

# Introduction to DOTS

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**Dr. Doug Clarke**

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# Introduction to DOTS

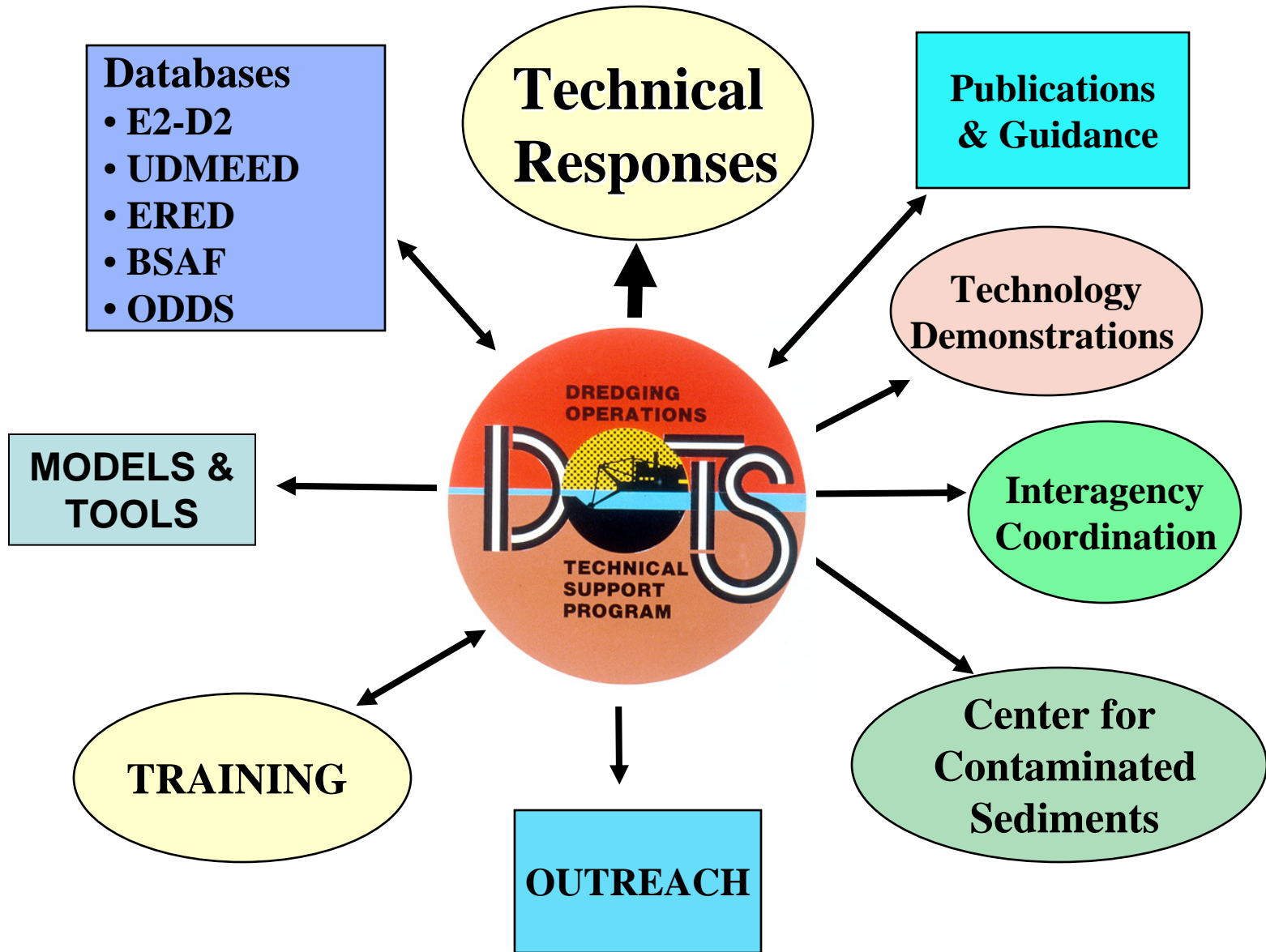
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## Dredging Operations Technical Support Program

***<http://el.erdcl.usace.army.mil/dots>***



# DOTS FUNCTIONS





# Direct Technical Support

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## A Response Can.....

