kept in Atlantic and Cape May counties, respectively. Less than 1% of boats were kept in Hudson and Essex counties during the boating season. The percent of boats kept in each county during the boating season is presented in Table 3.1.

Table 3.1: Percent of where New Jersey's registered boats are kept during the boating season by county.

County	Number of Responses	Percent
Atlantic	68	7.90% ± 2.0%
Bergen	21	2.50% ± 1.3%
Burlington	31	3.80% ± 1.3%
Camden	21	2.20% ± 1.1%
Cape May	91	7.50% ± 1.0%
Cumberland	37	2.60% ± 0.7%
Essex	6	0.90% ± 0.6%
Gloucester	29	2.50% ± 0.7%
Hudson	6	0.70% ± 1.1%
Hunterdon	24	1.90% ± 0.6%
Mercer	19	1.60% ± 0.7%
Middlesex	45	4.00% ± 0.5%
Monmouth	107	11.90% ± 0.8%
Morris	66	6.10% ± 0.8%
Ocean	354	27.90% ± 0.5%
Passaic	29	3.10% ± 0.5%
Salem	13	1.30% ± 0.5%
Somerset	15	1.80% ± 0.5%
Sussex	42	4.30% ± 0.6%
Union	15	1.20% ± 0.6%
Warren	13	1.50% ± 3.6%
Other	26	2.80% ± 0.6%

When asked where they keep their boat during the boating season, 65.9% of the respondents indicated that they keep their boats at private residences (either in or out of the water). Of the 714 respondents that reported keeping their boat at a residence, about one-half kept their boat out of the water. Most (87.1%) of the 346 respondents that reported keeping their boats at a marina during the boating season

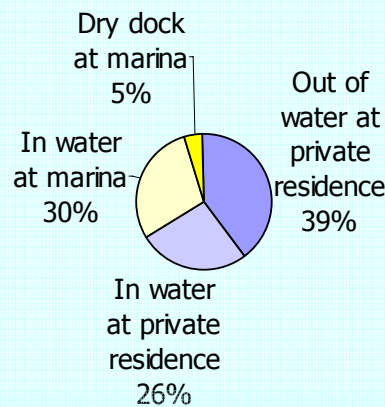


Figure 3.3: Boat location during the boating season.

kept their boats in the water. Figure 3.3, above shows the percent response for each type of boat storage during the boating season.

- **Off-Season Boat Storage**

When asked where they keep their boats during the off-season, 76.8% of the survey respondents indicated that they kept their boats at a private residence. The remaining 23.2% stored their boats at a marina during the off-season.

3.2 BOAT OUTINGS IN NEW JERSEY

Survey recipients were asked several questions about their boat outings. The questions related to gaining access to waterways, the purpose of the outings, and their favorite destinations. The following sections summarize the survey response relating to the boat outings.

- **Access to Waterways**

The survey respondents were asked to select the type of vehicle they used to get to their water access point. Approximately 68.1% of the 995 respondents to this question reported using an SUV or Truck to travel to their access point while 20.2% reported using a car (Figure 3.4).

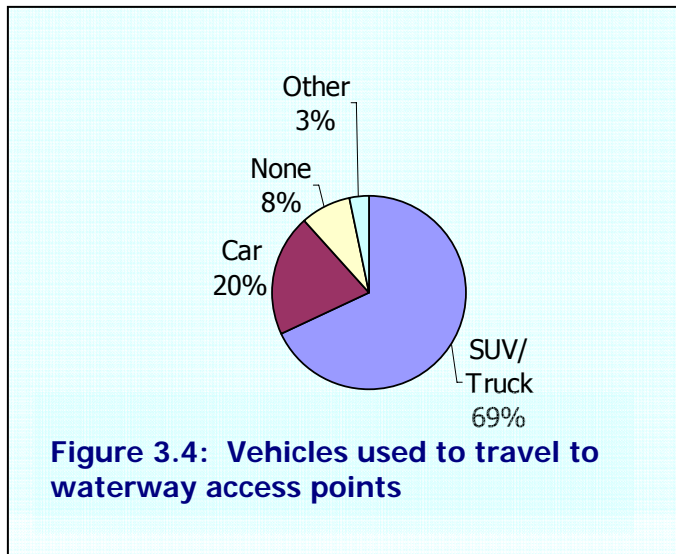
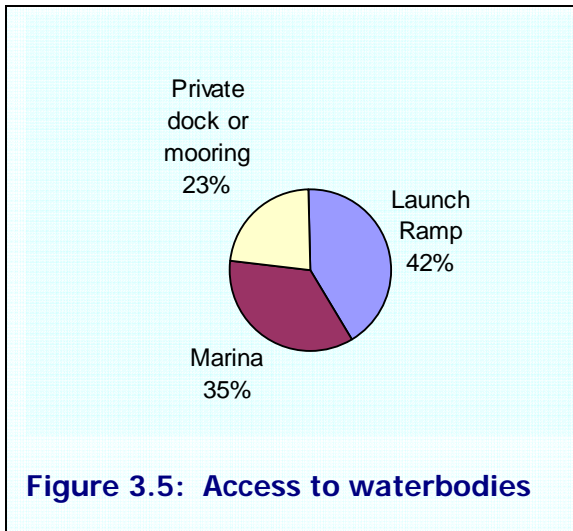


Figure 3.4: Vehicles used to travel to waterway access points

Respondents were then asked their average distance traveled in order to gain access to the New Jersey waterways, the results indicate that the boaters travel an average distance of 27.3 miles one-way to get to their boating access points.

When asked how they gain access to New Jersey waters with the boat they use most frequently, about 41.3% of survey respondents reported using a launch ramp, 35.3% reported gaining access at a marina, and 23.4% reported using a private dock or mooring. Figure 3.5 provides the percent response for each way to access New Jersey's waterways.



who participated in the outings, the average response was 4.0 people.

