2.6 OCEAN ISSUES

CONTENTS

OCEAN ISSUES

2.6.1 MINERALS

Delaware's marine environment contains sand and gravel that are highly desirable for construction and beach nourishment. There are also hydrocarbon resources but not in commercial quantities. Mineral extraction involves the potential for environmental problems. Sand and gravel have habitat values that are potentially depleted when the deposits are disturbed and redeposited. Potential disturbances from hydrocarbon extraction include spills, pollution from support and shipping facilities, and pollution from refining and processing facilities.

2.6.1.1 Sand

Delaware's economy depends heavily on the millions of tourists who visit Delaware each year and on the increased property values that have occurred as a result of a high-quality recreational experience. Without good beaches, the state would most likely see a loss in property values and consumer surplus associated with a loss of tourism. We would also see increased damage to structures during storms, due to a loss of a protective beach and dune.

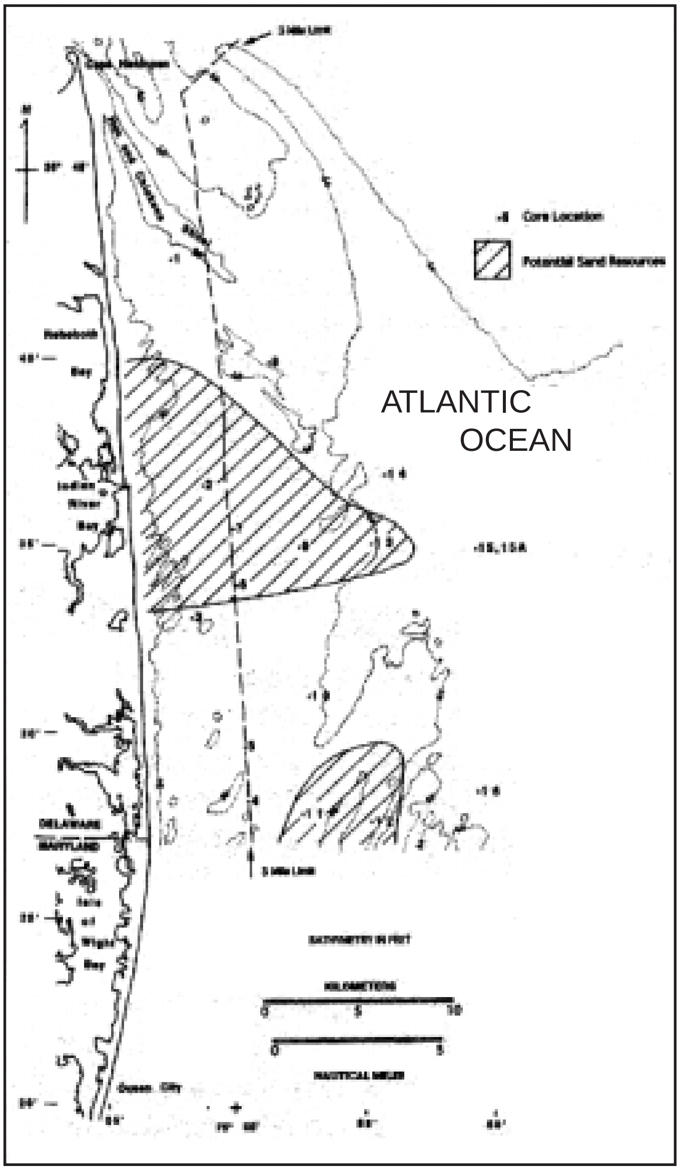
Since 1988, the Department has managed the ocean shoreline of Delaware through the placement of sand on the beach from an underwater site. This is called beach nourishment. These efforts have been sufficient to maintain beach widths in all communities and tourism revenues. Real estate values and recreational use have all flourished during this period. Residents, business owners, property owners, and visitors have all come to rely on nourishment to maintain the state's beaches. The State of Delaware is prepared to continue conducting these projects providing that the funding and, more importantly, adequate sand resources are available.

Without adequate sand, these nourishment projects cannot occur. With each new project, it is becoming more and more difficult to find sufficient and adequate sand resources in proximity to the proposed nourishment site. Currently, the state is using borrow sources within 2 miles of the shoreline in state-owned waters. Because these sand resources are dredged from waters owned by the state, the cost of the sand is not included in the cost of conducting these nourishment projects. However, these sources are becoming depleted and in some cases are unavailable due to the presence of cultural resources or environmental sensitivity. As these sand sources are exhausted, coastal managers will be forced to look farther offshore in areas where it will be more expensive to dredge due to increased depth and increased pumping costs. Eventually the state will be forced to look for sand in federally managed waters of the Outer Continental Shelf (OCS). When this occurs, the cost of the projects will increase due to increased dredging and pumping costs and because the state will have to spend time and money negotiating with the U.S. Minerals Management Service for use of the sand. Currently, states are required to pay a fee for the use of the OCS minerals; however, changes to this policy have been proposed in Congress. *Figure 2.6-1* identifies potential offshore sites of sand resources for beach nourishment.

