August 1990

SGR-96

MANAGING FLORIDA'S COASTAL RESOURCES:

Technical Complexity and Public Attitudes

by

Dennis L. Soden

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Florida Sea Grant Program
Project Number IR-89-8

Grant Number NA86AA-D-SG068

Florida Sea Grant College
Building 803
University of Florida
Gainesville, Florida

Report Number 96
$3.00

August 1990

EXECUTIVE SUMMARY

It is a well-known fact that Florida is a state very dependent on its coastal resources for its economic, as well as social foundation. Public involvement in the policy process attendant to coastal resources is mandated by law, but hindered because of the scientific and technical nature of the issues. The coastal resources issue area is one in which potentially disastrous consequences can arise from decisions made by uninformed actors in the policy process. In this regard, it is argued that occasions may arise where the ideals of democratic social processes are sacrificed because of technical complexity. The general public, by nature of their background and training, generally fail to meet the rigorous demands which technical coastal issues require. As a result, those with the expertise respond in behalf of the general public to questions and concerns in the coastal resources policy arena.

This project reports findings from a statewide survey conducted in 1988 designed to investigate the attitudes held about coastal resources, management programs and technical information factors among three sets of policy process actors--the general public, the activist public and policy elites. The central concern is of these findings revolves about how democratic norms and processes are impacted when the general public lacks the requisite policy-relevant information, and who is knowledgeable enough to act in the public's behalf.

To determine attitudes and knowledge, 1700 Florida residents representing the general public and an activist subset, and policy elites composed of elected and non-elected public officials were surveyed. The general findings show that regardless of position in the policymaking process, Floridians register general concern about environmental problems in Florida's coastal areas. Disagreement about favored management mechanisms for solving coastal problems do, however, exist.

Findings about technical information and policy relevant knowledge holding indicate that wide disparity exists in the amount of technical knowledge which each group uses to form its opinions about coastal issues. Policy elites are found to hold considerably more technical information and thus have more ability to call upon it in policy debates; the general public and activists, in contrasts, record considerably lower levels of information and knowledge.

Beyond general knowledge levels, the findings clearly show that Floridians do not seek out new knowledge sources about coastal resource use questions, but rely on television and newspapers as their favored medium. Moreover, survey respondents were found to accord the greatest trust in group sources of information which reconfirm their existing beliefs. To obtain

this information they depend heavily on special interest groups such as a Chamber of Commerce, environmental groups, or political parties. At the same time, they tend to reject or even ignore information coming from sources which challenge their predispositions.

While this study reports on a wide range of data, the general findings indicate that the role of public involvement in complex coastal issues is challenged. Strong beliefs based on attitudes about use and development of coastal sources, as well as ideologic attitudes about the proper roles of both government and the public, work to insure the level of conflict about coastal resource policy. Public involvement is found not to be without pitfalls in the complex coastal issue area. Nevertheless, the findings suggest that the decisions which the public makes regarding obtaining information may well determine future policies in the coastal environment in Florida.

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ACKNOWLEDGEMENTS

As in any project, the author is indebted to many individuals and organizations. Funds were supplied by grants received from the Florida Sea Grant College and the University Research Council of the University of West Florida. Without support from these sources, the material reported in this report could not have been collected, processed, or analyzed.

The author is extremely fortunate to have been supported by a highly competent group of graduate assistants. Worth Hester proved invaluable in completing the necessary preliminary computer work. Timothy Vinesett diligently developed the samples, managed the return mail as well as contributed a great deal during the laborious coding process, and stepped in to help with the computer work. Robert Hendrickson likewise aided in the mailing and coding process; helping to ease this project to its completion. At various times, James Reighard, Leslie McLaughlin, and Eric Poole freed time from other projects to assist. Secretarial skill and talent also must not be overlooked. The tireless efforts of Pam Boutwell, Christy Stillman and Cecily Fruchey provided the glue that kept everything together in the first phase of this project, while Sharon-Marie Kuefel and Gaynelle Newton must be applauded for accepting the extra burden of the overflow in the last phases.

Chapter One

INTRODUCTION

The arena of coastal resource policy in the State of Florida is one in which considerable change is taking place (Christie, 1985, 1989; O'Connell, 1985). The alteration in decision patterns and forces in the policy process related to our coastal areas has its sources in changes in bureaucratic behavior, the nature of public involvement brought about by changes in the law (i.e., the National Environmental Policy Act of 1969, the Coastal Zone Management Act of 1972), changes in environmental politics once on the periphery but now mainstream American politics, and increasing involvements of legislative bodies. The study reported here discusses the attitudes held about coastal resources, coastal resource management programs, and the sources and level of technical information and knowledge holding held about coastal resources in the State of Florida. It does so by drawing comparisons across three sets of policy process actors--the general public, the activist public and policy elites.

Project Objectives

The specific objectives of the research were to:

1. Assess the attitudes of the general public, the activist public and the policy elites about coastal resources in general and specific coastal related programs, in the State of Florida;

2. To assess the levels of technical information and knowledge holding among the general public, the activist public and policy elites within the scientifically complex coastal resources issue area;

3. To determine the sources of technical information most trusted and relied upon by the general public, the activist public and policy elites in the decision and policy making process attendant to coastal resources.

The Nature of the Study

Operating under the presumption that <u>more</u> than just the general public and lawmakers are actively involved in the policy process related to Florida's coastal zone, this project investigates three sets of policy process actors, namely the general public, the "activist" segment of the general public, and policy elites. Each of these groups affects policy and decision making and are, in and of themselves, the subject of a considerable literature. Three major views of the appropriate role of the public in technically complex issues are provided by social scientists to correspond to each and thereby direct this study.

These are: the populist (general public), the pluralist (activists), and the elitist (elected officials and policy experts) theories. Each reflects an "ideal-type" which advocates a particular approach to scientific and technical policy questions such as coastal issues. In their study of the technically complex issues and their impact on democratic processes, John C. Pierce and Nicholas P. Lovrich (1986) summarize these actors. They note with regard to the general public, that "the central questions revolve around the amount of information held by citizens, the extent to which the public is educable, the extent to which the public's level of information affects the quality of their opinions about the policy area, and the degree to which public involvement in the policy process rests upon appropriate knowledge" (Pierce and Lovrich, 1986:9). Political activists are considered and raise concerns about "the extent to which the activists serve as the representative cross-section of the general public's views, hence indirectly representing the interests of the general citizenry." Further, Pierce and Lovrich (1986:9) ask whether or not activists possess the information levels required to make them capable of "direct participation and influence" in the policymaking process.

In the consideration of the role played by policy elites (i.e., elected officials and policy experts) Pierce and Lovrich (1986:9) propose that the "central issues become those of the extent to which they are representative of the public, respond to the public, and possess the requisite policy relevant technical information to enable them to act independently . . ." In contrast, the question arises whether these individuals are "autonomous actors" or heavily dependent on outside forces and "hence relatively powerless in the technical policy areas." In this regard, the role of policy elites centers around whether or not the "direction of policy should remain in their purview, whether their special (positions) also gives them special insight, and whether they should be held accountable to the general public over and above their interaction with policymakers."

The questions that arise from consideration of the dilemmas associated with coastal resources and problems of technical information dissemination and use are considerable in number. The literature associated with this area of public policy surely suggests a multitude of linkages and causal relationships, and the investigation of rival hypothesis can go on ad infinitum.

There is also little doubt that the study of the role of the public in technical policy formation promises to become a central concern of modern democracies. Based on work previously done in

this area, questions about the importance and role of technical information relevant to coastal zone resources can be investigated. The central concern of this research focuses upon what to do about democratic norms and processes when the public appears to lack the requisite policy relevant information.

This study pursues the hypothesis that conflict within the coastal zone issue area may be lessened to a significant extent as technical information and knowledge holding among the general public increases. In previous studies it has been noted that, "public policy-relevant knowledge (can be) expected to influence attitudes regarding personal political involvement, citizen participation, governmental responsiveness, issue articulation, and satisfaction with governmental policy" (Lovrich, et al., 1984: emphasis added).

In sum, such "satisfaction" based on public policy relevant knowledge bears on the outcome of public decisions and can be a factor in resolving conflict about coastal policy issues. Within this issue-area, it is proposed that information holding will reduce complications surrounding both preservation and development of these valued natural assets. The findings set forth in the remainder of this study should, at the very least, lead policymakers to promote greater flows of information between government agencies, developers, environmental interests and the general public. Such increased knowledge flows will hopefully contribute to the development of consensus about coastal zone resources in the State of Florida, the focus of the study, while, at the same time meeting the goals of democratic societies. By providing the public with increased information on matters pertaining to coastal zone resources, a more expedient and democratic resolution of conflicts relating to the issues might be expected.

Coastal zone policy conflicts are not disappearing from the political and social agenda. To the contrary, we might go as far to suggest that they may be one of the major issues facing policymakers in states like Florida for some time to come. At this point in the study of technical information and knowledge holding regarding coastal zone resources it is not possible to argue what degree of conflict will be overcome as a result of the enhancement of knowledge dissemination in this area. Indeed, social scientists argue that some conflict may be quite useful (Boulding, 1962). Previous studies, however suggest that policy positions and preferences are likely to remain distinctively divided over the issue as long as the public remains poorly informed. Information gives participants the wherewithal to choose from among the options that one which is best suited to their policy preferences. Identification of the gaps in technical information will lead to a better understanding of those inevitable conflicts arising in democratic societies containing

diverse political, social and economic interests, and provide us with a clearer picture of the technical information problem as it exists in the coastal zone issue area.

Data Collection

This study explores the views of the general public, its activist subset and policy elites about a set of coastal and technical information issues in the State of Florida.

The results presented in this chapter are based on a mail survey questionnaire distributed to three samples as shown in Table 1.1. For the general public, the survey was sent to 1700 residents of the State of Florida. The surveys were distributed in proportion to the percentage of residents who live in a county; all counties in Florida were included. If a county has 10 percent of the population, 170 surveys were assigned to it. The sample was generated by the random selection of names from Florida telephone directories, with every available directory utilized. Some individuals identified through the sampling process could not be contacted, resulting in 311 undeliverable questionnaires. The original sample was thereby reduced to 1389 who were surveyed using a three-wave mailing in the Spring of 1988. Of the 1389, 699 or 50.3 percent responded to the survey.

TABLE 1.1
Survey Response Among the General Public, Activists and Policy Elites

Sample	Number Mailed	Number Delivered	Number Returned	Response Rate
General Public	1700	1389	699	50.3%
Activists	n/a	207	n/a	(29.7%)
Policy Elites				
Policy Experts	250	241	155	62.2%
State Legislators	160	150	53	35.3%
Total Elites	410	391	208	53.2%

The activist data set pertains to a subgroup within the general public who demonstrated the highest levels of political participation in the coastal resources issue area. This group comprises a sample of 207 individuals obtained from the general

public sample who recorded the highest levels of political activity in regards to natural resources in the State of Florida. The activists were identified on the basis of an index composed of eight items relating to involvement in natural resource issues. A lead-in question asked: "Have you ever tried to influence a decision about the use of natural resources in Florida in any of the following ways?" Individuals who answered yes to five or more of these activities were identified as "activists" within the general population. The activities used to define political activists are shown in Table 1.2 (The scale of reliability [Cronbach's Alpha] for the activism index is .781.) The expectation in using this group is that the activist group is the most likely element of the public to be highly attuned to public policy debates in the area of coastal resources. As such, these individuals are likely to be the first elements in the public to act out their roles of advocacy in behalf of their interests. From the 699 general public respondents, 207 or 29.7 percent are categorized as "activists" in the analysis.

TABLE 1.2
Activities Making Up Scale of Political Activism Used to Determine Activist Public

Type of Involvement
Attending a public hearing
Contacting or writing a state agency
Contacting or writing a federal agency
Contacting or writing a U.S. Senator or a Member of Congress
Contacting or writing a state legislator
Becoming a member of a citizen advisory committee
Joining a political or environmental interest group
Signing a petition or initiative on environmental issues

The results presented with respect to policy elites are based on the mail survey questionnaire sent to two sets of respondents. The first set included 250 coastal policy experts in Florida who recorded membership in professional organizations with a coastal emphasis (i.e., American Society for Civil Engineers, American Planning Association). These individuals were contacted via a two-way survey (an initial mailing and a follow-up), unlike the general public, because of a higher response rate after two waves. The second set was made up of the 160 members of the Florida State Legislature who were surveyed via a three-wave approach. These two sets were combined to

develop a policy elite. In all, 410 surveys were distributed; nineteen surveys were either undeliverable or rejected, while 208 were returned, resulting in a combined effective response rate of 53.2 percent.

The Organization of the Report

Taken as a set, the components of this study provide an overview of attitudes about public participation and coastal resource issues in the State of Florida, and environmental issues in general. Chapter Two describes the positions of the general public, the activist public and policy elites about coastal resource issues and technical information issues based on responses to the statewide survey conducted in the Spring of 1988. Chapter Three looks at the variation in attitudes among the general public, activists and policy elites based on several hypothesized sources of variation. Chapter Four contains general conclusions and suggestions for further research.

In each case reported--general public, activists and policy elites--the individuals contacted received a rather difficult ten page questionnaire which took approximately one-half hour to complete. (A copy of the survey is found in Appendix A.) Thus, it is felt that the results are based on careful thought about the issues at-hand inasmuch as the survey did not lend itself to quick, general responses.

In Chapter Two, the analysis is fairly descriptive. It presents the frequency distributions for each sample placing responses into categories of like variables, such as management programs or levels of technical information and knowledge holding. Chapter Three is more analytical, dealing with important relationships between variables and explaining why such variation exists among the general public, activists and policy elites.

Chapter Two

PATTERNS OF ATTITUDES AMONG THE GENERAL PUBLIC, ACTIVISTS AND POLICY ELITES

INTRODUCTION

One of the major approaches to the study of public policy formation when the general public is involved argues that public involvement is important to the health of democracy, and that the public has the ability to understand issues and to participate in them fully (Pierce and Lovrich, 1986; Cook and Morgan, 1971; and Pierce and Doerksen, 1976). This view assumes that the public has the capacity to deal with complex issues, such as those associated with the coastal zone, if there is the proper motivation and adequate opportunity. Supporters of this school of thought argue that the increasingly technical nature of public policy should not become a screen behind which undemocratic political processes can hide (Etzioni, 1968; Breed, 1971). In this regard, Stanley Moore writes that, "In a democracy if the people are to have significant control over the political process their general level of competency must be raised; they cannot simply place their trust in supposedly benevolent experts" (Moore, 1979). Amory Lovins further extols this viewpoint in his study of energy, arguing that: "Ordinary people are qualified and responsible to make these energy policy choices . . . through democratic processes" (Lovins, 1977). The public is not excluded from the policymaking process under this system; rather, it is considered to be the fundamental duty of each to participate. Further, it becomes the responsibility of political activists to aid in the education of the general public, to scrutinize the available information, to ask questions about the information not available and to insure that all policy preferences are expressed.

Public involvement is not new to American politics. In fact the nation was founded on principles of populist thought. But the explosion in technical and scientific knowledge has led many to believe that new threats to public control have arisen in the guise of the technical expert and claims to exclusive realms of information (Pierce and Lovrich, 1986:10; Lovins, 1977:152). The populist response would insure that the views of the general public are reflected in the views and attitudes of policymakers (i.e., State Legislators) and experts within the policy domain.

It is probably safe to say, that in all but a few cases, the average citizen is unable to succeed within complex issue areas without the cooperation of policymakers, policy area experts or those activists representing special interests who are supportive of individual citizen concerns about a particular issue. In this environment, there is a need to interact with one or more sets of actors in the policymaking process; but to whom can the average

citizen turn for response? Traditional policy experts, elected officials and interest groups are often viewed with suspicion, yet they must continually engage in interaction with the public to maintain their positions.

One perspective about "responsiveness" suggests that groups are best able to represent general public concerns. The activists--representing those organized interests within a political setting--are able and willing to act in the interest of segments of the community and express their interests. These collections of interests compete for political support and aggregate into microcosms of the set of complex interests and actions existing in the public at large. The pluralist perspective is a direct legacy of group politics or group theory (Truman, 1951). The pluralist view contends that activists can mobilize resources in behalf of the general public, as well as influence policy and articulate demands of those nonparticipating sectors of the community. It is also argued that if groups do not sufficiently represent a segment of the population they cannot provide sufficient incentives (rewards) to insure their own survival (Olson, 1965).

As a set, these arguments see activism as politically economical (i.e., the same result with fewer involved) and as an indispensable half-way point between non-involvement and complete participatory democracy. David Orr has put it in these terms:

> According to some pluralists, not only does a sizeable majority of the public abstain from political activity but this condition is itself a necessary requisite of democratic stability. Mass involvement would signal not only the breakdown of consensus but would also overburden the machinery of government with excessive demands. Further, it would lower the quality of public decisions on most values (Orr, 1979:1041).

Thus, pluralist views share with populist views a preference for open government and participatory mechanisms. The pluralist perspective is clearly forceful in contemporary American politics and it demands that we look at the relationship between the activists who make up group activity and the general public on whose behalf they are acting.

An additional explanation of American politics is known as elite theory. Both empirical and normative elite-centered arguments have been posited since the days of Machiavelli (Kriesberg, 1949; Glenn, 1972) and focus on the fundamental ineducability and irrationality of the mass public (Presthus, 1974). Among contemporary scholars, William Ophuls has developed one of the clearest statements on the role of elites in the policy process attendant to natural resources. Ophuls notes:

> One of the key philosophical supports of democracy is the assumption that people do not differ greatly in competence; for if they do, effective government may require the sacrifice of political equality and the majority view. Indeed, under certain circumstances democracy MUST give way to elite rule . . . Ecological scarcity appears to have created precisely such a situation. Critical decisions must be made . . . The average man has neither the time to inform himself nor the requisite background for understanding such complex technical problems (Ophuls, 1977:159-160.)

The coastal resources issue area is one in which potentially disastrous consequences can arise from decisions made by uninformed actors in the policy process. Thus it might be argued that occasions arise wherein ideals of democratic social processes must be sacrificed because of the technical complexity involved in the issue at hand. The public, by nature of their background and training, generally fail to meet the rigorous demands which technical policy questions require. The inevitable result is that those with the expertise - the policy process elites - respond in behalf of the general public to questions and concerns in the coastal resources arena.

In this chapter, we compare the attitudes of the general public, activists and policy elites about coastal resource issues in the State of Florida. Even though the study is limited to the geographic area of Florida, the findings should reflect attitudes and policy preferences which may be generalized to other coastal areas, as well as other arenas dominated by technically complex issues.

FINDINGS

Background and Demographics

Table 2.1 displays the background characteristics of the general public, the activist subset and the policy elites. Among all three samples the largest responding age group is that between 31-40, 27.6 percent, 30.4 percent, and 33.2 percent, respectively for the general public, activists and policy elites. Of particular interest is the large number of respondents in the categories of age greater than 60, approximately 20 percent for the general public and activists. While this may be alarming in some states, in Florida these percentages are reflective of the general population for which approximately 20 percent is expected to be over 65 by 1990 because of the large retirement population (Office of Planning and Budget, 1986). The majority of those surveyed were male in all three samples, which is not reflective of the current level of gender in the state which shows that there are slightly more females than males (Duda, 1987).

Higher levels of education, can be compared to actual levels within the state which record only 14.9 percent of the general public with four or more years of college (Duda, 1987). Among the general public, nearly 60 percent (58.4%) indicate four or more years of college, while among the activists this level rises to over 75 percent. Among policy elites 40 percent (41.3%) hold advanced degrees, suggesting that they bring a considerable amount of training to bear on their decisions about coastal resources. Inasmuch as those with higher education levels are the ones expected to participate in environmental issues and are also the individuals who are likely to hold the requisite knowledge to understand scientific and technical issues, it is not surprising that these same individuals take the time to complete a lengthy and difficult questionnaire. Further, because of their higher education levels these are the individuals who are expected to have better jobs and careers and take a greater interest in public affairs (Ciglar and Loomis, 1983; Garson, 1978). Social scientist Samuel B. Huntington (1974) notes in this regard, that education levels give rise to greater knowledge about social issues and awareness of the extent of the problem.

From another view, the demands of public policy today make it impossible for individual citizens to focus on more than one or a few interests. To paraphrase Will Rogers, "Everybody is sophisticated but on different subjects." Thus, the respondents to this survey research, while not entirely reflective of the Floridian population, are most likely part of the "issue public" in the coastal resources issue area (Converse, 1964). This "issue public" is composed of those citizens who focus their political attention to this area because it is of direct personal relevance or interest (Dalton, 1988). As such, the sample reported may truly reflect the segment of the population that is actually involved in coastal issues.

