

# **Navigation and Dredging Planning Guide for Maryland's Coastal Bays**

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August, 2005

2 September 2010

## **Acknowledgements**

This document and the associated recommendations would not have been possible without the active participation and contributions of the members of the Navigation and Dredging Advisory Group. A complete list of the committee membership can be found in Appendix A.

A special thank you is extended to the following members who provided significant information, helped write and edit portions of the document and provided substantive comments on the drafts: Bob Blama, Pat Shrawder, George Ruddy, Carolyn Cummins, Bob Abele, Jack McAllister, Carl Zimmerman, Dave Blazer, and Dave Wilson.

Others to be recognized for their assistance, time, information and talents toward the development and completion of this document include: Kate , Mike Ewing, and Janis Foley.

Presentations that helped clarify and define the topics and subsequent recommendations covered in this document were kindly provided by: David Brinker, Don Merritt, Mark Ogle, David Gough, Jordan Loran, Greg Hall, Mike Naylor, Woody Francis, Bob Blama, Tim Goodger, George Ruddy, Bob Tabisz, Captain Michael Bloxom.

The assistance and support provided by the individuals listed above along with those not specifically mentioned, is greatly appreciated.

# Navigation and Dredging Planning Guide for Maryland's Coastal Bays

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## Introduction

Maryland's coastal bays make up one of the richest, most diverse estuaries on the eastern seaboard. For more than a century, agriculture, fishing, hunting, and more recently tourism, have sustained ways of life built on the land and water resources in this coastal community. To the east of Route 113, the 175-square-mile watershed of the coastal bays includes the cities of Berlin, Ocean City, the Ocean Pines community, parts of Snow Hill and Pocomoke as well as the Assawoman, Isle of Wight, Sinepuxent and Chincoteague bays— all in Worcester County.

This watershed supports a variety of activities directly linked to the availability and health of the areas water bodies. Fishing, boating, hunting, and tourism bring hundreds of millions of dollars to the county every year. This economic link between the watershed and its residents and visitors emphasize the critical need to safeguard the ongoing viability of the coastal bays and its many functions.

Part of the National Estuary Program, the Maryland Coastal Bays Program is a cooperative effort between Worcester County, Ocean City, Berlin, a host of state and federal agencies and interested local groups and individuals which are working together to implement management actions for the protection of the coastal bays. Input from residents and representatives from the fishing, golf, development, agriculture and tourism industries, serve as the driving force behind the plan.

To protect the ecological backbone of this economy, Worcester County residents from all walks of life have been working together to devise common sense ways of protecting the bays adjacent to Ocean City and Assateague. This effort, the Maryland Coastal Bays Program, has culminated in a comprehensive conservation and management plan (CCMP) aimed at preserving this precious coastal resource.

## CCMP Goals

The CCMP deals with a variety of topics including water quality, fisheries resources, and economic development. An entire section is devoted to recreation and navigation issues, covering boating safety, water based recreational opportunities, harbor and marina management practices, and navigation and dredging management issues.

## **Navigation and Dredging Goal**

The navigation and dredging management goal calls for improving the management of navigation and dredging in the coastal bays. This goal was developed to help address the need to improve the coordination among the various dredging partners and the continued need to improve environmental safeguards related to dredging. It was recognized that responsibility for navigation and dredging issues in the coastal bays was shared by a number of federal, state and local agencies, as well as private communities, businesses and individuals. Moreover, the overall lack of coordination and planning among these groups was seen to have contributed to a number of problems, including overall confusion and lack of information about basic navigation and dredging issues, inadequate environmental safeguards, and non-standard channel maintenance and marking. This recognition underlined the need to support the development of locally based planning, coordination, and communication to improve management of navigation and dredging operations in the coastal bays.

## **NADAG and the Development of a Master Plan**

As an initial step, an advisory group was to be established including, but not limited to, local, state, and federal agency personnel along with citizen, academic institution, community, user group and environmental organization representatives. This group was to be charged with the development of a locally based long range master plan to help guide navigation and dredging management in the coastal bays. Initial development of mission and purpose statements (See Appendix A) along with specific target objectives for the advisory group, were developed by members of the Coastal Bays Program Water Based Activities Subcommittee to provide focus to the new advisory group<sup>1</sup>. The objectives included:

1. Develop and promote a master plan to guide the management of navigation, dredging and related activities in the Coastal Bays.
2. Provide the public with accurate information about navigation and dredging and serve as a forum for public input into related decision-making.
3. Provide an ongoing forum for communication between agencies and organizations with responsibilities for, or interest in navigation and dredging to enhance coordination and consistency.
4. Provide advice and counsel on local area problems, issues and needs to those agencies and organizations with responsibilities for, or interest in navigation and dredging.
5. Identify and promote “Best Management Practices” for navigation and dredging practices to minimize their adverse effects on the natural resources of the Coastal

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<sup>1</sup> This Subcommittee formulated the navigation and dredging goal and its action items as listed in the CCMP.

Bays.

An organizational meeting was held at the Ocean Pines Yacht Club on September 30, 1999 where the introductory information was presented to the interested public with the aim to establish a standing Navigation and Dredging Advisory Group (NADAG) committee. Notice of this meeting was forwarded to representatives from various state, local, and federal agencies, non-profit groups, along with area fisheries, private and commercial interests who are knowledgeable in issues that pertain to or will be affected by dredging activities.

The Navigation and Dredging Advisory Group held its first official working meeting on December 8, 1999 at the Ocean City Convention Center to begin collecting information and identifying data and issues that NADAG would incorporate into the Master Plan. The overarching goal of NADAG is to share data and information in order to develop real solutions to the navigation and dredging problems outlined in the CCMP. NADAG was charged with researching and developing recommendations to specific problems or issue areas. These include the following:

- placement sites and options
- Best Management Practices
- channel improvements
- channel identification
- nautical chart updates
- dredging activity information distribution
- beneficial use education
- future marina location evaluation
- dredge material monitoring evaluation
- evaluate performance of dredged material
- develop and implement combined permit procedure
- long range plan development, including financing and scheduling

By developing a management plan and through anticipated improvements in communication and coordination among dredging and navigation partners, NADAG's efforts are expected to result in the following benefits:

- improved navigation
- reduced long-term dredging costs
- improved environmental quality
- improved boating safety
- increased island habitat for wildlife
- improved understanding of dredged material uses and dangers
- more effective public participation in local dredging and navigation decisions

NADAG met regularly between the fall of 1999 and the fall of 2000. After that time, several workgroups were formed to begin the development of specific sections of the Master Plan. The larger NADAG met on an as-needed basis after the fall of 2000 in order to address critical issues or to provide a forum for updates from the workgroups to the larger NADAG membership.

Membership and meeting attendees included representatives from state, federal and local government, local communities, special interest groups, industry/business interests, non profit organizations, and interested individuals. It is the original intent of the NADAG membership that a NADAG committee continue to meet and provide a forum for communication and coordination on local navigation and dredging related issues. This group would include government representatives, the public and interested organizations and groups and would meet on a frequency to be determined by need once the Master Plan is completed.

The list of Actions in the Coastal Bays Management Plan under RN 2.1 was used as the basis for NADAG discussions and meetings:

## **Recreation and Navigation**

**Goal 2** Improve the Management of Navigation and Dredging in the Coastal Bays

**RN2.1** Challenge: Improve coordination and environmental safeguards

- A. Dredged materials management, including:
  - i. Location of potential placement sites.
  - ii. Support for and promotion of the beneficial use of dredged materials, including habitat restoration and creation.
- B. “Best Management Practices” for dredging, including time-of-year restrictions, preferred methods, safeguards for sensitive areas, and contaminated sites management.
- C. Channel improvements, possibility of new channels, and potential removal of shoaling in critical navigation areas.
- D. Standards for and mechanisms to encourage marking of all existing channels and identification of responsible parties for non-federal channels.
- E. Priority areas to improve channel markers, including “small channels” leading to and from boat access points and the federal channel in Chincoteague Bay.
- F. Timely updates to nautical charts.
  - i. Develop mechanisms to update bathymetric (water depth) data for channel and bays to facilitate better navigation information charts.
  - ii. Explore the potential of NOAA certification for local private charts.
- G. Distribution of existing information describing the positive and negative effects of dredging channels.
- H. Development of a long-range plan for scheduling/financing the maintenance of non-federal channels.
- I. Identification and evaluation of future marina locations for navigation and local land use planning.
- J. Evaluation of the need for monitoring dredge sediments quality from outside of major harbors.
- K. Examination of performance of dredged materials placed in the coastal bays. Both physical monitoring (area covered, thickness, change over time) and biological monitoring (degree to which native species have inhabited the material, species diversity, biomass, etc.) should be performed.
- L. Develop and put into action a permit approval procedure with MDE, ACOE, WC, and OC to expedite the permit application process.

NADAG reviewed the listed Actions and grouped them based on general topic. The grouped Actions were then ranked based on immediate need and available information in the following manner:

**Grouping One:**

- D. Standards for and mechanisms to encourage marking of all existing channels and identification of responsible parties for non-federal channels.
- E. Priority areas to improve channel markers, including “small channels” leading to and from boat access points and the federal channel in Chincoteague Bay.

**Grouping Two:**

- A. Dredged materials management, including:
  - i. Location of potential placement sites.
  - ii. Support for and promotion of the beneficial use of dredged materials, including habitat restoration and creation.
- B. “Best Management Practices” for dredging, including time-of-year restrictions, preferred methods, safeguards for sensitive areas, and contaminated sites management.
- G. Distribution of existing information describing the positive and negative effects of dredging channels.
- J. Evaluation of the need for monitoring dredge sediments quality from outside of major harbors.
- K. Examination of performance of dredged materials placed in the coastal bays. Both physical monitoring (area covered, thickness, change over time) and biological monitoring (degree to which native species have inhabited the material, species diversity, biomass, etc.) should be performed.

**Grouping Three:**

- C. Channel improvements, possibility of new channels, and potential removal of shoaling in critical navigation areas.
- F. Timely updates to nautical charts.
  - i. Develop mechanisms to update bathymetric (water depth) data for channel and bays to facilitate better navigation information charts.
  - ii. Explore the potential of NOAA certification for local private charts.
- H. Development of a long-range plan for scheduling/financing the maintenance of non-federal channels.
- I. Identification and evaluation of future marina locations for navigation and local land use planning.

**Grouping Four:**

- L. Develop and put into action a permit approval procedure with MDE, ACOE, WC, and OC to expedite the permit application process.

Topic specific speakers were invited to participate at subsequent meetings to share information and provide an understanding of current conditions and information /data gaps. From these discussions and presentations, specific recommended activities were developed to address the

larger issue areas (Actions) identified in the Coastal Bays Management Plan document. These activities are listed below under the specific Management Plan Action along with some background information on the given topic area.

The following document represents the Navigation and Dredging Master Plan for Maryland's Coastal Bays developed by NADAG. Additional information may be found in the Appendices at the end of this document. The Master Plan/Planning Guide is intended to be a living document in that updated versions will be created as information changes over time.

## **How to Read this Document**

This document is organized into the following chapters:

- Chapter 1: Navigation Channels, Markers and Other Aids
- Chapter 2: Maintenance of Navigation Channels
- Chapter 3: Permit Requirements
- Chapter 4: Dredge Material Management
- Chapter 5: Beneficial Use of Dredged Material
- Chapter 6: Dredged Material and Sediment Testing

The CCMP Action items addressed in this report do not appear in alphabetical order, rather are presented based on the larger topic areas of the chapters as listed above. Each chapter first lists the specific CCMP Action item(s) addressed in that chapter then provides introductory and background information on the topics covered in the given chapter. The chapter then has a “NADAG Recommendations” section, which again lists the CCMP action(s), followed by the recommendations developed by NADAG to address the specific action(s). The full list of CCMP Actions with their associated NADAG Recommendations can be found in Appendix B of this document.

## Chapter 1: Navigation Channels, Markers and Other Aids

### Maryland CCMP Actions:

**Action D: Standards for and mechanisms to encourage marking of all existing channels and identification of responsible parties for non-federal channels.**

**Action E: Priority areas to improve channel markers, including “small channels” leading to and from boat access points and the federal channel in Chincoteague Bay.**

### **Background**

In order to assist boaters in safely traveling through coastal waters, the US Coast Guard has established a system of navigation marker characteristics. The Coast Guard has specific regulations, which describe process for placing aids and the attributes of waterway aids and markers for various situations and needs. All navigational aids must conform to these Coast Guard regulations for the appropriate shape, numbering/lettering, lights and color patterns. The Coast Guard, with the help of local and state officials, conducts regular assessments of the sufficiency and efficacy of existing navigation markers. While markers may be added or changed, most are maintained year after year.

The State of Maryland is authorized, through Section 8-704 of the State Boat Act to place aids to navigation. Most, but not all of this activity is accomplished by Hydrographic Operations, a section of the Natural Resources Police. All changes in aids to navigation are done in coordination with the U.S. Coast Guard. Aids to navigation as placed on the water are only part of the system required for safe navigation. Additional components of this system include an up-to-date navigation chart and current copies of the light list and coast pilot.

### **Types of Aids to Navigation**

Aids to navigation fall into two categories - federal and private aids. Federal aids are maintained by the Coast Guard and are found in areas and channels maintained by the federal government. Generally, these channels support commercial or industrial levels of maritime commerce. In the Ocean City area, this includes the Ocean City inlet, the Ocean City Coast Guard Station, and the main navigation channel under the Rt 50 Bridge. Private aids are any aids that are not Federal Aids and include aids maintained by the State as well as those maintained by private citizens, communities or groups. The attributes of these aids must conform to the Coast Guard regulations as described above for federal aids.