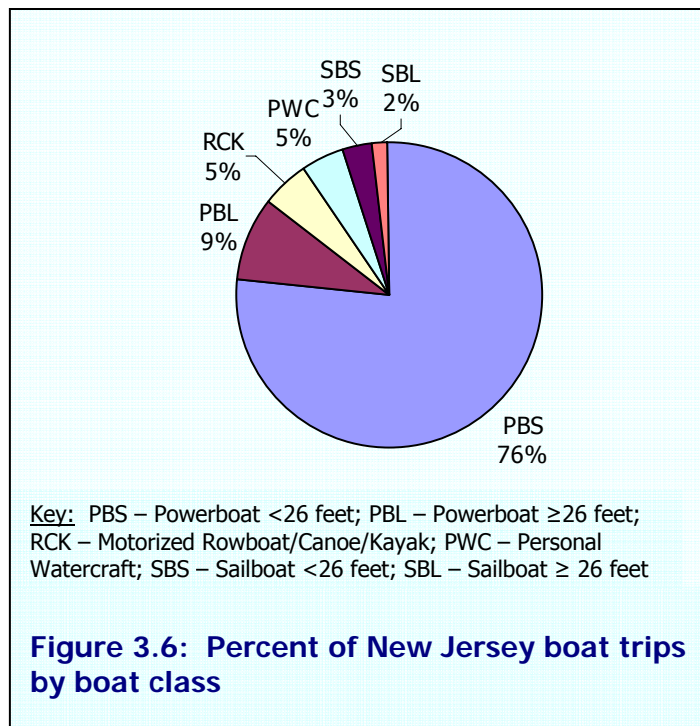
According to survey response, small powerboats were by far the most commonly used boat class for boating trips in New Jersey in 2006. Trips with smaller powerboats (<26 feet) accounted for 76.3% of all trips made in the state. Larger powerboats (≥ 26 feet) were used for 9.1% of the trips. Figure 3.6 provides a breakdown of the percent of boat trips in 2006 by boat class.

Survey respondents were asked to indicate the number of overnight boating trips they made in 2006. About 40% of the survey respondents indicated that they took overnight boating trips in 2006. For those boaters that took overnight trips in 2006, the average number of overnight trips was 2.2. Survey response indicates that New Jersey boaters took an estimated $314,581 \pm 97,290$ overnight trips in 2006.

When evaluating the average number of overnight trips by most frequently used boat class, large powerboats (≥ 26 feet) were used for an average of 4.4 ± 1.5 overnight trips in 2006. On average, large powerboats were used on overnight trips 4.4 times per year.

• Boat Trips

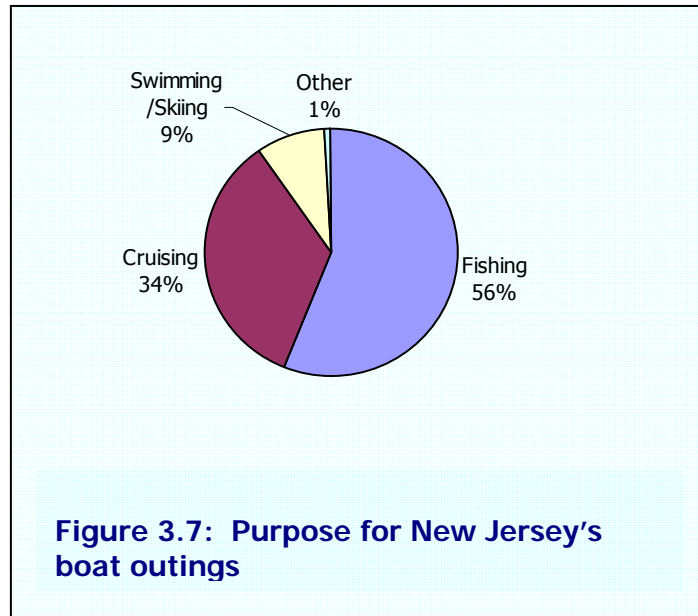
The survey recipients were asked to estimate the total number of boat trips they made in New Jersey waters in 2006 and were asked to estimate the percent of these trips taken by each type of boat they own. Based on survey response, the average New Jersey boater took 28.1 trips during 2006. This is consistent with the nationwide average of 31 days in 2006 reported by the NMMA (NMMA 2007a). When asked the average number of people



Large sailboats (≥ 26 feet) were also used more frequently than average for overnight trips: on average 3.8 ± 2.1 . Smaller powerboats were used for an average of 1.8 ± 0.8 overnight trips per year.

• Purpose for Outings

Survey respondents were asked the primary purpose of their boat outings in 2006. The breakdown of the primary outing purpose is provided in Figure 3.7. Fishing was the primary purpose reported for most (55.8%) boat trips taken in New Jersey. The second most common purpose reported was cruising, with an estimated average of 34.3%. This is consistent with national surveys reporting that fishing and cruising are the most common boating activity (USFWS 2007, NMMA 2007a).



• Boating Destinations

Respondents were asked to indicate the states in which they boat, and were asked what percent of their 2006 outings were in each of the states. Survey response indicated that 91.0% of the trips made by New Jersey boaters were within state in 2006. The next most popular destination state listed was New York, constituting 3.7% of all trips made by New Jersey boaters. Approximately 2.0% of trips were made in Pennsylvania. Other states that were listed but did not account for 1% of the trips were Florida, Delaware, North Carolina, Maryland, Virginia, Maine and South Carolina (Table 3.2).

