A Survey of Recreational Boating in Newport Harbor

David Dean Burrage
University of Rhode Island

Follow this and additional works at: http://digitalcommons.uri.edu/ma_etds
Part of the Environmental Indicators and Impact Assessment Commons, and the Oceanography and Atmospheric Sciences and Meteorology Commons

Recommended Citation
A SURVEY OF RECREATIONAL BOATING
IN NEWPORT HARBOR
BY
DAVID DEAN BURRAGE

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS
IN
MARINE AFFAIRS

UNIVERSITY OF RHODE ISLAND
1983
MASTER OF ARTS THESIS
OF
DAVID DEAN BURRAGE

APPROVED:
Thesis Committee
Major Professor

DEAN OF THE GRADUATE SCHOOL

UNIVERSITY OF RHODE ISLAND
1983
Abstract

This is a study of the recreational boating industry in Newport Harbor, Rhode Island. It is a facility inventory study as well as a consumer attitude and perception study. In these respects, it amounts to a market survey.

Prior to this work, the firms in this city which deal with recreational boaters had no conception of the number of users or geographic area influenced by the services they proffered. There was a need to know if the consumers of these services perceived various problems in Newport Harbor. Among these problems were such things as crowding, pollution, conflicts between user groups, and shortfalls in available facilities.

It was hypothesized that the development and future growth of recreational boating in Newport Harbor were constrained both by consumer and management perception and attitude and by economic and physical limitations. Other hypotheses were 1) the recreational boating market for services and facilities was a constrained market and 2) more revenue could be generated by adopting a preferential policy toward transient boaters visiting the area.

Interviews were conducted with members of the various firms and agencies concerned with recreational boating in Newport Harbor. An inventory of existing facilities was compiled and a series of small scale charts and graphs was developed.
A mail questionnaire was sent to both the resident and transient boaters. It was designed to assess the attitudes and perceptions of the boating consumers. The responses were coded in a form suitable for statistical analysis which was subsequently performed.

It was determined that Newport Harbor is similar to a luxury market in some ways and more revenue could be generated by catering to transient boaters visiting the harbor. The future development and growth of the Newport Harbor recreational boating industry are severely constrained by physical and economic limitations and by some problems with the attitudes and perceptions of the recreational boaters using facilities and services in the area.
Acknowledgements

The writer wishes to express his gratitude to the following people for the work they did in conjunction with this project: Professor Niels Borholm for his many helpful suggestions and invaluable support during the preparation of this paper; Professors Armando Carbonell and Bruce Marti for their expertise in statistical analysis and many constructive criticisms; Bill Gurney and other individuals involved with the Newport Harbor recreational boating industry; the 210 recreational boaters who supported this study by providing information via the mail; my wife Valerie for her typing skills and inexhaustible patience during the course of this project.
# Table Of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction: The Problem And Its Context</td>
<td>1</td>
</tr>
<tr>
<td>The Problem</td>
<td>1</td>
</tr>
<tr>
<td>Study Setting And Background Information</td>
<td>3</td>
</tr>
<tr>
<td>Hypotheses And Methods Proposed For Testing</td>
<td>9</td>
</tr>
<tr>
<td>II. Review Of The Literature</td>
<td>12</td>
</tr>
<tr>
<td>Attitude And Perception Oriented Studies</td>
<td>13</td>
</tr>
<tr>
<td>Facility Inventory And Demand Studies</td>
<td>16</td>
</tr>
<tr>
<td>Planning And Development Oriented Studies</td>
<td>18</td>
</tr>
<tr>
<td>III. Current Recreational Boating Facilities Available</td>
<td>22</td>
</tr>
<tr>
<td>Within The Harbor And Their Use Characteristics</td>
<td>22</td>
</tr>
<tr>
<td>Launching Ramps</td>
<td>22</td>
</tr>
<tr>
<td>Dock Space</td>
<td>25</td>
</tr>
<tr>
<td>Mooring Facilities</td>
<td>31</td>
</tr>
<tr>
<td>Anchorages</td>
<td>40</td>
</tr>
<tr>
<td>Other Facilities</td>
<td>41</td>
</tr>
<tr>
<td>IV. Boater Attitude And Perception Survey</td>
<td>44</td>
</tr>
<tr>
<td>Survey Design And Geographic Coverage</td>
<td>44</td>
</tr>
<tr>
<td>Summary Statistics And Response</td>
<td>47</td>
</tr>
<tr>
<td>Frequency Rates For Transient Boaters</td>
<td>47</td>
</tr>
<tr>
<td>Summary Statistics And Response</td>
<td>53</td>
</tr>
<tr>
<td>Frequency Rates For Resident Boaters</td>
<td>53</td>
</tr>
<tr>
<td>Comparison Of Survey Groups</td>
<td>60</td>
</tr>
<tr>
<td>V. Summary, Conclusions, And Recommendations</td>
<td>63</td>
</tr>
<tr>
<td>Research Hypotheses And Results Of Study</td>
<td>63</td>
</tr>
<tr>
<td>Recommendations</td>
<td>71</td>
</tr>
<tr>
<td>Footnotes</td>
<td>97</td>
</tr>
<tr>
<td>Appendix A</td>
<td>105</td>
</tr>
<tr>
<td>Appendix B</td>
<td>107</td>
</tr>
<tr>
<td>Bibliography</td>
<td>109</td>
</tr>
</tbody>
</table>
List Of Tables

Table                                   Page
I.  Moorage/Dockage Firms In Newport Harbor       75
II. Current Use And Waiting List Figures For Mooring Space In Newport Harbor   78
III. Current Mooring Use In Newport Harbor by Weight and Residency          79
IV. Proposed Increase in Newport Harbor Mooring Fees by Weight and Residency 80
V. Transient Boater Frequency Summary Statistics       81
VI. Resident Boater Frequency Summary Statistics        84
VII. Results Of Chi Square Test                     86
List Of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Firms Providing Recreational Mooring/Docking Facilities in Newport Harbor</td>
<td>88</td>
</tr>
<tr>
<td>2.</td>
<td>Number of Transient Boats Using Dock Facilities in Newport During the 1982 Boating Season</td>
<td>89</td>
</tr>
<tr>
<td>3.</td>
<td>Number of Boats Using Dock Facilities in Newport on a Seasonal Basis in 1982</td>
<td>90</td>
</tr>
<tr>
<td>4.</td>
<td>Designated Mooring &amp; Anchorage Areas in Newport Harbor</td>
<td>91</td>
</tr>
<tr>
<td>5.</td>
<td>Current Mooring Use and Waiting List in Newport Harbor by Cost</td>
<td>92</td>
</tr>
<tr>
<td>6.</td>
<td>Transient Mooring Use in Newport Harbor During the 1982 Season by Price</td>
<td>93</td>
</tr>
<tr>
<td>7.</td>
<td>Seasonal Mooring Use in Newport Harbor During 1982 by Price</td>
<td>94</td>
</tr>
<tr>
<td>8.</td>
<td>Geographic Extent of Market Area for Transient Boaters Using Newport Harbor</td>
<td>95</td>
</tr>
<tr>
<td>9.</td>
<td>Resultant Vectors and Mean Distance Perimeters for Transient Boaters Using Newport Harbor</td>
<td>96</td>
</tr>
</tbody>
</table>
Introduction: The Problem And Its Context

I. The Problem

The city of Newport, Rhode Island has often been called the "yachting capital of the world." Through its role as host to such activities as the America's Cup Races, Newport-Bermuda Race, One-Ton Championships, Round the World Race, and the Newport International Sailboat Show, the city has garnered a reputation as an international sailing center.¹

Recreational boating is but one of many competing uses for valuable waterfront property in the Newport Harbor area. Therefore, it becomes necessary to analyze the role of the boating industry in this particular area both in terms of magnitude and relationship with other facets of waterfront development. The information gained through such an analysis can be used as an aid both by firms and officials concerned with harbor development/management and by businesses which endeavor to provide services to boaters.

The geographic area served by the recreational boating facilities needs to be mapped so that the local recreational boating businesses can visualize the areal extent of their market. At the present time, the firms providing moorage/dockage facilities to boaters in Newport have no conception of the number of transient boaters visiting the harbor during a given season.²

While volume and frequency of use figures may give
"hard data" for planning purposes, there are other elements which must be considered in any thorough analysis of this type. These are the attitudes and perceptions of the consumer. For any firm or official dealing with the consumer either directly as in business or indirectly as in planning and development, these intangibles sometimes play a greater role in the decision making process than mere "use" figures. Do the boaters feel the harbor is congested? Do they feel the commercial fishing industry is a compatible use of the harbor? There is a need to know if Newport Harbor compares favorably with other harbors as far as the cost of facilities is concerned. Do the boaters who use the harbor, either on a full-time or transient basis, feel that pollution is a problem in Newport Harbor? Is there a perceived conflict between resident and transient boaters within the harbor? What do the boaters think could be done to improve the harbor? The answers to these and other questions should form an integral part of any plan to alter or improve upon harbor facilities.

In addition to being a source of data for a recreational boating survey, the boating public should also be a recipient of such information. This is especially true in Newport Harbor where a large segment of the boating population, is either misinformed or inadequately informed about the location, cost, and rules governing facilities for boaters within the harbor. A summary of such information does not currently exist and the primary information
services including the harbor master and VHF radio channels 16 and 68 have often been found wanting. This is due to the small staff of the harbor master's office when viewed in light of the extensive regulations which they must enforce and the sheer volume of radio traffic on the aforementioned channels.

II. Study Setting And Background Information.

The fine boating climate, aesthetic appeal, and ease of access all make Newport Harbor a mecca for transient as well as resident boaters. The New England climate makes for a six month long boating season. The boating season, which typically runs from early May through October, is characterized by a mean temperature of 64.4 degrees F. and average precipitation of 3.24 inches per month for the six month period. The predominant wind direction during this time span is southwesterly. The entire coastline from Watch Hill to Chatham, which includes the Newport Harbor area, experiences a marked sea breeze phenomenon. This makes for ideal and predictable sailing conditions. Because of the strong thermal gradient between land and water temperatures, this breeze can become quite strong—at times reaching 25 knots. However, the average sea breeze is between 10 and 20 knots. The visibility can be quite variable, exceeding 2 miles some 15 percent of the time and falling below a half mile 8 percent of the time during the May–October season.

For this same time period, the waves are less than 3 feet in height 64 percent of the time and exceed 8 feet only about 2
percent of the time on Rhode Island Sound. Because of their more limited fetch and sheltered nature, Narragansett Bay and the Newport Harbor regions usually experience wave heights of less than two feet. Tides and tidal currents are not a significant problem for boaters in the Narragansett Bay/Newport Harbor area. The tidal range is normally only several feet and boaters who make prudent use of the tide tables can have the tidal currents with them all the way from Watch Hill to Cuttyhunk.

While the regional climate and sailing conditions are certainly part of the appeal of Newport Harbor to recreational boaters, there are other attractions which must be considered when developing the format for a study of this nature. Ranked high among these considerations is the traditionally difficult to pinpoint concept of aesthetics. Webster's dictionary defines aesthetics as "a branch of philosophy dealing with the nature of the beautiful and with judgements concerning beauty." The key word here is "judgements." What is aesthetically appealing to one person may not be appealing to another. For example, one boater may think that fishing boats are aesthetically appealing in that he associates them with the concepts of tradition and man against the sea. Another boater may view the same boats with distaste because he associates them with unpleasant odors or rowdy crewmen. One of the writers on planning and development in this country, Charles Reich, has stated the need for the "...requirement that agencies develop
comprehensive plans as a background for deciding on particular permissions; agencies must engage in planning on their own instead of merely balancing competing interests as would an umpire. They must consider aesthetic and intangible values as well as economic and pecuniary values. The city of Newport has consistently given aesthetic appeal a high priority when making decisions about development along the Newport Harbor waterfront.

The recreational boating community concerned with this broadly defined concept of aesthetics is basically centered around the elements of water quality and shoreside amenities. In a report prepared for the International Council for the Exploration of the Sea, Donald Phelps found that the lower portion of Narragansett Bay, where Newport Harbor is located was "clean for all uses." The State Health Department rating of "SA" for the lower bay area is in agreement with Phelps findings. Under this classification system, "SA" denotes that the water is suitable for swimming, fishing, and shellfish harvesting (subject to temporary closure). Newport Harbor proper has an "SC" rating, which means no shellfish can be harvested and swimming is prohibited. The "SC" rating provides for secondary contact uses such as boating and the migration of fish while "preserving aesthetic qualities."

The classification scheme developed by the State Health Department is based on levels of certain contaminants contained in a particular body of water. One of these
contaminants is fecal coliform bacteria which is the primary offender in the Newport Harbor area. This is due to the fact that the Newport sewage treatment facility pipelines are of the combined sewage overflow type. Put simply, this means that during periods of high runoff such as rainstorms, the treatment plant cannot handle the volume of flow. As a result, raw sewage mixed with stormwater is discharged directly into Newport Harbor via an outfall at the northeast end of the harbor. This accounts for the periodic high fecal coliform count within the basin and the State Health Department "SC" rating.

Shoreside facilities are also of great importance to the boating public. These facilities may range from secondary in nature, such as scenic sheltered coves or historical sites, to primary dockside facilities such as showers, electricity, and launch service.

Newport is blessed with many attractions of a scenic and historical nature which are easily accessible to the recreational boater. Founded by William Coddington and John Clarke in 1639, the town became a refuge for those escaping religious intolerance. Privateering, rum running, shipbuilding, and the slave trade all combined at one time or another to give the town its unique nautical heritage which serves as a drawing card for mariners of all types. Walking tours of the city are available through such organizations as the Preservation Society and Eerie's Newport. Through these tours, boaters can visit places like
the White Horse Tavern (1673), which is the oldest tavern still serving food and spirits in America, and the Old Colony House (1736-42), which is America's second oldest capitol building.23

While these historical and scenic assets Newport has to offer are certainly of importance to tourism development within the city, they are not as important to the cruising yachtsman as good quality primary dockside facilities and services. These services include such things as a fuel dock, restrooms, showers, marine supplies, security, dockside electricity and fresh water, and ship stores. Among these various facilities and services, the Rhode Island boat owner finds that fresh water, security, fuel, and electricity are the most important services a marina or other type of boating facility can offer.24 An ample supply of such services, easily accessible to the boating population, is the key element that separates the more popular cruising destinations from the rest of the coast. The popularity of Newport Harbor has given rise to an increased incidence of boat thievery and vandalism. Because of this, a volunteer group works in conjunction with the harbor police patrolling the harbor from 7:00 p.m. to 4:00 a.m., June to Labor Day.25

The finest facilities and the utmost in aesthetic appeal are lost on the recreational boater if he or she feels crowded during a given boating experience. The relative effects of crowding vary with the body of water
being considered. A boater on a small fresh water lake will more likely feel the effects of crowding than will an ocean-cruising yachtsman.\textsuperscript{26} How a boater uses his boat will also have a major bearing on his perception of crowding. For example, a boater who pulls water skiers requires more room than a fisherman and hence, is more apt to perceive a particular area as being crowded.\textsuperscript{27}

Cruising boat owners visiting an area for the first time require a knowledge of the rules and regulations within a given harbor or port of call. They must also be aware of any hazards to navigation present in the area and what facilities will be available to them when they reach their destination. Although there are many excellent cruising guides on the market, these generally do not go into enough detail to be of real value when dealing with a small geographic area such as Newport Harbor.\textsuperscript{28} The same can be said for nautical harbor charts. The smallest scale harbor chart available for the Newport Harbor region is NCAA National Ocean Survey Chart Number 13223. At a scale of 1:20,000, it is adequate for showing the approaches to the harbor but not detailed enough to show facilities within the harbor.\textsuperscript{29} For the above reasons, it becomes essential for a harbor the size of Newport Harbor to establish an efficient information system for recreational boaters. This system should be highly visible and able to handle the largest volume of boat traffic which could reasonably be expected during peak periods.\textsuperscript{30}
The posture the city has taken toward development in the Newport Harbor area is perhaps best exemplified by actions taken by Thomas W. Kelly, city solicitor, and the City Council over the past year or so regarding such development:

The city has vetoed a proposed squid-processing plant at Newport Ship Yard and opposed a condominium project for the same location. A stop-work order was issued on a barge expansion on Long Wharf. The council is in the process of lowering the permissible height for a hotel proposed on Long Wharf. Kelly is considering revoking the building permits for two buildings as part of the Bonniecrest condominium complex. 31

Mayor Paul L. Gaines seemed to be reflecting the majority viewpoint within the city when he stated "I don't think tourism is in any danger. The real danger is unrestricted development that could destroy the city for those of us who live here. If that happened, Newport might no longer attract anyone." 32 Thus it can be seen that socio-political as well as economic and physical elements must be considered when dealing with any phenomena that have potential impacts upon the Newport Harbor waterfront. The role that recreational boating assumes will be dependent, to a large extent, on the way it interrelates with these phenomena.

