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**PRELIMINARY REPORT OF THE
SENATE SPECIAL COMMITTEE TO STUDY
COASTAL AND OCEAN POLLUTION**

JANUARY 1988

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SENATE SPECIAL COMMITTEE MEMBERS:

Frank Pallone, Jr., Chairman

Richard Van Wagner

Laurence S. Weiss

Thomas S. Gagliano

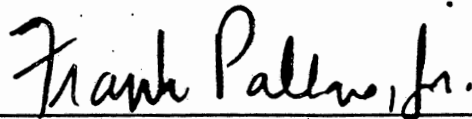
James R. Hurley

January 1988

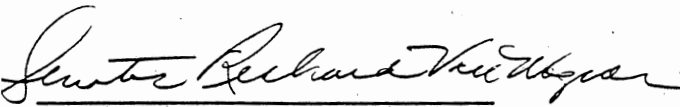
Governor Thomas H. Kean
President of the Senate John F. Russo
Members of the Legislature

Ladies and Gentlemen:

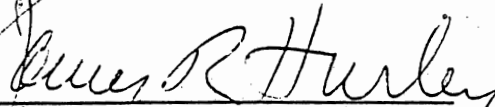
The Senate Special Committee to Study Coastal and Ocean Pollution, created by Senate Resolution No. 21, hereby respectfully submits its preliminary report in compliance with the provisions of its enabling legislation.



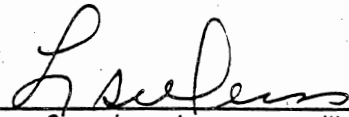
Senator Frank Pallone, Chairman



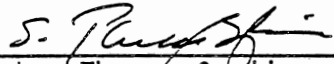
Senator Richard Van Wagner



Senator James Hurley



Senator Laurence Weiss



Senator Thomas Gagliano

RECOMMENDATIONS

On the FEDERAL level, the committee recommends that:

1. EPA terminate the 106-mile site at the expiration of the existing sludge dumping permits, and make no new site designations, effectively banning sewage sludge dumping in the ocean after 1991

2. The ecology of the 12-mile and 106-mile sludge disposal sites be monitored for signs of recovery or deterioration for a minimum of 5 years

3. EPA focus efforts on the upgrading of categorical standards for industrial pretreatment of sludge, particularly with regard to those types of wastes which contaminate sludge as opposed to those which adversely affect water quality

4. EPA terminate the 6-mile dredge spoil mud dump site, and designate a new site at least 20 miles off shore by the November 1989 federal deadline, and restrict use of the site to clean dredge material only

5. EPA establish, in a manner sufficient to meet the federal deadline for designation and use of the new site, criteria for contaminated dredge spoil disposal alternatives, including containment islands, subaqueous borrow pits and treatment facilities, as well as funding mechanisms for the development of these alternatives

6. EPA revoke interim wood burning permits, and deny permanent designation of the wood burning site

7. EPA revoke permits issued to duPont and Allied for the ocean disposal of acid wastes, and close the deepwater industrial dump site and the 15-mile acid waste dump site, and monitor both sites for ecological recovery

8. EPA close the cellar dirt site

9. The federal government increase funding for Coast Guard administered monitoring programs to guard against illegal dumping

10. The federal government develop a national manifest program for infectious wastes

11. Congress establish permit standards for garbage haulers in coastal waters to prevent spillage and guarantee proper disposal

12. Congress give the highest priority to regulations implementing MARPOL, and mandate the use of port facilities for off-loading wastes from vessels coming into port

At the STATE level, the committee recommends that:

1. DEP establish standards for ocean disposed sludge, which, at a minimum, reflect the strictest criteria for land-based disposal

2. DEP increase enforcement of pretreatment requirements and require reductions in the use of toxics as an integral part of its pretreatment program

3. The Legislature develop a siting mechanism and funding sources for land-based alternatives to the ocean disposal of sludge, and support scientific research and the implementation of these alternatives

4. The Legislature develop a siting mechanism for contaminated dredge spoil disposal alternatives, including containment islands, subaqueous borrow pits and treatment facilities, and establish funding mechanisms for the implementation of these alternatives

5. DEP evaluate and implement land-based alternatives for the disposal of wood debris

6. The Governor, consistent with the "Coastal Zone Management Act," request the federal government to obtain consistency determinations for all current and future ocean dumping activities

7. State and/or interstate agencies substantially increase ocean surveillance by adding staff, equipment and innovative surveillance technology on land, at sea, and in the air

8. The Legislature require the Marine Police to enforce environmental statutes, and assess the need for additional facilities, equipment and manpower, as suggested in the Attorney General's 1987 report, and provide funding accordingly

9. The Legislature, in collaboration with New York, establish an interstate enforcement unit, or alternatively a unit within the Interstate Sanitation Commission, to enforce environmental regulations within the New York Bight, and extend the unit's jurisdiction beyond the 3-mile territorial sea limit; initial funding may come from government sources, but monetary penalties assessed against polluters should also be channelled into the program

10. New Jersey appropriate its share of the funds for the National Estuary Program to monitor the recovery of the New York Bight

11. The Legislature mandate and DEP adopt and implement a manifest system for the management of infectious waste, including strict liability standards, with complementary regulations for infectious waste management adopted by all relevant State agencies in concert, including civil and criminal sanctions for violators of infectious waste management regulations, which regulations require a certification of sterilization for all infectious waste transported off-site for final disposal as part of overall generator liability provisions

12. The State encourage the use of biodegradable or recyclable alternatives to plastics, and ban and reduce production and use of plastics, which pollute the marine environment, where adequate biodegradable alternatives exist

13. DEP discontinue the issuance of permits for direct ocean discharges from industrial facilities

14. DEP establish strict regulations and enforcement practices to control recreational vessel source pollution

15. The State continue research into the health risks posed by pollution of coastal waters and provide sufficient funding for the program

16. The State provide rewards for citizens who uncover and report environmental violations.

17. The State pursue sewage treatment plant upgrading projects to ensure compliance with construction schedules, and that adequate funding resources remain available; and ensure proper operation and maintenance of sewage treatment plants through increased monitoring and enforcement.

