Introduction

For years, the oceans were thought of as man's great sink, with the ability to assimilate wastes and to absorb or dilute otherwise harmful materials. However, by the late 1960's, it had become evident that the oceans were not necessarily a safe and easy disposal site. By 1972, so much concern had grown worldwide that a group of nations negotiated the Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matters (Ocean Dumping Convention). This treaty came into force in 1975; by it 1979 had been acceded to or ratified by forty-nine nations, including the United States.

In the U.S., the first concerted effort to address the issue of ocean dumping came in the early 1970s. In 1970, the President's Council on Environmental Quality released a study on the issue, and recommended a "comprehensive national policy on ocean dumping of wastes to ban unregulated dumping of all materials and strictly limit ocean disposal of any material harmful to the marine environment." (Council on Environmental Quality, "Ocean Dumping: A National Policy" at v (1970)). In response to this report, Congress passed the Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA) 33 U.S.C.§ 1401 et seq. (1988). Titles I and II of MPRSA pertain to ocean dumping and are commonly known as the Ocean Dumping Act.

Ocean Dumping Act

The Ocean Dumping Act (ODA) establishes a permit system under which dumping is regulated by the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps). EPA sets the criteria for evaluation of all permit applications and is the permitting agency for transportation of non-dredged materials for the purpose of ocean dumping. The Corps is responsible for granting permits for dumping dredged material, using criteria developed by EPA and subject to that agency's review authority.

The portion of the ocean dumping program that regulates the dumping of dredged material is particularly significant because of the large volume of material involved. The Environmental Protection Agency's 1980 annual report to Congress on the implementation of MPRSA revealed that approximately 75% of material dumped into the ocean each year was dredged material (EPA, 1980). However, despite its importance, the dredge component
of the program has been problematic and the subject of much criticism. Observers have questioned the adequacy of EPA's criteria for ocean dredge spoil dumping, and the Corps has been attacked for failing to strictly apply the criteria, either when granting permits to others or when conducting its own dredge spoil disposal activities. (Hildreth and Johnson, 1983).

Most recently, controversy has arisen over the relationship between the Ocean Dumping Act and the Coastal Zone Management Act (CZMA). The Corps and EPA have both argued that the ODA preempts the CZMA and its requirement that federal activities be consistent with state coastal programs. Additionally, these agencies have claimed that, by virtue of the 1984 United States Supreme Court decision of Secretary of the Interior v. California, 464 U.S. 310 (1984), its activities are exempted from the CZMA's consistency provisions.

Coastal Zone Management Act

When Congress passed the Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451 et seq. (1984), it envisioned a program of collaborative planning between federal and state authorities. By developing federally-approved coastal management programs, states were given the opportunity to participate in a joint federal-state initiative. The Act provided incentives for states to develop their own coastal management plans: in the form of financial and technical assistance from the federal government and the promise that any federal activities conducted in the state's coastal zone (defined as that area from the shoreline to the boundary of state waters, which in most cases extends three miles seaward) must be consistent with its coastal management program. The Act provides that federal agency actions "directly affecting" a state's coastal zone must be consistent "to the maximum extent possible" with that state's coastal management program. 16 U.S.C. § 1456(c)(1) (1984).

The requirement for federal agencies to act in a manner that is consistent with state coastal management programs is at the very heart of CZMA. It is one of the elements that induces states to participate in the program and to comply with the requirements set up by law. Furthermore, since interest in and competition over coastal resources have increased, federal consistency provisions have become an important management tool for coastal states. However, problems have arisen concerning the applicability of the Act's consistency provisions, the reach of which has been a point of serious contention between federal agencies and coastal states.

One of the most heated battles has revolved around a 1984 United States Supreme Court decision. Secretary of the Interior v. California, 464 U.S. at 310, involved the Department of Interior's sale of oil and gas leases on the Outer Continental Shelf off the coast of California. The State of
California notified the U.S. Department of the Interior that it had determined that one of the lease sales was an activity that "directly affected" the California coastal zone and requested a consistency determination. The Department of the Interior disagreed with California, and when negotiations failed to resolve the dispute, the parties turned to litigation. The Supreme Court agreed with the Department of the Interior, and in a 5-4 decision ruled that oil and gas lease sales are not activities that "directly affect" the coastal zone within the meaning of the Coastal Zone Management Act, and thus are not subject to state consistency review.

Since the Interior v. California decision, several federal agencies have broadly interpreted it to mean that it applies to their activities as well. The Corps is one of those agencies. In proposed amendments to regulations governing its dredge operations, it stated:

Section 307 of the CZMA requires that any activity that a federal agency conducts or supports within a state's coastal zone or in a federal enclave within the geographic area of a state's coastal zone be consistent with the program to the maximum extent practicable. 53 Fed. Reg. 14901-14920 (26 April 1988)(codified at 33 C.F.R. Parts 335-338 (1989).

With that language, the Corps expressed its position that federal consistency review was limited geographically and only applied to the area within state waters.

In response to much concern over the language and implications of the new regulation, the Corps issued a "Dredging Guidance Letter" intended to clarify its position. Not only did it interpret the CZMA's consistency provisions as being limited geographically, but it also stated that it intended to comply with the provisions only as a "matter of comity." (U.S. Army Corps of Engineers, "Dredging Guidance Letter," 19 September 1989). This statement was founded in another of the Corps arguments, that the ODA preempted any state consistency requirements. The ODA provides that "no state shall adopt or enforce any rule or regulation relating to any activity regulated" by the Ocean Dumping Act. 33 U.S.C. § 1416(d) (1988). The Corps interpreted this language to mean that states are preempted from exercising their consistency authority granted by the CZMA.

The Corps has not been alone in its position. In 1988, EPA released a legal opinion stating that it did not have to comply with consistency provisions when making proposed dump site designations. (Memorandum "CZMA Compliance for Designation of Dredged Material Disposal Sites" from Lawrence J. Jenson, General Counsel to Rebecca W. Hanmer, Acting Assistant Administrator for Water). In reaching this conclusion, the EPA relied on the same arguments as those of the Corps, namely, that the ODA
preempted any state consistency requirements and that its activities were analogous to OCS oil and gas leasing and thus did not "directly affect" the coastal zone. EPA came under fire for this position, and later issued a statement that it would comply with consistency provisions "as a matter of policy." However, the agency expressed its belief that, as a matter of law, the subject was "open to debate." (Memorandum "Coastal Zone Management Act Consistency Provisions and Designation of Ocean Dumping Sites Under Section 102(c) of Ocean Dumping Act," from Rebecca W. Hanmer, Acting Assistant Administrator for Water to Water Management Division Directors, Regions I, II, III, IV, VI, IX, X (October 23, 1989)).

While EPA altered its position, the Corps did not, provoking serious concern from states with approved coastal management programs. In a 15 December 1989 letter to Brigadier General Patrick J. Kelly, Director of Civil Works for the Corps, NOAA's Office of Ocean and Coastal Resource Management (OCRM) expressed strong disagreement with the Corps' proposed amendment to its regulations and its Dredging Guidance Letter. OCRM argued that Secretary of Interior v. California dealt only with OCS oil and gas lease sales and did not address the broader issue of the geographic scope of the CZMA. Furthermore, as to the argument that the ODA preempts consistency provisions, OCRM asserted that the states' authority to enforce consistency provisions is by virtue of a federal statute, not state regulation. Thus, unless one federal statute preempts the CZMA, compliance with its consistency requirements is mandatory. (Letter from Timothy R.E. Keeney, Director, Office of Ocean and Coastal Resources to Brigadier General Patrick J. Kelly, Director of Civil Works of the U.S. Army Corps of Engineers, 15 December 1989). This position was formally supported by over 60 members of Congress. In a 30 November 1989 letter to President Bush, 68 Congressmen and Senators expressed agreement with OCRM's position, stating, "We find that the regulations are a clear misinterpretation of federal law for they conflict with federally approved...coastal zone management programs." (Letter from sixty-eight members of Congress to President George Bush, (November 30, 1989)).