- be initiated by letter or e-mail request
- consist of up to 2 weeks of scientist or engineer time & travel expenses
- range from phone calls to site visits
- result in products such as an MFR, technical document, or litigation testimony



# Activities

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- **Training**

- **Dredged Material Assessment and Management Seminar**

- **San Francisco, 2002**
    - **Denver, 2003**
    - **Cleveland, 2004**
    - **Boston, 2005**
    - **Sacramento, 2008**

# Dredging Operations Technical Support Program

U.S. Army Corps of Engineers | Engineer Research & Development Center | Environmental Laboratory



**Program Manager:** [Dr. Douglas Clarke](#)

**Program Monitor:** [Mr. Joseph Wilson](#)

The Dredging Operations Technical Support Program, known as DOTS, provides direct environmental and engineering technical support to the U.S. Army Corps of Engineers Operations and Maintenance (O&M) dredging mission. Technology transfer activities have supported diverse field needs for years and have directly benefited O&M dredging operations throughout the United States.



**[Take a Trip Through a Dredge!](#)**

What's New

Research

Databases

Beneficial Uses of  
Dredged Material

Publications

Guidance  
Documents

Models

Center for  
Contaminated  
Sediments

Expertise/Contacts  
/Research Teams

Training

Dredging Resources

Education Center

Related Sites

ACCORD

# Research Links



# DOER



**Dredging Operations and Environmental Research**

*... striking the balance*

| U.S. Army Corps of Engineers | Engineer Research and Development Center | Warning |

### DOER Focus Areas

Contaminated sediments  
Environmental windows  
Innovative technologies  
Instrumentation  
Nearshore/aquatic placement  
Risk management

### Technology Transfer

Reports  
Technical notes  
Bulletins  
Research briefs

### Research Team

### Tools

Dredging Calculators and  
Screening Tools  
Animations  
CD-ROM, DOER Products Vol. 1

### Related WES links

Coastal and Hydraulics  
Laboratory / Dredging  
Environmental Laboratory /  
Dredging Operations  
Technical Support

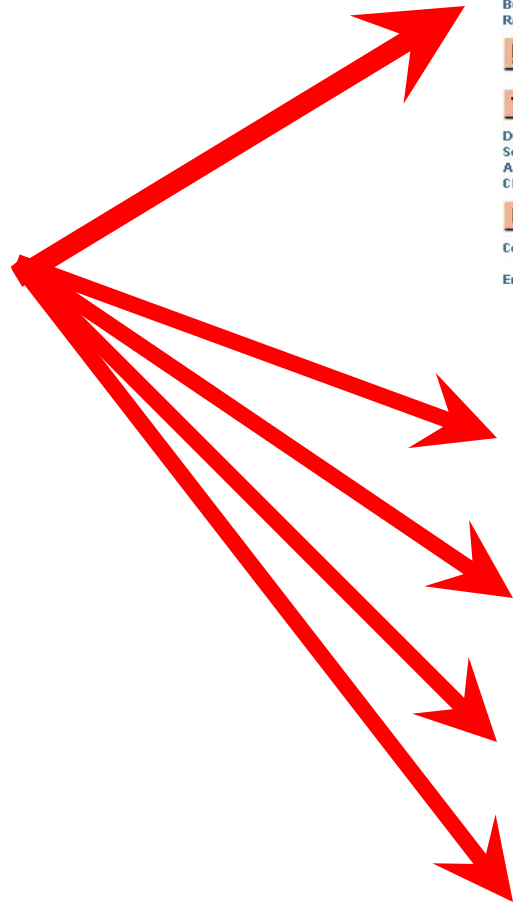
### Point of Contact

Robert M. Engler, Ph.D., Senior Scientist (EL)  
William H. McAnally, Ph.D., Technical Director (CHL)

The Dredging Operations and Environmental Research (DOER) Program supports the U.S. Army Corps of Engineers Operation and Maintenance Navigation Program. Research is designed to balance operational and environmental initiatives and to meet complex economic, engineering, and environmental challenges of dredging and disposal in support of the navigation mission. Research results will provide dredging project managers with technology for cost-effective operation, evaluation of risks associated with management alternatives, and environmental compliance.

