National Levee Database

USACE Flood Risk Management and Silver Jacket Workshop

Allyson Windham
August 23, 2012
Agenda

- National Levee Database Overview
- National Levee Database Public View
- What Can I Find in the NLD
- National Levee Database and Data Integration
- National Levee Database Demo
- National Levee Database Data Management Tool
- Data Management Tool Demo
- Questions
National Levee Database Defined

- “Authoritative Database that Describes the Location and Condition of the Nation’s Levees, and the Potential Consequence Behind Those Levees”
Why Do We Need a National Levee Database?

A single …

► Comprehensive (Complete)
► Spatially Precise
► Authoritative
► Consistent
► Temporally explicit (Snapshot in time)

Levee database for the Nation - Directed by Congress
“SEC. 9004. INVENTORY AND INSPECTION OF LEVEES.

(a) LEVEE DATABASE.—The database shall include—

• (A) Location information of all Federal levees in the Nation (including global information system information) and,

• For non-Federal levees, such information on levee location as is provided to the Secretary by State and local governmental agencies;

• (B) utilizing such information as is available, the general condition of each levee; and

• (C) An estimate of the number of structures and population at risk and protected by each levee that would be adversely impacted if the levee fails or water levels exceed the height of the levee.
What is the Objective?

- Geospatial Database Model for levee inventory that complies with spatial data standards
- Contain all necessary attributes of levees/floodwalls relevant to design, construction, operations, maintenance, repair, and inspections.
- The database structure shall be the same at every District to assure commonality of levee data with other agencies (Federal, state and local).
Levee System

All components and features which collectively provide protection (reduces the probability of flooding) to a hydraulically unique area.

This diagram shows three levee systems.
Flood Damage Reduction System

- A flood damage reduction system is made up of one or more flood damage reduction segments which collectively provide damage reduction to a defined area. Failure of one segment within a system constitutes failure of the entire system. Failure of one system does not effect another system.
Flood Damage Reduction Segment

- A flood damage reduction segment is defined as a discrete portion of a flood damage reduction system that is operated and maintained by a single entity (usually referred to as a sponsor or levee district). A flood damage reduction segment is made up of one or more features.
Flood Damage Reduction System

This diagram shows two levee “systems” wherein each operate in a separable floodplain. Top system is broken into two segments.
National Levee Database Features
Welcome to the National Levee Database

The National Levee Database (NLD), developed by the U.S. Army Corps of Engineers (USACE), is the focal point for comprehensive information about our nation’s levees. Authorized by Congress in 2007, the database contains information to facilitate and link activities, such as flood risk communication, levee system evaluation for the National Flood Insurance Program (NFIP), levee system inspections, flood plain management, and risk assessments. The NLD continues to be a dynamic database with ongoing efforts to add levee data from federal agencies, states, and tribes.

Here is what is available in the NLD:
- Majority of levees located within the USACE Levee Program
- Reports on levees in the NLD located within your state, zip code, or address
- Various federal database resources integrated into NLD such as the National Weather Service
- Feedback link for you to provide comments on the NLD
- Contact Us tab if you need assistance or have questions

⚠ Please Note: The NLD currently contains the majority of levees within the USACE program. The NLD does not contain all levees located in the United States.
Public View of NLD

- Goal to allow public to view maximum amount possible within the NLD
- Security concerns require that some information remain safeguarded
  - Critical infrastructure
  - For Official Use Only Information

Example:
- Levee Periodic Inspections
  - Can see Executive Summary
  - The entire report is not viewable
National Levee Database Features
Public View
National Levee Database
What Can I Find?

