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An Evaluation of NOAA's Role in Ocean Dumping Policy Implementation

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AN EVALUATION OF NOAA's ROLE IN
OCEAN DUMPING POLICY IMPLEMENTATION

BY

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ABSTRACT

Dumping of wastes into the ocean has gone on for years especially in the New York Bight. The National Oceanic and Atmospheric Administration (NOAA) is mandated by Title II of the Ocean Dumping Act of 1972 to investigate the effects of ocean dumping on the marine environment. However, there is a perception within Congress, the public and other agencies that NOAA is not meeting its responsibilities with regard to ocean dumping research.

The effectiveness of NOAA's ocean dumping policies and programs and the difficulties in implementation experienced by the agency are evaluated by applying George Edwards' theory of policy implementation. According to this theory, four factors - communications, resources, dispositions and bureaucratic structure - are critical in understanding the implementation process. In this case study, NOAA's present lack of participation in the ocean dumping issue can be analyzed by examining the historical events of the past twenty years as they apply to the policy implementation theory.
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CHAPTER I
INTRODUCTION

Dumping of wastes into the ocean has gone on for years especially in the New York Bight. The National Oceanic and Atmospheric Administration (NOAA), as the federal government's primary source of data and information concerning problems of the ocean and atmosphere, has a responsibility to investigate man's introduction of wastes into the marine environment. This has been mandated not only in the agency's mission but also by Title II of the Marine Protection, Research, and Sanctuaries Act of 1972. However, perceptions within Congress, the public, other agencies and within NOAA itself are that NOAA is not meeting its responsibilities with regard to ocean dumping research.

There are three major questions that arise in this discussion. How have NOAA's ocean dumping policies been shaped? What difficulties have arisen in the implementation of those research policies? Finally, how have these difficulties shaped NOAA's present role in the ocean dumping situation? As the science of ocean dumping evolved and impacted the regulatory process, confusion was created as to NOAA's role in both processes. This paper, therefore, will examine NOAA's policies (science or regulatory?) and the resultant implementation by using a theory developed by George Edwards in his book Implementing Public Policy.
Edwards believes that four factors influence effective policy development and implementation. These are communications, resources, dispositions and bureaucratic structure. This study of NOAA will examine the scientific and historical events relating to ocean dumping as they apply to the above factors in the context of Edwards' theory. The format of this paper will include a discussion of Edwards' theory followed by an overview of ocean dumping and the historical events that shaped NOAA's policies. Finally, the development and implementation of NOAA's policies will be analyzed using each of Edwards' factors as they apply to this case study.

NOTES


2. Public Law 92-532: Marine Protection, Research and Sanctuaries Act of 1972" (hereafter "Ocean Dumping Act")

CHAPTER II
OCEANOGRAPHIC AND DUMPSITE BACKGROUND

A discussion of ocean dumping cannot be complete without a basic description of the oceanographic characteristics of the New York Bight and the dumpsites contained within it. Although the Bight is a receptacle for the disposal of dredge spoils, construction debris (commonly called cellar dirt) and industrial wastes, for purposes of this discussion ocean dumping refers only to sewage sludge generated by municipal sewage treatment plants and dumped at the 12 and 106-Mile dumpsites.

The New York Bight and 12-Mile Dumpsite

The New York Bight extends from Delaware Bay to the eastern end of Long Island and out to the 200 meter depth contour. The Bight's apex, where since 1924 most of the ocean dumping has taken place, is an area bounded to the south by 40° north latitude, to the east by 73°15' west longitude, on the north by the Long Island shore, and on the west by the New Jersey shore. Until 1986 when the phase-in of sludge dumping at the 106-mile site began, all of the sewage sludge generated by New York City and surrounding municipalities was dumped at the 12-mile dumpsite. This area (Fig. 1) is located twelve miles east of Sandy Hook, New Jersey on the east slope of the Christiaensen Basin in
relatively shallow water (less than 25 fathoms).

Circulation of the water in this portion of the inner New York Bight is strongly influenced by that of the whole Bight (Montauk Pt. to Cape May) and by that of the Middle Atlantic Bight (Nantucket Shoals to Cape Hatteras). However, there are some local influences which have significant effects on the circulation, principally the bathymetric configuration of this corner of the Bight and the flow from the Hudson-Raritan estuary.3

Water mass properties of this portion of the Bight are influenced by circulation, weather and effluent reaching the coastal marine waters. Besides the dumping of wastes, contaminants enter the water column by way of estuarine effluents and atmospheric fallout.4

The 106-Mile Dumpsite

The 106-mile dumpsite is a deep ocean dumpsite located between 38°40'N to 39°00'N and 72°00'W to 72°30W or approximately 106 mile southeast of Sandy Hook, New Jersey (Fig. 1). The site is seaward of the continental shelf break and water depths range from 1000 to 1400 fathoms. The site was used predominantly for dumping of acid and alkaline-based industrial wastes from 1961 to 1987.5 Presently, no industrial concerns hold permits for industrial waste dumping. As of December 1987 all sewage sludge originally dumped at the 12-mile site began to be
dumped at the 106-mile site.\textsuperscript{6}

Oceanographic conditions at the 106-mile site are variable, depending upon the water mass occupying the site. Slope water is the predominant water mass, however, shelf water incursions do occur, especially in the spring when fresh water runoff and wind forcing cause offshore movement of the shelf/slope front. Northward meandering of the Gulf Stream can cause Gulf Stream water to invade the site although this phenomenon is rare. More commonly, warm core rings may traverse the region from northeast to southwest, aperiodically bringing strong currents and Gulf Stream or Sargasso Sea water to the site.\textsuperscript{7}
Fig. 1. Chart showing the 12 and 106-Mile dumpsites in relation to oceanographic features in the New York Bight region.
NOTES


4. Ingham memo, page 2


7. Ibid., p. 1
CHAPTER III
PUBLIC POLICY IMPLEMENTATION THEORY

Edwards describes public policy implementation as the stage of policymaking between establishment of a policy and the consequences of the policy for the people it affects. If the objective of a policy is to alleviate a problem and the results are unsuccessful it may be a fault of either the policy or the implementation of that policy. Often it is both. In the case of ocean dumping, the establishment of policy culminated in the passage of the Marine Protection, Research and Sanctuaries Act of 1972 (also known as the Ocean Dumping Act) and the enactment of the related regulations. While Congress had originally intended to phase out ocean dumping in five years, the difficulties faced by NOAA, as the science agency, and EPA, as the regulatory agency, in the implementation of that policy may have contributed to the continuation of ocean dumping today.

The four factors Edwards believes influence effective policy and implementation are communication, resources, dispositions and bureaucratic structure and each are discussed below.
The first requirement for effective policy implementation is ensuring that those who are to carry out policy know what they are supposed to do. This might entail Congress passing laws that are clear in their intent so that misunderstandings by the implementors are avoided. Similarly, this same type of clarity of communication is important within the confines of an agency or office. Disagreements and misunderstandings about policies can lead to distortion of communications within all levels of government. Lack of clarity in policymaking can also result from ambiguous court decisions, public opposition, competing goals and unfamiliarity with new programs. All these factors can upset communications and in turn restrict implementation.

Decentralization of bureaucracy often leads to communication difficulties. The more steps there are in the implementation process, the more likely it is that the policy will be watered down. In the case of ocean dumping, the 1972 law mandated the involvement of no less than four federal agencies in the implementation of the country's first ocean dumping policy.

Finally, lack of consistency between lawmaking and subsequent implementation orders can result in confusing results. Environmental policymaking in the Reagan
administration has largely ignored congressional intent, judicial standards and public preferences. Therefore, when implementors receive inconsistent instructions, they will inevitably be unable to meet all the demands made upon them.

RESOURCES

Implementation orders may be accurately transmitted in a clear and consistent manner but if implementors lack the resources to carry out the policies, implementation is likely to be ineffective. Resources are traditionally thought of as funding, staffing and skills but as seen in the case of ocean dumping good information on inputs (i.e. what and how much is being dumped where) is as important a resource to the decisionmaking process. Unfortunately, the four limiting resources are often interrelated. Without enough staff or funding an agency cannot acquire the necessary information to accurately implement policy. The ability of NOAA to supply this needed resource is the major question of this section.