### USACE Program Monitors

- Barry Holliday, Navigation
- Charles Chesnutt, Planning
- Joseph R. Wilson, Navigation
- Michael J. Klosterman, Engineering



# DMRP

# DRP

# FVP

# LEDO

# PUBLICATIONS

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- **Technical Notes**
- **Technical Reports**
  - **DOER – Active**
  - **DMRP, FVP, LEDO - Archived**
- **Dredging Research Bulletin**
- **Research Briefs**



Dredging Operations Technical Support Program

## Publications

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| U.S. Army Corps of Engineers | Engineer Research and Development Center | Environmental Laboratory | Warning |

- **Environmental Effects & Dredging and Disposal (E2D2)**  
Searchable publications reference database containing reports, journal articles, conference proceedings, and publications available from world-wide sources. The database is updated continuously and contains nearly 4,000 references, including many abstracts.
- **Technical Reports**  
Dredging Operations and Environmental Research (DOER)  
Long-Term Effects of Dredging Operations (LEDO)  
Environmental Effects of Dredging Program  
Archived, Former Programs:  
Dredged Material Research Program (DMRP): [List](#) | [Summary reports online](#)  
Dredging Research Program (DRP): [List](#) | [Summary reports online](#)  
Field Verification Program (FVP): [Summary reports online](#)
- **Research Briefs** (For optimal printing of briefs, set page margins to Top 0.4, Left and Right 0.2, and Bottom 0.0.)  
*Influence of Food Ration on Sediment Toxicity in *Neanthes arenaceodentata* (Annelida: Polychaeta)*  
*Dredge Bucket Comparison Demonstration at Boston Harbor*
- **Information Exchange Bulletin**  
*Dredging Research*
- **Technical Notes Online**  
Dredging Operations and Environmental Research (DOER)  
Environmental Effects of Dredging Program (Results from FVP, LEDO, DOTS and prior programs)  
Dredging Research Program (DRP) (Archive)

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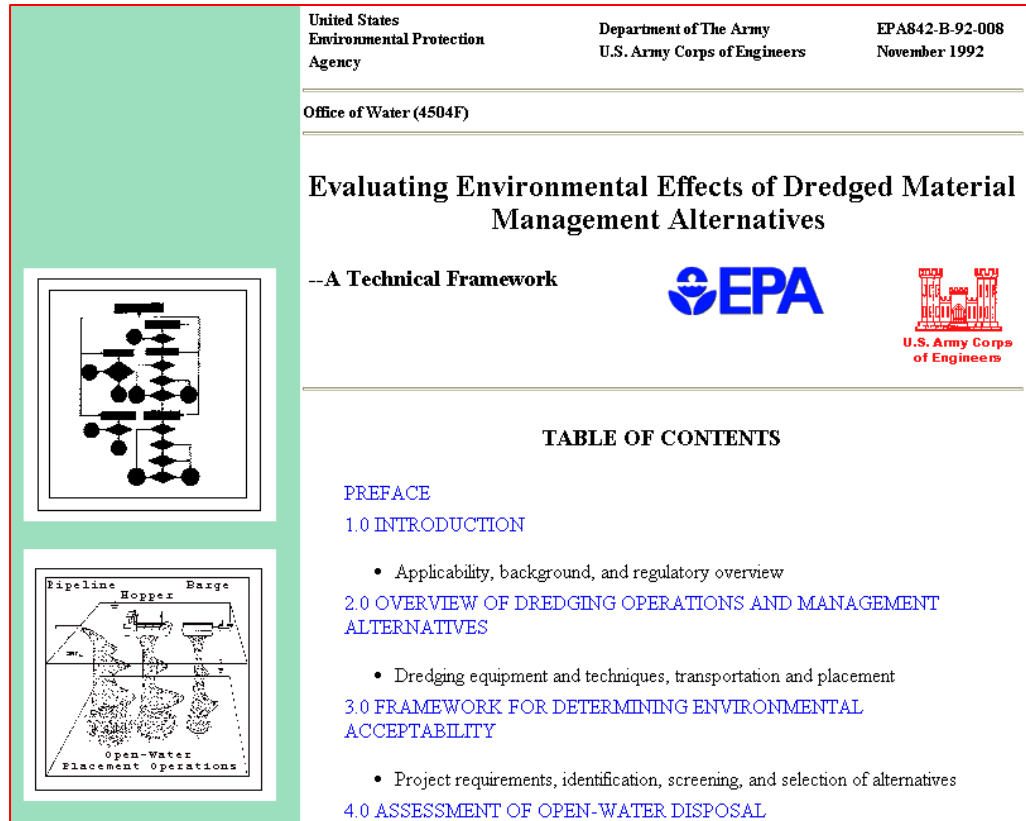
[Back to DOTS homepage](#) | [Back to Center for Contaminated Sediments](#)

