

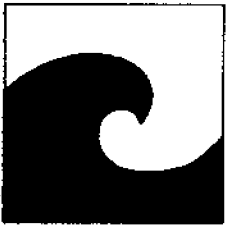
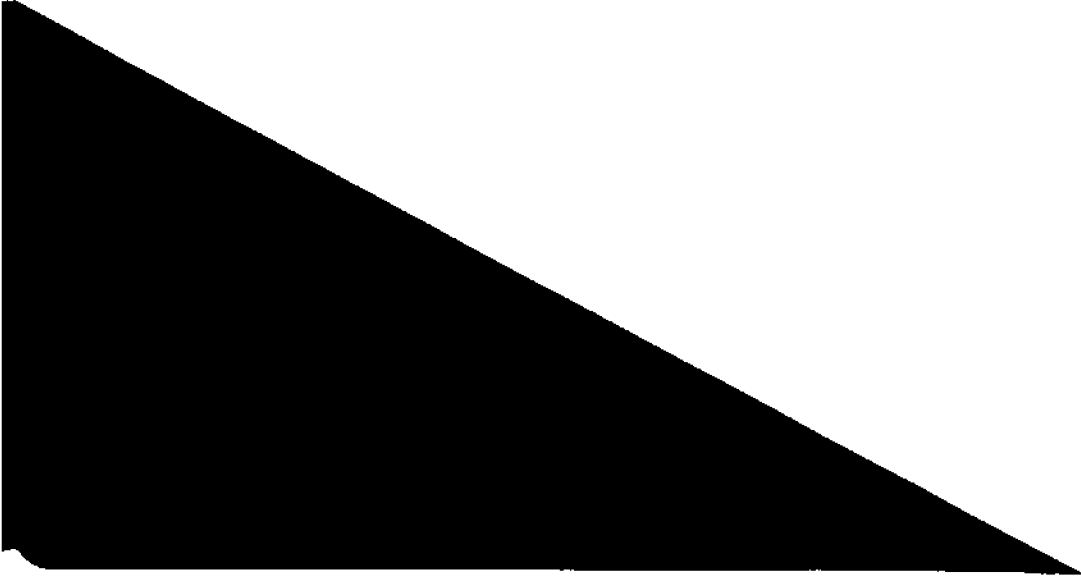
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Perspectives on Marina
Development in New York City

Niels C. West
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PERSPECTIVES ON MARINA DEVELOPMENT IN
NEW YORK CITY

A First Impressions Report

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SECTION 1

INTRODUCTION

After years of neglect and deterioration, New York City's waterfront has become the object of growing concern. This attention has fostered discussion of and search for ways to improve the urban shoreline so as to upgrade its aesthetic quality, provide a pleasant social and recreational environment, and render a greater financial return to the City. A number of studies have assessed various aspects of waterfront development and re-development and offered specific recommendations.¹ Perhaps most importantly, the principle of waterfront renaissance has received the strong and enthusiastic support of the present mayor, Edward I. Koch.

This report focuses upon one potential component of waterfront development: marinas. A waterfront characterized here and there by flotillas of pleasure craft that are docked, moored or underway is a visually pleasing prospect--and certainly preferable to the specter of deteriorating bulkheads, rotting piers, and dilapidated warehouses. Moreover, the existence of marinas can suggest pleasant passive as well as active recreation. Finally, the leasing of municipally owned waterfront acreage to private concessionaires (marina developers) represents significant potential income to the City, not to mention financial spinoffs in the forms of jobs, tourism,

waterside shops and restaurants, and the sale of boats, marine equipment and insurance. Exciting developments that exemplify this mixed potential can be seen today in Baltimore, Boston, San Francisco, San Diego, Toronto and Philadelphia. New York City has little to show in comparison despite having more miles of waterfront than all of the above cities combined (Figs. 1 and 2).²

A few years ago The New York Times took note of the role marinas have played in waterside renewal in other cities and bemoaned the lack of such facilities in New York City. Said the newspaper, "The potential is here for dramatic development."³ Indeed, the potential does exist. The New York Recreational Boating Survey found that 30,800 boats were registered in New York City in 1973.⁴ Data provided in 1979 by the New York State Department of Motor Vehicles (which handles boat registration) showed a decline to 30,055 registered boats. However, there has been a recent upturn in boat sales brought on in part by favorable economic forecasts and a more reliable fuel supply than was the case just a year or two ago.⁵ Accordingly, it has been suggested that the number of registered boats in New York City is now close to the 1971 level. This may be viewed as an encouraging trend, particularly when placed within the context of a declining population within the five boroughs and a general lack of boating facilities. In addition to these registered vessels, approximately 1,000 boats are documented with the United States

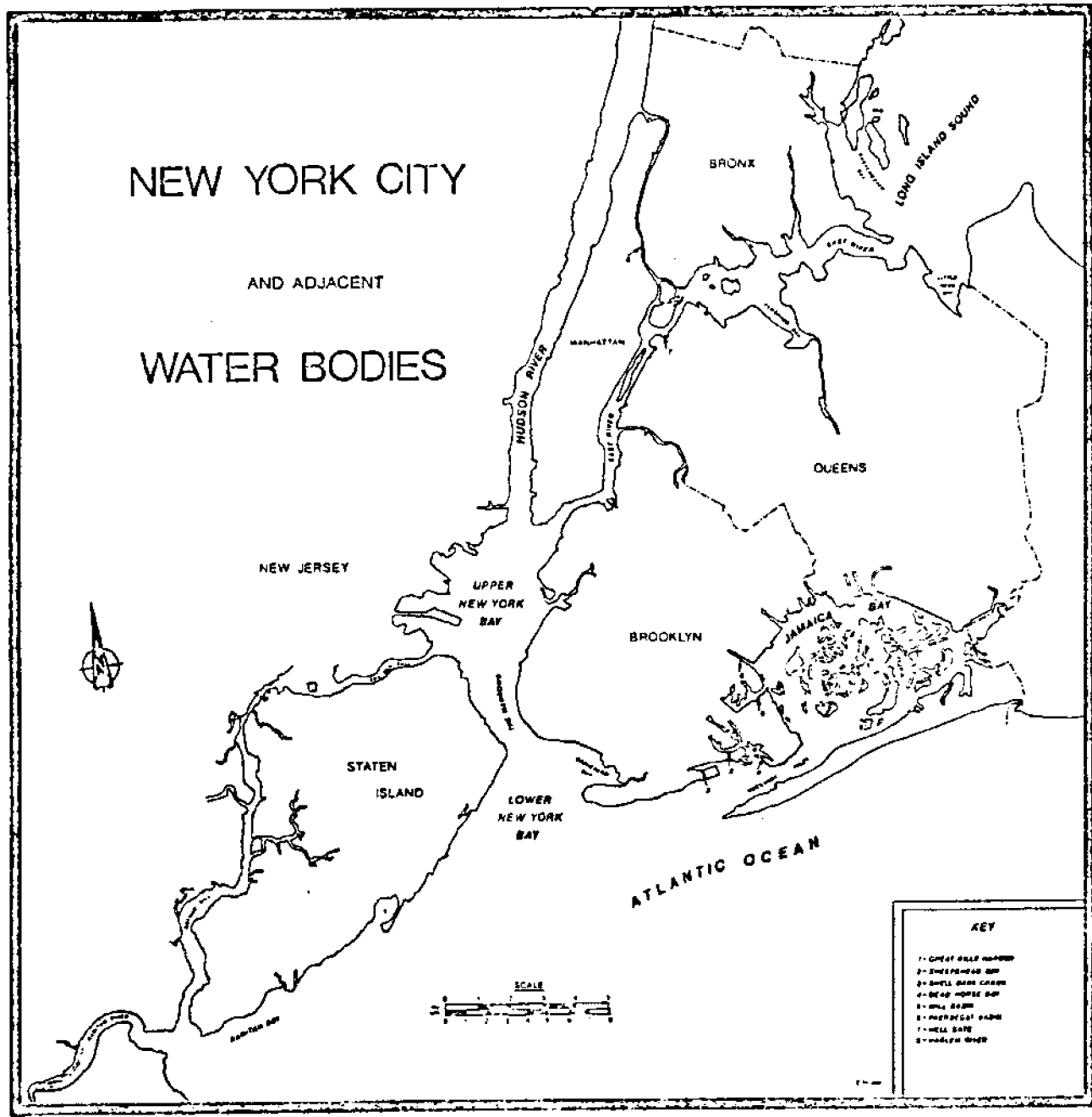


Figure 1

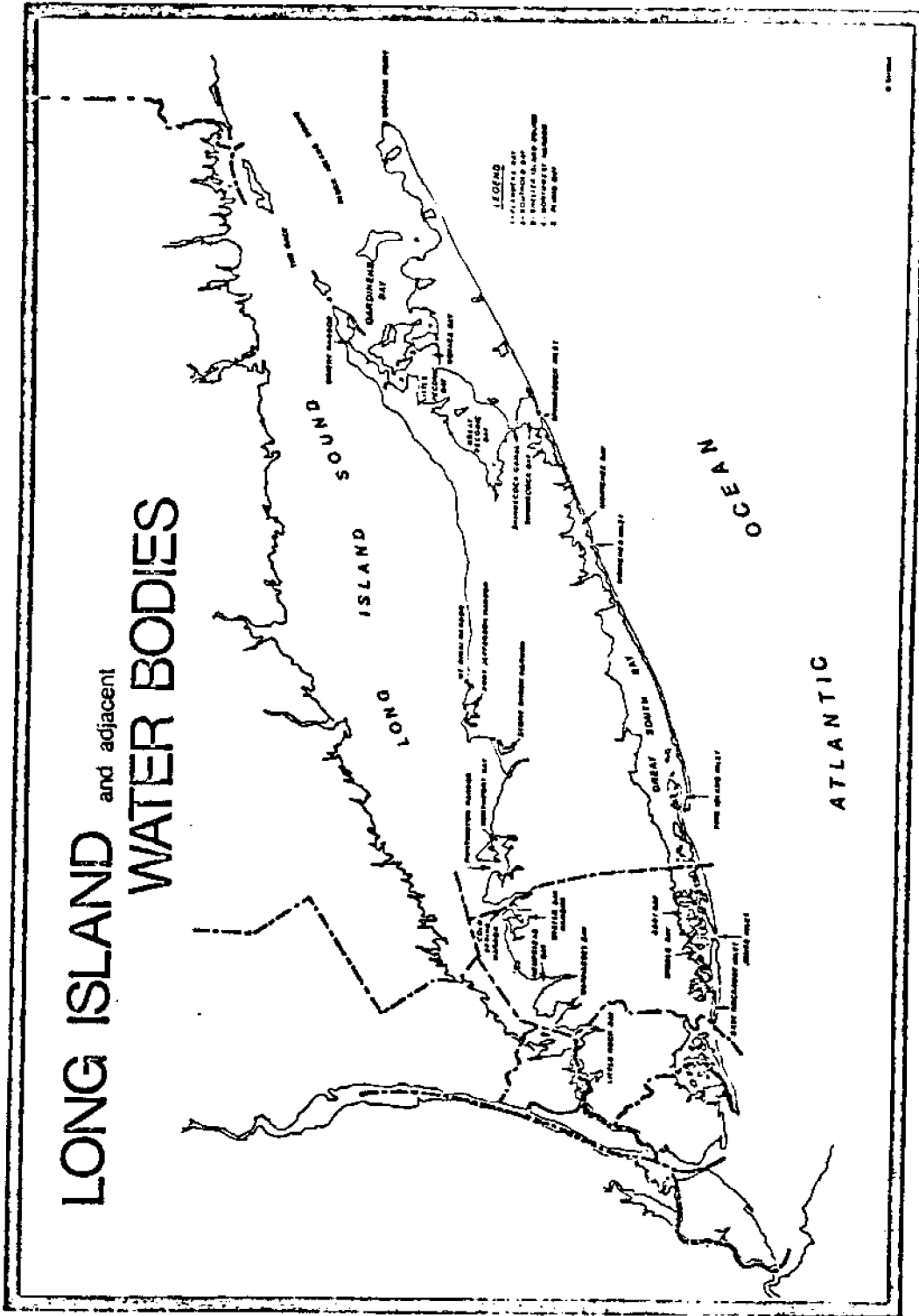


Figure 2

Coast Guard in New York City. (The difference between registration and documentation is discussed in Section 2.) This brings the total number of pleasure craft owned by City residents to about 31,000.

The number of slips and moorings currently provided by City marinas is substantially less than the number of pleasure craft (see Section 2). Moreover, the gap between the two probably is increasing. This has apparently resulted not only from the recent upturn in boat sales, but also from an alleged decline in the number of marinas. The publisher of the Boating Almanac, which reports an annual on-site census of marinas, estimates the East Coast has suffered a decline of from 60 to 80 marinas over each of the last few years.⁶ There is no evidence that New York City has been immune from this trend. True, the proposed Riverwalk development on Manhattan's Lower East Side could result in a new marina in a couple of years. The proposed Battery Park, Westway and Convention Center projects may eventually do the same. In the meantime several existing marinas are deteriorating; and even as this is being written (winter 1980-81) the City is seeking to close the 79th Street Boat Basin on the West Side of Manhattan. Accordingly, while the existing demand for marinas is great and apparently growing, the number of marinas is relatively small and, at best, constant.

This report assumes that development of more marinas is in the best interest of the City and of the boating public; and that the prospects of this eventuality may be enhanced by the collection and dissemination of related information and statistics. In particular this data report focuses on four factors related to the improvement of existing and development of new boating facilities along the New York City waterfront. Each of these will be the subject of a separate Section. The following is a brief outline of these Sections.

Patterns of Boat Storage and Use (Section 2). In this Section the locational component of marina demand will be assessed. Patterns of storage will be contrasted with the geography of existing dockage and moorings. Activity patterns will also be analyzed in order to help forecast the need for particular marine facilities and services in specific areas.

Marina Demand (Section 3). This Section will analyze boatowner characteristics and assess existing and potential demand for new slips and moorings.

Legal and Administrative Constraints (Section 4). Various levels and agencies of government have enacted laws, regulations and/or ordinances bearing upon the construction of new marinas and the refurbishment of existing ones. This Section will assess the permitting process. Special attention will be given to permit similarities, inconsistencies and contradictions posed by the various jurisdictions.

Marina Management Alternatives (Section 5). Various management scenarios are available to agencies responsible for waterfront development. These range from the promotion of purely private enterprise, to municipal facilities, and to marinas that incorporate both the private and public sectors in some combination. This Section will briefly address available marina management alternatives.

This undertaking was funded by the New York Sea Grant Institute from January 1, 1979 through December 31, 1980. The major investigative components included: separate questionnaires mailed to local marina and yacht club operators, and to a sample of area boatowners; printed marina statistics; review of pertinent non-statistical literature; United States Coast Guard files on moorings and documented pleasure craft; New York State Department of Motor Vehicles data on boat registration; and face-to-face and telephone conversations with a number of concerned people in business, government and private life.

Because of the variety of sources, several methodologies are used in this report, sometimes more than one per Section. Due to this diversity we have thought it best to eschew a single methodological overview in favor of individual discussions, where appropriate, within the separate Sections. Supporting documents such as questionnaires and cover letters are presented as individual appendices.

The ultimate goals of this report are recommendations that will be of value to marina development. These are the subject of Section 6.

Footnotes

¹Examples include: Mitchell L. Moss, "Staging a Renaissance on the Waterfront," New York Affairs, Vol. 6 (1980), 3-19; Mitchell L. Moss and Matthew P. Drennan, The New York City Waterfront: An Analysis of Municipal Ownership and Leasing of Public Land (Albany: New York Sea Grant Report Series, NYSG-RS-80-04, 1980); Warren Gran, The Urban Waterfront and the Low Income Community: Potential for Local Recreational Usage (Albany: New York Sea Grant Report Series, NYSG-RS-80-05, 1980); Charles Heatwole and Niels West, Beach Use and User Constraints in the New York City Coastal Region (Albany: New York Sea Grant Report Series, NYSG-RS-80-01, 1980); Deborah Hoffman, The Revitalization of Fulton Ferry: A Prototype for Waterfront Redevelopment in New York City (Albany: New York Sea Grant Report Series, NYSG-RS-79-08, 1979; and L. Michael Krieger, Waterfront Redevelopment Strategy: Phased Redevelopment of the Inner Harbor Waterfront (New York: The Port Authority of New York and New Jersey, 1979).

²Krieger, op. cit., footnote 1, pp. 5 and 6.

³B. Robinson, "Pleasure Boating: New York Lags," The New York Times, April 2, 1978, Sec. 5, p. 13.

⁴Tommy Brown and Dick Noden, New York Recreational Boating Survey (Albany: New York Sea Grant Report Series, NYSSGP-RS-77-015, 1977).

⁵Joanne Fishman, "Boating Resurgence Expected," The New York Times, January 18, 1981, Sec. 5, pp. 13 and 15.

⁶Telephone interview with Mr. Peter A. Geis, October 23, 1980.

SECTION 2

STORAGE AND USE

This Section assesses patterns of boat storage and use. The storage component takes into account both the distribution of available slips and moorings, and insights into boat storage patterns as revealed by a questionnaire mailed to a random stratified sample of New York City boatowners. The same questionnaire generated data on patterns of boat use.

Before proceeding, there are two points which must be clarified. First, it is appropriate to define the terms "marina" and "yacht club" as they will be used in this report. As far as we are concerned, a marina is any licensed business establishment which rents slips, moorings and/or land-storage space to the general public. It matters not how many spaces are available or if the facility uses the word marina in its title. Some establishments with boat-storage space for rent call themselves boatyards, boat works, fishing stations and so forth--as well as marinas. A yacht club, by contrast, is defined as a private organization of boating (usually sailing) enthusiasts. Most area yacht clubs have a number of slips and/or moorings available for use by their membership, though some appear to be strictly social clubs which have no control over a marine facility. Also, though most yacht clubs are so-called, we include in this category "boat clubs" or any

other association that suggests private membership. Indeed, the key distinction is that "yacht club" denotes a private -membership association which does not normally rent boat -storage space to the general public (i.e. non-members), as does a "marina." It should be noted, however, that many yacht clubs do have a few "guest moorings" which are made available to members of other yacht clubs on a reciprocating basis.

Second, we will occasionally dichotomize between "sailing season" and "off-season." In this report these terms will usually denote boat-storage arrangements during the warmer and cooler months of the year respectively. For purposes of rental agreements, most area marinas define "sailing season" as April 15th to October 15th. The balance of the year is regarded as the "off season." We have adopted this definition even though we realize it does not have universal appeal. Boating is a year-round activity for some area residents, and the hardiest souls among them probably scoff at the idea of an off-season.

Methods

Data on available boat-storage capacity within New York City were taken from the 1979 edition of the Boating Almanac.¹ This edition was used for the sake of chronological consistency, since the questionnaire survey was undertaken during that same year. The almanac's compilers annually

collect data on the name and location of all marinas along the eastern seaboard. Each marina is surveyed for its number of slips, moorings, dry-storage capacity and services, as well as the fees charged for each. Because these data are collected by on-site visits rather than by a mail or telephone survey, one may assume a fairly high level of data reliability. It is unfortunate, however, that this depth of enquiry does not extend to yacht clubs. Yacht clubs are usually just listed in the almanac and their locations noted, but all-too-often with an incomplete address.

Information regarding actual patterns of storage came from two sources: marina and yacht club managers, and the boat-owning public. The former were surveyed by means of a brief mailed questionnaire (see Appendices A and B). Though this questionnaire was designed primarily to gather views on managerial and locational issues, a question on occupancy rates was included. Addresses for this mailing were taken from the Boating Almanac.

The survey of boatowners also took the form of a mailed questionnaire (see Appendices C and D). This was made possible by the kind cooperation of the New York State Department of Motor Vehicles (DMV) and the United States Coast Guard.

The DMV is responsible for boat registration throughout New York State. Using computerized registration data, DMV provided us with the names and addresses of a ten percent

random sample of all registered boatowners living in each of New York City's five boroughs. Two mailing labels were provided for each randomly selected owner, as was a print-out with the information each owner had included on the registration form. One label was attached to the outer envelope of the mail package and the other was attached to the questionnaire. In all, labels for slightly more than 3,000 people were provided.

The primary objective was a systematic statistically valid survey of the boat-owning population residing in (or whose boats were registered in) New York City. Unfortunately, however, there is no comprehensive list of all boatowners in New York State (or City) from which an appropriate sample can be drawn. There are several reasons for this.