Eventually the cost of obtaining these offshore resources may become so high that the costs of conducting the nourishment projects will outweigh the benefits. At that time, these projects may have to be reduced in frequency or be discontinued, or other sand resources such as inland borrow pits may have to be explored.

Figure 2.6-1

AREAS IDENTIFIED AS POSSIBLE OFFSHORE SAND RESOURCES FOR BEACH NOURISHMENT (DGS, 1995).



2.6.1.2 Hydrocarbons

In the 1970s, there was great national concern over declining domestic energy supplies and rising demand. Several areas off the Atlantic coast were explored for oil and gas including the area offshore of Delaware. The only find out of 49 wells drilled in the Atlantic region was in the area offshore of Delaware in the Baltimore Canyon. Oil and gas were found but not in commercially usable quantities. The Atlantic Offshore Continental Shelf region's hydrocarbon potential ranks below that of the Gulf of Mexico, Pacific Ocean, and Alaska. It is unlikely that, given the present market conditions, exploration in the Atlantic region will occur in the near future. However, the Delaware Geological Survey notes there are areas inside and outside the 3-mile limit offshore of Delaware that cannot be considered fully explored for hydrocarbons. (Benson, 1992) The Delaware Geological Survey also recognizes the importance of potential natural gas resources off Delaware's coast and the need for continuing consultation. The Minerals Management Service's Five-Year Outer Continental Shelf Oil and Gas Leasing Program for 1997 to 2002 does not include lease sales in the Atlantic region.

Currently, very little of the proceeds from Offshore Continental Shelf leases and royalties on extracted minerals are contributed to the Federal Land and Water Conservation Fund. This fund was created in 1965 to fund the acquisition and development of land for recreation and conservation purposes at the state and federal levels. Revenue from federal offshore mineral leases sustains the National Historic Preservation Fund (NHPF). Annual appropriations from the NHPF support matching grants to the states and territories. For the 1954–1993 period, total revenue from the Mid-Atlantic Outer Continental Shelf Planning Area was $1,590,207,616 or 1.5 percent of the total revenue (Francois, 1994).

2.6.1.3 Other Minerals

At the present time, there is little commercial interest in offshore minerals other than sand and gravel. If market conditions change, perhaps there may be commercial interest in gas and oil. There is a lack of information about the location of mineral resources offshore. This lack of information creates a problem because subsequent land uses and growth can prevent extraction that would otherwise have been environmentally feasible.

2.6.2 FISHERIES

2.6.2.1 Fisheries Management

The *Delaware Code* grants the Department's Division of Fish and Wildlife legal authority for the management of the fisheries resources of the state. Most commercially and recreationally important species of fish in tidal waters are an interjurisdictional resource, migrating inshore and offshore seasonally and moving along the coast between states. Fisheries management, therefore, must be a cooperative venture. Attempts by a single state to conserve a fish stock will have little impact unless other states implement similar conservation practices. For this reason saltwater fish and shellfish are managed on a coast-wide basis by one of three regional management agencies.

The Atlantic States Marine Fisheries Commission (ASMFC) is an interstate compact including 15 Atlantic coast states from Maine to Florida. It was created in 1942 and has primary management responsibility for fish species harvested primarily within state waters (3-mile limit). The following species are presently managed by ASMFC under approved Fishery Management Plans (FMPs):

- Shad and river herring
- Atlantic herring
- Striped bass
- Spot
- Weakfish
- Tautog
- Northern shrimp
- Atlantic sturgeon
- Summer flounder
- Winter flounder
- American lobster
- Spotted sea trout
- Atlantic croaker
- Red drum
- Spanish mackerel
- Bluefish
- Horseshoe crab
- American eel (under development)

Fisheries management under ASMFC was originally a voluntary process. In 1993, Congress passed the Atlantic Coast Fisheries Cooperative Management Act. This law establishes an obligation on the part of states to implement the provision of FMPs to ensure public input and conservation of resources. Failure to comply can cause the Secretary of Commerce to impose a moratorium on all fishing for the species in the state in question.