III. Hypotheses And Methods Proposed For Testing

It is hypothesized that recreational boating in the Newport Harbor area is severely constrained both by attitudes and perceptions and by actual physical and economic limitations. It is further hypothesized that a
The current moorage/dockage fees were enumerated for the various facilities both for transient and seasonal use. An inventory was made of the existing facilities available for recreational boaters within Newport Harbor. An estimate of transient boating traffic was developed for firms within the harbor.

A series of small scale charts was developed to show where these facilities are located in Newport Harbor. These, together with a series of other maps and graphic
displays, developed from the study data, should be of some importance both to the boating populace and the businesses which cater to it.

The boating public which uses Newport Harbor facilities was sampled in order to ascertain the attitudes and perceptions it has concerning various components of recreational boating within the harbor. A sample was obtained for the transient harbor users and an additional sample was obtained for resident harbor users to see if perceptual differences existed. These samples were obtained by means of a mailed questionnaire.

After the data was converted to a form suitable for statistical analysis, statistical procedures were performed through the use of the university computer system and hand calculator. The results were tabulated and together with the other data, were used to test the research hypotheses. If it is determined that the analyses yield suggestions for improving certain aspects of the harbor, the data will be transmitted to Newport firms and officials.
II

Review Of The Literature

Recreational boating studies can basically be classified into three groups: 1) Attitude and perception oriented studies, 2) facility inventory and demand studies, and 3) planning studies. This classification system is necessarily somewhat arbitrary and there are certainly "gray areas" between these boundaries.

The majority of information gained in the field of recreational boating has been generated as a result of interviews and mail questionnaires. This is due to the fact that unlike other areas of social science research, extensive records have historically not been kept for recreational boating. The one major exception to this situation would be the Coast Guard's boating statistics. However this data is of limited value to recreational planners as it deals mainly with boat sizes, types, accidents, and so forth. The human element is largely neglected.

The recent trend has been toward an ecosystem type approach in recreation studies and resource management. This approach to the man-resource relationship sees the natural world as "series of interrelated systems in a state of dynamic equilibrium into which man intrudes as an unbalancing factor." Because of the limited nature of coastal resources and the many competing uses in any given waterfront area, marine recreation studies should adopt this
ecosystem type approach.

I. Attitude And Perception Oriented Studies

Work done by Murphy in the early 1970s is perhaps one of the best examples of earlier attitude and perception oriented studies in the field of recreational boating. In order to see the role of boater attitudes when contrasted with other more tangible elements of boating experiences, he conducted mail and telephone surveys of a segment of the recreational boating population in the midwest. Using the data acquired from the respondents, Murphy developed a stepwise regression model in order to determine the relative important of each of several variables generated by the study data. Among these variables were such things as distance to the boating area, cost of the boating experience, the degree of crowding perceived by the boater, and relative amounts of satisfaction with the boating experience.

The work done by Murphy was used primarily as background for the current study rather than in a direct manner. This is due to two major concerns this author had with the study: 1) The study setting was on a series of Ohio's inland freshwater lakes and because of this, it was felt the findings would be hard to extrapolate to a salt water harbor setting. 2) The stepwise regression procedure, although useful for exploratory analysis is "not guaranteed to give you the best model for your data, or even the model with the largest $R^2$ square. And no model developed by these
means can be guaranteed to represent real-world processes accurately." This is true even for regression models where maximum rotation techniques have been employed.

To Murphy's credit, it must be noted that regression type analyses were the current "state of the art" type studies performed in the social sciences at the time of his study. In fact, they remain in use today despite the views of several writers who think they have been overused in social research. Nonetheless, with the stepwise regression, it was found that attitude played an important role in the decision making process of the recreational boater and hence would prove to be one of the more significant elements to consider when conducting research in this field.

Another more recent perception type study was conducted by Zapata in 1980. The key element examined here was the recreational boater's attitude toward crowding while participating in a boating experience. This research was conducted on a series of northern Texas lakes by interviews and a mailed questionnaire sent to recreational boaters in the region who used the lakes. The respondents were asked if they felt the effects of crowding during their boating experience and if so, where the feeling was strongest. Launch ramps and associated parking areas were found to be the areas of highest perceived crowding. Significantly, it was determined that the effects of perceived crowding were not linked to the size of the boater's vessel. Because the study setting was a series of freshwater lakes and most of
the boats were trailerd to the sites, it is felt that the results would only be marginally comparable to the Newport Harbor survey. Launch ramps are used only minimally in the Newport Harbor basin.

During approximately the same time frame as Zapata's study, research was being conducted by West and Heatwole in the New York Harbor area and surrounding waters. This was a different form of attitude/perception study in which a questionnaire was used to determine how boaters in various groups used their boats. The respondents were asked to draw a line around their preferred boating waters. Using both cell frequency and vector analyses, West and Heatwole were able to determine substantial differences in use patterns between such groups as fishermen, sailboaters, and powerboaters. It was felt that such information would be valuable for marine managers in developing guidelines in areas where separation of water uses might become necessary.

Perhaps the most comprehensive work to date dealing with boater attitudes in Rhode Island was completed by Norhold in 1976. This study also made use of a mailed questionnaire which was sent to Rhode Island boat owners in the winter of 1974. Although not limited to assessing boater attitudes and perceptions, the study was able to ascertain how owners used their boats, if they were satisfied with their purchase, how they felt about various marina services, why the respondents owned boats, and what elements they felt detracted from the pleasure of boating.
It was determined that nearly half of the recreation days or port days on boats with some form of engine power were spent fishing. The second highest use was for day trips. The overwhelming majority of owners were satisfied with their purchase. The most important marina services were felt to be fuel and oil, security, and dockside fresh water and electricity. Most of the respondents gave "I find boating relaxing" as the reason for owning a boat. Pollution and increasing costs were the major elements the respondents said detracted from the pleasure of boating:

The findings on which problems boat owners are most bothered by are quite consistent with the answers to the previous questions. For example, sailboat owners want to have fresh water available at dockside; they show their concern about getting the boat dirty." Escape is an important motivation for owning a boat; owners are concerned about increased crowding on the water (too many other boats). Owners of powerboats show the greatest concern about increasing costs. Note that the survey was conducted during the third and fourth months of the "fuel crisis," and that the average income of sailboat owners is a little higher than that of powerboat owners. 48

II. Facility Inventory And Demand Studies

The state of the art in inventory and demand type studies is represented by the work done by Goodwin in the Washington state coastal zone. 50 Using data obtained from mail surveys, he was able to depict the demand characteristics for moorage/storage in the region. The geographic locations of the storage facilities were depicted in relation to the respondents county of residence, graphically showing the market area affected by the
facilities.  A series of regression equations was generated in an effort to predict the long term trends in the recreational fleet size. This type of information is valuable to the segment of the marine business community which is considering expanding their services or building new facilities. Goodwin also developed a series of bar charts which showed vacancy rates, occupation rates, and waiting lists for various moorage/storage facilities in the study area, broken down by a number of price ranges for these facilities. It was felt that this technique would lead to the establishment of a "market limit price" which would be useful for businesses providing moorage/storage facilities in the region:

When the market indicators--moorage rates, occupancy rates, and waiting lists--are aggregated to the county level, a system of sub-regional markets emerges. In most cases there is a fairly distinct price where waiting lists disappear and vacancies appear. Below that price, demand exceeds supply as evidenced by waiting lists; above that price, occupancy rates fall, revealing excess supply. This "market limit price" is an important datum for new investors in marine facilities: setting rates below that price would enhance the probability of high, initial occupancy; charging at or above that price would produce slow fill up of the facility and low initial return on investment until regional boat ownership rates grew to fill the new supply of slips.

Some of the techniques used by Goodwin in his work were modified to a certain extent and employed in the current study.

The state of Rhode Island's recreational boating facilities were inventoried in 1975 by a task force composed
of researchers from the Urban Design Group, Inc. in Newport and from Economics Research Associates in Boston. In addition to enumerating the existing facilities within Rhode Island waters, the task force was able to develop a market support analysis and a preliminary impact assessment for future marina development.

A novel approach to the process of establishing an inventory of existing facilities was used in 1977 by the Raytheon Company in a report prepared for the Rhode Island Statewide Planning Program. A remote sensing analysis was conducted using aerial overflight photographs. For the purposes of this study, a marina was classified as an area where 10 or more boats were located in close proximity, either in a mooring area or at docks. Other information obtained from the photos included an assessment of the general facilities at each marina. These facilities included number of slips, docks, and parking areas. It is interesting to note that in Newport, fewer boats were observed than were slips available. This was assumed to be accounted for by transient batters, and boats that had been hauled out for the season. (The overflight was made on September 29-30).

III. Planning And Development Oriented Studies

In addition to being an inventory reviewed in the previous section, the study done by the Urban Design Group was also geared toward possibilities for future development. The project personnel were able to determine such things as
the projected dockage absorption rate, the market support areas, the dockage expansion potential, and what the appropriate sizes for new development should be when viewed in light of prevailing economic considerations. 57

One of the latest works which can be broadly classified as planning/development oriented was a compilation and synthesis of existing data done by Collins and Sedgwick in 1979.58 This study showed that projected growth patterns were complicated by lack of dependable figures on the current fleet. One of the relevant aspects of this work to the current study is the finding that 8.7 percent of the boaters using Rhode Island waters use the wet storage facilities available in Newport Harbor.59 Many of the elements discussed in this study such as lack of adequate launch ramps, marina design, and access recommendations, were considered when developing the questionnaire used in the current study.

Very little literature of a planning/development nature has targeted on the Newport Harbor area and the Newport waterfront in particular. One notable exception is a study coordinated by Muniak and done by the Community Planning and Area Development Department at the University of Rhode Island.60 The findings concerning recreational boating in the Newport Harbor area were one of the major components forming the impetus for the present study. Among the problems noted in the department's study were congestion in the harbor, poor availability of information for boaters on the waterfront, shortage of mooring and dock space, and
inadequate launch ramp facilities. The study group arrived at the following recommendations:

---------- we recommend additional transient dock space in the upper harbor, relocation of the harbor master's station, and installation of additional moorings for residents in the Kings Park Area.

Additional mooring space should be provided by extension of the city-owned Ann Street Pier, and the addition of new slips along Long Wharf and Perrotti Park. The harbormaster's station should be moved from its present location near the Newport Yacht Club to the second level of a new building at the end of the Ann Street Pier extension. The first level of this structure should house a satellite visitor center which would serve tourists who arrive by boat.

Boating facilities for Newport residents are also inadequate, a condition that has worsened in recent years as increased demand from transient boaters has raised slip rentals to among the highest in the Northeast.

---------- The area immediately west of Kings Park would provide an ideal location for a recreational boating marina. We propose new beam piers and floating docks with boat cradles at the end. The cradles could hold dinghies and small sailboats. Possibly a hoist could be used to lift small boats onto the dry storage cradles.

A new launching ramp should also be provided in this area and more moorings made available in the open water section west of the beach. There are no ramps available now with adequate parking space for trailers. The existing ramp in Kings Park might be improved.

It is interesting to note at this juncture that this study was completed in 1978 and none of the recommendations outlined above have been implemented as of this writing.

No review of literature in the field of recreation and recreational boating would be complete without reference to work done by Robert E. Ditton. Although the writings and
studies he has done are almost too voluminous to enumerate, he is generally considered to be the pioneer in "people research" in the field of recreation:

It's too bad it happens this way, but we have gotten used to seeing "people's concern" at the bottom of lists of research needs. Park and recreation resource managers recognize the need for data on users, their experiences, and their impacts more today than ever before. They are going to count more than ever before. User permits provide us with a feedback system. Where licensing is involved (boating and fishing), we need to have the ability to segment marine users. ... Because of time and cost concerns, we researchers need to wean management away from costly research projects toward routine data collection systems. 63

This tendency of Ditton to emphasize the consumer's attitudes and perceptions as an integral part of any recreation oriented study played an important role in the present Newport Harbor study. For this reason, an attitude and perception questionnaire was employed in the current study.
III

Current Recreational Boating Facilities Available
Within The Harbor And Their Use Characteristics

Newport Harbor is located in the southeastern part of Narragansett Bay, Rhode Island. Because of the glacial past of the region, the bay is divided by islands. Newport Harbor is located at the southeastern portion of what is known as the East Passage. The water depth ranges from 12 to 22 feet and is clear of obstacles. The harbor is exposed to the prevailing southwest winds but it is well protected from all other directions. The bottom is composed of soft mud which can be an asset for some type of ground tackle, but the mushroom type mooring anchors have a tendency to drag in this type of substrate.

I. Launching Ramps

There are four public launching ramps servicing the Newport Harbor area. They are located at Fort Adams State Park approximately 100 yards southwest of the Admiral s Dock, in Kings Park to the immediate east of the stone pier off of Wellington Avenue, and at two adjacent locations off of Washington Street at the waterfront termini of Willow and Poplar Streets.

These ramps are all composed of concrete and with the exception of the ramp in Fort Adams State Park, are free of charges for their use. In Fort Adams, while there is no direct fee for use of the ramp, a small charge is exacted by the State Department of Parks and Recreation in order to
enter the park. This charge is $.50 per person for Rhode Island residents and $1.00 per person for non-residents. The major problems with the launching ramp facilities in Newport Harbor are the difficulty of access and lack of nearby available parking. These problems are most acute at the Willow and Poplar Street ramps. While these are the best made and widest ramps, they are located in the heart of a residential district with narrow streets that are not conducive to boat trailer maneuvering. There is no boat trailer parking along the immediate thoroughfares and as a result, a boat owner using these facilities is forced to park at least a quarter mile away from the launch site. There is another similar ramp located at the end of Elm Street but it is restricted to emergency use by the harbor rescue boat.

The net result of the problems posed to people desiring to use the ramps in this area is that they have sort of unofficially become "neighborhood ramps" rather than bona fide public launch facilities. In fact, one of the ramps is currently being used as a storage area for dinghies used to gain access to moorings in the "point" section of the harbor.

While the ramp at Kings Park is not similarly affected by problems with limited maneuvering space, the ramp here is very narrow and steep. Only one boat trailer at a time can be backed on or off the ramp. While there is relatively abundant parking for vehicles with trailers, the
recreational boaters must compete with other park users for a parking space in the area. During periods of peak use, this can pose quite a problem.

The other public ramp servicing the Newport Harbor region is located within Fort Adams. Of the four ramps, this is perhaps the best in terms of maneuvering space and parking. This ramp is also narrow enough to limit use to one boat at a time. The parking area for trailers is located in a type of cul de sac area at the end of the ramp access road. The ramp is located in close proximity to the Admiral's Dock which allows for 15 minute tie-ups in order to take on or discharge passengers and gear.