First, not all boatowners are required to register. Registration is necessary only if one's boat has a motor. There are, of course, compelling common sense reasons to register anyway. Registration provides proof of ownership and is of special value if the boat is damaged, stolen or otherwise lost. Again, however, registration is not required of all New York boatowners, and some probably do not bother. Second, there are probably a number of people who either knowingly or unknowingly are in violation of the law. Because these people have not registered their boats, there is obviously no way to include them in our sample. Third, boats

must be re-registered every three years. In the interim, however, changes in ownership or loss of vessel may occur, resulting in obsolete DMV registration files. Fourth, it is impossible for DMV to upgrade its computer files on a continuous and instantaneous basis. Thus at any given time there is probably a population of new boatowners not yet on file, and former boatowners still maintained on file. Fifth, for tax purposes a number of boats probably are registered under the name of a company, corporation or individual other than the actual owner. This is particularly the case with larger and more expensive boats, many of which are registered in Delaware, where corporate property taxes are especially low. To the extent that such vessels are moored, maintained and serviced in New York, the City's total boat inventory is underestimated. Sixth, and finally, there is an alternative to registration: documentation.

Documentation is a federal boat registration system and usually is associated with relatively large pleasure craft that engage in interstate recreational travel. Documentation is the responsibility of the Coast Guard, and approximately 1,000 New York City boatowners have opted for this form of registration. For purposes of our survey of boatowners, Coast Guard officials allowed us to access their documentation files. The word "files" is quite appropriate here, for unlike the Department of Motor Vehicles the Coast Guard's documentation forms are not computerized but are kept in file

drawers. Accordingly, a ten percent random stratified sample of documented pleasure craft owners was manually drawn from the Coast Guard's files.

The key point is that no list of New York City boatowners exists that is truly complete and accurate. There are limitations to the utility of DMV files and, frankly, some of these shortcomings are shared by the Coast Guard's data. We believe these problems should be stated for the record. We also believe they are marginal, and that the 10% sample of DMV and Coast Guard registrants resulted in a truly representative survey of New York City boatowners. (For the sake of convenience the word registration--or register, registered, etc.--hereafter will refer to both registered and documented boats. Exceptions will be noted.)

Existing Storage Space

Estimated existing boat-storage capacity is summarized in Table 1. Tabulations of dockage data in the Boating Almanac suggest there are about 6,296 slips provided at marinas and yacht clubs in New York City. The second column of figures in Table 1, private slips, refers to dock space available at private homes. This estimate (2,500) is based on the results of the boatowner survey and is discussed in greater detail later in this Section. Data on moorings were gleaned from the Boating Almanac and from the Coast Guard. The Coast Guard authorizes all permanent moorings within the study area and

TABLE 1

ESTIMATED NEW YORK CITY,
BOAT STORAGE CAPACITY¹

<u>Borough</u>	<u>Marina Slips</u>	<u>Private² Slips</u>	<u>Commercial³ Moorings</u>	<u>Dry Stack</u>	<u>Off⁴ -season</u>
Manhattan	174	137	0	0	42
Brooklyn	2,745	548	263	90	1,800
Queens	1,098	1,335	1,060	0	660
Bronx	1,114	240	754	100	1,135
Staten Island	1,165	240	238	75	675
<hr/> Totals	<hr/> 6,296	<hr/> 2,500	<hr/> 2,315	<hr/> 265	<hr/> 4,312

¹Sources: Survey of New York City boat-owners, the Boating Almanac, and the United States Coast Guard.

²This usually denotes a slip at a private residence or second home, often located outside the borough of residence (especially in the case of Manhattanites).

³Principally yacht clubs, but includes some marinas and private arrangements.

⁴Includes all forms of inside and outside storage at commercial marinas. Yacht clubs and private arrangements are not included.

provided us with access to their records. Based on these sources 2,315 moorings are estimated for New York City proper. By summing the first three columns we get an estimation of the total wet-storage (sailing season) capacity now available in New York City, which amounts to 11,111. This means that the City's supply of slips and moorings can presently accommodate only about 35% of the some 31,000 registered and documented boats owned by City residents. The rest must either be kept at a dock or mooring outside the City, or kept on land at home or elsewhere and then taken to the water. With regard to land storage, some City marinas have dry stack facilities available for rent; however, data from the Boating Almanac suggest this capacity is not significant at the present time.

As indicated by the last column in Table 1, the City's off-season storage capacity is much less than that available during the sailing season. Types of off-season storage include indoor storage, outdoor (dry land) storage, and water storage. Because most boats are hauled out during the off-season the first two headings, understandably, account for most of the storage space. Tabulations from the Boating Almanac suggest City marinas have a current off-season capacity of 4,312 boats. Data for yacht clubs are not available; but even if one generously assumed they could provide space for an additional, say, 1,000 boats, only about 17% of the City's known recreational fleet would be accounted for. The rest must be stored at either a home or at a facility of some

sort outside the City.

Patterns of Storage

It came as no surprise that a substantial majority of the respondents kept their boats in the water during the sailing season (Table 2). Among the people who reported keeping their boats on land (at home) during the summer, 85% said they transported their boats by trailer while the others cartopped.

Facilities used during the summer for wet storage are shown in Table 3. Commercial marinas accounted for more than half of the the sample followed by yacht clubs and the respondent's place of residence. Assuming the sample reflects the total boat-owning population, yacht clubs may handle nearly one-quarter of all boats registered in New York City. Most of the clubs are located within the City's boundaries, though some represent non-City storage capacity. "Home" storage accounted for 13.2% of the sample. About half the time what was being referenced here was a summer or second residence usually located upstate or on Long Island. The balance referred to permanent places of residence within New York City. This suggests that perhaps 7% of the City's registered boatowners keep their vessels at a backyard dock or mooring. In addition, a number of these people rent or loan dock space or moorings to others. This was a significant arrangement revealed by the people who responded "other" in

TABLE 2

TYPE OF STORAGE USED

Sailing Season

<u>Type</u>	<u>N</u>	<u>%</u>
Slip/Dock	491	63.5
Mooring	117	15.1
Land	<u>165</u>	<u>21.4</u>
Totals	<u>773</u>	<u>100.0</u>

Off-Season

Water	93	12.2
Land	<u>668</u>	<u>87.8</u>
Totals	<u>761</u>	<u>100.0</u>

TABLE 3

TYPE OF WET-STORAGE FACILITY USED DURING THE SAILING SEASON

<u>Facility</u>	<u>N</u>	<u>%</u>
Commercial Marina	353	53.0
Municipal Dock	15	2.2
Yacht Club	157	23.6
Home	88	13.2
Other	<u>53</u>	<u>8.0</u>
Totals	666	100.0

Table 3. Accordingly, we would conservatively estimate that between 7 and 9 percent of all boats within New York City are moored or docked aside a private residence. These percentages translate to about 2,500 boats.

Off-season land storage characteristics are shown in Table 4. Commercial marinas, homes and yacht clubs are the major storage centers in that order. In comparison to Table 3, it is particularly interesting to note the importance of private residences as places for off-season storage. In some way this is no doubt a reflection of the relatively small commercial off-season storage capacity noted in Table 1 and suggests amphibious movements of considerable number and distance at either end of the sailing season.

Actual storage locations are reflected in Table 5. Although the tabular figures generally may speak for themselves, what particularly strikes us is that more than 40% of the City's registered pleasure craft are maintained outside the City during both the sailing season and the off-season (Figures 3 and 4). The extent to which this propensity reflects lack of City-based storage facilities or simple locational preference is not known. It is clear, however, that at least 12,000 "city boats" stay elsewhere. The amount of money these craft represent in the form of rented storage space, maintenance, and related purchases must be considerable.

TABLE 4

TYPE OF LAND-STORAGE FACILITY USED DURING THE OFF-SEASON

<u>Facility</u>	<u>N</u>	<u>%</u>
Commercial Marina	332	43.6
Municipal Dock	2	0.3
Yacht Club	97	12.7
Home	275	36.0
Other	<u>56</u>	<u>7.4</u>
Totals	762	100.0

TABLE 5

STORAGE LOCATIONS

<u>Locations</u>	<u>Sailing Season</u>		<u>Off-Season</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<u>City</u>				
Manhattan	5	0.8	7	1.0
Brooklyn	109	16.6	142	19.7
Queens	106	16.1	104	14.4
Bronx	73	11.1	74	10.2
Staten Isl.	<u>80</u>	<u>12.2</u>	<u>92</u>	<u>12.7</u>
Sub-totals	373	56.8	419	58.0
<u>Non-City</u>				
Nassau Co.	98	14.9	96	13.3
Suffolk Co.	94	14.3	107	14.8
Westchester Co.	22	3.3	24	3.3
Other New York	35	5.3	40	5.5
New Jersey	5	0.8	6	0.8
Connecticut	12	1.8	13	1.8
Other Locations	<u>18</u>	<u>2.8</u>	<u>18</u>	<u>2.5</u>
Sub-totals	284	43.2	304	42.0
Totals	657	100.0	723	100.0

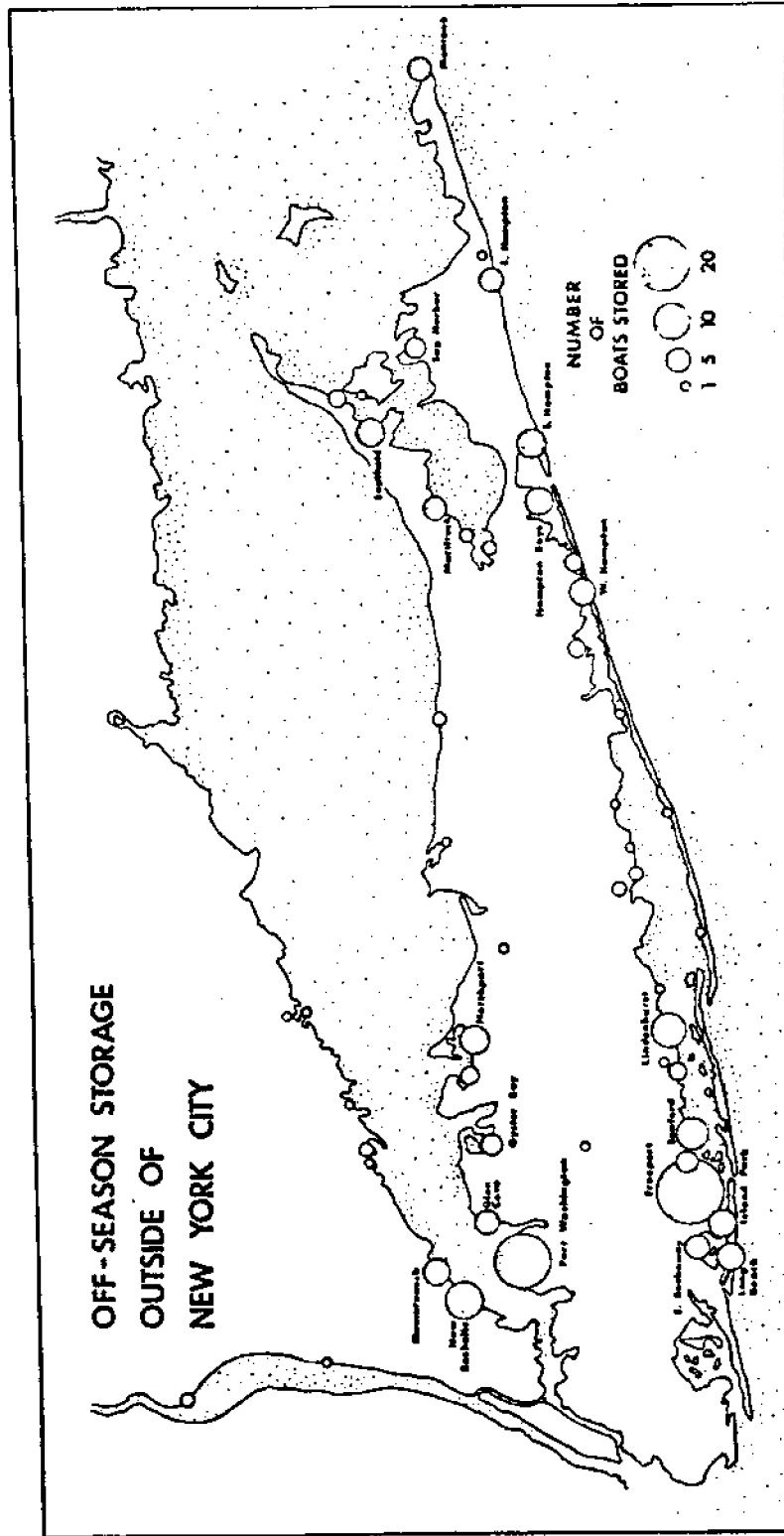


Fig. 4

Boat Use

Methods

All data reported in this sub-section were obtained by the mailed boatowner survey mentioned earlier. A facsimile of the questionnaire is presented in Appendix D.

General Boat Characteristics

Before proceeding to actual patterns of use, it may be worthwhile to report some general characteristics of the New York City recreational fleet. The survey revealed that some 77% of the registered crafts are powerboats. Approximately 19% are sailboats. The remaining 4% is divided among canoes, dinghies, motorsailers, houseboats and others. The trend in the propensity to own a powerboat versus a sailboat is important since these crafts tend to use different means of wet storage (slips and moorings, respectively) and require the availability of different on-shore facilities and services. In 1979 sailboats accounted for slightly more than 17% of total recreational boat sales.² Moreover, some industry sources have predicted that sailboats will capture a 25% share of the market by 1990.³ Whether or not this will come about nationally or even locally is questionable. In the meantime, however, there seems to be a trend toward greater sailboat ownership within New York City. Among respondents who are not first-time boatowners, nearly 18% said their previous craft had been a sailboat. Again, 19% of the present

registrants are owners of sailboats. Since half of all registrants have purchased their boats within the past three years, it appears that the sailboat share of the City's recreational fleet may now be increasing at an annual rate of 0.33%.

Some 69% of the boats are fiberglass. Wood accounted for an additional 23% and aluminum another 4%. The remaining 4% were made of other materials.

In terms of length, quartile thresholds occurred at 17, 20 and 26 feet. That is, approximately one-fourth of all boats measured less than 17 feet; another one-fourth between 17 and 20 feet; another between 21 and 26; and the final quarter more than 26 feet. The smallest boat reported by our respondents was 8 feet long. The longest was 101. Respondents who had previously owned different boats were asked the lengths of these vessels. The quartile thresholds of these previous boats were 15.5, 18 and 24 feet. The definite trend, then, is for one to "trade up" to a larger boat.

Among boats with engines, 55% were powered by outboard motors, while inboards and inboard-outboards accounted for 27% and 18% respectively. About 93% of these were gas-powered. The balance used diesel fuel. Horsepower ratings ranged from 2 to 4500. Quartile thresholds occurred at 35, 85 and 190 horsepower.

Nationally, the average length of outboard boats sold in 1979 was 16.3 feet, while the average outboard motor sold

in 1979 had 47 horsepower.⁴ Both figures represent significant increases over the previous year's averages, and the fourth straight year of increase for each statistic. Although we have chosen not to differentiate inboard and outboard boats and motors in the above discussion, it does appear that averages for New York City boats and motors in 1979 were substantially above the national marks.

Social Aspects

Respondents were asked, "With whom do you usually go boating?" The categories "family" and "friends", singly or in combination, accounted for 95.2% of all responses (Table 6). Respondents were also asked to identify their favorite boating activities, starting with the activity they liked most. Tabulations of the top-ranked activity showed that fishing was preferred by 56% of the sample (Table 7). It is perhaps worth emphasizing that this was the most favored activity and not the activity in which the sample actually engaged most often. A question covering this latter aspect of personal activity was not included in the questionnaire. Nonetheless, it is probably a fair assumption that fishing would have been the major activity, given its predominance in Table 7.

Frequential Aspects

Before reporting frequency characteristics, it should be recalled that our boatowner survey was mailed out during

TABLE 6

PEOPLE WITH WHOM SAMPLE USUALLY GO BOATING

<u>People</u>	<u>N</u>	<u>%</u>
Family	257	34.2
Friends	171	22.7
Family and Friends	288	38.3
Business Associates	5	0.7
Family and Busi- ness Associates	1	0.1
Friends and Busi- ness Associates	1	0.1
Alone	26	3.5
Charter Group	2	0.3
Other	<u>1</u>	<u>0.1</u>
Totals	752	100.0

TABLE 7

FAVORITE BOATING ACTIVITY

<u>Activity</u>	<u>N</u>	<u>%</u>
Day-sailing	129	17.0
Cruising	114	15.0
Racing	8	1.1
Fishing	426	56.1
Skiing	44	5.8
Live-aboard	1	0.1
Swimming	17	2.2
Scuba	5	0.7
Socializing	8	1.1
Other	<u>7</u>	<u>0.9</u>
Total	752	100.0

the summer of 1979. At that time the United States was experiencing a petroleum shortage. Within the New York Metropolitan Area marinas were impacted as severely (if not more so) than automobile service stations. During July, 1979, fuel allocations to many marinas were down to 30% of the previous year's allotments. In August some marinas received no fuel whatsoever from their wholesalers. Far from relieving this recreational pinch, some federal officials proposed to help cope with the general fuel shortage by banning all recreational boating during weekends. This proposal was hastily withdrawn because of strong objections emanating from both the boating public and boating industry. Parenthetically, recreational boating accounts for only about one-half of one percent of the nation's fuel consumption.⁵

Scientific survey research seeks to generate data that reflect the general status and trends of the total population in question. For better or worse, our research schedule necessitated sampling when boating activities were being negatively impacted by a fuel shortage. We have every reason to believe our data on boat use reflect what was happening in 1979. But because 1979 was "different" than previous or subsequent years, one must exercise some degree of care in using our boat-use data to generalize beyond 1979.

Respondents were asked to estimate the number of times their boat left its mooring or slip during 1978--that is, during the year before they received the questionnaire.

(Most questionnaires were sent out during July and August, 1979.) Responses ranged from 0 to 90. The median was 4 and the mode 0 (!). The latter response in particular attested to the impact of the fuel shortage.

Three follow-up questions dealt quite specifically with the fuel shortage. First, respondents were asked if they had had to decrease their boating activities in light of the "gasoline crisis." Affirmative responses were given by 52% of the sample. Second, those who answered "yes" to the above were asked to estimate the extent to which their boating activity had been curtailed. These responses were grouped into four mutually exclusive categories representing degree of curtailment (Table 8). The results suggest a significant decline in the amount of boating activity during the 1979 fuel shortage. By aggregating the last two categories in Table 8, it appears that about 56% of the affected population had to decrease their boating by at least one-quarter.

An additional question sought more detailed information about the nature of reduced boating activity (Table 9). Most responded that they had been forced both to go out less often and to take shorter trips while underway.

Several of the data from Tables 8 and 9 were cross-tabulated with boat-type, place where the boat was kept during the summer, and owner income. Not surprisingly, the analysis revealed that owners of powerboats were impacted much more severely than owners of sailboats. Some 60% of the

TABLE 8

EXTENT OF CURTAILED BOATING ACTIVITY
DUE TO FUEL SHORTAGE (SUMMER 1979)

<u>Extent</u>	<u>N</u>	<u>%</u>
Under 10%	60	14.8
11 - 25%	117	28.9
26 - 50%	114	35.6
More than 50%	<u>84</u>	<u>20.7</u>
Totals	405	100.0

TABLE 9

HOW BOATING ACTIVITY WAS CHANGED
BY THE FUEL SHORTAGE (SUMMER 1979)

<u>Change</u>	<u>N</u>	<u>%</u>
No change	217	29.2
I go out as often as before but take shorter trips	89	12.0
I go out less often than before but have not re- duced trip length	86	11.6
I go out less often and take shorter trips	238	15.2
	<hr/>	<hr/>
Totals	743	100.0

former reported reduced activity because of the fuel shortage, but only 18% of the latter. Small but significant differences were found between those who trailered or cartopped their boats to the water versus those who kept their boats at a mooring or slip. About 46% of the former were negatively impacted versus 42% of the latter. Two factors probably account for this difference. First, more gas is generally required to tow a boat to the water than merely to drive to a marina or yacht club. (Towing also requires a large automobile.) Second, boats kept in the water tend to be larger than those that are trailered or cartopped, and can be put to a greater variety of uses. Thus, for example, one who keeps a boat at a marina might spend a day on the boat but never leave the dock. By contrast a trailered boat that is stored in a backyard is not likely to be similarly "used." Finally, significant relationships between owner income and fuel shortage impact were discovered. Approximately one-third of the sample reported total family incomes of \$20,000 or less. This same income category provided 75% of the respondents who reported a decrease in boating activity. Clearly, the impact was most severe on people in the lower income range.

Locational Aspects

Boatowners were asked several questions which dealt with locational aspects of boat use. These questions were phrased in such a way as to nullify short-term impacts resulting from the fuel shortage.

Respondents were asked to report the saltwater and freshwater use of their boats. About 91% of the sample reported exclusive saltwater activity. Only 1% reported exclusive freshwater use, while the remainder said they used both. Respondents were also asked to report the portion of their boating time spent within the New York Estuary (Table 10). Respondents tended to either spent a lot of time within the estuary or very little. Nearly half reportedly spent between 75% and 100% of their boating time in the estuary.

The boatowner questionnaire included a map showing land and water bodies extending from Staten Island to the area just east of Montauk Point (see Appendix D). Respondents were asked to draw a line (circle) around the area in which they did most of their boating, and also to indicate the location of marinas, yacht clubs or launch ramps that they normally used. The purpose of this exercise was to gain more specific insights into locational aspects of boating.