Table 2.2 provides data about the economic characteristics of the general public, activists and policy elites. In the area of family income among the general public, well-over 50 percent note their family income is over $30,000. This figure would have been viewed as quite high only a decade ago, but today with two income families this figure is not viewed as uncharacteristic. As expected, among the activists and policy elites income levels are higher, reflecting their higher levels of education. In this regard, it is argued that those with higher income levels are more likely to promote environmental protection and become politically involved without fear of adversely affecting their own security or economic well-being (Watts and Wandesforde-Smith, 1980). About the issue of social class, activist and the general public are fairly evenly distributed; however, more activists do

TABLE 2.1

Background Characteristics of the
General Public, Activists and Policy Elites

Characteristic	Frequency (%) General Public	Activists	Policy Elites
Age			
under 19	3 (00.4)	0 (00.0)	0 (00.0)
19-25	20 (02.9)	2 (01.0)	3 (01.4)
26-30	57 (08.2)	18 (08.7)	21 (10.1)
31-40	193 (27.6)	63 (30.4)	69 (33.2)
41-50	136 (19.5)	45 (21.7)	47 (22.6)
51-60	112 (16.0)	38 (18.4)	43 (20.7)
61-70	131 (18.7)	38 (18.4)	22 (10.6)
Older than 70	46 (06.6)	3 (01.4)	3 (01.4)
No Response	1 (00.1)	0 (00.0)	0 (00.0)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**
Sex			
Female	189 (27.0)	50 (24.1)	40 (19.2)
Male	507 (72.5)	157 (75.8)	168 (80.8)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**
Education			
Some grade school	1 (00.1)	0 (00.0)	0 (00.0)
Completed grade school	6 (00.9)	5 (02.4)	0 (00.0)
Some high school	13 (01.9)	1 (00.5)	2 (01.0)
Completed high school	82 (11.7)	8 (03.9)	3 (01.4)
Some college	179 (25.6)	37 (17.9)	30 (14.4)
Completed college	133 (19.0)	39 (18.8)	52 (25.0)
Some graduate work	101 (14.4)	38 (18.4)	34 (16.3)
An advanced degree	175 (25.0)	79 (38.2)	86 (41.3)
No answer	9 (01.3)	0 (00.0)	0 (00.0)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**

claim "middle-class" or "upper-middle or upper-class" status. Policy elites claim greater "middle-class" status with one quarter in the "upper-middle or upper-class" range. These self-assessments also seem to coordinate well with family income levels. Social class has been linked to positions taken about environmental issues (Dunlap and VanLiere, 1981), and environmentalism has been characterized as part-and-parcel of middle class liberalism in western democracies(Lovrich, et al., 1985). As such, it is expected that those with higher levels of income and higher social class standing make up a larger share of the activist subset.

Many studies have illustrated the fact that political ideology is strongly related to support for or opposition to environmental policy among the general public and activists (Pierce and Lovrich, 1980; Kenski and Kenski, 1981; Steel and Soden, 1989) as well as policy elites (Soden, et al., 1989). Kuklinski and his associates, (1982) in their analysis of citizen perceptions of nuclear energy found that "citizens . . . rely heavily on ideology" when making choices among policy options (1982:615). Generally speaking, the available research suggests that those with a left/liberal orientation are likely to be supportive of the environment and environmental protection programs. Those individuals who are on the right/conservative side of the political/ideological spectrum generally have been found to be "less supportive or even hostile to environmental concerns" (Calvert, 1987). Among the general public, Table 2.3 shows that the right/conservative side of the political spectrum records a higher percentage than does the left/liberal side. Similar results exist among the activist subset and policy elites.

Table 2.3 also provides the party affiliations of the respondents. Partisan affiliations have been found to be closely related to support for environmentalism (Dunlap and Gale, 1974). Democrats have been viewed as the party most sympathetic to policy proposals emanating from the environmental movement while Republicans, who rhetorically oppose government regulation, are viewed as being less supportive or even hostile to environmental concerns (Calvert, 1987). For both the general public and the activists, partisanship leans towards the Republican party, with approximately one-quarter responding Independent. These findings closely support Parker's findings which showed 35 percent of Floridians Republican and 30 percent Independents in 1985 (Parker, 1985). Policy elites record higher levels of affiliations with the Democrat party. In conjunction with ideology, it is evident that a number of democrat elites hold conservative ideological positions. This holds consistent with the idea of conservative Democrats in southern states like Florida. Unlike other states and regions, Floridians have indicated in several other studies their widespread support for environmental protection regardless of political party (Parker and Oppenheim, 1986;

TABLE 2.2

Economic Characteristics of the
General Public, Activists and Policy Elites

Characteristic	Frequency (%) General Public	Activists	Policy Elites
Family Income			
less than $ 4,000	1 (01.7)	2 (01.0)	0 (00.0)
$ 4,000 to 6,999	10 (01.4)	1 (00.5)	0 (00.0)
7,000 to 9,999	16 (02.3)	4 (01.9)	2 (01.0)
10,000 to 14,999	26 (03.7)	3 (01.4)	1 (00.5)
15,000 to 19,999	42 (06.0)	6 (02.9)	4 (01.9)
20,000 to 24,999	67 (09.6)	9 (04.3)	18 (08.7)
25,000 to 29,999	69 (09.9)	13 (06.3)	16 (07.7)
30,000 to 49,999	212 (30.3)	75 (36.9)	67 (32.2)
50,000 and over	205 (29.3)	84 (42.0)	89 (42.8)
No Answer	40 (06.0)	7 (03.4)	11 (05.3)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**
Social Class			
Lower Class	8 (01.1)	3 (01.4)	0 (00.0)
Working Class	144 (20.6)	27 (13.0)	17 (08.2)
Middle Class	367 (52.5)	114 (55.1)	130 (62.5)
Upper-middle/Upper Class	162 (23.2)	60 (29.0)	58 (27.9)
No Answer	18 (02.6)	3 (01.4)	3 (01.4)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**

Mitchell, 1984). Lastly,in Table 2.3 respondent's post-industrial values are exhibited. Post-industrial values emphasize long-range aesthetic and non-materialistic goals. It is argued that the economic and physical security enjoyed by the citizens of post World War II Western nations, such as the United States, have led to the development of post-industrialist or "post-materialist" views among a substantial segment of the population (Inglehart, 1977; 1987; Milbrath, 1984). In Table 2.3, respondents are categorized as "materialists," "mixed," or "postmaterialist" after having chosen the two goals from among four options which they view as the most desirable for the nation. Those choosing the combination of "maintaining order in the nation" and "fighting rising prices" are labeled materialist, while those choosing the combination of "protection of freedom of speech," and "giving the people more say in important governmental decisions" are called postmaterialists. All other possible combinations are labeled mixed.[1] Activist respondents record more individuals with postmaterialist values than do their general public or policy elite cohorts, 25.5 percent compared to 18.7 percent and 17.8 percent respectively for activists, the general public and policy elites. Approximately 60 percent or more in each sample falls into the mixed values suggesting a large swing group which can come to bear on policy issues in the environmental arena if party affiliation and ideology are less of a factor in Florida than they are in other locales.

Attitudes About Coastal Resource Issues and Problems

The evidence provided by Table 2.4 clearly shows that among all three samples there is considerable concern about the seriousness of the environmental problem along Florida's coasts. This concern testifies to the fact that among the general public and activists, the coastal environment is of concern and therefore a legitimate component of the political agenda. With respect to policy elites, if elite theory holds true and these individuals are more knowledgeable about complex issues, then the perception they have of the state's environmental condition apparently has been successful to some extent in educating the general public and its subgroups about environmental problems along the coast.

In developing decisions and opportunities regarding how to best utilize Florida's natural resources and wildlife a range of options present themselves. Table 2.5 reports the mean rankings about preferred alternative uses of natural resources and wildlife resources. For both natural resources and wildlife resource uses, preservationist alternatives are ranked first by all three sets of policy process actors. In regards to the use of natural resources some differences exists between the samples about the rankings of agriculture, recreation, transportation and domestic uses. However, a closer examination of the mean ranking illustrates that the relative distance between these use options

TABLE 2.3

Political Orientations Among the
General Public, Activists and Policy Elites

Characteristic	Frequency (%) General Public	Activists	Policy Elites
Ideology			
Very Liberal	10 (01.4)	5 (02.4)	3 (01.4)
Liberal	129 (18.5)	39 (18.8)	39 (18.8)
Middle-of-the-Road	241 (34.5)	64 (30.9)	80 (38.5)
Conservative	266 (38.1)	87 (42.0)	74 (35.6)
Very Conservative	38 (05.4)	10 (04.8)	9 (04.3)
No Answer	15 (02.1)	2 (01.0)	3 (01.4)
Total	699 (100%)	207 (100%)	208 (100%)
Political Party			
Strong Democrat	33 (04.7)	10 (04.8)	16 (07.7)
Democrat	201 (28.8)	55 (26.6)	67 (32.2)
Independent	183 (26.2)	59 (28.5)	43 (20.7)
Republican	214 (30.6)	63 (30.4)	57 (27.4)
Strong Republican	43 (05.7)	14 (06.8)	20 (09.6)
No Answer	25 (03.6)	6 (02.9)	3 (01.4)
Total	699 (100%)	207 (100%)	206 (100%)
Materialist/Post-Materialist Values*			
Materialist	107 (17.1)	33 (16.8)	32 (16.8)
Mixed	402 (64.2)	113 (57.7)	125 (65.4)
Post-Materialist	117 (18.7)	50 (25.5)	34 (17.8)
Total	626 (100%)	196 (100%)	191 (100%)

* Missing Responses are not included.

TABLE 2.4

General Public, Activists and Policy Elite Views on the Seriousness of the Environmental Problems Along Florida's Coast

Question: Recently, there has been a lot of talk about whether Florida's coastal environment will be threatened because of overpopulation or poor management practices in the coming years. Some people feel there will be no threat to the environment, some people feel there already is a problem. Which best describes how you feel?

Response Categories	**Frequency (%)**		
	General Public	Activists	Policy Elites
1. There currently is an environmental problem on Florida's coasts.	590 (84.4)	180 (87.0)	184 (88.5)
2. There is not environmental problem now, but there will be in the future.	37 (05.3)	6 (02.9)	9 (04.3)
3. There is not environmental problem now, but there may be one some time in the future.	57 (08.2)	16 (07.7)	11 (05.3)
4. There is not environmental problem now and there never will be.	6 (00.9)	2 (01.0)	2 (01.0)
No Answer	9 (01.3)	3 (01.4)	2 (01.0)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**

are, in fact, fairly narrow. In comparison to the first place ranking of preservation and the final rankings, the middle ranks from second to fifth are within a narrow range, while the first--preservation, fifth--energy, and sixth--industry are most distinct for each sample. Wildlife resource uses are consistent across the general public and activists, with policy elites showing nearly the same pattern, except for reversing recreation and scientific preferences. These findings suggest a preference for non-consumptive versus consumption policies. While the rankings do indicate some differences, it would appear that the activists and policy elites viewed as representing many components of the general public in the policy process, are representing views of the public in general regarding the use of natural resources and wildlife.

Within the coastal issue area, and the environmental arena in general, governments at all levels - local, regional, state and federal - have come to take a proactive role in developing and operating programs designed to manage valued natural resources. In the State of Florida this is especially the case in light of the passage of the Growth Management Act of 1985. The levels of support for the Growth Management Act that exists among the general public activists and policy elites are shown in Table 2.6. In regards to growth management, the data clearly show that activists are more supportive, than the general public of growth management and elites the most supportive, although considerable support does obtain among the general public for the idea of growth management. These findings lend further support to the findings of deHaven and Gatlin (1985), who reported that statewide 55 percent of the general public were in support of stronger land-use regulation in 1985. But they also point out that policy elites recognize the need to implement comprehensive planning to improve the coordination of growth along Florida's coastline.

In regards to other government sponsored programs related to the environment and coastal resources, it is quite clear from Table 2.6 that the general public, its activist subset and policy elites are very supportive of programs aimed at environmental protection. All three samples report well over 85 percent in favor of "government sponsored programs which are designed to obtain conservation properties and wilderness . . . "; 89.9 percent, 91.8 percent and 93.8 percent respectively for the general public, activists and policy elites. All three groups also "favor strong protection of shorelines, bays, rivers and wetlands" even if economic development is curbed, witnessed by 93.6 percent, 92.3 percent and 93.8 percent in favoring categories for the general public, activists and policy elites respectively. Awareness of the potential economic loss from protecting these resources clearly indicates that Floridians are cognizant of the long-term value of these resources to the state and its economy, versus short-term quick economic gain. All three sets of actors also are strongly supportive of using public

TABLE 2.5

Mean Rankings of Natural Resources and Wildlife Resources
Among the General Public, Activists and Policy Elites

Natural Resource Use (Mean)

Rank	General Public		Activists		Policy Elites	
1	Preservation	(2.05)	Preservation	(1.98)	Preservation	(2.14)
2	Agriculture	(3.44)	Recreation	(3.08)	Recreation	(3.49)
3	Recreation	(3.62)	Domestic	(3.64)	Domestic	(3.50)
4	Transportation	(3.85)	Agriculture	(3.69)	Transportation	(3.59)
5	Domestic	(3.88)	Transportation	(3.84)	Agriculture	(3.70)
6	Energy	(4.47)	Energy	(4.68)	Energy	(4.65)
7	Industry	(5.40)	Industry	(5.63)	Industry	(5.47)

Wildlife Resource Use (Mean)

Rank	General Public		Activists		Policy Elites	
1	Preservation	(1.67)	Preservation	(1.64)	Preservation	(1.63)
2	Scientific	(2.75)	Scientific	(2.78)	Recreation	(2.72)
3	Recreation	(2.86)	Recreation	(2.79)	Scientific	(2.91)
4	Aesthetics	(3.10)	Aesthetics	(2.98)	Aesthetics	(3.01)
5	Commercial	(4.17)	Commercial	(4.25)	Commercial	(3.99)
6	Eradication	(5.18)	Eradication	(5.25)	Eradication	(5.16)

TABLE 2.6

Support for Government Programs Related to Coastal Resources Among the General Public, Activists and Policy Elites

Question:	Response	Frequency (%) Categories: General Public	Activists	Policy Elites
In 1985, the Comprehensive Growth Management Act was passed in the State of Florida. This initiative requires more comprehensive planning for Florida. Have you heard of the Growth Management Act?	No	196(28.0)	27(13.0)	10(04.8)
	Yes	420(60.1)	170(82.1)	190(91.3)
	Can't Recall	81(11.6)	10(04.8)	7(03.4)
	No Answer	2(00.3)	0(00.0)	1(00.5)
	Total	**699(100%)**	**207(100%)**	**208(100%)**
Generally speaking, do you support the idea of a Growth Management Act for the State of Florida?	I STRONGLY support the idea	310(44.3)	112(54.1)	122(58.7)
	I SUPPORT the idea	191(27.3)	62(30.0)	64(30.8)
	I am NEUTRAL to the idea	29(04.1)	4(01.9)	3(01.4)
	I OPPOSE the idea	15(02.1)	6(02.9)	7(03.4)
	I STRONGLY OPPOSE the idea	13(01.9)	6(02.9)	5(02.4)
	Do not know enough to decide	133(19.0)	15(07.2)	6(02.9)
	No Answer	8(01.1)	2(01.0)	1(00.5)
	Total	**699(100%)**	**207(100%)**	**208(100%)**
In general, are you in favor of government sponsored programs which are designed to obtain conservation properties and wilderness along the coast either through purchase or other forms of acquisition?	No	61(08.7)	15(07.2)	9(04.3)
	Yes	628(89.8)	190(91.8)	195(93.8)
	No Answer	10(01.4)	2(01.0)	4(01.9)
	Total	**699(100%)**	**207(100%)**	**208(100%)**
Do you favor strong protection of shorelines, bays, rivers and wetlands in Florida, even though some forms of economic development may have to be prohibited in those areas?	Strongly Favor	424(60.7)	124(59.9)	105(50.5)
	Tend to Favor	230(32.9)	67(32.4)	86(41.3)
	Don't Know	9(01.3)	1(00.5)	1(00.5)
	Tend to Oppose	22(03.1)	10(04.8)	13(06.3)
	Strongly Oppose	10(01.4)	5(02.4)	1(00.5)
	No Answer	4(00.6)	0(00.0)	2(01.0)
	Total	**699(100%)**	**207(100%)**	**209(100%)**
Do you favor using public funding (i.e, use of tax dollars, bond revenues, etc.) for restoration of eroded, storm-damaged or washed-out beaches?	Strongly Favor	282(40.6)	113(54.6)	91(43.8)
	Favor	248(35.5)	51(24.6)	69(33.2)
	Don't Know	49(07.0)	14(06.8)	12(05.8)
	Tend to Oppose	67(09.6)	17(08.2)	24(11.5)
	Strongly Oppose	45(06.4)	12(05.8)	10(04.8)
	No Answer	6(00.9)	0(00.0)	2(01.0)
	Total	**699(100%)**	**207(100%)**	**208(100%)**

funds for restoration purposes as evidenced by 75 percent or more in the "favor" or "strongly favor" response categories. Overall, these findings reflect a significant number who are able to rally their forces and compete in the complex issue-area related to beach protection, erosion control and restoration should they so desire.

Environmental Values and Orientations

Many argue that in the post-industrial era, value changes will occur which will dramatically affect personal attitudes--especially those related to the environment (Inglehart, 1977; 1987). As a result of a high degree of public mobilization and unprecedented affluence (Bell, 1973; Lindberg, 1976; Ladd and Hadley, 1978), many believe that post-industrial society has altered individual value structures such that "higher order" needs (Maslow, 1970) have supplanted more fundamental subsistence needs as the fundamental motivational sources of social behavior (Inglehart, 1977). As a consequence, it is argued, popular demand for the exploitation of natural resources in the interest of generating growth and creating employment has been partially supplanted by interest in higher order needs--such as the valuation of natural beauty and the enjoyment of recreation in natural settings.

The environmental values which policy elites bring to bear on their professional activities can be a major factor in how they approach policies and program implementation in the coastal issue area. The strength of environmental orientations held by an individual bearing a significant role in the policy making process may also tilt the scales in favor of preservation, multiple use or development, depending on the predisposition they have.

Tables 2.7, 2.8 and 2.9 provide data on the environmental orientations of Floridians in the general public, activist subset and policy elite samples. The first orientation provided is Preservationist Self-Identification, based on a seven point scale adapted from Pierce's original five point scale (1977). At one end of the scale is the label: "STRONG PRESERVATIONIST--the only consideration in deciding how to manage Florida's natural resources should be preservation in a natural undeveloped condition." At the fulcrum of the scale the response category reads: "CONSERVATIONIST--Florida's natural resources can best be managed by allowing for multiple uses--public access, some development, some preservation." On the opposite pole the response provided reads: "STRONG DEVELOPMENTALIST--the only consideration in deciding how to manage Florida's natural resources is what will contribute most to the growth of the state economy." The results in Table 2.7 show that the activists are the most preservation-oriented, but only slightly more so than

the general public. For the general public and activist samples about 50 percent fall into the "Conservationist" category, 50.9 percent and 47.8 percent, respectively while policy elites record the highest conservationist orientation (56.7%). Among the activists, over 10 percent (12.1%) register developmentalist leanings which points out that activism is not the sole domain of the environmentalists. This is especially true in Florida where developmentalists have taken on a very active role to insure that their forces are fully represented in the public policy process attendant to coastal resources.

Attitudes about several pollution sources are provided in Table 2.8 and serve as good indicators of the concerns of the public about negative environmental forces. The mean responses provide evidence that for the general public, activists and policy elites, "auto exhaust" is the item most often seen as a pollutant, (means of 4.71, 4.78 and 4.78, respectively). This is followed by "Toxic and Chemical wastes" and "Nuclear waste" for the general public (means of 4.62 and 4.57) with these two items reversed among the activists (means of 4.70 and 4.64) and policy elites (means of 4.61 and 4.47). The lowest mean scores are obtained for the pollutants "vulgar language," "pornography," "drunkenness" and "food additives" among residents in each sample, all of which are less degrading on the environment. These findings confirm the concern existing in both samples about the physical environment and the concern for the consequences of uncontrolled factors such as pollutants, with less concern, or at least a different view, about the impact of what are often seen as socially or morally undesirable activities in relationship to the environment.