Navigation aids (federal and private) are organized into three specific classes:

- Class I aids are large aids main navigation channels; high charting need;
- Class II aids are in secondary rivers and channels; need for charting is optional;
- Class III aids are in small creeks and rivers (including no wake zone & swimming areas); need not be charted.

All aids in Maryland not set by the Federal Government are considered to be private aids by the Coast Guard. The state is given considerable latitude in the establishment and maintenance of aids. However, like all private aid owners, the state is required to document and maintain the aids in good condition.

The colors and shapes of all aids to navigation are set by international treaty to enhance safety of navigation by reducing confusion and determines how aids are classified. The Coast Guard divides aids into two groups, non-lateral and lateral.

Non-lateral aids consist of those that are used for information or enforcement purposes (such as speed limits, SAV areas, or crab lines). They generally are orange and white with square or circular markings, as specified by the Uniform State Waterway Marking System. The lateral aids are the red and green channel markers, as well as danger marks that display an open faced diamond. The state is required to maintain a list of all aids as well as obtain private aid permits (CG form 2445) for the lateral aids.

For the Coastal Bays area, the state works closely with the District 5 Coast Guard station in Portsmouth, Virginia to obtain approval to install or reposition aids. Changes to aids are published by the Coast Guard in the Local Notice to Mariners.

There are also private aids that are required to be set to mark structures that pose a navigation hazard. The most common examples are obstruction lights found on the various bridges throughout the state. These are maintained by the permittee of the structure (usually State Highway Administration or toll facilities).

Since 1995, all state managed aids have been maintained on a year round basis. Personnel and equipment limitations have resulted in the need to service aids on a yearly basis, reducing the need to regularly remove and replace selected aids. Some aids, although seasonal in nature, remain in place year round in order to ensure availability and proper placement when needed.

In the Coastal Bays area, the Maryland Natural Resources Police currently (2005 season) maintains 210 floating and 3 fixed aids. These include 39 speed enforcement buoys, 9 endangered species restricted areas buoys, 8 State line buoys, 47 floating navigation aids, 3 fixed navigation aids, 1 restricted area (water quality buoys, and 108 Submerged Aquatic Vegetation enforcement zone buoys. These figures do not include several hundred signs set on shore for various enforcement purposes.

Other aids are ones owned and managed by private citizens, community groups, associations or businesses. All of these aids must also adhere to Coast Guard standard, requirements and permitting guidelines.

## **Maintenance of Channel Aids**

Federal aids to navigation are checked annually by the Coast Guard, however, some areas are checked more frequently to ensure safety for boaters. One such area is Isle of Wight which is checked about once every 3 weeks. The aids are checked to determine if they are on station and if the lights are working. A list of all state maintained aids is forwarded to the Coast Guard annually in order to ensure compliance and facilitate regular inspections.

The Maryland Natural Resources Police strives to check their permitted aids twice a year, depending on staff availability. Some aids may be visited more frequently, based on input from citizen or other input. Other state agencies and aid permittees are responsible for the maintenance of their respective aids.

## **Role of Coast Guard**

The Coast Guard regularly inspects all private navigation aids.

- Class I aids are inspected annually by the Coast Guard.
- Class II aids are inspected once every 3 years by the CG Auxiliary.
- Class III aids are inspected once every 5 years by the CG Auxiliary.

If repairs need to be made to a private aid, the owner of the aid is informed by the Coast Guard. A complete electronic list of all Aids to Navigation (*ATON system*) is being maintained by the Coast Guard for the 5<sup>th</sup> District which encompasses Ocean City and the Coastal Bays.

One of the conditions of the CG form 2445 permit is that the owner maintain the aid in good condition. It is incumbent on the owner of the aid to keep the aid in good working condition due to the liability incurred by a defective aid.

## **Placement of Aids**

### ***New Federal Aids in Federal Channels***

When either a problem is brought to the attention of the Coast Guard or when a request for marker placement is submitted, the Coast Guard surveys the problem area to determine the actual need for a new navigational aid. If the survey indicates a temporary need for a navigational aid to safely route boaters, a temporary buoy is set. Temporary buoys may remain in place until the problem is corrected. After this time, it is determined whether it should be removed or whether it should become a permanent aid. In addition, if it is established that there is a GROUP need for a permanent aid, not just a limited need, and that the needed financial resources are available, a permanent aid will be set. See above for maintenance requirements.

The Coast Guard conducts a WAMS (Waterway Analysis Management Survey) survey once every 5 years. This survey tool includes communication with local and state agencies as well as marinas to determine the local need for additional navigation aids or changes to existing aids, which would improve navigational safety. Public hearings may also be scheduled during a WAM Survey if

requested. For the Coastal Bays region, the survey includes the areas immediately surrounding the federal navigation channel from the MD/VA line to the Rt. 90 Bridge. The most recent WAM Survey for the Ocean City area was conducted in the winter of 1999/2000. The Coast Guard does not survey or make any assessments of the need for private aids.

### *New Private Aids*

In order to place a new private aid to navigation in the Coastal Bays, the U.S. Coast Guard, District 5 in Portsmouth, Virginia (tel. 757.398.6360) must be contacted. The Private Aid form CG 2445, is a multi-part carbon form, with attached instructions. The Coast Guard will accept copies or computer generated forms, provided that they are legible. In addition, the structure that supports the aid may need to be permitted through the U.S. Army Corps of Engineers and the Maryland Department of the Environment through the normal Maryland Wetland permit process. If the owner of a private aid wishes to discontinue, transfer, or change an aid, the Coast Guard must be notified via the private aids permit process. All new aids granted a permit by the Coast Guard must conform to Coast Guard standards<sup>2</sup>.

It is the practice of the Maryland NRP to attempt to select channels to be marked and the installation of aids to navigation based on the greatest benefit to the boating public. For example, more weight would be given to marking a channel to a public boat ramp, landing or several marinas over a small creek with only one or two boats.

Although there are no written state requirements for marker placement, the NRP prefers to maintain a minimum of 4 feet of water at low water to place an aid. Since the presence of an aid will lead boaters to think that a given area is safe for boating, the guideline helps reduce accidents and unnecessary groundings as well as reduces boat and environmental damage.

The placement of seasonal aids is conducted through a reexamination of the previous years marker locations. Soundings are taken with poles and depth finders to determine local needs and the aids are placed where conditions warrant their placement. The position of aids is reviewed on an as needed basis, based on user comments and field observations during routine maintenance operations. If no changes are warranted, the aids are reset as charted.

### Permit Requirements

1. All private aids to navigation must be permitted by the Coast Guard.
2. Once a permit for a private aid has been granted, the initial placement may be checked by the Coast Guard. There is no fee for the permit. *See Maintenance of Channel Aids on page 10 of this document.*

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<sup>2</sup> See Coast Guard websites listed in Appendix E for detailed information and contacts.  
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## **NADAG Recommendations:**

### ***D. Standards for and mechanisms to encourage marking of all existing channels and identification of responsible parties for non-federal channels.***

- D.1. Increase participation and cooperation in and notification to the public of the periodic (every 5 years) WAM Survey (survey of marker effectiveness) conducted by the US Coast Guard by involving federal, state, and local participants in information collection and development of WAM survey recommendations.
- D.2. Develop and distribute a Coastal Bays map identifying federal and marked private navigation channels, including information on sensitive species areas and Personal Water Craft restricted areas.
  - D.2.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.
- D.3. Increase public availability of information regarding marker standards and the process to request new markers through the Planning Guide, appropriate websites and outreach methods.
- D.4. Clarify and identify the responsible parties for federal and non-federal channel maintenance for specific channels in the Planning Guide, appropriate websites and outreach methods.

### ***E. Priority areas to improve channel markers, including "small channels" leading to and from boat access points and the federal channel in Chincoteague Bay, Sinepuxent, Isle of Wight, and Assawoman Bays.***

- E.1. Provide information collected by the NADAG Navigation Workgroup in Fall, 2000 on marker sufficiency to the DNR Natural Resources Police and the US Coast Guard.
  - E.1.a. Present information and marker recommendations to the Maryland Boat Act Advisory Committee for their support.
  - E.1.b. Work with Coast Guard, DNR NRP, Worcester County and others to identify and secure needed funding for marker upgrades and new installations.
- E.2. Provide the opportunity for public reporting of marker and/or navigation channel condition changes by providing information on agency procedures and contacts to the public through websites, the Planning Guide document and outreach methods. See Action D.
- E.3. Conduct an in depth analysis of the need to mark small channels to public boating access points throughout the Maryland Coastal Bays (to be completed prior to RN5.2 - "Guide to the Coastal Bays").
- E.4. Provide descriptions of informational markers to the public and incorporate information in the RN5.2 product.

## Chapter 2: Maintenance of Navigation Channels

### Maryland CCMP Actions:

**Action C: Channel improvements, possibility of new channels, and potential removal of shoaling in critical navigation areas.**

**Action F: Timely updates to nautical charts.**  
**i. Develop mechanisms to update bathymetric (water depth) data for channels and bays to facilitate better navigation information charts.**  
**ii. Explore the potential of NOAA certification for local private charts.**

**Action H: Development of long-range plan for scheduling/financing the maintenance of non-federal channels**

**Action I: Identification and evaluation of future marina locations for navigation and local land use planning.**

### **Federal Channel Maintenance**

The Coast Guard works with other federal, state and local agencies to determine any changes in bottom topography, which may require a change in location for a given navigation marker or the need for maintenance dredging. The Army Corps of Engineers (COE) is responsible for federal channel maintenance. Federal navigation channels are maintained through dredging operations on an established, recurring schedule. Federal funding is budgeted based on this schedule and made available to the COE if needed. To determine whether dredging is needed, the COE surveys a given area to determine any changes or decreases in allowable water depth. These potential changes may make navigation hazardous. If the federal channel has filled in and the COE determines that dredging is required, the Corps will initiate the dredging process. Another option is the movement of navigation markers in the area if the federal channel has shifted due to natural currents and erosion patterns of the bottom sediments. This shifting of the federal navigation markers has occurred on occasion near the Rt. 50 Bridge.

### **Non-Federal Channels**

All other channels (channels that are not designated as federal) are considered private channels, are not eligible for federal funding and are the responsibility of local jurisdictions and/or private citizens. Limited funds are available annually from the MD DNR State Waterway Improvement Fund in Program Open Space (See Appendix C). Local governments, either a county or city representative, may apply to the state in order to request dredging assistance. The state program

compiles a list of project requests on an annual basis and rates the projects in importance on a statewide basis. Although the fund is limited and not all projects will receive state support funds, the program also offers technical advice even if a given project is not funded. Criteria used to select projects for funding include:

- amount of traffic involved;
- actual need as determined by state survey;
- total cost (NOTE: State funds can be used as matching funds, e.g local funds can be used to supplement the cost of the entire job)
- public usefulness of a given channel (i.e. proximity to a public boat ramp)

If state funds are not available, the county, municipality, homeowner's association or other concerned entity will be responsible for funding any desired dredging.

### **Data and Information Collection**

Determining the dredging needs of the coastal bays begins with understanding the existing bathymetry or water depths in the region along with transportation and recreational needs of the areas various user groups. Prior to the year 2000, the only detailed and up-to-date regional bathymetric data was available for the federal navigation channels in and around the Ocean City Inlet (these were completed by the US Corps of Engineers). Beginning in the spring of 2000 and completing work in the fall of 2004, Maryland Geological Survey conducted bathymetric surveys in the northern and southern bays to the Maryland/Virginia state line<sup>3</sup>. This information will help establish a baseline of conditions and provide guidance for planning of future development, placement of docks and piers, delineation of habitat types and suitability for certain biota, along with identifying navigation concerns and issues.

The coastal bays area is a dynamic region, however, with shifting sand and sediment deposits occurring over time. These shifts can be dramatic and occur rapidly with the incidence of storms and overwash events throughout the bay region. The existing data will provide management information for some duration of time and provide a baseline for future comparisons. As these bottom materials are redistributed over time, subsequent bathymetric data collection will be needed in order to provide accurate information for future dredging and navigation related management issues. The need for and frequency of bathymetric data collection in the coastal bays will be an ongoing discussion and will depend on the frequency and strength of area storms or disturbances. Associated with this discussion is the identification of the long term funding needs to collect these data and the parties responsible to fund and conduct the data collection and distribution. This aspect of the bathymetric information collection, however, is outside of the scope of this document at this time.

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<sup>3</sup> Wells and Ortt, Bathymetric Survey of Assawoman Bay, St. Martin River, Sinepuxent Bay and Newport Bay, Maryland Geological Survey, Coastal and Estuarine Geology File Report No. 01-2.  
Wells et al., Bathymetric Survey of the Maryland Portion of Chincoteague Bay, Maryland Geological Survey, Coastal and Estuarine Geology File Report No. 04-04.  
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## **Marina Development and Expansion**

### ***Maryland Tidal Wetland Regulations***

The State's tidal wetland regulations (COMAR 26.24)<sup>4</sup> contain guidelines for the siting and development of new and expanding marinas. As with other activities requiring permits within state tidal wetlands<sup>5</sup>, a project must first avoid and then minimize the loss of tidal wetlands. Other requirements include strong flushing characteristics of the receiving water body; minimum natural depths of 4.5ft at mean low water; and no adverse impacts to submerged aquatic vegetation, productive macro-invertebrate communities, shellfish beds, fish spawning or nursery areas, rare, threatened or endangered species, species in need of conservation, or historic waterfowl staging areas. In general, expansion of existing facilities is preferred over the development of new marina sites.

