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Narragansett Bay Issue Assessment:

Public Perceptions 89pp

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Narragansett Bay Estuary Program

**NARRAGANSETT BAY ISSUE ASSESSMENT:
PUBLIC PERCEPTIONS**

Submitted by the:

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FOREWORD

The United States Congress created the National Estuary Program in 1984, citing its concern for the "health and ecological integrity" of the nation's estuaries and estuarine resources. Narragansett Bay was selected for inclusion in the National Estuary Program in 1984 and designated an "estuary of national significance" in 1988. The Narragansett Bay Project (NBP) was established in 1985. Under the joint sponsorship of the U.S. Environmental Protection Agency and the Rhode Island Department of Environmental Management, the NBP's mandate is to direct a five-year program of research and planning focussed on managing Narragansett Bay and its resources for future generations. The NBP will develop a comprehensive management plan by December, 1990, which will recommend actions to improve and protect the Bay and its natural resources.

The NBP has established the following seven priority issues for Narragansett Bay:

- * management of fisheries
- * nutrients and potential for eutrophication
- * impacts of toxic contaminants
- * health and abundance of living resources
- * health risk to consumers of contaminated seafood
- * land-based impacts on water quality
- * recreational uses

The NBP is taking an ecosystem approach to address these problems and has funded research that will help to improve our understanding of various aspects of these priority problems. The Project is also working to expand and coordinate existing programs among state agencies, governmental institutions, and academic researchers in order to apply research findings to the practical needs of managing the Bay and improving the environmental quality of its watershed.

This report represents the technical results of an investigation performed for the Narragansett Bay Project. The information in this document has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement #CX812768 to the Rhode Island Department of Environmental Management. It has been subject to the Agency's and the Narragansett Bay Project's peer and administrative review and has been accepted for publication by the Management Committee of the Narragansett Bay Project. The results and conclusions contained herein are those of the author(s), and do not necessarily represent the views or recommendations of the NBP. Final recommendations for management actions will be based upon the results of this and other investigations.

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SUMMARY

In order to gain information to inform its decisions, the Narragansett Bay Project contracted with the Center for Environmental Studies at Brown University to survey users of the Bay and the general public to identify their Bay-related concerns and aspirations. In this chapter we summarize what we judge to be our most significant findings. The chapters which follow present our study design (Chapter 1), results of interviews with organized user groups (Chapter 2) and of a telephone survey of the general public (Chapter 3), finishing with a review and an analysis of our results (Chapter 4).

Comprehensive Policy for Narragansett Bay Management

Many users recognize the lack of a comprehensive policy governing the use of the Bay. They believe that the creation of such a policy should be the highest priority of the state and its regulatory agencies: the Department of Environmental Management and the Coastal Resources Management Council. This policy should provide adequate guidance for management and a proper structure for the resolution of conflicts over Bay use. General opinion is that conflicts will multiply as Bay use increases. While case-by-case decision-making resolves immediate problems, it ignores the potential damage of cumulative effects.

Bay Pollution

Our survey results and our interviews indicated that the public believes that pollution is the most significant problem facing Narragansett Bay. Users want to protect and enhance the aesthetic value of the Bay and the health of its ecosystem and they complain that pollution has adversely affected a broad range of uses of the Bay. Many users advocated balancing uses of the water in such a way that the Bay can be kept clean and available for recreational and commercial uses. They object to the use of the Bay as a waste receptor because this use degrades water quality and infringes on all other uses.

Our survey results show that 46% of the public say that they would use the Bay more if it were cleaner. Further, the public says it is willing to sacrifice jobs and tolerate increased housing and service costs if necessary in order to prevent possible increases in pollution caused by increased development. Most organized user groups also want a cleaner Bay. Recreational users, environmentalists and fishermen would like to see improved sewage treatment. Marina owners and recreational boaters would also like to see facilities available for boaters to pump out their holding tanks.

Environmentalists were particularly concerned about the effect of toxic pollutants on the ecosystem and emphasized the need to enforce pre-treatment regulations. In our survey, industry was most often cited as the largest source of pollution in the state and 76% of the public stated that industry should have to pay to clean up its own wastewater. A representative of an indus-

try which is in compliance with pre-treatment regulations saw a need for stricter pre-treatment enforcement. However, an electroplater who is not in compliance complained that the regulations are too demanding and the technology is too expensive. Research is needed to investigate this claim.

Risk from Contaminated Fish and Shellfish

The public is very concerned about health risks associated with eating contaminated fish. "Dangers associated with eating contaminated fish and shellfish from the Bay" was cited as the second most important among those Bay problems which we asked the public to assess; the mean response on a scale of 1 to 5 was 4.3. Sixty-two percent of respondents were aware of health risks from shellfish, although only 5% had experienced them directly. Eighty-five percent of the public believes that research on the risk of eating fish and clams from the Bay should be a major part of the Narragansett Bay Study. This was the public's fourth most popular research topic. Approximately sixty percent of the public say they would be willing to pay twice what they now pay for fish or shellfish which would not cause stomach disorders or give them cancer. Yet, fish and shellfish eaters value these foods so highly that they are willing to tolerate very significant risks to have them.

Shoreline Development

The importance of the shoreline development issue to users cannot be overemphasized; representatives of environmental groups, citizens' councils, recreational groups, marinas and fishermen's associations believe that development along the shores of the Bay is out of control and they blame CRMC and DEM for not controlling it. Many users spoke of the overdevelopment of the Bay as an example of how the lack of adequate policies governing Bay use leads to *ad hoc* decision-making and lack of foresight. Several users complained that CRMC and DEM take a segmented approach to the control of shoreline development in which permits are given on purely technical terms without concern for the cumulative impact which such development has on public access, on old overloaded sewage treatment plants, on the aesthetic value of the water, and on the interests of coastal communities.

Increases in shoreline development affect the boating and fishing industries directly. Marina owners complained that developers are usurping most available undeveloped waterfront property which could be used to build more marinas (and thus increase public access to the Bay). They would like to see the State buy the development rights of low-profit boatyards. Fishermen also feel pressure from development; as condominiums go up, so does the value of their land and docks. Fishermen suggested that Rhode Island instigate a state-wide program, where each town owns a pier where fishermen can load and unload their boats.

The results from our survey on this issue are fully consistent with our interviews. The public's third greatest concern was "poorly controlled shoreline development" and their fifth greatest concern was inadequate access to the shoreline. When we asked the public what should happen when residential development conflicts with recreational access, 87% of the public responded that the development should be stopped.

Most users believe that there is a need for a policy to control development now, before it is too late. All user groups see the Bay as a natural resource which belongs to all Rhode Islanders, so they advocate balancing uses in such a way that the Bay will remain available for a variety of

recreational uses. Many users believe that the State should protect public resources from infringement by private interests. They complained that development often involves closing public rights-of-way giving access to the water.

Enforcement Issues

Representatives of all user groups complained of inadequate enforcement of regulations, and many of them blamed decreases in federal and state funding to regulatory agencies for causing or aggravating this problem. User groups are affected differently by this problem, depending on the importance of the regulations which they believe are underenforced.

Fishermen have several concerns relating to enforcement. They expressed a need for more enforcement of regulations against illegal undersized fishing (both clams and lobsters) and a need to prevent illegal fishing in polluted areas. Violations of these regulations hurt fishermen financially. Fishermen also emphasized the need to enforce boating safety regulations, particularly in light of recent reductions in Coast Guard activities. Recreational users cited numerous examples of drunk and reckless driving and boaters who do not know the basic rules of the sea. This lack of awareness poses a danger to boaters. Many people have stated that there is a need for a boater licensing program. The only user groups interviewed who voiced opposition to a licensing program were the recreational boating interests themselves.

Dredging

Dredging affects almost all users, from shoreline businesses which lose dock space because of the build-up of silt to fishermen who lose their beds because of dredge spoils disposal practices. Recreational boaters and marina operators complained that it is currently very difficult to obtain dredging permits. In many areas dredge spoils must be handled as hazardous waste, and Rhode Island has no hazardous waste facility for these materials. Composition and characteristics of dredge spoils and possible disposal sites need to be studied. It has been suggested that if dredge material can be matched to suitable areas, then the damage to the Bay will be minimal. This assumption should be explored.

Permitting Process

The most general concern about management had to do with the permitting process. No matter what a person's area of concern (be it building, upgrading facilities, or dredging), the consensus was that there is far too much overlap of responsibility between different agencies. All users agreed that the permitting process takes too long and needs streamlining. If the process cannot be simplified, regulatory agencies could explain to users the goals of their agencies, the justifications for their regulations and the reasons for lengthy reviews, in order to reduce users' frustration at having to wait for their permits.

Chapter 1

INTRODUCTION

1.1 Purpose

The legislation which authorizes funds for the Narragansett Bay Project (NBP) defines the Project's purpose as the assessment of "...the principal factors having an adverse effect on the environmental quality of the Narragansett Bay...as perceived by both scientists and users, in conjunction with developing and implementing a management program to improve the Bay's water quality". (Section 46(b)(1) of the Water Quality Renewal Act of 1984) The purpose of the work reported here is to identify these perceptions of organized user groups and of the general public and to present them in a form which can be used by the Management Committee of the NBP to set the direction of research, especially on management issues, for the remaining years of the Project. Although many user perceptions relate to regulatory agencies, we did not gather information from these agencies directly since these investigations lay outside of our scope of work and will be done instead by the Government Structures study being conducted by Glen Kumekawa.

Preliminary interviews made us aware that users intuitively address issues in a way structurally similar to the functional organization of the committees of the Narragansett Bay Project. We found that user statements were: 1) identifying needs for clearer statements of policy to set priorities for the use of the Bay, 2) suggesting needs for improved management to implement existing policies, 3) pointing to research that is needed to understand the Bay, and 4) outlining areas in which the public needs education.

1.2 Format of the Report

In this chapter we describe our approach to gathering information, our methodology and the identification of user groups. In the second chapter, we present the results of interviews with each of these groups. The third chapter gives the results of a statewide telephone survey conducted in June 1986, and the final chapter gives a summary and interpretations of interview and survey data and our conclusions and recommendations. The details of the telephone survey and a listing of the groups that were interviewed are contained in appendices. Summaries of individual interviews and cross-tabulations of the telephone survey are appended to the original of this report.

Throughout this report we refer to individual users as "users" "interviewees", "he" and other pronouns. Although this usage sometimes is awkward, we find the use of these phrases necessary to preserve the anonymity we offered to encourage candor. And, of course, we do not mean to imply that everyone we spoke with was male.

1.3 Research Methods

Bay users include both user groups (organized interest groups) and the general public. Our interviewing process targetted the user groups, and the public survey aimed to assess the concerns of the general public. We gathered detailed information from the interest group interviews about Bay-related issues which concern these groups, the groups' perceptions about how conflicts over these issues have been resolved, and recommendations for improving Bay management. We learned about interest groups' perceptions and opinions about Bay management policies, the linkages between users and authorities responsible for the Bay, the mechanisms of response used by authorities, and specific criticisms of and recommendations for improved decision-making and management. The public survey complemented our detailed interviews by reaching a larger sample of the public, and sampling their opinions about those issues which we found (through our interviews) to be of concern to user groups.

1.3.1 Identification of User Groups

We defined user groups as all interest groups whose activities are influenced by Bay management policies. This included fishermen, aquaculture farmers, environmental groups, recreational users (such as yacht clubs and sporting associations), marinas, industrial users, developers, transportation agencies and companies, and military users. All of these groups conduct activities on the Bay or on the shoreline, and their activities influence and are influenced by the quality of the water.

To identify user groups we utilized local newspapers (such as the *Providence Journal*) and newsletters from various interest groups (such as the Rhode Island Shellfishermen's Association and Save the Bay) to establish a preliminary list of groups. This list was sent to all members of the Narragansett Bay Management Committee, and they were asked to add to it. In addition, as we conducted interviews, we asked each of the individuals who we interviewed for the names of other groups to contact, so that the list was constantly checked for completeness.

We have included in the Appendix a short description of each of the interest groups which we have interviewed, including a history of the organization (when and why it was formed), its goals, and characteristics that define the group (the number of members, their characteristics, and the benefits which they receive as members). Resource limitations prevented us from interviewing all of the groups in any of our user group categories, but we believe that we have taken a cross-section of perceptions and opinions adequate to represent the interests of user groups.

1.3.1.1 Fishing Interests

We spoke with the presidents of five fishermen's associations. These organizations have common concerns, but differ in location (East Bay or West Bay) and, especially, in the extent to which they participate in political activities. Four of the organizations represent only shellfishermen, but the Ocean State Fishermen's Alliance represents a more diverse group. Aquaculture interests are represented by the Rhode Island Aquaculture Association. All of these organizations are represented by the Rhode Island Seafood Council, which also represents wholesalers, retailers, brokers and packers. The Seafood Council speaks on behalf of 98% of the fishing industry.

1.3.1.2 Environmental Groups

We spoke with five environmental groups, all of which have somewhat different perspectives on the Bay. They are all advocacy groups, but some focus more on local issues, and some more on state issues. Four of the groups place a major emphasis on public education.

1.3.1.3 Marinas

The Rhode Island Marine Trades Association is the political arm of the marina industry and lobbies on behalf of boaters. We spoke with them to get an overview of the industry, but we also spoke with six individual marinas in order to explore the diversity of attitudes in the industry. While some of the marinas are small family businesses, others are part of larger interstate businesses. Some marinas wish to expand, while others are content as they are. Attitudes vary within the industry, and we attempted to capture that diversity. This category also includes a yacht charter company and tour boat operator, both of which profit from giving people access to the Bay.

1.3.1.4 Commercial and Industrial Interests

Industrial interests are represented by a trade association, two private companies (in the jewelry manufacturing and electroplating industries), and the industrial representative to the Citizens Advisory Committee of the Narragansett Bay Commission. Real estate interests are represented by two trade associations, the Rhode Island Builders Association and the Rhode Island Association of Realtors. The former represents residential builders and remodelers and light commercial builders and the latter represents real estate brokerage and development firms.

1.3.1.5 Recreational Users

This category includes yacht clubs, sailing associations, rowing, canoeing, surfing, scuba diving and sportfishing groups. The recreational groups represent interests from all areas of the Bay. Some of the groups do advocacy work and public education and others are purely recreational. Most of the groups provide both social and sporting activities.

1.3.1.6 Other Interests

Interests of these groups are too diverse to constitute a category, but they are considered together for convenience in presentation. We interviewed two volunteer groups serving in regulatory roles. These were the Harbormaster of Jamestown (also the president of Conanicut Marine Services) and Newport Waterfront Watch. The next organization, the Rhode Island Port Authority, is partially public and partially private and the last agency, the US Coast Guard Marine Safety Office, is a government regulatory agency.

1.3.2 Interview methodology

We employed an open-ended interview method to elicit group perceptions about Narragansett Bay. A number of topics were covered before any interview was complete, but within those topics interviewees were allowed to address the issues as they saw them. This format can be contrasted with a closed interview method in which the interviewer compiles a list of questions, all

of which are asked, usually in listed order, during the interview. We kept a list of questions in mind but did not follow it rigidly. We followed the same basic structure but we allowed the interviewee's concerns to guide the interview. An open-ended interview should not imply that the discussion was allowed to ramble but that it is led by the user's interests.

Interviewers were Brown undergraduates who were trained by a doctoral student in Anthropology who is experienced in interviewing techniques. Three general categories of topics were covered in the interview: history of the organization, conflicts and their resolution, and goals for the Bay. In most cases, the leader of the organization was the person interviewed, but on occasion we met with the organization's official spokesperson.

1.3.2.1 History of the organization

We were interested in a brief exploration of how the organization came into being, how it is presently organized and who its constituents are. This allows us to gauge how many people are represented by the group and whether or not they are issue oriented. For example, environmental groups tend to form around social issues while yacht clubs exist to provide a service to their members. We also attempted to assess the organization's relationship to the public. We wanted to learn if the organization has a great deal of public support or if they are a narrow interest group. We also thought it would be useful for the project to have an annotated listing of the various organizations which are related to the Bay.

1.3.2.2 Issues of concern to the organization

Each group was asked to present their perception of important Bay issues. We asked questions which would allow us to determine the vision that the various organizations have (and would like to have) for the future of the Bay, and the direction they would like to see management take. We also explored users' perceptions of management's aims for the Bay. By exploring particular conflicts, we are able to see how the various groups attempted to resolve them and thereby, gain some insight into their interactions with other organizations and regulatory agencies. We are able to see which conflicts are a result of insufficient awareness of existing knowledge (and could benefit from educational programs), which result from uncertainty over factual issues (and thus may benefit from further research) and which are conflicts of values.

1.3.2.3 Information Management

Directly after each interview, the interviewer would write up the interview. Some interviews were taped and others were not, depending on which method made the participants feel more comfortable. All interviewees were guaranteed confidentiality for two reasons. First, we believe this allows the person to be more open in expressing themselves. Often conflicts take on a very personal tone and it is necessary to separate personal disagreements from substantive conflicts. Second, our interest in Bay issues was not on a case-by-case level but by categories of users. We did not see our job as making a laundry list of problems by particular users, but to generalize those problems so that they become instructive for management. It is not useful for management to know that Joe Smith empties his holding tank into the Bay, but it is important to know that most boating associations complained of the lack of facilities to pump out their tanks in an acceptable fashion and that this is the reason that Smith pollutes.

1.3.3 *Survey*

We were interested in determining to what extent the user groups represent the interest of the general public. We worked with Alpha Research to develop a telephone survey which, after revision based on comments from the Public Education Committee and the Narragansett Bay Project staff, was run in mid-June, 1986. The results of this survey are presented in Chapter 3 and the responses to each question are given in the Appendix.

Chapter 2

RESULTS OF USER GROUP INTERVIEWS

The following sections report the results of our interviews of representatives of organized Bay user groups. Except in cases where we were given explicit permission, no comments are directly attributed to individuals, in accord with our assurance of confidentiality. The description of the groups interviewed appears as an Appendix to this report. It is important, in reading these results, to remember that the same term may be used by different groups to have quite different meanings. The term "pollution", for example, varies in meaning depending on who is talking. To the recreational boater, pollution means the waste that offends the senses or endangers health, while to the fisherman, pollution refers to an agency-defined water condition which prevents fishing.

2.1 Commercial Fishing Interests

2.1.1 Pollution from residential development

It is no surprise that the issues that fishermen bring up most often are expressed in terms that relate to their ability to continue their work. Pollution is their major concern. Fishermen point to development as a major source of pollution. They are opposed to any land or water development that limits fishing areas or adversely affects potential fishing yields. Fishermen have joined environmental groups in opposing particular developments that are most threatening. Most of their fears center around the sewage from condominium developments. They believe that proposed treatment systems will prove to be inadequate and that the existing systems are inefficient in handling even current waste.

One example, mentioned to us several times, is a development in Chepiwanoxet. Developers want to build 52 condominiums and a 55-boat marina on what one fisherman calls a "sandbar" located between East Greenwich and Apponaug. Chepiwanoxet used to be an island, but the water was filled in and it is now a low-lying area on East Greenwich Bay. It is one of the most prolific areas in the Bay for clams and is an important winter ground (an area which can be fished in the winter). The fisherman opposes this development because he believes that the sewage will seep quickly through the sand. Shellfishermen have fought this development from the beginning along with Save The Bay and the Chepiwanoxet Neighborhood Association. There was disagreement over whether the CRMC should proceed under 1978 guidelines or the more stringent 1983 guidelines. The latter classify Greenwich Bay as a type 2 water body, which would prohibit the development of marinas and dredging. The proposal was submitted a few months before the 1983 guidelines came into effect. However, the fishermen claim that the proposal has changed a number of times since then and thus should be heard as a new proposal. The fishermen's spokesman said that, "Even if considered the same proposal as initially introduced, it still, while obeying the letter of the law, overrides the intent, to preserve precious waterfront areas from abuse through over-development." Fishermen believe that this is an example of developers' disregard for the environment.

A spokesman for a fishermen's association spoke of CRMC as a political organization which changes with different administrations. He said that the decision to retain Bob Bendick during the last changes in membership was a positive move because it gave continuity to the Council, and he believes that Bendick is doing a good job; but he feels that CRMC is biased in strongly favoring expensive commercial development and in often unwisely overlooking the ecological elements of decisions. An example of this was a planned development on a barrier beach in Newport.

Fishermen particularly are concerned about pollution from leaching fields. Allens Harbor used to be a prime fishing spot but was closed because of leach field seepage. Because this old navy base has been closed, it no longer has an operating sewage system, but fishing is still not allowed in all of it. One fishing spokesman stated that development has not cut off fishing areas when it has involved a tie-in with sewage treatment systems. He believes that there is no way to stop development, but it should be allowed only when tied to sewage treatment systems.

2.1.2 Pollution from incineration

Most fishermen were also quite concerned about the large incinerator which was to be built at Quonset Point. They believed that it would threaten fishermen through both thermal pollution and the release of PCB's and dioxins in the air which could precipitate into the Bay. The 72 million gallons of Bay water which would have been pumped through the system each day was predicted to kill the larvae which are very sensitive to changes in water temperature. Dioxin degrades slowly so it might accumulate in the shellfish, and fishermen believed that they might be put at risk from dioxin as they work on the Bay. Fishermen were also concerned about the problem of landfilling toxic fly ash which the incinerator may produce. One fishing spokesperson said that if the incinerator were built, the pollution which it would produce would cripple the fishing industry. He expected that this would hurt the State badly financially, because he believes that the State depends heavily on the revenues which the shellfishing industry generates. [These interviews were conducted before the General Assembly reduced the size of the incinerator and prohibited the use of Bay water for cooling. We are unable to say to what extent these changes relieved concerns of the fishermen.]

2.1.3 Toxic pollutants

Fishermen said very little about the problem of toxic pollutants or any need for enforcement of pre-treatment regulations. However, one fishing spokesman did suggest that a good way to reduce the amount of pollution in the Bay would be to list publicly the major polluters. He believed that the jewelry industry and the Navy would be high on the list: "We've all caught navy stuff -- whether it's a torpedo or whatever." One fishing spokesman did say that he is glad to see Ciba-Geigy leaving Rhode Island, because he believes that its industrial chemicals have harmed the fishing industry. He said that the fishing industry is not adequately protected from damage done to it by industry. At the same time, however, he denied that eating shellfish imposes health risks on citizens. He claimed that Rhode Island seafood was not to blame for the recent outbreaks of illness in New York; he blames the people who handled the seafood in New York for not refrigerating it adequately. When asked what he thought of the *New England Journal of Medicine* article that advocated not eating raw shellfish, he said that "people probably die from breast-feeding."