**Current Status**

By the summer of 1990, there had been no response from the Office of the President or from the Corps regarding this issue. As a result, the Coastal States Organization had prepared pleadings in anticipation of litigation over the matter. However, that litigation is currently on hold pending the passage of legislation that would unequivocally answer any ambiguities that exist regarding the relationship between state consistency determinations and Corps or EPA activities under the Ocean Dumping Act. That legislation is contained in the reauthorization and amendment of the Coastal Zone Management Act, which was passed in the final hours of the second session of the 101st Congress.
The new Act was included as part of the budget reconciliation package that was passed by Congress on 26 October 1990. It is an amalgamation of the House and Senate bills, and makes a number of substantive changes to the existing CZMA. One of the most important changes is the very specific language that expressly overrules Secretary of the Interior v. California. In so doing, the Act amends the federal consistency provisions, and clarifies that all federal agency activities, whether in or outside the coastal zone, are subject to the consistency requirements of the CZMA. The Act provides:

"Each Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs." Coastal Zone Act Reauthorization Amendments of 1990, Title VI, Subtitle C, Sec. 6208, Omnibus Budget Reconciliation Act of 1990, Pub. L. 101-508.

This language establishes as a codified rule of law that any federal agency activity, regardless of its location, is subject to consistency review if it will affect any natural resources, land uses, or water uses in the coastal zone. The language of the Act specifically responds to Supreme Court findings in Interior v. California. First, the geographic scope is broadened by inserting the phrase, "within or outside the coastal zone." Second, the "directly affecting" standard is replaced by a new standard, "...affecting any natural resources, land uses, or water uses in the coastal zone." 136 Cong. Rec. H8076 (26 Sept. 1990).

The amendment makes it clear that all federal agencies must comply with consistency provisions and that no federal agencies are categorically exempt from consistency requirements. However, an amendment specifically addressing the applicability of consistency review to the Ocean Dumping Act was contained in the House bill, and did not survive passage into law. Offered by Congressman Jim Saxton of New Jersey, that amendment provided:

"The consistency requirements of section 307 of the Coastal Zone Management Act (16 U.S.C. 1456) shall apply to federal agency activities or federally permitted activities under Title I of the Marine, Protection, Research, and Sanctuaries Act of 1972, if the federal activity affects land uses, water uses, or natural resources of the coastal zone. H.R. 4450, 101st Cong., 2d Sess., Sec. 205 (1990).

Although the final legislation does not include the statutory language from the House bill, the members of the conference committee that drafted the final bill addressed the controversy. The legislative history that
accompanies the new legislation makes it clear that the conferees were concerned about this issue:

"The conferees agreed that this statutory provision is unnecessary because the amendments to section 307(c)(1) leave no room for doubt that all federal agency activities and all federal permits are subject to the CZMA's consistency requirements. The conferees support and endorse the intent of the House provision, but agreed that a statutory listing of activities should be avoided to prevent the implication that unlisted activities are not covered." Conference Committee Statement of Managers at 4 (October 26, 1990) (accompanying Coastal Zone Act Reauthorization Amendments of 1990, Title VI, Subtitle C, Sec. 6208, Omnibus Budget Reconciliation Act of 1990, Pub. L. 101-508).

The conferees also addressed the preemption argument:

"[T]he conferees are aware of the argument that the application of federal consistency to activities under the Ocean Dumping Act amounts to state regulation of ocean dumping for purposes of section 106(d) of that Act. The conferees reject this argument." Id.

With this language, there is strong support for the premise that Corps and EPA activities under the Ocean Dumping Act are definitely subject to the consistency requirements of section 307 of the CZMA.

Conclusion

The major focus of the comments presented here deal with the relationship between the CZMA and the Ocean Dumping Act and the Corps' and the EPA's role under them. That the House of Representatives would include the language contained in the Saxton amendment, which expressly--and specifically--provides that activities conducted pursuant to the Ocean Dumping Act be subject to state review, evidences its strong concern over that particular federal ocean activity. Although the language did not survive final passage of the Coastal Zone Act Reauthorization Amendments of 1990, the record from the conference committee negotiating the final package evidences that there is support for the Saxton amendment and concern over this issue in both houses of Congress.

However, the ramifications of the new consistency provisions are obviously much broader than applicability to the Ocean Dumping Act. The
amendment applies the consistency review standard to all federal activities that affect land or water uses, or natural resources of the coastal zone. This language is sweeping and has the potential to affect not only a greater number of federal activities, but also the manner in which states currently interact with the federal agencies that are involved in those activities. Clearly, with this language Congress intended to strengthen what it considers an important and unique aspect of the CZMA: its function as a federal-state partnership whose goal is to promote orderly and balanced management of the nation's coastal resources. The Coastal Zone Act Reauthorization Amendments of 1990 has the potential to be the most significant coastal initiative since the passage of the original Coastal Zone Management Act in 1972. With stronger tools from the federal government, coastal states can better manage the important resources that exist along their shorelines and in their waters, and can more effectively control the federal activities which have an impact on them.
References


Letter from Sixty-eight members of Congress to President George Bush, (November 30, 1989).


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Assessing the Past and Confronting the Future of Marine Protected Area Designation: Analysis of Cases from the United States and Ecuador

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Introduction

The policy process for designating marine protected areas is not fully understood. However, as the protection of marine habitats through creation of special marine protected areas is one component of marine resources management, it is vital to understand the designation process. Some areas worthy of protection on the basis of biological assessments do not achieve protected status for many years. Delays occur in the policy process. In confronting the future of marine protected area designation, it is useful to learn whatever lessons can be gleaned from these cases of delayed implementation.

Two cases of marine protected area designation are compared in this study to identify salient characteristics of the policy process in each. The United States case involved the East and West Flower Garden Banks; the case from Ecuador involved the waters of the Galapagos archipelago. In the Flower Garden Banks case, these northernmost coral reefs in the Gulf of Mexico had been proposed several times as a National Marine Sanctuary but three times had been withdrawn from consideration. In 1984, the Flower Garden Banks were again nominated as a Marine Sanctuary but still had not achieved protected status by 1990. The other marine protected area case is that of the Galapagos Marine Resources Reserve of Ecuador. Recommendations had been made to protect the surrounding marine area even before the terrestrial Galapagos National Park came into being in 1971, but no protection of the waters had been implemented as late as 1990.

In this paper, the cases are presented only briefly in chart form and the hypothesis and objectives used to compare them are explained. The methods will also be mentioned, followed by several examples from the analysis. Finally, conclusions drawn from the analysis are given.

Hypothesis and Objectives

The single hypothesis of this study was drawn from previous public policy research: that the process of designating marine protected areas can be protracted because of obstacles inherent in the policy setting process itself. By knowing the obstacles and avoiding the pitfalls, advocates can develop approaches that guide and quicken the implementation of policies to protect marine areas.
The objectives of the study were:

1) to use examples from two different settings to analyse and explain the process of formulating and implementing policies to protect marine habitat areas;

2) to identify geographical, economic, political, and legal features important in influencing the process of policy formulation and implementation for marine protected areas;

3) to use the analysis of the above features to develop recommendations on how best to formulate policy to protect a marine area.

**Methods**

The case study method and techniques of naturalistic inquiry were used in the research (Yin, 1984; Lincoln and Guba, 1984). This involved study of multiple sources of evidence, including interviews with participants in each case. Documents produced in the course of each case, and analyses subsequent to the events in the cases, were also studied.

**Analysis**

Highlights of the case analysis are given here. Critical incidents are described as a useful tool for examining the data. Then, three sub-stages of the formulation stage of the policy process are outlined. Finally, reference is made to other concepts from the policy literature such as agenda-building and issue expansion. These concepts assist in development of ideas about how the designation process works.