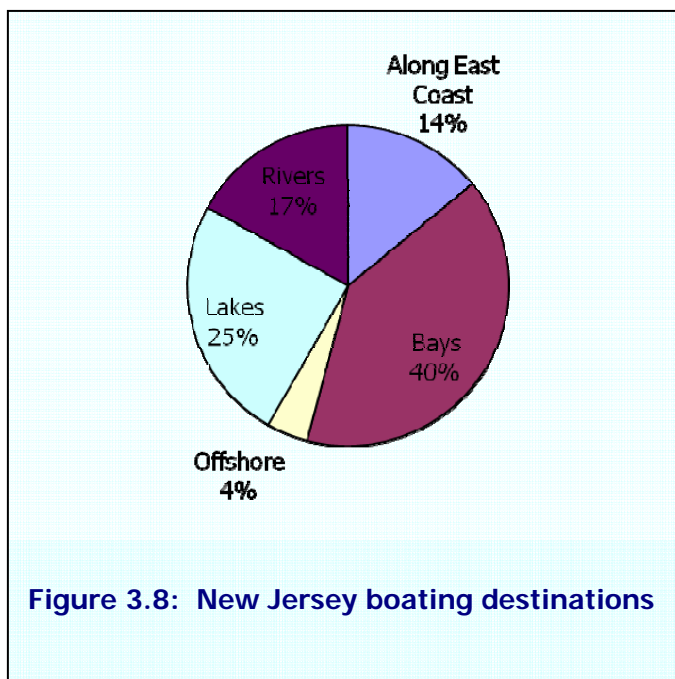
Table 3.2: Percentage of trips made by New Jersey boaters by state

County	Number of Responses	Average
New Jersey	967	91.0% ± 1.7
New York	967	3.7% ± 0.2
Pennsylvania	967	2.1% ± 0.4

Table 3.2 (cont'd)

County	Number of Responses	Average	County
Maryland	967	0.8%	± 0.1
Maine	967	0.5%	± 1.0
Other	967	0.4%	± 0.8
Virginia	967	0.4%	± 0.0
Delaware	967	0.4%	± 0.5
Florida	967	0.4%	± 0.5
North Carolina	967	0.3%	± 0.3
South Carolina	967	0.0%	± 0.6

The respondents were then asked to select the type of waterbody they most frequently boat in. The average percent of responses per waterbody type presented in Figure 3.8.

**Figure 3.8: New Jersey boating destinations**

Bays were the most common type of destination waterbody selected by 40.0% of survey recipients. The second most frequented waterbody was lakes, selected by about 24.8% of survey respondents.

When asked to provide specific boating destinations (waterbody and county), survey respondents provided more than 1,850 responses. The questionnaire provided space for up to 4 waterbodies. The most commonly listed destination waterbody was Barnegat Bay or Barnegat Inlet,

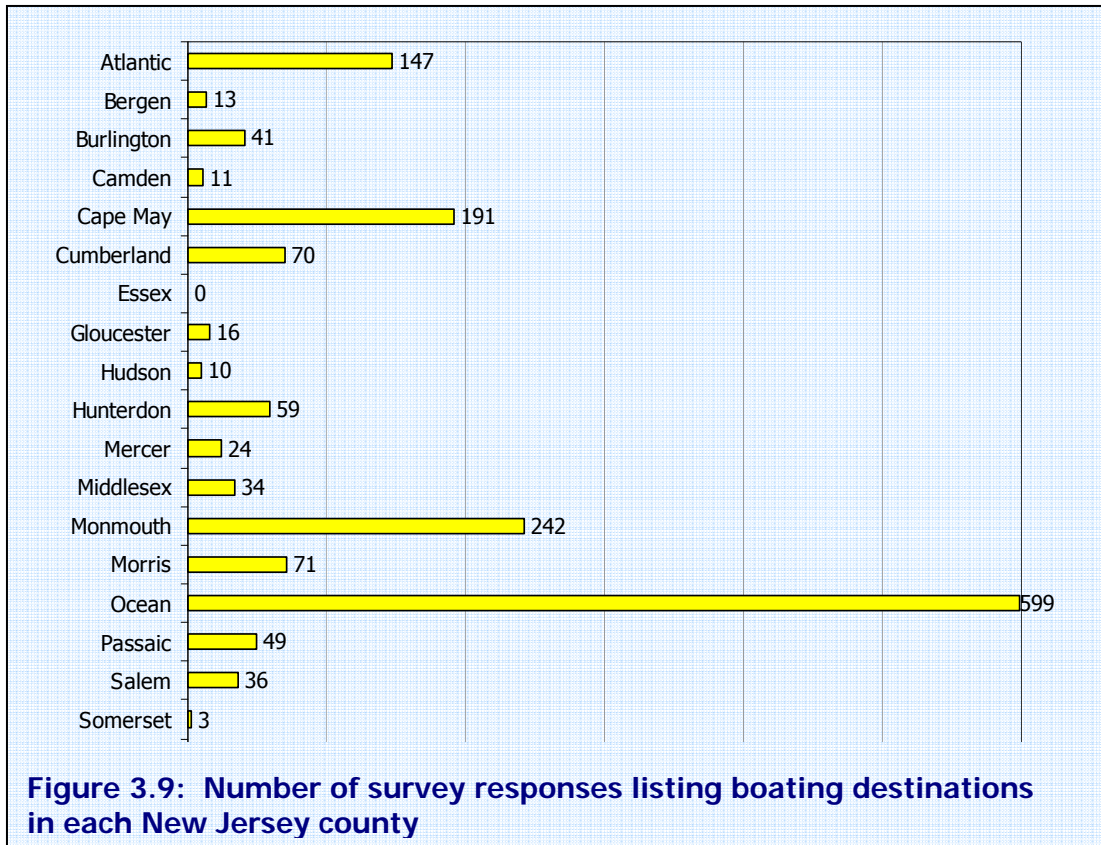
listed by 288 survey respondents, making up about 15.6% of the responses. Other commonly listed waterbodies were the Atlantic Ocean (212, 11.5%), the Delaware River or Delaware Bay (169, 9.1%) and the Raritan River or Raritan Bay (100, 5.4%). Table 3.3 provides the most commonly reported destination waterbodies.