Most other fish species, harvested primarily in federal waters (3 to 200 miles), are managed by five regional fisheries management councils. The Magnuson Stevens Fisheries Conservation and Management Act (Public Law 94-265) was passed by Congress in 1976. This law created an Exclusive Economic Zone (EEZ) extending to 200 miles offshore and established the regional fishery management councils under the Secretary of Commerce. Delaware's regional council is the Mid-Atlantic Fishery Management Council (MAFMC). The following species are currently managed by the MAFMC under approved Fisheries Management Plans:

- Surf clam and ocean quahog
- Squid, mackerel, and butterfish
- Summer flounder (joint with ASMFC)
- Scup and black sea bass
- Bluefish (joint with ASMFC)

The following MAFMC Fisheries Management Plans are currently under review:

- Monkfish (joint with New England Fishery Management Council)
- Spiny dogfish
- Tilefish

Highly migratory species, which migrate extensively between national jurisdictions, are managed directly by the National Marine Fisheries Service (Department of Commerce) under a single FMP, currently being reviewed. This plan covers sharks, tunas, and billfish.

The Department's Division of Fish and Wildlife participates actively in ongoing management efforts of ASMFC and MAFMC on two levels. Staff collect and analyze local fisheries resource data and assist in analyzing regional data sets. Staff participate as members of technical committees for each species. In addition, the state provides voting members to management boards for each species. These committees determine the content of FMPs and determine the schedule for implementing management measures. With the help of the technical committee, they assure that each state is in compliance with FMP measures.

2.6.2.2 Fisheries Habitat

Each Fishery Management Plan includes a section on habitat. When the Magnuson Stevens Management and Conservation Act was reauthorized in 1996, concerns about conserving fishery habitat were included in the act. Regional Fishery Management Councils were directed to identify Essential Fish Habitat for all life stages of each species. Increased emphasis will be focused on protecting and minimizing impacts to Essential Fish Habitat from other permitted activities. One example of a conflict between Essential Fish Habitat and anthropogenic activities is the mining of sand resources from "relic" shoals in the nearshore ocean. These elevated, sloping shoal areas were left behind with the westward movement of the coast in recent geological history. These areas are preferred habitat for surf clams, sharks, striped bass, and other fish. Recognizing that there is a demand and an economic incentive to conduct beach nourishment activities, it must be done in a way that minimizes impacts to Essential Fish Habitat.

2.6.2.3 Surf Clams

Prior to the mid-1970s, Delaware had a commercially important surf clam population within state waters. A processing plant was established in Lewes, Delaware, in 1951. Delaware's surf clam landings peaked in 1972 and then declined precipitously through 1975 when state landings ceased. During the early 1970s, millions of pounds of surf clams were landed annually from Hen and Chickens

Shoal, off Cape Henlopen. Brown Shoal in lower Delaware Bay and Small Finger Shoals along the ocean coast also produced commercial quantities of surf clams.

The Division of Fish and Wildlife has conducted three surf clam surveys within state waters during the 1980s and 1990s. These surveys show that a commercially exploit-able population of surf clams has not yet reestablished itself within state waters. Benthic surveys show young-of-the-year surf clams, sometimes in high density, and predation appears to be limiting the survival of a significant year-class at this time. There appears to be no water-quality or habitat-related impediment to reestablishment of a surf clam population, as long as the habitat remains unaltered.

2.6.2.4 Artificial Reefs

In July 1992, Delaware became the last Atlantic coast state south of New York to initiate an artificial reef program. Following an extensive planning period, reef development began in 1995 and will continue into the future. Reef development provides protective structure and trophic support to various species of structure-oriented fish, specifically tautog, black sea bass, scup, trigger fish, and Atlantic spadefish. Other gamefish, such as striped bass and weakfish, are attracted to baitfish that school around structures.

Delaware's reef program is defined in the Delaware Artificial Reef Plan. Materials must be durable, stable, and non-toxic. Concrete, steel, derelict steel vessels, decommissioned military vehicles, and ballasted tire-units are presently being deployed. There are eight permitted sites in Delaware Bay and three in the Atlantic Ocean. To date, more than 23,000 tons of suitable material, 86 decommissioned military vehicles, and two tugboats have been sunk on Delaware's reef sites.

Artificial reef development is especially beneficial to structure-oriented fish in the Mid-Atlantic region, where the bottom is normally featureless sand or mud. There is very little natural rocky habitat, like in New England waters. Similarly, there are no biological reef-builders (i.e., corals) like in the southeast. Artificial reef development in the Mid-Atlantic region may allow an overall increase in some fish stocks, such as tautog that may be habitat-limited. Delaware's artificial reef building efforts are just one part (habitat enhancement) of a comprehensive fisheries management program that includes traditional management measures, such as creel and size limits.