- Is there a levee near me?
- What was the last inspection rating for a levee?
- What is the inspection rating for a levee?
- How many levees are located in my State, County?
- Is there a list of levees within my State, County?
- Is there information on details about levees?
- Can I see a report with information on levees?
- Are there other sources of information?
National Levee Database Reports

- **Standard Reports:**
  - Basic System Report
    - Select dropdown fields to view information
  - Segment or System Detail/Feature Reports
    - Shows quantity of levee features and specific details about each levee system/segment
  - Authorization
    - Levee Project Information by USACE District
  - Segment Inspection Report

- **Customize Your Own Report**
National Levee Database Report Store

Basic System Reporting
Search for NLD levee data by specified search criteria

Advanced Reporting
Navigate through customized reports

Map Query Reporting
Search for a specific location or address to view levees located near them using the map

Find Levees Near Me
Identify specific levees within a specified distance from a given ZIP code
## National Levee Database Basic System Report

### Basic System Reporting

<table>
<thead>
<tr>
<th>Organization</th>
<th>System Name</th>
<th>State</th>
<th>Cong. District</th>
<th>County</th>
<th>FEMA Region</th>
<th>Segments</th>
<th>Length (Miles)</th>
<th>Link to Map</th>
<th>Inspection Type</th>
<th>Inspection Rating</th>
<th>Inspection Date</th>
<th>Risk Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORTLAND</td>
<td>Zurich Farm</td>
<td>Oregon</td>
<td>Oregon - 01</td>
<td>Washington County</td>
<td>Region 10</td>
<td>1</td>
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<td>Periodic</td>
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<td>26-APR-10</td>
<td>No</td>
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<tr>
<td>ST. PAUL</td>
<td>Zumbro River - Kellogg - Right Bank</td>
<td>Minnesota</td>
<td>Minnesota - 01</td>
<td>Wabasha County</td>
<td>Region 05</td>
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<tr>
<td>ST. PAUL</td>
<td>Zumbro River - Kellogg - Left Bank</td>
<td>Minnesota</td>
<td>Minnesota - 01</td>
<td>Wabasha County</td>
<td>Region 05</td>
<td>1</td>
<td>2.1184</td>
<td>-</td>
<td>Periodic</td>
<td>MINIMALLY ACCEPTABLE</td>
<td>21-APR-11</td>
<td>No</td>
</tr>
<tr>
<td>ROCK ISLAND</td>
<td>Zuma Creek Special Service Area</td>
<td>Illinois</td>
<td>Illinois - 14, Illinois - 17</td>
<td>Rock Island County</td>
<td>Region 05</td>
<td>1</td>
<td>7.6175</td>
<td>-</td>
<td>Routine</td>
<td>UNACCEPTABLE</td>
<td>-</td>
<td>No</td>
</tr>
<tr>
<td>SEATTLE</td>
<td>Zempel Mutual Drainage District</td>
<td>Washington</td>
<td>Washington - 04</td>
<td>Yakima County</td>
<td>Region 10</td>
<td>1</td>
<td>0.6443</td>
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<td>-</td>
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<td>-</td>
<td>No</td>
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<tr>
<td>ROCK ISLAND</td>
<td>Zempel Mutual Drainage District</td>
<td>Illinois</td>
<td>Illinois - 17</td>
<td>Fulton County</td>
<td>Region 05</td>
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<td>ACCEPTABLE</td>
<td>24-MAR-11</td>
<td>No</td>
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<tr>
<td>PORTLAND</td>
<td>Younce, Drake, Tidewater</td>
<td>Oregon</td>
<td>Oregon - 02</td>
<td>Jackson County, Josephine County</td>
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<td>0.676</td>
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<td>-</td>
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<tr>
<td>WALLA WALLA</td>
<td>Young (Left Bank)</td>
<td>Idaho</td>
<td>Idaho - 01</td>
<td>Canyon County</td>
<td>Region 10</td>
<td>1</td>
<td>0.692</td>
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<td>Routine</td>
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<tr>
<td>SACRAMENTO</td>
<td>Yolo Bypass West Side Levee - Canal Creek Unit 4</td>
<td>California</td>
<td>California - 02</td>
<td>Yolo County</td>
<td>Region 09</td>
<td>2</td>
<td>8.1808</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>No</td>
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<tr>
<td>VICKSBURG</td>
<td>Yazoo Levees LB South MS</td>
<td>Mississippi</td>
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<td>Region 04</td>
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<td>09-NOV-09</td>
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</tr>
<tr>
<td>VICKSBURG</td>
<td>Yazoo Levees LB Central MS</td>
<td>Mississippi</td>
<td>Mississippi - 02</td>
<td>Yazoo County</td>
<td>Region 04</td>
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<td>Routine</td>
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<td>23-SEP-06</td>
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<tr>
<td>NEMPHIS</td>
<td>Yazoo Delta Levees Memphis-Rosedale System</td>
<td>Louisiana, Mississippi, Tennessee</td>
<td>Louisiana - 05, Mississippi - 01, Mississippi - 02, Tennessee - 09</td>
<td>Bolivar County, Coahoma County, Desoto County, Humphreys County, Issaquena County, Leflore County, Madison Parish, Panola County, Quitman County, Sharkey County, Shelby County, Sunflower County, Tishomingo County, Tishomingo County, Tunica County, Warren County, Washington County, Yazoo County</td>
<td>Region 04, Region 06</td>
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<td>-</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Information