Because of the complexities involved in the budgetary and personnel processes of the government I intend to briefly touch on this aspect of the resource problem as it relates to policy implementation.
DISPOSITIONS

In effective policy implementation, the implementors must not only know what to do and have the resources available, they must also have the desire to carry out a policy. Differing attitudes and perspectives exist in all levels of government, from top decisionmakers down to individual bureaucratic units and these, in turn, affect policy at various points.\textsuperscript{10}

Bureaucratic units may disagree over responsibility for an activity thus hindering implementation. During the early years of the ocean dumping controversy the competitive atmosphere between NOAA and EPA made it difficult for the two agencies to follow out the mandate set forth in the Ocean Dumping Act.\textsuperscript{11} Although specific departments within each agency worked closely and well together (for example EPA's region II office and NOAA's MESA) there was tension in Washington as the two agencies competed for the various responsibilities and limited funds.\textsuperscript{12}

The mission of a specific agency mandated to carry out a policy may conflict with that policy. An example of dispositional problems can be seen between various departments within NOAA during the early 1980's when NOAA ocean dumping policy changed from protection of the ocean to a belief that under certain circumstances, ocean dumping was a viable alternative to the sewage sludge disposal issue.\textsuperscript{13}
BUREAUCRATIC STRUCTURE

The prominent characteristics of bureaucracies, namely standard operating procedures (SOP's) and fragmentation, are seen by Edwards as possible deterrents to effective policy implementation. SOP's are defined as routines to help public officials to make numerous everyday decisions. However, SOP's can inhibit change and are often obstacles to action. Fragmentation is described as the dispersion of responsibility for a policy area among several organizational units. It can lead to diffusion of responsibility and can make coordination of policies difficult.¹⁴

In the context of NOAA's involvement in the ocean dumping issue, the inherent problems of bureaucratic structure have played a significant role. From the Marine Ecosystem Analysis project (MESA) to the National Marine Fisheries Service (NMFS), the fragmentation of NOAA has contributed to its inability to meet its responsibilities. Similarly, interagency problems existed between NOAA and EPA as both agencies struggled with the difficulties of a new policy.¹⁵
NOTES

1. Edwards, p. 1


3. Edwards, p. 17-19

4. ibid., p. 20

5. Ocean Dumping Act

6. Edwards, pp. 40-42


8. Edwards, p. 53


10. Edwards, pp. 89-97


12. Personal communication with Dr. R. Lawrence Swanson, Director, Waste Management Institute, State University of New York at Stony Brook, in February 1988.

13. NOAA Policies Report, see note 1, p. 10

14. Edwards, pp. 125-134

15. Communication with Swanson, also see Note 1.
CHAPTER IV
AN HISTORICAL PERSPECTIVE

Public policies result from sequences of decisions based on political decisions and legislative mandates often as a result of social and executive pressure. Environmental policymaking is not only governed by those factors, but by natural and man-induced events and by scientific findings. In examining NOAA's ocean dumping policies it can be shown that all of the above factors have either contributed to or inhibited the implementation of that policy. This chapter discusses, chronologically, the significant events that have shaped NOAA's policies in preparation for the analysis of implementation processes in the following chapter.

The Early 1970's

In the late 1960's an increasing awareness of the need to strengthen the federal government's marine biological and technological capabilities led to a presidential commission recommending a unified agency to oversee the oceans and atmosphere. NOAA was formed by executive order in 1970 by President Richard Nixon and encompassed such agencies as the National Weather Service, Coast and Geodetic Survey, Bureau of Sport Fishing and Wildlife (parts of which were
incorporated into the National Marine Fisheries Service) and others.

NOAA was barely a year old when furor over a report on conditions of the New York Bight thrust the agency into the public eye. The paper, called the "Sandy Hook Report" was prepared for the U.S. Corps of Engineers by the Sandy Hook Marine Laboratory to examine the effects of dredge spoil and sewage sludge dumping in the inner New York Bight. The results of the study showed that conditions in the Bight were polluted enough that no macrofauna could exist in dumpsite areas (including both sewage sludge and dredge spoil areas)\(^4\) and that a "dead sea"\(^5\) had been created in the area. Disagreements ensued between agencies, politicians and the public over the significance of the report and the actual degradation of the Bight and created controversy that led to congressional investigations and new legislation\(^6\).

During this same period the Food and Drug Administration banned shellfishing in the inner New York Bight (Fig. 2). The FDA's decision was based on total and fecal coliform bacteria levels which exceeded those recommended by the Federal Water Pollution Control Administration for estuarine waters used for shellfish harvesting and cultivation\(^7\). These findings were in part taken from the "Sandy Hook Report' and from other studies done by the Sandy Hook Lab.
Fig. 2. Location of the 12-mile sewage sludge dumpsite, dredge materials dumpsite and area closed to commercial shellfishing in 1970 in the NY Bight.
In response to the ongoing controversy in the New York Bight and in recognition of the global impacts of ocean disposal of wastes, the President's Council on Environmental Quality (CEQ) issued its 1970 report, "Ocean Dumping: A National Policy". This report stated "[i]f no action is taken and ocean dumping continues to increase, the long term damage to the marine environment will be great." These strong words not only set the tone for the national policy of the early 1970's, they also embodied the growing belief at the time that the oceans were to be protected and that dumping was a temporary stop-gap measure to be eliminated as rapidly as possible.

As a direct result of the CEQ Report Congress enacted The Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA). The Ocean Dumping Act, as it is more commonly referred to, in Title I directed the Environmental Protection Agency and Corps of Engineers to establish and implement regulatory programs for ocean dumping. Title II required EPA and NOAA to conduct comprehensive research and monitoring regarding the effects of ocean dumping and to investigate and study alternative disposal methods. The agencies were also to determine methods of minimizing or ending as soon as possible the ocean disposal of any "material which may unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities...."
Already recognizing the need to study the effects of human interference in marine environments, NOAA had created the Marine Ecosystem Analysis Project (MESA) in early 1973. The program's goals were 1) to establish an environmental baseline, 2) to monitor, predict, and support efforts to control conditions that degrade the environment and 3) to alert responsible officials of the onset of environmental change. The New York Bight was selected for MESA's five year pilot program because of its acute environmental problems but was considered independent of NOAA's requirements under Title II of the Ocean Dumping Act. Other areas such as Prince William Sound and Puget Sound were considered as likely sites for MESA studies after the completion of the pilot program.

Not only a scientific data collection and analysis program, the MESA/New York Bight Project also provided funding for other research that would identify and answer pertinent environmental questions about the New York Bight. More importantly, perhaps, the Project was responsible for the synthesis of the available information about the Bight, putting it into a form that could be used by those developing policy and regulations. The original intent of the project was to focus on the Bight as an ecosystem, that is, look at physical and biological processes and anthropogenic effects on those processes. Ocean dumping was seen as only one aspect of the Bight's dynamics.
In 1973 all this changed. Dr. William H. Harris, a geochemist from Brooklyn College announced findings that sewage sludge dumped at the 12-mile site was, over the three years of his study, working it's way inshore toward Long Island beaches. National interest was sparked by newspaper articles describing an uninterested and unconcerned EPA and threats of a "sludge monster" defiling Long Island's south shore beaches.

In the middle of all this controversy was NOAA's MESA program. Dr. Larry Swanson, director of the MESA program, testified at an EPA public hearing that there were potentially deleterious effects from sewage sludge and indicated an "urgency and importance [in] determining more accurately the extent of sludge contamination, the oceanic factors influencing sludge movement, and the extent to which sludge is impacting or jeopardizing marine life and beaches." His conclusion, though, regarding likelihood of sewage sludge migration of towards shore, was understandably vague due to the fact that there was little information available at that time to make any judgments. These determinations, arguably inconclusive, were used by both EPA and the opponents of ocean dumping to argue their respective cases and brought NOAA into odds with both factions. As a result of it's role as "scientific expert", and with the increased congressional and media attention, NOAA was forced to place more focus on the NY Bight Project.
sewage sludge work and less on the original intent of the MESA program. In response to the increased controversy and negative scientific data EPA decided that sludge should be dumped further offshore. In 1974, NOAA was called upon to find two possible sites and reluctantly examined sites between 28 and 70 miles offshore. Eventually NOAA decided upon one 60 miles offshore although it was never considered by NOAA to be a viable alternative to the 12-mile site. EPA established a deadline of July 1976 for cessation of dumping at the 12-mile site and earlier if the findings of Dr. Harris were proven true. All dumping would be moved to the 60-mile site until December 1981 at which time all dumping would cease. NOAA continued to oppose EPA's decisions regarding the offshore site and when MESA was able to prove that sludge was not, in fact, migrating shoreward, EPA rescinded it's plans for the alternate sites. By now it was clear NOAA's findings and decisions had become integral in shaping EPA's policies and regulations and in congressional and public investigations into the ocean dumping issue.