The launching ramp situation in Newport Harbor is not unique to the area. Indeed, it is indicative of the situation in the entire state:

Launching ramps are the most tangible form of government involvement in recreational boating. The ramps afford public access to marine resources for a significant portion of Rhode Island's boating public. The increasingly tight supply of marina facilities and the trend toward larger trailered boats point toward increased future demand for launch ramp facilities.

Currently the geographic coverage and condition of existing ramps is a problem. Some existing facilities, particularly the underwater portions of the ramps, are deteriorating and need repair. Many existing town ramps have little or no parking area for cars and trailers.

Assuming a 20 percent participation rate among the 15,000 to 20,000 trailered boats in Rhode Island on a busy summer weekend, approximately 3,200 launches and recoveries might take place. At 20 min./boat 1166 ramp hours are required. The present inventory of 56 public
ramps would result in about 20-8 hrs./ramf on such a busy weekend.

The optimum requirement for new ramf facilities are at least one acre for parking and maneuvering of trailers and cars, good road access and minimal exposure to prevailing winds and seas. With land costs of $50,000 to $150,000/acre and a cost of approximately $10,000 to $20,000 to construct a launching ramp, the greatest financial problem is land acquisition.68

II. Dock Space

A summary of the firms providing storage/dockage facilities within Newport Harbor is given in Table 1. This summary shows the facilities available and the fees charged for their use on both a transient and seasonal basis.

For the location of these businesses along the Newport Harbor waterfront, see Figure 1.69 As can be readily seen, the majority of these firms is located along the eastern seawall/wharf area of the waterfront. This is a region shared with shops geared toward the yachtsman, boutiques, and various seafood restaurants which add to the nautical charm of the waterfront while keeping property values at a premium. As a result, expansion of any of these particular recreational boating firms is constrained by prohibitive land acquisition costs.70

Goat Island Marina is located on the eastern waterfront of an island forming the northeast entry point to the inner harbor. This island is connected to the mainland by a causeway which can be reached by car from Washington, Second, Third, and Guernsey Streets or off of Long Wharf. Through the use of several finger piers and floating docks,
the marina is able to provide 8000 linear feet of dock space. Most of this dock space is occupied by seasonal users who pay $36.00/foot/season for the slip or boat which ever is larger. The contract for seasonal dock space at Goat Island Marina runs from May 15th to November 1st. 71

This marina does not cater to transient boaters, but if it is known a particular slip will be vacant at a given period of time it will rent slips on a nightly basis. The transient fee is $1.00/foot/night, plus an additional electrical charge of $2.00/night for 110 volt service or $5.00/night for 220 volt power. Some of the available dock space is taken by commercial vessels such as Viking Tours or the Pilot boats thus further limiting dock space available to seasonal and transient boaters. The marina is easily visible to the first time boating visitor to the harbor as it is the only facility for boat dockage on Goat Island and it is marked by distinctive white pilings with red tops. Although the marina does not cater to transients, a conservative estimate of number of transients handled last season was in the neighborhood of 500 boats. 72 The other distinctive landmark on the island is the Sheraton Islander Hotel, a modern multi-story facility located on the island s northern end.

In marked contrast to Goat Island Marina policy of not catering to transient boaters, the Treadway Inn and Marina is predominantly transient boater oriented. Of its 2100 linear feet of dock space, only 6 slips are occupied on a
seasonal basis. The marina is easily spotted from the water due to the fact that it is located adjacent to a large multi-story modern hotel in the northeastern corner of the inner harbor. The marina charges $1.25/foot/night for dock space with no additional charges for electricity etc. The seasonal rate is identical to the transient rate, thus perhaps explaining the small number of seasonal boats at the marina. The marina is operated somewhat separately from the hotel. For this reason, a recreational boater does not have to be a registered guest at the Treadway Inn in order to use the marina facility. The transient boating traffic handled during last season averaged 30 boats/day for the July-September time frame giving a total of around 2700 boats. This figure must be interpreted loosely. For example, some of the boats probably stayed for more than one day especially during times of special events centered in the harbor.

One of the firms currently undergoing a change in ownership, and as a result, a change in policy of some significance to recreational boaters is Williams and Manchester Shipyard. The business was recently purchased by a company called American Shipbuilding. This company, along with it subsidiary American Cruise Lines, will run the facility with a policy of catering to the transient boating public. The firm will keep 60 percent of the 3500 linear feet of dock space available to transient boaters. Additionally, it is estimated some 20 of the remaining 40
percent will be used by transients. This represents a change from previous ownership policy of reserving 80 percent of the dock space for seasonal boats. 74

Williams and Manchester Shipyard is located toward the southern portion of the east waterfront in the inner harbor on Lee's Wharf. The transient overnight rate is $1.25/foot. There are no additional service charges. The seasonal rate has been increased to $60.00/foot/season. This is the reason that it is felt half of the proposed seasonal dock space will be available to transients. Because of the previous owner's policy of catering predominantly to the seasonal boats and lack of records kept for transient rentals, there is no good way to estimate the number of transients serviced last season. The firm will have its own excursion boat this year, the "Chesapeake", which will occupy 120 feet of the available dock space 4 nights per week. 75

Newport Offshore Ltd., located in the far southern corner of the eastern waterfront, is perhaps best known as the "home of the 12 Meters." Several of these sleek, state of the art racing craft have been built by this firm. These boats are the type of craft used to compete in the America's Cup races and 20 percent of Newport Offshore Ltd. s 5000 linear feet of dock space will be occupied by 12 Meter boats from various countries during the upcoming season. 76 An additional 20 percent of the dockspace will be reserved for seasonal use and for boats being built and serviced by the
firm. This leaves some 3000 linear feet available for transient use which is about what was available last year when over 2000 transient boats used Newport Offshore, Ltd.'s facilities. 77

The seasonal rate is $60.00/foot and the transient rate is $1.25/foot/night. The facility is booked up solid for the coming season largely due to the allure of the 12 Meter boats and attendant America's Cup Race activities. 78

The Newport Yachting Center is centrally located on the eastern waterfront on Commercial Wharf. Through various arrangements of its floating dock system, it is able to provide up to 5000 linear feet of dock space. 79 The Newport Yachting Center has been the organizer for various events of a nautical nature in Newport Harbor such as the Newport International Sailboat Show, the Wooden E-boat Show, and various Manufacturer's Rendezvous Events. Through its role as host for these events, the Newport Yachting Center is able to generate substantial sums of money into Newport's economy. "The total impact of the Yachting Center's three boat shows and six Rendezvous events is consequently between $3,400,000 and $4,173,000." 80

The fee charged for overnight dock space at the Yachting Center is $1.00/foot. There is no additional charge for other dockage services. The seasonal fee is $50.00/foot. The Newport Yachting Center provided services for some 2400 transient boats last season. 81

Christie's restaurant provides some dock space at the
southeastern portion of the harbor. They have 450 linear feet of dock space into which they are able to accommodate some 18 boats, most of which rent dock space on a seasonal basis. The seasonal rate is $30.00/foot and the transient rate is $1.00/foot/night. It was estimated that Christie's provided services for approximately 200 transient boats last season. 82

At the middle of the same side of the waterfront, Bannister's Wharf operates 30 slips on a strictly transient basis. The fee charged is $1.25/foot/day with an additional charge of $2.50/day for 110 volt electrical power and $5.00/day for 220 volt electrical hookups. Bannister's Wharf is also booked up for the coming season and provided services for approximately 800 transients last season. 83

The Newport Yacht Club provides dock space for transients who are members of other yacht clubs on a reciprocal basis. Although most of the 64 slips are generally filled on a full time basis by club members, such transients are allowed to rent slips at $.80/foot/night plus a $5.00 charge for electrical hookups and full use of the clubhouse facilities. Newport Yacht Club is located on Long Wharf at the northern waterfront area of the harbor. The Yacht Club hosted some 400 transients last season. 84

Figures 2 and 3 show the number of boats using dock facilities at various prices on transient and seasonal bases respectively. Because most of the dock space was given in terms of linear feet, it was assumed that an average size
boat was 30 feet in length. This number, divided into the total length of dock space at a given facility used primarily for seasonal boats, was used to generate number of seasonal boats for Figure 3. Because reasonably reliable figures were available for transient boats, no such conversion was necessary for Figure 2. No vacancies exist at seasonal or transient slips regardless of the fee charged for facilities. The apparent larger volume of transient boats at the higher priced facilities therefore, seems to be due mainly to the fact that there are more of these facilities in the harbor and not to any special demand for these facilities. The same can be seen in Figure 3. The larger volume of boats in the $36.00 region is due simply to the fact that a larger number of these facilities exist. There are no vacancies during the peak season of May 15th through October 15th. Thus it would seem that at least during this time period, all of the firms could get the highest existing price in the harbor for their facilities. This may not hold for firms like Williams and Manchester which have just undergone a dramatic increase in price for their seasonal slip rental fees. 85

III. Mooring Facilities

The placement and use of moorings within Newport Harbor is strictly regulated by the City Council, the Bureau of Recreation, and the Waterfront Commission. 86 Figure 4 shows the location of the various areas where moorings are allowed within the harbor. 87 The point section is the least popular
of the mooring areas due to the facts that it is least protected from wind and waves, and it is located in an area where shorefront amenities, including parking, are at a minimum. The area between the eastern waterfront and Goat Island is called the Newport mooring area. It is the most sought after area because it is most protected and closest to all shoreside amenities. Along the south shore of the harbor are the Spindle, Ida Lewis, and Brenton Cove mooring areas from east to west respectively. These areas are popular with boaters who want to get away from the busy inner harbor and still have adequate parking available. These areas are also popular with cruising boaters who use Newport Harbor as a layover spot after entering the area before proceeding further up Narragansett Bay or eastward. These areas are exposed to winds and seas from the north, but since the prevailing wind direction is southwest, this problem is only occasional in nature. 88

The placement, structure, specifications, and use of moorings within the harbor are under the purview of the harbor master appointed by the City Manager. "No person shall place a mooring in the public waters within the City without first obtaining the permission of the Harbor Master and complying with all rules and regulations governing Newport harbor." 89

There are basically three classes of moorings in Newport Harbor: private, transient, and seasonal/commercial. The various rules and regulations for
the three categories vary to a certain extent. By city authority, 40 transient rental moorings are allowed within the harbor. The ordinance reads in pertinent part:

All transient rental moorings shall consist of a five hundred pound mushroom anchor and 3/4" bottom chain and 3/8" top chain. The weight of the anchor shall be clearly printed on the mooring ball.

The total number of transient rental moorings within the confines of Newport Harbor shall not exceed forty (40). The forty (40) moorings shall be equally divided to twenty (20) moorings in the north mooring area and twenty (20) moorings in the south mooring area.

No one individual or company shall control more than fifty percent of the allowable transient rental moorings unless the total number is not utilized.

Any one individual or company wishing to exceed the authorized limit shall do so by making application to the Waterfront Commission.90

The seasonal/commercial and private moorings are not affected by such size constraints. Rather, the size of the mooring weights required is based on the size of the boat which will be using the mooring. In turn, the fee charged by the city to allow placement of these moorings is based on the weight of the mooring:

All persons who already have or are about to place a mooring or moorings in the public waters under the control of the City shall pay a mooring fee based on the weight of the mooring as follows. Ten cents per pound of mushroom or other mooring device based on mooring regulations for the boat size, with no excess for oversized moorings and with a maximum fee of seventy five dollars ($75.00) per mooring per season.

All mooring fees shall be paid to the Department of Finance on or before April 1 of each year and
shall be an annual charge.

Any and all moorings placed in the public waters in violation of this section shall be confiscated by the Harbor Master and retained by him or her until the owner pays all costs. 91

A breakdown of the weight of the mooring required in relation to size of boat using the mooring is given in Table II. The harbor master is also in charge of seeing that the mooring is properly registered, and responsible for the correct placement of the mooring. An inspection of the mooring is required at least once every three years by a qualified inspector. In order to restrict the circle of tidal and wind generated rotation about the mooring space, there are length restrictions on mooring pennants and chains. The pennant is restricted to two and one-half times the distance from the bow chock to the water plus the distance from the check to the mooring cleat or post. The total chain length is restricted to two and one-half times the depth of water at high tide, not to exceed 50 feet. The top chain and bottom chain are each supposed to compose approximately fifty percent of the scope. Rafting on a single mooring is only allowed if it does not interfere with adjacent boats. Rafted vessels are required to be manned at all times. 92

Several waiting lists are kept for mooring spaces within Newport Harbor. Some people are on lists in order to have their mooring changed from one area to another, and others are on the list just to obtain a mooring location.
anywhere within the harbor. The waiting time can be from one to five years depending upon how site specific the desired mooring is. The harbor master is required to keep and post these waiting lists. The current waiting list for various size moorings is shown in Table II. The current mooring space use by weight and residency is shown in Table III. Figure 5 is a graphic representation of current use and waiting list by size. As can be seen, the majority of the current use and waiting list is for 300 pound moorings. This corresponds to a boat size of 26 to 30 feet. Moorings cannot be sold off of the waiting lists, unless the purchaser is a blood relative. The mooring space owners are required to furnish their own moorings. A typical 300 pound mooring with the required amounts of chain costs around $1000.00.

A seasonal/commercial mooring is defined as a mooring placed in Newport Harbor for the sole purpose of charging a fee for its use. These moorings are subject to the same rules outlined above. Although a limit on this class of moorings is set at 160, this level has not been realized. There are two reasons for this: 1) seasonal rentals may in fact be used only 7-10 days of the boating season, and 2) there are problems with crowding.

No one individual or firm shall control more than 80 total moorings, nor shall they control more than 50 percent of any mooring area subdivision of the harbor as established by the Newport Waterfront Commission.

There is a current freeze on increasing the number of
seasonal/commercial and transient mooring spaces within the harbor. Because of space limitations, any new private mooring spaces have also been precluded. Two suggestions are currently being aired by the City Council and Waterfront Commission regarding moorings in Newport Harbor. One of these suggestions is to go to the fore and aft type moorings which effectively limit the arc a vessel swings through on its mooring chain and pennant, thus allowing more boats to fit in a given geographic area.

The other proposal being considered would increase the fees charged by the city for mooring spaces. A summary of this proposal is given in Table IV. As can be seen, those most severely affected by the proposed increase are non-resident owners of smaller boats.

There are several firms and organizations which lease moorings on a seasonal and transient basis in Newport Harbor. They are Long Wharf Moorings, Oldport Marine Services, Newport Mooring Service, Dunbar Yachts, and the Ida Lewis Yacht Club. The location of these various firms and organizations is given in Figure I.

Long Wharf Moorings is located in the northeast corner of the harbor adjacent to the Newport Yacht Club. The office is easily spotted from the water as it is located on a large adjacent to the mooring buoys. There are 40 fore and aft type moorings at this facility anchored with 2200 pound dig-in type weights. There is a small dinghy dock located next to the large and the firm boasts the only
sewage pump out facility available in the entire harbor. This business caters to groups of cruising boats which like to raft in a rendezvous-like situation. The charge for moorings is $.75/foot/night which is the highest in the harbor. Seasonal rates are $25.00/foot. Charter boats using this facility pay a flat one-time $25.00 fee plus 20 percent of their charter earnings. New additions this year will be mooring whips on the buoys which allow for easier mooring pick-up. Two new Batteras 65 foot motor-sailers available for charter, and a side band radio channel which will help in calling ahead for mooring reservations when the standard channels (VHF 16 and 68) are busy. There are several negative aspects to this facility which must be noted. It is extremely hard to get in and out when the harbor is crowded, it is located in the immediate area of the combined sewage overflow outfall, and the prevailing southwest wind tends to push all floating debris into this corner of the harbor. Long Wharf Moorings provided mooring space for some 1000 transients during the 1982 boating season. \(^{102}\) \(^{103}\)

Oldport Marine Services was the pioneer of the mooring industry in Newport Harbor. They were placing seasonal and transient moorings in the harbor long before the City Council foresaw the need for regulation of such facilities. Oldport currently operates 16 transient moorings and 100 seasonal moorings. They charge $15.00/night for transient moorings and $12.00/foot for seasonal moorings, 50 percent
of which are leased by Newport residents. The firm maintains its own waiting list of approximately 150 people. The pick-up buoys for the moorings are marked "Rental Mooring." and have an information card attached to them. Like many other Newport boating firms, Oldport monitors VHF radio channel 68. Oldport also provides a launch service in the harbor for which it charges $250.00 per season or $1.25/person/ride. During the 1982 boating season (May 15—Oct. 15), Oldport Marine Services handled some 1500 transient boats.