18. The State fix combined sewer overflows through a state/local matching loan program; and control storm water pollution through an inventory of outfalls, elimination of cross-connected sewers, and enforcement of storm water management regulations

At the LOCAL level, the committee recommends that:

1. Designated sewage authorities increase their enforcement of pretreatment requirements for industry

2. Designated sewage authorities accelerate the issuance of permits for previously unpermitted facilities, and include more stringent permit limits for all industrial users

3. County Health Departments take on responsibility to inspect hospitals for compliance with infectious waste disposal requirements

4. Municipalities encourage and promote litter control, oil recycling, street cleaning, and "pooper scooper" activities by ordinance

5. Municipalities undertake public education programs to inform citizens of the dangers of pollution, particularly plastic litter, and of the need to participate in community programs for oil recycling and the like

6. The State provide a matching grant program in coastal municipalities for cleanup of beaches, streets and storm drains

INTRODUCTION

The Senate Special Committee to Study Coastal and Ocean Pollution was created in February 1986 pursuant to Senate Resolution No. 21 to inquire into "the causes and sources of both identifiable and non-point source Atlantic ocean pollution, [and to] investigate onshore hazardous waste dumping practices which result in groundwater contamination and eventual migration and shoreline degradation." The scope of activities to be subject to Special Committee scrutiny was expanded by the Senate Energy and Environment Committee to include the dumping of sewage sludge, the discharge of effluents of waste water treatment plants, and industrial discharges.

During the course of its investigation, the committee reviewed various activities that adversely impact the New Jersey shore. However, the committee digressed from its prescribed agenda to address unforeseen circumstances, in particular, the washing ashore of tons of garbage, the unaccountable deaths of hundreds of dolphins, discovery of oil spills, and the accidental releases of untreated sewage, resulting in temporary beach closings and their consequent economic damage to the lucrative tourism industry during the summer months. The unwitting timeliness of the committee's creation was underscored as each event unfolded. It soon became apparent that the issues were, and indeed still are, much more complex and wider in scope than first believed, forcing the committee to address land-based, as well as sea activities. At times the problem sources reached pandemic proportions.

This report documents the efforts of the committee during the course of the past year to understand and solve the myriad problems confronting the New Jersey shore. It details the findings and considerations warranting the committee's recommendations, and provides an overview of the statutory authority of each level of government in managing coastal and ocean pollution, as well as a comprehensive description of each of the issues addressed by the committee during the course of its work.

The Committee members wish to thank the many persons who offered their time, expertise, and testimony, assisting in the compilation of this report and the development of the agenda it recommends. Although the complete list is too extensive to be included here, particular mention must be made of at least the following agencies whose representatives exhibited a firm commitment to the work of the Senate Special Committee: the New Jersey Department of Environmental Protection, the New Jersey Department of Health, the Governor's Office of Policy and Planning, the Department of the Public Advocate, the Interstate Sanitation Commission, the United States Environmental Protection Agency, the United States Army Corps of Engineers, the United States Coast Guard, Clean Ocean Action, Save Our Shores, and the American Littoral Society. Special thanks also extend to the many municipal officials and concerned citizens who supported the Committee's efforts and offered insights into the needs of the affected communities.

AUTHORITY and JURISDICTION

The authority of New Jersey, the United States, or any other foreign nation to legislate and enforce ocean pollution laws is governed by federal and State law, international conventions, and customary international law. Powers vary depending on the actors and the location of the event or activity. Basically, New Jersey has the authority to legislate and enforce pollution laws involving waters internal to the State (e.g. rivers, bays, streams, and lakes). This power is, however, subject to the supremacy and preemption of federal law in circumstances wherein that applies.

Each nation is empowered, subject to certain limitations designed to protect the innocent passage of vessels, to enact and enforce pollution laws within that nation's territorial waters. The United Nations Convention on the Law of the Sea of 1982 recognized a 12-mile territorial sea. The United States, which has not ratified that convention, claims only a 3-mile territorial sea. Under our system of government, coastal states have jurisdiction over this sea, subject to federal preemption. The federal government, but not a state, may exercise powers beyond the 3-mile limit. In addition, international law recognizes a 12-mile contiguous zone. If a nation claims a 12-mile territorial sea, the contiguous zone extends an additional 12 miles. A nation has certain additional competences in this zone, none of which directly impact on pollution laws. The United States, claiming only a 3-mile territorial sea, has jurisdiction in a contiguous zone only to 12 miles.

An exclusive economic zone extends 200 miles from a nation's shoreline. The 1982 convention invested a coastal nation with sovereign rights over all natural resources in this zone, and jurisdiction over artificial islands and structures, scientific research, and "the protection and preservation of the marine environment." The sovereign rights over natural resources include enforcement measures regarding vessel traffic, and a nation may "permit, regulate and control" dumping in the zone with laws no less effective than global rules and standards (e.g. the "London Dumping Act"). A nation may also adopt laws relating to pollution from vessels in accordance with international standards (e.g. MARPOL).

