

#### 4. SPECIAL PROJECTS AND REPORTS

##### A. Dredging: The Facts (PIANC)

The International Navigation Association (PIANC) and others have published a booklet titled *Dredging: the Facts*. From the very beginnings of civilization, people, equipment, materials, and commodities have been transported by water. Ongoing technological developments and the need to improve cost effectiveness have resulted in larger, more efficient ships. This, in turn, has resulted in the need to enlarge or deepen many rivers and canals in order to provide adequate access to ports and harbors. Nearly all the major ports in the world have at some time required new dredging works -- known as capital dredging -- to enlarge and deepen access channels, provide turning basins, and achieve appropriate water depths along waterside facilities. Many of these channels have later required maintenance dredging, i.e., the removal of sediments which have accumulated in the bottom of the dredged channel, to ensure that they continue to provide adequate dimensions for the large vessels engaged in domestic and international commerce.

According to this document, waterborne transport is vital to domestic and international commerce. It offers the most economical, energy efficient, and environmentally friendly transportation of all types of cargo. Navigation projects must keep pace with waterborne transport needs in order to support and maintain local, national, and regional economies. Topics addressed include: (1) dredging for navigation, construction, reclamation, and mining; (2) dredging to benefit the environment, e.g., to create or restore habitats and to remove contaminated sediments; (3) the dredging process, i.e., excavation, transport of excavated material, and utilization or disposal of dredged material; (4) types of dredges, i.e., mechanical dredges, hydraulic dredges, low-impact dredges, and other types of dredges; (5) dredged material management alternatives, e.g., regulatory aspects, beneficial use, open water disposal, confined disposal, and treatment; and (6) environmental issues, i.e., effects of the dredging process and source control of pollution.

For further information, contact Dr. Robert M. Engler, Environmental Laboratory, Waterways Experiment Station, U.S. Army Corps of Engineers, P.O. Box 631, Vicksburg, MS 39180, (phone: (601) 634-3624).

##### B. Integrated Urban Air Toxics Strategy (EPA)

On July 19, 1999, (64 FR 38706), the U.S. Environmental Protection Agency (EPA) issued a notice concerning the National Air Toxics Program. This document provides an overview of EPA's national effort to reduce air toxics, including stationary and mobile source standards, cumulative risk initiatives, assessment approaches, and education and outreach. This National Program includes activities under multiple Clean Air Act (CAA) authorities to reduce air toxics emissions from all sources, including major industrial sources, smaller stationary sources, and mobile sources. By integrating activities under different parts of the CAA, EPA can better address cumulative public health risks and adverse environmental impacts posed by exposures to multiple air toxics in areas where the emissions and risks are most significant. In addition, this

document describes a new major component of EPA's national effort, the Integrated Urban Air Toxics Strategy developed under the authority of Sections 112(k) and 112(c)(3) of the CAA.

The Strategy includes: (1) a description of risk reduction goals; (2) a list of 33 hazardous air pollutants (HAPs) judged to pose the greatest potential threat to public health in the largest number of urban areas, including 30 HAPs specifically identified as being emitted from smaller industrial sources known as "area" sources; and (3) a list of area source categories which emit a substantial portion of these HAPs and which are being considered for regulation under Section 112(d). Because mobile sources are an important contributor to the urban air toxics problem, the Strategy also describes actions under Title II of the CAA to reduce toxics from these sources, including those which address diesel particulate matter (PM). The Strategy by itself doesn't automatically result in regulation or control of emissions. EPA will perform further analyses of HAP emissions, control methods, and health impacts, as appropriate, for stationary and mobile sources. These analyses will inform any ultimate regulatory requirements that EPA develops under the Strategy.