Each case transpired over nearly twenty years, convoluted by changes in leadership and agency direction, but identification of the cases’ critical incidents provided a means of simplification for analysis. A critical incident is a specific event which occurs in the policy process and which reflects on a significant feature of the process, whether a typical or an atypical feature (Erlandson, 1986, personal communication). The critical incidents are shown in Figure 1.

After grouping the critical incidents of the two cases by similar types of delays or actions in the policy process, a set of propositions became evident. These were propositions about delay factors and other aspects of the process. The propositions provided a link to other policy literature.

The process studied in these two cases falls within the formulation and legitimation stage as characterized by Ripley (1985). Within this stage, each case can also be divided into three sub-stages: 1) the early sub-stage,
where policy is not formulated; 2) the middle sub-stage, where formulation
begins; and 3) the late sub-stage, where formulated policy approaches
implementation. Figure 2 shows these overlapping sub-stages.

Concepts of agenda-building (Kingdon, 1984; Cobb and Elder, 1983)
enrich the analysis of these sub-stages. The agenda is the list of issues to
which government officials and people outside government closely associated
with those officials are paying some serious attention at a given time
(Kingdon, 1984). Issue expansion is a process by which a problem becomes
of sufficient general significance to a wide-enough public to be kept on the
agenda (Cobb and Elder, 1983). Focusing events and feedback are
mechanisms by which issues are brought to the attention of governmental
officials. A focusing event is often a crisis, such as a threat to a marine
resource, which captures the attention of people in and out of government.
Feedback is information which calls the attention of a government official to
a problem, such as the failure of an existing program to meet intended goals.
The specification of alternatives is the part of agenda-building where the
large set of possible policy alternatives to a specific issue is narrowed to the
set from which policy choices are actually made (Kingdon, 1984).

In the early sub-stage of policy formulation, neither the Flower
Garden Banks nor the Galapagos Marine Resources Reserve protected area
proposal reached the agenda. Although there was sufficient scientific
justification provided in the early proposals about the value of both habitat
areas, there was a failure to expand the issue to a greater public. Partly due
to ignorance of the governance system in each case, the proposals were not
included on the list of alternatives under consideration by government officials.
The mechanisms of focusing events and feedback worked against the Flower
Garden Banks Marine Sanctuary proposal at this substage. Government
officials were strongly supporting the oil and gas industry in the 1970's, due
to the energy crisis, and in light of the Presidential push for U.S.
independence from foreign oil dependency. The Galapagos proposal for
extension of the national park into the surrounding marine waters remained
an "in house" idea within Ecuadoran the Ministry of Agriculture and the
Charles Darwin Foundation and did not get attention at a higher or more
general government level.

In the middle sub-stage, the proposals were formulated into policy as
various factors expanded each issue. Specification of alternatives and focusing
events began to shape the Flower Garden Banks policy, while issue expansion
influenced the Galapagos policy and propelled it onto the agenda. The
Flower Garden Banks proposal reached the agenda in 1979 and a Draft
Environmental Impact Statement was produced. This document caused
controversy because it specified a non-feasible alternative; the proposal was
shelved and eventually withdrawn. Later in this same sub-stage of the Flower
Garden Banks case, an opponent reversed his position and became a
supporter of the proposal. This time, focusing events and feedback worked in favor of the marine protected area proposal. The focusing event was a filmed anchoring incident on the reefs, while the feedback came in the form of correspondence to legislators protesting the anchoring on the reefs. In the Galapagos case, the proposal moved at this sub-stage from an "in house" idea to a high-level government consideration. In other words, the issue expanded to a greater public. A presidential commission on Galapagos matters recommended that protection of marine resources be a priority, and the President of Ecuador approved this in 1982.

In the late sub-stage of each case, the marine protected area policy approaches implementation. Each has been mostly formulated by this sub-stage, affected by the long lapse of time, by corresponding changes in leadership and direction in the governance system, and by the other mechanisms mentioned. The model of decision-making which fits the imminent implementation decision in each case is incrementalism (Lindblom, 1957). In the Flower Garden Banks case, the 1989 Draft Environmental Impact Statement and Management Plan proposes to change the status quo only slightly by preventing anchoring. All other uses of the reef and its immediate vicinity are still to be managed in coordination with the other agencies on the Outer Continental Shelf. Implementation of the Galapagos Marine Resources Reserve declared in 1986 is blocked by a failure to select a management option. The Ministries involved must choose a feasible way to manage the Reserve, and this is likely to be a minor change from the existing operation of the different agencies. The option chosen may be only a set of written agreements between agencies.

Conclusions

Several elements appear to be crucial in both cases of delayed implementation. One element is the complexity of the policy setting--interactive resources and fragmented managing authorities (Cicin-Sain, 1982). Another key factor is the necessity for issue expansion to occur if a proposal is to reach the agenda for a decision (Cobb and Elder, 1985). The third element is the importance of identifying feasible alternatives that are agreeable to the various interested parties. Related to this last element is the incremental character of marine protected area policy when it is finally implemented (Lindblom, 1957).

In the cases of the Flower Garden Banks and Galapagos Marine Resources Reserve, the complex marine policy setting was not understood by proponents of the early proposals for protected area designation. Initially, the proposals were presented in ways which did not invoke the support of other management agencies with jurisdictions in the relevant area. Instead, these early proposals went against focusing events, or stayed within a single ministry and failed to reach the agenda. Issue expansion was the turning point for the
proposals, when they could begin to be formulated as policy. The issue expanded when agencies other than the agency which parented the proposal and legislators from various constituencies saw the marine protected area as something which was in their interest to support. The proposals then reached the agenda. In one of the cases (Flower Garden Banks), a focusing event worked to put the proposal on the agenda.

Feasible alternatives were important as there is a need to link each proposal with a solution agreeable to all interested parties before the policy can be implemented. To find alternatives which different sectors view as feasible limits the choices and is a slow process. Once the policy is implemented, the change it makes from existing policy will only be minimal. For the same reasons which lie behind incremental decision-making in all bureaucracies, and compounded by the complex policy setting of many interest groups, marine protected area policy in these settings will probably be only a small step from the status quo.
References


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Critical Incidents in the Two Cases

FLOWER GARDEN BANKS

Nominated as Marine Sanctuary candidate, based on scientific data, but withdrawn due to controversy (1973-1977)

White Paper issued, and area nominated again by various entities (1978-1979)

DEIS produced and comments received (1979)

DEIS and proposal shelved, then withdrawn; Marine Sanctuaries Office reassesses their role (1982)

Renominated through Congressional channels, following Nick Candies anchor damage incident (1984)

New DEIS issued, with Draft Management Plan Included (1989)

GALAPAGOS

First Mention in Writing (1968)

Proposal backed by scientific data, CDRS and Wellington (1975)

Recommendation approved by President Hurtado (1982)

Protection invalidated, but idea retained (1984)

Decreed as Galapagos Marine Resources Reserve by President Febres-Cordero (1986)

Change of presidents (1988)
Figure 2. Schematic of Substages of Policy Formulation in Two Marine Protected Area Cases

Substages of Policy Formulation in Two Marine Protected Area Cases

Early Substage
Information Gathering
Complex Setting
Focusing Events and Feedback Against Proposal
Issue Not Expanded

Middle Substage
Alternatives Selected
Issue Expanded
Communities of Specialists
Focusing Events and Feedback Favor Proposal

Late Substage
Decisions to be Made
Paradox of Simplification
Incrementalism
Trust in Sources of Technical Information About Coastal Resources Among the General Public

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Introduction

The study reported here discusses the issue of technical information as it pertains to the coastal issue arena, specifically the level of trust which exists in competing providers of technical information. It does this by looking at the degree to which technical information is trusted by the general public, a most significant actor in the policymaking process.