The Division of Fish and Wildlife presently monitors reef sites for permit compliance (side-scan sonar surveys), for biological productivity (invertebrate sampling), and to determine user effort (aerial boat count survey).

Compliance-monitoring documents that all material is deployed within the perimeter of permitted sites and that sufficient clearance exists for navigational interests. Invertebrate sampling has documented that an entirely different community develops on reef structure, often with a biomass several hundred times greater than the native infaunal community. The aerial survey is used to estimate use of each site by fishers and will be used to track effort over time.

2.6.3 NAVIGATION

The international trend in waterborne commercial shipping is toward fewer and larger vessels. Newer, deeper-draft vessels can safely operate with improvements in navigational charts, shoreline mapping, satellite and other positioning services, water-level and current forecasting, and ports. Each inch of additional draft for a port can yield thousands of dollars a year. Therefore, the Pilots' Association for the Bay and River Delaware uses real-time water-level data from the National Oceanic and Atmospheric Administration's stream gauges in the Delaware River and Bay to raise the maximum allowable draft of vessels. This is extremely important for large bulk and container ships revenue, which can gain an estimated $36,000 to $288,000 for each additional foot of draft. National economic models indicate that if port shoaling or uncertainty about water levels added one percent to the cost of crude petroleum imports, $3.1 billion would be lost from our gross domestic product, along with 61,000 jobs (NOAA, 1999).

2.6.3.1 Oil Tankers and Proposals for Offshore Oil Transfer

Each day, a million barrels of crude oil are transported within sight of Cape Henlopen and up the Delaware River to refineries. This oil comprises 60 percent of the cargo carried annually on the river. Oil spills have occurred in spite of everyone's best efforts. A deep-water port could reduce lightering of tankers after they have entered the Delaware Bay to reduce their draft and facilitate their safe passage up river (Patterson, 1999). In attempts to raise profits, oil importers have proposed a monobuoy off the coast, a surplus supertanker anchored offshore, and building a super port in the Delaware Bay, which would require deepening it to 90 feet. The Delaware Coastal Zone Act prohibits a Delaware Bay port, so only the monobuoy and the supertanker will be considered here.

Potential Oil Demand

According to a study by the College of Marine Studies at the University of Delaware, approximately 1 million barrels per day or, 70 percent of all the marine transported oil that is imported to the East Coast moves by water up the Delaware Bay and River.

If future oil imports to the mid-Atlantic region increase dramatically, or if the sources of imports change, there may be greater demand for a deep-water oil port off the

Delaware-Atlantic coast. Oil refinery capacity may have to be expanded to make a port attractive. However, opposition to oil refineries, federal air quality regulations, inflated construction costs, and federal tax policies and import quotas are some of the factors that may deter industry from expanding refinery capacity in the Mid-Atlantic.

However, if oil consumption increases dramatically, there may be pressure for more refineries, more oil imports, and a deep-water port. Moreover, a lone deep-water port on the East Coast could attract supertankers. Finally, an economically attractive find on the outer continental shelf and a pipeline hook-up to the port might make a deep-water port profitable.

Those speculations probably account, in part, for the past interest in a proposed monobuoy port to be located about 30 miles east of the Delaware shore. Still in the planning stages, private industry has contacted Delaware with proposals to operate a fixed monobuoy. Under these proposals, the state would be the licensee of the port and exert direct control over it.

Excluding the Louisiana Offshore Oil Port (LOOP), a monobuoy 18 miles from the Louisiana shore that is capable of handling tankers of 700,000 tons, there is no port in the contiguous 48 states with deep enough water to accommodate the 60-foot draft of the standard 200,000 to 275,000-ton “very large crude carriers,” and the 90-foot-draft 275,000- to 556,000-ton “ultra large crude carriers.” No east coast port can handle anything larger than 80,000 tons fully loaded; most are restricted to tankers of no more than 50,000 tons. Yet, because of economies of scale, supertankers are carrying an increasingly large part of petroleum in world trade. In 1966, there was only one tanker in the world over 200,000 deadweight tons (dwt). By the end of 1985, there were over 539 supertankers this size in existence.

The cost advantage of supertankers is demonstrated by comparing a 250,000 dwt tanker and a 50,000 dwt tanker. The latter normally serves Delaware Bay and New York Harbor and averages 40 feet in draft. A 250,000 dwt requires 70 feet of water, but can carry oil over long distances at about half the cost per barrel of the smaller tankers.