Another spokesman said that fishermen are upset with the scientific community for publishing papers about cancer in clams, cysts on flounder, and other diseases in seafood, without saying that these findings are not hazardous to consumers' health. When such "incomplete information" is published it hurts the fishermen because prices drop drastically. Fishermen do not want to sell a bad product, but they also do not want to be hurt by "irresponsible scientists who

just want to make a name for themselves." However, this same fishing spokesman said later that the fishermen are glad to see almost any scientific research done on the Bay. He would especially like to see stock assessments done. His only fear about scientific research is that studies will disclose that the Bay and its fish are badly polluted with heavy metals from the jewelry industry, which will put the fishermen out of business. However, he is particularly pleased that the NBP will be studying the winter flounder, because his organization and a sportsfishermen's association asked the Fisheries Council to study winter flounder three years ago, but the council refused, claiming that winter flounder were not endangered.

2.1.4 Need for dock space

Because they see food production as so important, fishermen often make demands of the State that others see as out of line. One spokesman for a fishermen's association says that without help from the State, the fishing industry will die, not because of a lack of fish, but because of a lack of docks. He would like to see a state-wide program like the one in Massachusetts, where each town owns a pier. Even if fishermen cannot dock there, it is at least a place to load and unload their boats. Such a system has been set up in Warren, where fishermen are allowed to dock at no cost at the city pier, but must pay for the upkeep of the pier themselves. An alternative solution would be to expand State ownership of dock space to be used primarily by fishermen. Until such a solution is found, the fishermen will continue to fight for the preservation of the few town piers, landings, and rights of way which presently exist.

2.1.5 Economic concerns

One fishing spokesperson claimed that the State underestimates fishing revenues and thus underestimates the importance of the industry to the State. In 1984 the State estimated fishing revenues to be approximately \$66 million. This man calculated that \$66 million would mean \$11,000 for each commercial fisherman -- hardly enough to be accurate. He conducted a survey to test their figures, and came up with \$175 million. He says that the IRS figure was \$195 million to \$200 million.

Another concern expressed by all the fishing groups (and most recreational boaters as well) was the distribution of monies collected from licensing fishermen. Each fisherman pays \$100 for a license or \$150 for a multi-purpose license. The fishermen understand that all the fees above \$200,000 are supposed to go to the director of DEM to be used for specific purposes which include transplanting programs, hiring of additional personnel for special projects and building docks for fishermen, but they believe that none of the money is being used for these purposes. Transplant programs have been funded largely as a result of fishermen petitioning the State legislature for emergency appropriations.

2.1.6 Depuration

Fishermen are strongly resistant to any loss of control over how their work will be conducted. Depuration is seen as a particular threat to their autonomy and is so strongly opposed that one of the groups we interviewed was created around this issue. Depuration would open up presently unusable portions of the Bay, but these areas would be open only to those who had depuration facilities. Even if more fishermen could fish, they would be forced to sell to those who owned depuration facilities. Not only would that limit the freedom to sell to whomever they want (a freedom which is already restricted since they often must sell to the dock owner anyway) but it would

result in more quahogs on the market and decreasing prices. Fishermen also reject depuration because they feel that the polluted areas have the function of providing seed to the clean areas.

2.1.7 Need for enforcement

Fishermen support the recent change in the law governing the size of quahogs that can be taken. The law now coincides with the size of the racks used in fishing. This is an improvement over the old ring law, because fishermen know that undersized quahogs will slip through the rack bars. Under the old law quahogs that didn't slip through the rack bars could still be undersized because they could fit through the standardized ring. It is easier for the fishermen to abide by the new law. However, there was a strongly stated need for enforcement in this area.

Three major shellfishing associations expressed a critical need for more enforcement of regulations governing the size of shellfish that may be taken from the Bay. One person said that he hasn't been checked for undersized quahogs in five years. He says that the enforcement people very rarely check for undersized quahogs out on the water -- they usually get people on the docks. He believes that there should always be someone out in a boat. According to this fisherman, it only takes one "stupid lobsterman" to take 500 short lobsters each day. This really hurts the industry, because these lobsters never get a chance to spawn, so the industry is short millions of potential lobsters in the long run.

One spokesman recommended that DEM's Division of Fish & Wildlife be reorganized to strengthen enforcement efforts. He believes that enforcement preventing illegal undersized fishing is vastly inadequate, and he attributes this to the fact that enforcement resources are shared between freshwater fishing, marine fishing, and uplands. DEM has only 27 full-time officers who are supposed to patrol the water and park system and keep an eye on hunters and pollution lines. He said that this means that during deer-hunting season, the Bay gets very little enforcement. He believes that "there's no group of people who are looking especially for seafood violations" and that there should be one person and one section of DEM whose only responsibility is marine fisheries. This user believes that marine fishery money may often go to freshwater fishing and uplands duties. He also sees problems with DEM's way of prioritizing its duties and believes that too much money is presently being spent to bring salmon back to the Bay. Under his reorganized system, enforcement officials would be more apt to know specific areas and the people who are most inclined to break the laws, as well as under what weather conditions it is likely to occur. Under this system, not only would enforcement efforts be more effective, but also it would be easier to keep track of where finances go -- especially finances and manpower for enforcement.

There is a strong belief that more enforcement officers are needed in order to prevent (or at least reduce) the amount of shellfishing that takes place in closed areas. One shellfishing spokesman said that presently only "3 crews" cover the entire state, and "they know that they can't do it all, so they often don't get into it at all." He believes that they could do much more than they do if a shellfisherman were given the DEM enforcement job; a shellfisherman could (if he were aggressive) make 3, 4, or 5 times more arrests, because he would know where to go and when, and he would have the incentive to arrest as many illegal fishermen as possible. This spokesman said that illegal fishing happens regularly in Greenwich Bay. Everyone knows who's doing it, but they rarely get caught and have little fear of arrest.

2.1.8 *Opposition to mechanical dredging for shellfish*

There has been great opposition from the fishermen concerning the use of mechanical devices on fishing boats. They whole-heartedly support the legislation which makes such devices illegal, for two basic reasons. The first is that if dredging for shellfish were allowed, the whole Bay could be harvested/overharvested by a few boats. One characteristic of manual fishing is that each individual is limited by his physical capabilities, and so it keeps more individuals employed in the industry. The second reason is environmental in nature: dredging seriously damages the bottom of the Bay and will destroy the shellfish beds, whereas rakes cultivate the bottom and, theoretically, replant small shellfish, thus helping the industry to continue.

2.1.9 *Closure of shellfishing areas*

The fishermen object to basing closures of shellfishing areas on rainfall amounts. Half an inch or more of rain closes the Bay for a week. Other factors, such as the dryness of the season, aren't taken into account. One spokesperson also objected to DEM's criteria for determining what water is safe for shellfishing, because he sees no relationship between the water that's tested on the surface and the deeper water in which the quahogs actually live. He would like to see DEM test the actual quahogs. He believes that DEM doesn't do this because it would require much more work. He also objects to present management policies of closing areas, transplanting, opening them, and then closing them again later; he would prefer to see a reseeded and fertilizing program implemented. One fisherman spoke of a need for more co-ordination between DEM and DOH on the setting of regulations. He believes that DOH sets the regulations and DEM is expected to enforce them. He claimed that it is not uncommon for DOH to design a regulation without consulting DEM to see if the regulation is implementable.

2.1.10 *Conflicts with boaters*

The fishermen complained about recreational speedboaters who pass too close to the fishermen, making huge wakes or sometimes cutting their lines. They spoke of the need to emphasize boating safety with better boating regulations. One fishing representative spoke of competition between commercial fishermen and recreational users as a growing problem which will mushroom in the next three to four years. He believes that as recreational uses increase, there will be pressure to get commercial users out of the way--already, the open ground for draggers is shrinking. He says that there has always been a conflict between sportfishermen and commercial fishermen, because sportfishermen believe that commercial fishermen take all of the fish. He objects to yachters because they race their \$65,000 sailboats wherever they want. They expect commercial fishermen to get out of their way and don't understand that shellfishermen must be where the fish are. However, another shellfishing spokesperson claimed that the main use of the Bay should continue to be recreational as long as that does not cause undue restrictions on fishing.

2.1.11 *Internal conflicts*

Although fishermen work together when conflicts arise which concern all of them, there are conflicts within the industry. There is a conflict between bullrakers and divers, because the divers can fish more efficiently, getting more quahogs, and they can get into areas not reachable by bullrakers. A bullraker cannot get every quahog in an area, and the quahogs which are left seed the Bay. Since divers can clear out these seed stock, bullrakers feel that they are overexploiting the Bay.

2.1.12 Aquaculture

A spokesperson for aquaculture complained about how difficult it is to do aquaculture in Rhode Island because of administrative problems. He said that CRMC "has been good about granting leases, but they stipulate them into oblivion. If you want 10 acres, they'll give you 3, which you can only use at certain times, etc..." He says that the people at CRMC have been helpful, but he objects to their permitting system. He said that permits are supposed to be required for any use of the water which interferes with other uses. This is the established principle, but in practice it is applied only to aquaculture. Marinas, small boat anchorages and fish traps are excluded from permitting. This spokesperson said that CRMC defends its permitting practices by saying that marinas give more benefits to the public than aquaculture but he wonders how they have reached this conclusion. He sees quahogs as no less of a public resource than the oysters grown by aquaculture, so he objects to the fact that fishermen don't have to pay to take what is a public resource, while aquaculturists do. Although shellfishing requires a \$100 license, this is intended for management and to limit the number of people who can participate in commercial fishing; aquaculture licensing fees don't pay for management; they are essentially rent payments.

CRMC's water use categorization system severely limits the areas in which aquaculture can be practiced. Aquaculture is considered an industrial-commercial use, so it is put into category 5. However, water in industrial-commercial areas is not usually Class A, and there are no new commercial-industrial areas, so areas in which aquaculture can take place are extremely limited. This aquaculturist believes that aquaculture should be classified as a type of agriculture, so that it would be seen as a beneficial use; as just another way to cultivate shellfish.

Commercial fishermen oppose aquaculture for many reasons. They see it as a loss of their own fishing grounds, because aquacultural space is closed to all other fishermen. They oppose such allocation of resources to a select few. While they concede that aquaculture is an efficient process, they believe that it could be used to manipulate the market.

Aquaculturists believe that the State is too protective of the fishing industry: "the fishermen act as though they have a constitutional right to a living, at the State's expense if it comes to that, and DEM people act as if they believe it." The aquaculture spokesperson insisted that aquaculture could flourish in the Bay, if it weren't for the strong political pressures against it. He believes that aquaculture would be more efficient economically than the present system, which he sees as a welfare system benefiting the current 3,000 Rhode Island quahoggers. These 3,000 quahoggers harvest 13 million quahogs annually, and he believes that aquaculture would allow fewer people to harvest more quahogs less expensively. Although he doesn't believe that a system of pure aquaculture would be politically feasible, he does not see why fishing and aquaculture cannot co-exist.

Pollution is also seen as a threat to aquaculture. While regular quahoggers are able to participate in a reseeding program (moving shellfish from a polluted area to a clean area), aquaculturists must be able to use their area for all life stages. If their beds are polluted during harvesting then none of the shellfish are useful.

2.2 Environmental Groups

Environmental groups are self-defined spokespersons for the environment. They run the gamut from groups which deal with state-wide issues through groups which are concerned with only one type of environment to groups which are formed to deal with a specific issue. Generally, they believe that they know what actions are harmful to the environment, and they usually believe that choices which favor the environment should take precedence over most other possible courses of action. Several environmentalists said that they would like to see the State adopt a state-wide policy which balances economic development, social development and environmental protection so that each of these elements is given equal consideration. They believe that economic development has always been put above the others, environmental protection has rarely been given attention, and that state government resists environmental legislation because it is expensive to implement.

2.2.1 Pollution

By far the area of greatest concern to all of the environmental groups is pollution and particularly the discharge of toxic substances which may alter the natural environment of the Bay. A healthy Bay is identified as a necessary element for a high quality of life for Rhode Islanders. Thus, those uses which require high water quality, such as fishing, are favored by these groups over other uses, e.g. as a receiving water for discharges. Enforcement of pre-treatment regulations is a matter of particular concern and most environmental groups believe that the State is very lax in this area because of inadequate staff assigned to this task. Environmentalists are also concerned about the problem of old, overloaded and outdated ISDS systems, and the need to update sewage treatment plants and to meet Clean Water Act water quality standards.

2.2.2 Development

Development is the other major issue for environmentalists. They express concern that development often is inadequately controlled and has adverse aesthetic and environmental effects. Some expressed anger that the State has allowed developers to fill in the Bay which not only destroys the natural habitat, but also usurps public areas and makes them private. Many believe that regulatory agencies do not do their job. Environmentalists claim that the CRMC and DEM are often short-sighted and lenient towards most development on the Bay. In addition, many believe that there is a need for more communication between state agencies with overlapping jurisdictions. There is a recognized need for a state-wide policy which covers environmental issues, rather than the present system in which an organization is forced to fight issue by issue, agency by agency.

Environmentalists believe that real estate people perceive land as nothing more than a commodity to be bought, sold, developed and used -- a commodity whose worth is defined through its use. Real estate developers object to leaving large tracts of land "empty" (undeveloped). Unfortunately, tax assessors perceive land in a similar way -- it is more valuable to them when developed. Environmentalists do not oppose development entirely, but they would like to see the State try to balance economic development, social development and environmental protection. Much of their conflict with developers does not stem from an opposition to all development but from the style mandated by the speed at which current development is occurring.

Environmentalists appreciate the Bay for its aesthetic value. They believe that people are attracted to the water for its beauty. They believe that this translates into economic benefits for the State, because many people are attracted to living and working in Rhode Island because of the Bay. Environmentalists have strong conflicts with industrial users who pollute the water and

some developers who build on the shoreline, who decrease the aesthetic value of the Bay by ruining the view from the water.

Concern was expressed about CRMC approval of projects which involve filling in the Bay. One environmentalist stated that one of the real tragedies of Bay management has been that for decades, for just \$25, people could get a permit to usurp existing waterfront by putting a wall in and creating, literally, new land out of the bottom of the Bay, thus transferring property from public to private ownership. These areas were available to the public for shellfishing or other marine uses but did not generate revenue directly. Only after it is filled and becomes private can this land be taxed. This taxability makes the practice acceptable to the local communities and, through their influence, acceptable also to the State. This environmental spokesman suggests that there should be a high cost for filling in the Bay. CRMC could charge the same price for the land as present waterfront property is worth. Certainly, charging \$100,000 per lot would slow down development.

Marina builders have the same advantage - they take public areas for their own use. The water under a dock is still public, but is not available to other users. Shellfishing can't go on there, so the marina builder has effectively expropriated a part of the Bay for the price of putting in docks. This is analogous to letting a chicken farmer run his chickens in a state park. We wouldn't allow that, so why do we allow individuals to usurp public water space?

According to this person, CRMC will not institute a price charge for below mean tide because they do not want to discourage development. He believes that CRMC does not have a conservationist approach to Bay management -- they represent an economic approach to Bay management and as a result violate their own policies. He gave Quixton pond as an example. It was agreed to keep this pond as a pristine, brackish pond, yet CRMC allowed an oyster farmer to "experiment" with three oyster rafts. This is a commercial operation -- the man now has about ten rafts and CRMC has made no move to stop him. While oysters may not ruin the pristine nature of the pond, he believes that it becomes very difficult to stop further development once one commercial operation is present. He would like to see a moratorium on all development along the Bay until new legislation to control development can be adopted.

These examples are typical of a general concern of most environmentalists that the regulators who should be controlling development are very reluctant to limit economic growth. And, like industry, developers are seen as ready to ignore the rules, in the absence of adequate enforcement. CRMC is seen as a very political organization whose members represent special commercial interests. One environmentalist claimed that the most effective means of solving the Bay's problems would be to dismantle CRMC and all other councils and boards and return their power to executive agencies.

2.2.3 Bay access

Some environmental spokespersons focused almost entirely on the effects of bay development on bay users, and particularly on access to the Bay. Conflicts over access to the waterfront began in the late '70s. Business interests in some areas began to fence off access roads to the Bay, making many stretches inaccessible to the general public. The main objection voiced to this restriction of access is stated in ideological terms. These roads are now and always have been public property, so the tourist, condominium, and industry interests have no right to fence them off. To fight these actions, one group attempted to use historical data to prove to the CRMC that these roads have always been public. The group investigated public works records on snowplow

routes, dug up old aerial photographs dating back to the 1940s to demonstrate that no fences had existed in the past, and relied on personal testimony of the local residents to press their cause. On this issue the group sought and received the help of local fishermen and a local environmental organization. However, even with this cooperative effort, their spokesperson says that they have been, for the most part, unsuccessful in seeking the removal of these barriers to waterfront access. As a result, many environmentalists believe that regulators are less concerned with the public's perspective than with the desires of private property owners.

Environmental groups also criticized the current permitting process because its segmented approach does not consider the cumulative impact of development. It was suggested that the permitting process should involve a more comprehensive environmental, socio-economic and historical impact statements and should require performance bonds before breaking ground on any project. These bonds would amount to a significant (10-15) percentage of the projects' total value and would be forfeited if the developer failed to complete the project as planned.

2.2.4 Water Quality Standards

One environmentalist said that he found DEM's water quality classifications "artificial" and "meaningless," because "the Bay has to be seen as a whole." He believes that "the whole Bay should be Class A." Another environmental spokesperson objected to DEM's water quality classifications because he feels that they don't leave enough room for improvement. He asked, "Once it's classified, what's the chance of it ever changing?"

2.2.5 Conflicts

Environmentalists face conflicts with other user groups because of their beliefs about how the Bay should be used. They believe that the Bay should be managed, protected, developed and used in such a manner that the resource can be passed on from generation to generation in reasonably good condition without degrading it significantly by any particular use. They see the Bay as a natural resource which belongs to *all* Rhode Islanders, so they advocate balancing uses in such a way that the Bay can be kept clean and available for recreational uses and wildlife purposes including fish and shellfish. They object to those uses of the Bay which will degrade Bay quality sufficiently to preclude use of the resource *qua* resource (i.e. not as a waste receptor). Several environmental groups voiced opposition to the State's plans to build solid waste incinerators, because they fear the long-term pollution effects of the incineration process.

2.2.6 Long-term environmental policy

Several environmentalists complained that Rhode Island has no state-wide policy governing environmental issues. They blame this lack of policy on government's lack of foresight. They would like to see an environmental policy which is flexible but prevents destructive short-term uses of resources which should be protected for the sake of future generations. Three environmentalists said that they would like to see an integrated policy which would give equal recognition to the economic, social and environmental elements of Bay management. One environmentalist suggested that the State establish guidelines in each of these areas, in order to establish what we will tolerate, what we won't tolerate, and what our objectives are. The goals should stress continuity over time but also be flexible. He believes that at present every change in administration brings a change in goals.

2.2.7 Role of research

One environmentalist said that he sees science as a tool which can be used to implement environmental policy, but the policy must be articulated first -- science should not be used as an end in itself. For example, it does no good to examine all of the sewage technologies and decide on the "best" one without a policy which rationalizes why we want a clean Bay. Without a set policy, the Bay may be cleaned up but then be repolluted by some other type of user.

2.3 Marinas

2.3.1 Dredging

All marina operators agree that one of the most urgent problems that they face is the disposal of dredge material that they need to remove from their docking sites. Some operators maintain that in many places the dredge material is good clean sand which could be returned to area beaches. Others admit that much dredged material is properly classified as hazardous but believe that the State needs to create a hazardous waste facility for these materials. Some operators use the dredge material to build up their parking areas; they insist that the toxicity of the material diminishes with time. For those marina owners who cannot dispose of their dredge through local use, dredge disposal is a serious problem. When a marina is unable to dredge, the value of the property decreases as the number of boats that can be docked decreases, making it very attractive for marina owners to sell out to development interests.

Marina operators and commercial fishermen are in conflict on the issue of dredging. Fishermen object to dredging because it destroys shellfish beds. Marina operators say that the beds come back in a couple of years and they are more productive because of the dredge spoils.

2.3.2 Development pressures

Marina owners believe that there is a great shortage of marina space in the region. We were told of only one new marina being built locally. One marina owner believes that it is nearly impossible for a small organization to start up a marina in the State of Rhode Island. He believes that zoning regulations against the building of condominiums at certain locations should be instituted. Furthermore, he contends that the waterfront businesses should be helped to maximize gains on the property in which they currently operate. One marina operator expressed frustration at out-of-state companies coming into Rhode Island and building chains of marinas. He claimed that because these companies are backed by big money they can push their development plans through while smaller businesses must wait a long time for decisions to be made.

In general, marina owners believe that real estate developers are usurping most available undeveloped waterfront property. This land could be used to build more marinas (and thus increase public access to the Bay). Marinas believe that, by offering large sums of money for waterfront property, developers are presently driving marinas out of existence. They are disturbed by the number of condominiums presently being developed on the waterfront because, they say, this development represents benefits for fewer people as compared to the benefits which the marinas bring to the larger boating public. Marinas base their claim for special legislation to support marinas (similar to the Farm Preservation Act) on their service to the State. They believe that it is imperative for legislators to realize the need to save this land from developers.

Marina operators were negative about much of the development which is occurring on the Bay not only because it usurps their space but also because it makes it hard for boats to dock in other areas. Newport is the typical example of this problem; there is no dockage available even for brief visits. Because of the amount of shoreline development, the owner of a cruising vessel which operates on the Bay has recently experienced difficulties finding dock space at the points along the Bay at which it stops to let passengers on and off. The owner of this cruising vessel and marina owners believe that marina development increases public access to the Bay, but real estate development restricts public access. Some marina owners are also concerned that real estate developers do not have respect for the environment.

2.3.3 Permitting process

A common complaint of owners was the permitting procedures required for any structural changes. Only rarely do owners accept that the lengthy process is necessary to protect the environment. Most agree with the owner who believed that none of the many agencies with which a marina must deal (DEM, CRMC, Army Corps of Engineers and the local city or town government) know what the other is doing; therefore, making any change in a marina becomes an impossibly slow process. Marina after marina told stories about waiting months for permits which they felt could have been handled by a phone call to the proper authority. Others felt that the time required to get a permit was unnecessary given that the area is already zoned for marinas. Many reported that though the State allowed up to a 25% change without a permit, the Army Corps still required permits. The cost of this procedure becomes prohibitive for small marinas and has led to business failure.