The Newport Mooring Service presently has 15 moorings of the seasonal and transient types. The mooring fee for transients is $11.00/night and the seasonal rate is $15.00/foot. The Newport Mooring Service also operates from May 15th—October 15th and during that time span in 1982 provided moorings for approximately 900 transients.

The Ida Lewis Yacht Club has approximately 75 moorings at its disposal which, if vacant, it makes available for transient boaters who are members of other yacht clubs on a reciprocal basis. The overnight fee is $10.00 which includes launch service. Because most of the moorings are privately owned or leased by members of the club, there are no seasonal facilities available.

Another firm which provides seasonal/commercial moorings in Newport Harbor is Dunbar Yachts. The firm has 13 of these moorings. There is no transient rate as all of the moorings are generally taken for the season at
Newport Offshore, Ltd. maintains 5 moorings in the harbor for its own use. The firms which provide mooring/dockage facilities within Newport Harbor thus handled approximately 13,100 transient boats last boating season. This figure must be treated with circumspection because it represents a compilation of actual counts and educated guesses by the firm managers and owners. In some cases like Williams & Manchester, there is no way to assess the past transient traffic due to changes in ownership and poor previous record keeping. However, this number can be relied upon as a reasonable "ballpark" figure.

At present, there are only 31 designated transient rental moorings in Newport Harbor and they are scattered in clusters throughout the harbor making them difficult to locate. This is particularly true in regard to first time recreational boating visitors. Although most of the firms monitor VHF radio channels 16 and 68, the radio is so busy during peak periods that the boater cannot make radio contact and must thread his way through traffic and other moored vessels in order to locate a mooring. Many seasonal moorings are also available to transients due to the fact they are only occupied a short part of the season, but there is no way for the boater to know this unless he contacts a representative of one of the mooring firms. Of the total of 918 moorings in the harbor, around 150 are of the seasonal/commercial type. Figure 6 shows the number of
transient boats using moorings during the 1982 season at various price ranges. Figure 7 shows the number of seasonal boats using moorings during 1982 at various prices. Since one firm gave transient rates in terms of $ .75/foot/night, an average boat size of 30 feet was once again assumed in order to make the data comparable to the other firms for graphing purposes. Once again, the differences are due to the number of facilities available at a given price and not to any appreciable vacancy rates at any of the moorings.

IV. Anchorages

Many members of the recreational boating community prefer to eschew conventional mooring and dock facilities in favor of using their own ground tackle. In addition to saving the mooring/docking fees, these boaters have a greater latitude in choosing their spot within the harbor. In Newport Harbor recreational boaters desiring to use their own anchoring equipment are severely constrained both geographically and legally.

If one examines Figure 4, the small size of the temporary anchorage area is immediately apparent. The only other location in the Newport Harbor area where use of one's own ground tackle is permitted is in the point section. This is a mixed mooring/anchorage area. There are inherent problems with this type of area. Clarkson Collins writes:

Town harbormasters usually have responsibility for authorizing and placing moorings in public anchorages. While in the past they gave some
consideration in matching boats with water depth and to organizing boats in groups with similar swinging characteristics, such considerations have not been a high priority. Custom now controls the mooring arrangements in many harbors, and existing arrangements are not as efficient as they might be. The dense yet efficient mooring patterns in Marblehead and Padanaram, Massachusetts, and many harbors on Long Island Sound may be instructive for relieving some of the pressure in Rhode Island harbors. 111

All vessels in the harbor are required to be anchored according to the directions of the harbor master. If they are not, and there is not a sufficient crew to move them, the harbor master is entitled to move them at the expense of the vessel owner. 112 No vessels are allowed to be anchored and left unattended. The owner and party may go ashore but must be available to tend to the vessel in the event of heavy weather. In a combination mooring and anchoring area, it is the anchored vessel's responsibility to remain clear of the moored vessels in the event of a change of tide or wind. Since the scope of anchor rode is most often greater than mooring tackle for a given size boat, this makes sense but still burdens the boater wishing to anchor in a combination area.

V. Other Facilities

There are four fuel docks available to recreational boaters in Newport Harbor. They are located at Goat Island Marina, Bannister's Wharf, the Newport Yachting Center, and Williams and Manchester Shipyard. There is fuel for commercial fishing boats at the State Pier and Parascandolo & Sons on Perry Mill Wharf. 114
Launch service is available to all harbor users at $1.25/person/ride. The Ann Street Pier, located in the southeast corner of the harbor is available for use as a dinghy dock for a $2.00 charge. There are several ship chandlers along or immediately adjacent to the harbor waterfront. Repair service can be found in the immediate harbor area at Newport Offshore, Ltd. and Williams and Manchester Shipyard. The Newport Yachting Center can also arrange to have repairs effected.

The harbor master can loosely be regarded as a "facility" in most harbors. The harbor master's office is charged with policing the harbor, inspection of the harbor and removal of debris, moving illegally or improperly located vessels, and generally seeing that things run smoothly in the harbor. In addition to these required services, the harbor master is generally looked on as a reliable source of information in most harbors as far as what facilities are available and their location. This is particularly true for transient boaters who may be unfamiliar with a particular harbor.

The harbor master operation in Newport Harbor could be substantially improved for two major reasons, neither of which reflect on the ability of the current personnel. First, the harbor master's office is tucked away in the northwest corner of the harbor behind the Newport Yacht Club and adjacent to some fuel storage tanks. For this reason, it is nearly invisible from the water. The second problem
rests with sheer manpower. The harbor master has to operate with a staff of 1 full-time, and 4 part-time employees, and during peak periods such as weekends, there just aren't enough people to do the job. The current harbor master, Mark Hastings, stated "I spend most of my time out in the boat chasing down boats which have either parted their moorings, or are dragging their mooring tackle or anchors. The information aspect of this job falls by the wayside due to this situation." Other peripheral type facilities such as security and showers will be discussed more fully in the following chapter.
IV

Boater Attitude And Perception Survey

Given the increased pressure placed upon our coastal resources in recent years, it has become increasingly more important to develop a "people oriented" approach to recreational boating studies. In order to plan coastal development wisely and efficiently, it is essential to know how various user groups perceive the coastal environment. This is particularly true in respect to coastal recreation:

Many coastal recreation researchers want to tackle modeling and systems analyses without the basic data in hand to "plug-in." While resource inventory data is usually available, coastal recreation demand and participation data is not. We have measures and trends for outdoor recreation on a national scale. Knowledge of participation/activity deteriorates as we move to the state level.....We will be able to apply a full range of statistical techniques in our analyses but we need to have the requisite data. 117

I. Survey Design And Geographic Coverage

In order to assess what recreational boaters feel and perceive about Newport Harbor, a questionnaire was developed and sent to a segment of the boating population which uses Newport Harbor. Both transient harbor users and full time harbor users were surveyed in order to ascertain if differences might exist among the user groups. The total sample, both transient and resident, consisted of 452 questionnaires with a return rate of approximately 50 percent for the sample as a whole.

The transient segment of the sample was surveyed
through the use of a questionnaire developed together with Dr. Tyrrell of the Department of Resource Economics. It is adapted from earlier work done by the College of Business, and Community Planning and Area Development personnel. For an example of the transient questionnaire and cover letter, see Appendix A. The questionnaire was designed to be clear, concise, and easy to answer in an attempt to increase the return rate. This is clearly an important step of the survey process. The first part of the transient questionnaire dealt with spending in order to assess the economic impact of transient boaters upon the city of Newport. Questions 13-20 were used by this writer in order to assess boater attitudes and perceptions. The mailing list was provided by Jock West of the Newport Yachting Center and represented participants in several of the boating events held in Newport Harbor for transients during the 1982 boating season.

332 questionnaires were mailed to transient boaters. Of these, 12 were returned by the U.S. Post Office as non-deliverable. 160 of the questionnaires were returned giving a response rate of exactly 50 percent. The home town of each respondent was recorded and subsequently mapped in relation to Newport Harbor by means of vectors. Figure 8 shows the geographic area represented by the 160 respondents. These vectors were individually resolved into their "x" and "y" components. The direction of the resultant vector is given by "\( \gamma \)" in Figure 9. A secondary
analysis of the location vectors was also performed using a 500 mile distance cut-off criterion. This was done because it was assumed a priori that the boaters who traveled over 500 miles did not come to the area for the sole purpose of recreational boating in Newport Harbor. There were 8 of these responses in the data and the effect they may have had in biasing the analysis is shown graphically by the "V" vector in Figure 9.

The mean distance traveled to Newport Harbor by the transients is given by the circle "A" in Figure 9. Following the same cutoff criterion espoused above, a second smaller circle "A" shown by the dashed line was calculated. The larger circle "A" encloses approximately 59,828 square miles and the smaller circle "A" encloses approximately 18,626 square miles. The 8 observations over 500 miles thus made a difference of market area of 31 percent. It becomes a matter of value judgement for the researcher to decide whether to include such extreme observations as the 8 responses outlined above. Both the total responses and the curtailed version were used here to show the effects of bias introduced by extreme values in some responses. The reader is thus given the option of which values to regard as representative of the "real world situation."

The direction of vectors V and V in Figure 9 would seem to indicate that the majority of transient boater influx into Newport Harbor stems from boaters in the New York City metropolitan area and from boaters living along
the Connecticut coast and on Long Island. Therefore, recreational boating firms in Newport Harbor desiring to make judicious use of their advertising resources would do well to target their expenditures on this geographic area.

On the transient boater questionnaire, questions 13-19 were coded using the following technique: a "No Opinion" response was given a value of 1. "Disagree" was given a value of 2. "Moderately Disagree, Moderately Agree, and Agree" were given values of 3, 4, and 5 respectively. There was one exception to this technique for question 15 where only 4 options were specified. In this case, "No Opinion" was given a value of 1, "Not Serious, Somewhat Serious, and Serious" were given values of 2, 3 and 4 respectively. This coding system was employed because it made entry of responses into a computer file for analysis much easier than a "longhand" form of entry.

II. Summary Statistics And Response

Frequency Rates For Transient Boaters

The summary statistics and frequency response rates were generated using the PROC MEANS and PROC FREQ procedures of the SAS 79.6 statistical analysis software on the university computer. Table V shows the results of these procedures.

The average transient boater traveled 318.25 miles to get to Newport Harbor, stayed 3.45 days, and had 4.56 people in his party. It is important to note here that the miles traveled variable was relatively highly skewed in a positive
direction. This was due to the inclusion in these figures of the 8 extreme values noted in the previous section.

Most of the respondents (about 85 percent) traveled to Newport Harbor by boat. The next largest category for mode of travel was automobile (about 8 percent).

Most of the transient boaters felt that Newport Harbor moorings and dock space were expensive when compared to harbors with similar facilities. Some 70 percent of the respondents either agreed or moderately agreed with statement 13 on the questionnaire: "The cost of dockage/moorage facilities in Newport Harbor is high relative to other harbors with similar facilities." Only about 19 percent disagreed or moderately disagreed. Approximately 11 percent had no opinion on statement 13.

Close to 46 percent of the transient boaters had no opinion regarding conflicts between resident and transient boaters arising due to use of harbor facilities. About 35 percent felt that no conflict existed and about 19 percent indicated that conflicts existed between the user groups.

42 percent of the transient boaters felt that pollution was not a problem in Newport Harbor. 29 percent felt the problem was somewhat serious and 11 percent felt that pollution was a serious problem in the harbor. 18 percent had no opinion concerning pollution.

The majority of transient boaters surveyed felt that there was a boat traffic and congestion problem within the harbor. About 65 percent of the sample either agreed or
moderately agreed with statement 16: "There is a boat traffic/congestion problem in Newport Harbor." 28 percent disagreed or moderately disagreed with the statement and 7 percent had no opinion.

Most all of the respondents felt that commercial fishing and recreational boating were compatible uses of the Newport Harbor waterfront. About 70 percent said that the two uses were compatible. 22 percent felt there was some conflict between the fishermen and the recreational boaters. 8 percent gave "No Opinion" as a response to this question.

As was expected, the majority of transient boaters felt that a more efficient information system for boaters should be developed within Newport Harbor. 57 percent of the respondents indicated that the existing system (or lack of it) was found wanting. 23 percent disagreed or moderately disagreed with statement 18: "A more efficient information system for boaters needs to be developed within the Newport Harbor area." 20 percent of the respondents had no opinion on the subject.

Half of the transient boaters felt that a boat traffic control scheme should be developed within the harbor. 28 percent felt that such a traffic control mechanism was not necessary and 12 percent had no opinion.

Perhaps the most interesting findings were revealed by the various responses to question number 20. This was an open ended question: "Are there any improvements you could suggest concerning future development in Newport Harbor?"
There were several areas of concern that seemed to predominate the response to this question. The lack of showers and heads for boaters was mentioned quite a few times by the transient sample group. Another concern voiced by this group was the lack of security in the harbor and along the waterfront. The small anchorage area was another complaint often raised by the respondents. Excessive speed and wakes in the crowded areas was mentioned quite a few times. One of the respondents suggested "...some type of floating breakwater (tires??) to block off Brenton Cove from wakes. It is very, very bad to poor in the cove especially in the first or second row in from the channel. Wakes are really bad and everybody speeds." The paucity of dinghy docks in the harbor was mentioned many times by the transient boaters. Andy McGowan of Newport Offshore echoed these sentiments citing in particular the Ann Street Pier where boaters are charged $2.00 to have their dinghies "watched" only to return sometimes and find them gone. One of the transient boaters stated that the harbor developers/managers should "provide secure dingy dockage for people at moorings."

A lot of the transients wanted "better communication regarding docking facilities for short stay or overnight." Moorings suffered from the same problem with communications. "Need a better method for getting a mooring" was mentioned numerous times. One of the respondents suggested there be a "central clearinghouse for transient mooring and docking."
Carl Bolender, co-owner/manager of Long Wharf Moorings, felt much the same stating: "They ought to have a big, well-marked, eight sided building at the entrance to the harbor where a visiting boat could tie up shortly and get information. They do it all over the place in Florida, give em orange juice and everything."

It came as somewhat of a surprise to the author that some of the transient boaters saw a problem with automobile parking and vehicular traffic flow. This may be due to the transient boaters entertaining guests who arrive by car. One of the respondents stated "Whoever plans the traffic control scheme for boat traffic within the harbor should not be the same individuals who planned the traffic flow and parking for downtown Newport."

Several of the transient respondents mentioned problems with lobster pots being located in the channel. For a harbor master with the facilities to move four and five hundred pound moorings, it would seem relatively easy to keep the channel free of lobster pots. Another problem mentioned in regard to the channel was that the marina area entry was "hard to see at night due to the high level of shore-side lighting. A very prominent marker should be placed."

The existing launch service received its share of criticism. It was described variously as being too slow and too expensive:
To moor or anchor becomes very expensive for the average boater. Launch fees of $1.50 per person each way means that people with families are forced to stay on the boat. With 5 people, one trip ashore is 5x1.50x2=$15.00. With some children or teenagers at least one or two trips a day is required... perhaps you should consider some form of public dockage at different spots on the harbor.