The view of science and its applications in technology also may be considered a primary factor in how individuals formulate their environmental orientations. In particular, the destructive consequences of science (e.g., nuclear disasters, environmental pollution) are major items in the news media and the impetus for the receipt of much of the technical information which the general public holds. For example, the knowledge levels which-most of the general public hold about a nuclear reactor meltdown stems from the media attention given to the Chernobyl disaster rather than a comprehensive study of the field of nuclear energy. Beyond this, it is more the norm than not that many scientists (which we might consider as part of the policy elite) have difficulty in explaining their work to the non-scientist (Grinnell, 1987). Thus it is appropriate to ascertain the attitudes which the general public, activists and policy elites have about science and technology. The findings in Table 2.9 show considerable distribution about the role of science and technology. Strong positions are held among all three samples about the ability of technology to "find a way of solving the problems of shortages of natural resources,." No group feels strongly that science and technology will help solve the problems

TABLE 2.7

Environmental Orientations Among the
General Public, Activists and Policy Elites

Orientation/Response Categories		Frequency (%) General Public	Activists	Policy Elites
Preservationist Self-Identification				
STRONG PRESERVATIONIST	1	67 (09.6)	16 (07.7)	7 (03.4)
	2	48 (06.9)	23 (11.1)	13 (06.3)
	3	147 (21.0)	43 (20.8)	42 (20.2)
CONSERVATIONIST	4	353 (50.9)	99 (47.8)	118 (56.7)
	5	49 (07.0)	20 (09.7)	21 (10.1)
	6	3 (00.4)	0 (00.0)	0 (00.0)
STRONG DEVELOPMENTALIST	7	14 (02.0)	5 (02.4)	3 (01.4)
	8	18 (02.6)	1 (00.5)	4 (01.9)
	Total	699 (100%)	207 (100%)	208 (100%)

TABLE 2.8

Attitudes Regarding Pollution Among the
General Public, Activists and Policy Elites

Attitudes Regarding Pollution (Pollution Type)	Definitely Not Pollution 1	2	3	4	Not Sure Pollution 5
Definitely					

	**********MEAN RESPONSES********** General Public	Activists	Policy Elites
Fireplace Smoke	3.09	3.26	3.15
Auto Exhaust	4.71	4.78	4.78
Nuclear Waste	4.57	4.70	4.61
Herbicides	4.09	4.23	4.13
Residential Sewage	4.02	4.13	4.09
Agricultural Runoff	4.02	4.32	4.27
Toxic and Chemical Wastes	4.62	4.64	4.47
Neon Signs	2.35	2.47	2.55
Airport Noise	3.15	3.29	3.38
Vulgar Language	2.15	2.11	2.17
Pornography	2.41	2.39	2.35
Drunkenness	2.61	2.59	2.44
Food Additives	2.90	2.99	2.73

of shortages and natural resources, evidenced by approximately 50 percent in the "Strongly Disagree" and "Disagree" categories. Likewise, most disagree with the statement that people would be better off if they lived a more simple life. The samples also disagree with the statement that "scientific research is more likely to cause problems than to find solutions," shown by 85 percent of better in the "Disagree" and "Strongly Disagree" response categories. Both the general public and activists disagree that "technical and scientific experts usually are biased" and that "environmental issues are hard to understand." In light of previous research which indicates that the public has a "great deal of confidence" in the scientific community, the findings here would seem to be somewhat consistent, but reflect a portion of the public and its politically active element who feel that science does not meet their expectations (National Science Board, 1983). Regarding the biases of technical and scientific experts, policy elites are slightly skewed in agreement with the questionnaire statement.

General responses about the New Environmental Paradigm (NEP) are given in Table 2.10. This new set of beliefs concerning the relationship of humans to nature is argued to have emerged from post-industrialism, and also is commonly referred to as the "Ecological Perspective" (Dunlap, et al., 1983; Catton and Dunlap, 1980; Dunlap and VanLiere, 1978). According to this construct, contemporary environmentalists are characterized by the following set of beliefs:

> . . . high valuation of nature, their sense of empathy which generalized to compassion toward other species, other peoples and generations, their desire to carefully plan and act so as to avoid risks to humans and nature, their recognition that there are limits to growth which humans must adapt, and their desire for a new society that incorporates new ways to conduct our economic and political affairs (Milbrath, 1984:21).

Table 2.10 demonstrates that both the general public and activists are in support of the NEP 72.5 percent for each sample. While a high percentage of activists fall into the "High Support" category, activists also show the highest percentage in the "Low Support" category, further reinforcing the earlier presented idea that an active element exists that is less supportive of environmentalism. Policy elites score somewhat lower level support with only 55.8 percent in the "High Support" category of the scale. On the whole, however, and in light of preservationist leanings and concerns about physical degradation from various pollution sources, it is clear that generally broad support exists for the environment among the general public, activists and elites, thereby providing a strong foundation for the development of programs designed to foster knowledge necessary to protect Florida's coastal resources for long term use and stewardship.

TABLE 2.9

Attitudes Toward Science and Technology
Among the General Public, Activists and Policy Elites

	Frequency (%)				
	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion
Technology will find a way of solving the problems of shortages and natural resources.					
General Public	46 (06.6)	263 (37.6)	262 (37.6)	92 (13.2)	27 (03.9)
Activists	14 (06.8)	84 (40.6)	69 (33.3)	33 (15.9)	6 (02.9)
Policy Elites	15 (07.2)	76 (36.5)	83 (39.9)	29 (13.9)	4 (01.9)
People would be better off if they lived a more simple life without so much technology.					
General Public	53 (07.6)	225 (32.5)	257 (36.8)	138 (19.7)	20 (02.9)
Activists	13 (06.3)	66 (31.9)	75 (36.2)	48 (23.2)	5 (02.4)
Policy Elites	7 (03.4)	56 (26.9)	99 (47.6)	39 (18.8)	5 (02.4)
Future scientific research is more likely to cause problems than to find solutions to problems.					
General Public	22 (03.1)	63 (09.0)	338 (48.4)	239 (34.2)	32 (04.6)
Activists	6 (02.9)	16 (07.7)	99 (47.8)	79 (38.2)	7 (03.4)
Policy Elites	6 (02.9)	12 (05.8)	106 (51.0)	74 (35.6)	8 (03.8)
Technical and scientific experts usually are biased.					
General Public	41 (05.9)	227 (32.5)	268 (38.3)	82 (11.7)	69 (09.9)
Activists	10 (04.8)	66 (31.9)	76 (36.7)	37 (17.9)	17 (08.2)
Policy Elites	13 (06.3)	58 (27.9)	92 (44.2)	31 (14.9)	13 (06.3)
Environmental issues are hard to understand.					
General Public	53 (07.6)	250 (35.8)	256 (36.6)	115 (16.5)	13 (01.9)
Activists	19 (09.2)	66 (31.9)	74 (35.7)	45 (21.7)	2 (01.0)
Policy Elites	12 (05.8)	78 (37.5)	89 (40.4)	29 (13.9)	3 (01.4)

*Missing responses are not included.

TABLE 2.10
Attitudes Towards the New Environmental Paradigm (NEP)
Among the General Public, Activists and Policy Elites

Frequency (%)

Statement	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion
The balance of nature is very delicate and easily upset by human activities.					
General Public	284 (40.6)	299 (42.8)	83 (11.9)	15 (02.1)	18 (02.6)
Activists	80 (38.6)	82 (39.6)	37 (17.9)	6 (02.9)	2 (01.0)
Policy Elites	71 (34.1)	91 (43.8)	36 (17.3)	5 (02.4)	3 (01.4)
The earth is like a spaceship with only limited room and resources technology.					
General Public	290 (41.5)	305 (43.6)	59 (08.4)	23 (03.3)	22 (03.1)
Activists	92 (44.4)	80 (38.6)	22 (10.6)	9 (04.3)	4 (01.9)
Policy Elites	83 (39.9)	92 (44.2)	16 (07.7)	9 (04.3)	7 (03.4)
Plants and animals do not exist primarily to be used by humans.					
General Public	237 (33.9)	303 (43.3)	107 (15.3)	32 (04.6)	20 (02.9)
Activists	70 (33.8)	92 (44.4)	32 (15.5)	9 (04.3)	4 (01.9)
Policy Elites	58 (27.9)	103 (49.5)	33 (15.9)	5 (02.4)	6 (02.9)
Modifying the environment for human use seldom causes serious problems.					
General Public	13 (01.9)	77 (11.0)	323 (46.2)	261 (37.3)	25 (03.6)
Activists	3 (01.4)	25 (12.1)	104 (50.2)	71 (34.3)	4 (01.9)
Policy Elites	5 (02.4)	17 (08.2)	116 (55.8)	64 (30.8)	5 (02.4)
There are no limits to growth for nations like the United States.					
General Public	24 (03.4)	73 (10.4)	269 (38.5)	308 (44.1)	25 (03.6)
Activists	4 (01.9)	20 (09.7)	82 (39.6)	99 (47.8)	2 (01.0)
Policy Elites	1 (00.5)	18 (08.7)	85 (40.9)	99 (47.8)	3 (01.4)
Mankind was created to rule over the rest of nature.					
General Public	57 (08.2)	130 (18.6)	234 (33.5)	213 (30.5)	65 (09.3)
Activists	23 (11.1)	39 (18.8)	57 (27.5)	73 (35.3)	2 (01.0)
Policy Elites	19 (09.1)	37 (17.8)	68 (32.7)	54 (28.4)	21 (10.1)

Scale Support for New Environmental Paradigm**

Frequency (%)

Elites	General Public	Activists	Policy Elites
High Support (upper one-third on scale)	504 (72.5)	150 (72.5)	116 (55.8)
Medium Level Support (middle third on scale)	166 (23.9)	45 (21.7)	83 (39.9)
Low Support (lower one-third on scale)	25 (03.6)	12 (05.8)	9 (04.3)
Total	695 (100%)	207 (100%)	208 (100%)

**All items were recorded from the survey to create directional consistency prior to creating the NEP scale ranging from 6 to 30. The NEP scale is reliable at .813 for Cronbach's alpha.

Technical Information, Knowledge Holding and Trust in Sources of Information

The major aim of this study is to determine the sources of variations in positions held about the technically complex issues associated with the coastal zone among the general public, its activists subset, experts and legislators (policy elites). The role of the general public in complex policy making processes is mandated by law (i.e., National Environmental Policy Act of 1969 and the Coastal Zone Management Act of 1972, among other laws). Public involvement presents an interesting problem for democratic societies, namely how does the public get involved if they do not have the requisite knowledge to make them equal participants with policy experts? The role of activists relates to pluralism and concern about which groups and individuals the general public is likely to rely upon for the information they use to assess policy about complex coastal issues. The role of the policy elite centers largely around whether or not they direct policy because of their special expertise. Further, how accountable can policy experts and legislators be held by the general public and activists if they are not knowledgeable about the issue at hand? This section considers this issue by looking at three aspects of the technical information quandry. First, general attitudes about the complexity of the coastal resources issue area are compared for the general public, activists and policy elites. Second, the general knowledge levels which these policy process actors have about coastal resource ecology are evaluated. And third, the sources of technical information in which the general public, activists and policy elites register the most trust are considered.

To begin discussion of the technical complexity of the coastal issue area, it is important to first assess the general level of knowledge that exists among the samples and compare how the technical complexity of the issue area is viewed differently by those involved in the policy process. It is expected that knowledge levels on the whole will be higher among elites than are those of either the general public or the activist public, since in many ways this is their professional arena. Table 2.11 begins by reporting findings about the technical nature of the coastal issue area and general levels of information holding among the general public, activists and policy elites. It is clear that activists and elites feel they do a better job of following what is going on, with respect to coastal zone issues "Most of the Time" in comparison to the general public. Activists and policy elites also indicate that in terms of self-assessed level of informedness they feel generally well-informed, as suggested by 80.8 percent of the activists and 82.2 percent of the policy elites falling onto the informed end of the scale as opposed to only 51.7 percent of the general public. More activists and elites indicate interest in obtaining more information about natural resource and environmental problems, based

TABLE 2.11

Attitudes Regarding the Technical Nature of the Coastal Issue Area and General Levels of Information Among the General Public, Activists and Policy Elites

Knowledge of Coastal Issues in the Public Arena

Question: Some people tend to follow what is going on in government and public affairs most of the time, whether there is an election or not. Others are not interested. In regards to coastal zone issues, to what extent would you say you follow what is going on in the public arena?

Response Categories	Frequency (%)		
	General Public	Activists	Policy Elites
Most of the time	330 (47.2)	148 (71.5)	142 (68.3)
Some of the time	234 (33.5)	43 (20.8)	49 (23.6)
Only now and then	102 (14.6)	11 (05.3)	10 (04.8)
Hardly at all	26 (03.7)	3 (01.4)	5 (02.4)
No Answer	7 (01.0)	2 (01.0)	2 (01.0)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**

Self Assessed Level of Informedness

Question: How well informed would you say you are at present concerning natural resources and the environment in Florida?

Response Categories		Frequency (%)		
		General Public	Activists	Policy Elites
Not Informed	1	14 (02.0)	0 (00.0)	2 (00.5)
	2	46 (06.6)	1 (00.5)	3 (01.4)
	3	97 (13.9)	9 (04.3)	11 (05.3)
Somewhat Informed	4	173 (24.7)	28 (13.5)	20 (09.6)
	5	168 (24.0)	61 (29.5)	61 (29.3)
	6	129 (18.5)	62 (30.0)	72 (34.6)
Very Well-Informed	7	64 (09.2)	44 (21.3)	38 (18.3)
No Answer	8	8 (01.1)	2 (01.0)	1 (00.5)
Total		**699 (100%)**	**207 (100%)**	**208 (100%)**

TABLE 2.11 continued

Interest in More Knowledge

Question: If more information were made available to you concerning natural resource and environmental problems in Florida, would you be interested in receiving that information?

Response Categories		Frequency (%)		
		General Public	Activists	Policy Elites
Not Interested	1	7 (01.0)	1 (00.5)	2 (01.0)
	2	12 (01.7)	3 (01.4)	3 (01.4)
	3	31 (04.4)	3 (01.4)	11 (05.3)
Somewhat Interested	4	79 (11.3)	7 (03.4)	20 (09.6)
	5	107 (15.3)	20 (09.7)	61 (29.3)
	6	168 (24.0)	53 (25.6)	72 (36.4)
Very Interested	7	285 (40.8)	118 (57.0)	38 (18.3)
No Answer	8	10 (01.4)	2 (01.0)	1 (00.5)
Total		**699 (100%)**	**207 (100%)**	**208 (100%)**

Scientific Complexity of Coastal Issues

Question: When compared to other issues of public policy that arise in Florida, would you say that coastal zone issues are more or less technically and scientifically complex?

Response Categories	Frequency (%)		
	General Public	Activists	Policy Elites
More Complex	338 (48.4)	101 (48.8)	94 (45.2)
About the Same	311 (48.4)	94 (45.1)	102 (49.0)
Less Complex	30 (04.3)	8 (03.9)	4 (01.9)
No Answer	20 (02.9)	4 (01.9)	8 (03.8)
Total	**699 (100%)**	**207 (100%)**	**208 (100%)**

on 92.3 percent of the activists and 84.0 percent of the policy elites, than do those on the interested end of the scale versus 80.1 percent for the general public. As to the technical and scientific complexity of the coastal zone issue area, there appears to be little difference between the general public, activists and policy elites. Among all samples there is a strong feeling that coastal zone issues should be viewed as "more complex" as opposed to "less complex" than other public policy issues in the state.

Up to this point there has existed little difference in the data presented for the general public, the activist subset or policy elites. About the issue of technical information and knowledge holding, however, we begin to see for the first time clear patterns of divergence between the samples. It is within this area that the study was designed to determine factors that set the active element aside from the general populous, and policy elites aside from activists and the general public. In this preliminary analysis we are unable to ascertain which variations in the differences account for the patterns existing among the samples. This is a point of discussion we shall, for now, leave for the next chapter.

Within the study of the technical information quandary as it relates to the three sets of policy process actors in the coastal issues area, it is important to determine the general levels of knowledge that the respondents hold about science and technology issues in general. Tables 2.12 and 2.13 provide findings on knowledge levels about general ecology (Table 2.12) and self-assessed knowledge of specific terms associated with the coastal resources area (Table 2.13). On the "General Ecology Quiz," based on the long accepted work of Maloney and his associates (1975), policy elites scored the best percentage, 18.3 percent versus 15.9 percent for activists and 11.4 percent for the general public, of those who recorded correct answers on all four questions, reinforcing the notion that the activists and policy elites as a whole are better informed than the general public about environmental issues.

In responding to the set of technical terms which they either knew the meaning of, had heard of but did not know the meaning of, or had not heard of, the general public, as expected, varies dramatically from activists and policy elites as shown in Table 2.14. In the case of each term, the policy elites and activists indicate they are more aware of the meaning than the general public.[2] The lowest knowledge of terms for all groups are those associated with offshore issues and fisheries, such as "marginal sea," "exclusive economic zone" and "pelagic fish" about which scores for all these samples drop considerably as compared to less specific terms, like "estuarine" and "barrier island." The summary of knowledge of technical terms reaffirms one of the predispositions of the study, namely that activists and policy elites are more knowledgeable than the general public.

TABLE 2.12
Knowledge Levels Among the General Public, Activists and Policy Elites Based on a General Ecology Quiz

In the following question, enter the letter of what you think is the BEST answer in the space provided next to the statement. (If uncertain, leave blank.)

		Frequency (%) Correct	Incorrect
Soil Pollution is generally due to:			
(a) sparse rains	General Public	224 (32.0)	475 (68.0)
(b) improper farming	Activists	63 (30.4)	144 (69.6)
(c) poisonous metals (correct answer)	Policy Elites	64 (30.8)	144 (69.2)
(d) over fertilization			
(e) poor crop rotation			
The most common pollutants of water are:			
(a) arsenic & silver nitrates	General Public	479 (68.5)	220 (31.5)
(b) hydrocarbons	Activists	158 (76.3)	49 (23.7)
(c) carbon monoxide	Policy Elites	168 (80.8)	40 (19.2)
(d) sulfur & calcium			
(e) nitrates and phosphates (correct answer)			
Which one of the following does not decompose in ocean water.			
(a) sewage			
(b) garbage	General Public	526 (75.3)	173 (24.7)
(c) tin cans	Activists	174 (84.1)	33 (15.9)
(d) plastic bags (correct answer)	Policy Elites	164 (78.8)	44 (21.2)
(e) chemical fertilizer			
What is the harmful effect of phosphate pollution on marine life?			
(a) causes cancer			
(b) renders fish sterile	General Public	344 (50.8)	355 (49.2)
(c) destroys the nervous system of fish	Activists	130 (62.8)	77 (37.2)
(d) makes water cloudy	Policy Elites	127 (61.1)	81 (38.9)
(e) promotes growth of algae (correct answer)			

	General Public	Activists	Policy Elites
None Correct	54 (07.7)	9 (04.3)	13 (06.3)
One Correct	125 (17.9)	28 (13.5)	26 (12.5)
Two Correct	192 (27.5)	46 (22.2)	48 (23.1)
Three Correct	248 (35.5)	91 (44.0)	83 (39.9)
Four Correct	80 (11.4)	33 (15.9)	38 (18.3)
	699 (100%)	207 (100%)	208 (100%)

Among the general public for the summary of terms, only 49.8 percent fall into the "High Knowledge of Terms" category whereas for the activists the percentage is 74.8 percent and for policy elites it peaks at 75.0 percent. Evidence of considerable knowledge among the activist public provides useful insight into the issue of information holding. Seen as a subset of the general public, reflecting the views of organized interests within the general public, the findings suggest that within the technically complex issue arena associated with coastal resources, activists will be able to "hold their own" against policy elites across a range of issues and thus, have a better chance of exacting policy concurrence.

One of the more interesting topics of the study of technically complex issue areas relates to the sources of information with whom the highest degree of trust lies (Pierce and Lovrich, 1983). In the coastal resources issue area, those sources are highly trusted by the general public and its most active elements are important if we are to maximize efforts of the information dissemination process. Further, those sources utilized by the policy elites within any particular field are always of great interest. In the coastal resource issue area, as in any other complex field, the sources used by professionals and policymakers are often the most highly regarded and accorded the most prestige. Tables 2.14 and 2.15 provide this information. First, those sources generally available to anyone, such as television, newspapers and radio are considered for how much respondents feel they have learned from them (Table 2.14). Secondly, various sources of technical information are considered for the degree of trust which individuals place in them (Table 2.15).

Two sources of information among those considered are clearly more responsible for providing more information than other sources. "Newspapers" and "Television Specials" are the most common sources for learning about natural resource issues in Florida for the general public, activists and policy elites, as evidenced by their index scores all higher than +50. The least utilized sources are "General Mailings to Your Home" and "County Extension Agents" for all samples. Of considerable value in the study of technical information is developing a perspective about the levels of trust that sets of policy process actors have in alternative sources of technical information, especially those that may not be readily available to all interested parties in the policy process.