One owner described a situation in which, a few years ago, his sea wall caved in. The permit necessary to fix it took almost 18 months to secure, during which time additional damages were occurring. He thinks that the process takes so long because agencies leave things sitting on their desks and do not act on them. He called it "gross inefficiency." For a short, four-slip addition to one of his docks, he has already waited three months with no action. He believes that this is a matter which should be able to be addressed over the phone. He felt that it was unfair that marinas have to have all of their permit materials in on time, but the State can then take as long as they want to get to it. He suggested that it should be mandatory for the agency to act on a permit application within 30 days; failure to act becomes an automatic approval. Another marina owner blames the long and expensive permitting process on environmentalists, who he says are anti-development and resistant to change.

One marina operator complained that when his marina was going through the permitting process to reconfigure their docks, they wished to provide pump-out facilities for boats' holding tanks and toilets, but they were told that the State does not allow holding tanks on land. The system would have included a portable element used to pump out boats' sewage tanks and transport it to a holding tank. This tank would be pumped out by a local septic company which would then transport the wastes to a sewage treatment plant which had agreed to take the wastes. Most of the marina operators expressed concern at the lack of pump-out facilities -- no marinas have operating pump-out facilities, which means that a great deal of illegal flushing of wastes is occurring in the Bay.

2.3.4 Pollution

Marina owners mentioned pollution as a secondary concern; their greatest concerns center on issues which affect them economically, such as dredging, permitting, development pressures,

and the need for the State to promote recreational boating. Some marina owners were concerned about pollution because it degrades the Bay and makes it less pleasant for boating. However, they wished to emphasize that boaters were unfairly blamed for contributing to pollution, and that municipal sewage systems were really the greatest contributors. Some marina owners believed that many cities need upgraded sewage treatment facilities. Marina owners disagreed on whether water quality in the Bay is improving or deteriorating and they disagreed on the seriousness of the pollution problem. One marina owner said that water quality in the Bay is a disgrace and the State is not giving adequate attention to the problem, but another felt certain that water quality was improving and would continue to improve under the present management structure.

2.3.5 Economic impacts

Marinas claim to provide numerous economic benefits for Rhode Island. Operators believe that marinas are meeting an important economic need by creating employment in the State and are fulfilling a social need by allowing access to the Bay to more boaters -- especially to those who cannot afford to join a yacht club. The Department of Economic Development uses boating and yachting as a major thrust of much of its advertising. Many who keep their boats at the various marinas around the State do not live here but are attracted by our waterways. At the same time, however, marina operators find it ironic that the State advertises itself as the "ocean state" while doing very little to help the boating industry financially.

Another economic effect that marinas claim is support for the large boat building industry in Rhode Island. They believe that boat builders benefit if buyers can find space on the Bay to store their craft. The boat building industry employs many who have skills particular to that industry. These people would be hard to re-employ if the boat building industry closed down.

2.3.6 Conflicts

Some marina owners believe that commercial fishermen are usurping most new dock spaces on Federal and State piers and not leaving room for commercial charter boats. They believe that Federal and State money for docking spaces should be distributed more equitably. Marina owners also complain that commercial fishermen do not abide by boating regulations; they drive too quickly and do not have enough respect for other boaters.

2.4 Electroplating Industries

Of all the groups, this was the most resistant to the interviewing process. Many companies that we called simply refused to speak with us at all, and those who did meet with us were not entirely forthcoming. Thus we have no reason to believe that the results we report here are in any way representative of industrial concerns.

We spoke to one industry which was in compliance with federal and state regulations having to do with pre-treatment and one which was not. Two issues, the cost of technologies and the issue of compliance, seem significant. The industry not in compliance said that the regulations are too stringent and the technology is too expensive. The company which was in compliance was concerned about uneven competition. They point out that the cost of compliance is high. Non-compliance means that these costs are not evenly distributed to all similar businesses. As a result non-compliers have an economic advantage over compliers.

2.5 *Recreational Users*

2.5.1 *Pollution*

Recreational users are a diverse group which includes yacht clubs as well as other boating clubs (canoeists, sailing schools, surfing and sportsmens' clubs), a scuba diving group, and a sportfishing club. All these groups have one major shared concern: pollution. In some cases, concerns of yacht clubs were similar to those expressed by marina operators. This depended on the commodore's frame of reference. The commodores have dual roles: as a sailor and as a manager. They often expressed concerns which reflected both of these sides. As managers their concerns often were with pollution and dredging. As sailors, their concerns ranged over issues from pollution to development and boating safety. We also found that the location of the club affected which issues were of most concern. Those located further up the Bay were most concerned with pollution as a nuisance and as a health risk. The director of one boating club expressed a desire to see an analysis of the risks of hepatitis and other viral diseases posed by the waters of the Seekonk River. Clubs located in other areas of the Bay were usually less concerned with pollution (the closer they were to the open sea) and more concerned with safety issues and other problems that result from overcrowding. Among non-yachting groups, issues about access come up more often.

When yacht clubs speak of pollution they are referring to a number of related problems. A main one is the problem of silting which may result from some industrial activities and poor sewage treatment. The second problem they are referring to is the existence of noxious odors and water which looks dirty. Some clubs report that people are less likely to want to dock their boats at clubs which frequently experience the worst sensory symptoms of pollution. Inadequate treatment of sewage also restricts boaters from enjoying the Bay in other ways. The main activities which are curtailed are swimming and fishing. Posted "no swimming" signs are as much a signal of pollution to boaters as is the change in water color as they enter the Bay from the ocean. Polluted waters also are perceived as posing a health threat to boaters. As one commodore pointed out, there is one type of sailboat used in training young sailors which requires the sailor to hold the rope in her/his mouth while tacking. Since this rope often falls into the water there is a general fear that someday there will be a serious outbreak of disease more dangerous than the viral symptoms occasionally experienced by these sailors.

Most clubs expressed a concern about their image as polluters of the Bay. They believe that recreational boaters pollute minimally, especially compared to industrial discharges. They all expressed some anger at the regulations that require holding tanks on board even though no pump-out facility exists in the State. Some sailors accommodate to this situation by only pumping out in the ocean; however, they feel that the State is not very serious about trying to stop pollution. Not only is there no provision to enable compliance with the pump-out regulations, but sailors regularly sail by discharge pipes from businesses and sewage systems which empty directly into the Bay. One recreational user said that he once made extensive efforts to find a marina with pump-out facilities; he finally found a facility, but no one at the marina knew how to operate it. One marina owner spoke of his efforts to install a pump-out facility, which were frustrated by a state regulation which prohibits private holding tanks on land.

2.5.2 *Dredging*

Clubs located in areas where much silting occurs find it necessary to dredge. Dredging is expensive and some of the smaller clubs cannot afford to do it. In many areas dredge spoils must

be disposed of as hazardous waste. This imposes a substantial expense since there is no facility in the State to receive such waste. Some clubs have resolved this problem by using their land around the club as a dumping ground. It is unclear why this is considered acceptable since runoff from the materials will return to the Bay. There is also a potential odor problem for the clubs which use this method. Clubs object to the toxic chemicals and metals which industry dumps into the Bay not only because they dirty the water, but also because the toxics have caused such disposal problems.

2.5.3 Boating safety

Another issue frequently brought up by yacht clubs is boating safety. Although this issue is not directly related to water quality (the NBP's main concern), a brief discussion is included here because the issue was raised so frequently and so sincerely, because it represents a pattern of perception of inadequate enforcement of Bay-related regulations and because improved enforcement of some regulations may be combined economically with better enforcement of others.

Some commodores expressed concerns about reduction in Coast Guard activities. They believe that the Coast Guard, in an attempt to cut expenses, is reducing the number of buoys and markers in the Bay and the number of boats which search for dangerous operators and distressed ships. Other commodores complained of drunk and reckless driving. Driving while intoxicated was often cited as one of the major dangers on the Bay. Apparently drunken drivers are almost never stopped. On the rare occasions that they are (as in the case of an accident), very often someone else on board will insist that he was driving.

We often heard that many boaters do not know the basic rules of the sea. It is important that operators learn the rules that apply not only to their craft but to other types as well. For example, sailboats must yield the right of way to commercial ships in the harbor but we were told that most sailors don't know that. When asked if licensing of boat operators should be mandatory, however, commodores universally said no. They believe this would be just another way for government to interfere with their freedom. Some clubs offer safety education, but not everyone attends and many boaters do not belong to clubs.

Commodores suggested that in addition to a greater stress on education, some process should be created which would make getting a safety certificate more attractive to pleasure boaters. They suggest that registering a boat should be cheaper for those who have certification.

Another safety issue relates to the conflicts between sailors and fishermen. There is a fair amount of destruction of fishermen's nets, lobster pots and other materials by boaters who motor through fishing areas. The danger is to the boaters who often must go into the water to fix their propellers. There are reports, perhaps apocryphal, that angry fishermen, who often feel that this behavior is purposeful, have taken out their frustrations by deliberate collisions with pleasure craft.

2.5.4 Development vs. access

Among recreational users there was opposition to shoreline real estate development which interferes with recreational uses of the Bay. The natural beauty of the land adds to the joy of

sailing, but far too often sailors find that vistas are interrupted by unappealing buildings. In addition, sailors believe that the profit from tourism which causes some of the development (e.g. in Newport) does not go to local Rhode Islanders.

This development also affects the public access to the Bay. There are many different recreational activities that can occur on the Bay but they demand opportunities to get to the Bay which too often are limited by shorelines filled with condominiums and other developments. Another way that development threatens public access for recreational users is by causing an increase in real estate values. A real estate value increase causes an increase in tax rates. When their taxes are too high, small recreational boating clubs find it difficult to maintain land and water space. Some recreational users believe that CRMC favors shoreline development over other alternatives for the land (such as expanding shoreline access facilities), because developers have more money than small recreational groups.

All types of other users, canoeists, sailboarders, and surfers, expressed concern about access to the Bay and especially to the areas that they need to reach to carry out their activity. Usable areas are quite limited for these activities.

Another recreational user argued that the problem is not that the State lacks adequate access points to the Bay; rather it is a matter of providing equal access to all. His group has been involved in several disputes with other user groups over specific access points over the years. The disputes usually come down to 14th Amendment issues (concerning equal protection under the law). He claimed that competition between user groups for access to the Bay is intensifying, and that the State will soon have to make some decisions. There was some claim of violation of equal protection rights. He believes that public access to the Bay is not really a problem, but feels certain that the future will bring much more development which is certain to limit access to the Bay. He believes that, fortunately, Rhode Island is "behind the rest of the East Coast in real estate development." Rhode Island has not yet experienced a major boom in shoreline development, but this is inevitable.

One recreational user expressed interest in seeing more public beaches, more boating resources, and more public rights-of-way giving access to the water. He said that on sunny summer days the beaches and parks on the Bay are very crowded. He sees this as a sign of high demand for more land on the Bay to be open to the public. As he put it, "If the Bay belongs to the people of Rhode Island, there needs to be access to it." Another recreational user said that he would like to see more dock and mooring spaces on the Bay, and he cited the loss of spaces at the Newport Shipyard and Kings Park Pier as major problems. He feels that spots such as these that are already filled with boats should be a priority for the development of more dockages.

2.5.5 Conflicts

A surfing association mentioned two recent conflicts with other user groups who were trying to limit their access to the water. The first group was "wealthy summer people" (homeowners) in Newport, who lobbied to restrict surfers' rights to access to the Bay at the end of public roads that lead to the shore. The other group which has tried to limit surfers' access to the water is fishermen. At Matunuck State Beach, an area used by both surfers and fishermen, a parking lot on the shore eases access for the two groups. Three or four years ago the fishermen succeeded in getting the State to require special passes in order to park in the lot. In both of these cases the surfing organization ended up taking the other users to court in order to keep their rights of access.

Spokesmen for two other recreational groups mentioned conflicts with fishing groups. The first was a yacht club's commodore, who spoke of a mutual lack of respect between sailors and fishermen. Sailboats, he said, often insist that they have the right of way and so will plow through nets which net fishermen are dragging. Fishing boats will occasionally ram a sailboat or purposely cut through moorings. Lobster pots are also a problem. Fishermen accuse pleasure boaters of tearing up lobsterpots, but this boating spokesman's response was: "Good God, they've dropped these thing all over the Bay, so that I can almost walk from here to Jamestown on their buoys, and when there are white caps, you can't even see them". Commercial users spoke of the same problems with lobster pots. Lobster fishermen use the channels for fishing because they are more likely to catch lobsters in the cooler water. This is also the water that the larger ships must travel and larger ships have even less control over their movement than smaller boats. Even if the captain were to see the lobster pot lines he would be unable to avoid hitting them in most cases.

Many recreational boaters spoke of conflicts with other recreational boaters. Some complained of overcrowding; many complained that speedboaters drive too quickly and dangerously; and some sailboaters complained about the noise and combustion pollution produced by powerboaters.

2.6 Developers

Developers are sensitive about the negative public image they have as destroyers of the Bay. (And, as these interviews have shown, they accurately perceive their public image.) While the heads of the organizations were willing to admit that there are individuals who act in unacceptable ways, they stress that it is in their own best interest to protect the environment. This keeps property prices high thus ensuring a greater profit. Their problem is with corruption at the local level. It was stressed that businessmen will try any approach to turning a profit and morality cannot be regulated. Local officials who approve plans which should not be approved are seen as more at fault than the developer when offensive buildings are constructed.

One representative said that overdevelopment is a result of economic influence -- not illegal payments but contributions to political campaigns -- which he said can exist because there is a lot of local control and laws are changeable. (He quoted Rockefeller as saying, "I never break the laws -- I have them changed.") He says that there is not a lot of illegal building, but there is much that is not environmentally sound. He spoke of the need for better planning, because he said that developers are going to take the path of least resistance.

A spokesperson for a real estate development association also mentioned frustrations of his members with the slow permitting process of the CRMC. Delays can be costly, unless the property is owned by the real estate firm. He cited a study which found that the cost of construction could be reduced by 25% by expediting building permitting procedures. His organization's goals are to help expedite approvals at the state and local levels, and press for the use of modern rather than antiquated building codes.

The only group which real estate developers say they are in conflict with is environmentalists. One real estate representative said that his group only has conflicts with environmental groups when they believe that people are falsely using the need to protect the environment as an argument when really they are concerned with other things like aesthetics. Another real estate representative seemed to have more conflicts with environmental groups, which he said include

people who have "made it" and "young idealists," both of whom do not need to be concerned with the State's economy. He believes that development is very important to the State's economy, because it increases employment opportunities, and environmentalists don't seem to realize this. He sees a trade-off between environmental concerns and economic needs.

2.7 *Other Interests*

The organizations under this heading are diverse and this is reflected in their issues. The groups which were concerned with the economic development of the State tend to be pushing Rhode Island as a pleasant place to live. They have used this strategy to attract "clean" industry and corporate headquarters. This type of industry offers higher paying employment than Rhode Island's traditional industries. This means that such groups want to encourage not only a reduction of the Bay's pollution, but they also want to increase the uses that will attract these people: uses such as sailing, sportfishing, etc.

There were some references to regulatory agencies made by users in this category. Usually references had to do with the tension between state control and local control. One interviewee said that when the CRMC is deciding on important development proposals, they seem to pick and choose what information they will treat as meaningful, rather than objectively looking at all evidence and arguments. He was especially concerned with CRMC's lack of attention to the concerns of coastal communities. He maintains that localities are the primary regulators of land use in the coastal zone. Although he recognized the need for overall state policy, he believes that there is a need to get as many of the resources as possible to local government in order to make sure that wise coastal decisions are made. Cities and towns resent the State telling them what to do. He feels that the basic problem with the CRMC is that it does not take local desires into account. An example of this was the Bonnie Crest condominium project in Newport. The city did not want the project the way it was approved, but CRMC wouldn't listen to the city's testimony. There was no cooperation between these levels of government. This year the State has begun to direct some Coastal Zone Management money to the towns, but for the past ten years the State controlled all of these funds.

Control issues revolved around who should control the waterfront, the cities and towns or the State. Some believe that local areas ought to have control of their waterfront because they will show the greatest concern for encouraging proper development. On the other side is an argument for the increased flexibility and coherence that statewide coordination of development makes possible. Also, there is some suggestion that local governments are not the best guardians of their waterfront. Instead, they may tend to act in ways which are the most economically beneficial in the short run. There is ample evidence of this in some of the recent shoreline development projects approved by towns.

There is a desire to increase the use of harbors for commercialization which would create jobs and put some area to use. Some of the people in this category of users wanted the State to include harbor development as part of any plan for the Bay's future. Those who are interested in making the State available for increased boating activities (both commercial and sporting) were concerned about the dredge disposal problem. There is a need to keep the ports and harbors clear which is blocked by the familiar problem of no dump site.

Chapter 3

PUBLIC SURVEY

The funds authorized for the NBP can be used only for the "purposes of assessing the principal factors having an adverse effect on the environmental quality of the Narragansett Bay..., as perceived by both scientists and users..." The preceding chapter of this report described the results of our interviews with representatives of organized user groups. In order to identify the relevant perceptions of users whose interests might not be represented by organizations, we conducted a statewide telephone survey. We worked with Alpha research to design a draft survey which was then revised in response to comments from the NBP staff and the Public Education Subcommittee. We wanted to know what the public perceived as the major bay-related issues and to compare the public's concerns with those of our organized user groups. Data from our interviews, existing recreation surveys and newspaper articles were used to determine what issues to include in our survey. These recreation surveys and other relevant material which we used for background information are listed in Appendix B.

The survey was conducted in early June by Alpha Research, a firm with considerable experience in discerning opinions of the Rhode Island public by telephone surveys. A random sample of adults were selected from a sampling frame stratified to reflect geographic distribution of the adult population as found in the 1980 census. According to Alpha Research, the sample of five hundred and three people gives us results which are within four percent in either direction of the results which would have been obtained if all Rhode Island adults had been sampled. We have included a copy of our survey in Appendix D.

Alpha researchers were surprised to find that every individual who agreed to begin taking this survey stayed with it to the end. Apparently, some people do not enjoy surveys, particularly telephone surveys, which may be seen as an intrusion into their private home life. Alpha researchers often find that people will begin a survey but then tire of it and hang up. The fact that all respondents completed our entire survey, despite its length (78 questions), is clearly an important indication of how much the public is interested in the Bay.

In the first set of questions, we asked the public to score concerns about the Bay that had been raised in interviews or in news articles. Respondents were asked to rate each problem on a scale of one to five, with five being the most important. The problems which we addressed were: pollution and its effects on the Bay; inadequate access to the shoreline; overcrowding of beaches; too many boats on the Bay; inadequate boating regulations; poorly controlled shoreline development; no conveniently located bayshore parks and beaches; inadequate facilities such as restaurants on the waterfront; and dangers associated with eating contaminated fish and shellfish from the Bay. Table 1 shows the distribution of responses for each problem.

In order to compare the levels of public concern over each of these issues, we computed the average (mean) response to each question and have listed the issues in order of importance, according to their means, in Table 2.

Table 1: Importance of Various Bay Problems

The number 1 means that the respondent finds this problem least important and a 5 means it is most important. This table shows the distribution of responses for each of the following Bay-related problems.

<i>Problem</i>	<i>1(least)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5(most)</i>
Pollution	2	1	7	11	79
Inadequate Access	10	12	32	15	31
Overcrowding	10	13	28	19	31
Too Many Boats	18	20	33	13	16
Inadequate Regs	15	13	26	15	31
Development	7	12	19	21	41
No Parks	14	12	25	21	28
No restaurants	26	21	23	12	17
Risk From Fish	5	6	11	12	66

Table 2: Means of Problem Perception

<i>Problem</i>	<i>Mean Response</i>
Pollution of the Bay	4.7
Dangers from contaminated fish	4.3
Poorly controlled shoreline development	3.8
Overcrowding of beaches	3.5
Inadequate access to the shoreline	3.5
No convenient parks and beaches	3.4
Inadequate boating regulations	3.3
Too many boats	2.9
Inadequate restaurants on the waterfront	2.7

Two closely related issues, pollution and risk from contaminated fish and shellfish, are the most important issues to the public. Consistently, throughout the survey, when the public had an opportunity to set priorities, pollution issues were ranked at the top of the scale. Our findings were confirmed in a more recent expression of public opinion. In the 1986 General Elections, of the 25 referendum issues on which the public voted, bonding for the Clean Water Act was approved more decisively than any other issue: 188,160 to 58,031. (Providence Journal, 6 November 1986, p. A-20). The next most popular public spending project, mental health services, was approved by a ratio of 2.3, well below the 3.2 approval ratio for Clean Water.

Public concern over pollution and the risk from pollution is followed closely by concerns about shoreline development, which we believe also may include a concern about bay pollution. There are many reasons why the public may believe that shoreline development is poorly controlled: development can limit the use of portions of the shoreline to a few people rather than to many; condominium development projects along the water may be aesthetically unappealing; or the public may be concerned about the possibility of further degradation of water quality due to erosion or increased non-point source pollution.

In questions 16 through 20 of our survey we asked how the respondents used the Bay personally. In Question 16, people were asked if they engage in activities such as sun bathing, swimming, waterskiing, or windsurfing. We will call these uses "swimming" in our tables. Question 17 asked people if they engaged in what we will call "aesthetic" uses (enjoying the view, walking along the shore, photography, or observing). Questions 18-20 asked if they use the water for boating, shellfishing, or fishing, respectively. Table 3 shows what percentage of the public participates in these specific activities on and around the Bay.

Because we want to differentiate between different user groups among the public, we will from now on be comparing respondents' personal use of the water to their responses to other questions. From Table 3 it is evident that many respondents use the Bay in more than one way; clearly, the percentages in the table do not add up to 100%, as they would if all respondents participated in only one use of the Bay. Some respondents also said that they do not use the Bay at all. Because of this, the figures in our tables in which participants were broken down into user groups may appear slightly different than the figures given for the total sample. For example, if we were to average the percentage figures for all users who said (as shown in Table 5) that they use the Bay "very frequently," we would not obtain the 23.9% shown in Table 4. This is because a large percentage of the respondents who do not use the Bay for any of our designated uses also do not use the Bay very frequently. Therefore, it is important to remember when examining the tables in which respondents are broken down into user groups that some respondents are included in more than one group and some respondents are not in any of the groups.