When looking at the listed boating destinations by county, Ocean County is by far the most commonly reported destination county. Destinations in Ocean County made up about 35.1% of the 1,669 destinations where survey respondents provided a county.

Table 3.3: Waterbodies listed by survey respondents

Waterbody Name	Number of Respondents
Barnegat Bay and Inlet	288
"Atlantic Ocean" or "Ocean"	212
Delaware River or Bay	169
Raritan River or Bay	100
"Hopatcong" or "Lake Hopatcong"	79
Great Bay	70
"Sandy Hook" or "Sandy Hook Bay"	59
Manasquan River or Inlet	55
Round Valley Reservoir	45
Navesink River	42
Great Egg Harbor or Inlet	37
Shrewsbury River	33
Greenwood Lake	30
Little Egg "Harbor" or "Inlet"	30
Mullica River	30
"Intercoastal Waterway" or "Inland Waterway"	30
Toms River	22
Spruce Run	20
Maurice River	18
Hudson River	17
Metedeconk River	17
Absecon	16
Cape May	16
Manahawkin	11
Silver Lake	10

Boating destinations in Monmouth County and Cape May County were also commonly reported, making up 14.2% and 11.2% of the total, respectively. Figure 3.9 provides the number of survey responses that listed boating destinations in each New Jersey County.



3.3 SOCIOECONOMIC PROFILE OF NEW JERSEY BOATERS

Survey recipients were asked to indicate their age, gender, annual household incomes, marital and employment statuses among other socioeconomic categories. The purpose of these questions was to develop a socioeconomic profile of the recreational boaters in New Jersey. The following sections discuss the response to these questions.

Most (91.3%) of the respondents were males, and 60% of the respondents were between the ages of 46 and 65. The number of survey respondents in each age class is provided in Figure 3.10.

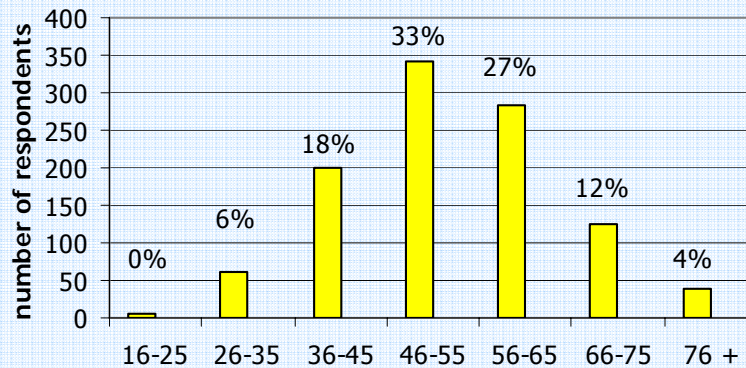


Figure 3.10: Age of Survey Respondents

When asked to provide their marital status, most (78.8%) of the survey respondents reported that they are married, and 10.3% reported that they are single. The percent of survey respondents within each class of marital status is presented in Figure 3.11.

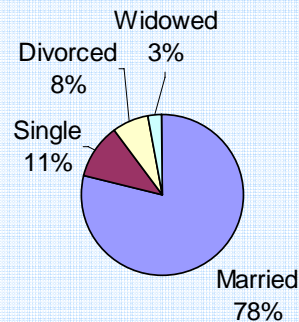


Figure 3.11: Marital status of Survey Respondents

Most (69.4%) of the survey respondents are employed full-

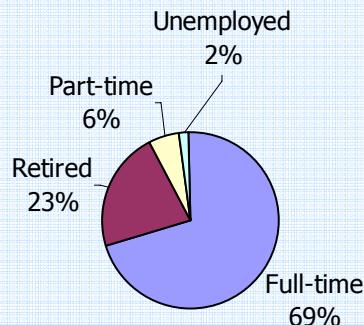


Figure 3.12: Employment status of survey respondents

time, and 22.9% are retired. The percent of respondents in each class of employment status is provided below in Figure 3.12.

To better estimate the size of the entire boating population, the survey form asked respondents to report the number of persons currently living in the household within specified age ranges. The number and percent of the individuals falling within each

age range is provided in Figure 3.13. The average household size for survey respondents

is 2.7 ± 0.1 . Survey results indicate that approximately 399,000 New Jersey residents reside in homes with boats.

