CIRCULATING COPY

OCEAN DUMPING IN THE NEW YORK BIGHT:

BEYOND THE 1981 DEADLINE

John A. Tiedemann
Marine Pollution Specialist
Communicator

New Jersey Marine Sciences Consortium
New Jersey Sea Grant Program
Sandy Hook, New Jersey 07732

November 1983

New Jersey Sea Grant Publication No. NJSG-83-125
NOAA Sea Grant No. NA83AA-D-00034

Presented at the New Jersey Sea Grant Extension Service
1983 Commercial Fisherman's Forum
Toms River, New Jersey

Ocean Dumping in the New York Bight:
Beyond the 1981 Deadline

John A. Tiedemann, Marine Pollution Specialist
New Jersey Marine Sciences Consortium
New Jersey Sea Grant

November 1983

The coastal ocean region off New Jersey and Long Island, known as the New York Bight, is an area rich in marine resources. Nowhere are the multiple and often conflicting uses of the coastal zone more evident. Large volumes of waterborne commerce traverse the Bight each day moving imports, exports and raw materials in and out of the New York-New Jersey port complex. The coastlines of the Bight support major tourist industries and provide an area where people come to fish, swim, surf, sun, boat or simply stroll the beaches. The waters of the Bight support major recreational and commercial fisheries for a variety of shellfish and finfish. It is estimated that each year sport fishermen spend over $250 million while catching approximately $90 million worth of fish and that nearly 12,000 commerical fishermen land about $48 million worth of seafood. Meanwhile, metropolitan society relies on the waters of the Bight and its tributaries as a convenient repository for disposal of wastes.

The transportation and ultimate disposal of wastes in the ocean is regulated by the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972 (also known as the Ocean Dumping Act). Under the MPRSA the major

responsibilities to designate and manage ocean disposal sites and to review, grant, and enforce ocean dumping permits are mandated to the federal Environmental Protection Agency (EPA) (except dredged materials dumped under permits issued by the Army Corps of Engineers).

EPA's Ocean Dumping Regulations and Criteria govern the issuance of ocean dumping permits and the designation and management of authorized disposal sites (they are found in the Federal Register at 40 CFR Part 220-229). Under these regulations EPA must evaluate a number of factors before issuing an ocean dumping permit including the wastes characteristics, the environmental impacts associated with the proposed dumping operation, and the need for ocean dumping in light of other technologically feasible, economically reasonable, environmentally acceptable disposal alternatives. Regarding disposal site designation the regulations require that sites be chosen so that their use will not significantly interfere with other activities in the marine environment, in particular existing fisheries, shellfisheries and heavy commercial or recreational navigation; that dumping activities not adversely affect beaches, shorelines, or marine sanctuaries; that dump sites be limited in size so adverse impacts of the dumping are localized and adequate site monitoring is possible; and, wherever feasible, that sites beyond the edge of the continental shelf be selected. The regulations also encourage selection of sites that have been historically used.

In 1977 the MPRSA was amended to state: "The Administrator of the Environmental Protection Agency ... shall end the dumping of sewage sludge ... into ocean waters ... as soon as possible after the date of enactment of this section but ... in no case may the Administrator issue any permit, or renewal thereof ... which authorizes any such dumping after December 31,

1981." The Act went on to define sewage sludge as " ... any solid, semi-solid, or liquid waste generated by a municipal wastewater treatment plant the ocean dumping of which may unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, and economic potentialities." Another amendment to the MPRSA enacted in December 1980 mandated a similar deadline for the dumping of industrial wastes which "may unreasonably degrade or endanger..."

