A Guide to the DRP

Purpose

This technical note describes the work, products, and personalities of the Dredging Research Program (DRP). It has been prepared to assist you, the user of DRP products, to better understand how the DRP works. It is our hope that a well-informed user can better use DRP products and be in a position to provide much-needed feedback on DRP activities and products. For the DRP to be successful, it must be responsive to present and future user needs. Therefore, continual feedback from the field is essential for developing effective and usable products.

Background

Established in Fiscal Year 1988, the DRP is a seven-year program with the objective of developing products that reduce the cost of dredging operations. DRP work units address a diverse range of dredging problems and are grouped into the following five technical areas:

- Analysis of Dredged Material Placed in Open Water (Area 1).
- Material Properties Related to Navigation and Dredging (Area 2).
- Dredge Plant Equipment and Systems Processes (Area 3).
- Management of Dredging Projects (Area 5).

Additional Information

For additional information concerning the contents of this technical note, contact the author, Mr. Russell K. Tillman, (601) 634-2016, or the manager of the Dredging Research Program, Mr. E. Clark McNair, Jr., (601) 634-2070.
DRP Products

The DRP uses a wide range of products to convey research results to the Corps dredging community. The following paragraphs describe traditional publication products, as well as a series of new products that customize the delivery of DRP results toward special audiences and situations. (Refer to the Bibliography, page 7, for a current listing of all distributed DRP products.)

Instruction Reports (IRs)

These reports outline or propose techniques or procedures for implementing usable DRP-developed technology for solving field problems. IRs are used by the DRP to provide documented guidance for field use.

Technical Reports (TRs)

These reports contain the methodology of research investigations. TRs provide documentation of what was done in the program research work unit but may not provide directly applicable cost-saving techniques. TRs document the work unit methodologies and foundations, and serve as a reference for developing DRP products which provide specific cost-savings assistance.

Miscellaneous Papers (MPs) and Contract Reports (CRs)

MPs are investigation reports that are usually less technical than TRs but provide specific guidance. CRs are prepared by DRP contractors and describe work aimed at achieving specific goals of DRP work units.

Technical Notes (TNs)

Technical Notes are one of the quickest mechanisms to relay research results to the DRP users. While most IRs provide the user with results at the end of a work unit, TNs are short (approximately 5 to 10 pages), loose-leaf documents published at any time during a work unit. TNs allow the DRP to provide interim products, methodologies, and guidance that are of use to the field when normal distribution of the results would not occur until later, when published in a formal product.

Users should be aware that TNs are not limited to DRP activities. Rather, all Corps personnel are encouraged to submit TNs that describe innovative or cost-saving dredging activities occurring at their project.
HQUSACE Proponent Guidance

At request, the DRP prepares draft Engineer Manuals, Engineer Technical Letters, and Engineer Circulars for distribution by HQUSACE proponents.

Information Exchange Bulletin (IEBs)

The newspaper of the DRP, Dredging Research, is distributed to over 5,000 readers. Unlike TNs, which are designed to provide specific guidance, Dredging Research provides newsworthy information about the DRP and the Corps dredging program. It is a goal of the DRP to make Dredging Research a two-way forum for discussing a wide range of dredging activities. Therefore, readers are always invited to submit articles and newsworthy information.

Executive Notes (ENs)

DRP Executive Notes provide brief summaries about ongoing DRP events. ENs are designed to quickly inform Corps dredging-related management personnel about upcoming DRP activities, products, and events.

Video Reports

The DRP uses video reports to provide quick overviews on specific accomplishments to a wide audience. Furthermore, video reports easily highlight and stress research accomplishments and concepts that may normally not be brought out in formal publications.

Personal Computer (PC) Programs

The DRP prepares numerous computer programs, allowing methodology to be customized to the user's specific situation. All programs are designed for use on IBM 286, 386, or 486 compatible systems.

Demonstration Disks

Slide shows describing DRP PC Programs have been placed on floppy disks. Demonstration Disks allow DRP users to review and learn DRP PC Program capabilities at their own pace. Presently, demonstration disks are being prepared for all DRP PC Programs.

Workshops

While DRP products are designed to stand alone, user workshops provide direct assistance in learning or refining new techniques. DRP workshops remain flexible and, depending on interest, can be conducted on a
Corps-wide, Division, or District level, and can include non-Corps entities where appropriate.