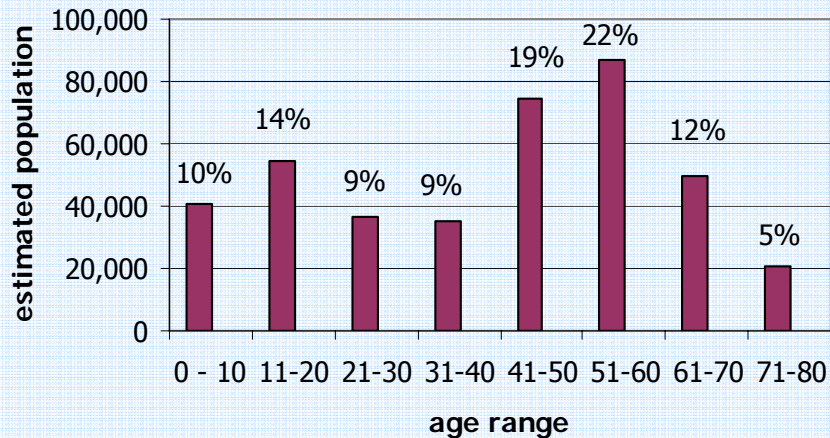
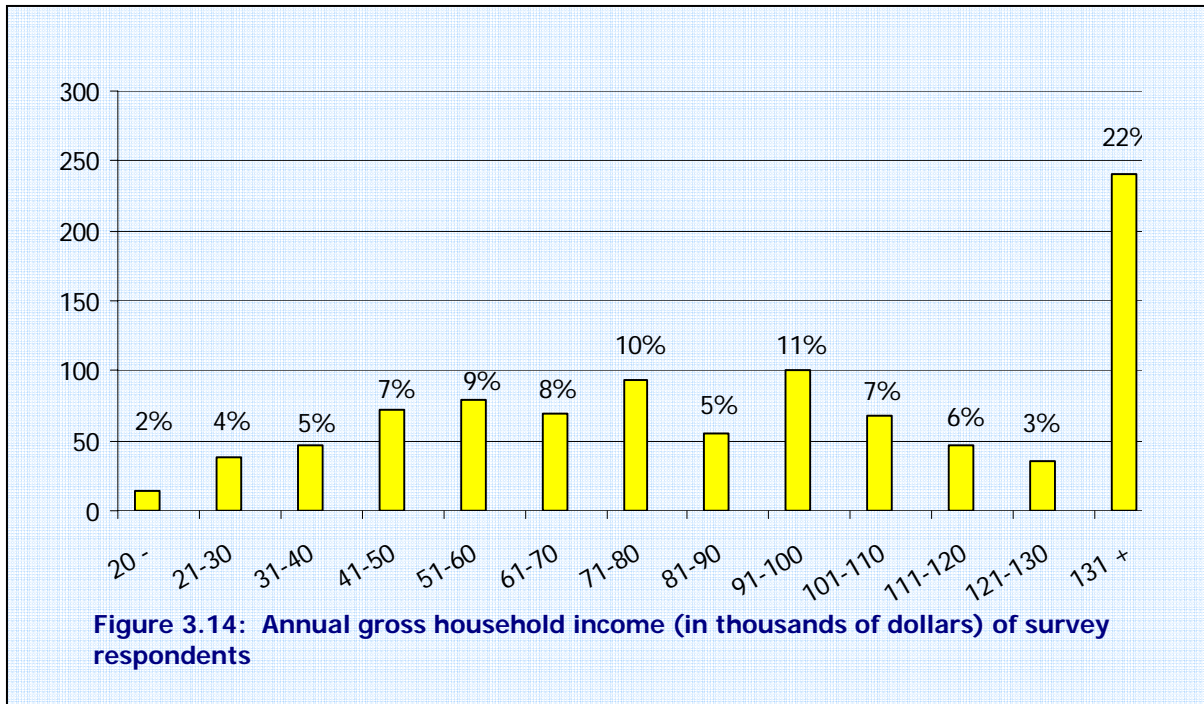


Figure 3.13: Estimated population of recreational boating households

Survey respondents were asked to report their total annual household income before taxes. When compared to the 2006 national and state median household incomes of 48,451 and 64,470 respectively, New Jersey recreational boaters have significantly higher incomes (U.S. Census Bureau 2007). About 22.0% of the respondents indicated that their gross household income exceeds \$131,000. Figure 3.14 provides the number and percent of respondents within each gross income bracket. New Jersey boaters also have significantly higher incomes than the average income of boaters throughout the country. Nationwide, only 10.0% of recreational boaters reported annual household incomes exceeding \$100,000. About one-half (48.2%) of recreational boaters reported household incomes of less than \$50,000 per year (NMMA 2007a). Only 18.7% of New Jersey survey respondents reported household incomes of \$50,000 or less.

3.4 CONCERNS OF THE BOATING POPULATION

Survey respondents were asked the question: “what do you consider to be the most important issues facing New Jersey boaters?” and were provided open space to answer the question and provide additional comment. Of the 1,078 survey respondents, 702 provided an answer to this question. Safety, pollution, fishing restrictions and other regulations were the most commonly reported issues. Of those that provided an answer to this question, 17.8% listed safety as a main concern. Others specified particular safety



issues including: “inexperienced boaters” (13.2%), “lack of enforcement” (6.0%), and “alcohol use” (2.8%). Respondents indicated concerns over fishing issues, such as “fishing restrictions” (14.8%) and “fish populations” (7.1%). Infrastructure deficiencies were reported by numerous respondents, including: “shallow channels” (10.1%), “poor access to waterways” (8.8%), “too few marinas” (6.4%), “navigational aids” (3.7%) and “poor condition of launches” (3.7%). The costs of boating were also a concern, including: “fuel costs” (13.8%), “launch ramp fees” (3.7%) and “marina fees” (3.7%). Table 3.4 below provides the percent response for the most commonly reported concerns.

Table 3.4: Boating-related issues reported by survey respondents.

Issue	% Response
Safety	17.8%
Pollution	15.5%
Fishing Restrictions	14.8%
Regulations	14.0%
Fuel Costs	13.8%
Inexperienced Boaters	13.2%
Shallow Channels	10.1%
Poor Access to Waterways	8.8%
Overcrowded Waterways	7.8%

Table 3.4 (cont'd)

Issue	% Response
Fish Populations	7.1%
Too few Marinas	6.4%
Lack of Enforcement	6.0%
Personal Watercraft/Jetskis	4.8%
Poor Condition of Launches	3.7%
Navigational Aids	3.7%
Launch Ramp Fees	3.7%
Taxes	3.7%
Marina Fees	3.7%
Alcohol Use	2.8%

3.5 BOATING EXPENDITURES

Boaters were asked to provide information about the amount of money they spent on boating in 2006. The expenses were categorized as those that were spent on a typical outing and annual boating expenses. The survey form provided a list of common expenses and provided additional space for the respondents to include other costs. Survey results indicate that New Jersey's registered recreational boaters spend approximately \$938 million each year in annual boating-related expenses and \$1.1 billion on trip-related purchases in New Jersey. This is a total of more than \$2 billion spent in New Jersey on recreational boating expenditures. The following sections describe the reported expenditures.