Figure 5 shows the pattern of use for powerboats and sailboats. It was stated earlier that these boat-types accounted for about 96% of the sampled pleasure craft. Because a large portion of the remaining boats are used either in lakes or rivers, or as auxiliaries to a larger pleasure craft, this map probably reflects very closely the offshore use pattern of the total sample. The major (and expected) feature of this map is the inverse relationship between proximity

TABLE 10

PORTION OF BOATING TIME SPENT
WITHIN THE NEW YORK CITY ESTUARY

<u>Portion</u>	<u>N</u>	<u>%</u>
0 - 25%	202	31.3
26 - 50%	52	8.0
51 - 75%	75	11.6
76 - 100%	<u>317</u>	<u>49.1</u>
Totals	646	100.0

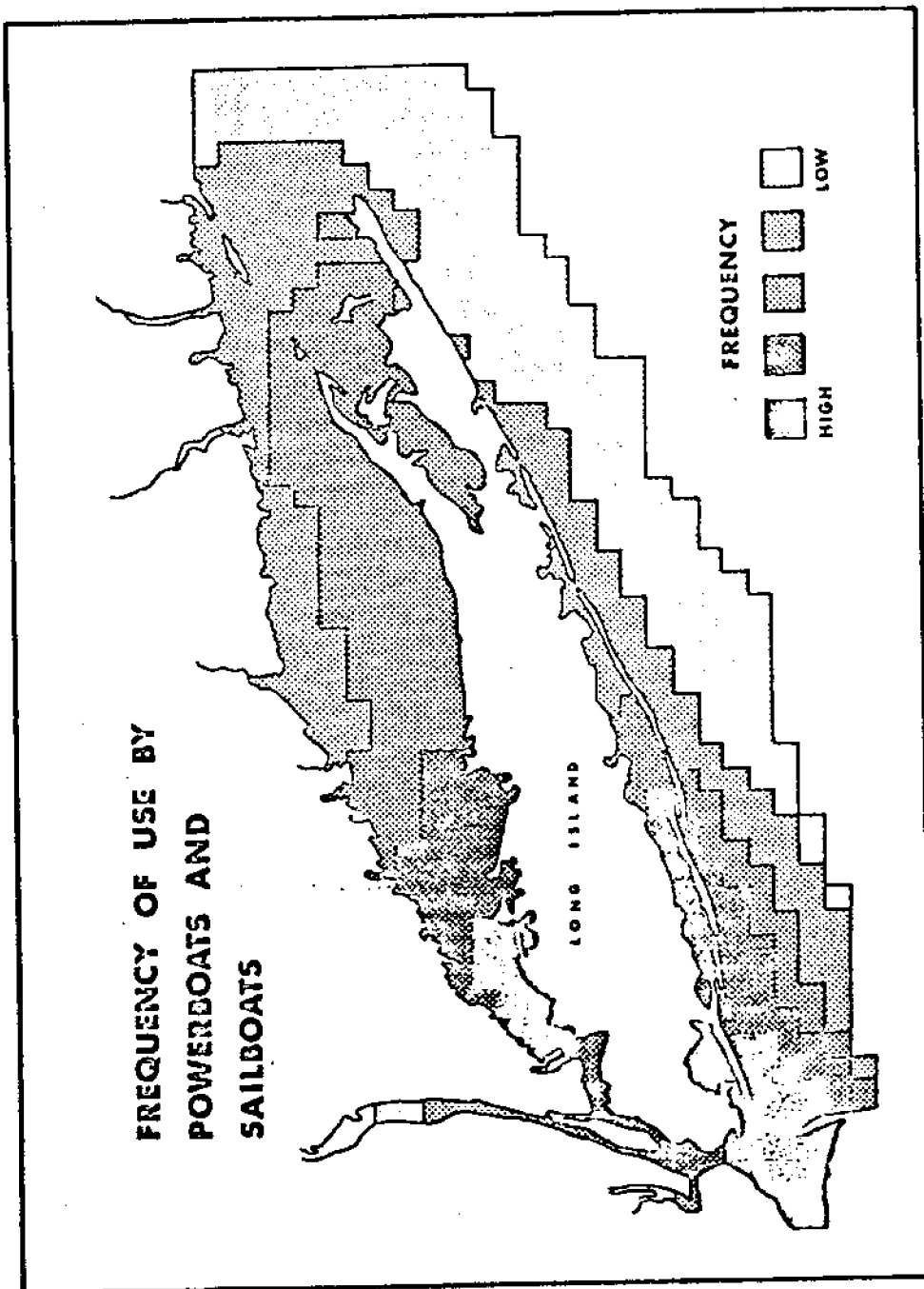


Figure 5

to the City and frequency of use. That is, the waters nearest the City tend to be the most intensively used by City boat-owners, while decreasing activity occurs as distance from the City becomes greater. Greatest activity is exhibited in the westernmost portion of Long Island Sound and the Lower-Raritan-Jamaica Bay complex. This is not surprising in light of the pattern of boat storage (Table 5).

Findings which may have greater importance for marina development begin to emerge when use patterns for specific boat characteristics are mapped. Thus, for example, the use pattern of powerboats is seen to be quite distinct from that of sailboats (Figures 6 and 7). Powerboaters tend to frequent Raritan Bay and the waters off the south shore of Long Island. This pattern is undoubtedly a function of the better fishing associated with the natural and artificial reefs located within the New York Bight. Sailboaters, on the other hand, confine themselves primarily to western Long Island Sound. Equally important is the greater propensity of sailboats to avoid the waters between these two zones, particularly the swift tidal currents of the East River at or near Hell Gate.

Use patterns were also mapped on the basis of boat length with the 21-foot mark serving as the point of division between small and large boats (Figures 8 and 9). The most important discovery here was the greater range of activity on the part of the smaller boats. High use frequencies for the smaller boats range much farther to the east along both

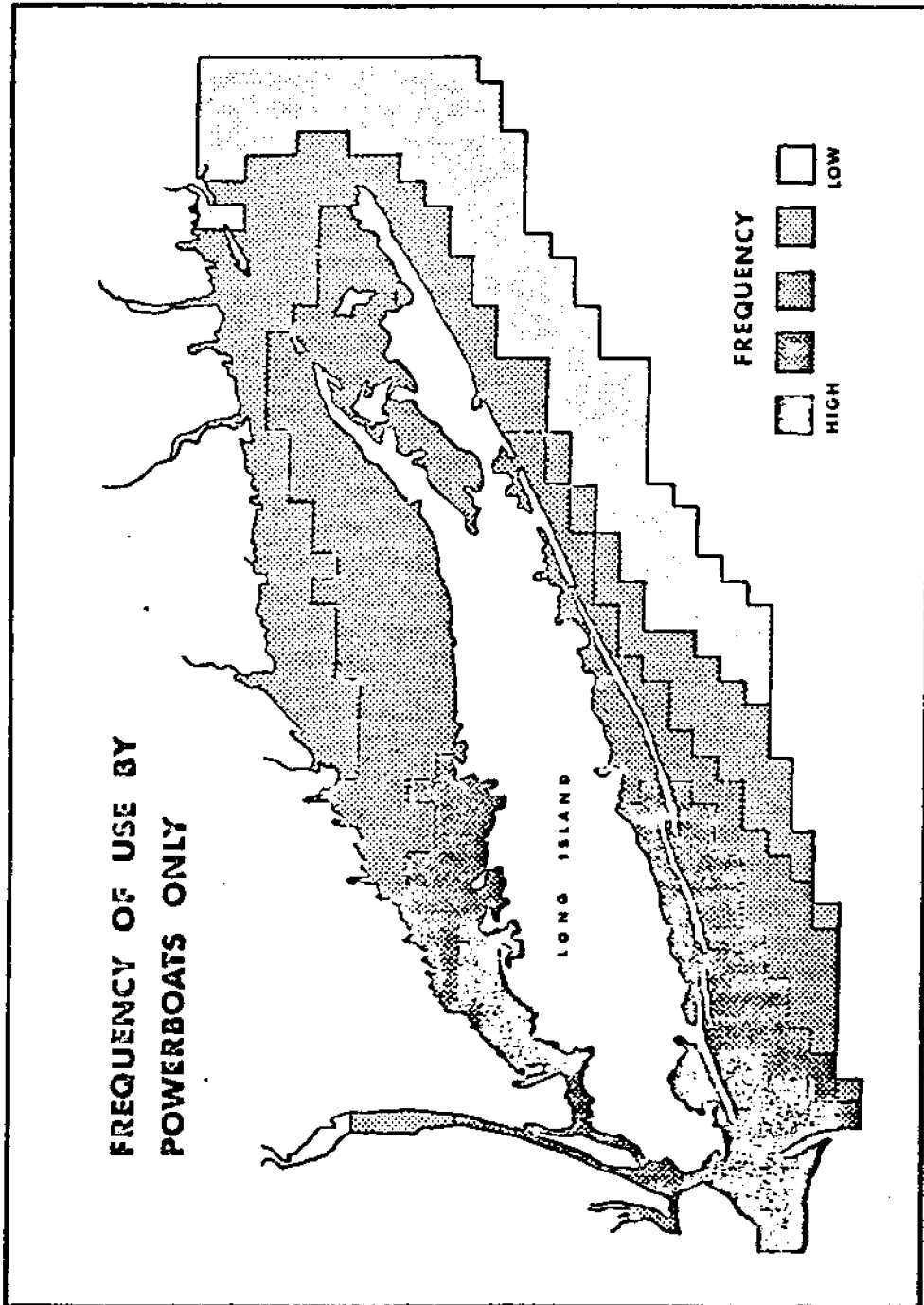


Figure 6

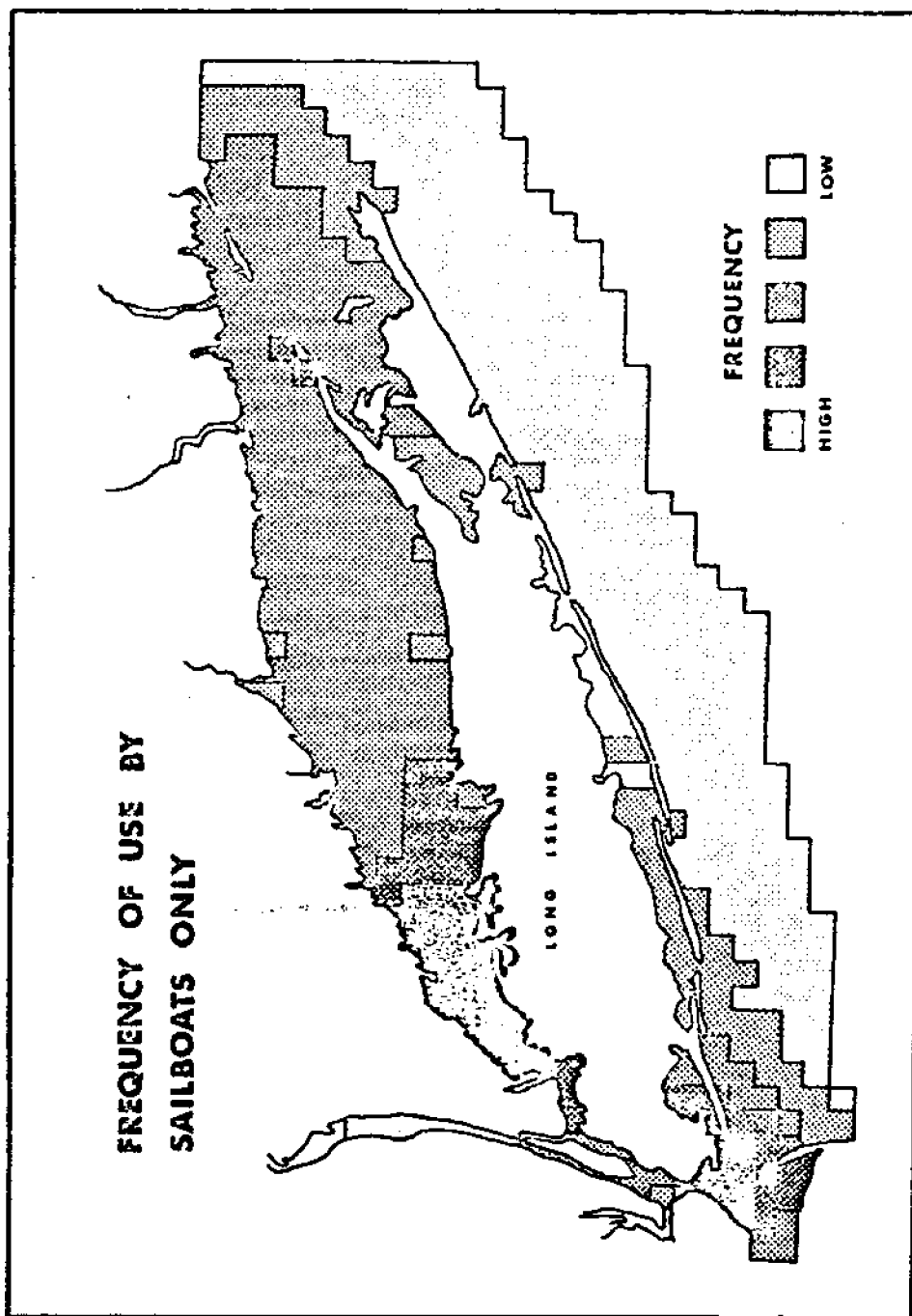


Figure 7

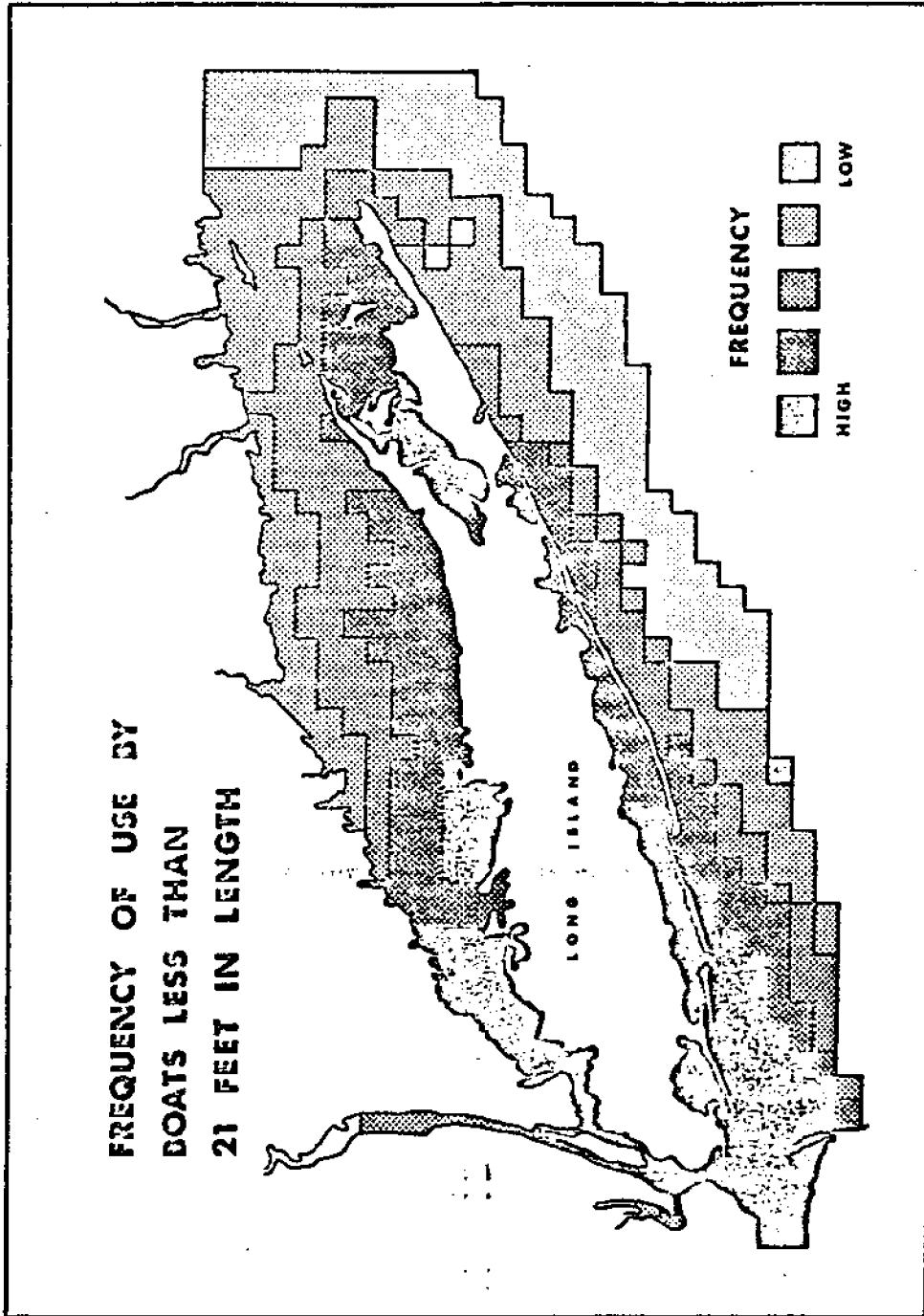


Figure 8

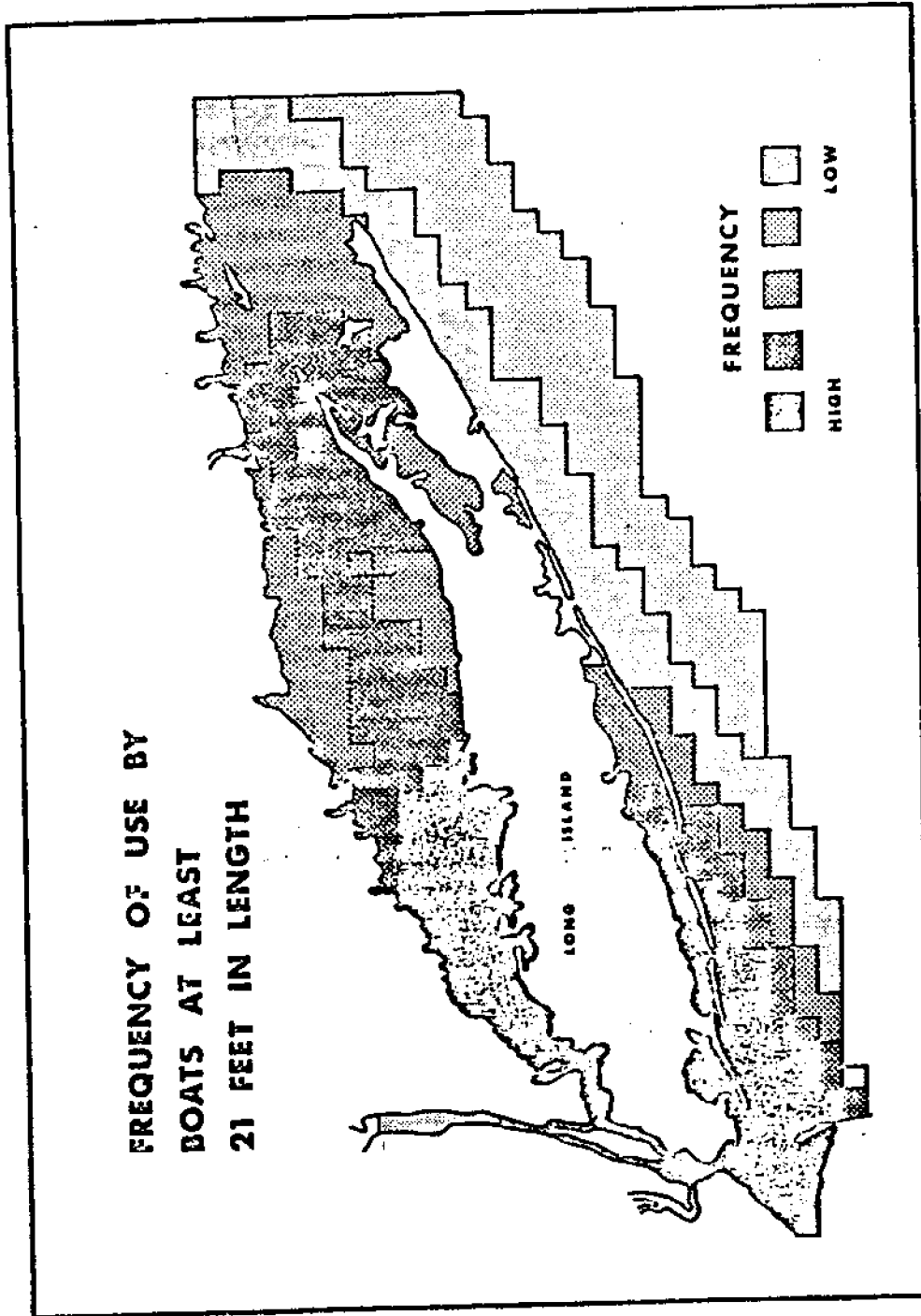


Figure 9

shores of Long Island. The probable reason for this is that many of the smaller boats are trailered to distant launch ramps, while a majority of the larger boats operate from a fixed dock or mooring at a facility nearer New York City. This assumption tends to be confirmed by the use patterns of trailered boats versus those kept at slips or moorings (Figures 10 and 11). Figures 8 and 10 closely resemble each other as do Figures 9 and 11.

