

**New York Sea Grant Report Series**

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**NEW YORK  
RECREATIONAL  
BOATING  
SURVEY**

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Tommy Brown  
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Cornell University  
Ithaca, New York

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In 1971, approximately 400,000 pleasure boats were registered in New York. Of these, 62% were under 16 feet in length, 32% were between 16 and 26 feet, and only 6% were over 26 feet. Ten counties accounted for 60% of the New York registered boats. New York City and Long Island accounted for 35%.

Typically, the New York boat owner was a 46 year old male, had completed 14 years of education, had an annual gross family income of \$18,250, and was most often employed in a professional or technical occupation. Of the respondents, 23% owned a second boat, and 50% had previously owned at least one other boat before acquiring their present boat.

In 1973, the average annual boat usage was 41 days. For New York this represented approximately 15.6 million boat days, or about 46 million boater days. Pleasure cruising and sport fishing accounted for 83% of all boating activities. Frequency of boat use and types of activities fluctuated with size and location throughout the state, according to migration patterns of boaters. The North Country and Finger Lake regions were the most popular: these two regions received 1.7 million excess destination boat days.

Statewide, the average annual expense of operating and maintaining a boat was \$151 for boats under 16 feet, \$482 for boats between 16 and 26 feet, and \$1,542 for boats over 26 feet. Boats in the New York City-Long Island region had significantly higher operational costs than those upstate, especially for repairs, marine supplies, and insurance.

Boaters reported the hardest services to obtain were pumpout facilities, emergency repairs, and docking space. Of the respondents, 41% used a more

distant destination facility chiefly to avoid crowding, poor facilities, or polluted waters. The biggest complaints of New York boaters were inconsiderate boaters and water skiers, crowded facilities, and polluted waters. The most important priorities for the expenditure of public monies for boating included additional launching facilities, the enactment of water pollution laws, and the education and licensing of boaters.



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## INTRODUCTION

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Boating is one of New York State's most popular outdoor recreational activities. In 1970, state recreation planners estimated that on an average summer weekend day 400,000 persons participated in boating. In New York, participation in the only outdoor recreational activities that attract more participants than recreational boating are walking, games and sports, picnicing, bicycling, and swimming. Boating ranks ahead of camping, skiing, golfing, hunting, and fishing. Between 1970 and 1990 the number of people using boats for recreation is projected to increase by 27.6%, far exceeding the projection for most other traditional outdoor recreational pursuits cited above (NYS Office of Parks and Recreation 1972).

### Fleet Size and Location

New York State ranks third in the nation after Michigan and California in the number of registered pleasure boats. In 1971, approximately 400,000 boats were registered in the state. However, since registration is required only for boats with motors, watercraft like canoes, rowboats, and sailboats without auxiliary power are excluded from these figures. Although the exact number of nonregistered boats is unknown, the New York State Office of Parks and Recreation (1972) estimated that such boats would account for at least an additional 150,000 boats, increasing the state's total number of pleasure boats to approximately 550,000 in 1971.\*

In New York, the number of boats under 16 feet long represents 62% of all registered boats: craft under 26 feet account for 93% of total registered

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\* The U S Coast Guard (1974) determined that 25% of all boats in the United States were not equipped with motors in 1973.

boats (Table 1)\*. Pleasure boats over 26 feet in length represent only 7% of the state's total fleet.

TABLE 1. NUMBER OF REGISTERED BOATS BY LENGTH, 1971

Boat Length	Number	Percent
under 16 feet	239,416	61.6
16 to 25 feet	128,058	31.4
26 to 39 feet	24,284	6.1
40 to 64 feet	1,448	0.4
65 feet or more	23	---
uncoded	2,135	0.5
<b>TOTAL</b>	<b>359,364</b>	<b>100.0</b>

Source: NYS Office of Parks and Recreation 1973

As expected, the majority of registered boats are located in the urban regions of the state (figure 1). The boroughs of New York City, combined with Nassau and Suffolk counties on Long Island, account for 34% of all registered boats and almost 65% of the boats over 26 feet long. Of the 10 leading counties in registered boats, which account for 60% of the state's total fleet, all except Jefferson are Standard Metropolitan Statistical Area Counties. These same 10 counties contained 72% of boats between 16 and 26 feet long, and 83% of boats over 26 feet (Table 2/Appendix A).

\* All tables refer only to New York State unless otherwise stated.

TABLE 2. TOP 10 COUNTIES OF BOAT REGISTRATIONS, 1971

County	Boat Length Categories			Totals <sup>a</sup>	Percent of State Total
	Under 16'	16 to 26'	Over 26'		
Suffolk	25,895	27,018	6,448	59,626	15.1
Nassau	18,333	19,935	5,474	43,918	11.1
New York City	11,799	14,394	4,456	30,800	7.8
Monroe	15,167	7,106	952	23,327	5.6
Erie	13,841	6,527	871	21,318	5.4
Onondaga	13,322	5,521	719	19,658	5.0
Westchester	6,102	5,734	1,767	13,660	3.5
Oneida	7,422	2,195	152	9,810	2.3
Albany	6,401	2,099	273	8,846	2.2
Jefferson	5,094	2,188	320	7,679	1.9
<b>TOTAL</b>	<b>123,376</b>	<b>92,717</b>	<b>21,432</b>	<b>238,642</b>	<b>60.2</b>
<b>PERCENT OF STATE TOTAL</b>	<b>51.5</b>	<b>72.4</b>	<b>83.2</b>	<b>60.2</b>	

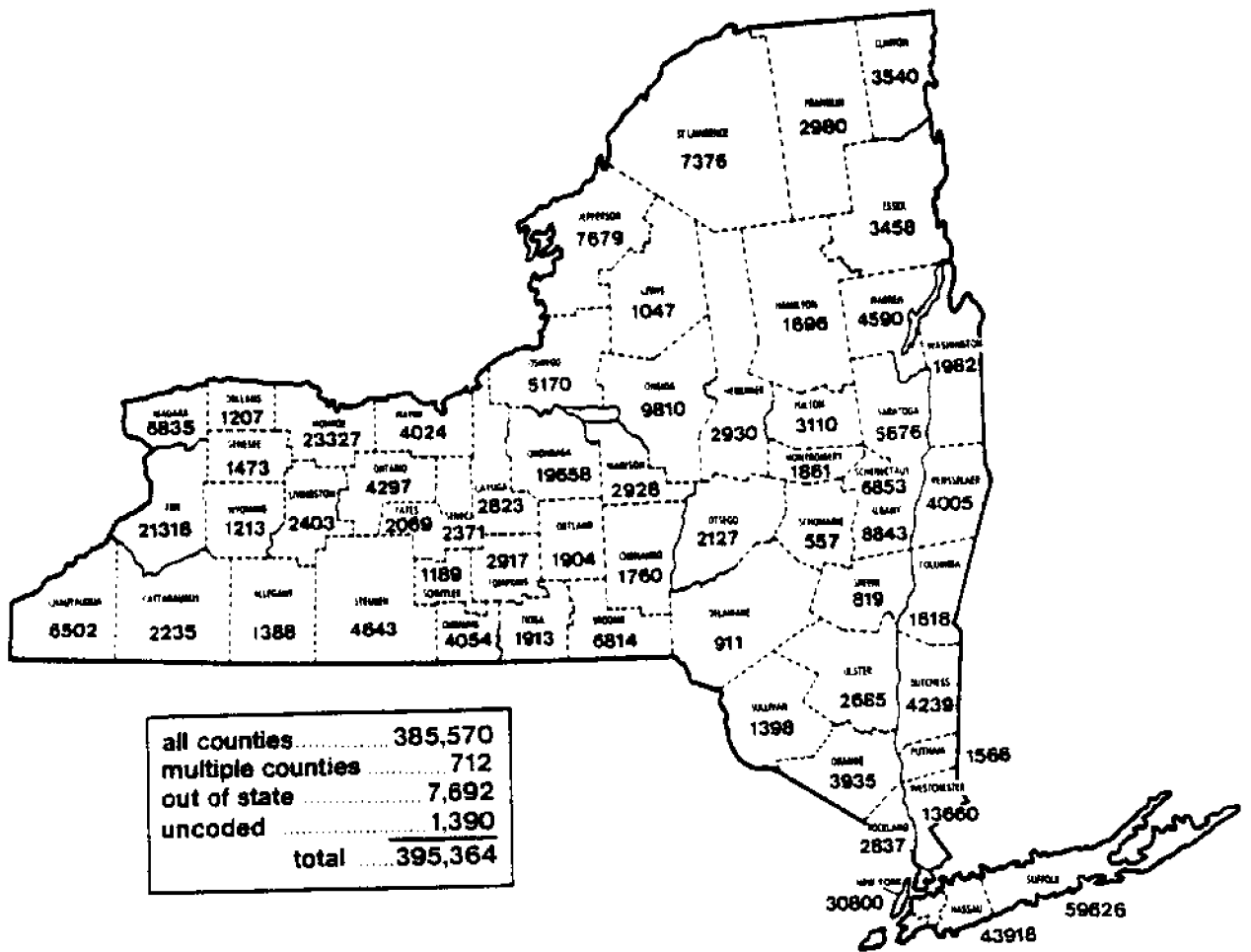
Source: New York State Office of Parks and Recreation 1973

Totals include registered boats uncoded according to length

#### Methods

Data for this study were generated by a questionnaire (Appendix b) mailed to a random sample of 4,833 registered boat owners acquired from the New York State Office of Parks and Recreation. The sample was drawn from a population of 395,364 registered boats in 1971. After three follow-up reminders, 57% or 2,730 usable questionnaires were returned during winter 1973.

Figure 1 TOTAL NUMBER OF REGISTERED BOATS BY COUNTY, 1971



Data in this survey are presented by: (1) boat length categories (less than 16 feet, between 16 and 26 feet, and over 26 feet in length); (2) by geographical regions in the state; or (3) according to waterways where the boats were used. Boat length categories are correlated with owners' socioeconomic characteristics, types of facilities used, operating costs. For geographical comparisons of recreational boating use, New York State was divided into eight regions: (1) metropolitan New York, (2) Southeast, (3) Capital, (4) North Country, (5) Central, (6) Finger Lakes, (7) Southern Tier, and (8) Northwest (Figure 2).<sup>\*</sup> To better locate boating problem areas, 64 waterways were delineated: 25 in the New York City-Long Island region (Figure 3) and 38 throughout the remainder of the state (Figure 4). Each waterway had a minimum of 10 observations; destination water bodies with fewer than 10 observations were grouped together as an "other" category within each region (Appendix C).

Table 3 indicates the representativeness of the returned usable questionnaires, with the total number of registered boats in each of the eight regions. Only the metropolitan New York region was somewhat under-represented; the Northwest and Southeast regions were slightly over-represented. The returned questionnaires represent approximately 0.7% of the total number of registered boats in the state.

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\* Analysis of boating data, especially boat use information, could not be conducted on a county level because the number of observations per county were too few to allow for significant comparisons. Therefore, the counties were grouped into regions to afford an adequate number of observations.

Figure 2 BOATING REGIONS

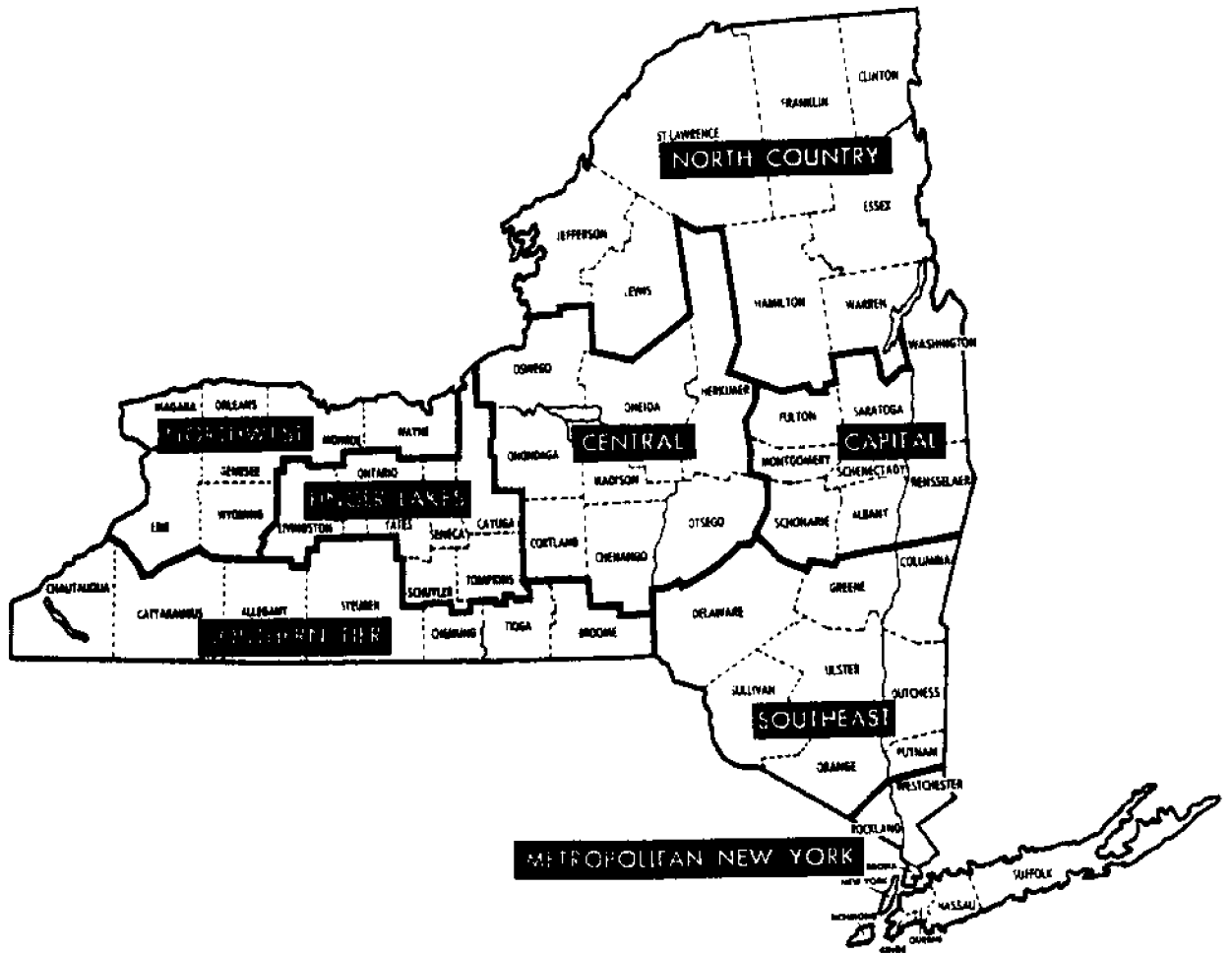
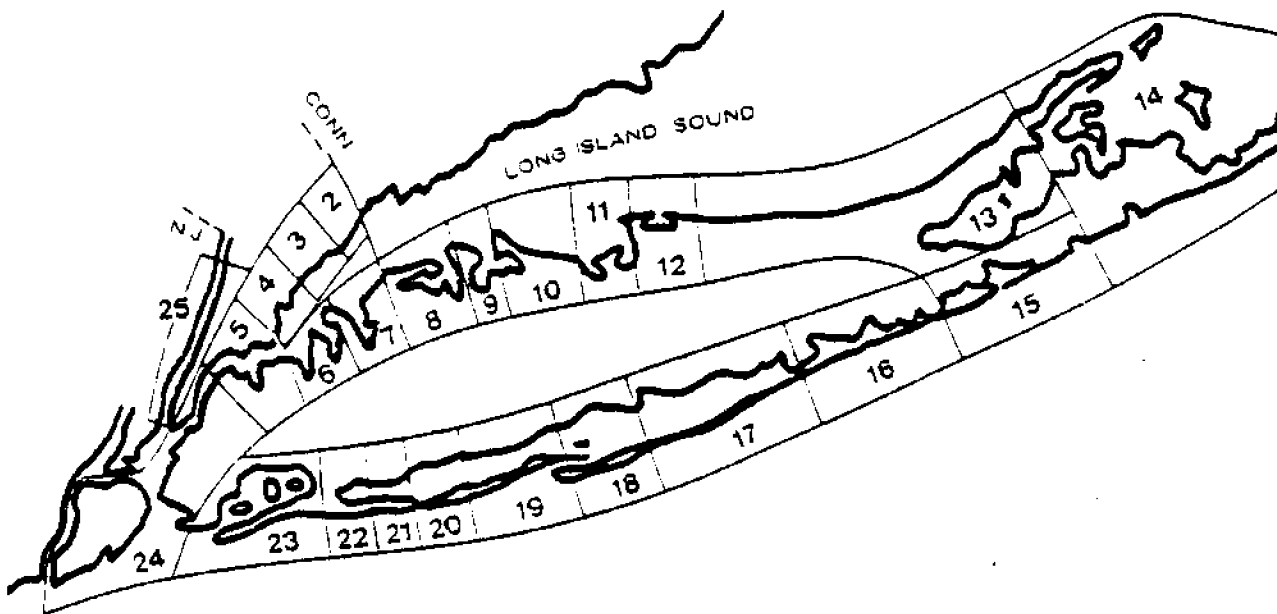