Detailed information must be submitted along with the permit application for new or expanding marinas, including the following:

- an alternatives analysis outlining the potential impacts on water quality, tidal wetland values, and aquatic habitat;
- a description of the marina facility;
- techniques to minimize the adverse environmental impacts of the facility;
- a description of existing site characteristics such as water quality;
- location of boat repair and maintenance activities;
- a flushing study for any basins dredged into uplands; and
- a description and plan for managing storm water runoff.

Also, the permit must address boat pump-out facilities, vessel mooring facilities and conform to any existing local marina management plans. Additional information may be required depending on the scope and size of the proposed project.

### ***Development of Coastal Bays Critical Area Program***

In late 2002, Worcester County and the Maryland Coastal Bays region joined the rest of coastal Maryland in a coordinated approach to shoreline management by enacting a Worcester County Atlantic Coastal Bays Critical Area Law (Worcester County Commissioners Bill 01-13)<sup>6</sup>. This law created local critical area guidelines and aligned coastal management of the near-shore areas for all of Maryland under the state Critical Area Program.

The Critical Area Protection Program (Natural Resources Article Section 8-1801-1816 and COMAR Title 27)<sup>7</sup> was created to protect all land within 1000 ft of the Mean High Water Line

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<sup>4</sup> See Appendix G for regulation summary

<sup>5</sup> See Chapter 3 of this document for additional information on the tidal wetland permit process.

<sup>6</sup> See

<http://www.co.worcester.md.us/Atlantic%20Coastal%20Bays%20Critical%20Area%20Local%20Program%20Bill%20%202-13.pdf>

<sup>7</sup> See Appendix G for regulation summary

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of tidal waters of the state from adverse impacts from development. The first 100 ft, or buffer, of the Critical Area have an even higher level of restrictions in order to minimize negative impacts to the adjacent water body. Generally, only “water dependent” facilities such as marinas and boat docking areas, water-use industries, public beaches or other water related recreation activities, and fisheries activities are allowed in the buffer.

In Section NR 3-124 of the local law, some general guidelines are outlined in terms of facility size while more specific standards are listed for these facilities in the three different land classification areas described in the Critical Area Program. These facilities are required to minimize individual and cumulative impacts on water quality and fish, wildlife, and plant habitat through facility design and location criteria. Also, standards for new or expanded activities associated with water dependent facilities include consideration that the project meet a recognized private right or public need.

Plans for new and expanded water-dependent facilities are reviewed by the County on a case-by-case basis. This review includes consultation with applicable State and Federal agencies to ensure compliance with various regulations. Considerations for these facilities include the following:

- Impacts to existing water circulation patterns or salinity;
- Flushing characteristics of the adjacent water body;
- Impacts to wetlands, submerged aquatic plants and other sensitive areas;
- Impacts to water quality;
- Impacts to shellfish beds;
- Interference with natural transport of sand;
- Impacts of associated dredging activities;
- Disturbance of historic areas of waterfowl staging areas.

The program also outlines requirements and standards for the installation and/or maintenance of individual private docks and piers. As with other water-dependent facilities, installation of private structures should minimize negative impacts to the Buffer and adjacent water body and should conform to applicable State and Federal laws and regulations.

#### **NADAG Recommendations:**

#### ***C. Channel improvements, possibility of new channels, and potential removal of shoaling in critical navigation areas.***

C.1. Monitor safety conditions in the Rt. 50 Bridge area.

C.1.a. Monitor sediment bypass operation and its affect on sand shoaling in the inlet area and the area north and south of the Rt 50 Bridge.

C.1.b. Evaluate the feasibility of dredging additional channels in the western portion of the shoal north of the Rt. 50 bridge and south of Skimmer Island.

C.2. Provide the opportunity for public reporting of shoaling and other dredging needs

by providing information on agency dredging procedures and contacts to the public through county websites, the Planning Guide document and outreach methods.

C.3. Develop and maintain list/database of publically funded, non-federal channels in need of dredging and maintenance for submittal to the State Waterway Improvement Fund.

C.3.a. Develop and distribute guidance criteria for determining actual need for dredging in non-federal channels through the Planning Guide and/or appropriate websites.

C.3.b. Develop method for prioritizing identified projects throughout the Coastal Bays - include input from the public and agencies.

C.3.c. Review and update list annually.

**F. *Timely updates to nautical charts.***

*F.i. Develop mechanisms to update bathymetric (water depth) data for channels and bays to facilitate better navigation information charts.*

*F.i.i. Explore the potential of NOAA certification for local private charts.*

F.1. Determine frequency needed to collect meaningful bathymetric data.

F.2. Incorporate bathymetric data collected in 2000 in "Guide to Coastal Bays" (RN5.2).

F.2.a. Update "Guide" as new data becomes available.

F.3. Develop partnerships with private charting companies to develop "boating guides" to provide navigational information with appropriate disclaimers.

**H. *Development of a long-range plan for scheduling/financing the maintenance of non-federal channels.***

H.1. Utilize prioritized list developed in Action C Recommendation 3.c. to determine funding needs.

H.2. Encourage and facilitate coordination of concurrent dredging projects (reduce mobilization costs).

**I. *Identification and evaluation of future marina locations for navigation and local land use planning.***

I.1. Utilize developing data on sensitive species, bathymetry, boater surveys and local planning information to evaluate any future proposals for new marinas.

I.1.a. Develop criteria for evaluating new marina development.

## Chapter 3: Permit Requirements for Dredging Activities

### Maryland CCMP Action:

**Action L:     Develop and put into action a permit approval procedure with MDE, ACOE, WC, and OC to expedite the permit application process.**

All dredging projects must receive prior approvals from both state (MDE) and federal (COE) agencies. In addition, Worcester County residents need permit approval from the Shoreline Commission and, in Ocean City, permit approval from the Board of Port Wardens<sup>8</sup>.

### The Dredging Permit Process

#### Federal Channels

A federal channel is any channel that is authorized by Congress and where federal monies support maintenance and improvement projects. Federal authorization generally specifies a certain channel depth and width. Typical examples are main approach channels from the ocean, bar channels (channels through sand bars at inlets), inlet entrance channels, berthing areas and inland waterways. Maintenance and permit needs are handled by the Corps of Engineers although the federal agency works closely with local representatives to track and assess the condition of federal channels.

Two types of federal channel projects may require a permit for work to proceed. Federally pre-authorized or maintenance projects cover existing channels which require ongoing maintenance dredging to keep the federal channels at their specified depth and width. New projects cover dredging activities in areas that have not previously been dredged or maintained by the federal government. The following summarizes the steps taken toward initiating and completing the two types of federal navigation dredging projects.

1.     Maintenance Projects
  - a.     Dredging requests are initiated by:
    - local complaints/notification of shoaling and/or loss of depth to the Army Corps of Engineers;
    - an established dredging schedule as federal funds are made available.
  - b.     The ACOE surveys federal channels and sites to determine water depths and subsequent dredging needs.
  - c.     A public notice for comment is issued to an existing mailing list.
  - d.     An Environmental Assessment of the project site is prepared by the COE to document existing conditions and environmental impacts.

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<sup>8</sup> See Appendices D and E for applicable state and local agency contact information and permit websites.  
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- e. The local government or project sponsor for the dredging is responsible for locating and providing to the COE an environmentally acceptable placement site for the dredged material. At times the COE helps with this task, especially when it involves beneficial use of dredged material.
- f. Funding is requested by the COE from Congress (local letters of support to Congressmen and Senators may provide assistance in securing funds)
- g. Once funding is approved, the dredging is scheduled.

2. New Federal Projects

The process for new projects is the same as for maintenance projects although the survey of water depth and need for the project is much more extensive and requires a longer time period to complete. Public comment periods and environmental assessments may also be more extensive. The project must be economically justified (usually with commercial use) and then sent to Congress for authorization. The NEPA<sup>9</sup> document may be an Environmental Impact Statement for larger projects and take longer than 1-2 years to complete. New work usually involves additional testing like core samples to determine the physical characteristics of the material to be dredged. It may also involve additional chemical testing to determine the chemical property of the sediment and any special handling it may require.

### **Non-Federal Projects**

Non-federal projects include any proposed dredging which involves an area not under the jurisdiction of the Federal Government. In Maryland, there are no State navigation channels and therefore, all non-federal channel maintenance is the responsibility of local jurisdictions and/or private citizens.

Any person who wishes to dredge or fill tidal wetlands<sup>10</sup>, as defined by the Code of Maryland Regulations<sup>11</sup> through Maryland Department of the Environment (MDE) must obtain approval

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<sup>9</sup> National Environmental Policy Act of 1969 and amendments – outlines requirements for minimizing and documenting any possible negative impacts to the natural environment that may be caused by federal projects or programs.

<sup>10</sup> Tidal wetlands, which fringe many of the shorelines of the Chesapeake Bay and its tidal tributaries, as well as the Coastal Bays, include marshes, shrub swamps, forested wetlands and submerged aquatic vegetation. Each type of wetland plays a vital role in the health of the Chesapeake and Coastal Bay estuaries. Tidal wetland functions and values include fish and wildlife habitat, water quality enhancement, natural shoreline protection, flood protection, recreational opportunities, and aesthetics.

<sup>11</sup> Code of Maryland Regulations 26.24.01.02: “State wetlands” means any land under the navigable waters of the State below the mean high tide, affected by the regular rise and fall of the tide.

and receive a permit from the state<sup>12</sup> (MDE), the Corps of Engineers, and, in Worcester County, the Shoreline Commission, or Board of Port Wardens (Ocean City).

In 1996, the *Maryland State Programmatic General Permit* was created to provide a coordinated approach to providing review and approval for projects occurring the state tidal waters. This permit provides a joint permit review process between the Corps of Engineers and the MDE who jointly administer the general permit (See Figure 1). Dredging activities in tidal areas requires the submission of the *Joint Federal/State application for the Alteration of Any Tidal Wetland in Maryland* (also known as the “Short Form”). Major projects require the submission of the *Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland* (also known as the “Long Form”). All dredging activities also require a State Water Quality Certification (WQC). The WQC is incorporated into the authorization for permitted or general wetland license projects. Projects requiring State of Maryland Board of Public Works approval (major projects) or those otherwise exempt from the requirement for a wetland license or permit (federal property or King’s Grant land), are provided with a separate WQC.

Dredging of non-federal channels are also categorized as either maintenance (re-dredging of existing channels) or new dredging (areas not previously dredged). Maintenance dredging is fairly straightforward in the documentation of information needed to apply for a permit and/or WQC. Information including

- a plan of existing and proposed depths and dimensions of the project;
- quantity to be dredged;
- last documented dredging activity;
- historical boat use;
- sediment characterization;
- dredge material placement location; and
- map of existing submerged aquatic vegetation and related information.

Information needed for new projects is significantly more detailed. An alternatives assessment should also be conducted, including an evaluation of “no action” alternative. This requirement supports the State’s goal of minimizing impact to the State’s submerged lands and resources.

### **Joint State/Federal Permit Process**

Applicants are required to demonstrate that proposed impacts to tidal wetlands are necessary and unavoidable. The application process first eliminates, then reduces impacts through avoidance and minimization. An alternatives analysis may be required as part of this process.

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<sup>12</sup>The goal of the tidal wetlands program is to manage tidal wetlands to provide reasonable use while furnishing essential resource protection. To accomplish this goal, the following activities are regulated by the Department:

- Filling of open water and vegetated wetlands
- Construction of piers, bulkheads, revetments
- Dredging
- Marsh establishment

1. The short or long form application is completed and submitted to MDE. As the lead agency involved in private dredging requests, MDE reviews the application. The Corps of Engineers also looks at the application but the scope of the project determines COE involvement and level of review. Prospective applicants may meet with MDE prior to submitting an application in order to identify potential issues or problems and develop workable solutions.
2. MDE rates the project according to its scope. Category 1 and 2 are basic projects which do not require additional reviews; Category 3 and 4 require a public notice and may need to be sent to the Maryland Board of Public Works for approval if they involve the use of State funds in part or in whole. The applicant may be required to notify adjacent property owners.
3. Other agencies may be consulted by the MDE as needed or required (US Fish and Wildlife Service, National Marine Fisheries Service).
4. MDE may perform a site evaluation.
5. Permits are issued with the addition of possible alterations or conditions or may be denied.