Although over 200 sewage treatment plants ceased the ocean dumping of sewage sludges and implemented land-based disposal methods by December 31, 1981, nine large municipal sewerage authorities (with a total of 27 individual treatment plants) did not meet the deadline and, when EPA denied further renewal of their permits in 1981, they challenged EPA's ability to deny the dumping permits through court cases. As a result of these cases, ocean sludge dumping continues. Furthermore, while the number of treatment plants ocean dumping their sludges has decreased greatly in the last decade, the volume of sludge dumped has increased from 4.6 million tons in 1973 to 7.6 million tons in 1982. Volumes will continue to increase in the future as well. This increased volume of sludge is primarily due to the upgrading of plants from primary to secondary sewage treatment which results in increased sludge production.

Ocean dumping of industrial wastes has experienced decreases in both the number of dumpers and the volume of material dumped over the past decade. In 1973 about 150 industrial facilities ocean dumped 3.1 million tons of wastes in the New York Bight. In 1982 only four industries held ocean dumping permits, and approximately 1.1 million tons were dumped. A further reduction in the quantity of industrial waste dumped is expected in 1983 due to the shut-down of the major acid waste generator's facility

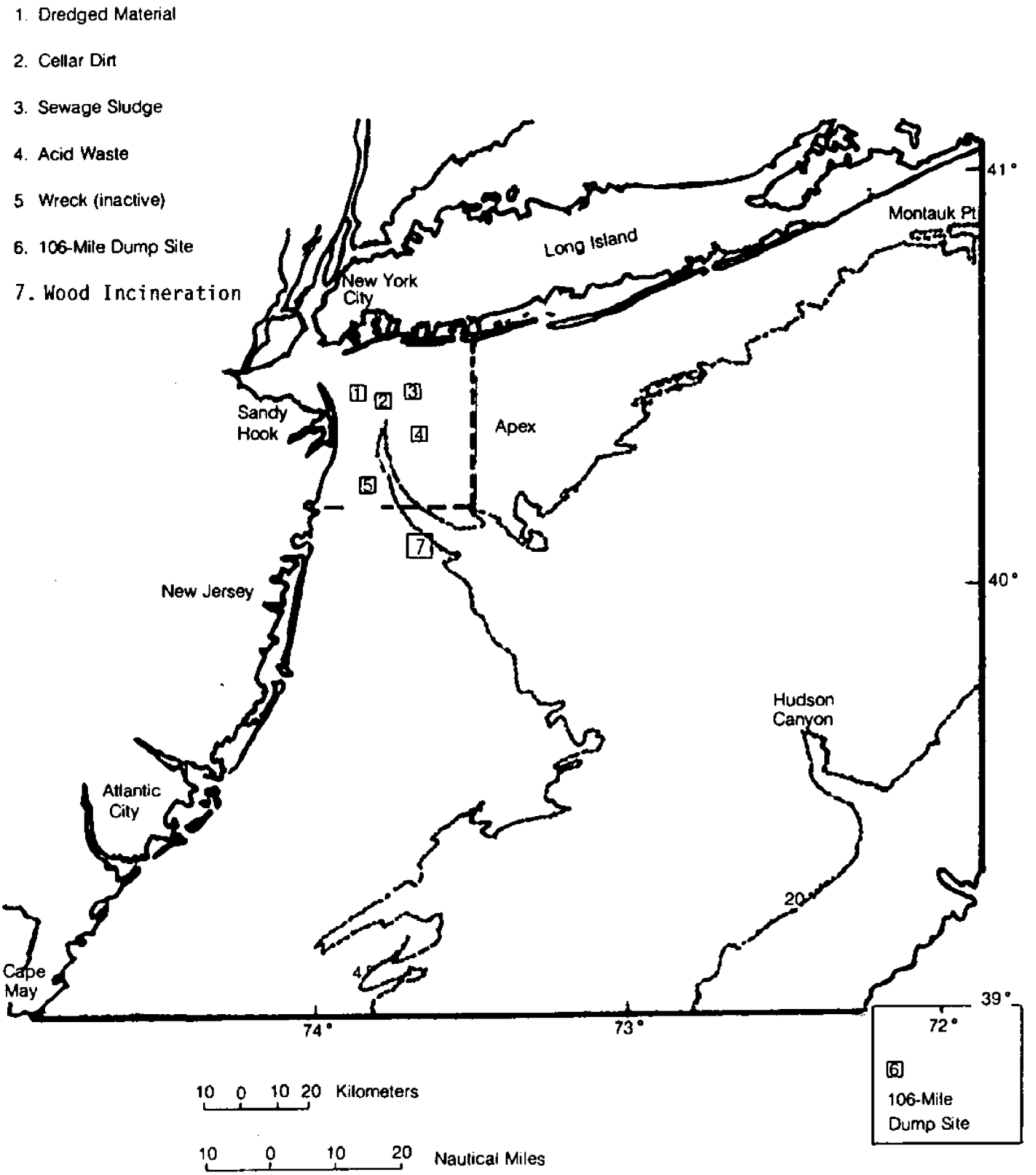
in late 1982.