Table 2.16 illustrates that four groups are seen as having considerable trust among both the general public and activists. College/University Educators receive the highest index scores for both samples, 84.5 for the general public, 87 for the activists and 89.9 for the policy elites. This group is followed by the National Park Service, 81.5, 80.6 and 83.2 for the general

TABLE 2.13

Self-Assessed Knowledge of Technical Terms
Among the General Public, Activists and Policy Elites**

Percentage Respondency*

Term	Knowing Meaning			Heard of But Don't Know			Have not Heard of		
	Gen. Public	Act.	Pol. Elites	Gen. Public	Act.	Pol. Elites	Gen. Public	Act.	Pol. Elites
Estuarine	55.8	77.8	83.2	16.9	10.6	09.1	23.5	08.7	06.3
Ecosystem	71.1	86.0	88.5	13.0	09.2	05.8	13.0	03.4	03.8
Exclusive Economic Zone	34.5	43.5	39.4	26.2	29.0	29.3	35.5	25.6	28.8
Discharge	84.5	96.1	94.2	07.3	01.9	02.9	04.6	01.4	01.0
Outer Continental Shelf	81.7	90.3	89.9	10.3	08.2	06.3	04.4	01.0	01.4
Saltwater Intrusion	85.4	95.7	95.2	07.3	01.9	02.4	04.6	01.0	01.0
Barrier Island	84.8	96.6	92.8	08.7	01.9	04.8	03.7	01.0	01.4
Resident Fishery	49.8	57.0	50.0	27.9	22.2	29.3	18.7	18.4	18.8
Marginal Sea	18.6	24.2	20.2	36.5	37.7	32.7	40.3	34.3	43.8
Riparian Rights	46.6	70.5	79.3	16.3	12.6	08.7	32.6	13.5	09.6
Littoral Drift	35.6	63.8	66.3	18.7	16.9	15.4	41.6	17.4	16.8
Non-Point Source	29.9	54.6	62.5	16.3	13.5	11.5	48.1	27.1	23.6
Acid Rain	91.0	94.2	94.2	05.9	04.3	04.3	01.0	00.5	01.0
Capacity Use	56.1	70.0	60.1	18.3	15.5	20.7	21.9	13.5	17.3
Revetment	44.6	68.6	71.6	12.4	10.6	11.1	39.2	19.3	15.9
Pelagic Fish	22.5	35.7	32.2	20.9	25.1	24.5	52.5	36.2	40.4
Desalinization	80.0	93.2	92.3	06.6	02.4	03.4	10.4	02.9	02.9
Beach Renourishment	78.8	94.7	94.2	11.3	02.9	02.9	07.4	01.4	01.9
Floodplain	80.3	93.7	95.7	11.2	04.3	02.4	06.2	01.4	01.0

* Missing Responses are not included.

Summary of Knowledge of Technical Terms

Frequency (%)

	General Public	Activists	Policy Elites
High Knowledge of Terms (in upper one third of summary)	348 (49.8)	154 (74.8)	156 (75.0)
Mid-level Knowledge of Terms (in mid-third of summary)	282 (40.3)	48 (22.8)	47 (22.6)
Low Level Knowledge of Terms (in mlwer-third of summary)	45 (06.5)	1 (00.5)	1 (00.5)
Missing Cases	24 (03.4)	4 (01.9)	4 (01.9)
Total	699 (100%)	207 (100%)	208 (100%)

**Based on the summing of the responses to the 19 technical terms resulting in scores ranging from 19, knowing meaning of all the terms through 57, representing having not heard of any of the terms.

TABLE 2.14
Knowledge Obtained from Generally Available Sources of Technical Information Among the General Public, Activists and Policy Elites

Question: How much would you say you have learned about Florida's natural resources from the following sources?

Source	Frequency (%) Nothing	Not Much	Some	A Great Deal	(Index)
Friends, Neighbors and Relatives					
General Public	146 (20.9)	261 (37.3)	218 (31.2)	34 (04.9)	(-22.1)
Activists	40 (19.3)	77 (37.2)	68 (32.9)	15 (07.2)	(-16.4)
Policy Elites	45 (21.6)	84 (40.4)	64 (30.8)	12 (05.8)	(-25.4)
Newspapers					
General Public	17 (02.4)	94 (13.4)	425 (60.8)	147 (21.0)	(+66.0)
Activists	8 (03.9)	35 (16.9)	128 (61.8)	33 (15.9)	(+56.9)
Policy Elites	6 (02.9)	29 (13.9)	134 (64.4)	36 (17.3)	(+64.9)
Radio Specials					
General Public	221 (31.6)	228 (32.6)	179 (25.6)	37 (05.3)	(-33.0)
Activists	63 (30.4)	70 (33.8)	54 (26.1)	12 (05.8)	(-32.3)
Policy Elites	68 (32.7)	76 (36.5)	48 (23.1)	12 (05.8)	(-34.1)
Radio Newscasts					
General Public	152 (22.5)	246 (35.2)	233 (33.3)	37 (05.3)	(-19.1)
Activists	38 (18.4)	85 (41.1)	67 (32.4)	11 (05.3)	(-21.8)
Policy Elites	49 (23.6)	82 (39.4)	61 (29.3)	12 (05.8)	(-27.9)
Television Specials					
General Public	39 (05.6)	74 (10.6)	354 (50.6)	204 (29.2)	(+63.3)
Activists	14 (06.8)	27 (13.0)	101 (48.8)	59 (28.5)	(+57.1)
Policy Elites	13 (06.3)	29 (13.9)	116 (55.8)	47 (22.6)	(+58.2)
Television Newscasts					
General Public	39 (05.6)	136 (19.5)	375 (53.6)	108 (15.5)	(+44.0)
Activists	14 (06.8)	53 (25.6)	102 (49.3)	28 (13.5)	(+30.4)
Policy Elites	11 (05.3)	55 (26.4)	113 (54.3)	19 (09.1)	(+31.6)
Public Hearings					
General Public	248 (35.5)	176 (2.52)	161 (23.0)	72 (10.3)	(-27.4)
Activists	27 (13.0)	43 (20.8)	82 (39.6)	45 (21.7)	(+27.5)
Policy Elites	19 (09.1)	57 (26.4)	83 (39.9)	47 (22.6)	(+26.0)
Florida Sea Grant					
General Public	393 (56.2)	95 (13.6)	107 (15.3)	36 (05.2)	(-49.3)
Activists	92 (36.2)	23 (11.1)	71 (34.3)	21 (10.1)	(-02.9)
Policy Elites	72 (34.6)	36 (17.3)	65 (31.3)	23 (11.1)	(-09.6)
Meeting of Environmental Groups					
General Public	328 (46.9)	133 (19.0)	141 (20.2)	60 (08.6)	(-37.1)
Activists	45 (21.7)	41 (19.8)	70 (33.8)	45 (21.7)	(-14.0)
Policy Elites	53 (25.5)	52 (25.0)	63 (30.3)	35 (16.8)	(-03.4)
General Mailings to your home					
General Public	307 (43.9)	207 (29.6)	111 (15.9)	29 (04.1)	(-53.3)
Activists	64 (30.9)	70 (33.8)	51 (24.6)	15 (07.2)	(-32.9)
Policy Elites	75 (36.1)	74 (35.6)	44 (21.2)	9 (04.3)	(-46.2)
County Extension Agents					
General Public	374 (53.5)	141 (20.2)	116 (16.6)	24 (03.4)	(-53.7)
Activists	82 (39.6)	58 (28.0)	47 (22.7)	13 (06.3)	(-38.6)
Policy Elites	79 (38.0)	59 (28.4)	57 (27.4)	8 (03.8)	(-35.2)
Literature Distributed by Groups/Organizations					
General Public	198 (28.3)	168 (24.0)	212 (30.3)	86 (12.3)	(-09.7)
Activists	22 (10.6)	49 (23.7)	87 (42.0)	44 (21.3)	(+29.0)
Policy Elites	21 (10.1)	52 (25.0)	91 (43.8)	40 (19.2)	(+27.9)

*Index is the sum of the percentage responding "Some" or "A Great Deal" minus the sum of the percentage of those responding "Nothing" or "Not Much."

public, activists and elites respectively. The Florida Department of Natural Resources, the Department of Environmental Regulation, Water Management Districts, Technical and Scientific Experts, along with the Environmentalists all obtain index scores in excess of +50 with all three groups. A trusted group among activists and elites is Sea Grant and indicates familiarity with a technical source not known by the general public. The least trusted group sources of technical information are Labor Unions, and Developers/Construction Companies, each with scores in excess of -60 among at least two sets of respondents. These low scores are not unexpected since these would be groups who place economic incentives above environmental interests (also including, for example, Timber Companies) in the pursuit of their collective goals and are not expected to be among the most trusted sources of technical information about natural resource issues.

Support for Citizen Action and Individual Political Participation

The individual levels of support that exist among the general public and the activist subset for citizen participation provide evidence about how the participation role is viewed in the policymaking process, and the degree to which activists, as opposed to the general public, are more willing to avail themselves of public involvement opportunities. The level of activity which policy elites demonstrate about policy issues also bears importantly on how they view the democratic process. The data reported in Table 2.16 and 2.17 give insight into two issues related to public participation--support for citizen involvement and individual political activism.

For the general public, 61.1 percent of the respondents are on the end of the scale indicating support for citizen participation in the policy-making process related to environmental issues as recorded in Table 2.16. The activists, the most active component of the general public sample, recorded 72.9 percent in the supportive categories, reinforcing their legitimacy as proponents of public involvement, while policy elites record 68.8 percent in supportive categories. Strong support by the general public and activists for citizen action lends credence to the belief that the general public does not want to be led and/or manipulated by policy elites. Futher, the public feels it should have a say in the decision-making process and that public participation will add to rather than detract from the policy process. Strong support among policy elites is also important, inasmuch as they are the ones who must answer to public participation, which many argue hampers professionals and elected officials. Nevertheless, policy elite support for citizen participation bodes well for those who support the populist school, and at the same time does dismiss, to some extent, the notion that elites prefer total control over the policy-making process without public intrusion.

TABLE 2.15

Trust in Group Sources of Technical Information
Among the General Public, Activists and Policy Elites

Question: Many groups may supply technical information about natural resources. How much trust do you have in the technical information supplied by each of the groups listed below?

Group	Response Percentages				
	None	Not Much	Some	A Great Deal	Index
Business					
General Public	16.5	42.8	35.5	02.4	-21.5
Activists	15.0	38.6	42.5	02.9	-08.2
Policy Elites	08.2	34.1	54.3	01.9	+13.9
Environmentalists					
General Public	02.6	12.0	51.2	31.2	+67.8
Activists	01.9	13.0	50.7	31.9	+67.7
Policy Elites	01.0	13.5	56.7	25.5	+67.7
Developers/Construction Company					
General Public	38.1	40.9	16.0	01.4	-61.6
Activists	33.3	44.0	19.8	01.0	-56.5
Policy Elites	22.1	47.1	26.0	03.4	-38.8
College/University Educators					
General Public	01.6	04.3	45.8	44.6	+84.5
Activists	01.4	03.9	39.6	52.7	+87.0
Policy Elites	00.5	03.4	48.1	45.7	+89.9
Farmers					
General Public	04.7	28.2	51.1	09.9	+28.1
Activists	06.8	34.8	49.3	08.2	+15.9
Policy Elites	06.3	30.8	54.8	04.8	+22.5
Fishing Industry					
General Public	09.6	28.5	47.9	10.3	+20.1
Activists	08.7	29.5	51.7	08.2	+21.7
Policy Elites	06.3	26.4	54.3	10.6	+32.2
National Park Service					
General Public	01.1	06.3	41.1	47.8	+81.5
Activists	02.4	06.8	44.9	44.9	+80.6
Policy Elites	01.9	05.8	46.2	44.7	+83.2
Outdoor Recreation Advocates					
General Public	03.9	23.6	55.5	12.9	+40.9
Activists	03.9	25.6	55.1	13.5	+39.1
Policy Elites	02.4	23.1	63.0	09.1	+46.6
Industry					
General Public	14.9	27.9	39.9	10.4	+07.5
Activists	18.8	28.5	39.6	07.2	-00.5
Policy Elites	12.5	35.1	38.5	07.7	-01.4
Labor Unions					
General Public	52.9	33.6	08.9	00.6	-77.0
Activists	54.1	33.3	09.7	00.0	-77.0
Policy Elites	41.3	39.9	14.4	00.5	-66.3
State Legislators					
General Public	20.0	39.8	35.3	01.7	-22.8
Activists	17.4	35.7	44.0	01.9	-07.2
Policy Elites	08.7	29.8	57.4	08.2	+21.1

TABLE 2.15 continued

Group	Response Percentages				
	None	Not Much	Some	A Great Deal	Index
Florida Sea Grant					
General Public	9.7	4.0	18.5	18.5	+29.4
Activists	07.7	10.6	36.2	33.8	+51.7
Policy Elites	06.7	09.1	41.8	29.3	+55.3
Timber Companies					
General Public	30.5	36.3	25.6	02.6	-38.6
Activists	29.0	37.7	26.6	02.9	-37.2
Policy Elites	21.2	39.4	33.2	03.4	-24.0
Water Management Districts					
General Public	05.2	17.5	53.2	19.9	+50.4
Activists	05.3	16.9	51.7	24.6	+54.1
Policy Elites	01.4	09.1	55.3	32.2	+77.0
Public Utilities					
General Public	16.0	39.1	36.6	04.9	-13.6
Activists	15.5	36.2	42.0	05.3	-04.4
Policy Elites	10.1	32.7	49.0	06.5	+12.5
Department of Natural Resources					
General Public	03.0	07.7	46.9	39.5	+75.7
Activists	03.4	08.2	38.6	48.3	+75.3
Policy Elites	01.4	04.8	45.7	46.6	+86.1
Department of Environmental Regulation					
General Public	03.4	12.6	48.1	32.2	+64.3
Activists	03.9	12.6	44.0	37.7	+65.2
Policy Elites	01.9	11.5	46.6	38.5	+71.1
Department of Community Affairs					
General Public	10.9	27.0	44.1	11.9	+18.1
Activists	07.7	27.5	46.4	5.5	+26.7
Policy Elites	04.8	18.8	49.5	23.6	+49.5
Federal Agency Representative					
General Public	08.9	26.5	50.2	10.2	+25.0
Activists	07.2	19.8	57.0	14.0	+44.0
Policy Elites	02.9	20.7	58.7	15.4	50.5
Local Government Representative					
General Public	10.4	34.3	45.8	06.0	+07.1
Activists	08.2	30.4	53.1	07.2	+21.7
Policy Elites	04.3	25.5	53.4	14.9	+38.5
Technical and Scientific Experts					
General Public	02.7	07.7	47.5	39.5	+76.6
Activists	01.4	05.3	46.9	45.4	+85.6
Policy Elites	00.5	02.9	47.1	46.6	+90.3

*Index is the sum of those responding "Some" and "A Great Deal" minus the sum of those responding "None" and "Not Much."

TABLE 2.16

Attitudes Regarding the Value of Citizen Participation Among the General Public, Activists and Policy Elites

Question: In recent years there has been considerable debate over the value of efforts to increase the amount of citizen participation in government policy making in the environmental policy area. How would you locate yourself on the following scale regarding these efforts?

Response Categories		Frequency (%)		
		General Public	Activists	Policy Elites
The efforts are of no value and needlessly add to the cost of government	1	16 (02.3)	8 (03.9)	8 (03.8)
	2	8 (01.1)	4 (01.9)	5 (02.4)
	3	36 (05.2)	7 (03.4)	14 (06.7)
Uncertain	4	192 (27.5)	36 (17.4)	35 (16.8)
	5	212 (30.3)	57 (27.5)	69 (33.2)
	6	127 (18.2)	51 (24.6)	42 (20.2)
These efforts are of great value even if they add to the cost of government	7	88 (12.6)	43 (20.8)	32 (15.4)
No Answer	8	20 (02.9)	1 (00.5)	3 (01.4)
TOTALS		**699 (100%)**	**207 (100%)**	**208 (100%)**

Table 2.17 goes a step further and reports responses about individual efforts to influence decisions about natural resource policy. Among the general public, the most predominate form of activity is "Signing a Petition or Initiative on Environmental Issues," which 59.9 percent report they have done. Among activists, high occurrences are recorded in nearly every category, except for "Becoming a Member of a Citizen Advisory Committee," the lowest involvement category among the activists. Activists report only a 66.2 percent level of membership in environmental or political interest groups which may reflect the high number of activists who are not environmentalists. This is a point often overlooked because the assumption is made that activists are "crazy tree-huggers," when in fact, it is often the case that active elements represent economic and developmental interests with the same enthusiasm and, importantly, the same rights in the policy process. Policy elites record generally high incidences of influence tactics, particularly in the area of "Attending a Public Hearing," "Contacting a State Agency and "Signing a Petition or Initiative on Environmental Issues." The first two may be part of their regular professional activity, and thus any conclusions drawn from these must be tentative. The third, however, does suggest an interest beyond professional requirements about environmental issues. Surprisingly, a low percentage indicates membership in environmental interest groups or on citizen advisory committees, 52.4 and 42.8 percent, respectively. Perhaps professional affiliations among engineers, planners and lawyers, for example, substitute for the special interest environmental groups or collective action activities.

Summary and Conclusion

This chapter has shown, through the opinions and attitudes of the general public, its activist subset and policy elites (experts and legislators), that considerable support exists for coastal resource policies in the State of Florida and that all three sets of public policy process actors exhibit this support across a broad range of programs. The data collected provides a profile of Floridians interested in coastal issues, but responses are not rooted in a homogeneous response group. Rather, they reflect a group of citizens and professionals who exhibit considerable diversity in their personal and political preferences; a diversity which can be expected to result in a clash over the proper use of valuable coastal resources as the state continues to grow.

A number of opposing forces emerge in natural resource and environmental politics, and many of these individual forces can be expected to join through collective action to economize their efforts in support for or opposition to various policy proposals and government actions. Activists reflecting the views of those involved in acting in behalf of others and speaking out for their view of the "public interest" generally reflect the views of the

TABLE 2.17

Individual Efforts to Influence Natural Resource Policy Among the General Public, Activists and Policy Elites*

Question: Have you ever tried to influence a decision about the use of natural resources in Florida in any of the following ways?

Activity	Frequency (%)		
	General Public	Activists	Policy Elites
Attending a Public Hearing			
YES	34 (47.8)	182 (87.9)	180 (86.5)
NO	33 (47.6)	24 (11.6)	27 (13.0)
Contacting or Writing a State Agency			
YES	66 (38.1)	192 (92.8)	149 (71.6)
NO	95 (56.5)	15 (07.2)	55 (26.4)
Contacting or Writing a State Agency			
YES	10 (30.0)	167 (80.7)	123 (59.1)
NO	43 (63.4)	37 (17.9)	79 (38.0)
Contacting or Writing a U.S. Senate or member of Congress			
YES	32 (33.2)	170 (82.1)	125 (60.1)
NO	22 (60.4)	33 (15.9)	78 (37.5)
Contacting or Writing a State Legislature			
YES	38 (34.0)	178 (86.0)	139 (66.8)
NO	16 (59.5)	24 (11.6)	63 (30.3)
Becoming a member of a citizen advisory committee			
YES	12 (16.0)	85 (41.1)	89 (42.8)
NO	37 (76.8)	117 (56.5)	114 (54.8)
Joining a political or environmental interest group			
YES	02 (28.9)	137 (66.2)	109 (52.4)
NO	54 (64.9)	66 (33.5)	95 (45.7)
Signing a petition or initiative on environmental issues			
YES	19 (59.9)	178 (86.0)	142 (68.3)
NO	52 (36.1)	29 (14.0)	61 (29.3)

* Missing data are not included.

general public as seen by the data presented in this chapter. In this chapter, however, it is clear that while the activist subset of the general public may indeed be representative of their less active cohorts, that in the technically complex issue arena related to coastal resources, they are more knowledgeable. With this higher level of knowledge it may be suggested that the activists maintain a relative advantage when they compete in political arenas when compared to the general public. While they share general preferences about coastal policies, in political interactions the activists are clearly in a much better position to compete with policy elites.

Policy elites reflect considerable diversity in their responses and consistently exhibit some minority views suggesting that every interest in the coastal and natural resource policy process may have someone through whom they may seek appeal for their cause. Opposing forces thus may conceivably gain acceptance of inconsistent policies (perhaps they already have) forcing responses to all tendencies simultaneously; development in one part of the state while the next town or county strongly strives for preservation.

Notes

1. The post-materialist measure was developed from the question:

   There is alot of talk these days about what your (country's/ county's) goals should be for the next 10 or 15 years. Listed below are some of the goals that different people say should be given top priority. Would you please mark the one you yourself consider the most important in the longrun. What would be your second choice?

   The breakdown for responses are:*

Response Categories	General Public	Activists	Policy Elites
Maintaining order in the Nation			
First choice	288	70	84
Second choice	162	54	53
Giving the people more say in important government decisions			
First choice	196	62	36
Second choice	194	55	62
Fighting rising prices			
First choice	235	68	17
Second choice			42
Protecting freedom of speech			
First choice	170	68	65
Second choice	134	39	38
Values			
Materialists (choices 1 and 3)	107 (17.1%)	33 (16.8%)	32 (16.8%)
Mixed (all other combinations but materialists or post-materialists)	402 (64.2%)	113 (57.7%)	125 (65.4%)
Post-materialist (choices 2 and 4)	117 (18.7%)	50 (25.5%)	34 (17.8%)
	626 (100%)	196 (100%)	191 (100%)

* Missing responses are not incorporated.

2. The technical terms used in the questionnaire are defined for purposes of this study as:

ESTUARINE An adjective which describes that which is formed or deposited in a semi-enclosed part of the coastal ocean where freshwater from the land mixes with seawater. In many parts of the world, estuaries are drowned lower portions of rivers or can also be broad, shallow lagoons on low-lying coasts and fjords in glaciated mountain regions.

ECOSYSTEM Ecosystem is an abbreviated term first introduced by A.G. Tansley in 1935 which stands for ecological system. An ecosystem is a self-sustaining and self-regulating community of organisms considered in relation with other organisms and with their environment. An ecosystem is a functional unit that includes both living (biotic) components such as plants and animals, and non-living (abiotic) components such as solar energy, air, water, soil, heat, wind and various essential chemicals.