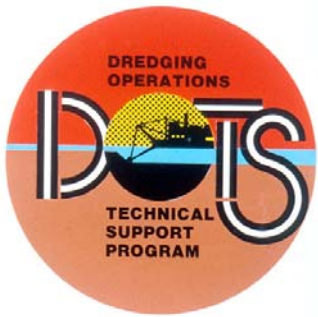
*Comments / Whom to contact*  
*Updated May 11, 2001*



# GUIDANCE DOCUMENTS

- Engineer manuals
- Capping
- Testing Manuals
- Leachate Guidance
- Technical Framework
- Sediment Quality Guidelines





# DATABASES

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- **Environmental Effects & Dredging and Disposal Literature Database (E2-D2)**
- **Ocean Disposal Database (ODD)**
- **Biota Sediment Accumulation Factor Database (BSAF)**
- **Environmental Residue-Effects Database (ERED)**
- **Upland Dredged Material Environmental Effects Database (UDMEED)**
- **Sea Turtle Data Warehouse (STDW)**

# E2-D2

- Query
- Disclaimer
- Introduction
- Points of Contact

- DOTS
- DredgeLine



## Environmental Effects & Dredging and Disposal

[U.S. Army Corps of Engineers](#) | [Engineer Research and Development Center](#) | [Environmental Laboratory](#) | [Search EL](#)

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Welcome to *E2-D2 (Environmental Effects & Dredging and Disposal)*. *E2-D2* is a literature database comprised of technical references covering a diverse range of topics related to environmental effects of dredging and dredged material disposal projects. The database focuses on broad topics such as beneficial uses of dredged material, contaminated sediments, and effects of sediment resuspension and sedimentation on aquatic organisms and their habitats. Much of the technical literature pertaining to dredging and dredged material disposal is found in the "gray" literature, i.e., non-peer-reviewed federal or state agency publications, or proceedings of symposia and specialty conferences. Many other studies of dredging operations are documented in the form of unpublished contract reports frequently held in project files rather than libraries or archives.

[\(Click here for more information\)](#)

[Begin Searching](#)

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[Work for Others](#) | [Technology Transfer](#) | [What's New](#)

# BSAF Database

(Your Source For Biota-Sediment Accumulation Factor and Lipid Data)

Technical Point of Contact: [Mr. Charlie Lutz E-mail](#)

[U.S. Army Corps of Engineers](#) | [Engineer Research and Development Center](#) | [Environmental Laboratory](#) | [Search EL](#)



## BSAF Data

- ◆ [By Organism](#)
- ◆ [By Chemical](#)
  
- ◆ [Benthic BSAFs with Statistics](#)

## Lipid Data

- ◆ [By Organism](#)

## Reference

- ◆ [Search For A Reference](#)
- ◆ [Display All References](#)



[BSAF Background Information](#)

# Environmental Residue – Effects Database (ERED)

## The Environmental Residue-Effects Database (ERED)

[U.S. Army Corps of Engineers](#) | [Engineer Research and Development Center](#) | [Environmental Laboratory](#) | [Search EL](#)

The U.S. Army Corps of Engineers/U.S. Environmental Protection Agency Environmental Residue-Effects Database (ERED) is a compilation of data, taken from the literature, where biological effects (e.g., reduced survival, growth, etc.) and tissue contaminant concentrations were simultaneously measured in the same organism. Currently, the database is limited to those instances where biological effects observed in an organism are linked to a specific contaminant within its tissues.