Renewed controversy erupted in 1976 after a series of "floatable" incidents fouled the Long Island south shore. The resultant beach closures fueled public outrage and required the New York Bight Project to once again respond to heightened media and political attention. These episodes were quickly attributed to a series of isolated events in
Bight area and within seven months an in-depth analysis was available to the public. This quick response was credited to the directed attention of the NY Bight Project and its growing understanding of the complexities of the New York Bight. The second incident of the summer of 1976 illustrated that there was still much to learn about the processes at work in the region. A massive fish kill along the New Jersey coast clearly identified the potential impact of human interference in the marine environment. The event offered the NY Bight Project the opportunity to study oxygen depletion conditions and raised difficult scientific questions regarding anthropogenic versus natural occurrences of this type. While this large scale event was determined to be of natural origins, similar pollution-related smaller scale events illustrated the risks to the Bight. Subsequent MESA reports contributed greatly to the understanding of oxygen depletion conditions.

1977 to 1981

The year 1977 was a confusing yet significant time for the formulation and implementation of NOAA ocean dumping policy. For five years (since the 1972 passage of the Ocean Dumping Act) NOAA's ocean dumping programs had remained unfunded. All work was carried out under other programs and authorizations. Finally, NOAA's FY 1977 budget included
approximately $1.4 million dollars for ocean dumping research and monitoring\textsuperscript{26}. With this funding NOAA established the Ocean Dumping Program whose vague goals were to assist EPA by providing data for dumpsite analysis and support of that agency's regulatory process as mandated by Title II of the Ocean Dumping Act\textsuperscript{27}. This department was a separate entity from the MESA/NY Bight Program.

NOAA ocean dumping research continued in the NY Bight in 1977. MESA/NY Bight Project findings indicated little improvement would result in the Bight if ocean dumping were stopped, especially if no action took place to control other pollutants input. It also strongly opposed any movement of sludge dumping to another continental shelf site but considered the 106-mile site suitable for emergency dumping. (This actually took place in 1977 and 1978 when Camden, New Jersey was forced to dispose of its sludge at the offshore site.) Another branch of NOAA, the National Ocean Service (NOS), had been conducting surveys at the 106-mile site to determine baseline environmental conditions since industrial wastes had been dumped there for years and little was known about the area\textsuperscript{28}.

Concern was growing about the likelihood of actually "getting out of the ocean" since the search for viable alternatives to ocean dumping was proving fruitless. NOAA was not involved in research into alternatives since most were land-based and fell under EPA's purview. Even though
the 1977 amendments to the Ocean Dumping Act reaffirmed congressional intent to end ocean dumping that unreasonably degraded the marine environment by December 1981, the once protectionist attitude of the government as a result of a strict interpretation of the law was now in a state of reappraisal. A change in the research focus at the 106-mile site in 1977 and 1978 illustrated these changing attitudes. Baseline environmental studies were replaced by investigations into broader use of the site for ocean disposal. The Ocean Dumping Act's call for "off-the-shelf sites whenever possible" provided a mandate for this action and a possible viable alternative to the 12-mile site. Concern within the Congress and the scientific community over the unknowns of dumping in the deeper ocean were outweighed by the known deterioration of the inshore dumpsites and the resultant desire to end the contribution to that degradation. EPA's new permit renewal process reflected this change in policy by allowing continued ocean dumping based on need, status of available alternatives and an acceptable plan for phase-out within the time frame of the law. NOAA's 1977 policy, although still in a state of flux, was modified to parallel these changes:

"1. It is NOAA policy to oppose ocean disposal of sewage sludge; the agency endorses EPA's policy to terminate this dumping by 1981.

2. NOAA shall continue to oppose moving the existing sewage sludge dumpsite in the New York Bight on the basis that to date we have developed no conclusive evidence that dumping at that site has resulted in
threat to public health or a danger to local beaches. However, as dumping at that location continues, such a threat could materialize, necessitating rapid relocation. We believe that the problem of sewage sludge dumping in the New York Bight should be resolved in the framework of the Interstate Sanitation Commission's Sewage Sludge Disposal Management Plan. However, in the event EPA makes the decision to move that dumpsite, and the choices are either DWD-106 or the 60-mile site, then NOAA favors the use of DWD-106 in order to avoid despoiling a new area.

3. NOAA will not oppose any interim permits issued by EPA to allow dumping of sewage sludge at DWD-106 on a temporary basis by the cities of Philadelphia or Camden in order to allow those municipalities time to develop their proposed land-based disposal alternatives.

All of these changes, though, were still governed by the December 1981 deadline. The use of the oceans for dumping of certain substances was only seen as the best disposal option for the immediate future.

The passage in 1978 of the National Ocean Pollution Planning Act (NOPPA) mandated the establishment of NOAA's National Marine Pollution Program. The focus of this new program was to:

- prepare and update every three years a comprehensive five-year plan for the overall Federal effort in ocean pollution research, development, and monitoring (Section 4);

- provide financial assistance for such activities if they received high priority in the five-year plan and are not being addressed adequately by any existing Federal programs (Section 6);

- establish a comprehensive, coordinated, and effective ocean pollution research, development, and monitoring program (Section 5);

- insure that results, findings, and monitoring programs are disseminated in a timely manner and useful form to Federal and user groups having an interest in
such information (section 8). Programs such as the Status and Trends Program, National Shellfish Register and Consequences of Contaminants Program emerged later as a result of this legislation. All had similar goals as the original MESA program but with more directed objectives. While the MESA/NY Bight Project continued to address the very specific issues of ocean dumping in the New York Bight this legislation intended to bring a more national focus to NOAA ocean pollution research, development, and monitoring programs. The NOPPA legislation also resulted in the establishment of the Office of Marine Pollution Assessment (OMPA) at NOAA headquarters in Rockville, Maryland. The goals of this program were the same as the legislation and brought NOAA in line with the new law. Since ocean dumping was included, the Ocean Dumping Program was incorporated into this department.

In September 1979, the NY Bight Project field operations ended after almost seven years, two years longer than the original intent. In that time, though, the program was responsible for collecting more information about the New York Bight than any other program of its type. It contributed greatly to the establishment of federal ocean dumping policy and regulations and was highly regarded for it's research results regarding both ocean dumping and other environmental processes at work in the New York Bight.
With the end of the NY Bight Project NOAA transferred the MESA program to NOAA headquarters under OMPA. In 1981 the MESA program officially ended and its responsibilities and mission objectives were absorbed into OMPA. No other estuaries were studied by this program as had been originally envisioned when MESA was formed in 1973. During this same period, NOAA administrator, John Byrne, attempted to move the Ocean Dumping Program to Seattle, Washington, a move that was presented as an attempt to strengthen NOAA's pollution programs in the northwest. Congressional disapproval prevented it from happening and later that year, OMPA was reorganized into Ocean Assessments Division (OAD), a department that continues today (Fig. 4).34

Two events in 1981 contributed significantly to the future direction of federal and program ocean dumping policies. The first was the National Committee on Oceans and Atmosphere (NACOA) report titled "The Role of the Ocean in a Waste Management Strategy". The report recommended a "multimedia" approach to the disposal of wastes with an emphasis on a determination of costs versus benefit or risk. The report specifically recommended that EPA reverse its policy that no ocean dumping permit be issued when a land-based alternative exists. It went on to say that ocean dumping by barge or outfall should be allowed to continue in areas where no unreasonable degradation has resulted if appropriate conditions existed and there was adherence to
Fig. 3. The NOAA Organization for Ocean Pollution Research Activities
adequate safeguards and monitoring practices. It advised EPA to consider the cost and feasibility of land-based alternatives versus those of ocean disposal and determine the relative risk of either to the degradation of the environment and to human health. This report, therefore, encouraged policy and management decisions be made in the context of risk assessment and with a less strict interpretation of the applicable laws.

