Dredged Material Management

Action Agenda for the Next Decade

Based on a Workshop Sponsored by the

National Dredging Team

January 23–25, 2001 • Jacksonville, Florida

On the cover

Background: Jetty Island, Washington. Island, marsh, and seagrass habitat were created using dredged material from maintenance dredging projects. *U.S. Army Corps of Engineers*

Top: Mobile Bay, Alabama. Pelicans on Galliard Disposal Island. *U.S. Army Corps of Engineers*

Middle: Port of Jacksonville, Florida. *U.S. Environmental Protection Agency*

Bottom: Mobile Bay, Alabama. Dredge Chicago working in Mobile Ship Channel. *U.S. Army Corps of Engineers*

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Contents

Preface iii

Foreword iv

Executive Summary v

1.0 Introduction 1

2.0 National Dredging Policy 2

3.0 National Dredging Team 3

4.0 Progress to Date 4

5.0 Issues and Actions for the Next Decade 8

5.1 Beneficial Use of Dredged Material 9

5.2 Sediment Management 10

5.3 Emerging Issues 11

5.4 Strengthening Regional Dredging Teams 13

6.0 Conclusion 16

Appendix A: Workshop Proceedings A-1

Appendix B: Summary of Environmental Windows Session National Dredging Team Conference B-1

Appendix C: Workshop Agenda C-1

Appendix D: Workshop Participants D-1

Appendix E: National Dredging Team Charter E-1

Preface

The dredging of several hundred million cubic yards of sediment each year is critical for maintaining the nation's navigation system for commercial shipping and national defense. Appropriate re-use and disposal of this dredged material is critical for protecting the nation's coastal and ocean resources. While a great deal of progress has been made in the 10 years since the Secretary of Transportation convened an interagency workgroup to evaluate the dredging project review process in the United States, many challenges remain. This is especially true in the areas of sediment management and beneficial use of dredged material.

Regional sediment management, particularly in the context of watershed management and planning, needs to be strengthened and accelerated. The importance of active and dedicated Regional Dredging Teams (RDTs) and local planning/project groups (LPGs) to address dredging and sediment management issues cannot be overemphasized. The National Dredging Team is committed to supporting RDTs and LPGs in their efforts to engage all stakeholders in the open and early coordination necessary to create dredged material management plans that address local sediment management and watershed management issues.

The National Dredging Team is also committed to finding ways to increase the beneficial use of dredged material, such as for habitat creation, habitat restoration, and beach nourishment. Dredged material is a resource, and it is our hope that the National Dredging Team, working with all its partners, can assist in increasing the amount of dredged material used beneficially.

We are very excited about the goals and direction of the National Dredging Team, and welcome the opportunity to work with all of our stakeholders to ensure that dredging in the United States is efficient, timely, and environmentally sustainable.

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Foreword

The National Dredging Team (NDT) sponsored a workshop in Jacksonville, Florida, in January 2001 to discuss and develop an action agenda with specific recommendations to address issues currently facing dredging and sediment managers. The workshop focused on beneficial use of dredged material, sediment management, emerging issues, and strengthening Regional Dredging Teams (RDTs). We thought that the timing was right for the workshop to attract a large attendance, and we were right. With nearly 250 registered participants and two full days of presentations, breakout groups, and discussion, the workshop was very much a success and we are very pleased with the outcome.

The level of partnership, sense of purpose, and camaraderie of workshop participants left us impressed with actions that are needed to improve dredged material management. It is encouraging to know that actions taken to date and planned by the NDT and RDTs are important and appreciated. For that we thank all of the participants. We would also like to thank all of the panelists and facilitators, as well as all of the people who gave their time and thought to the breakout groups. Finally we would like to thank the EPA and Corps of Engineers staff who assisted with the many logistical details that are necessary to hold a workshop of this size.

The recommendations proposed during this workshop are daunting, but not overwhelming, and they have provided us with an excellent foundation to develop this Action Agenda. We will work diligently with all of the members of the NDT and their respective agencies, the RDTs, local planning and project groups, and other stakeholders to ensure complete and timely implementation of this Action Agenda.

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Dredged Material Management: Action Agenda for the Next Decade

Executive Summary

On January 23 and 24, 2001, the National Dredging Team (NDT) sponsored a workshop in Jacksonville, Florida, to develop a national action agenda with specific recommendations on issues facing dredging and sediment management over the coming decade (Table ES-1). The workshop was organized around the following themes: beneficial use of dredged material; sediment management; emerging issues; and strengthening Regional Dredging Teams. Actions proposed at the workshop were consolidated by the members of the NDT into general and specific recommendations for each subject area.

These recommendations for dredged material management succeed those in the December 1994 Interagency Report to the Secretary of Transportation: *The Dredging Process in the United States: An Action Plan for Improvement* (Report). The 1994 Report provided 18 major recommendations in four action areas: strengthening mechanisms for dredging and dredged material management planning; enhancing coordination and communication in the dredging project review process; addressing scientific uncertainties about dredged material; and funding dredging projects consistently and efficiently. While major progress has been made in carrying out the original 18 recommendations, many challenges remain.

Beneficial Use of Dredged Material. Much of the several hundred million cubic meters of sediment dredged each year from United States ports, harbors, and waterways could be used in a beneficial manner, such as for habitat restoration and creation, beach nourishment, and industrial and commercial development. Yet most of this dredged material is instead disposed in open water, confined disposal facilities, and upland disposal facilities. A number of steps will need to be taken so that dredged material is used beneficially to the greatest extent possible. Beneficial use must become a priority at all levels of management, funding must be increased for beneficial use projects and research, planning must be proactive, and there must be a recognition that dredged material is a valuable resource. Specific recommendations in this Action Agenda include guidance on beneficial use projects, and the role of the Federal Standard in beneficial use projects, improving the Corps/EPA beneficial use website, and identifying factors that would be needed to develop a system to track the volume of dredged material used beneficially.

Sediment Management. Sediment erosion, transport, and deposition are estimated to cause damages of approximately $16 billion annually in North America. The U.S. spends about $800 million annually on dredging sediment from locations where too much has deposited. Yet in other locations, a shortage of sediment causes coastal erosion, streambank erosion, and wetlands loss.

Many water resource projects are designed to remedy local sediment problems, and sometimes create even larger problems some distance away. To avoid this, sediment management must be done in the context of watershed management, and watershed management plans must incorporate private and Federal dredging. Planning and communication must be early and open so that sources of sediment can be addressed, the broadest range of beneficial use and disposal alternatives can be considered, and adequate funding can be secured. Specific recommendations in this Action Agenda include encouraging formation of new Local Planning/Project Groups (LPGs) to develop Dredged Material Management Plans, identifying key elements of sediment management, and sponsoring a national workshop on sediment management with LPGs.

Emerging Issues. During the workshop, participants identified several issues that have emerged over the last decade that must be considered during the dredging decision process. These issues include Essential Fish Habitat (EFH) consultations, environmental window considerations, the potential application of Total Maximum Daily Load (TMDL) designations to dredging projects, and consistency determinations under the Coastal Zone Management Act (CZMA). Today's planning strategies must be flexible enough to consider such emerging issues, especially in order to maintain a dredging project review process that is timely, efficient, and predictable. Specific recommendations in this Action Agenda include an evaluation of State Coastal Zone Management Plan requirements, clarification of Essential Fish Habitat requirements, an evaluation of the potential implications TMDLs may have for navigational dredging, and development of a clearing house for information on dredging issues.

Strengthening Regional Dredging Teams. Nine Regional Dredging Teams (RDTs) have been established with the intent to improve dredged material management by fostering communication and planning, providing a forum for conflict resolution, and increasing public education and community involvement. A number of RDTs have been very successful, but others have not. The NDT should use its expertise and connections, along with the experiences of established RDTs, to encourage the establishment of new RDTs and to foster their success. The roles and responsibilities of each RDT, and the link between the RDT and LPGs, should be clearly established and communicated so that the efforts of the RDTs complement those of the LPGs and other stakeholders. Specific recommendations in this Action Agenda include development of charters and outreach plans for each RDT, facilitation of LPG development, and annual meetings for all RDTs with the NDT.

The Federal agencies that comprise the NDT are committed to implementing each of the recommendations in this Action Agenda, along with our partners on the RDTs and the LPGs, and to sponsoring additional national and regional workshops and meetings to assess progress. One lesson we have all learned is that early and substantial involvement of a broad range of stakeholders is the key to successful dredged material planning and management.

Table ES-1. Summary Listing of Recommendations

Rec No.	Recommendation	Lead Agency	Page No.
Beneficial Use of Dredged Material			
1	Develop a national guidance document that presents a framework for identifying, planning, and financing beneficial use projects, and provides a summary of beneficial use authorities and processes (including cost sharing) in plain English.	EPA, Corps	9
2	Develop a national guidance document that explains the role of the Federal Standard in implementing beneficial uses of dredged material from Corps of Engineers' new and maintenance navigation projects.	NDT	9
3	Encourage and endorse implementation of Section 215 of the Water Resources Development Act of 2000 (Pub. Law 106-541) which directs the Secretary of the Army to establish a program to allow the direct marketing of dredged material to public agencies and private entities.	NDT, Corps	10
4	Develop and distribute a description of the Corps's streamlined process for continuing authorities related to dredging, navigation, and environmental restoration.	Corps	10
5	Identify sources of technical information and guidance on beneficial uses, identify data gaps, and charge appropriate agencies to fill these gaps and share the information.	NDT, RDTs	10
6	Encourage research and development on beneficial uses of dredged material, including habitat creation and restoration, and make available information on beneficial use demonstration projects.	NDT	10
7	Identify specific potential local beneficial use projects and potential sponsors for near-term and future dredging activities.	Local Planning/ Project Groups (LPGs)	10
8	Improve and advertise the Beneficial Uses of Dredged Material web site (www.wes.army.mil/el/dots/budm/budm.html) and other information sources, such as the Great Lakes Dredging Team beneficial use web site (http://www.glc.org/dredging/), that encourage the use of dredged material as a resource and highlight technological improvements and/or innovations in beneficial uses.	EPA, Corps	10
9	Identify factors that would be needed to develop a system to track the volume of dredged material used beneficially, with the goals of establishing such a system and increasing the percentage of dredged material used beneficially each year.	EPA, Corps	10
Sediment Management			
10	Identify existing and ongoing Local Planning/Project Groups (LPGs) and identify completed Dredged Material Management Plans (DMMPs); encourage the formation of new LPGs to develop DMMPs that address sediment management in the context of overall watershed management, as well as project-level sediment management techniques. A key element of this recommendation will be to provide a mechanism for the transfer of information, processes, and technologies.	NDT, RDTs, LPGs	11
11	Identify the key elements of sediment management and incorporate them into the LPG guidance as appropriate.	NDT	11

Rec No.	Recommendation	Lead Agency	Page No.
12	Sponsor a national workshop on sediment management with LPGs to share successes and lessons learned.	NDT, RDTs, LPGs	11
Emerging Issues			
13	Analyze and evaluate State Coastal Zone Management Plan requirements with the objective of increasing timely, predictable, effective, and environmentally sound dredging. Encourage States to clearly identify enforceable policies that would pertain to the management and beneficial use of dredged material. Develop guidance about what is required for a dredging project to be consistent with the enforceable State policies under the CZMA.	NOAA's NOS, RDTs	12
14	Clarify how Essential Fish Habitat (EFH) requirements relate to dredging and dredged material management.	NOAA's NMFS	12
15	Continue to evaluate the impact of environmental windows on dredging and dredged material management, and how establishment of environmental windows should be changed to ensure that they are meeting their objectives. Review NAS Environmental Windows report and identify appropriate action for NDT.	NDT, NOAA, FWS	12
16	Increase coordination and communication between the EPA Clean Water Act Total Maximum Daily Load (TMDL) program and the navigational dredging programs to facilitate an understanding of the applicability of each program and the possible implications they may have on each other. If appropriate, develop a factsheet explaining the TMDL program and requirements, and how these requirements may relate to navigational dredging and dredged material management.	EPA	12
17	Continue developing additional, updated guidance for interpreting the results of dredged material testing to quantify risks to humans and to aquatic resources of material proposed for either inland or ocean disposal.	EPA, Corps	12
18	Develop and make available information on dredging issues (i.e., clearinghouse for information, training courses, outreach, symposia, research on emerging technologies) and compile and provide model(s) of successes and lessons learned.	NDT, RDTs	12
Strengthening Regional Dredging Teams			
19	Ensure that each RDT has a charter regarding its scope, roles, responsibilities, and accountability that is made available to all stakeholders. The scale of each "regional" dredging team (i.e., project-specific, harbor, watershed, State, and/or multi-State) should be specified. Ensure that each RDT has appropriate representatives from the Corps and EPA, other Federal agencies, and State agencies.	RDTs	13
20	RDTs (and the NDT) should involve stakeholders in their activities and actions. An outreach plan regarding involvement of stakeholders should be prepared, implemented, and updated annually. Part of the outreach plan should address the convening of forums/meetings for public education and community involvement.	RDTs, NDT	13
21	RDTs should actively work to facilitate the establishment of LPGs to develop dredged material management plans for local waterways/harbors/estuaries/watersheds and to assess and resolve local dredged material management issues. RDTs should establish direct lines of communication with LPGs to facilitate issue resolution at the appropriate level.	RDTs	13
22	Hold an annual meeting for all RDTs with the NDT to focus on strengthening the RDTs to meet regional needs. RDTs should report on progress, planned activities, and issues, and share information (e.g., successes, failures, and lessons learned).	NDT, RDTs	13

1.0 Introduction

On January 23 and 24, 2001, a workshop entitled "Dredged Material Management: Issues and Needed Actions for the Next Decade" was sponsored by the National Dredging Team in Jacksonville, Florida. The intent of the workshop was to share information about scientific and programmatic dredging issues, build partnerships to effectively execute dredged material management activities, and develop a national action agenda for management of dredged material. Nearly 250 participants representing government, industry, environmental interests, contractors, academia, and the general public attended this workshop, which was organized around the following four themes:

- Beneficial Use of Dredged Material;
- Sediment Management;
- Emerging Issues; and
- Strengthening Regional Dredging Teams.

Actions proposed at this workshop were consolidated by the members of the National Dredging Team into general and specific recommendations for each subject area and are presented below as the *Action Agenda for the Next Decade* (Action Agenda).

The recommendations for dredged material management in this Action Agenda succeed those in the December 1994 Interagency Report to the Secretary of Transportation, *The Dredging Process in the United States: An Action Plan for Improvement* (Report). At the time of the 1994 Report, numerous dredging projects were at a near standstill in the United States due to myriad problems. The 1994 Report provided 18 major recommendations in four action areas: strengthening mechanisms for dredging and dredged material management planning; enhancing coordination and communication in the dredging project review process; addressing scientific uncertainties about dredged material; and funding dredging projects consistently and efficiently.

Although major progress has been made in carrying out the 18 recommendations, as noted in the body of this report, many challenges remain. Charged with implementation of the Report's recommendations as well as implementation of the National Dredging Policy, the National Dredging Team sponsored the January 2001 workshop to provide an opportunity for a "midcourse" correction and to conduct a fresh assessment of dredged material management issues and needed actions for the first decade of the new millennium.

The National Dredging Policy: Findings and Principles

The findings are:

- A network of ports and harbors is essential to the United States' economy, affecting its competitiveness in world trade and national security. Port facilities serve as a key link in the intermodal transportation chain and can realize their full potential as magnets for shipping and commerce only if dredging occurs in a timely and cost-effective manner.
- The nation's coastal, ocean, and freshwater resources are critical assets which must be protected, conserved, and restored. These resources are equally important to the United States by providing numerous economic and environmental benefits.
- Consistent and integrated application of existing environmental statutes can protect the environment and can allow for sustainable economic growth.
- Close coordination and planning at all governmental levels, and with all aspects of the private sector, are essential to developing and maintaining the nation's ports and harbors in a manner that will increase economic growth and protect, conserve, and restore coastal resources.
- Planning for the development and maintenance of the nation's ports and harbors should occur in the context of broad transportation and environmental planning efforts such as the National Transportation System and the ecosystem/watershed management approach.

The principles are:

- The regulatory process must be timely, efficient, and predictable, to the maximum extent practicable.
- Advanced dredged material management planning must be conducted on a port or regional scale by a partnership that includes the Federal government, the port authorities, state and local governments, natural resource agencies, public interest groups, the maritime industry, and private citizens. To be effective, this planning must be done prior to individual Federal or non-Federal dredging project proponents seeking individual project approval.
- Dredged material managers must become more involved in watershed planning to emphasize the importance of point and nonpoint source pollution controls to reduce harbor sediment contamination.
- Dredged material is a resource, and environmentally sound beneficial use of dredged material for such projects as wetland creation, beach nourishment, and development projects must be encouraged.

2.0 National Dredging Policy

The Secretary of Transportation convened an Interagency Working Group on the Dredging Process in October 1993 to investigate and recommend actions to improve the dredging project review process. In December 1994 the Interagency Group delivered its report, *The Dredging Process in the United States: An Action Plan for Improvement* (the Report), to the Secretary of Transportation. The Report contained 18 recommendations and a proposed National Dredging Policy (see box above). On June 22, 1995, the President endorsed the National Dredging Policy and directed the Federal agencies to implement the Report's 18 recommendations.

Recommendation 9: Establish a National Dredging Issues Team and Regional Dredging Issues Teams

The Corps and EPA will establish or use existing teams to promote national and regional consistency on dredging issues and provide a forum for conflict resolution and information exchange early in the process. The teams will provide a mechanism for timely resolution of conflicts by involving all agencies and maximizing interagency coordination. The National and Regional Dredging Issues Teams will not supersede the authority of any of the agencies involved in the dredging project review process. Rather the teams are intended to provide a forum for conflict resolution by mutual agreement. These teams will consist of appropriate agency decision makers and technical experts.