Last, but not least, the expense of various other facilities received quite a bit of criticism. The moorage/dockage rates were considered to be too high by many of the transient boaters. One of the respondents felt that Newport should "Attempt to put an end to New York style of pricing. Much too high for value received."

Many of the transient respondents also indicated that they had considerable cruising experience, having visited many of the harbors within the geographic area encircled by "A" in Figure 9. For this reason, it is felt that the way Newport Harbor ranks with other harbors in this market area was fairly assessed by the transient boating population sampled. There is no question that transient boaters play an important role in the Newport boating industry. In analyzing the data received earlier from 126 of these same boaters, Tyrrell found that on the average they spent over $140.00 on fuel for their vessels, had a dock fee of around $130.00, and spent $240.00 on meals and groceries during their stay. These figures together with other expenditures such as hotel rates, land transportation, and entertainment added up to a total average expense per transient boater of over $700.00 for their stay in the harbor. It is
interesting that dock fees only accounted for about 18
percent of the total expenditure per boat.

It is essential to note here that Tyrrell's findings
reflected spending by user groups which met at the Newport
Yachting Center for special events. Because of this, these
expenditures are probably higher than those of the average
transient boater visiting the harbor. Nonetheless, it must
be conceded that transient boaters introduce considerable
sums of money into the city of Newport.

III. Summary Statistics And Response
Frequency Rates For Resident Boaters

Because it was assumed a priori that some differences
in attitude and perception existed between the transient
boater and resident boater harbor user groups, another
similar questionnaire was developed and mailed to a sample
of resident boaters. (See Appendix E)

The sample size needed was determined using the
transient sample as a pilot study. A confidence interval of
95 percent was sought. The transient sample exhibited an
average standard deviation of approximately 1.3 for the
variables being examined. Because of the integer nature of
the response codes, an accuracy level of plus or minus .25
was used. This represents the interval within which the
sample mean should fall from the universal mean. A 95
percent confidence level translates to a value of 1.96 on
the standard normal curve. Multiplying this value by the
estimated standard deviation (1.3), dividing by the accuracy
level and squaring the result gave a value of approximately 104. A small margin of leeway was obtained by deciding on a sample size of 120.

The mailing list for residents was provided by the Newport Bureau of Recreation. In order to assure a random sample, a random number table was used in selecting the 120 addressed from the 918 available using a "random walk" procedure. Of the 120 questionnaires mailed, 2 were returned by the U.S. Post Office as non-deliverable and 61 responses were received. This yielded an effective response rate of 52 percent.

The data was coded in an identical manner as the transient survey in order to make the findings directly comparable. The same "canned" statistical procedures were also employed. A summary of the response frequency statistics for resident boaters is given in Table VI. As can be seen, there were both similarities and differences in the various responses between the two Newport Harbor user groups.

The average resident boater had 3.64 people on board his vessel during a typical day's use. This is somewhat less than what was found for the transient boaters and was probably due to the fact that most of the transients were in Newport Harbor for special boating events.

57 percent of the resident boaters felt that the cost of moorings and dock space in Newport Harbor was high. 23 percent either disagreed or moderately agreed with statement
3, and 20 percent gave "No Opinion" as a response. Each user groups, the transients and residents, therefore, felt that Newport Harbor was a relatively expensive boating area.

52 percent of the resident boaters felt there was a conflict between the transient and resident boat owners in the harbor. 31 percent did not perceive any conflict and 16 percent had no opinion. The transient boaters did not seem to feel as much of a conflict as the resident respondents.

64 percent of the resident respondents felt that pollution posed a problem in the Newport Harbor area. 33 percent felt that the problem was not serious and 3 percent had no opinion. Thus, the resident boaters felt there was more of a problem with pollution than the transients. The transients gave a much higher "No Opinion" response indicating that harbor pollution was not a prime concern to that segment of the sample. In this respect, it must be noted that most of the transients sampled were staying at the Newport Yachting Center which maintains a clean-up patrol.

The majority of the residents felt that crowding was a problem in the harbor. 67 percent gave either "Agree" or "Moderately Agree" as a response to statement 6: "There is a boat traffic/congestion problem in Newport Harbor." 33 percent either disagreed or moderately disagreed with the statement. None of the resident boaters gave "No Opinion" as a response to this statement.

As was the case with the transient sample, a large
majority of the resident respondents felt that commercial fishing and recreational boating were compatible uses of the Newport Harbor waterfront. 75 percent of the sample felt this way. 25 percent disagreed to some extent, and as with the previous statement, there were no "No Opinion" responses recorded.

About 59 percent of the residents felt that a more efficient information system for boaters was required within the harbor. 20 percent did not perceive such a system was necessary and 21 percent had no opinion. This response breakdown was nearly identical to that of the transient segment of the boater population.

The resident boaters were roughly split on their responses to statement 9: "A traffic control scheme for boat traffic within the harbor (both commercial & recreational) needs to be developed." 47 percent agreed or moderately agreed. 45 percent disagreed or moderately disagreed and 8 percent had no opinion. As with the statement 8, the transient and resident responses to this statement were very similar.

As was the case with the transient survey, some of the most interesting information was generated by the resident boater response to question 10: "Are there any improvements you could suggest concerning future development in Newport Harbor?"

By far, the most prevalent response to this question concerned development of better harbor security and rule
enforcement. The harbor area was said to need "More policing against theft & vandalism - especially at night." Another respondent stated "If the town is going to tax and increase tax on moorings, let it give some service in return - like anti-theft patrols, etc." Consider this response by one Middletown resident boater:

The "control" of Newport Harbor (both traffic and security) needs to be improved. This could be accomplished by a highly efficient and highly visible Harbor Master force, with co-operation by the local U.S. Coast Guard contingent. Alternatively, waterborne Newport police units could be established and put on patrol.

The boat owners and boating firms in Newport Harbor are certainly aware of the increasing problems with boat theft and vandalism. In an effort to help with this problem a task force composed of local boat owners using Newport Harbor facilities was assembled. This group, known as the "Waterfront Watch", helps the harbor master and his staff patrol the harbor, especially during the late evening and early morning hours.125

It should be noted that harbor security and control was also a high incidence response in the transient boater segment of the survey. Newport Harbor is certainly not an exception to the rule as far as boat and marine equipment theft are concerned. This is a nationwide problem. In a national workshop on boat and marine equipment theft, a conservative dollar value stolen per year was $60 million dollars. It was also determined that the boat owner was the single most important person in the entire chain of
prevention and reporting of thefts. Ecaters can do such things as installing hidden hull identification numbers, engraving electronic accessories, stowing loose articles, using special transom bolts on outboard motors, and so forth.

The Newport Harbor "Waterfront Watch" is an example of one of the other recommendations arising from this workshop:

...past successes indicate that community "boat watch" programs reduce losses. Help organize a neighborhood program to watch boats and property. Inform and involve local enforcement agencies and the boating industry, especially the marina operators, of the program. Give it plenty of publicity and visibility in order to deter potential "night visitors."

The "Waterfront Watch" program, even combined with the harbor master staff has not been significantly effective in Newport Harbor. This is due to the small number of people involved, the geographic complexities of the area, and the fact that these individuals are not trained law enforcement personnel.

Like their transient counterparts, the resident boaters also felt a visible central information center for boaters should be developed within Newport Harbor. "More information would be valuable, especially to visitors concerning available facilities, regulations, and procedure" was one of the resident responses. The upcoming boating season will place even more demand for information for recreational boaters concerning harbor facilities due to the fact that it is America's Cup race year. The city should
provide some form of waterborne information service analogous to the facility it has planned for land based visitors:

The New York Yacht Club has announced plans for an America's Cup International Exposition to be located this summer at the new Nere's Newport tourist information center....The two-acre exposition site will be located on America's Cup Avenue at the head of Newport Harbor. The restored two-story 14,000 square foot hall will include a 300-seat auditorium and tourist information bureau and reservation service for most Newport highlights and events. It will have 60 to 80 short-term parking spaces and long-term parking for 400 cars nearby. 129

The other major elements of future harbor development discussed by the residents were similar to the responses received from the transient boaters. These were the need for shoreside parking, shower and head facilities, and dinghy docks. One of the resident boater respondents stated "A city owned or leased waterfront facility should be developed with: a) Dinghy dock/landing/storage b) Low-cost or free short-term transient dockage c) Information booth d) Shower/laundry facilities e) Restrooms f) Some parking g) VHF radio monitor." There was concern that public rights of way were not adequately marked along the waterfront. The harbor navigational aids were also criticized by the resident boaters. One of the future developments suggested was a "more visible night lighted buoy system, (ever try to go from one end of Brenton's Cove after dark unless you are totally familiar with the harbor?)" Thus, it can be seen that in many ways the answers
to the open-ended question were quite similar between both the transient and resident boating groups. At the onset of this study, it was felt that an additional algorithm may have been required to account for low response rates to the main questionnaire. However, the response rate for both surveys was such that this procedure was unnecessary. This algorithm would have accounted for both item and total non-response.

IV. Comparison of Survey Groups

Because the frequency statistical summary led the author to believe a priori that there were differences in attitude and perception between the transient and resident boaters surveyed, a further statistical analysis was employed. This was especially true for the conflict and pollution responses. The data were nominal in nature, so the statistical test chosen was the chi square test for two independent samples. The data reduction was done by "DATA" steps on the SAS79.6 computer software. The "no opinion" responses were discarded and the other responses were collapsed as follows: "Disagree" and "moderately disagree" were combined and labeled disagree. "Moderately agree" and "agree" were combined and labeled agree.

Using this method of reduction, it was possible to construct 2 x 2 contingency tables for resident and transient responses to the various statements and questions. There is an exception for the question regarding pollution. In this case, a 3 x 2 table was constructed so that "not serious", 
"somewhat serious" and "serious" responses could all be included.

The null hypothesis (Ho) was "There are no differences between the resident and transient boater populations in regard to their attitude/perception responses regarding Newport Harbor." The research hypothesis (Hr) was "There are differences between the resident and transient boater populations regarding Newport Harbor." Thus, this was a two-tailed test. A .05 level of significance was utilized. The region of rejection is for all values of chi square greater than or equal to 3.84. Table VII shows the results of this analysis.

The breakdown for the findings is as follows: There was no statistically significant difference in the boater responses to the statement concerning costs in the harbor. There was a statistically significant difference in the two groups in regard to the statement concerning conflicts. The question about harbor pollution also indicated a statistically significant difference between the transient and resident responses. The crowding/congestion statement, commercial fishing statement, information system statement, and traffic control statement all exhibited no statistically significant differences between the two user groups.

Thus, at the .05 significance level, two of the seven attitude/perception statements indicated differences between the transient boaters and the resident boaters. Therefore, the null hypothesis was rejected in favor of the research
hypothesis and it was concluded that there are differences in the attitudes and perceptions of the two Newport Harbor user groups.

The resident boaters perceive a conflict between transient and resident boaters, while the transients do not. Additionally, the resident boaters perceive a pollution problem in Newport Harbor more than the transients. There may be several reasons for this situation. Some of the possible causes will be discussed in the following chapter.
Summary, Conclusions, and Recommendations

I. Research Hypotheses and Results of Study

It was hypothesized that recreational boating in the Newport Harbor area was severely constrained by attitudes and perceptions and by actual physical and economic limitations. It was found that this is the case. In this particular context, economic limitations refers specifically to prohibitive expansion costs. The physical and economic limitations in the basin are chiefly responsible for any constraints on the recreational boating population and recreational boating industry, but in some aspects, consumer attitude plays a significant role as well. It was determined that a lot of the boaters using the harbor felt the costs were high for the value received. The residents also mentioned a feeling that the harbor was polluted and transient boaters were shown preference by many of the firms in the area. These are the type of attitude and perception elements that must be considered in a study of this nature.

The mooring industry in Newport Harbor is particularly affected by a lack of physical space. There is simply no room to place any more moorings in the harbor and still maintain existing channels and rights of way. This is why there is a current "freeze" on the placement of any new moorings in Newport Harbor. One avenue available to help assuage this problem would be to adopt a more efficient use
of existing space through the employment of such techniques as fore and aft moorings or multiple moorings.

The existing areas in the harbor for anchoring of recreational vessels are also constrained by physical limitations. The one area designated for anchoring only is so small as to be virtually non-existent. The combination anchorage/mooring area is constrained by its isolation from shorefront amenities and the proximity of other vessels using moorings in the area.

Launching ramps in the harbor are certainly adversely affected by physical limitations. Two of the four existing public ramps are located in densely populated residential areas making vehicular access very difficult, especially for vehicles with trailers. Parking for these ramps is located far enough away to be effectively use prohibitive. The other two public ramps servicing the harbor are narrow and steep and while there is nearly parking available, the recreational boaters must contend with other park users in both areas for the available spaces. High land costs in both areas make expansion of these facilities a very expensive proposition. Thus, the ramps are also subject to the economic limitations mentioned above.

None of the firms in Newport Harbor which provide dock space for recreational boaters are planning any type of expansion in the foreseeable future. There are many reasons for this. There are problems in obtaining the necessary permits for such expansion. Because the Waterfront
Commission has the final word on such projects, and because the City Council has decided to take a hard look at any future development along the Newport Harbor waterfront, most of the marinas will have to be content with using or upgrading the facilities already in existence. The major changes currently being undertaken by some of these firms center around targeting on different user groups from those catered to in the past seasons.

The ancillary recreational boating facilities which most cruising yachtsmen and "day trippers" alike have come to regard as near essentials are also constrained by physical and economic limitations. Included in this list of ancillary facilities are showers and restroom facilities, dinghy docks, launch service, security and control, navigational aids, public rights of way, vehicular parking, and a central information center. The few firms which do provide shower and head facilities in the harbor use coin-operated units. To a cruising boat owner who has just paid what is universally acknowledged as one of the highest moorage/dockage fees in the northeast, this additional fee to use the bathroom comes as somewhat of a "slap in the face". The launch service is expensive enough to act as a barrier to keep boaters from visiting city attractions. Those using their own dinghies must also pay a tie-up fee and are faced with poor to non-existent security at the one available site in the harbor. First time boating visitors to the area are further physically constrained by a serious
lack of information regarding what services are available to
them in Newport Harbor.

Pollution in the harbor really falls into the "gray
area" between attitude and perception constraints and
physical limitations. As noted before, the transient
boaters do not see pollution as a problem in the area while
the majority of the resident boaters do. Nonetheless, there
is a problem with pollution in the harbor serious enough to
warrant a "SC" water quality rating. This is certainly a
physical limitation restricting growth of the recreational
boating industry in the area. It is somewhat ironic that
recreational boaters are not one of the significant causes
of this problem, yet must bear the effects caused by
pollution in the harbor. While the alleviation of this
problem is somewhat cost prohibitive, it is an expense which
should be assumed by the city or perhaps the Chamber of
Commerce before any further modifications or development of
any nature are allowed in the harbor. This is where the
attitudes and perceptions of the consumer should be
considered most strongly. The resident boaters in
particular have voiced a strong opinion regarding pollution
of the harbor. It is conceivable that they would move to
block any further growth in the harbor area, acting both as
recreational boating constituents and tax-paying citizens.