One of the more interesting topics related to the study of technically complex issues, such as those pertaining to the coastal area, relates to the sources of information with whom the highest degree of trust lies (Pierce and Lovrich, 1983; Soden, 1990). The coastal policy arena relies heavily on technical information and reflects the "information age" of both popular and scholarly literature. Yet, as technical complexity has grown, similar demands for increased citizen action have occurred. In this political environment, it is argued that, as technical complexity has grown, similar demands for increased citizen action have occurred, but the technical and scientific complexity of contemporary policy questions causes problems for the efficacy of public participation in democratic governance schemes. Further, it is proposed that the public will no longer accept as dogma the scientific proclamations of government officials and experts (Lovrich et al., 1979). In this environment, who will be sought out for technical information and knowledge?

The Study

This study is based on a larger study which explored the views of the general public, activists, and coastal policy professionals about a set of natural resource and technical information issues in Florida (Soden, 1990). The results reported here for the general public are based on mail survey questionnaires randomly distributed to 1700 residents of Florida. The surveys were distributed in proportion to the percentage of Florida residents who live in a specific county; all counties in Florida were included. Some individuals identified through the sampling process could not be contacted, resulting in 311 undeliverable questionnaires. Of the remaining 1389, 699 or 50.3% responded to the survey.

Findings
In the coastal area, identification of those sources of technical information which are highly trusted by the general public is important if policy professionals and public managers are to maximize the effects of the information dissemination process. Table 1 records an index score for the degree of trust among 21 alternative and often competing sources of technical information.

Table 1 illustrates that four groups are seen as enjoying considerable trust among the general public. College/University educators receive the highest index score (84.5), followed by the National Park Service with a score of 81.5, the Florida Department of Natural Resources (DNR), the Department of Environmental Regulation (DER), Water Management Districts, scientists, and environmentalists, all of whom obtain index scores in excess of +50. The least-trusted groups as sources of technical information are labor unions and developers, each with scores below -50. These low scores are not unexpected since these would be groups who place economic goals above environmental interests and are not expected to be among the trusted sources of technical information about coastal resource issues.

Patterns of Information Holding and Sources of Variation

Public involvement in the coastal resource arena increasingly entails the consideration of an enormous range of very complicated issues. Even in the most political issues, the technical range of the subjects which must be dealt with is staggering (Lovrich et al., 1979; Soden, 1990). 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 coastal issues, regardless of their stance on the issues.

The political system has few means for dealing with 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 (Steel and Soden, 1989). From another perspective, it is generally viewed as not rational for individuals to participate in the decision-making process either by voting or becoming knowledgeable, hence producing "rational ignorance" about the issue at hand. Because participation is not rational, Downs (1957) argues neither is it rational to incur the costs of obtaining information. However, 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.

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. What level of trust
in alternative sources exists among the public, and how that knowledge relates
to social and political values, is then of considerable interest. Earlier research
found that trust in alternative sources of technical information follows
consistent patterns related to the general policy orientation of individuals
(Lovrich et al., 1979). For example, those with strong environmental
orientations are more likely to trust information from environmentalists and
are less likely to trust information from developers, energy companies, or
timber interests. These studies suggest that people tend to "trust sources of
information with whom they agree in policy alternatives." While this is not
unexpected, it suggests that there may be strong variations in trust and that
these variations, once defined, may become important indicators of potential
alignments as issues become more salient on the public agenda.

Three sources of variation are considered as having potential impact
on trust in sources of technical information: (1) personal characteristics; (2)
political orientations; and (3) environmental orientations. In the following
analyses, measures of ordinal association (Spearman's Rho) are relied upon
to consider the association between potential sources of variation and the
various measures relating to technical information and knowledge holding.

**Personal Characteristics**

Five personal characteristics are considered for the impact they have
on trust in sources of technical information. Education is viewed as one
potential source of variation. Higher education increases the ability of the
individual to process information, 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 and
potential knowledge sources (Kessel, 1980).

A second personal characteristic worth considering is an individual's
age. In Florida, with a considerable elderly and retirement population, age
may be an especially significant factor. Are older people less interested in
new information than younger people? Age may be considered a step towards
wisdom, reflecting the ability to put a broader number of life's experience into
better perspective. To this end, older individuals may be more likely to
support public involvement and pay closer attention to issues as they emerge.
Viewed from a negative light, age may be associated with old-fashioned values,
with younger individuals being more likely than their older counterparts to
entertain new ideas and obtain the requisite knowledge to participate in the
policy process (Soden et al., 1989).

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 members of the 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 to take the time to seek information about policies relating to natural resources than are those who focus the majority of their attention on basic needs (Maslow, 1970).

Gender differences may provide a clue about who is more likely to be informed about coastal issues. Knowledge of and behavior towards wildlife, for example, is different between males and females (Kellert and Berry, 1980). Typically, participation rates in natural resource activities have been higher among males. However, women register higher scores on humanistic and moralistic scales, and show strong proclivities to get involved in the policy process and to be quick studies about environmental issues (Bammel and Bammel, 1986).

Table 2 provides correlations between personal characteristics and trust in group sources of technical information. Several significant associations arise in Table 2. Personal characteristics do appear 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 arena: 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 (Pierce and Doerkson, 1976). If citizen participation is maximized in defining societal goals, then democracy is seen as strong, underscoring the general belief that public involvement in politics should be encouraged and maximized. It has been argued that citizen participation is linked to knowledge in complex issue areas and that the manner in which 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 into the public policy arena for many interest groups. As a consequence, some scholars argue that environmental politics remains largely a group-dominated process (Groves and Thompson, 1982). 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. Does the same hold true in the coastal resource 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 sources?

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 (Pierce and Lovrich, 1980; Calvert, 1987). It has been suggested that partisan attachment and ideological orientation are each linked to attitudes concerning group roles in the policy process (Pierce and Lovrich, 1982). As in other issue areas, it is expected that, as environmental issues become politicized, participants in the policy process will seek out traditional sources of information with whom they align on political issues (Lovrich et al., 1979; Soden, 1990).

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." 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; 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)."

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). Within post-industrial societies, new experts and policy elites have to find foundations within the post-industrial framework if they wish to continue to hold and exercise influence (Dahl, 188, 267
Thus, one might reasonably expect that attitudes that are more post-industrial in nature will be more sympathetic to environmental concerns and show greater cognizance of the needs for information about complex social issues.

Table 2 reveals a number of linkages between political orientation and trust in group sources of technical information. Overall, these findings support the results of previous research that argue 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 developer sources, which receive conservative 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 scarce 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 on either methodologically or literature-supported grounds. In this section, two measures pertaining to environmental orientation are employed. First, 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. 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 needs—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 New Environmental Paradigm (Milbrath, 1984; Lovrich et al., 1984; Steel and Soden, 1988). 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 orientation 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). Does the same hold
true in regards to technical information and knowledge-holding? Do individuals with preservationist leanings systematically display more knowledge than those with development 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 knowledge level of policy actors?

Table 2 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 of business sources of information, as are those who support the New Environmental Paradigm. Environmentalists, in comparison, obtain high trust among those with preservationist leanings, as well as from followers of the New Environmental Paradigm and those who perceive the environmental problems facing Florida as quite serious. This obviously is not surprising given the nature of the issue under study. However, the relative degree of association with other potential sources of technical information does indicate the high regard that environmentalists maintain in the environmental issue area. In light of this, it is not surprising that the scores of developers/construction companies are almost the inverse of environmentalists among those with preservationist leanings. College/university educators also are recipients of considerable trust among those in the general public with strong environmental orientations.