Finally, we examined the use patterns of boaters who reported fishing as their primary activity, and those who reported daysailing/cruising (Figures 12 and 13). It may be recalled that fishing accounted for about 56% of all activity while daysailing and cruising accounted for another 32% (Table 7). High frequencies for fishing tend to be much more widespread along both shores of Long Island and share much the same patterns as the smaller and trailered boats. Daysailing and cruising are largely limited to the Raritan-Lower-Jamaica Bay area and the relatively calm waters of Long Island Sound. This pattern has much in common with that of sailboating (Fig. 7).

Despite the general inverse relationship between boat use and distance from the City, it is obvious that many people travel significant distances to their chosen sailing waters. By noting the residences of boatowners (provided by address labels attached to the questionnaires) and locations of the marinas, yacht clubs or launch ramps they use (provided by

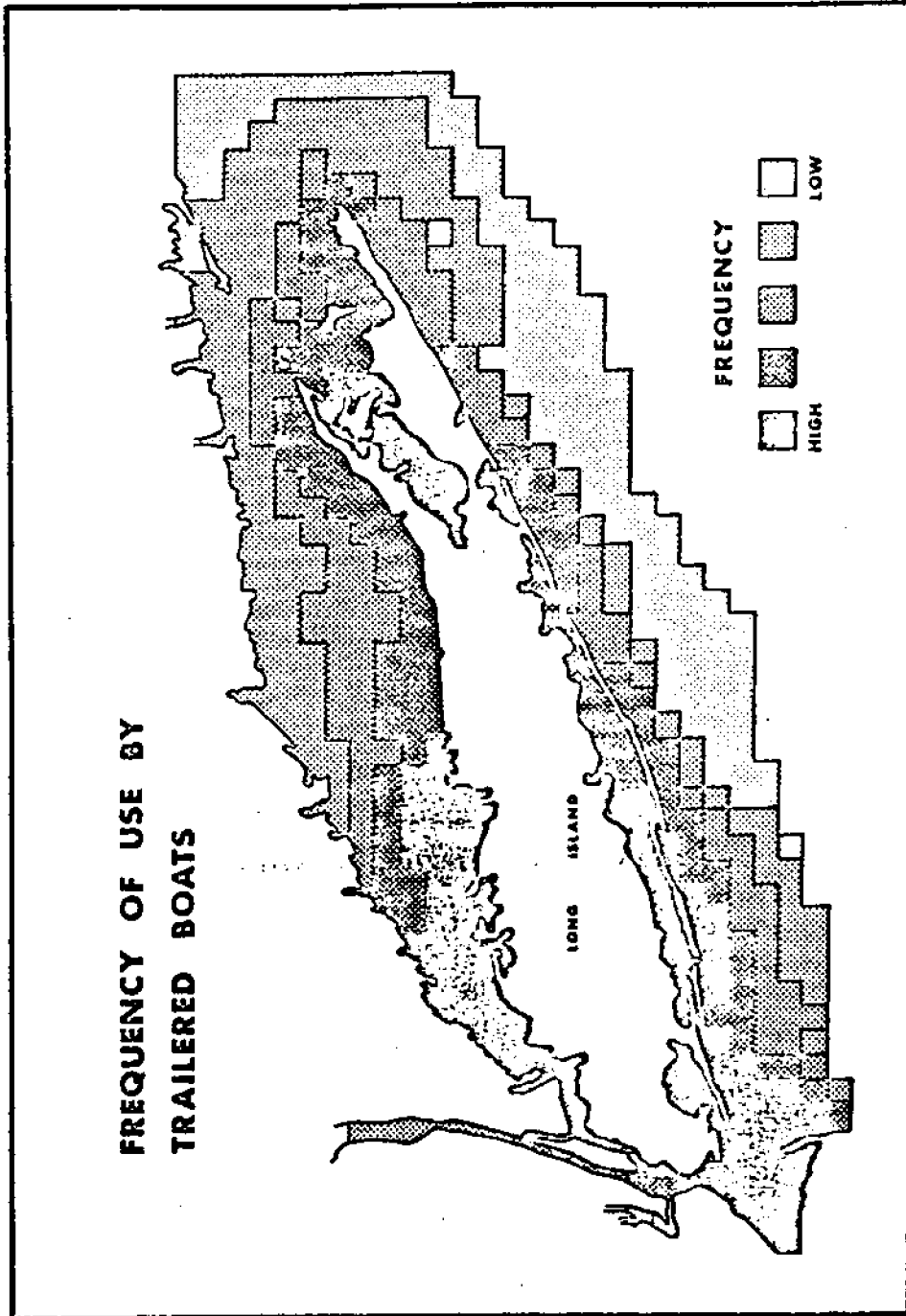


Figure 10

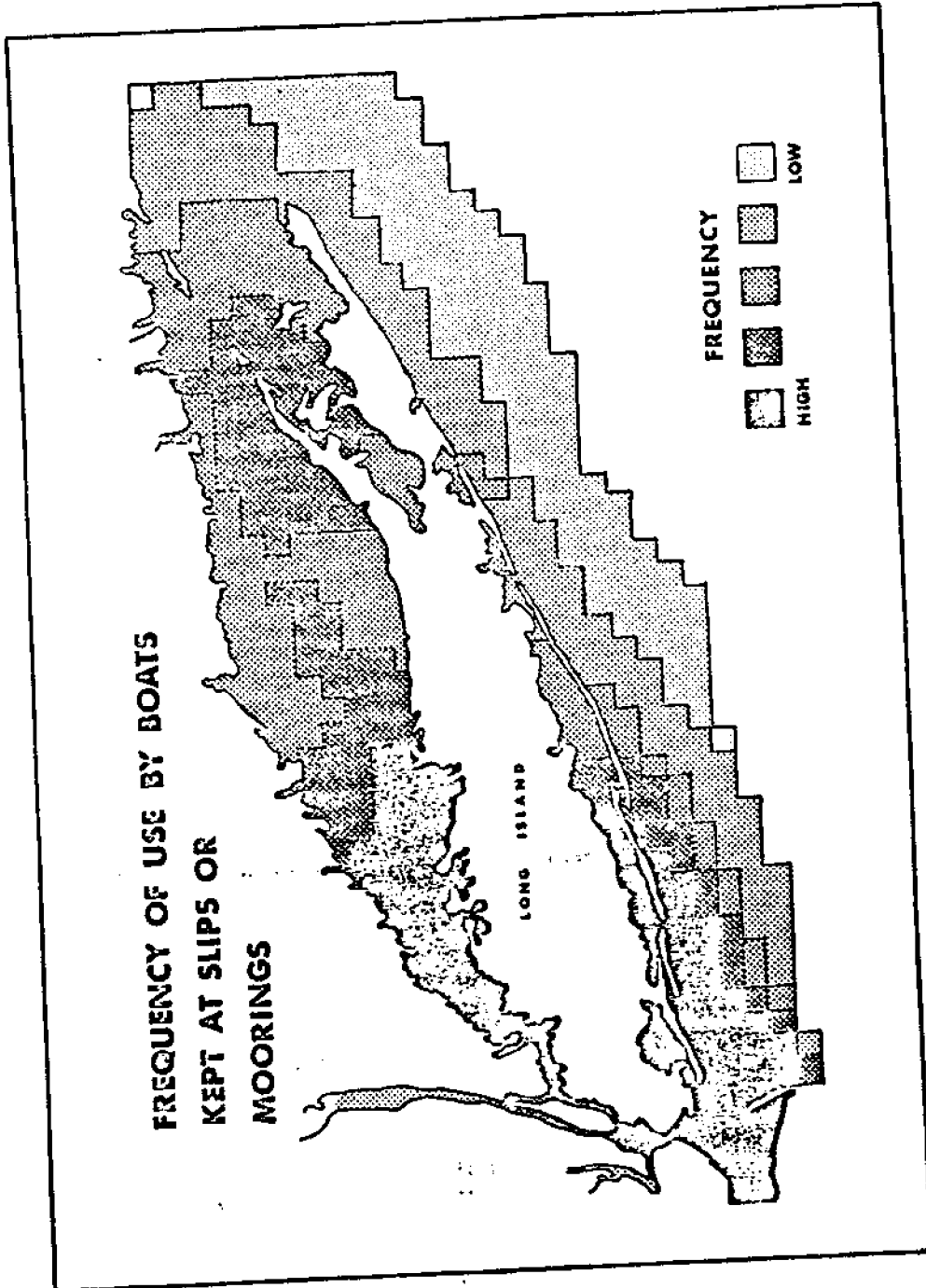


Figure 11

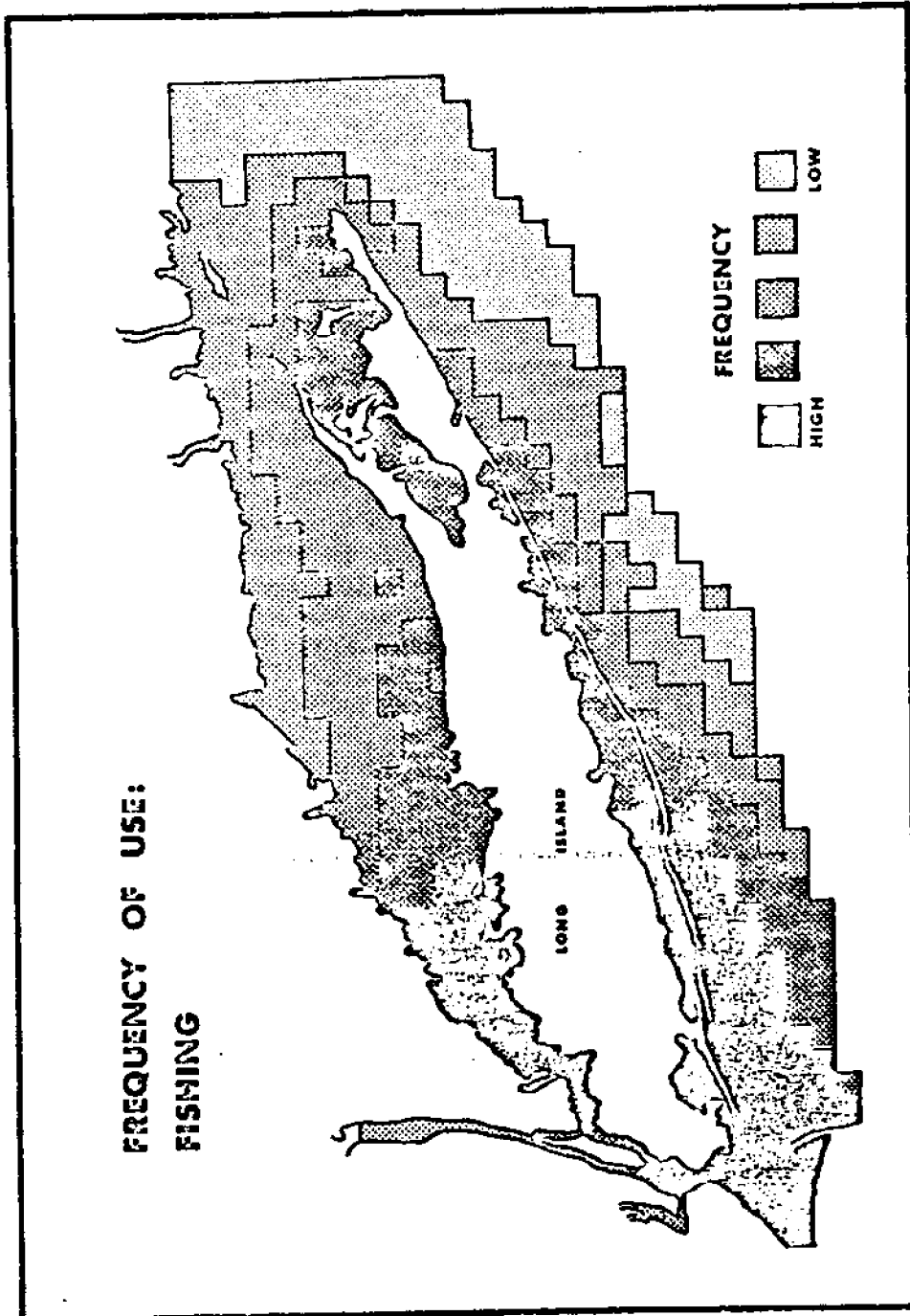


Figure 12

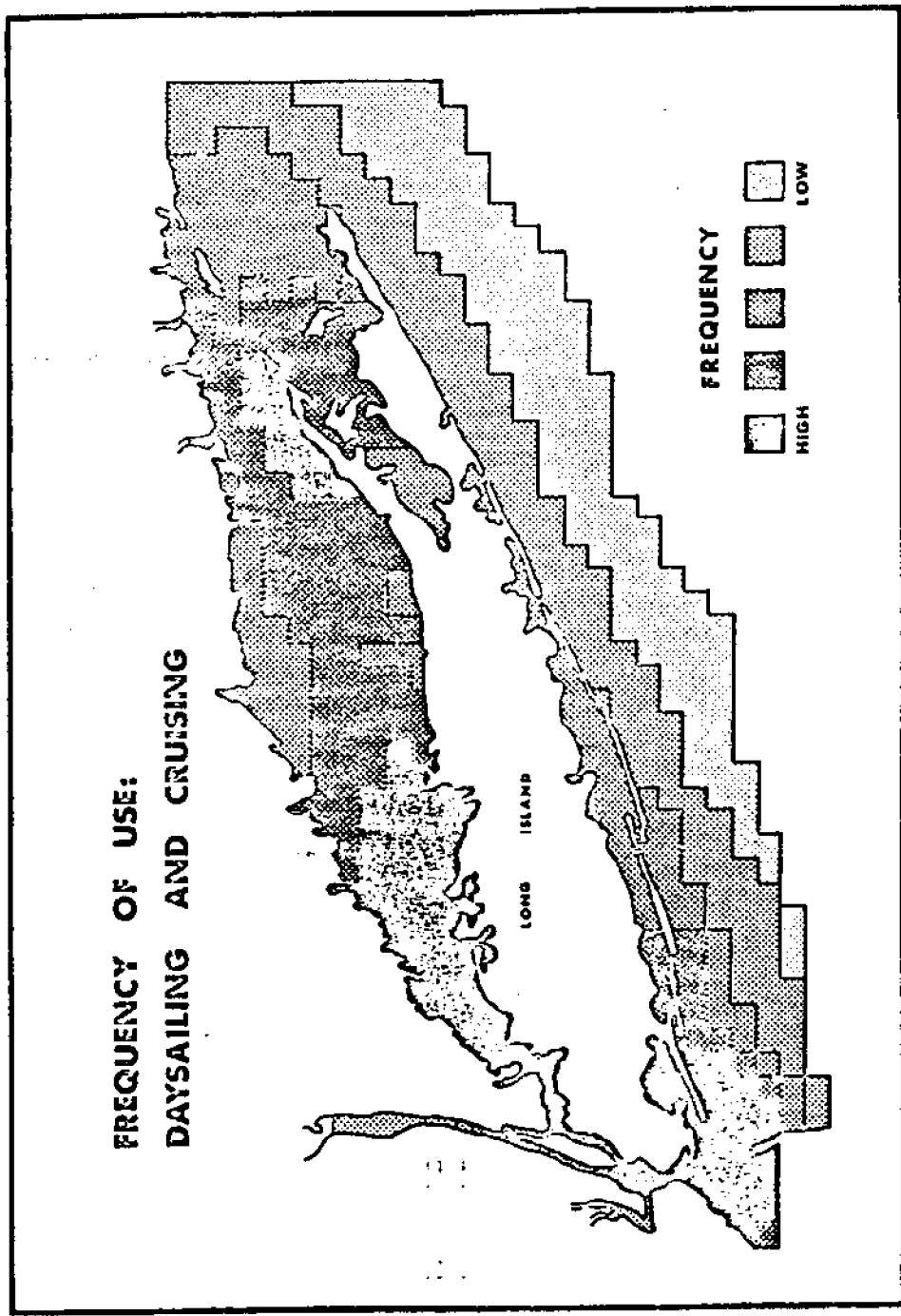


Figure 13

information placed on the questionnaire maps) we were able to gather some insights into this locational aspect of boat use.

Figure 14 shows the residential pattern of respondents categorized by mode of water access. Residential locations tend to mimic general population distribution save for a noteworthy underrepresentation in poorer areas. Residences of marina and yacht club users tend to be rather uniformly distributed throughout the City. Trailer and cartoppers tend to dominate portions of Staten Island, Brooklyn, Queens and the Bronx. In these areas the single family house and duplex are fairly plentiful. These structures usually come with yards and garages, both of which may be used for boat storage. The "other" category tends to reflect boatowners who live on the shore within the City (particularly at Mill Basin, Howard Beach, Broad Channel, and City Island), or who own a second home/cottage elsewhere (most typical of Manhattanites).

Figure 15 provides information on travel from home to some of the more popular marina and yacht club locations. This map is interesting on two accounts. First, it suggests that the Verrazano Narrows is a formidable barrier in travel to marinas and yacht clubs. Second, it shows that people do not always use the marine facility that is closest to home. This may be explained by preference for one cruising area over another or, given the lack of docks and moorings within