The National Dredging Issues Team will be chaired by EPA and the Corps and will include representatives from the DOC, the DOI, and the DOT. The national team will have two roles: (1) to review policies and procedures associated with the dredging process, including implementation of this action plan, and to develop guidance for interaction with the Regional Dredging Issues Teams; and (2) to oversee the resolution of issues elevated from the Regional Dredging Team level.

The Regional Dredging Issues Teams will include representatives from the appropriate governmental agencies. The teams will resolve local-level issues that arise during the permitting process, dredged material disposal management and planning, and new navigation project planning. The regional teams will review overall regional dredging issues and specific projects as necessary to improve coordination and resolve controversies; ensure that necessary local agreements are completed and implemented; serve as a forum for information exchange among and provide guidance to local/regional dredged material planning groups (identified in Section 5.1) on the development of long-term dredged material management plans; and refer interagency policy, technical, and institutional issues to the national team for resolution, on a timely basis. Issues and conflicts associated with specific projects that cannot be resolved by the regional teams also may be elevated to the national team.

3.0 National Dredging Team

In response to a recommendation in the Report, the National Dredging Team (NDT) was established in July 1995 to serve as a forum for implementation of the National Dredging Policy and the 18 recommendations in the Report. The NDT is an interagency group originally composed of the following agencies:

- U.S. Environmental Protection Agency—Co-Chair;
- U.S. Army Corps of Engineers—Co-Chair;
- Maritime Administration;
- NOAA's National Marine Fisheries Service;
- NOAA's National Ocean Service;
- Fish and Wildlife Service; and
- U.S. Coast Guard.

The U.S. Coast Guard became a member of the NDT in 2003. Other agencies participating in the NDT include the U.S. Navy and the U.S. Geological Survey.

As stated in recommendation 9 of the Report, the NDT promotes national and regional consistency on dredging issues and provides a mechanism for conflict resolution and information exchange among Federal, State, and local agencies and stakeholders.

Regional Dredging Teams (RDTs) have been established in most geographic areas in the United States, including the Great Lakes, Northeast, Southeast, Gulf of Mexico, Southern California, Northern California, Pacific Northwest, Alaska, and Hawaii. Progress and successes are excellent for a number of the RDTs, but in others the results are mixed; opportunities and challenges remain for all of the RDTs.

4.0 Progress to Date

When the Interagency Working Group on the Dredging Process convened in the early 1990s to investigate and recommend methods to improve the dredging review process, the group had two major objectives in mind:

- Promote greater certainty and predictability in the dredging project review process and dredged material management; and
- Facilitate effective long-term management strategies for addressing dredging and disposal needs at both the national and local levels.

The 1994 Report identified the following issues that at times have led to significant inefficiencies in dredged material management processes:

- Lack of a unifying national dredging policy to serve as a focus for individual agency programs;
- Unresolved interagency conflicts can result in significant delays in the dredging process;
- Inadequate planning by Federal, State, and local entities, especially regarding dredged material management, can result in conflicts among stakeholders and long project delays;
- Insufficient information exchange and coordination among all involved stakeholders can result in poor dredged material management planning, incomplete and/or technically inadequate permit applications, stakeholder dissension, and project delays;
- Unclear expectations of the relevant Federal, State, and local agencies can result in the need to generate additional information late in the process, and project delays;
- Uncertainties regarding the scientific ability to evaluate risks to the environment associated with contamination and the disposal alternatives (e.g., open ocean disposal, confined disposal facilities, and beneficial use) can cloud disposal decisions;

- Inconsistent funding policies regarding open water, upland, and confined disposal, as well as beneficial use of dredged material, can skew disposal decisions and result in inefficient use of Federal and non-Federal funds; and
- Insufficient financial and staff resources at many Federal, State, and local resource agencies constrain the ability of the agencies to conduct adequate advanced dredged material management planning, dredging project reviews, and disposal site management.

These issues were categorized into the following four action areas under which the recommendations were grouped: strengthening mechanisms for dredging and dredged material management planning; enhancing coordination and communication in the dredging project review process; addressing scientific uncertainties about dredged material; and funding dredging projects consistently and efficiently. Once the NDT was established, efforts for addressing the Report's recommendations were initiated immediately. Most of the 18 recommendations have been addressed and implementation action is ongoing. The progress to date, presented in Table 1, has been categorized according to the four respective action areas.

Table 1. 1994 National Dredging Team Recommendations

Rec No.	Recommendation (Lead Agency)	Progress to Date
Strengthening Planning Mechanisms for Dredging and Dredged Material Management		
1	Create and/or augment regional/local dredged material planning groups to aid in the development of regional dredged material management plans (Corps).	Ongoing.
2	Identify the characteristics of successful Federal/State/local partnerships for use in developing dredged material management planning efforts (Corps, EPA, NOAA, MARAD).	*Local Planning Groups and Development of Dredged Material Management Plans—Guidance by the National Dredging Team*. June 1998. www.epa.gov/owow/oceans/ndt
3	Develop public outreach and education programs to facilitate stakeholder involvement (All Agencies).	• During the Coastal Zone Conferences held in 1997, 1999, and 2001, the NDT sponsored special sessions on dredged material management planning and beneficial use of dredged material. • Beneficial Uses of Dredged Material Website: This joint Corps/EPA site provides an introduction to beneficial use applications of dredged material, dredging links and literature references, and details of completed beneficial use projects throughout the United States. www.wes.army.mil/el/dots/budm/budm.html • *Dredged Material Management and State Coastal Management Programs: Lessons from a Workshop in New Orleans, Louisiana*. January 1999. Proceedings prepared by the National Academy of Public Administration. www.epa.gov/owow/oceans/ndt/napareport

Rec No.	Recommendation (Lead Agency)	Progress to Date
4	Provide guidance to relevant Agency field offices, State and local agencies, and the general public on opportunities for beneficial use of dredged material (Corps, EPA).	• Beneficial Uses of Dredged Material Website: This joint Corps/EPA site provides an introduction to beneficial use applications of dredged material, dredging links and literature references, and details of completed beneficial use projects throughout the United States. www.wes.army.mil/el/dots/budm/budm.html • National Coastal Program Dredging Policies: An Analysis of State, Territory, and Commonwealth Policies Related to Dredging and Dredged Material Management. This document, prepared by NOAA, provides a State-by-State summary of Federally approved coastal management program enforceable and non-enforceable policies related to dredging and dredged material management, allowing for a better understanding of individual State review processes. April 2000. www.ocrm.nos.noaa.gov/czm/resource.html
5	Update guidance on disposal site monitoring requirements and procedures (EPA, Corps).	*Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites.* February 1996. www.epa.gov/owow/oceans/ndt/siteplan.html
6	Ensure that dredged material management planners work with pollution control agencies to identify point and nonpoint sources of sediment and sediment pollution and to implement watershed planning (EPA, Corps).	• Ongoing. • *Local Planning Groups and Development of Dredged Material Management Plans—Guidance by the National Dredging Team.* June 1998. www.epa.gov/owow/oceans/ndt
7	Review the Federal Economic and Environmental Principles and Guidelines for Water and Related Land Resource Implementation Studies (P&G) to determine whether changes are needed to better integrate the economic and environmental objectives of National Economic Development (NED) and Environmental Quality (EQ) (Corps).	Corps planning guidance has incorporated national environmental restoration as a co-equal objective with national economic development (Planning Guidance, US Army Corps of Engineers, ER 1105-2-100, 22 April 2000. www.usace.army.mil/inet/usace-docs/eng-regs/er1105-2-100/toc.htm)
8	Revise the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) to ensure that the planning process outlined in the legislation provides for linkages with plans which address dredging issues (MARAD).	• The NDT is an integral part of the overall Marine Transportation System Initiative, which submitted a Report to Congress on the MTS, entitled *An Assessment of the U.S. Marine Transportation System*, in June 2000. www.dot.gov/mts • The MTS is addressing dredging issues in future legislation.

Rec No.	Recommendation (Lead Agency)	Progress to Date
Enhancing Coordination and Communication in the Dredging Project Approval Process		
9	Establish a National Dredging Issues Team and Regional Dredging Issues Teams (Corps, EPA).	• *Charter of the National Dredging Team*. July 9, 2003 (Appendix E). www.epa.gov/owow/oceans/ndt/charter.html • *Memorandum on Creation of Regional Interagency Dredging Teams*. Department of Army. August 1995. • *Memorandum on Creation of Regional Interagency Dredging Teams*. U.S. EPA, Office of Water. September 1995. • Eleven Regional Dredging Teams have been established since the release of the EPA and Corps Memoranda on the Creation of Regional Interagency Dredging Teams in 1995. • National meeting for the National Dredging Team with Regional Dredging Teams. Annapolis, Maryland. June 1997. • *Procedures to Elevate Issues from Regional Dredging Teams and Local Planning Groups to the National Dredging Team – Guidance by the National Dredging Team*. February 1999. www.epa.gov/owow/oceans/ndt • Initiated review of revised NDT Action Plan, *National Dredging Team Draft Action Plan*. February 2000. www.epa.gov/owow/oceans/ndt/actionplan.html • Dredged Material Management: Action Agenda for the Next Decade – A Workshop Sponsored by the National Dredging Team. Jacksonville, Florida. January 2001.
10	Schedule pre-application meetings among the Corps, the applicant, the EPA, other interested Federal agencies and relevant State agencies for dredging projects that are potentially controversial or that may involve significant environmental issues (Corps).	Current practice.
11	Develop and distribute a permit application checklist which identifies the information required from the applicant (Corps).	Current practice at the District level.
12	Develop or revise the procedures for coordinating interagency review at the regional level to define the process by which various Federal parties coordinate on dredging projects (Corps, EPA, FWS, NOAA).	The Corps and EPA conduct a dredged material coordinators meeting every two years to clarify agency roles and review/establish coordination mechanisms between the two agencies.
13	Establish a national MOA to clarify roles and coordination mechanisms between the EPA and the Corps (EPA, Corps).	Ongoing.

Rec No.	Recommendation (Lead Agency)	Progress to Date
Addressing Scientific Uncertainties About Dredged Material		
14	Clarify and improve the guidance used to evaluate bioaccumulation of contaminants from dredged materials (EPA, Corps).	The Corps and EPA are developing joint national guidance on interpreting the bioaccumulation potential of dredged material.
15	Identify the practical barriers to managing contaminated sediments and ways to overcome the barriers (Corps, EPA).	• The Corps and EPA sponsored a National Academy of Sciences study: *Contaminated Sediments in Ports and Waterways—Cleanup Strategies and Technologies* (1997). • EPA funded a National Academy of Sciences study on contaminated sediments: *A Risk-Management Strategy for PCB-Contaminated Sediments* (2001). • EPA is investigating innovative remedial techniques for contaminated sediment. Region II and the Great Lakes National Program Office are leading the efforts in decontamination technologies that, in conjunction with beneficial use of dredged material, can provide a variety of high-value, marketable end-products. • *Guidance for Subaqueous Dredged Material Capping.* Dredging Operations and Environmental Research Program. Technical Report DOER-1. June 1998. • The Corps funded a National Academy of Sciences study on environmental windows for dredging: *A Process for Setting, Managing, and Monitoring Environmental Windows for Dredging Projects* (2001).
16	Identify means to reduce the volume of material which must be dredged (Corps, EPA).	Regional Sediment Management Demonstration Program.
Funding Dredging Projects Consistently and Efficiently		
17	Revise WRDA to establish consistent Federal-local sponsor cost sharing, across all dredged material disposal methods (Corps).	WRDA was revised to establish consistent Federal-local sponsor cost sharing across all dredged material disposal methods (WRDA 1996 provides authority to reduce the inconsistency between the funding for open water disposal and upland disposal).
18	Study the feasibility of a fee for open-water disposal for non-Federal dredging projects (EPA).	Ongoing.

5.0 Issues and Actions for the Next Decade

At the January 2001 workshop, progress on the 1994 Report's recommendations was assessed (summarized in Table 1), and actions were identified that could address issues impacting dredging and dredged material management for the foreseeable future. The workshop included panel presentations and breakout group discussions, the outcome of which was a series of actions recommended for inclusion in a national action agenda (see Appendix A for a summary of the workshop proceedings). After the workshop concluded, the proposed

actions were consolidated by the members of the NDT into general and specific recommendations for each of the primary subject areas, and they are presented below as the Action Agenda for the Next Decade. These actions are summarized in Table 2 at the end of this section.

The NDT, RDTs, Local Planning/Project Groups, and all stakeholders should work together at the appropriate level to ensure that progress is made in the implementation of these recommendations. Periodic national and regional workshops and meetings will be conducted to assess progress.

5.1 Beneficial Use of Dredged Material

Problem Statement. Much of the several hundred million cubic meters of sediment dredged each year from U.S. ports, harbors, and waterways could be used in a beneficial manner, such as for habitat restoration and creation, beach nourishment, aquaculture, forestry, agriculture, mine reclamation, and industrial and commercial development. Yet most of this dredged material is instead disposed of in open water, confined disposal facilities, and upland disposal facilities. The most commonly cited hurdles to using dredged material beneficially are increased costs, the need for earlier planning and more widespread coordination, lack of complementary Federal and State regulatory frameworks for evaluating dredged material as a resource, and a widespread misperception that dredged material is a waste instead of a resource.

Recommendations. A number of steps will need to be taken so that dredged material is used beneficially to the greatest extent possible. First, beneficial use of dredged material must become a national, regional, and local priority, with full support from all levels of government. Second, funding from all sources must be increased for beneficial use projects as well as for research and development projects. Third, planning at the local level must be proactive in identifying potential beneficial uses and sponsors for near- and far-term dredging projects, and in planning for the availability of suitable beneficial uses for particular projects. Finally, all stakeholders and the general public must recognize that dredged material is a valuable resource that can be used in environmentally beneficial ways. The recommended actions listed below are intended to enhance and facilitate efforts to increase the beneficial use of dredged material.

Recommended Action 1: Develop a national guidance document that presents a framework for identifying, planning, and financing beneficial use projects, and provides a summary of beneficial use authorities and processes (including cost sharing) in plain English (EPA and Corps).

Recommended Action 2: Develop a national guidance document that explains the role of the Federal Standard in implementing beneficial uses of dredged material from Corps of Engineers' new and maintenance navigation projects (NDT).

Recommended Action 3: Encourage and endorse implementation of Section 215 of the Water Resources Development Act of 2000 (Pub. Law 106-541) which directs the Secretary of the Army to establish a program to allow the direct marketing of dredged material to public agencies and private entities (NDT and Corps).

Recommended Action 4: Develop and distribute a description of the Corps's streamlined process for continuing authorities related to dredging, navigation, and environmental restoration (Corps).

Recommended Action 5: Identify sources of technical information and guidance on beneficial uses, identify data gaps, and charge appropriate agencies to fill these gaps and share the information (NDT, RDTs).

Recommended Action 6: Encourage research and development on beneficial uses of dredged material, including habitat creation and restoration, and make available information on beneficial use demonstration projects (NDT).

Recommended Action 7: Identify specific potential local beneficial use projects and potential sponsors for near-term and future dredging activities (Local Planning/Project Groups (LPGs)).

Recommended Action 8: Improve and advertise the Beneficial Uses of Dredged Material web site (www.wes.army.mil/el/dots/budm/budm.html) and other information sources, such as the Great Lakes Dredging Team beneficial use web site (http://www.glc.org/dredging/), that encourage the use of dredged material as a resource and highlight technological improvements and/or innovations in beneficial uses (EPA and Corps).

Recommended Action 9: Identify factors that would be needed to develop a system to track the volume of dredged material used beneficially, with the goals of establishing such a system and increasing the percentage of dredged material used beneficially each year (Corps and EPA).

5.2 Sediment Management

Problem Statement. Excessive sediment erosion, transport, and deposition are estimated to cause damages of approximately $16 billion annually in North America. The United States spends about $800 million annually on dredging sediment from locations where too much has deposited. Sediment overloading from land and stream erosion causes significant environmental and economic challenges—excessive sediment in rivers, reservoirs, and estuaries may contribute to high turbidity, loss of flood-carrying capacity, and sediment deposition in navigable waterways. Yet in other locations, a shortage of sediment causes coastal erosion, streambank erosion, and wetland loss. Many water resource projects are designed to remedy local sediment problems, and sometimes create even larger problems some distance away. Sediment management planning is often done

outside the context of watershed management plans. These current-day practices often adversely affect navigation, flood and storm damage reduction efforts, and environmental quality in water resource projects.

Recommendations. The Corps, EPA, NOAA, USGS, RDTs, and Local Planning/Project Groups need to ensure that sediment management is done in the context of watershed management, and that watershed management plans incorporate both private and Federal dredging. Effective dredged material planning and sediment management require open and early communication among Federal and State dredged material regulators, watershed planners, and other interested parties so that: (1) sources of sediment (and sources of contamination carried by the sediment) can be addressed; (2) the broadest range of beneficial use and disposal alternatives for dredged material can be evaluated; and (3) adequate funding for dredged material use or disposal can be secured. Local Planning/Project Groups can be an excellent vehicle to facilitate this communication and to foster the development of effective dredged material management plans.

Recommended Action 10: Identify existing and ongoing Local Planning/Project Groups (LPGs) and identify completed Dredged Material Management Plans (DMMPs); encourage the formation of new LPGs to develop DMMPs that address sediment management in the context of overall watershed management, as well as project-level sediment management techniques. A key element of this recommendation will be to provide a mechanism for the transfer of information, processes, and technologies (NDT, RDTs, LPGs).

Recommended Action 11: Identify the key elements of sediment management and incorporate them into the LPG guidance as appropriate (NDT).

Recommended Action 12: Sponsor a national workshop on sediment management with LPGs to share successes and lessons learned (NDT, RDTs, and LPGs).

5.3 Emerging Issues

Problem Statement. During the workshop, participants identified several issues that have emerged over the last decade that must be considered during the dredging decision process. These issues include Essential Fish Habitat (EFH) consultations, environmental window considerations, the potential application of Total Maximum Daily Load (TMDL) designations to dredging projects, and consistency determinations under the Coastal Zone Management Act (CZMA). Today's planning strategies must be flexible enough to consider such emerging issues, especially in order to maintain a dredging project review process that is timely, efficient, and predictable to the maximum extent practicable. An understanding of how these factors fit into the context of dredging and dredged material management decision making is needed.