- **Expenditures for Typical Outings**

Survey respondents indicated that the total average cost of a typical boat trip was \$273 ± \$42. Fuel ranked as the costliest trip-related expense. The average cost of boat fuel (gasoline) per trip was \$60 ± \$16, and the average cost of fuel to get to the launch or access point was \$24 ± \$5. Other large expenses included fishing supplies (\$37 ± \$10), restaurants (\$36 ± \$6) and boat accessories (\$35 ± \$11). Table 3.5 provides the average costs of trip-related expenditures by category.

Table 3.5: Average trip-related expenditures for survey respondents.

Category	Average
Fuel for Transportation to launch site	\$24 ± \$5
Restaurant meals/drinks	\$36 ± \$6
Boat fuel: Gasoline and Diesel	\$71 ± \$24
Groceries	\$21 ± \$5
Boat accessories	\$35 ± \$11
Overnight lodging	\$10 ± \$6
Fishing supplies	\$37 ± \$10
Shopping/Souvenirs	\$9 ± \$12
Launch fees	\$9 ± \$2
Entertainment	\$5 ± \$2
Temporary docking	\$10 ± \$7
Other	\$6 ± \$5
<i>Average trip-related expenditures (total)</i>	\$273 ± \$42

The average trip-related expenditures for large powerboats (≥ 26 feet) are far greater than for any other boat class. Although there was a wide range in the reported costs, these boat owners reported higher average costs for boat fuel ($\$204 \pm \145) fishing supplies ($\$83 \pm \47) and temporary docking ($\$31 \pm \26) than owners of other boat classes. Table 3.6 below provides the number of survey respondents and the average total trip-related expenditures for each boat class. For a more detailed breakdown of the trip-related boating expenditures by boat class, refer to Appendix B.

Table 3.6: Average total trip-related expenditures reported by survey respondents for each boat class.

Boat Class	Number of Respondents	Avg. Total Trip Expenditures
Powerboat (<26')	729	\$242 ± \$47
Powerboat ($\geq 26'$)	123	\$632 ± \$205
Sailboat (<26')	32	\$152 ± \$107
Sailboat ($\geq 26'$)	24	\$378 ± \$212
Personal Watercraft	43	\$184 ± \$84
Motorized Rowboat/Canoe/Kayak	38	\$191 ± \$97

- **Annual Boating Expenditures**

On average, survey respondents reported spending a total of \$6,340 ± \$930 on annual boating-related expenditures. Of these expenditures, the cost of boat purchase ranked as the highest, \$2,980 ± \$823. Seasonal rental charges for slips and moorings ranked as the second highest expenditure, costing \$726 ± \$82 in 2006. Table 3.7 provides a breakdown of the average annual boating-related expenditures.

Table 3.7: Average annual boating-related expenditures

Category	Average
Purchase of boat	\$2,980 ± \$823
Seasonal slip/mooring rental	\$726 ± \$82
Annual boat loan payment	\$444 ± \$103
Winterization and off-season storage	\$388 ± \$36
Engine maintenance repair	\$343 ± \$79
Boat and/or towing insurance	\$292 ± \$25
Fishing equipment	\$217 ± \$29
New and/or replacement electronics	\$189 ± \$41
Other boating supplies	\$93 ± \$14
Put-in/haul-out charges	\$81 ± \$14
Bottom paint	\$74 ± \$10
Taxes/registration fees	\$64 ± \$15
Scuba diving equipment	\$63 ± \$53
Boating clothing	\$61 ± \$7
Trailer maintenance/repair	\$55 ± \$15
Other	\$51 ± \$24
Boat club/association fees	\$48 ± \$17
Electronic/electrical repair	\$33 ± \$9
Hull repair	\$32 ± \$14
Race/Regatta/tournament fees	\$25 ± \$11
Boating education/instruction	\$22 ± \$9
Water skiing equipment	\$21 ± \$6
Boater education	\$19 ± \$4
New and/or replacement sails/rigging	\$18 ± \$9
Total annual expenditures	\$6,340 ± \$910

When looking at the total annual boating-related expenditures by boat class, it is clear that the type of boat owned largely influences the annual boating-related expenditures.

Respondents that used large boats (≥ 26 feet) most frequently reported the greatest annual boating-related expenditures. The average annual boating-related expenditures for large powerboats was $\$21,914 \pm \$6,685$, far greater than any other boat class. Respondents that used large sailboats reported an average of $\$8,629 \pm \$2,774$ in annual expenses. Table 3.8 below provides the average annual boating-related expenditures for 2006 for each boat class.

Table 3.8: Average total annual boating-related expenditures reported by survey respondents for each boat class.

Boat Class	Number of Respondents	Avg. Total Annual Expenditures
Powerboat (<26')	732	\$4,996 \pm \$805
Powerboat ($\geq 26'$)	127	\$21,914 \pm \$6,685
Sailboat (<26')	33	\$4,155 \pm \$2,734
Sailboat ($\geq 26'$)	25	\$8,629 \pm \$2,774
Personal Watercraft	45	\$2,846 \pm \$1,620
Rowboat/Canoe/Kayak	36	\$577 \pm \$381

3.6 ECONOMIC IMPACT ANALYSIS

Table 3.9 on the next page shows the estimated total expenditures made in New Jersey by all New Jersey boaters. The table shows that total boating-related expenditures amounted to almost \$2.1 billion. Trip-related expenditures exceeded \$1.1 billion, and annual non-trip expenditures amounted to \$938 million.