Table 3: How the Public Uses the Bay

<i>Use</i>	<i>Percentage</i>
Aesthetic	85
Swimming	64
Boating	32
Fishing	30
Quahogging	21

According to the results shown in Table 3, the most frequently reported uses of the Bay are dependent upon good water quality. When people observe the water, go to beaches and participate in boating, they are enjoying the Bay's aesthetic value (i.e. its natural beauty), which is clearly diminished by pollution. This helps us to understand why the public's greatest concern about the Bay is pollution.

It is not surprising to find that the Bay's most popular uses are those which do not require money or equipment. The Bay is most easily accessible to the public for observing the water and enjoying Rhode Island's beaches. Nevertheless, a large number of people use the Bay in ways that require equipment; almost 32% of the population enjoys the Bay through boating.

Table 4 reports how frequently respondents use the Bay. Crosstabulations (no tables provided for this information) showed that frequency of Bay use depends upon where respondents live; for example, 41% of the respondents who live in the North Kingstown-South Kingstown-Jamestown-Charlestown-Narragansett area use the Bay very frequently, but only 9% of the respondents who live in northwestern Rhode Island (Burrillville, Gloucester, Foster, Scituate, etc.) use the Bay very frequently.

Table 4: Reported Frequency of Bay Use

Very Frequently	24%
Somewhat Frequently	23
Somewhat Infrequently	22
Very Infrequently	31

Table 5 examines how often each type of user perceives him/herself as using the Bay. In all cases the plurality said "Very Frequently."

Table 5: Frequency of Use

	Swimmers	Aesthetic	Boaters	Quahoggers	Fishers
Very Frequent	33%	27	40	57	37
Somewhat Frequent	32	26	29	30	30
Somewhat Infrequent	25	25	20	19	23
Very Infrequent	10	23	11	14	20

Next, we asked people why they did not use the Bay more often. (See Table 6) Table 7 breaks their answers down according to how individuals use the Bay. The plurality (48%) said that they had no time or that they lived too far away from the water. Table 8 examines what would influence respondents to use the Bay more. Approximately 46% responded that they would

use the Bay more if it was cleaner, and almost 35% said that they would use it more if it were closer. Table 9 breaks these answers down by user group. For all respondents but quahoggers, the most important change which would influence them to use the Bay more was cleaning up the water. The second most important change was transportation (except for quahoggers, for whom this change was the most important). If the Bay was cleaner near the population centers, it appears that it would be utilized far more than it is now.

When respondents said that the Bay was too far away for them to use it often, they may mean that either they live too far away from the water or they live too far away from the *usable* (clean) portion of the Bay, since, for example, a respondent living in Providence is not apt to swim in the Seekonk River. (Whether or not a portion of the Bay is considered usable depends of course on what uses the respondent enjoys, since some uses are more sensitive to pollution than others.) This was supported by the number of respondents who live in towns which abut the Bay who nevertheless said that the Bay was too far for them to use often. For example, 30% of the respondents who live in Providence and 16% of those living in Barrington, Bristol, Warren and East Providence said that they don't use the Bay more because they live too far from it or don't have adequate transportation to it, but no one living in the Narragansett-Kingstown area gave this response.

Table 6: Why not use more frequently?

Health/Age	10%
Transportation	20
Too Crowded	3
No Interest	15
Pollution	7
No Time	38
Dislike Beach	6
Dislike Generally	1

Despite the concern with the Bay's pollution, Table 6 indicates that only 7% of those surveyed said that pollution stops them from using the Bay more frequently than they use it now. But, when people were asked what would encourage them to use the Bay more often, as Table 8 shows, 46% responded that they would do so if the Bay were cleaner. What can be said about this apparent contradiction?

The Bay runs through most of the state, so when any particular individual responds to a question about "the Bay" it is unclear what part of the Bay they are thinking of. It seems likely that those who live near the Bay are referring to that part of the Bay which they come into contact with the most. Therefore, it makes sense that those who live close to the heavily polluted areas said that pollution keeps them from using the Bay. However, those who live further away

Table 7: Why not use more frequently?

	Swimmers	Aesthetic	Boaters	Quahoggers	Fishers
Health/Age	5%	9	5	0	4
Transportation	22	20	23	24	20
Too Crowded	3	4	2	6	4
No Interest	11	12	14	6	6
Pollution	6	7	8	7	11
No Time	50	41	43	50	51
Dislike Beach	3	6	5	6	3
Dislike Generally	0	1	0	2	1

Table 8: What would make you use the Bay more often?

Transportation	35%
Cleaner	46
More Info	5
Activities	7
Less Crowds	4
Better Parks	4

Table 9: What would make you use the Bay more often?

	Swimmers	Aesthetic	Boaters	Quahoggers	Fishers
Transportation	31%	36	39	46	28
Cleaner	44	45	43	39	60
More Info	6	5	4	4	2
Activities	6	6	7	4	2
Less Crowds	7	5	2	7	5
Better Parks	6	4	4	0	2

from the Bay thought of what they perceive as a usable portion of the Bay, and thus they responded that the distance that they would have to travel in order to use the Bay was a large problem for them, but they would use the Bay more if it were cleaner -- i.e. if the portions of the Bay close to them were cleaner. Because the usable portion is further away, they respond with the

distance answer. But when asked what would make them use the Bay more, they realize that if they could use the closer parts of the Bay they would be likely to use it more and so they respond with the pollution answer.

For example, while 30% of the Providence respondents said that distance kept them from using the Bay more often, 51% of them said that they would use the Bay more if it were cleaner. Similarly, while 39% of respondents from northwestern Rhode Island claimed that distance from the Bay kept them from using it more often, 56% of them claimed that they would use the Bay more often if it were cleaner. Respondents from northwestern and northeastern Rhode Island claimed most strongly that they would use the Bay more often if it were cleaner -- 56% of each of these groups said that they would use it more often if it were cleaner. By comparison, only 33% of the respondents from the Narragansett-Kingstown area said that they would use the Bay more often if it were cleaner.

Whether or not an individual says that he would use the Bay more if it were cleaner varies according to his age. While 63% of individuals aged 18-24 said that they would use the Bay more if it were cleaner, this percentage dropped into the 40s for all age categories including individuals 25 to 64 years old, and only 31% of those over 64 said that they would use the Bay more if it were cleaner. This variation may be due to the fact that individuals in the younger age classes use the Bay for more activities than older individuals, and thus they are more sensitive to its pollution problems. (Table 10)

Table 10: How Individuals in Different Age Classes Use the Bay

	Swimmers	Aesthetic	Boaters	Quahoggers	Fishers
18-24	70%	92	42	17	35
25-34	77	83	33	26	30
35-49	77	85	34	24	29
50-64	51	86	33	16	29
Over 64	34	76	13	10	17

Table 11 displays the "bay issues" priorities (discussed earlier) as expressed by the various user groups. These data are more remarkable for their similarity than for their differences. It seems that the use made of the Bay is not an important determinant of perception of the importance of issues facing the Bay. We have no direct evidence to support an explanation of this counter-intuitive result. Perhaps public perception is formed more by shared information sources (the media) than by direct personal experience. More hopefully, but probably less likely, perhaps altruism, informed by personal observation, leads to a scoring of importance that reflect the broader societal interests over direct self-interest.

Similarly, the user groups are in good agreement about the source of Bay pollution. (Tables 12 and 13) Since few users will have direct knowledge of pollution sources, we can more confidently suggest shared perceptions resulting from media focus on industry and sewage treatment

Table 11: Specific Users' Problem Perception

	Swimmers	Aesthetic	Boaters	Quahoggers	Fishers
Pollution	4.8	4.7	4.7	4.7	4.7
Dangers from fish	4.3	4.3	4.0	4.2	4.4
Control of dev	3.3	3.7	3.7	3.9	3.9
Overcrowded Beaches	3.5	2.8	3.5	3.8	3.6
Inadequate Access	3.4	3.4	3.4	3.5	3.5
No parks or beaches	3.4	3.3	3.4	3.5	3.4
Inadequate boat regs	3.1	3.2	3.3	3.5	3.3
Too many boats	2.8	2.8	2.8	2.9	2.8
Inadequate restaurants	2.7	2.7	2.8	2.6	2.7

plants as major polluters. The very slight differences in perceptions, at the very edge of significance, does seem to follow an expression of self interest. Boaters and fishermen blame inadequate sewage treatment while aesthetic users and swimmers believe that industry is primarily responsible. The obvious difference between these two groups is that the former work on the water while the latter use the shore. Users who are out on the Bay are more likely to have their use limited by sewage treatment problems, which are the basis for legal limitations, than industrial discharges. Although metals and chemicals may do more long-term damage to the Bay ecosystem than sewage, their presence is rarely sensed by boaters and quahoggers, nor do industrial discharges often close fishing grounds.

Table 12: Source of Pollution

Industry	37%
Sewage	31
People	19
Oil	8
Toxic Waste	4

In the next series of questions on our survey (28 through 33) we attempted to determine how the public would make hard choices (i.e. set priorities) between potentially conflicting uses of the Bay. Organized fishing groups assert that their work is more important than recreational uses of the Bay. Questions 28 and 30 were designed to establish whether or not the public agrees. The results, in Table 14, leave little doubt that the public places a much higher value on shellfishing than on recreational uses of the Bay. The strength of this conviction cuts across self-interest lines. Respondents were not biased toward their own activities when asked to decide whether their activity or another should take priority when the two conflict. Boaters agreed with the majority of

Table 13: Source of Pollution

	Swimmers	Aesthetic	Boaters	Quahoggers	Fishers
Industry	39%	36%	31%	32%	28%
Sewage	34%	32%	38%	35%	36%
People	16%	19%	19%	20%	20%
Oil	7%	7%	8%	6%	6%
Toxic Waste	4%	2%	3%	6%	6%

other users in favoring quahogging and fishing over boating and sailing. Quahoggers are equally selfless and do not favor limiting boating more than other groups. In order to save space, we have combined our overall results on these two questions with our user group data.

Table 14: Choice: Quahogging vs. Marinas and Sailing

If boating and marinas were found to harm quahogging in an area, which should be controlled, quahogging or boating?

	Quahogging	Boating
All Participants	15%	78%
Swimmers	16	77
Aesthetic	14	79
Boaters	13	76
Quahoggers	14	77
Fishermen	15	75

Sometimes quahogging areas overlap with areas where sailors race. When this happens, who has more of a right to use these areas - fishermen or sailors?

	Fishermen	Sailors
All Participants	77%	11%
Swimmers	75	11
Aesthetic	76	11
Boaters	75	12
Quahoggers	79	12
Fishermen	76	13

Table 15 shows that people place a much higher value on access to the Bay for recreation than on development projects which would limit recreational uses of the water. Once again, type of personal use of the Bay does not modify the intensity of this preference. When forced to face the potential costs in decreased development of limiting development, respondents did not waver in their determination to curtail impacts of development. (Table 16) And again, user identification did not affect the strength of opinion.

Table 15: Choice: Limit Development vs. Limit Recreation

If residential housing was to be built on a section of shoreline that people currently use for recreation, should the development be stopped or should the people be excluded?

	Development stopped	People excluded
All Participants	87%	4%
Swimmers	88	3
Aesthetic	87	4
Boaters	86	5
Quahoggers	88	5
Fishermen	88	4

Table 16: Choice: Development vs. Avoidance of Further Pollution

If development may increase pollution, should the State exclude development, even if the exclusion results in fewer jobs and increased costs for housing and services?

	Exclude	Don't Exclude
All Participants	74%	15%
Swimmers	76	14
Aesthetic	75	15
Boaters	71	16
Quahoggers	76	13
Fishermen	78	11

The public has an equally clear idea of who should pay for industrial pollution control. As shown in Table 17, the public overwhelmingly believes that industries should take responsibility for their own waste products.

Table 17: Choice: Who Should Pay For Pollution?

Some industries which are significant polluters of the Bay claim that the costs of cleaning up their wastewater are too high. Should the state cover the costs, should the industries cover these costs, or should the pollution be allowed to continue?

	State	Industry	Allow Pollution
All Participants	11%	76%	1%
Swimmers	10	77	1
Aesthetic	11	76	1
Boaters	10	73	1
Quahoggers	11	78	1
Fishermen	11	74	1

Finally, we asked a question pertaining to the future of Providence Harbor. Table 18 shows that people are almost equally divided on how they believe the harbor should be used in the future. This division holds across categories of users. In retrospect, given the public's affection for quahogging, it would have been interesting to ask if the public would sacrifice shipping for shellfishing.

Table 18: Choice: Providence Harbor - Shipping vs. Recreation

Should the Providence Harbor be developed for expanding shipping and commercial use or for building a recreational area with shops and restaurants as in Newport?

	Shipping	Recreation
All Participants	42%	44%
Swimmers	40	45
Aesthetic	41	44
Boaters	38	43
Quahoggers	45	39
Fishermen	42	43

We asked a series of questions designed to begin to understand how tolerant the public is of health risks from eating contaminated seafood, and what the perception is of the current risk. An earlier question showed that concern over this risk ranks second only to pollution on the public agenda. Public surveys on risk issues are known to present special challenges (See Baruch Fis-

choff, "Acceptable Risk", Cambridge University Press, 1981) and we emphasize that the results we have obtained should be used with the greatest caution in policy decisions. However, public perception of risk has a special standing in setting policy, since who has a better idea than the public of what risk it wishes to tolerate?

We found that a sizeable majority of those surveyed eat saltwater fish and a little less than half eat raw shellfish. (Table 19) Most of those who do not eat shellfish simply don't like them (82%), but 12% said they thought them to be contaminated. Sixty-two percent of all respondents were aware of health risks from shellfish, but only 5 percent have experienced health problems directly. About half of the respondents identified risks in an open-ended question, with hepatitis (35%), stomach problems (35%) and cancer (17%) heading the list. Saltwater fish were perceived as much safer, with only 33% of respondents saying they were aware of a health risk.

Table 19: Percentage of the Public Who Eat Raw Shellfish and Saltwater Fish

	Yes	No
Eat Raw Shellfish?	45	55
Eat Saltwater Fish?	84	16

To get an approximate risk profile, participants were asked to respond to decreasing risk ratios for severe stomach disorders by indicating the point at which they would eat shellfish. Table 20 gives responses for those who indicate that they do eat shellfish.

Table 20: Risk Ratio at Which Shellfish Will Be Eaten

Some health risks associated with eating contaminated shellfish include stomach cramps, vomiting and diarrhea. If you knew your chances of getting these illnesses were [this risk level] would you stop eating them? (The percentages shown represent the percentage of people who eat shellfish who said "no" to this question at each risk level.)

one in ten	36%
one in 100	69%
one in 1,000	77%
one in 100,000	81%
one in one million	83%

It appears that Rhode Islanders are very fond indeed of their shellfish, consistent with the priority they assign to shellfishing over boating or development. Even faced with "stomach cramps, vomiting and diarrhea" from every tenth clam or oyster they eat, over a third of those who now eat shellfish would continue to do so. With risks at this extremely high level, we can only conclude that respondents place a very high value on eating shellfish. It is consistent with this interpretation that 58% of respondents would be willing to pay twice what they now pay to be sure that shellfish would not cause stomach disorders. Willingness to pay twice the cost strongly suggests that it is the high benefit of eating shellfish, not a disregard for the risk, that leads to the risk profile in Table 20. If offered an option of eating clean shellfish, a majority are willing to pay. When asked to select a program for protecting the public from contaminated shellfish, 55% preferred to warn the public, while 37% preferred strict government regulation.

We asked a similar series of risk profile questions, telling respondents to assume that eating contaminated fish regularly could cause cancer and asking how much risk was tolerable. Even at the highest risk, a quarter of the respondents would continue to eat fish and a majority are willing to take a one in one thousand risk in order to enjoy eating fish. (See Table 21) At the other extreme, about 30% of those who now eat fish say they would not do so even at risk of less than one in a million, a risk generally assumed by government agency risk managers to be tolerable. Again, a majority of respondents (65%) say they are willing to pay twice as much for fish in order to be sure the fish would not cause cancer.

Table 21: Percentage Willing to Risk Cancer to Eat Fish

It has been suggested that eating contaminated fish regularly can cause cancer. If you knew that [risk level] people who regularly eat certain kinds of fish get cancer, would you stop eating them?
(The percentages below represent the percentage of people who eat fish who said "no" to this question at each risk level.)

one in ten	25%
one in 100	41%
one in 1000	55%
one in 100,000	65%
one in one million	71%
one in ten million	72%

Since a major purpose of the public survey is to determine the public's perception of factors adversely affecting Narragansett Bay, in order to guide the use of NBP funds, it seemed prudent to ask the public if they supported the present allocation of NBP funds. The next set of questions were designed to see if the public agreed with the priorities for research that had been set by the Management Committee. The individuals conducting the survey read a list of ten items taken from the Management Committee's list of goals and from concerns expressed by the special user groups during our interviews. Respondents were asked to indicate whether or not a particular item should be a major part of the study, a minor part, or no part at all. The results are shown in

Table 22. While not all NBP priorities are supported equally, approximately two-thirds or more of the public agreed with NBP project goals. Consistent with the sustained theme running through the survey, issues of pollution and the risk from pollution rank highest with the public.

Table 22: Public's Preferences for Project Goals

<i>Study</i>	<i>Major Part</i>	<i>Minor Part</i>	<i>No Part</i>
Effect of Raw Sewage	98	2	-
Effect of Industrial Waste	97	2	-
Pollution from Development	91	7	1
Risk from Fish	85	13	1
Public Education	84	15	2
Effects of Water Quality on Ecosystem	83	14	2
Public Opinion on Bay	77	21	2
Improving Enforcement	77	21	2
Improving Management	69	27	4
Effects of recreation on water quality	63	30	6

In breaking down the responses to this question according to user group, we found only minor differences between the groups and the data was extremely consistent with the figures shown in Table 22. Therefore, we chose not to fill numerous pages of this chapter with these breakdown tables, but we have included them in Appendix C for anyone who would like to examine them.

The last substantive question in the survey asked respondents to rank Bay-related issues with the full range of issues currently facing Rhode Island. (Table 23) Asking this question at the end of the survey probably provides a bias toward a positive answer. Still, the number of people ranking the Bay as "very important" (77%) or "somewhat important" (20%) is consistent with the extraordinarily high completion rate of the survey.

To summarize our survey findings, one can see that the public's concerns with pollution and its causes reflect the issues expressed in our interviews. We found that the results from our survey and our interviews complimented one another. Our interviews allowed us to examine user groups' concerns in-depth and understand the reasoning behind their views and perceptions. Once we had gained an understanding of the issues of importance to the public, we applied this knowledge to the formulation of our survey questions. Through our survey we were then able to reach a greater number of individuals and obtain a broader view of the public's concerns about the Bay. Without the depth of understanding obtained in our interviews, we could not have conducted a meaningful survey. Therefore, we suggest that the two be examined together. In our concluding chapter we summarize our data and discuss issues and concerns which were particularly important to both user groups and the public.

Table 23: How important are Bay problems?

1 = Very Important 2 = Somewhat Important
3 = Somewhat Unimportant 4 = Very Unimportant

	1	2	3	4
All	77%	20	2	0
Swimmers	77%	21	1	1
Aesthetic	77	21	2	0
Boaters	76	19	4	1
Quahoggers	84	12	3	1
Fishermen	81	17	1	1

Chapter 4

SUMMARY AND INTERPRETATION OF INTERVIEW AND SURVEY RESULTS

In this chapter we bring together the data gathered by interviews of representatives of organized user groups and by a telephone survey of the public and offer some interpretations of these data. We have divided our results into major substantive areas and for each area give a summary of the perceptions we have reported in the preceding chapters, followed by statements of need and recommendations made by users and by the public. In order to make our results more accessible to the NBP, where appropriate we have organized the needs/recommendations sections to correspond to the committee structure of the NBP. The issues listed here are those which we believe would be raised if our interviewees or survey respondents sat on these various committees.

We expect the sections on policy and on management issues to be of particular interest to the Policy Committee, the Management Committee and the Policy Issues Committee. Some of these expressions of need clearly fall within the purview of the NBP, and should be considered as the NBP plans its programs for the future. Other recommendations lie outside of even a broad interpretation of the scope of the NBP, and may need to be communicated to other bay-related agencies.

Sections on research will concern particularly the Scientific and Technical Committee and the Policy Issues Committee. In most cases research questions were implied by users. Most users are not natural scientists or policy scientists so they do not tend to express their needs in technical terms. Some of the research that we suggest below may already exist or be in process; we do not profess to have a knowledge of all research that has been done on the Bay. If some of the research has already been done but the public is unaware of it, then the results need to be disseminated and become the concern of the Education Committee.

Education sections are intended for that Committee. We have included in these sections both explicit and implicit user concerns. At times, users would identify an issue which they believed could best be resolved by increased understanding. This is especially true for boater safety problems. Implied education issues come out of user statements which showed ignorance of existing information. Unknown information included both results of studies which have been conducted and the processes by which agencies do their work. It should be noted that almost all of our interviewees expressed an interest in knowing the outcome of our research and all other research being conducted by the Narragansett Bay Project.

4.1 Comprehensive Policy for Narragansett Bay Management

4.1.1 Perceptions

Most users do not perceive the current statements of policies for the management of Narragansett Bay to provide adequate guidance for management or a proper structure for the resolution of conflicts over Bay use. The General Assembly must have had a similar perception in 1971 when it created the Coastal Resources Management Council (CRMC), and charged it with developing a long range, coordinated and comprehensive Bay management policy:

"...it shall be the policy of this state to preserve, protect, develop, and where possible, restore the coastal resources of the state for this and succeeding generations through comprehensive and coordinated long-range planning and management designed to produce the maximum benefit for society from such coastal resources; and that preservation and restoration of ecological systems shall be the primary guiding principle upon which environmental alteration of coastal resources will be measured, judged, and regulated." (46-23-1 of the General Laws of Rhode Island)

Yet, fifteen years after this legislative instruction was given, most users do not believe that the CRMC, DEM, or any other agency has carried it out. Users who were familiar with the purpose of CRMC stated repeatedly that the organization does not fulfill its intended goals. Several users believe that environmental concerns are not given adequate attention in relation to economic and social concerns. The strongest example of this is in the overwhelming belief that the Bay is being overdeveloped; many of those who spoke of CRMC claimed that it is short-sighted and lenient towards development on the Bay.