Beyond 200 miles are the high seas. With only minor exceptions, coastal nations have no competence to legislate or enforce ocean pollution laws on the high seas. The "Convention on Intervention on the High Seas in the Case of Oil Pollution Casualties 1969" allows necessary measures, including the destruction of a vessel, to be taken on the high seas to end or mitigate the consequences of an oil spill. A 1973 protocol to the convention applies its provisions to other pollutants. Pursuit of a violator fleeing from the exclusive economic zone may occur on the high seas.

It is also important to recognize that a nation allowing a vessel to fly its flag has jurisdiction and control of the actions of that vessel anywhere in the world. The nation within whose jurisdiction waste is loaded for dumping also has jurisdiction to prosecute for unlawful dumping of that waste. The 1982 convention

also gave the port nation, where a delinquent vessel enters, the jurisdiction over pollution offenses. Since port jurisdiction is not based on prior treaties or customary international law, it does not apply to the United States, because the U.S. has not ratified the 1982 convention.

The federal government directly permits and regulates the disposal of sewage sludge in the ocean from New Jersey facilities, as well as the dumping of dredge spoils removed from New Jersey's coastal inlets, bays and channels. The United States Environmental Protection Agency (EPA) also has the authority to designate all disposal locations, permit industrial dumping in the ocean, regulate the incineration of hazardous waste at sea, and permit wood burning at sea. EPA's own regulations provide that ocean disposal can be considered only if feasible land-based alternatives do not exist.

The States of New Jersey and New York have been given authority by EPA to administer the "Clean Water Act." New Jersey has done so through the New Jersey Pollutant Discharge Elimination System (NJPDDES) permit program. All discharges from municipal sewage treatment plants, treated industrial discharges, combined sewer overflows, and landfill leachate discharges, require these permits and strict adherence to the requirements of the act and its implementing regulations. New Jersey has invested several billion dollars in upgrading sewage treatment plants throughout the state, particularly along the coast. Almost all of the older primary level plants have been improved or replaced with secondary level plants. The cumulative impact of the waste water discharges has a major

impact on pollutant loading in the coastal ocean.

Storm water discharges, runoff from agricultural lands, and urban runoff are generally not regulated by permit and thus become a major source of pollution of rivers and streams. In most instances, the states rely on local municipal governments to develop and implement management plans for these sources of pollution, although the state has the authority to require municipalities to take certain additional actions if warranted. Eighty to ninety percent of the coastal beach closings are attributable to local sources.

CHRONOLOGY OF EVENTS

Pollution Incidents and Public Hearings

The first order of business for the Senate Special Committee to Study Coastal and Ocean Pollution was to identify the relevant issues and gather information on each through a series of public hearings, beginning with an assessment of the monitoring and enforcement services provided by the Department of Environmental Protection under the Cooperative Coastal Monitoring Program. The first hearing, held on July 30, 1986 was limited by invitation only to 18 State, county and local officials with health and environmental responsibilities in an attempt to focus attention on the rash of beach closings; determined the contribution, if any, of sewage treatment plants to coastal and ocean pollution; and recommend governmental actions to prevent further health and environmental problems along the shore. In focusing on the issue of beach closings, storm sewers were identified as likely sources of contamination.

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Another fact-finding hearing followed on September 24, 1986, at which time the committee members pursued issues to which they had been directed during the first hearing. Invitations requesting perspectives on the problem of plastics, other floatables, and debris washing ashore, with particular attention to the effect of the Fresh Kills Landfill in Staten Island on the quality of New Jersey's coastal waters, elicited testimony from 19 individuals. This hearing provided the first forum for concerned

citizens and public interest groups, as well as government officials, to publicize their views. Much of the discussion concerned biodegradability and alternatives to plastic products. Cindy Zipf, Coordinator for Clean Ocean Action, presented the committee with samples of plastic debris collected during a "beachcombing." As a result of that hearing, the committee requested that the Interstate Sanitation Commission (ISC) and the Attorney General enter the lawsuit filed by Woodbridge Township against the New York City Department of Sanitation. Both the ISC and the Attorney General subsequently entered the lawsuit.

The lawsuit has recently been resolved through an agreement between the litigants, which includes specific measures to be taken by New York and requires additional studies. Other parties to the suit included the New Jersey Department of Environmental Protection, and three environmental organizations: the Natural Resources Protective Association, Groups Against Garbage, and Save Our Shores. These other parties intervened in the suit as a direct result of the enormous public exposure afforded through the committee process, and pressure put on State officials by the committee members.

Other actions taken as a direct result of the committee's investigations included the reimposition of a building moratorium in Tottenville, New York. In an effort to halt additional raw sewage discharges into the Bight, new building construction in this area was forbidden. However, the original moratorium was lifted in 1984. Through the efforts of the committee, the building ban was

reinstated in January 1987 and is to remain in effect until the sewage interceptor is completed in 1993. This multi-million dollar project will eliminate all raw sewage discharges from Staten Island into coastal waters.

The testimony and supporting evidence presented at the September hearing indicated that solutions to the garbage problem would require a collaborative effort with New York State. As a New Jersey Assemblyman in 1976, Senator Van Wagner participated on a bi-State Commission with New York. Assembly Resolution No. 32 created the special committee within the General Assembly in August of that year. Unfortunately, only one meeting with the New York delegation took place. As a result of the September 1986 hearing, interest in the bi-state panel surfaced and led to a joint hearing later in the 1987 fact-finding series.