The second event of 1981 responsible for a change in policy was the judicial decision made by Federal Judge Abraham Sofaer in CITY OF NEW YORK v. EPA. Since 1973, New York City's sewage sludge had failed to meet EPA's environmental impact criteria for a special permit to be disposed of at sea. This was because the levels of PCB's, hydrocarbons, and other pollutants exceeded EPA standards. New York City had, nevertheless, been dumping using an interim special permit which allows waste to be dumped at sea even though it violates the criteria for the special permit and if there is no land-based alternative for disposal. In 1980 EPA denied New York's application for an interim permit based on the new stricter regulations imposed since 1977. In response, New York challenged EPA's interim permit process and evaluation criteria. The final court decision was in favor of New York City, stating that EPA's criteria for determining whether New York's ocean dumping would unreasonably degrade the marine environment,
ecological systems and economic potentialities was "arbitrary and capricious". The decision further stated that the EPA must consider equally the nine statutory criteria used to evaluate all permit applications. Essentially, these include the environmental effect of the proposed dumping, the need for a permit, the availability and potential impact of alternative methods of disposal and the effect of the proposed action on aesthetic, recreational and economic values.

The presumed desire of the Ocean Dumping Act was to protect the oceans from increased degradation as a result of ocean disposal of waste. It also intended that EPA be delegated broad discretion in its duty to prevent and strictly regulate ocean dumping. The results of this court case and the decision by EPA not to appeal Judge Sofaer's ruling, while betraying the original intent of the Ocean Dumping Act, more importantly, perhaps, contributed to an emerging national policy, one of non-preferential treatment of the ocean as a waste disposal medium.

1982-1988

The new attitudes towards ocean dumping, brought about by the events of the previous three years, were accompanied by increased activity in research and policy-making. EPA extended dumping at the 12-mile site for New York City and six New York and New Jersey municipalities. NOAA-sponsored
research at the 106-mile site indicated the environmental feasibility of dumping sewage sludge there. Finally, some cities (Boston, Baltimore and Washington, D.C) were exploring the possibility of the disposal of their wastes at sea\textsuperscript{42}.

In May 1983, NOAA, in a major shift of policy, issued this statement:

"Waste disposal practices should be chosen to avoid significant risk of harm to living and nonliving resources in any environmental medium - oceans, land, fresh water, and air. If it is determined that disposal is the preferred option to a potential waste problem, then disposal practices likely to cause least risk of significant harm regardless of medium should be chosen. NOAA does not oppose selection of the ocean as a disposal site if comparative assessment of all reasonable disposal options indicates that the ocean option poses the least risk of significant harm. If disposal in the ocean is currently causing or contributing to conditions that cause significant risk of harm to the marine environment, NOAA urges the timely assessment of alternative disposal practices and the selection of an environmentally acceptable practice.\textsuperscript{43}

This mirrored the already growing trend to include the oceans in a waste management strategy, exactly as the NACOA report had suggested\textsuperscript{44}.

During the same time, at a congressional hearing, NOAA testified as to the desirability of moving dumping from the 12-mile to the 106-mile dumpsite. In the past, NOAA had maintained a policy that little recovery of the 12-mile site would be observed unless the input of other pollutants was to be halted. Moving dumping out of the 12-mile site was considered unwise if it meant compromising another area.
However, new data had been collected that indicated that it was environmentally feasible to dump sewage sludge at the deeper dumpsite. These included:

- dumped sewage sludge could be diluted by a factor of $10^4$ within a few minutes and $10^5$ within a day;
- laboratory and field experiments do not find significant low level effects at these concentrations;
- there would be negligible benthic effects;
- the concentration and distribution of contaminants would not be such as to cause much accumulation in migratory or residence fish, although a few contaminants (e.g. PCBS) in sewage sludge probably contribute to bioaccumulation; and
- there would be no apparent threat to human health. 45

NOAA testified that it's newest policy, based on the above information, meant that it not only favored use of the deep water site over the 60-mile site (EPA had begun to consider this site again) it also favored it above the 12-mile site46.

From 1983 to 1985 investigations into transferring sewage sludge disposal to the 106-mile site continued. The result was that in April 1985 EPA issued a final denial of petitions to re-designate the 12-mile site along with a request that the nine municipalities still dumping at the 12-mile site transfer their operations to the 106-mile site. The principal factor in this decision was that if dumping at the 12-mile site were to continue in the manner that would meet the limited permissible concentrations requirements it had the potential for creating navigational hazards. In
addition, it was shown that the primary source for sewage-related contaminants found in the Christiansen Basin and ocean floor north of the site to within five nautical miles south of Long Island was a result of ocean dumping of sludge at the inshore site. Along with the continued closure of shellfishing beds in the area, increased levels above the normal ambient levels of heavy metals and halogenated hydrocarbons were observed at the site. An orderly 1 1/2 year phase-out schedule was negotiated with the dumpers the controlling factor being the lack of ocean-going barges necessary for transport of the sludge to the offshore site required a 1 1/2 year step-wise schedule. Completion of the change-over to the 106-mile site was accomplished on December 31, 1987.

Since early 1988, controversy has once again erupted over ocean dumping. Fishermen claim that catch totals are down and the incidence of disease in shellfish is on the increase in the northeast as a result of environmental degradation from dumping at the offshore site. Coastal communities are angered over episodes of medical wastes washing up on the beaches from New Jersey to Rhode Island and incorrectly blame sewage sludge dumping. Scientists, baffled by large-scale occurrences of dolphin deaths along the Atlantic coast, have looked to the disposal of wastes at sea as a possible culprit. Finally, as a result of these events, public outrage has fueled congress into amending,
once again, the Ocean Dumping Act in an attempt to close the loopholes that allowed for the continuation of dumping for the last eight years.

The Present Ocean Dumping Situation

The pendulum has, once again, swung back to a policy of non-use of the oceans for waste disposal. In response to the renewed controversy over movement of sludge dumping to the 106-Mile Site the Ocean Dumping Ban Act of 1988, actually an amendment to the 1972 Ocean Dumping Act, was produced, setting a date of December 31, 1991 for the cessation of ocean disposal of sewage sludge and industrial wastes. In particular, this amendment specifically avoided the controversy surrounding the determination of "unreasonable degradation" and benefit and risk comparisons of waste disposal media by banning ocean dumping outright and making it economically infeasible to continue dumping much beyond the cutoff date. The key provisions include:

- No new dumpers of sewage sludge or industrial waste.
- No dumping of sewage sludge or industrial waste without a permit and compliance or enforcement agreement.
- Dumping fees imposed starting 270 days from the enactment of the Act and continuing until December 31, 1991.

The fees, which are expected to be considerable, are divided amongst EPA, NOAA, and the Coast Guard for
monitoring, research and surveillance activities. Part of the fees will go to coastal states clean ocean funds and part will be held in trust to be returned to the dumpers to support their development of alternatives. Probably the most important aspect of the legislation lies in the consent decrees that have been entered into by the dumpers stating their plans and schedules for implementing alternatives to ocean sludge disposal, which legally bind them to their own plans.\textsuperscript{49}

This brings us to the present. It is clear that historical events have been cause for action and reaction by both policy-makers and implementors. The following chapter examines in depth those responses that have affected NOAA's role, politically and scientifically, as it relates to the ocean dumping issue.

NOTES


2. A recognition of the growing potential for commercial development of ocean resources in the 1960's led to the creation of the Commission on Marine Science, Engineering, and Resources (commonly referred to as the Stratton Commission) by President Johnson in 1967. In turn, the commission's report "Our Nation and the Sea" proposed an independent agency reporting directly to the president, however, President Nixon placed the agency under the Department of Commerce.


5. The term "dead sea" was coined by New York Congressman Richard Ottinger after reading the "Sandy Hook Report".


7. ibid., p. 619


10. ibid., at v.

11. "NOAA Policies Report", see Ch. 2, note 1

12. "Ocean Dumping Act", Titles I and II

13. ibid., Title II


15. personal communication with ex-director of the MESA/NY Bight Project Dr. Larry Swanson, presently director, Waste Management Institute, SUNY Stonybrook, Stonybrook, NY. Feb. 26, 1988


17. "MESA Report", x-xi

18. Gary Soucie, "Here come de sludge", AUDUBON, Vol 74, No. 4, July 1974, pp. 108-113. Dr. Harris' findings from research cruises showed over a 2 year period (1970-72) that the northern periphery of the 12-Mile site had moved from eight to five miles of shore and that portions of the sludge had broken away from the main mass and were contaminating sea bottom to within one-half mile from shore.