EXCLUSIVE ECONOMIC ZONE Exclusive Economic Zone (EEZs) are areas established by many coastal nations which extend 200 nautical miles seaward from coastal state baselines, wherein nations enjoy sovereign rights over all resources, living and non-living.

DISCHARGE as a verb - To release water; as a noun - The amount of water flowing at a given rate over a particular point at a specified speed (e.g., cubic feet per second) or the amount of water emanating from a source. The rate of flow of water or ice from a river, fjord or harbor at a given instant in terms of volume per unit time.

OUTER CONTINENTAL SHELF The Outer Continental Shelf is generally agreed to be the finite outer limits of the continental shelf where the foot of the continental slope meets the abyssal depths of the ocean. The geological definition of the continental shelf is the gently sloping, shallowly submerged marginal zone of the continents extending from the shore to an abrupt increase in bottom inclination; greatest average depth less than 600 feet, slope generally less than 1 to 1,000, local relief less than 60, width ranging from very narrow to more than 200 miles. For scientific purposes, these definitions are adequate since geologists can generally agree on where the continental shelf begins and ends. However, a universal legal definition does not exist since there has never been an agreement on the jurisdictional limits of the Outer Continental Shelf.

SALTWATER INTRUSION Saltwater intrusion into fresh water aquifers usually occurs as a result of excessive mining of groundwater in coastal regions. Similarly, when too much water is drawn from rivers and streams, salt water intrudes into their estuaries which in turn upsets ecological balance. Reduction of groundwater flow also causes freshwater aquifers to retreat, allowing saltwater to penetrate deeper inland underground. Coastal wells are first affected by falling groundwater. Inland wells pick up saltwater only after severe depletion.

BARRIER ISLAND Barrier islands are elongated, thin structures, parallel to the shoreline, formed of unconsolidated sediments (usually sand). These islands may range up to tens of kilometers long, and are usually less than a few kilometers wide. They are separated from the mainland by estuaries and wetlands, which may range in size from narrow lagoons to the extensive sounds over 50 kilometers (27 miles) wide found in North Carolina. They are generally located in areas with low sloping coastal plains and moderate tidal range.

RESIDENT FISHERY Population of nonanadromous fish that is harvested within a particular ecosystem. (The fish complete their lifecycle within the ecosystem, therefore, they are resident fish; such fish must be harvested or there is no fishery).

MARGINAL SEA (also adjacent sea). Semi-enclosed seas adjacent to, widely open to and connected with the oceans at the water surface but bounded at depth by submarine ridges; for example, Yellow Sea. When shallow (less than about 150 fathoms), they are called shelf seas; for example, Hudson Bay. Marginal Sea is a term that also has a very specific legal dimension. The Marginal Sea refers to the water which extends three geographic miles (or three marine leagues in some states) seaward from the Coastline of that state to the edge of the Continental Shelf. As against the United States, the state is entitled to all the lands, minerals and other natural resources within the Marginal Sea and the United States is not entitled, as against the state to any interest in such lands, minerals or resources.

RIPARIAN RIGHTS Riparian rights are the legal rights to a waterway belonging to one who owns land bordering the waterway.

LITTORAL DRIFT Littoral drift is a phenomenon which describes sand moving along the beach as a result of wave effects. Sand moves parallel to the shore by wave and current action.

NON-POINT SOURCE (OF POLLUTION) A non-point source is an indirect or a not easily discernible source of pollution. An example of a non-point source might be fertilizers whose contaminants are leaking through the soil, or peripheral water runoff which is polluting streams and rivers.

ACID RAIN Acid rain is a complicated phenomenon which begins when sulfur oxides and nitrogen oxides are injected into the atmosphere in large quantities by the burning of fossil fuels. These oxides change in chemical reactions in the atmosphere into strong acids. Specifically, sulfur oxide dissolves in water vapor to form sulfuric acid while nitrogen oxides dissolve to form nitric acid. Unless these acids are neutralized in reactions with alkaline compounds in the atmosphere, those acids eventually fall to earth in rain as the noxious acid rain.

CAPACITY/USE Carrying capacity is the maximum population size that a given ecosystem can support for an indefinite period or on a sustainable basis. All ecosystems have a specific carrying capacity for each population. Carrying capacity can fluctuate but most organisms, with the exception of humans, do little to change it. Technological advances have allowed us to extend the limits set by nature; to expand carrying capacity. Humans expand and thereby "use" the carrying capacity to a greater extent than nature can sustain. To increase carrying capacity we tend to develop to the maximum extent possible, or maximize, single variables such as energy and agricultural production. Such increased "use" encourages population growth beyond the ecosystem's ability to assimilate the resulting disturbances.

REVETMENT A revetment is a wall angulated away from waves that initiates, as well as stone and cement can, the way the natural beach flattens out under wave attack. The revetment usually lies upon the foot of the first dune. If built of boulders, rubble or concrete blocks, it has the added advantage of soaking up wave energy.

PELAGIC FISH Fish which inhabit the ocean's surface on the open sea, especially as distinguished from coastal waters. Pelagic is a primary division of the ocean which includes the whole mass of water. The division is made up of the neritic or coastal ocean (which includes the water shallower than 200 meters) and the open ocean (which includes the water deeper than 200 meters).

DESALINIZATION The process of rendering seawater or salty groundwater for municipal, industrial or agricultural use by removing salt. In other words, desalinization can be used on the coasts for purifying seawater and inland for purifying brackish water.

BEACH RENOURISHMENT The process by which man replenishes or "nourishes" the beach by pumping new sand onto a beach or into the longshore currents. Beach renourishment is one of many techniques used to stabilize or replace beaches which have disappeared due to erosion.

FLOODPLAIN The flat areas just above the river and stream banks. Here the river overflows, and silt in the muddy water settles to the ground to build terraces that grow higher, sometimes inches, during each flood. Floodplains are temporary storage reservoirs, lowering downstream flood. While ponded, water soaks through the soil to underground reservoirs that can be pumped out later or that seep slowly back to the river and add to its flow during dry seasons.

Chapter Three

SOURCES OF VARIATION IN TECHNICAL INFORMATION AMONG THE GENERAL PUBLIC, ACTIVISTS AND POLICY ELITES

INTRODUCTION

This chapter investigates the sources of variation in the levels of technical information and knowledge holding among the general public, activists and policy elites based on the survey results described earlier in this report. The purpose of this chapter is to consider the degree to which individual characteristics, attitudes and policy preferences explain and predict levels of information holding across our three samples and the degree of trust they have in alternative and competing sources of technical information. Thus, the goals of this chapter are to more clearly define important sources, or causes of variation, and then to elaborate how these relate to views about the proper use and management of coastal resources in the State of Florida.

Patterns of Information Holding

Public involvement in the coastal resources issue arena increasingly entails the consideration of an enormous range of issues that are very complicated. Even in the most politically oriented issues, the technical range of the subjects which must be dealt with is staggering (Lovrich et al., 1979, 1984; Pierce and Lovrich, 1986). Because outcomes of the public decision-making process often affect a multitude of actors, many matters are dealt with in great detail to insure that all the facts are presented. Today, a large amount of knowledge and expertise is required by participants in the coastal issues arena, regardless of their stance on the issues. Participants in the public policy process, to be effective, have to have command over aspects of law, engineering, applied ecology, planning, coastal morphology and biology, among other disciplines. In sum, we must face the reality that we are in an "information age" that bears heavily on how decisions are made (Toffler, 1970, 1980; Dizard, 1985).

Overall, the political system has few means for dealing with the impact of technical complexity. We must rely on public negotiations and on public hearings, the press and group activities to disseminate knowledge. Thus, it may be anticipated that social, political and socio-economic patterns greatly affect knowledge levels (Lovrich et al., 1984) and that interest group or "activist" publics and policy elites will have higher levels of knowledge than other segments of the population, a fact witnessed by the results presented in the previous chapters. From another perspective, based on Down's (1957) classic, The Economic Theory of Democracy, in political settings it is generally viewed as not rational for individuals to participate

in the decisionmaking process either by voting or becoming knowledgeable, hence producing "rational ignorance" about the issue at hand. Because participation is not rational, Downs argues neither is it rational to incur the costs of obtaining information. However, it is often the case that groups and activists are capable of making individual citizens aware of the "stakes" involved. If the "stakes" are high enough, the costs of obtaining information about a particular policy are less than the benefits which might be lost if the policy under consideration were enacted. In this situation, the condition of rational ignorance is no longer operationable and other concerns must be addressed.

When rational ignorance is overshadowed by interest in the issue, one concern with respect to the role of knowledge in the public policy process is the degree of respect or trust accorded technical expertise. The assumption of total or perfect knowledge underlies the neoclassical economics which forms the foundation of much contemporary policy analysis. That perfect knowledge does not exist is surprising to no one. What degree of knowledge exists, what level of trust in these sources exist, and how that knowledge relates to policies in the coastal resource issue arena are then of considerable interest.

If public policy-relevant knowledge bears on the issue of coastal resources then it becomes important, as the first step in the analysis of sources of variation, to assess the general levels of familiarity with the coastal resources issue arena. The first step in determining knowledge of the coastal issue arena is to show what patterns of distribution exist for each of the samples about reported self-assessed knowledge of technical terms. Table 3.1 begins by reporting the findings of the samples who responded that they knew the meaning of each term from the set presented in the survey.

The pattern shown in Table 3.1 has two dimensions. Term familiarity varies by both the particular term and the group of respondents. For every term there is lower familiarity among the general public than there is among the activists or the policy elites. Also, across some terms, familiarity drops in each of the respondent groups (i.e., pelagic fish), suggesting some specific areas in which knowledge is low regardless of one's position in the policy process.

It has been suggested that familiarity with technical terms can be broken down into three domains--a public domain, a policy domain, and a scientific domain (Pierce and Lovrich, 1982, 1986:58). Information in the public domain is considered to be available and relevant to all potential participants in the policy process, including the general public. Discussion of policy within this domain is seen as open and available for

TABLE 3.1
Reported Familiarity with Nineteen Technical Terms
Related to Coastal Zone Issues*

Technical Term	General Public	Activists	Policy Elites
Estuarine	55.8	77.8	83.2
Ecosystem	71.1	86.0	88.5
Exclusive Economic Zone	34.5	43.5	39.4
Discharge	84.5	96.1	94.2
Outer Continental Shelf	81.7	90.3	89.9
Saltwater Intrusion	85.4	95.7	95.2
Barrier Island	84.8	96.6	92.8
Resident Fishery	49.8	57.0	50.0
Marginal Sea	18.6	24.2	20.2
Riparian Rights	46.6	70.5	79.3
Littoral Drift	35.6	63.8	66.3
Non-Point Source	29.9	54.6	62.5
Acid Rain	91.0	94.2	94.2
Capacity Use	56.1	70.0	60.1
Revetment	44.6	68.6	71.6
Pelagic Fish	22.5	35.7	32.2
Desalinization	80.0	93.2	92.3
Beach Renourishment	78.8	94.7	94.2
Floodplain	80.3	93.7	95.7

* The percentage saying that they "know the meaning" of the term.

involvement by the general public. Within this domain the public is seen as being capable of participating as equals with activists, decisionmakers and experts. Information within the policy domain, by comparison is familiar to those currently active in the public policy discussions and with policy formulation, namely activists, with the public viewed as being at a disadvantage. In the scientific domain, the public and activists alike share a disadvantage because of the levels of expertise needed to assimilate the information employed (Pierce and Lovrich, 1986). Table 3.2 illustrates these knowledge domains. The 19 technical terms are arranged in order with the least familiar term for the general public on the left ascending to the most familiar term on the right. For each sample, the percentage indicating they know the term is shown, with responses for each group connected by a unique line.

The pattern in Table 3.2 shows the relative distance between those claiming knowledge in each group for specific terms. At the far right the gap between the general public, activists and policy elites is relatively minor. As we move from the public domain into the policy domain the gap widens. The overall gap between the public's familiarity and the familiarity of activists and policy elites is generally wider for most terms. In the scientific domain the gap remains wide except for the term, marginal sea. These findings prepare us to further investigate the issue of technical information and knowledge holding in the coastal zone arena, and suggest that the greater the width between the public and other policy actors, the greater will be the public's inability to participate, communicate and exact policy concurrence from their elected and career public officials about coastal zone issues (Pierce and Lovrich, 1982). Further, the closer the activists and the policy elites are in their holding of technical knowledge, which seems nearly parallel from the findings of Table 3.2, the greater the chances for them to "capture" each other (McCool, 1988; Kelman, 1987), and interact in the policy and scientific domains with little more than passing attention to the uninformed general public; lending support to the idea of a policy elite or a set of actors who use scientifc information as part of their "modus operandi."

The next step in the analysis is to review findings about knowledge levels and trust in sources of technical information which will serve as dependent variables in the remaining analysis. Given that various policy domains may exist, what accounts for variations in the levels of technical information and knowledge holding and trust in alternative sources of technical information across the three sets of respondents? Are similar patterns demonstrated regardless of the response group? What sources of variation can be tapped for future information dissemination within the coastal issue arena?

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TABLE 3.2

Knowledge Domains and Percentage Claiming Knowledge of Nineteen Technical Terms: General Public, Activists, Policy Elites

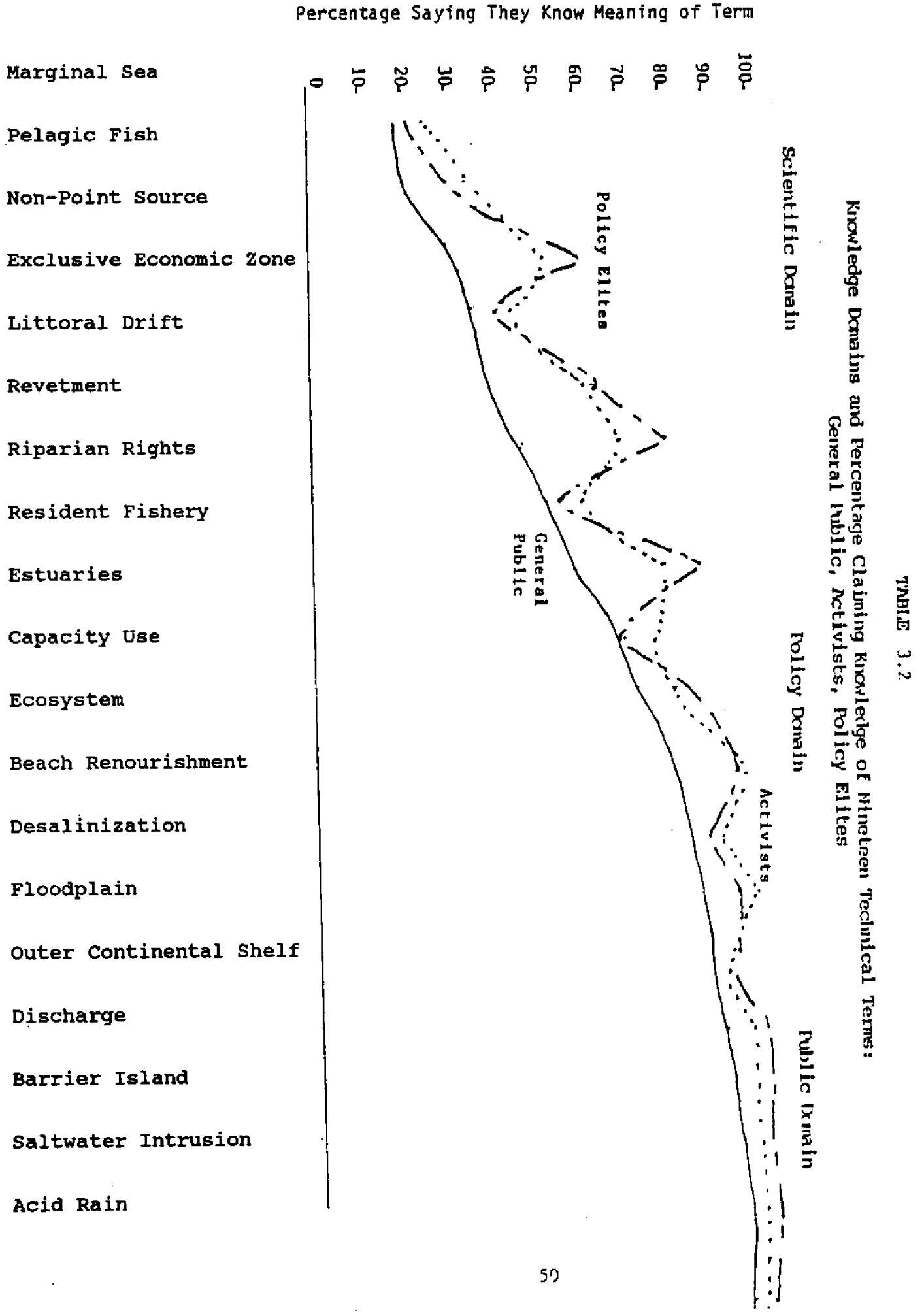

Table 2.11 in the previous chapter (p. 27) showed that activists and policy elites pay considerably more attention to coastal issues than does the general public, registering over 20 percentage points more in the "most of the time" category. (For the remaining analysis this variable will be referred to as ATTENTION.) Table 2.11 also illustrated that the policy elites and activists believe they are generally more well-informed than the general public about natural resource and environmental issues in Florida, as evidenced by 82.2 percent and 80.8 percent in the informed end of the scale for policy elites and activists, respectively. In contrast, the general public showed only 51.7 percent in the informed end of the scale. (For the remaining analysis this variable will be referred to as INFORMED.) Together, these findings suggest that the policy elites and activists feel they have better knowledge based on the close attention they pay to the issue area and how well-informed they see themselves. In comparison with the general public, they appear to enter the policy arena better equipped to understand the technical issues involved and with a better understanding of the dynamics occurring within the State of Florida. These findings may be a result of their participation, especially among policy elites whose professional activities fall into the coastal issue area, or because they understand or perceive the stakes involved and thus, unlike the general public, have foregone rational ignorance and exerted effort to become involved and aware of the policy questions at hand.

The assessment of an individual's level of policy relevant knowledge, particularly in the context of a mail survey, poses some difficulties. First, a measure must be sufficiently broad in scope to contain both basic scientific information, as well as pertinent case-specific measures (Lovrich et al., 1984:8). To contend with this problem, two measures of knowledge are reported in Table 3.3. First, a basic ecology quiz based on the work of Maloney and his associates (1975) is used to ascertain general knowledge in the natural resource and environmental issue area. Secondly, based on the self assessed knowledge of technical terms familiarity reported in Table 2.13, (p. 32) respondents were broken into high, medium and low categories of technical term familiarity after summing the scores and dividing them into equal thirds. Table 3.3 shows activists and policy elites, as expected, record higher levels of technical term familiarity and, in general, performed better on the general ecology quiz. Through these two assessments of respondent knowledgeability and the attention paid to coastal issues (Table 2.11), as well as the level of individual self-assessed information holding and knowledge of general ecology (Table 3.3), we proceed with the assumption that a set of measures is available that will provide a comprehensive indicator of the level of knowledge existing within each of the samples.

TABLE 3.3
Distribution of Responses About Self-Assessd Knowledge of Terms and Knowledge of General Ecology Among the General Public, Activists and Policy Elites

Self Assessed Knowledge of Terms	Frequency (%)		
	General Public	**Activists**	**Policy Elites**
High Knowledge of Terms (in upper one-third of summary)	346 (49.6)	154 (74.4)	156 (75.0)
Mid-level Knowledge of Terms (in mid-third of summary)	284 (40.6)	48 (23.2)	47 (22.6)
Low-level Knowledge of Terms (in lower-third of summary)	45 (06.4)	1 (00.5)	1 (00.5)
Missing Cases	24 (03.4)	4 (01.9)	4 (01.9)
Totals	**699 (100%)**	**207 (100%)**	**208 (100%)**

General Ecology Quiz	Frequency (%)		
	General Public	**Activists**	**Policy Elites**
None Correct	54 (07.7)	9 (04.4)	13 (06.3)
One Correct	125 (17.9)	28 (13.5)	26 (12.5)
Two Correct	192 (27.5)	46 (22.2)	48 (23.1)
Three Correct	248 (35.5)	91 (44.0)	83 (39.9)
Four Correct	80 (11.4)	33 (15.9)	38 (18.3)
Totals	**699 (100%)**	**207 (100%)**	**208 (100%)**

* In the remaining analyses these variables are referred to as TERMS and FACTS, respectively.

As previously discussed, another important consideration in the discussion of public involvement in technically complex issue areas, is the need to often rely on outside sources of knowledge in order to draw a "rational" plan of actions. Inasmuch as coastal zone issues are ones of considerable complexity, participants must draw upon available sources of information when proposals and programs need to be evaluated. Among these sources there exists varying levels of trust as reported in Table 2.15 (p. 35). Earlier research found that trust in alternative sources of technical information follows consistent patterns related to the general policy orientation of individuals (Lovrich, Pierce and Cook; 1979). For example, those with strong environmental orientations are more likely to trust information from environmentalists, and they are less likely to trust information from developers, energy companies or timber interests. These earlier studies suggest that people tend to "trust sources of information with whom they agree in policy alternatives." While this is not unexpected, it further suggests that there may be strong variations in trust and that these variations, once defined, may become important indicators of potential alignments as coastal issues become politicized.