The second research hypothesis which this study was
designed to test stated that a current moorage market
analysis would yield data significantly different from what
one would expect if normal market forces were allowed to operate. This was postulated because of the many rules and regulations governing the harbor, and the feeling that the recreational boaters using Newport Harbor facilities do not exhibit response to price variances in their purchases, catered to a luxury type market. At this juncture, it may prove instructive to elaborate on what is meant by "normal market forces" in this context. For purposes of this study, a "normal market" would be characterized by a relatively high value for price elasticity of demand:

Price elasticity of demand measures the responsiveness of quantity taken of a commodity to changes in its price. **---When demand is inelastic, increases in price increase total receipts, while decreases in price decrease total receipts. When demand is elastic, the opposite results occur when price is increased or decreased. The degree of demand elasticity for a certain good depends on the availability of substitutes, the number of users for the good, the importance of the good in consumers' budgets, and the region of the demand curve within which price moves.**

Additionally, in a normal market, consumers are assumed to be well informed and are thus able to shop around to get the best price for the goods they purchase. In Newport Harbor, the analysis of the current moorage/dockage use statistics showed that the consumers in the area would take the available spaces being leased regardless of the price charged for these spaces. This would seem to indicate a very inelastic price demand for moorings and dock space. The existence of waiting lists for these facilities at some of the firms serves to strengthen this conclusion. Dock
space and mooring areas are scarce commodities due to lack of physical space and local ordinances. If normal market forces were evident, one would expect to find vacancies at the higher priced facilities and full use of the lower priced areas or at least find the cheapest spaces occupied first. This is not the case in Newport Harbor. Of course, to really be sure that price demand is inelastic in the area, it would be necessary to develop a set of time series data which shows how the quantity of facilities taken varies with increases or decreases in price. The trend has been for prices to increase for docking and mooring facilities in the Newport Harbor area simultaneously with an increase in these facilities over the past few years. This does not in itself prove anything because boating has increased greatly in popularity during the same time interval. The main conclusion has to be that there is no evidence of price response and to that extent, the market differs from what economics would lead one to expect. Some of the boaters felt that the price was high in relation to the value received for the expenditure. Others have stated they have been forced to leave the harbor as a result of spiraling costs. While at present there are waiting lists for services in the area sufficient to keep the businesses operating at peak capacity, the market for moorage/dockage in the area is one that should be monitored closely.

Because there is a proven lack of information regarding what facilities are available and what the prices
are at the various firms, the consumers are not aware of differences in price. There may be other reasons for non-response to price. In some instances, the expenditure on boating is a relatively small part of the particular consumer's budget and hence, he or she is not as motivated to shop around and get a good deal. Boaters are also able to perceive the pressure being placed on the available facilities and consequently sometimes make irrational choices in their purchases. For the above reasons, the second research hypothesis was accepted as valid.

The final hypothesis was that more revenue could be generated for the city if transient boaters were given a larger "niche" in the Newport Harbor area, and that fundamental differences existed between the transient and resident user groups. I feel the study indicated this to be the case for several reasons. Around 13,000 transient boats used Newport Harbor facilities last year. These boaters had an average expenditure of around $700.00 during their stay. Thus, it can be seen that transients were responsible for approximately $9,100,000 in primary spending in Newport last season. In my judgement this number is a little too high a figure. Recall that this figure is somewhat higher than the average due to the fact that it represents expenditures by participants in special boating events in the harbor. These people would tend to spend more money than other transients. Many of the firms realize the impact of transient boaters and have adopted a policy of catering more to them. A good
example of this is the new policy at Williams & Manchester Shipyard in reserving 80 percent of its dock space for transients. One must also not lose sight of the fact that these transient expenditures are "outside monies" brought into the Newport economy. The impacts of transient spending are also not limited to the immediate boating industry. Compared to their resident counterparts, the transient boaters are more prone to visit restaurants, gift shops, and other attractions in Newport.

There will certainly be enough boating events going on in Newport this summer to attract transient boaters to the harbor. On May 21st, the first leg of the Bermuda One-Ton race gets under way in Newport. June 8 is the date set for the Newport Cup Regatta at Fort Adams. June 3-5 brings the ever popular Newport Used Boat Show. The preliminary trials for potential America's Cup defenders will be held in Newport on June 18-25. The rest of the season will be similarly filled with nautical events centered in Newport, culminating in the Classic Yacht Regatta on September 2-5, and of course, the 25th America's Cup Match on September 13th.

There are some notable differences between the transient and resident boaters. As noted previously, the residents are more prone to perceive conflict between the groups and are more acutely aware of a pollution problem in the harbor. This may be due to the fact that they are there more often to experience these problems and that transient
boaters have been to other areas with more severe conflict and pollution problems.

While it is true that transient boaters tend to generate more revenue than their resident counterparts, it must be remembered that the resident boaters perceive a conflict between resident and transient boaters over priority in use of the harbor facilities. One respondent from Warwick stated that "marinas give priority to transients—more money there! Tourism will push commercial boats out to another harbor". The city officials and recreational boating firms must be careful not to let their quest for more revenues ostracize the commercial and resident boating populations in Newport Harbor.

II. Recommendations

a) The combined sewage outfall in the northeastern corner of the harbor should either be re-routed or extended sufficiently to allow discharge outside the inner harbor into a region of greater hydrological mixing. The pump out facility at Fort Adams should be repaired and made more easily accessible to recreational boaters.

b) The Waterfront Commission should require that any new or replacement mooring in the Newport Harbor area be some form of multiple mooring. There should be a systematic grouping of this type of moorings such that they are not interfered with by the swinging characteristics of boats on the traditional single moorings. The Brenton Cove mooring area should be converted to a combination mooring and
anchorage area similar to the combination area in the point section of the harbor. This would allow boating visitors desiring to use their own ground tackle a wider latitude in choice of anchoring areas and would afford more shelter from prevailing southwest winds for vessels at anchor.

c) The jetty at the northern extremity of Fort Adams would be an ideal location for a central information and reception station for waterborne tourists visiting Newport Harbor. This station could also house the harbor master in a very visible location with a good vantage point from which to view the harbor activities. A short term tie-up area for boats should be provided at the station. This location was chosen over the Ann Street Pier location suggested in the 1976 CPAE study, because the boater would have to enter the center of the harbor and thread his way through much vessel traffic and several mooring areas before reaching the Ann Street facility. The Fort Adams site would be much easier to visit as it is the outermost entrance point to the harbor.

d) A combination dinghy dock/short-term dock should be constructed at the end of the stone jetty in Kings Park. A shower and restroom facility should be constructed on shore here of sufficient dimensions to handle both the recreational boater and park user populations. This building could also house several coin-operated washing machines.

e) The launching ramps in Kings Park and Fort Adams
should be widened. Additional parking for vehicles with trailers should be provided at both areas. A one-way traffic flow in and out of both areas would help to ease traffic congestion at the launch sites.

f) The harbor navigational aids need to be updated with brighter lights for night vessel traffic. Channels need to be cleared of lobster pots and other foreign materials. Several of the boaters surveyed complained about the presence of lobster pots in the channel areas.

g) One of the most important new elements which should be added to the harbor regime is a waterborne police contingent. There is a real need for trained law enforcement personnel to establish a presence on the water in Newport Harbor. The boat traffic controls, such as the 5 mile per hour speed limit, could fall under the jurisdiction of these officers. This could free the harbor master and his staff for other important duties such as harbor debris removal and helping boaters find appropriate berthing areas for their vessels. Protecting boat owners from theft and vandalism is a job best left to personnel trained specifically for such duties.

As future developmental pressures increase along the harbor waterfront and in the harbor, the City of Newport and the businesses involved in the recreational boating industry in Newport Harbor must strive to maintain a delicate balance. This balance must consider the revenues generated by boating engendered tourism on one hand, and the provision
of facilities for the tax-paying resident boaters on the other. Clearly, this will not be an easy task. It is in matters of this nature where the attitudes and perceptions of the consumers should play a leading role in the decision making process. To this end, this paper has been dedicated.
# TABLE I

Moorage/Dockage Firms In Newport Harbor

<table>
<thead>
<tr>
<th>Goat Island Marina</th>
<th></th>
<th>8000 Linear Feet</th>
<th>N/A</th>
<th>$1.00/Foot/Night (Electrical Hookup Charge—$2.00 For 110 Volt,$5.00 For 220 Volt)</th>
<th>$36.00/Foot For Boat Or Slip, Whichever Is Larger (Contract From May 15—Nov. 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dock Space:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moorings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treadway Inn &amp; Marina</td>
<td></td>
<td>2100 Linear Feet</td>
<td>N/A</td>
<td>$1.25/Foot/Night</td>
<td>$1.25/Foot/Night</td>
</tr>
<tr>
<td>Dock Space:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moorings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Williams &amp; Manchester Shipyard</td>
<td>3500 Linear Feet</td>
<td>N/A</td>
<td>$1.25/Foot/Night</td>
<td>$60.00/Foot</td>
<td></td>
</tr>
<tr>
<td>Dock Space:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moorings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newport Offshore, Ltd.</td>
<td></td>
<td>5000 Linear Feet</td>
<td>N/A</td>
<td>$1.25/Foot/Night</td>
<td>$60.00/Foot</td>
</tr>
<tr>
<td>Dock Space:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moorings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Long Wharf Moorings

<table>
<thead>
<tr>
<th>Dock Space:</th>
<th>Small Dinghy Dock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moorings:</td>
<td>40 Fore And Aft Type</td>
</tr>
<tr>
<td>Transient Rate:</td>
<td>$.75/Foot/Night</td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td>$25.00/ Foot</td>
</tr>
</tbody>
</table>

### Oldport Marine Services

<table>
<thead>
<tr>
<th>Dock Space:</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moorings:</td>
<td>126 (16 Of These Are Transient Moorings)</td>
</tr>
<tr>
<td>Transient Rate:</td>
<td>$15.00/Night</td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td>$12.00/ Foot ($250.00 For Seasonal Launch Service May 15--October 15)</td>
</tr>
</tbody>
</table>

### Newport Yachting Center

<table>
<thead>
<tr>
<th>Dock Space:</th>
<th>5000 Linear Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moorings:</td>
<td>N/A</td>
</tr>
<tr>
<td>Transient Rate:</td>
<td>$1.00/ Foot/Night</td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td>$50.00/ Foot</td>
</tr>
</tbody>
</table>

### Newport Mooring Service

<table>
<thead>
<tr>
<th>Dock Space:</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moorings:</td>
<td>15</td>
</tr>
<tr>
<td>Transient Rate:</td>
<td>$11.00/Night</td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td>$15.00/ Foot (May 15--October 15)</td>
</tr>
</tbody>
</table>

### Dunbar Yachts

<table>
<thead>
<tr>
<th>Dock Space:</th>
<th>Limited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moorings:</td>
<td>13</td>
</tr>
<tr>
<td>Transient Rate:</td>
<td>N/A</td>
</tr>
<tr>
<td>Seasonal Rate:</td>
<td>$12.50/ Foot</td>
</tr>
</tbody>
</table>
Christies
Dock Space: 450 Linear Feet (18 Slips)
Moorings: N/A
Transient Rate: $1.00/Foot/Night
Seasonal Rate: $30.00/Foot

Ida Lewis Yacht Club
Dock Space: N/A
Moorings: 75 (Approx.)
Transient Rate: $10.00/Night
Seasonal Rate: N/A

Newport Yacht Club
Dock Space: 64 Slips
Moorings: N/A
Transient Rate: $.80/Foot/Night ($5.00 Electrical Hookup)
Seasonal Rate: N/A

Bannister's Wharf
Dock Space: 30 Slips
Moorings: N/A
Transient Rate: $1.25/Foot/Night (Electrical Hookup Charge-$2.50 For 110 Volt, $5.00 For 220 Volt)
Seasonal Rate: N/A
## TABLE II

Current Use And Waiting List Figures
For Mooring Space In Newport Harbor

<table>
<thead>
<tr>
<th>Registered Boat Length</th>
<th>Minimum Mushroom Weight Required/Used</th>
<th>Number Of Present Users</th>
<th>Waiting List</th>
<th>Percentage Of Total Waiting List</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>75 lbs.</td>
<td>39</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>16-19</td>
<td>150 lbs.</td>
<td>68</td>
<td>10</td>
<td>11%</td>
</tr>
<tr>
<td>20-22</td>
<td>200 lbs.</td>
<td>95</td>
<td>14</td>
<td>15%</td>
</tr>
<tr>
<td>23-25</td>
<td>250 lbs.</td>
<td>103</td>
<td>19</td>
<td>20%</td>
</tr>
<tr>
<td>26-30</td>
<td>300 lbs.</td>
<td>229</td>
<td>29</td>
<td>31%</td>
</tr>
<tr>
<td>31-35</td>
<td>400 lbs.</td>
<td>99</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>36-40</td>
<td>500 lbs.</td>
<td>169</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>41-50</td>
<td>600 lbs.</td>
<td>21</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>51-65</td>
<td>750 lbs.</td>
<td>36</td>
<td>1 (Total=95)</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>50 lbs.</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 lbs.</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Not Categorized Above)</td>
<td>175 lbs.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>350 lbs.</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>450 lbs.</td>
<td>2 (Total=918)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE III

Current Moorings Use in Newport Harbor by Weight and Residency

<table>
<thead>
<tr>
<th>MOORING WEIGHT</th>
<th>NEWPORT</th>
<th>MIDDLETOWN</th>
<th>PORTSMOUTH</th>
<th>TIVERTON</th>
<th>LITTLE COMPTON</th>
<th>JANESTOWN</th>
<th>OTHER RHODE ISLAND COMMUNITIES</th>
<th>OUT OF STATE</th>
<th>TOTAL BY MOORING WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>27</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>34</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>75</td>
<td>33</td>
<td>10</td>
<td>12</td>
<td>1</td>
<td></td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>100</td>
<td>50</td>
<td>13</td>
<td>8</td>
<td>1</td>
<td></td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>175</td>
<td>46</td>
<td>13</td>
<td>10</td>
<td>1</td>
<td></td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
<td>74</td>
<td>15</td>
<td>5</td>
<td>1</td>
<td>11</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>250</td>
<td>139</td>
<td>29</td>
<td>10</td>
<td>1</td>
<td></td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>300</td>
<td>11</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>350</td>
<td>46</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td></td>
<td>22</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>400</td>
<td>106</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td></td>
<td>27</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>450</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td>4</td>
<td>7</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>500</td>
<td>105</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td></td>
<td>27</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>550</td>
<td>24</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL BY RESIDENCY</td>
<td>586</td>
<td>92</td>
<td>24</td>
<td>3</td>
<td>1</td>
<td>107</td>
<td>104</td>
<td>918</td>
<td></td>
</tr>
</tbody>
</table>