4.1.2 Needs/Recommendations

4.1.2.1 Policy/Management

Many users believe that the State should establish a comprehensive policy governing the use of the Bay. Representatives of some user groups stated this explicitly, while many others implied that management problems and fragmented decision-making result from the fact that no one agency has full jurisdiction over the Bay and that State policy toward the Bay has no unified direction. Of course, the principles which users want to see represented in a comprehensive policy differed between user groups.

All user groups see the Bay as a natural resource which belongs to all Rhode Islanders, so they advocate balancing uses in such a way that the Bay will remain available for a variety of recreational uses. Some users said that the State should provide equal access to all users. Any state decisions on who should have access to the Bay, made through action or inaction, involve trade-offs. Users believe that the State should adopt policies to resolve user conflicts which make these trade-offs explicit. For example, boaters and fishermen face increasing competition over docking space and use of the water. Boaters, insisting that they have the right of way, often plow through fishing nets. Fishermen claim that recreational users do not respect their need to be where the fish are; they want the whole Bay open for boating. The public has a clear sense of priority on this conflict; 77% believe that quahogging should be given preference over boating and marinas when the two uses conflict.

Users often suggested criteria which the State should use to decide between uses when they conflict. These criteria were usually clothed in statements justifying why their particular use should be given priority over others (e.g. it brings the most revenue to the State, it benefits the greatest number of Rhode Islanders, it is not harmful to the ecosystem, etc.)

Three out of four representatives of the environmental community expressed a strong desire to see environmental concerns incorporated into an overall policy for the Bay. Two of them spoke of the need to synthesize economic, social, and environmental concerns, and the third spoke of the frustration his organization feels in having to work, project by project and issue by issue, to protect the environment.

At least one representative of each of the other user groups said that environmental concerns should be incorporated into a comprehensive policy for the Bay. However, these individuals had different visions of that policy. A spokesman for a fisherman's group expressed concern for the environment as it relates to the future of the shellfishing industry. He and other fishing representatives believe that the State should establish a basic set of priorities for Bay use, in order to resolve the constant competition between user groups. He said that the State should examine what resources provide the largest economic and social benefits to citizens, and these resources should be protected for future generations. He believes that the fishing industry provides numerous benefits to citizens, but it is being harmed by pollution and conflicts with recreational users.

One marina owner said that he would like to see a centralized decision-making process replace the current disjointed process. He believes that the State has never examined the question of total Bay management and is presently allowing special interest groups to control the management process. He spoke of the need for an overall policy which would improve water quality, increase access to the Bay, and promote recreational uses of the water and shoreline. An industrial representative went further, saying that he believes that a centralized, long-range plan for the Bay could result in its being cleaned up in the next 30 years. He believes that the Bay has suffered greatly from a lack of management. Another user stressed the need for a plan for the Bay's future which would emphasize the increased use of harbors for commercialization.

There was a clear expression of need for a process through which all types of users, organized and unorganized, can have a voice in policy formation. Again, many users did not see CRMC as the proper forum, because they perceive the organization as "too political." Several users complained that CRMC does not represent all interests equally; it favors development interests over others. There is also the problem of a power struggle between cities and towns and the State over who will control resources. Local governments desire autonomy and the State government usually wants consistent state-wide policies.

One environmentalist suggested that the State should, on an ongoing basis, determine what citizens want and need from the Bay and use this information to establish an overall guiding policy, integrating social, economic and environmental needs. Once this policy is set, he said that the public should be made aware of the policy through public education, science should be used to implement it and opportunity for reviewing the policy should be provided regularly.

4.1.2.2 Research

If a comprehensive plan had been easy to produce, presumably the CRMC or some other agency would have developed one. It is probable that some policy analysis and systems research would greatly assist this planning effort. User groups identified the fragmentation, but there were no specific proposals for coordination. We infer that a systematic planning framework will need to be developed for this purpose. Further, policy research will need to identify the appropriate role for user group and public input to the planning and implementation process.

4.1.2.3 Education

Almost all users were unfamiliar with DEM's water quality classifications and CRMC's water use categories. They did not mention them unless we asked a direct question about them; when we did ask interviewees their opinions about DEM's water quality classifications, only environmentalists understood what they are and the purpose they are intended to serve. This represents a significant lack of understanding, considering that the overall management of the Bay is currently based on these two classification systems.

4.2 Bay Pollution

4.2.1 Perceptions

When we asked the public in our survey to evaluate on a scale of 1 to 5 the importance of certain problems associated with Narragansett Bay, pollution was chosen overwhelmingly as the most significant problem. Table 2 in our survey chapter shows that the mean score given to pollution was 4.7. In our interviews, pollution also ranked as the most important issue to all users except industry, development firms, and marinas. Representatives from industry and development firms were both sensitive about the negative image the public has of them as threats to the Bay. Marina owners expressed concern over pollution, but it was secondary to economic issues. Users' concern over pollution was striking, particularly in light of the facts that we never mentioned to our interviewees that the Narragansett Bay Project is a water quality study, and that we encouraged them to discuss any Bay-related issues which concerned them and affected their relationships with regulatory agencies and other users.

Although concern about pollution is shared by most users, many definitions of pollution exist, and the reasons behind individuals' concern varied between and within user groups. Users' definitions of pollution ranged between perceptible trash, sewage treatment odors and increased silt to imperceptible toxic metals and industrial chemicals. Users' reasons for concern about pollution included a desire to protect and enhance the aesthetic value of the Bay, concern for the health of its ecosystem, and complaints that pollution has adversely affected various uses of the water.

Many users argued that the beauty of the Bay attracts individuals and businesses to Rhode Island, which translates into economic benefits for the State. Therefore, it is important to protect and enhance the beauty and health of the Bay. One group said that Rhode Island should advertise itself as a pleasant place to live by trying to attract "clean" industry and encouraging increases in benevolent uses of the Bay such as sailing and sportfishing. Environmentalists, marina operators, the presidents of recreational boating organizations, and fishermen advocate balancing uses in such a way that the Bay can be kept clean and available for recreational and commercial uses. They object to the use of the Bay as a waste receptor because this use degrades water quality and infringes on all other uses.

Environmentalists were particularly concerned about the problem of toxic pollutants. They expressed concern about the long-term effects of toxic substances on the ecosystem and emphasized the need to enforce pre-treatment regulations. In our survey, industry was most often cited as the largest source of pollution in the State (Table 13), and 76% of the public stated that industry should have to pay to clean up their wastewater (Table 17).

4.2.2 Needs/Recommendations

4.2.2.1 Policy/Management

Our survey results show that 46% of the public would use the Bay more if it were cleaner. Further, the public is willing to sacrifice jobs and tolerate increased housing and service costs if necessary in order to prevent possible increases in pollution caused by increased development (Table 16). Most organized user groups also want a cleaner Bay, but their priorities for which type of pollution is of greatest concern varies with their use.

Recreational users expressed a particular need for improved sewage treatment. They complained of noxious odors and unpleasant sights, which cause decreases in club membership and restrict swimming and fishing. Polluted waters are perceived as a health risk to boaters; one commodore blamed pollution for causing occasional viral symptoms among sailors, and he fears that some day there may be a serious outbreak of disease. Two other club presidents mentioned fears of health risks and one of them expressed a desire to see an analysis of the risks of hepatitis and other viral diseases in the Seekonk River.

While recreational boaters and marinas believe that their contribution to the sewage problem is minimal in comparison with municipal wastewater and industrial discharges, they still report an important need for pump-out facilities, to decrease the pollution caused by boaters emptying their holding tanks into the Bay. They had mixed reactions to the state regulations requiring holding tanks on board and were angry that no pump-out facility exists in the State, so that it is impossible for boaters to adhere to the regulations. The best that they can do is to flush out their holding tanks into the ocean. Clearly, this is a no-win situation -- boats are required to use holding tanks, but no pump-out facilities exist, and regulations prevent marinas from providing pump-out facilities which include a holding tank on land.

Environmentalists stressed the need for the State to decrease sewage pollution and meet Clean Water Act water quality standards. One of them said that the whole Bay should be class A and another complained that DEM's water quality classifications do not require adequate improvement in water quality. They do understand, however, that DEM is severely handicapped by insufficient personnel to meet all of its responsibilities.

Fishermen, recreational boaters and marina owners all argued that activities which do not harm the Bay should be promoted. They were angry that industry and municipal sewage systems are permitted to degrade the Bay at the expense of other users.

One industrial representative who is in compliance supported the need to enforce pre-treatment regulations, because he believes that non-compliers have an unfair economic advantage over compliers. However, when we spoke to an electroplater who is not in compliance, he complained that the regulations are too stringent and the technology is too expensive.

Pollution is undoubtedly the fishermen's primary concern. This is particularly true of aquaculturists who are very sensitive to changes in water quality because they must be able to use the same area of water for all stages of their production. One fishing spokesman suggested that a good way to reduce the amount of pollution in the Bay would be to make public a list of the major polluters. He believes that the jewelry industry and the Navy would be high on the list.

4.2.2.2 Research

When we asked the public what research topics should be a major part of the Narragansett Bay Project, their top three answers were the effects which raw sewage, industrial waste, and pollution from shoreline development have on the Bay. Recreational groups were particularly concerned that sewage has caused viral infections among their members and that it poses other unknown health risks to swimmers and boaters. They would like to see the State analyze these risks. Boaters would also like to know how much boating pollution contributes to the waste stream.

User groups and the public agreed that toxic pollution is a serious problem on the Bay and many users mentioned the need to enforce pre-treatment standards. Research is needed to examine electroplaters' claims that it is economically infeasible for small businesses to comply with State pre-treatment standards. Research questions suggested by various users include: Does appropriate, cost-effective technology exist? Are there technologies that fit the problems of each of the industries that are currently dumping waste into the Bay? How can waste recycling and recovery be encouraged?

Sufficient questions were raised as to the effectiveness of the present water quality classification system to suggest that other systems should be explored. Policy studies of the application of other classification systems to the implementation of management goals would be useful, even if the conclusion of such studies is that the present system is the best available. This would at least provide an answer to critics of this system.

4.2.2.3 Education

There is a need to disseminate scientific information to users who fear the effects of unknown pollutants on themselves as well as the ecosystem. Several user groups expressed interest in understanding the effects which raw sewage has on the Bay, because it affects their uses of the water. As mentioned above, recreational users fear that sewage causes viral infections and other unknown health risks to swimmers and boaters.

4.3 *Risk from Contaminated Fish and Shellfish*

4.3.1 *Perceptions*

The public is very concerned about health risks associated with eating contaminated fish. "Dangers associated with eating contaminated fish and shellfish from the Bay" was cited as the second most important among those Bay problems which we asked the public to assess; the mean response on a scale of 1 to 5 was 4.3. Sixty-two percent of respondents were aware of health risks from shellfish, although only 5% had experienced them directly.

Some of the public's concern about risk from contaminated fish may be interpreted as a concern with enforcement. Although most people did not ask for "more enforcement" in those terms, perhaps because they are not familiar with the laws and regulations for fishery management, they clearly are concerned about the risk from contaminated fish and shellfish obtained in the Bay from polluted waters. Since people assume that shellfish obtained from areas legally open for fishing are not contaminated, their concern over contaminated fish may be interpreted as a perception that a substantial amount of illegal fishing is occurring, which poses a threat to public

health. Public concern over this issue suggests a desire for more regulation to decrease fishing and shellfishing in illegal areas. The fact that this is the public's second greatest concern also suggests that the public would support further studies on this subject.

Fishermen reacted defensively when asked about the risk of eating contaminated shellfish. Although they complain that their industry is not adequately protected from damage done to it by industrial wastes and inadequately treated sewage, fishermen none-the-less assert that they sell a good product and they blame the recent outbreaks of illness in New York on inadequate refrigeration by the restaurants and not viral contamination of the Bay.

4.3.2 Needs/Recommendations

4.3.2.1 Policy/Management

Currently the only method of assuring that clams are not contaminated is to close polluted areas. Depuration has been suggested as a means of ensuring healthy shellfish. Fishermen have opposed this technique because they believe that depuration would severely limit the number of fishermen in the industry and they fear that the Bay could be overfished, since under depuration all polluted areas would then be open.

Fishermen object to the criteria used by DEM to determine whether or not an area is safe for shellfishing. Presently, DEM bases closures on the levels of rainfall. Other factors, such as the overall dryness of the season are not taken into account. One fishing spokesman also suggested that DEM should test the deep water where quahogs live, rather than the surface water. He would also like to see the agency test the actual quahogs, although he knows that this would require much more work. He also suggested that DEM adopt a reseeding and fertilizing program in lieu of the present management policies of closing areas, transplanting, opening them, and then closing them again later. Fishermen would also like to see coordination between DEM and DOH in the setting of the health regulations for fish and shellfish.

Fishermen and environmentalists opposed the State's plans to build solid waste incinerators near the Bay, because they fear the long-term pollution effects of the incineration process. Fishermen expressed concern about the release of PCB's and dioxins which could enter the food chain. They also cited the risk to fishermen themselves, because they spend so much time out on the water, breathing air which they fear will be contaminated with dioxin. They believe that pollution from the incineration process may cripple the fishing industry.

4.3.2.2 Research

The public clearly is concerned about the effects of toxics and sewage pollution on seafood because of the risks this poses to consumers. Eighty-five percent of the public believes that research examining the dangers of eating fish and clams from the Bay should be a major part of the Narragansett Bay Study. This was the public's fourth most popular research topic. This research question was asked before our risk profile questions, so that the response would not be biased. Two other responses emphasize the public's strong desire to see this problem resolved. The first is the public's willingness to accept high risks in order to enjoy shellfish and fish; clearly the public values its seafood highly. The second is the fact that 58% of respondents would be willing to pay twice what they currently pay to ensure that their shellfish would not cause stomach disorders and 65% would be willing to pay twice the usual price for fish that would not cause cancer.

Some data are presented in this report on the risk that the public finds tolerable from contaminated fish and shellfish. We want to emphasize that these are only preliminary results, but they are sufficiently provocative that policy research specifically targetted on this issue is merited. The results should provide guidance in setting priorities for risk management programs.

Fishermen would like to see research done on shellfish contamination which they anticipate will lead to opening more of the Bay to fishing. They believe that Mount Hope Bay has not been studied adequately and its closure is not justified. As discussed earlier, fishermen object to the criteria used to close shellfishing areas. They would like to see more research exploring the connection between water quality and the health of shellfish.

On the issue of contamination by toxics, however, the fishermen are not so sanguine. Although fishermen expressed support for toxics research on the Bay, they fear that studies will find shellfish to be contaminated with heavy metals from the jewelry industry, which might put them out of business. Fishermen have been upset with the scientific community for publishing papers about cancer in clams, cysts on flounder and other diseases in seafood without saying that these findings are not proven to be hazardous to consumers' health. They do not want to sell a bad product, but they also do not want to be hurt by incomplete or misleading scientific findings.

Both fishermen and environmentalists expressed concern over the risk which an incinerator would pose to shellfish. They fear that dioxin and PCB's are going to enter the food chain and may pose a risk to consumers in the future. These groups would like to see an assessment of risk from this source.

4.3.2.3 Education

The profile of answers to the risk questions suggest that either a significant percentage of the public are willing to accept a much higher risk than most regulators assume (e.g. 23% will eat fish even given a one in ten chance of getting cancer) or, which we take to be more likely, they do not fully understand the concept of risk. Since the public is uniquely qualified to decide what risk it will accept, education on risk concepts seems indicated.

4.4 Shoreline Development:

4.4.1 Perceptions

The importance of the shoreline development issue to users cannot be overemphasized; representatives of environmental groups, citizens' councils, recreational groups, marinas and fishermen's associations believe that development along the shores of the Bay is out of control and they blame CRMC for not controlling it. Many users spoke of the overdevelopment of the Bay as an example of how the lack of adequate policies governing Bay use leads to *ad hoc* decision-making and lack of foresight (*vide supra*). Several users complained that CRMC takes a segmented approach to the control of shoreline development in which permits are given on purely technical terms without concern for the cumulative impact which such development will have on public access, on old overloaded sewage treatment plants, on the aesthetic value of the water, and on the interests of coastal communities.

The reasons which users expressed for wanting to slow, stop, or somehow control development sometimes differed, as did their solutions to the problem. The strongest arguments for con-

trolling development stemmed from the threats it poses to public access to the water. Many users were concerned that developments such as hotels and condominiums serve small private interests and provide limited public uses, and they expressed interest in seeing more public beaches, more boating resources, and more public rights-of-way giving access to the water.

Several users claimed that competition between user groups for access to the Bay is intensifying. Although access to the Bay is not perceived as a problem yet, users feel certain that the future will bring much more development, which is certain to limit access to the Bay. Shoreline development aggravates this situation by decreasing the number of areas which boaters perceive as beautiful and "unspoiled," which means that these areas are more crowded. For boaters and others who enjoy the natural beauty of the water, numerous condominium projects are an eyesore. Some users believe that this affects water quality because people become less concerned with protecting the Bay when they see overdevelopment; they become discouraged by what they perceive as the State's lack of attention to the Bay.

Developers themselves were sensitive to the image which other users have of them as destroyers of the Bay, but they stressed that it is in their own best interest to protect the environment. One representative spoke of corruption that exists in the industry in the form of payoffs to local officials, which causes overdevelopment. However, another representative stressed that too much concern for the health of the Bay will mean less attention to economic development, which he believes will result in the Bay becoming a resource primarily for rich Rhode Islanders and tourists.

Increases in shoreline development affect the boating and fishing industries directly. Marina owners complained that developers are usurping most available undeveloped waterfront property which could be used to build more marinas (and thus increase public access to the Bay). They believe that, by offering large sums of money for waterfront property, developers are presently driving marinas out of existence. The biggest challenge facing the marina industry is maintaining access to the water for boaters. There are also strong pressures for marginal marine businesses to sell out to developers. Fishermen also feel this pressure; as condominiums go up, so does the value of their land and docks. Also, condominiums bring in people who try to force out fishermen's docks because they smell bad and are noisy. One fisherman said that without help from the State, the fishing industry will die, not because of a lack of fish, but because of a lack of docks.

The results from our survey on this issue are fully consistent with our interviews. The public's third greatest concern was "poorly controlled shoreline development" and their fifth greatest concern was inadequate access to the shoreline (Table 2, Chapter 3). When we asked the public what should happen when residential development conflicts with recreational access, 87% of the public responded (Table 15) that the development should be stopped.

We have used the information from our interviews to suggest preferred interpretations of the responses which participants gave to our survey questions. Because the general public does not speak in narrowly defined technical terms, words such as "pollution" and "shoreline development" can be broadly defined. We used the qualitative information from our detailed interviews with user groups to define terms as we believe the public intends to use them. Although most people would not use the phrase "non-point sources," many of the individuals whom we interviewed saw shoreline development as a direct threat to the quality of adjacent water bodies. Thus, we believe that the public's concern about control of development contains a significant component of concern about pollution.

4.4.2 Needs/Recommendations

4.4.2.1 Policy/Management

Although a few users said that Rhode Island is fortunate in being behind the rest of the East Coast in real estate development, most believe that there is a need for a policy to control development now, before it is too late, because, as one boater said, unless current trends change, Rhode Island will soon look like New Jersey, Delaware, and Florida, where shoreline development has skyrocketed and efforts to preserve the shoreline have come too late.

In order to preserve access for boaters and fishermen, marina owners would like to see the State buy the development rights of low-profit boatyards. Fishermen suggested that Rhode Island instigate a state-wide program, where each town owns a pier; even if fishermen cannot dock there, it is at least a place to load and unload their boats.

Many users believe that the State should protect public resources from infringement by private interests. They complained that development often involves closing off public rights-of-way giving access to the water. Similarly, environmentalists complained that marinas should not be able to usurp public areas for their own use. One environmental representative argued strongly that the publicly owned Bay shoreline should not be transferred to private ownership at token cost. Shoreline property owners should not be allowed to expropriate public lands by building docks or seawalls without paying the market rates for the public property they have taken. Marina owners reply that their businesses enhance public access.

One user spoke at length about the conflict between state and local interests. He complained that although coastal communities are the primary regulators of land use in the coastal zone, CRMC does not take local concerns into account when making decisions. He would like to see more coastal zone management funds given to towns.

Another important reason that users mentioned for wanting to control shoreline development is that they believe that it leads to pollution. Fishermen and environmentalists have opposed specific development projects (such as a condominium and marina project in Chepiwanoxet) that they believe have been poorly sited and pose a threat to the ecosystem and particularly shellfish. According to the results of our survey, the public is strongly opposed to any possible increase in pollution due to shoreline development. Respondents not only said that the State should exclude development that *may* increase pollution, but they were also willing to sacrifice jobs and tolerate increased costs in order to prevent further pollution.

4.4.2.2 Research

A variety of studies which relate to development were suggested. A typical complaint of people whose business depends on having structures on the Bay was that they were not allowed to build seawalls or, at times, change their docks. Their understanding was that any building that threatened the integrity of the Bay was forbidden. It is suggested, therefore, that a study be conducted that explores the effects of seawalls and docks on the Bay.

Users also suggested that a general study of the relationship between development and the degradation of the Bay should be conducted. Some users suggested that shoreline development leads to increased non-point source pollution from run-off and poorly located ISDS systems. They believe that all development should include tie-ins to municipal sewage treatment systems. Their perceptions indicate a need to examine the amount of pollution caused by old, outdated or over-

loaded ISDS systems as well as the impact which development has on overloaded sewage treatment systems.

Both users and the public were concerned with restriction of access to the Bay by further development. Policy research could respond to this concern with studies to identify programs which would increase bay access and mitigate the effect of development. Access should be broadly defined, to include shoreline access for those who would walk its shores or fish there and dock-space for fishermen who have lost docks to pleasure craft or to other development.

Another type of policy research might investigate the proposal that developers should pay market prices for development on public lands at the Bay's edge. Funds from this source could be used to purchase permanent access routes to the Bay.

4.5 *Enforcement issues:*

4.5.1 *Perceptions*

Representatives of all user groups complained of inadequate enforcement of regulations, and many of them blamed decreases in federal and state funding to regulatory agencies for causing or aggravating this problem. User groups are affected differently by this problem, depending on the importance of the regulations which they believe are underenforced.