Currently there are six ocean dumping sites within the New York Bight (Fig.1). One site, known as the Cellar Dirt Site, is designated for disposal of construction debri. Construction debri has been dumped in the Bight since 1908. The present Cellar Dirt Site, located approximately 8 nautical miles (nmi) offshore Sandy Hook, New Jersey and centered at latitude 40°23'N and longitude 73°49'W, was established in 1940. EPA formally designated the site in 1977 and recently proposed designation of the site for continued use.

Prior to 1978 cellar dirt could consist of excavation dirt and rock, broken concrete, rubble, tile and other nonfloatable debri. Only excavation dirt and rock have been permitted to be ocean dumped since 1978. In 1973, 974 thousand tons of debri were dumped while in 1980 only 81 thousand tons were dumped. The site has not been used since 1980, mainly because of a decline in construction in and around Manhatten and the ability to recycle or landfill some debri.

Driftwood, timber and pilings from deteriorated water front structures, derelict wooden vessels, and similar materials generated in and around New York Harbor are burned at sea at the Wood Incineration Site. Located approximately 8 nmi offshore northern Ocean County, New Jersey, the sites boundaries are latitudes 40°00'00"N and longitudes 73°41'00"W to 73°38'10"W. Burnable materials are piled on barges which are ignited upon reaching the site. All incineration is supposed to occur at the site with the resultant ashes returned to land for disposal.

Materials dredged from navigable waters in and around New York Harbor are disposed of at a site commonly referred to as the Mud Dump Site. The Mud Dump Site is located approximately 5.3 nmi offshore Sandy Hook, New Jersey, and 9.6 nmi offshore Long Island, New York, at latitudes 40°21'48"N



Note: Contours in meters.

Figure 1. Ocean Disposal Sites in the New York Bight

to 40°23'48"N and longitudes 73°50'00" to 73°51'28"W.

Originally a dumpsite for dredged material was established in 1888 inside New York Harbor; however, as dumping caused depths in the area to decrease, the site was moved. In 1914 dredged material disposal operations were moved offshore to the present location. The boundaries of the Mud Dump Site were defined and the site designated by EPA for interim use in 1977. Earlier this year EPA proposed final designation of the site for continued use for a period of ten years. A decision on this proposed action is due in early 1984.

The volume of material disposed of at the Mud Dump Site varies from year to year depending on the intensity of dredging activities in the port and harbor; however, approximately 8-10 million tons of material are dumped annually under Corps of Engineers permits. The alternatives to ocean disposal of dredged materials include using dredge spoils as landfill cover, creating wetland or upland areas, reclamation of disturbed upland sites, and disposal in underwater borrow pits created by sand mining in the harbor. Implementation of these alternatives has been hampered by cost, lack of appropriate sites, and the fact that much of the dredged material from the harbor contains petroleum hydrocarbons, heavy metals, and other contaminants spilled or discharged into the harbor.