Figure 3 WATERWAY REGIONS OF METROPOLITAN NEW YORK AND LONG ISLAND



- |                                   |                           |                       |
|-----------------------------------|---------------------------|-----------------------|
| 1. METROPOLITAN N.Y. REGION OTHER | 10. NEW PORT BAY          | 19. SOUTH OYSTER BAY  |
| 2. PORT CHESTER                   | 11. SMITHTOWN BAY         | 20. EAST BAY          |
| 3. NEW ROCHELLE-MAMARONECK        | 12. PORT JEFFERSON HARBOR | 21. MIDDLE BAY        |
| 4. EAST CHESTER BAY               | 13. PECONIC BAYS          | 22. WEST BAY          |
| 5. EAST RIVER-FLUSHING BAY        | 14. GARDINERS BAY         | 23. JAMAICA BAY       |
| 6. LITTLE NECK-MANHASSET BAYS     | 15. SHINNECOCK BAY        | 24. RICHMOND-BROOKLYN |
| 7. HEMPSTEAD HARBOR               | 16. MORICHES BAY          | 25. LOWER HUDSON      |
| 8. OYSTER-COLD SPRINGS HARBORS    | 17. EAST GREAT SOUTH BAY  |                       |
| 9. HUNTINGTON BAY                 | 18. WEST GREAT SOUTH BAY  |                       |

Figure 4 WATERWAY REGIONS OF UPSTATE NEW YORK

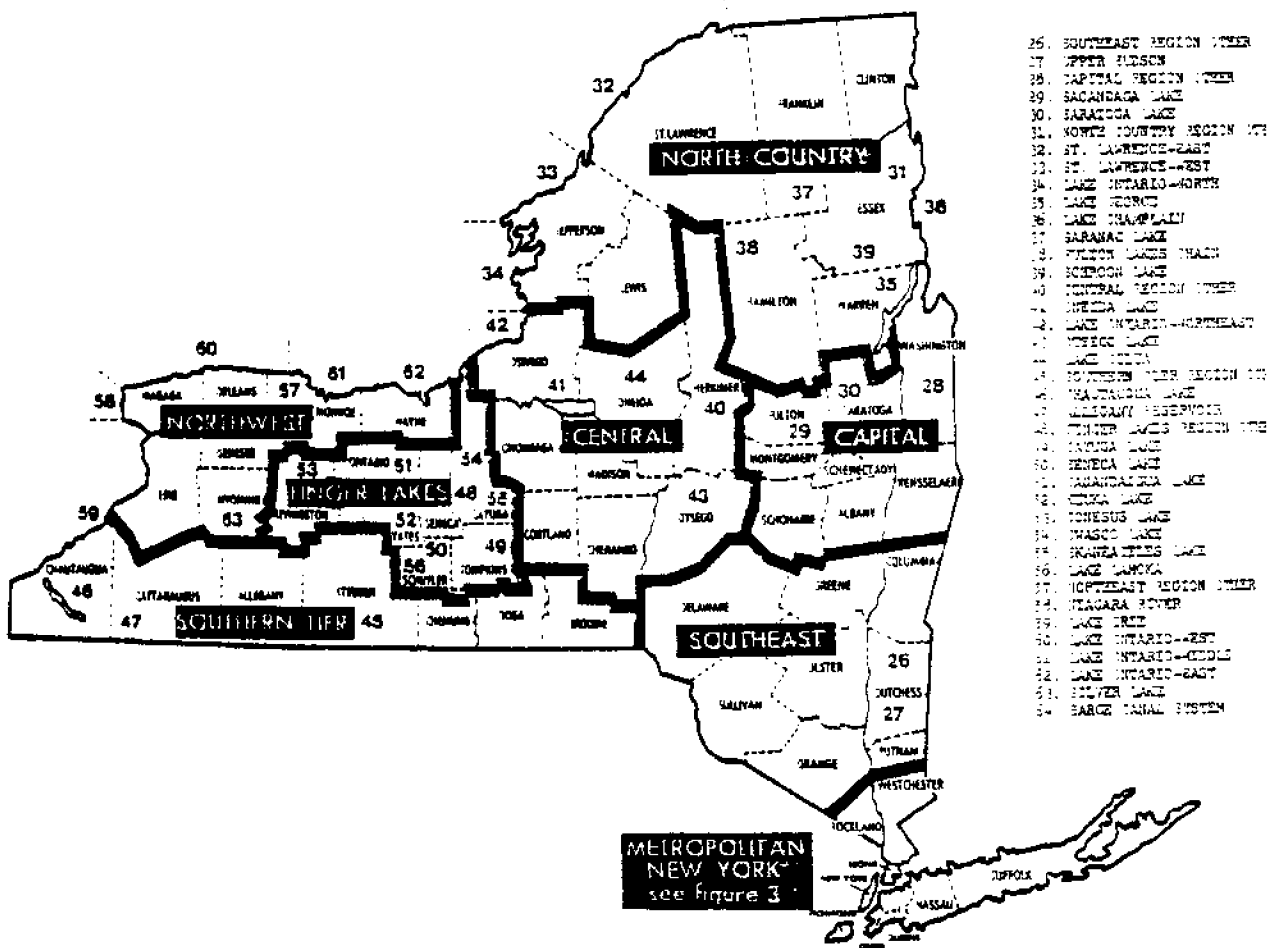




TABLE 3. COMPARISON OF RETURNED USABLE QUESTIONNAIRES WITH REGISTERED BOATS, BY REGIONS, 1973

Region	Registered boats		Usable Questionnaires	
	Number	Percent	Number	Percent
Metropolitan New York	150,841	39.2	984	36.0
Southeast	17,171	4.5	183	6.7
Capital	32,887	8.6	233	8.5
North Country	32,366	8.4	226	8.3
Central	46,287	12.0	327	12.0
Finger Lakes	18,069	4.7	120	4.4
Southern Tier	27,549	7.2	213	7.8
Northwest	59,397	15.4	444	16.3
<b>TOTAL</b>	<b>384,567</b>	<b>100.0</b>	<b>2,730</b>	<b>100.0</b>

## BOAT OWNERS

Socioeconomic Characteristics

As boaters' age and socioeconomic characteristics--education, income, and occupational status--increase, boat length increases. This is especially noticeable in light of gross family incomes: the mean was \$15,739 for owners of boats less than 16 feet long, \$19,819 for owners of boats 16 to 26 feet, and \$24,808 for owners of boats over 26 feet. Of all boat owners, 75% had gross incomes greater than \$11,000. Of owners of craft over 26 feet, 62% had incomes of over \$19,000, compared to 28% for owners of boats less than 16 feet (Table 4).

TABLE 4. SOCIOECONOMIC CHARACTERISTICS OF BOAT OWNERS, 1973

Characteristics	Boat Length Categories			TOTALS
	Under 16'	16' to 26'	Over 26'	
<u>Income (gross)</u>				
\$ 0 to \$ 5,999	97 (8%)	15 (2%)	7 (2%)	119 (6%)
\$ 6,000 to \$ 8,999	116 (10%)	33 (5%)	6 (2%)	115 (7%)
\$ 9,000 to \$10,999	173 (15%)	63 (10%)	17 (6%)	253 (12%)
\$11,000 to \$12,999	130 (11%)	59 (9%)	17 (6%)	206 (10%)
\$13,000 to \$15,999	190 (16%)	106 (16%)	34 (11%)	330 (15%)
\$16,000 to \$18,999	154 (13%)	84 (13%)	34 (11%)	272 (13%)
\$19,000 to \$25,999	211 (18%)	163 (25%)	79 (26%)	453 (21%)
\$426,000 or more	124 (10%)	129 (20%)	108 (36%)	361 (18%)
TOTAL	1,195 (100%)	652 (100%)	302 (100%)	2,149 (100%)
MEAN	\$15,739	\$19,819	\$24,808	\$18,251
<u>Age (years)</u>				
20 or less	57 (4%)	15 (2%)	---	72 (3%)
21 to 30	144 (11%)	83 (11%)	17 (5%)	244 (10%)
31 to 40	235 (18%)	150 (21%)	66 (20%)	451 (19%)
41 to 50	370 (28%)	221 (31%)	104 (32%)	695 (29%)
51 to 60	307 (23%)	165 (23%)	95 (29%)	567 (24%)
61 or more	212 (16%)	88 (12%)	41 (13%)	341 (15%)
TOTAL	1,325 (100%)	722 (100%)	323 (100%)	2,370 (100%)
MEAN	45.5	46.2	47.9	46.2

continued

TABLE 4. Continued

Characteristics	Boat Length Categories			TOTALS
	Under 16'	16 to 26'	Over 26'	
<u>Education (completed)</u>				
1 to 9 years	142 (11%)	41 (6%)	14 (4%)	197 (8%)
10 to 12 years	596 (46%)	297 (42%)	116 (36%)	1,009 (43%)
13 to 16 years	409 (31%)	251 (35%)	124 (38%)	784 (34%)
17 years or more	156 (12%)	119 (17%)	69 (22%)	344 (15%)
TOTAL	1,303 (100%)	708 (100%)	323 (100%)	2,334 (100%)
MEAN	13.1	13.7	34.2	13.5
<u>Occupation</u>				
Professional/technical	320 (25%)	201 (28%)	103 (32%)	624 (28%)
Managers/proprietors	167 (13%)	148 (21%)	93 (28%)	408 (18%)
Craftsmen	243 (20%)	119 (17%)	37 (12%)	399 (17%)
Retired/housewife	194 (15%)	72 (10%)	18 (4%)	284 (12%)
Clerical/sales	99 (8%)	67 (9%)	38 (12%)	204 (9%)
Operatives	118 (9%)	48 (7%)	13 (4%)	179 (8%)
Services	77 (6%)	32 (5%)	14 (4%)	123 (5%)
TOTAL	1,270 (100%)	708 (100%)	321 (100%)	2,299 (100%)

Age, education, and occupational specialization, though not as pronounced as income, showed an increasing trend with boat length. Across the three boat length categories, the mean age increased by only 2.4 years; education completed increased by 1.1 years; and the percentage of boat owners in the professional/technical and manager/proprietor occupations increased by 7% and 15% respectively. The average New York boat owner was 46.2 years old, had completed 13.5 years of education, had an annual gross family income of \$18,251, and was most likely employed in a professional or technical occupation.

A majority (79%) of the boat owners' wives were housewives, retired, or employed in the clerical/sales jobs. Of the boat owners, 5% were single, 28% were married without children, and the remaining households averaged 3.5 persons. Of families with children, 35% of the children were younger than 10, and 65% of the children were between 10 and 20 years old. There were no significant differences between spouses' occupations or number of persons per household and length of boat owned.

#### Residency and Boating Experience

Of those responding, 72% had lived in New York for over 30 years; the average length of residency was 40 years. Since the average boater's age was 46 years, the majority of New York boat owners are probably native New Yorkers. In addition to relatively long residency, New York boat owners have considerable boating experience. On the average, respondents had 17 years of boating experience; two-thirds had over 9 years. Owners of craft over 26 feet long had the most boating experience, supporting the trend of owners replacing their boats with increasingly larger ones.

TABLE 5. LENGTH OF RESIDENCY AND BOATING EXPERIENCE OF BOAT OWNERS, 1973

	Boat Length Categories				TOTAL
	Under 16'	16 to 26'	Over 26'		
<u>New York residency</u>					
1 year or less	22 (2%)	13 (2%)	9 (3%)	44 (2%)	
2 to 10 years	63 (5%)	28 (4%)	19 (6%)	110 (5%)	
11 to 15 years	33 (3%)	16 (2%)	5 (2%)	54 (2%)	
16 to 20 years	76 (6%)	28 (4%)	15 (5%)	119 (5%)	
21 to 25 years	86 (7%)	55 (8%)	15 (5%)	156 (7%)	
26 to 30 years	105 (8%)	64 (9%)	21 (7%)	190 (8%)	
31 to 40 years	224 (17%)	134 (19%)	67 (21%)	425 (18%)	
41 to 50 years	321 (24%)	197 (27%)	94 (29%)	612 (26%)	
51 to 60 years	245 (28%)	127 (18%)	57 (18%)	429 (18%)	
61 years or more	154 (12%)	63 (9%)	22 (6%)	239 (10%)	
TOTAL	1,329 (100%)	725 (100%)	324 (100%)	2,378 (100%)	
MEAN	40.4 years	39.9 years	39.1 years	40.1 years	
<u>Boating experience</u>					
1 to 3 years	177 (13%)	95 (13%)	21 (7%)	293 (12%)	
4 to 6 years	182 (14%)	118 (16%)	41 (13%)	341 (14%)	
7 to 9 years	105 (8%)	57 (8%)	23 (7%)	185 (8%)	
10 to 12 years	155 (12%)	87 (12%)	35 (11%)	277 (12%)	
13 to 15 years	126 (10%)	72 (10%)	39 (12%)	237 (10%)	
16 to 18 years	54 (4%)	29 (4%)	20 (6%)	103 (4%)	
19 to 21 years	159 (12%)	77 (11%)	33 (10%)	269 (11%)	
22 to 25 years	94 (7%)	47 (7%)	21 (7%)	162 (7%)	
26 to 30 years	92 (7%)	37 (5%)	36 (11%)	165 (7%)	
31 to 40 years	96 (7%)	62 (9%)	39 (12%)	197 (8%)	
41 years or more	77 (6%)	43 (6%)	16 (5%)	136 (6%)	
TOTAL	1,319 (100%)	725 (100%)	324 (100%)	2,368 (100%)	
MEAN	16.3 years	16.8 years	19.2 years	17.0 years	

### Location Considerations

To determine whether boating opportunities influenced residence locations, respondents were asked if they had moved in the last 10 years, and if so, whether their interest in boating was a factor in deciding where to locate. Of these respondents, 23% indicated that boating interest and opportunities helped determine where to live. Also, of the 448 respondents who owned seasonal or vacation homes in the state, 80% used their second homes in connection with their boating activities.