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The Senate Special Committee held another information gathering hearing on January 7, 1987. The topic was ocean dumping, an issue that had captured the attention of both the public and the press. More than 20 people, including a representative from the Congressional offices of Representative James Howard, testified. The permitted disposal of sewage sludge, dredge spoils, industrial waste water acids, construction debris, vessel generated refuse, and the implication of these practices were hotly debated. Save Our Shores, comprising doctors interested in protecting the public health from the perceived threat of bathing in polluted ocean waters, was a prominent participant, and motivated the study of the

health effects of ocean pollution. The extensive health impact study being conducted by the Departments of Health and Environmental Protection was one result of the attention focused on the issues through the committee's public outreach efforts.

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On January 13, 1987, in his State of the State message, Governor Thomas Kean proposed the creation of an ocean authority to protect the shore. Having the power to work with local governments to plan growth along the coast, help municipalities to keep their beaches clean, be a strong voice against other states polluting New Jersey's waters, and raise monies to clean and restore the beaches, the authority was envisioned as a super agency, separate from the Department of Environmental Protection, dedicated solely to coastal matters. On February 18, 1987, a fourth public hearing was held, specifically to discuss the design of legislation creating the proposed authority and the associated funding mechanisms. Another issue of concern was the interaction between the proposed authority and the several existing agencies with jurisdiction in the coastal area. Dr. Brenda Davis, Chief of the Office of Policy and Planning, presented the Governor's plan to the committee members.

On May 28, 1987 the first of several incidents which would punctuate the severity of the ocean pollution problem occurred. A sludge-like material washed ashore, forcing the closing of several New Jersey beaches. Officials sampled, tested, analyzed and searched for clues as to the source of the disagreeable substance. On June 16, 1987 the committee focused its attention, and that of

the public, on the enforcement of marine pollution laws, discovering that although many regulations govern the conduct of ocean bound activities, few are enforced. In addition, in some instances, monitoring of ongoing activities is lax. For example, only three of nineteen sludge dumping barges are equipped with monitoring devices, although the electronic technology required has been under development for perhaps as long as twenty years.

Shortly thereafter, the Governor's office issued the proposal for the New Jersey Coastal Commission, the result of extensive deliberations regarding the ocean authority proposed earlier in the year. The Senate Special Committee held a public hearing on July 30, 1987, exactly one year after the first hearing, to discuss the land use and master planning aspects of the proposal. Representatives from the Governor's office testified regarding coordination between municipalities and the new commission, balancing economic development with shore protection, and amendment of the Coastal Area Facilities Review Act. Comments from 13 other parties were also added to the official record. Using the information gathered over the course of the year, legislation to implement the proposal was subsequently drafted, and introduced by the Committee Chairman, Senator Frank Pallone.

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In mid-August 1987, a 50 mile-long slick of garbage and medical waste washed ashore, closing beaches and staggering the State's tourism industry. While officials mounted an investigation to identify those responsible - a Grand Jury investigation is yet

ongoing - the committee members reviewed existing regulations to determine how the law had been broken, and what additional measures were necessary to ensure that the situation would not be repeated. The committee called on the public and private sectors to assist not only in apprehending the illegal dumpers, but in suggesting to elected officials what could be done to thwart illegal activities. The response was overwhelming. The long-ignored problem of the proper disposal of hospital waste surfaced, shifting the committee's attention to land-based environmental considerations. Once again the members realized that a bi-state initiative, if not a national one, would be necessary to monitor the disposal of infectious waste, and perhaps even the movement of solid waste.

On August 26, 1987 the Senate Special Committee convened to hear testimony from New York officials regarding hospital waste management practices and the monitoring of vessels in coastal waters. Several proposed pieces of legislation were discussed, including the redefinition of "infectious waste," requisite incineration of hospital waste, and manifesting of the material. Inconsistencies between states in the extent of their waste regulations came to light, as did a general lack of information on the quantities, types and disposal activities concerning hospital and other medical garbage. Standardization was called for. In addition to testimony from 16 persons, a videotape of the incident was played for the committee members during the hearing.

During this time, numerous dead and diseased dolphins were being found off the New Jersey coast and on the beaches. In efforts

to allay rising panic among bathers and beach goers, several national organizations, research universities, and state authorities increased efforts to uncover the mysterious cause of the dolphin illness. Several leatherback turtles, an animal on the endangered species list, also washed ashore during this time. Several whale beachings also raised concern over the ecology of the marine environment.

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Confident that the proper authorities were examining the details of the August garbage slick incident, the committee held another hearing on September 15, 1987. The committee undertook a discussion of the highly technical issue of the pretreatment of industrial waste waters prior to discharge to sewage treatment plants. Pretreatment decreases the amount of hazardous substances entering a sewage treatment plant and ultimately contaminating its sludge, which is ocean dumped. Related issues on which the committee took testimony were hazardous waste minimization as a pretreatment mechanism, the development of stricter standards for industrial pretreatment to insure that "pass through" at the treatment plant does not occur, with an emphasis on the resultant sludge quality, and the relationship between sludge quality and sludge disposal options.

The committee expressed concern that the expediency of ocean sewage sludge disposal allows for poor sludge quality, such that land-based alternatives are not readily implementable in the face of curtailment of ocean dumping activities. As a result of this hearing, several pieces of legislation designed to improve both

pretreatment and sludge quality have been introduced.

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The public hearing series culminated with a ninth meeting on September 29, 1987. The Senate Special Committee to Study Coastal and Ocean Pollution hosted a joint hearing with the New York State Assembly Subcommittee on Interstate Cooperation. The theme of the agenda was a fostering of cooperation between the two states in addressing water and ocean pollution problems. The goals of the hearing were to identify those legislative initiatives with the most promise for protecting the ocean environment, which could be adopted by both states, or introduced at the federal level. Most of the discussion that day involved the lack of enforcement of existing regulations, the need for surveillance of all ocean-related activities, hospital waste manifesting, increased pretreatment efforts, and stiffer penalties for violators. The Office of the Public Advocate submitted a detailed and comprehensive package for the committee's review.