Recommendations. To improve the effectiveness of the dredging project review process, more information is needed on EFH consultations, TMDL requirements and approaches, environmental windows, and how a dredging project can be consistent with the enforceable policies of State Coastal Zone Management Plans. Incorporating these emerging issues into an integrated planning approach would promote greater certainty and predictability in dredging project review and dredged material management by providing readily available information for interested stakeholders. Because project development and review is a multidisciplinary and multi-agency process involving a wide range of often competing interests, issues, and stakeholders, open communication and early coordination on these emerging issues are essential.

Recommended Action 13: Analyze and evaluate State Coastal Zone Management Plan requirements with the objective of increasing timely, predictable, effective, and environmentally sound dredging. Encourage States to clearly identify enforceable policies that would pertain to the management and beneficial use of dredged material. Develop guidance about what is required for a dredging project to be consistent with the enforceable State policies under the CZMA (NOAA's NOS, RDTs).

Recommended Action 14: Clarify how Essential Fish Habitat (EFH) requirements relate to dredging and dredged material management (NOAA's NMFS).

Recommended Action 15: Continue to evaluate the impact of environmental windows on dredging and dredged material management, and how establishment of environmental windows should be changed to ensure that they are meeting their objectives. Review NAS Environmental Windows report and identify appropriate action for NDT (NDT, NOAA, FWS).

Recommended Action 16: Increase coordination and communication between the EPA Clean Water Act Total Maximum Daily Load (TMDL) program and the navigational dredging programs to facilitate an understanding of the applicability of each program and the possible implications they may have on each other. If appropriate, develop a factsheet explaining the TMDL program and requirements, and how these requirements may relate to navigational dredging and dredged material management (EPA).

Recommended Action 17: Continue developing additional, updated guidance for interpreting the results of dredged material testing to quantify risks to humans and to aquatic resources of material proposed for either inland or ocean disposal (Corps and EPA).

Recommended Action 18: Develop and make available information on dredging issues (i.e., clearinghouse for information, training courses, outreach, symposia, research on emerging technologies) and compile and provide model(s) of successes and lessons learned (NDT and RDTs).

5.4 Strengthening Regional Dredging Teams

Problem Statement. Eleven Regional Dredging Teams (RDTs) have been established with the intent to improve dredged material management by fostering communication and planning, providing a forum for conflict resolution, and increasing public education and community involvement. A number of RDTs have been very successful, but others have not. One of the organizational difficulties experienced by some RDTs is the broad geographic (i.e., multi-State) area they cover. Although the RDTs are useful for addressing regional issues, much of the controversy regarding dredged material management is at the local or project level.

Recommendations. The NDT should use its expertise and connections, along with the experiences of established RDTs, to encourage the establishment of new RDTs and to foster their success. In addition, the NDT should continue to communicate and work with established RDTs. The roles and responsibilities of each RDT, as well as the link between the RDT and Local Planning/Project Groups (LPGs), should be clearly established and communicated so that the efforts of the RDT complement those of the Local Planning/Project Groups and other stakeholders.

Recommended Action 19: Ensure that each RDT has a charter regarding its scope, roles, responsibilities, and accountability that is made available to all stakeholders. The scale of each "regional" dredging team (i.e., project-specific, harbor, watershed, State, and/or multi-State) should be specified. Ensure that each RDT has appropriate representatives from the Corps and EPA, other Federal agencies, and State agencies (RDTs).

Recommended Action 20: RDTs (and the NDT) should involve stakeholders in their activities and actions. An outreach plan regarding involvement of stakeholders should be prepared, implemented, and updated annually. Part of the outreach plan should address the convening of forums/meetings for public education and community involvement (RDTs, NDT).

Recommended Action 21: RDTs should actively work to facilitate the establishment of LPGs to develop dredged material management plans for local waterways/harbors/estuaries/watersheds and to assess and resolve local dredged material management issues. RDTs should establish direct lines of communication with LPGs to facilitate issue resolution at the appropriate level (RDTs).

Recommended Action 22: Hold an annual meeting for all RDTs with the NDT to focus on strengthening the RDTs to meet regional needs. RDTs should report on progress, planned activities, and issues, and share information (e.g., successes, failures, and lessons learned) (NDT and RDTs).

Table 2. Summary Listing of Recommendations

Rec No.	Recommendation	Lead Agency	Page No.
Beneficial Use of Dredged Material			
1	Develop a national guidance document that presents a framework for identifying, planning, and financing beneficial use projects, and provides a summary of beneficial use authorities and processes (including cost sharing) in plain English.	EPA, Corps	9
2	Develop a national guidance document that explains the role of the Federal Standard in implementing beneficial uses of dredged material from Corps of Engineers' new and maintenance navigation projects.	NDT	9
3	Encourage and endorse implementation of Section 215 of the Water Resources Development Act of 2000 (Pub. Law 106-541) which directs the Secretary of the Army to establish a program to allow the direct marketing of dredged material to public agencies and private entities.	NDT, Corps	10
4	Develop and distribute a description of the Corps's streamlined process for continuing authorities related to dredging, navigation, and environmental restoration.	Corps	10
5	Identify sources of technical information and guidance on beneficial uses, identify data gaps, and charge appropriate agencies to fill these gaps and share the information.	NDT, RDTs	10
6	Encourage research and development on beneficial uses of dredged material, including habitat creation and restoration, and make available information on beneficial use demonstration projects.	NDT	10
7	Identify specific potential local beneficial use projects and potential sponsors for near-term and future dredging activities.	Local Planning/ Project Groups (LPGs)	10
8	Improve and advertise the Beneficial Uses of Dredged Material web site (www.wes.army.mil/el/dots/budm/budm.html) and other information sources, such as the Great Lakes Dredging Team beneficial use web site (http://www.glc.org/dredging/), that encourage the use of dredged material as a resource and highlight technological improvements and/or innovations in beneficial uses.	EPA, Corps	10
9	Identify factors that would be needed to develop a system to track the volume of dredged material used beneficially, with the goals of establishing such a system and increasing the percentage of dredged material used beneficially each year.	EPA, Corps	10
Sediment Management			
10	Identify existing and ongoing Local Planning/Project Groups (LPGs) and identify completed Dredged Material Management Plans (DMMPs); encourage the formation of new LPGs to develop DMMPs that address sediment management in the context of overall watershed management, as well as project-level sediment management techniques. A key element of this recommendation will be to provide a mechanism for the transfer of information, processes, and technologies.	NDT, RDTs, LPGs	11
11	Identify the key elements of sediment management and incorporate them into the LPG guidance as appropriate.	NDT	11

Rec No.	Recommendation	Lead Agency	Page No.
12	Sponsor a national workshop on sediment management with LPGs to share successes and lessons learned.	NDT, RDTs, LPGs	11
Emerging Issues			
13	Analyze and evaluate State Coastal Zone Management Plan requirements with the objective of increasing timely, predictable, effective, and environmentally sound dredging. Encourage States to clearly identify enforceable policies that would pertain to the management and beneficial use of dredged material. Develop guidance about what is required for a dredging project to be consistent with the enforceable State policies under the CZMA.	NOAA's NOS, RDTs	12
14	Clarify how Essential Fish Habitat (EFH) requirements relate to dredging and dredged material management.	NOAA's NMFS	12
15	Continue to evaluate the impact of environmental windows on dredging and dredged material management, and how establishment of environmental windows should be changed to ensure that they are meeting their objectives. Review NAS Environmental Windows report and identify appropriate action for NDT.	NDT, NOAA, FWS	12
16	Increase coordination and communication between the EPA Clean Water Act Total Maximum Daily Load (TMDL) program and the navigational dredging programs to facilitate an understanding of the applicability of each program and the possible implications they may have on each other. If appropriate, develop a factsheet explaining the TMDL program and requirements, and how these requirements may relate to navigational dredging and dredged material management.	EPA	12
17	Continue developing additional, updated guidance for interpreting the results of dredged material testing to quantify risks to humans and to aquatic resources of material proposed for either inland or ocean disposal.	EPA, Corps	12
18	Develop and make available information on dredging issues (i.e., clearinghouse for information, training courses, outreach, symposia, research on emerging technologies) and compile and provide model(s) of successes and lessons learned.	NDT, RDTs	12
Strengthening Regional Dredging Teams			
19	Ensure that each RDT has a charter regarding its scope, roles, responsibilities, and accountability that is made available to all stakeholders. The scale of each "regional" dredging team (i.e., project-specific, harbor, watershed, State, and/or multi-State) should be specified. Ensure that each RDT has appropriate representatives from the Corps and EPA, other Federal agencies, and State agencies.	RDTs	13
20	RDTs (and the NDT) should involve stakeholders in their activities and actions. An outreach plan regarding involvement of stakeholders should be prepared, implemented, and updated annually. Part of the outreach plan should address the convening of forums/meetings for public education and community involvement.	RDTs, NDT	13
21	RDTs should actively work to facilitate the establishment of LPGs to develop dredged material management plans for local waterways/harbors/estuaries/ watersheds and to assess and resolve local dredged material management issues. RDTs should establish direct lines of communication with LPGs to facilitate issue resolution at the appropriate level.	RDTs	13
22	Hold an annual meeting for all RDTs with the NDT to focus on strengthening the RDTs to meet regional needs. RDTs should report on progress, planned activities, and issues, and share information (e.g., successes, failures, and lessons learned).	NDT, RDTs	13

6.0 Conclusion

The January 2001 workshop provided the National Dredging Team with an opportunity to revisit the 1994 Report recommendations, to evaluate what "midcourse" corrections are warranted, and to conduct a fresh assessment of dredged material management issues and needs for the next decade.

The specific recommendations presented in this Action Agenda will help address the issues that impact beneficial use of dredged material, sediment management, emerging dredging issues, and strengthening Regional Dredging Teams. Developing and implementing this Action Agenda will help in maintaining a dredging project review process that is timely, efficient, and predictable to the maximum extent practicable.

The NDT does not seek to change the basic legislative framework that applies to dredging in the United States, nor does the NDT seek to realign agency missions or resources. Accordingly, this Action Agenda focuses on measures that the responsible agencies can take to improve implementation of existing regulations and agency framework.

The Federal agencies that compose the NDT are committed to (1) implementing each of the recommendations in this Action Agenda, along with our partners on the RDTs and the Local Planning/Project Groups, and (2) sponsoring additional national and regional workshops and meetings to assess progress. One lesson we all have learned is that early and substantial involvement of a broad range of stakeholders is the key to successful dredged material planning and management.

Appendix A: Workshop Proceedings

Opening Remarks

Mr. Rick Ferrin, Port Director, Port of Jacksonville, welcomed workshop participants to Jacksonville. He invited attendees to enjoy the city and have a successful, productive workshop.

Mr. Craig Vogt, Deputy Director, Oceans and Coastal Protection Division, U.S. EPA, and NDT Co-Chair, began his presentation with a welcome to participants. He stated that the NDT was formed in 1995 in response to the December 1994 Interagency Report to the Secretary of Transportation: *The Dredging Process in the United States: An Action Plan for Improvement.* Mr. Vogt stated that prior to 1994, numerous dredging projects were at a near standstill in the United States due to myriad problems. The 1994 report provided 18 major recommendations in four action areas: strengthening mechanisms for dredging and dredged material management planning; enhancing coordination and communication in the dredging project review process; addressing scientific uncertainties about dredged material; and funding dredging projects consistently and efficiently.

In addition to implementation of the Report's recommendations, the NDT is charged with implementation of the National Dredging Policy. Mr. Vogt outlined in detail the National Dredging Policy, which recognizes the role of the network of ports and harbors in the U.S. economy, while acknowledging the nation's coastal, ocean, and fresh water resources as critical assets that need to be protected, conserved, and restored. A key statement in the Policy is that the regulatory process must be timely, efficient, and predictable, to the maximum extent practicable. Mr. Vogt also stated that the Policy states that dredged material managers should be more involved in watershed planning and prevention of the discharge of contaminants upstream from point and nonpoint sources. In addition, the Policy recognizes that dredged material is a resource and that beneficial use of dredged material is encouraged. Mr. Vogt emphasized that the Policy clearly states that consistent and integrated applications of existing environmental statutes can protect the environment and can allow for sustainable economic growth. Finally, Mr. Vogt recognized that dredging and management of dredged material are an integral part of the Marine Transportation System.

Mr. Vogt stated that major progress has been made since the NDT was formed but that many serious challenges remain. As examples of progress to date, Mr. Vogt described several guidance documents that have been prepared by the NDT: guidance on establishment of RDTs, guidance on LPGs, and guidance on elevation of issues from RDTs to the NDT. In addition, Mr. Vogt noted that several meetings were particularly successful, including a meeting of the NDT with the RDTs in Annapolis, Maryland, and a workshop in New Orleans on dredged material management and State coastal management programs.

Mr. Vogt concluded by stating that the objectives of this workshop were to provide an opportunity for a "midcourse" correction and to conduct a "fresh" assessment of dredged material management issues and needed actions for the next decade.

Mr. Barry Holliday, Chief of the Dredging & Navigation Branch, U.S. Army Corps of Engineers, and NDT Co-Chair, discussed the workshop's objectives. He acknowledged the work of the NDT, the RDTs, and many others, but he believes there are still unmet expectations. Opportunities have been missed and other issues, such as coordination and clarification of policies and law, have not been addressed. Mr. Holliday suggested that the workshop could give participants an opportunity to develop partnerships, identify issues and solutions, and to listen and talk to a full spectrum of stakeholders.

Mr. Holliday stated that the main objectives of the workshop are:

1. Assist in the development of a national action agenda for dredged material;
2. Communicate and build partnerships for improved effectiveness;
3. Exchange information about scientific and programmatic dredging issues; and
4. Strengthen regional dredging teams to ensure that they can be proactive leaders in response to the Marine Transportation System of the future.

He urged workshop participants to listen, challenge, participate, "step out of your box," seek the "third alternative," and enjoy the workshop.

Keynote Addresses

Mr. Frank Hamons, Manager, Harbor Development, Port of Baltimore, described projects at the Port of Baltimore as being mostly maintenance work, with few new projects to plan and implement. For him, everything is changing, with new problems to be fixed. Mr. Hamons believes that a problem should be fixed locally and applied nationally.

Mr. Hamons suggested that most think of beneficial use in terms of creating or restoring habitat, but that is only one solution. There are times when the environmental benefits have to be weighed against the drawbacks. If someone does not want to create or restore habitats, then new ideas and solutions have to be found. Should the material be used to fill land or make bricks? There is also the issue of using contaminated sediments and looking for potential products. He thinks that it may take a significant amount of financial investment to find solutions for reuse. Sometimes, Mr. Hamons said, beneficial use may not make all the people happy all the time.

Mr. Hamons believes that the four most important emerging issues are:

1. Risk assessment/risk management;
2. TMDLs (total maximum daily loads);

3. Essential fish habitat; and
4. Improving the regulatory process.

For risk management, he believes we have to get past the fears to determine whether the risks are real or not—this should be a critical part of the process. When considering essential fish habitat, he thinks a balance must be sought. With any activity, Mr. Hamons stated, there is some effect.

Mr. James T.B. Tripp, General Counsel, Environmental Defense Fund, said there are many factors to consider when looking at ports and estuaries in the New York area. With the growth in world trade, there is growth in wealth. Ports will want to expand; however, many are located in close proximity, or actually in, wetlands and estuaries where the environment has, in many instances, been destroyed and waters contaminated. He suggested that when considering port expansion, there should be environmental goals, such as protecting seagrass and wetlands, restoring degraded wetlands, and improving water and sediment quality.

Mr. Tripp would ask the question, does this project help or hurt the environment? He indicated that disposal can harm the environment and dredging can harm wetlands. In many cases, mitigation is hard in the traditional sense. He suggested that there should be multiple goals and that we should study those projects that will move us along to fulfill those goals.

Mr. Tripp said the following questions must be asked: Is dredging necessary? Should we accommodate port expansion? Would a private group pay to have the channel dredged for a larger ship? Should tax money be used? What are the environmental implications of dredging the channel? According to Mr. Tripp, habitat restoration and protection must be in place if dredging is to occur.

Mr. Tripp also raised questions pertaining to contaminated dredged material—what to do with it and how it will be disposed of. To Mr. Tripp, contaminated sediments are the most problematic. He asked, what kind of standards should apply? What impact will the contaminated sediments have on landfills or brownfields? How do we keep contaminates out of water, estuaries, and wetlands? Why should ports pay for historical pollution? Maybe Federal and State agencies should share the cost of decontamination, monitoring, and habitat restoration. He offered no solutions, but provided thought-provoking questions for participants to consider.

Mr. Tony MacDonald, Executive Director, Coastal States Organization. Mr. MacDonald believes that regional dredging teams need to be strengthened—to him, that's where the action is. Transportation and clean water can work together but, according to Mr. MacDonald, there must be a balance between the two in a real world context. There are Congressional policies to restore habitat, but there are also more dredging projects to deepen harbors. There are many policies and actions coming, but we have to look forward on how to manage dredging.

The general view from the States is that the Federal dredging policy is restricted by a lack of vision and a lack of flexibility. The States take a broader view. There is also a lack of innovation for projects; however, there are exceptions to the rule. Mr. MacDonald stressed getting the projects to the State level. He asked, "What is the local plan?" He wants to build up from the locally preferred plan for dredged material management. In this way, Mr. MacDonald believes, you would get local buy-in to the issues.

Projects are diverse, with projects for both large ports and small marinas. Mr. MacDonald would challenge these projects to be thought of as environmental and economic projects for States. They are also community projects, if the impact of truck traffic on the local community is considered, for those communities living near the ports.

Mr. MacDonald also stressed the importance of good science. With the problems of coastal erosion and sea level rising, he believes there should be better monitoring. Monitoring should be attached as an element of a project. In most cases, baseline information does not exist. Mr. MacDonald believes there are many good examples of this concept. Many States will put up the money if information is provided to them. Mr. MacDonald suggested looking to the States for reasonable support of projects.