19. ibid., p. 111
20. ibid., p. 111

21. personal communication with Dr. Larry Swanson, Feb. 26, 1988

22. ibid., pp. 112-113 also "NOAA Policies", p. 3

23. reference for the entire paragraph was taken from three sources: "NOAA Policies", pp. 1-4; "Audubon article", pp. 108-113 and from personal communications with Dr. Tom O'Conner, NOAA/Oceans Assessment Division, Rockville, MD and Dr. Larry Swanson (see note 14)


25. ibid., pp. 120-123

26. "NOAA Policies", see Note 14


28. "NOAA Policies", see Ch. 2, p. 5

29. "NOAA Policies", p. 5


32. ibid., p. III-205

33. Personal communication with Dr. Larry Swanson, Feb. 26, 1988 and "Squires", pp. 117-120

34. ibid., see also note 25

35. from NOAA/NOS, Report to Congress on Ocean Pollution, Monitoring, and Research. October 1985 through September 1986, p. 3


39. ibid., p. 210

40. ibid., p. 222

41. ibid., pp. 222-224, also "NOAA Policies", p. 8


43. "NOAA Policies", p.8

44. "NOAA Policies", p. 8

45. supra note 40, p. 18


Establishment of public policy can be in many forms, such as the passage of a legislative act, the issuance of an executive order, the handing down of a judicial decision or the promulgation of a regulatory rule. However, that is only the first step. Since policies are rarely self-executing, their implementation is left to government agencies to establish programs or regulations to carry out the policy. Unfortunately, this process is difficult and the end result may differ greatly from the original intent of the law or policy.¹

The inhibition of effective policy implementation can be explained by George Edwards theory, as discussed in Chapter 2. The four factors that can impede the policy process are:

1. Communication - Lack of or unclear communication disrupts policy implementation. For example, communication difficulties can result from laws and judicial decisions that lack clarity. They can exist between heads of departments and their employees or between collaborating agencies.

2. Resources - If those responsible for carrying out policy lack the resources to do so, policy implementation will suffer. For this paper, resources are defined as funding, information, and authority.

3. Dispositions - In effective policy implementation, the implementors must have the desire to carry out a policy. Disagreements within or between agencies can disrupt the implementation process.
4. Bureaucratic Structure - The structure of bureaucracies, namely standard operating procedures and fragmentation can constrain implementation by inhibiting change and diffusing responsibility.

NOAA is the federal government's primary source of data and information concerning problems of the ocean and atmosphere. This section examines the specific issue of NOAA's involvement in the implementation of ocean dumping policy and discusses the agency's own implementation process as it has been shaped by both the intensely controversial events of the past twenty years and their relation to Edwards theory.

Policy Implementation Difficulties in the Early 1970's

The fledgling NOAA, in the midst of administrative uncertainty, had little or no bureaucratic structure in place to link the already existing environmental programs now under its purview not to mention develop any new programs. The ocean dumping issue, both politically and scientifically challenging, was only one of many faced by the new agency.

An early example of both dispositional and communication difficulties surrounding the ocean dumping issue arose between the Corps of Engineers and the Sandy Hook Marine Lab over the "Sandy Hook Report". In 1968, the Corps commissioned the then U.S. Fish and Wildlife Service
Laboratory at Sandy Hook to study the dumpsites in the New York Bight (the Corps was, at the time, the closest thing to a coastal ocean agency; its responsibilities included maintaining the navigability of U.S. waters). The purpose of the report, supposedly, was to help the Corps determine the advisability of continuing dumping operations at the present disposal site. The study was to take two years and was to assess the ecology of the site by performing chemical analyses of the water and sediments and pelagic and benthic studies.

The 1970 report indicated that the dumpsite areas were severely degraded, a fact that, seemingly, the Corps was unprepared to accept. Nor was it prepared to deal with the controversy the report created. In an attempt to minimize the negative impact the COE characterized the report as "tentative, incomplete and subject to change." Further, in an interview for BIOSCIENCE, Kenneth Osborne, a COE staff marine biologist, stated that "the competence of Sandy Hook is only in fishery biological research. The Corps only wrote one contract with Sandy Hook ... they tried their best hydrographically but what is needed now is the highest type of physical oceanography." When asked why the Sandy Hook Lab was chosen in the first place, he stated "Sandy Hook was chosen because they had their own vessels and the Corps would not have to pay for the purchase of such vessels by another organization. [The Corps] would only have to pay
for the cost of using vessels and not the cost of purchasing. Since no policy existed, either within the lab or at the federal level, the Sandy Hook Lab could only react by defending its studies both to the Corps and to an outraged public (a pattern that has seemed to exist ever since).

The above example illustrates how differences in the organizational viewpoints (dispositions) and unclear communications can impede effective policy development and implementation. Specifically to ocean dumping, however, the early controversy with the COE (as a result of the report) contributed to a somewhat defensive posture that was necessary for NOAA to maintain in regard to its ocean dumping research. The Sandy Hook Lab was a fisheries biology research facility, wholly interested in the study of habitat, predation, life cycles and the many other aspects of marine life. The Corps' focus was on construction and maintenance of marine engineering projects and it had little experience dealing with environmental impacts of these projects especially ocean dumpsites.

Similarly, it was not surprising that communication difficulties also would arise between two agencies with vastly different missions. Edwards states that one of the pitfalls of communication is lack of clarity: transmitted instructions are vague and often do not specify when or how a program is to be carried out. This also seemed to be
part of the problem between Sandy Hook and the COE.

It is important to note that perhaps these early events, that is, those prior to the enactment of MPRSA and the formation of MESA, are less significant to NOAA's present position in ocean dumping research. However, these patterns seem to exist throughout the next twenty years and, as this paper examines, has contributed to many of NOAA's problems in effectively contributing to and implementing a national ocean dumping policy.

Implementation of The Ocean Dumping Act (MPRSA) 1972-1975

The 1970 CEQ report and the escalating controversy over ocean dumping were, in part, responsible for the passage of the MPRSA in 1972. Through this legislation the country had established a form of national ocean dumping policy. However, NOAA, whose responsibilities under MPRSA were significant, had distinct difficulties in those early few years developing any kind of implementation plan.

To begin with four Federal agencies shared major responsibilities for the overall implementation of the Ocean Dumping Act. Because interagency coordination was seen as essential to this mission, the Ocean Disposal Program Coordinating Committee was formed in April 1973 and was comprised of EPA, NOAA, COE and the Coast Guard. This was the first attempt to bring together four diverse bureaucratic units in both an attempt to avoid duplication
of research effort and, more importantly to encourage a high order of interaction. NOAA was charged with heading this committee since it was also lead agency in the research and monitoring of ocean dumping.

Unfortunately this well-intentioned effort to combine forces was a distinct disappointment. A NOAA evaluation described the committee as such:

"While the committee has been useful as a forum for the exchange of ideas and discussion of common problems, it has met infrequently and the productivity and pace of the committee have been disappointingly low. Reliance on the four-agency committee for speedy resolution of substantive problems of ocean disposal is simply not possible."

Edwards describes two possible reasons why this important attempt at cooperative policy implementation did not work. First, within most organizational units there is often a dominant opinion about the organization's primary mission. Focus is placed on those functions of primary interest leaving those considered as secondary functions with lesser allocations of time and resources. Secondly, bureaucratic units often try to achieve autonomy in carrying out their responsibilities. For this reason they do not want to be controlled by officials outside their organization or to have to coordinate closely with other organizations.

NOAA's attempt to develop its own program designed to address the legislative mandates of the Ocean Dumping Act seemed equally as difficult. Edwards describes the
"Often the passage of a new policy is followed by a period of administrative uncertainty in which there is considerable time lag before any information on program[s] are disseminated. This period is followed by one in which rules are made but are then changed quickly as high-level officials attempt to deal with the unforseen problems of implementing the policy and of their own earlier directives." \(^{10}\)

For NOAA this process took nearly three years. In 1975 the agency finally published its program issue paper, the purpose of which was to:

"1) outline the program being developed under the requirements of P.L. 92-523 [the Ocean Dumping Act], Title II;
2) provide support and justification for the FY 77 budget request for the ocean dumping program; and
3) identify a number of issues which still require resolution in further development of the program." \(^{11}\)

NOAA admitted in this document that its process was slow in developing. The failure of the Ocean Disposal Program Coordinating Committee to provide coordination between agencies left NOAA with sole responsibility for determining areas of duplicative research as well as areas of inquiry which were not being adequately covered, all necessarily addressed in the new ocean dumping program.

