Environmental Effects of Dredging Technical Notes

ENGINEER MANUAL SERIES ON DREDGING AND DREDGED MATERIAL DISPOSAL

PURPOSE: This technical note describes a series of Engineer Manuals (EMs) on dredging and dredged material disposal being published by the Office, Chief of Engineers, US Army. The note describes the purpose of the manual series, intended audience, major topics covered, availability of published manuals, and the status of future manuals.

BACKGROUND: Manuals already published in the series include EM 1110-2-5025, "Dredging and Dredged Material Disposal"; EM 1110-2-5026, "Dredged Material Beneficial Uses"; and EM 1110-2-5027, "Confined Disposal of Dredged Material." This manual series is the first comprehensive guidance on dredging and disposal developed for routine Corps use.

The guidance contained in the manuals was developed based on experience of the Corps Districts and Divisions and research conducted under the Dredged Material Research Program (DMRP) and subsequent research programs managed under the Environmental Effects of Dredging Programs (EEDP). As additional information becomes available, the EM series will be updated with published changes or new manuals.

ADDITIONAL INFORMATION OR QUESTIONS: Contact the EEDP program manager, Dr. Robert M. Engler, commercial or FTS: (601) 634-3624. Questions on the content of respective manuals and suggestions for changes or additions can be directed to the author, Dr. Michael R. Palermo, (601) 634-3753, for EM 1110-2-5025 and EM 1110-2-5027, or Dr. Mary C. Landin, (601) 634-2942, for EM 1110-2-5026.

Description of Engineer Manual Series

Technical guidance for planning, design, operation, and management of Corps of Engineers projects is normally published in Engineer Manuals (EMs). The information and procedures contained in EMs are not considered policy or regulation, but rather official guidance. Use of alternate procedures should be justified on a technical basis.

DISTRIBUTION STATEMENT A
Approved for Public Release Distribution Unlimited
The Office, Chief of Engineers, US Army is publishing a series of EMs on dredging and dredged material disposal. Manuals published thus far include the following:

EM 1110-2-5025, "Dredging and Dredged Material Disposal"
EM 1110-2-5026, "Dredged Material Beneficial Uses"
EM 1110-2-5027, "Confined Disposal of Dredged Material"

These manuals have been developed for routine use by engineers and scientists in Corps Districts and Divisions involved in all aspects of dredging projects. The information contained in the manuals is applicable to all functional areas (i.e. planning, design, construction, operations, and maintenance). Descriptions of the purpose and scope of each manual are given in the following paragraphs.

EM 1110-2-5025, "Dredging and Dredged Material Disposal"

EM 1110-2-5025 is the "umbrella" manual of the series. The manual includes a description of dredging equipment and disposal techniques used in the United States and provides guidance for activities associated with both new work and maintenance projects. The manual also provides basic guidance on evaluating and selecting dredging equipment. A descriptive overview of disposal alternatives is provided, since more detailed guidance on disposal alternatives is available in other manuals in the series.

The major topic areas contained in EM 1110-2-5025 are as follows:

Design considerations for dredging projects
Dredging equipment and techniques
Factors in equipment selection
Dredge operating characteristics
Advances in dredging technology
Environmental considerations for dredging
Sediment resuspension due to dredging
Evaluation of dredged material pollution potential
Influence of disposal conditions on impacts
Overview of open water disposal
Overview of confined disposal
Habitat development as a disposal alternative
EM 1110-2-5026, "Dredged Material Beneficial Uses"

EM 1110-2-5026 provides guidance for planning, designing, developing, and managing dredged material for beneficial uses. The manual incorporates ecological concepts and engineering designs with biological, economical, and social feasibility.

The major topic areas contained in EM 1110-2-5026 are as follows:

Dredged material as a resource
Logistical considerations for beneficial use
Habitat development case studies
Habitat development selection process
Wetland habitat development with dredged material
Upland habitat development with dredged material
Island habitat development
Aquatic habitat development
Beaches and beach nourishment
Aquaculture
Parks and recreation uses
Agricultural and related uses
Strip mine reclamation and landfill cover use
Multipurpose and other land use
Construction and industrial/commercial uses
Baseline data collection and monitoring techniques
Site valuation

EM 1110-2-5027, "Confined Disposal of Dredged Material"

EM 1110-2-5027 provides guidance for planning, designing, constructing, operating, and managing confined dredged material disposal areas. Site design to retain suspended solids during disposal operations and to provide adequate short- and long-term storage capacity is included.

Major topic areas contained in EM 1110-2-5027 are as follows:

Field investigations and sampling
Site selection to avoid groundwater impacts
Settling tests for evaluation of solids retention
Consolidation tests for evaluation of long-term storage
Design for solids retention
Design for storage during filling
Weir design
Design of chemical clarification systems
Prediction of dredged material consolidation
Dredged material dewatering operations
Design and construction of dikes
Operation and management activities
Long-term management plans

Status of Additional Manuals

An additional manual entitled "Open Water Disposal of Dredged Material" is now in review. Major topic areas contained in this manual include: open water disposal environments and associated dredging practices, short-term and long-term physical fate of material disposed in open water, ecological evaluation of open water disposal, site designation and selection, environmental impacts, control measures, and site management and monitoring.

Availability of Manuals

Engineer manuals are published and distributed by the Office, Chief of Engineers, US Army. The manuals can be obtained by written request addressed to:

US Army Corps of Engineers
Publications Depot
2803 52nd Avenue
Hyattsville, MD 20781-1102

The title and number of the EM should be included in the request.

References


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