**Field Demonstrations, Experiments, and Prototype Testing**

From time to time, cost-saving techniques and equipment developed by DRP work units require refinement by testing in real-world conditions. Assisted by Corps District office personnel, the DRP conducts field demonstrations and experiments on cost-saving techniques that are monitored in a test environment. Products documenting these exercises are prepared, and the knowledge gained from these demonstrations or experiment is used to refine existing and future DRP products.

**DredgeNet**

A computer-based teleconferencing network, DredgeNet, provides informal and timely exchange of information regarding the Corps' dredging program. The 75-plus DredgeNet members allow for an important and unique two-way forum to rapidly relay, critique, discuss, evaluate, and exchange ideas about DRP activities. The DRP Management monitors DredgeNet daily and shares its discussion with DRP Technical Area Managers and Principal Investigators. In addition, an update of DRP activities is provided to DredgeNet members every three months.

**Displays, Brochures, and Pamphlets**

A display describing DRP activities is available for workshops, conferences, and conventions. A single-sheet pamphlet, five-page color brochure, and TV/VCR program describing DRP activities support this display.

**Mailing Lists**

A crucial link in the delivery of DRP products is mailing lists. Even the best DRP product is totally useless if it is not delivered to the appropriate audience. Therefore, users are strongly urged to notify the DRP Management of address changes or corrections. The DRP has targeted Corps offices involved with dredging to receive various products. Furthermore, all Corps libraries receive DRP publications. When requested, the DRP will add names to mailing lists.

**DRP Personalities**

The success and effectiveness of the DRP lies in a team effort with numerous people having specific roles and responsibilities. If users are to provide constructive feedback on DRP products and ongoing work, it is necessary for them to know and understand this team and its role and responsibilities. The following paragraphs provide a brief description of each role. Table 1 provides the names of all the current DRP contacts.
Users

Users play a crucial role in the DRP and provide work unit and product evaluation. Users must provide much-needed feedback on the effectiveness and clarity of DRP products, as this feedback will be used to improve future products. In addition, comments on any manpower, time, and cost savings resulting from use of the product are also needed. The DRP looks to its users to assist in evaluating work unit direction by participating in Program Reviews, Field Review Group meetings, workshops, and other DRP activities. While sometimes it is not feasible to attend these meetings, users are encouraged to relay their comments to their respective Field Review Group member or other meeting participants.

Directorate of Research and Development (CERD)

CERD, one of the five HQUSACE directorates, is the financial sponsor of the DRP and is ultimately responsible for the DRP and other Corps research programs. One way that CERD ensures DRP responsiveness to field needs is by conducting semiannual program review meetings where a Corps-wide audience reviews, evaluates, and recommends research priorities.

Technical Monitors and Advisors

To assist and monitor the direction of the DRP, HQUSACE has appointed technical monitors and advisors. Located at HQUSACE, each technical monitor has been assigned responsibility for one of the five DRP technical areas. While this is an “other duties as assigned” position, these individuals perform a very important role in program direction by establishing work unit priorities and funding levels and reviewing draft user products.

Field Review Group (FRG)

Composed of Corps personnel representing diverse backgrounds in dredging operations, the FRG provides constructive guidance to Technical Monitors on DRP activities. A unique aspect of the FRG is that members are assigned to specific DRP technical areas, in which they provide candid advice to Technical Monitors, DRP management, and Principal Investigators on specific program or work unit activities. While the FRG meets twice a year to review DRP progress, members also provide much-needed support to the DRP concerning any activities occurring in their respective Division or District.

Program Management Office

Located at the Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, the DRP Management Office is
responsible for the day-to-day management of the program. The main objective of DRP Management is to ensure program continuity, success, and effectiveness by planning and managing work units, approving initial draft products, and managing product deadlines and expenditures. DRP Management is also responsible for coordinating Program Review and Field Review Group meetings.

**Technical Area Managers**

Each of the five DRP Technical Areas has a Technical Manager who reports directly to the DRP Manager. Technical Managers oversee, coordinate, and provide direction to Principal Investigators' work unit methodology and activities.