Technical Points of Contact: [Dr. Todd Bridges E-mail](#) [Charlie Lutz E-mail](#)

- ▶ [Quality Assurance/Quality Control Issues](#)
- ▶ [The Nature of Toxicological Effects](#)
- [User Directions](#)
- [Interpreting Bioaccumulation](#)
- [Data Coverage](#)
- [Acknowledgments](#)
- [Dredging Applications](#)

Last Data Update - November 2004

Best Viewed With Internet Explorer 4, SP 2 or higher



[Search the ERED](#)

(No Plug-in needed)



- [ERED Home](#)
- [Search ERED](#)
- [Preferences](#)
- [Bibliography](#)
- [Help](#)
- [Comments](#)

QUERY SUMMARY DETAIL GRAPH REFERENCES

### Search ERED

Species Scientific Name:

Species Common Name:

Analyte Name:

Analyte Chemical Class:  CAS No:

Effect Class:  Toxicity Measure:  Exposure Route:

Species Body Part:  Species Start Lifestage:

Species TSN Code:

### ERED Contains

Results	5955
Studies	1106
Species	239
Analytes	270
Effects	15
Endpoints	72

# Upland Dredged Material Environmental Effects Database (UDMEED)

U.S. Army Corps of Engineers | Engineer Research and Development Center | Environmental Laboratory

The U.S. Army Corps of Engineers Upland Dredged Material Environmental Effects Database (UDMEED) is a compilation of data, taken from the literature, where biological effects and/or tissue contaminant concentrations were measured in the same organism either in contact with, or commonly associated with, dredged material deposited in an upland situation.

- ▶ UDMEED Main Search Page
- ▶ Introduction
- ▶ Bibliography

- ▶ Data Coverage
- ▶ Application for Management of Dredged Material in Upland Sites

- ▶ The Nature of Toxicological Effects
- ▶ Interpreting Bioaccumulation Data
- ▶ Acknowledgements

## Technical POCs:

Dr. Elly P.H. Best

Charles H. Lutz

Support

Set Preferences



Environmental Laboratory



Dredging Operations Technical Support (DOTS) Program

Webdate: February 20, 2004

[Comments / Whom to contact](#)

[Privacy and Security Notice](#)





US Army Corps  
of Engineers

# USACE Sea Turtle Data Warehouse



[Home](#)

[Introduction](#)

[Annual Allowed Takes](#)

View Data By

- [Divisions](#)
- [Districts](#)
- [Projects](#)
- [Turtle Species](#)

[Total Cubic Yards](#)

- [Fiscal Year Table](#)
- [Fiscal Year Graph](#)

[Total Turtle Takes](#)

- [Takes Graphs](#)
- [Fiscal Year](#)
- [Calendar Year](#)

[Advanced Data Reports](#)

- [Takes](#)
- [Water Temp](#)

[References](#)

[Observer Forms](#)

[U.S. Army Corps of Engineers](#) | [Engineer Research and Development Center](#) | [Environmental Laboratory](#)



Maintenance of inland and intracoastal waterways for navigation is essential for national and international trade, job creation, and national security. These waterways also provide hydropower, flood protection, municipal water supply, agricultural irrigation, recreation, and regional development. The US Army Corps of Engineers' role in maintaining and improving these waterways began in 1824 and, today, the Corps maintains over 12,000 miles (19,200 km) of waterways throughout the United States.

Several types of dredges are typically used for excavating sediments to construct new waterways or maintain navigation depths in channels. Cutterhead pipeline, hopper, and mechanical dredges are the three primary types used throughout U.S. waterways. The type used depends on factors such as sediment type, location, environmental considerations, and wave conditions. [More ...](#)

# Dredging Operations Technical Support Program



U.S. Army Corps of Engineers | Engineer Research & Development Center | Environmental Laboratory

## Models

- **ADDAMS**

Set of continually evolving, state-of-the-art, computer-based tools that will increase the accuracy, reliability, and cost-effectiveness of dredged material management activities in a timely manner.