Question to All Keynote Speakers: *"If we are to develop a National Action Agenda, what are the actions you would suggest?"*

- **Mr. Jim Tripp**: Deliver a message to the Corps to keep contaminates out of wetlands.
- **Mr. Tony MacDonald**: Identify a framework and resources to support local communities.
- **Mr. Frank Hamons**: Get a consistent reaction to policy and laws for each project; a coalition is most important.

Panel One—Beneficial Use of Dredged Material

Moderator: **Mr. Tom Chase**, Director of Environmental Affairs, American Association of Port Authorities.

Mr. Rick Gimello, Executive Director, New Jersey Department of Transportation, described how his office deals with the beneficial use of dredged material. Historically, ocean disposal was used 98 percent of the time, with upland disposal only used 1 percent. However, ocean dumping is not an option anymore. The ocean can no longer be used; they have to find new markets and options for beneficial use. In searching for new options, Mr. Gimello said they include the stakeholders in the decision-making process.

Mr. Gimello suggested that new markets could include construction, restoration, and/or transportation. New products could be developed, such as lightweight

aggregate, manufactured soils, or cover/remediation material. Another idea is to support the concept of a sustainable port when considering deepening projects and port maintenance. One concept that has been applied to hazardous materials—those that are used as recycled waste—could be applied to dredged material. Beneficial uses could be low or high tech. His suggestion is to use the 20th century process of the Corps for the 21st century concept. The Corps is stuck with an old process. He said, "We need to engage them at the policy level to change." Also, the "lowest cost, environmentally acceptable" process must change, but it will have to be changed at the legislative level.

Federal agencies cannot do it all—they need venture capital. Mr. Gimello said that venture capital is hard to attract because they cannot see a return on investment. At this point in time, venture capitalists cannot be promised that they will be provided with a steady source of material. Until they can, the Federal agencies will have to do it all. There are also problems with equipment. If ocean placement is no longer a viable option and dredged material is to be disposed of upland, what equipment changes are needed to get it there? Who pays?

Mr. Gimello stated that beneficial use is not a casual discussion, but we must work toward a new plan. To him, port development money and environmental restoration money are married in New Jersey. If port money goes, then environmental restoration money goes.

Mr. John Carey, Manager, Technical Services, Alabama State Port Authority (ASPA), presented several examples of the reuse of dredged material at the Port of Mobile, the terminus of a watershed area that includes 18 river systems that drain two-thirds of the State of Alabama, and parts of Georgia, Tennessee, and Mississippi.

In Mobile, the ASPA serves as the cost sharing sponsor for the Corps's Federal Harbor Project. Dredged material from this project has been used by the City of Mobile to cap a City-owned landfill. The ASPA manages a caustic disposal area that formerly belonged to ALCOA. Material dredged in maintaining ASPA docks is used to cap the area. Tests on some of the caustic material have indicated that the caustic material could be made into lightweight aggregate. Material from the Theodore Ship Channel upland disposal site has been used for public shoreline restoration and has been sold for foundation material.

Materials from the construction of the Theodore Ship Channel were used to create a disposal island in the 1970s. The island has become a thriving home to a variety of birds, including the brown pelican. Mr. Carey said the Port Authority, the Corps, and the Alabama Department of Fish and Wildlife manage the site. They operate a six-month bird window. The site is open for dredged material disposal September through April and closed the rest of the year. Mr. Carey said they are in the process of restoring the island because of damage from Hurricane Georges. The restoration project will cost $1,000,000. His question is "Who pays?"

Mr. John Torgan, Narragansett Baykeeper, Save the Bay, Rhode Island, spoke about the role of non-government environmental organizations in the development of dredging policies and regulation. In his remarks, he stated that while environmental groups are often seen as anti-dredging, his group supports environmentally sound dredging, particularly beneficial use of dredged sediments. Disputes over dredging typically flare up over proposals to dump contaminated sediments in public waters, and as long as nearshore dumping is considered the "least cost practicable alternative" for disposal, beneficial use practices and technologies will never be developed to their full potential.

Mr. Torgan described a process his group is initiating in Rhode Island that involves a coalition of nontraditional allies, including the regulators, industries, and environmental groups, working to develop new laws and regulations to remove the legal, economic, and regulatory barriers to the beneficial use of dredged materials. Over the course of the year, Rhode Island hopes to develop one of the nation's most progressive beneficial use programs.

Mr. Jim Reese, Navigation Coordinator, U.S. Army Corps of Engineers, Northwestern Division, Portland, Oregon, described the Columbia River deepening project that was started in 1994. Although they were not a regional dredging team, the group they formed acted like one. They held over 50 public participation meetings on beneficial use, ocean disposal sites, and upland disposal siting and environmental round tables. Included were public meetings with 17 environmental roundtables. There were also resource agency meetings, 3 salinity workshops, 12 wildlife mitigation workshops, and 10 ocean dredged material working group meetings.

Mr. Reese said that sediment samples were taken for the Columbia River and the Williamette River. Some of the Williamette River samples exceeded the screening levels and although it was originally a component of the project, Mr. Reese said, it has been removed, and because of additional sampling outside the channel the lower river is now a Superfund site. In the new plan, associated with but separate from the deepening, everyone has been included. They will be asked the question, "How do you want the Columbia River to look 50 years from now?" For the current deepening plan, disposal siting environmental criteria were established and applied to the extent practicable. The proposed project would have only 3 beach nourishment sites and would also have 29 upland sites including 4 new upland sites, 2 ocean sites, and a flowlane site. An environmental restoration component was added to the project in 1996. It proposed to restore/improve 1,550 acres of habitat. Mr. Reese stated that there was a great deal of discussion on the trade-offs between nearshore and deepwater disposal sites.

Mr. Reese said they have gone through several changes and reorganizations for the proposed project. They received a final EIS, a biological assessment, in April 2000. Because of new information, Mr. Reese said, project concurrence has been withdrawn by some State and Federal agencies, and they are currently on hold negoti-

ating solutions to the nonconcurrences. They now see how a Regional Dredging Team could have assisted in this process and will develop Regional Dredging Teams. They have proposed a structure for a tiered Regional Dredging Team.

Panel Two—Sediment Management

Moderator: **Mr. Bill McAnally**, Waterways Experiment Station.

Mr. Barry Holliday, U.S. Army Corps of Engineers, began by describing the advances in technology and the economic pressures that are leading to bigger ships and more inland traffic. Channels are being maintained, using environmental windows, but as traffic moves inland, lock improvements and maintenance are needed to handle future traffic growth. He stated that the navigation mission is "to provide safe, reliable, efficient, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation."

He believes the Corps is being responsive to these changes in technology and is currently researching ways to improve deep draft channel design, and developing new models and tools for shoaling prediction and channel management. Mr. Holliday said the Corps has also participated in the development of interagency regional dredging teams to identify and resolve environmental issues concerning dredging operations.

Mr. Thomas Wakeman, General Manager, Waterways Development, Port Commerce Department, Port Authority of New York and New Jersey, discussed the concept of a basin-wide approach to dredged material management in the New York/New Jersey Harbor. The New York/New Jersey Harbor is located in a complex aquatic network created by three New York islands and the New Jersey shore; it includes numerous channels and several interconnected waterways. The Harbor covers an area of about 2,850 sq. km. with over 1,240 km of waterfront.

The Port of New York and New Jersey has been a working harbor for over 300 years. Although modern tankers and container vessels require navigation channels with depths of 12.5 to 15 meters, New York Harbor is naturally shallow, with an average depth of 6 meters. Some of the sediment entering the system is removed naturally, but most must be dredged. In the past, Mr. Wakeman said, dredged material was disposed of in a designated ocean site. However, in 1992, new testing procedures were implemented and much of the harbor's dredged material was determined to be unsuitable for ocean placement. In 1997 the ocean disposal site was closed, and a new site was designated, the Historic Area Remediation Site or HARS. He said, even with the Clean Water Act and other environmental measures, there is still a large reservoir of contaminated sediments in the harbor and the riverine flows that annually discharge new contaminated sediments. Fish remain too contaminated to eat regularly, and the problem of disposing of contaminated dredged sediments from navigation channels has threatened to close the harbor.

In recent years, Mr. Wakeman said, the Corps has been assessing several potential options for handling dredged sediments. The list has included the creation of contaminant islands, subaqueous pits, land disposal, and so forth. Most of these traditional disposal options have not been successfully implemented, primarily because of public opposition. Some new beneficial use sites have also been developed for dredged material that are not suitable for HARS placement, including capping of landfill sites and brownfield remediation projects. However, he said, using these sites is significantly more expensive than disposal at the former ocean site. The average cost to dispose of a cubic meter of dredged material has risen from $4 in 1992 to over $40 in 2000.

Mr. Wakeman said that port managers and other maritime stakeholders are not the only victims of sediment contamination. The harbor area supports an enormous wealth of fish and shellfish ecosystems. Unfortunately, New York and New Jersey have had to issue health advisories restricting consumption of many fish and shellfish caught in the estuary. He said the economic losses attributable to the closure of this fishery are enormous. Striped bass, bluefish, and blue claw crabs are contaminated and cannot be consumed.

The Corps, in its dredging plan, has suggested that a 5 percent per year reduction of contaminant levels would cut the amount of contaminated material in dredged channels by about 40 percent over the next 25 years. The harbor community favorably received the Corps's proposal for a contaminant reduction strategy. One systematic approach to dealing with the issue of contaminant reduction is to formulate a comprehensive basin-wide strategy for managing contaminants and sediments within the Hudson-Raritan watershed and the Port. The strategy should promote a basin-wide trackdown and clean-up program to curtail sediment and fisheries contamination. An important theme under this management strategy, Mr. Wakeman said, is to view sediment as a potentially useful resource. Much work has already been done to identify beneficial uses for dredged material, but more work is needed to identify options, particularly for contaminated dredged materials. He said clean sediments are potentially useful for a variety of beneficial applications.

Mr. Wakeman believes the basin-wide assessment should be tightly coupled with existing regulatory and management programs in the two States in order to target and implement contaminant reduction activities as quickly as possible. In the long term, he believes, pollution prevention activities are the only way to continue reducing contaminants in the harbor and to allow its biological resources to recover and flourish.

Ms. Roxane Dow, Environmental Specialist, Office of Beaches and Coastal Systems, State of Florida, discussed regional sediment management projects in Florida. She explained that the following are reasons for regional sediment management:

- Sand is a finite and valuable resource and therefore it needs cost-effective management;

- The increase of the Corps operation and maintenance backlog;
- A need to integrate shore protection/navigation; and
- The President's FY 2001 budget contains only four new General Investigation studies and the State of Florida cannot afford any new studies on its own until the construction backlog is addressed.

Ms. Dow said that they started their regional program in northeast Florida because it has numerous significant harbors, including Fernandina Harbor and Jacksonville Harbor, both home to Navy projects. There are also shore protection, environmental restoration, and State park projects in the vicinity. In working on a regional sediment management approach, her office sponsored a series of public workshops, inviting the community and the stakeholders to attend and make their concerns known.

Over the last 20 years Fernandina Harbor has been dredged 19 times. Approximately 26.4 mcy were dredged costing a total of $94 million, which is about $4.5 million per year. There are many issues and activities for the harbor, including shore protection for Nassau County beaches, concerns for turtles in the harbor, and harbor-induced mitigation. The demonstration project for the harbor tried to address these issues by using bypass sand from the Cumberland Island southern spit for the Nassau County beaches. They are also considering a future sand bypass source from the impounded sediment north of North Jetty.

Jacksonville Harbor also experienced years of consecutive dredging. Over a 17-year period Jacksonville Harbor was dredged 13 times. It cost $57.5 million to dredge 18.3 mcy of materials. Plans for the harbor included deepening the harbor from 38 to 40 feet in WRDA 99, which would mean dredging 22 miles of channels, with over 8 mcy of material to be removed, with limited upland disposal capacity. Additionally, there were concerns over bank erosion. For this harbor there are several potential demonstration projects, ones that could demonstrate innovative technologies. These could be projects for St. Mary's entrance, St. John's River, and St. Augustine Inlet, and a stabilization project on the south end of Amelia Island.

Ms. Dow stressed the ideas of spending time and money on the community. Public outreach could include using interactive websites as a way to share information. Ms. Dow urged participants to keep it simple and allow for creativity and innovation when trying to solve problems.

Day One - Luncheon Speaker

Mr. Robert Wayland, III, Director, Office of Wetlands, Oceans, and Watersheds, U.S. EPA, welcomed participants to the workshop. He stated that he was encouraged by the number and diversity of the participants and challenged the audience to ensure that the outcome of the workshop was productive and reflected their best personal efforts.

Mr. Wayland spoke broadly about aquatic coastal resources, environments in which most ports operate. The nation's ocean and coastal habitats support some of the most valuable and diverse biological resources on the planet. This is especially apparent in estuaries, where fresh and salt water mix. However, because so many people are drawn to, or dependent upon, coastal and marine waters, the waters are under considerable environmental stress. The National Estuary Program (NEP) identified a number of key problems that all 28 NEPs have in common: loss of habitat, nutrient pollution, toxic chemicals, pathogens, invasive species, marine debris, fishery degradation, and altered freshwater flow.

Considering the stresses that our aquatic coastal resources are under and the services they provide, Mr. Wayland emphasized the critical needs to protect, conserve, and restore our coastal resources. He also stated that dredging is a critical need and we all must work together to be sure that necessary dredging is accomplished in a timely and predictable manner.

Dredging is vital to social and economic development. The Corps is responsible for maintaining 25,000 miles of Federal navigation channels. These waterways serve approximately 400 ports in 130 of the nation's largest cities. Mr. Wayland stated his belief that as users and stewards of these waterways together we can implement sustainable practices that protect, enhance, and further the restoration of marine resources while meeting the nation's transportation needs. Environmental protection can and must be consistently incorporated into all aspects of dredging activities and decision-making processes. Significant progress has been made, but we need to continue to focus our energies as, unfortunately, we all continue to struggle with too many demands, not enough resources, and never enough time.

Mr. Wayland stated that EPA encourages dredged material management planning on a watershed basis. Through comprehensive planning involving the full range of stakeholders, he said, the dredging needs of a region can be addressed, including control of sources of contaminants and sediments in the upper reaches of the watershed. A variety of dredged material disposal alternatives should be considered in development of long-term dredged material management plans. Project planners should view dredged material as a resource and initiate actions, including looking for local sponsors, such that the amount of dredged material used beneficially in the United States rises dramatically during this decade.

In addition to his Office's coastal mission, Mr. Wayland noted that his Office is responsible for the national implementation of the TMDL Program, one of the emerging issues scheduled to be addressed during the workshop. The objective of the TMDL program is to work toward healthy watersheds by assisting States, Territories, and Tribes to meet their water quality standards. He believes that we all need to work together to ensure that TMDLs help clean up our sediments, and reduce the influx of even clean sediments, as much as possible. Mr. Wayland emphasized that linking dredged material management to ongoing watershed

management and TMDL development can help to maximize the benefits of dredged material management.

Mr. Wayland stated that he believes that we are on the dawn of widespread use of a cooperative approach to watershed protection and restoration. This approach, combined with the Marine Transportation System Initiative that involves Federal, State, Tribal, and local governments, the private sector, and the general public working together, will help move us rapidly into major progress during this first decade of the new millennium. Mr. Wayland closed his remarks with a challenge to the workshop participants to make this happen.

Plenary Session

Moderator: **Mr. Michael C. Carter**, Director, Office of Environmental Activities, US Maritime Administration

Mr. John Pauling, Program Manager, Ports & Waterways, Roy F. Weston Inc., presented several beneficial use case studies to illustrate the point that the reuse of dredged material is economical and will gain public and private support.

Mr. Pauling stated that millions of cubic yards of sediment are dredged annually from Corps navigational channels, industrial docks, and access channels. Much of this sediment contains low levels of pollutants. Traditional disposal options (ocean/bay disposal, containment islands, etc.) are becoming more difficult and costly to implement. Currently, various options are being pursued for beneficial use/recycling of sediment, and Mr. Pauling believes that regions across the country have unique beneficial use opportunities and implementation challenges.

In order to implement beneficial use projects, Mr. Pauling thinks that the specific nature of the contaminants and the sediment matrix need to be understood. The problem should be evaluated and a solution should be found based on a systems approach. The full array of solutions should be considered, including technical, financial, and political solutions, and short- and long-term goals should be set. Beneficial uses of dredged materials include construction, environmental, and trophic materials. Trophic uses include manufactured topsoil. Construction materials could include aggregate, cement, tiles, and structural fill. Environmental uses could include wetland restoration, landfill cover, brownfield stabilization, and mine reclamation.

Mr. Pauling presented several case studies to illustrate the range of projects, issues, and potential solutions. For example, the New York/New Jersey harbor was faced with problems of where to place contaminated sediments. The Corps, New York District, EPA Region 2, and the New York/New Jersey Port Authority are looking at several alternatives. The program objectives are to effectively decontaminate contaminated dredged material at high volumes; demonstrate cost-effectiveness; and produce practical beneficial reuse products.

According to Mr. Pauling, the Maryland Port Administration project objective was to:

- Recycle up to 500,000 cubic yards of contaminated and non-contaminated dredged material per year;
- Provide for renewable sediment storage capacity at the Cox Creek Dredged Material Containment Facility (DMCF); and
- Effectively recycle/decontaminate sediments to meet beneficial use product standards.

The Delaware River Port Authority case study was a project sponsored by the Delaware River Port Authority, Corps Philadelphia District, and oil refineries. The objectives of this program were to develop short- and long-term (sustainable) beneficial use/disposal options for the 45-foot channel-deepening project and to develop short- and long-term (sustainable) dredged material disposal/beneficial use options for industry along the Delaware River.