**Principal Investigators (PIs)**

PIs are responsible for planning and conducting DRP research. In addition, PIs develop user products which are the end result of DRP work unit efforts. Working under tight time constraints, PIs must plan and implement their study methodology within the delivery deadlines of work unit products established with DRP management. In addition, to ensure effective production development, PIs constantly seek informal day-to-day contact and evaluation with Corps personnel on the direction of their work unit.
Dredging Research Program Bibliography

Instruction Reports

(None to date)

Technical Reports


TR DRP-92-6, "ADCIRC: An Advanced Three-Dimensional Circulation Model for Shelves, Coasts, and Estuaries; Report 1, Theory and


Contract Reports


Miscellaneous Papers


Technical Notes

Technical Area 1: Analysis of Dredged Material Placed in Open Water


Technical Area 2: Material Properties Related to Navigation and Dredging


Technical Area 3: Dredge Plant Equipment and Systems Processes


Technical Area 4: Vessel Positioning, Survey Controls, and Dredge Monitoring Systems


Technical Area 5: Management of Dredging Projects


Miscellaneous


**Information Exchange Bulletins**


Executive Notes

No. 1, May 1989, Improved Draghead Design, and others.

No. 2, July 1989, DRP Field Data Collection Project, and others.

No. 3, December 1989, Contaminated Material Capping Demo, and others.

No. 4, March 1990, DRP Brochure and Video, and others.

No. 5, June 1990, Improved Educators and Systems for Sand Bypassing, and others.

No. 6, February 1991, Miami Harbor Placement Monitoring, and others.

No. 7, June 1991, Site Characteristics, and others.

No. 8, July 1991, CERB Dredging Theme, and others.

No. 9, September 1991, LONGTERM DREDGE Hits the Road, and others.

No. 10, November 1991, DRP, EPA & NOAA Team-up, and others.

No. 11, January 1992, Expert Based System on Dredgeability, and others.

No. 12, March 1992, Multiple Dredging Program Reviews Planned, and others.
No. 13, May 1992, DRP Technology Used in Chicago Flood Response, and others.

No. 14, July 1992, Coastal Engineering Education Program, and others.

No. 15, January 1993, PLUMES Goes to Deeper Depths!, and others.

**Videos**


**PC Programs**

“Single Short-Term FATE of Dredged Material (SSTFATE),” Nick Kraus, June 1990.

“Height, Period, Direction PREprocessor (HPDPRE) & Height, Period, Direction SIMulation (HPDSIM),” Norm Scheffner, September 1990.


Technical Note DRP-6-01 (January 1993)
“Cohesive Sediments PC Programs (HPROF, COSED1H),” Allen Teeter, October 1990.


“Point Load and Unconfined Compressive Strength Database,” Hardy Smith, October 1991.


**Demonstration Disks**


**Workshops**

“Bottom Descriptor Workshop,” Jack Fowler, September 1989, New Orleans, LA.

“Silent Inspector Workshop,” Jay Rosati, March 1990, Denver, CO.

“Technical Area 1 Interim Guidance Workshop,” Nicholas Kraus and others, June 1990, Vicksburg, MS.

“Silent Inspector Workshop,” Jay Rosati, August 1991, Denver, CO.


“GEODREDG Workshops,” Jack Fowler, August and September 1992, Seattle, WA, and New Orleans, LA.

“DRP Decimeter GPS System Workshop and Demonstration,” Sally Froedge, Duck, NC.

**Field Demonstrations/Experiments**

Monitoring Long-Term Wave and Bottom Current Conditions at Sand Island Berms, AL, Edward Hands, March 1987-October 1990.


Monitoring Long-Term Berm Migration at Nearshore Site, Humboldt, California, Edward Hands, March-October 1989.


Mobile Bay Field Data Collection Experiment; Nicholas Kraus and others, August-September 1989.


Monitoring of Long-Term Berm Migration Near Sand Island, AL, Edward Hands and others, March-July 1990.

Plume Tracking Measurements from Miami Harbor Deepening Project, Miami, FL, Terri Prickett, April-May 1990.

Monitoring Long-Term Changes on Disposal Mound SF-3, California, Edward Hands, June 1990.

Monitoring Long-Term Berm Migration at Nearshore Site, Humboldt, California, Edward Hands, June-October 1990.

Gulfport, MS, and Mobile, AL, Harbors Acoustic Impedance Survey to Determine Density and Material Types, Bob Ballard, July 1990.


Monitoring of Long-Term Berm Migration Near Sand Island, AL, Edward Hands and others, February-September 1990.


Boat/Pier GPS Positioning Test, Fort Belvoir, VA, Carl Lanigan, June 1991.

GPS/Photogrammetry Accuracy Test, Rockville, MD, Carl Lanigan, July 1991.