At that time, the lawsuit between New York and Woodbridge was still pending. Although details regarding the suit could not be discussed, New York officials were able to provide some descriptions of control measures taken at the Fresh Kills Landfill to prevent garbage from falling into bay waters and migrating to New Jersey's beaches. A representative of the National Oceanic and Atmospheric Administration travelled from Washington, D.C. to present evidence regarding coastal currents. Later in the year the New Jersey Department of Environmental Protection implemented the first phase

of a debris tracking study, using plastic bottles to determine the movement of floatable wastes.

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The Senate Special Committee to Study Coastal and Ocean Pollution succeeded in outlining the relevant issues and gathering information on each through the series of public hearings. Although the committee digressed from its prescribed agenda to address unforeseen circumstances, the review of the various activities that impact the New Jersey shore yielded valuable information and resulted in action at every level of government. Much more needs to be done. The recommendations contained in this report provide a framework for additional action, particularly to guide introduced legislation through the legislative process. Additional pieces of legislation may also be required. Finally, the committee did not study the effect of ground water contamination on ocean water quality or the incineration of hazardous waste at sea. It might be appropriate, subsequently, to research these two issues.

THE ISSUES

SEWAGE SLUDGE DUMPING

Currently six New Jersey sewage authorities ocean dump their sludge as permitted by the United States Environmental Protection Agency (EPA) under the "Marine Protection, Research and Sanctuaries Act of 1972" (MPRSA). The volume of sludge disposed by New Jersey is 926,000 dry pounds per day, or 2.8 million wet tons per year, which represents 50% of all sludges generated in the State. The amount of sludge generated in the State is expected to double within 10 years. New York is responsible for 60% by volume of the sludge dumped in the ocean. The 12-mile site, used continuously since 1924 for sewage sludge disposal, was closed by the EPA on December 15, 1987. All of the sludge is now disposed at the 106-mile site, designated by EPA in 1984, as per provisions of the "Water Resources Development Act of 1986," for a period of five years, at the end of which land-based alternatives are expected to be available. However, a redesignation of the site is possible at that time.

EPA is in the process of preparing quality limits for all sludges, which limits will be based on existing land application criteria. However, the EPA model used to develop the criteria is based on a health risk or exposure indicator, which will skew the preferred alternative for sludge disposal towards the ocean, where there are fewer people, rather than away from it, as has been previously indicated to be EPA policy.

Concern exists that dumping at the 106-mile site may adversely affect migrating threatened and endangered species, as well as be disruptive of the ecology of the deep ocean. Under their federal permits, the sludge dumpers are required to monitor the 106-mile site. The 12-mile site is called a "dead sea" by ecologists, an area where fish have fin rot, parasites, and abnormalities, and the shellfish are unsafe to eat. The National Estuary Program, a federal undertaking which the EPA initiated in 1985, is designed to formulate comprehensive plans for certain estuaries, and specifically includes the New York Bight sludge dump site. Three-quarters of the cost of this program is borne by the federal government, while New York and New Jersey will share the remaining costs during the course of the program. The 1988 federal appropriations bill includes a \$.5 million appropriation to begin a study of pollution in the New York Bight.

Sludges disposed at sea are Class C sludges, indicating that they are too contaminated to be disposed on land. These sludges contain heavy metals, pesticides, PCBs and hydrocarbons at levels that pose technological problems for land-based disposal options, such as incineration, composting, or land application. Greater controls through the pretreatment program on what is permitted to enter a sewage treatment plant may improve sludge quality and make it amenable to these other disposal options. However, public opposition to the siting of land-based facilities to handle sludge is likely to be significant.

"Short dumping" by sludge barge operators in an attempt to

save the expense of the long sea voyage to the 106-mile site has been touted as a potential problem. The May 1987 incident of a sludge-like material washing ashore, forcing beach closings, may have been due to short dumping, although scientific analyses failed to confirm the identity of the waste. In 1986, the United States Coast Guard logged 2582 sludge vessel activities, and were required by law to monitor less than 10% of them. Much of this monitoring took the form of passive surveillance. Monitoring devices on board each vessel have been developed by the United States Coast Guard to track the dumping activities and discourage short dumping. Many problems with the equipment exist. These electronic "black boxes" would provide 100% active surveillance of these disposal activities. Recently, EPA announced that by May of 1988, all sludge barges must have installed black boxes or will no longer be able to operate. Dumping permits are to be modified to include this requirement.

Coast Guard personnel enforce the laws and regulations regarding shipping, including: vessel construction and licensing; the movement of hazardous cargo, bulk liquids, and packaged goods; general port safety; and, pollution. All U.S. vessels must secure certificates of inspection issued by the Coast Guard, indicating that the vessel has been inspected and meets certain requirements. Certificates are valid for two years. Barges are inspected once per year. It should be pointed out that each year the budget of the U.S. Coast Guard is reduced, potentially lessening the effectiveness of its monitoring and enforcement programs.

DREDGE MATERIAL

Dredged material is sand, silt, and mud which is periodically removed from navigational channels and docking areas throughout the Port of New York and New Jersey. A 40-foot water depth must be maintained to permit ocean-going vessels to enter the Port. Each year an average of 8 million cubic yards of material is dredged from the navigational channels and berthing areas within the Port of New York and New Jersey. Although dredge materials are themselves harmless, small amounts of pollutants such as heavy metals, oils, and grease are discharged or run off into the harbor and attach to the sediments. Dredge spoils, therefore, are known to contain a variety of toxic contaminants. The great majority of this material is barged to a disposal site approximately 6 miles east of Sea Bright, New Jersey, the so-called mud dump site. Disposal practices include pin-point dumping, capping, and site monitoring.