Minor projects are reviewed in 45 days while major projects may require an 8 month review period. The term of the permit lasts a maximum of 3 years from the date of approval. Fees may be assessed based on the nature of the project. Additional information and forms may be obtained from the MDE website at:

[http://www.mde.state.md.us/programs/waterprograms/wetlands\\_waterways/permits\\_applications/index.asp](http://www.mde.state.md.us/programs/waterprograms/wetlands_waterways/permits_applications/index.asp)

Or by contacting:

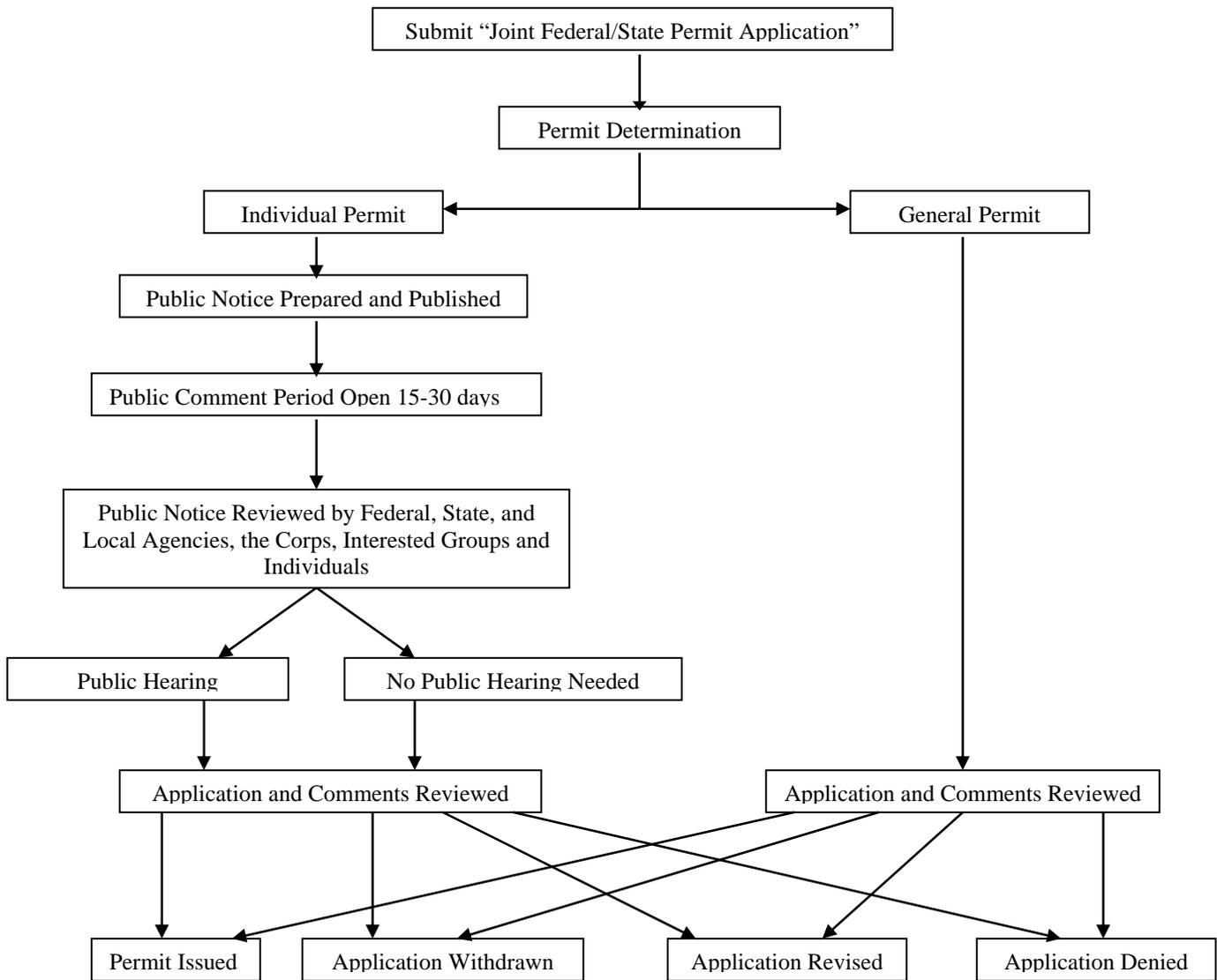
Regulatory Services Coordination Office (RSC)  
MDE, Water Management Administration  
1800 Washington Blvd., Suite 430  
Baltimore, Maryland 21230

Telephone: (410)537-3762  
1-800-876-0200

For technical assistance and guidance on the preparation of a complete application, call the Tidal Wetlands Division at (410) 537-3837. For permit application status, call 1-800-876-0200.

Also see Appendices D and E for additional state and local websites and contact information pertaining to tidal wetland permits and approvals.

**Figure 1: Joint Federal/State Permit Process**



## Local Permits and Approvals

Work being conducted in Worcester County must also follow local guidelines and regulations. A number of local approvals must be obtained before any work can be conducted. Contact information and Web addresses for local forms and procedures are listed in Appendices D and E.

### *Worcester County*

- For any coastal project, an “Application for Shoreline Construction” must be filed with the Worcester County Shoreline Commission (410) 352-3057 and the Worcester County Division of Planning and Permits (410) 632-1200. If more than 100 cubic yards of material is to be dredged, a sediment erosion control plan must also be completed and submitted to the county. Critical Areas concerns must also be considered in the project design and during construction.

### *Ocean City*

- For any coastal project in Ocean City town limits, the Board of Port Wardens must be notified at (410) 289-8855. Requirements for Worcester County also apply.

### *Ocean Pines*

- For any proposed work in Ocean Pines, requests are made to and reviewed by the ARC (Architectural Review Committee) (410) 641-7717 x3013. Dredging request forms are available at the Ocean Pines Public Works Office (410) 641-7425. Requirements for Worcester County also apply.

All dredging applicants in Worcester County must also contact the Worcester County Sediment Control Office at (410) 632-1993. All dredging must be performed according to specifications as granted in the permit and as required by the issuing bodies. Copies of these specifications are provided to the applicant and/or the contractor along with the project approval documents.

Public hearings may be scheduled for the permits listed above. Applicants are notified of the requirements for public hearings. Public hearing notices are given in local newspapers and mailed to contiguous property owners.

**NADAG Recommendations:**

- L. Develop and put into action a permit application procedure with MDE, AOE, WC, and OC to expedite the permit application process.***
  - L.1. Develop outreach materials outlining permit details including information needed, permit review time, contacts, appeals process, public participation.
    - L.1.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.
  - L.2. Pursue continuance of NADAG participation through existing technical wetlands and coastal review groups.

## Chapter 4: Dredged Material Management

### Maryland CCMP Action:

**Action B: “Best Management Practices” for dredging, including time-of-year restrictions, preferred methods, safeguards for sensitive areas, and contaminated sites management.**

### Best Management Practices

Best Management Practices (BMPs) associated with dredging are specific methods used to dredge channels and canals and dispose or place the dredged material in the most environmentally acceptable and efficient manner. BMPs serve as guidelines, which dredgers and project managers can use to enhance their projects and protect sensitive habitats. Although a number of different types of BMPs exist, some may not be applicable to a given area due to local bottom type, water currents and depth, or bottom habitat conditions. One management practice may work well in one dredging scenario but be inapplicable in another. The Corps of Engineers, the state and private dredging contractors use BMPs regularly during dredging operations in order to minimize potential negative impacts to the environment<sup>13</sup>.

Best Management Practices can include adjusting the timing of activities and the location of equipment, seasonal equipment guidelines, the use of special equipment, and guidelines for the placement of dredged materials. Operations may also limit the extent of the area to be dredged. This immediately reduces potential negative environmental impacts from dredging activities.

Most dredging projects employ a number of BMPs concurrently during both the active dredging as well as material placement phases of a given project. The parameters and limitations of each specific project determine which BMPs are selected and utilized to provide the best available protection to the surrounding environment. Recommendations concerning which BMPs should be included in a given project are provided by the state, local and federal agencies, including the Corps of Engineers, and the public.

A common BMP is one in which the timing of dredging (dredging windows) is used as a tool to protect natural resources. These dredging windows or time of year restrictions are designed to limit negative impacts on specific species during their vulnerable stages. For example, dredging near oyster bars may be restricted during the summer when oyster larvae are vulnerable to entrainment in the dredging equipment and sedimentation could reduce larval settlement or smother newly set oyster spat. Similarly, dredging projects that are expected to produce high extended levels of turbidity near areas of submerged aquatic vegetation may be scheduled to avoid the growing season. The need for a dredging window depends on several factors including

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<sup>13</sup> See <http://el.erd.usace.army.mil/dots/budm/> for summary of different types of Best Management Practices.  
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specific characteristics of the biological resources in the vicinity of the project, type of dredging equipment, type of dredge material, and magnitude of the project.

Other BMPs may involve the use of special equipment, which reduce environmental and water quality impacts. These may include turbidity or containment curtains which reduce the transport of suspended particles beyond the curtained area, special dredging buckets which minimize the escape of dredged material when removing contaminated material, or specific placement methods and equipment to contain sediment during disposal. Specific equipment may also be required for some dredging jobs based on local conditions. Since hydraulic dredging causes less turbidity at the dredge site than mechanical dredging, it may be the preferred method in areas where silt is the predominant sediment component and hydraulic methods are economical and feasible. Research is underway to determine the appropriateness of certain Best Management Practices and to increase dredging efficiency without compromising water quality or sensitive species.

#### **NADAG Recommendations:**

- B. "Best Management Practices" for dredging, including time-of-year restrictions, preferred methods, safeguards for sensitive areas, and contaminated sites management.***
  - B.1. Develop outreach materials for the public and local marine contractors, describing dredging Best Management Practices, ensuring input and coordination among state, federal and local agencies.
    - B.1.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

## **Maryland CCMP Action:**

### **Action A.i: Dredged material management; location of potential placement sites.**

#### **Dredged Material Disposal/Placement Options**

Once material has been dredged from a given area, placement of that material must be properly managed to minimize negative effects near the placement site. In 2001, legislation was approved in Maryland which defined the options open for placement of dredged materials in the Chesapeake Bay and its tributaries<sup>14</sup>. Similar legislation does not currently cover dredge material management in the Coastal Bays.

Prior to state/federal/local approval of a request for dredging and the issuance of a permit to proceed, a placement site for the dredged material must be identified. This requirement holds true for federal, state, local as well as private dredging activities. Several options are available for dredge material placement.

#### *Placement on Upland Sites*

Placement of dredge material on uplands is a common practice. Material from small projects can often be spread on adjacent uplands. Projects using this option should utilize generally accepted methods such as use of silt curtains around the placement area to reduce the loss of material back into the water column. Material can also be conveyed to offsite locations by truck. The rubble landfill at Berlin is one site that currently has been designated to receive dredged material. This option is more costly than placement near the dredge site but may be necessary if a suitable local site is not available.

Large volume projects may require the use of special upland placement and dewatering sites. These types of projects tend to be those managed and funded through large-scale development or through county, state or federal agencies. Large volumes of material dredged may be pumped to such sites by a hydraulic pipeline directly from the dredge location. Since the pumped material has a high water content, the placement site should have an engineered berm to effectively contain the dredge slurry until the material has dried out sufficiently.

Other projects may include the dredging of materials that contain contaminants of concern. These materials must be contained in order to reduce the exposure of biological resources to these contaminants. Containment sites for these types of projects should be specially designed to

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<sup>14</sup> Senate Bill 830 of the 2001 Maryland Legislative Session (Dredged Material Management) prohibits a person from redepositing in an unconfined manner dredged material except when used under specified circumstances. The bill describes specific circumstances and locations where material may be deposited and addresses beneficial uses (see Chapter 5 of this document). The bill also called for the establishment of an Executive Committee to provide oversight in the development of plans for long term dredge material management in the Chesapeake Bay. The bill has been incorporated into existing statutes Environment 5-1101, 5-1102 and 5-1104.2.  
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confine the material and avoid impacts to ground and surface waters from salts and other contaminant leachates. These sites require careful planning and agency approvals prior to material placement. There are no contaminant containment facilities in the Coastal Bays region. See Chapter 6: Dredge Material and Sediment Testing of this document for additional information.

### *Placement at Aquatic Sites*

With the exception of beach replenishment, placement at aquatic sites tends to be more complicated and more carefully scrutinized than upland placement. Information on the baseline environmental conditions at the placement site must often be developed. Testing of the dredged material to determine the grain size distribution and chemical characteristics may be necessary. There may also be monitoring requirements after placement to determine longer term impacts to the area surrounding the placement site. This type of use would include shoreline protection and wetland restoration projects.

Simple unconfined disposal of dredged material in open water areas in the coastal bays is an unlikely option. The shallow water depths would expose the deposited material to wave and current energy that could transport the material beyond the placement site. This dispersal of the material could easily impact sensitive biological resources found within the photic or light zone and could impact navigation in waters adjacent to the placement site.

Ocean disposal has not been utilized in the Ocean City area in recent times. While disposal of dredged material in the ocean is possible, this option is not suitable for most of the dredging projects in the coastal bays. First, there are no EPA designated ocean dredged material disposal sites in the Maryland/Delaware coastal region; the nearest one (Norfolk Ocean+ Dredge Material Disposal Site) is located approximately 17 nautical miles off the mouth of the Chesapeake Bay and approximately 100 nautical miles from the Ocean City inlet. Secondly, depending on the amount and characteristics of the dredged material, any initial proposal would likely require the collection of significant baseline information. Thirdly, the relatively small size of the typical coastal bay dredging project and the shallow water conditions would make ocean disposal methods and equipment impractical and cost prohibitive.

Other aquatic placement options such as beach replenishment, marsh creation and island restoration fall under beneficial use options. These options are described in Chapter 5 of this document.

### **NADAG Recommendations:**

#### *A.i. Location of potential placement sites.*

- A.i.1. Determine and continue to track total dredge material disposal needs by a) volume, b) location, and c) sediment type using survey data developed in Action C Recommendation 3.

## Chapter 5: Beneficial Use of Dredged Material

### Maryland CCMP Actions:

**Action A.ii: Dredge material management; support for and promotion of the beneficial use of dredged materials, including habitat restoration and creation.**

**Action G: Distribution of existing information describing the positive and negative effects of dredging and promotion of beneficial aspects.**

Material that is removed from the water bottom during dredging is generally a combination of sand, silt and clay particles<sup>15</sup>. These particles have been transported by streams, rivers and water currents from an upland location to the water body substrate. Unless located in an area that is adjacent to heavy industries or other activities that release potentially harmful materials into the water, bottom sediments are generally uncontaminated. In the Coastal Bays region, only a few, limited areas exhibit sediment contaminant levels<sup>16</sup>. The remaining areas of the Coastal Bays contain uncontaminated sediments. These uncontaminated materials are essentially eroded soils and particles that can be viewed as a resource to be recycled and reused rather than treated as a waste product.