The U.S. Maritime Administration believes that deep-water ports can help keep the nation’s industry competitive, and accordingly, has informed the State of Delaware that the exclusion of a deep-water terminal could affect the U.S. economy.

The Congress has also acknowledged the national interest in deep-water ports. The Deepwater Port Act of 1974 establishes a federal program to license ownership, construction, and maintenance of ports located outside the states’ territorial limits to unload oil for transportation to onshore receiving facilities by pipeline or shallow-draft lighter. The Act includes provisions for environmental review, public access to information, citizen civil actions, and strict liability up to $50 million for oil pollution. It also recognizes state and local concerns and requires the prior approval of the governors of coastal states adjacent to proposed deep-water ports.

One consideration in any gubernatorial approval or rejection undoubtedly will be the possibility of oil spills. Deep-water ports are generally regarded as safer than lightering, assuming equal amounts of oil are transferred. For example, the U.S. Office of Technology Assessment has estimated that a hypothetical deep-water port 30 miles off the New Jersey coast would spill half as much oil as small tankers based on the probable total spillage within 50 miles of shore.

A deep-water monobuoy-pipeline system, like the LOOP, avoids some of the hazards that have given tankers a questionable oil pollution record. Tanker groundings and collisions, oil transfer operations, oil ballast-water discharges, and tank cleaning discharges are some of the possible tanker pollution sources.

Four factors make the risks of oil spills from deep-water port operations generally lower than the risks from small tanker operations: (1) a deep-water port reduces the number of tankers that must be used to move the oil; (2) close surveillance of the oil transfer and handling is possible, allowing stricter enforcement of safety standards; (3) oil tanker traffic can avoid crowded harbors; and (4) the distance between the port and the shoreline may reduce damage to valuable coastal areas.

On the other hand, stricter tanker operation standards, improved communications technology and tanker design, and more intensive training of crews, combine to raise the hope that oil transport by tanker will become appreciably safer in the future. Stricter ballast regulations, computer- and radar-assisted marine traffic management systems, double hulls and twin screws, and training and licensing of crews will reduce tanker accidents and the risks associated with their operation.

The Oil Pollution Act of 1990 substantially raised the costs to petroleum carriers for strict liability from $50 million to $350 million. The Act requires double-hulled tankers to be phased in over 20 years for American companies, requires satisfactory spill remediation demonstrations, and may make deep-water ports in sensitive estuaries prohibitively expensive for construction and operation.

Siting Criteria

The least expensive, most versatile, and most likely deep-water port design is the monobuoy. There are different types of monobuoys, but generally they consist of a floating platform anchored to the sea bottom, with a hose that connects to a buried pipeline. During the construction phase of the port, about 20 acres of waterfront land is required for support. Onshore tank farms, typically storing 10 times the port's daily capacity to assure refineries of a continuous crude supply in the event of a bad-weather-induced port shutdown, could require an additional 125 acres to 300 acres. The chief economic advantage of a deep ocean site is the lack of dredging requirements.

Bad weather can temporarily close an ocean offshore port because seas higher than 6 to 8 feet make conventional tanker mooring operations impossible. Only on rare occasions does weather stop tanker traffic in the Delaware Bay; off-loading in the bay is restricted on an average of 30 days per year.

The reported depth of the channel in the Delaware River and Bay varies according to the source and location reported. It is clear, however, that the channel is not deep enough to justify a port near the refineries on either side of the Delaware River. The estimated cost of dredging the 40-foot authorized river channel to 45 feet has been estimated at $300 million in June 1992; dredging to 50 feet would cost an estimated $750 million. Moreover, maintenance costs, spoil disposal, toxics, and salt-water intrusion into freshwater aquifers all present additional difficulties.

Finally, other important deep-water port siting considerations are the possible effects on navigation, on national defense, or on other uses of the area.

Impact on Resources

The Deepwater Port Act requires that the ports be constructed and operated "using best available technology, so as to prevent or minimize adverse impact on the marine environment." U.S. Coast Guard regulations, however, do not specify standards for site selection with criteria such as water depth, dredging requirements, proximity to spawning areas, or sea-bottom characteristics. Nor do the regulations include requirements for specialized tanker design for foreign-flagged vessels to reduce the risk of oil spills. Absent those provisions and probably even with them, the most serious threats to resources posed by deep-water ports are oil spills, dredging operations, and onshore support activities.

Most oil spilled in the ocean floats long enough for wind and water forces to distribute the petroleum hydrocarbons into the water column, sediments, atmosphere, and organisms. The immediate and lethal effects of large oil spills have been demonstrated repeatedly.