The results of the impact assessment are shown in the tables that follow. Table 3.10 shows the summary of impacts by category (output, value added, employment, labor income, and tax revenue.) and type of effect (direct, indirect and induced). Overall, boater spending in New Jersey had an output impact of about \$1.1 billion in direct effects. These direct effects in turn spurred indirect and induced economic activity, thus raising total output to \$1.8 billion. About 62 percent of total output is effectively a value added to the state economy. Boating expenditures also created nearly 18 thousand jobs in New Jersey and generated \$307 million in tax revenue (\$167 million in federal taxes and \$142 million in state/local taxes). Note that total output impact (\$1.8 billion) is less than total boaters' expenditures (\$2.1 billion) because of leakages in sectors of the economy benefiting (directly or indirectly) from boaters' spending.

Table 3.9: Total Boating Related Expenditures in New Jersey

Category	Expenditures in 2006
• Trip Related Expenses in NJ	
Boat fuel (gasoline)	\$246,090,553
Fishing supplies	\$151,792,689
Restaurant meals	\$149,184,942
Boat accessories	\$145,380,583
Fuel for transportation to launch site	\$103,150,528
Groceries	\$87,366,100
Boat fuel (diesel)	\$45,054,100
Temporary docking	\$41,843,854
Overnight lodging	\$40,985,919
Shopping/Souvenirs	\$38,778,631
Launch fees	\$38,376,499
Entertainment	\$18,769,845
Other	\$23,921,703
Total Trip Related Expenditures	\$1,130,695,946
• Non-Trip or Annual Boat Related Expenses in NJ	
Purchase of boat	\$441,028,956
Seasonal slip	\$107,501,051
Annual boat loan payment	\$65,765,971
Winterization and off-season storage	\$57,479,501
Engine maintenance/repair	\$50,715,901
Boat and/or towing insurance	\$43,141,128
Fishing equipment	\$32,120,489
New and/or replacement electronics	\$27,911,866
Other boating supplies	\$13,694,308
Put-in/Haul-out charges	\$11,967,215
Bottom paint	\$10,992,817
Taxes/Registration fees	\$9,544,315
Scuba diving equipment	\$9,331,104
Boating clothing	\$9,005,833
Trailer maintenance/repair	\$8,186,344
Boat club/association dues	\$7,084,145
Electronic/Electrical repair	\$4,932,008
Hull repair	\$4,709,623
Race fees	\$3,746,032
Boating magazines/publications	\$3,292,548
Water skiing equipment	\$3,164,812
Boater education/instruction	\$2,768,062
New and/or replacement sails/rigging	\$2,629,563
Other	\$7,506,126
Total Annual Boat Related Expenditures	\$938,219,717
Grand Total Recreational Boating Expenditures	\$2,068,915,663

Table 3.10: Summary of Impacts (in millions of dollars)

Impact Category	Direct	Indirect	Induced	Total
Output	\$1,066	\$322	\$409	\$1,797
Value Added	\$683	\$188	\$247	\$1,119
Employment	12,744	2,163	3,035	17,942
Taxes				\$307
Federal Taxes				\$167
State/Local Taxes				\$142

The results shown in Table 3.9 and Table 3.10 can be used to derive aggregate-level multipliers of expenditures, i.e. the expected impacts, output, number of jobs, labor income, and tax revenue per \$1 (or a multiple of it) of boating-related expenditures. The results of this calculation are shown in Table 3.11 below. The table shows that each dollar of boating-related expenditures generates \$0.87 in business output, \$0.54 in state gross domestic product (GDP), and \$0.15 in tax revenues in various levels of government. Also, each \$1 million of boating-related expenditures generates 8.6 jobs in the state.

Table 3.11: Aggregate Multipliers of Boating Related Expenditures

Type of Impact	Definition	Multiplier
Output	Total business output per \$1 of boating-related expenditures	\$0.87
Value added	Total value added per \$1 of boating-related expenditures	\$0.54
Employment	Total number of jobs per \$1 million of boating-related expenditure)	8.67
Tax revenues	Total tax revenue per \$1 of boating-related expenditures	\$0.15

In addition to industries where boating expenditures occur, other sectors of the economy are impacted through the indirect and induced effects. Table 3.12 lists the top ten industries impacted and shows the combined indirect and induced impacts (output and jobs) associated with boating expenditures. Industries are ranked according to their combined indirect and induced output impact. Real estate is the sector that generated the most indirect and induced output (\$52.7 million), followed by wholesale trade (\$39.3 million).

Table 3.12: Top Ten Industries Impacted

Industry	Total Output	Total Jobs
Food services and drinking places	\$175,786,000	3,193
Motor vehicle and parts dealers	\$100,253,480	714
Real estate	\$52,809,108	314
Wholesale trade	\$39,371,168	177
Management of companies and enterprises	\$29,259,942	109
Hospitals	\$23,992,968	196
Offices of physicians, dentists, and other health practitioners	\$22,217,708	178
Legal services	\$13,087,375	97
Advertising and related services	\$11,123,738	81
Accounting and bookkeeping services	\$9,278,496	78

Note: Total output is presented according to their combined indirect and induced output impact.

4.0 COMPARISON WITH OTHER SURVEYS

Several studies have quantified the impact of recreational boating on their state's economy. Of particular interest to this study are the economic impact analyses conducted on recreational boating in Maryland in 2006 and New York in 2003 (Lipton 2007 and New York Sea Grant 2004). The Maryland study was based on an economic model created from 1995 and 2000 mail-in survey data. The New York survey was conducted through a mail-in survey similar to the current study.

When comparing the impact of recreational boating on the New Jersey economy with other studies, it is important to note that there are several factors that could lead to the discrepancy between studies. The value of the dollar has changed over the years, and the cost of goods and services has increased. In particular, the price of gasoline increased substantially between 2003 and 2006. Fuel is one of the costliest expenditures for recreational boaters.

The number of registered recreational boats and boat owners at the time of the New Jersey, New York and Maryland studies is presented in Table 4.1.