MOORINGS OWNED BY NEWPORT RESIDENTS: 586
MOORINGS OWNED BY NON-RESIDENTS: 332
TOTAL: 918

Source: Newport Bureau of Recreation
## TABLE IV

### Proposed Increase in Newport Harbor Mooring Fees by Weight and Residency

<table>
<thead>
<tr>
<th>MOORING WEIGHTS</th>
<th>NUMBER OF MOORINGS</th>
<th>FEE PER MOORING</th>
<th>REVENUE</th>
<th>FEE PER MOORING</th>
<th>REVENUE</th>
<th>INCREASE OVER PRESENT SYSTEM (per mooring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEWPORT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>0</td>
<td>$ 5.00</td>
<td>$ -0-</td>
<td>$ 30.00</td>
<td>$ -0-</td>
<td>$ 25.00</td>
</tr>
<tr>
<td>75</td>
<td>27</td>
<td>7.50</td>
<td>202.00</td>
<td>30.00</td>
<td>810.00</td>
<td>22.50</td>
</tr>
<tr>
<td>100</td>
<td>33</td>
<td>10.00</td>
<td>330.00</td>
<td>30.00</td>
<td>990.00</td>
<td>20.00</td>
</tr>
<tr>
<td>150</td>
<td>50</td>
<td>15.00</td>
<td>750.00</td>
<td>30.00</td>
<td>1,500.00</td>
<td>12.50</td>
</tr>
<tr>
<td>175</td>
<td>1</td>
<td>17.50</td>
<td>17.50</td>
<td>30.00</td>
<td>30.00</td>
<td>15.00</td>
</tr>
<tr>
<td>200</td>
<td>66</td>
<td>20.00</td>
<td>1,320.00</td>
<td>30.00</td>
<td>1,980.00</td>
<td>10.00</td>
</tr>
<tr>
<td>250</td>
<td>74</td>
<td>25.00</td>
<td>1,850.00</td>
<td>30.00</td>
<td>2,220.00</td>
<td>5.00</td>
</tr>
<tr>
<td>300</td>
<td>139</td>
<td>30.00</td>
<td>4,170.00</td>
<td>45.00</td>
<td>6,255.00</td>
<td>15.00</td>
</tr>
<tr>
<td>350</td>
<td>11</td>
<td>35.00</td>
<td>385.00</td>
<td>52.50</td>
<td>577.50</td>
<td>17.50</td>
</tr>
<tr>
<td>400</td>
<td>46</td>
<td>40.00</td>
<td>1,840.00</td>
<td>60.00</td>
<td>2,760.00</td>
<td>20.00</td>
</tr>
<tr>
<td>450</td>
<td>0</td>
<td>45.00</td>
<td>-0-</td>
<td>67.50</td>
<td>-0-</td>
<td>22.50</td>
</tr>
<tr>
<td>500</td>
<td>106</td>
<td>50.00</td>
<td>5,300.00</td>
<td>75.00</td>
<td>7,950.00</td>
<td>25.00</td>
</tr>
<tr>
<td>600</td>
<td>9</td>
<td>60.00</td>
<td>540.00</td>
<td>90.00</td>
<td>810.00</td>
<td>30.00</td>
</tr>
<tr>
<td>750</td>
<td>24</td>
<td>75.00</td>
<td>1,800.00</td>
<td>112.50</td>
<td>2,700.00</td>
<td>37.50</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>586</strong></td>
<td><strong>$18,505.00</strong></td>
<td></td>
<td><strong>$28,582.50</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| NON-RESIDENTS   |                    |                 |         |                 |         |                                          |
| 50              | 3                  | 5.00            | 15.00   | 40.00           | 120.00  | 35.00                                    |
| 75              | 12                 | 7.50            | 90.00   | 40.00           | 480.00  | 32.50                                    |
| 100             | 1                  | 10.00           | 10.00   | 40.00           | 40.00   | 30.00                                    |
| 150             | 18                 | 15.00           | 270.00  | 40.00           | 720.00  | 25.00                                    |
| 175             | 0                  | 17.50           | -0-     | 40.00           | -0-     | 22.50                                    |
| 200             | 29                 | 20.00           | 580.00  | 40.00           | 1,160.00| 20.00                                    |
| 250             | 29                 | 25.00           | 725.00  | 40.00           | 1,160.00| 15.00                                    |
| 300             | 90                 | 30.00           | 2,700.00| 60.00           | 5,400.00| 30.00                                    |
| 350             | 8                  | 35.00           | 280.00  | 70.00           | 560.00  | 35.00                                    |
| 400             | 53                 | 40.00           | 2,120.00| 80.00           | 4,240.00| 40.00                                    |
| 450             | 2                  | 45.00           | 90.00   | 90.00           | 180.00  | 45.00                                    |
| 500             | 63                 | 50.00           | 3,150.00| 100.00          | 6,300.00| 50.00                                    |
| 600             | 12                 | 60.00           | 720.00  | 120.00          | 1,440.00| 60.00                                    |
| 750             | 12                 | 75.00           | 900.00  | 150.00          | 1,800.00| 75.00                                    |
| **TOTAL**       | **332**            | **$11,650.00**  |         | **$23,600.00**  |         |                                          |

Source: Newport Bureau of Recreation
### TABLE V

**Transient Boater Frequency**

**Summary Statistics**

<table>
<thead>
<tr>
<th>Transportation to Newport</th>
<th>Frequency</th>
<th>Cum. Freq.</th>
<th>Percent</th>
<th>Cum. Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air/Boat</td>
<td>1</td>
<td>1</td>
<td>0.629</td>
<td>0.629</td>
</tr>
<tr>
<td>Air/Car</td>
<td>3</td>
<td>4</td>
<td>1.887</td>
<td>2.516</td>
</tr>
<tr>
<td>Boat</td>
<td>136</td>
<td>140</td>
<td>85.535</td>
<td>88.050</td>
</tr>
<tr>
<td>Car</td>
<td>13</td>
<td>153</td>
<td>8.176</td>
<td>96.226</td>
</tr>
<tr>
<td>Car/Boat</td>
<td>6</td>
<td>159</td>
<td>3.774</td>
<td>100.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1.887</td>
<td>1.887</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>19</td>
<td>10.063</td>
<td>11.950</td>
</tr>
<tr>
<td>3</td>
<td>84</td>
<td>103</td>
<td>52.830</td>
<td>64.780</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
<td>143</td>
<td>25.157</td>
<td>89.937</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>153</td>
<td>6.289</td>
<td>96.226</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>155</td>
<td>1.258</td>
<td>97.484</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>156</td>
<td>0.629</td>
<td>98.113</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>157</td>
<td>0.629</td>
<td>98.742</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>158</td>
<td>0.629</td>
<td>99.371</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>159</td>
<td>0.629</td>
<td>100.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>38</td>
<td>38</td>
<td>24.051</td>
<td>24.051</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>46</td>
<td>5.063</td>
<td>29.114</td>
</tr>
<tr>
<td>4</td>
<td>65</td>
<td>111</td>
<td>41.139</td>
<td>70.253</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>123</td>
<td>7.595</td>
<td>77.848</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>135</td>
<td>7.595</td>
<td>85.443</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>140</td>
<td>3.165</td>
<td>88.608</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>148</td>
<td>5.063</td>
<td>93.671</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>150</td>
<td>1.266</td>
<td>94.937</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>153</td>
<td>1.899</td>
<td>96.835</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>154</td>
<td>0.633</td>
<td>97.468</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>155</td>
<td>0.633</td>
<td>98.101</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>156</td>
<td>0.633</td>
<td>98.734</td>
</tr>
<tr>
<td>20</td>
<td>1</td>
<td>157</td>
<td>0.633</td>
<td>99.367</td>
</tr>
<tr>
<td>21</td>
<td>1</td>
<td>158</td>
<td>0.633</td>
<td>100.000</td>
</tr>
</tbody>
</table>

*Source: Statistical Analysis System*

(cont'd)
### TABLE V (cont'd)

The Cost of Dockage/Moorage Facilities in Newport Harbor is High Relative to Other Harbors with Similar Facilities.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>17</td>
<td>17</td>
<td>10.692</td>
</tr>
<tr>
<td>Disagree</td>
<td>12</td>
<td>29</td>
<td>7.547</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>19</td>
<td>48</td>
<td>11.950</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>46</td>
<td>94</td>
<td>28.931</td>
</tr>
<tr>
<td>Agree</td>
<td>65</td>
<td>159</td>
<td>40.881</td>
</tr>
</tbody>
</table>

There is a Conflict Between Resident and Transient Boaters Concerning Priority Over Use of Harbor Facilities.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>73</td>
<td>73</td>
<td>45.912</td>
</tr>
<tr>
<td>Disagree</td>
<td>30</td>
<td>103</td>
<td>18.868</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>25</td>
<td>128</td>
<td>15.723</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>11</td>
<td>139</td>
<td>6.918</td>
</tr>
<tr>
<td>Agree</td>
<td>20</td>
<td>159</td>
<td>12.579</td>
</tr>
</tbody>
</table>

Compared to Other Harbors You Have Visited, How Serious a Problem do you Think Pollution is in Newport Harbor?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>29</td>
<td>29</td>
<td>18.239</td>
</tr>
<tr>
<td>Not Serious</td>
<td>66</td>
<td>95</td>
<td>41.509</td>
</tr>
<tr>
<td>Somewhat Serious</td>
<td>46</td>
<td>141</td>
<td>28.931</td>
</tr>
<tr>
<td>Serious</td>
<td>18</td>
<td>159</td>
<td>11.321</td>
</tr>
</tbody>
</table>

There is a Boat Traffic/Congestion Problem in Newport Harbor.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>11</td>
<td>11</td>
<td>6.918</td>
</tr>
<tr>
<td>Disagree</td>
<td>19</td>
<td>30</td>
<td>11.950</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>26</td>
<td>56</td>
<td>16.352</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>55</td>
<td>111</td>
<td>34.591</td>
</tr>
<tr>
<td>Agree</td>
<td>48</td>
<td>159</td>
<td>30.189</td>
</tr>
</tbody>
</table>

Commercial Fishing and Recreational Boating are Compatible Uses of the Newport Harbor Waterfront.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>12</td>
<td>12</td>
<td>7.547</td>
</tr>
<tr>
<td>Disagree</td>
<td>13</td>
<td>25</td>
<td>8.176</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>23</td>
<td>48</td>
<td>14.465</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>41</td>
<td>89</td>
<td>25.786</td>
</tr>
<tr>
<td>Agree</td>
<td>70</td>
<td>159</td>
<td>44.025</td>
</tr>
</tbody>
</table>

(cont'd)
TABLE V (cont'd)

A More Efficient Information System for Boaters Needs to be Developed Within the Newport Harbor Area.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>32</td>
<td>32</td>
<td>20.126</td>
<td>20.126</td>
</tr>
<tr>
<td>Disagree</td>
<td>17</td>
<td>49</td>
<td>10.692</td>
<td>30.818</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>19</td>
<td>68</td>
<td>11.950</td>
<td>42.767</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>40</td>
<td>108</td>
<td>25.157</td>
<td>67.925</td>
</tr>
<tr>
<td>Agree</td>
<td>51</td>
<td>159</td>
<td>32.075</td>
<td>100.000</td>
</tr>
</tbody>
</table>

A Traffic Control Scheme for Boat Traffic Within the Harbor Needs to be Developed.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>19</td>
<td>19</td>
<td>12.025</td>
<td>12.025</td>
</tr>
<tr>
<td>Disagree</td>
<td>35</td>
<td>54</td>
<td>22.152</td>
<td>34.177</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>25</td>
<td>79</td>
<td>15.823</td>
<td>50.000</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>37</td>
<td>116</td>
<td>23.418</td>
<td>73.418</td>
</tr>
<tr>
<td>Agree</td>
<td>42</td>
<td>158</td>
<td>26.582</td>
<td>100.000</td>
</tr>
</tbody>
</table>
### TABLE VI

**Resident Boater Frequency**

**Summary Statistics**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.639</td>
<td>1.639</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>15</td>
<td>22.951</td>
<td>24.590</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>29</td>
<td>22.951</td>
<td>47.541</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>49</td>
<td>32.787</td>
<td>80.328</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>55</td>
<td>9.836</td>
<td>90.164</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>58</td>
<td>4.918</td>
<td>95.082</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>60</td>
<td>3.279</td>
<td>98.361</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>61</td>
<td>1.639</td>
<td>100.000</td>
</tr>
</tbody>
</table>

The Cost of Dockage/Moorage Facilities in Newport Harbor is High Relative to Other Harbors with Similar Facilities.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>12</td>
<td>12</td>
<td>20.000</td>
<td>20.000</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>18</td>
<td>10.000</td>
<td>30.000</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>8</td>
<td>26</td>
<td>13.333</td>
<td>43.333</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>7</td>
<td>33</td>
<td>11.667</td>
<td>55.000</td>
</tr>
<tr>
<td>Agree</td>
<td>27</td>
<td>60</td>
<td>45.000</td>
<td>100.000</td>
</tr>
</tbody>
</table>

There is a Conflict Between Resident and Transient Boaters Concerning Priority Over Use of Harbor Facilities.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>10</td>
<td>10</td>
<td>16.393</td>
<td>16.393</td>
</tr>
<tr>
<td>Disagree</td>
<td>13</td>
<td>23</td>
<td>21.311</td>
<td>37.705</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>6</td>
<td>29</td>
<td>9.836</td>
<td>47.541</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>11</td>
<td>40</td>
<td>18.033</td>
<td>65.574</td>
</tr>
<tr>
<td>Agree</td>
<td>21</td>
<td>61</td>
<td>34.426</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Compared to Other Harbors you Have Visited, How Serious a Problem Do You Think Pollution Is.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>2</td>
<td>2</td>
<td>3.279</td>
<td>3.279</td>
</tr>
<tr>
<td>Not Serious</td>
<td>20</td>
<td>22</td>
<td>32.787</td>
<td>36.066</td>
</tr>
<tr>
<td>Somewhat Serious</td>
<td>24</td>
<td>46</td>
<td>39.344</td>
<td>75.410</td>
</tr>
<tr>
<td>Serious</td>
<td>15</td>
<td>61</td>
<td>24.590</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Source: Statistical Analysis System (cont'd)
There is a Boat Traffic Congestion Problem in Newport Harbor.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>11</td>
<td>11</td>
<td>18.033</td>
<td>18.033</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>9</td>
<td>20</td>
<td>14.754</td>
<td>32.787</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>19</td>
<td>39</td>
<td>31.148</td>
<td>63.934</td>
</tr>
<tr>
<td>Agree</td>
<td>22</td>
<td>61</td>
<td>36.066</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Commercial Fishing and Recreational Boating are Compatible Uses of the Newport Harbor Waterfront.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>9</td>
<td>9</td>
<td>14.754</td>
<td>14.754</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>6</td>
<td>15</td>
<td>9.836</td>
<td>24.590</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>10</td>
<td>25</td>
<td>16.393</td>
<td>40.984</td>
</tr>
<tr>
<td>Agree</td>
<td>36</td>
<td>61</td>
<td>59.016</td>
<td>100.000</td>
</tr>
</tbody>
</table>

A More Efficient Information System for Boaters Needs to be Developed Within the Newport Harbor Area.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>13</td>
<td>13</td>
<td>21.311</td>
<td>21.311</td>
</tr>
<tr>
<td>Disagree</td>
<td>11</td>
<td>24</td>
<td>18.033</td>
<td>39.344</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>1</td>
<td>25</td>
<td>1.639</td>
<td>40.984</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>9</td>
<td>34</td>
<td>14.754</td>
<td>55.738</td>
</tr>
<tr>
<td>Agree</td>
<td>27</td>
<td>61</td>
<td>44.262</td>
<td>100.000</td>
</tr>
</tbody>
</table>

A Traffic Control Scheme for Boat Traffic Within the Harbor Needs to be Developed.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No Opinion</td>
<td>5</td>
<td>5</td>
<td>8.197</td>
<td>8.197</td>
</tr>
<tr>
<td>Disagree</td>
<td>20</td>
<td>25</td>
<td>32.787</td>
<td>40.984</td>
</tr>
<tr>
<td>Moderately Disagree</td>
<td>7</td>
<td>32</td>
<td>11.475</td>
<td>52.459</td>
</tr>
<tr>
<td>Moderately Agree</td>
<td>10</td>
<td>42</td>
<td>16.393</td>
<td>68.852</td>
</tr>
<tr>
<td>Agree</td>
<td>19</td>
<td>61</td>
<td>31.148</td>
<td>100.000</td>
</tr>
</tbody>
</table>
TABLE VII
Results of Chi Square Test

<table>
<thead>
<tr>
<th></th>
<th>Transient</th>
<th>Resident</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>111</td>
<td>34</td>
<td>125</td>
</tr>
<tr>
<td>Disagree</td>
<td>31</td>
<td>14</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>142</td>
<td>48</td>
<td>190</td>
</tr>
</tbody>
</table>

The cost of dockage/moorage facilities in Newport Harbor is high relative to other harbors with similar facilities.

\( \chi^2 = .56 \)

<table>
<thead>
<tr>
<th></th>
<th>Transient</th>
<th>Resident</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>31</td>
<td>32</td>
<td>63</td>
</tr>
<tr>
<td>Disagree</td>
<td>55</td>
<td>19</td>
<td>74</td>
</tr>
<tr>
<td>Total</td>
<td>86</td>
<td>51</td>
<td>137</td>
</tr>
</tbody>
</table>

There is a conflict between resident and transient boaters concerning priority over use of the harbor facilities.

