Navigation

Data Integration Framework

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Navigation RARG - Mobile, AL
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US Army Corps of Engineers
BUILDING STRONG®
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- Teresa Parks (CESAM-OP-J)
- Rich Thorsen (CENAD-PD-OR)
Presentation Outline

1. **NDIF**: What is the need and what is it?

2. **Phases**: What’s included?

3. **Benefits**: How will this help you and what impacts will it have?
Coastal Working Group Survey

26 Data Use Questions

<table>
<thead>
<tr>
<th>Office Symbol</th>
<th>Division</th>
<th>District</th>
<th>Sources of Data</th>
<th>Problems Encountered</th>
<th>Related Data Items</th>
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2 Summary Spreadsheets Compiling Input from 21 Coastal Districts
Summary of Needs

• Data is required to execute our missions

• We have requirements for a wide range of data types – temporal, spatial, financial, real-time, legacy, biological, chemical, physical, environmental, economic…

• Corps collects / produces a lot of data that is indispensable to us, our stakeholders, and the public

• Corps relies on other agencies for much data: other Fed (USGS, NOAA, others), coastal States (TX, LA, MS, AL, FL, CA, OR, WA, all), NGO’s, and Universities

• There are national & regional issues that require data partnerships to adequately address

• Corps spends $200M/yr - Need a sustainable framework to discover, access, and use data
Integrated Coastal Navigation Programs

Questions
- Where are the shoals?
- What is the shoal volume?
- Channel significance and priority?
- Disposal site location & capacity?
- What condition are the jetties in?
- What is CE channel performance?
- What do I need to dredge in a year?
- Should I rehab the jetties?

Applications
- Major Rehab Toolbox
- eCoastal
- CPT
- DQM Toolbox
- CoSCA
- CSMART
- CE-Dredge
- CIRP-o-meter

Integrated Coastal Navigation Programs
Challenges

- Multiple, disconnected navigation databases
- Data format
- Data inconsistency
- User time and effort
- User participation
- Data availability
- Data timeliness
Data Integration Framework (DIF)

- A combination of processes, standards, people, and tools used to transform disconnected enterprise data into useful, easily accessible information for strategic analysis and reporting.

- A blueprint identifying how all of its pieces interact and establishing a set of standards and best business practices.

- Turns data scattered among different databases and locations into data that is consistent across databases, that can be easily discovered, accessed, and used.
NDIF Architecture

- Source Databases (data)
- Data Hub (catalog)
- Web Service Layer (access)
- Tools (analysis)
- Portal (discovery)
Resource Discovery

Filter Settings (click to include):
- Dredging Phase: Planning, Contracting, Operations/QA, Closeout, Analysis, All
- Resource Type: Tool, Map, Graph/Report, Export, Map Svc, Web Svc, All
- Dredge Type: Hopper, Pipeline, Mechanical, Scow, All

Resources matching filter settings Operations/QA + Tool + Hopper:

**DQM Online Data Viewer v.2.5.5**

http://sam-db01mob.sam.ds.usace.army.mil/applications/opj/A067_DQM/viewer/

View dredge tracks by contractor-reported load numbers or calculated cycle numbers; export raw track data; create and export disposal plots

Tags: Operations/QA, Tool, Map, Graph/Report, Export, Hopper, Scow

**DQM Multi-Load Export and Disposal Plot**

http://sam-db01mob.sam.ds.usace.army.mil/applications/opj/A067_DQM/multiLoad/Main.aspx

Request exports and disposal plots of multiple loads at once; export Excel spreadsheets, shape files, or PDF

Tags: Operations/QA, Tool, Export, Hopper, Scow
NDIF Phases

1. Dredging
   - Development of a Dredging Portal “front end” to the dredging databases—DM, DIS, DQM, and RMS—their connection to the each other, and the portal’s connection to the District’s Navigation and Coastal Data Banks

2. River Information Services (RIS)

3. Surveying and Mapping

4. Navigation Infrastructure

5. Engineering with Nature

6. Marine Transportation
River Information Services (RIS)

- Consolidated US Coast Guard (USCG) Web Service
- Inland Electronic Navigation Charts (IENC)
- Lock Operations Management Application (LOMA)
- Lock Performance Monitoring System (LPMS)
- Master Docks Plus (MDP)
- Nationwide Automatic Identification System (NAIS)
Surveying and Mapping

- eHydro Hydrographic Survey
- National Channel Framework (NCF)
- National Coastal Mapping Program (NCMP)/Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX)
- Navigation and Coastal Data Bank (NCDB)
Navigation Infrastructure

- Channel Portfolio Tool (CPT)
- Coastal Structures Management, Analysis, and Ranking Tool (CSMART)
- Enterprise Coastal Inventory Database (ECID)
- Lock Characteristics
- Master Docks Plus (MDP)
- National Coastal Mapping Program (NCMP)/Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX)
- Navigation and Coastal Data Bank (NCDB)
- Port and Waterways Facilities
Engineering with Nature

- Engineering With Nature (EWN)
- Ecosystem Restoration Database
- Civil Works Project Mitigation Database (CWPMD)
Marine Transportation

- Commodity Code Cross Reference File
- Flag Master File
- Foreign Cargo (Inbound/Outbound)
- Foreign Traffic Vessel Entrances and Clearances
- Hazardous Commodity Code Cross Reference File
- International Classification of Ships by Type (ICST)
- Master Docks Plus
- Principal Ports of the United States
- Schedule K Classification of Foreign Ports
- Waterborne Commerce of the United States (WCUS)
NDIF Impact on USACE Navigation Staff

- Designed to assist those who collect, enter, distribute, and use navigation data
- Removes data insularity
- Helps users find answers more easily
- Reduces data entry, time, and effort
- Enhances staff participation, data consistency, and data timeliness
- Standardizes data format
- Provides geospatial data
NDIF Integration into USACE’s Enterprise Geospatial Program

- Promotes geospatial data sharing across the USACE Navigation Business Line
- Exposes and makes discoverable decentralized data through a centralized Portal
- In the process of linking disparate databases, provides a geospatial component to those that previously had none
DIS Planned Dredging Areas
Impact on USACE as a Whole

- The ultimate goal of the NDIF is to develop an integrated data system across the Navigation Business Line, which will serve as a model of what ultimately might be accomplished across the entire USACE
Question/Comments?

- Upcoming Milestones
  
  - Dredging Portal Prototype (May 2013)
  
  - Paper - NDIF: The Concept and the Vision (June 2013)

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http://spatialdata.sam.usace.army.mil