Drilling Parameter Recorder In-Lab Test on Selected Uniform Materials, Vicksburg, MS, Hardy Smith, July-September 1991.


Monitoring Long-Term Changes on Disposal Mound SF-3, California, Edward Hands, September 1991.

Monitoring Long-Term Berm Migration at Nearshore Site, Humboldt, CA, Edward Hands, September 1991.


Improved Eductor Long-Term Field Test, Indian River Inlet, Delaware, Jim Clausner, January 1993.

Displays, Brochures, and Pamphlets

DRP Display Themes:

- DRP Overview.
- Technical Area 1 Overview: Analysis of Dredged Material Placed in Open Water.
- DRP Hydrographic Surveying Work.
- Why Dredge? (Economics of Dredging).
- Technical Area 2 Overview: Material Properties Related to Navigation and Dredging.
- Dredging and Navigation Branch.
- Beneficial Uses of Dredged Material.
- GPS: Meters Today Decimeters Tomorrow.
- Submersible Pumps as an Alternative to Dredging.
- Subbottom Site Characterization Using Acoustic Impedance.
- Results of the Tylers Beach Plume Tracking Study.
- Water Injection Dredging.


DRP Brochure, March 1990.
### Table 1

*Dredging Research Program Key Personnel*

<table>
<thead>
<tr>
<th>Office</th>
<th>Office Symbol</th>
<th>Telephone No.</th>
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<tbody>
<tr>
<td><strong>DRD Coordinator, HQUSACE</strong></td>
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<tr>
<td>Jesse A. Pfeiffer, Jr.</td>
<td>Civil Works Program</td>
<td>CERD-C</td>
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<tr>
<td><strong>Technical Monitors and Advisors, HQUSACE</strong></td>
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<tr>
<td>Robert H. Campbell</td>
<td>Operations, Construction, and Readiness Division</td>
<td>CECW-OD</td>
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<tr>
<td>John H. Lockhart, Jr. (Area 1)</td>
<td>Engineering Division</td>
<td>CECW-EH-D</td>
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<td>Barry W. Holliday (Area 2)</td>
<td>Operations, Construction, and Readiness Division</td>
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<td>Dave A. Roellig (Area 2)</td>
<td>Engineering Division</td>
<td>CECW-EG</td>
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<tr>
<td>Gerald Greener (Area 3)</td>
<td>Operations, Construction, and Readiness Division</td>
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<td>M. K. Miles (Area 4)</td>
<td>Engineering Division</td>
<td>CECW-EP-S</td>
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<tr>
<td>David Mathis (Area 5)</td>
<td>Office of Environmental Policy</td>
<td>CECW-PO</td>
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</table>

| **Program Management**                      |               |               |
| E. Clark McNair, Program Manager           | Coastal Engineering Research Center | CEWES-CP-D | (601) 634-2070 |
| Lyndell Z. Hales, Asst. Manager            | Coastal Engineering Research Center | CEWES-CP-D | (601) 634-3207 |
| Russell K. Tillman                         | Coastal Engineering Research Center | CEWES-CP-D | (601) 634-2016 |
| Karen R. Wood                              | Coastal Engineering Research Center | CEWES-CP-D | (601) 634-4271 |

| **Field Review Group**                      |               |               |
| Patrick Cagney (Area 1)                    | Seattle District | CENPS-EN-PL-ER | (206) 764-3624 |
| Douglas M. Piric (Area 1)                  | South Pacific Division | CESPD-CO-O | (415) 705-1443 |
| J. Patrick Langan (Area 1)                 | Mobile District | CESAM-OP-O | (205) 690-2591 |
| Robert E. Parker (Area 1)                  | Seattle District | CENPS-OP | (206) 764-3455 |
| Robert M. Parry (Area 1)                   | Seattle District | CENPS-OP-NP | (206) 764-3400 |
| Timothy Pope (Area 2)                      | South Atlantic Division | CESAD-EN-FG | (404) 331-6703 |
| Braxton Kyzer (Area 2)                     | Charleston District | CESAC-PM-N | (803) 724-4489 |
| Gregory E. Breerwood (Area 2)              | New Orleans District | CELMN-OD-ON | (504) 862-2302 |
| Robert A. Neal (Area 3)                    | North Central Division | CENCDC-CO-MO | (312) 353-6378 |
| Larry A. Rabalais (Area 3)                 | Lower Mississippi Valley Division | CELMV-CO-O | (601) 634-5814 |
| David C. Beach (Area 3)                    | Portland District | CENPP-OP-N | (503) 326-6082 |
| Robert J. Hopman (Area 4)                  | North Pacific Division | CENPD-CO-O | (503) 326-3778 |
| Herbie A. Maurer (Area 4)                  | Galveston District | CESWG-CO-M | (409) 766-3966 |
Table 1 (Continued)
Dredging Research Program Key Personnel