Two other examples Mr. Pauling mentioned were in Puget Sound/Commencement Bay and the Port of Houston. The Puget Sound/Commencement Bay project has numerous sponsors and is in the process of evaluating technologies for a long-term, multi-use disposal program (MUDS). The Port of Houston and its numerous sponsors have a 45-foot channel-deepening project that will utilize dredged material from the project to create 4,000+ acres of tidal wetlands. Mr. Pauling said there are challenges for the beneficial use of dredged material. There must be a proven economical technology for treatment and beneficial use, and there must be a supply of dredged material and a market for the beneficial use product. Partnerships between public and private entities are required—good communication and risk/rewards sharing; there should be strong private sector teams for management, technical, and financial assistance; and finally, the project must have the support and acceptance of the public and political sectors.

Mr. Deerin Babb-Brott, Dredging Coordinator, Massachusetts Office of Coastal Zone Management, presented a description and the lessons learned for the Boston Harbor Dredging project. The project called for dredging the harbor and disposing of contaminated sediment. After comparing the costs to dispose of the materials upland versus the cost to dispose of the material in aquatic containment cells, it was decided to use containment cells.

Mr. Babb-Brott said the next question was whether to cap the cells or leave them uncapped. There were strong arguments for both. The justifications for not capping were numerous. It is believed that there is a 2-4 cm per year net sedimentation rate for an uncapped cell. At the suggested Confined Aquatic Disposal (CAD) site, there were dynamic bottom conditions and the disposal material would be of a similar physical and chemical character, with generally degraded benthic conditions. It was believed there was no need to cap the cells. Also, the

finished elevation of the material in the cell would be below the ambient harbor bottom and it would create a sediment trap. In addition, the Corps's capping manual, CWA 404, and economics all suggested that capping made no sense.

Justification arguments to cap the cell were just as strong. There has been massive public investment in cleaning the harbor and improving water quality. There is also an active commercial lobster fishery in the harbor. Clean Water Act Section 404 states "maintain and restore" waterways. In addition, there was strong public perception that the harbor was recovering and a valuable resource.

Mr. Babb-Brott stated that the decision was as follows: Faced with no strong project precedents to review, pressure to get the project completed, and vocal concern from interested parties in a position to challenge the agency's action, the State approved the approach to cap the cell. The State imposed conservative performance standards and rigorous monitoring requirements.

Mr. Babb-Brott said that the lesson learned with this project is that it worked. He said that the range of subjective and objective values affected the decision. The public may not accept the rationales for not capping and as a result, he said, capping might have to be accepted by proponents as a cost of getting the job done. However, if the next BHNIP project needs a CAD disposal, CZM will consider a no-cap.

The process for this project was long, with many partners and participants. One valuable part of the project was the independent observer (IO). An IO was hired by the Technical Advisory Committee to review and observe all aspects of the project from an environmental viewpoint. The IO evaluated the technical data with a focus on compliance with the water quality certificate and communicated with the Technical Advisory Committee via e-mail, reports, and meetings. The Committee felt that the structure worked to the benefit of the project and the technical feedback loop worked well. The process was well managed and the burden of the regulatory process was minimized.

Mr. Babb-Brott had a few suggestions when looking to the future. He said that capping would be a project-specific decision. He thought the Technical Advisory Committee and the IO worked brilliantly, but required a great deal of effort. He also suggested incorporating the technical investigations into the project budget in the future.

Mr. Kelly Burch, Chief – Office of the Great Lakes, Pennsylvania Department of Environmental Protection, and Co-Chair of the Great Lakes Regional Dredging Team, described the challenges involved in finding solutions to shoreline erosion that included the beneficial use of dredged materials, while at the same time being responsive to a diverse public and being environmentally responsible.

Presque Isle State Park is a 3,200-acre migrating sand spit that juts 7 miles into Lake Erie. It is a major recreational landmark that hosts approximately 4 mil-

lion visitors each year. The park, a National Natural Designated Landmark, is particularly environmentally sensitive with its constantly evolving shoreline and the presence of numerous plants recognized as being of exceptional value. Additionally, the Audubon Society rates Presque Isle as one of the top birding areas in the northeast.

Mr. Burch stated that protection of the spit has been ongoing since 1828. A series of conventional erosion control techniques such as groins, bulkheads, seawalls, and beach nourishment has been used with varying success. Fine-grained sand accumulation of the back-bay area has been a continual problem. As a result, he said, the park struggles with the problem of dredging these areas and finding a suitable disposal option for the dredged material. In 1993 a Resource Management Plan was developed in order to protect the park's ecosystem. The Plan designated much of Presque Isle as either a low-density or natural area. These areas are defined as places that exhibit significant natural processes and are resources where very little or no development of recreational facilities or infrastructure should occur.

Mr. Burch said that as a result of the erosion problems along the bay and the development of a sand bar within the back-bay area of the park, the decision was made to seek funding to find an innovative solution to these problems. The Department of Conservation and Natural Resources, Bureau of State Parks – Presque Isle State Park, in conjunction with the Presque Isle Partnership, secured funding via a matching grant from the Great Lakes Commission. The project included coordination and input from major stakeholders, including State and Federal government units, as well as private, nonprofit volunteer organizations, to design, implement, and provide construction services for the project.

The project concept called for providing the park with the infrastructure protection needed, as well as creating a shoreline that resembled natural shorelines along environmentally sensitive areas of the park. Additionally, the project provided a beneficial use of dredged material from the back-bay sand bar. To realize the goals of the project, the decision was made that rather than solely utilizing conventional riprap, the project would incorporate a combination of riprap as well as indigenous vegetation, bioengineering, dredged material, and innovative landscape architecture to retard shoreline erosion along a heavily used, multipurpose trail.

Previously, conventional erosion protection techniques at Presque Isle State Park have been both costly and inappropriate for natural area management. Mr. Burch said that this economical project, with a total cost of $33,000, provided a natural and aesthetic alternative to conventional shoreline erosion protection, provided for the beneficial use of dredged material, and provided an area for turtle migration and egg hatching. While remaining within standard bureaucratic financial constraints, the project offers a valuable example to other parks and recreational facilities along the Great Lakes faced with the challenge of minimizing erosion

while maintaining a natural appearance, and finding a beneficial use for dredged material.

Mr. Eric Stern, Regional Contaminated Sediment Program Manager, EPA Region 2, presented an informative array of possibilities for using decontaminated sediments for both environmental restoration and economic development. He believes that sediment decontamination fits into the matrix of dredged material/contaminated sediment management and environmental restoration scenarios. Combine these with the economic drivers for revitalization/development for using beneficial use products derived from dredged materials for ports and waterways.

Mr. Stern believes decontamination has a role in aquatic restoration outside of navigable channels. Restored environments will become additional economic drivers for the revitalization of urban watershed communities and ports within impacted regional corridors. Comparing disposal costs of the beneficial use material, he stressed that the cost has to get down to the proposed Federal benchmark of ± $29 per cubic yard.

Beneficial uses of dredged material products are numerous. They can be used for construction purposes such as fill, aggregate, and cement; trophic purposes including manufactured topsoil and potting soil; roof granules and architectural tiles; and environmental purposes including wetland restoration, landfill cover, and brownfields redevelopment. From an economic point of view, there is the potential for a constant stream of feed material.

With decontamination integration, Mr. Stern believes that brownfield closure sites can become business development sites. The sites can be reused by performing solidification and/or stabilization processes. Sediments could be integrated into the site by using a thermochemical process to provide manufactured-grade cement, or they could be integrated using a sediment/soil washing process to manufacture topsoil. There are also links to be made between sediment decontamination and port development. For example, the Passaic River Corridor Restoration and Revitalization project in Newark, New Jersey, is using decontamination with beneficial use.

With riverine-canal restoration, Mr. Stern said, there are several techniques being used depending on the level of contamination. For moderately contaminated sites, such as mudflats, nonthermal technologies are used. Companies such as BioGenesis/R.F. Weston, Inc., NUI Environmental, Inc., and BEM Systems are employing technologies to create products such as topsoil and fill for brownfields, and projects for landscaping, habitat restoration, and port development.

Mr. Stern stated that thermal technologies are being used on most sediments contaminated with TCDD, PCBs, PAHs, Hg, Cr, Pb, etc., by companies like Endesco, JCI/Upcycle, and Westinghouse/GPS in order to develop products

such as cement, lightweight aggregate, and glass. These products could be used in geotechnical materials, pedestrian malls, bicycle paths, and roadways.

There are numerous barriers to technology implementation, including the long-term forecasting for dredging and the funds to dredge. Public funding is needed for centralized dredged sediment storage and management facilities. Other waste streams should be used to ensure a continuous stream to feed the process. Mr. Stern suggested that partnering between facilities would increase the volume of recycled dredged material that could be marketed. He believes that this would reduce the impact of market variability. Mr. Stern added that the use of recycled dredged material products should be mandated in public works projects and education should be provided to illustrate the benefits of using recycled dredged material products.

Mr. Andrew Voros, Executive Director, NY/NJ Clean Ocean & Shore Trust, described a geological restoration project that used dredged materials in the restoration of abandoned coal mines in Pennsylvania. He began by outlining the problems in Pennsylvania. Scars of anthracite mining, a major industry in Pennsylvania, cover the landscape of the State. There are 9,000 abandoned mines in Pennsylvania, 5,600 of which have been designated as human health hazards. Along with the physical scars of collapsing mines, such as the 800 annual reports of subsidence and one-quarter of a million acres of impacted mine lands, there are 3,000 miles of contaminated streams and rivers that are too acidic to support fish.

One project that is using dredged material beneficially is the Bark Camp project, a coal mine site in central Pennsylvania, where coal seams were outcropped through the top of a hillside. Where there once was a gentle hillside, there now stands a 120-foot cliff. The project is using dredged sediments from the Hudson and Delaware watersheds, mixed with coal fly ash, to form a soil-cement. This manufactured fill is being placed in lifts to restore the original contour of the area before it was mined. The hardened fill is then covered with artificial soils and planted. Six monitoring wells have been dug around the site. Tests have shown that all the water collected, both from the wells and running off the material, passes drinking water standards. The final phase of this restoration will involve day-lighting the stream and returning the area to its pre-mining condition.

Mr. Voros described several other examples. The first was a single abandoned mine feature in the anthracite region as a twin crop-fall. This is an area where twin seams are parallel and the crop is stripped out from below and eventually collapses. The dimension of this particular crop-fall was 100 feet wide by 400 feet deep by 32 miles long, and the cropfall is estimated to have a fill requirement of one billion cubic yards. The second example was the Jeddo Mine Tunnels. These are three individual mines, several miles apart, that eventually connect with another five-mile-long tunnel. Gravity drains the water that collects in the tunnels. This mine tunnel system continues to pollute the waters it drains into today. Mr. Voros said it has an estimated fill capacity of one billion cubic yards.

Even where such tunnels were not purposely excavated, underground mines connect across vast areas, allowing acidic waters to affect watersheds miles away. In some places, entire streams drain into mine pools, leaving their courses dry. Another problem is acid mine drainage (AMD), which can dissolve huge amounts of iron, turning streambeds bright orange for miles, or leave white slicks of aluminum, sterilizing waterways. AMD is the number one cause of water pollution in every single Appalachian coal mining State.

Mr. Voros hopes that it will be possible to test the method used for the Bark Camp project for deep mine reclamation as well. There are many potential sites for the reuse of dredged material in Pennsylvania that could help solve State problems as well as problems in New York/New Jersey.

Panel 3—Emerging Issues

Moderator: **Mr. Jim McGrath**, Port of Oakland

Dr. Todd Bridges, Research Biologist, Waterways Experiment Station, discussed "Decision-Making Using Risk Assessment/Risk Management for Results of Bioaccumulation Testing." Dr. Bridges outlined the statutory and regulatory sections of the Marine Protection, Research, and Sanctuaries Act of 1972 and the Clean Water Act that affect marine life and materials that are dumped into waterways.

Management decisions for dredged material testing are based on sediment chemistry, sediment toxicity, and bioaccumulation. Four tiers are considered: Tier I uses existing data; Tier II uses physical/chemical data, screening tests, and predictive models; Tier III uses toxicity tests and bioaccumulation tests; and Tier IV uses chronic sublethal tests, steady-state bioaccumulation tests, and risk assessment.

Dr. Bridges said current guidance for interpreting bioaccumulation data includes comparing the data to FDA action levels (nine listed in ITM). If no FDA levels are exceeded, dredged material- and reference sediment-exposed animals are statistically compared. This statistical comparison is interpreted by considering a number of factors, including the number of bioaccumulated contaminants, the magnitude of bioaccumulation, the toxicological importance of the contaminants, the propensity for the contaminants to biomagnify, and a comparison to background concentrations.

Research effort is currently being focused on the spatial and temporal scales of predicting far-field impacts. It should be noted that contaminant concentration varies over space and time at disposal sites and animals spend variable amounts of time in, or around, disposal sites. To evaluate the site, Dr. Bridges said, exposure estimates must include consideration of the spatial and temporal elements of exposure.

Dr. Bridges said that in assessing human and ecological risks, managers must assess the potential for "significant undesirable effects." This requires specific information about the likelihood of exposure and the toxicology of the contaminants. Efficient and effective decision making also requires the use of a framework for making use of the information. The commonly applied risk paradigm provides the basic elements of such a framework and includes problem formulation, analysis (which includes characterization of exposure and the characterization of ecological effects), and risk characterization.

Dr. Bridges provided two brief examples to illustrate the need for more comprehensive analysis of risks in the dredging program. The first example quantified the degree to which human health risks were overestimated by using conservative default assumptions and the reasonable maximum exposure (RME) approach, compared to using probabilistic input parameters. Always defaulting to the use of conservative point estimates creates programmatic "burdens." The second example demonstrated the importance of spatial issues in exposure assessment. Disposal sites are relatively small (3.75 km^2); fish mobility varies among species; and many recreational and commercial species range over large areas. Dr. Bridges said their research has shown that risks can be substantially overestimated if fish behavior and movement patterns are not considered when characterizing exposure to disposal site sediments.

When residue-effects data are used to assess ecological effects, stronger inferences, based on the concept of dose-response, can be developed on the potential for ecological impacts. The residue-effects approach is more quantitative and reduces uncertainty. It also provides useful data for managing sediment by offering the potential for identifying likely causative agents.

Selecting the best management alternatives, which differ significantly in terms of relevant exposure pathways and receptors of concern, will be assisted by developing approaches for comparing risks using equivalent terms.

Dr. Bridges said there are programmatic benefits of risk-based decision-making. Uncertainties are acknowledged and "reasonable assurance" is quantified. There is a reduced reliance on unrealistic assumptions, and the ability to do comparative assessments and apply "what if" scenarios offers considerable benefit. He said risk-based decision making also offers the potential for balancing cost against incremental reductions in risk. Site-specific risk assessments are reusable and cost-effective.

To conclude, Dr. Bridges stated that evaluating the likelihood for adverse effects resulting from contaminant bioaccumulation involves complex questions. These complexities must be explicitly addressed in a quantitative manner to improve the current process. The Corps is developing more comprehensive assessment tools to evaluate risks posed by contaminant bioaccumulation.

Mr. Brian Ross, Dredging and Sediment Management Team, U.S. EPA Region 9, gave an overview of the Total Maximum Daily Load (TMDL) Program and its potential effects on dredging programs/projects, and made recommendations for needed national guidance.

He first defined a TMDL as the amount of pollutant that a waterbody can receive and still meet water quality standards. States have reported that over 40 percent of assessed waterbodies are still too polluted for fishing or swimming even after 28 years of water pollution control efforts.

The Clean Water Act, § 303(d) requires States to identify waters not meeting State water quality standards, producing a § 303(d) list; set priorities for TMDL development; and develop a TMDL for each listed water. EPA can approve or disapprove State submissions, and if disapproved, can act in lieu of the State.

Mr. Ross said that States have identified about 21,000 polluted water segments, lakes, and estuaries, with over 300,000 river and shore miles and 5 million lake acres. Translating this information means 218 million Americans live within 10 miles of an impaired waterbody. The leading reasons for poor water quality include excess sediments, nutrients, and harmful microorganisms. By category, sources of impairment from the 1998 § 303(d) list include 47 percent combination of point and nonpoint sources, 43 percent nonpoint sources only; and 10 percent point sources only.

Regulations were first issued for TMDLs in 1985 and provisions included nonpoint source and load allocations. The regulations were revised in 1992 and called for State lists every two years. Most recently, in 1999, revisions were made to the TMDL regulations and NPDES regulations were proposed, and the final rule was issued in July 2000. However, a congressional rider on military construction/supplemental appropriations prohibits EPA from implementing this rule. As a result, the TMDL program continues under the 1992 regulations and agreements reached through litigation. Under the 1992 regulations, States must develop lists of impaired water bodies; submit the list under a 2-year cycle; and describe the methodology used for compiling the list. The regulations also outline the components of a TMDL and the priorities and schedule for TMDL development. The regulations allow for public review and outline actions EPA could take regarding the list and TMDLs.

Interpretative guidance was issued in 1997 for the 1992 regulations. The guidance sought to establish a nationally consistent approach for developing and implementing TMDLs. The guidance suggested that States should develop schedules for establishing TMDLs expeditiously, generally within 8-13 years of being listed. Also, States should describe plans for implementing load allocations for nonpoint sources. According to Mr. Ross, EPA's objectives for the 2000 Rule are to establish an effective and flexible framework to move the country toward the goal of clean water for all Americans, and to establish a process for making

decisions in a common sense, cost-effective way on how best to restore polluted waterbodies.

Mr. Ross stated that currently, the TMDL 2000 Final Rule cannot be implemented and the 1992 regulations and interpretive guidance govern the program. In many instances, consent decrees and/or settlement agreements will guide TMDL development.

Mr. Ross then went on to raise a variety of issues and concerns about potential effects of the TMDL Program as it is currently evolving on dredging projects and the dredging program overall. The following points were made regarding the application of TMDLs to dredging. First, to be permittable, all § 404 discharges must comply with applicable WQS. However, are contaminants in dredged material a "new" source within a waterbody? Always? When they are, should wasteload allocations apply (as for point sources), versus BMPs, etc. (as for nonpoint sources)? Should mixing/dilution (built into current sediment testing protocols) remain allowable? Under what circumstances? Second, how should we regulate dredging and disposal in the approximately 10 years until specific TMDLs are published? Third, some challenges to dredging projects have already occurred, at least partially related to TMDL issues.