NOAA interpreted its role of monitoring and research as one designed to support and complement the regulatory programs mandated by the first section of the Ocean Dumping Act. A close association between NOAA and EPA therefore was necessary for effective implementation of this new policy. Unfortunately, delays in the establishment of an official relationship between NOAA and EPA headquarters stalled the
necessary interaction. Like NOAA's own program development plan, it took nearly three years before the two agencies were able to develop an interagency agreement outlining in detail the steps each agency would take to satisfy their responsibilities under the MPRSA.

Interagency agreements between bureaucratic units are often important tools to help define their respective roles in a policy area. Bureaucracies, Edwards describes, are often dependent on standard operating procedures (SOP's), that is, internal responses developed because of a desire for uniformity in the operation of complex and widely dispersed organizations. NOAA's interagency agreements could be described as a form of SOP's since they establish specific responsibilities, avenues of communication and funding sources when working with other agencies. While SOP's can inhibit changes in policy or generate undesired actions they are a necessary form of bureaucratic structure. In NOAA's case the lack of an interagency agreement and the bureaucratic steps necessary to establish one have both been cause for inaction.

While the establishment of the interagency agreement developed some guidelines for continued interaction, basic dispositional difficulties still existed between NOAA and EPA. Some authors describe this as a tendency of scientists to focus on uncertainties which provide opportunities for discovery, whereas the public and managers tend to desire
more certainty about their environment and in their decisionmaking. In this particular case it could be seen as a sort of scientific disposition versus a regulatory disposition. NOAA's lack of support for EPA's decision to move the 12-mile site out to 60 miles is an example of these attitudes. NOAA's policy, concurrent with the protectionist attitude at the time, did not support possible contamination of a relatively pristine area of the continental shelf. Its findings suggested no significant improvement in water quality would result at the 12-mile site with the cessation of sludge dumping only since the input of other contaminants from the Hudson-Raritan estuary would continue. Overall, NOAA insisted that anticipated regulatory decisions should be based on the best available scientific information. EPA, while supporting this concept, was influenced by more than purely scientific data. The highly visual image of a "sludge monster" devouring congested Long Island beaches was but one of these influences, generating social and political pressure and forcing EPA into decisions that may not have completely considered the scientific realities. While NOAA's data was finally instrumental in EPA's decision not to use the 60-mile site the whole process once again placed NOAA in an defensive role and illustrated the difficulties of integrating science into regulatory decisionmaking.

Another responsibility of the Ocean Dumping Act (Section 203) which originally fell upon NOAA's shoulders
was the exploration of alternatives to ocean dumping such as recycling, new industrial processes, incineration, and other forms of land disposal. NOAA stated, however, that the development of these technologies fell outside the background, mission and competency of the agency. Since both the Corps of Engineers and EPA were already involved in the research of alternatives any involvement by NOAA was seen by the agency as duplicative. Besides, NOAA had no resources for such an endeavor. This "disposition", that is, the perception that the search for alternatives was outside it's primary mission, seemed to justify NOAA's decision to remove itself from the obligation of the law. In turn, it left in limbo one important aspect of the Ocean Dumping Act, the exploration of means of minimizing or ending all dumping of materials into the ocean.

**MESA/NY Bight Project**

NOAA's Marine Ecosystem Analysis Program (MESA) was probably one of the most effective implementation tools available to NOAA during the early years of the ocean dumping issue. Its well thought-out mission, its ability to adapt to new directions and its tightly organized structure were responsible for its success in providing a better knowledge of the New York Bight and the impact of waste disposal in it.

Unlike other programs in NOAA, MESA was blessed with an
extensive development plan produced by Westinghouse Electric Corporation. This report detailed the scope of MESA and provided a valuable foundation from which to build this program. In many ways this plan could be likened to a standard operating procedure, providing specifics on the program's management and scientific approaches and the technical resources available. The report went so far as to outline each identified task with its specific objective, approach, list of recipients, relationship to other tasks and its start and end dates.

The MESA/NY Bight Project could be described as a successful implementation tool because it avoided many of the pitfalls outlined by Edwards. To start, communications were consistent and clear because it was a small, cohesive group located at the site of the problem. Its products were applicable and readily available to the users, the largest being the EPA. The resources were already available for the MESA program when its focus was narrowed to ocean dumping in the NY Bight. It had talented people with the proper skills for the tasks. Because of its close proximity to the problem it received the information necessary to function properly, either from EPA or from its supervised field work. Because of NOAA's mandate under MPRSA the program met an immediate need. Probably most important, however, was that the program generated quality information that was used.
Other factors contributed to MESA's success. The differing viewpoints between NOAA and EPA common at the headquarters level were mainly confined to Washington. MESA was able to maintain a fairly close working relationship with EPA Region II throughout most of tenure. MESA's program development plan was not so restrictive or firmly entrenched in the agency's infrastructure that the program could not effectively pursue the new direction it was thrust into at the beginning of the ocean dumping crisis. Although Edwards describes it as a pitfall, fragmentation may have been a benefit for MESA. The physical and bureaucratic separation from NOAA headquarters may have isolated MESA from some of the disruptive business of government.

Even in light of its accomplishments, however, circumstances surrounding the success of the program may have been partly responsible for the difficulties in policy development and implementation that later contributed to NOAA's lack of presence in today's study of ocean waste disposal. Within two years of its inception, MESA was already considered the "expert" in the study of ocean dumping in the New York Bight and its data was used extensively by EPA in its regulatory decisions. Since these regulations were under almost constant challenge whenever they were at all controversial or went against political desire or popular beliefs NOAA was often put in the position of defending its science to both a summoning
Congress and an investigatory press. Similarly, it's easy accessibility to EPA, the public and the media was responsible for continually drawing NOAA into the ocean dumping spotlight, a fact that made people in NOAA headquarters in Washington very uncomfortable. According to Dr. Larry Swanson, then director of the MESA/NY Bight Project, most of NOAA's other programs and policies were lacking in controversy leaving the agency both unprepared for and extremely intimidated by the attention placed on ocean dumping. He fully believes that when the time came for the NY Bight Project to end, NOAA officials "breathed a sigh of relief". He also saw the reorganization of MESA and the physical move of the program as a "retreat" to Washington, out of the limelight, so to speak, where it could be better controlled by NOAA officials. MESA's incorporation into already existing programs seemed to mark the beginning of the end of NOAA as a significant contributor to both ocean dumping science and, ultimately, policy decisions.  

Resources: Funding, Information, and Authority

Resources, or lack of them, have also played a significant role in both the early development and continued presence of NOAA in the ocean dumping policy process. In 1972 the Ocean Dumping Act allowed a scant one million dollars for the research necessary to support regulation of
ocean dumping. At this time NOAA asked the Department of Commerce (DOC) for $4.1 million either as a supplemental "add-on" or amendment to the fiscal year 1974 congressional submission, but was disapproved. NOAA asked for no funding under the Ocean Dumping Act in 1975. In 1976, DOC approved $2.0 million of a $5.7 million request by NOAA but the Office of Management and Budget (OMB) disallowed the funds. Five years after the passage of the Ocean Dumping Act NOAA requested and Congress finally approved $1.37 million as an initial appropriation under the Act. It was only then that NOAA began the Ocean Dumping Program.

It is unclear whether lack of funds was the reason for the failure to develop a specific NOAA program tasked to meet the requirements of the Ocean Dumping Act or the lack of programmatic development stymied the acquisition of funds necessary to effectively carry out the legislative mandates. What is clear is its detrimental effect on the acquisition of the information necessary to support effective policy implementation.