- [Fact sheet](#)
- [Demo](#)

- **TrophicTrace: A Tool for Assessing Risks from Trophic Transfer of Sediment-Associated Contaminants**

TrophicTrace is an Excel™ add-in that provides a spreadsheet tool for calculating the potential human health and ecological risks associated with bioaccumulation of contaminants in dredged sediments.

What's New

Research

Databases

Beneficial Uses of  
Dredged Material

Publications

Guidance  
Documents

Models

Center for  
Contaminated  
Sediments

Expertise/Contacts  
/Research Teams

Training

Dredging Resources

Education Center

Related Sites

ACCORD





## Databases

### Publications

- [Technical Reports](#)
- [Technical Notes](#)
- [Technical Notes Companion](#)
- [Journal Articles](#)
- [Bulletins](#)
- [Conference](#)
- [Other Reports](#)

### Fact Sheets

- [Research](#)
- [Project](#)
- [ERDC](#)

### Models

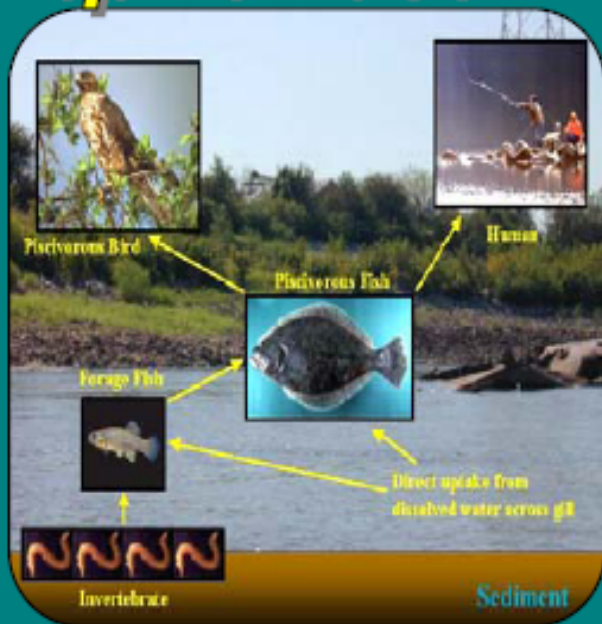
- [Aquatic Plant](#)
- [Dredged Material](#)
- [Health Risk Assessment](#)
- [Landfill](#)
- [Water Quality](#)
- [Other](#)

## Information Systems

## Dredged Material Disposal Management Models

Model	Application Programs	Description	Download Self-extracting, Executable files	Download Document Files	
<b>ADDAMS:</b> <a href="#">(readme.lst)</a>  <input checked="" type="checkbox"/> <a href="#">(Info)</a>  <a href="#">(Y2K Compliance)</a>  <b>POC: <a href="#">Paul Schroeder</a></b>	Settling Test Tool	Tool to Aid Conduct of Settling Test and Setup	<a href="#">SetForm.xls</a>	<a href="#">SetPro.pdf</a>	
	C D F	Windows CDF Version 1.0	Integrated CDF Design Module (SETTLE and DYECON)	Not Yet Available	
		DOS <b>SETTLE</b> Version 3.0	Design of Confined Disposal Facilities (CDFs) for Suspended Solids Retention and Initial Storage Requirements	<a href="#">zsettle.exe</a>	<a href="#">ee-06-18.pdf</a>
		DOS <b>DYECON</b> Version 3.0	Determination of Hydraulic Retention Time and Efficiency of CDFs	<a href="#">zdyecon.exe</a>	<a href="#">ee-06-17.pdf</a>
		<b>CDFATE</b> Version 1.0	Computation of Mixing Zone Size or Dilution for Continuous Discharges	<a href="#">zcdfate.exe</a> (DOS Version)  <a href="#">zcdfatew.exe</a> (Windows Version)	<a href="#">cdfate.pdf</a>
		<b>PSDDF</b> Version 2.1	Evaluation of Consolidation, Compression, and Desiccation of Dredged Fill for Determining Long-Term Storage Requirements	<a href="#">zpsddf.exe</a>	View <a href="#">on-line</a> or download <a href="#">psddf.exe</a>
	E F F	Windows <b>EFFLUENT</b> Version 1.0 (1/07/00)	Combined effluent pathway evaluation module (EFQUAL and LAT-E).	<a href="#">zeffluent.exe</a>	