The CAA identifies 188 compounds as HAPs. They include pollutants like benzene found in gasoline, perchloroethylene emitted from dry cleaners, methylene chloride used as an industrial solvent, heavy metals like mercury and lead, polychlorinated biphenyls (PCBs), dioxins, and some pesticides. These pollutants may cause cancer or other serious effects in humans or in the environment. Health concerns result from both short-term and long-term exposures to these pollutants. They may disperse locally, regionally, nationally, or globally and, after deposition, may persist in the environment and/or bioaccumulate in the food chain, depending on their characteristics. Although not specifically listed as a HAP in Section 112(b) of the CAA, diesel emissions contain many HAPs, and are thus collectively considered under EPA's overall Program and the Strategy. There are literally millions of sources of air toxics, including large industrial complexes like chemical plants, oil refineries, and steel mills; small (area) sources such as dry cleaners, gas stations, and small manufacturers; and mobile sources including cars, trucks, buses, and nonroad vehicles like ships and farm equipment.

For further information, contact Ms. Laura McKelvey, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, (phone: (919) 541-5497).

### C. Spills of Nonfloating Oils (NRC)

The Marine Board of the National Research Council (NRC) has published a report titled *Spills of Nonfloating Oils: Risk and Response*. This report was developed at the request of the U.S. Coast Guard (USCG). According to the report, maritime accidents that result in oil spills are high on the list of public environmental concerns. These spills are difficult to control and can contaminate the marine environment. When oil is spilled on the sea, it undergoes physical, chemical, and biological changes as it weathers and is degraded by bacteria. Most oil spill cleanup technologies, which have been developed for floating oils and the ensuing emulsions, are not very effective. For most spills, only about 10 to 15 percent of the oil is recovered, and the best recovery rates are probably about 30 percent.

Some oils with specific gravity greater than 1.0 (and some other oils in certain circumstances) may be neutrally buoyant or sink when spilled on water, depending on the salinity of the water. Federal rules governing oil spill contingency plans categorize petroleum cargoes according to their physical properties. Oils with a specific gravity of >1.0, referred to as Group V oils, include some heavy fuel oils, asphalt products, and very heavy crude oils. Vessels and terminals that handle Group V oils are required to include responses to spills of Group V oils in their facility response plans.

The study objectives were to: (1) assess the threats posed by the marine transportation of Group V oils by characterizing the trade of such oils and, in general terms, the resources at risk; (2) assess the adequacy of cleanup technologies for spills of Group V oils and recommend research to develop new technologies and techniques, as appropriate; and (3) identify barriers to effective responses to spills and recommend technological, financial, or management measures that would promote prompt and effective responses to spills of Group V oils. The statutory definition of Group V oils does not include all oils of concern; therefore, the report focuses on the behavior of the oil and uses the term "nonfloating oils" as the operational definition. The tracking, containment, and recovery of spills of nonfloating oils pose challenging problems, principally because nonfloating oils suspended in the water column become mixed with large volumes of seawater and may interact with sediments in the water column or on the seabed.

The report contains 21 significant findings, conclusions, and recommendations. The recommendations are intended to improve the capability of the spill response community to respond to spills of nonfloating oils:

1. The USCG should direct area planning committees to assess the risk of spills of nonfloating oils (i.e., oils that may be dispersed in the water column or ultimately sink to the seabed) to determine the resources at risk. In areas with significant environmental resources risk, area planning committees should develop response plans that include consultation and coordination protocols and should obtain pre-approvals and authorizations to facilitate responses to spills. Stakeholder groups should be educated about the impact and methods available for tracking, containing, and recovering oil suspended in the water column or on the seabed. Area committees in locations where there are high risks of spills of nonfloating oils should include at least one scenario for responding to a nonfloating-oil spill in their training or drill programs.
2. The USCG should improve its knowledge base, education, and training for responding to spills of nonfloating oils by including a scenario involving a spill of nonfloating oils in oil-spill response drills, by establishing a knowledge base and scientific support teams to respond to these types of spills, and by disseminating this knowledge to the federal spill-response coordinators and area planning committees as part of ongoing training programs. The information would help area planners assess the requirements for responding to nonfloating-oil spills.
3. The USCG should support the development and implementation of an evaluation program for tracking oil in the water column and on the seabed, as well as

containment and recovery techniques for use on the seabed. The findings of these evaluations should be documented and distributed to the environmental response community to improve response plans for spills of nonfloating oils.