The Army Corps of Engineers under the "Marine Protection, Research and Sanctuaries Act" (MPRSA) has the responsibility for managing the mud dump site and the permitting process for dredge spoil ocean disposal. The Corps has conducted extensive research into the physical and mechanical aspects of ocean dumping and the environmental consequences in and around the dump site. Chemical and biological tests, including the bioassay-bioaccumulation test, are conducted on all of the material scheduled for ocean disposal according to EPA's ocean dumping regulations. Approximately 10% of all dredged material is considered contaminated. Because the

pollutant particles are bound to the sediment which, for the most part, remains in place at the bottom of the mud dump site, other than localized degradation in the vicinity of the dump site, the Corps attributes no widespread environmental effects to ocean disposal based on the current management practices.

Under MPRSA, material that does not meet the ocean dumping criteria cannot be dredged unless a disposal site is available. Currently, much of this material is not being dredged for this reason, resulting in shoaling, a hazard to navigation. All of the material dredged from Newark Bay and the Kill Van Kull is considered contaminated and must be capped when disposed of in the existing borrow pit.

Capacity at the existing site is expected to be reached within the next several years. The "Water Resources Development Act of 1986" requires the EPA to designate an alternate disposal site for dredge material within three years. The new site must be located at least 20 miles from the shoreline. Once the new site is designated, only dredge spoils free of pollutants may be dumped at the current mud dump site. Although the new site must be designated within three years, one year has already elapsed without EPA action. Historically, EPA has needed six years to issue a site designation. The National Oceanic and Atmospheric Administration (NOAA) is opposed to the designation of a 20-mile site, believing that degradation of an area adjacent to an already degraded area is preferable to the degradation of a new area where the impact on the fisheries resource is unknown.

A number of alternatives for dredge material disposal are attractive in special cases for disposal of dredged material from the New York/Northern New Jersey area. The most promising of the alternatives screened by the Corps include the following: (a) shallow water protected containment islands; (b) subaqueous borrow pits, for which a draft environmental impact statement has been prepared by the Corps; and (c) sanitary landfill cover for places such as Fresh Kills in Staten Island and DeKore Park in the Hackensack Meadowlands, possible only where an adjacent dredge dewatering site is available. In special cases, mostly site specific and dealing with relatively uncontaminated material, three additional alternatives may be acceptable: (d) contained upland disposal, for which sites are few and small; (e) creation of wetlands; and (f) beach nourishment, such as the project underway at Sandy Hook. Because sediment buildup is a continuing event, the need to dredge and dispose of the spoils will continue indefinitely.

The Department of Environmental Protection advocates the use of containment islands for contaminated dredge spoils and has agreed that one be built in either the lower New York bay or the Raritan Bay. The two site recommendations were based upon data obtained during the most thorough study ever conducted on this issue by the Army Corps of Engineers, which began studying dredge spoil disposal options in 1979, and, as part of the program, formed a steering committee to look at the federal and State criteria regarding siting of a containment island. The Fish and Wildlife Service imposed a 500 acre limit on the containment site based on

the maximum loss of bay bottom ecologically sustainable. The area required to provide 20 years of disposal capacity would be 500 acres. Bay bottom habitat for shellfish and other marine life would be lost as a result. The island would be formed by diking the area, introducing the dredge material in slurry form, and allowing the excess water to discharge over a weir until only the solid matter remains.

In addition to the massive financial investment necessary to construct a containment island, public opposition is sure to be the most difficult obstacle to overcome in a siting debate. For example, the siting of an island in the Chesapeake Bay required 11 years of litigation. In addition, inaction on the part of the EPA to designate a new site, or, alternatively, the designation of the 20-mile site and consequent disposal cost increases, may further delay development of alternatives and prolong the use of the existing site for contaminated materials. Without immediate action, the current mud dump site will fill up and there will be no other options. New Jersey is not in a position to address this issue alone. Either federal initiative or interstate cooperation is required.

CHEMICAL AND ACID WASTE DUMPING

Currently, the only industrial disposal activities permitted under the "Marine Protection, Research and Sanctuaries Act" off the New-Jersey coast are of acid and chemical waste waters

dumped by DuPont and Allied Corporation. DuPont's Edgemoor, Delaware facility has recently applied for a three year permit from EPA to continue ocean disposal. The Graselli, New Jersey facility withdrew its application for a permit renewal, having found an alternative to ocean disposal, and did not dispose of any material in the ocean in 1987.

The Edgemoor waste consists of an aqueous solution of iron and miscellaneous chlorides and hydrochloric acid from the manufacture of ferric chloride. Ferric chloride is used to make white pigments for food colorings, such as the filling in cookies, toothpaste, paint and newsprint. Trace amounts of metals also exist in the waste water. DuPont disposes at the 106-mile deepwater industrial dump site, which is a few miles from the 106-mile sewage sludge dump site. In 1985 DuPont did not dispose of any material at the 106-mile site; in 1986, 140,000 wet tons were dumped. DuPont proposes in their recent permit application to dispose of 135,000 wet tons annually.

The Allied facility in Elizabeth, New Jersey disposes of hydrochloric acid waste with very low trace amounts of mercury, cadmium, and oil and grease. The material has a pH (a measure of acidity) of less than 1.0. Allied's is the only facility still using the New York Bight acid waste dump site, 15 miles off the coast of Long Branch, New Jersey. The acid waste is from the manufacture of freon-like and teflon-like materials. In 1986 Allied disposed of 33,800 wet tons, and in 1987 disposed of at least 25,000 wet tons at the Bight location.