### Multiple Boat Ownership

In the United States, in 1973 there were 8.3 million recreational boats owned by 6.6 million households, an average of 1.27 boats per boat-owning household (USCG 1974). Of the second boats, 81% were under 16 feet long, and the majority were either outboards (68%) or had no propulsion.

Ownership of more than one boat is not uncommon in New York. Of the owners sampled, 23% owned two boats, and 4% owned more than two. Socio-economic differences were negligible between the respondents who owned one boat and those who owned more than one boat.

### BOAT DESCRIPTION

Because one-third of the 2,730 respondents owned more than one boat, approximately 3,970 recreational boats were represented in the sample. The data in this section is a composite from owners of one or two boats, drawing on a total of 3,533 boats. If boaters owned more than two boats, data were only collected on the first two.

### Length

Almost 62% of the boats included in the sample were under 16 feet long, 26% were between 16 and 26 feet, and 13% were over 26 feet long (Table 6).

TABLE 6. NUMBER OF BOATS BY LENGTH CATEGORIES FROM 2,730 RESPONDENTS, 1973

	<u>Boat Length Categories</u>			TOTAL
	Under 16'	16' to 26'	Over 26'	
Boat One	1,371	695	379	2,445
Boat Two*	547	102	25	674
TOTAL	1,918 (61.5%)	797 (25.5%)	404 (13.0%)	3,119* (100%)

\*Owned by boaters having at least one other boat

To investigate what changes of trends in boat ownership had occurred from 1971 to 1973, the lengths of power boats from the 1973 sample were compared with the lengths of boats registered in 1971. Motor boats must be registered in New York; for other boats (nonpowered and auxiliary powered), registration is optional. Only boats with listed engine types were used in the comparison to eliminate the nonpowered boats from the sample.\* The percentage of power boats under 16 feet long decreased by 5.7%; the percentage of boats between 16 and 26 feet remained almost constant; and the percentage of boats over 26 feet increased by 7.3%. This may suggest a trend toward larger boats--more boats over 26 feet, fewer under 16 feet (Table 7). However, a significant number of respondents did not complete either engine type (549) or horsepower (595); we cannot assume the missing data would be evenly distributed across the three boat length categories. Thus the apparent increase of large boats is inconclusive.

\*Instead of horsepower we used engine type for the comparison since more respondents answered by describing engine type than engine horsepower. Based on horsepower, the percentage of boats under 16 feet long decreased by 5.5%, and boats over 26 feet decreased by 4.5%.

TABLE 7. NUMBER OF POWER BOATS BY LENGTH CATEGORIES FROM 1973 SAMPLE AND 1971 STATE REGISTRATIONS

	<u>Boat Length Categories</u>			TOTAL
	Under 16'	16'to 26'	Over 26'	
1971 state registered boats	239,415 (60.9%)	128,057 (32.6%)	25,749 (6.5%)	393,221 (100%)
1973 sampled power boats	1,654 (55.2%)	926 (31.1%)	410 (13.8%)	2,981 (100%)

A national breakdown of 8.3 million recreational boats by length in 1973 disclosed that 58.3% were under 16 feet, 37.8% were between 16 and 26 feet, and 3.9% were over 26 feet (US Coast Guard 1974). By contrast, for New York in 1971, 60.9% of the nearly 400,000 registered boats were under 16 feet, 32.6% were between 16 and 26 feet, and 6.5% were over 26 feet. Therefore, New York State had approximately 2.6% more boats under 16 feet, 2.6% more boats over 26 feet, and 5.2% fewer boats between 16 and 26 feet long than the national average.

The New York State Office of Parks and Recreation (1972) indicated that approximately 80,000 registered boats were large enough to require permanent berthings at marinas, yacht clubs, or boatyards. Of an estimated 550,000 pleasure boats in the state, only about 14% required berthing facilities. Approximately 86% of all recreational boats in New York were small enough to be transported either by trailer or car top.

#### Propulsion and Horsepower

Outboard engines powered 73% of the boats in the entire sample and 92% of the craft less than 16 feet long. Inboard engines provided power for



16% of all boats. Combination inboard / outboard units were found on only 7% of the boats, most frequently on those between 16 and 26 feet. Other propulsion types described were generally sail or sail/auxiliary. The "other" classification of power accounted for 4% and was evenly distributed among the boat length categories (Table 8).

TABLE 8. TYPE OF PROPULSION BY BOAT LENGTH CATEGORIES, 1973

	<u>Boat Length Categories</u>			TOTAL
	Under 16'	16' to 26'	Over 26'	
Outboard	1,564 (92%)	606 (63%)	87 (20%)	2,257 (73%)
Inboard	41 (2%)	165 (17%)	296 (69%)	505 (16%)
Inboard/outboard	40 (2%)	155 (16%)	27 (6%)	222 (7%)
Other	77 (4%)	37 (4%)	22 (5%)	136 (4%)
TOTAL	1,722 (100%)	963 (100%)	432 (100%)	3,117 (100%)

Of boats sampled in the metropolitan New York region, 28% were powered by inboard engines, attributable to the large number of boats over 26 feet in this region.

Comparing engine types recorded from the 1971 state boat registration data with those of the 1973 sample illustrates the growth in popularity of the combination inboard/outboard units over the traditional outboard and inboard engines. This increase is most apparent in the 16 to 26 feet range. In 1971, only 0.3% of all state-registered boats were powered by inboard/outboard units,

whereas 7.4% of the power boats from the 1973 sample had inboard/outboard units (Table 9). Furthermore, 16.8% of the sampled boats between 16 and 26 feet had inboard/outboards, compared to 0.4% in 1971. The greater percentage of sampled boats over 26 feet with outboards is largely attributable to sailboats with outboard auxiliaries.

As expected, a direct relationship was found between boat length and engine horsepower. Of boats under 16 feet, 84% were powered by engines with 50 horsepower (hp) or less; 79% of boats over 26 feet had engines with over 100 hp while 61% had engines with over 200 hp. Engines on boats under 16 feet averaged 35 hp; those on boats between 16 and 26 feet averaged 105 hp; and engines on boats over 26 feet in length averaged 246 hp (Table 10).

#### Year, Age, and Value When Purchased

Of boats sampled, 61% were purchased after 1968 and 16% were bought in 1973. About 10% more boats over 16 feet were purchased during the past five years (1968-1973) than boats less than 16 feet. However, about three times as many boats under 16 feet as boats 16 feet or longer were purchased between 1947 and 1962. Only 1% (32) of the sampled boats were purchased prior to 1946 (Table 11). Boats were newer in the New York metropolitan and Northwest regions and older in the North Country, Southern Tier, Central, and Finger Lakes regions.

Of all sampled boats 58% were purchased used. At the time of purchase, there is a direct relationship between boat length and age. Boat buyers were more likely to buy smaller boats new and large boats, used. Of boats purchased new, 45% were under 16 feet, compared to only 28% over 26 feet. The average boat age at the time of purchase was 4.3 years for boats under 16 feet and 8.5 years for boats over 26 feet. Boats between 16 and 26 feet long had an

TABLE 9. COMPARISON OF ENGINE TYPES BY BOAT LENGTH CATEGORIES, 1971 and 1973

	<u>Boat Length Categories</u>			
	Under 16'	16' to 26'	Over 26'	TOTAL
<u>1971 state registered boats</u>				
Outboard	236,212 (98.8%)	84,347 (65.9%)	1,114 (4.3%)	321,673 (81.1%)
Inboard	2,276 (0.9%)	43,109 (33.7%)	24,524 (95.4%)	69,909 (17.8%)
Inboard/outboard	702 (0.3%)	524 (0.4%)	73 (0.3%)	1,299 (0.3%)
<b>TOTAL</b>	<b>239,190 (100%)</b>	<b>127,980 (100%)</b>	<b>25,711 (100%)</b>	<b>392,881 (100%)</b>
<u>1973 sampled power boats</u>				
Outboard	1,564 (95.1%)	606 (65.4%)	87 (21.2%)	2,257 (75.6%)
Inboard	41 (2.5%)	165 (17.8%)	296 (72.2%)	505 (17.0%)
Inboard/outboard	40 (2.4%)	155 (16.8%)	27 (6.6%)	222 (7.4%)
<b>TOTAL</b>	<b>1,645 (100%)</b>	<b>926 (100%)</b>	<b>410 (100%)</b>	<b>2,984 (100%)</b>

TABLE 10. ENGINE HORSEPOWER BY BOAT LENGTH CATEGORIES, 1973

	<u>Boat Length Categories</u>			
	Under 16'	16' to 26'	Over 26'	TOTAL
10 hp or less	702 (39%)	38 (5%)	12 (4%)	752 (26%)
11 to 50 hp	827 (45%)	109 (14%)	39 (12%)	975 (33%)
51 to 100 hp	247 (14%)	326 (41%)	17 (5%)	590 (20%)
101 to 200 hp	37 (2%)	258 (32%)	58 (18%)	353 (12%)
201 hp or more	7 -	64 (8%)	197 (61%)	268 (9%)
<b>TOTAL</b>	<b>1,820 (100%)</b>	<b>795 (100%)</b>	<b>323 (100%)</b>	<b>2,938 (100%)</b>
<b>MEAN</b>	<b>35 hp</b>	<b>105 hp</b>	<b>246 hp</b>	<b>83 hp</b>

TABLE 11. YEAR OF PURCHASE BY BOAT LENGTH CATEGORIES, 1973

Year	Boat Length Categories			TOTAL
	Under 16'	16' to 26'	Over 26'	
1973	251 (14%)	148 (18%)	52 (16%)	451 (16%)
1972	209 (12%)	134 (17%)	55 (17%)	398 (14%)
1971	165 (9%)	107 (13%)	40 (12%)	312 (11%)
1970	203 (12%)	97 (12%)	42 (13%)	342 (12%)
1969	148 (9%)	62 (8%)	29 (9%)	239 (8%)
1968	147 (9%)	59 (7%)	25 (8%)	231 (8%)
1967-1963	329 (19%)	118 (15%)	56 (17%)	503 (17%)
1963-1947	284 (16%)	71 (9%)	18 (6%)	373 (13%)
1946 or before	13 -	11 (1%)	8 (3%)	32 (1%)
TOTAL	1,749 (100%)	807 (100%)	325 (100%)	2,881 (100%)

average age of 4.6 years when purchased. In 1973, the average age of all boats in the United States was 7.6 years, regardless of time or purchase (US Coast Guard 1974).

The high cost of purchasing a large boat is reflected in Table 12: 48% of boats over 26 feet were over 6 years old when purchased and 26% were 11 years or older.

TABLE 12. BOAT AGE WHEN PURCHASED, BY LENGTH CATEGORIES, 1973

Years Old	Boat Length Categories			TOTAL
	Under 16'	16' to 26'	Over 26'	
New	719 (45%)	303 (40%)	92 (28%)	1,114 (42%)
1 year	67 (4%)	42 (16%)	6 (2%)	115 (4%)
2 years	96 (6%)	57 (8%)	23 (7%)	176 (6%)
3 years	83 (5%)	47 (6%)	16 (5%)	146 (5%)
4 years	70 (4%)	39 (5%)	17 (5%)	126 (5%)
5 years	97 (6%)	27 (4%)	19 (6%)	143 (5%)
6 to 10 years	268 (17%)	127 (17%)	72 (22%)	467 (17%)
11 to 25 years	199 (12%)	100 (13%)	59 (18%)	358 (14%)
26 years or more	13 (1%)	14 (2%)	27 (8%)	54 (2%)
TOTAL	1,612 (100%)	756 (100%)	331 (100%)	2,699 (100%)

Approximately one-half of the boats in the Central, North Country, Finger Lakes, and Southern Tier regions were bought new. Boats six years old or older were purchased more frequently in the Northwest, Southeast, and metropolitan New York regions (Table 13).

At the time of purchase 73% of all boats from the sample had values under \$2,500; 53% of the boats under 16 feet were valued at less than \$500. Of the boats over 26 feet, 44% were valued at over \$10,000. The average value for boats when purchased was \$691 for boats under 16 feet, \$3,171 for boats between 16 and 26 feet, and \$12,608 for boats over 26 feet (Table 14).

TABLE 13. BOAT AGE WHEN PURCHASED, BY REGION, 1973

Regions	<u>Percentage of Boats Purchased</u>	
	New	Six years or older
Metropolitan New York	38.5%	32.2%
Southeast	37.8%	32.6%
Capital	45.1%	26.5%
North Country	50.1%	26.9%
Central	50.2%	31.5%
Southern Tier	48.5%	22.7%
Finger Lakes	44.2%	26.7%
Northwest	36.6%	38.1%

To estimate the state's recreational fleet's worth at the time of purchase, the above mean values were expanded by the number of 1971 registered boats in each boat length category. This resulted in approximately \$884 million for the value of almost 400,000 New York registered recreational boats at the time of

TABLE 14. BOAT VALUE AT TIME OF PURCHASE, BY LENGTH CATEGORIES, 1973

	<u>Boat Length Categories</u>			TOTAL
	Under 16'	16' to 26'	Over 26'	
Less than \$500	921 (53%)	88 (11%)	6 (2%)	1,015 (36%)
\$501 to \$1,000	331 (19%)	88 (11%)	7 (2%)	426 (15%)
\$1,001 to \$2,500	367 (21%)	244 (31%)	31 (10%)	642 (22%)
\$2,501 to \$5,000	103 (7%)	256 (32%)	52 (16%)	411 (14%)
\$5,001 to \$10,000	5 -*	104 (14%)	86 (26%)	195 (7%)
\$10,001 to \$20,000	1 -*	11 (1%)	96 (29%)	108 (4%)
\$20,001 or more	0 -*	5 -*	49 (15%)	54 (2%)
TOTAL	1,728 (100%)	796 (100%)	327 (100%)	2,851 (100%)
MEAN	\$691	\$3,171	\$12,608	\$2,869

\* less than .5% of the sample of boats surveyed.

purchase. The \$884 million is a somewhat conservative figure of the fleet's value, irrespective of depreciation or increased cost over time, because it excludes an estimated 150,000 nonregistered (that is, nonpowered) boats in New York.

#### Boat Equipment

The different types of marine equipment found on boats depend to some degree on boat size. Heads, galleys, depth finders, and two-way radios are common on large boats; windshields and lights are present on most boats regardless of

size. In our study almost all boats over 26 feet had lights (97%), heads (92%), and galleys (90%). Furthermore, 74% of the large craft had depth finders and 68% had two-way radios. In contrast, only 14% of boats under 26 feet had galleys, 16% had radios, 25% had heads, and 33% had depth finders (Table 15).

TABLE 15. BOAT EQUIPMENT, BY LENGTH CATEGORIES, 1973

Equipment	Boat Length Categories			TOTAL
	Under 16'	16' to 26'	Over 26'	
Lights	969 (74%)	699 (96%)	320 (97%)	1,988 (84%)
Windshields	773 (59%)	664 (91%)	271 (82%)	1,708 (72%)
Depth finder	74 (6%)	192 (27%)	245 (74%)	511 (22%)
Head	22 (2%)	164 (23%)	302 (92%)	488 (21%)
Galley	10 (1%)	94 (13%)	298 (90%)	402 (17%)
Two-way radio	30 (25%)	103 (14%)	223 (68%)	356 (15%)

To determine which marine equipment was most in demand, the sampled owners were asked if they planned to add any of these items to their present boats. Of the respondents, 18% (422) stated they did plan to purchase at least one of the above items of equipment. This represented 24% of the owners of craft over 26 feet, 25% of the owners of craft between 16 and 26 feet, and 13% of the owners of craft under 16 feet. Items in greatest demand were depth finders and two-way radios, mostly by owners of boats over 16 feet long. A significant number of owners of boats under 16 feet also planned to add depth finders, lights, and radios (Table 16).