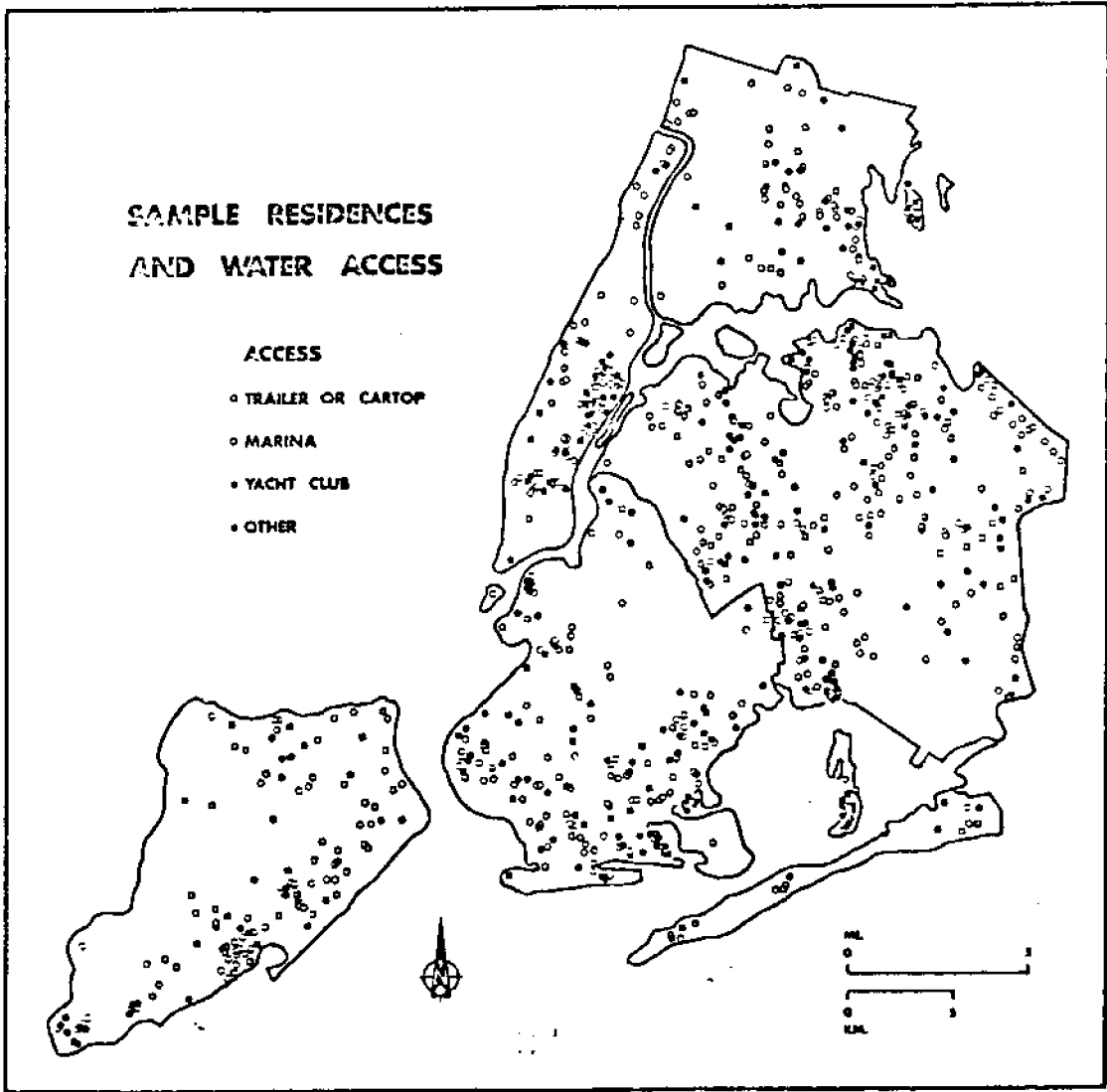


Figure 14

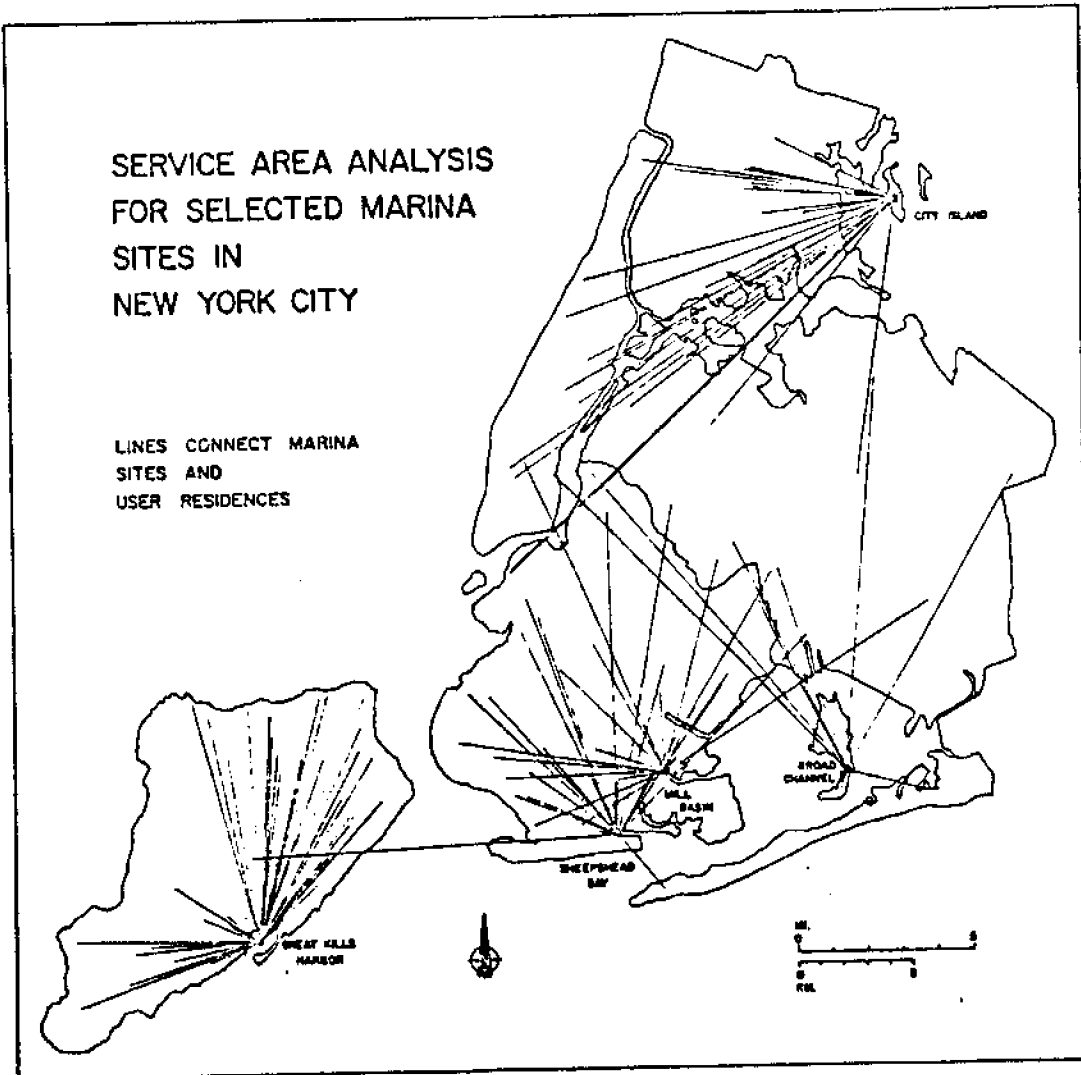


Figure 15

New York City, a willingness to occupy whatever space becomes available.

Table 11 shows average distances between selected marina and yacht club sites and user residences. These data are also fairly indicative of distances travelled by those who trailer or cartop. Those trailering to ramps within the City travelled 4.8 miles on the average. Travel to ramps outside the City averaged 36.2 miles per one-way trip. About two-thirds of all trailer trips are directed to launch sites within the City. It is noteworthy that many of these people commented on the lack of launch ramps within the City and that they often used sites not intended for that purpose. Finally, it should be noted that all average travel distances were calculated on the basis of straight lines linking residence and point of water access. Actual odometer readings could thus be expected to be at least 10% greater per average trip.

Even before the questionnaires were sent out it was obvious that a substantial percentage of the sample would largely confine their boating to areas outside the City. We assumed this propensity was partially encouraged by a dissatisfaction with the boating environment within New York City. Likewise we believed those who went boating within the City's jurisdiction might also have complaints which, if sufficiently serious, would encourage them to go boating elsewhere. Believing that certain improvements could encourage greater

TABLE 11

AVERAGE DISTANCE BETWEEN SELECTED MARINA/
YACHT CLUB SITES AND USER RESIDENCES

<u>Site</u>	<u>N</u>	<u>Average Distance (miles)</u>
<u>City</u>		
Great Kills	48	2.9
Sheepshead Bay	26	5.3
Mill Basin	19	4.5
Broad Channel	18	4.8
City Island	37	6.7
<u>Non-City</u>		
Port Washington	19	10.6
Mamaroneck	5	14.7
Freeport	23	14.8
East Hampton	8	88.7
Montauk	7	103.5

use of the City's marine environment, we asked respondents to rank those improvements along the City's waterfront or within its waters which would most enhance their boating experience. More than 600 people responded to this question and provided about 90 different suggestions. Table 12 shows those responses that were cited at least ten times.

Clearly, the main source of discontent is poor water quality. Three of the top four responses related to this issue as did a number of additional responses not shown in the table (e.g. "end sludge dumping," "enforce toilet regulations" and "stop raw sewage"). About 46% of all responses cited a need for improved water quality. Another 35% related to a perceived need for more or improved ramp and marina facilities. The remaining 19% covered a number of issues, the main one being factors related to trip destinations. These three "super categories" were cross-tabulated with socioeconomic data as well as data on boat length, type, storage and activities. Generally the rankings held true for each tabulation. That is, whether categorizing respondents by level of income, type of boat owned, or primary boating activity, the major concern tended to be water quality, followed by ramps and marinas, followed by the more nebulous third and final response area. The only major exception was exemplified by trailerers and cartoppers, who cited as their major concern the lack of launch ramps within New York City.

TABLE 12

MOST DESIRABLE MARINE IMPROVEMENTS WITHIN NEW YORK CITY

<u>Improvement</u>	<u>N</u>	<u>%</u>
Remove debris from water	105	16.7
Build more launch ramps	105	16.7
Improve water quality	56	8.9
Improve pollution control	48	7.6
Build more marinas	47	7.5
Build more public docks	31	4.9
Fix docks and piers	17	2.7
Increase marina services	16	2.5
Dredge existing channels	15	2.3
Improve marinas	14	2.2
Need more police patrols	13	2.1
Dredge near docks	12	1.9
Provide more fuel at marinas	10	1.6
Improve transient facilities	<u>10</u>	<u>1.6</u>
Sub-totals	499	79.2
Others	<u>128</u>	<u>20.8</u>
Totals	627	100.0

Footnotes

¹Boating Almanac Co., Inc., Boating Almanac, Vols. 2 and 3, 1979 (Severna Park, MD: Boating Almanac Co., Inc., 1979).

²Boating Industry, The Boating Business, 1979, p. 16.

³Ibid.

⁴Ibid., p. 7.

⁵Personal communication from Mr. George Rounds, November 14, 1979.

SECTION 3

MARINA DEMAND

This Section presents a profile of New York City's boatowners in an attempt to indicate the magnitude of the City's latent boat demand.¹ In addition it seeks to estimate the range of diverted demand² which is now being serviced by marinas outside the City, principally along both shores of Long Island. The analysis is partly based on industry-generated data, and partly on data obtained from our own boatowner survey. Additional information has been obtained from research efforts conducted elsewhere.

The intent of this Section is not to project the temporal and spatial distributions of marina development, since these will be influenced by the physical and legal characteristics of the federal, state and local governmental jurisdictions, and the socioeconomic characteristics of the potential boatowner. Instead, the intention is to indicate the magnitude of the total demand within New York City which is not now being met by existing marinas and yacht clubs. A more exact estimate of such demand would require a detailed market survey of City residents not owning boats, as well as of New York City boatowners who now maintain their vessels outside the City's jurisdiction.

Methods

The boatowner profile data are provided by our mailed survey of registered and documented boaters (Appendix D).

Our estimate of existing demand is based on an analysis of present City boatowners and the current supply of marina slips and moorings. We will present evidence that demand for such facilities exceeds supply, and estimate the range of additional existing boatowners who would become marine tenants if new slips and moorings became available. This projection is realized by discerning the socioeconomic profile of marina users, comparing this profile with a sample of area boatowners, and then extrapolating this data to the total population of area boatowners. Data for these calculations were provided by our boatowner survey, the Boating Almanac, and the Coast Guard. Each of these sources has been described in some detail in the methodology portion of Section One. An additional data source is our survey of marina and yacht club operators (Appendix B) which, among other things, included a question on occupancy rates.

Boatowner Profile

Slightly more than 26% of our survey respondents said their present boat was the first they had ever owned. About 17% of the sample said they had owned their present boat for no more than a year, while half the sample said they had owned their boat for three years or less. Veteran owners reported

having owned boats for an average of 11-12 years. Some 73% of all registrants reported owning one boat. Another 18% owned two boats, and 9% owned more than two.

New York City boatowners tend to be male, middle-aged, and middle class. About 770 survey respondents indicated their sex. Of these individuals 94.4% were male. The modal age category of the sample was 31-40 (Table 13). A quarter of the respondents placed in this category, while 72.6% of the sample ranged between 31 and 60 years of age. White-collar and professional people accounted for just over 50% of the sample, while blue-collar workers accounted for another 38.4% (Table 14). The latter figure is of particular interest since it runs counter to the prevailing stereotype that suggests boating is an activity dominated by the upper and upper-middle classes. Income data serve to further undermine this stereotype (Table 15). The modal income category was \$20,001 to \$30,000. Thirty percent of the sample was included in this category, and nearly 63% of the sample fell below the \$30,000 level. Although a family income of \$30,000 is above both the national and City medians, it hardly connotes an elite clientele. Most boatowners, in fact, earn substantially less than this. Indeed, nearly a third of the sample earned no more than \$20,000. Many variables, of course, influence the cost of boating. For 1979, though, the average cost of an outboard motor was estimated at \$1,590. The average cost

TABLE 13

AGE CHARACTERISTICS OF SAMPLED BOATOWNERS

<u>Age</u>	<u>N</u>	<u>%</u>
Less than 20	11	1.4
21-30	114	14.8
31-40	192	25.0
41-50	186	24.2
51-60	180	23.4
61 and older	<u>86</u>	<u>11.2</u>
Totals	769	100.0

TABLE 14

OCCUPATIONAL CHARACTERISTICS OF SAMPLED BOATOWNERS

<u>Occupation</u>	<u>N</u>	<u>%</u>
White collar	208	28.7
Blue collar	278	38.4
Professional	166	22.9
Retired	53	7.3
Student	5	0.7
Unemployed	2	0.3
Housewife	<u>12</u>	<u>1.7</u>
Totals	724	100.0

TABLE 15

TOTAL FAMILY INCOME OF SAMPLED BOATOWNERS

<u>Income</u>	<u>N</u>	<u>%</u>
Less than \$10,000	28	4.2
\$10,001-\$15,000	53	8.0
\$15,001-\$20,000	136	20.6
\$20,001-\$30,000	198	30.0
\$30,001-\$40,000	104	15.8
\$40,001-\$50,000	65	9.9
\$50,001-\$100,000	55	8.3
More than \$100,000	<u>21</u>	<u>3.2</u>
Totals	660	100.0

of an outboard motor was placed at \$1,402 and the average trailer at \$522.³

To a certain extent an appreciation of the residential pattern of City boatowners was provided by Figure 14. A more complete borough-by-borough residential summary is provided by Table 16, which compares borough population and boat ownership. This table must be interpreted with some caution because of the preliminary nature of the 1980 U. S. Census data for New York City. Nonetheless, the geography of boat ownership clearly does not mimic the geography of general population distribution. Boatowners are under-represented (i.e. a borough's share of total boatowners is less than its share of total population) in Manhattan, Brooklyn and the Bronx. By contrast boatowners are over-represented (greatly so!) in Queens and Staten Island. Queens contains more than 40% of the City's boaters while being the home of about 27% of the City's population. Staten Island has nearly 12% of all boaters but only 5% of the City's population.

Three reasons may be offered for this geographic variation. First, Manhattan, Brooklyn and the Bronx contain the largest number of the City's low income families. If boating is not the exclusive province of the wealthy, neither is it the domain of the poor. (As noted in Table 15, only 4.2% of the sampled boatowners had family incomes totalling less than \$10,000.) Because great numbers of low-income families inhabit the above-named boroughs, it is reasonable to expect

TABLE 16

COMPARISON OF POPULATION AND BOAT OWNERSHIP, BY BOROUGH

<u>Borough</u>	<u>Population</u> ¹		<u>Boatowners</u> ²	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Manhattan	1,411,743	20.1	3,490	11.4
Brooklyn	2,211,798	31.5	7,130	23.5
Queens	1,883,682	26.9	12,185	40.1
Bronx	1,158,788	16.5	4,000	13.2
Staten Isl.	<u>349,597</u>	<u>5.0</u>	<u>3,585</u>	<u>11.8</u>
Totals	7,015,608	100.0	30,390	100.0

¹Preliminary 1980 U.S. Census data provided by New York City Department of City Planning.

²Does not include owners of documented pleasure craft.

they would help produce a relatively low level of boat ownership. Second, and as noted in Section Two, certain residential real estate characteristics of Queens and Staten Island have a positive effect on boat ownership. Specifically, a disproportionately high percentage of the City's backyards and private garages may be found in Queens and Staten Island. Because storage space is a major obstacle facing the prospective boatowner, it is reasonable to suggest that the existence of such facilities has played a role in producing over-representation of boatowners in these two boroughs. Third, and finally, boat ownership in Queens and Staten Island probably has benefited from proximity to (and relative public awareness of) boating opportunities. Relative to population, a disproportionate share of the City's slips, moorings and launch ramps may be found in these two boroughs. Moreover, in the case of Queens potential benefit derives from proximity to marine facilities in Nassau and Suffolk Counties. Assuming that proximity to and knowledge of marine opportunities encourage purchase of a boat, it is understandable why over-representation should occur in Queens and Staten Island.

Views of Marina Operators

Tabular data have suggested the present supply of slips and docks at the City's marinas are well below existing demand. This supposition is confirmed by responses to the questionnaire that was sent to marina and yacht club managers.

There are approximately 67 marinas and 51 yacht clubs within New York City. Managers of approximately a quarter of these facilities responded to our questionnaire.

The first question dealt with occupancy rates. Assuming this sample reflects the whole, it appears that most marinas and yacht clubs are at the saturation point. Operators of a few facilities reported occupancy rates in the range of 40-70%, but a majority reported that 100% of their slips and (where applicable) moorings were rented at the time of the survey.

Fee structures were a matter of great importance to us. As a follow-up to the question on occupancy rates, about three dozen marinas were randomly selected from the Boating Almanac and contacted with respect to 1979 slip and mooring fees. A dozen of the selected marinas are located within New York City. The balance are primarily on Long Island. Within the City, seasonal (summer) slip rentals for medium-sized boats tended to range from \$200 to \$450. Mooring prices for the same period ranged between \$150 and \$200. On Long Island the average costs of slips and moorings tended to be a little more than \$100 higher.

Having just reported these figures, we must encourage great care in their interpretation and use because strict comparison of prices is difficult and misleading. For example, a slip rental for a boat of a given size may vary depending upon whether the dock is private or semi-private. Further,

summer rates may vary in part because of the range of services included in the rental package, not to mention differences in additional amenities provided by the marina.

Generally speaking, however, the rentals at City marinas tended to be significantly lower than those on Long Island. We can offer two reasons for this. First, the marinas on Long Island tend to be much larger operations from the standpoints of space, amenities, services and employees. Second, these same marinas may occupy waterfront land that is much more expensive compared to the waterfront occupied by City marinas. Both factors result in overall less expensive storage space within the City. Nearly 30% of the City's boatowners maintain their vessels on Long Island during the sailing season (Table 5). Whatever their reasons, cost considerations probably do not play an important role in the locational decision-making process.

The marina and yacht club managers also were asked questions related to doing business in New York City. We wanted to know the major problems facing their operations and what they thought City government could do to help alleviate these problems. The most important problems they cited are listed in Table 17. Each of the nine items in this table was mentioned with approximately equal frequency; hence an item's placement on the list does not indicate rank or priority. The suggested ways of alleviating these problems reads like a checklist based on the table. Thus, going through the nine

TABLE 17

MAJOR PROBLEMS FACING NEW YORK CITY MARINAS,
AS REPORTED BY MARINA MANAGERS

(Factors are not in rank order)

- High New York City Taxes
- High Workmen's Compensation Insurance Rates
- Too Many Government Regulations
- Difficult To Obtain Space For Expansion
- Lack Of Dredging
- Theft And Vandalism
- High Bank Interest Rates
- High Maintenance Costs
- Water Pollution

items, it was suggested that the City lower taxes on marinas; that Congress exempt marinas from boatyard status as regards the Workmen's Compensation Act; that many government agencies be streamlined or eliminated; and so forth.

We also asked the managers what advantages and disadvantages resulted from doing business in New York City. On the positive side, two closely related locational considerations were repeatedly cited: proximity to a large number of potential customers, and easy access for same. A number of operators suggested these factors would become more important in the years ahead when, presumably, high gasoline costs would encourage City residents to seek recreation opportunities near home. Be that as it may, in the meantime the operators saw a number of disadvantages to being located in New York City (Table 18). Vandalism and theft were the major concerns, followed by water pollution, high taxes, and too many regulations.

In summation our survey of marina managers revealed both positive and negative aspects of doing business in New York City. In comparison, however, responses tended to dwell much more on the negative points. It is difficult to say whether this indicates genuine gloom or a mere venting of frustration. At any rate, given the apparent demand for slips and moorings, it does not bode well for the future to see such negativism displayed by industry representatives.

TABLE 18

DISADVANTAGES OF LOCATING MARINAS IN NEW YORK CITY,
AS REPORTED BY MARINA MANAGERS

(Factors are listed in order of importance)

- Vandalism/Theft
- High Insurance Rates
- Water Pollution
- High Real Estate Taxes
- City Regulations
- High Sales Tax
- Too Far From Fishing Areas
- No Help From City Agencies
- Too Many Boats

A final component of the marina-yacht club manager survey dealt with prospective sites for new marina developments. Respondents were asked to rank nine locations targeted by the Port Authority as candidates for new projects.⁴ The nine sites are listed below.

1. Former St. George Coast Guard Base (Staten Isl.)
2. Stapleton Waterfront Area (Staten Isl.)
3. Erie Basin (Brooklyn)
4. Army Terminal (Brooklyn)
5. Between Brooklyn and Manhattan Bridges
6. Battery Park City (Manhattan)
7. Along Westway (Manhattan)
8. East River between 16th and 23rd Streets (Manhattan)
9. Abandoned Harlem River Railyards (Bronx)

Because many operators were not familiar with some of these prospective sites, responses to this ranking exercise were generally scanty. Nonetheless, three of the sites did elicit sufficient positive feedback to be worth noting: Erie Basin, Battery Park City, and the Harlem River Railyards. Erie Basin was liked because of its breakwater, absence of strong currents, and proximity to a large population. Battery Park City was liked because of its Manhattan location, proximity to existing and potential high income and corporate clients, and the relatively slight currents of the lower Hudson. The Harlem Railyards were liked because of relatively low land values, proximity to both large population and Long

Island Sound, and absence of other marinas within a several-mile radius. Some operators, it should be noted, expressed concern about the currents in the Harlem River and prospective vandalism in the railyard area. A police boat squadron is based a few hundred yards from the railyards on Randall's Island. This could prove a ready deterrence to vandalism or other crime at a Harlem River development.

Existing Demand

Calculations of existing demand for slips and moorings at marinas is given in Table 19. As noted in the introduction to this Section, our range estimate is based on the economic characteristics of a portion of the boat-owning public (i.e., those people who responded to our boatowner survey) who presently use marinas.