The material recovered during dredging operations can be utilized in a number of useful ways. These uses are dependent on a number of variables such as the characteristics of the material (grain size), the volume of material to be removed, the location and availability of placement sites, the availability of funding and the time of year the dredging will take place. Beneficial uses of dredged materials have included fill at various sites including airports, parking lots, and industrial sites. Dredge material has also been successfully used in wetland and island creation/restoration projects as well as beach replenishment and shoreline erosion control projects. Dredge material may also be used as a base to create agricultural products. Some innovative beneficial uses of dredge materials include the manufacturing of bricks and other building products. Information is currently available from the various state, local and federal resource agencies to help with the process of appropriate placement of dredged material.

A number of options are available to use dredged materials beneficially. The term “beneficial use” for dredge material was defined by state legislation to include:

- restoration of underwater grasses;
- restoration of islands;
- stabilization of eroding shorelines;
- creation or restoration of wetlands; and
- creation, restoration, or enhancement of fish or shellfish habitats.

<sup>15</sup> See Maryland Geological Survey publications <http://www.mgs.md.gov/coastal/pub/mcbfinal.pdf> and [http://www.mgs.md.gov/coastal/pub/NCB\\_FinalRpt.pdf](http://www.mgs.md.gov/coastal/pub/NCB_FinalRpt.pdf) for more in depth information regarding localized sediment characteristics.

<sup>16</sup> Additional information regarding contamination and sediment testing can be found in Chapter 6 of this document 2 September 2010

Although this definition is legislatively specific to the Chesapeake Bay, these terms can be used as a guideline for similar work in the Coastal Bays.

An important aspect of project selection and planning is to include long-term management of the restored area. The dynamic nature of the coastal bays region requires consideration and planning for erosion control/management for any habitat creation or restoration project. It is also important to include the budget line items for monitoring and ongoing maintenance in overall project cost projections to ensure the availability of funds for any future site repairs.

### **Beach Replenishment/Nourishment**

Beach replenishment has received much attention as a dredge material placement option in the Maryland coastal bays. In the Ocean City/Coastal Bays area, dredged materials have provided protection to buildings and infrastructure from destructive storms and wave conditions. The State of Maryland, in cooperation with the US Corps of Engineers, implemented a plan to replenish beach material along more than 13 kilometers of beach. Since 1988, approximately 10.25 million cubic yards of material from various offshore shoals have been placed along the beaches of Ocean City northward toward the Delaware-Maryland state line<sup>17</sup>. The material has been used to enhance flood control and hurricane protection to the buildings and infrastructure of Ocean City. This protection has been accomplished by widening the beach and restoring and rebuilding the areas coastal sand dunes.

The beach replenishment/nourishment projects currently underway along the beaches of Assateague and Fenwick Islands require significant funding and coordination from local, state and federal agencies. In addition to equipment and personnel costs, a sufficient source(s) of nourishment material must also be identified. Removal and subsequent placement of the material must minimize any negative impacts to the surrounding habitat and any biota. This may be accomplished through the use of specific Best Management Practices (*See Chapter 4 of this document*). Since local wind and wave energy conditions do not change significantly over time, beach restoration/replenishment projects require material that is very similar or larger to the original beach sediments. Material of a smaller grain size than the original material would quickly erode from the beach front. Aesthetically and functionally, significantly larger grain sized material would also be inappropriate for beaches used for bathing since it may reduce or impede historical public use. The material for the Ocean City area beach replenishment projects originated from a number of offshore shoals in state waters, as well as from area federal channel dredging projects, thereby ensuring that the new sand was similar to existing beach material.

Material for restoration of Assateague Island has been dredged from the mouth of the Ocean City Inlet as well as the ebb and flood shoals of the Ocean City Inlet. To date, approximately 2 million cubic yards of material have been placed on Assateague for beach nourishment and protection as well as the rebuilding of the dunes. Now that the initial restoration has been completed, regular dredging of the inlet will provide Assateague with sand that previously was being washed into the inlet and back bays. The inlet bypass project was initiated in 2004 with proposed annual removal of

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<sup>17</sup> J. Loran, DNR pers. comm., 2001, 2005.  
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dredge material in the inlet area. It is hoped that this regular maintenance dredging will result in both reduced erosion rates for the northern section of Assateague as well as reduce the silting in of the Ocean City Inlet and channels immediately adjacent to that area.

### **Habitat Restoration/Creation**

Dredged material can also be utilized in the creation/restoration of a variety of habitats. Each type of habitat and each project site has specific requirements that must be reviewed and followed to help ensure a successful project.

The placement of dredged material can be manipulated to provide specific habitat requirements. Soft sediments such as clays and silts can be capped with shell, sand or cobble to provide particular substrate for species specific restoration projects. While habitat restoration/creation projects will provide specific benefits associated with the type of habitat being created, it should be realized that these projects result in certain habitat trade-offs. One type of habitat can be lost or reduced in order to create another habitat type. For instance, the placement of dredge material along the shoreline of an eroding shoreline in order to restore wetland habitat results in the direct loss of aquatic habitat that may have been used by fish or other aquatic organisms. The benefits and losses associated with these projects must be carefully considered when selecting and designing restoration projects.

Some parameters to consider when determining whether to create/restore habitat with dredge material include the following:

1. Potential negative impacts of project - habitat trade-offs, changes in erosion patterns, introduction of undesirable organisms.
2. Overall habitat trends - analyze long term changes to islands, wetlands, and shallow water habitat on a local and regional basis.
3. Benefits and impacts with other available placement options.
4. Input from all advisory groups involved - U.S. Fish and Wildlife, local government resource representatives, DNR Wildlife and Heritage, NOAA/NMFS, etc. prior to decision by the permitting agencies.

### *Island Formation/Restoration*

In its natural state, the Coastal Bays region would witness the creation and loss of islands as inlets to the ocean form, migrate and close at different locations along Fenwick and Assateague islands. With the stabilization of the Ocean City Inlet in 1933 and the subsequent implementation of shore protection measures (groins, beach nourishment, artificial dunes) along Fenwick and Assateague islands, the natural movement of the inlet and dynamics that would contribute to bay island formation have been reduced.

In addition, the natural process of island creation within the back bays has been diminished through various shoreline hardening activities, including bulkheading and storm protection projects. While new islands have actually been created in some areas, the change in natural sand movement has resulted in an overall loss of islands in the Coastal Bays. This loss of island and intertidal wetland

habitat will result in impacts to the organisms which specifically depend on these areas for shelter, reproduction, or as a source for food production.

Many waterbirds are specifically dependent on bay islands as colonial nesting sites. Islands are particularly attractive because their isolation reduces predation on eggs and young birds. The use of dredged material for the creation, protection and restoration of bay islands will provide critical habitat for local waterbird populations.

Plans have been developed to use material removed during the dredging of Sinepuxent channel to expand Robbins Marsh Island located just south of South Point. If completed, it is anticipated that this project will result in some of the benefits described above. Other potential island restoration locations include Dog and Bitch Islands, and South Point Spoil Island. These coastal bays islands were identified in the Corps' 1998 Ocean City Water Resources Feasibility Study as potential island creation and/or stabilization locations. Implementation of these island restoration projects is dependent on the availability of funds, completion of a cost sharing agreement between partner agencies, and development of detailed plans and specifications. Additional locations may be identified in the future based on dredge activity location, dredge material particle size, habitat and/or species restoration needs, cost, and project timing.

#### *Wetland creation/restoration*

Experience with numerous projects has clearly demonstrated that dredged material can be used to restore and establish tidal wetlands. The use of dredged material to create tidal marsh in the coastal bays could help offset the extensive historic and ongoing loss of wetlands resulting from development, sea level rise and erosion. The Corps' Ocean City Water Resources Study (1998) reported that the loss of tidal wetlands in primarily the northern coastal bays due to past development alone exceeds 1000 acres. Marshes created with dredged material could also be helpful in stabilizing eroding shorelines.

Marsh restoration can be achieved in several ways. Dredged material can be placed along a given shoreline to create tidal marshes or mudflats. Dredge material can also be applied in thin layers to bring degraded or submerged wetlands up to an intertidal elevation, as has been done extensively in southern Louisiana. This method has also been successfully tested on a small scale in Blackwater National Wildlife Refuge in Dorchester County. These nourishment type projects are often combined with engineered solutions to provide wave barriers to reduce erosional forces on the newly restored areas, either on a permanent basis or a temporary one in order to allow plant material to become established. The feasibility of marsh creation as a disposal option will be determined by factors such as grain size, wave energy, fetch, and distance from the dredged area (which influences project costs).

#### *Upland Placement*

Dredge material that has been placed at an upland site may provide wildlife habitat. Some dredge material placement sites are infrequently used, providing long periods between placement of dredged material. These long intervals between placement allow native vegetation to grow and provide food and cover for wildlife. Site management is minimal, but can be intensified to

provide special food crops, overwintering waterfowl feeding areas, and numerous other natural resource opportunities. Sediment types that are appropriate for use in this type of site are rock, gravel, sand, consolidated clay, silt/soft clay and sediment mixtures.

### **Shoreline Stabilization**

Dredge material can be used to stabilize eroding shorelines. Dredge sediments can be used to fill geotextile tubes which are then placed along the shoreline to hold existing beach material in place. Additional material can also be placed behind these geotubes to increase the beach and/or intertidal area. The use of geotubes has been tested along certain stretches of shoreline on Smith Island in the Chesapeake Bay with limited success and their application in Maryland may be questionable. However, geotube size applications, tube material development and placement methods may provide some options for the use of this technology in the future.

Dredge material can also be used as fill or base material along eroding marsh regions. This type of application can be combined with the placement of off-shore breakwaters in front of the restored habitat in areas of higher wave energy to reduce continued erosion, or can be combined with marsh grass plantings in lower wave energy areas. Another option is the use of coir logs, which utilize organic material, which has been tightly wound together into “logs”. The logs come in a variety of sizes and lengths and are staked and anchored into the substrate. Dredged material can be placed behind the logs. These products assist in stabilizing sediment material shoreward of the log and allow vegetation to grow both behind and through the product itself.

The specific design of a project at any given location will be determined by a variety of factors including sediment grain size, wave energy, fetch, project cost, and project location. In a local example, material from the dredging of the Isle of Wight channel was used to rebuild 8 acres of marsh along the southern shoreline of the Isle of Wight Management Area near the Rt 90 Bridge<sup>18</sup>. This provided needed material for the marsh restoration project and eliminated the need to dispose of the material produced during the regularly scheduled maintenance dredging of the Isle of Wight Channel.

### **Other Uses**

Dredge materials can be used in a variety of other types of projects. Recognizing the potential benefits and versatility of these sediments will provide flexibility in dredge material management and disposal options. While many of the options listed below are not currently necessary or feasible in the Coastal Bays region, the summaries are included for informational purposes.

#### *Construction Materials*

Although not currently used in the Coastal Bays, dredging may be used to obtain construction material. Because of the growing demand for construction materials and dwindling inland

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<sup>18</sup> B. Blama, USCOE, pers. comm., 2005.  
2 September 2010

resources, this may be an important beneficial use in some areas. In many cases, dredged material consists of a mixture of sand and clay fractions, which requires some type of separation process. Dewatering may also be required to reduce water content in the dredged materials. This type of application may also be cost effective in the management of contaminated sediments. Some manufacturing processes utilize heat to seal in sediment contaminants, neutralizing them during production.

Depending on the sediment type and processing requirements, dredged material may be used as: concrete aggregates (sand or gravel); backfill material or in the production of bituminous mixtures and mortar (sand); raw material for brick manufacturing (clay with less than 30 percent sand); ceramics, such as tile (clay); pellets for insulation or lightweight backfill or aggregate (clay); and raw material for the production of riprap or blocks for the protection of dikes and slopes against erosion (rock, mixture). Sediment types which may be used for construction materials include rock, gravel, sand, consolidated clays, silt and soft clays and sediment mixtures.

### *Aquaculture*

Aquaculture of coastal fish, shellfish, and other species is a rapidly expanding worldwide industry. The expansion of aquaculture has led to a shortage of suitable sites in many areas, especially coastal sites. Lack of access, legal constraints, competing land uses, and high land costs have limited aquaculture development for many locations. One way these constraints may be overcome is to use maintenance dredged material containment areas for aquaculture.

Aquaculture ponds and dredged material containment areas share many design characteristics. Common features include perimeter levees to retain water, construction on relatively impervious soils, and control structures for water discharge and drainage. Both types of facilities have similar regulatory and permitting requirements for construction and operation, and both types of facilities include locations adjacent to waterways in coastal areas, often on large tracts of land and near transportation routes and major markets. Appropriate sediments for this type of use includes consolidated clay, silt/soft clay and sediment mixtures.

### *Topsoil*

Maintenance dredging in harbors, access channels, and rivers produces mixtures of sand, silt, clay, and organic matter that can be excellent topsoil. This material may be used to improve soil structure for agricultural purposes. Clean material must be used for the production of food while other uses may allow for a certain level of contamination. The allowed contaminant level will depend on the kind of crop and the final use of the crops. Suitable material may be placed in a thin layer directly by pumping or through other means. After dewatering and desalination, the material is suitable topsoil for seeding and planting.

Dewatering may require several years, depending on the granular composition of the dredged material and is influenced by additional substances or by the type of dewatering process. Since the material being dredged in the coastal bays is from saline waters, particular attention should be given to salinity. Practically no agricultural species can grow in salty soils and few in

brackish soils. Salinity may be reduced naturally by rain or by the dewatering process. Other uses of topsoil might include using dredged material to cap contaminated soils or to cover a fill of coarse material (e.g., urban or industrial waste sites). Topsoils may be produced with silt or soft clays.

### *Fisheries Improvement*

Appropriate placement of dredged material can also improve ecological functions of fishery habitat through several different methods. Bottom relief can be created by mounding dredged material to provide refuge habitat for fish and/or their prey. Fine-grained sediment transport can be minimized by planting seagrasses or capping with shell or other coarse material. This provides shelter and additional substrate for fish and other organisms, and may help improve local water clarity and quality. Rock, gravel, sand, consolidated clay, silt, soft clay and sediment mixtures can be used for this type of restoration project.