CIBA-GEIGY OUTFALL DISCHARGE

The Ciba-Geigy Corporation operates a chemical manufacturing plant in Toms River, New Jersey, which discharges its treated industrial waste water to the ocean one-half mile offshore through an outfall pipeline. The discharge of 4 million gallons per day of effluent is regulated through a permit issued by the DEP. The EPA has recently characterized the DEP permit as one of the most thorough and stringent permits in the country. Ciba-Geigy is required to attain tertiary level treatment, and has been meeting all permit requirements, while most sewage treatment facilities attain only secondary levels of waste water treatment. The Ciba-Geigy discharge, however, is very controversial, particularly because it contains small amounts of toxic contaminants, which may accumulate in the marine environment. In light of federal and state policy goals to end all ocean disposal of wastes, this discharge is interim in nature, indicating an ultimate need to develop a land-based alternatives.

HOSPITAL WASTE

Disposal of infectious materials from hospitals is regulated by the Department of Health, which prescribes appropriate separation and containment measures for such items as syringes and isolation waste. These wastes are typically incinerated in an on-site facility, or are hauled away under contract with a carting

company. This summer's incident of hospital wastes from New York washing up on New Jersey's beaches is indicative of the economic benefit to be secured by skirting disposal regulations. Under no circumstance is garbage or hospital waste dumping in the ocean allowed. Where this has occurred, it has been the result of an unequivocally illegal action. With few disposal options and high costs, illegal dumping is likely to continue. More stringent land-based controls on the movement of wastes might alleviate the situation.

FRESH KILLS LANDFILL

Perhaps no other issue generated as much controversy during the summer of 1987 as that of the Fresh Kills Landfill in Staten Island. The City of New York for over 20 years has allowed garbage from the landfill to enter the coastal waters it shares with New Jersey. The first court order regrading a New York garbage problem was issued in 1934, but the problem has continued unabated. All of the garbage from the City of New York and its 5 boroughs arrives either by truck or barge at Fresh Kills at a rate calling for the landfill to reach 500 feet in height, the largest landmass of the eastern seaboard, obstructing air flight patterns into Newark International Airport in violation of federal law, and creating noise pollution for nearby residents. In addition, millions of gallons of leachate, the liquid seepage from the landfill, much of which is hazardous, flows from the landfill into the Arthur Kill and

surrounding waterways in violation of discharge prohibitions. Containment of the leachate is nearly impossible, and piping it several miles to a treatment facility is expensive and impractical.

OCEAN WOOD BURNING

Driftwood, timber and pilings from deteriorated waterfront structures, and derelict wooden hulls from sunken ships collected as part of the ongoing New York City/New Jersey harbor cleanup effort are burned on barges at a site 20 miles from Point Pleasant, Ocean County. Permits are issued by the EPA under authority granted pursuant to the federal "Marine Protection, Research, and Sanctuaries Act of 1972." Most of the debris is burned pursuant to permits held by the United States Army Corps of Engineers and the City of New York. Burns are conducted about 12 times annually and are monitored by the DEP under authority granted by the EPA; however, EPA is the primary enforcement authority and State regulation is preempted, except in certain instances.

On September 6, 1987 a 20 foot long wooden timber, which may have fallen off a burn barge or loosened from a structure being dismantled under the harbor cleanup program, critically injured two children bathing near the waters edge. In a separate incident, a pleasure boat sustained extensive damage and nearly sank when struck by wooden debris in the water. These events indicate not only a need to remove the derelict structures, but that additional efforts are required to ensure that the removed material does not fall off

the burn barge.

POINT AND NON-POINT SOURCES

All tidal waters in the state have been classified as either saline coastal or saline estuarine. Discharges to these waters from land-based operations include industrial waste water outfalls, sewage treatment plant effluent, storm water runoff, and combined sewer overflows. Industrial discharges, treatment plant effluent, and overflow bypasses are permitted by the DEP. Sixty-eight sewage treatment facilities are permitted to discharge effluent to these waters. In a 1985-1986 report, "The Cooperative Coastal Monitoring Program," the DEP concluded that "No beach closings were attributable to operational problems of the coastal waste water treatment facilities." However, accidental releases of untreated sewage occur. For example, Long Island beaches were closed due to a pipeline rupture.

Analysis of the data collected as part of the program indicates a correlation between rainfall and increased pollution of ocean and bay waters, lending credence to the hypothesis that combined sewers and storm water runoff are contributing to the degradation of the coastal environment. In areas with combined sewer systems, storm water and sanitary waste mix during heavy rains, surpassing the capacity of the pipes, resulting in a mixture of rain water and sewage bypassing directly to coastal waters without any treatment. New Jersey may have upwards of 150 such

outfalls into coastal waters alone, while New York City's five boroughs have 540 discharge points. In addition, during rains, runoff from roads, chemically treated fields and urban areas may add a variety of compounds to waters entering the coastal areas. Storm water runoff is an unregulated source, but may be addressed through litter control programs, pooper scooper laws, the elimination of sewer cross-connections and general sewerage system maintenance.

Atlantic City beaches were closed for several days this summer as a result of contamination from sewage discharged from an illegal connection to a storm sewer. In Long Branch, beaches were closed ostensibly because of bird droppings from pigeons and gulls roosting under the piers. These relatively minor problems wreak havoc with municipal coffers, as tourists go elsewhere or cancel vacation plans altogether.