There are five columns in Table 19. The first simply reflects the levels of income as listed in our boatowner survey. The second column shows the percent of the sample included in each income category. (These are the same percentages shown in Table 15.) Thus, the first entry in column two indicates that 4.2% of the sample had a total family income of less than \$10,000. The third column projects the total New York City boatowners in each income category. These figures are arrived at by multiplying the number 31,000 (total registered boatowners living in New York City) times the percent of the sample contained within each income category. Thus, the

TABLE 19

ESTIMATION OF EXISTING DEMAND FOR MARINA BOAT-SPACE
BY NEW YORK CITY BOATOWNERS

	(1)	(2)	(3)	(4)	(5)
Under \$10,000		4.2	1,302	40	521
\$10,001-\$15,000		8.0	2,480	59	1,463
\$15,001-\$20,000		20.6	6,386	60	3,832
\$20,001-\$30,000		30.0	9,300	50	4,650
\$30,001-\$40,000		15.8	4,898	52	2,547
\$40,001-\$50,000		9.9	3,069	56	1,719
\$50,001-\$100,000		8.3	2,573	57	1,467
More than \$100,000		3.2	992	53	526
Total					<u>16,725</u>

- (1) Total Family Income
- (2) Percent of Sample
- (3) Projected Total Boatowners
- (4) Percent of Sample Who Use Marinas
- (5) Estimated Existing Demand, by Income

first entry in column three is reached by multiplying 31,000 times .042. The next (fourth) column indicates the percent of the sample contained within each income category who keep their boats at a marina during the summer sailing season. That is, our analysis shows that 40% of all boatowners whose total family incomes are less than \$10,000 keep their boats at marinas, as do 59% of those who earn \$10,001 to \$15,000, and so forth on down the column. The fifth and final column estimates the number of boatowners in each income category who could be expected to use marinas based, again, on the financial characteristics of the sample. The numbers are arrived at by multiplying the projected number of boatowners in each income category (third column) times the percent of the survey sample in each income category who currently make use of marinas. Thus, the first entry in column five, 521, is reached by multiplying 1302 times .40. By summing the entries in the final column we end up with an estimation of the existing demand for marina slips and moorings on the part of the City's boatowners. The answer is 16,725.

It was estimated (Table 1) that approximately 6,296 slips are now provided by the City's marinas and yacht clubs, in addition to 2,315 moorings. The total of these, some 8,600 "spaces", scarcely satisfies half the demand. What is happening, of course, is that the unmet demand (hereafter referred to as diverted demand) is presently being satisfied by marinas outside the City (principally in Nassau, Suffolk and Westchester

Counties, and in Connecticut) or by some other storage/maintenance arrangement. Moreover, Table 3 indicated that 53% of our sampled boatowners keep their boats at marinas during the sailing season. Assuming this percent figure also holds for the total population of New York City boatowners, then about 16,430 (31,000 times 0.53) individuals presently store their boats at marinas for at least part of the year. The difference between our projected existing demand (16,725) and the estimated number of present marina users (16,430) is small. Indeed the latter figure is only about 2% less than the former. This suggests that the present demand for marina space by the City's boatowners has largely been satisfied --though not by the City of New York nor by entrepreneurs operating therein.

Potential Demand

In a city like New York there are probably many people with the desire and financial means to purchase a boat but who, for any number of reasons, have yet to do so. Should these individuals purchase a pleasure craft, this would, of course, increase the demand for commercial storage space. Indeed, it has been argued that the lack of such space is a major reason why potential buyers choose to remain potential buyers.

The identification of New York City's latent demand is complicated by the absence of data and studies dealing with this component. In part this lack of interest is influenced

by perceived difficulties in establishing marina businesses within the City and in part because of the uncertainty of the magnitude of the latent demand. The following estimate uses several procedures which are internally consistent and which are for the most part verifiable by data collected by industry sources and papers and projects dealing with this subject. The identification of the presence of the latent demand should be viewed as an indication of magnitude rather than as a firm estimate. Such estimates would require a much more detailed and involved effort than is possible within the scope of the present project.

Identification of New York City's latent demand is facilitated by a study conducted for International Marine Expositions, Inc. (MAREX) by the research firm of Yankelovich, Skelly and White, Inc.⁵ This study was conducted during the summer of 1979, coincidental with our own survey of boatowners.

The Yankelovich study estimates "hot prospects", which is equivalent to latent boating demand, in the top fifty markets in the United States to total about 900,000. The latent demand is operationally defined as those who frequently attend boat shows; who regard boating as a "special" activity; and who are considering or might consider buying a boat. It is noteworthy that the Yankelovich study isolates people who are truly potential boat buyers, and not people who simply possess the financial means to buy a boat. Based upon our boatowner survey and income projections from available U.S. Census data,

we estimate there are at least 500,000 people within New York City who have the financial means to purchase a boat.

It obviously makes no sense to base latent demand solely on the financial means of the population. Had this parameter been used, New York City's approximately 31,000 boatowners could be projected to increase to more than a half million. But to claim that New York has a half million potential boatowners is absurd because, as the Yankelovich study emphasizes, not everyone who has the money to buy a boat has any intention of doing so. Thus, attempting to estimate the latent demand for boats and subsequent marina demand in New York City on the basis of income alone appears to offer little promise. A more promising approach would be to estimate what portion of the national latent demand ("hot prospects") reside in New York City. An approach is available that enables such an approximation.

MAREX has published a list of the top fifty U.S. metropolitan markets for outboard motor sales.⁶ Their 1979 data show New York City in 15th place on this list and accounting for 2.13% of all outboard motors sold in the United States that year. Assuming that propensity to buy an outboard motor is closely akin to propensity to buy a boat (i.e. latent demand), then multiplication of New York City's percentage of major-market outboard motor sales (0.0213) times the national major-market supply of "hot prospects" (900,000) provides an estimate of the total latent demand in New York City. The

result of this arithmetic is 19,170 (Table 20).

This figure, however, requires modification; for not all outboard motors sold in a given year are likely to be installed in new boats. Because engines generally wear out at a faster rate than the hulls in which they are installed, a certain percentage of new engine sales may be labelled "replacements" for worn-out motors. The next step in our assessment of latent demand, then, is to estimate replacement sales and adjust our initial figure (19,170) accordingly.

The difference between the number of boats and motors sold in a given year presumably identifies the replacement portion of the market. According to MAREX some 375,000 outboard motors were sold in 1979. During the same year some 322,000 boats that require some sort of outboard power were also sold.⁷ The difference between these figures (53,000) represents the replacement share of the market; i.e., the portion of new motors that are simply replacing old motors. Thus, about $(53,000/375,000=)$ 14% of new engines sold may be considered replacements. To make the replacement adjustment in Table 20, we reduce our original estimate of latent demand by 14%. The result is now 16,486.

We reiterate that this is a mere indication of latent demand magnitude and not a firm assessment. Indeed at least four qualifications can be offered to the above calculations which reinforce our plea for careful use of the final figure.

TABLE 20

ESTIMATION OF LATENT BOAT DEMAND
WITHIN NEW YORK CITY

National latent demand ("Hot prospects")	900,000
New York City share (900,000 x 0.213)	19,170
Replacement adjustment (19,170 minus 14%)	16,486

First, many of the top 50 metropolitan markets for outboard motor sales (the very base of Table 20) happen to be inland cities. These locales accounted for nearly one-third of all outboard motor sales in 1979. The problem is that people who use lakes and other inland waterways are particularly apt to purchase more than one motor for their boat. In their case, then, propensity to buy a motor is not at all necessarily tantamount to propensity to buy a boat.

Second, the Yankelovich sample survey only included males. Surely, there must be some female "hot prospects" lurking in New York City and in the other major boating markets. But how many? Earlier in this Section we noted that 5.6% of all boats in New York City are registered to females. There is no way of knowing, of course, how many of these women actually purchased "their" boats, and how many simply have a boat registered in their name. In any event if there is a population of female "hot prospects" in New York City that corresponds to the percentage of female registrants, then total latent demand increases to more than 17,000. It is our feeling, frankly, that this estimate is too high, and that the estimate that completely excludes women is too low.

Third, the MAREX data reflect engine and boat sales during a year of fuel scarcity for recreational boating. No doubt this scarcity had some impact on sales of boats and motors (probably a negative one) and, thus, also impacts upon our calculation of replacement sales.

Fourth, for purposes of replacement calculations, it is perhaps best that the "average life expectancy" of outboard engines should be based on the number of hours run. Such estimates are difficult to come by in part because such information is considered privileged by the engine manufacturers, and in part because numerous variables (such as engine size, horsepower rating, propeller size and pitch, and intensity of use) are likely to affect the estimate.

How does our estimate of latent demand translate into demand for slips and moorings within the City? Presently 56.8% of New York City boatowners keep their boats within the City (Table 5). If this were to hold true for the latent demand, then slips and moorings for approximately $(16,486 \times 0.568=)$ 9,364 new boats could be required. We emphasize the word could here because not everyone who owns a boat maintains it at a slip or mooring. Presently 78.6% of the boatowners use a slip or mooring during the sailing season (Table 2). Making this adjustment in our latent demand calculations, we may expect that $(9,364 \times 0.786=)$ 7,360 additional slips and moorings would be sought. At the same time diverted demand, met by marinas and yacht clubs outside the City, could also be expected to increase to the tune of $(16,486 \times 0.432=)$ 7,122 new boats. Current diverted demand, as noted in Table 5, accounts for about $(31,000 \times 0.432=)$ 13,392 boats. If the new (latent) diverted demand is added to this, the result is a total potential diverted demand of 20,514 boats. It is .

possible that a portion of these might be attracted back to the City but, unfortunately, there is no way for us to estimate this percentage.

The bottom line is that estimated City-based latent demand totals 9,364 boats, of which 7,360 could be expected to require slips and moorings. To the latter number should also be added an unspecified portion of the 20,514 boats that constitute existing and potential diverted demand. The combined latent and diverted demand for additional slips and moorings within New York City thus ranges from 7,360 to $(7,360 + 20,514 =) 27,874$ storage units.

Our purpose in this Section has been to indicate the presence of a latent demand likely to materialize in response to increased marina development along the City's waterfront. Since it is not our objective to measure the magnitude and spatial distribution of that demand, we believe it prudent to speak of our expectations as ranges rather than projections. The figures are wrought with many unknowns related to factors far beyond our control and the overall scope of the present study. These factors include among others an improving economy, greater attention to the revitalization of the urban waterfront, and a vastly improved permit process that allows both existing and potential marina operators to invest with a minimum of unnecessary bureaucratic red tape.

It is, however, our conviction that a strong demand exists for marina developments along the City's shoreline.

It would appear that potential developers run few risks of being unable to fill both slips and mooring spaces with boats owned by New York City residents.

Footnotes

- ¹Latent demand comprises those residents who might become boatowners should the social, economic, legal or environmental conditions change. For further discussion see J.T. Coppoch and B.S. Duffield, Recreation in the Countryside (New York: St. Martins Press, 1975).
- ²Diverted demand consists of that portion of the demand which is diverted from one source of marinas to another as a result of the creation of competing slips and moorings. For additional information see Thomas L. Burton, Experiments in Recreation Research (Totowa, N.J.: Rowan and Littlefield, 1971).
- ³Boating Industry, The Boating Business, 1979, p. 4.
- ⁴L. Michael Krieger, Waterfront Redevelopment Strategy: Phased Redevelopment of the Inner Harbor Waterfront (New York: The Port Authority of New York and New Jersey, 1979), p. 63.
- ⁵Yankelovich, Skelly and White, Inc., Summary of the Study of Non-owners of Boats (New York and Chicago: International Marine Expositions, Inc., 1979).
- ⁶MAREX, Boating '79: A Statistical Report on America's Top Family Sport (New York and Chicago: International Marine Expositions, Inc., 1979), p. 6.
- ⁷Ibid., p. 5.

SECTION 4

LEGAL AND ADMINISTRATIVE CONSTRAINTS

In analyzing factors which affect boating in New York City, it is necessary to look closely at the forces that influence the development of marinas and ramps. Constraints on the development of these are plentiful, but can be aggregated under three headings: physical factors (such as tidal currents, shoreline configuration and bathymetry); existing and potential markets within the City; and legal and administrative obstacles confronting present and potential marina operators.

Although physical factors are important, they will not be discussed here because the potential marina operator usually is acutely aware of those physical factors which limit construction and operation. Likewise, existing and potential markets have been discussed in previous Sections of this report and do not require additional coverage. Legal and administrative constraints, however, have not been addressed. These deserve attention because of their extreme importance and because they are frequently baffling, if not incomprehensible.

The discussion of these constraints is divided into three parts as defined by the major levels of government. Thus, the first part addresses the role of the federal government in coastal development, particularly as it relates to the

Coastal Zone Management Act (CZMA) and the permits which may be required of the marina operator who wishes to expand a facility, or by others who wish to develop waterfront property not previously used as a marina. Additional comments focus on federal requirements related to dredging and water quality. The second part analyzes the state's role in coastal zone planning and management. Since New York State does not yet have a coastal plan that has federal approval, this information will be less specific and subject to change. The third and final segment examines the administrative environment governing the waterfront permitting process within New York City.

Federal Role

The federal government's jurisdiction over the management of coastal resources and activities occurring within the coastal zone falls in two major areas--regulation and promotion. The regulatory functions are commonly executed through the Clean Water Act, especially Section 402 (PL 92-500), which requires a permit from any industrial, commercial or public organization which plans to emit effluent into navigable waters. In addition, Section 10 of the Rivers and Harbor's Act (PL 92-532) regulates dredging, shoreline modifications and the disposal of excavated material. The promotional role of the federal government is associated with the CZMA and the development of Coastal Zone Management Plans by eligible states and

territories.

Implementation of the Federal Water Pollution Control Acts (now the Clean Water Act) has improved water quality. As intended, this has led to increased recreational boating opportunities and a corresponding demand for more marinas and ramps. But increased use also has raised the specter of new sources of pollution. Ironically, then, many improvements in water quality that have occurred since the early 1970s are now threatened by the results of their success.

The growth of boating will increase the need for shore-based facilities. Marinas, service docks, pump-out facilities and ramps are just a few of the more obvious and obtrusive potential modifications of the environment. Some of these are already subject to regulation; for others regulation is either likely or imminent. Pump-out facilities are an example of the latter.

It is likely that in a few years marina operators will be obligated to provide pump-out facilities for boats with installed heads (Marine Sanitation Devices, or MSD's) connected to holding tanks. In instances where the marina is hooked up to a municipal sewage treatment plant, no impact on the receiving water body is likely to occur. Consequently, in this instance no federal permit will be required of the marina operator. However, in instances where the boat-generated effluent is collected and treated within the marina, a National

Pollutant Discharge Elimination System (NPDES) permit will be required. This program, which was mandated under the Clean Water Act, 1972, is administered by the Environmental Protection Agency and is intended to provide the authorities with an inventory of the quality and quantity of industrially generated effluent. In instances where effluent quality does not satisfy existing standards, a program of effluent elimination will be required based on best available technology.

Although MSDs and shore-based pump-out facilities are serious matters, the real impediments to the development of new and the expansion of existing of existing marinas are (a) finding suitable land at low enough cost for the investor to develop, and (b) obtaining necessary permits to modify both land and shorebottom to facilitate vessels with varying drafts. The first problem, although serious, will undoubtedly be resolved in the market place and will not require governmental intervention except in those relatively few instances when a municipality decides to enter the marina industry as owner and operator. This topic is discussed further below.

As regards shoreline modification and dredging permit requirements will largely depend upon whether the proposed action is classified as maintenance or as a new project. The latter requires a more complex permit process with greater environmental surveillance than does the former.

Dredging and the transportation of the excavated material comes under the jurisdiction of the Marine Protection, Research

and Sanctuaries Act, commonly referred to as the Ocean Dumping Act, and the Harbors and Rivers Act. Although the two acts cover different activities, the procedures used in the permitting process are identical to the point that the same application forms are being used.

Nearly all marinas involve some modifications of the existing shoreline, plus dredging of the proposed marina site and, possibly, adjacent mooring basins as well. Since all of these actions fall under the jurisdiction of Ocean Dumping and/or Clean Water Act, the marina operator will be required to file with the Army Corps of Engineers (ACE). Permission to proceed is usually contingent upon the type of modifications proposed. In instances where the area is already under ACE jurisdiction, the Corps has the responsibility to maintain the channel to its prescribed depth. Usually, however, some private dredging and filling will be required by the marina operator who will then be obligated to file. Permits will normally be approved within a two or three months' period if it can be shown that no adverse impacts are likely to occur. In areas where the waterbody has been heavily impacted by previous industrial activity, as is the case in most of the central New York City waterfront, resuspension of dredged material may result in significant environmental impacts of both organic and inorganic pollutants. In these instances permission to dredge may not be immediately granted unless suitable disposal methods can be implemented.

The permit process is the most important and complicated obstacle facing the marina operator. Since most marinas are operating on very limited profit margins, any delay in the permit process can be very costly and may ultimately result in withdrawal of the application. The time required for the permit process is not limited to federal requirements, but is repeated as the applicant seeks the necessary state and city permits as well. Years may go by before a final decision can be rendered. This problem is by no means unique to New York, but is aggravated by the numerous overlapping jurisdictions in the state's coastal region. Passage of the state's Coastal Zone Management Plan should bring some relief to the industry.

Some relief may also be realized by the implementation of "scoping" and "one-stop permitting," which may significantly reduce the time required to assemble the necessary federal, state and local permits. Scoping is a procedure whereby both regulator and applicant decide at the outset of the permit process the critical areas which need to be analyzed and addressed, as well as the methods of analysis. This procedure has generally been applied to large comprehensive projects although some aspects of scoping could be incorporated in the ACE permitting process as well. One-stop permitting, in its simplest form, requires the development of a uniform application form and procedure which when completed will be forwarded concurrently to all agencies with jurisdictions in the coastal zone. The idea is that each agency will address the application

simultaneously, thereby significantly reducing the time required for the total permit process. It is clear that either procedure would go a long way in reducing the permit lead time. In times of high interest rates and high inflation, benefits to both applicant and the general public (boating public) could be significant.

The decision to grant an applicant a permit to dredge also covers the transportation and ultimate disposal of the dredged material. The common denominator guiding all permits is a weighting of the benefits against costs, the latter not necessarily measured in monetary terms. In any event no permit will be granted unless it can be shown that the proposed action will be in the public interest.

The disposal of dredged material may occur both on land and in the ocean. The choice is based largely on an assessment of the environmental impacts associated with the resuspension of the dredged material. In instances where the bottom material is uncontaminated, studies have shown that the impacts of ocean disposal are relatively limited to the sessile benthic (bottom-dwelling) organisms, most of which tend to recolonize the area within a year. This is related to the comparatively short lifecycle of most shellfish and the wide geographical distribution of the young shellfish or spat.

Contaminated bottom materials are especially plentiful in those areas which have been subject to intensive transshipping of chemicals, especially hydrocarbons, and areas with high

concentrations of heavy industry. Contamination of waters and harbor bottoms has been frequent and in some instances extensive enough to produce highly toxic benthic sediments. These conditions are, of course, aggravated in urban areas, particularly those which have experienced extensive industrialization.¹ New York Harbor is no exception, and many of its smaller and more industrialized estuaries have been shown to be seriously contaminated by both organic and inorganic pollutants. Since the removal of these deposits is likely to seriously contaminate the receiving waters in addition to the underlying benthos, dredging and its aftermaths will represent the most important ecological obstacles to marina development.

Possible mitigation measures which an applicant might consider include on-land disposal within impermeable layers of clays, bedrock or man-made materials. Such disposal methods usually require treatment of the leachate. Other mechanisms include marine disposal of the more chemically stable materials with a suitable cover (e.g. clean sand). Other mitigating procedures include dredging and disposing during seasons of low biological activity and the creation of so-called spoil islands, which has long been the procedure used in Florida along the Inter-Coastal Waterway.

Most marina-related dredging activities involve relatively small amounts of material. One possible solution is to dredge in conjunction with ongoing ACE projects where the costs of disposal of marina-related material would be covered by the

applicants, but at cost which reflect scale economies associated with the larger ACE project.

In 1972 Congress passed the Coastal Zone Management Act which was amended in 1976 and most recently in 1980 (PL 92-583, 94-370 and 96-464). The act was yet another piece of pace-setting environmental legislation which was passed between 1965 and 1975. Although sometimes referred to as the nation's first national planning legislation, this is not really so. Extensive research in both the natural and social sciences preceeded this legislation.² Some of this research identified rapid urbanization along the nation's shoreline, increasing rates of destruction of ecologically sensitive wetlands, and rapidly growing competition for coastal areas and resources located within this broadly defined region. These trends and developments were most intense near urban areas, particularly on the Eastern Seaboard, which has been subject to urban development for a long time.