### **Sediment Management**

It is important to note that dredging would be reduced or minimized with the full and long-term implementation of upland sediment control practices. Upland disturbance of the soil surface through farming techniques, development, the presence of impervious surfaces, and the disturbance of vegetation results in the loss of surface sediments during storm events. These storm events pull sediments downstream, eventually finding their way into the streams, creeks and other waterways of the Coastal Bays. There they reduce water clarity, impact underwater vegetation and other fauna, and fill in navigation channels and other areas which often have traditionally been used by the boating public.

Some options to help reduce these impacts include the proper design and installation of stormwater management devices, consistent use of sediment and erosion control plans and appropriate enforcement of regulations and guidelines. Any dredge material management efforts need to ensure coordination with sediment, erosion and storm water management programs. The Coastal Bays CCMP lists a number of related Actions, which should be considered to be integral elements to reducing the long-term dredging needs in the Coastal Bays region<sup>19</sup>. These Actions are being developed independent of this document by the appropriate federal, state, and local agencies.

### **NADAG Recommendations:**

*A.i.i. Support for and promotion of the beneficial use of dredged materials, including habitat restoration and creation.*

A.i.i.1. Encourage and facilitate beneficial use of dredge material through communication and support to local government entities, following the

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<sup>19</sup> In particular, Actions Water Quality 2.1, 2.2 and 6.1 in *Today's Treasures for Tomorrow: Towards a Brighter Future, The Comprehensive Conservation and Management Plan for Maryland's Coastal Bays*, June 1999.  
2 September 2010

recommendations listed in the OCWRS.

A.i.i.2. Develop public outreach materials that outline beneficial use options appropriate for Coastal Bays area.

A.i.i.2.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

***G. Distribution of existing information describing the positive and negative effects of dredging and promotion of beneficial aspects.***

G.1. Continue to utilize NADAG as a forum to discuss and share information related to dredging issues and beneficial use of dredge material on an ad hoc basis.

G.2. Share and distribute information related to dredging and beneficial use of dredge material to address actions listed under RN2.2 (Water Quality) through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

## Chapter 6: Dredged Material and Sediment Testing

### Maryland CCMP Action:

**Action J: Evaluation of the need for monitoring dredge sediment quality from outside of major harbors.**

When dredging projects are planned, it is useful to know the characteristics of the material being dredged. Prior to dredging operation, samples of bottom sediment are often collected to evaluate the physical characteristics (grain size being the most important) and if applicable, the chemical nature of the material to be removed. These sediment qualities may have an influence on the type of dredging equipment used, difficulty of dredging, the time needed to complete a given project, suitability of the placement site, and the appropriateness of using the material in various beneficial use scenarios.

### **Chemical Evaluation**

The Clean Water Act prohibits the discharge of dredged or fill material into the waters of the United States except by compliance with Section 404 of the Clean Water Act (CWA)<sup>20</sup>. To comply with this regulation, the dredged or fill material may have to be tested for the possible presence of contaminants. The CWA Section 404(B)(1) guidelines (40 CFR Part 230) establish criteria for evaluating proposed discharges of dredged material. Subpart G of these guidelines gives a general procedure for determining the need for chemical/biological testing of the material. The initial step in the procedure is a review of existing information. Pertinent information for the review includes prior sediment assessments, data on grain size composition, and examination of potential contaminant sources, pathways and sinks in the region. If this review reveals a “reason to believe” that contaminants are not a concern, no testing is required.

Dredged material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring, large-grained inert material. This type of material is generally found in areas of high current or wave energy such as coastal areas with shifting bars and channels. Areas of finer grained sands, silt and clay or areas with historical use indicating chemical inputs (large marinas or ports, factories, etc.) are more likely to harbor sediments with detectable levels of contaminants. The particular disposal option and the magnitude of the project also influence the decision to conduct contaminants tests.

Other factors to be considered for contaminant determination include, but are not limited to the following:

- 1) Potential routes of contaminants or contaminated sediments to the extraction site. These can be based on aerial photography, location of buildings, municipal and industrial areas,

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<sup>20</sup> See Appendix H for summary information on the federal Clean Water Act and <http://www.fws.gov/habitatconservation/cwa.htm> for additional information and associated web links.

agricultural or forest lands, or local knowledge.

- 2) Pertinent results from tests previously performed on the material at the extraction site, or carried out on similar material for other projects in the vicinity.
- 3) Any potential for significant introduction of persistent pesticides from land runoff or percolation.
- 4) Any records of spills or disposal of petroleum products or substances designated as hazardous.
- 5) Information in Federal, State and local records indicating significant introduction of pollutants from industries, municipalities, or other sources.
- 6) Any possibility of the presence of substantial natural deposits of minerals or other substances, which could be released to the aquatic environment in harmful quantities by man-induced discharge activities.

There is relatively little information on sediment contaminants in the coastal bays. An EPA published report by Chaillou et al. (1996) entitled *Assessment of the Ecological Condition of the Delaware and Maryland Coastal Bays* provided the best summary of sediment condition in the coastal bays until recently. This study indicated that contaminants are present in generally low levels in the main body of the coastal bays, while concentrations in the sediment of dead-end canals are significantly higher. Areas located toward the headwaters of the tributaries or in harbors/marinas were not sampled, but would also be expected to have potential contaminant concerns.

The recent publication of *Maryland's Coastal Bays – Ecosystem Health Assessment*<sup>21</sup> in 2004 provides the most up to date summary of sediment contamination and ambient toxicity studies in the Coastal Bays region. Sediment contamination was mostly limited to upper tributary areas and dead-end canals. Contamination levels and ambient toxicity were low throughout the southern and open water northern bays.

A recent conference organized by interested parties in both Maryland and Delaware, explored the condition of dead-end canals in the regional coastal bays of both states. The *Delaware/Maryland Dead-end Canal Conference: Challenges and Solutions* took place in May 2003 and was supported by state agencies, homeowner associations, University system representatives and non-profit organizations. Two conditions that were noted were 1) the development of sills at the mouth of canals as sediments are deposited in canals lower energy conditions; and 2) the retention of sediments and the subsequent absorption of toxins and nutrients that settle in the fine grain silts of the canal areas. Dredging and removal of the material was considered to be a solution to both problems. Some other suggestions included: maintaining unified depths through a combination of dredging and filling in canal bottoms to create unified depths and improve flushing; and encouraging shared dock facilities to minimize restriction of water flow in and out of canals.

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<sup>21</sup> See [http://www.dnr.maryland.gov/coastalbays/sob\\_2004.html](http://www.dnr.maryland.gov/coastalbays/sob_2004.html) for full report.  
2 September 2010

**NADAG Recommendations:**

***J. Evaluation of the need for monitoring dredge sediment quality from outside of major harbors.***

J.1. Develop public outreach materials describing areas which would potentially need chemical testing including St. Martins River, dead end canals and near storm sewer outfalls.

J.1.a. Share and distribute information through the Planning Guide, County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

**Maryland CCMP Action:**

<p><b>Action K: Examination of performance of dredged materials placed in the coastal bays. Both physical monitoring (area covered, thickness, change over time) and biological monitoring (degree to which native species have inhabited the material, species diversity, biomass, etc.) should be performed.</b></p>
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*The Inland Testing Manual*

The *Inland Testing Manual (ITM)*, developed by the Corps of Engineers and the Environmental Protection Agency, provides guidance on sediment testing protocols and procedures for determining the potential for contaminant-related impacts of proposed discharges of dredged material into open waters under Section 404 of the CWA. While the ITM was developed for navigational dredging projects, it may be applied to other types of dredging projects if they have the same character and involve disposal in open water. Use of the ITM is not generally suitable for dredged material discharges to uplands or to wetlands that are not typically inundated. The ITM is not intended for application to discharges into the ocean, which are regulated under a different authority, the Marine Protection, Research, and Sanctuaries Act. Guidance for the testing of dredged material for ocean disposal is given in the *Ocean Testing Manual*.

The inland testing manual uses a tiered approach and is designed to aid in generating physical, chemical, toxicity, and bioaccumulation information, but not more information than is necessary to make factual determinations. It is necessary to proceed through the tiers only until information sufficient to make a determination as to the acceptability for sediment placement in an aquatic site has been obtained. For example, if the information is sufficient to make that determination in Tier 2, no further testing in Tiers 3 or 4 is required.

Tier I - This tier uses readily available information including all previous physical, chemical and biological monitoring data and testing for both the dredged material and the placement site. If information collected at this level clearly shows the potential for environmental impact (or lack thereof), no further assessment needs to be conducted.

Tier II – This tier uses screening tools to assess sediment and water chemistry characteristics. The dredged material discharge must meet applicable Water Quality Standards (WQS) for all contaminants of concern. The discharge data can be compared to the WQS to see if dredging and placement of this material will violate those standards. The potential for certain chemicals to bioaccumulate in benthic organisms is also assessed. If tests identify significant concerns, Tier III testing will be required.

Tier III – Tier III uses biological testing to assess the impact of contaminants in the dredged material on benchmark organisms to determine sediment toxicity or bioaccumulation.

Tier IV - This tier involves case specific, state of the art testing for toxicity and bioaccumulation. It can further consider human and ecological health concerns, including risk assessments. The tests expand on information collected from Tier III testing.

If the material being tested fails the tests or is contaminated to a degree that indicates that it poses environmental and/or human risk, the material should be placed in an upland-contained site or managed in such a way to reduce the environmental impacts to the environment (e.g capping). If placed in an upland area with a return flow, that flow is subjected to the Clean Water Act.

#### **NADAG Recommendations:**

***K. Examination of performance of dredged materials placed in the coastal bays. Both physical monitoring (area covered, thickness, change over time) and biological monitoring (degree to which native species have inhabited the material, species diversity, biomass, etc) should be performed.***

K.1. Ensure monitoring of new beneficial use projects and encourage monitoring of existing projects by including monitoring costs in over all project cost estimates and by encouraging volunteer participation in monitoring activities.

K.1.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

## **List of Appendices**

- A) NADAG mission statement and Information
- B) Complete list of CCMP Actions and NADAG recommendations
- C) State funding assistance information
- D) Contact numbers and addresses of relevant groups and offices
- E) Useful Websites
- F) COE Fact Sheets – assorted (Ben. Use, dredging methods, mitigation, TOY guidance) - *Hard Copies*
- G) State Legislation Related to Dredging and Boating
- H) Federal Dredging Statutes
- I) Copy of navigation aids – US Coast Guard - *Hard Copies*
- J) Map of official navigation channels - *Hard Copies*
- K) Coastal Bays Boaters Guide - *Hard Copies*
- L) 1998 COE study - *Hard Copies*

## **Appendix A**

### **Navigation and Dredging Advisory Group**

#### **Mission Statement**

Due to the relatively shallow nature of Maryland's Coastal Bays, the maintenance of navigable waterways to support recreational and commercial boating is a critical regional need. Improved planning and coordination between federal, state, local and private interests is needed to enhance the economic and recreational benefits of navigation improvements and dredging while minimizing their adverse effects on natural resources. The Mission of the Navigation and Dredging Advisory Group is to develop a Master Plan to guide the management of navigation and dredging in the Coastal Bays, provide a forum for public input into related decision-making, and enhance and protect natural resources either at risk or that may benefit from navigation-related activities.

#### **Purpose**

To organize a forum of diverse coastal bays users and agencies responsible for navigation and dredging in a way that allows concerns, needs, obstacles and benefits to be highlighted, discussed and coordinated, so that navigation and dredging actions can be expedited and provide the greatest benefits, at least cost to bay users and the bay ecology.

#### **Objectives**

1. Develop and promote a master plan to guide the management of navigation and related activities in the Coastal Bays.
2. Provide the public with accurate information about navigation and dredging and serve as a forum for public input into related decision-making.
3. Provide an ongoing forum for communication between agencies and organizations with responsibilities for, or interest in navigation and dredging to enhance coordination and consistency.
4. Provide advice and counsel on local area problems, issues and needs to those agencies and organizations with responsibilities for, or interest in navigation and dredging.
5. Identify and promote "Best Management Practices" for navigation and dredging practices to minimize their adverse effects on the natural resources of the Coastal Bays.

## Navigation and Dredging Advisory Group Active Membership List 1999-2002

Bob Abele	MD Coastal Bays Program
Ed Ambrogio	US Environmental Protection Agency
Jodi Beauchamp	Cong. Gilchrest's Office
Bob Blama	Army Corps of Engineers, Baltimore
E.J. Blaser	US Coast Guard Auxillary
David Blazer	MD Coastal Bays Program
Gail Blazer	Ocean City
Cpt. Michael Bloxom	MD Natural Resources Police
Dave Brinker	MD DNR, Wildlife and Heritage
Sandy Coyman	Worcester Co. Comp. Planning
Annette Cropper	
Carolyn Cummins	CAC
Janis Foley	
Woody Francis	Army Corps of Engineers, Baltimore
H. L. Fremeau	Ocean Pines Association Staff
Tim Goodger	NOAA.NMFS
Sgt. J. David Gough	MD NRP Hydro Operations
Greg Hall	Maryland Coast Towing
James Henderson	O. P. Resident
John Laughlin	CAC II
Jordan Loran	MD DNR, Engineering and Construction
Jeanne Lynch	Fmr Worcester County Commissioner
Jack McAllister	Water Based Activities Committee
Terence McGean	Ocean City
Howard McNeill	O. P. Resident
Donald Merritt	USCG Ant. Chincoteague
Amy Merten	NOAA, National Ocean Service
Bob Nelson	Worcester Co. Comp. Planning
Mark Ogle	USCG Group Eastern Shore
George Ruddy	U.S. Fish & Wildlife Service
Pat Schrawder	NADAG & Baywatch
Ralph Spagnolo	US Environmental Protection Agency
Bob Tabisz	MDE Tidal Wetland
Tom Waddington	USACE
Darlene V. Wells	MD DNR/MD Geological Survey

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Cornelia Pasche Wikar	MD DNR Coastal Zone Program
Carl Zimmerman	Assateague Island National Seashore

2 September 2010

## **Appendix B**

### **Final NADAG Recommendations**

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#### **A.i. Location of potential placement sites.**

A.i.1. Determine and continue to track total dredge material disposal needs by a) volume, b) location, and c) sediment type using survey data developed in Action C Recommendation 3.