Summary and Conclusion

The overall levels of trust in sources of technical information among the general public indicate that transitiutional forces such as personal characteristics, political, and environmental orientations do bear on trust in sources of technical information. While a large body of literature suggests that the public may be relatively unknowledgeable until the "stakes" are raised, their general orientation towards available technical information, whether they choose to use it or not, appears to reflect linkages which will provide further clues about how best to disseminate information relating to our coastal regions.
References


<table>
<thead>
<tr>
<th>Rank</th>
<th>Group</th>
<th>Score*</th>
<th>Rank</th>
<th>Group</th>
<th>Score*</th>
</tr>
</thead>
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<td>1</td>
<td>College/University</td>
<td>+84.5</td>
<td>12</td>
<td>Fishing Industry</td>
<td>+20.1</td>
</tr>
<tr>
<td>2</td>
<td>National Park Services</td>
<td>+81.5</td>
<td>13</td>
<td>Dept. of Comm. Affairs</td>
<td>+18.1</td>
</tr>
<tr>
<td>3</td>
<td>Technical &amp; Science</td>
<td>+76.6</td>
<td>14</td>
<td>Industry</td>
<td>+7.5</td>
</tr>
<tr>
<td>4</td>
<td>Dept. of Nat. Resources</td>
<td>+75.7</td>
<td>15</td>
<td>Local Government</td>
<td>+7.1</td>
</tr>
<tr>
<td>5</td>
<td>Environments</td>
<td>+67.3</td>
<td>16</td>
<td>Public Utilities</td>
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</tr>
<tr>
<td>6</td>
<td>Dept. of Envir. Regulation</td>
<td>+64.3</td>
<td>17</td>
<td>Business</td>
<td>-21.5</td>
</tr>
<tr>
<td>7</td>
<td>Water Mgmt. Districts</td>
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<td>18</td>
<td>State Legislators</td>
<td>-22.8</td>
</tr>
<tr>
<td>8</td>
<td>Outdoor Rec. Advocates</td>
<td>+40.9</td>
<td>19</td>
<td>Timber Cos.</td>
<td>-38.6</td>
</tr>
<tr>
<td>9</td>
<td>Sea Grant</td>
<td>+34.2</td>
<td>20</td>
<td>Developers</td>
<td>-61.6</td>
</tr>
<tr>
<td>10</td>
<td>Farmers</td>
<td>+28.1</td>
<td>21</td>
<td>Labor Unions</td>
<td>-77.0</td>
</tr>
<tr>
<td>11</td>
<td>Federal Agencies</td>
<td>+25.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The index score is the sum of those responding "Some" or "A Great Deal" minus the sum of those responding "None" and "Not Much" to the question "Many groups supply technical information about coastal resources. How much trust do you have in the technical information supplied by each of the groups listed?"
Table 2: Significant Correlations Between Sources of Variation and Trust in Group Sources of Technical Information*

<table>
<thead>
<tr>
<th>GROUP</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>Ed, Age, Inc, Class, Gen, PI, Party Pre, NEP</td>
</tr>
<tr>
<td>Environmentalists</td>
<td>Age, Gen, Cit, PI, Ideol, Party, Pre, NEP</td>
</tr>
<tr>
<td>Developers</td>
<td>Ed, Age, Inc, PI, Party, Pre, NEP</td>
</tr>
<tr>
<td>Universities</td>
<td>Ed, Age, Cit, PI, Ideol, Party, Pre, NEP</td>
</tr>
<tr>
<td>Farmers</td>
<td>Ed, Age, Class, Gen, Pre, NEP</td>
</tr>
<tr>
<td>Fishing Industry</td>
<td>Ed, Age, Inc, Class, Gen, NEP</td>
</tr>
<tr>
<td>National Park Service</td>
<td>Age, Cit, PI, Pre, NEP</td>
</tr>
<tr>
<td>Outdoor Recreationists</td>
<td>Age, Class, Cit, Ideol, Party, Pre, NEP</td>
</tr>
<tr>
<td>Industry</td>
<td>Age, Inc, Gen, PI, Ideol, Pre, NEP</td>
</tr>
<tr>
<td>Labor</td>
<td>Age, Ideol, Party</td>
</tr>
<tr>
<td>Legislators</td>
<td>Inc, Cit, Ideol, Party</td>
</tr>
<tr>
<td>Sea Grant</td>
<td>Ed, Age, Inc, Class, PI, Ideol.</td>
</tr>
<tr>
<td>Timber Companies</td>
<td>Inc, Party, Pre, NEP</td>
</tr>
<tr>
<td>Water Districts</td>
<td>Inc, Class, Pre</td>
</tr>
<tr>
<td>Utilities</td>
<td>Inc, Gen, Party, NEP</td>
</tr>
<tr>
<td>DNR</td>
<td>Age, Cit, Ideol, NEP</td>
</tr>
<tr>
<td>DER</td>
<td>Age, Cit, Ideol, Pre, NEP</td>
</tr>
<tr>
<td>DCA</td>
<td>Ed, Age, Cit, Ideol</td>
</tr>
<tr>
<td>Federal Agencies</td>
<td>Ed, Inc</td>
</tr>
<tr>
<td>Local Government</td>
<td>Ed, Inc, Class, Ideol, Pre</td>
</tr>
<tr>
<td>Scientists</td>
<td>Ed, Age, Inc, Class, NEP</td>
</tr>
</tbody>
</table>

**CODE**

Personal Characteristics

- **Ed** = Education
- **Age** = Age
- **Inc** = Income
- **Class** = Social Class

Political Orientations

- **Cit** = Citizen Participation
- **PI** = Post-Industrial Values
- **Ideol** = Ideology
- **Party** = Political Party

Environmental Orientations

- **Pre** = Preservationist Self-Identification
- **NEP** = New Environmental Paradigm

*Spearman Correlation Coefficients ≤ .1
Assessing Public Opinion Regarding Beach Restoration

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Introduction

Questions concerning differences in attitudes about funding for beach restoration programs are investigated in this paper through data collected from three sets of policy actors residing in the State of Florida: the general public; activists; and policy experts. Florida is a state and region quite appropriate for examination of this question because of its involvement in numerous beach restoration and management programs, exceeding $16 million for 1990-1991 (FSBPA, 1990). For this study, three factors hypothesized as having an impact on positions taken either in support of or in opposition to, funding for beach restoration programs are considered. First, political orientations are considered for their impact on beach restoration program proposals. Second, factors associated with preservationist-oriented, versus developmentalist-oriented, interests are evaluated. A third concern is the effect that technical information and knowledge holding have in the formulation of policy positions about these programs.

The data used in this study were gathered during 1988 using mail surveys distributed to samples of the general public and policy experts. From the general public sample, 699 respondents completed usable questionnaires -- a response rate of 50.3%. From the general public sample, an activist subset was defined comprising 207 individuals who recorded the highest levels of political activity in regards to natural resources in Florida. The expert sample was made up of individuals whose professional activities include the coastal resources arena; 208 such responses were obtained for a response rate of 53.2%.

Findings

The results depicted in Table 1 show that, in general, there is strong support for funding beach restoration programs among all three samples, with activists registering slightly stronger support than the general public or policy experts. These initial findings suggest that this is an area of minor controversy in Florida and that the public and its representatives share similar attitudes. These initial positions will help to determine some of the causes of variation in the positions taken about funding for restoration programs across political orientations, environmental orientations, and levels of technical information and knowledge-holding.

Political Orientations
Many studies have illustrated the fact that political ideology is strongly correlated with support for, or opposition to environmental policy in the United States. The literature suggests that those on the liberal end of the political spectrum are supportive of pro-environmental regulation, while individuals on the conservative side of the political/ideological spectrum have generally been found to be "less supportive or even hostile to environmental concerns."

Using chi-square analysis to test variables identifying political orientations for statistical significance with respect to support for funding of beach restoration programs, only one statistically significant association occurs (Table 2). Among policy experts, those with conservative stances also are likely to oppose funding programs. No statistically significant differences were obtained among the samples for associations between political party and support for program funding.