- **State**: The state where the levee system is located.
- **FEMA Region**: The FEMA region where the levee system falls.
- **Segments**: The number of segments in the levee system.
- **Length (Miles)**: The total length of the levee system in miles.
- **Risk Assignment**: Indicates if the levee system is considered high risk.
- **Inspection Type**: The type of inspection performed on the levee system.
- **Inspection Rating**: The rating of the levee system's condition.
- **Inspection Date**: The date of the last inspection.
## National Levee Database Advanced Reports

### Category: 1 System

<table>
<thead>
<tr>
<th>Report Link</th>
<th>Summary</th>
<th>Report Name</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Detail</td>
<td>Report providing specific details of each levee system by organization</td>
<td>System Detail</td>
<td>Data Included</td>
</tr>
<tr>
<td>System Feature</td>
<td>Quantity of levee features by levee system</td>
<td>System Feature</td>
<td>Data Included</td>
</tr>
</tbody>
</table>

### Category: 2 Segment

<table>
<thead>
<tr>
<th>Report Link</th>
<th>Summary</th>
<th>Report Name</th>
<th>Help</th>
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</thead>
<tbody>
<tr>
<td>Segment Detail</td>
<td>Report providing specific details of each levee segment by organization</td>
<td>Segment Detail</td>
<td>Data Included</td>
</tr>
<tr>
<td>Segment Feature</td>
<td>Quantity of levee features by levee segment</td>
<td>Segment Feature</td>
<td>Data Included</td>
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</tbody>
</table>

### Category: 3 Authorization

<table>
<thead>
<tr>
<th>Report Link</th>
<th>Summary</th>
<th>Report Name</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorization Detail</td>
<td>Report providing specific details of each levee authorization by organization</td>
<td>Authorization Detail</td>
<td>Data Included</td>
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</table>

### Category: 4 Inspection

<table>
<thead>
<tr>
<th>Report Link</th>
<th>Summary</th>
<th>Report Name</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment Inspection</td>
<td>Inspection information (date, rating, file and results) per levee segment</td>
<td>Segment Inspection</td>
<td>Data Included</td>
</tr>
</tbody>
</table>
National Levee Database Map Report
Find a Levee Near Me

- Allows search based on zip code, State, County, City, or your own address
- Search shows list of levees within that area
- Select a particular levee, select map icon, and see physical features or basic information
Find a Levee Near Me