In some cases, marine communities can recover remarkably fast. For instance, the biological recovery was approximately a year and a half for the Santa Barbara oil spill. However, the Santa Barbara spill was in an open ocean channel and never reached wetlands or inland waters that require accessibility for small boats in the case of a spill emergency.

Both Delaware and New Jersey contain miles of wetlands located immediately behind their sandy beaches. Oil spills kill wetland-dependent birds in several ways. The natural buoyancy and insulation provided by feathers are removed by oil, causing hapless birds to suffer hypothermia and drown.

The number of people relying on Delaware beaches for recreational enjoyment is large. The impact of a spill near beaches was illustrated in a supertanker spill close to Chilean beaches. In that spill, oil, sand, and pebbles combined to make something that resembled asphalt paving on 40 miles of beaches. One remedy for that type of disaster, utilization of detergents, introduces into the environment chemicals frequently more toxic than the oil itself.

A deep-water port located well offshore fares better by comparison. The likelihood of collision is probably less, but the greatest advantage is that a supertanker accident 20 to 60 miles offshore would have fewer impacts on coastal resources than a nearshore or bay port. Even if spilled oil reached shore from that distance, its toxicity would be substantially reduced. A report to the National Science Foundation estimates that oil from a 30,000-ton spill 20 miles off the Delaware coast reaching the bay would be roughly one-sixth as concentrated as it would be if it were spilled directly in the bay.

One method for alleviating onshore impacts in developed areas is to run the pipeline directly to existing storage and refinery facilities. Such a pipeline already connects the Raritan Bay-New York Bay region with southern refineries along the Delaware River.

Deep-Water Ports in Delaware

Not only does there appear to be no current economic justification for a bay port, but the potential environmental problems seem insurmountable. The Delaware Bay already receives more than twice as much crude oil as all other East Coast bays, rivers, harbors, and ports combined. A deep-water port would probably increase the bay's imports substantially, placing a grossly disproportionate share of the burden on the region, and possibly, through sheer volume, raising the probability of an oil spill.

That spill, because of the enormity of today's supertankers, could be catastrophic. The long and clean "track record" of lightering in the bay raises additional doubts about a substitute method. Finally, there is no guarantee that a deep-water port in the bay would preclude lightering.

All these factors take on added significance when the critical and fragile bay environment is considered. The national interest in wetlands, wildlife, beaches, and other resources deserves as much protection as can be reasonably afforded. Although the nation is assured that oil will reach the refineries on the Delaware River without a deep-water port, it is not assured that some of its most productive, but dwindling, coastal resources can tolerate the blow such a port could deliver.

The geographic boundaries of Delaware are of such small proportions that a coastal disaster is much more difficult to bear than is the case in larger states. Delaware's situation is substantially dissimilar from that of Texas or Louisiana.

The Delaware prohibition of a Delaware Bay deep-water port also takes into account that other sites appear more suitable. For its part, the Council on Environmental Quality, after a course of research on superports that involved five university reports, special Coast Guard studies, work with the Department of Transportation, and a comprehensive report on shoreside effects from a private contractor, evolved two principles for siting deep-water ports: keep them away from shore and disperse them in a number of locations. The first of those principles has to do with protection of the coastal environment from oil spills and dredging operations; the second concerns social, economic, and environmental stresses onshore due to oil-related development.

An offshore port 20 or 30 miles off the coast could handle supertankers that a bay port could not. Hopefully, the economies of scale would offset the additional transportation costs associated with a more distant site. Economic considerations may constrain the development of such a facility in the near future. The coastal resource savings, although difficult to quantify, are more certain.

The Congress intended that coastal states be given a clear and loud voice in deep-water port siting decisions. Under the Deepwater Port Act, it is conceivable that a coastal state governor could veto a deep-water port in federal waters offshore from that state. It is not conceivable that the Congress would repeal that authority for sites within state waters in proximity to its valuable and vulnerable coastal resources. Thus, it is apparent, at least from the perspective of the nation's legislative body, that the national interest in deep-water ports does not necessarily override the national interest in coastal resources.

2.6.4 DUMPING AND MARINE DEBRIS

2.6.4.1 Delaware Laws Banning Ocean Dumping

On July 8, 1991, Delaware prohibited ocean dumping. The action appears to be concerned with nearshore waters and also extends beyond the 3-mile limit. Chapter 60, Title 7, Section 6071, *Delaware Code,* includes the following:

> "The General Assembly finds that historically millions of tons of solid wastes have been disposed of in the ocean and waters of the state, that these wastes are not land disposed in recognition of the threat posed by the presence of contaminants, by the lack of knowledge or appreciation of the harm such can cause in the marine environment, or that it is cheaper to dispose of such wastes in the ocean or other waters of the state. Therefore it is the intent of the General Assembly to prohibit the disposal of solid wastes in the ocean and other waters of the state."