Many groups gave financial arguments for stronger enforcement of regulations. Fishermen lose money when undersized shellfish are taken from the Bay, depleting the next season's stock. Industrial users who comply with pre-treatment regulations are financially disadvantaged when competing against companies who have not invested in pre-treatment technologies. For boaters, however, safety is the main concern. Boaters cited a serious need for enforcement of boating safety regulations. They spoke of numerous examples of drunk and reckless driving and boaters who do not know the basic rules of the sea, and fishermen complained of recreational speedboaters passing too close to them, making huge wakes and sometimes cutting their lines.

4.5.2 *Needs/Recommendations*

4.5.2.1 *Policy/Management*

Fishermen have several concerns relating to enforcement. They see enforcement as inefficient and inconsistent. They expressed a need for more enforcement of regulations against illegal undersized fishing (both clams and lobsters), because today's young fish are tomorrow's stock. They see the new rack law as an improvement over the old ring law (in which legal shellfish had to be too large to fit through a ring), because undersized quahogs slip through the rack bars during the raking process. There is also a need to prevent illegal fishing in polluted areas. This is a concern to many fishermen because their livelihood is threatened by the few who sell fish from these areas. Our survey showed that this is also a concern to consumers. There was a strongly stated recommendation by users that more resources be devoted to enforcement and Bay-related enforcement be given a higher priority at DEM.

Users emphasized the need to enforce boating safety regulations, particularly in light of recent reductions in Coast Guard activities. Ignorant and careless boaters and a reduction in the

number of buoys and markers in the Bay lead to increases in boating accidents. However, commodores oppose licensing of boat operators, because they see licensing as an example of government infringing on their freedom. They advocate more public education and economic incentives encouraging boaters to obtain safety certificates.

4.5.2.2 Research

The strong perception that a variety of Bay regulations are inadequately enforced suggests a need for policy research to identify more efficient enforcement programs. Integrated enforcement and increased penalties for violation might be investigated.

Recreational boaters are concerned that increased traffic will significantly reduce boating safety. While no one thought that the number of boats allowed on the Bay should be regulated, a number of people did feel that stronger regulation of the boaters is needed. To stress this need, a number suggested a study be done which would investigate boating accidents. If there was an understanding of the number, the types and the causes of these accidents, then public education could be geared towards correcting the causes and enforcement personnel could look for specific behavior among boaters that is particularly dangerous.

4.5.2.3 Education

Fishermen, the Coast Guard, quahoggers, people with shore-front property, and recreational boaters all complained about the lack of knowledge of boating etiquette and rules of the road among many pleasure boaters using Narragansett Bay. Many people complained about the lack of knowledge among the majority of boaters, and stressed the need to reduce the accidents, dangers, and inconsiderate behavior of pleasure boaters. To quote one user, "There is an increasing number of people on the water who know absolutely nothing about boating."

If a written test was given to a random sample of boaters as they left the dock, users believe that many would fail to demonstrate a working knowledge of the rules of the road, navigation skills, ability to read a nautical chart with ease, and routine maintenance of the vessels they operate. This poses a great risk to all boaters on the Bay. The dangers of unknowledgeable operators is increasing. The DED and Port Authority are considering plans to attract increased commercial freighter traffic to the Bay. The Department of Economic Development also tries to attract tourists and their boats to Rhode Island. The larger vessels are constrained in draft and maneuverability. They have the right of way in the channel according to coastal regulations. However, most boaters do not know this. Many people think that sailboats have the right of way over motor vessels in all situations. This lack of awareness poses a danger to boaters. Many people have stated that there is a need for a boater licensing program. The only user groups interviewed who voiced opposition to a license program were the recreational boating interests themselves.

Recreational boaters think that regulations and licensing are infringements on their freedom at sea and agencies oppose a program of licensing on the grounds of time, staff, and money limitations. Therefore, alternatives should be considered. Options include posting regulations, traffic laws, and rights of way at sea. Optimal sites for the posting of such safety regulations could be at marinas, launch ramps, yacht clubs, boat yards, and marine stores. There are already commercially available small 8" x 11" plastic coated cards with flags, buoy signal markers, morse code, phonetic alphabet, radio etiquette, etc. These waterproof cards are an excellent reference that can be easily and quickly referred to by the operator if stored next to the helm. Currently, these cards are manufactured by private businesses, and sold by the same, but perhaps the State or Coast Guard could produce and distribute similar boating safety tips.

Users believe that the three most common causes of boating accidents are alcohol misuse, lack of knowledge and lack of consideration for other users, and education could reduce all of these. Many boaters are unaware of the danger which drunk driving poses to themselves and other users on the water. Inconsiderate behavior is often caused by boaters' ignorance of the impact which their actions have on other users. People are more apt to comply with regulations which seem sensible and fair to them, but many users claim that boaters ignore safety regulations because they do not understand the need for them. Therefore, education on boating safety should emphasize the justifications behind regulations.

Although some industrial users claimed that the widespread lack of compliance with pre-treatment regulations was caused by industries not wanting to pay the necessary costs (unless forced to pay), all of the industrial users which we interviewed spoke of the impact which education could have on increased compliance. Electroplaters claim that some individuals within their industry do not understand the necessity for regulations which are stricter than EPA standards, and they tend to ignore the regulations because compliance deadlines have been pushed back five times and they do not want to invest in the technologies only to find that their competitors are not being forced to do the same. Electroplaters believe that education within this industry should not only explain the justifications for present regulations, but aid companies in finding appropriate pre-treatment technologies. This would include explaining what systems are available, their costs, who sells them, and how to receive low-interest loans in order to finance them. Without this information, electroplaters fear investing in technologies which are overpriced and will soon become outdated.

4.6 Dredging

4.6.1 Perceptions

Dredging affects almost all users, from shoreline businesses which lose dock space because of the build-up of silt to fishermen who lose their beds because of dredge spoils disposal practices. Recreational boaters and marina operators complained that it is currently very difficult to obtain dredging permits. In many areas dredge spoils must be handled as hazardous waste, and Rhode Island has no hazardous waste facility for these materials. Because out-of-state treatment of these wastes is expensive, some boat clubs have (perhaps illegally) used the land surrounding them as a dumping ground. One marina owner stated that the current limits on dredging are strangling the boating industry.

4.6.2 Needs/Recommendations

4.6.2.1 Research

Composition and characteristics of dredge material and possible disposal sites need to be studied. It has been suggested that if sludge material can be matched to suitable areas, then the damage to the bay will be minimal. This is an assumption that should be explored. The effects of marine disposal on the Bay needs to be pursued. Likewise, there is interest in the effects of this type of disposal on the ecosystem; particularly on fish and shellfish. Some users claimed that dredge spoils increase the productivity of shellfishing areas, while fishermen argued that they destroy shellfish beds.

Dredged material usually is classified as hazardous and therefore cannot be landfilled in Rhode Island. Yet, dredged material is allowed to be used at the waterside to build up the land there. Research is needed to examine whether or not this poses a risk to people who work and recreate on portions of the shoreline covered with dredge spoils.

4.7 Economic Priorities

4.7.1 Perceptions

Many users suggested that Rhode Island use the potential for revenue generation as a major criterion for resolving conflicts of use. Fishermen argued that the State underestimates fishing revenues and the importance of the industry to the State. Recreational users and marinas emphasized the importance of boating in attracting tourists to Rhode Island.

Developers also mentioned the importance of economic criteria in setting priorities. They believe that their business is very important to the State's economy, because it increases employment opportunities. One developer believes that environmentalists are not concerned with the economic needs of the State because they are either wealthy or young and idealistic.

Fishermen argued that they should receive protection from the State because they provide benefits to the greatest number of Rhode Islanders. Fishermen provide fish to all Rhode Islanders who want it (and according to our survey, Rhode Islanders value seafood highly); sailing on the Bay is more elitist -- an individual who wants to sail must own a boat or know someone who does.

Several users stated that smaller, poorer interests often need protection from wealthier groups. A spokesperson for a canoeing association spoke of a conflict which her groups had with an industry which was damming up stretches of river particularly attractive for canoeing. The dispute was resolved in the courts, a process which was very expensive for her group. Similarly, a surfing spokesman mentioned conflicts with "wealthy summer people" in Newport who almost succeeded in restricting surfers' rights to access to the Bay. This dispute also went to court. These small interest groups could benefit from state provision of a less expensive form of dispute resolution.

4.8 Permitting Process

4.8.1 Perceptions

The most general concern about management had to do with the permitting process. No matter what a person's area of concern (be it building, upgrading facilities, or dredging), the consensus was that there is far too much overlap of responsibility between different agencies. All users agreed that the permitting process takes too long and needs streamlining. Marina operators complained that the lengthy process is not necessary to protect the environment given that areas are already zoned for marinas. They said that "gross inefficiency" and a lack of communication between agencies cause unnecessary delays in the permit process. One developer complained that delays in the permitting process can be costly unless the property is owned by the developer. He cited a study which found that development costs could be reduced by 25% by expediting building permit procedures.

Aquaculturists complained that CRMC's permitting process discriminates against them. Although permits are supposed to be required for any use of the water which interferes with other uses, this principle is only applied to aquaculture and excludes marinas, small boat anchorages and fish traps. A spokesman for aquaculture said that CRMC defends its permitting practices by saying that marinas give more benefits to the public than aquaculture. He questioned how they determined this, and he wondered why commercial fishermen do not have to pay the State as aquaculturists do for taking what is a public resource -- shellfish.

4.8.2 Needs/Recommendations

4.8.2.1 Research

The discontent with delays in deciding on permit applications suggests a need for policy research on ways to decrease the time for permit review while maintaining quality of review. It is possible that such studies might suggest a more efficient allocation of resources or that additional resources are merited.

4.8.2.2 Education

Users complained about the length and complexity of the permitting process, because they do not understand why the process cannot be simplified (assuming that there are justifications for its length and complexity). Users believe that too many agencies are involved in a given permit and they do not understand the role of each of these agencies. Perhaps regulatory agencies should explain to users the goals of their agencies and the justifications behind their regulations. This could reduce users' frustration at having to wait for their permits.

4.9 Management of the Commercial Fishing Industry:

4.9.1 Perceptions

Disagreements abound within the commercial fishing industry concerning who should be allowed to fish and what techniques should be permitted. Numerous conflicts highlight fishermen's opposition to efficient fishing techniques which could lead to a decrease in employment in the industry and the possibility of overfishing. The largest conflict exists over the question of aquaculture. Commercial fishermen oppose aquaculture because it involves allocating portions of the Bay to a small, private group which could flood the market. Aquaculturists, however, see their technique as far more efficient than the present system which they perceive as a state welfare system supporting 3,000 Rhode Island quahoggers. Conflict also exists between bullrakers and divers, because bullrakers fear that divers may overfish the Bay, because their technique is efficient and exhaustive. Fishermen also oppose the use of mechanical devices on fishing boats because they would lead to a decrease in employment and overfishing; fishermen strongly oppose depuration for related reasons.

4.9.2 Needs/Recommendations

4.9.2.1 Research

Various studies of marine life have been suggested by users, some of which are appropriate to a water quality study. Recreational and professional fishermen are interested in having some sort of stock assessment done of the numbers and variety of fish. Included in this is an interest in how nutrients in the water affect this stock. Some fishermen also suggested that the State examine the impact of clam divers on stock management. This is because it has been suggested that divers, like draggers, overfish areas and don't leave clams for future harvests. Divers deny this claim.

4.10 Licensing Fees

4.10.1 Needs/Recommendations

Fishermen and recreational boaters believe that a large portion of the money which the State collects through their registration fees is not invested in managing and promoting their activities. Recreational users believe that the State should use some of their funds to protect existing access points and defend users against infringement by larger, wealthier interests. Fishermen each pay \$100-150 for a license. Although \$200,000 is allocated to the State, all money over that is supposed to go to the director of DEM to be used for transplanting programs, building docks for fishermen and hiring additional personnel for special projects. However, fishermen complain that none of the money is used for these purposes and they always have to petition the state legislature for emergency appropriations. One fisherman suggested that DEM be reorganized in such a way that one person is responsible for managing marine fisheries. Under the current system freshwater fisheries, marine fisheries and uplands are managed together. This user believes that reorganization would make it easier to keep track of where commercial fishermen's licensing fee money is going.

Appendix A

LIST OF USER GROUPS INTERVIEWED

A.1 *Fishermen and Aquaculture*

A.1.1 *Independent Commercial Fishermen's Cooperative*

George Daglieri, President
60 Water Street
East Greenwich, RI 02818
885-0510

The Coop was founded on July 1, 1976, with 19 members and it now has 90 members. The majority of the fishermen in the East Greenwich cove are members of the Coop. The purpose of the Coop is to put more money into fishermen's pockets, it was not brought together for political reasons. Members and non-members bring their catch to the Coop and are given cash for the quahogs. Only members receive benefits, which include health insurance and profit-sharing. To become a member, you must pay a non-refundable membership fee and buy one share of stock in the company. Because quahogs are sold in large amounts by the Coop, profits gained are higher than fishermen would get by selling on their own. All decisions are made cooperatively by the members of the Coop, and the Coop is affiliated with the National Fishery Coop.

A.1.2 *Rhode Island Shellfishermen's Association*

Steve Cote, President
57 Greene Street
Warwick, RI 02886
739-8791 (Cote home)

The organization was founded in 1978 in order to oppose depuration (which was successfully defeated). Steve Cote claims that it took an issue directly threatening quahoggers to bring them together, and membership has fluctuated over the years according to the "amount of trouble," i.e. whether or not issues arose which required unity within the industry. Members include mostly West Bay quahoggers (mostly from Warwick and East Greenwich) and some East Bay quahoggers, but most of the East Bay fishermen belong to the Ocean State Fishermen's Association. The Rhode Island Shellfishermen's Association (RISA) has approximately 175 members (and this is

increasing constantly). Membership has increased from 35 since Cote has become president (since March 1985). Cote is trying to build an association that will last.

Membership dues are \$25. The association has quarterly meetings (and is thinking of going to 6 meetings per year) and publishes a monthly newsletter, *The Shoreline*, in which each fishery has 1-2 pages. RISA also attends festivals and runs quahog contests with Save the Bay in order to educate the public and make them more aware of the shellfishing industry. The organization's original goal (which is still its main goal) was to get as much of the bay opened to fishing as possible.

A.1.3 Wickford Fishermen's Alliance

Jerry Carvahl, president and Dave Pritchard, vice-pres.
P.O. Box 1363
North Kingston, RI 02852
1-789-7095

The WFA started as a result of an action on the part of DEM. DEM wanted all shellfishermen to carry around a "credit card" about three years ago, without which they would not be allowed to sell their catches. The stated point of the card was to enable the state to monitor where shellfish were coming from. There had been a crop of bad fish that were consumed in New York and Rhode Island was the supposed source. (It is firmly believed by the fishermen that the bad shellfish were not from RI.) DEM put forth this way of being able to trace any contaminated fish back to a particular fisherman. The fishermen had three complaints about the cards. Firstly, the cards required a social security number which the fishermen determined violated their civil rights. Secondly, the cards restricted free trade. And thirdly, there was no form of identification on the cards, save for social security number, which made it possible for anybody to use a found card, and the true owner of the card would be held responsible. Once the fishermen came together for this problem, they began to address a multitude of other problems such as the Quonset Point incinerator, the use of monies collected for use towards helping the industry, etc.

Membership is made up of people from the West Bay area. They hold quarterly meetings and help support a newspaper. There are approximately 77+ members, 80% of which work out of Wickford, and each pay dues of \$25.

A.1.4 Ocean State Fishermen's Alliance

Tom Hall, pres.
Steve Truer(?), treasurer
Warren
office: 245-0225
home: 245-1958

Ocean State Fishermen's Assoc. (OSFA) is comprised of more than 100 fishermen -- gillnetters, ocean quahoggers, draggers, lobstermen, inshore quahoggers, and menhaden fishermen. Each member pays dues of \$20/year -- the cheapest of any fishermen's assoc. in RI. OSFA has been in existence for a number of years.

OSFA got started in response to a felt lack of representation, especially before the CRMC. The issue was aquaculture. A mussel farm had been proposed for the west side of Prudence Island. The area was already being used by quahoggers, fishermen, lobstermen, recreational bass fishermen, and sail boaters. All the different fishermen groups (Ocean State, Lobstermen's Assoc., Pt. Judith Fishermen's Coop, sportsfishermen's organizations, and quahoggers), in conjunction with the Narragansett Yachting Assoc. opposed the farm because it would take away space already being overused. Despite all the opposition, and despite the laws which state that aquaculture cannot be developed if it is in direct conflict with existing fisheries, the permit was granted. (The fishermen's feeling is that it was granted solely for money.) Because of this incident, OSFA got organized and hired an attorney to work for them.

A.1.5 Rhode Island Underwater Fishermen's Association

Keith Aloï, spokesperson
63 Buoy St.
Jamestown, RI
423-2289

The Underwater Fishermen's Association represents 25 of the 50 or so hard shell clammers that scuba dive for their catch. Created in 1980, the Association is a crisis-oriented group which gives underwater fishermen a method to speak collectively on the legislative level. Members come from all over the Bay and use techniques that have become increasingly popular since the late 1960's. Many of their concerns are also represented by the Wickford Fishermen's Alliance and the RI Shellfishermen's Association.

A.1.6 Rhode Island Seafood Council

Ralph Boragine, Director
387 Main Street
Wakefield, RI
783-4200

The Rhode Island Seafood Council is a trade association made up of wholesalers, retailers, brokers, packers, and fishermen's organizations. It represents about 98% of the fishing industry in the state. It sends out a business newsletter twice a month. The Council has existed for 10 years and has 325 members (i.e. fishing organizations, wholesale and retail firms, etc.). The original goal of the Council was to promote Rhode Island seafood. This is still its main goal, but it also tries now to help people work together and find new markets. Ralph Boragine also works with groups who are having financial difficulties. The Council sells seafood internationally and provides telex facilities for its members.

A.1.7 Rhode Island Aquaculture Association

Bruce Rogers, President
61 Switch Road, RR 2
Hope Valley, RI 02852
539-2858

The Rhode Island Aquaculture Association has 8 to 15 active members and 20 to 40 associate members (involved in aquaculture research). The association was formed in 1978 with the goal of promoting aquaculture. It is the only group working to promote aquaculture in Rhode Island. They have a newsletter, and members communicate by phone, but they don't have meetings, because they found them to be unproductive.

A.2 Environmental Groups

A.2.1 Audubon Society of Rhode Island

Alfred Hawkes, Executive Director
40 Bowen St.
Providence, R.I.
521-1670

The Audubon Society, which is not an arm of the national organization, has about 4,000 members (though some of these "members" are actually organizational memberships which have more than one person for each membership. Real membership may be as high as 12,000). There is a board of directors that runs the organization while leaving the day-to-day operation to Hawkes. Hawkes brings policy matters to the board, expresses his concern over whatever the issue is and the board decides what the organization will do as policy. Hawkes, having been the Executive Director for over thirty years, has a lot of freedom in deciding how much time and effort will be devoted to a particular issue.

The Audubon Society functions principally in three different arenas: 1)they are principally an educational organization with a broad educational program, 2)they are a land acquisition and management agency, with much acreage under their control, and 3)a third function is advocacy for environmental issues.

A.2.2 Save the Bay

Chip Young, Director of Communications
154 Francis St.
Providence, R.I.
272-3540

Save the Bay (STB) was created in October, 1970, in response to a liquid gas refinery which was to be built. The organization was geared towards energy and nuclear issues at the very beginning. Now the realization has grown that there is so much which affects the quality of Narragansett Bay that STB now looks at the whole picture.

There are 10,000 family members who come from all different backgrounds- there are political people as well as fisherpeople and regular citizens. Membership is more concentrated in areas which border the Bay. All members receive a copy of the organization's newspaper, which Chip Young edits.

Save the Bay's major role is as advocate for the Bay. To this end, they do a lot of public education work, trying to increase public awareness of Bay issues. The approach that STB uses is to do public education and public awareness.

A.2.3 *Aquidneck Island Ecology*

Red French, ex-Chairperson '77-'79, '81-'84
Roger Williams Extension Bldg., Rm 222 (work)
1370 Hope St., Bristol, RI (home)
277-2691 (office)

Aquidneck Island Ecology is a semi-defunct environmental citizens' group concerned with the land and water development of Aquidneck Island, which contains the cities of Newport, Portsmouth and Middletown. Founded in 1968, its original concerns focused on the issue of recycling and opposition to the development of an oil refinery on Prudence Island. Over the years the original purpose of the group has shifted from addressing these two specific issues and education, to broader environmental concerns and lobbying.

A.2.4 *Environment Council of RI*

Paul Beaudette, President
40 Bowen Street (Audubon mailing address)
Providence, RI 02903
884-2596 (H), 785-0400 (O)

The Environment Council of Rhode Island, Inc. is an "umbrella organization" that covers 22 different groups, environmental groups, conservation commissions, community committees, garden clubs, fishing organizations, and sporting associations. The interests of the member groups are quite varied. Paul Beaudette believes that small groups join the Council in order to gain better representation of their problem(s) on a state basis and to be a part of a larger, stronger voice. With the membership of the Federated RI Sportsmen's Clubs (which is a coalition group in itself) and STB (with over 10,000 members), the Environment Council could, according to Paul Beaudette, "easily claim...close to 15,000 - 17,000 members (people that we represent)."

"The aim of the Council is to unify the environmental community and enable it to try to speak with one voice, which Beaudette admits is difficult because of the diversity of the member groups. Dues are \$25/year per member group. This year membership has expanded to include individual members, whose votes do not carry as much weight as groups' votes.

The goals of the Council include acting as a main voice for the environment, and providing a network to facilitate action on projects, to prevent the duplication of work and encourage cooperation. The Council has monthly meetings. Beaudette believes that the Council has moved from being an unrecognized group to being a group that speaks for the entire environmental community, especially on the incinerator and waste management issue.

A.3 *Marinas*

A.3.1 *Rhode Island Marine Trades Association*

George Hawkins, Executive Director
P.O. Box 668
Newport, Rhode Island
846-3734

The Rhode Island Marine Trades Association was organized twenty-five years ago. The initial organization originally comprised retail boat dealers in Rhode Island, but soon added boat yards and marinas. Since that time, the Association has included marine insurance agents, banks and brokers, and just about every trade associated with pleasure boats. The purpose of the Association is primarily to educate the dealers; to give instruction on sales procedures and safe boat operation, and to promote learning and education. The second important purpose of the organization is connected to the Association's lobbyist; RIMTA lobbies in both Federal and State legislatures to make sure that boaters are going to have access to our waters. So, the Association is responsible for disseminating information to the members, organizing cooperative buying; setting up the Boat Shows in Providence and Newport, and lobbying. They lobby for such issues as boating safety regulations, lowering sales taxes on boats, and "conservation issues."