Mr. Ross then discussed San Francisco and Chesapeake Bay issues. In Chesapeake Bay, there are nutrient concerns (dredging and disposal); offsets are proposed as mitigation. In San Francisco, water quality in return flow from beneficial use sites and CDFs has been challenged. Dispersive disposal sites are an additional concern. In both cases, in-place "TMDL-like" regional management plans were seen as part of the solution. But what about areas of the country without comprehensive dredged material management plans in place?

National guidance is needed. The NDT is an appropriate forum to develop a recommended national approach. Stakeholder involvement in the process is critical. Discussions should specifically include experts from the dredging and water quality programs in EPA, and from the dredging and regulatory programs in the Corps.

Mr. Tom Bigford, Chief, Habitat Protection Division, NOAA Fisheries, Office of Habitat Conservation, discussed the Magnuson-Stevens Fishery Conservation and Management Act, and the issues of essential fish habitat. According to the Act, the term "essential fish habitat" (EFH) means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Act established eight regional fishery management councils composed of State fisheries agency officials, representatives of the commercial and recreational fishing industries, environmental groups, and others who have a stake in fishery management. The Councils are to develop fishery management plans and amendments to the plans and submit them to NMFS for approval by the

Secretary of Commerce. NMFS's duties include implementing and enforcing the measures developed by the Councils.

Currently, Mr. Bigford said, there are approximately 40 fishery management plans in place, with about 700 managed species included in the plans. The EFH sections will enhance efforts to protect essential habitats of those species. NMFS and the Councils must minimize fishing impacts, and Federal action agencies (through NMFS) must provide greater consideration of non-fishing impacts. This includes internal NOAA actions such as restoration and other programs.

Mr. Bigford stated that with EFH consultations, Federal agencies must consult with NMFS regarding any action that may adversely affect EFH. NMFS must provide conservation recommendations to Federal or State agencies on actions that would adversely affect EFH, and Federal agencies must respond in writing to NMFS's recommendations. He said that almost all EFH consultations are integrated into other environmental review processes such as the Clean Water Act, the Endangered Species Act, and/or the National Environmental Policy Act.

For any action that may require a consultation, Federal agencies must prepare a written EFH Assessment that includes:

- A description of the proposed action;
- An analysis of the effects of the action on EFH and associated species;
- The Federal agency's views regarding the effects of the action on EFH; and
- A discussion of proposed mitigation, if applicable.

The level of detail for the EFH assessment should be commensurate with the potential threat to the EFH. Mr. Bigford said that if the project is minor, then the assessment could be a simple paragraph. If the project has a substantial impact, he said, then a more detailed assessment will be necessary.

Mr. Bigford provided an example of how an EFH consultation for an individual Corps permit might occur. First, for most projects, an EFH assessment may be included as a brief statement in the Corps's Public Notice, but projects that may cause substantial adverse effects may require a more detailed EFH assessment. Second, NMFS would provide recommendations during the Public Notice comment period established by the Corps. Finally, the Corps would provide NMFS with a written response to the EFH Conservation Recommendations within 30 days.

How might EFH consultations affect port development and operations? Mr. Bigford offered and answered four commonly asked questions:

1. ***When is consultation required?***

   Answer: The Federal agency must consult if dredging or disposal "may adversely affect" EFH.

2. ***What concerns might NMFS raise?***

   Answer: In most cases NMFS's EFH concerns will be the same issues that are raised under other laws, such as impacts to submerged aquatic vegetation and disposal of contaminated material.

3. ***How does this relate to other environmental reviews?***

   Answer: In most cases, EFH consultation would be combined with the Corps's permitting or approval process.

4. ***How is this different from NMFS's role in the past?***

   Answer: EFH emphasizes Federally managed species, and the action agency must respond to NMFS in writing regarding EFH.

Ms. Jackie Savitz, Executive Director, Coast Alliance, outlined her ideas for opportunities for improvement within the regulatory process. While acknowledging the navigational need for dredging, Ms. Savitz has some concerns that she believes should be addressed. While moving into the 21st century, the marine transportation community has some significant challenges to overcome. Ms. Savitz said there are a few issues worth noting. Some are emerging issues and others, she said, have been around for a while but need to be examined. By anticipating the changing landscape for dredging, she suggested that the marine transportation community can plan a strategy to avoid running into brick walls, and instead invest more energy in fewer projects with bigger payoffs and in ones that have a better chance of succeeding.

Ms. Savitz said dredging issues could be discussed in the context of a chair's four legs: regional planning, pollution prevention and minimization of sediments, decontamination, and beneficial use. Without all four, she said, it is difficult to be supportive of beneficial reuse. Ms. Savitz pointed out that we need to know that measures are being taken to reduce the overall amount of sediments in need of disposal and the overall contamination issues in order to plan ahead for navigation dredging.

Decision-makers are realizing that transportation issues, including marine transportation, need to be considered in a big picture way. That is good, Ms. Savitz said, but the marine transportation community does not seem to have developed a 21st century strategy for making the best of this trend. The costs versus the benefits need to be real. There is new scrutiny being paid to cost/benefit studies. She said citizens are challenging the studies and the way they are done by the Corps.

Wildlife windows are another issue, said Ms. Savitz. For most aquatic species, populations depend on survival rates that are naturally very low. Impacting the few animals that do survive can take a toll on a population. By determining a window, dredging is allowed to move forward even when it takes place, for example, in essential fish habitat. Dredging does impact fish communities, but proper timing helps move the project forward.

Ms. Savitz feels that it is inappropriate to talk about dredging without some discussion of pollution prevention. The marine transportation community quickly got onto the pollution prevention bandwagon, blaming upstream land uses for the siltation of channels. She believes ports should be working in a positive way with upstream businesses to promote pollution prevention. Pollution prevention investments upstream could be a benefit where, for example, a TMDL was involved. If nutrients are controlled upstream, there will be less in the channels, which would minimize the challenges associated with dredged material management.

When it comes to dredging, her advice is to minimize it, but where it has to happen, beneficial reuse could be promoted widely. Her first question was "What is beneficial?" Ms. Savitz does not believe it has been well defined. The environmental community would likely support beneficial reuse when the material is clean, meaning it does not contain more than trace amounts of chemicals as defined in the MPRSA, and when a cumulative environmental impact statement (EIS) shows that the project does not impact the environment and provides a demonstrable benefit that is not achievable without dredged material.

When considering wetlands, Ms. Savitz had two concerns: sediments must be nontoxic, and creating a wetland out of dredged material is not the same as protecting a natural wetland. It should absolutely not be considered mitigation for the destruction of a natural wetland. Beneficial use projects should not be done as a basis for, or in exchange for, land development or wetland filling projects.

Finally, cleanup or environmental dredging is an emerging issue. The short-term risks of cleanup dredging are always the first order of business for responsible parties, but the long-term benefits must also be considered. These include environmental improvements such as habitat restoration and improvements in public health. Similarly, the long-term impacts of leaving toxic sediments in place must be considered as well.

Panel 4—Strengthening Regional Dredging Teams (RDTs)

Moderator: **Mr. Kelly Burch**, Administrative Officer, Pennsylvania Department of Environmental Protection

Mr. Craig Vogt, Deputy Director, Oceans and Coastal Protection Division, U.S. EPA, and NDT Co-Chair, summarized progress in establishing Regional Dredging Teams and challenged the participants to create additional RDTs and local planning/project groups to address the regional and local dredging issues.

To date, nine RDTs have been established, but Mr. Vogt pointed out that challenges remain for a number of the RDTs to meet their potential. The NDT provided guidance in 1996 offering suggestions on the organization of RDTs, membership, and operating principles. Mr. Vogt emphasized that there is no single structure or model RDT that works everywhere, but RDTs should be created to appropriately address the regional and local issues.

A key component of successful dredged material management is not only addressing the regional issues but also setting up mechanisms to resolve local project issues as well. Comprehensive dredged material management planning is a critical component in resolution of local issues and can serve as an early warning system that issues are on the horizon. Establishment of local planning/project groups (LPGs) to develop dredged material management plans and to address the local project issues has proven to effectively assist in timely resolution of the issues in order to get the dredging accomplished while meeting environmental goals. Representatives of all stakeholders, including Federal, State, and local government, port authorities, environmental interest groups, consultants, and academia, should be members of the LPGs. The NDT issued guidance on LPGs in 1998.

Mr. Vogt stated that mechanisms should be established for communication between the RDT and the LPGs, such that the RDT can assist in resolution of any issues that cannot be solved at the local level. Similarly, the NDT issued guidance in 1999 on elevation of issues to the NDT from RDTs.

In his final comments, Mr. Vogt emphasized the need for RDTs to take a more active role to ensure that proposed dredged material projects are appropriately designed and planned such that dredging and environmental issues are addressed up front and integral to the overall project plan. Inclusion of representatives from all interested stakeholders is very important as well as project planning on a watershed basis.

Mr. Steve Thorp, Program Manager, Great Lakes Commission (GLC), discussed his organization and the Great Lakes Dredging Team. The Great Lakes Commission is an interstate agency founded in 1955 and based in Ann Arbor, Michigan. Its focus is on the water resources of the Great Lakes basin and everything connected to them, from shipping, to erosion, to aquatic nuisance species. There are eight member States, and the Provinces of Quebec and Ontario have recently joined as associate members.

Mr. Thorp said the Great Lakes Dredging Team was created in 1996. He said that this Federal/State partnership grew out of a recommendation from the Federal interagency working group that was looking at dredging issues nationally and at the ways to solve problems with the process. The Great Lakes team adopted a charter that defines its structure and procedures. Its structure may be slightly different from that of other regional dredging teams. The Great Lakes Dredging Team State role is enhanced and substantial. The GLC had a dredging task force for many years and when the time came to join with the Great Lakes Dredging Team, Mr. Thorp said, the group wanted to preserve that part of its character. He said there are two members from each State. Usually, members have an environmental and/or maritime interest. There is also a legislative committee that advocates legislative and regulatory matters in Washington, DC. The Dredging Team has co-chairs, one State person and one Federal agency person.

Mr. Thorp outlined the four main objectives of the Great Lakes Dredging Team:

- To ensure timely and cost-effective dredging of harbors and channels, while meeting environmental goals.
- To facilitate the resolution of dredging issues common to the Great Lakes region.
- To promote implementation of recommendations of interagency reports on the dredging process.
- To facilitate stakeholder communication.

The Team meets twice a year, sometimes in conjunction with the Great Lakes Commission. Mr. Thorp said its current priority is the beneficial use of dredged material and exploring how to expand its use in the Great Lakes. With the cost of finding acceptable disposal sites for dredged material increasing, beneficial uses such as beach nourishment, soil conditioners, mine reclamation, road construction, and even structures to protect against wave action have become better solutions. Last year, the GLC received EPA funding to develop recommendations for advancing beneficial uses. A task force was established, and the Dredging Team has been directly involved with some overlapping membership. This spring the task force will publish recommendations along with a brochure on beneficial use.

Mr. Thorp said an emerging issue for the Dredging Team is environmental windows. There was a proposal at the Team's last meeting to discuss an approach that could help resolve the problems of window constraints. Most of their 100-plus Federal dredging projects have window constraints. There are windows in the summer when most work is done, but there are also windows during the winter, when dredging work is not feasible. According to Mr. Thorp, the new regional approach will look at existing windows and evaluate whether modifications to those windows, or even the dredging process, could reduce some of the dredging logistical concerns. Another priority is recreational harbor dredging. The record low water levels in recent years have hurt many small craft harbors, those both publicly and privately maintained. At a workshop to be held in Cleveland on July 16, 2001, the GLC and the Dredging Team will discuss this issue.

The Dredging Team also has a very developed public awareness program. Mr. Thorp said the goal of the program is to raise public awareness. There are three elements to their program: a network of local advocates, a regional advocate, and effective public outreach tools. Local advocates, he said, could be port directors, marina associations, or other groups interested in dredging. The regional advocate is needed to identify, encourage, and support local advocates. The Dredging Team serves as the regional advocate. Mr. Thorp said the outreach process began with a Public Outreach Plan. Currently, he said, they have a list of 90 local advocates and the number continues to grow. They also have a website to help

broaden their reach. Other activities to increase awareness include publishing *Dredging and the Great Lakes* and producing fact sheets.

Mr. Doug Hotchkiss, Senior Environmental Program Manager, Port of Seattle, presented the Puget Sound perspective on regional dredging teams and port participation. The Port's participation with regional dredging teams began in 1984 when they began working with Puget Sound Dredged Disposal Authority (PSDDA). There was a signed agreement for the Management of Dredged Material Issues.

Mr. Hotchkiss said they really all started working together as the result of a crisis situation, when a local permitting agency was concerned about open water disposal for a project. Mr. Hotchkiss believes the reason why the process was successful was that they had a strong start, with two EISs being funded. But he also feels that it was successful because the process was open. There were lots of work groups with all the user groups invited to participate, including the ports and environmental groups. Another reason why the process was successful, he believes, is that they dealt with the issues in small, "bite-sized" pieces. They looked at the problems and dealt first with those issues that could be solved. They also made decisions, as much as possible, based on the best science available.

Mr. Hotchkiss said the effort continues today, with monitoring to provide continuing information and a track record. There are monthly meetings that include the agencies involved and the public to discuss projects and issues. He said they also hold annual meetings that are open to all. The process is not locked in stone, but changes as needs and issues change. They also provide the opportunity for lots of feedback loops. Originally, they were just looking at ocean disposal, but now they look at bigger, broader issues, as well as future challenges.

Mr. Hotchkiss believes that the old formulas for looking at bioaccumulation and chronic testing, and endpoints will still work when looking at what is affordable and predictable, but the scope should be broader with new issues and treatment possibilities. With the issues of disposal of unsuitable dredged material, he believes, the scope has to be broader and expand from the regional subgroup, for example, such as Puget Sound, to the larger area of the Northwest.

According to Mr. Hotchkiss, the Endangered Species Act (ESA) has created a whole new set of players and a new paradigm. Here, too, he thinks maybe RDTs, with all the groups of the Northwest, need to address this issue. Mr. Hotchkiss believes the challenge of the ESA is that it is now "becoming woven through everything we do, as the rivers, streams and shorelines are woven through our Puget Sound community."

Lessons and thoughts for all to understand, according to Mr. Hotchkiss, are to be flexible at the subregion level for specific issues, consistently work together to build trust, and start strong and keep the process open. Ports should continue to do regular business in the interim. He said that most ports are driven by day-

to-day economic changes and they need to be responsive to that but, with global pressures on navigation and transportation, Mr. Hotchkiss believes, the ports must be able to change, or the economics will change as trade moves elsewhere.

Mr. Fred Stine, Citizen Action Coordinator, Delaware Riverkeeper Network, discussed his organization's perspective on dredging. Mr. Stine began his presentation by describing the Delaware Deepening Project and the lack of public participation and input in the project's early stages. This project will cost approximately $311 million to deepen 108 miles of the channel to 45 feet. The Delaware Riverkeeper Network is leading the opposition to the project along with 12 local, regional, State, and national environmental organizations. There are environmental and economic aspects to challenging the project. Eventually they gained Congressional support for the Government Accounting Office to review the project so that there might be unbiased and informed decisions on the merits of this project.

Actively soliciting input and participation from local and regional environmental organizations should be a mandatory step in deepening and port expansion projects. Maintenance dredging is necessary and port expansion may be warranted. Mr. Stine stated, however, city groups and grassroots organizations could play a critical role in the early decision-making process. Mr. Stine strongly believes that they provide a different and valuable perspective. They provide more information from the citizens who are going to be impacted both ecologically and economically. They have an insight and information that could be beneficial to the project. By involving the local community, Mr. Stine believes, a locally preferred plan could be developed that would get public buy-in. Citizens have already shown that they are interested and capable of participating in technical issues at this level, Mr. Stine said "Involve them!" They are making sacrifices and putting in the extra hours for the project. They are involved because it is important to them.

Mr. Stine asked, *"What is in it for them?"* People working at the grassroots level will have their voices heard; it can come as a partner in the early stages or as opposition at the "11th hour." He also thinks a local planning team would help. If citizens had better information, they might not oppose the project.

Mr. Stine concluded his presentation by stating that citizen groups will commit time and energy to a project. They can either be the opposition or help to create a better project. He suggested channeling their energy to help design better projects.

Day Two - Luncheon Speaker

Mr. Jerry Schubel, President, New England Aquarium, presented his vision, "A New Kind of Aquarium for the New Millennium." Some 30 years after it opened, Mr. Schubel said, the New England Aquarium is designing a new kind of aquarium, one tuned to the needs and opportunities of the 21st century. It has been suggested that this century will be the century of water, much the way the last century was the century of oil. Increasing pressures on aquatic resources

could lead to irreversible losses of biodiversity and ecosystem services. Mr. Schubel believes that aquariums and zoos need to bring the public down from the balcony and put them back into nature, so they can discover that we are part of nature and so that they can understand, at a deep personal level, what we are doing to the planet and to the other living creatures with which we share it.

The New England Aquarium's new facility is being designed to exploit the best of live animal exhibits and technology to create a powerful platform for learning through exploration and discovery. A new wing, Mr. Schubel said, will more than double the size of the existing facility and will focus on the Gulf of Maine. Regional habitats, ecosystems, and issues will be put into larger contexts in both space and time.

Mr. Schubel said that live animal exhibits would be embedded in an active informational space to provide a powerful metaphor for nature on planet Earth—an Earth that is being increasingly fragmented and isolated by a rapidly evolving global community and economy. The New England Aquarium has embarked upon the creation of a waterfront campus that will include the expanded aquarium, an interactive digital theater, a 3-D IMAX theater, and an expanded Exploration Center. Mr. Schubel believes that, collectively, these constitute the world's first Public Aquatic Academy.

Appendix B

Summary of Environmental Windows Session
National Dredging Team Conference

Jacksonville, Florida • January 23, 2001

Session: An Overview of the NRC Project and a Brief Primer on "Environmental Windows."