2.6.4.2 Existing Dumps

Information on existing dump sites is in various organizations. The U.S. Army Corps, EPA, NOAA, and others have files and studies that could be put together with enough resources to produce a comprehensive picture of what lies off Delaware's Atlantic shore. Material that lies on the bottom includes toxics, radioactive waste, and military explosives. *Figure 2.6-2* is a figure from NOAA that depicts dump sites in 1980.

2.6.5 BOUNDARIES

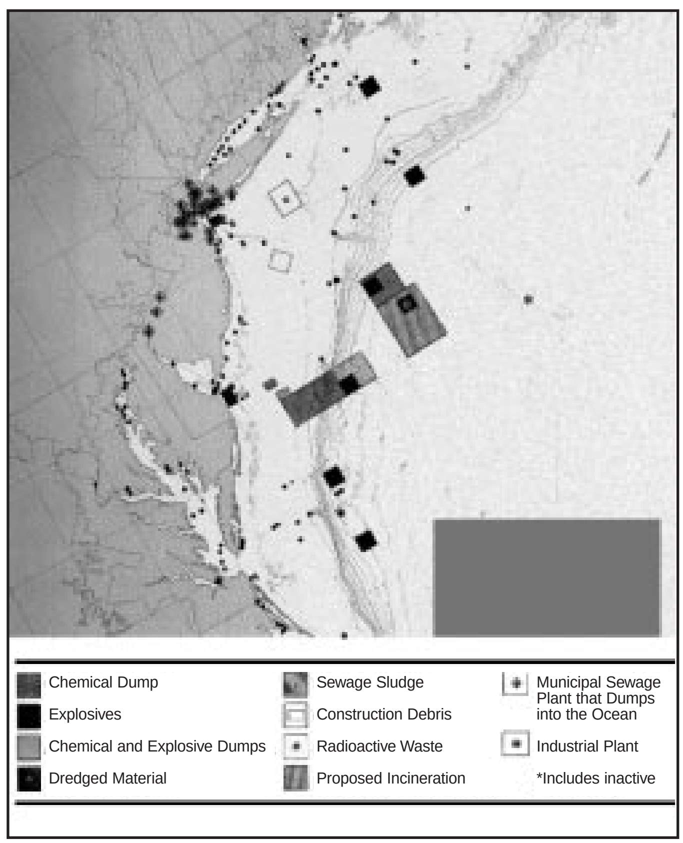
2.6.5.1 History, 3, 12 & 200 Nautical Mile Limits

The following is noted in Beatly, et al., 1994:

> "The U.S. coastal zone represents a complex pattern of ownership and control. [T]here are several important jurisdictional zones extending seaward from the land. Seaward of mean high water (MHW) is the territorial sea,

Figure 2.6-2

OCEAN DUMP SITES OFF OF DELAWARE'S ATLANTIC SHORELINE



which originally, under international law, was measured by the distance of a cannon shot. In the United States it was three nautical miles from MHW, and this area was affirmed as belonging to the states under the Submerged Lands Act of 1953. The Convention on the Territorial Sea and Contiguous Zone of 1958 allows a country to claim a contiguous zone beyond the territorial sea up to 12 nautical miles from MHW. In 1988 President Reagan extended the territorial sea to 12 miles by proclamation, but this did not generally extend the states' rights, although Texas and Florida have established claims beyond three miles. In 1976 Congress passed the Fishery Conservation and Management Act (the Magnuson Act), extending an exclusive fishery conservation zone to 200 miles, and in 1983 President Reagan proclaimed a 200-mile Exclusive Economic Zone (EEZ). Beyond the EEZ are the high seas, in which no nation can assert sovereignty.

"As coastal states have increasingly become involved in ocean management it is likely that they will seek to extend their control beyond the existing territorial limit. The state of Oregon, through its Ocean Management Program, has established an Ocean Stewardship Area, which extends seaward to the base of the continental margin (extending from 35 to 80 miles seaward), and in which their management and planning activities are focused. At least for purposes of planning coordination, coastal states are increasingly likely to want to expand their influence beyond the 12-mile limit."

2.6.5.2 Boundary Disputes Concerning Delaware's Coastal Zone

New Jersey is attempting to set their boundary inside of 3 miles offshore Delaware's Cape Henlopen.