All work on ocean dumping research up to this point was conducted using resources from other programs including MESA, National Ocean Survey (NOS) and NMFS. MESA resources were directed to the immediate problems in the New York Bight in the first five years (see discussion below) as a result allowing NOAA to meet its requirements under the Ocean Dumping Act. However, dispositional issues and
fragmentation of funding and information sources inhibited further policy implementation, a consequence still felt today. For example, NOS conducted the early baseline surveys at the 106-mile dumpsite which contained extensive analyses of the chemical and physical properties of the site, the office's area of expertise. Only limited information was included on the biological activity in the region since this was not an NOS area of expertise. Personnel within NMFS, at the time, were vehemently opposed to ocean dumping and therefore did not support research which was being conducted on the effects of ocean dumping both at the 12 and 106-mile sites because it might be construed as supporting continued dumping. Dr. Robert Edwards, director of the NMFS Northeast Fisheries Center, was one of the most outspoken critics thinking NOAA should not involve itself in dumping matters unless the agency's position was strictly that of "no dumping".22 Edward's theory seems to explain the dynamics of this type of situation:

"Different bureaucratic units are likely to have different views on policies. Intra- and interagency disagreements inhibit cooperation and hinder implementation. Within a single policy area, each relevant agency probably has different priorities, different commitments, and different methods of handling problems. Similar differences may arise between those within different program responsibilities within an agency. These differences are not conducive to creating the mutual trust and close working relationships that are frequently necessary for effective implementation."23

In reality, the consequences of such dispositions have
had long-term ramifications. While the baseline studies by NOS at the 106-mile dumpsite continue to provide pertinent information on the physical ocean such is not the case for the biological ocean at the site. In a recent statement to a congressional hearing on amendments to the Ocean Dumping Act NMFS admitted little information on benthic fauna in the dumpsite region is available after 1976 and in-fact these early measurements can only provide limited benchmark information. It went on to admit that these measurements should have been accomplished prior to extensive dumping and at continued intervals after the onset of dumping.

The above examples show that important information may not have been available for incorporation into the decisionmaking process. As policies within NOAA shifted over time from protectionism to reappraisal and ultimately to a benefit and risk assessment attitude, in line with national policies, a greater burden has been placed on the importance of information required to implement new programs. The greater use of the oceans for waste disposal demands a better knowledge of the processes at work.

Edwards theory views authority as another important resource in the implementation of policy. Authority can vary from program to program and comes in many different forms: the right to issue subpoenas, issue orders to other officials, provide or withdraw funds from a program, or take cases to court. Implementation problems can exist when two
agencies falling within the same jurisdiction have to share authority. As provided by the Ocean Dumping Act, EPA clearly maintains authority to issue permits and institute regulations regarding ocean dumping. It is less clear, however, what role was played by the scientific information and continued monitoring necessary to support those actions. Certainly during the MESA days NOAA's opinions were heavily relied upon. EPA's decision not to allow dumping at the 60-Mile dumpsite based on NOAA's findings, illustrates how NOAA's scientific involvement affected policy and regulations. Clearly, the greater the role that scientific information plays in the regulatory process the greater is it's "authority". While nowhere in the Ocean Dumping Act was NOAA given any kind of mandated authority, a sense of control may have developed as EPA decisions relied upon NOAA's scientific findings. After the ocean dumping program responsibilities moved to Washington, D.C. this issue seemed to disappear probably due to the lack of cooperation between the two agencies at the headquarter level.


According to Edwards theory, the reorganization of NOAA's ocean dumping programs from 1979 to 1981 could have contributed significantly to policy implementation problems within NOAA. The incorporation of MESA into the Office of
Marine Pollution Assessment (OMPA), the attempted move of the ocean dumping program to the northwest, and the subsequent reorganization of OMPA into the Oceans Assessment Division quickly diluted a viable working program of ocean dumping research. While both of these pollution assessment programs were NOAA's attempt to address broader ocean pollution issues, the immersion of the ocean dumping programs into the broader-based pollution programs was seen by those within the organization as an attempt to distance the agency from the immediate controversy of ocean dumping. Edwards reasons that if the disposition of officials within a bureaucracy is against a policy or the policy's ramifications to that agency, effective implementation will suffer. If, in fact, as Dr. Swanson stated, the attention NOAA was receiving regarding ocean dumping was intimidating to the agency, a possible solution would be to lessen the program's visibility. The facts are that by 1982 no program existed within NOAA that dealt exclusively with ocean dumping.

In actuality, it is not clear what the motivation was for the reorganization discussed above or the rapid disappearance of an ocean dumping program within NOAA. However, on a broader scale the whole time period from 1977 through 1982, when numerous changes in the Federal ocean dumping policy were taking place, may have made it difficult for NOAA to keep abreast of and respond to the events and
decisions of the moment. Edwards theorizes that inconsistency in policy and implementation orders can effectively inhibit the process and send mixed signals to the agencies attempting to perform their roles. The established ocean dumping law (and one must assume, policy) was made stronger by EPA and Congress in 1977 so that all dumping that "unreasonably degraded" the oceans would end by December 1981. It was also hoped that this would provide an added incentive to develop alternative disposal techniques. It had an added effect, however.\textsuperscript{27} At the same time as seemingly restrictive measures were being taken at the inshore dumpsite increased focus on the 106-Mile Site as one alternative to the inshore site was also taking place. Camden, New Jersey was allowed to dispose of their municipal waste at the 106-Mile site on an emergency basis and industrial waste continued to be dumped at the site. NOAA involvement in the studies of each of these events produced conclusions suggesting that the highly dispersive nature of the site could accommodate the kinds and amounts of sludge dumped at the 12-Mile Site.\textsuperscript{28} All this seemed to result in NOAA finding itself supporting limited ocean dumping through its research into ocean dumping effects all the while favoring EPA's December 1981 deadline for the cessation of sludge dumping. A particular example, while perhaps anecdotal, nevertheless illustrates the results of inconsistent and unclear policymaking. In the first half of
1977 an internal memorandum from the Acting Administrator for Marine Resources (dated May 20, 1977) titled "Is Ocean Dumping Really That Bad" stated:

"Our position on this subject has always been that we are supposed to be the protector of the oceans, but this may not be reasonable if one takes a broader context. How will New York City dispose of their sewage sludge? Can they come up with a new plan in four years?...Suppose we take a position that everyone should dump sludge at the 106-Mile Site? Why not?"

Inexplicably, at the same time a NOAA issue paper dated May 3, 1977 intending to identify NOAA's policy on ocean dumping, in part stated:

"It is NOAA's policy to oppose ocean disposal of sewage sludge; the agency endorses EPA's policy to terminate this dumping by 1981."

Edwards policy implementation theory, applied to the two major events in 1981 (namely the NACOA Report and the "Sofaer Decision"), illustrates how these events affected both the formulation of NOAA policy and, in turn, the implementation of that policy.

Edwards discussion about unclear and inconsistent policies is borne out in NACOA's report on ocean dumping:

"Because it is impossible to implement all five statutes [namely Federal Water Pollution Control Act, MPRSA, Safe Drinking Water Act, Resource Conservation and Recovery Act and the Clean Air Act] simultaneously, the implementation of each statute has shifted the burden of receiving society's waste products to the medium least regulated at the moment.... NACOA is concerned that this medium-by-medium approach may have produced groups of regulations whose primary objective is to protect a particular medium from use as a waste disposal medium, without any regard for the impact of these regulations on other media."

If, in fact, this observation by NACOA was true it could
have contributed to difficulties for NOAA (or any other agency for that matter) involved in the implementation of these laws.

The "Sofaer Decision"\textsuperscript{32}, for the purposes of this discussion, serves to illustrate 1) the difficulties that can be encountered by an agency attempting to translate the language of laws into actions and 2) the role of the courts in the policymaking process. Edwards theory addresses both issues. In the first, he acknowledges that laws are often unclear, sometimes leaving it up to the implementors to determine the true intent of the law. Sometimes, however, the complexity of the issue warrants a certain vagueness. He reasons:

"Neither executives nor legislators have the time or expertise to develop and apply all the requisite details for implementing policy. They have to leave most (and sometimes all) of the details to subordinates."\textsuperscript{33}

One of the major criticisms made by the "Sofaer Decision" was EPA's interpretation of the language of the Ocean Dumping Act, specifically, regarding sewage sludge which "unreasonably degraded" the environment. Discussions about Judge Sofaer's decision argue that the law acknowledged scientific and environmentally sensitive regulations were necessary for proper implementation of the law and correctly deferred that responsibility to EPA.\textsuperscript{34} In the second issue, Edwards states that the narrow definitions made by the courts can significantly impact policy and, in turn, the
respective implementation. In this particular case, while the court did not attempt to change the 1981 deadline for the cessation of dumping, it did focus on EPA's consideration of the factors involved in the issuance of ocean dumping permits. Of course, the results of the court's ruling are well known.