\( \chi^2 = 8.14 \)

<table>
<thead>
<tr>
<th></th>
<th>Transient</th>
<th>Resident</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious</td>
<td>18</td>
<td>15</td>
<td>33</td>
</tr>
<tr>
<td>Somewhat Serious</td>
<td>46</td>
<td>24</td>
<td>70</td>
</tr>
<tr>
<td>Not Serious</td>
<td>66</td>
<td>20</td>
<td>86</td>
</tr>
<tr>
<td>Total</td>
<td>130</td>
<td>59</td>
<td>189</td>
</tr>
</tbody>
</table>

Compared to other harbors you have visited, how serious a problem do you think pollution is in Newport Harbor?

\( \chi^2 = 5.96 \)

<table>
<thead>
<tr>
<th></th>
<th>Transient</th>
<th>Resident</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>103</td>
<td>41</td>
<td>144</td>
</tr>
<tr>
<td>Disagree</td>
<td>45</td>
<td>20</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
<td>61</td>
<td>209</td>
</tr>
</tbody>
</table>

There is a boat traffic/congestion problem in Newport Harbor.

\( \chi^2 = .03 \)
TABLE VII (Cont.)

<table>
<thead>
<tr>
<th>Agree</th>
<th>Transient</th>
<th>Resident</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>111</td>
<td>46</td>
<td>157</td>
</tr>
<tr>
<td>Disagree</td>
<td>36</td>
<td>15</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>147</td>
<td>61</td>
<td>208</td>
</tr>
</tbody>
</table>

Commercial fishing and recreational boating are compatible uses of the Newport Harbor waterfront.

$\chi^2 = .03$

<table>
<thead>
<tr>
<th>Agree</th>
<th>Transient</th>
<th>Resident</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>91</td>
<td>36</td>
<td>127</td>
</tr>
<tr>
<td>Disagree</td>
<td>36</td>
<td>12</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>127</td>
<td>48</td>
<td>175</td>
</tr>
</tbody>
</table>

A more efficient information system for boaters needs to be developed within the Newport Harbor area.

$\chi^2 = .06$

<table>
<thead>
<tr>
<th>Agree</th>
<th>Transient</th>
<th>Resident</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79</td>
<td>29</td>
<td>108</td>
</tr>
<tr>
<td>Disagree</td>
<td>55</td>
<td>27</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>134</td>
<td>56</td>
<td>190</td>
</tr>
</tbody>
</table>

A traffic control scheme for boat traffic within the harbor (both commercial & recreational) needs to be developed.

$\chi^2 = .56$
FIRMS PROVIDING RECREATIONAL MOORING/DOCKING FACILITIES IN NEWPORT HARBOR

1=Goat Island Marina.
2=Newport Treadway Inn & Marina.
3=Williams & Manchester Shipyard.
4=Newport Offshore Ltd.
5=Long Wharf Moorings.
6=Oldport Marine Services.
7=Newport Yachting Center.
8=Newport Mooring Service.
9=Dunbar Yachts.
10=Christie's (restaurant).
11=Ida Lewis Yacht Club.
12=Newport Yacht Club.

13. Bannister's Wharf

Base map source: Zoning Map, the City of Newport, RI, 1968
FIGURE 2

Number of Transient Boats Using Dock Facilities in Newport During the 1982 Boating Season

COST ($/foot/night)
FIGURE 3

Number of Boats Using Dock Facilities in Newport on a Seasonal Basis in 1982

COST ($/foot/season)
FIGURE 4

DESIGNATED MOORING & ANCHORAGE AREAS IN NEWPORT HARBOR

P=Point mooring and anchorage area.
N=Newport mooring area.
S=Spindle mooring area.
A=Temporary anchorage area.
IL=Ida Lewis mooring area.
B=Brenton Cove mooring area.

*(Area enclosed by dashed lines is a cable area—no mooring or anchoring permitted.)

Source: Newport Harbor Rules & Regulations, Newport Bureau of Recreation
Current Mooring Use and Waiting List in Newport Harbor by Cost

COST (dollars/year)

Source: Newport Bureau of Recreation
FIGURE 6

Transient Mooring Use in Newport Harbor During the 1982 Season by Price

COST (dollars/night)
FIGURE 7

Seasonal Mooring Use in Newport Harbor During 1982 by Price

COST ($/foot/season)

BOATS x10
FIGURE 8

Geographic Extent of Market Area for Transient Boaters Using Newport Harbor
FIGURE 9

Resultant Vectors and Mean Distance Perimeters for Transient Boaters Using Newport Harbor

(A' and V' represent data for traveling distances of less than 500 miles)
FOOTNOTES


5. Ibid.


7. Peter Dunning, Owner/Manager of the Goat Island Marina, Personal interview, Newport, RI; March 14, 1983.


10. Sarah Callaghan et al., Rhode Island's Vacation Climate, (URI Marine Memorandum 46, NOAA Office of Sea Grant, Department of Commerce, and Sea Grant Marine Advisory Service) University of Rhode Island, 1975, p. 7.

11. Ibid.

12. Ibid., p. 6.
13 Keiffer, p. 3.


16 Bill Gurney, Director of Newport Bureau of Recreation, Interview, February 8, 1983.


18 Present Water Quality Condition and Sources of Pollution State of Rhode Island and Providence Plantations, (Department of Health Division of Water Pollution Control, 1975).

19 Ibid.

20 Bob Richardson, State of Rhode Island and Providence Plantations, Department of Health, Telephone interview, March 22, 1983.

21 Neil Ross, et al., Cruising Guide to Historic Rhode Island (Sea Grant Marine Advisory Service, University of Rhode Island, 1976.)

22 Gurney, supra.

23 Ross, supra.


27 Ibid.
Andrew J. MacGowan, Co-owner, Newport Offshore, Ltd., Interview, March 14, 1983.


Bozender, supra.


Ibid.


Ibid.


Murphy, supra.

Ibid., p. 219.


Ibid.


Murphy, p. 224.

Zapata, supra.

Ibid.

Gurney, op. cit.


46 Ibid., p. 276.

47 Borholm, supra.

48 Ibid.

49 Ibid., p. 19.


51 Ibid., p. 36.

52 Ibid., p. 53.


55 Ibid., Sec 4, p. 1.

56 Ibid., Sec 4, p. 3.

57 Simpson et al., pp. 95-123.


59 Ibid., p. 23.

60 Dennis Muniak et al., A Plan For The Newport Waterfront (Community Planning and Area Development, University of Rhode Island Marine Bulletin 35, 1980).

61 Ibid., pp. 35-36.

62 Ibid., p. 46.

63 Robert E. Litton, "Questions Posed by Management", Proceedings of a Forum on Recreational
Access to the Coastal Zone, (Institute for Marine and Coastal Studies Sea Grant Marine Advisory Services, University of Southern California, 1980), p. 8.

Simpson, p. 21.

Hastings, supra.

Boating in Rhode Island (Rhode Island Development Council Providence, RI, 1979), p. 8.

Rhode Island Department of Parks and Recreation, Fort Adams Office, Telephone interview, March 28, 1983.

Collins and Sedgwick, pp. 60-61.

Base map derived from James S. Chrien et al., Zoning Map the City of Newport, RI, 1968.

Jock West, supra.

Dunning, supra.

Ibid.


John Ayer, Manager, Williams and Manchester Shipyard, Personal interview, March 14, 1983.

Ibid.

Bob Connors Co-owner, Newport Offshore, Ltd., Interview, March, 1983.

Ibid.

Ibid.

Ibid.

Jock West, supra.

Tim Tyrrell The Economic Impact of the Newport Yachting Center (Department of Resource Economics, University of Rhode Island, January 24, 1983), p. 27.

Jock West, op. cit.

Al Millington, Dock Manager, Christies Restaurant, Telephone interview, March, 1983.

Joan Sanchez, Dockmaster, Fannister's Wharf.
Telephone interview, March, 1983.

Manager of Newport Yacht Club, Telephone interview, March 18, 1983.

Ayer, supra.

Gurney, supra.


Hastings, supra.

Newport City Code: Chapter 234.11a


Newport City Code: Chapter 234.11b-d.

Newport Harbor Rules and Regulations, p. 5.

Hastings, supra.

Hastings, cp. cit.


Ron Ackman, Manager, Oldport Marine Services, Interview, March, 1983.

Bolender, op. cit.

Gurney, op. cit.

Ackman, supra.

Bolender, cp. cit.

Ibid.

Ackman, supra.

Gray, supra.

Manager, Ida Lewis Yacht Club, Telephone interview, March 15, 1983.
Joan Sanchez, Manager, Dunbar Yachts, Telephone interview, March, 1983.

MacGowan, op. cit.

Ayer, supra.

Gray, op. cit.

Collins and Sedgwick, p. 62.

Newport City Code, Chapter 234-04-235-05.


Ackman, supra.

Ibid.

Hastings, op. cit.


Muniak, supra.

Lansing and Morgan, p. 3.


Tyrell, op. cit., p. 23.


Ibid., p. 598-601.

J. West, supra.

Gurney, op. cit.

127 Ibid., p. 30.

128 Ackman, op. cit.


131 Ibid., p. 249.


Dear Boater:

The University of Rhode Island is conducting a study of Newport Harbor and the Newport Yachting Center's activities over the past year. There are two purposes of the study: 1) to provide bases for plans to improve the harbor generally, and 2) to ensure that the NYC receives appropriate recognition for helping the local economy.

The Yachting Center has endorsed our study and over the past few months we have surveyed visitors and exhibitors at each of its boat shows. They have given us your name as a participant in either the Pearson, Sabre, Motor Boating and Sailing/Trawler, Viking, C&C, or Swan event. To complete our study, we need your help in determining the economic impacts of the boating event you attended.

We would like you to fill out the enclosed questionnaire and return it to us in the prepaid envelope. We do not want your name or any form of identification, and be assured that your responses will be treated confidentially.

Thank you in advance for your help.

Sincerely yours,

Timothy J. Tyrrell
Ph.D. Economist
(for Dr. Niels Rocholm)

APPENDIX A
1. Where did your trip to the boating event originate from?
   In RI (town) ___________________________ Outside RI (town, state) ___________________________

2. How did you get to the boating event?

3. About how much is your round trip mileage?

4. How many days did you attend the boating event?

5. How many persons were in your party?

6. What were your marina and docking fees while at the boating event? $____________________

7. How much did you spend on fuel and any other boat related expenses (in Newport) for the trip? $____________________

8. Did you incur any expenses for land transportation while here? $____________________

9. Did you stay in a Newport hotel or motel?
   Yes__ How much did you spend in Newport on lodging for your party? $____________________

10. What did you spend in Newport for meals (groceries & restaurant) for your party? $____________________

11. How much did you spend in Newport on entertainment—such as sightseeing, night clubs, etc. for your party? $____________________

12. Are there any other expenses you had in Newport as a result of your visit to the boating event—such as cost of gifts, souveniers, other shopping, etc.? *not admission costs* $____________________

13. The cost of dockage/moorage facilities in Newport Harbor is high relative to other harbors with similar facilities:
   Agree__ Moderately Agree__ Moderately Disagree__ Disagree__ No Opinion

14. There is a conflict between resident and transient boaters concerning priority over use of the harbor facilities:
   Agree__ Moderately Agree__ Moderately Disagree__ Disagree__ No Opinion

15. Compared to other harbors you have visited, how serious a problem do you think pollution is in Newport Harbor?
   Serious__ Somewhat Serious__ Not Serious__ No Opinion

16. There is a boat traffic/congestion problem in Newport Harbor:
   Agree__ Moderately Agree__ Moderately Disagree__ Disagree__ No Opinion

17. Commercial fishing and recreational boating are compatible uses of the Newport Harbor waterfront:
   Agree__ Moderately Agree__ Moderately Disagree__ Disagree__ No Opinion

18. A more efficient information system for boaters needs to be developed within the Newport Harbor area:
   Agree__ Moderately Agree__ Moderately Disagree__ Disagree__ No Opinion

19. A traffic control scheme for boat traffic within the harbor (both commercial & recreational) needs to be developed:
   Agree__ Moderately Agree__ Moderately Disagree__ Disagree__ No Opinion

20. Open-ended question: Are there any improvements you could suggest concerning future development in Newport Harbor?

February 23, 1983

Dear Boater:

I am a graduate student conducting research for my Master's thesis here at the University of Rhode Island. Part of this research involves a survey of recreational boaters who use Newport Harbor and its facilities.

I have sampled a segment of the boating population which uses the harbor on a transient basis only and feel it would be instructive to contrast these findings with those generated by full-time resident harbor users.

Since you have been identified to me as the owner of a full-time mooring in the harbor, your responses to the attached questionnaire would be most beneficial in this regard. Would you please take a moment to fill out the one page questionnaire and return it in the enclosed prepaid envelope? I do not need your name or any form of identification, and be assured that your responses will be treated confidentially.

Thank you in advance for your help.

Sincerely yours,

[Signature]

Dave Burrage

DB:db
Attachment
Enclosure

APPENDIX B
1. Where do you live? In RI (town) __________ Outside RI (town, state) __________

2. When you use your boat, how many people are usually in your party? __________

3. The cost of dockage/moorage facilities in Newport Harbor is high relative to other harbors with similar facilities:
   - Agree
   - Moderately Agree
   - Moderately Disagree
   - Disagree
   - No Opinion

4. There is a conflict between resident and transient boaters concerning priority over use of the harbor facilities:
   - Agree
   - Moderately Agree
   - Moderately Disagree
   - Disagree
   - No Opinion

5. Compared to other harbors you have visited, how serious a problem do you think pollution is in Newport Harbor?
   - Serious
   - Somewhat Serious
   - Not Serious
   - No Opinion

6. There is a boat traffic/congestion problem in Newport Harbor:
   - Agree
   - Moderately Agree
   - Moderately Disagree
   - Disagree
   - No Opinion

7. Commercial fishing and recreational boating are compatible uses of the Newport Harbor waterfront:
   - Agree
   - Moderately Agree
   - Moderately Disagree
   - Disagree
   - No Opinion

8. A more efficient information system for boaters needs to be developed within the Newport Harbor area:
   - Agree
   - Moderately Agree
   - Moderately Disagree
   - Disagree
   - No Opinion

9. A traffic control scheme for boat traffic within the harbor (both commercial & recreational) needs to be developed:
   - Agree
   - Moderately Agree
   - Moderately Disagree
   - Disagree
   - No Opinion

10. Open-ended question: Are there any improvements you could suggest concerning future development in Newport Harbor?
    __________________________________________________________________________
    __________________________________________________________________________
    __________________________________________________________________________
    __________________________________________________________________________
Bibliography


Callaghan, Sarah et al. RI: URI Marine Memorandum 46. NOAA Office of Sea Grant, Department of Commerce, and Sea Grant Advisory Service, 1975.


Ditton, Robert B. "Coastal Recreation Research: A Past, Present and Future Perspective." Recreation-Marine Promise: Proceedings, Discussion and Overview of the


Managing the Nation's Coast-Biennial Report to the Congress On Coastal Zone Management—Fiscal Years 1980 and 1981.


O'Brien, James S. Zoning Map, the City of Newport, RI. Newport, RI: 1968.


Present Water Quality Condition and Sources of Pollution. Providence, RI: State of Rhode Island and Providence Plantations Department of Health Division of Water Pollution Control, 1975.


Water Quality Regulations for Water Pollution Control Providence, RI: State of Rhode Island Division of Water Resources Department of Environmental Management, 1981.


Interviews


Sanchez, Joan. Dockmaster, Bannister's Wharf. Telephone