In 1933, the United States Supreme Court decided in New Jersey v. Delaware (291 U.S. 361 (1933)) that the New Jersey – Delaware boundary in the Delaware Bay would be based on the deed and testament from the Duke of York in England to William Penn in 1682 by which Delaware obtained title to land and subaqueous lands up to the low water mark of New Jersey within a 12-mile circle around the center of the town of New Castle. The Delaware – New Jersey boundary has been surveyed by the United States Coastal and Geodetic Survey and is mapped in Bathymetric Map No. 1218.

The boundary extension on the open sea is disputed. On April 1, 1975, New Jersey proposed that the following boundary be adopted:

"'Beginning at a point in the middle of the main ship channel of the Delaware River in the extension southeastward of the Eastern arc of a Compound Curve of the Boundary between Delaware and Pennsylvania as surveyed by W.C. Hodgkins of the U.S. Coast and Geodetic Survey and set forth in Appendix Number 8 of the Survey Report for 1893; said point being a corner between Pennsylvania and New Jersey.

"Thence in accordance with Decree: New Jersey vs. Delaware, Boundary Line Between New Jersey and Delaware from United States Reports….Oct. Term, 1934 Vo. 295 pp. 694 – 699 until it intersects a line from a light at Cape May Point (FL ev 30 sec 165 ft. vis 19m) to a light at the SE point of a breakwater to the NE of Harbor of Refuge (FL ev 10 sec 72 ft. vis 16m).

"Thence in a straight line due E thru Delaware Bay and Seaward to the limits of the respective states of New Jersey and Delaware in the Atlantic Ocean.'

"In the foregoing description, the courses or bearings refer to the true meridian passing thru the beginning of each course; the names of lights are those given in the Light Lists, Atlantic and Gulf Coasts of the United States, Corrected to January 15, 1934, and published by the Bureau of Lighthouses. The position of features shown in Nautical Chart 1218, United States, East Coast, New Jersey-Delaware, Delaware Bay, edition of 1932, published by the United States Coast and Geodetic Survey is used in computing the turning points of the various courses of the boundary and as reference points for these turning points and tie lines to the courses."

Delaware accepted May 2, 1975.

The seaward boundary extension of the Delaware – Maryland line has not been finally determined although considerable time and effort has been expended in this regard. It has been necessary to resurvey the entire transpeninsular (east – west) Delaware – Maryland boundary to ascertain the exact point of departure for a seaward extension from the vicinity of Fenwick Island. The states have agreed on this point's position.

Alternative methods of defining the boundary have been identified and include the following:

- A line due east from a point at Fenwick Island on a parallel.
- Extension of the existing Transpeninsular Median Line or an extension of a line from Fenwick Island to Middle Point.
- A line at right angles or perpendicular to the shoreline.

The State Boundary Commission is attempting to resolve the boundary issues. The Department has a representative on this commission.

In addition to the above issues, there are other potential problems that require management. There are Critical Coastal Management Issues including:

- Coastal storm mitigation;
- Shoreline erosion and sea-level rise;
- Strategic retreat or coastal reinforcement;
- Protection of coastal wetlands and beaches;
- Protection of coastal waters;
- Biodiversity and habitat conservation; and
- Protecting access to beaches and shorelines,
- Urban design, and protecting community character.

The State of Oregon's 1990 Ocean Resources Management Plan and 1994 Territorial Sea Plan are examples of ocean planning for multiple beneficial uses of ocean and territorial sea resources. The plans also provide a framework for governance.

In November 1990, *The Oregon Ocean Resources Management Plan* was adopted. The plan addresses ocean uses and resources across the entire continental margin and 200-mile U.S. Exclusive Economic Zone in both state and federal waters.

The ocean plan's principal policies are a broad framework for ocean management. The plan defines an "Ocean Stewardship Area" from the crest of the coast mountains to the toe of the continental margin. In this area, Oregon asserts that it has direct concerns and ocean-management responsibilities.

The State of Oregon promulgated a territorial sea plan in 1994. Oregon did this because it has a very important and productive marine environment, ocean resources were at risk from uses other than oil drilling, and to provide for coordinated policy direction and management of ocean resources in the state's 3-mile-wide territorial sea and in federal waters beyond.

Planning for ocean uses can employ techniques such as assessment and valuing of resources, listing management concerns, prioritizing uses, and designating certain areas as appropriate for those uses.

2.6.6 DATA GAPS AND RECOMMENDATIONS

1. Delaware should develop an ocean resources plan to facilitate land and water uses of benefit to the state such as preserving the highest valued fish and shellfish habitat and using offshore sand from designated areas for beach replenishment.

2.6.7 REFERENCES

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