<table>
<thead>
<tr>
<th>System Name</th>
<th>Cong. District</th>
<th>State</th>
<th>County</th>
<th>FEMA Region</th>
<th>Segments</th>
<th>Length (Miles)</th>
<th>Link to Map</th>
<th>Inspection Type</th>
<th>Inspection Rating</th>
<th>Inspection Date</th>
<th>Risk Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-601 - Warkins Ditch RB - Warkins DD</td>
<td>Iowa - 05</td>
<td>Iowa</td>
<td>Mills County</td>
<td>Region 7</td>
<td>1</td>
<td>3.2615</td>
<td>Routine</td>
<td>MINIMALLY ACCEPTABLE</td>
<td></td>
<td>29-SEP-10</td>
<td>No</td>
</tr>
<tr>
<td>Waterloo - Elkhorn River RB</td>
<td>Nebraska - 02</td>
<td>Nebraska</td>
<td>Douglas County</td>
<td>Region 7</td>
<td>1</td>
<td>2.8666</td>
<td>Routine</td>
<td>MINIMALLY ACCEPTABLE</td>
<td></td>
<td>28-APR-10</td>
<td>No</td>
</tr>
<tr>
<td>NEDOUG18 - Big Papio RB - 36th St to Whitney Cr</td>
<td>Nebraska - 02</td>
<td>Nebraska</td>
<td>Sarpy County</td>
<td>Region 7</td>
<td>1</td>
<td>3.8175</td>
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<td>25-SEP-08</td>
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<tr>
<td>NEDOUG18 LB &amp; Little Papio LB - L St to copper Cr</td>
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<td>Nebraska</td>
<td>Douglas County, Sarpy County</td>
<td>Region 7</td>
<td>2</td>
<td>3.0345</td>
<td>Routine</td>
<td>MINIMALLY ACCEPTABLE</td>
<td></td>
<td>09-SEP-08</td>
<td>No</td>
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<tr>
<td>L-624.627.611-614 - Mosquito Cr &amp; Upper Pony Cr</td>
<td>Iowa - 05</td>
<td>Iowa</td>
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<td>Region 7</td>
<td>2</td>
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<td>L-624 MO River &amp; Indian LB &amp; Mosquito Creek RB</td>
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<td>Iowa</td>
<td>Pottawattamie County</td>
<td>Region 7</td>
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<td>6.8006</td>
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<td>NEDOUG16 - Big Papio LB - Copper Cr to Bq Elk Cr</td>
<td>Nebraska - 02</td>
<td>Nebraska</td>
<td>Sarpy County</td>
<td>Region 7</td>
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<td>2.8358</td>
<td>Routine</td>
<td>MINIMALLY ACCEPTABLE</td>
<td></td>
<td>25-SEP-08</td>
<td>No</td>
</tr>
<tr>
<td>YMCA Camp Kataki - Platte River RB</td>
<td>Nebraska - 01</td>
<td>Nebraska</td>
<td>Cass County</td>
<td>Region 7</td>
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<td>0.2158</td>
<td>Routine</td>
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<td>08-MAY-08</td>
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<tr>
<td>L-611-614 - Upper Pony Creek LB &amp; Lat 16 RB</td>
<td>Iowa - 05</td>
<td>Iowa</td>
<td>Pottawattamie County</td>
<td>Region 7</td>
<td>1</td>
<td>2.2927</td>
<td>Periodic</td>
<td>UNACCEPTABLE</td>
<td></td>
<td>08-APR-10</td>
<td>No</td>
</tr>
</tbody>
</table>
National Levee Database
Levee Features
Customize Reports
Customize Reports
Welcome to the National Levee Database

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- Contact Us tab if you need assistance or have questions

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Reports

View searchable reports depicting levee system and segment information

Simple Reporting
Search for NLD levee data by specified search criteria and search for levees by address

Advanced Reporting
Navigate through customized reports

Find Levees Near Me

Zip Code: 68045
Distance: 20 miles
Submit
Other Sources of Information
Integration of Databases

- DOT
  - Fiber Optic Lines
  - Regional Fiber Optic Lines
  - Oil and Gas Pipeline
  - Electric Transmission Line
- EPA
  - Regulated Facilities
  - EPA Regions
- NOAA
  - Stream gages Observed
  - Steam gages Forecasted
  - River Outlook
  - Real Time Radar
- NPS
  - Historic Properties
Real-Time Data Integration
Data Integration with other services
NLD Data Integration for EM
More Data: Partnership with Federal Agencies, States, Tribes

- FEMA MLI Integration
  - Region VII
- California Levee Database Integration
- Pilot Study with Miami Conservatory, Miami County Ohio
- Outreach efforts
  - Webinars
  - Workshops
WMS

- Web Map Services (WMS) - data services comprised of layered information suitable for visual representation
- NLD Public WMS allows the user to consume the NLD geospatial data with their own data layers
- The Public NLD WMS is available at the following URL:
  http://geo.usace.army.mil/cgi-bin/wms/nldwms
Federal Users This Year
(consumed our alpha version of the WMS)

- USDA
  - Used to help compute crop insurance payments based on flooding on farmland
- FEMA
  - Used to map locations of Corps levees they didn’t know about. Specifically when the Hamburg IA levee breached
    - Red River flooding in Fargo, ND
- NGA (National Geospatial Agency)
  - Get up to date info for their need/reporting. They task/collect satellite imagery.
- National Guard
  - Used/uses data for evacuation planning should breach happen
DEMO
Please Note: The NLD currently contains the majority of levees within the USACE program. The NLD does not contain all levees located in the United States.
National Levee Database
Data Management Tool
Data Management Tool

- **DMT Statement**
  - The DMT is a web-based data collection and management tool that enables non-USACE Levee Stakeholders to manage and contribute their levee data to the National Levee Database (NLD).