A.3.2 *Apponaug Harbor Marina*

John Dickerson, Proprietor
21 Arnold's Neck Drive
Warwick, RI
739-5005

The marina is a family business, and has been for the past 25 years. It grew from a family dock into a 225 slip marina in the 25 years of its existence. Dickerson believes that one third of the individuals who use the marina are from Warwick, one third from the rest of Rhode Island, and the last third from neighboring states (Massachusetts, Connecticut, etc.) Marina customers are pleasure boaters; no fishermen or commercial businesses keep their boats there. There is no membership fee -- individuals simply pay "rent" for a slip, and for storage space in the off-season. Yacht clubs do exist nearby, but the marina is not involved with them in any way.

The Apponaug Harbor Marina is a member of the New England Marine Trades Association, which is a member of the national Marine Trades Association. Although the marina is a member and attends the monthly meetings, Dickerson did not seem to have close ties with the Association, nor did he say that he had ever made use of their lobbyists to resolve any conflicts.

A.3.3 *Brewer Yacht Yard*

John V. Lizzi, Manager
100 Folly Landing Road
Warwick, RI 02886
884-0544

Brewer Yacht Yard purchased the marina 5 years ago. Prior to that the marina had existed since at least the mid-50s under other management. Brewer Yacht Yard runs marinas throughout New England -- in New York, Connecticut, and Rhode Island. They own 9 marinas and provide for their members: slip rentals, winter storage, mechanical repairs, painting, and custom installation work. They have an equal number of powerboats and sailboats. Their main goal is to provide access to the Bay to as many boaters as they can, and they're planning to rebuild their docks in order to increase this number.

A.3.4 C-Lark Marina

Gunther Vilbig, Owner/Manager
252 Second Point Road
Warwick, Rhode Island 02886
739-3871

While the C-Lark marina has been at its present location since the fifties, Vilbig has been at the marina for about five years. He noted that the marina site is one of the oldest in the area. C-Lark has 350 slips and is a member of the Rhode Island Marine Trades Association. Approximately one-third of the marina's customers come from Massachusetts or Connecticut, one-third from Warwick, and one-third from the remainder of Rhode Island. The boats at C-Lark are primarily power boats, but another marina nearby caters mostly to sailboats, so there is a balance in the area.

A.3.5 Cove Haven Marina

Paul Doppke, Owner/Manager
101 Narragansett Ave.
Barrington, R.I. 02840
246-1600

The Cove Haven marina was built in 1962 and has been under current ownership since 1972. The marina occupies six and a half acres of land, has three main buildings for storage and repairs, and 270 slips. Paul Doppke, the marina's manager, informed us that the marina serves a wide range of clientele, ranging from commercial fishing boats to small pleasure crafts. When Doppke took over the marina in the early seventies, most of the crafts docked there were motor boats. Doppke led a shift to sailing crafts, but has recently witnessed a trend back to motorized vessels due to declining fuel prices. Eighty percent of the marina's users are Rhode Island residents with the remaining fifth hailing mostly from Massachusetts. It is important to note that the Cove Haven Marina is one of nine large marinas owned by a corporation operating marinas in three states.

A.3.6 Wickford Cove Marina

John Nahigian Sr., Owner
P.O. Box 436
North Kingstown, R.I. 02852
884-7014

John Nahigian is the owner of the Wickford Cove Marina in North Kingstown. The marina has been operating there for about fifteen years. Wickford Cove Marina includes 158 slips for sail and power boats, as well as full facilities for the repair and storage of boats. Nahigian said that his customers at the marina are probably about 60% Rhode Islanders and 40% from out of state. In addition to running the marina, Nahigian is a past president of the Rhode Island Marine Trades Association and the Rhode Island Boating Council as well as a current vice-president of the New England Marine Trades Association. He spoke in the interview both as a marina owner and from his experience with the above mentioned associations.

A.3.7 Long Wharf Yacht Charters

Carl Bolender, Owner
Long Wharf, P. O. Box 366
Newport, Rhode Island 02840
401-849-2210

Long Wharf Yacht Charters has been in operation in Newport since 1981. Their parent company, Newport Bay Association, has been operating since 1976. Bolender described the organization as a floating marina and charter business, even though he is not licensed as a marina. They have mooring space for 50 large boats. The only boats moored at the marina are those Bolender uses for his charter trips -- no private boats are kept there. The boats that Bolender charters are not his own, and are at the marina for at most the boating season. Almost all of Bolender's customers are from out-of-state, as are most of the boats.

A.3.8 Rentacruise Inc.

Bob Darmer, Manager
461 Water St.
Warren, R.I.
245-1350

Darmer operates the Bay Queen which runs dinner cruises, day and evening trips on the Bay from May to October. Most of the tourists are from clubs, organizations and Rhode Island residents. Because they have wheelchair access, they serve groups such as nursing homes, the Meeting Street School, and the Ladd School.

Ninety percent of the Bay Queen's trips end up in Newport Harbour. The brunch trip stays in the harbour for two hours giving tourists the opportunity to go ashore. There is also a seven hour trip to the Bay Islands, but since many of the customers's (75%) are elderly, this trip is too long and there will probably only be one a week in the future. DEM often sent a naturalist along on this trip.

A.4 Industrial Users

A.4.1 Manufacturing Jewelers and Silversmiths of America

Harold Howland, Managing Director
The Biltmore Plaza Hotel
Providence, RI 02903
274-3840

The Manufacturing Jewelers and Silversmiths of America (MJSA) is a national trade association for the jewelry and silverware industries. Founded in Providence in 1903, it has 2,500 members nationally, 1,000 of which are located within a 5 mile radius of downtown Providence. The MJSA represents industry interests in Washington as well as in state politics. It also serves as an information center on government regulations and rulings, and provides a wide variety of support services, including product expositions and a shipping cooperative.

A.4.2 Armbrust Chain Co.

Denris Ledbetter, Director of Product Process Development
735 Aliens Ave.
Prov., RI 02905
781-3300

Armbrust Chain Co. manufactures jewelry chains. It's a large operation that employs over 350 people, and was established in 1920. Mr. Ledbetter maintains that although Armbrust is a large operation, it does relatively little plating.

A.4.3 Galaxy Plating Co.

Joseph Calandrelli
41 Wheatland Ave.
Cranston RI 02910
467-4480

Galaxy Plating is an electroplater which primarily produces costume jewelry. It's a medium-sized operation which employs between 9 and 50 people depending on seasonal conditions. Its parent company, American Rings in E. Providence, is a large, family-run business (200+ employees). Galaxy was established in 1981, and is housed in a modern building on the scenic Pawtuxet River. It's a member of the Manufacturing Jewelers and Silversmiths of America and the American Electroplaters Society.

A.4.4 CAC Narragansett Bay Commission

Erich Salomon, Industrial Representative
CIC Complex, Suite 116
235 Promenade St., Prov. 02903
421-0394

The Citizens Advisory Committee is part of the Narragansett Bay Commission. Its purpose is to provide advice and input into the wide variety of management problems the NBC faces vis a vis the Bay. It meets once a month and is composed of 21 persons who represent diverse interest groups, including environmental organizations, the League of Women Voters, the Water Supply Board, local communities (sewage users) and politicians. Mr. Solomon is a member of a subcommittee concerned with the industrial pre-treatment of wastes. He functions as a representative of industry, a role he's been in since 1980.

A.5 Recreational Users

A.5.1 Barrington Yacht Club

Jim McLelland, Commodore
Barton Avenue
Barrington, RI
245-1181

The Barrington Yacht Club was founded in 1906. It presently has 385 members. Dues are \$270 per year. One half of the members are boat-owners (mostly sailboats). The other half benefit from the club's sail training courses (for adults and children) and use the club's 16 boats (bluejays and 420s). The club organizes races on the Bay for local groups and national and international groups. In June they'll be running the Sunfish International Championships, and sailors from all over the world will be competing. The club has an extensive Cruising Committee which take sailboats on various cruises during the year. The club also allows people the opportunity to crew on other people's boats. They run a Tuesday evening cruising class service, where all of the larger class boats get out and race. A social committee runs at least one social event each month, and more during the summer. In the summer there's a children's activities program and they hire a director for that. Members are thus very involved in the club. Most of the members' boats are on moorings, but some of the powerboats are kept in slips. Jim McLelland estimated that there are approximately 150 privately owned boats among the members.

A.5.2 Edgewood Yacht Club

Paul McDonald, Commodore, and Joe, Steward Manager
1128 Narragansett Blvd.
Cranston, RI 02905
941-9810

The Edgewood Yacht Club has been opened since 1884 and currently has about 110 members. About 70% of the members own sailboats while the other 30% are motor boats. The members come from all walks of life-- engineers, doctors, mailmen, etc. Joe is the only paid member of the organization which is run by a board of governors. This board decides what course of action, if any, the club will take about particular issues.

There are 56 slips at the club now plus moorings. They could handle 200 boats if they had them. They are allowed to expand by 25% without having to get neighborhood approval or to pay the state any money.

A.5.3 *Newport Yacht Club*

Lewis Neviola, Commodore
Long Wharf
Newport, R.I.
1-846-9410 (home:846-0393)

Newport Yacht Club (NYC) has been in existence since 1894. There are over 400 members in the club. Eighty percent come from Aquidnick Island and the rest come from upstate and a few from Massachusetts. Primarily there are sailboats docked at the club. Most problems of the club are resolved by different committees.

A.5.4 *Narragansett Terrace Yacht Club*

Russel Goodnow, Commodore
250 Riverside Drive
East Providence, RI
433-3010

The Narragansett Terrace Yacht Club was formed about 50 years ago. It's a small club, with only 80 active members and a "spouse's association." Most of the members (but not all) own a boat. NTYC also has 6-8 "social members" who no longer own boats but enjoy the social benefits of the club. NTYC owns a small building next to the Narragansett Terrace Boat Yard in Bullock's Point Cove. NTYC has a good relationship with the Narragansett Terrace Boat Yard and another boat yard next to it, so some of the members keep their boats there. Across the cove are Lathan's Boatyard and Cove Haven Marina (a large marina, one of 5-6 owned by a company). Thus, there is lots of traffic in the cove -- cruisers, sailboats, 12-15 Rhodes-19 racing boats owned by NTYC members and 12-16 frostbites also owned by NTYC members. NTYC holds races every Thursday night for the Rhodes-19 and the cruising class sailboats. Usually 15-20 boats race. NTYC's social events include dances in April and November and small social events throughout the racing season, plus 2 "around the island" races, one of which includes an overnight on Prudence Island. NTYC also holds fundraising yard sales sometimes, because the organization is not at all wealthy. The goals of the club are thus to sponsor social events, provide dock facilities (where members can keep a dingy, wash their boat, and launch it) foster a warm, cooperative atmosphere, and sponsor racing. NTYC has never been a political group, because they've never needed to organize to fight over issues.

A.5.5 *Narragansett Bay Yachting Association*

Nancy Plumb, Executive Director
22 Bolton Road
Warwick, RI
781-2310

NBYA was organized in 1938. Nancy Plumb is the Office Administrator, and is NBYA's only paid employee. The Association is made up of an executive board of volunteers, mostly people who have an interest in yachting on the Bay. NBYA is one of the oldest yachting associations in Rhode Island. It has about 500 individual members, (300 adult and 200 junior members, under 18). The members come from Rhode Island, Connecticut, Massachusetts, and even a few from New York. In addition, about twenty different yacht clubs belong to the organization, and fifteen sailing associations (like the J-24 association and other sailboat racing class associations.)

NBYA does not have any specific facilities of its own, but relies on the yacht clubs to run the races and events. The NBYA office has moved around between five or six locations in the past ten years. NBYA publishes an annual sailing calendar that gets mailed to members.

NBYA does have a representative on the Rhode Island Boating Council, which is one of the organizations that NBYA tries to work with to promote yachting in Rhode Island. On occasion, NBYA has done some lobbying.

A.5.6 Fort Adams Sailing Association

Susan Myles, Executive Director
Bowen's Wharf
P.O.Box 3305, Newport, RI
846-1983

The Fort Adams Sailing Association (FASA) was developed by Sail Newport, Inc. as the "physical arm" of that corporation. Their aim is to promote sailing in Rhode Island and to keep RI waters open for yachting events. They have organized such events as the many boating regattas in Newport, and they have managed to bring the Admiral's Cup back to Newport.

The property they operate from, in Fort Adam's Park, is leased from the State (DEM) at a nominal fee. DEM has leased them the land in order for a "community sailing center" to be developed. The center has been set up so that "anybody who comes to RI has access to that particular spot." There are members who pay a nominal fee for the season. Any non-members are welcome to use the boating facilities there if they pay the user fee. The center also offers boating classes and has boats which it rents. Myles feels that in this way they have opened sailing and boating to the public. Most of the "public" is from out-of-state.

A.5.7 American Sail Training Association

Captain George Crowninshield, President, and Chris Mann, Spokesperson
Newport Harbor Center
365 Thames St., Newport, RI 02840
846-1775

The American Sail Training Association (ASTA) is a national organization which works to get youth to sea in deepwater sailing ships. Their goals are summarized as follows: "We work with youth for individual improvement and adventure, and through them to build international good will and to invigorate our maritime legacy." Besides sending young people out on large, deporter

ships each summer, ASTA also sponsors tall ship races and events. ASTA has approximately 500 members who pay a membership fee of \$15. The majority are from military backgrounds. ASTA was established in 1973.

A.5.8 *Narragansett Boat Club*

Albin Moser, Director of Rowing
River Rd., (P.O. Box 2413)
Providence, RI 02906
272-1838

Acknowledged as the oldest rowing club in the country, the Narragansett Boat Club was organized in 1838. It's been in its present location north of the Red Bridge on the Seekonk River since 1938. The Club was formed in order to promote rowing and physical culture, and services approximately 120 members and their families, many of them professionals residing on the East Side. The Club also runs a series of rowing programs that serve another 200-250 people a year. It is the only rowing facility in Rhode Island not affiliated with a school and has more than 20 boats.

A.5.9 *RI Canoeing Association*

Barbara Strawn, President
70 Scott Street
Pawtucket, RI 02860
725-3344

The Rhode Island Canoeing Association was formed in 1977 as an interest group of people who wanted to get together and paddle, and who needed an organized group to find places to canoe and organize a put-in and a take-out. There are 200 members (including family memberships). Dues are \$7 for an individual and \$10 for a family. A newsletter comes out every month, with lists of trips (flatwater and whitewater). The goals of the organization include not only to successfully organize trips and to find new areas to canoe, but also to ensure that people canoe safely. RICA organizes classes in First Aid, CPR, canoeing and kayak-rolling, and encourages people to canoe together and not alone, for safety's sake. RICA is not very political, because they're such a small interest group. They have spoken with legislators at times and have fought political battles when necessary. However, the membership is very loose -- "canoers are the great unwashed masses, rugged individuals...It's hard to get that sort of a group interested in political moves."

A.5.10 *Eastern Surfing Association*

Dr. Colin Couture, Exec. Dir.
11 Adams Point Road
Barrington, RI 02806
336-9563 (H)

The Eastern Surfing Association is a non-profit corporation formed 25 years ago. It serves surfers from New England to the Gulf Coast. Its 7,000 members range from 5 year-olds to people

in their 70s. The goals of the association include organizing amateur competition and focusing on "ecology" issues. Ecology issues include two categories of concerns: 1) a legal and political effort designed to ensure public access to the water (The legal arm of the organization recruits volunteer attorneys to represent them in disputes when necessary.) 2) an ecology education program particularly for children and adolescents, which focuses on both ocean and shoreline ecology. The organization has close contact with the Cousteau Society -- Jean Michel Cousteau is on their advisory committee. The association's newest programs include sponsoring trips to Norfolk, where the Cousteau Society has its headquarters, so the kids can see and sometimes get involved in the scientific research going on there.

A.5.11 Rhode Island Divers Supply

Lawrence Silvia, Owner/Operator
209 Elmwood Ave.
Providence, RI
274-4482

RI Divers' Supply has been selling SCUBA equipment and giving diving lessons for over a decade. Its owner, Lawrence Silvia, is a diver with 30 years of experience, and runs another store, Viking Divers' Supply in Middletown.

Mr. Silvia considers himself an informal representative of the sport diving community in RI, and has worked to better organize divers, who are a small (less than 1/2% of the population) and disorganized group that doesn't have many allies. He maintains a mailing list of 600 divers, and is licensed as a lobbyist in the state legislature. Until 1983, Silvia was involved with the leadership of the now dormant RI Council of Skin Divers, a group that consisted largely of spear divers. It sponsored competitive meets to see "who could kill the most fish" with guns as well as spears. Mr. Silvia opposed this kind of activity and disassociated himself from it by quitting the group and encouraging its dormancy.

A.5.12 Little Rhody Salt Water Sportsman's Club

Joseph Martin
Richard "Pop" Johnson, member and state rep.
315 Sea View Dr.
Warwick, RI
737-4550

The Club was chartered in 1935 for 85 people. Currently the Club is full. Members consist of people from "all over", but they are mostly from the immediate neighborhood. They are all pleasure fishermen. Each member pays \$50/year for full use of the clubhouse, docking privileges, and mooring space.

A.6 Development Firms

A.6.1 Rhode Island Builders' Association

Ross Degata, Director
Biltmore Hotel
Providence, R.I. 02903
521-0347

The Rhode Island Builders' Association is a trade association of residential builders, remodelers of residential property and light commercial builders. A segment of the membership consists of land developers. There are about 1400 members; 800 are builders and land developers, the rest are suppliers, banks, engineers-- people allied to the industry. RIBA represents the residential developers before the general assembly and regulatory agencies. Their legislative concerns are zoning, land use (ground water, septic systems, etc.), building codes and fire codes. With regulatory agencies, their areas of concern are the same but they are interested in how the regulations are being written and implemented; how they administer and enforce these laws. RIBA spends as much time with the regulatory agencies as they do with the legislature.

A.6.2 Rhode Island Assoc. of Realtors

Thomas Mulhearn, Executive Officer
120 Lavan Street
Warwick, RI 02888
785-9898

The Rhode Island Association of Realtors has 2500 members, the majority of which are real estate brokerage firms, and some of which are real estate development firms. It's a trade association that has existed since 1948. Their goal is "to provide better services to our members in the area of selling real estate -- educational programs (marketing strategies, changes in mortgage programs, etc.), public relations services and lobbying (like any trade association). Their lobbying includes "home ownership" and "private property" issues. It is a member of the National Association of Realtors. While the RIAR is concerned with state issues, its 6 local boards of realtors handle local issues. These boards meet with RIAR monthly. There is frequently communication between members.

A.7 Other Groups

A.7.1 Conanicut Marine Services, Inc., and Jamestown Harbormaster

William Munger, President, and Harbormaster of Jamestown Harbor
10 Ferry Wharf
Jamestown, RI 02835
423-1556

Conanicut Marine Services is the main office for waterfront activity in the Jamestown harbor. It has provided mooring and berthing facilities, maintenance and storage services for recreational yachts and boats, and retailed marine hardware and supplies for over 14 years. It's president and founder, Bill Munger, has served as harbormaster for the Town of Jamestown since 1975.

Harbormasters have a wide range of responsibilities, and in Mr. Munger's words, "wear 18 different hats." Mr. Munger is one of three harbormasters on the island (the other two cover Dutch and Dumpling Coves), all of whom are appointed and work on an essentially volunteer basis. Mr. Munger greets and orients newcomers to the harbor, acts in a diplomatic role when problems such as collisions occur in the harbor ("I'm a Henry Kissinger of sorts"), and acts as a liaison between the Town Council and waterfront activity. Although he has no enforcement powers per se, he is expected to see that the naval anchorage rules of the harbor are abided by.

A.7.2 *Newport Waterfront Watch*

Ronald Barr
P.O. Box 51
Newport, RI
847-4252

Newport Waterfront Watch (NWW) is a volunteer organization designed to assist the Harbor Master(s) in preventing petty crime on the water. The organization began four years ago. They own a boat with which they patrol the harbor during boating season; spring, summer, and fall. They watch for people stealing from boats, or stealing boats. They also help people who are in need of assistance on the water. Basically they act as an extension of the Harbor Master. They get money from people who donate. Their members number about 160+ and are from the area, or are at least in Newport for the boating season.

A.7.3 *Coalition of Coastal Communities*

Brian Knowles, Executive Director
38 Transit St.
Providence, R.I.
272-1230

The CCC began in 1979 under the leadership of Mayor Joseph Walsh. The League of Cities and Towns was the primary organization dealing with a broad range of issues which included coastal issues, pollution issues, etc., but when the sewage treatment plant failed in 1979 and began dumping sewage on downstream towns, Walsh decided that a separate group should be formed to deal with coastal issues. The CCC was formed by many of the coastal communities passing resolutions saying that they wanted to join the organization. The CCC is a regional council of governments.

The main agenda at its formation was to bring about a solution to the pollution problem. The CCC put a lot of work into coming up with a recommendation for a management structure and funding to solve the problem. They came up with the idea of a special master (state designee to oversee the solution to a problem). A commission was formed which is a similar idea; Knowles feels that the CCC helped in getting the NBC and its funding. CCC helped the NBC do its job because as it is made up of mayors, town administrators, town managers, and council presidents, it is able to make recommendations to a member city to cooperate with, in this case, the NBC.

Funding for CCC first came from the City of Warwick, then a CETA grant, and then a variety of other grants for particular projects such as a study of the result of using Quonsett Point as a staging area for the oil industry. Since 1982 the CCC has been depending on membership dues for their funding. This has shifted their agenda towards the concerns of these communities and away from basing their concerns on issues which were determined by available funding. They started focusing even more on issues which directly affected localities-- such as the set up of the NBC. Also they shifted towards looking at some very crucial local issues such as how the CRMC was working, how they were treating localities.

A.7.4 Rhode Island Port Authority / Department of Economic Development

Edward J. Spinard, Jr., Chief Planner
7 Jackson Walkway
Providence, R.I. 02903
277-2601

Spinard is actually the chief planner for the Department of Economic Development, but the DED is associated with the RI Port Authority in that the Director of the DED is the Executive Director of the Port Authority (P.A.). The PA owns Quonsett Point-Davisville which is the former naval base. Initially they were used to support the offshore oil industry. The DED is in the process of converting the Davisville piers into a public port to complement and supplement the activities of the Port of Providence (owned by the city).