Rather than mandate that each coastal state participate in a national coastal zone program, the act encouraged the coastal states and territories to develop their own coastal plans. Financial incentives were made available to expedite the planning process. Although this process may not have proceeded as fast as first anticipated, 26 out of the 33 eligible jurisdictions now have approved plans covering approximately 80 percent of the nation's shoreline.³ Even so this development would not have been possible had it not been for the extension which

Congress passed in 1976, enabling those states without approved plans (including New York) to finish prior to 1980. Considerable federal funds are made available to states with approved plans. New York alone would be able to obtain more than 2.5 million dollars annually to implement the federally approved plan during the life of the current act. These funds are exclusive of those which may be made available under the Coastal Energy Impact Program (CEIP), which are distributed on the basis of existing and potential energy development in the coastal zone.

Proponents of the CZMA view the act as a comprehensive piece of legislation involving both the state and federal government. The intent is for the states to develop coastal zone plans subject to approval by the federal Office of Coastal Zone Management (OCZM). This provision seeks to insure both local input into the planning process and consistency of planning goals in coastal zones (shoreline and water bodies) shared by several states. This cooperative legislation recognizes that the federal interest may not in all instances parallel those of the several states. The administration and implementation of the CZMA takes this into consideration. Specific provisions under the act require each participating state to incorporate the management and planning of ecological, cultural, historic and aesthetic resources; and while much preliminary work has addressed natural resources, it is clear that Congress intended for social, cultural and (in particular)

historical resources to be incorporated into the nation's Coastal Zone Management Act.

State Role

New York State's coastal planning efforts can be described under two headings: administration and legislation.

Administration

Following initial discussion of the organization of the state's coastal planning effort, the governor designated the the New York State Department of State as the office with responsibility for developing the state's coastal plan.⁴ The Coastal Management Unit (CMU), a small coordinating body, was established. Initially its primary function was to identify local coastal zone priorities. Following federal approval of the state's coastal plan, CMU was to become a statewide coordinating body with responsibility for monitoring local plans on a continuing basis.

The state's approach to develop, manage and implement coastal planning has relied on existing administrative offices and legislation whenever possible. During the first two years of the state's planning efforts, which began in 1974, a number of local Citizens Advisory Committees were established throughout the state. The purpose of these was to identify and insure the inclusion of local viewpoints and priorities in the local plans. From these the state identified thirteen priorities

or policy areas which needed statewide attention. No less than eleven of these have direct relevance to New York City and have been included in the proposed New York City Coastal Zone Management Program. The eleven are: aesthetics, air quality, access, economic development, energy development, fish and wildlife, flooding and erosion, Outer Continental Shelf energy-related onshore impacts, recreation, solid waste, and water quality. The areas of policy priorities were intended to cover lake, estuarine and ocean shorelines, and range from rural to urban, even including abandoned urban waterfronts. Consequently, not all priorities would necessarily have to be addressed in every municipality or region.

To maximize local input and make the state's coastal management plan responsive to local needs, it was decided to divide the shoreline into regional units, each of which would develop its own management plan subject to the guidance and approval of CMU. Five regions were defined, one of which included the shorelines of New York City. (The other regions are Nassau-Suffolk, Eastern Lake Ontario-Hudson River, St. Lawrence River, and Great Lakes West.)

In two instances no regional coordinating planning group could be identified as capable, or willing to coordinate the coastal planning process. In both instances these responsibilities were carried out by CMU with substantial input from local planning agencies. The New York City Department of City Planning was designated as the City's coastal planning

agency working as a subcontractor for the CMU responsible for creating a coastal plan for the five boroughs.

Besides relying heavily on the existing administrative structures, New York State has also depended on a series of inter-departmental Memoranda of Understanding (MOUs). These are documents intended to formalize working procedures between CMU and those state departments which only occasionally exert jurisdictions in the coastal region. The principal advantage of developing MOUs as opposed to other means of formalizing working relationships among different bureaucratic entities rests with the consensus that is assumed to exist between and among the co-signers of a memorandum. MOUs are frequently quicker in achieving approval, although they may not be as legally binding compared to more conventional means. Since timing is important for those states (like New York) which already have used up their planning funds made available under Sect. 305 of CZMA, MOUs represent one way by which bureaucratic obstacles can be reduced or possibly eliminated.

New York State has been planning for its coastal region since 1974. Normally each state and territory eligible to participate in the federal program were given three years to develop a coastal plan subject to federal approval. Since New York is the only state with both fresh and salt water shorelines, and since its developments range from abandoned urban waterfronts to near pristine shore, it is perhaps understandable that the lead time for planning has been considerably

longer than in most other states with approved plans. New York State's current status with respect to obtaining federal approval is uncertain and appears to depend upon approval of several pieces of legislation.

In some instances states have developed interim guidelines for developing the coastal zone during the planning process. This has not been the case in New York. Such guidelines or regulations may either be incorporated in the coastal plan when implemented or may be superseded once federal approval is obtained. The objective of interim guidelines is to curtail environmental modifications along those shorelines which are experiencing especially high rates of economic development.

Legislation

The state's legislative approach to develop a viable coastal zone plan has relied on both existing and new legislation. The cornerstone of the proposed New York State Coastal Zone Management Plan rests on the existing Wetlands Act and two proposed bills. One deals with coastal erosion hazards and the other establishes the administrative framework under which the state plan will be based. The two bills have passed the State Assembly but did not reach the Senate floor before adjournment late in 1980. Passage is expected sometime during 1981.

City Role

Problems associated with marina and ramp development are particularly troublesome in New York City, which over the years has developed a cumbersome administrative system that has made it increasingly difficult, time consuming and costly to develop or improve waterfront sites.⁵ This is partially related to the many governmental structures which have jurisdiction over part or all of the city's waterfront, and partially to the fact that New York State does not have (as of early 1981) a federally approved coastal zone plan.

The list of local offices with potential interests in coastal planning is indeed impressive. Twelve mayoral line agencies, eight boards and commissions (two of which are interstate) and four elected bodies constitute the current inventory of "the public's interest." Although not all of these twenty-four bodies may require separate permits, enough do to make the permit process at times prohibitively costly. Cost consideration is especially important to the smaller investor who may be unable to raise the large amount of capital which is often required while the proposal passes from one permit stage to another. Since the marina industry as a whole is not particularly profitable,⁶ it is not difficult to understand why the smaller marinas have often sold out to more profitable ventures, such as non-water-dependent residential and commercial developments, thereby slowly reducing the inventory of marinas. There are important questions related to such conversions in

light of the CZMA mandate to rank land use activities on the basis of whether they are water-dependent or water-enhanced. The intent of the federal legislation is clearly to give priority to those uses whose very existence is dependent upon shoreline access, even if such uses may not have as high benefit-cost ratios as non-dependent uses. .

The City Planning Commission exerts zoning control seaward to the United States Pierhead Line and has the authority to initiate changes in the City's Zoning Resolution. Besides its broad planning powers, it also exerts a regulatory function through its authority to issue permits within the several Special Zoning Districts which have been created within the New York City Coastal Zone.

The City Planning Commission relies extensively on the support functions of the Department of City Planning whose director also serves as chairperson of the City Planning Commission. The Department of City Planning also has been designated as the agency responsible for creating the City's Coastal Zone Plan. The Planning Commission and the Department of City Planning are the two principal agencies concerned with any proposed developments along the City's shoreline outside of those areas under the jurisdiction of the Department of Ports and Terminals.⁷ The role of the Department and Commission of Planning is exerted both in developing long term plans and in certifying individual projects.

The City's Zoning Resolution has several land-use categories which allow for the development of commercial marinas and marine-related businesses. Unfortunately these land-use categories are for the most part non-conforming in the sense that marine related businesses are allowed only within the three manufacturing land-use categories (M1, M2, M3). In addition a commercial land-use category (C3) has been especially devised for the development of marine-related businesses, including both public and private beaches. Outside of the Special Planning Districts which have been created by the City and which will be briefly outlined below, marina developments within the conventional zoning system appear relegated to areas where the full recreational benefits are not being utilized. Although marinas are service oriented, their activities are for the most part considered in conformity with residential developments in those areas where they are found together.

The passive recreational value of marinas and other marine-related businesses has been recognized in the several Special Zoning Districts which have been created to take advantage of the coastal zone environment and the activities and opportunities associated with this area. These districts provide potential developers with greater flexibility without giving up essential planning control. Two such mechanisms are the Manhattan Special Development District, and the Special View Districts in Brooklyn. Although not likely to be particularly useful for marina developers, the Manhattan Special Development

District does create an institutional framework which will serve both the private and public sectors. It is significant that the Coastal Zone Commission has expanded upon this concept for the New York Coastal Zone Plan far beyond what the CZMA originally intended. Some of these could be of relevance to marina development particularly in terms of cutting lead time in the permit application process.

In the event a permit has been denied because of non-conforming uses with respect to the City Zoning Resolution, the applicant may appeal the decision to the Board of Standards and Appeals. Such applications are reviewed by the Community Board in which the proposed use or change of use will take place, and by the respective Borough Board. Both Boards, however, have only advisory roles. Final appeals rest with the Board of Estimate which may rule on all plans or permits granted by the City Planning Commission, the Mayor's Office, or any of the plans submitted by the five Borough Offices or fifty Community Boards. The decisions made by or on behalf of the Board of Estimate cover land-use on both City-owned and privately held property. Of all agencies, the Board of Estimate exerts the most potential power over decisions affecting the marina operator in both the short and long terms.

Besides the City Planning Commission and the Department of City Planning, two other line agencies exert considerable control over the use of coastal zone property and the activities occurring within this area. In the event of construction or

major alterations of an existing structure, permit(s) from the New York City Department of Buildings may be required. This agency enforces the New York City Building Code and the City Zoning Resolution except for those areas where Ports and Terminals has jurisdiction. Specific permits and certificates include building permits, certificates of occupancy, and permits for the operation of specialized equipment.

The Department of Health plays an equally important role in the permit process. This agency enforces the New York City Health Code, which has particular relevance to those marinas which are developing pump-out facilities for vessels with holding tanks. Permits must be obtained from this agency if a private sewage system is proposed. In addition, permits are required if an existing system is being modified or changed to emit effluents into the City's waterways. This permit is separate from those required under federal NPDES requirements discussed above and represents one area where one-stop permitting would prove beneficial to the applicant.

In those instances where the effluents are being discharged into the City's municipal sewage system, the New York City Department of Environmental Protection has jurisdiction, and a separate permit must be applied for from this agency.

The Department of Ports and Terminals plays a pivotal role in both planning and regulation of the activities along the City's coastal zone. It has exclusive jurisdiction to manage and/or operate City-owned wharf and waterfront property

to the United States Pierhead Line. In addition it enforces statutes and regulations governing the construction, alteration and demolition of waterfront commercial structures, including any dredging and fill operations extending to the United States Pierhead Line. In essence it enforces the Building Code as well as the City Zoning Resolution within its jurisdiction. The department has become the enforcement agency of the City Planning Commission and the Department of Buildings, besides enforcing its own building regulations covering City-owned property on the waterfront. Besides its extensive regulatory powers, Ports and Terminals also contributes to the City's waterfront plans by its authority to amend regulations. Changes made in the City's waterfront plans are subject to review by the City Planning Commission and subject to final approval by the Board of Estimate.

Of all the line agencies, Ports and Terminals unquestionably has the broadest impact on the City's waterfront through its power to change the City's plans. It manages City-owned commercial waterfront property, and has the authority to develop these commercially. Finally, it regulates all commercial waterfront properties including those not owned by the City itself.

So far this review has emphasized only those agencies involved with commercial development of the waterfront. Although most marinas are commercial in the sense that they are owned by private individuals or corporations, marinas could be

both owned and operated by the City. Intermediate arrangements have also been made whereby long term leases have been offered to the private sector to operate City-owned marinas. Considerable controversy regarding this latter arrangement has resulted in recent years and caused the cancellation of the two licenses and the temporary closing of the two marinas leased from the City. This arrangement is now being reviewed by the Department of Parks and Recreation.

Since the City has extensive waterfront areas, some of which could be turned into multiple uses including recreation, a review of those agencies with potential jurisdiction in this area is called for.

In addition to Ports and Terminals (discussed above), two agencies have authority to initiate plans for development of public marinas and ramps: the Department of Parks and Recreation and the Department of Transportation. Parks and Recreation (P&R) has the authority to acquire areas and facilities for the conservation and preservation of natural beauty, and facilities for public recreation. In the past these have been viewed primarily as providing parks and playgrounds; and while many parks are located within the proposed New York Coastal Region, boating has only been viewed as incidental to the perceived primary purpose of the department. The P&R has seen its role as a manager of parks, playgrounds, swimming pools and beaches, which tend to serve the greatest number of people at the least cost. It is, of course, true this agency has been particularly

hard-pressed by the City's financial crisis, which has prevented even modest investments in new recreational facilities. With federal approval of CZMA Sect.305, which provides planning funds for the development of Coastal Plans, this agency might be able to acquire partial funding through Sect. 306. This section underwrites 80% of the federally approved coastal plans once each state has an approved plan. Other possible funding sources include monies available from Land and Water Conservation Fund sources.

The principal obstacle to a more aggressive stance by P&R appears to be the preemption of this agency in the City's coastal planning process and its apparent lack of authority to expand its recreational role to include other duties besides those mentioned above. Some of the roles that could rest with P&R are carried out by the City Planning Commission and Ports and Terminals. Since the latter department has viewed its role as a promoter of economic activity, it appears reluctant to engage in activities such a commercial recreation which might preclude more intensive economic developments from occurring.

Although some interesting plans are in the process of being implemented in conjunction with the South Street Seaport project, which would incorporate both passive recreational and commercial activities, boating does not yet appear to play a significant role in this area. In fairness to P&R and the developers of the East River, tidal currents in this waterbody may preclude it as a location for marina development except for

facilities catering to large and powerful yachts.

The other line agency with authority to develop boat ramps and marinas is the Department of Transportation. This authority is merely incidental to its primary function as the City's transportation agency and is restricted to the properties the department actually controls.

Even though all three agencies (Transportation, Ports and Terminals, and Parks and Recreation) appear to have authority to develop and manage marinas and ramps, this authority is subject to the same review procedures discussed under the development of commercial marinas. In events where vacant City-owned land must be transferred from one agency to another to develop marine-related projects, such decisions must be approved by the Department of General Services. This department exercises its authority on behalf of the Board of Estimate. If the land is undeveloped, General Services will also be in charge of any required construction activities. This latter authority assumes the City will operate the facility once completed. In the event the raw land is being leased to a private marina operator, any design approval or required City, state and federal permits become the responsibility of the leasor.

The acquisition of waterfront land for recreation would normally be the responsibility of P&R. If, however, the proposed marina is to be constructed as part of a multiple use project, it is possible that Ports and Terminals would become the lead agency, since the objective would no longer be strictly

recreational, but would incorporate commercial uses as well. In the event the proposed project would incorporate substantial housing developments or involve restoration of historic buildings, either the Department of Housing, Preservation and Development or the Landmarks Preservation Commission might be involved. The participation of these agencies would in no way preclude the review and regulatory powers discussed under the privately owned and operated marina.

The discussion so far has addressed only those agencies with jurisdictional authority within the City's waterfront as defined. Additional requirements must be met which parallel those of conventional developments located away from the City's coastal zone and include regulations covering the fire, transportation, sanitation and health codes. Since these regulations are usually the responsibility of the general contractor developing the property, they do not merit further elaboration.

Permitting Under Sect. 306, CZMA

Although federal approval of New York State's Coastal Zone Management Plan has not yet occurred, the major building blocks which will enable at least a sketchy outline of the permitting process as it relates to the marina operator appear to be in place. There are two concepts of importance to all potential developers: one relates to an expansion of the Special Zoning Districts on which the City already has embarked and the other relates to the consistency provision

in the CZMA.

The CZMA made provisions for each state to nominate coastal regions under a designation of Special Management Areas. Besides the Special Zoning Districts discussed above, the Coastal Zone Commission has decided to create three subdivisions, two of which are of particular importance to marina developers. The first is referred to as Shorefront Access Areas and is intended to provide the public with increased opportunities to access or view the shoreline in those areas which are deficient in such opportunities. The Coastal Zone Commission has codified the CZMA requirements by identifying three such areas. The emphasis governing the nomination of these has been based on providing access in a parklike setting or in conjunction with traditional urban renewal efforts. No specific mention has been made of integrating boating opportunities with these developments. The second Special Management Area with relevance to marina developments is entitled Geographical Areas of Particular Concern (GAPC), of which six have been nominated in the New York Coastal Zone. The criteria used to identify such areas include the presence of natural, physical, social and economic resources within the nominated GAPCs, and are intended to promote preservation, reclamation, restoration of public access and/or economic development. It is not surprising that a significant portion of the New York City shoreline has been so nominated. Marine recreation is mentioned prominently in all six GAPCs; however,

in only one (East River-Upper Bay) is marina development specifically mentioned. (It appears that the Coastal Zone Commission responsible for drafting the City's Coastal Zone Management Program restricts marine recreational activities to park visits in addition to beach and pool activities.)

The second major concept incorporated into the New York State's Coastal Zone Plan relates to the federal consistency provision mentioned in CZMA. This provision is intended to streamline the planning process and, incidentally, the permitting process by insisting that future federal actions not conflict with the state's coastal plan. In short, once the state's coastal plan has obtained federal approval, all federal agencies with jurisdiction in the coastal zone are required to act in accordance with the state-developed and federally approved plan. The federal consistency provision covers all federal agencies which would be involved with the plan. The only exception to this is the so-called national interest provision. Thus, in instances where the federal government acts in the national interest (e.g. energy developments and military considerations), it has the authority to override existing coastal zone plans.

New York State also has decided to invoke a consistency provision at the state level. Since much of the actual planning has taken place on the local level, there is some reason for optimism that the permitting process can be significantly streamlined. Once the City has granted approval to

an applicant, it should be tantamount to receiving both federal and state approval as well since the City plan has by then been approved by both higher levels of government.

Interstate Compacts

Two interstate compacts operate within the New York metropolitan region. Both have potential importance to the marine industry. One is the Interstate Sanitation Commission, which was created early in this century to help combat water pollution problems within the metropolitan port complex. It has no planning jurisdiction. Nonetheless its objective has significant implications for both boaters and marina operators because it addresses the most common complaint or concern of area boatowners--poor water quality. It continues to survey both industrial polluters and water quality within the metropolitan region.

The other compact is the Port Authority of New York and New Jersey (PA). The PA, also created early in this century, was designed to reduce intraport competition and promote waterborne commerce. In addition it has taken on a variety of transportation and real estate functions not related to its original objectives. These added activities include mass transit, construction and operation of most of the bridges spanning the Hudson River, the East River, and Western Long Island Sound. Within the past fifteen years it has also expanded its role as a real estate operator with the construction of the World Trade Center.

The draft of the New York City Local Coastal Zone Management Program makes only scant mention of the PA and does not address the issue of overlapping jurisdiction. Since the PA was created as an interstate compact which requires federal participation and approval, it is assumed that this body will be subject to the same guidelines and regulations as other state and city agencies. It is, however, a point which needs to be addressed and which is of particular importance to the marina industry. Since the PA does own and operate extensive holdings within the City's coastal planning area, some possibilities exist that MOUs could be formulated which would allow the PA to develop public boat ramps and marinas on those properties which the PA is not now planning for immediate use.

Footnotes

¹United States Department of the Interior, The National Estuarine Pollution Study, Vols. 1, 2 and 3 (Washington, D.C.: FWPCA, Nov., 1969).

²Commission on Marine Science, Engineering and Resources, Science and Environment (Washington, D.C.: 1969).

³Personal communication from Martin Glazer, former Associate Administrator, Office of Coastal Zone Management, in a talk presented at the Coastal Zone '80 Symposium, Hollywood, Florida, Nov. 17-20, 1980.

⁴Dept. of City Planning, City of New York, Coastal Zone Management. Draft of New York City Local Coastal Zone Management Program, New York, 1979.

⁵Mitchell L. Moss, "The Lost Waterfront of New York," Coastal Zone Management Journal, Vol. 6 (1979), pp. 2-3.

⁶George Sternlieb et. al, Leisure Market Studies, Dept. of Regional and Urban Planning, Rutgers University, New Brunswick, New Jersey, 1969. See also Dick Noden and Tommy Brown, The New York Commerical Marina and Boatyard Industry (Albany: New York Sea Grant Institute Report Series, NYS SG-RS 75-020, 1972).

SECTION 5

MARINA MANAGEMENT ALTERNATIVES

The marina industry as a whole is economically marginal. Many marina owners and operators probably enter this industry more because of the lifestyle and less because of the economic returns associated with this type of work.

Marina development does not appear to grow in step with the increase in boat ownership which has been in evidence nationally and to a lesser extent regionally. There may be several reasons for this. Costs of acquiring waterfronts suitable for marina development have increased significantly because shorelines (whether urban or rural) are valuable sites for expensive housing complexes. Other businesses which are enhanced by a waterfront location include hotels, restaurants, and higher class retail businesses. The competition for shoreline locations by these non-water-dependent operations has done much to escalate the costs for waterfront sites. This has often resulted in the inability of the marina operators to compete for new sites, and may be the single most important factor involved in the conversion of existing marinas to other non-water-dependent uses. Another important factor which inhibits expansion of boating facilities in New York City relates to the cumbersome permitting process previously described.