Environmental Orientations

The prolonged affluence enjoyed in the United States since the end of World War II has resulted in the satisfaction of many of the basic needs of our citizens. The demand for the exploitation of nature in the interest of creating employment and generating economic growth has been partially supplanted by interest in higher order needs, such as the valuation of natural beauty and the preservation of nature (Milbrath, 1984). Using two measures of support for the environment -- the New Environmental Paradigm (NEP) scale and Preservationist Self-Identification -- several statistically significant relationships are defined in Table 2. Among all three samples, strong support for the NEP is matched by strong support for funding. Likewise, except in the case of activists, those who identify themselves as preservationist in their view of the proper use of natural resources are also those who support program funding. The use of beaches and shorelines for any variety of purposes may not always result in what environmentalists expected. Since there can be some negative impacts on coastal areas, what might account for the strong support given to this policy alternative among those with environmental leaning? The most probable explanation is that in general, little is really known about beach restoration. In addition, management programs are viewed more positively than non-management among those with pro-environmental orientations.

Technical Information and Knowledge

Beach restoration programs involve a number of technical and scientific issues. An inquiry into the issue of restoration provides an opportunity to see the impact which technical information-holding has on support for funding programs. In the pursuit of such knowledge, opponents may discover a common ground in technical understanding.
Knowledge of general ecology and self-assessed knowledge of technical terms associated with natural resource and environmental policy in the area of study provide an opportunity to consider the role of knowledge as it affects support for funding of beach restoration programs. Two significant relationships are evidenced in Table 2, both about the knowledge of general ecology, for the general public and policy experts. Knowledge of technical terms does not provide significance in explaining variation among the three samples. Unlike the findings of other studies, there is no suggestion that, in the case of beach restoration programs, greater consensus may derive from an investment in information dissemination. The significant relationships in association with knowledge of general ecology may suggest that beach restoration may be viewed from the focus of applied ecology and restoration. Another explanation may be that there exists little knowledge about such programs among the general public, activists, and perhaps, even policy experts. In time, provision of information, efforts to educate the public and its most active elements, and professional education among experts may have positive effects and thus should not be discounted.

Conclusion

Attitudes about funding for beach restoration programs have been examined. The statistical analysis reveals that, in the State of Florida, there is support for funding beach restoration programs. Although this is the case, those policy experts with a conservative political orientation tend to oppose funding beach restoration programs.

As the general public becomes more enlightened and educated concerning the general and applied ecological impact derived from a laissez-faire approach to the environment, a change in direction towards a more pro-environment policy will develop. Put another way, politicians may see a stronger pro-environment constituency grow and, as a consequence, pressure to protect, manage, and restore the environment will significantly influence their voting behavior on such issues. A new pro-environmental attitude coupled with the goal of maintaining a strong economy is becoming a more compatible and related approach. Thus, environmental issues and economic interests will be increasingly considered in tandem—not as opposing factions. Further investigation clearly will be required as these two major societal concerns become more intertwined.
References


Table 1
Comparison of Support for Use of Government Funds to Support Beach Restoration Projects

Question: Do you favor public funding (i.e., tax dollars, bond revenues, etc.) for restoration of eroded, storm damaged or washed-out beaches and shorelines?

<table>
<thead>
<tr>
<th>Response Categories</th>
<th>General Public</th>
<th>Activists</th>
<th>Policy Experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Favor</td>
<td>234 (40.6%)</td>
<td>113 (54.6%)</td>
<td>91 (43.8%)</td>
</tr>
<tr>
<td>Tend to Favor</td>
<td>248 (35.5%)</td>
<td>51 (24.6%)</td>
<td>69 (33.2%)</td>
</tr>
<tr>
<td>Don't Know</td>
<td>49 (07.0%)</td>
<td>14 (06.8%)</td>
<td>12 (05.8%)</td>
</tr>
<tr>
<td>Tend to Oppose</td>
<td>67 (09.5%)</td>
<td>17 (08.2%)</td>
<td>24 (11.5%)</td>
</tr>
<tr>
<td>Strongly Oppose</td>
<td>45 (05.4%)</td>
<td>12 (05.8%)</td>
<td>10 (04.8%)</td>
</tr>
<tr>
<td>No Response</td>
<td>6 (00.9%)</td>
<td>0 (00.0%)</td>
<td>2 (01.0%)</td>
</tr>
<tr>
<td>Totals</td>
<td>699 (100%)</td>
<td>207 (100%)</td>
<td>208 (100%)</td>
</tr>
</tbody>
</table>
## Table 2

Relationship Between Political, Environmental and Knowledge Factors and Support for Use of Government Funds for Beach Restoration Projects

<table>
<thead>
<tr>
<th>Political Factors</th>
<th>General Public</th>
<th>Activists</th>
<th>Policy Experts</th>
</tr>
</thead>
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<tr>
<td><strong>Ideology</strong></td>
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<td></td>
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</tr>
<tr>
<td>$x^2$</td>
<td>27.55</td>
<td>21.73</td>
<td>52.97</td>
</tr>
<tr>
<td>df</td>
<td>25</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>p</td>
<td>.329</td>
<td>.356</td>
<td>.001</td>
</tr>
<tr>
<td><strong>Party</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$x^2$</td>
<td>39.24</td>
<td>29.80</td>
<td>38.26</td>
</tr>
<tr>
<td>df</td>
<td>30</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>p</td>
<td>.121</td>
<td>.192</td>
<td>.143</td>
</tr>
</tbody>
</table>

| Environmental Factors |                |           |                |
|-----------------------|                |           |                |
| New Environmental Paradigm | $x^2$ | 399.00 | 118.05 | 107.11 |
| df                    | 35             | 24        | 30             |
| p                     | .000           | .008      | .002           |

| **Preservationist Self-Identification** |                |           |                |
|----------------------------------------|                |           |                |
| $x^2$                                  | 93.34          | 24.97     | 50.81          |
| df                                     | 35             | 24        | 30             |
| p                                      | .000           | .408      | .01            |

| Knowledge Factors |                |           |                |
|-------------------|                |           |                |
| General Ecology   |                |           |                |
| $x^2$             | 33.24          | 13.73     | 42.38          |
| df                | 20             | 16        | 20             |
| p                 | .032           | .619      | .002           |

| **Technical Terms** |                |           |                |
|---------------------|                |           |                |
| $x^2$               | 42.94          | 41.68     | 29.15          |
| df                  | 33             | 40        | 40             |
| p                   | .115           | .397      | .898           |
Natural Resource Trustee Responsibilities

Katherine A. Pease
National Oceanic and Atmospheric Administration

Scope of natural resource trustee responsibilities

With the passage of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. §§ 9601 et seq., much attention has been focused on the cleanup of hazardous waste sites. While the cleanup of such sites is a major component of CERCLA, the complementary provisions regarding natural resource assessment, recovery, and restoration have, for the most part, been overlooked during the decade following the enactment of CERCLA. Likewise, similar natural resource provisions in the Clean Water Act (CWA) have not been utilized fully. Only recently has the potential impact of the natural resource provisions of CERCLA and the CWA been explored.

The purpose of this paper is to describe the scope of natural resource trustee responsibilities, the process for recovering damages, the opportunities for interaction among the natural resource trustees and between the natural resource trustees and those responsible for the release of the hazardous substance or the discharge of oil, and the challenges confronting natural resource trustees. Special emphasis will be placed on Federal trusteeship, and, in particular, the activities of the National Oceanic and Atmospheric Administration (NOAA) in this area.