If boat owners did not plan to add any of the above items of equipment to their present boats, they were asked whether they were going to purchase, within the next 12 months, another boat that would be better equipped. Of the respondents, 10% (211) indicated plans to buy a better equipped boat during the next year.

TABLE 16. PLANNED EQUIPMENT, BY BOAT LENGTH CATEGORIES, 1973

Equipment	Boat Length Categories			TOTAL
	Under 16'	16' to 26'	Over 26'	
Depth finder	76 (44%)	84 (47%)	26 (37%)	186 (44%)
Two-way radio	38 (22%)	90 (57%)	50 (69%)	178 (42%)
Lights	48 (28%)	6 (3%)	-- --	54 (13%)
Windshield	21 (12%)	2 (1%)	1 (1%)	24 (6%)
Head	3 (2%)	18 (10%)	3 (4%)	24 (6%)
Galley	1 --	4 (2%)	1 (1%)	6 (1%)

#### Trends in Past Ownership

Before acquiring their present boats, approximately 4% (97) of the respondents had previously owned three other boats, 10% (273) had owned two other boats, and 35% (952) had owned one other boat. The turnover rate for individuals who decided to purchase or trade for another boat averaged 2.7 years between their third or second boats and 3 years between their second and present boat. Respondents who previously owned only one other boat had owned their present boat for an average of 1.7 years.

The descriptive data collected show that owners generally tend to move up to larger, more powerful, more expensive boats. The pattern across three boats owned by the same respondent--two previously owned and the present boat--indicated the average length increased from 13 feet initially to 22 feet currently, engine horsepower from 79 hp to 162 hp, and value from \$4,291 to \$6,667 (Table 17).

TABLE 17. COMPARISON OF BOATS OWNED BY RESPONDENTS, 1973

	Present Boat	Second Boat Owned	Third Boat Owned
Boat Length	22'	21'	18'
Engine Horsepower	162 hp	123 hp	79 hp
Value	\$6,672	\$4,521	\$4,291



Individuals who had owned another boat in the past now have larger and more expensive boats than the average boat in the sample (that is, the average sampled boat had 33 hp and was valued at \$2,869 at the time of purchase).

## BOAT USE

### Boat Days

In aggregate, the sampled boat owners generated 91,539 boat days\* in 1973, averaging 40.6 boat days for 2,256 respondents. However, 29% (654) of the respondents owned more than one boat. For owners of only one boat, the number of boat days was 57,946 days, an annual average of 36.2 days of use. The 654 multiple boat owners accounted for 33,593 boat days, an average of 51.4 boat use days in 1973. Thus, multiple boat owners were boating 63% more than respondents who owned only one boat.

To estimate the total number of boat days for New York, the annual average of 40.6 boat days was multiplied by the 395,364 state-registered boats in 1971 (sample universe) for a total of approximately 15.6 million boat days. But this assumed only one person per boat outing. The US Coast Guard national recreational boating study disclosed that in 1973 each boat outing averaged 2.93 passengers. Taking this into consideration, the number of boat days was approximately 46 million (293 x 15.6 million). With a population of approximately 18.2 million in 1970, the state's participation rate for recreational boating was estimated at near 2.5 boat days per person.

### Activities

Statewide, the average boat was used approximately 83% of the time for either pleasure cruising (42%) or sport fishing (41.1%). Boats were used for water skiing 20% of the time and almost 11% of the time for business and commerce. The remaining 4% of boat use involved miscellaneous activities.

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\* A boat day is defined as any time a boat was used within 24 hours.

Both frequency of boat use and types of boating activities varied with boat size. Annually, boats under 16 feet were used less often (34 days) than boats between 16 and 26 feet (45 days) or boats over 26 feet (57.4 days). Boats under 16 feet were used most often for sport fishing (48.2%), followed by pleasure cruising (33.4%) waterskiing (13.9%), and other uses (4.5%). The most common use of boats between 16 and 26 feet was pleasure cruising (45.3%), followed by sport fishing (37.3%), waterskiing (11.4%), and other uses (6.0%). Boats over 26 feet long were used predominantly for pleasure cruising (68.8%), followed by sport fishing (21.1%), and other uses, including business and commercial (9.4%). Few large boats (0.6%) were used for waterskiing (Table 18)

TABLE 18. MEAN NUMBER OF BOAT DAYS BY ACTIVITY AND BOAT LENGTH CATEGORIES, 1973

Activity	<u>Boat Length Categories</u>			Mean
	Under 16'	16' to 26'	Over 26'	
Pleasure cruising	11.4 (33.4%)	20.3 (45.3%)	39.6 (68.8%)	17.0 (42.0%)
Sport fishing	16.4 (48.2%)	16.8 (37.3%)	12.2 (21.2%)	16.7 (41.1%)
Waterskiing	4.7 (13.9%)	5.1 (11.4%)	0.4 (0.6%)	4.4 (10.9%)
Business/commercial	0.3 (0.9%)	1.4 (3.0%)	2.6 (4.6%)	0.9 (2.1%)
Other	1.2 (3.6%)	1.4 (3.0%)	2.7 (4.8%)	1.6 (3.9%)
<b>TOTAL</b>	<b>34.0</b> (100%)	<b>45.0</b> (100%)	<b>57.5</b> (100%)	<b>40.6</b> (100%)

Frequency of boat use and amount of use for different boating activities varied by region (Figure 5). The greatest number of boat days was generated in the metropolitan New York and North Country regions--48.1 and 40.1 average annual boat days, respectively. Next was the Finger Lakes region with an average of 37.3 boat days, and the Northwest region with 37 boat days. Both the Capital and Central regions averaged near 34.6 days of boat use. Regions experiencing lowest average annual boat use were the Southeast, with 31.8 boat days, and the Southern Tier, with 30.2 boat days.

Although the statewide average amount of use for pleasure cruising nearly equaled use for sport fishing, boat owners from the Southeast, metropolitan New York, and Northwest regions used their boats more for pleasure cruising than sport fishing; whereas, for boat owners in the other regions, sport fishing was a little more popular. In the Southeast region, pleasure cruising exceeded sport fishing by 22.1%.

Almost 11% of all boating involved waterskiing. The Capital region boat owners averaged almost 25% of their boating for waterskiing. Other regions where the activity was popular were the Finger Lakes, Southeast, and Central regions, which averaged about 15% of the total boat days. In the northwest, North Country, and Southern Tier regions boat use for waterskiing averaged close to the state average of 11%. Only in the metropolitan New York region did boat owners use their boats less (6.8%) for waterskiing than the state average (Table 19).

Boat owners who used their boats for business and commercial activities were significant only in the metropolitan New York (3.9%) and North Country (2.1%) regions. This was mainly attributed to commercial fishermen in the metropolitan New York region and to boat rentals in the North Country.

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Figure 5 ANNUAL AVERAGE NUMBER OF BOAT DAYS BY ACTIVITY AND REGIONS

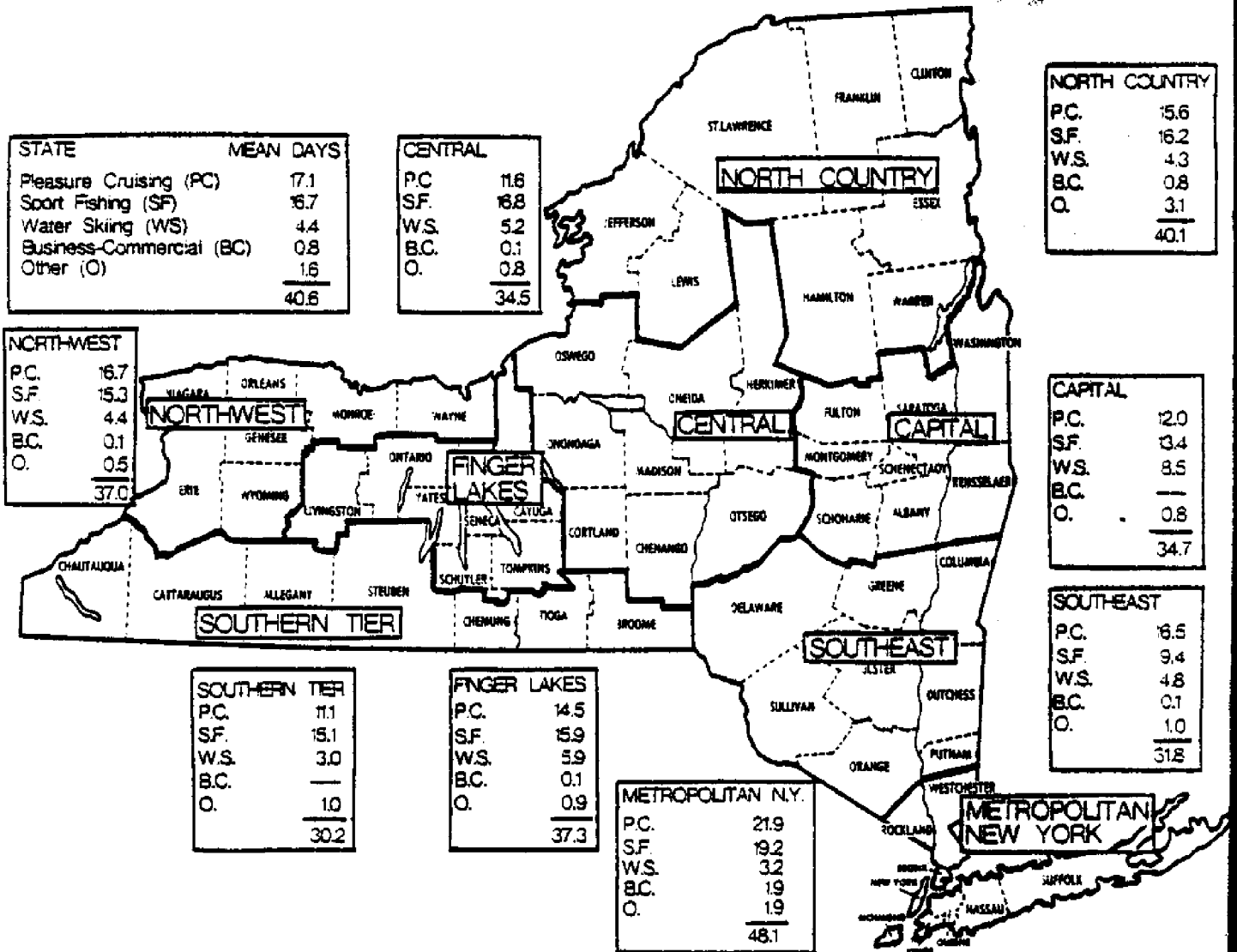


TABLE 19. BOAT DAYS BY REGIONS AND ACTIVITIES, 1973

Regions	Type of Activity Days						Total	Mean
	Pleasure cruising	Sport fishing	Water- skiing	Business- commercial	Other			
Metropolitan New York (N=801)	17,541 (45.5%)	15,383 (39.9%)	2,622 (6.8%)	1,504 (3.9%)	1,504 (3.9%)	38,554 (100%)	48.1	
Southeast (N=107)	1,764 (51.8%)	1,012 (29.7%)	511 (15.0%)	14 (0.4%)	106 (3.1%)	3,406 (100%)	31.8	
Capital (N=113)	1,356 (34.6%)	1,514 (38.6%)	964 (24.6%)	---	86 (2.2%)	3,920 (100%)	34.7	
North Country (N=389)	6,049 (38.8%)	6,314 (40.5%)	1,684 (10.8%)	326 (2.1%)	1,216 (7.8%)	15,589 (100%)	40.1	
Central (N=239)	2,777 (33.7%)	4,004 (48.6%)	1,236 (15.0%)	17 (0.2%)	206 (2.5%)	8,239 (100%)	34.5	
Southern Tier (N=106)	1,176 (36.7%)	1,598 (49.9%)	324 (10.1%)	3 (0.1%)	103 (3.2%)	3,204 (100%)	30.2	
Finger Lakes (N=272)	3,950 (38.9%)	4,315 (42.5%)	1,615 (15.9%)	41 (0.4%)	234 (2.3%)	10,155 (100%)	37.3	
Northwest (N=229)	3,828 (45.2%)	3,498 (41.3%)	1,000 (11.8%)	25 (0.3%)	119 (1.4%)	8,470 (100%)	37.0	
TOTAL (N=2,256)	38,441 (42.0%)	37,638 (41.1%)	9,956 (10.9%)	1,930 (2.1%)	3,574 (3.9%)	91,539 (100%)	40.6	

Although the New York metropolitan region generated the greatest number of boat days, that figure is low in relation to its population; it had the lowest annual participation rate in boat days per capita population (0.63) of the eight regions. The North Country, with a participation rate of 3, was the highest of the regions, followed by the Finger Lakes region with 2 and the Central region with 1.4 (Table 20).

TABLE 20. PARTICIPATION RATES IN RECREATIONAL BOATING, BY REGION, 1973

Region	Expanded Boat Days	1970 Population	Participation Rate
Metropolitan New York	7,255,452	11,571,899	0.63
Southeast	546,038	823,842	0.66
Capital	1,141,283	907,855	1.26
North Country	1,297,877	429,755	3.02
Central	1,596,902	1,125,620	1.42
Southern Tier	831,980	744,660	1.12
Finger Lakes	711,274	358,859	1.98
Northwest	2,197,689	2,274,247	0.97
TOTAL	15,578,495	18,236,967	0.85

#### Boater Use Patterns

Boat use has been presented based on residence of the respondent. However, we cannot assume the boat was used in that same county of residence.

To indicate some general use patterns of recreational boaters on a county basis (Figure 6, Appendix D), the New York State boat registration data records both the county of registration and the county of principal use (NYS Office of Parks and Recreation 1973).



The state boat registration data do not account for any differences in the amount of boat use in each county, nor do they indicate where boaters go, or come from, when boating outside their county of registration. Furthermore, of the 59,309 registered boats used principally in another county, 30,908 were used in more than one principal destination county; thus the county of principal use was designated only as multiple counties.

To understand use patterns of recreational boaters in New York, boat use data (number of boat days) are required at the counties of origin and destination. Because of limited sample size, such an analysis can only be undertaken regionally.\* Total origin boat days were estimated by multiplying the number of boats registered in each region by the average number of boat days from the sample in that region. Destination boat days were calculated by distributing the amount of boat days by each respondent to each county of principal use, then adding together for regional totals. A regional comparison of the number of origin and destination boat days makes it possible to determine the number of boat days taking place within each region, and the region of their origin. For example, of the approximately 7.3 million boat days originating in the metropolitan New York region, 93% took place locally. Only 7% of the origin boat days from this region went outside the region. About 2% each of the total boat days went to the Southeast and North Country regions and out of state; the remaining 1% was divided between the Capital and Central regions (Table 21).

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\* Studies of recreational boating in Michigan have determined that minimum of 200 observations per county are required to make county-to-county analysis of boater use patterns to be statistically significant (Recreation Resource Consultants 1972).



TABLE 21. NUMBER OF ORIGIN AND DESTINATION BOAT DAYS BY REGIONS IN NEW YORK, 1973.