Marinas are unique in that they literally straddle the shoreline and require permits from both marine and port agencies, thus almost doubling the permits required to conduct the necessary shoreline modifications. Since this industry is characterized by small-business entrepreneurs, most of whom have only limited cash reserves compared to large corporations, it is not difficult to understand why marina operators have had a difficult time keeping pace with the demand. As was pointed out elsewhere in this document, potential boating demand exists which could increase the resident recreational fleet by several thousand vessels. Unless major changes occur in the administration of the City's waterfront, this demand is likely to remain frustrated due to lack of available slips and moorings.

Although the emphasis of this study has been on area boaters, potentially significant demand is exhibited by transients (visiting boaters). We do not have any measure of the size of this market, but we do believe that the City of New York is losing an important source of income by not providing adequately for it.

As regards transients, New York City lies nearly halfway between two of the most important cruising grounds on the eastern seaboard. To the north, Narragansett Bay, Buzzards Bay and the Elizabethan Islands have long been considered one of the best cruising areas in North America. This reputation

has been enhanced by such premier yachting events as the OSTAR (Observers Singlehanded TransAtlantic Race), Onion Patch Race and the Block Island Race. Additionally, the America's Trials and Cup Races have drawn participants and visitors from the Great Lakes, Gulf, Pacific and Atlantic Coasts, as well as from overseas.

To the south is the Chesapeake Bay, the second great boating center on the Atlantic Coast. Although larger and more protected than its northern counterpart, it is characterized by fewer organized boating events. Nonetheless it probably serves a much larger clientele which is able to use the bay for a longer period of time because of its relatively mild climate.

New York City has the potential to become the third great boating center on the eastern seaboard. It lies nearly half-way between the two previously mentioned boating areas and could provide the boating public with excellent cruising waters extending from Raritan Bay into the New York Harbor proper, and on through western Long Island Sound. Additionally, it provides attractions not available in either of the two peripheral centers--namely the City's recreational and cultural resources.

Nearly all marinas located within New York City are privately owned and operated. As previously stated, two marinas are owned by the City and operated by private vendors. Considerable controversy surrounds these two operations. Although municipally operated marinas have been introduced in other

communities, they are often tied to the vagaries of municipal budgets with the result that these are often less efficiently operated compared to the privately owned and operated marinas. Since profitability of many private operations is marginal, for reasons briefly outlined above, one way to improve conditions for the industry might be for the municipality or state to reduce those obstacles which are originating within this sector. Such actions could improve the profitability of the industry, result in direct benefits to the boating public, and increase taxes, fees and other payments to the City.

Since environmental constraints have increased significantly during the 1970s, particularly along the rural shoreline, which has been relatively less impacted by man-made modifications, there are excellent reasons why those activities which require some modifications of the shoreline should be concentrated in urban areas where much of the shoreline already has been impacted. This is particularly justified in those instances like marina developments where the operation itself does not result in any significant impact on the environment.

The private sector servicing boating needs could be helped by creating a permit application process which would reduce the time and thus the cost of creating, modifying or enlarging new and existing marinas. This objective could be partially accomplished by creating a so-called one-stop-permit process where the application would be processed simultaneously by all agencies with authority or advisory roles in the area.

Such developments have been introduced in several states as part of the Coastal Zone Planning process, particularly as related to dredging activities. In light of the jurisdictional overlap encountered in the dry portion of the urban waterfront, it might be possible to develop a similar instrument for land-based structural changes.

Another management improvement which might facilitate the permitting process concerns the identification of the specific areas in need of assessment prior to the commencement of the application process. This process has been referred to as scoping, and usually involves larger projects where some uncertainty may exist related to the specific environmental areas in need of assessments.

For marinas and related developments such a list should be relatively easy to assemble prior to filing the necessary applications. Such a list might be similar to the "checklist" procedure which was the most common methodology used early in the environmental assessment process. In its simplest form such a checklist identifies specific socio-environmental factors in need of assessment with a given type project.

Even though the existing marina lease arrangements have not met with universal success it is clear that some form of municipal support is necessary if marina development and operation is to keep up with the commensurate growth in boat ownership by New York City residents.

Marinas' water dependency places them high on the list of permissible uses of the urban waterfronts. Possibilities should be explored for developing special long term leases extending beyond the fiscal life of the marina. Such leases would provide the leaseholder with a greater incentive to protect his initial investments. Specific lease arrangements might include the right to sell the lease subject to a right of first refusal by the City at current market prices. Additional commitments which the City might agree to underwrite include bulkhead renovations. Restoration of bulkheads along the deteriorating waterfront often represents a major portion of the total cost of renovation. Bulkhead improvements are imperative if the proposal includes passive (public) recreation. In instances where public parks are incorporated into the urban waterfront development, Land and Water Conservation (LAWCON) Fund monies may be made available as part of New York State's allocation of Heritage Conservation Recreational Services (HCRS) funds. If and when New York State has its coastal zone plan approved, funds from Sect. 306 (CZMA implementation monies) may become available. The likelihood of funding would increase in those instances where the projected marina/park incorporates increased public access to the waterfront.

Additional marina management alternatives include sale of City-owned waterfronts at costs below fair market value, and dispensation of existing zoning to allow marina and ramp

developments in zoning districts other than the four in which they are presently allowed. Other public support could include an initial forgiveness of property taxes for a specific period of time to enable the marina to become established.

The specific management alternatives mentioned above are directed towards the existing and potential demand present within New York City and do not include the specialized services which the transient boater may need. Blue-water cruising is usually done in boats longer than 30 feet on the waterline. Auxiliary engines are usually powerful enough to overcome the four-knot tidal currents experienced in certain parts of the East River (Hells Gate). Thus, marina developments catering to the transient boater are not as constrained in terms of tidal currents as those which are predominantly servicing the local market, which is characterized by smaller and less powerful boats. Transient boaters, however, have other requirements which restrict their geographical location. Apart from experiencing the Upper Bay, Hudson River, and Long Island Sound, one primary reason why cruising boats would visit the City is to experience the recreational and cultural activities available in New York. Since most of these attractions are located in Manhattan, any transient marina would have to be located on the Hudson, East or Harlem Rivers. Additionally, shore-based facilities should be equipped to fulfill the specialized needs of the cruising boater. Such facilities would ideally include access to sailloft, shipwright, rigger,

and laundry facilities besides the usual fuel and engine, repair and chandlery.

Since transient facilities imply relatively short stays, mooring fees could be adjusted to better reflect the actual costs of operating a marina in a prime downtown location. The development and operation should be conducted by private developers without special support by federal, state or local funding sources. Every effort, however, should be made to reduce the time required to obtain the necessary permits.

The development of marinas in New York is characterized by some unique opportunities for growth of viable businesses along the City's decaying waterfront. These are doubly enticing in that they represent opportunities for a segment of the public which is hard-pressed to find places to moor or beach their crafts. Should these developments be implemented, corollary benefits could result in increased public use of the City's shorefront. Finally, these improvements would also make the waterfront more exciting for all New Yorkers.

SECTION 6

RECOMMENDATIONS

Our work on this project has led to a number of recommendations related to the development and operation of marinas. It has proved convenient to organize these under four headings: reduction of requirements and regulations; specific design criteria; monitoring the local recreational fleet; and future research.

Reduction of Requirements and Regulations

It is by now obvious that the demand for marinas, launch ramps, slips and moorings by City boatowners is running well ahead of supply. Further, it is obvious that costly and time-consuming legal and fiscal constraints on potential developers are major reasons why this situation persists. Accordingly, we would recommend that

- I. The appropriate City and State authorities should take steps to encourage the development of new marine facilities.

Recommendations which are more specific include the following.

- A. Simplify the permitting process. A major stride in this direction should be the inclusion of the one-stop-permitting process in the New York State Coastal Zone Plan.

- B. Develop a simple "scoping" or "checklist" process for assessing socio-environmental impacts related to marina and ramp developments.
- C. Develop a long term lease program to insure marina operators an equitable and fair return on their initial investment.
- D. Develop a more favorable tax mechanism to allow marina developers and operators to compete better with non-water-dependent forms of land use (e.g., condominiums), which are increasingly moving into the urban waterfront.
- E. Actively seek Land and Water Conservation (LAWCON) funds for projects which incorporate multiple use activities such as public parks into marina developments.
- F. Endorse and lobby for modification of the existing Workmen's Compensation Act to reduce the financial burden of the marina operator.

Design Criteria

Some design and configuration options always are available to marina developers. The specific nature of these options vary, however, in accordance with relevant local circumstances. Within the context of New York City we recommend that

- II. Local authorities should encourage development of marinas designed to provide maximum benefit to

both the boating public and the community at large. Specific recommendations include the following.

- A. Encourage development of marinas in conjunction with passive waterside recreational opportunities. Examples could include strolling, picnicking, ball games, and marine education.
- B. Encourage commercial developments which include the construction of launch ramps. As noted earlier, there is a severe lack of such facilities within the City. Such developments could greatly reduce hauling distances and result in considerable savings of fuel and travel time.
- C. Anticipate the trend toward increased use of sailboats. Presently about 19% of the City's recreational fleet is composed of sailboats. This percentage is likely to increase annually for the foreseeable future. Potential marina and ramp developers should be made aware of this trend in order to ensure provision of adequate storage and support services for the changing users.
- D. Encourage use of dry-stack storage. Such units are relatively inexpensive to install. Moreover, in a city like New York, where regulations aimed at environmental protection and lack of available waterfront real estate have hampered development and expansion of marinas, dry-stacking represents a major (and largely ignored) means of increasing boat-storage capacity.

Monitoring the Local Recreational Fleet

As far as we can tell, the detailed data in this report concerning the nature and location of the City's recreational fleet is not duplicated elsewhere. Indeed, it appears to represent the first compilation of its kind. This is a sobering situation, for it is doubtful that optimal planning for new marinas and related facilities can go forward without knowledge of the existing, potential and diverted boating demands. Accordingly, we recommend that

III. The City should institute a continuing data collection system on resident and transient boaters, marinas, yacht clubs, and locally registered or documented pleasure craft to enable monitoring and planning for marinas and ramps as well as to identify areas of potential water use conflicts.

Specific recommendations follow.

- A. Identify a unit within City government to monitor recreational boating. Ideally this office should be one that is involved with some aspect of parks and recreational research and development.
- B. Develop a brief socioeconomic survey questionnaire to be filled out by City boatowners when the vessel is registered or documented. The formulation, distribution and tabulation of these and other monitoring devices should be undertaken by the agency referenced in IIIA, above.

- C. Establish a liaison with the New York State Department of Motor Vehicles in order to acquire periodic updates of their file data on New York City's registered boatowners.
- D. Establish a liaison with the local U.S. Coast Guard Headquarters in order to receive periodic updates on documented pleasure crafts and the location and supply of present and future moorings.
- E. Establish a liaison with the publishers of the Boating Almanac. If feasible, consider helping to fund their annual survey of New York City's marinas and yacht clubs in return for periodic reports on the nature and extent of existing facilities.

Future Research

If this report has, hopefully, answered a number of questions, it has also revealed new areas for enquiry.

Accordingly, we would respectfully recommend that

- IV. Funds should be made available for additional research on local marine- and marina-related issues.

In particular three potential projects can be suggested.

- A. A more detailed assessment of diverted demand. As noted, several thousand New York City boatowners presently maintain their crafts outside the City. From an aesthetic, social and economic point of view, it

would be worthwhile to know the reasons for this propensity. Equally important would be an assessment of the conditions under which those who constitute diverted demand would relocate within the City of New York.

- B. Assessment of marine vandalism. Vandalism is seen by both boatowners and marina operators as a major obstacle to the development and enjoyment of recreational boating in New York City. With data provided by the New York City Police Department and by marina and yacht club operators, security systems and patterns of vandalism and theft should be analyzed. The goal would be to find out why some marine facilities are more susceptible to these problems compared to others. Results should be made known to both existing and potential marina operators.
- C. Water surface zoning. Presently some 31,000 boats are owned by City residents. Vessels owned by other residents of the metropolitan area--particularly people from Nassau and Suffolk Counties--bring the total recreational fleet in the greater New York estuary to more than 100,000. Potential conflict between recreational and commercial traffic already exists. This is likely to heighten as both the number of boatowners increases and as the recreational fleet becomes composed of a higher percentage of sailboats (which are

less maneuverable than engine-powered vessels).
Serious efforts should be given to identify appropriate water surface zoning methods in order to help resolve conflicting uses of the estuary. The activity maps and methodology included in this report suggest a relatively inexpensive and efficient way to gather the necessary data on patterns of recreational boating.

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Appendix A

Hunter College

OF THE CITY UNIVERSITY OF NEW YORK, 433 PARK AVENUE, NEW YORK, N.Y. 10021, DEPARTMENT OF GEOLOGY & GEOGRAPHY

NY 2573-1298

Dear Marina/Yacht Club Manager:

The New York Sea Grant Institute and Hunter College are engaged in a project that seeks to improve recreational boating opportunities within the New York City coastal region. This project has received the cooperation and encouragement of many city, state, and federal agencies interested in recreational boating in and around New York City. We are requesting your cooperation as well, for it is only logical that attempts to improve marine recreation should be based in part on the experiences and opinions of people who oversee and manage marinas or yacht clubs.

The name and address of your marine facility have been garnered from the Boating Almanac. A brief questionnaire is printed on the reverse side of this page. We encourage you to answer the questions and then return this sheet to us in the postage-paid return envelope that is enclosed. If some of the questions do not pertain to you, or if you do not wish to answer a certain question, then please skip that item and go on to the next question. All information and opinions you can provide will be appreciated and kept strictly confidential.

The data you are providing will be included in a report that will be published by the New York Sea Grant Institute sometime toward the middle of 1981. This report will be available to the general public. Copies may be obtained by writing to the New York Sea Grant Institute, 411 State Street, Albany, New York 12246.

Very truly yours,



Charles A. Heatwole, Ph.D.
Associate Professor
Hunter College

Appendix B

1. Please fill in the blanks: This past summer approximately _____% of my dock space and _____% of my moorings (if applicable) were occupied at a given time.

2. In order of importance, what are the three major problems facing the operation of your marina or yacht club?

- a. _____
- b. _____
- c. _____

3. If appropriate, what do you feel the City, Port Authority, or other agency could do to help alleviate the above problems?

- a. _____
- b. _____
- c. _____

4. What advantages, if any, have resulted from your marina or yacht club being located within New York City?

5. What disadvantages, if any, have resulted from your marina or yacht club being located within New York City?

6. The 9 sites listed below have been designated as candidates for waterfront/marina development projects. Using the numbers 1 through 9, please rank these locations. Let "1" represent the most desirable location for a new marina and "9" the least desirable. Please use each number only once.

Rank

- _____ Staten Island: former St. George Coast Guard Base
- _____ Staten Island: Stapleton Waterfront area
- _____ Brooklyn: Erie Basin
- _____ Brooklyn: Army Terminal
- _____ Brooklyn: between Brooklyn and Manhattan Bridges
- _____ Manhattan: Battery Park City Landfill
- _____ Manhattan: along Westway
- _____ Manhattan: East River between 16th and 23rd Streets
- _____ Bronx: abandoned railyards along Harlem River

7. Briefly, what appeals to you about the place you ranked #1, and what "turns you off" about the place you ranked #9.

- #1. _____
- #9. _____

THANK YOU FOR YOUR COOPERATION!

Appendix C

DEAR BOAT OWNER:

As you may already know, government, private industry and many academic institutions have begun studying ways of improving the nation's urban waterfronts to enhance marine recreation. The New York Sea Grant Institute and Hunter College are engaged in a project that seeks to examine and improve boating opportunities within the New York City coastal region. This project has received the cooperation and encouragement of all city, state and federal agencies interested in recreational boating in and around New York City. We are requesting your cooperation as well, for it is only logical that attempts to improve marine recreation should be based in part on the experiences and opinions of the boat-owning public.

Your name has been randomly selected from the New York State Department of Motor Vehicles' List of Boat Registrations or from the U.S. Coast Guard's file on Documented Pleasure Craft. A questionnaire is enclosed. We encourage you to answer the questions as carefully as possible and then return the questionnaire to us in the postage-paid envelope. If some of the questions do not pertain to you, or if you do not wish to answer a certain question, then please skip that item and go on to the next question. All information and opinions you can provide will be appreciated and kept strictly confidential.

Very truly yours,



Charles A. Heatwole, Ph.D.
Associate Professor
Hunter College

- (1) What type boat do you own? Sailboat Houseboat
 Powerboat Other (please explain: _____)
- (2) What material is the hull made from?
 Answer: _____
- (3) What is your boat's overall length in feet? _____ feet
- (4) Please indicate what type engine (if applicable) you have on your boat. More than one response may be necessary.
 Gasoline Diesel Outboard
 Inboard Inboard/Outboard
- (5) How many horsepower does it have? _____ HP
- (6) With whom do you usually go boating?
 Answer: _____
- (7) Please rank your favorite boating activities, beginning with the activity you like most.
 Answer: _____
- (8) How long have you owned the boat you currently own? _____ years
- (9) Is this your first boat? Yes No
- (10) How do you keep your boat during the sailing season?
 Slip Dock Mooring On Land
- (11) If you keep your boat on land during the sailing season, how do you transport it to the water?
 Trailer Cartop
- (12) If you keep your boat in the water during the sailing season which one of the following applies?
 Commercial Marina Municipal Dock Facility
 Yacht Club Facility At Home
 Other (please explain: _____)
- (13) Where is this facility located?
 Answer: _____

(continue on opposite side)

- (14) Is your boat in the water during the off-season?
 Yes No
- (15) Where do you keep your boat during the off-season?
 Commercial Marina Municipal Dock Facility
 Yacht Club Facility At Home
 Other (please explain: _____)

(16) Where is this facility located?
Answer: _____

- (17) Where do you use your boat?
 Saltwater Freshwater (Lakes/Rivers) Both

IF YOU USE YOUR BOAT EXCLUSIVELY ON FRESHWATER PLEASE SKIP TO ITEM (19). A

- (18) What portion of your boating time is spent within the New York City Estuary?
 Less than 25% 26-50% 51-75% 76-100%

THE NEXT FIVE QUESTIONS DEAL WITH THE ENERGY CRISIS.

- (19) To the best of your ability could you estimate the number of times your boat left its mooring last year (1978).
 times
- (20) How often did you take your boat out during the past four weeks?
 times
- (21) In light of the "gasoline crisis", have you had to decrease your boating activities this year?
 Yes No
- (22) If you answered yes to item (21), would you estimate the extent to which your boating activity has been curtailed.
 Under 10% 11-25% 26-50%
 More than 50%

(23) Which of the following apply to you?

- My boating activities are identical to last year's.
- I go out as often as last year, but the time under way has decreased.
- I go out less often than last year, but the trips I/we take are as long as in the past.
- My boating activities have decreased by both the number of times the boat is under way and the distances covered.
- Other (Please explain: _____
_____)

(24) Please rank those improvements along the City's waterfront or within its waters which would most enhance your boating experience.

- 1st Choice: _____
- 2nd Choice: _____
- 3rd Choice: _____

(25) Assuming the City of New York received an unspecified amount of money to address the improvement you listed under your 1st Choice above. Where should these improvements be made?

Answer: _____

(26) Besides the boat you currently own, how many other boats have you owned?

_____ boats

(27) How many years have you owned boats? _____ years

(28) How many boats do you presently own? _____ boats

(29) What type boats are they?

Answer: _____

(30) What type of boat was the last one you owned, not counting the one(s) you currently own?

Answer: _____

(31) What was its size in feet? _____ feet

(continue on opposite side)

(32) What type of engine did it have (if applicable)? More than one response may be necessary.

- Gasoline Diesel Outboard
 Inboard Inboard/Outboard

(33) What material was the hull made from? Answer: _____

(34) The last sheet of this questionnaire contains two maps of the New York City coastal region. If you are trailering or cartopping your boat, please indicate by "X" the location of the boat ramps you use most frequently.

(35) Referring to the same maps, please draw a line (as best you can) around those areas in which you sail the most. If additional areas should be included, please indicate these below.

Answer: _____

(36) If your boat is stored in the water for all or part of the year, please locate the facility with a "Y" on the appropriate map.

ABOUT YOURSELF

(37) What is your sex? Male Female

(38) Would you please indicate your age category.

- less than 20 years between 21 and 30 years
 between 31 and 40 years between 41 and 50 years
 between 51 and 60 years older than 61 years

(39) What is your profession. Answer: _____

(40) Would you please indicate your family income category.

- under \$10,000 \$10,001 to \$15,000
 \$15,001 to \$20,000 \$20,001 to \$30,000
 \$30,001 to \$40,000 \$40,001 to \$50,000
 \$50,001 to \$100,00 more than \$100,000

(41) FINALLY, if the address label we have for you is incorrect, please make any necessary corrections below.

THANK YOU VERY MUCH!