Sources of Variation

This section investigates variations in the levels of information holding and trust in sources of technical information. Four sources of variation have been considered as having potential impact on the level of attention and informedness of individuals and their trust in sources of technical information. These four sources of variation are: 1) personal characteristics; 2) political orientations; 3) environmental orientations; 4) policy preferences. Each of these will be considered in turn. In the following analyses, measures of ordinal association are relied upon to consider the association between potential sources of variation and the various measures relating to technical information and knowledge holding.[1]

Personal Characteristics

Five personal characteristics are first considered for the impact they have on information holding and trust in sources of technical information. Education is viewed as a potential source of variation because higher education has a role in increasing the ability of the individual to process information, thereby reducing the costs of evaluation and the application of information to policy settings. Goldberg (1969) notes, for example, that "education increases rationality in the special sense of lowering information costs and developing innate intelligence toward its fullest potential." Education also relates to lifelong learning and it is expected that higher education levels will associate with higher levels of knowledge (Kessel, 1980:193; Steel and Steger, 1986).

A second personal characteristic worth considering is that of age. In Florida where there exists a considerable elderly and retirement population, age may especially prove to be a significant factor. Are older people less interested in new information than their younger cohorts? Age may be considered a step towards wisdom, reflecting the ability to put a broader number of life's experience into a better perspective. To this end, older individuals may be more likely to support public involvement and pay closer attention to the issues as they emerge. Viewed from a negative light, age may be associated with old-fashioned values, with a younger generation being more likely than their older counterparts to entertain new ideas and obtain the knowledge to participate in the policy process (Soden et al., 1988).

Income levels and social standing (class) may also bear on the role individuals take in pursuing new information and the sources they are most likely to draw upon in formulating decisions. Clearly, those with higher levels of income and members of the upper middle-class or upper-class have better access to a greater number of information sources than do their lower class and low-income cohort. Moreover, those who have fulfilled their basic subsistence and security needs are more capable of focusing their attention on issues of environmentalism and take the time to seek information about policies relating to natural resources than are those who must focus the majority of their attention on basic subsistence needs (Maslow, 1970). As evidence of this, the Audubon Society in 1977, prior to the inflation of the late seventies and early eighties, reported that average subscriber income in excess of $35,000 annually (Audubon, 1977).

Gender differences may also provide a clue about who is more likely to be informed about coastal issues. Knowledge of and behavior towards wildlife, for example, is different among males and females (Kellert and Berry, 1980; 1984). Typically, participation rates in natural resource activities have been higher among males, but women have registered higher scores on humanistic and moralistic scales, and shown strong proclivities to get involved in the policy process and to be quick studies about environmental issues (Bammel and Bammel, 1986). Table 3.4 reports associations between the measures of knowledge and the set of personal characteristics for the general public, activists and the policy elite. The most notable associations are between the variables ATTENTION and INFORMED and social class. Those who indicate that they consider themselves to be of middle or higher socio-economic classes are the respondents more likely to pay attention to natural resource issues and feel that they are relatively well-informed. With respect to levels of knowledge based on the general ecology quiz (FACTS) and technical terms (TERMS), those with higher levels of education demonstrate that they are better informed than their less educated colleagues, except among policy elite where, as previously shown education levels are fairly high. Men also show a stronger association

TABLE 3.4
Ordinal Association of Personal Characteristics with Information Holding Among the General Public, Activists and Policy Elites

	Education	Age	Income	Social Class	Sex
ATTENTION					
General Public	-.11	-.19	-.20	-.23	-.22
Activists	-.17	-.12	-.13	-.26	-.28
Policy Elites	-.05	-.13	-.16	-.19	+.01
INFORMED					
General Public	+.23	-.02	+.22	+.27	+.25
Activists	+.21	-.21	+.16	+.24	+.25
Policy Elites	+.15	-.01	+.09	+.33	+.12
TERMS					
General Public	-.23	-.02	-.19	-.22	-.27
Activists	-.27	+.22	-.10	-.11	-.22
Policy Elites	-.21	-.01	-.05	-.17	-.15
FACTS					
General Public	+.26	-.05	+.23	+.17	+.30
Activists	+.26	-.04	+.06	-.09	+.36
Policy Elites	+.15	-.08	+.10	+.04	+.14

than women about general ecology and technical terms. While each of these findings supports the existing literature, there is little evidence that age is a strong factor in determining information holding except among activists. Younger activists do indicate they believe they are better informed than older activists, but not in a strong fashion.

Table 3.5 provides associations of personal characteristics with trust in group sources of technical information. Several noteworthy associations arise in Table 3.5. First, those with higher income and social class standing, as well as men, are more trusting of Business, especially among activists and to a lesser degree among the general public. Policy elites who record middle and upper class standing and report higher incomes are those least trusting of Environmentalists and Outdoor Recreation Advocates, while activists with higher income levels are more prone to trust developers and construction companies than lower income activists. These findings suggest that development interests are not without activist support in the coastal zone issue area, especially among those holding higher class standing and earning higher incomes.

Those with higher levels of education among all three samples are more trusting in the technical information provided by Florida Sea Grant, not surprising since Sea Grant activities are often technical in nature and often not usable by or available to the typical member of the general public. Generally low levels of trust exist among the policy elite with higher education levels, social class standing and income for two state agencies, the Department of Natural Resources and the Department of Environmental Regulation. In summary, it appears that personal characteristics do seem to have a bearing on trust in group sources, especially among those in higher social classes and upper income strata, as well as those with higher levels of education.

Political Orientations

Four political orientations are posited as affecting information holding and trust in sources of technical information within the coastal issue area: citizen participation, ideology, partisanship and values related to post-industrialism. Citizen participation in western democracies, and in environmental affairs particularly, has been the subject of a large body of literature (Steel and Steger, 1986; Pierce and Doerkson, 1976; Dalton, 1988). If citizen participation is maximized via discussion, popular interest and participation in defining societal goals, then democracy is seen as strong, underscoring the general belief that public involvement in politics should be encouraged and maximized (Dalton, 1988). It also is argued that citizen participation is linked to knowledge in complex issue areas (Steel and Steger, 1986) and that the manner in which

TABLE 3.5

Ordinal Association of Personal Characteristics with Trust in Group Sources of Technical Information Among the General Public, Activists and Policy Elites

Group Sources	Education	Age	Income	Social Class	Sex
Business					
General Public	+.15	-.07	+.25	+.12	+.26
Activists	+.22	+.05	+.37	+.27	+.35
Policy Elites	+.03	+.05	+.00	+.09	+.24
Environmentalists					
General Public	-.03	-.15	-.07	-.06	-.20
Activists	-.09	-.04	-.20	-.15	-.24
Policy Elites	-.17	-.14	-.04	-.22	-.24
Developers/Construction Companies					
General Public	+.09	-.17	+.13	+.07	+.11
Activists	+.12	+.02	+.26	+.14	+.24
Policy Elites	-.14	+.03	+.01	-.06	+.26
College/University Educators					
General Public	+.14	-.24	+.02	+.07	-.01
Activists	+.13	-.16	-.21	+.01	-.16
Policy Elites	+.11	-.17	-.16	-.12	-.19
Farmers					
General Public	-.10	-.17	-.07	-.13	-.19
Activists	-.10	-.00	+.01	-.13	-.22
Policy Elites	-.08	+.02	+.03	-.13	-.06
Fishing Industry					
General Public	-.12	-.09	-.08	-.12	-.17
Activists	-.11	-.06	-.05	-.16	-.07
Policy Elites	-.15	-.04	+.01	-.06	-.07
National Park Service					
General Public	+.06	-.17	-.03	-.02	-.07
Activists	+.05	-.03	-.11	-.03	-.03
Policy Elites	+.07	-.06	-.06	-.08	+.07
Outdoor Recreation Advocates					
General Public	+.04	-.13	+.01	-.09	+.01
Activists	+.01	-.05	-.01	-.08	-.10
Policy Elites	+.04	-.02	+.02	-.27	-.07
Industry					
General Public	-.07	-.17	-.08	-.08	-.12
Activists	-.02	-.12	-.05	-.10	-.04
Policy Elite	-.11	-.13	-.07	-.13	-.04
Labor Unions					
General Public	+.02	-.18	-.04	-.06	-.11
Activists	+.07	-.17	-.05	-.08	-.09
Policy Elite	+.05	-.14	-.02	+.03	-.04

TABLE 3.5 continued

Group Sources	Education	Age	Income	Social Class	Sex
State Legislators					
General Public	+.06	-.07	+.09	+.08	+.01
Activists	+.06	+.03	+.07	+.10	+.18
Policy Elite	-.13	+.06	-.01	+.12	-.13
Florida Sea Grants					
General Public	+.21	-.22	+.11	+.09	+.01
Activists	+.24	-.18	+.06	+.13	-.06
Policy Elite	+.16	-.14	-.00	+.09	-.06
Timber Companies					
General Public	+.02	-.03	+.09	+.04	+.01
Activists	+.10	+.04	+.10	+.12	+.05
Policy Elites	-.09	+.11	-.02	-.07	+.15
Water Management Districts					
General Public	+.05	+.03	+.09	+.12	+.06
Activists	+.02	+.10	+.07	+.13	+.09
Policy Elites	-.10	+.02	-.17	+.13	+.09
Public Utilities					
General Public	+.07	+.00	+.14	-.14	-.02
Activists	-.01	+.12	+.12	+.08	+.16
Policy Elites	-.19	-.01	-.12	-.12	+.28
Department of Natural Resources					
General Public	+.00	-.08	+.02	+.02	-.12
Activists	-.11	-.03	-.11	-.06	+.01
Policy Elites	-.26	-.07	-.25	-.34	+.06
Department of Environmental Regulation					
General Public	+.01	-.10	+.02	+.04	-.05
Activists	-.08	+.03	-.02	-.02	+.06
Policy Elites	-.24	-.04	-.18	-.24	+.03
Department of Community Affairs					
General Public	-.09	-.17	+.06	-.02	+.03
Activists	+.07	-.09	-.05	-.06	-.05
Policy Elites	-.10	-.15	-.18	-.21	-.06
Federal Agency Representatives					
General Public	+.17	-.04	+.12	+.07	+.09
Activists	+.15	+.05	+.01	+.00	+.13
Policy Elites	-.01	+.02	-.08	-.10	-.02
Local Government Representatives					
General Public	+.12	-.07	+.10	+.10	+.06
Activists	+.09	-.01	+.14	+.09	+.09
Policy Elites	-.08	-.03	-.06	+.04	-.05
Technical and Scientific Experts					
General Public	+.15	-.11	+.10	+.09	+.08
Activists	+.19	-.19	+.05	+.15	+.37
Policy Elites	+.11	-.13	-.16	-.20	+.02

information holding varies and is distributed has major repercussions on the ability of the general public to participate in the governing of society (Bellak, 1975; King, 1975; Beer, 1977). Group involvement is also seen as important in the citizen involvement equation. Public involvement mechanisms have provided the springboard for many interest groups in the public policy arena. As a consequence, some scholars argue that environmental politics remains a largely group-dominated process (Lovrich and Pierce, 1986; Groves and Thompson, 1982; Kraft and Vig, 1984). Recent years also have shown an increase in the sophistication of the general public and a growth in participation, especially through group actions, where policy measures are citizen initiated (Dalton, 1988). Does the same hold true in the coastal issue area? Do attitudes about citizen participation play a role in how individuals contend with the technical complexity and the large pool of existing knowledge?

The second source of political variation that is expected to have an effect on the issue of information holding and trust in sources of technical information is ideology, which can be examined in tandem with the third source, partisanship. Many studies have illustrated the fact that political ideology is strongly related to support for or opposition to environmental policy among state legislators and the general public, as noted in the previous chapter (Pierce and Lovrich, 1980; Kenski and Kenski, 1981; Calvert, 1987).

Partisan affiliation also has been found to be correlated with legislative voting on environmental issues, although not as strongly correlated as ideological orientations (Dunlap and Gale, 1974; Ritt and Ostheimer, 1974). In this regard, Calvert has noted:

> . . . it is not surprising to find that the party of government intervention, the Democrats, are seen as more willing to listen and support policy proposals emanating from the environmental movement while Republicans, who rhetorically oppose governmental regulatory activity in the economy, are less supportive or even actively hostile to environmental concerns (1987).

Attitudes towards preferred sources of technical information have also been considered in terms of ideological and partisan dispositions. In their studies, Pierce and Lovrich have found that partisan attachment and ideological orientation are each linked to attitudes concerning group roles in the policy process (Pierce and Lovrich, 1983). As in other issue areas, it is expected that as coastal issues become politicized, participants in the policy process will seek out traditional sources of information with whom they align on political issues (Lovrich, Pierce and Cook, 1979; Soden, 1985).

The fourth political orientation is based on the idea that a number of fundamental changes have transpired in industrial nations since the end of World War II, especially in those identified as "Western Democracies" (Dalton et al., 1984). In contrast to the pre-war era, the 1950s and 1960s were characterized by rapid economic growth which led to fundamental change in the structure of society, catching the attention of students of societal phenomenon. Western democracies are viewed as having gone into a new stage of social development known as "post-industrial" or "post-materialist."

A plethora of studies exist that examine the social and political implications of post-industrialism (Tourraine, 1971; Bell, 1973; Heisler, 1974; Huntington, 1974). While some differences exist in defining post-industrialism, general agreement has been reached that:

> . . . the major features of post-industrial society that emerge . . . include, among others, the majority of labor employment to be in the so-called service sector, the service sector generating a larger share of the gross national product (GNP) than the agricultural and manufacturing sectors combined, a high level of affluence and mass material well-being, the national economy becoming "knowledge-intensive" in contrast to "capital-intensive" and "labor intensive" (Tsurutani, 1977:6-7).

It is suggested that post-industrial political and economic systems, coupled with the importance of technology in the policy process, and the centrality of specialized policy-specific knowledge in post-industrialism, have obvious impacts and implications for competing demands among the various elements and group interests of society who are competing for influence and authority (Freudenberg and Rosa, 1984:339). Within post-industrial societies, new experts and policy elites are seen as having to find foundations within the post-industrial framework if they wish to continue to hold and exercise influence (Dahl, 1985). Thus, one might reasonably expect that attitudes more post-industrial in nature will be more sympathetic to environmental concerns and show greater cognizance of the needs for information about complex coastal issues.

The results of ordinal associations given in Table 3.6 show that support for citizen participation is generally the best indicator of information holding across all three samples. Except in a few instances, weak associations exist for the three other political orientations. These exceptions include strong post-materialist values among policy elites in association with citizen participation and knowledge of general ecology (FACTS). Similar strength exists in the liberal leanings of activists with respect to how well informed they feel they are about coastal

TABLE 3.6

Ordinal Association of Political Orientations with Information Holding Among the General Public, Activists and Policy Elites

	Political Orientations			
Participation	Citizen Values	Post-Materialist Ideology	Party	
ATTENTION				
General Public	-.12	-.01	-.10	-.05
Activists	-.22	+.13	-.01	-.05
Policy Elites	-.26	-.21	+.02	+.04
INFORMED				
General Public	+.20	+.06	-.02	-.01
Activists	+.14	+.05	-.23	-.09
Policy Elites	-.02	+.01	-.09	-.14
TERMS				
General Public	-.12	+.03	-.02	-.01
Activists	-.10	+.03	+.23	+.05
Policy Elites	-.02	+.01	-.06	-.06
FACTS				
General Public	+.13	+.10	+.06	+.13
Activists	+.13	+.09	-.04	+.09
Policy Elites	+.03	+.20	+.09	+.018

resource issues and high knowledge of terms. These findings would seem to support the notion that policy elites may be searching for new foundations of power in the post-industrial era, as well as the fact that activists within the coastal issue area with liberal leanings are better informed that their conservative counterparts.

Table 3.7 reveals a number of linkages between political orientation and trust in group sources of technical information. First, and not surprisingly, there exists very strong support for business as a source of information among those with conservative ideology, an expected relationship since business is closely associated with conservative causes and anti-regulatory measures. Likewise, those with conservative leanings among the policy elites also exhibit the most trust in developers/construction companies, supporting the literature which concludes that conservatives support those interests which are most often viewed as being at odds with preservation or pro-environmental policies.

Those who support citizen participation in each of the three samples also indicated trust in environmentalists. Trust in environmentalists is also high among liberal activists and those holding Democrat party affiliation. College/university educators earn high support from those policy elites who are supportive of post-industrial values and citizen participation, as well as activists with liberal leanings or Democrat party affiliation. The fishing industry is seen as an important group source among conservative policy elites, reflective of the status quo in the State of Florida. Activists supporting the role of citizen participation give high trust scores to Outdoor Recreation Advocates, while liberals see Labor Unions as an important source in the determination of their positions. Among state agencies, the Department of Natural Resources and the Department of Environmental Regulation are viewed positively by activists, supporting citizen participation reflecting the important role which both of these agencies have put on public involvement. They also are viewed as more trusted sources by liberal activists than conservatives. Liberal activists and policy elites each also indicate the Department of Community Affairs is a valued source of technical information.

Policy elites and activists, the individuals likely to have interaction with Florida Sea Grant, see it as a valued source if liberal ideology values are held, an association which may be closely linked to Sea Grant's role in citizen education and environmental issue education versus traditional industrial development. Overall, these findings support the previous research that argues that participants in the policy process trust sources of information with whom they already share general policy positions. Those with liberal leanings favor government agencies while conservatives do not. The reverse is true of business and developmental sources which receive conservative

TABLE 3.7
Ordinal Association of Political Orientations with Trust in Group Sources of Technical Information Among the General Public, Activists and Policy Elites

	Political Orientations			
Group:	Citizen Participation	Post-Industrial Values	Ideology	Political Party
Business				
General Public	-.03	-.11	+.07	+.17
Activists	-.07	-.14	+.13	+.15
Policy Elites	-.03	-.07	+.41	+.15
Environmentalists				
General Public	+.28	+.23	-.18	-.14
Activists	+.33	+.23	-.21	-.09
Policy Elites	+.24	+.15	-.16	-.21
Developers/Construction Companies				
General Public	-.06	-.14	-.01	+.12
Activists	-.11	-.15	+.04	+.16
Policy Elites	-.09	-.17	+.23	+.13
College/University Educators				
General Public	+.14	+.11	-.13	-.09
Activists	+.16	+.12	-.27	-.24
Policy Elites	+.30			
Farmers				
General Public	-.02	+.01	-.05	-.03
Activists	+.08	-.06	-.07	-.10
Policy Elites	+.04	+.14	+.18	+.09
Fishing Industry				
General Public	-.06	+.02	-.01	-.04
Activists	+.00	+.01	-.03	-.10
Policy Elites	+.04	+.14	+.20	+.05
National Park Service				
General Public	+.15	+.15	-.05	-.02
Activists	+.23	+.14	-.07	-.17
Policy Elites	+.04	+.02	+.00	-.15
Outdoor Recreation Advocates				
General Public	+.14	+.10	-.09	-.13
Activists	+.23	+.07	-.12	-.06
Policy Elites	+.11	+.11	-.13	-.13
Industry				
General	+.06	+.13	-.09	-.04
Activists	+.14	+.04	-.11	-.04
Policy Elites	+.08	+.10	+.01	-.06
Labor Unions				
General	-.02	+.06	-.21	-.16
Activists	+.10	+.06	-.17	-.07
Policy Elites	+.01	+.06	-.08	-.26

TABLE 3.7 continued

State Legislators				
General	+.07	+.03	-.16	-.12
Activists	+.14	+.13	-.19	-.09
Policy Elites	+.12	+.36	-.08	-.19
Florida Sea Grant				
General	+.15	+.09	-.13	-.01
Activists	+.17	+.05	-.31	-.04
Policy Elites	+.07	+.12	-.11	+.03
Timber Companies				
General	+.00	-.09	+.07	+.02
Activists	+.07	-.08	-.07	+.12
Policy Elites	-.07	+.01	+.26	+.14
Water Management Districts				
General	+.04	-.09	+.07	+.02
Activists	+.21	+.08	-.01	+.03
Policy Elites	+.11	+.12	+.09	+.03
Public Utilities				
General	-.05	-.09	-.00	+.11
Activities	-.02	-.07	-.09	+.14
Policy Elites	-.08	+.03	+.19	+.14
Department of Natural Resources				
General	+.16	+.03	-.11	-.04
Activists	+.26	+.20	-.29	-.17
Policy Elites	+.15	+.18	-.19	-.11
Department of Environmental Regulation				
General	+.13	+.05	-.12	-.04
Activists	+.26	+.07	-.26	-.07
Policy Elites	+.07	+.13	-.16	-.10
Department of Community Affairs				
General	+.09	+.08	-.19	-.06
Activists	+.14	+.18	-.39	-.10
Policy Elites	+.14	+.24	-.26	-.07
Federal Agency Representatives				
General	+.07	-.00	-.11	-.05
Activists	+.16	+.01	-.22	-.10
Policy Elites	+.08	+.09	1.04	-.02
Local Government Representatives				
General Public	+.06	+.04	-.09	-.02
Activists	+.07	+.03	-.18	-.03
Policy Elites	+.09	+.10	+.08	-.03
Technical and Scientific Experts				
General	+.04	-.05	-.08	+.05
Activists	+.03	-.04	-.14	-.07
Policy Elites	+.11	-.05	-.00	+.07

support but little support from liberals. It also becomes apparent that a pattern exists where liberal leanings, support for post-industrial values, and an enhanced role for the general citizenry is associated with environmentalists in the policy process.