	Metropolitan New York	Southeast	Capital	North Country	Central	Southern Tier	Finger Lakes	Northwest	Out of State	Origin Totals
Metropolitan New York	6,738,138 (92.7%)	149,462 (2.1%)	25,347 (0.4%)	126,245 (1.8%)	50,063 (0.7%)	26,120 (0.4%)	-	-	140,030 (1.9%)	7,229,452 (100%)
Southeast	50,181 (9.2%)	372,889 (68.3%)	39,042 (7.2%)	43,738 (8.0%)	7,699 (1.4%)	-	-	-	32,489 (5.9%)	546,038 (100%)
Capital	5,364 (0.5%)	8,217 (0.7%)	623,711 (54.6%)	391,346 (34.3%)	90,390 (7.9%)	4,223 (0.4%)	-	-	18,032 (1.6%)	1,141,283 (100%)
North Country	15,055 (1.2%)	-	7,138 (0.6%)	1,256,216 (96.8%)	6,619 (0.5%)	-	-	-	12,849 (1.0%)	1,297,827 (100%)
Central	7,665 (0.5%)	9,741 (0.6%)	9,581 (0.6%)	243,208 (15.2%)	1,220,193 (76.4%)	4,791 (0.3%)	64,036 (4.1%)	11,657 (0.7%)	26,010 (1.6%)	1,596,907 (100%)
Southern Tier	-	4,410 (0.5%)	-	60,651 (7.3%)	48,005 (5.8%)	404,508 (48.6%)	268,730 (32.3%)	12,563 (1.5%)	33,213 (4.0%)	831,480 (100%)
Finger Lakes	-	-	-	6,188 (0.9%)	12,376 (1.7%)	-	643,205 (90.4%)	35,279 (5.0%)	14,226 (2.0%)	711,274 (100%)
Northwest	5,055 (0.2%)	11,428 (0.5%)	-	228,779 (10.4%)	44,833 (2.0%)	150,542 (6.9%)	425,692 (19.4%)	1,261,034 (57.4%)	70,326 (3.2%)	2,197,689 (100%)
Destination Totals	6,821,458 (43.8%)	556,147 (3.6%)	704,866 (4.5%)	2,356,371 (15.1%)	1,480,178 (9.5%)	590,184 (3.8%)	1,401,663 (9.0%)	1,320,533 (8.5%)	347,095 (2.2%)	15,578,447 (100%)

The interregional use patterns of boaters showed that both the North Country and Finger Lakes regions retained over 90% of the origin boat days. These two regions also received the greatest influx of boaters from other regions. The North Country region received 34% of the origin boat days from the Capital region and 15% of the origin boat days from the Central region, or approximately 635,000 boat days. The Finger Lakes region received 32% of the origin boat days from the Southern Tier region and 19% of the boat days from the Northwest region, for a total of approximately 684,000 boat days. The significant migration of boaters into the North Country and Finger Lakes regions is attributed to the close proximity of larger and more attractive boating opportunities there.

In comparing the total destination days with origin boat days regionally, the North Country received over 1 million additional boat days and the Finger Lakes region about 700 thousand. The only other region where destination boat days exceeded origin boat days was in the Southeast region, with 10,100 more destination boat days. All other regions generated more origin boat days than destination boat days (Table 21). The number of out-of-state boaters using their boats in New York is unknown and could represent a significant increase in the number of destination boat days for some regions (Figure 7).

#### Distance Traveled to Boating Destination

Sampled boat owners traveled an average of 24 miles to reach their boating destination, but 54% of the owners traveled less than 9 miles. Owners of boats over 26 feet traveled shorter distances (15 miles average) than owners of boats under 16 feet (29 miles average). A significant number of owners of small boats traveled over 24 miles to their boating locations (Table 22).

Figure 7 DIFFERENCE BETWEEN DESTINATION AND ORIGIN BOAT DAYS, BY REGIONS, 1973

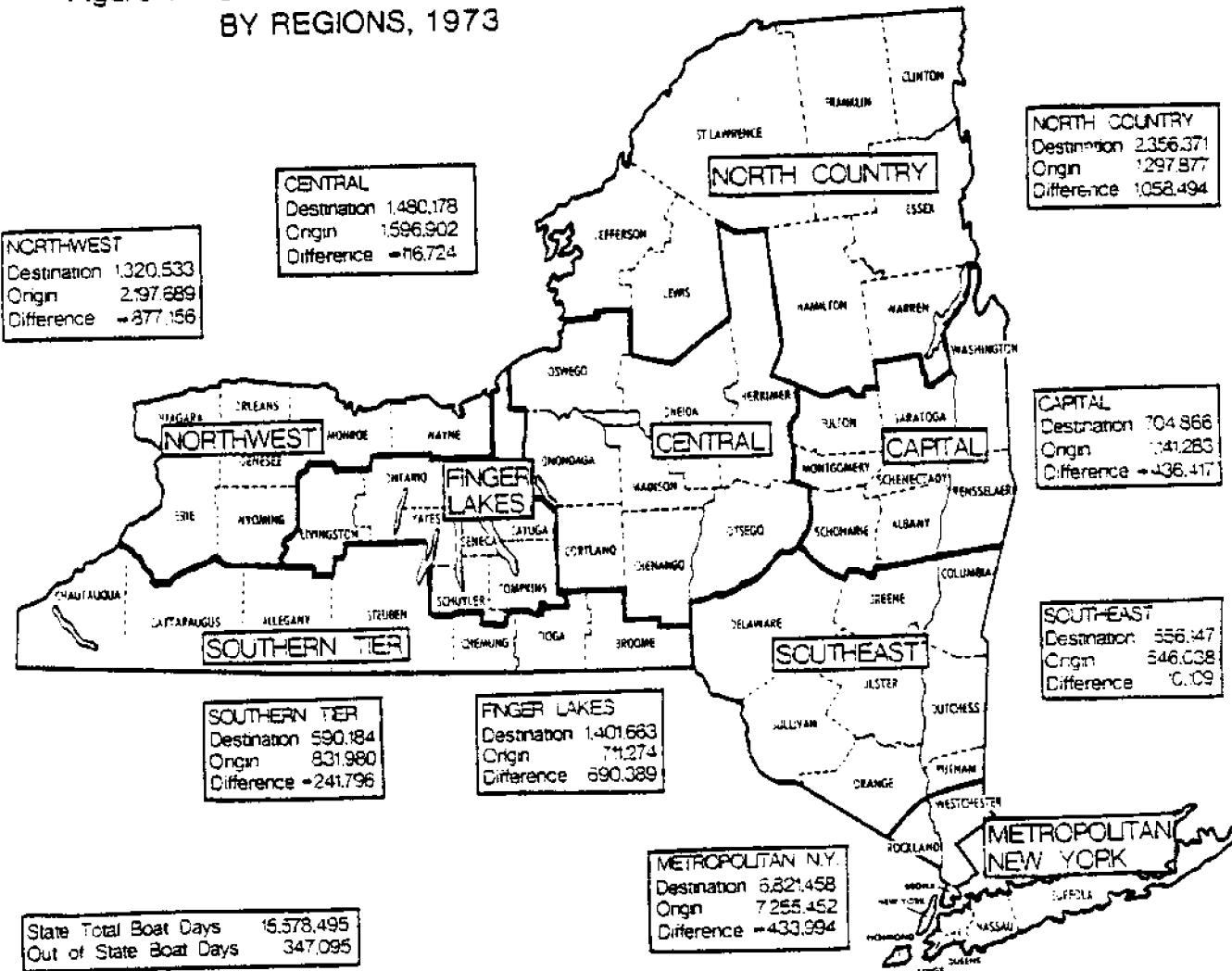


TABLE 22. DISTANCE TRAVELED TO BOATING DESTINATION, BY LENGTH CATEGORIES, 1973

Miles	Boat Length Categories			TOTAL
	Under 16'	16' to 26'	Over 26'	
0 to 2.9	349 (27%)	211 (30%)	87 (27%)	647 (28%)
3 to 5.9	165 (13%)	147 (21%)	63 (19%)	375 (16%)
6 to 8.9	111 (9%)	80 (11%)	43 (13%)	234 (10%)
9 to 11.9	107 (8%)	58 (8%)	30 (9%)	195 (8%)
12 to 14.9	32 (3%)	22 (3%)	8 (3%)	62 (3%)
15 to 17.9	67 (5%)	31 (4%)	19 (6%)	117 (5%)
18 to 20.9	71 (6%)	24 (3%)	13 (4%)	108 (5%)
21 to 23.9	44 (3%)	17 (2%)	12 (4%)	73 (3%)
24 or more	340 (26%)	127 (18%)	49 (15%)	515 (22%)
TOTAL	1286 (100%)	716 (100%)	324 (100%)	2326 (100%)
MEAN	29 miles	20 miles	15 miles	24 miles

#### Boating Facilities

Respondents were asked what type of boating facility they used most frequently: Public facilities, 35% responded, 24% a dock or launching ramp on their own property, 19% a commercial marina, 9% a private yacht club, and 13% some other type of facility. Upstate the percentage of boaters using private property facilities was almost double that for boaters from New York City-Long Island. Use of public facilities was distributed almost equally throughout the state; but metropolitan New York boaters used private yacht clubs almost three times more and commercial marinas 10% more than did upstate boaters (Table 23).

TABLE 23. TYPES OF BOATING FACILITIES USED, 1973

	Public	Private Property	Marina	Yacht Club	Other	Total
New York City- Long Island	281 (33%)	135 (16%)	214 (25%)	138 (16%)	93 (10%)	861 (100%)
Upstate	547 (36%)	442 (29%)	241 (16%)	81 (5%)	218 (14%)	1529 (100%)
TOTAL	828 (35%)	557 (24%)	455 (19%)	219 (9%)	311 (13%)	2390 (100%)

The types of berthing, launching, and storage facilities used by boat owners were separated geographically for New York City-Long Island and upstate New York. Only respondents with one boat are represented, since we could not determine to which boat multiple boat owners referred.

Boats most commonly were moored at docks (40%), followed by those kept on trailers (36%). Of the owners in New York City-Long Island, 54% used docks; 31% of upstate owners used docks. In contrast, 42% of the boat owners from upstate New York kept their boats on trailers, compared to 26% for New York City-Long Island boaters. Moorings as a form of berthing represented only 8% of the total and were used predominantly in the New York City-Long Island area. Other types of berthings accounted for 16% of the facilities. About one-half of those were dry stack operations. The remaining one-half of the "other" berthing classification represents small boats, pulled up and stored near shore until used; this was especially common upstate.

Of the respondents who launched their boats, 82% used boat launching ramps, 4% used a travel lift, 2% used a marine railway, and 12% used another means for launching. Boats transported by car top and either carried or wheeled to the water

accounted for most of the "other" type of launching. This was most prevalent upstate. The fact that so few observations were recorded for types of launching is attributed to boats docked at marinas, boatyards, or private yacht clubs; these boats were not launched every time they were used.

The majority of boats (68%) were stored on the owners' private property, 19% were stored at marinas or boatyards, 3% at yacht or other private clubs, and 10% at either public facilities or private property other than the owners'. About one-third more boats were stored at marinas, boatyards, and yacht clubs in New York City-Long Island, whereas private property and "other" types of storage were more predominant in upstate New York (Table 24).

#### Maintenance and Operational Costs

The cost of maintaining and operating a boat varied considerably, depending upon its size and location. The average annual maintenance and operations cost was calculated from the following items: fuel and oil, repairs and maintenance, insurance, dockage, storage, marine supplies, hauling, and launching. In 1973, the average total cost for a boat less than 16 feet long was \$150.80, for a boat between 16 and 26 feet, \$481.86, and for a boat over 26 feet, \$1,542.45.\* Such expenses would generate approximately \$150 million annually for the recreational boating facilities in New York.

Maintenance and operational costs for boats in New York City-Long Island (NYC-LI) differed from those in upstate New York. For boats under 16 feet, the average cost was \$248 in NYC-LI and \$120 for upstate; boats between 16 and 26 feet average \$539 in NYC-LI and \$354 upstate; and for boats over 26 feet the cost was \$1,687 in NYC-LI and \$1,156 upstate. Repairs and maintenance, marine

\* Because the cost data could not be differentiated for multiple boat owners, respondents having only one boat were examined. This resulted in 1,403 observations: 777 boats under 16 feet, 444 between 16 and 26 feet, and 188 over 26 feet.

TABLE 24. BERTHING, LAUNCHING, AND STORAGE FACILITIES USED, 1973

<u>BERTHING</u>					
	Docks	Trailer	Moorings	Other	Total
New York City- Long Island	350 (54%)	172 (26%)	89 (14%)	34 (6%)	645 (100%)
Upstate New York	321 (31%)	432 (42%)	47 (5%)	238 (22%)	1038 (100%)
<b>TOTAL</b>	<b>671 (40%)</b>	<b>604 (36%)</b>	<b>136 (8%)</b>	<b>272 (16%)</b>	<b>1683 (100%)</b>
<u>LAUNCHING</u>					
	Ramp	Lift	Marine R R	Other	Total
New York City- Long Island	195 (87%)	11 (5%)	6 (3%)	12 (5%)	224 (100%)
Upstate New York	477 (80%)	18 (3%)	9 (2%)	93 (15%)	601 (100%)
<b>TOTAL</b>	<b>672 (82%)</b>	<b>29 (4%)</b>	<b>15 (2%)</b>	<b>105 (12%)</b>	<b>825 (100%)</b>
<u>STORAGE</u>					
	Private Property	Marina- Boatyard	Yacht Club	Other	Total
New York City- Long Island	367 (57%)	204 (32%)	31 (5%)	36 (6%)	638 (100%)
Upstate New York	780 (75%)	120 (11%)	13 (1%)	136 (13%)	1049 (100%)
<b>TOTAL</b>	<b>1147 (68%)</b>	<b>324 (19%)</b>	<b>44 (3%)</b>	<b>172 (10%)</b>	<b>1687 (100%)</b>

supplies, and insurance accounted for much of the increased cost for boats in the NYC-LI area and can be attributed to higher maintenance costs associated with boats used in salt water and to somewhat higher labor costs in the NYC-LI area (Table 25).

The average cost data in Table 25 for maintaining and operating a boat are low because many of the respondents incurred no expense for one or more of the items listed. For example, the \$26 annual dockage expense for boats under 16 feet in New York City-Long Island, was drawn from 186 respondents; however, 146 paid nothing for dockage (that is, boats were kept on trailers). For the 40 boat owners who paid for dockage, the average cost was \$121 annually. To project the average annual cost of these items if they had been paid for, Table 26 was prepared using only the respondents who incurred an expense for the items listed.

If boating costs increased by 50% in 1975, 16% of the respondents indicated they would sell their boats and quit boating, and 28% stated they might do the same. Boat owners who would or might quit boating listed fishing (14%), camping (10%), and golf (9%) as the most important alternative recreational activities. Of the boaters, 36% planned to continue their present level of boating; indicating that they definitely would not use their boats less if costs increased; 40% believed they would or might trailer their boats to avoid dockage expense, but 80% said they definitely would not trade their present boat for a less expensive one. (Table 27).