- **DMT Users**
  - Non-USACE Users including federal, states, local districts, territories, and tribes.

- **DMT Purpose**
  - Expand the scope of the NLD levee inventory to include non-USACE levee data.
  - Easy to use and secure web environment tool for non-USACE stakeholders to share and manage NLD data.
  - Improve accuracy of levee reporting (e.g., total miles).
NLD & DMT Integration

- The data collected through the DMT will be reviewed and uploaded directly into the NLD.

- All DMT submissions must be reviewed by a NLD Data Reviewer prior to uploading to NLD.

- Users will have the ability to edit levee data directly through the DMT.

- Users will have the ability to view all spatial NLD public data through the DMT.
Request Login

- To get started with the tool, you must first request an account.
- Select the ‘Click to request an account’ button.
Request Login

- Fill out your information. Make sure you select NLD Data Management Tool as the project. Once complete click ‘Save.’
- Your request will be sent to an Administrator for approval. Once approved, you will receive an email notification with a username and temporary password
Request Login

- Email the NLD Helpdesk:
  DLL-CEERD-NLD-General-Support@usace.army.mil

- Call the NLD Help desk:
  1-877-538-3387
User Roles

- **Levee Data Managers**
  - Create and manage levee data and submit completed systems for review.

- **Levee Reviewers**
  - Review systems that are submitted by the Levee Data Manager. They have the authority to accept or reject submissions with comments.

- **Organizational Administrators**
  - Appointed by the System Administrator. Within their organization, Organizational Administrators may manage Levee Data Manager privileges, create new subordinate organizations, and restore archived information that was deleted by users within their organization.

- **System Administrators**
  - Create Organizational Administrators, Levee Reviewers, and Levee Data Managers. However, they do not have the capability to add and manage levee data.
Minimum Requirements

- Leveed Area (Polygon)
- Leveed Area Name
- System Name
- Number of Segments in System
- Segment Name
- Authorization Type
- Owner/Contact (replaces Sponsor)
- Segment(s) length(s)
DEMO
Welcome to the US Army Corps of Engineers National Levee Database - Data Management Tool

The National Levee Database has been established to contain all relevant data regarding the nation's levees and floodwalls. The purpose of the NLD is to allow access to this data for the purpose of managing levees and assisting with the mission of reducing the flood risks to life and property.

Currently, the data contained in this database is relative to levees that are in the U.S. Army Corps of Engineers (USACE) Levee Safety Program. These include levees operated and maintained by USACE; constructed by USACE and locally operated and maintained; federally authorized to be in the USACE program and locally operated and maintained; and locally constructed and locally operated and maintained, but have been accepted into the USACE Rehabilitation and Inspection Program.

Congressional authorization provides USACE the ability to collect voluntary information on levees outside of USACE’s authority. USACE will begin this effort beginning in Fiscal Year 2011. If you do not see a levee in this database, chances are it is not in the USACE program and the information has not been volunteered.

For specific questions about your local levee, it is suggested that you contact your county National Flood Insurance Program (NFIP) representative. For questions about the data contained in this database, please contact the local USACE district office, which can be found on www.usace.army.mil.

We encourage you to utilize this tool and please feel free to provide comments and suggestions by clicking on the feedback icon in the website.

Click to download the Data Management Tool User Manual
Resources to Help You

- **Help Desk**
  - 1-877-LEVEEUS
  - DLL-CEERD-NLD-General-Support@usace.army.mi

- **NLD Home Page - About NLD Tab**
  - Webinars
  - Information on upcoming events

- **NLD Home Page - Help Tab**
  - User Manuals
  - How to Quick Guides

- **NLD Home Page - Contact Us**
  - List of contacts for issues/comments
Questions