Jerry Schubel and Denise Reed

Jerry Schubel, the President of the New England Aquarium and the Chair of the National Research Council's Environmental Windows Steering Committee, opened the session by outlining for the audience the specific charge to the Environmental Windows Steering Committee. The Committee will conduct an analysis of environmental dredging windows as a management tool, focusing on (1) their effectiveness in protecting natural resources; (2) the processes by which they are developed, applied, and managed; and (3) the other management and technological tools available that could be used in conjunction with, or instead of, environmental windows. The Committee will also produce a set of recommendations to improve the processes by which environmental windows are developed and will seek to improve the efficacy of environmental dredging windows as one of a number of tools available to protect natural resources.

Denise Reed commenced her talk by defining the term "Environmental Windows" for the audience. Specifically, "Environmental Windows result from temporary constraints placed upon the conduct of dredging or dredged material disposal operations in order to protect biological resources or their habitats from potentially detrimental effects." In other words, the periods of time that are free from constraints or seasonal restrictions are technically classified as the environmental windows. For each dredging project, the goal is to achieve cost-effective dredging while maintaining and protecting biological resources. On one side of the coin, the Army Corps of Engineers (ACOE) must be cognizant of project timelines, the availability of equipment, and the safety risks posed by dredging in potentially inclement weather.[1] On the other side of the coin, resource biologists must consider the life histories of multiple species (particularly endangered species) that migrate through dredging areas along with critical habitat concerns. Frequently biologists and regulatory agencies are hampered in their missions to protect critical resources by a lack of definitive scientific information. In these cases, the agencies that are charged with protecting public trust resources feel obligated to adopt a conservative/risk adverse approach. In addition, the resource agencies and the ACOE are bound by a multitude of laws designed to protect biological resources, e.g., NEPA, CWA, MPRSA, FWCA, MMPA, ESA, MSFCMA. Lastly, both the ACOE and the resource agencies must

[1]Frequently environmental windows occur in the winter months, when the biological activity is at a minimum but the potential risk to human safety is at a maximum.

contend with regional variations in hydrography, environment, and economic development/dredging needs, along with variations in interagency coordination and relationship structures.

The task of the Environmental Windows Steering Committee is twofold: (1) to ensure that the process utilized for setting windows is based on science; and (2) to develop a template for the process that ensures consistency across the United States.

Session: A Panel Discussion on the Process of Setting, Administering, and Monitoring Dredging Windows.

Susan-Marie Stedman, NOAA – Moderator; Doug Clarke, ACOE; Ron Sechler, NMFS; Matt Eagleton, NMFS; George Wisker, CT DEP

The purpose of this session was to provide an overview from the various agency perspectives on the administrative process currently used to set windows. Doug Clarke from the ACOE started the discussion by offering the following remarks. He noted that the concept of environmental windows is not a new phenomenon; rather, the first environmental windows were established approximately 30 years ago. What is new is the fact that over 30 years a cumulative effect has occurred resulting in very narrow windows in certain parts of the country, thereby causing serious implementation problems for the ACOE. In explaining the process utilized by the ACOE in establishing windows, Doug presented a slide illustrating the various statutes governing biological resources. In other words, the prevailing statute dictates the process. The details for administering the process vary from district to district. Some districts have established a formal communication process, e.g., regional dredging teams, whereas other districts simply communicate with resource agencies on an as-needed basis. Besides the cumulative effect of windows, Doug also noted that the technical justification provided by resource agencies for recommending windows varies from the generic and subjective to the specific and objective. Examples of a generic technical justification include "to protect fish and shellfish." Potential solutions offered by Doug were the following. He recommended a renewed effort to integrate biological data and information with dredging technology data and to thoroughly identify existing data gaps and to prioritize these data needs on a regional level. He also advocated a regional approach to setting windows, establishing regional study teams, and widely disseminating results.

The resource agency personnel offered the following comments. Most agreed that in an ideal world specific data would be provided on the resources and the sensitivity of the resources to the dredging impacts and, moreover, the data would be specifically correlated to the proposed dredging technology. However, the reality oftentimes consists of the recommendation of a window based upon broad criteria such as stipulating a "season of high biological activity." All resource agency panelists agreed that research is needed in order to provide better project-specific data for resources at risk, for obtaining information on landscape level/proximity issues, and for predicting the sensitivity of certain organisms

to dredging impacts. The process could also be improved by generally increasing the frequency of communication between the ACOE and resource agency personnel. Specifically, panelists recommended that ACOE staff involve the resource agency staff prior to the identification of a particular action along with identifying a single contact person who should provide information on the scoping of the project and on the expected roles and responsibilities for the resource agency personnel. Lastly, in relation to ACOE and resource agency communication and coordination, panelists recommended that the ACOE develop a primer outlining the advantages and disadvantages of the various dredging techniques.

Resource agency staff also acknowledged that communication and the overall coordination between Federal and State resource agency staff could be improved. Specifically, Federal and State resource agency staff should work to eliminate conflicting seasonal restrictions when they occur.

Two themes that emerged from a brief question-and-answer session were the following. First, many members of the audience recommended and encouraged the use of programmatic consultations. Second, many audience members highlighted the fact that while early involvement by the resource agencies is crucial, it is frequently impractical. The lack of adequate resources and staffing at the National Marine Fisheries Service often serves as a barrier to fully integrating Federal resource agency personnel into the process.

Concurrent Sessions: Case Studies of Dredging Projects Involving Environmental Windows in the Southeast, Northeast, and Pacific Northwest Regions of the U.S.

Summary of the Southeast Case Studies

The session began with presentations of the results of surveys conducted throughout the Corps's Mobile District. The following case studies were discussed.

Project 1:
Dredging at Mobile Harbor and Disposal on Gaillard Island Disposal Area

Project Description: Hydraulic pipeline; created diked island; completed in June 1990; still used as a disposal facility for maintenance dredged materials (over 1 million cubic yards/year), total project volume is over 50 million cubic yards.

Resources at Risk: An endangered species, the brown pelican (*Pelecanus occidentalis*), is nesting on the shores of Gaillard Island, the intended disposal site. The pelicans reportedly arrived on created mudflats to nest before completion of the project, and continue to use it.

Rationale for Windows: USFWS and Alabama DNR were concerned that noise and physical disturbance of nesting habitat would negatively impact the

birds during nesting. These concerns were based on published literature, expert information, agency recommendations, and actual observations of the pelicans.

Action: A cooperative inter-agency management plan was designed to minimize or eliminate the impacts of dredging activities on the pelicans. The plan calls for consultation among agencies before initiating any projects that might adversely impact the pelicans. Nesting sites are avoided during disposal operations.

Project 2:
Apalachicola Bay Dredging, Florida

Project Description: Hydraulic pipeline; volume of less than 1 million cubic yards; completed in 1959; diked areas still used for disposal for small local maintenance dredging projects.

Resources at Risk: Oysters, other marine species.

Rationale for Windows: State and Federal agencies were concerned with the effects of dredging on a number of marine species, primarily oysters. The concern was that turbidity plumes would bury and destroy recently set oyster spat, and that the dredges would entrain eggs and larvae of various species. Another concern mentioned was the potential for avoidance and behavior modification in fish. Agencies recommended a window between October and March, when oysters and other species were not spawning. This window was based on available literature and agency recommendations.

Action: A window of October to March was implemented and remains in effect.

Project 3:
Dredging of Apalachicola River Inland Navigation Channel; Gadsen, Jackson, Liberty, Calhoun, Gulf, and Franklin Counties, Florida

Project Description: Hydraulic pipeline dredge; limited placement within in-bank CAD cells; upland diked containment areas; up to 1,000,000 cubic yards annually; constructed in 1957.

Resources at Risk: Gulf sturgeon (*Acipenser oxyrinchus desotoi*), a Federally listed threatened species, and Gulf striped bass (*Morone saxitalis*).

Rationale for Windows: State and Federal agencies were concerned about potential impacts of dredging to anadromous fish spawning behavior and habitat, caused by entrainment and excessive turbidity. Requirements for seasonal restrictions were based on agency recommendations that the Corps consult with State and Federal fish and wildlife agencies if dredging is planned between March 1 and May 15 in order to minimize or avoid impacts to staging or spawning fish, eggs, or larvae. These dates were set by coordinating agencies and are based on literature and expert opinion.

Actions: A limited exclusionary prohibition is in place from March 1 to May 15. This is detailed in Florida State regulations and the Clean Water Act in Section 7 (consultation between agencies) and in section 401 (water quality certification). Dredging is not expressly prohibited, but agencies seeking to perform dredging between March 1 and May 15 are required to consult with the other cooperating agencies.

The key points of the discussion during this session are summarized below.

Turtles:

- Species-specific windows have been established for sea turtles. These windows are temperature-based and may be closed if a "take" occurs, providing needed flexibility for regulators and dredging companies.
- The geography and resulting turtle migration patterns in the Gulf of Mexico are unique, necessitating the use of a geographically specific turtle management strategy, including the use of windows.
- WES (Waterways Experiment Station) is conducting research on species behavior and equipment technologies to reduce the risks and potential impacts to turtles from dredging.

Communication/Coordination:

- A strong sentiment was expressed for the need to improve coordination and communication among the regulatory agencies, between the regulatory agencies and the ACOE, and among the various ACOE districts (e.g., communicating the availability of dredging equipment would improve the process).
- Stronger partnerships need to be built among the local environmental groups, State regulatory agencies, and the ACOE in setting and implementing dredging windows.

Process Issues:

- Overall, approaches to the implementation of windows vary by geographical location.
- Windows are frequently used as a management tool for "takes." Competition for "takes" can be a problem when "takes" of endangered species are permitted. Additionally, "take limits" for endangered species are often subject to legal action.
- Long-term planning by the resource agencies and the ACOE will assist those industries that actively seek to comply with windows.
- Monitoring is an essential component to the establishment of windows. Monitoring allows for flexibility and provides a scientific approach for measuring performance outcomes.
- In the Southeast region, windows have been established without sufficient scientific evidence. In these cases, the regulators felt the need to take a conservative precautionary approach. In general, there are many estuary-

dependent species in the region, necessitating the need to collect data to identify critical habitat areas.

- Most concurred that species-specific windows were easier to implement and manage than "blanket" or ecosystem-based windows.

Summary of the Northeast Case Studies

The Northeast discussion group focused on case studies from the Detroit District, the New York District, and the Mid-Atlantic region including the Norfolk and Baltimore Districts. The following general themes emerged from the discussion.

- First, in the Detroit District, windows' designations have historically been single-species-based; however, no one participating in the discussion was able to characterize windows as either typically single-species- or typically multiple-species-based.
- Second, while the windows in the New York District case studies were primarily established based upon the needs of a specific species, the recommendations often were not accompanied by supporting scientific data. And, economic analyses were rarely supplied.
- Third, it was the prevailing view of the group that windows are generally accepted based upon the strength of a recommending agency's authority and essentially considered as design restrictions and/or "overhead" by ACOE district managers. Therefore, disputes seem to be rare occurrences. Negotiations are conducted, but no single process was identified for initiating or conducting the negotiations. The most common disputes cited were those that occur between Federal and State resource agencies centering on the interpretation of existing data. Many participants suggested that the resource agencies actively seek to find methods for reaching consensus on data interpretations.
- Fourth, the majority of participants agreed that technological improvements/best management practices need to be factored into the window-setting process by resource agency personnel. In order to accomplish this goal, it was recommended that the ACOE and other experts on advances in dredging technology and best management practices educate resource agency staff on dredging technology and techniques.
- Fifth, the concept of programmatic recommendations was debated with most concurring that for small ecological areas, programmatic recommendations make sense. These recommendations should not eliminate, however, case-by-case reviews, but rather supplement the reviews and streamline the process.
- Sixth, it was noted that windows are frequently determined through the use of monitoring during a dredging process. All agreed that monitoring is a suitable method for introducing flexibility into the process.

- Lastly, participants strongly urged District staff to routinely disseminate dredge findings and research results throughout the Corps: such results need to be embedded in the process in order to avoid "reinventing the wheel."

Prior to the conclusion of the session, participants offered suggestions for creating a template for establishing windows, for improving coordination among agencies, and for researching key windows setting requirements.

Template Development: One size does not fit all!

- Programmatic approach combined with a regional approach, as appropriate
- Routine dredging template and single-action case-by-case assessment
- Revisit decisions as new data become available (both resource and technological data)
- Follow-up with coordination and monitoring programs (meetings)
- Include impact avoidance and mitigation aspects of assessment
- Review available technology and equipment with associated Best Management Practices to minimize impacts to the environment and to the project

Coordination

- Coordination must go beyond talk to data dissemination (tech transfer).
- Discuss and set objectives and thereafter prioritize activities (include sorting among alternatives for dredging and disposal projects).
- Observers may provide flexibility to continue projects if agreed to among agencies but may be difficult within contract (unknown cost).
- Regulatory and Federal projects must be coordinated and treated in the same manner or there is an appearance of a two-tiered system.

Research Requirements

- Is there a baseline of data to set windows?
- Can we quantify the impact to the fisheries (portion of stock affected) and determine the economic impact to fisheries and to projects?
- Can States and Federal agencies publish lists of sensitive areas and species on a routine basis?
- What are the cumulative effects of different operational options (periodic versus single intense activity) to the resource of concern?
- Can web-based data sets be posted in a graphical information system (GIS) for public and agency review including physical, chemical, and biological data?
- When are data too old?

- Research on equipment and technologies to protect the resources needs to be documented and distributed to the agencies reviewing the threatened species as a measure to apply rather than windows

Summary of the Pacific Northwest Discussion

Discussion in this session focused on information supplied from case studies involving the San Francisco Bay area and the Columbia River/Puget Sound region. The Endangered Species Act formed the backdrop for the overall discussion. Key points from the discussion are as follows.

Communication

- Ideally, all pertinent players should be involved in the dredging process from the beginning. In general, NMFS/FWS staff felt that they are brought into the process too late.
- Several participants representing State agencies and the ACOE expressed frustration with the fact that NMFS/FWS staff frequently do not attend meetings regularly and/or take too long to respond in writing with windows recommendations to the ACOE. There was recognition from all present that meetings may not constitute the most effective use of time and that conference calls are a viable substitute. Participants also acknowledged that the lack of response and/or delay in response time by FWS/NMFS personnel was largely due to understaffing, particularly in offices that deal with protected species.
- A template for interagency coordination on ESA issues has been developed in the Northwest and has subsequently been adopted by other parties in the Southwest. This template could serve as a starting point for developing a national template.

Information

- It was recognized that those involved in setting windows often find it difficult to clearly assess the current state of knowledge on a topic; synthesis documents that are regularly updated were recommended as a solution to this problem. As regulatory staff may not have the time to prepare such documents, it was proposed that other agencies currently involved in windows issues may be recruited to develop the documents.
- Resource agency staff at both the State and Federal levels should be encouraged to attend training courses on dredging issues and technologies.
- Several participants expressed a desire to conduct further research on translating laboratory models to actual dredging scenarios.

Dredging Equipment

- Resource agency staff noted a disconnect in the setting of windows and the selection of dredging technology. Specifically, resource agency staff are frequently asked to provide recommendations on windows for a particular dredging project prior to the selection of the dredge type.

Dredging equipment is usually determined during the bid process, which may occur after the resource agency staff have been requested to provide recommendations on windows.

- While it was acknowledged that obtaining additional dredging equipment may increase the pace of dredging, it was also noted that the resulting "downtime" for the equipment would be factored into the dredging cost.
- Technological improvements in dredging equipment may reduce the impacts to certain species and habitats. As windows recommendations are revised when additional information on the species is made available, it was stated that windows recommendations should also be revised when new information on the dredging technology becomes available.

Setting/Extending Windows

- Windows may be lengthened through the use of monitoring. In order for monitoring to be successful, however, all parties must communicate extensively and continuously. All parties must also recognize that monitoring may result in the shortening of windows as well.
- ESA has had a demonstrable effect on the windows issue. For example, in Puget Sound windows were established to avoid the periods of maximum out-migration by anadromous fishes.
- It was noted that the technical and scientific justification for establishing environmental windows is not applied to other types of windows, e.g., tribal fishing windows. Having various types of windows, in addition to a multitude of species, complicates the process.

Jerry Schubel's Analysis of Cross-Cutting Issues Raised in the Three Concurrent Sessions

- Improvements to the windows process will come through a series of relatively modest changes…but the net improvement could be significant.
- Windows are a tool…the framework for developing, administering, and monitoring them needs to be flexible.
- Extending windows will come primarily through technology that reduces impacts of dredging and disposal and through greater knowledge of the species, their life cycles, and distributions in time and space.
- Technology…not all people in key positions are aware of the state of the technology. Selection of the most appropriate kinds of dredges and disposal means could reduce impacts and open windows. Resource agency staff should be encouraged to attend trainings and/or to receive primers on dredging techniques and technology.
- Communication and coordination are continuing issues. They need greater attention and need to be managed. The resource agencies need to give them a higher priority.

- Monitoring can add flexibility in the application of windows…both to shorten and to expand.
- The impacts of dredging and disposal need to be put into the context of other activities, including not dredging.

Session: Developing Tools to Make Windows Decisions—Evaluating Economic Instruments That Could Be Used in Setting Environmental Windows.

Tom Wakeman, Mark Sickles, and Tom Chase

Tom Wakeman began the discussion by reminding the audience that port authorities operate in a competitive business environment and therefore base their decisions on the best economic interest of the port. It has become clear to the port that neither the ACOE nor the resource agencies consider economic evaluations when setting environmental windows. In fact, no equation, magic bullet, or process even appears for such an evaluation.