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<tr>
<td>Ronald G. Vann (Area 4)</td>
<td>Norfolk District</td>
<td>CENAO-ED-C</td>
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<tr>
<td>Jacob F. Redlinger (Area 4)</td>
<td>North Pacific Division</td>
<td>CENPD-CO-O-N</td>
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<tr>
<td>Charles E. Settoon (Area 5)</td>
<td>New Orleans District</td>
<td>CELMN-ED-C</td>
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<td>Kenneth H. Patterson (Area 5)</td>
<td>Portland District</td>
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<td>Paul J. Warren (Area 5)</td>
<td>Mobile District</td>
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<td>Carl G. Boutlier (Area 5)</td>
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<td>CFNAN-OD-N</td>
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<td>James Reese (Area 5)</td>
<td>North Pacific Division</td>
<td>CFNAN-PD-R</td>
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<td>John Tavolaro (Area 5)</td>
<td>New York District</td>
<td>CFNAN-OP</td>
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<td>Susan Rees (Area 5)</td>
<td>Mobile District</td>
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<td><strong>Technical Managers</strong></td>
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<tr>
<td>Nicholas C. Kraus (Area 1)</td>
<td>Coastal Engineering Research Center</td>
<td>CEWES-CV-CS</td>
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<tr>
<td>Don C. Banks (Area 2)</td>
<td>Geotechnical Laboratory</td>
<td>CEWES-GS</td>
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<tr>
<td>William D. Martin (Area 3)</td>
<td>Hydraulics Laboratory</td>
<td>CEWES-HE-E</td>
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<tr>
<td>George P. (Pat) Bonner (Area 4)</td>
<td>Instrumentation Services Division</td>
<td>CEWES-JV-Z</td>
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<tr>
<td>Thomas W. Richardson (Area 5)</td>
<td>Coastal Engineering Research Center</td>
<td>CEWES-CD</td>
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<tr>
<td><strong>Principal Investigators</strong></td>
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<tr>
<td>Nicholas C. Kraus</td>
<td>Calculation of Boundary Layer</td>
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<td>CEWES-CR</td>
<td>Properties (Noncohesive Sediments)</td>
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<td>Micheal W. Tubman</td>
<td>Measurement of Entrainment and Transport (Noncohesive Sediments)</td>
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<td>CEWES-CD-P</td>
<td>Measurement and Definition of Navigable Depth in Fluff and Fluid Mud</td>
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<td>Allen M. Teeter</td>
<td>Calculation of Boundary Layer Properties (Cohesive Sediments)</td>
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<td>Billy H. Johnson</td>
<td>Numerical Simulation Techniques for Evaluating Short-Term Stability of Dredged Material Disposed in Open Waters</td>
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<td>Norman W. Scheffner</td>
<td>Field Techniques and Data Analysis to Assess Fate of Open-Water Disposal Deposits</td>
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<td>Jack Fowler</td>
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<td>Hardy J. Smith</td>
<td>Descriptors for Rock Materials to Be Dredged</td>
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<td>Glynn E. Banks</td>
<td>Improved Draghead Design</td>
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<td>James E. Clausner</td>
<td>Improved Eductors for Sand Bypassing Dredging Equipment for Nearshore/Onshore Placement</td>
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<td>Stephen H. Scott</td>
<td>Technology for Monitoring and Increasing Dredged Payloads in Fine Grain Sediments Production Meter Technology</td>
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<td>Gary C. Lynch</td>
<td>Integrated Vertical Control System</td>
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<tr>
<td>Sally Frodge</td>
<td>Horizontal/Vertical Positioning System Utilizing GPS Satellite Constellation</td>
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<td>James R. Rosati</td>
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<tr>
<td>Gary C. Lynch</td>
<td>Dredge Plant Manuals</td>
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<td>Sandra K. Lemlich</td>
<td>Open Water Placement Site Planning, Design, and Operation (Berm Management)</td>
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<tr>
<td>Cheryl Pollock</td>
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<td>Russell K. Tillman</td>
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