# Trophic Trace



Help

Create Output

Chemicals

Environment

Invertebrates

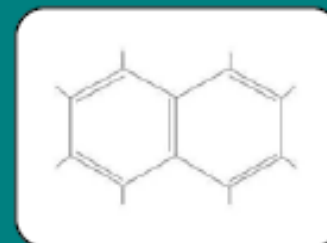
Fish

Human Exposure

Mammals

Avian

## PCBs (Total)



Add New

Edit

Delete

Home

Detail

## Child Angler



Add New

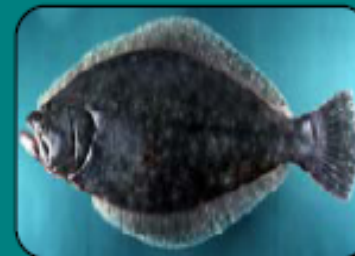
Edit

Delete

Home

Detail

## Summer Flounder



Add New

Edit

Delete

Home

Detail

PREPARED BY  
KATHERINE VON STACKELBERG  
ALLA BURMISTROVA  
MENZIE-CURA & ASSOCIATES, INC.  
ONE COURTHOUSE LANE, SUITE TWO  
CHELMSFORD, MA 01824



## Center for Contaminated Sediments

[U.S. Army Corps of Engineers](#) | [Engineer Research and Development Center](#)  
[Environmental Laboratory](#) | [Search EL](#)

[Todd S. Bridges, Ph.D.](#), Director

[Capabilities](#)

[Expertise](#)

[Guidance Documents](#)

[Technology Transfer](#)

[Case Studies & Projects](#)

[Related Sites](#)

**Local related links:**

- [DOER](#)
- [DOTS](#)
- [Environmental Chemistry](#)
- [Hazardous Waste](#)

The U.S. Army Corps of Engineers Center for Contaminated Sediments serves as a clearinghouse for technology and expertise concerned with contaminated sediments. The Center's mission is to advance the development and application of sound science and engineering principles and technology in the assessment and management of contaminated sediments. The Center pursues this mission through sponsoring development of new initiatives and innovative technologies, organizing and sponsoring technical workshops and symposia, and working on contaminated sediment projects with other organizations within the Corps, Department of Defense, other federal and state agencies, academia, and the private sector.

With more than two decades of experience in various aspects of identifying, delineating, assessing, remediating, and managing contaminated sediments, Corps engineers and scientists are on the cutting edge of research in this important area. This expertise is a direct result of research and development activities funded in support of the Corps' navigation mission and reimbursable work related to site assessment and cleanup for other elements within the U.S. Department of Defense, the U.S. Environmental Protection Agency, and others.

- [CCS support to the Superfund Sediment Resource Center](#)

# Educational Outreach

## Objectives

- Promote understanding of navigation and dredging
- Create a Corps-Classroom connection



## Target Users

- K-12+ Students
- Teachers
- Home Schoolers
- Corps Employees



## Site Components

- Unit lessons
- Classroom activities
- Demos and Experiments
- Interactive quiz games
- Young Engineer's Club
- Corps and government links
- Teacher resources
- Education links



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

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**Web Master – Ginny Dickerson, 601-634-4261**

- **E2-D2 – Doug Clarke, 601-634-3770**
- **ODD – Charlie Lutz, 601-634-2489**
- **BSAF – Charlie Lutz, 601-634-2489**
- **ERED – Todd Bridges, 601-634-2489**
- **UDMEED – Elly Best, 601-634-4246**
- **ADDAMS Models – Paul Schroeder, 601-634-3709**
- **Outreach Site - Dena Dickerson, 601-634-3772**
- **T&E Species – Dena Dickerson, 601-634-3772**