CELLAR DIRT

Cellar dirt consists of rocks, dirt, concrete rubble and non-floatable construction debris. Cellar dirt has been disposed at an ocean dumping site pursuant to a "Marine Protection, Research and Sanctuaries Act" permit. This site has not been used for about four years due to the diversion of this material into the DEP's artificial reef program. Construction debris has been dumped at the reef sites, creating breeding and congregation grounds for fish. The DEP maintains a number of reefs twenty or so miles off of the coast.

VESSEL-GENERATED GARBAGE

Several federal and State laws prohibit, or may be construed to prohibit, the disposal of vessel-generated garbage into some or all of the State's territorial waters, which extend to the 3-mile limit. The applicable federal law is the "Refuse Act of 1899." At the State level, the "deposit" of any "solid material" into certain prescribed navigable waters within the State's jurisdiction, e.g., New York bay and harbor, Newark bay and Raritan bay and their tributaries, Hudson river, and other State waters adjacent to New York, is prohibited. The language of the statute, which prohibits littering upon public or private property, might be read to include ocean littering, although it apparently has not been applied as yet in that context. The release of "any petroleum products, debris, hazardous, deleterious, destructive or poisonous substances of any kind" into the fresh or tidal waters within the State's jurisdiction is prohibited. Successful prosecutions for violations of overboard disposal of vessel-generated garbage are uncommon, in part because it is difficult to prove that refuse is "deleterious," provided that the offender can be identified.

Until recently, international law did not prohibit vessels from disposing of vessel-generated garbage at sea outside the 3-mile territorial sea limit. However, on November 5, 1987, the United States Senate ratified Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, and the Protocol of 1978 (MARPOL). The Senate's action provided the impetus that will

cause Annex V to go into effect in one year. This Annex prohibits the disposal of all plastics from vessels at sea. It also requires that the overboard disposal of all other vessel-generated garbage be as far as practicable from the nearest land. In addition, it specifically prohibits the purposeful overboard disposal of floatable dunnage, lining, and packing materials within 25 nautical miles of the nearest land and of food waste and all other garbage within 12 nautical miles of the nearest land, unless such food waste and other garbage is ground up, in which case it may be disposed of no closer than three nautical miles from the nearest land. Legislation implementing the treaty's provisions is currently before Congress. The Special Committee was instrumental in promoting adoption of Annex V through extensive lobbying of Congressional representatives.

VESSEL-SOURCE OIL POLLUTION

Although accidental oil spills contribute to the problem of vessel-source oil pollution, the vast majority of oil entering the seas is the result of operational or intentional discharges, such as ballast clearing and tank cleaning. Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, and the Protocol of 1978 (MARPOL), is the major international treaty of several that regulate the discharge of oil into the sea from vessels. The United States implemented its provisions through the "Act to Prevent Pollution from Ships," enacted in 1980. The Coast

Guard is designated thereunder as the lead enforcement agency.

State laws that may apply to vessel-source oil discharges within, or having an effect on, the State's territorial waters include the "Spill Compensation and Control Act," which imposes strict liability for spill cleanup and removal costs, and other statutes which prohibit the release of "any petroleum products, debris, hazardous, deleterious, destructive or poisonous substances of any kind" into fresh or tidal waters, and impose criminal culpability for certain hazardous discharges or releases of hazardous wastes or toxic pollutants. Several times this past summer, notably in September, "gooey tarballs" and sheens of oil appeared off the New Jersey coast or washed ashore. These discharges were probably from ship traffic in the area, either accidental releases, or bilge cleaning wastes.

MARINE SANITATION DEVICES

Within the three mile territorial waters of the United States, marine sanitation devices ("MSD's" - commonly referred to as heads or marine toilets) are regulated by the EPA and the Coast Guard pursuant to the "Clean Water Act." Outside the three mile limit, marine sanitation practices are not regulated and, thus, vessels there may flush raw sewage from MSD's into the ocean. State regulation of MSD's is generally preempted except with regard to houseboats and in certain instances upon application to, and approval obtained from, the EPA. The Coast Guard and the states

have enforcement authority. On fresh waters, only devices that retain all vessel sewage, whether treated or untreated, until they may be safely and sanitarily discharged at a land-based facility, may be used.

DOLPHINS

Approximately 200 dolphins died this year as a result of a mysterious ailment causing skin lesions and lung congestion resulting in asphyxiation. Numerous university researchers, national organizations, and representatives of the New Jersey Marine Mammal Stranding Center responded time and time again to dolphin sightings or beachings, and were neither able to save the animals nor learn the nature of the affliction. Apparently, a bacteria naturally present in the environment, which under normal conditions does not induce illness, was responsible for the epidemic for unknown reasons. In the past, similar die offs in the deer population have occurred, indicating that these events may be natural. Unfortunately, the dolphin deaths occurred during already stressful times and increased the public's concern over ocean pollution. In fact, the Save Our Shores group attributes the deaths to sewage sludge disposal at the 106-mile site, since the events coincide.

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TRANSCRIPTS

July 30, 1986

State House Annex, Room 403
Trenton, NJ

September 24, 1986

Port Reading Fire House
Woodbridge, NJ

January 7, 1987

City Hall, Broadway
Long Branch, NJ

February 18, 1987

State House Annex, Room 334
Trenton, NJ

June 16, 1987

State House Annex, Room 418
Trenton, NJ

July 30, 1987

City Hall, Broadway
Long Branch, NJ

August 26, 1987

State House Annex, Room 334
Trenton, NJ

September 15, 1987

State House Annex, Room 334
Trenton, NJ

September 29, 1987

Middletown Township Meeting Hall
1 Kings Highway, Middletown, NJ