#### **A.i.i. Support for and promotion of the beneficial use of dredged materials, including habitat restoration and creation.**

A.i.i.1. Encourage and facilitate beneficial use of dredge material through communication and support to local government entities, following the recommendations listed in the OCWRS.

A.i.i.2. Develop public outreach materials that outline beneficial use options appropriate for Coastal Bays area.

A.i.i.2.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

#### **B. "Best Management Practices" for dredging, including time-of-year restrictions, preferred methods, safeguards for sensitive areas, and contaminated sites management.**

B.1. Develop outreach materials for the public and local marine contractors, describing dredging Best Management Practices, ensuring input and coordination among state, federal and local agencies.

B.1.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

#### **C. Channel improvements, possibility of new channels, and potential removal of shoaling in critical navigation areas.**

C.1. Monitor safety conditions in the Rt. 50 Bridge area.

C.1.a. Monitor sediment bypass operation and its affect on sand shoaling in the inlet area and the area north and south of the Rt 50 Bridge.

C.1.b. Evaluate the feasibility of dredging additional channels in the western portion of the shoal north of the Rt. 50 bridge and south of Skimmer Island.

C.2. Provide the opportunity for public reporting of shoaling and other dredging needs by providing information on agency dredging procedures and contacts to the public

- through county websites, the Planning Guide document and outreach methods.
- C.3. Develop and maintain list/database of publically funded, non-federal channels in need of dredging and maintenance for submittal to the State Waterway Improvement Fund.
    - C.3.a. Develop and distribute guidance criteria for determining actual need for dredging in non-federal channels through the Planning Guide and/or appropriate websites.
    - C.3.b. Develop method for prioritizing identified projects throughout the Coastal Bays - include input from the public and agencies.
    - C.3.c. Review and update list annually.

**D. Standards for and mechanisms to encourage marking of all existing channels and identification of responsible parties for non-federal channels.**

- D.1. Increase participation and cooperation in and notification to the public of the periodic (every 5 years) WAM Survey (survey of marker effectiveness) conducted by the US Coast Guard by involving federal, state, and local participants in information collection and development of WAM survey recommendations.
- D.2. Develop and distribute a Coastal Bays map identifying federal and marked private navigation channels, including information on sensitive species areas and Personal Water Craft restricted areas.
  - D.2.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.
- D.3. Increase public availability of information regarding marker standards and the process to request new markers through the Planning Guide, appropriate websites and outreach methods.
- D.4. Clarify and identify the responsible parties for federal and non-federal channel maintenance for specific channels in the Planning Guide, appropriate websites and outreach methods.

**E. Priority areas to improve channel markers, including "small channels" leading to and from boat access points and the federal channel in Chincoteague Bay, Sinepuxent, Isle of Wight, and Assawoman Bays.**

- E.1. Provide information collected by the NADAG Navigation Workgroup in Fall, 2000 on marker sufficiency to the DNR Natural Resources Police and the US Coast Guard.
  - E.1.a. Present information and marker recommendations to the Maryland Boat Act Advisory Committee for their support.
  - E.1.b. Work with Coast Guard, DNR NRP, Worcester County and others to identify and secure needed funding for marker upgrades and new installations.
- E. 2. Provide the opportunity for public reporting of marker and/or navigation channel condition changes by providing information on agency procedures and contacts to

the public through websites, the Planning Guide document and outreach methods.  
See Action D.

- E.3. Conduct an in depth analysis of the need to mark small channels to public boating access points throughout the Maryland Coastal Bays (to be completed prior to RN5.2 - "Guide to the Coastal Bays").
- E.4. Provide descriptions of informational markers to the public and incorporate information in the RN5.2 product.

**F. Timely updates to nautical charts.**

*F.i. Develop mechanisms to update bathymetric (water depth) data for channels and bays to facilitate better navigation information charts.*

*F.i.i. Explore the potential of NOAA certification for local private charts.*

- F.1. Determine frequency needed to collect meaningful bathymetric data.
- F.2. Incorporate bathymetric data collected in 2000 in "Guide to Coastal Bays" (RN5.2).
  - F.2.a. Update "Guide" as new data becomes available.
- F.3. Develop partnerships with private charting companies to develop "boating guides" to provide navigational information with appropriate disclaimers.

**G. Distribution of existing information describing the positive and negative effects of dredging and promotion of beneficial aspects.**

- G.1. Continue to utilize NADAG as a forum to discuss and share information related to dredging issues and beneficial use of dredge material on an ad hoc basis.
- G.2. Share and distribute information related to dredging and beneficial use of dredge material to address actions listed under RN2.2 (Water Quality) through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.

**H. Development of a long-range plan for scheduling/financing the maintenance of non-federal channels.**

- H.1. Utilize prioritized list developed in Action C Recommendation 3.c. to determine funding needs.
- H.2. Encourage and facilitate coordination of concurrent dredging projects (reduce mobilization costs).

- I. Identification and evaluation of future marina locations for navigation and local land use planning.**
  - I.1. Utilize developing data on sensitive species, bathymetry, boater surveys and local planning information to evaluate any future proposals for new marinas.
    - I.1.a. Develop criteria for evaluating new marina development.
  
- J. Evaluation of the need for monitoring dredge sediment quality from outside of major harbors.**
  - J.1. Develop public outreach materials describing areas which would potentially need chemical testing including St. Martins River, dead end canals and near storm sewer outfalls.
    - J.1.a. Share and distribute information through the Planning Guide, County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.
  
- K. Examination of performance of dredged materials placed in the coastal bays. Both physical monitoring (area covered, thickness, change over time) and biological monitoring (degree to which native species have inhabited the material, species diversity, biomass, etc) should be performed.**
  - K.1. Ensure monitoring of new beneficial use projects and encourage monitoring of existing projects by including monitoring costs in over all project cost estimates and by encouraging volunteer participation in monitoring activities.
    - K.1.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.
  
- L. Develop and put into action a permit application procedure with MDE, AOE, WC, and OC to expedite the permit application process.**
  - L.1. Develop outreach materials outlining permit details including information needed, permit review time, contacts, appeals process, public participation.
    - L.1.a. Share and distribute information through the Planning Guide and County, Coastal Bays, Ocean City and other appropriate websites and outreach methods.
  - L.2. Pursue continuance of NADAG participation through existing technical wetlands and coastal review groups.

## Appendix C

### Process to Request State Funding Assistance for Dredging Projects<sup>22</sup>

Interested parties (citizens or community groups) may contact Worcester County Public Works Department to identify a given area in need of dredging. If interested in sponsoring the project, the County contacts DNR's Waterway Improvement Program Office to request State funds for the project. The State also contacts all state counties once a year to request the counties' lists of dredging and other construction projects for review. After dredging requests are received, the Waterway Improvement Office arranges for a survey to be conducted by DNR's Engineering and Construction to determine local depths and sediment characteristics and volumes for each submitted project in order to determine costs. The survey is followed by a Needs and Feasibility Study, which determines the level of potential state funding needed for the project. This study examines local conditions including public access availability, boat traffic, potential for matching funds and identifies whether a special taxing district needs to be established through the county government. DNR then critiques and reviews all projects throughout the entire state and rates them by a point system. The funding request for these projects is then submitted for legislative approval with funding becoming available July 1 of each year. Projects not funded under a given year may be resubmitted for funding in future years.

The state's boat excise tax of 5% and a percentage of the vehicle fuel tax becomes part of the Waterway Improvement Fund. Funding for boat ramps, parking lots, piers, state park projects and dredging projects are dependent on the availability of Waterway Improvement funds which varies from year to year.

Once all applicable federal, state and local permits have been submitted and approved, dredging operations may also be conducted and funded through private means.

### State Funding Assistance for Dredging Projects

Limited state funds are available on a competitive basis across the state for navigation and dredging projects in state waters. If a citizen or a community group feels an area needs dredging, they may follow certain procedures to apply for the dredging and to request help with funding:

1. Contact the Worcester County Board of Public Works.
2. If the County is interested, they will contact the Waterway Improvement Program Office of the Department of Natural Resources
3. WIO requests a survey of existing conditions
4. A Needs and Feasibility Study is done to determine potential State funding
5. DNR rates the request in comparison to other requests
6. Funding requests from the DNR are submitted for legislative approval with funding becoming available July 1 of each year
7. Projects approved but not receiving funds under a given year may resubmit for funding in future years

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<sup>22</sup>Information reviewed by M. Ewing, DNR 8/21/2000

8. All such projects are subject to all permits by all agencies as detailed in previous pages

*\* See Appendices D and E below for contact information*

## **Appendix D**

### **Useful Contacts**

#### **State of Maryland**

##### **Maryland Department of Natural Resources**

###### **Capital Grants and Loans Administration**

###### **Waterway Improvement Program**

Tawes State Office Building E-4

580 Taylor Avenue

Annapolis, Maryland 21401

Tel. 410-260-8403

Fax 410-260-8404

##### **DNR Natural Resources Police**

**Johnson Office** - Somerset, Wicomico and Worcester counties

32144 Mt. Olive Rd.

Salisbury, Maryland 21804

Tel: 410-548-7070

##### **Critical Area Commission**

1804 West Street, Suite 100

Annapolis, Maryland 21401

Tel. 410-260-3460

#### **Maryland Department of the Environment**

##### **Water Management Administration**

Regulatory Services Coordination Office (RSC)

1800 Washington Boulevard, Suite 430

Baltimore, Maryland 21230-1708

Tidal Wetlands Division

Tel. 410-537-3837

#### **Worcester County**

##### **Worcester County Development Review & Permitting**

Worcester County Government Center

1 W. Market St. Room 1201

Snow Hill, Maryland 21863

Tel. 410-632-1200

Fax 410-632-3008

**Worcester County Shoreline Commission**

Isle of Wight County Offices  
13070 St. Martins Neck Rd.  
Bishopville, Maryland 21813

Janet Davis, 410-352-3057

**Worcester Soil Conservation District**

Worcester County Government Center  
1 W. Market St., Room 1201  
Snow Hill, Maryland 21863

Tel. 410.632.1200 Ext. 1141 or 1142

**Town of Ocean City****Town of Ocean City****Department of Planning and Community Development**

P.O. Box 158  
Ocean City, MD 21843

Tel. 410-289-8855

Tel. 410-289-8854

Fax 410-289-8705

**Town of Ocean City****Board of Port Wardens**

PO Box 158  
Ocean City, Maryland 21843

Tel. 410-289-8855

**Other Communities****Ocean Pines Public Works Department**

1 Firehouse Lane  
Ocean Pines, Maryland 21811

Tel. 410-641-7425

**Ocean Pines Architectural Review Committee (ARC)**

239 Ocean Parkway  
Ocean Pines, Maryland 21811

Tel. 410-641-7717 ext: 3013

## Appendix E

### Useful Webpage Addresses

#### Permitting and Funding Information

##### State

##### Maryland Department of Natural Resources

<http://www.dnr.state.md.us/grantsandloans/waterwayimprovement.asp> - Waterway Improvement Program

<http://www.dnr.state.md.us/criticalarea/> - Critical Area Program

##### Maryland Department of the Environment: Permits, Approvals & Certifications

[http://www.mde.state.md.us/programs/waterprograms/wetlands\\_waterways/permits\\_applications/index.asp](http://www.mde.state.md.us/programs/waterprograms/wetlands_waterways/permits_applications/index.asp)

##### Tidal Wetlands Licenses and Permits

<http://www.mde.state.md.us/Permits/WaterManagementPermits/water2.asp#3.16>

##### Erosion, Sediment and Storm Water Permits, Certifications and Approvals

<http://www.mde.state.md.us/Permits/WaterManagementPermits/water2.asp#3.19>

<http://www.mde.state.md.us/Permits/WaterManagementPermits/water2.asp#3.21>

<http://www.mde.state.md.us/Permits/WaterManagementPermits/water2.asp#3.22>

##### Worcester County

##### Shoreline Commission Information

[http://www.co.worcester.md.us/ppibdscoms\\_mtg.htm](http://www.co.worcester.md.us/ppibdscoms_mtg.htm)

##### Development Review and Permitting: Building Permits

<http://www.co.worcester.md.us/DRP/ppiperminsp.htm>

##### Ocean City

##### Department of Planning and Zoning: Permit Forms

<http://www.town.ocean-city.md.us/forms.html>

##### Community

##### Ocean Pines: Application Forms

<http://www.oceanpines.org/files/APPDOC.doc> - for docks

[PublicWorks@oceanpines.org](mailto:PublicWorks@oceanpines.org) - for dredging requests

[arc@oceanpines.org](mailto:arc@oceanpines.org) - for architectural review

##### Federal

##### US Corps of Engineers: Permit Types and Process

<http://www.nab.usace.army.mil/Regulatory/permits.htm>

## **General Information and Links**

### **Maryland Coastal Bays Program**

<http://www.mdcoastalbays.org/>

### **US Fish and Wildlife Service**

<http://www.fws.gov/coastal/CoastalProgram/>

[http://www.fws.gov/habitatconservation/coastal\\_barrier.htm](http://www.fws.gov/habitatconservation/coastal_barrier.htm) - Coastal Barrier Resources System