TABLE 25. ANNUAL AVERAGE COST OF BOAT MAINTENANCE AND OPERATION, 1973

	Boat Length Categories		
	Under 16'	16' to 26'	Over 26'
<u>NEW YORK CITY-LONG ISLAND</u>			
Repairs & maintenance	\$ 69.40	\$146.12	\$415.70
Fuel & oil	\$ 69.75	\$120.71	\$306.16
Insurance	\$ 29.34	\$ 67.36	\$207.10
Dockage	\$ 25.95	\$ 93.11	\$263.12
Storage	\$ 10.37	\$ 53.11	\$159.93
Marine supplies	\$ 26.52	\$ 68.55	\$135.74
Hauling	\$ 9.44	\$ 19.06	\$ 78.72
Launching	\$ 7.65	\$ 19.07	\$ 57.26
<b>TOTAL</b>	<b>\$248.42</b>	<b>\$539.29</b>	<b>\$1,686.73</b>
<u>UPSTATE NEW YORK</u>			
Repairs & maintenance	\$ 19.46	\$ 49.64	\$181.20
Fuel & oil	\$ 42.23	\$104.18	\$255.08
Insurance	\$ 19.42	\$ 59.52	\$178.25
Dockage	\$ 5.29	\$ 53.82	\$188.98
Storage	\$ 6.44	\$ 35.47	\$189.81
Marine supplies	\$ 7.27	\$ 29.38	\$ 85.80
Hauling	\$ 12.84	\$ 13.46	\$ 35.92
Launching	\$ 7.00	\$ 8.78	\$ 41.33
<b>TOTAL</b>	<b>\$119.95</b>	<b>\$354.25</b>	<b>\$1,156.37</b>

TABLE 26. ANNUAL AVERAGE COST OF BOAT MAINTENANCE AND OPERATION FOR RESPONDENTS WHO INCURRED AN EXPENSE, 1973

	Boat Length Categories		
	Under 16'	16' to 26'	Over 26'
<u>NEW YORK CITY-LONG ISLAND</u>			
Repairs & maintenance	\$ 87.10	\$168.07	\$455.61
Fuel & oil	\$74.53	\$124.73	\$322.91
Insurance	\$ 59.32	\$ 93.45	\$328.50
Dockage	\$120.65	\$170.25	\$300.39
Storage	\$ 77.12	\$140.86	\$222.94
Marine supplies	\$ 45.01	\$ 84.56	\$160.52
Hauling	\$ 33.75	\$ 47.35	\$112.33
Launching	\$ 19.65	\$ 39.10	\$113.68
TOTAL	\$517.13	\$868.37	\$2,016.88
<u>UPSTATE NEW YORK</u>			
Repairs & maintenance	\$ 34.50	\$ 67.30	\$192.52
Fuel & oil	\$ 48.35	\$111.98	\$265.49
Insurance	\$ 44.04	\$ 78.44	\$185.53
Dockage	\$ 44.58	\$121.54	\$247.13
Storage	\$ 48.03	\$ 97.31	\$213.57
Marine supplies	\$ 18.32	\$ 52.73	\$112.21
Hauling	\$ 38.25	\$ 39.76	\$ 79.65
Launching	\$ 22.62	\$ 23.09	\$ 87.83
TOTAL	\$298.69	\$592.15	\$1,383.93

TABLE 27. BOAT OWNER ATTITUDES IF BOATING COST WOULD INCREASE BY 50% IN 1975

	Definitely	Maybe	Definitely not
Sell boat and quit boating	16%	28%	56%
Continue present level of boating	36%	36%	28%
Keep boat but use it less	23%	38%	39%
Trailer present boat to avoid dockage	27%	13%	60%
Trade boat for less expensive one	4%	16%	80%

## PROBLEMS ASSOCIATED WITH BOATING

Availability of Services

To determine the ease or difficulty in obtaining boating services, respondents were asked to circle a number from 1 (very easy) to 5 (very difficult) that best described the availability of services where they usually went boating. Statewide, 38% of the respondents indicated difficulty in obtaining facilities. Other services, in order of proportion of boaters expressing difficulties, were emergency repairs (32%), docking space (23%), launching sites (17%), parking space (14%), normal maintenance (11%), marine supplies (10%), fuel and oil (6%), and insurance (5%). (The percentages are the sums of the "4" and "5" categories in Table 28.)

To be more specific geographically, the data for the three most difficult services to obtain (pumpout facilities, emergency repairs, and docking space) were broken down by the 64 waterways indicated in Figures 3 and 4 (Table 29).

TABLE 28. OBTAINING BOATING SERVICES, 1973

Service <sup>a</sup>	Very Easy		Very Difficult			TOTAL
	1	2	3	4	5	
Pumpout facility	40% (506)	10% (125)	12% (156)	7% (93)	31% (396)	100% (1,276)
Emergency repairs	33% (738)	14% (305)	22% (493)	12% (254)	20% (422)	100% (2,212)
Docking space	50% (1,017)	12% (244)	14% (298)	9% (172)	15% (310)	100% (2,032)
Launching sites	54% (1,045)	15% (283)	14% (280)	8% (158)	9% (184)	100% (1,950)
Parking space	58% (1,225)	13% (267)	16% (335)	6% (124)	8% (158)	100% (2,109)
Normal maintenance	50% (1,122)	20% (458)	19% (432)	5% (107)	6% (138)	100% (2,257)
Marine supplies	57% (1,349)	17% (408)	16% (371)	5% (105)	5% (116)	100% (2,349)
Fuel & oil	71% (1,747)	14% (356)	9% (233)	3% (67)	3% (74)	100% (2,477)
Insurance	77% (1,609)	11% (224)	6% (130)	1% (26)	4% (89)	100% (2,078)

<sup>a</sup> Services listed in order of highest percentages for the 4 and 5 categories of difficulty (that is, pumpout facility 38%).

Pumpout services were the most difficult to obtain in the metropolitan New York region. Approximately 55% of respondents indicated they had difficulty in acquiring pumpout facilities in this region, compared with 38% statewide. Over one-half of the respondents had problems locating such facilities in 17 of the waterway regions, and for six of the waterways--Little Neck-Manhasset Bays (100%), West Bay (73%), Richmond-Brooklyn (73%), and the lower Hudson (71%)--the percentages were significantly greater. Throughout the remainder of the state, Lake Delta (75%), Schroon Lake (50%), Fulton

Chain (50%), upper Hudson (48%), and Western Lake Ontario (46%) were waterway regions where respondents had above average difficulty in obtaining pumpout facilities (Table 29).

Emergency repair was the next most difficult service to obtain. Little variation existed regionally, but the following waterway regions presented the most difficulties for boaters trying to obtain emergency repairs: lower Hudson (59%), Northport Bay (53%), Smithtown Bay (50%), Central other (50%), Finger Lakes other (50%), Schroon Lake (46%), and Lake Delta (45%).

Almost one-quarter (23%) of the boaters in the survey had difficulty in locating satisfactory docking space. This problem was most prevalent in the metropolitan New York area, specifically Oyster Bay-Cold Springs Harbor (67%), Port Jefferson Harbor (61%), Smithtown Bay (59%), Huntington Bay (44%), Northport Bay (42%), and East River-Flushing Bay (40%). Waterway regions throughout the state where respondents indicated docking space was a problem were: Lake Erie (40%), Northwest other (38%), Lake Delta (36%), Conesus Lake (35%), Skaneateles Lake (33%), Lake Ontario-East (33%), and upper Hudson River (22%).

#### Using Closer Facilities

New York boaters were asked whether there was a marine or launching ramp closer to their home than the one they most frequently used, and if so, why did they not use it. A closer facility existed for 41% of the respondents. The major reasons why they did not use that facility were over crowding (18%), substandard facilities (15%), polluted water (11%), or cost (10%). Other problems included parking difficulty (8%), poor service (6%), and poor access roads (4%). Other reasons for bypassing the closer facility were listed by

TABLE 29. MOST DIFFICULT SERVICES TO OBTAIN, BY WATERWAY REGIONS, 1973

No.	Waterway <sup>a</sup> Name	Pumpout Facilities		Emergency Repairs		Docking Space	
		Number Citing Difficulty	Percent Of Total N	Number Citing Difficulty	Percent Of Total N	Number Citing Difficulty	Percent Of Total N
1	Metropolitan New York Other	6	33%	9	44%	6	17%
2	Port Chester	6	50%	9	22%	9	11%
3	New Rochelle-Mamaroneck	21	52%	22	27%	23	39%
4	Eastchester Bay	12	75%	14	29%	13	15%
5	East River-Flushing Bay	11	73%	17	41%	15	40%
6	Little Neck-Manhasset Bays	15	100%	24	33%	20	10%
7	Hempstead Harbor	16	38%	22	41%	18	17%
8	Oyster Bay-Cold Springs Harbor	21	48%	30	43%	24	67%
9	Huntington Bay	17	53%	29	24%	27	44%
10	Northport Bay	12	67%	15	53%	12	42%
11	Smithtown Bay	27	52%	38	50%	32	59%
12	Port Jefferson Harbor	21	57%	34	32%	28	61%
13	Peconic Bays	27	44%	45	20%	39	18%
14	Gardiners Bay	21	52%	30	20%	28	14%
15	Shinnecock Bay	11	18%	16	19%	12	17%
16	Mariches Bay	8	50%	12	17%	12	8%
17	East Great South Bay	63	46%	98	32%	81	33%
18	West Great South Bay	78	45%	114	32%	85	25%
19	South Oyster Bay	10	20%	17	24%	12	8%
20	East Bay	18	50%	28	36%	17	35%

TABLE 29. Continued

No.	Waterway <sup>a</sup> Name	Pumpout Facilities		Emergency Repairs		Docking Space	
		Number Citing Difficulty	Percent of Total N	Number Citing Difficulty	Percent of Total N	Number Citing Difficulty	Percent of Total N
21	Middle Bay	26	58%	37	19%	22	27%
22	West Bay	19	73%	30	33%	22	14%
23	Jamaica Bay	23	52%	29	21%	23	9%
24	Richmond-Brooklyn	15	73%	18	28%	17	12%
25	Lower Hudson	51	71%	32	59%	31	35%
26	Southeast other	27	33%	40	45%	30	27%
27	Upper Hudson	29	48%	51	27%	41	32%
28	Capital other	21	33%	35	34%	35	6%
29	Sacandaga Lake	19	32%	49	33%	32	31%
30	Saratoga Lake	6	17%	15	20%	14	29%
31	North Country other	40	35%	106	31%	87	14%
32	St. Lawrence River East	17	35%	33	24%	35	14%
33	St. Lawrence River West	31	16%	54	22%	59	20%
34	Lake Ontario North	10	30%	33	21%	27	19%
35	Lake George	17	24%	42	14%	39	21%
36	Lake Champlain	23	30%	39	28%	35	26%
37	Saranac Lake	3	33%	13	31%	12	25%
38	Fulton Chain	4	50%	13	15%	12	25%
39	Schroon Lake	4	50%	11	46%	10	20%
40	Central other	28	29%	58	50%	51	22%
41	Oneida Lake	32	28%	68	29%	63	11%

TABLE 29. Continued

No.	Waterway <sup>a</sup> Name	Pumpout Facilities		Emergency Repairs		Docking Space	
		Number Citing Difficulty	Percent of Total N	Number Citing Difficulty	Percent of Total N	Number Citing Difficulty	Percent of Total N
42	Lake Ontario Northeast	12	33%	22	27%	23	13%
43	Otsego Lake	10	10%	11	27%	13	8%
44	Lake Delta	4	75%	11	45%	11	36%
45	Southern Tier other	17	18%	28	29%	28	14%
46	Chautaugua Lake	26	12%	51	22%	44	14%
47	Alleghany Reservoir	5	40%	11	46%	11	18%
48	Finger Lakes other	8	13%	10	50%	11	27%
49	Cayuga Lake	31	16%	52	31%	52	29%
50	Seneca Lake	23	13%	37	27%	37	19%
51	Canandaigua Lake	16	0%	30	23%	29	14%
52	Keuka Lake	11	18%	23	13%	22	32%
53	Conesus Lake	11	27%	20	30%	20	35%
54	Owasco Lake	3	0%	13	31%	13	8%
55	Skaneateles Lake	6	33%	12	25%	12	33%
56	Lake Lamoka	3	33%	7	0%	5	20%
57	Northwest other	4	25%	8	38%	8	38%
58	Niagara River	36	22%	64	25%	54	28%
59	Lake Erie	23	39%	49	41%	43	40%
60	Lake Ontario-West	6	50%	16	25%	17	29%
61	Lake Ontario-Middle	17	29%	24	17%	24	17%
62	Lake Ontario-East	11	46%	20	15%	21	33%



TABLE 29. Continued

No.	Waterway <sup>a</sup> Name	Pumpout Facilities		Emergency Repairs		Docking Space	
		Number Citing Difficulty	Percent of Total N	Number Citing Difficulty	Percent of Total N	Number Citing Difficulty	Percent of Total N
63	Silver Lake	5	0%	10	30%	7	29%
64	Barge Canal	12	8%	22	32%	24	17%
	Other	49	39%	88	32%	80	18%
	TOTAL	1276	38%	2212	32%	2032	23%

<sup>a</sup> See Figures 3 and 4 for locations

27% of the boaters. Regionally, crowding problems were more prevalent in the New York City-Long Island area. Substandard facilities were noted most often in the Southern Tier (26%) regions; in the Capital region (23%) polluted water represented a major reason for not using closer facilities (Table 30).

#### Launching

Boaters launched their craft from docks or ramps located on their own property, public facilities, commercial marinas, and other privately owned facilities. Over one-half (58%) of all problems (chiefly crowding or poor facilities) existed at public facilities, especially in the New York City-Long Island region. Launching problems related to weather and water levels were more prevalent in upstate New York than in the New York City-Long Island region (Table 31).

Length of waiting for launching was often a problem. Although 50% of the boaters were able to launch their boats within 15 minutes, almost 20% waited over an hour. Longer delays were found in the New York City-Long Island area, especially at commercial marinas, yacht clubs, and public facilities. Public facilities accommodated over one-half of all launchings, and the vast majority of boaters was able to launch their boats in less than half an hour. However, 59% of the boaters in upstate New York launched boats in 15 minutes or less, compared to 39% for boaters at more crowded facilities in the New York City-Long Island region (Table 32).

#### Biggest Gripes

A total of 857 boaters (37%) listed inconsiderate boaters and waterskiers as their biggest gripe (Table 33). Inconsiderate boaters far exceeded the next biggest gripe of crowded facilities, noted by 258 boaters and accounting

TABLE 30. REASONS FOR NOT USING MARINAS OR LAUNCHING RAMPS CLOSER TO HOME, 1973

Region	Poor Facilities	Poor Access Roads	Poor Service	Too Crowded	Too Costly	Difficult Parking	Polluted Water	Other	TOTAL
Metropolitan New York	(17%) 101	(5%) 27	(7%) 42	(20%) 120	(13%) 80	(10%) 61	(8%) 46	(21%) 130	(100%) 607
Southeast	(17%) 15	(5%) 4	(6%) 5	(18%) 16	(13%) 11	(10%) 9	(8%) 7	(23%) 20	(100%) 87
Capital	(12%) 12	(3%) 3	(3%) 3	(18%) 17	(8%) 8	(8%) 8	(23%) 22	(25%) 24	(100%) 97
North Country	(12%) 35	(3%) 10	(3%) 10	(26%) 48	(7%) 21	(8%) 23	(13%) 40	(38%) 115	(100%) 302
Central	(17%) 30	(4%) 7	(7%) 13	(17%) 30	(8%) 14	(7%) 12	(13%) 23	(28%) 49	(100%) 178
Southern Tier	(26%) 17	(5%) 3	(6%) 4	(12%) 8	(5%) 3	(5%) 3	(8%) 5	(35%) 23	(100%) 66
Finger Lakes	(21%) 20	(5%) 9	(6%) 11	(18%) 35	(9%) 17	(6%) 12	(14%) 26	(32%) 61	(100%) 191
Northwest	(17%) 36	(5%) 10	(7%) 14	(19%) 41	(11%) 24	(9%) 20	(9%) 20	(23%) 49	(100%) 214
<b>TOTAL</b>	<b>(15%) 266</b>	<b>(4%) 73</b>	<b>(6%) 102</b>	<b>(18%) 315</b>	<b>(10%) 178</b>	<b>(8%) 148</b>	<b>(11%) 189</b>	<b>(27%) 471</b>	<b>(100%) 1742</b>

TABLE 31. LAUNCHING PROBLEMS AT DESTINATION FACILITY, 1973

	Own Private Property	Public Facility	Commercial Marinas	Yacht Clubs	Other Private Property	TOTAL
<u>New York City-Long Island</u>						
Crowded	3	31	1	1	1	37
Poor Facility	1	18	2	1	3	25
Weather	1	5	-	2	-	8
Low Water	1	9	1	5	-	16
High Water	1	-	-	-	-	1
Other	1	13	3	4	3	24
Subtotal	8 (7%)	76 (69%)	7 (6%)	13 (12%)	7 (6%)	111 (100%)
<u>Upstate New York<sup>a</sup></u>						
Crowded	4	35	4	1	3	47
Poor Facility	1	32	7	-	5	45
Weather	14	16	3	1	6	40
Low Water	12	14	3	3	4	36
High Water	16	16	7	1	4	44
Other	7	31	8	-	6	52
Subtotal	54 (20%)	144 (54%)	32 (12%)	6 (2%)	28 (11%)	265 (100%)
TOTAL	62 (17%)	210 (58%)	39 (11%)	19 (5%)	35 (10%)	375 (100%)

<sup>a</sup> All other regions were grouped together as upstate New York since three regions had less than 20 observations.