**NOAA Policy Issues from 1982 to the present**

NOAA's policies in the 1980's certainly reflected the realities of the law and emerging scientific conclusions regarding expanded use of the oceans as a waste disposal option. The major policy reversal that oceans should not be accorded a preferential treatment in waste management decisions was ironically, for a time (in 1983), contrary to EPA, who proposed special treatment for the ocean with respect to other disposal media. In general, though, there was less problem with coordination between the respective agencies in the 1980's although this may be reflective of the fact that there was less coordination.

One problem area for NOAA throughout this period and, most likely, throughout the whole twenty years of ocean dumping history, was the definition of monitoring. Similar to the problems EPA encountered regarding the Ocean Dumping Act's use of the term "unreasonable degradation", the law did not clearly define what monitoring meant. While NOAA was charged with the responsibility of conducting
NOTES


2. Personal communication with Dr. John Pearce, Deputy Director, Northeast Fisheries Center, National Marine Fisheries Service on 9 February 1988. He was director of the Sandy Hook Lab during this period of discussion.

3. Peter III, Walter G., see Ch. 3, note 5, p. 617

4. ibid., p. 619

5. "Edwards", p. 26


7. ibid., p. 9

8. ibid., p. 9


16. "NOAA Policies", p. 3

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20. the entire paragraph was based on personal communication with ex-director of the MESA/NY Bight Project, Dr. Larry Swanson, presently director of the Waste Management Institute, SUNY Stonybrook, Stonybrook, NY., 26 Feb. 1988


22. ibid., pp. 3-4


26. Ocean Dumping Act, Sections 201 and 202

27. Public Law 95-153, November 4, 1977. See also "NOAA Policies", pp. 5-6


29. "NOAA Policies", p. 5

30. see note 28 in "Historical Perspective" chapter for complete text of policy statement


32. the commonly referred name of EPA v. New York City 543 F Supp. 1084

33. Edwards, p. 36

35. Edwards, pp. 39-40

36. Bakalian, op. cit.

37. see note 13, Historical Perspectives chapter

38. Personal communications with Frank Csulak, EPA Region II, 10 March 1988 and Henry Walker, EPA Environmental Research Lab, Narragansett, RI, 6 March 1990
comprehensive research and monitoring regarding the effects of ocean dumping, in 1984, EPA contracted with Battelle Ocean Services, a private ocean research firm, to conduct research, in part to support its ocean dumping permitting process. Discussions with people in EPA have indicated that EPA employed Battelle because it was not receiving the necessary information from NOAA. The present contract between EPA's Office of Estuarine Protection and Battelle is for $48 million over three years, a substantial portion of which goes directly toward monitoring and research at the 106-Mile Site.\textsuperscript{38}

After the reorganization of NOAA's ocean dumping and marine pollution programs in 1981, the disposition within the newly formed Ocean Assessment Division was that ocean dumping was more of a political and social issue and less of a scientific one. The Status and Trends, Mussel Watch, and other marine environmental monitoring programs, while including the dumpsite areas, were concerned with nationwide data acquisition and analysis. Consequently, little more was done specific to ocean dumping in the New York Bight.

The discussion/conclusions that follow will attempt to summarize and coalesce the application of Edwards theory to the events of the past twenty years.
CHAPTER VI

CONCLUSIONS

"The history of evolving policy on ocean dumping by NOAA reveals the workings of a federal agency attempting to reconcile its views on protection of the ocean environment with legislative mandates, new scientific findings, and the realities of the given waste disposal situations."

Philip Cohen
1986

The original premise of this paper that NOAA has not met its responsibilities under the Ocean Dumping Act with regard to ocean dumping research and monitoring is based on three questions. 1) How have NOAA's ocean dumping policies been shaped? 2) What difficulties have arisen in the implementation of these policies? 3) How have these issues shaped NOAA's present role in the ocean dumping situation?

NOAA's policies did not evolve in a void. They were concurrent with the three distinct phases of national policies. The first approached ocean disposal as a temporary measure to be eliminated as soon as possible. Political and social pressure notwithstanding, NOAA saw itself as a protector of the ocean and its actions reflected that attitude. The second phase came about as the realities of scientific evidence and the lack of practical alternatives made ocean dumping more feasible for some substances. NOAA's decision to not exclude the ocean as a
disposal medium under certain conditions was the third phase and followed a national policy that waste management decisions should be based on a reasonable and comprehensive assessment of comparable benefits and risks. With the passage of the Ocean Dumping Ban Act, we have, perhaps, returned to the original phase; non-use of the ocean for waste disposal. It is interesting to note that political determinations were the framework for the decisions to "get out of the ocean" while those of science found a place for sewage sludge in the marine environment.

Neatly laying out the direction of policy over the twenty years, while generically valid, does not include a portrayal of the often difficult implementation process associated with policies. George Edwards emphasized an explanation of the factors that adversely affect policy implementation. This paper, in turn, identifies the problems associated with the particulars of NOAA's attempts at implementation and, in effect, overlays them onto Edwards theory.

While all four factors in Edwards theory have played a role in this discussion, communication and disposition problems have most significantly affected the direction of implementation. The Ocean Dumping Act assigns NOAA three responsibilities: 1) monitoring the effects of waste dumped into the ocean, 2) conducting research programs on long-range effects of pollution and human-induced changes on the
marine environment, and 3) the search for alternatives. In the early years (1970-1972) NOAA's research plans focused on ecosystem-wide studies into the effects of human activities on coastal waters. However, vague ocean dumping policies made it difficult for the newly-formed NOAA to respond to the growing ocean dumping crisis. After 1972, more specific studies at the 12-mile dumpsite were the major focus of NOAA's research. Much of this work was in response to sludge-induced crises, real or imagined. The understanding of the dynamics of the New York Bight by MESA/NY Bight Project was an added benefit received by the monitoring activities of ocean dumping. Within the realm of policy, the Ocean Dumping Act established a statutory-based national policy with a fair amount of discretion accorded to the implementing agencies. In 1974, NOS conducted the first in series of studies (often referred to as baseline studies) at the 106-mile site. Most research was still specific to monitoring of ocean dumping. This continued until the reorganization of NOAA ocean dumping and marine pollution programs in 1981. However, dispositional difficulties between and within agencies, along with unclear policies, provided roadblocks.

It is the period after 1982 that seems to mark the end of NOAA's ocean dumping-specific monitoring/research programs. In NOAA's Ocean Assessment Division FY 1986
Report to Congress on Ocean Pollution, Monitoring, and Research they state:

"During the past year the OAD program has continued to develop the operational capabilities necessary for analysis of marine and estuarine environmental quality problems in a national context. It has directed NOAA's environmental quality assessment and monitoring efforts toward coastal and estuarine areas where problems are more immediate than in the open ocean." [emphasis from quoted text]

A thorough search of literature revealed no other ocean dumping studies performed by NOAA either site or activity specific until 1987 when the 12-mile dumpsite recovery study by NMFS was undertaken. Of all studies related to or in the vicinity of the 106-mile dumpsite conducted after 1984 none was either sponsored or performed by NOAA. The studies that only incidentally incorporated the dumpsites into the overall sampling strategy, such as MARMAP, NEMP, and Status and Trends were essentially ecosystem-wide monitoring plans. Ocean dumping influences were considered as only one of the many pollutant inputs studied.

There is not a clear picture as to whether NOAA failed in its ocean dumping mandate in some way. Its original intent in 1972 with the creation of MESA was to conduct "ecosystem-wide" research, by including all the factors that influence the health of a system. The agency's present-day programs are similar in that respect. NOAA is, in fact, fullfilling that part of its ocean dumping mandate that instructs it to conduct long-term research into man's impact on the marine environment. However, insofar as NOAA has
removed itself from the monitoring of ocean dumping, it has not seemed to have lived up to its mandate. The acknowledged lack of information regarding benthic fauna, the non-existence of any recent dumpsite studies, and EPA's employment of Battelle to conduct it's research in support of the permitting process all seem to support this premise.

There is renewed interest by NOAA in the deepwater dumpsite since the passage of the Ocean Dumping Ban Act of 1988. A cynical person might suggest that this interest stems from the large influx of money as a result of the dumper's user fees. A hopeful person might believe that this represents a golden opportunity to delve deeper into a relatively unknown area. It might be suggested there are certain realities to both.

NOTES

1. from "NOAA Policies" p. 10. This seems to summarize the difficulties facing NOAA as a scientific agency. It seemed like an appropriate quote for the conclusion.
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