4. Tests of area contingency plans and industry response plans for responses to spills of nonfloating oils should be required parts of training and drill programs.
5. The USCG should monitor spill rates from tank barges to ascertain whether current regulatory requirements and voluntary programs will reduce the frequency and volume of spill incidents. If not, the USCG should consider initiating regulatory changes.

For further information, contact Ms. Susan Garbini, Project Officer, Marine Board, National Research Council, 2101 Constitution Avenue, Washington, DC 20418, (phone: (202) 334-3134).

#### D. U.S. Marine Transportation System (DOT)

The U.S. Department of Transportation (DOT) has published its report to the U.S. Congress dated September 1999 and titled *An Assessment of the U.S. Marine Transportation System*. The U.S. Marine Transportation System (MTS) consists of waterways, ports and their intermodal connections, vessels, vehicles, and system users. Each component is a complex system within itself and is closely linked with the other components. The MTS is primarily an aggregation of state, local, or privately owned facilities and private companies. As with the U.S. economy as a whole, decision making and investment are primarily driven by the marketplace. In addition, national, state, and local governments participate in the management, financing, and operation of the MTS.

More than 1,000 harbor channels and 25,000 miles of inland, intracoastal, and coastal waterways in the United States serve over 300 ports, with more than 3,700 terminals that handle passenger and cargo movements. The waterways and ports link to 152,000 miles of rail, 460,000 miles of pipelines, and 45,000 miles of interstate highways. Vessels and vehicles transport goods and people through the system. The MTS also contains shipyards and repair facilities crucial to maritime activity.

According to the report, the MTS provides economic value by affording efficient, effective, and dependable all-weather transportation for the movement of people and goods. Waterborne cargo alone contributes more than \$742 billion to the U.S. gross domestic product and creates employment for more than 13 million citizens. It provides national security value by supporting the swift mobilization and sustainment of the U.S. military. As an example, 90 percent of all equipment and supplies for Desert Storm were shipped from U.S. strategic ports using the Nation's inland and coastal waterways. Furthermore, the MTS provides environmental value by being an environmentally responsible method of transportation. Ships and barges have the fewest accidental spills or collisions of all forms of transportation. Waterways are an attractive alternative transportation mode for relieving congestion on roads and rails. The impact of increased MTS activity on the environment, however, has been an increasing concern.

Furthermore, the MTS provides recreational value to millions of Americans who participate in recreational boating and fishing or take sightseeing, excursion, dining, gaming, windjamming, whale watching, or nature cruises.

As comprehensive as the MTS is today, its ability to handle the emerging needs of tomorrow will be severely challenged. The critical issues facing the MTS as identified in the report are:

1. **Growing Levels of Demand:** The total volume of domestic and international marine trade is expected to more than double over the next 20 years. The number of recreational users is expected to grow by over 65 percent to more than 130 million annually in the next 20 years. High-speed ferry transportation is experiencing rapid growth in response to land-transport congestion. Cruise ships anticipate attracting 6.5 million passengers by 2002. Commercial fishing is projected to increase. Military reliance on the MTS for force projection and sustainment is also expected to grow in the new millennium.
2. **Shifting User Requirements:** The business environment in which U.S. companies must operate has become more competitive. The companies must be lean and capable of effectively serving larger, more demanding markets. Ports and other MTS operators must meet increasingly stringent requirements to successfully compete for U.S. business. Everything must be accomplished faster and less expensively, while maintaining dependable, secure, and safe movement of goods. In response, transportation providers are merging or entering into business alliances. They are deploying new technologies and equipment to reduce the cost of moving goods and meet the needs of shippers. This includes larger and faster vessels capable of carrying more than 6,000 20-foot containers; double-stack trains for effectively transporting shipments over land; and advanced tracking systems so that businesses know where their goods are.
3. **More Pressure on Infrastructure and Ensuring a Competitive MTS:** The physical infrastructure and information systems that support the MTS must adapt to these changing needs. Key infrastructure issues include: (a) dredging and marking the harbor channels that connect U.S. ports to the world; (b) modernizing locks and dams to regulate water flow and facilitate commerce; (c) improving marine terminal capacity and access to rail, road, and pipeline; (d) advancing computer, communications, and navigation technologies to increase the productivity, safety, and security of the MTS; and (e) minimizing conflicts among land uses along the waterfront and intermodal connections.
4. **Enhancing Coordination:** A recurring theme has been the need for comprehensive coordination, leadership, and cooperation among federal, regional, state, and local agencies, as well as private sector owners and operators. MTS users often are unaware of the other public and private users' activities and inherent limitations. Federal, state, and local MTS service providers have not coordinated their efforts nor have they reached a consensus on goals and actions to maximize efforts and resulting benefits for the entire spectrum of MTS users and beneficiaries. Establishing

partnerships among competitors or organizations that operate with different and independently developed MTS objectives is difficult.