TABLE 32. LONGEST WAIT TO LAUNCH BOATS, 1973

	Own Private Property	Public Facility	Commercial Marinas	Yacht Clubs	Other Private Property	TOTAL
<u>New York City-Long Island</u>						
Less than 15 min.	11	63	12	9	18	113 (39%)
15 to 30 min.	2	59	5	8	8	82 (28%)
30 to 45 min.	1	27	3	2	3	36 (13%)
45 to 60 min.	1	18	1	1	—	21 (7%)
Over 60 min.	3	22	7	5	—	37 (13%)
Subtotal	18	189	28	25	29	289 (100%)
<u>Upstate New York</u>						
Less than 15 min.	88	220	40	19	53	430 (59%)
15 to 30 min.	13	113	25	5	12	168 (23%)
30 to 45 min.	4	44	10	2	4	64 (9%)
45 to 60 min.	1	15	3	1	2	22 (3%)
Over 60 min.	10	26	5	2	7	50 (7%)
Subtotal	116	418	83	29	88	734 (100%)
TOTAL	134 (13%)	607 (59%)	111 (11%)	54 (5%)	117 (11%)	1023 (100%)

TABLE 13. BIGGEST COMPLAINTS, 1973

Problem	Region								TOTAL
	Metropolitan New York	Southeast	Capital	North Country	Central	Southern Tier	Pinebar Lakes	Northwest	
Inconsiderate boaters and watermen	154	31	51	150	75	41	91	64	857 (37%)
Crowded facilities and waters	121	6	16	35	15	12	14	20	258 (11%)
Polluted water	89	9	16	37	37	13	12	23	256 (11%)
Poor launch sites	57	14	9	26	28	8	29	42	213 (9%)
Expense of boating	114	10	6	24	15	9	17	16	211 (9%)
Lack of time for boating	38	8	5	23	7	1	9	15	108 (5%)
Needs	2	1	9	17	9	17	26	9	92 (4%)
Large boats on small waters	17	8	9	14	9	8	11	6	81 (4%)
Lack of dockage space	29	5	-	11	4	5	13	11	80 (3%)
Depth of boating waters	27	-	4	7	6	4	5	3	56 (2%)
Poor lighting and marking of channels	30	-	1	6	9	1	3	3	53 (2%)
Lack of parking near launching ramp	18	2	-	3	4	3	8	10	48 (2%)
Lack of camping near launching ramp	5	1	1	5	1	-	3	1	18 (1%)
Lack of storage space	3	1	-	1	-	-	-	1	6 -
<b>TOTAL</b>	<b>905</b> (39%)	<b>96</b> (4%)	<b>127</b> (6%)	<b>361</b> (16%)	<b>218</b> (9%)	<b>123</b> (5%)	<b>281</b> (12%)	<b>224</b> (10%)	<b>2327</b> (100%)

for only 11% of the problems. Other major gripes by boaters in order of response were: polluted waters (11%), poor launching sites (9%), expense of boating (9%), and lack of time for boating (5%).

#### Allocation of Public Monies

Heading the list of priorities in the expenditure of public monies for boaters statewide was additional boat launching sites, noted by 564 respondents, followed by the enactment of water pollution laws (424), educating and licensing boat owners (385), better policing of waterways (352), and additional dockage space (302). Of lesser importance were better lighting and marketing of channels (161), dredging (111), weed control (108), pumpout facilities (100), fish stocking (68), camping facilities at launching ramps (65), restrooms at launching ramps (52), and additional storage facilities (22). In the New York City-Long Island area the education and licensing of boat owners and additional pumpout facilities were rated higher than the overall state priorities; for upstate New York, policing the waterways and weed control ranked higher than statewide priorities (Table 34).

#### Boating in 1973 Compared to 1968

In response to questions concerning some aspects of recreational boating in 1973 compared to 1968, boat owners ranked congestion due to increased boating traffic as having the greatest negative change over the five-year period. Other boating problems that had become progressively worse were: expenses associated with boating, behavior of other boaters, quality of facilities and services, and depth of boating channels. Only boat design and performance were believed to have significantly improved since 1968 (Table 35).

TABLE 34. OPINIONS ON ALLOCATING PUBLIC MONIES, 1974

	New York City Long Island	Upstate New York	TOTAL	
Launching sites	171	393	564	(21%)
Enactment of water pollution laws	143	281	424	(16%)
Education and licensing of boat owners	193	192	385	(14%)
Policing of waterways	140	212	352	(13%)
Dockage	128	174	302	(11%)
Lighting and marking of channels	96	65	161	(6%)
Dredging	74	37	111	(4%)
Weed control	12	96	108	(4%)
Pumpout facilities	52	48	100	(4%)
Fish stocking	20	48	68	(3%)
Camping facilities at launching ramps	19	46	65	(2%)
Restrooms at launching ramps	17	35	52	(2%)
Storage	10	12	22	(1%)
TOTAL	1,075	1,639	2,714	(100%)



TABLE 35. SELECTED BOATING-RELATED ASPECTS IN 1973 COMPARED TO 1968

	Much Better	Better	Same	Worse	Much Worse	TOTAL
1973 Compared to 1968						
Boat traffic	2% (37)	1% (33)	14% (352)	27% (626)	56% (1316)	100% (2364)
Expense of boating	2% (48)	3% (70)	25% (568)	33% (770)	37% (851)	100% (2307)
Behavior of boaters	3% (81)	6% (152)	36% (855)	20% (467)	35% (824)	100% (2379)
Quality of facilities	6% (137)	9% (205)	53% (1187)	19% (430)	13% (300)	100% (2259)
Quality of services	9% (193)	16% (363)	57% (1287)	12% (266)	6% (142)	100% (2251)
Depth of channels	6% (131)	9% (178)	68% (1431)	8% (172)	9% (191)	100% (2103)
Boat design & performance	47% (1044)	19% (432)	30% (683)	2% (33)	2% (37)	100% (2229)

## BOATING OUTLOOK IN NEW YORK

Following the energy shortage of 1974, a sample of 1,000 boaters responding to the 1973 study was resurveyed to determine the impact of higher fuel prices, increased rates of inflation, and unemployment. A total of 732 boaters responded. While such panel studies assume a static boating population and are unable to consider the effects of new boaters entering the market, the bias encountered in a second study only one year after the first is typically not pronounced.

Of the 732 owners of registered boats who responded to both the 1973 boating survey and the 1974 update, about 7% did not go boating in 1973. An additional 5.5% did not participate in 1974. That the number of additional nonparticipants in 1974 did not equal or surpass the 1973 number in this static sample suggests that the energy crisis had a minimal effect on boaters leaving this recreation activity.

Examination of transfers in boat ownership supports this theory. Sixty-three of those responding sold a boat in 1974 without purchasing another. Only 16 of these reported selling their boats because they intended to do less boating in 1974, however, leading us to the tentative conclusion that most sellers owned more than one boat or planned to buy another boat soon. Thirty owners sampled purchased an additional boat in 1974. Again, because of the static sample, we would expect a similar number to purchase boats outright than to sell them outright.

From the 1974 data, no trend of trading for more economical boats was detected. In fact, for each group of boats by length (less than 16 feet, 16-25 feet, and over 25 feet), the mean horsepower of the boat acquired was slightly larger than the mean horsepower of the boat traded.

The effects of the energy crisis combined with higher gasoline prices could hardly be detected by comparing 1973 versus 1974 participation in boater days. A decline of 5% to 10% in boater days was expected from 1973 to 1974 because of the static sample, and this was observed for all three length classes. The effects on fuel purchased was much more pronounced, however. In 1974, owners of boats under 16 feet, 16-25 feet, and over 25 feet long purchased 17, 30, and 42% fewer gallons of gasoline, respectively. Just over half of those responding indicated that on boat outings they operated their engines less, or at lower speeds, to conserve fuel.

When asked how they thought the fuel and economic conditions of 1974 would affect 1975 boating participation, 63% indicated there would be no effect, 16% said they would probably take fewer trips, 6% stated they would probably sell their boats, and 15% indicated a variety of other adjustments that they would probably make, including cruising less, going more slowly, and using a smaller boat.

As we approach the end of this decade, available evidence suggests that boating will remain a popular activity in New York as long as fuel is readily available. Changes in the method of processing boat registrations in New York have made it impossible to compare accurately the number of registered vessels on a year-by-year basis. Nationally, outboard boats, which account for about 85% of all powered boats, reached a sales peak of 448,000 in 1973. Sales declined to 425,000 in 1974, and to 328,000 in 1975, then rebounded slightly to 341,000 in 1976. Although boat sales have declined in recent years, it is important for planners to note that the total number of boats in use by the American public is still increasing (Marex/National Association of Engine and Boat Manufacturers, 1975). The

average horsepower of all motors sold nationally, after peaking at 40.8hp in 1973 and dropping very slightly in 1974 and 1975, reached an all-time high of 42.1hp in 1976.

Sailboat sales have increased in recent years. This important aspect of boating could not be treated in this study because nonpowered boats are not required to be registered in New York, and the authors therefore had no sampling base for sailboat owners. Nationally, 800,000 sailboats were sold in 1975, nearly 2.5 times the number of outboard boats sold. Available evidence suggests, however, that the increased interest in sailing is not at the expense of the motorized boating market. Of 80 boats purchased outright or by trade by respondents of the 1974 update survey, 13 were sailboats, but 11 were additional purchases by owners of motorized boats who did not sell or trade their powered craft, and the other two involved sailboat trade-ins.

Whether sales of powered boats will recover to again reach the 1973 peak level is largely dependent on continued price and availability of fuel, and on economic conditions generally. While this will have the effect of slowing the overall growth in demand for boating facilities, that demand is still growing. Owners of powered boats have indicated they will respond to fuel shortages or price increases by operating their craft in ways that use less fuel, but they show little inclination to give up boating. As a result, future interest in boating remains high despite an outlook for increased fuel prices.

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APPENDIX A  
NUMBER OF REGISTERED BOATS BY COUNTY, 1971

County	Boat Length Categories			Uncoded	Total
	Under 16'	16 to 26'	Over 26'		
Albany	6,401	2,099	273	73	8,846
Allegany	1,142	230	9	7	1,388
Broome	5,135	1,474	165	40	6,814
Cattaraugus	1,779	426	20	10	2,235
Cayuga	2,926	806	72	19	3,823
Chautauqua	4,741	1,616	105	40	6,502
Chemung	3,149	743	139	23	4,054
Chenango	1,505	237	18	5	1,760
Clinton	2,813	654	54	19	3,540
Columbia	1,310	255	47	6	1,618
Cortland	1,482	372	26	24	1,904
Delaware	753	150	3	5	911
Dutchess	2,684	1,308	255	22	4,239
Erie	13,841	6,527	871	79	21,318
Essex	2,730	633	72	23	3,458
Franklin	2,556	376	17	31	2,980
Fulton	2,439	615	31	30	3,110
Genesee	1,139	301	25	8	1,473
Greene	578	188	47	6	819
Hamilton	1,458	190	17	31	1,696
Herkimer	2,421	459	30	20	2,930
Jefferson	5,094	2,188	320	77	7,679
Lewis	897	137	8	5	1,047
Livingston	1,965	408	15	15	2,403
Madison	2,215	652	50	11	2,928
Monroe	15,167	7,106	952	102	23,327
Montgomery	1,428	392	22	19	1,861
Nassau	18,333	19,935	5,474	176	43,918
N. Y. City	11,799	14,394	4,456	151	30,800
Niagara	4,550	1,950	295	40	6,835
Oneida	7,422	2,195	152	41	9,810
Onondaga	13,322	5,521	719	96	19,658
Ontario	2,998	1,180	98	21	4,297

## APPENDIX A (Continued)

County	Boat Length Categories			Uncoded	Total
	Under 16'	16 to 26'	Over 26'		
Orange	2,737	1,036	134	28	3,935
Orleans	874	290	38	5	1,207
Oswego	3,922	1,138	86	24	5,170
Otsego	1,777	317	18	15	2,127
Putnam	1,012	491	58	5	1,566
Rensselaer	3,158	691	119	37	4,005
Rockland	1,415	1,183	230	9	2,837
St. Lawrence	6,047	1,158	127	44	7,376
Saratoga	4,334	1,200	115	27	5,676
Schenectady	5,072	1,601	154	26	6,853
Schoharie	425	127	3	2	557
Schuyler	962	201	19	7	1,189
Seneca	1,745	553	57	16	2,371
Steuben	3,777	769	75	22	4,543
Suffolk	25,895	27,018	6,448	265	59,626
Sullivan	1,101	285	9	3	1,398
Tioga	1,439	418	50	6	1,913
Tompkins	1,999	773	124	21	2,917
Ulster	1,763	761	144	17	2,685
Warren	3,071	1,378	109	32	4,590
Washington	1,516	439	18	9	1,982
Wayne	2,747	1,133	127	17	4,026
Westchester	6,102	5,734	1,767	57	13,660
Wyoming	987	211	9	6	1,213
Yates	1,649	380	17	23	2,069
Multicounties	411	228	64	9	712
Out-of-state	4,473	2,458	730	31	7,692
Uncoded	838	374	73	105	1,390
<b>TOTAL</b>	<b>239,415</b>	<b>128,057</b>	<b>25,749</b>	<b>2,143</b>	<b>395,364</b>

Source: NYS Office of Parks and Recreation 1973

APPENDIX B  
COPY OF QUESTIONNAIRE

1. How many power boats do you presently own? \_\_\_\_\_  
If none, please check (\_\_\_\_) and return the sealed questionnaire to us. Thank you.