Industrial wastes are dumped at two sites in the Bight. In 1948 a site was established for the disposal of acidic wastes generated by industries in New Jersey. This site, known as the Acid Waste Disposal Site, is located approximately 14.5 nmi offshore Long Branch, New Jersey and Long Island, New York at latitudes 40°16'N to 40°20'N and longitudes 73°36' to 73°40'W. The principle user of the site since it was established has been NL Industries, Inc. Allied Chemical Co. has used the site for waste disposal since 1962. The only other company to have used the site is E.I. DuPont,

which released a portion of the caustic wastes generated at its Grasselli Plant there until being moved to another site in 1975.

Allied Chemical dumps by-product hydrochloric acid waste resulting from the manufacture of flourocarbon refrigerants. NL Industries disposed of sulfuric acid-iron waste and gangue solid slurry resulting from the production of titanium dioxide. In 1982,803,000 wet tons of waste were dumped at the site; however, NL Industries, which had contributed about 95% of the sites annual waste load, closed down its operations in the fall of 1982. This will result in a significant decrease in the quantities of waste dumped at this site in the future.

Another site used for disposal of industrial wastes is the 106-Mile Ocean Waste Disposal Site, also known as Deepwater Dumpsite 106, DWD-106, or the 106-Mile Chemical Waste Disposal Site. Located approximately 106 nmi southeast of Ambrose Light, New York, and approximately 130 nmi east of Cape Henlopen, Delaware, the site lies approximately 2 nmi east of the base of the continental rise, within the parallels 38°40' to 39°00'N latitude and 72°00' to 72°30'W longitude. Water depths at the 106-Mile Site range from 1440 meters in the northwest corner to over 2750 meters in the southeast corner.

The 106-Mile Site was formally established in 1965 for the disposal of industrial wastes not suitable for land disposal but has actually been used intermittently since 1961. The site was chosen because its location off the continental shelf removes it from most economic and recreational uses of the marine environment, including commercial and recreational fisheries, and the water depths at the site provide for dispersion of the wastes and reduce the likelihood of accumulation of waste materials on the bottom. In 1973 EPA designated the 106-Mile Site as an interim site primarily for disposal of liquid industrial wastes. The site was designated in 1980

for continued use because land-based disposal methods for some industrial wastes were either impractical or unavailable.

Since 1961 more than 100 permittees have disposed of a variety of waste materials at the 106-Mile Site including acids, nonspecific chemical wastes, sewage sludges and residues from sewage sludge digesters (digester cleanout). An inactive munitions disposal site is also located within the boundaries of the 106-Mile Site and an inactive radioactive waste disposal site is located 10 nmi to the south. At present only two permittees use the 106-Mile Site for the disposal of industrial wastes; both are plants of the E.I.du Pont de Nemours Company (Edge Moor and Graselli plants). A small quantity of sewage treatment plant digestor cleanout is also disposed of at this site. Peak use of the 106-Mile Site occurred in 1978, when approximately 876 thousand wet tons of industrial wastes and digestor cleanout were dumped there. Use of the site has decreased since 1978 because of the phasing out of ocean dumping activities and the implementation of land-based disposal, recycling, and reuse technologies. During 1982 only about 230 thousand wet tons of material were dumped at the 106-Mile Site. EPA is presently considering moving sewage sludge disposal operations from the inshore sewage sludge site to the 106-Mile Site. A decision on this move is expected sometime in 1984.

Sewage sludges have been disposed of in the New York Bight for about 60 years. The present sewage sludge disposal site was selected by the states of New York and New Jersey in 1924 following a law suit brought by New York City against the Passaic Valley Sewerage Commissioners to prevent the discharge of sludge to upper New York Bay. Located at latitudes 40°22'30"N to 40°25'00"N and longitudes 73°41'30"W to 73°45'00"W the site is approximately 12 nmi from Sandy Hook, New Jersey and Long Island, New York.