<http://www.fws.gov/habitatconservation/cwa.htm> - Clean Water Act

### **National Park Service**

<http://www.nps.gov/asis/> - Assateague Island National Seashore

### **Environmental Protection Agency**

<http://www.epa.gov/owow/estuaries/programs/mcb.htm> - Maryland Coastal Bays Program

<http://www.epa.gov/owow/oceans/> - Ocean and coastal issues

### **Beach Nourishment: A Guide for Local Government Officials**

<http://www3.csc.noaa.gov/beachnourishment/>

### **US Corps of Engineers: Beneficial Uses of Dredged Material**

<http://el.erdc.usace.army.mil/dots/budm/>

### **Code of Federal Regulations: Title 33 - Navigation and Navigable Waters US Coast Guard**

[http://www.access.gpo.gov/nara/cfr/waisidx\\_99/33cfrv1\\_99.html](http://www.access.gpo.gov/nara/cfr/waisidx_99/33cfrv1_99.html)

### **US Coast Guard**

<http://www.navcen.uscg.gov/mwv/navrules/navrules.htm> - Navigation Rules

<http://www.uscgboating.org/safety/aton/aids.htm> - Private Aid to Navigation Application

<http://www.uscgboating.org/safety/aton/system.htm> - Boating Safety and Aids to Navigation

### **Maryland State Agencies**

<http://www.dnr.state.md.us/boating/safety/2005recreationvessels.pdf> - State and federal vessel requirements

<http://www.dnr.state.md.us/boating/cleanmarina/cmprogram.html> - MD Clean Marina Program: Marina Information

<http://www.dnr.state.md.us/boating/> - Maryland boating homepage

<http://www.dnr.state.md.us/boating/registration/> - boater registration

<http://www.dnr.state.md.us/boating/safety/> - boating safety program and courses

<http://www.dnr.state.md.us/boating/regulations/> - boating regulations

<http://www.dnr.state.md.us/nrp/> - Natural Resources Police

<http://www.dnr.state.md.us/nrp/boatingaccidents.html> - boating accident statistics

<http://www.dnr.state.md.us/publiclands/eastern/assateague.html> - Assateague State Park

### **Worcester County Critical Area Program**

<http://www.co.worcester.md.us/Atlantic%20Coastal%20Bays%20Critical%20Area%20Local%20Program%20Bill%20202-13.pdf>

### **Ocean Pines Boating Hurricane Preparedness Brochure**

[http://www.oceanpines.org/news\\_details.asp?nid=423](http://www.oceanpines.org/news_details.asp?nid=423)

## **Data**

### **Coastal Bays Bathymetry Data**

[http://www.dnr.state.md.us/coastalbays/res\\_protect/pubs.html](http://www.dnr.state.md.us/coastalbays/res_protect/pubs.html)

### **Coastal Bays Sensitive Area Data and Maps**

[http://www.dnr.state.md.us/bay/czm/sensitive\\_areas.html](http://www.dnr.state.md.us/bay/czm/sensitive_areas.html)

## **Appendix G**

### **State Legislation and Regulations Related to Dredging and Boating**

#### **Maryland Code of Maryland Regulations<sup>23</sup>**

##### **Title 08 Department of Natural Resources Subtitle 04 Boating**

This section outlines a variety of boating related activities regulated by the state. These include general operation, taxes related to boat ownership, licensing requirements for businesses in the boating industries, mooring devices, and reporting of boating accidents.

##### **Title 08 Department of Natural Resources Subtitle 09 State – Ocean City Beach Erosion Control District**

This section defines the Ocean City Beach Erosion Control District and outlines the activities that are limited or restricted in this area.

##### **Title 08 Department of Natural Resources Subtitle 18 Boating – Speed Limits and Operation of Vessels**

The purpose of this section is to develop a safe, comprehensive management plan for vessels on the waters of the State, establish speed limits in certain areas, and designate some areas for specific uses. Specific regulations governing personal watercraft (08.18.02), vessel noise level limits (08.18.03), and vessel operation and safety equipment (08.18.04) are covered in this subtitle. In addition, Chapter 18 outlines areas in the Coastal Bays region governed by speed limit regulations in canals and inlets, Herring Creek, Swordfish Basin, Isle of Wight Bay, Ocean Pines Canals and associated waters. It also sets limits on vessel operation in certain areas established as protective buffers for nesting sites, and feeding areas of birds listed as endangered, threatened, or in need of conservation.

##### **Title 26 Department of the Environment Subtitle 24 Tidal Wetlands**

This subtitle encompasses the regulations related to the processing of applications for licenses to conduct activities in or over State tidal wetlands and for permits to conduct activities on private tidal wetlands. It also describes the review of license applications for the dredging or filling of State tidal wetlands and the construction, reconstruction, or repair of structures on State tidal wetlands. Regulations governing the dredging, filling, removing, or otherwise alteration of private tidal wetlands is also covered. General requirements are outlined in 26.24.02.01, listing specific uses and activities prohibited on State or Private tidal wetlands without a permit or license and activities

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<sup>23</sup> See <http://www.dsd.state.md.us/comar/> for specific details for individual regulations

exempted from State tidal wetland permit or license requirements. Application requirements are outlined in 26.24.02.02; criteria for evaluating licenses or permits is covered in 26.24.02.03; permit or license conditions in 26.24.02.06; modifications or extensions in 26.24.02.07; and appeals in 26.24.02.08.

Guidelines and regulations pertaining to dredging and filling activities in coastal areas, including upland disposal and placement of dredged material in open waters is covered in 26.24.03. Regulations related to structures along the shoreline, including piers and boathouses, marinas, shore erosion control structures as well as pipes, cables and other crossings through State tidal wetlands are listed in 26.24.04.

## **Title 26 Department of the Environment**

### **Subtitle 27 Water Management – Erosion and Sediment Control**

The general provisions of this regulation outline the responsibilities of the State regarding erosion and sediment control policies, procedures, standards, and criteria. The State provides review and approval of county and municipal erosion and sediment control ordinances as well as programs for grading of State and federal projects within the State. State and local programs should provide that approved plans and permits provide effective erosion and sediment control strategies for project sites, and that the information necessary to ensure proper installation and maintenance of the strategies is provided to project field personnel.

## **Title 27 Critical Area Commission for the Chesapeake and Atlantic Coastal Bays**

This regulation charges the Commission with the development of criteria that will direct, manage, and control development in the Critical Area as defined in order to minimize the adverse impacts of growth and provide for the conservation of habitat and the protection of water quality in and the waters adjacent to the State's Critical Area. General policies include the recognition of three distinct development areas and outlines the types of activities and development for each of these areas. The Commission works with local jurisdictions to develop local critical area programs which are then used to ensure compliance with the goals and directives of this regulation.

## **Maryland Code**

### **Environment Title 5: Water Resources<sup>24</sup>**

These statutes deal specifically with Chesapeake Bay dredge material. Definitions for “beneficial use” and “innovative use” are provided. These statutes also outline limitations on the dumping of dredge material in open waters and sets up an executive committee of state, federal, non-profit and citizen representatives to provide oversight in the development of a dredge material management plan for the Chesapeake Bay.

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<sup>24</sup> See Maryland Code: Environment : [Title 5. Water Resources](http://198.187.128.12/maryland/lpext.dll/Infobase/1fff4/20ac4?f=templates&fn=document-frame.htm) : Subtitle 11. Chesapeake Bay and Tributaries (<http://198.187.128.12/maryland/lpext.dll/Infobase/1fff4/20ac4?f=templates&fn=document-frame.htm>) for specific legislative information  
2 September 2010

## **Natural Resources Title 8: State Boat Act<sup>25</sup>**

This statute is designed to foster the development, use, and enjoyment of all the waters of Maryland. The State is called to cooperate to the fullest possible extent with neighboring states and the federal government in connection with assistance and rescue operations and in enforcement of laws and regulations relating to recreational boating safety. This includes the placement of buoys, mooring buoys, and other apparatus used to secure, berth, or moor vessels in the waters of the State.

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<sup>25</sup> See Maryland Code: Natural Resources: [Title 8. Waters](http://198.187.128.12/maryland/lpext.dll?f=templates&fn=fs-main.htm&2.0); Subtitle 7. State Boat Act (<http://198.187.128.12/maryland/lpext.dll?f=templates&fn=fs-main.htm&2.0>) for specific legislative information  
2 September 2010

## **Appendix H**

### **Primary Federal Statutes Governing Dredging**

#### **Clean Water Act (CWA)**

The purpose of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Under Section 404 of the CWA the Corps authorizes discharges of dredged or fill material in waters of the U.S. through a permit program. (The Corps also conducts discharge activities in conjunction with its civil works program.) The Section 404(b)(1) Guidelines are the substantive criteria by which proposed dredged material discharge actions are evaluated. EPA also maintains general environmental oversight, including Section 404(c) permit veto authority if there will be an "unacceptable adverse effect." Under Section 401, proposed discharges of dredged or fill material must comply with applicable State water quality standards.

#### **Coastal Zone Management Act (CZMA)**

The CZMA establishes a Federal-state partnership to provide for the comprehensive management of coastal resources. States develop management programs based on enforceable policies and mechanisms to balance resource protection and coastal development needs. The Federal consistency provisions require that all Federal activities (including direct Federal actions, private activities requiring Federal licenses or permits, and Federal financial assistance to state and local governments) be consistent with the enforceable policies of a state's Federally-approved coastal management program. At the Federal level, the CZMA is administered by the OCRM within NOAA's National Ocean Service.

#### **Endangered Species Act (ESA)**

The ESA states that all Federal departments and agencies shall seek to conserve threatened and endangered species and shall use their authorities to further the purposes of the ESA. In addition, all Federal departments and agencies must ensure that activities they fund, authorize, or carry out do not jeopardize the continued existence of threatened or endangered species or adversely modify or destroy designated critical habitat. The act is administered by the FWS and the NMFS and requires the agencies to formally evaluate proposals for Federal actions, including the issuance of permits for port dredging and dredged material disposal, that may affect species listed as threatened or endangered.

#### **Fish and Wildlife Coordination Act (FWCA)**

The purpose of the FWCA is to recognize the "vital contribution of our wildlife resources to the Nation." Under this act, Federal agencies proposing actions, including issuance of permits, which will affect any body of water, must consult with the FWS, the NMFS, and the affected state's fish and wildlife management agency. Review agencies determine the possible damage to fish and wildlife resources by the proposed activity, and develop means and measures that should be adopted to prevent the loss or damage to fish and wildlife resources. The Corps is required to give full consideration to the review agencies' viewpoints (including those of the public) before making permit decisions.

#### **Marine Protection, Research, and Sanctuaries Act (MPRSA)**

Under Title I of the MPRSA (also known as the Ocean Dumping Act), ocean dumping permits may

be issued if the proposed dumping will not "unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. Under Title I, the Corps is the permit issuing authority for authorizing the transportation of dredged material for the purpose of ocean dumping and is directed to use EPA-developed environmental impact criteria in its permit decisions. Title I further provides that the Corps determinations to issue a permit are subject to EPA review and concurrence, and that the Corps is to utilize, to the maximum extent feasible, disposal sites which have been designated by the EPA rather than designating them on a case-by-case basis. A separate title of the MPRSA (Title III) establishes the national marine sanctuaries program, which is implemented by NOAA.

### **Merchant Marine Act of 1920**

This law empowers MARAD to investigate causes of congestion at ports; to investigate the practicability and advantage of harbor, river, and port improvements in connection with foreign and coastwise trade; and to investigate any other matter which may tend to promote use by vessels of ports. If MARAD's recommendations concern areas within the purview of the Interstate Commerce Commission (ICC), the Secretary of Transportation may submit such findings to the ICC.

### **National Environmental Policy Act (NEPA)**

NEPA is the national charter for protection of the environment which requires a full consideration of the environmental consequences of major Federal actions. This is accomplished through the use of either an environmental impact statement or an environmental assessment. These documents provide a vehicle for the government to assess before the fact the effects of a potential action and provides an avenue for the public to review and comment on Federal agency projects and their potential expected environmental impacts.

### **Rivers and Harbors Act (RHA) of 1899**

The original purpose of the RHA was to establish the Federal interest in interstate navigation. Section 10 of the Act requires approval from the Corps prior to placing obstructions, or excavating and/or depositing materials in navigable waters.

### **Water Resources Development Acts (WRDA)**

Dredging projects are authorized by Congress through the WRDAs, which are reauthorized biennially. WRDA 86 introduced cost sharing for construction projects whereby the local sponsor pays between 20 and 60 percent of the construction cost based on the depth of the navigation channel. For projects over 45 feet in depth, the local sponsor must also pay 50 percent of the incremental cost of maintenance. Maintenance dredging of channels is Federally funded, with Corps' expenditures reimbursable through the Harbor Maintenance Tax. Cost-sharing in these situations generally takes the form of the non-Federal sponsor providing lands, easements, right-of-way and disposal areas (other than open water) for the maintenance dredging. WRDAs also contain provisions for beneficial use of dredged material such as beach nourishment (WRDA 86) and the protection, restoration and creation of aquatic habitat (WRDA 92) and for environmental dredging to remove, as part of operation and maintenance of a navigation project, contaminated sediments outside the boundaries of and adjacent to the navigation channel (WRDA 90).

Source:

The Dredging Process in the United States:

An Action Plan for Improvement

The Interagency Working Group on the Dredging Process

A REPORT TO THE SECRETARY OF TRANSPORTATION - December 1994