Environmental Orientation

Environmental orientations presume that conflict over scare natural resources is rooted in the degree to which individuals are strongly committed to either preservation or development. General orientations towards the environment have been measured in a number of ways, each founded in either methodologically or literature supported grounds. In this section, three measures pertaining to environmental orientations are employed. First, a fixed-alternative response is utilized to ascertain the seriousness of the environmental problem facing Florida's coast and acts as a predictor of how important respondents see environmental issues as compared to other issues on the public policy agenda. The more serious they see the problems facing the environment, the more likely it is that they will support environmental protection policies and seek knowledge about the issue area.

Second, it has been previously noted that a value change is occurring in which society is paying greater attention to post-industrial or post-materialistic needs (Inglehart, 1977). This change in attitude is believed to have brought about changes in many types of personal attitudes--especially those relating to the natural environment. As a consequence, it is argued that popular demand for the exploitation of natural resources in the interest of creating employment and generating economic growth has been partially supplanted by interest in higher order need--such as the valuation of natural beauty and the enjoyment of recreation in its natural setting.

Opinion surveys undertaken in North America indicate a growing disposition, especially among the well-informed and highly educated, to accept elements of the NEP (Milbrath 1984; Lovrich, et al., 1984; Steel and Soden, 1989). Acceptance that environmental concerns are an important part of contemporary policy making suggests that those supportive of such policies will have a greater propensity to attempt to firm up their support with knowledge acquisition.

A third dimension of environmental orientations relies on attitudes about preservation as opposed to development of natural resources, and has proved quite useful in predicting and explaining support for or opposition to a given policy (Pierce, 1979; Pierce and Lovrich, 1982; Soden, et al., 1985). Does the same hold true in regards to technical information and knowledge holding? Do those with preservationist leanings systematically display more knowledge than those with developmental leanings, or

is the reverse the case? Or does a mix of attitudes exist among those with high knowledge levels, suggesting that the preservationist-developmentalist distinction does not play a role in explaining the knowledgeability of policy actors?

Tables 3.8 and 3.9 consider the potential variation that environmental orientations have on knowledgeability and trust in group sources of technical information. The associations in Table 3.8 show that environmental orientations, in general, are not linked to knowledge levels among any of the samples. The only noteworthy associations occur between knowledge of general ecology (FACTS) and attitudes about the seriousness of the environmental problem in Florida for the general public and activists. Neither preservation self-identification nor positioning about the NEP bear on knowledge factors.

Table 3.9, in contrast, shows a number of associations between environmental orientations and trust in various sources of technical information. Beginning with trust in Business, it is clear that those with strong preservationist leanings are the least trusting as are those who support the NEP. Environmentalists, in comparison, obtain high trust among those with preservationist leanings, as well as followers of the New Environmental Paradigm and those who perceive the environmental problem facing Florida as quite serious. This obviously is not surprising given the nature of the issue area under study, however, comparison of the relative degree of association with other potential sources of technical information does indicate the high regard that environmentalists maintain in the coastal issue area. In light of this, it is not surprising that developers/construction companies record almost the inverse of Environmentalists among those with preservationist leanings. College/university educators also are recipients of considerable trust among policy elites with environmental orientations, probably in part because of the higher levels of education they hold compared to activists and the general public.

Farmers and timber companies each score well with policy elites, especially those not perceiving a serious environmental problem in the state. Perhaps this is due to the strong political support they are able to generate among the elites, or the roots of some elites in these important economic sectors of Florida. Further, those who see a serious environmental problem in the state are those most likely to hold high regard for the National Park Service, especially activists. From Table 3.9, it seems that those with strong environmentalal orientations will seek information from those with whom they share a general outlook about the environment, such as environmentalists or the National Park Service. Similarly, those with more developmental

TABLE 3.8

Ordinal Association of Environmental Orientations with Information Holding Among the General Public, Activists and Policy Elites

	Preservationist Self Identification	New Environmental Paradigm	Seriousness of Environmental Problems
ATTENTION			
General Public	+.02	-.00	+.08
Activists	-.13	+.04	+.13
Policy Elites	-.09	+.03	+.04
INFORMED			
General Public	-.02	+.09	-.16
Activists	-.02	+.07	-.17
Policy Elites	-.07	-.02	-.09
TERMS			
General Public	-.05	-.04	+.07
Activists	-.12	-.02	-.03
Policy Elites	-.12	+.11	+.05
FACTS			
General Public	+.01	+.13	-.21
Activists	+.03	+.02	-.23
Policy Elites	-.02	-.01	-.01

TABLE 3.9

Ordinal Association of Environmental Orientations with Trust in Group Sources of Technical Information Among the General Public, Activists and Policy Elites

	Preservationist Self Identification	New Environmental Paradigm	Seriousness of Environmental Problems
Business			
General Public	-.23	-.19	+.11
Activists	+.42	-.25	+.15
Policy Elites	+.34	-.26	+.17
Environmentalists			
General Public	-.33	+.32	-.36
Activists	-.47	+.37	-.49
Policy Elites	-.47	+.23	-.41
Developers/Construction Companies			
General Public	+.30	-.18	+.21
Activists	+.45	-.26	+.16
Policy Elites	+.37	-.18	+.03
College/University Educators			
General Public	-.06	+.17	-.12
Activists	-.05	+.24	-.32
Policy Elites	-.24	+.18	-.27
Farmers			
General Public	+.09	-.11	+.16
Activists	+.25	-.13	+.19
Policy Elites	+.14	-.16	+.32
Fishing Industry			
General Public	-.03	-.06	+.08
Activists	+.16	-.03	+.10
Policy Elites	-.06	+.03	+.07
National Park Service			
General Public	-.13	-.15	+.24
Activist	-.24	+.15	-.49
Policy Elites	-.15	+.16	-.13
Outdoor Recreation Advocates			
General Public	-.11	+.13	-.17
Activists	-.17	+.15	-.21
Policy Elites	-.19	+.13	-.09
Industry			
General Public	-.12	+.12	-.14
Activists	+.01	+.15	-.12
Policy Elites	-.08	+.09	-.00
Labor Unions			
General Public	+.04	-.02	-.09
Activists	+.15	+.05	+.07
Policy Elites	+.05	-.00	-.11

TABLE 3.9 continued

State Legislators			
General Public	+.05	-.03	-.03
Activist	+.18	+.03	-.04
Policy Elites	-.06	+.04	+.01
Florida Sea Grant			
General Public	-.03	+.04	-.06
Activists	-.00	+.03	-.15
Policy Elites	+.12	-.02	-.03
Tiber Companies			
General Public	+.11	-.11	+.04
Activists	+.24	-.14	-.09
Policy Elites	+.17	-.20	+.30
Water Management Districts			
General Public	+.11	+.01	-.04
Activists	+.07	+.09	-.32
Policy Elites	+.04	+.03	-.10
Public Utilities			
General Public	+.18	-.13	+.12
Activists	+.21	-.11	-.18
Policy Elites	+.16	-.07	+.05
Department of Natural Resources			
General Public	-.05	+.13	-.02
Activists	-.13	+.19	-.20
Policy Elites	-.04	+.21	+.12
Department of Environmental Regulation			
General Public	-.08	+.12	-.14
Activists	-.04	+.17	-.22
Policy Elites	-.12	+.20	-.14
Department of Community Affairs			
General Public	+.01	+.03	-.03
Activists	+.04	+.17	-.16
Policy Elites	+.10	+.15	-.24
Federal Agency Representatives			
General Public	+.03	+.02	-.04
Activists	+.04	+.09	-.27
Policy Elites	+.08	+.08	+.13
Local Government Representatives			
General Public	+.12	-.04	+.02
Activists	+.24	-.09	-.15
Policy Elites	+.03	-.04	-.10
Technical and Scientific Experts			
General Public	+.02	+.07	-.11
Activists	-.07	+.14	-.33
Policy Elites	-.18	+.13	+.01

or Dominant Social Paradigm leanings (Milbrath, 1984) are those who will indicate greater trust in developers or timber companies, reinforcing earlier findings about the same concern in other issue areas (Lovrich, Pierce and Cook, 1979; Soden, 1985).

Policy Preferences

The purpose of this study has been to consider the extent to which policy relevant technical information and knowledge holding and trust in sources of technical information may affect public attitudes towards coastal resources. As noted previously, the central role of public involvement in the policy process raises "critical concerns about the extent to which citizen opinions are buttressed by relevant information" (Lovrich et al., 1986). The adequacy of public knowledge can bear significantly on the support or opposition which individuals give to one or a set of policies. Thus, in a policy area characterized by both a highly technical and scientific subject matter and an often highly charged and emotionally driven policy process, it is important to question the impact that information and knowledge have on policy preferences in the coastal issue arena.

If variations in knowledge factors prove unrelated to policy preferences, then it would seem that public education programs may have little effect in developing support for specific management programs (Lovrich et al., 1986; Soden et al., 1985). In this regard, four policies or programs salient in the policy process related to coastal issues in the State of Florida are considered in relationship to knowledge factors. These include: 1) the purchase or acquisition of conservation properties and wilderness along the coast; 2) support for the Growth Management Act in the State of Florida; 3) protection of shorelines, bays, rivers and wetlands, even though some forms of economic development may have to be prohibited; and, 4) rebuilding of storm-damaged, eroded or washed-out beaches. Each of these is a contemporary coastal issue, not only in Florida, but nationwide. Determining the degree to which knowledgeability impairs or enhances citizen, activist and policy elite support across these general policy characterizations should prove quite useful in evaluating the role of information dissemination as a potential force in developing political efficacy.

Tables 3.10 and 3.11 present data about how knowledge factors and trust in sources of technical information are related to specific coastal related policies and programs. In regards to both support for the purchase of conservation properties and support for the idea of growth management, in a number of instances the higher the level of expressed knowledge the greater the support. For both activists and policy elites, greater support is given to the purchase of conservation properties as the attention they pay to the issue (ATTENTION) and self-assessed informedness (INFORMED) increase. Similarly, support for growth

management is higher among that portion of the general public that contends it pays attention to what is going on in the natural resource and environmental issue area and across all three samples whonote they are relatively well-informed.

In regards to the knowledge of specific terms (TERMS), only among those of the general public who indicated a high self-assessed knowledge of terms is there stronger support for growth management. Among the activists and the policy elites, the knowledge of terms does nothing to systematically indicate policy preference about growth management. In contrast, those who score better on the general ecology quiz (FACTS) across all three samples show strong support for the purchase of conservation properties. Those among the general public who score low on the ecology quiz do, however, still support growth management. This suggests two possibilities. First, that growth management may be seen as a positive public policy not only by those who are knowledgeable about the natural resources and environmental issue areas, but also by general citizens concerned about uncontrolled growth, those who are generally not environmentally oriented. Also, from a methodological perspective, the general ecology quiz may prove to be a good indicator of support for ecology linked policies, such as the acquisition of conservation properties, but may not be as good in predicting support for broader policies which are also supported by those who do not necessarily hold strong environmental orientations. With regards to shoreline protection policies and the use of state funding for restoration there does not appear to be strong links to knowledge factors. Perhaps the relative newness of these programs has made it difficult to form strong opinions to date, or that other factors are linked to these. For example, economics is addressed by both policies, a factor which typically relates to political orientations (i.e., liberals seen as supporting programs designed to protect the environment regardless of cost) or that as residents of beach front properties are supportive of restoration projects designed to enhance, save or protect their shoreline while uplanders scarcely relate to such projects except to note their high cost.

Table 3.11 provides a plethora of useful data about how policy preferences relate to trust in sources of technical information which should provide insight into the character of information dissemination needs and opportunities about specific policies in the State of Florida. Of the 21 sources of technical information about which the survey instrument inquired, each relates to the level of support for specific policies for at least one group. General patterns are best drawn from this data rather than discussion of the entire set of findings. In regards to purchase of conservation properties those who register trust in environmentalists, college/university educators, the National Park Service, outdoor recreation advocates, State Legislators, the Department of Natural Resource, the Department of Community

TABLE 3.10

Ordinal Association of Policy Preferences with Information Holding Among the General Public, Activists and Policy Elites

	Policy			
	Purchase of Conservation	Support for Growth Management	Shoreline Protection	Use of State Funds For Restoration
ATTENTION				
General Public	+.01	+.24	+.05	+.10
Activists	-.21	+.10	-.10	+.01
Policy Elites	-.42	+.09	-.18	+.17
INFORMED				
General Public	+.03	-.34	-.02	-.03
Activists	+.32	-.28	-.08	+.02
Policy Elites	+.40	-.21	-.03	-.08
TERMS				
General Public	-.04	+.24	-.03	+.00
Activists	-.02	+.08	-.04	-.03
Policy Elites	-.02	+.09	+.03	+.15
FACTS				
General Public	+.25	-.21	-.05	+.07
Activists	+.27	-.06	+.01	+.12
Policy Elites	+.42	-.10	+.10	+.15

TABLE 3.11

Ordinal Association of Policy Preferences with Trust in Group Sources of Technical Information Among the General Public, Activists and Policy Elites

Group Sources	Policy: Purchase of Conservation	Support for Growth Management	Shoreline Protection	Use of State Funds for Restoration
Business				
General Public	-.14	-.03	+.34	-.01
Activists	-.30	+.14	+.49	-.04
Policy Elites	-.01	+.25	+.41	-.02
Environmentalists				
General Public	+.48	-.14	-.43	-.18
Activists	+.58	-.30	-.54	-.05
Policy Elites	+.31	-.35	-.46	+.06
Developers/Construction Companies				
General Public	-.17	+.03	+.35	-.03
Activists	-.24	+.16	+.40	-.03
Policy Elites	-.19	+.26	+.27	+.03
College/University Educators				
General Public	+.44	-.19	-.11	-.12
Activists	+.48	-.13	-.10	-.12
Policy Elites	+.79	-.25	-.17	-.04
Farmers				
General Public	+.01	+.12	+.08	-.06
Activists	-.16	+.07	+.20	-.07
Policy Elites	-.36	+.22	+.12	-.03
Fishing Industry				
General Public	+.07	+.07	+.02	-.05
Activists	-.01	+.06	+.09	-.08
Policy Elites	-.10	+.11	+.02	-.01
National Park Service				
General Public	+.36	-.10	-.06	-.10
Activists	+.56	-.19	-.09	+.02
Policy Elites	+.23	-.06	+.07	+.01
Outdoor Recreation Advocates				
General Public	+.45	-.09	-.14	-.05
Activists	+.56	+.03	-.23	+.02
Policy Elites	+.41	-.07	-.06	+.02
Industry				
General Public	+.16	+.05	-.05	-.02
Activists	+.14	-.01	+.04	+.17
Policy Elites	-.21	+.06	+.07	+.15
Labor Unions				
General Public	+.15	+.11	+.11	-.09
Activists	+.19	-.05	+.09	+.09
Policy Elites	+.32	-.02	+.05	+.03

TABLE 3.11 continued

State Legislators				
General Public	+.39	-.10	+.07	-.17
Activists	+.48	-.04	+.13	-.12
Policy Elites	+.57	-.03	+.12	-.13
Florida Sea Grant				
General Public	+.25	-.17	+.03	-.10
Activists	+.07	-.16	+.16	-.09
Policy Elites	+.13	+.05	+.04	-.17
Timber Companies				
General Public	+.02	-.03	+.17	-.01
Activists	-.10	+.08	+.29	+.08
Policy Elites	-.29	+.26	+.25	+.03
Water Management Districts				
General Public	+.08	-.24	-.11	-.06
Activists	+.06	-.07	+.06	-.10
Policy Elites	+.16	-.16	-.00	+.07
Public Utilities				
General Public	+.04	-.04	+.16	-.07
Activists	-.04	+.08	+.14	-.04
Policy Elites	-.13	+.16	+.15	+.10
Department of Natural Resources				
General Public	+.30	-.19	-.04	-.17
Activists	+.30	-.20	+.12	-.16
Policy Elites	-.02	-.19	-.13	-.13
Department of Environmental Regulation				
General Public	+.37	-.27	-.13	-.15
Activists	+.38	-.19	-.15	-.10
Policy Elites	+.08	-.28	-.25	-.15
Department of Community Affairs				
General Public	+.32	-.19	+.11	-.09
Activists	+.34	-.26	+.06	-.04
Policy Elites	+.50	-.27	+.04	-.08
Federal Agency Representatives				
General Public	+.30	-.19	+.11	-.09
Activists	+.33	-.17	+.06	-.04
Policy Elites	+.39	-.07	+.04	-.08
Local Government Representatives				
General Public	+.19	-.12	+.18	-.10
Activists	+.26	-.13	+.22	-.07
Policy Elites	+.13	-.09	+.07	-.04
Technical and Scientific Experts				
General Public	+.21	-.19	+.01	-.06
Activists	+.50	-.10	+.02	-.96
Policy Elites	+.35	-.11	-.07	+.01

Affairs, federal agencies representatives and technical and scientific experts also support this policy in significant fashion. Support for growth management is gained among those who indicate trust in environmentalists and the set of state agencies (DNR, DER, DCA). Shoreline protection supporters are likely to trust environmentalists, while those opposed to the policy see business or developers as more trusting sources. Indeed, these strong associations clearly indicate the importance which can be attached to policy preferences of contemporary importance in the State of Florida, as well as the way in which alternative and competing sources of technical information can be part-and-parcel in these policy areas. The more technical information is part of the decisionmaking process, the more individuals associated with any segment of society will have to turn to one or more of these sources for guidance. Though not an earthshaking conclusion, the opinion leaders and sources of information to whom the public turns will quite naturally be those they trust in other areas. The general dichotomy of environmentalist versus developmentalist quite nicely separates the general public and activists, especially according to the degree of trust they accord to alternative sources of information.

Summary and Conclusion

The results of this chapter show that knowledge related to coastal and environmental issues in the State of Florida can be affected by a number of factors, policy positions and orientations. These findings suggest that there may be multiple pathways to increasing existing knowledge about coastal resources and the environment among the general public, its most active element and policy elites. The messages given by these findings provide cues for those wishing to reach particular segments of the population regarding actions, policies and issues pertaining to the coastal arena. These "cues" may provide important shortcuts for increasing actions among portions of the public, leading to the long-term support needed to generate concern for resources and commitment to best management among an array of policies.

Notes

1. The measure employed throughout this chapter is gamma. It is used for a number of reasons. First, it is generally accepted as an indicator of association among ordinal measured data. As such it is used to reduce the amount of data presented by reporting a summary measure of relationships from contingency tables (cross tabulations) versus the entire set of tables, which in the case of this study would have been in the order of 75 tables (Welch and Connor, 1983).

Gamma is also employed because it is relatively easy to understand regardless of the level of statistical sophistication of the reader. Gamma measures fall within a known range, from -1.0 to +1.0, where -1.0 indicates a perfect negative association a +1.0 indicates a perfect positive association and 0 indicates no association (Norusis, 1986). A positive gamma tell you that as one variable increase so does another. For example, as the number of teenagers in a household increases so does the level of noise. A negative relationship, in contrast, notes that as the number of stereo headphones increases the noise level falls. Typically, although there is no rule, gamma measures over .20 draw the attention of social scientists, while gammas of .30 or greater may be considered very good indicators.

Chapter Four

FINAL COMMENTS

While the findings presented in this report are diverse and widespread, the chapters all revolve around a central concern. That concern is what to do about democratic norms and processes when the public appears to lack the requisite policy relevant information. The role of the public in the decision and policy making processes attendant to coastal resources may be approached from a number of different directions. In the discussion from each of the chapters, a number of implications for public involvement in the coastal resources issue area in the State of Florida can be drawn.

Overall, the results of the study generally follow with the expectations about the public's technical information levels when compared to either activists or policy elites in the policy process attendant to the coastal zone issue area. As expected, the general public is less familiar with the policies and ideas pertaining to the coastal zone policy arena than are activists or policy elites. The public's actual knowledge of terms and concepts, and general willingness to pay attention to what is happening in the issue area is less extensive than their activists and policy elite cohorts.

The patterns found among the three samples confirm some basic propositions held by social scientists. The general public's level of information in comparison to activists and policy elites supports the elitist view of the technical information quandary, namely that low levels of information requires an informed elite to act in the policy process. Likewise, the low levels of information holding demonstrated by the general public play an important role in pluralism theories. Pluralists see themselves as acting on behalf of the general public, representing a wide range of interests in the public and holding the requisite information needed to advocate effectively in behalf of these interests. The general public's low level of information holding provides the opportunity for activists to "step in" and fill the representation gap.