Statutory authority

CERCLA and the Oil Pollution Act of 1990 (OPA), which replaces prospectively the natural resource provisions of the CWA, designate the President, Indian tribes, and the authorized representatives of each state as trustees for natural resources on behalf of the public. The OPA further designates foreign governments as trustees "for natural resources belonging to, managed by, controlled by, or appertaining to such country." Those statutes require the President and the authorized representatives of any state, Indian tribe, or foreign government to take certain actions to recover damages for injury to natural resources resulting from the release of hazardous substances or the discharge of oil, 42 U.S.C. § 9607(f)(1); OPA section 1006(a). In addition to the trustee responsibilities under CERCLA and the OPA, the 1988 amendment to the Marine Protection, Research, and Sanctuaries Act (MPRSA) authorizes the Secretary of Commerce to recover response costs and damages, including the cost of damage assessment, from anyone who injures or destroys a national marine sanctuary resource, 16 U.S.C. § 1443.
Both CERCLA and the OPA require the trustees to assess injuries to natural resources; to pursue recoveries of damages, including the cost of assessment; and to use the money recovered to restore, replace, rehabilitate, or acquire the equivalent of the injured resource, 42 U.S.C. § 9607(f)(1); OPA section 1006(b). The OPA establishes a fund from which Federal, state, and Indian tribe trustees can draw money to pay for the costs of the assessment of natural resource injury and the development and implementation of plans for restoration, rehabilitation, replacement, or acquisition of the equivalent resource, OPA Section 1012(a)(2). Because there is not a similar fund available under CERCLA, the trustees must pay for such costs and then seek recovery from the responsible parties, 42 U.S.C. § 9607(f)(1).

Pursuant to the MPRSA, 20% of a recovery is placed in a fund to finance future response actions and damage assessments. For the remaining 80%, the statute establishes a list of permissible uses in the following order of priority: to restore, replace, or acquire the equivalent of the injured sanctuary resource; to manage and improve the national marine sanctuary where the injured or destroyed resources were located; and to manage and improve any other national marine sanctuary, 16 U.S.C. § 1443(d).

Who are natural resource trustees?

The statutes delineate broad categories of trustees while providing for further delegation of such responsibilities. In Executive Order 12580, the President has designated the Secretaries of Commerce, Defense, the Interior, Agriculture, and Energy as the Federal trustees for natural resources, E.O. 12580, Sec. 1(c), Jan. 23, 1987. The Secretary of Commerce, in turn, has delegated this authority to the Under Secretary for Oceans and Atmosphere, who also serves as the Administrator for NOAA. Department Organization Order 10-15, amendment 2, issued November 8, 1989.

Under CERCLA, the governor of each state is authorized to designate state officials to act as trustees for natural resources. 42 U.S.C. § 9607(2). The states which have done so have designated a variety of agencies to act as trustees. For example, Texas has designated the Texas Water Commission and may soon add the Department of Parks and Wildlife. South Carolina has assigned this function to four agencies -- the Division of Waste Assessment and Emergency Response and the Division of Site Engineering and Screening, both of the Department of Health and Environmental Control; the Department of Wildlife and Marine Resources; and the Division of Public Safety Program of the Office of the Governor. CERCLA makes no provisions for further delegation concerning Indian tribes. The recently-enacted OPA authorizes the governor of each state to designate state and local officials as trustees; the governing body of any Indian tribe to designate tribal officials; and the head of any foreign government to designate a trustee, OPA section 1006(b).
Description of trust resources

In order to pursue natural resource trust responsibilities, the trustees must confront the threshold issue of the scope of their trusteeship. CERCLA broadly defines natural resources to include:

"land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the fishery conservation zone established by the Magnuson Fishery Conservation and Management Act [16 U.S.C.A. § 1801 et seq.]), any State or local government, any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction on alienation, any member of an Indian tribe." 42 U.S.C. § 9601(16).

The OPA contains a similar definition, OPA section 1001(20). Neither statute delineates specific resources to individual trustees. Although the potential for conflict exists among the trustees, for the most part, trustees have worked cooperatively as they seek recoveries for injuries to natural resources.

To better understand the scope of the definition of natural resources, this section will examine the basis of NOAA's trusteeship. That trusteeship is broad and is based upon a number of resource statutes that give NOAA management and protective responsibilities.

NOAA is the primary trustee for marine fisheries resources pursuant to the Magnuson Fishery Conservation and Management Act, as amended, (Magnuson Act) which establishes exclusive management responsibility for fishery resources within the Exclusive Economic Zone (EEZ) of the United States, as well as for anadromous species and continental shelf fishery resources of the United States, both within and beyond the 200-mile EEZ, except for highly migratory species, 16 U.S.C. §§ 1801, et seq. NOAA, the Department of the Interior, the several states, and Indian tribes share management authority over anadromous species. NOAA derives additional trustee authority from the Atlantic Tunas Convention Act, 16 U.S.C. §§ 971(a), et seq., the Tuna Conventions Act, 16 U.S.C. §§ 951 et seq., the Pacific Salmon Treaty Act, 16 U.S.C. §§ 3631, et seq., the Atlantic Striped Bass Conservation Act, 16 U.S.C. § 1851 note, and the North Pacific Halibut Act, 16 U.S.C. § 773, among others.

Act, 16 U.S.C. §§ 1151, et seq. Under the MMPA, NOAA and the U.S. Fish and Wildlife Service (FWS) share management responsibilities. NOAA is responsible for seals, sea lions, porpoises, and whales, while FWS is responsible for sea otters, polar bears, manatees, and walruses. NOAA also shares responsibility with the FWS and the states for the administration of the Endangered Species Act, 16 U.S.C. §§ 1531, et seq. In general, NOAA is responsible for the protection of marine species while the FWS is responsible for terrestrial and inland water species.

NOAA, as well, has responsibilities to protect habitat and other environmentally sensitive areas. For example, the Magnuson Act authorizes NOAA to protect habitats of fisheries subject to the Act, 16 U.S.C. § 1802(9). Other statutes also provide authority to NOAA to protect the habitats of fishery resources, including Section 404(c) of the Clean Water Act, 33 U.S.C. § 1344(c), the MPRSA, Title II, 33 U.S.C. §§ 1701, et seq., the Fish and Wildlife Coordination Act, 16 U.S.C. §§ 661, et seq., and the National Ocean Pollution Planning Act, 33 U.S.C. §§ 1701, et seq. Section 315 of the Coastal Zone Management Act, 16 U.S.C. § 1461, provides additional authority in estuarine areas by authorizing the designation of estuarine research reserves. In such designated estuaries, NOAA shares trusteeship with the states in which the estuaries are located since the reserves are managed on a cooperative Federal-state basis. Other living and non-living resources and their habitat are managed and protected by NOAA pursuant to Title III of the MPRSA, 16 U.S.C. §§ 1431, et seq. Title III authorizes the Secretary of Commerce to designate areas of the marine environment, subject to the jurisdiction of the United States, which have special recreational, historic, ecologic, aesthetic, or research values as national marine sanctuaries. Because such sanctuaries may be located partially within state waters, trusteeship over national marine sanctuary resources may be shared between NOAA and the relevant state.

Natural resource damage assessment process

With the above background in mind, this section will examine the actual process of pursuing a natural resource claim.

Regulatory framework

Pursuant to CERCLA, the President designated the responsibility for promulgating natural resource damage assessment regulations to the Department of the Interior, 42 U.S.C. § 9651(c); E.O. 12580, sec. 11(d). Interior has promulgated such regulations, see 43 C.F.R. Part 11, "Natural Resource Damage Assessments." While the use of such regulations is optional, a trustee acquires a rebuttable presumption of correction should it follow the procedures in the regulations.
The Court of Appeals for the District of Columbia Circuit invalidated a small portion of those regulations and remanded another provision for clarification in 1989, see Ohio v. Department of the Interior, 880 F.2d 432 (D.C. Cir. 1989)(Ohio decision). At this time, the Department of the Interior is revising the damage assessment regulations in light of the Ohio decision.