2. What type of boat(s) do you presently own?

A) Present Boat #1:

Check one:	Please indicate:
Inboard _____	Length of boat in feet _____
Outboard _____	Horsepower of engine(s) _____
Inboard/ Outboard _____	Year Purchased _____
Other (please explain) _____	At time of purchase: Value \$ _____
_____	Age: _____ new, or _____ years old

B) Present Boat #2:

Check one:	Please indicate:
Inboard _____	Length of boat in feet _____
Outboard _____	Horsepower of engine(s) _____
Inboard/ Outboard _____	Year Purchased _____
Other (please explain) _____	At time of purchase: Value \$ _____
_____	Age: _____ new, or _____ years old

3. Please indicate below any PREVIOUSLY owned boats that you have purchased since January 1, 1960, but no longer own:

A) Boat Most Recently Disposed of:

Owned from _____	to _____
Check one:	Please indicate:
Inboard _____	Length of boat in feet _____
Outboard _____	Horsepower of engine(s) _____
Inboard/ Outboard _____	Value at time of purchase \$ _____
Other (please explain) _____	
_____	



## B) Boat Next Most Recently Disposed of:

Owned from \_\_\_\_\_ to \_\_\_\_\_  
 Check one: \_\_\_\_\_ Please indicate:  
 Inboard \_\_\_\_\_ Length of boat in feet \_\_\_\_\_  
 Outboard \_\_\_\_\_ Horsepower of engine(s) \_\_\_\_\_  
 Inboard/  
 Outboard \_\_\_\_\_ Value at time of  
 purchase \$ \_\_\_\_\_  
 Other (please  
 explain) \_\_\_\_\_  
 \_\_\_\_\_

## C) Boat Next Most Recently Disposed of:

Owned from \_\_\_\_\_ to \_\_\_\_\_  
 Check one: \_\_\_\_\_ Please indicate:  
 Inboard \_\_\_\_\_ Length of boat in feet \_\_\_\_\_  
 Outboard \_\_\_\_\_ Horsepower of engine(s) \_\_\_\_\_  
 Inboard/  
 Outboard \_\_\_\_\_ Value at time of  
 purchase \$ \_\_\_\_\_  
 Other (please  
 explain) \_\_\_\_\_  
 \_\_\_\_\_

## 4. A) Is your present boat(s) equipped with any of the following items?

	YES	NO
Head	_____	_____
Galley	_____	_____
Depth Finder	_____	_____
Sail	_____	_____
Windshield	_____	_____
Lights	_____	_____
Two-way Radio	_____	_____

## B) Do you plan to add any of these items to your present boat(s)?

YES \_\_\_\_\_ NO \_\_\_\_\_

If yes, what will you add? \_\_\_\_\_

If no, do you plan to buy a boat within the next 12 months which would be better equipped than your present boats? YES \_\_\_\_\_ NO \_\_\_\_\_

5. A) On approximately how many different days did you use your boat(s) in 1973 for each of the following categories?
- Total Weekdays: \_\_\_\_\_  
 Total Weekend Days: \_\_\_\_\_  
 Total Vacation Days: \_\_\_\_\_  
 Total \_\_\_\_\_ Days
- B) Has your total time spent boating in 1973 been about the same, more, or less than last year's?
- \_\_\_\_\_ About the same \_\_\_\_\_ More \_\_\_\_\_ Less
6. Please estimate the percentage of time you used your boat(s) for the following purposes in 1973: (Your answers should total 100%).
- |                        |        |
|------------------------|--------|
| Pleasure cruising      | _____% |
| Sport fishing          | _____% |
| Business-Commercial    | _____% |
| Water-skiing           | _____% |
| Other (please explain) | _____% |
| <hr/>                  |        |
| TOTAL                  | 100%   |

FOR PRIVATE INDUSTRY AND GOVERNMENT TO BETTER SERVE YOUR NEEDS AS A BOATER, PLEASE INDICATE THE SERVICES AND FACILITIES YOU REQUIRE.

7. A) How did you usually berth your boat during the 1973 season?
- On a trailer \_\_\_\_\_  
 At a mooring or stake \_\_\_\_\_  
 Dry stack storage \_\_\_\_\_  
 Tied to a dock \_\_\_\_\_  
 Other (please explain) \_\_\_\_\_
- \_\_\_\_\_
- B) If your boat is usually berthed out of the water during season, what type(s) of launching facilities do you use most often? (If your boat is berthed in the water during season, skip to question 8.)
- Launching ramp \_\_\_\_\_  
 Travel lift \_\_\_\_\_  
 Marine railway \_\_\_\_\_  
 Other (please explain) \_\_\_\_\_
- \_\_\_\_\_

C) Were there times when you were unable to launch your boat? YES \_\_\_\_\_ NO \_\_\_\_\_

If yes, what was the problem? \_\_\_\_\_

D) What was the longest wait in 1973 for you to launch or haul your boat?

\_\_\_\_\_ Less than 15 minutes

\_\_\_\_\_ 15-30 minutes

\_\_\_\_\_ 30-45 minutes

\_\_\_\_\_ 45-60 minutes

\_\_\_\_\_ Over 60 minutes

8. Do you own a boat trailer? YES \_\_\_\_\_ NO \_\_\_\_\_

9. Where did you store your boat for the '72-'73 winter?

My property \_\_\_\_\_

Commercial marina \_\_\_\_\_

Commercial boatyard \_\_\_\_\_

Private Yacht Club \_\_\_\_\_

Other (please explain) \_\_\_\_\_

10. Circle the number which best describes the ease or difficulty you have in obtaining the following services where you usually boat:

	VERY EASY				VERY DIFFI- CULT
Fuel and oil	1	2	3	4	5
Marine supplies	1	2	3	4	5
Emergency repair service	1	2	3	4	5
Normal maintenance	1	2	3	4	5
Pumpout facility	1	2	3	4	5
Launching sites	1	2	3	4	5
Docking space	1	2	3	4	5
Insurance	1	2	3	4	5
Parking space	1	2	3	4	5

11. A) Please estimate below your approximate expenses for boating in 1973.

Hauling	\$ _____
Launching	\$ _____
Storage	\$ _____
Dockage	\$ _____
Repairs and maintenance	\$ _____
Marine supplies	\$ _____
Fuel and oil	\$ _____
Insurance	\$ _____
TOTAL	\$ _____

- B) If by 1975 this total were 50% higher, what do you expect you would do? (Check one response for each item).

	Defi- nitely	Maybe	Defi- nitely Not
Sell boat and quit boating	_____	_____	_____
Continue present level of boating	_____	_____	_____
Keep boat but use it less	_____	_____	_____
Trailer present boat to avoid dockage	_____	_____	_____
Trade boat for less expensive one	_____	_____	_____
Other (please explain)	_____	_____	_____

12. If you were to quit boating, what leisure activity(ies) do you think would take its place? \_\_\_\_\_

NEXT, YOUR OPINIONS AND ATTITUDES ABOUT BOATING PROBLEMS:

13. Comparing 1973 to FIVE YEARS AGO, describe the change in the following conditions: (Circle the appropriate answer).

	Much Better		About the Same		Much Worse
Boat design and performance	1	2	3	4	5
Expense of boating	1	2	3	4	5
Boat traffic	1	2	3	4	5
Quality of boating facilities	1	2	3	4	5
Behavior of other boaters	1	2	3	4	5
Depth of boating channels	1	2	3	4	5
Other (please explain)	1	2	3	4	5

## FINALLY ABOUT YOU AND YOUR FAMILY AS BOATERS:

14. How many years have you been boating? \_\_\_\_\_
15. What is your occupation? \_\_\_\_\_
16. What is the occupation of your spouse? \_\_\_\_\_
17. How many years of school have you completed? \_\_\_\_\_ years
18. In what year were you born? \_\_\_\_\_
19. Including yourself, how many people in the following age categories are living at home?
- (1) Ten years or under \_\_\_\_\_
- (2) 11-20 years \_\_\_\_\_
- (3) 21-30 years \_\_\_\_\_
- (4) 31-50 years \_\_\_\_\_
- (5) Over 50 years \_\_\_\_\_
- TOTAL NUMBER IN HOUSEHOLD \_\_\_\_\_
20. A) How many years have you been a resident of New York State? \_\_\_\_\_
- B) In what city, village, or town is your residence?  
\_\_\_\_\_
- C) In which county do you reside? \_\_\_\_\_
- D) If you moved to your present residence within the last 10 years, was your interest in boating a factor in deciding where to locate?  
YES \_\_\_\_\_ NO \_\_\_\_\_
21. A) Do you have a seasonal or vacation home in New York State? YES \_\_\_\_\_ NO \_\_\_\_\_
- B) If yes, is this used in connection with your boating activities? YES \_\_\_\_\_ NO \_\_\_\_\_
22. A) How far from your home is the dock, launching ramp, marina, or yacht club you use most frequently?  
\_\_\_\_\_ miles
- B) Please describe this facility:  
 \_\_\_\_\_ Dock or launching ramp on your property  
 \_\_\_\_\_ Public facility, name: \_\_\_\_\_  
 \_\_\_\_\_ Commercial marina, name: \_\_\_\_\_  
 \_\_\_\_\_ Yacht club or other private club, name: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ Other private launching ramp  
 \_\_\_\_\_ Other (please explain): \_\_\_\_\_

C) On what body of water is it located? \_\_\_\_\_

D) What is the nearest city or community to this facility?  
\_\_\_\_\_

23. Is there a marina or launching ramp closer to your home than the one you use most often? YES \_\_\_\_\_ NO \_\_\_\_\_

If yes, why don't you use the closer one? (Check all that apply)

\_\_\_\_\_ Poor dockage and launching facilities

\_\_\_\_\_ Poor access roads

\_\_\_\_\_ Poor service

\_\_\_\_\_ Too crowded

\_\_\_\_\_ Too costly

\_\_\_\_\_ Difficult parking

\_\_\_\_\_ Polluted water

\_\_\_\_\_ Other (please explain) \_\_\_\_\_

24. Please circle the number which best describes your TOTAL HOUSEHOLD INCOME, before taxes, in thousands of dollars.

- 1   2   3   4   5   6   7   8   9   10   11   12   13
- 14   15   16   17   18   19   20   21   22   23   24   25   26
- 27   28   29   30   35   40   45   50   and over

25. What is your biggest gripe about boating? \_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

26. How might 1974 public monies allocated to boating best be spent? \_\_\_\_\_

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## APPENDIX C

## 64 WATERWAY REGIONS

Number	Name	Number of Observations	Boundary Delineations
1	Metropolitan New York other	15	--
2	Port Chester	10	Connecticut state line to Milton Point
3	New Rochelle-Mamaroneck	24	Milton Point to City Island
4	Eastchester Bay	14	City Island to Throgs Neck
5	East River-Flushing Bay	17	Throgs Neck to Hunters Point
6	Little Neck-Manhasset Bay	25	Fort Totten to Barker Point
7	Hempstead Harbor	25	Barker Point to Glen Cove Landing
8	Oyster Bay-Cold Springs Harbor	32	Glen Cove Landing to Lloyd Point
9	Huntington Bay	39	Lloyd Point to West Beach
10	Northport Bay	17	West Beach to Fort Salonga
11	Smithtown Bay	39	Fort Salonga to Old Field Point
12	Port Jefferson Harbor	37	Old Field Point to Herod Point
13	Peconic Bays	54	Riverhead to Nichols Point
14	Gardiners Bay	33	All NE of Nichols Point
15	Shinnecock Bay	21	Mecox Bay to Beach Lane
16	Moriches Bay	16	Beach Lane to William Floyd Parkway
17	East Great South Bay	106	William Floyd Parkway to Nicoll Point
18	West Great South Bay	126	Nicoll Point to Unqua Point
19	South Oyster Bay	19	Unqua Point to Jones Beach Causeway
20	East Bay	34	Jones Beach Causeway to Randall Bay across to Jones Inlet

## APPENDIX C (Continued)

Number	Name	Number of Observations	Boundary Delineations
21	Middle Bay	38	Randall Bay--Jones Inlet to Austin Blvd.
22	West Bay	36	Austin Blvd. to E. Rockaway Inlet
23	Jamaica Bay	33	E. Rockaway Inlet to Coney Island
24	Richmond-Brooklyn	19	Staten Island, Coney Island to Hunters Point
25	Lower Hudson	35	South of Peekskill
26	Southeast other	58	--
27	Upper Hudson	54	North of Peekskill
28	Capitol other	50	--
29	Sacadaga Lake	56	--
30	Saratoga Lake	22	--
31	North Country other	141	--
32	St. Lawrence River-east	41	Alexandria Bay to Cornwall
33	St. Lawrence River-west	64	Cape Vincent to Alexandria Bay
34	Lake Ontario North	35	Sandy Creek to Three Mile Bay
35	Lake George	51	--
36	Lake Champlain	48	--
37	Saranac Lake	17	--
38	Fulton Chain	15	--
39	Schroon Lake	11	--
40	Central other	91	--
41	Oneida Lake	94	--
42	Lake Ontario-northeast	31	Fair Haven to Oswego
43	Otsego Lake	13	--



## APPENDIX C (Continued)

Number	Name	Number of Observations	Boundary Delineations
44	Lake Delta	12	--
45	Southern tier other	41	--
46	Chautaugua Lake	58	--
47	Alleghany Reservoir	17	--
48	Finger Lakes other	18	--
49	Cayuga Lake	67	--
50	Seneca Lake	57	--
51	Canandaigua Lake	47	--
52	Keuka Lake	35	--
53	Conesus Lake	27	--
54	Owasco Lake	17	--
55	Skaneateles Lake	16	--
56	Lake Lamoka	12	--
57	Northwest other	15	--
58	Niagara River	71	Youngstown to Fort Erie
59	Lake Erie	66	Fort Erie to Penn state li
60	Lake Ontario-west	21	Youngstown to Manitou Beac
61	Lake Ontario-middle	29	Manitou Beach to Pultneyvi
62	Lake Ontario-east	27	Pultneyville to Oswego
63	Silver Lake	12	--
64	Barge Canal	31	--
	Missing data	275	--
TOTAL		2,730	

## APPENDIX D1

## COUNTIES WITH A POSITIVE INWARD MIGRATION IN BOAT USE

county	Additional boats used primarily in the county in excess of registered boats*	Increase	
		Universe (1971)	Sample (1973)
Schuyler	2,361	67%	76%
Hamilton	3,078	65	70
Yates	2,503	55	60
Warren	4,021	47	53
Sullivan	1,187	46	49
Fulton	2,547	45	45
Seneca	1,508	40	32
Jefferson	4,956	39	49
Franklin	1,485	35	24
Lewis	508	34	28
Livingston	1,184	33	40
Wyoming	596	33	20
Cayuga	1,604	31	32
Oswego	2,199	30	34
Ontario	1,645	29	27
Orleans	466	28	20
Chautauqua	2,145	28	28
Saratoga	2,059	27	32
Essex	1,200	26	28
Otsego	699	25	32
Madison	866	23	27
St. Lawrence	2,101	22	23
Allegany	357	20	22
Washington	424	18	4
Wayne	830	17	11
Columbia	252	13	16
Tompkins	352	11	7
Suffolk	6,859	10	11
Putnam	108	6	12
Herkimer	121	4	14

\*Assumes all the registered boats were also used in the same counties.

## APPENDIX D2

## COUNTIES WITH NEGATIVE INWARD MIGRATION IN BOAT USE

County	Difference between registered boats and boats used outside the county Number	Difference	
		Universe (1971)	Sample (1973)
Chemung	3,302	81%	77%
Schenectady	5,185	76	83
Montgomery	1,378	74	76
Genesee	986	67	58
Albany	5,586	63	69
Tioga	1,005	53	52
Monroe	11,758	50	51
Broome	3,356	49	44
New York City	14,150	46	59
Schoharie	234	42	65
Rensselaer	1,643	41	31
Onondaga	7,797	40	39
Chenango	462	36	24
Cortland	652	34	32
Oneida	2,692	27	29
Delaware	197	22	10
Erie	4,654	22	21
Westchester	2,659	19	20
Dutchess	815	19	16
Orange	662	17	13
Rockland	457	16	10
Ulster	429	16	18
Greene	127	16	18
Niagara	1,092	16	20
Nassau	4,082	9	11
Steuben	434	9	2
Cattaraugus	142	6	8
Clinton	158	4	0