5. **Ensuring a Safe System:** With the rapid expansion of trade and recreational opportunities in recent years, many parts of the MTS are being stretched to their limits to cope with the size, speed, and diversity of vessels and users of the MTS. Human factors, ranging from the growth in personal watercraft use to inadequately trained crews, clearly contribute to MTS-related accidents.
6. **Funding the System:** Funding to create an MTS capable of meeting the increased demands of trade, passenger, and recreational use, coupled with national security, environmental stewardship, and safety requirements, is a responsibility of both the public and private sectors. Improvements in technology, better coordination, and process improvement will help, but not entirely relieve, the government and the private sector of growing resource and investment demands. In turn, this issue may give rise to the need for innovative financing mechanisms or user fees.
7. **Sustaining the Environment:** The MTS encompasses some of the Nation's most treasured resources including coastal and estuarine waters, inland rivers, and associated wetlands and critical habitats. As such, MTS users and service providers, from recreational boaters to commercial vessels and waterfront terminals, should operate in a manner that protects and sustains the environment. Marine operations, maintenance, and investment should be in harmony with environmental protection. Environmental quality is essential for sustaining coastal and marine ecosystems, commercial and recreational fisheries, and the economic vitality of the MTS. Thus, the MTS decision making and planning must acknowledge and account for the fundamental interdependency between the MTS and the environment.
8. **Increasing National Security Needs:** The MTS encompasses a security landscape characterized by a rise in international organized criminal activity, along with a growing array of rogue states and terrorists. MTS users and service providers must deal with criminal enterprises that seek to exploit vulnerabilities in the system to pilfer cargo or smuggle contraband. MTS service providers must be vigilant to potential terrorist opportunities. The MTS must remain capable of supporting national security objectives -- the projection of U.S. military force and their sustainment depends 90 to 95 percent on sealift deployment.

The report contains recommended strategic actions, which must begin now to move the current MTS toward the system needed in 2020. It provides an overall framework and general direction for both public and private MTS stakeholders to follow to achieve the MTS vision in 2020:

The U.S. Marine Transportation System will be the world's most technologically advanced, safe, secure, efficient, effective, accessible, globally competitive, dynamic, and environmentally responsible system for moving goods and people.

Among the report's recommendations are the following:

1. Creation of an MTS National Advisory Council to provide a structured approach for nonfederal stakeholders to provide input on national-level issues.
2. Adoption of a systematic approach to MTS safety and environmental protection. Managers, operators, and users of the waterways and facilities, the landside transportation system, environmental interests, and the public all must be involved via local committees or planning groups.
3. Better coordination and development of adequate financing mechanisms to ensure the growth of seaports, waterways, and their intermodal links. Industry and government at all levels must explore innovative funding mechanisms to leverage existing resources and make more effective use of existing funds.
4. Improved efficiencies in the movement of people and cargo, including one-stop shopping for federal inspection and reporting, improved landside access to ports, a national cooperative MTS research program, and more reliable traffic forecasting.
5. Establishment of information management systems and infrastructure supportive of the MTS, including development of better hydrographic and weather information; improved vessel, cargo, and passenger tracking methods; and better waterway traffic management information for mariners and ports.

For further information, contact Mr. John M. Pisani, Director, Office of Ports and Domestic Shipping (MAR-830), Maritime Administration, U.S. Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, (phone: (202) 366-4357), or Mr. Jeffrey High, Director of Waterways Management (G-MW), U.S. Coast Guard, 2100 Second Street, SW, Washington, DC 20593, (phone: (202) 267-6157).