The regulations contained in Part 11 can be applied to either the release of hazardous substances under CERCLA or the discharge of oil under the CWA. The OPA, however, directs NOAA, in consultation with EPA, FWS, and other affected agencies, to promulgate regulations for natural resource damage assessment for the discharge of oil. OPA section 1006(e). Currently, NOAA is considering its approach to the regulations and how best to involve the interested public.

Because the steps provided in the regulations offer a logical framework for conducting a damage assessment, trustees like NOAA may do well to retain the option of following those regulations, as modified by the Ohio decision, to take advantage of the rebuttable presumption. The discussion below summarizes the damage assessment process.

Before commencing the assessment plan phase, trustees initially perform a preassessment screen. The purpose of a preassessment screen is to determine whether the discharge or release justifies a natural resource damage assessment. This determination is made based on existing data with a minimum of field work. This step includes a brief determination of what injuries occurred, what resources are at further risk, and the likelihood of making a successful claim if the process were to continue. Also considered at this stage is whether the potential benefits outweigh the potential costs of performing the assessment, 43 C.F.R. §§ 11.23-.25.

The next step is the development of an assessment plan. The damage assessment plan provides the framework for a systemic approach to be conducted at a reasonable cost. One of the major decisions at this stage is to determine whether to proceed with a "type A" or a "type B" assessment. The type A is a simplified procedure for less complex cases and relies upon computer modeling, id. at §§ 11.40-.41. A type B assessment is more complex and expensive. The regulations establish criteria for the decision-maker to determine which approach is appropriate, id. at § 11.33.

The type B assessment is divided into several stages including injury determination, quantification, and damage determination. The purpose of the injury determination is to verify that an injury has resulted from the release of a hazardous substance or the discharge of oil. Part of that determination is a consideration of how the contaminant was transported from the source into and through the environment, id. at §§ 11.61-.64. Next is the quantification stage, where the effects of the contaminant on the natural
resources are calculated to determine the necessary compensation. Both the
baseline condition (condition but for the presence of the contaminant) and
services are calculated to demonstrate the degree of reduction of the services
resulting from the discharge or release. A resource recoverability analysis,
estimating the time to restore services to the baseline level, is part of the
quantification stage, id. at §§ 11.70-73. The final stage is the damage
determination. The purpose of this phase is to estimate the amount of money
to be sought for compensation as the result of the injury, id. at §§ 11.80-.84.

Following completion of the assessment phase is the post-assessment
phase which includes the development of a restoration plan for restoring,
replacing, or acquiring the equivalent of the injured resource. Also included
in this phase is the presentation of a monetary demand to the responsible
parties, at §§ 11.90-.93.

Recoveries for injury to natural resources must be used to restore,
replace, rehabilitate, or acquire the equivalent resource, 42 U.S.C. § 9607(f);
OPA section 1006(c) and (f). Assessment costs represent a separate element
of the damages and are returned to the trustees without further appropriation,
OPA section 1006(f); 43 C.F.R. § 11.92.

Opportunities for coordination and cooperation

The statutes and the natural resource damage assessment regulations
encourage trustees with affected resources to act together to coordinate a
single damage assessment plan, see, e.g., 42 U.S.C. § 9607(f)(1) and OPA
section 1006(d)(prohibition on double recovery for natural resource damages
resulting from same release); 42 C.F.R. §§ 11.20(c), 11.32(a).

During the past year, natural resource trustees, lead by the efforts of
NOAA, have worked closely together on both hazardous waste sites and oil
spills. NOAA has encouraged the use of memoranda of agreement (MOAs)
among the trustees. These MOAs outline the responsibilities of the trustees
and typically establish a trustee council which makes decisions concerning
strategies for recovery and uses of damages recovered. To date, these MOAs
have been site- or incident-specific. NOAA, though, is drafting a "model"
MOA, emphasizing flexibility to address most sites or incidents. By having
such an agreement in place prior to a spill, trustees will save time and will be
able to focus on trustee concerns immediately. NOAA is coordinating this
model MOA at the Federal level and will soon begin discussions with
interested states.

NOAA's experience has shown that coordination and cooperation
between trustees and potentially responsible parties (PRPs) are productive
avenues to pursue. As specific sites are considered, NOAA and co-trustees
meet with PRPs and request their cooperation by providing "upfront" money
to conduct a damage assessment or pre-damage assessment studies. Because PRPs will be liable for damage assessment costs anyway, many understand that their cooperation at such early stages may stave off litigation while providing them with input into the damage assessment process. An excellent example of this process is the 1990 Mega Borg oil spill off the coast of Texas. Because much of the oil evaporated or incinerated, the trustees hypothesized that there had been no significant injury to natural resources. To test this theory, the trustees developed studies and requested funding from the PRP. The PRP agreed and provided $275,000 for studies now underway. It should be emphasized that the trustees did not file a claim in court to secure the cooperation of the PRP. Rather, the trustees and the PRP held a series of discussions that culminated in a signed agreement between the representative of the Mega Borg, NOAA, and the Texas Water Commission. Obtaining such upfront funding for other sites is the goal of NOAA, and NOAA is currently negotiating such an approach at several of the sites at which it is involved.

Should, however, the PRPs decline to cooperate, litigation remains a viable alternative. In fact, NOAA is involved in several cases that have been filed in Federal district court, including United States v. AVX, CA No. 83-3882-Y (D. Mass. 1983) (Acushnet River & New Bedford Harbor: Proceedings re Alleged PCB Pollution) involving contamination of New Bedford Harbor and adjacent waters with polychlorinated biphenyls (PCBs). Filed in 1983, this case was the first Federal claim for damages to natural resources under CERCLA. The case is still pending. Additionally, on 19 March 1990, the Justice Department, on behalf of NOAA, filed suit against the City of Seattle and the Municipality of Metropolitan Seattle for injunctive relief and damages to natural resources in Elliott Bay, United States v. City of Seattle and Municipality of Metropolitan Seattle, No. C90-395 (W.D. Wash. 1990). NOAA and other trustees are actively pursuing a natural resource damage claim in the southern California area. There, massive quantities of DDT and PCBs have been discharged into the marine environment from the local county sewer system, from barges directly into the ocean, and by means of storm water runoff and aerial transport, United States v. Montrose Chemical Corp., No. CV 90-3122-AAH (JRx)(C.D. Cal. 1990).

These cases are just part of a continuing effort. NOAA also is currently working on a number of promising cases on the east coast of the United States and in the Gulf of Mexico. Natural resource damage cases represent a new effort, and as such, present new demands on the scientific, economic, and legal communities.

**Challenges ahead**

One of the challenges confronting the legal community is that there has not been a significant amount of Federal natural resource damage litigation. Thus, the rulings from these initial cases will be instrumental in
shaping future efforts of natural resource trustees. There have, though, been some interesting rulings from the Acushnet River case, which, on the whole, have been favorable to the trustees. For example, that court held that for the purposes of joint and several liability, the sovereigns need only show that a PRP “contributed” to the natural resource injury, and not that its contribution was "substantial," Acushnet River, 722 F. Supp. 893, 896, n.8 (D. Mass. 1989). That court also opined that Congress intended to increase the scope of liability of responsible parties by not releasing from liability those who later owned a facility while there was further injury to the environment from continuing releases caused by disposal of hazardous materials by a previous owner (id. at n.6.).

Moreover, new doors are being opened in the areas of economics and science. Natural resource economists are exploring the area of contingent valuation for natural resources. While this methodology has been widely debated, the Ohio court upheld it in the CERCLA context. Trustees also are increasing their understanding of how to quantify injury to a marine environment and how restoration on a large scale can be conducted effectively.

The challenges presented to the attorneys, scientists, and economists by natural resource claims become opportunities to foster interaction among these disciplines and to develop further all three disciplines in the upcoming years.

Note: The views of the author do not necessarily reflect those of the National Oceanic and Atmospheric Administration.