This site, known as the 12-Mile Site, currently receives sewage sludges generated from large municipal wastewater treatment facilities in the New York-New Jersey metropolitan area. In 1982 7.6 million wet tons of sludge were disposed of at the 12-Mile Site. New York City contributes approximately 42-45% of the annual volume of sludge dumped at the 12-Mile Site, while Nassau and Westchester Counties on Long Island contribute about 10-11%. Northern New Jersey sewerage authorities contribute the remaining 45-47% of the annual sludge volume.

Over 200 sewage treatment plants have discontinued ocean dumping by implementing a number of alternatives including making compost or fertilizer from their sludges or dewatering and landfilling their sludges. Other alternatives include incineration of sludge and co-incineration of sludge and solid waste. Implementation of similar alternatives by the remaining ocean sludge dumpers has been hampered by political and social attitudes, economics, and environmental concerns arising from the fact that these sludges contain heavy metals and other pollutants discharged into the wastewater treatment systems in these metropolitan areas.

All of the sludges now being dumped at the 12-Mile Site are done so in accord with either federal court orders or EPA administrative orders. In the court case City of New York vs EPA, Judge A. Sofaer of the Southern District of New York determined that the December 31, 1981 deadline for halting ocean dumping of materials that "may unreasonably degrade" the marine environment at a particular dumpsite remains in effect; however, he also determined that EPA's regulatory interpretation of unreasonable degradation of the marine environment failed to consider the environmental impacts of ocean dumping activity at the ocean disposal site and balance those against impacts associated with the land-based alternative disposal methods available. Therefore, the judge determined that New York could

continue to ocean dump while EPA evaluates a petition from New York City for continued ocean dumping at the 12-Mile Site versus other suitable disposal options, including ocean dumping at a different site. Similar court orders were issued in New Jersey regarding sewerage authorities from Bergen County, Union/Essex County, Linden-Roselle, Rahway Valley, Middlesex County, and Passaic Valley and in Long Island regarding Nassau and Westchester Counties.

In summary, ocean dumping in the New York Bight continues. As the 1980's progress, waste disposal and management continues to be a major problem confronting our society. In the search for appropriate waste management options many political, social, economic, and scientific variables must be weighed whether the options be land-based disposal, water-based disposal, or a recycle and reuse strategy. Regardless, ocean dumping will likely continue to be a waste management option employed in the New York Bight while alternatives continue to be explored.

REFERENCES

Mayer, G. 1982. Ecological Stress and the New York Bight: Science and Management. Estuarine Research Federation. Columbia, S.C.

Squires, D. 1982. The Ocean Dumping Quandary: Waste Disposal in the New York Bight. State University of New York Press. Albany, N.Y.

Tiedemann, J. 1983. The 106-Mile Site: overview of an oceanic waste disposal site. New Jersey Marine Sciences Consortium. Sandy Hook, N.J.

U.S. Environmental Protection Agency. 1978. Final Environmental Impact Statement on the Ocean Dumping of Sewage Sludge in the New York Bight. U.S. EPA Region II. New York, N.Y.

U.S. Environmental Protection Agency. 1980. Final Environmental Impact Statement for 106-Mile Ocean Waste Disposal Site Designation. U.S. EPA. Washington, D.C.

U.S. Environmental Protection Agency. 1980. Final Environmental Impact Statement for New York Bight Acid Waste Disposal Site Designation. U.S. EPA. Washington, D.C.

U.S. Environmental Protection Agency. 1982. Final Environmental Impact Statement for the New York Dredged Material Disposal Site Designation. U.S. EPA. Washington, D.C.

U.S. Environmental Protection Agency. Quantities of Waste Materials, other than Dredged Materials, Ocean Dumped at Sites Managed by EPA Region II. U.S. EPA Region II. New York, N.Y. (unpublished data).

Zimmer, R. 1980. Ocean dumping: where will we dispose of our wastes after 1981? The Jersey Shoreline II(5):1-3.