The Port Authority has a board of directors. The governor sits as chairman and there are representatives from business, labor and the legislature.

The PA is a public instrumentality of the state which means it is part public and part private. This allows the PA to manage and develop property -- collect rents, pay for repairs. The intent was to remove this activity from politics and to allow it to develop like a business.

A.7.5 U. S. Coast Guard Marine Safety Office

Commander Ned Cook, Captain of the Port
Pastore Federal Bldg.
Providence, RI
528-5335

The US Coast Guard has 2 separate divisions which have jurisdiction over the Bay. The first is run out of Woods Hole and controls the small patrol boat stations in Newport, Point Judith and Bristol, oversees the lighthouses and handles upkeep of the buoys on the Bay. They're concerned with "aids to navigation," boating safety and law enforcement (ex. drug interdiction). Cook works at the Marine Safety Office, which is concerned with water pollution (both prevention and clean-up) and the safety and security of the Port of Providence. They have the authority to control vessel traffic in and around the Bay and have some interest in boating safety, although most of this has been turned over to the State. However, they do handle regulation of traffic during marine events (tall ships, America's Cup, etc.). They also handle port security and military readiness, ensuring that the navy forces can move freely when necessary.

The Marine Safety Office oversees and regulates incoming cargo (including hazardous materials). They have 30 "billets" (authorized positions), but a few more than 30 people actually work in the office. They have two 32-foot boats, a 15-foot and a 9-foot boat, and 9 motor vehicles.

Goals: In the Commercial Vessel Safety Program, they're concerned with the safety of life and property at sea. They work toward this goal through the inspection of vessels. In the Port & Environmental Safety field, they're trying to ensure that the Bay's commercial and recreational uses are protected from significant oil spills, major fires, or other disasters that would destroy facilities or interfere with movement of military forces. Their goal is to keep the port open, and oil spills can hamper commerce.

The Coast Guard Commander of the Atlantic Area's patrol boats (working with the Marine Fisheries Association) have the duty (among others) of ensuring that fishing boats stay within areas open to fishing.

Appendix B

ANNOTATED BIBLIOGRAPHY

B.1 Sources of Additional Information

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along the Rhode Island coast. It was written in response to a growing concern that some of what is being built along the coast is destroying its beauty and limiting the public's enjoyment of the state's shore areas. The manual is written for those involved in new housing developments near the coast: builders planning subdivisions, landowners constructing a new house or adding to an old one, or local officials reviewing plans. Its purpose is to provide constructive ideas to encourage people to think about how to work with the land and water when designing and building new housing.

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Appendix C

**BREAKDOWN OF PUBLIC'S PREFERENCES FOR PROJECT GOALS
BY USER GROUP**

Table 24: Study: Effect of Raw Sewage on the Bay

	Major	Minor	No Part
Swimmers	98%	2	-
Aesthetic	98	2	-
Boaters	96	3	1
Quahoggers	99	1	-
Fishermen	99	1	-

Table 25: Study: Effect of Industrial Waste on the Bay

	Major	Minor	No Part
Swimmers	98%	2	0
Aesthetic	97	2	0
Boaters	96	4	0
Quahoggers	98	2	0
Fishermen	98	3	0

Table 26: Study: Effect of Pollution From Shoreline Development

	Major	Minor	No Part
Swimmers	92%	8	1
Aesthetic	91	8	1
Boaters	90	9	1
Quahoggers	92	7	1
Fishermen	91	8	1

Table 27: Study: Risk From Eating Shellfish

	Major	Minor	No Part
Swimmers	83%	16	1
Aesthetic	85	14	1
Boaters	77	21	1
Quahoggers	83	15	2
Fishermen	83	14	2

Table 28: Study: Public Education

	Major	Minor	No Part
Swimmers	81%	18	2
Aesthetic	82	16	2
Boaters	77	20	3
Quahoggers	82	18	0
Fishermen	82	18	0

Table 29: Study: Effect of Water Quality on Marine Life

	Major	Minor	No Part
Swimmers	84%	13	2
Aesthetic	83	15	2
Boaters	83	16	1
Quahoggers	87	13	0
Fishermen	83	15	2

Table 30: Study: The Public's Opinion

	Major	Minor	No Part
Swimmers	75%	23	2
Aesthetic	76	22	2
Boaters	73	23	4
Quahoggers	78	20	2
Fishermen	77	19	4

Table 31: Study: How can enforcement be improved?

	Major	Minor	No Part
Swimmers	72%	24	2
Aesthetic	71	24	2
Boater	72	25	3
Quahoggers	76	23	0
Fishermen	74	21	1

Table 32: Study: How can management of the Bay be improved?

	Major	Minor	No Part
Swimmers	67%	29	3
Aesthetic	69	26	4
Boaters	68	25	5
Quahoggers	74	21	5
Fishermen	73	23	4

Table 33: Study: Effect of Recreation on Water Quality

	Major	Minor	None
Swimmers	65%	30	4
Aesthetic	63	31	5
Boaters	63	30	5
Quahoggers	66	29	5
Fishermen	63	31	6



A STUDY OF PUBLIC PERCEPTIONS
AND OPINIONS CONCERNING
NARRAGANSETT BAY

- SUMMARY OF FINDINGS -

Prepared for the
Center for Environmental Studies
Brown University

Alpha Research Associates

1. INTRODUCTION

This project was undertaken at the request of Brown University - The Center for Environmental Studies on behalf of the Rhode Island Department of Environmental Management - Narragansett Bay Project. The survey, results of which are described in this report, was conducted over a four day period between Monday, June 2nd, and Thursday, June 5th. It took the form of a telephone public opinion assessment. The sample included five hundred three randomly selected adults who were screened to determine that they were over the age of eighteen.

The interviews took approximately fifteen to twenty minutes on the telephone. All interviews were conducted by professional interviewers whose work was supervised and monitored at our Central Telephone Bank by Alpha staff. Results were reviewed for consistency, edited, coded, and validated by the supervisory staff.

The study represents a stratified random sample of pre-screened individuals who were selected from a sampling frame consisting of all Rhode Island adults. The sample was controlled for gender so that approximately half the sample is male and half is female. Communities were incorporated within the sample in a manner which stratified the adult population as found in the 1980 Census. The sample was proportioned by community to reflect actual population figures.

A random sample of five hundred three persons produces a margin of error of four percent at the ninety-five percent confidence level. This means that one could say with ninety-five percent confidence that the error attributable to sampling and other random effects is a maximum of four percentage points in either direction. In other words, the results are accurate within four percent in either direction

of the results which would have been obtained had all adults in Rhode Island been interviewed.

Persons incorporated within the sample were reached by telephone. The telephone numbers were generated by a random digit dialing process with telephone exchange prefixes provided by New England Telephone and the remaining four numbers generated by computer. This approach allows the inclusion of all potential telephones, whether listed or unlisted. The calls were screened to eliminate business numbers.

Each questionnaire was coded and the data computer entered. Tabulation was accomplished on an IBM 4341 Mainframe computer utilizing the Statistical Analysis System (SAS) tabular software package. A set of tables generated by the computer is provided with this report. In analyzing the computer-generated tables, it should be kept in mind that the results are subject to normal statistical sampling error (the difference between the results obtained from the sample and those which would have been obtained by surveying the entire adult population). It should also be remembered that analytical cross-tabulations by such variables as region, age, and income represent sub-samples; therefore, the margin of error for any one cross-tabular column may be substantially higher than the margin of error for the sample as a whole.

The interview schedule (questionnaire) was developed by Alpha in consultation with representatives of the Center for Environmental Studies. Prior to the interviewing process, the instrument was field tested on two separate occasions, with modifications being made following the first field test. The final interview schedule incorporated seventy-three items. These included ten open-ended questions, fifty-eight substantive closed-ended questions, and five demographic variables.

This report contains the highlights of the survey's findings. The observations contained herein are of a descriptive nature with analysis being limited to a few obvious conclusions. A complete set of computer-generated analyses tables accompanies this report and is incorporated herein by reference. The analytical tables provide detailed information by various sub-categories for each of the questions. The questions will be referenced in this report with the designation "Q"; tabular references, when made, will be designated "T." This report does not purport to be a complete analysis of the data. In general, it will restrict itself to the marginals (frequency distributions).

Interviewer Name _____

4. Gender	(4)	Male	1	50
		Female	2	50
5. Region	(5)	Providence	1	17
		Suburban	2	36
		Blackstone Valley	3	22
		Aquidneck Island	4	8
		Western R.I.	5	4
		South County	6	14

Hello! my name is _____ of ALPHA RESEARCH ASSOCIATES, the public opinion firm. We're doing a survey here in Rhode Island about Narragansett Bay and I'd like to ask you a few questions.

I'm going to mention a few problems some people associate with Narragansett Bay. Please tell me how important each problem is on a scale of 1 to 5 with 1 being least important and 5 being most important. (ROTATE ORDER)

	1	3	5	
	least		most	WRITE #HERE
6. Pollution and its effects on the Bay.				(6) _____
7. Inadequate access to the shoreline.				(7) _____
8. Overcrowding of beaches.				(8) _____
9. Too many boats on the Bay.				(9) _____
10. Inadequate boating regulations.				(10) _____
11. Poorly controlled shoreline development.				(11) _____
12. No conveniently located bayshore parks and beaches.				(12) _____
13. Inadequate facilities such as restaurants on the waterfront.				(13) _____
14. Dangers associated with eating contaminated fish and shellfish from the Bay.				(14) _____
15. Narragansett Bay, like most salt water bays in the U.S., is polluted. What is the major source of pollution? (PROBE FOR SPECIFICS)				(15) _____

I'm going to read you a list of various uses of the Bay. Please tell me if in the past year, you have used the Bay for any of these activities or not. Have you used the water or shore for . . . (READ CATEGORIES)

16. Activities such as sun bathing, swimming, waterskiing, or windsurfing?	(16)	Yes	1	64
		No	2	36
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
17. Enjoying the views, walking along the shore, photography, or observing?	(17)	Yes	1	85
		No	2	15
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
18. Boating?	(18)	Yes	1	32
		No	2	68
		Don't Know (vol)	8	0
		No Answer (vol)	9	0

19. Shellfishing or quahogging?	(19)	Fun	1	20
If "YES" - Was it for fun or profit?		Profit	2	1
		No	3	79
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
20. Fishing?	(20)	Fun	1	28
If "YES" - Was it for fun or profit?		Profit	2	1
		No	3	71
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
21. Would you say that in the last year you used the Bay very frequently, somewhat frequently, somewhat infrequently, or very infrequently?	(21)	Very Frequently	1	24
If "VERY FREQUENTLY" - Skip to Q. 26		Somewhat Frequently	2	23
If Anything else - continue.		Somewhat Infrequently	3	22
		Very Infrequently	4	31
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
22. Why don't you use the Bay more often? (PROBE)				
				(22)
23. What if anything would cause you to use the Bay more often? (PROBE WHAT ELSE)				
				(23-25)
26. Is any of your income, obtained from uses associated with Narragansett Bay?	(26)	Yes	1	3
If "YES" continue.		No	2	92
If Anything else - Skip to Q. 26		Don't Know (vol)	8	0
		No Answer (vol)	9	5
27. What percentage of your total family income would that be? (PROBE)				
				(27)
Now let's consider Narragansett Bay as a natural resource. The Bay has many uses, some of which may conflict. There are several different opinions on how these potential conflicts should be resolved. Please tell me how you feel about each conflict I mention.				
28. If boating and marinas were found to harm quahogging in an area, which should be controlled quahogging or boating?	(28)	Quahogging	1	15
		Boating	2	78
		Don't Know (vol)	8	6
		No Answer (vol)	9	1
29. If residential housing was to be built on a section of shoreline that people currently use for recreation, should the development be stopped or should the people be excluded?	(29)	Development Stopped	1	87
		People Excluded	2	4
		Other	3	5
		(vol)		
		Don't Know (vol)	8	4
		No Answer (vol)	9	1
30. Sometimes quahogging areas overlap with areas where sailors race. When this happens, who has more of a right to use these areas - fishermen or sailors?	(30)	Fishermen	1	77
		Sailors	2	11
		Other	3	6
		(vol)		
		Don't Know (vol)	8	6
		No Answer (vol)	9	1
31. Some industries which are significant polluters of the Bay claim that the costs of cleaning up their wastewater are too high. Should the state cover the costs, should the industries cover these costs, or should the pollution be allowed to continue.	(31)	State	1	11
		Industries	2	76
		Pollution Allowed	3	1
		Other	4	11
		(vol)		
		Don't Know (vol)	8	0
		No Answer (vol)	9	0

32. And thinking about development of the Bay and its shoreline, if development may increase pollution, should the state exclude development even if the exclusion results in fewer jobs and increased costs for housing and services?

(32)	Should Exclude Devel.	1	74
	Shouldn't Exclude Devel.	2	15
	Other	3	4
	(vol)		
	Don't Know (vol)	8	7
	No Answer (vol)	9	1

33. Should the Providence harbour area be developed for expanding shipping and commercial use or for building a recreational area with shops and restaurants as in Newport?

(33)	Shipping & Commercial	1	42
	Recreational	2	44
	Other	3	8
	(vol)		
	Don't Know (vol)	8	7
	No Answer (vol)	9	0

The state is currently involved in a five-year federally funded study of Narragansett Bay. I'm going to mention some of the topics that may be considered in the study. Please tell me if you think each topic should be a major part, a minor part or no part of the study.

34. Studying the effects of recreation and tourism on water quality?

(34)	Major Part	1	63
	Minor Part	2	30
	No Part	3	6
	Don't Know (vol)	8	1
	No Answer (vol)	9	0

35. Studying the effects of raw sewage on the Bay?

(35)	Major Part	1	98
	Minor Part	2	2
	No Part	3	0
	Don't Know (vol)	8	0
	No Answer (vol)	9	0

36. Exploring the dangers of eating fish and clams from the Bay?

(36)	Major Part	1	85
	Minor Part	2	13
	No Part	3	1
	Don't Know (vol)	8	1
	No Answer (vol)	9	0

37. Studying the effects of water quality on marine life?

(37)	Major Part	1	83
	Minor Part	2	14
	No Part	3	2
	Don't Know (vol)	8	1
	No Answer (vol)	9	0

38. Developing improved government management of the Bay?

(38)	Major Part	1	69
	Minor Part	2	27
	No Part	3	4
	Don't Know (vol)	8	1
	No Answer (vol)	9	0

39. Asking the public's opinions about the Bay's future?

(39)	Major Part	1	77
	Minor Part	2	21
	No Part	3	2
	Don't Know (vol)	8	0
	No Answer (vol)	9	0

40. The development of improved enforcement programs?	(40)	Major Part	1	72
		Minor Part	2	23
		No Part	3	2
		Don't Know (vol)	8	3
		No Answer (vol)	9	1
41. Studying the effects of pollution from shoreline development?	(41)	Major Part	1	91
		Minor Part	2	7
		No Part	3	1
		Don't Know (vol)	8	1
		No Answer (vol)	9	0
42. Studying the effects of industrial waste?	(42)	Major Part	1	97
		Minor Part	2	2
		No Part	3	0
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
43. Informing the public about results of research and developing educational programs?	(43)	Major Part	1	84
		Minor Part	2	15
		No Part	3	2
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
44. Do you eat raw oysters and clams?	(44)	Yes	1	45
If "YES" continue.		No	2	55
If "NO" - Skip to Q. 48		Don't Know (vol)	8	0
If Anything else - Skip to Q. 53		No Answer (vol)	9	0
45. In the past couple of years how often would you say you have eaten oysters and clams? (READ CATEGORIES)	(45)	More than Once a week	1	4
		About Once a week	2	8
		About Two or Three times a month	3	79
		Don't Know (vol)	8	6
		No Answer (vol)	9	3
46. In the past two years has the amount of oysters, clams and quahogs you have eaten increased, decreased, or remained about the same?	(46)	Increased	1	10
If "DECREASED" continue.		Decreased	2	19
If Anything else - Skip to Q. 49		Remained About the Same	3	71
		Don't Know (vol)	8	0
		No Answer (vol)	9	0
47. And what's the main reason you're eating less? THEN SKIP TO Q. 49				
				(47)
48. Why don't you eat oysters, clams and quahogs?				
				(48)
49. Are you aware of any health risks associated with eating oysters, clams or quahogs?	(49)	Aware	1	62
If "AWARE" continue.		Not Aware	2	38
If Anything else - Skip to Q. 53		Don't Know (vol)	8	0
		No Answer (vol)	9	0

50. Do you happen to recall what these health risks are? (PROBE)

(50)

51. Have you experienced any of these?

If "YES" continue.

If Anything else - Skip to Q. 53

(51)	Yes	1	5
	No	2	52
	Don't Know (vol)	8	0
	No Answer (vol)	9	43

52. How often?

(52)

53. Some health risks associated with eating contaminated shellfish include stomach cramps, vomiting and diarrhea. If you knew your chances of getting these illnesses were once in every ten times you ate shellfish, would you stop eating them?

(53)	Yes	1	69
	No	2	28
	Don't Know (vol)	8	1
	No Answer (vol)	9	1

54. What if the chances were one in 100?

(54)	Yes	1	42
	No	2	54
	Don't Know (vol)	8	2
	No Answer (vol)	9	1

55. One in 1,000?

(55)	Yes	1	32
	No	2	65
	Don't Know (vol)	8	1
	No Answer (vol)	9	1

56. One in 100,000?

(56)	Yes	1	27
	No	2	71
	Don't Know (vol)	8	1
	No Answer (vol)	9	2

57. One in a million?

(57)	Yes	1	26
	No	2	72
	Don't Know (vol)	8	1
	No Answer (vol)	9	1

58. If research proves that eating contaminated shellfish causes significant numbers of stomach and intestinal disorders, do you think that the government should strictly regulate the sale of shellfish, warn the public or do nothing?

(58)	Strictly Regulate Sales	1	37
	Warn the Public	2	55
	Do Nothing	3	1
	Other	4	7
	(vol)		
	Don't Know (vol)	8	0
	No Answer (vol)	9	0

59. Would you be willing to pay twice as much as you now pay for your shellfish in order to be sure the shellfish would not cause stomach disorders?

(59)	Would Be Willing	1	58
	Would Not Be Willing	2	36
	Don't Know (vol)	8	4
	No Answer (vol)	9	2

60. In the past two years have you eaten salt water fish such as bluefish or flounder?

If "NO" - continue.

If Anything else - Skip to Q. 62

(60)	Yes	1	84
	No	2	16
	Don't Know (vol)	8	0
	No Answer (vol)	9	0

61. Why not? THEN SKIP TO Q. 65

(61)

62. In the past two years, has the amount of fish you've eaten increased, decreased or remained about the same?

	(62)	Increased	1	28
If "DECREASED" continue.		Decreased	2	7
If Anything else - Skip to Q. 64		Remained About the Same	3	64
		Don't Know (vol)	8	0
		No Answer (vol)	9	1

63. Why are you eating less fish?

(63)

64. How often would you say you eat salt water fish . . . (REAL CATEGORIES)

(64)	More than Once a week	1	19
	About Once a week	2	28
	About Two or Three times a month	3	50
	Don't Know (vol)	8	2
	No Answer (vol)	9	1

65. Are you aware of any health risks associated with eating fish?

If "YES" continue.	(65)	Yes	1	33
If Anything else - Skip to Q. 67		No	2	67
		Don't Know (vol)	8	0
		No Answer (vol)	9	0

66. Do you happen to recall what these risks are?

(66)

67. It has been suggested that eating contaminated fish regularly can cause cancer. If you knew that one in ten people who regularly eat certain kinds of fish get cancer, would you stop eating them?

(67)	Yes	1	76
	No	2	23
	Don't Know (vol)	8	1
	No Answer (vol)	9	0

68. What if the risk was one in 100?

(68)	Yes	1	58
	No	2	38
	Don't Know (vol)	8	3
	No Answer (vol)	9	1

69. One in 1,000?

(69)	Yes	1	44
	No	2	52
	Don't Know (vol)	8	3
	No Answer (vol)	9	1

70. One in 100,000?

(70)	Yes	1	35
	No	2	62
	Don't Know (vol)	8	2
	No Answer (vol)	9	1

71. One in a million?

(71)	Yes	1	31
	No	2	67
	Don't Know (vol)	8	1
	No Answer (vol)	9	1

72. One in ten million?

(72)	Yes	1	30
	No	2	68
	Don't Know (vol)	8	1
	No Answer (vol)	9	1

73. If cancer research proves that eating contaminated fish does cause cancer, do you think the government should prohibit the sale of these fish, warn the public or do nothing?

(73)	Prohibit the Sale	1	34
	Warn the Public	2	60
	Do Nothing	3	1
	Other	4	5
	(vol)		
	Don't Know (vol)	8	0
	No Answer (vol)	9	1

74. Would you be willing to pay twice as much as you now pay for your fish in order to be sure the fish would not cause cancer?

(74)	Would Be Willing	1	65
	Would Not Be Willing	2	32
	Don't Know (vol)	8	2
	No Answer (vol)	9	1

75. Thinking about the range of issues facing Rhode Island at the present time, do you believe that problems and issues associated with Narragansett Bay are very important, somewhat important, somewhat unimportant, or very unimportant in comparison with other issues now facing the state?

(75)	Very Important	1	77
	Somewhat Important	2	20
	Somewhat Unimportant	3	2
	Very Unimportant	4	0
	Don't Know (vol)	8	0
	No Answer (vol)	9	0

Finally, just a few quick questions for statistical purposes only . . .

76. Which of the following age groups are you in? (READ CATEGORIES)

(76)	18-24	1	15
	25-34	2	25
	35-49	3	24
	50-64	4	21
	Over 64	5	14
	Don't Know (vol)	8	0
	No Answer (vol)	9	1

77. What is your total family income? Is it . . . (READ CATEGORIES)

(77)	Under \$6,000	1	7
	\$6 - \$12,000	2	10
	\$12 - \$18,000	3	14
	\$18 - \$25,000	4	19
	\$25 - \$35,000	5	18
	Over \$35,000	6	20
	Don't Know (vol)	8	2
	No Answer (vol)	9	11

78. And in which city or town do you live?

(78-79)

THANK YOU VERY MUCH FOR YOUR TIME! YOU'VE BEEN VERY HELPFUL!