Table 4.1: Comparison of Registered Boats and Boaters by State

State	Number of boat owners registered	Number of boats registered
New Jersey (2006)	148,707	176,631
Maryland (2006)		208,837
New York (2003)	371,022	508,300

Although the number of registered boats varied between the surveys, the total boating-related expenditures were similar among states. The total amount spent on boating in New Jersey (2006), Maryland (2006) and New York (2003) were found to be approximately \$2.1 billion, \$2.5 billion and \$2.4 billion, respectively. New Jersey boaters reported substantially higher trip-related expenditures than New York boaters, and Maryland did not report the annual and trip-related purchases separately. New Jersey boaters reported approximately \$1.1 billion in trip-related purchases in 2006 and New York boaters spent approximately \$431 million on trip-related purchases in 2003 (NYSG 2004). When comparing the differences in trip-related expenditures between New York and New Jersey, there is a large difference in reported fishing expenditures. In New Jersey in 2006, fishing-related purchases were responsible for \$133 million more than it is in New York in 2003.

In contrast to the trip-related expenditures, respondents to the New York (2003) survey reported more than twice the amount of annual non-trip boating expenditures than New Jersey boaters. New York boaters reported \$2.0 billion in non-trip expenditures, whereas New Jersey respondents reported non-trip expenditures of \$938 million per year. Of these annual non-trip expenditures, the main difference between the New York and New Jersey studies is the amount spent on purchasing boats. New York boaters reported spending \$1.2 billion per year on boat purchases and New Jersey boaters reported spending \$441 million per year on boat purchases. Table 4.2 below provides the annual boating and trip-related expenditures reported by each of these studies.

Table 4.2: Annual Expenditures and Output for recreational boaters by State (in millions of dollars)

State	Total	Annual trip-related expenditures	Annual boating-related expenditures (including boat purchase)	Annual purchase of New/Used Boats
New Jersey (2006)	\$2,069	\$1,130	\$938	\$441
Maryland (2006)	\$2,501	N/A	N/A	N/A
New York (2003)	\$2,418	\$431	\$2,000	\$1,200

Recreational boating has a substantial economic impact in New Jersey, Maryland and New York. When comparing the economic impact among these states, the industry has nearly equal output impacts in each state, of \$1.8 billion. Recreational boating contributes similar numbers of jobs in New Jersey and New York, and substantially higher in Maryland. Similarly, the labor income impact is greatest in Maryland. Table 4.3 provides a comparison of the economic impacts of recreational boating in New Jersey in 2006 to those from Maryland in 2006 and New York in 2003.

Table 4.3: Economic Impact of Recreational Boating in New Jersey, Maryland and New York

	New Jersey (2006 dollars)	Maryland (2006 dollars)	New York (2003 dollars)
Total Boating Expenditures	\$2.069 billion	\$2.501 billion	\$2.418 billion
Output Impact	\$1.797 billion	\$1.797 billion	\$1.834 billion
Value Added Impact	\$1.119 billion	N/A	\$1.156 billion
Employment Impact	17,942 jobs	31,755 jobs	18,702 jobs
Labor Income Impact	\$678 million	\$1,142 million	\$728 million

5.0 CONCLUSIONS

Survey results indicate that New Jersey's recreational boaters spent approximately \$2.1 billion on their pastime in 2006. After accounting for leakages to other states' economies (e.g. through the purchase of goods manufactured in another state) in-state recreational boating contributed \$1.8 billion to New Jersey's economy in 2006. This is a substantial figure when compared to the state's Gross Domestic Product, which was reported as \$320 billion by the U.S. Department of Commerce Bureau of Economic Analysis (BEA) 2006 estimates (BEA 2008).

It is important to note that there are additional economic contributions of the boating industry that were not captured by this analysis. The survey was designed to capture the economic impact resulting from expenditures by New Jersey residents. This figure does not include the expenditures of boaters from other states who visit New Jersey's waters, or boaters that are not required to register their boats due to boat class. The recreational boating industry also consists of fishing party boats and charter boats that were not captured in this analysis. In addition, this figure does not include the economic impact of the in-state manufacturers of the goods and services associated with recreational boating. For example, the 23 boat builders and 22 boat manufacturers in New Jersey that provide employment and revenue to the state's economy were not captured by this analysis (U.S. Census Bureau 2007).

Results of this analysis suggest that recreational boating contributes substantially to New Jersey's economy, and that maintaining or increasing the number of resident and transient boaters would be beneficial to the state. Causes for the decline in the number of registered boats in recent years should be evaluated. Further decreases in the number of registered boats in New Jersey could adversely affect many sectors of both the State and local economies.

The recreational boating industry is heavily concentrated in the southern coastal region of the state in Monmouth, Ocean, Atlantic and Cape May counties. In general, these counties' economies rely heavily on service businesses, retail and tourism. These counties are more vulnerable to changes in the recreational boat population.

In addition to the impact of recreational boating to the state's economy, boating is integral to the quality of life in New Jersey. Boating and boat-based fishing are commonly enjoyed pastimes throughout New Jersey. It is clearly in the interest of the state and its residents to promote boating within the state by residents and tourists, and to address the concerns of the boating population. Existing programs, such as the I BOAT NJ Program, the Clean Vessel Act Program, the NJ Clean Marina Program and boating

safety laws are helping to address the primary concerns of safety and water quality. Additional outreach campaigns may help to attract people to boating in New Jersey, and to educate people about the water quality in the state. Infrastructure upgrades, such as enhanced channel maintenance, improved launches and access facilities would further address the concerns of the boaters and boat-based businesses such as party and fishing charters.

The costs of improvements in boating infrastructure, such as channel maintenance, improved navigational aids and upgraded launch facilities should be measured against the benefits of recreational boating and boat-based businesses in New Jersey. These benefits include not only the employment and economic contributions to the state, but also include the immeasurable quality-of-life benefits that are enjoyed by many of the state's residents and tourists.

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