The populist position reported here, as in other studies of the same theoretical thrust, seems to be the most threatened. The general public's level of technical information is, after all, lower than the other groups. Yet, respectable numbers from the general public are very well-informed and capable of "holding their own" in the policy discussions. Furthermore, a high level of desire exists among the general public to receive more information. Moreover, the public seems oriented to sources of technical information in whom they trust to educate them about issues as they come to the public agenda. Reliance on these

sources is made because of the inability to remain informed about all issues, and because a lack of interest may exist until the stakes are raised. When the stakes are raised members of the general public may have to quickly educate themselves to effectively compete in the policy process. Thus, they may be expected to take short-cuts by relying on traditionally trusted sources of technical information versus seeking new sources in which they have not yet developed trust.

Elasticity in the level of information holding also provides opportunity for populist theory. Certain characteristics such as education levels are associated with higher levels of knowledge. Aggregate increases in education may therefore raise the level of public informedness or, put another way, close the gap between the public, activists and elites.

In the analysis of the public's role in policy making, several difficult choices arise. How narrow should the research be? Very case-specific, testing well-specified hypotheses and questions? Or, should the research take a wide perspective, gathering information about a large number of policy process elements, while losing some of the value obtained from in-depth case study? In general, it is obvious that this study has taken the latter approach, surveying attitudes and policy positions about three sets of participants in the coastal resource issue arena. This has its obvious advantages and disadvantages. On the plus side, for example, it makes it possible to make some estimations of the general support the public and its activist subset give to policies and programs. Also, the extent to which the preferences of the general public are reflected in the positions and attitudes of pluralists and elite representatives bears directly on the issue of representative democracy. On the negative side, the findings remain general findings and case-specifics are lacking.

The role of public involvement is challenged by the technical information quandary and goes to the heart of the democratic process. Ideological conflicts about the proper role of the public are as present in coastal resource policy as in any other, as are conflicts about the basic premises, missions and goals of policies in this area. As some see it, if the State of Florida is to continue to grow and flourish, development and expansion will inevitably clash with preservation and restraint. As a result, public involvement will become part of the politics of the coastal resources issue area. Public involvement is not without certain pitfalls, as the technical information quandary itself points out. In conclusions, however, a positive tone may be set by the words of Robert B. Rackleff written in the early seventies. In discussing Florida's environment he notes:

> Effective group action and committed individuals can do much to solve Florida's environmental problems. In fact, Florida is fortunate in having problems which have not yet reached crisis proportions. It remains for the people of Florida to take the opportunity to cope with the increasing destruction of their environment before it is lost (Rackleff, 1972:158).

While many would argue that Rackleff is a bit reactionary in his statement, nevertheless, it is the role in which the public will take that will set the direction for the use of Florida's coast in the years to come. How well the public responds to the technical information quandary--be it based on political necessity or scientific analysis--may well determine the future of the coastal environment in the State of Florida.

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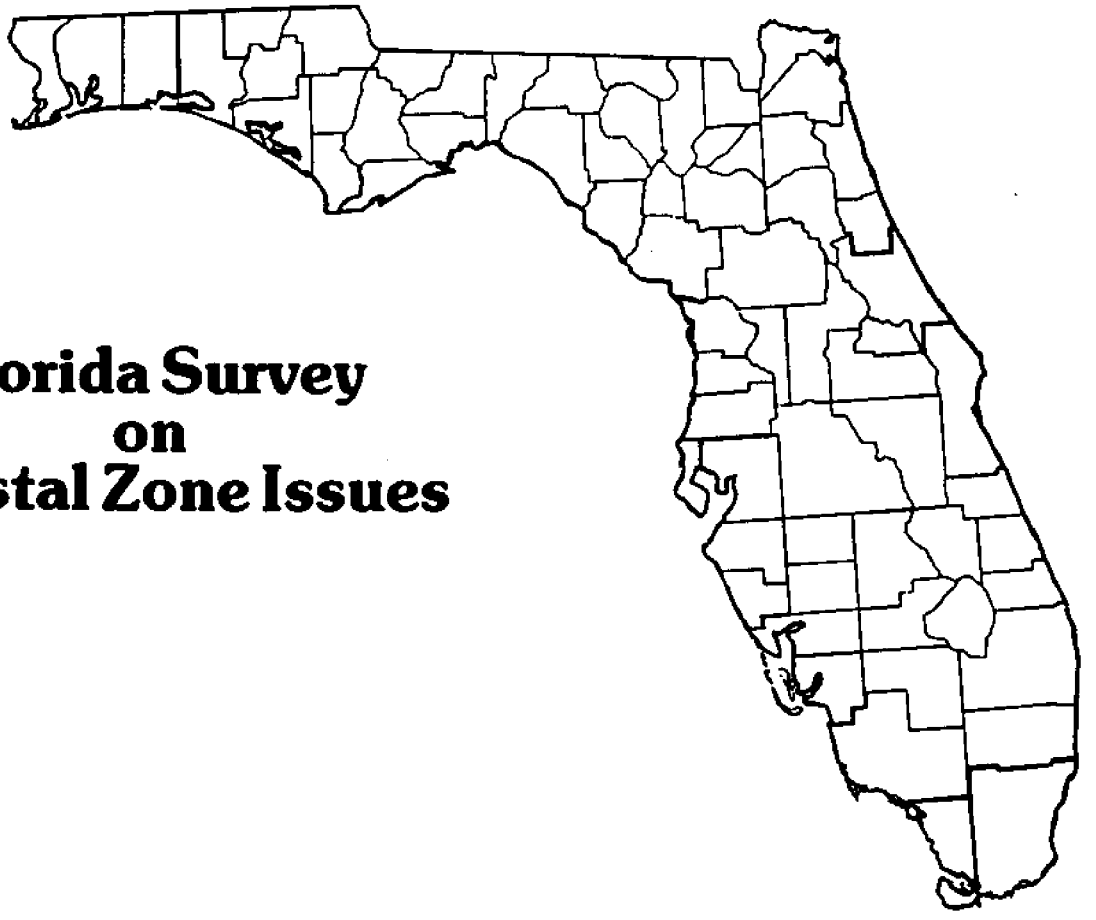
Appendix A



Florida Survey on Coastal Zone Issues

In recent years, there has been a lot of discussion about preservation and development of Florida's coasts. The enclosed survey, which is being conducted by the University of West Florida, is one of several surveys attempting to understand how citizens, activists, legislators, and government officials view problems within the coastal zone. Your participation in this survey is completely VOLUNTARY; however, in order to gather a fair impression of how various individuals feel about coastal zone issues, it is important that as many people as possible respond to the survey. If you wish to comment on any question or qualify your answer, please use the margins or a separate sheet of paper. Your answers will be kept COMPLETELY CONFIDENTIAL. If you would like a copy of these results, please include a memo with your address and "Copy of Results Requested" written on it. Please do not put this information on the questionnaire itself. Thank you for your time and effort.

Sincerely,

ID# _____

(for mailing purposes only)

Dennis L. Soden, Director
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SECTION 1

In recent years, considerable public discussion has taken place on the subject of Florida's coastal environment. The following questions are designed to find out how familar citizens are with environmental and natural resource issues related to the coastal zone.

Q-1. Recently, there has been a lot of talk about whether Florida's coastal environment will be threatened because of overpopulation or poor management practices in the coming years. Some people feel there will be no threat to the environment, some people feel there already is a problem. Which best describes how you feel? (Circle the number of your answer.)

1. There currently is an environmental problem on Florida's coasts.
2. There is no environmental problem now, but there will be in the next ten years.
3. There is no environmental problem now, but there may be one some time in the future.
4. There is no environmental problem now and there never will be.

Q-2. When decisions are made about what to do with Florida's natural resources, many uses must be considered. These uses are listed below. Please place a "1" next to the use you think is most important, a "2" next to the use you think is next most important, and so on until you have a "7" next to the use you think is least important.

_____ Agriculture (farming, irrigation)
_____ Domestic (home use)
_____ Energy (power production)
_____ Industry (manufacturing)
_____ Preservation (beauty, fish and wildlife habitat)
_____ Recreation (camping, fishing, hunting)
_____ Transportation (waterways, roads)

Q-3. In general, are you in favor of government sponsored programs which are designed to obtain conservation properties and wilderness along the coast either through purchase or other forms of acquisition. (Circle the number of your answer.)

1. No 2. Yes

Q-4. In 1985, the Comprehesive Growth Management Act was passed in the State of Florida. This initiative requires more comprehesive planning for Florida. Have you heard of the Growth Management Act? (Circle the number of your answer.)

1. No 2. Yes 3. Can't Recall

Q-5. Generally speaking, do you support the idea of a Growth Management Act for the State of Florida? (Circle the number of your answer.)

1. I STRONGLY SUPPORT the idea
2. I SUPPORT the idea
3. I am NEUTRAL to the idea
4. I OPPOSE the idea
5. I STRONGLY OPPOSE the idea
6. Don't know enough to decide

Q-6. In the following question, enter the letter of what you think is the BEST answer in the space provided next to the statement. (If uncertain, leave blank).

_____ Soil pollution is generally due to:
(a) sparse rains
(b) improper farming
(c) poisonous metals
(d) overfertilization
(e) poor crop rotation

_____ The most common pollutants of water are:
(a) arsenic and silver nitrates
(b) hydrocarbons
(c) carbon monoxide
(d) sulphur and calcium
(e) nitrates and phosphates

_____ Which one of the following does not decompose in ocean water.
(a) sewage
(b) garbage
(c) tin cans
(d) plastic bags
(e) chemical fertilizer

_____ What is the harmful effect of phosphate pollution on marine life?
(a) causes cancer
(b) renders fish sterile
(c) destroys the nervous system of fish
(d) makes water cloudy
(e) promotes growth of algae

Q-7. The term POLLUTION is used to label things "whose presence in the environment consitute a danger to the public health." Below we have listed some things that some say are definitely pollution while other people say they are definitely not pollution. (Please circle the number that best reflects how you feel.)

	Definitely Not Pollution		Not Sure		Definitely Pollution
Fireplace smoke	1	2	3	4	5
Auto exhaust	1	2	3	4	5
Nuclear waste	1	2	3	4	5
Herbicides	1	2	3	4	5
Residential sewage	1	2	3	4	5
Agricultural runoff	1	2	3	4	5
Toxic and Chemical Waste	1	2	3	4	5
Neon signs	1	2	3	4	5
Airport noise	1	2	3	4	5
Vulgar language	1	2	3	4	5
Pornography	1	2	3	4	5
Drunkenness	1	2	3	4	5
Food additives	1	2	3	4	5

SECTION 2

People differ quite a bit about natural resources and the environment. People also differ considerably in their opinions about the role of science and technology in the future of Florida. In this section we would like to find out what you think about some of these issues.

Q-8. There are many different opinions about the use of Florida's natural resources. We would like to know how you feel about this issue. (Please circle the number that best describes your opinion.)

1	2	3	4	5	6	7
Strong Preservationist			Conservationist			Strong Developmentalist
(The only consideration in deciding how to manage Florida's natural resources should be preservation in a natural, undeveloped condition.)			(Florida's natural resources can be best managed by allowing for multiple uses— public access, some development, some preservation.)			(The only consideration in deciding how to manage Florida's natural resources is what will contribute most to the growth of the state economy.)

Q-9. Do you favor strong protection of shorelines, bays, rivers, and wetlands in Florida, even though some forms of economic development may have to be prohibited in those areas? (Circle the number of your answer).

1. Strongly Favor
2. Tend to Favor
3. Don't Know
4. Tend to Oppose
5. Strongly Oppose

Q-10. Do you favor using public funding (i.e., use of tax dollars, bond revenues, etc.) for restoration of eroded, storm damaged or washed-out beaches. (Circle the number of your answer).

1. Strongly Favor
2. Tend to Favor
3. Don't Know
4. Tend to Oppose
5. Strongly Oppose

Q-11. When decisions are made about how to manage the wildlife resources of Florida, many uses must be considered. Those uses are listed below. Please place a "1" next to the use you think is most important, and so on until you have a "6" next to the use you think is least important.

_____ 1) Commercial (harvesting and hunting for business purposes)
_____ 2) Recreational (hunting, fishing for pleasure)
_____ 3) Scientific (study, developing a genetic pool)
_____ 4) Aesthetic (photography, enjoyment)
_____ 5) Eradication (wildlife produces economic loss and is injurious)
6) Preservation (prevent extinction)

Q-12. Please circle the number indicating to what extent you disagree or agree with each of the following statements.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion
a) Technology will find a way of solving the problems of shortages and natural resources.	1	2	3	4	5
b) People would be better off if they lived a more simple life without so much technology.	1	2	3	4	5
c) Future scientific research is more likely to cause problems than to find solutions to problems.	1	2	3	4	5
d) Technical and scientific experts usually are biased.	1	2	3	4	5
e) Environmental issues are hard to understand.	1	2	3	4	5
f) The balance of nature is very delicate and easily upset by human activities.	1	2	3	4	5
g) The earth is like a spaceship with only limited room and resources.	1	2	3	4	5
h) Plants and animals <u>do not</u> exist primarily to be used by humans.	1	2	3	4	5
i) Modifying the environment for human use seldom causes serious problems.	1	2	3	4	5
j) There are no limits to growth for nations like the United States.	1	2	3	4	5
k) Mankind was created to rule over the rest of nature.	1	2	3	4	5

SECTION 3

Citizens use a variety of sources to get information on issues. In this section, we are interested in the sources that are important to you in forming your opinion on environmental and natural resource issues and the trust you place in various sources of information.

Q-13. Some people tend to follow what is going on in government and public affairs most of the time, whether there is an election or not. Others are not interested. In regards to coastal zone issues, to what extent would you say you follow what is going on in the public arena? (Circle the number of your answer.)

1. Most of the time
2. Some of the time
3. Only now and then
4. Hardly at all

Q-14. How well informed would you say you are at present concerning natural resources and the environment in Florida? (Circle the number of your answer.)

Not Informed— 1 2 3 4 5 6 7 — Very Well Informed
Somewhat Informed

Q-15. If more information were made available to you concerning natural resource and environmental problems in Florida, would you be interested in receiving that information? (Circle the number of your answer.)

Not Interested— 1 2 3 4 5 6 7 — Very Interested
Somewhat Interested

Q-16. When compared to other issues of public policy that arise in Florida, would you say that coastal zone issues are more or less technically and scientifically complex? (Circle the number of your answer.)

1. More Complex 2. About the Same 3. Less Complex

Q-17. How much would you say you have learned about Florida's natural resources from the following sources. (Circle the number of your answer.)

	Nothing	Not Much	Some	A Great Deal
Friends, Neighbors and Relatives	1	2	3	4
Newspapers	1	2	3	4
Radio Specials	1	2	3	4
Radio Newscasts	1	2	3	4
Television Specials	1	2	3	4
Television Newscasts	1	2	3	4
Public Hearings	1	2	3	4
Florida Sea Grant	1	2	3	4
Meetings of Environmental Group	1	2	3	4
General Mailings to Your Home	1	2	3	4
County Extension Agents	1	2	3	4
Literature Distributed by Groups or				

Q-18. To make it easier to provide information on Florida's natural resource and environment to the public, it is important to find out what technical terms they know and don't know. Below we have listed several terms which are found in reports on natural resources use. We need to learn if you know each term, have heard of the term but don't know the meaning, or have not heard of the term. (Circle the number of your answer for each term.)

	Know Meaning	Heard of But Don't Know	Have Not Heard of
Estuarine	1	2	3
Ecosystem	1	2	3
Exclusive Economic Zone	1	2	3
Discharge	1	2	3
Outer Continental Shelf	1	2	3
Saltwater Intrusion	1	2	3
Barrier Island	1	2	3
Resident Fishery	1	2	3
Marginal Sea	1	2	3
Riparian Rights	1	2	3
Littoral Drift	1	2	3
Non-Point Source	1	2	3
Acid Rain	1	2	3
Capacity-Use	1	2	3
Revetment	1	2	3
Pelagic Fish	1	2	3
Desalinization	1	2	3
Beach Renourishment	1	2	3
Floodplain	1	2	3

Q-19. Many groups may supply technical information about natural resources. How much trust do you have in the technical information supplied by each of the groups listed below? (Circle number of answer.)

	None	Not Much	Some	A Great Deal
Business	1	2	3	4
Environmentalists	1	2	3	4
Developers/ Construction Co.	1	2	3	4
College/University Educators	1	2	3	4
Farmers	1	2	3	4
Fishing Industry	1	2	3	4
National Park Service	1	2	3	4
Outdoor Recreation Advocates	1	2	3	4
Indians	1	2	3	4
Labor Union	1	2	3	4
State Legislators	1	2	3	4
Florida Sea Grant	1	2	3	4
Timber Companies	1	2	3	4
Water Management District	1	2	3	4
Public Utilities	1	2	3	4
Dept. of Natural Resources	1	2	3	4
Dept. of Environmental Regulation	1	2	3	4
Dept. of Community Affairs	1	2	3	4
Federal Agency Representatives	1	2	3	4
Local Government Representatives	1	2	3	4
Technical and				

SECTION 4

Now we would like to ask you questions about politics in general. Please circle the number that best describes how you feel about each of the following.

Q-20. In recent years there has been considerable debate over the value of efforts to increase the amount of citizen participation in government policy making in the environmental policy area. How would you locate yourself on the following scale regarding these efforts? (Circle the number of your answer.)

1	2	3	4	5	6	7
These efforts are of no value and add needlessly to the cost of government.			Uncertain			These efforts are of great value even if they add to the cost of government.

Q-21. Have you ever tried to influence a decision about the use of natural resources in Florida in any of the following ways? (Circle the number of your answer.)

	Yes	No
Attending a public hearing	1	2
Contacting or writing a state agency	1	2
Contacting or writing a federal agency	1	2
Contacting or writing a U.S. Senator or member of Congress	1	2
Contacting or writing a state legislator	1	2
Becoming a member of a citizen advisory committee	1	2
Joining a political or environmental interest group	1	2
Signing a petition or initiative on environmental issues	1	2

Q-22. There is a lot of talk these days about what your country's goals should be for the next ten years or fifteen years. Listed below are some of the goals that different people say should be given top priority. Would you please mark the one you yourself consider the most important in the long run. What would be your second choice? Please mark that second choice as well.

	1st Choice	2nd Choice
Maintaining order in the nation	_____	_____
Giving the people more say in important governmental decisions	_____	_____
Fighting rising prices	_____	_____
Protecting freedom of speech	_____	_____

SECTION 5

Finally, for statistical purposes, we would like to ask some questions about you and your background. Again, all responses will be kept confidential.

Q-23. There's been quite a bit of talk recently about different social classes in our country. Most people say they belong to the middle class or to the working class. If you had to make a choice, which class would you say you were in? (Circle the number of your answer.)

1. Lower class
2. Working class
3. Middle class
4. Upper-middle class or upper class

Q-24. Generally speaking which of the following do you think of yourself when it comes to politics? (Checke the number of your answer).

1. Very liberal
2. Liberal
3. Middle of the Road
4. Conservative
5. Very Conservative

Q-25. Are you registered to vote? (Check one).

____ Yes ____ No

Q-26. How many years have you lived in Florida? _____ years

Q-27. Where is your present place of residence located? (Circle the number of your answer).

1. on a farm
2. in the country, but not on a farm
3. in a town or village of less than 2,500
4. in a town of 2,500-9,999
5. in a city of 10,000-24,999
6. in a city of 25,000-49,999
7. in a city of 50,000-99,999
8. in a city of more than 100,000
9. in a city of more than 250,000

Q-28. How much education have you had? (Circle the number of your answer).

1. Never attended school
2. Some grade school
3. Completed grade school
4. Some high school
5. Completed high school
6. Some college
7. Completed college
8. Some graduate work
9. An advanced degree

Q-29. Generally speaking, which of the following do you think of yourself when it comes to politics?

1. Stong Democrat
2. Democrat
3. Independent
4. Republican
5. Strong Republican
6. Other

Q-30. What is your age? _____ years

Q-31. What is your sex? 1. Female 2. Male (Circle your answer).

Q-32. Type of Home. (Circle the number of your answer).

1. Apartment
2. Duplex
3. Mobile Home
4. Condominium/Townhouse
5. Single family home
6. Other

Q-33. Do you own (or are you buying) a home? (Circle the number of your answer).

1. Yes 2. No

Q-34. How far (in miles) do you live from the water (bays, Gulf Ocean, sounds)? (Circle the number of your answer).

1. On the water
2. Less than one mile
3. Less than five miles
4. Less than ten miles
5. Ten or more miles

Q-35. Finally, would you mind indicating your approximate family income, before taxes, for 1985? Was it:

1. Less than 4,000
2. 4,000-6,999
3. 7,000-9,999
4. 10,000-14,999
5. 15,000-19,999
6. 20,000-24,999
7. 25,000-29,999
8. 30,000-49,999
9. 50,000 and over