When a port considers whether to dredge, the following costs must be considered:

- Estimated initial construction costs
- 404/401 permit requirements
- CZMA mitigation requirements
- Essential Fish Habitat mitigation
- Endangered species requirements including environmental windows
- TMDL requirements
- Host community requirements

In evaluating whether to proceed, the port authority will evaluate six economic approaches:

- Proceed with an open checkbook
- Conduct a cost-benefit analysis
- Prepare an assessment of the trade-offs
- Review the decision-making theory
- Conduct a risk-based assessment
- Prepare a return-on-investment calculation

How do the resource agencies and the ACOE consider whether to set environmental windows? Tom recommends that the following key parameters be considered:

- Are endangered species involved?
- Can the project be redesigned?
- What biological resources are at risk?
- What are the Best Management Practices?

- What are the financial risks?
- What are the trade-offs to society?

Tom concluded his remarks by cautioning that the approach of "waiting for things to get back to normal is a bad strategy!"

Mark Sickles commented that, in general, businesses require as much certainty as possible and the dredging contracting business is no different. Unfortunately, the process for setting windows has been plagued by surprises, minimal coordination, and short notices despite the fact that the first windows were set over 30 years ago and that over 80 percent of ACOE projects contain windows. Mark also noted that most dredging companies are small family-owned businesses that may own only one to two dredges and many limit their work to only one district. It is simply the nature of the business and must be understood and recognized by all involved in the window-setting process. Windows that result in "equipment crunches" will be problematic.

Lastly, Tom Chase focused his remarks on the window-setting process or lack there of. Overall, he stated, the system needs more predictability; most of the guidelines are too broad and ill defined and provide virtually no guidance. A National Research Council report in this area is sorely needed and could be extremely helpful.

Closing Statement. Jerry Schubel.

The next steps in the NRC process include an NRC workshop in Washington, DC, in March 2001, which will bring together experts in the field to discuss issues and potential recommendations. Participants in the NDT Jacksonville meeting are invited to this NRC workshop. Following the workshop, the NRC Committee will prepare a report that is targeted for completion in the early fall of 2001.

Appendix C: Workshop Agenda

Dredged Material Management: Issues and Needed Actions for the Next Decade

A Workshop Sponsored by the National Dredging Team*

January 23—25, 2001 • Jacksonville, Florida

Objectives of Workshop:

- A national action agenda for dredged material management will be developed.* *
- The workshop will facilitate communications between the National Dredging Team (NDT), Regional Dredging Teams (RDTs), and stakeholders to build partnerships for improved effectiveness in dredged material management and to exchange information about scientific and programmatic dredging issues.
- Key actions will be identified to strengthen Regional Dredging Teams in taking leadership roles in effective dredged material management and in communication and coordination with stakeholders, with emphasis upon links to the broader Marine Transportation System activities.
- Day 3 will be a special session hosted by the National Research Council on Environmental Windows for Dredging Projects.

Workshop Registration—January 22, 6:00–8:00 PM

Day One—January 23

7:00–8:30AM	Continental Breakfast & Registration
8:30–9:00AM	**Opening Remarks**
	Welcome . . . . . Rick Ferrin, Port of Jacksonville
	NDT Background, Goals & Accomplishments . . . . . Craig Vogt, EPA
	Workshop Objectives. . . . . Barry Holliday, Corps of Engineers
9:00–10:00AM	**Keynote Addresses**
	Port Perspective . . . . . Frank Hammons, Port of Baltimore
	Environmental Interest Perspective . . . . . Jim Tripp, EDF
	State Perspective . . . . . Tony MacDonald, CSO
10:00–10:15AM	**Break**
10:15–11:15AM	**Panel 1—BENEFICIAL USE OF DREDGED MATERIAL:** What have we learned? What are the economic, engineering, ecological, and regulatory/political issues that need to be addressed?
	Moderator: Tom Chase, AAPA
	Rick Gimello, State of New Jersey

* Includes a special session on January 25 hosted by the National Research Council on Environmental Windows for Dredging Projects.

** The national agenda will be coordinated and complementary with the Marine Transportation System action plans. *http://www.epa.gov/owow/oceans/ndt*

John Carey, Alabama State Docks

John Torgan, Narragansett Baykeeper-Local Planning Group

Jim Reese, Corps of Engineers-Portland: Columbia River Deepening

11:15–11:30AM **Break**

11:30–12:30PM **Panel 2—SEDIMENT MANAGEMENT**: Experiences and strategies for watershed/regional planning and the minimization of dredging and contaminants.

Moderator: Bill McAnally, Corps-WES

Barry Holliday, Corps of Engineers

Tom Wakeman, Port of NY/NJ

Roxane Dow, State of Florida

12:30–2:30PM **Lunch**

Luncheon Speaker—**Bob Wayland**, EPA, Director, Office of Wetlands, Oceans, and Watersheds

2:30–4:30PM **Concurrent Breakout Groups*****

Work Groups Session 1—Beneficial Use of Dredged Material

Charge: What have we learned? What are the economic, engineering, ecological, and regulatory/political issues that need to be addressed? What are the specific needed steps to make it happen?

Work Groups Session 2—Sediment Management

Charge: What are the key elements in Sediment Management, the players, and what steps need to happen to encourage more watershed planning to reduce the need for dredging as well as the contaminants coming from upstream?

4:30–4:45PM **Break**

4:45–6:00PM **Plenary Session**

Moderator: Michael Carter, MARAD

Dredged Material: Beneficial Use Regulatory Case Studies, *John D. Pauling, Roy F. Weston*

Boston Harbor Contaminated Dredged Material: Lessons Learned on Disposal, *Deerin Babb-Brott, State of MA*

Success: Local Planning Groups-Dredged Material Beneficial Use, *Kelly Burch, State of PA & Co-Chair Great Lakes RDT*

Decontamination of Dredged Material: Making a Useful Commercial Product, *Eric Stern, EPA*

Use of Dredged Material in Restoration of Abandoned Mines, *Andrew Voros, NY/NJ Bi-State Commission*

6:00–7:00PM Work Groups reconvene as needed.

*** Several breakout groups with the same charge will be established depending upon number of participants.

Day Two—January 24

7:30AM **Continental Breakfast**

8:30–9:30AM Panel 3—**EMERGING ISSUES**

Moderator: Jim McGrath, Port of Oakland

Decision-Making Using Risk Assessment/Risk Management for Results of Bioaccumulation Testing, *Todd Bridges, Corps/WES*

TMDLs, *Brian Ross, EPA*

Essential Fish Habitat, *Tom Bigford, NOAA*

Opportunities for Improvement–The Regulatory Process, *Jackie Savitz, Coast Alliance*

9:30–10:30AM **Panel 4—STRENGTHENING REGIONAL DREDGING TEAMS**

Coordination, Communication, Outreach, & Issue Resolution

Moderator: Kelly Burch, State of PA & Co-Chair Great Lakes RDT

RDTs: Hopes and Expectations, *Craig Vogt, EPA*

Great Lakes Team Overview, *Steve Thorp, Great Lakes Commission*

Ports Participation, *Doug Hotchkiss, Port of Seattle*

Environmental Interests Participation, *Fred Stine, Delaware Riverkeeper Network*

10:30–10:45AM **Break**

10:45–12:00PM **Concurrent Breakout Groups*****

Work Groups Session 3—Emerging Issues

Charge: How can the emerging issues be best addressed during the planning and regulatory processes? What further improvements are needed to provide better efficiency in the project planning, review, and permitting process to ensure timely and effective decision-making while meeting environmental goals? What steps are needed to implement these improvements?

Work Groups Session 4—Strengthening Regional Dredging Teams: Coordination, Communication, Outreach, & Issue Resolution

Charge: What needs exist for better coordination and communication? What mechanisms can assist in national, regional, and local communication/coordination and issue resolution? What role can local groups play in development of dredged material management plans? How can stakeholders participate with Federal and State dredged material managers? How can RDTs be strengthened? What steps are needed for enhanced coordination with the MTS Initiative?

12:00–1:30PM **Lunch**

Luncheon Speaker—**Jerry Schubel**, President, New England Aquarium

1:30–3:30PM **Field Trip–Port of Jacksonville**

3:30–6:00PM **Plenary—Development of the National Action Agenda on dredged material management issues.**

Moderator: Steve Mathies, Battelle

3:30–4:30PM **Action Agenda 1: Beneficial Use of Dredged Material**

The Draft Action Agenda: Steve Mathies, Battelle

Perspectives on the Draft Action Agenda:

Rick Gimello, State of New Jersey
Tom Chase, AAPA
John Torgan, Save the Bay
Discussion, Audience

Action Agenda 2: Sediment Management

The Draft Action Agenda: Carlton Hunt, Battelle

Perspectives on the Draft Action Agenda:

Roxane Dow, State of Florida
Tom Wakeman, Port of NY/NJ
Jim Tripp, Environmental Defense Fund
Discussion, Audience

4:30–5:00PM **Break**

5:00–6:00PM **Action Agenda 3: Emerging Issues**

The Draft Action Agenda: Karen Foster, Battelle

Perspectives on the Draft Action Agenda:

Steve Goldbeck, State of California
Frank Hammons, Port of Baltimore
Jackie Savitz, Coast Alliance
Discussion, Audience

Action Agenda 4: Strengthening Regional Dredging Teams

The Draft Action Agenda: Elizabeth Cavit, Battelle

Perspectives on the Draft Action Agenda:

Kelly Burch, State of Pennsylvania
Ellen Johnck, Bay Planning Coalition
Cindy Sarthou, Gulf Restoration Network
Jim Reese, Corps of Engineers
Discussion, Audience

6:00PM **Closing Remarks** . . . . . Craig Vogt and Barry Holliday, EPA/Corps

7:00PM **Reception/Mixer**

Day Three—January 25

Environmental Windows for Dredging Projects

Hosted by the Transportation Research Board (TRB) of the National Research Council (NRC)

7:30AM **Continental Breakfast**

8:30–9:00AM **Plenary: A Brief Primer on "Environmental Windows" and an Overview of the NRC/TRB Project**

Jerry Schubel, New England Aquarium
Denise Reed, University of New Orleans

9:00–10:30AM **Plenary: Process of Setting, Administering, and Monitoring Dredging Windows**

Moderator: Susan-Marie Stedman, NMFS

Ron Sechler, NMFS Beaufort, NC
Don Palmer, FWS (invited)
George Whisker, State of Connecticut DEP
Doug Clarke, Corps of Engineers

10:45–12:30PM **Concurrent Breakout Sessions**: Small groups will discuss and analyze the results of case studies involving environmental windows. The primary objective will be to determine how well the process worked and, if necessary, to identify specific recommendations for improvements.

Group 1: Gulf and South Atlantic Regions
Facilitators: Susan-Marie Stedman and John Torgan

Group 2: New York and New England Regions
Facilitators: Tom Wakeman and Henry Bokuniewicz

Group 3: West Coast Regions
Facilitator: Denise Reed

12:30–1:30PM **Working Plenary Lunch With Reports from the Breakout Groups and a Search for Robust Recommendations for Improving the Process**

Jerry Schubel, Facilitator

1:45–2:45PM **Plenary: An Identification and Evaluation of Alternative Economic Instruments That Could Be Used in Setting Environmental Windows for Dredging Projects**

Facilitator: Tom Wakeman

Mark Sickles, Dredging Contractors of America
Tom Chase, AAPA
Tom Wakeman, Port of NY/NJ

2:45–3:00PM **Summary and Next Steps:** . . . . . Jerry Schubel

Appendix D: Workshop Participants

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Adams, John, USACE, Jacksonville, FL

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Appendix E: National Dredging Team Charter

National Dredging Team

CHARTER

Vision

Dredging of U.S. harbors and channels is conducted in a timely and cost effective manner while meeting environmental protection/restoration/enhancement goals.

Goals

The National Dredging Team will facilitate communication, coordination, and resolution of dredging issues among the participating Federal agencies, and will serve as a forum for promoting the implementation of the National Dredging Policy and the recommendations in the National Dredging Team's Dredged Material Management: Action Agenda for the Next Decade (2003) (Action Agenda).

Legislative Authorities

The following laws are the primary Federal statutes governing dredging and dredged material disposal. They provide the agencies represented on the National Dredging Team with the authority to carry out their responsibilities for dredging and related activities.

- Federal Water Pollution Control (Clean Water) Act
- Marine Protection, Research, and Sanctuaries Act
- Rivers and Harbors Act of 1899
- Fish and Wildlife Coordination Act
- Endangered Species Act
- Coastal Zone Management Act
- Merchant Marine Act
- National Environmental Policy Act
- Water Resources Development Acts
- Magnuson-Stevens Act
- Marine Mammal Protection Act

Operating Principles

The National Dredging Team embraces and will operate under the National Dredging Policy as outlined in the Action Agenda, referenced above. Fundamental to this Policy is the recognition that a network of ports and harbors is essential to the U.S. economy and national security, and that the nation's coastal, ocean, and freshwater resources are critical assets, which must be protected, conserved, and restored.

The National Dredging Team will function as a forum for information exchange, issue identification, and timely resolution of issues affecting dredging programs.

The National Dredging Team will serve as the principal operating organization within the Marine Transportation System with respect to dredging issues.

The National Dredging Team will review policies and issues that are national in scope; regional and local issues will be addressed by the Regional Dredging Teams and the Local Planning/Project Groups.

Regional Dredging Teams may elevate dredging issues to the National Dredging Team for resolution, in accordance with the Guidance to Regional Dredging Teams; however, the National Dredging Team is committed to resolution of issues at the lowest authorized management level. Regional Dredging Teams are expected to utilize all available means to resolve issues prior to elevating an issue to the National Dredging Team (e.g., an issue involving the assessment of environmental impacts of a proposed dredging project should be addressed at the local/regional level).

The National Dredging Team is committed to completion and timely implementation of the Action Agenda's recommendations.

The agenda and issues to be addressed by the National Dredging Team will be determined by the National Dredging Team based upon recommendations from National Dredging Team members, from Regional Dredging Teams, and from stakeholders.

Information will be sought from stakeholders to help clarify specific issues as well as provide factual data on the issues.

Participation on the National Dredging Team will not supersede or otherwise affect any authority of the participating agencies.

Membership

The National Dredging Team shall consist of representatives from the following Federal agencies: Department of Defense/U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA), Department of Commerce/National Oceanic and Atmospheric Administration/National Ocean

Service and National Marine Fisheries Service, Department of Transportation/ U.S. Maritime Administration, Department of Interior/U.S. Fish and Wildlife Service, and Department of Homeland Security/U.S. Coast Guard. Other Federal agencies, such as the U.S. Geological Service and the U.S. Navy, may also participate.

The National Dredging Team shall be co-chaired by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency.

The National Dredging Team will be guided by a Steering Committee. The Steering Committee will be composed of senior level executives appointed by the department/agency head; Steering Committee members should have the authority to make binding policy decisions and commitments for their respective agencies.

The National Dredging Team will be composed of agency managers and decision-makers, and technical experts. Each agency shall designate in writing the names of a member and an alternate to represent their agency on the National Dredging Team. Because the USACE and EPA are Co-Chairs with a very extensive agenda, these two agencies may have two members and one alternate each on this Committee.

Members of the National Dredging Team shall keep their senior Agency management and, in particular, their National Dredging Team Steering Committee member informed of activities, actions, and issue deliberations/resolution.

Objectives

The overall objective of the National Dredging Team is to serve as a forum for issue identification and resolution, implementation of the Action Agenda's recommendations, and communication/coordination with Regional Dredging Teams, as well as other stakeholders.

Specific objectives of the National Dredging Team as detailed in the Action Agenda include:

- Promotion of the beneficial use of dredged material.
- Promotion of overall sediment management approaches, particularly at the watershed level.
- Identification and resolution of emerging issues.
- Support to Regional Dredging Teams and to Local Planning/Project Groups.

Twenty-two specific actions to be undertaken are included in the Action Agenda.

Other actions by the National Dredging Team include:

- Develop annual work plans including identification of specific issues, needed guidance, and other actions to promote efficient dredging of

channels and harbors while meeting environmental protection and enhancement goals.

- Identify and invite stakeholders, including the nation's ports and environmental interest groups, to provide information and data to the National Dredging Team that would help clarify the factual basis for deliberations on specific issues.
- Conduct meetings with Regional Dredging Teams as necessary to promote information exchange and to support continuing efforts with Local Planning/Project Groups to manage dredged material in a watershed context.
- Sponsor periodic forums of dredging stakeholders with the National Dredging Team to provide an opportunity to hear the concerns of stakeholders, to exchange information, and to facilitate a continuing dialogue on dredging issues.
- Coordinate closely with other initiatives.
- Prepare a communications plan to provide periodic updates to stakeholders and the Regional Dredging Teams on the actions and plans of the National Dredging Team.

Procedures

Meetings are to be co-chaired by representatives of USACE and EPA.

Meetings of the Steering Committee will be held on an "as needed" basis and will be held as requested by the Co-Chairs of the Steering Committee or the National Dredging Team.

Regular meetings of the National Dredging Team will be scheduled by the Co-Chairs. Special sessions can be requested by members and scheduled by the Co-Chairs as needed.

The National Dredging Team will elevate issues to the Steering Committee for decisions or policy guidance, as needed. In addition, other actions by the National Dredging Team, such as the annual work plans, will be provided to the Steering Committee for information and approval, as needed.

Agreement

Members of the National Dredging Team agree to fully participate in the Team activities and will operate under this Charter. Participation is subject to agency budget constraints. This charter is not intended to commit members to specific funding levels.

This charter shall be effective upon the date of signature. Agencies can terminate their participation at any time by notifying the other parties 60 days in advance of the termination.

Signed by:

Honorable George S. Dunlop
Deputy Assistant Secretary of the Army (Policy and Legislation)
U.S. Department of the Army
Co-Chair

G. Tracy Mehan, III
Assistant Administrator
Office of Water
U.S. Environmental Protection Agency
Co-Chair

Timothy R.E. Keeney
Deputy Assistant Secretary of Commerce for Oceans and Atmosphere
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Robert B. Ostrom
Chief Counsel
Maritime Administration
U.S. Department of Transportation

Steve Williams
Director
Fish and Wildlife Service
U.S. Department of Interior

for RADM Thomas H. Gilmour
Assistant Commandant for Marine Safety, Security, & Environmental Protection
U.S. Coast Guard
U.S. Department of Homeland Security

July 9, 2003