



**US Army Corps
of Engineers**
Cold Regions Research &
Engineering Laboratory

Agency Scale Geospatial Applications using MapServer

**The First MapServer User Meeting
University of Minnesota
St Paul, Minnesota
June 6-7 , 2003**

**Joel Schlagel
Remote Sensing/GIS Center
Army Engineer Research and Development Center
Hanover, NH
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US Army Corps
of Engineers®
Cold Regions Research &
Engineering Laboratory

Geospatial Application Development Team

Tim Baldwin – ArcGIS application development for hydro

Rick Bates – Data structures design and development in c++

Dave Barthel – Oracle database design

Martha Bullock – Oracle & ESRI application development

Jason Coutermarsh – Web services application development

Michael Erricson – GIS applications for regulatory apps

Stephen Gaughan – MapObjects & Oracle application development

Hannah Jensen – Java, CORBA and Oracle Spatial applications

Daniel MacDonald – SDE and ArcGIS application development

Elke Ochs – ArcGIS application development

Pete Schmitt – Automated develop/deploy/monitor environment

Timothy Reardon – Security and systems administration

Kurt Schmidt – Oracle Spatial, and Java software development

Mike Smith – SDE loading and performance tuning, app develop

Amy Stender – Cartography, GIS analysis, PL/SQL development

Gary Trachier – Real-time data acquisition and integration w/ XML

Chris Williams – System design and automated data acquisition



About the Corps of Engineers

- ❖ 34,600 civilian and 650 military personnel
- ❖ USACE provides responsive engineering services to the nation
- ❖ Civil Works:
 - ❖ Plan, design, build and operate water resources projects
 - ❖ Navigation
 - ❖ Flood Control
 - ❖ Environmental Protection
 - ❖ Disaster Response
- ❖ Design and manage the construction of military facilities for the Army and Air Force.
- ❖ Provide design and construction management support for other Defense and federal agencies.



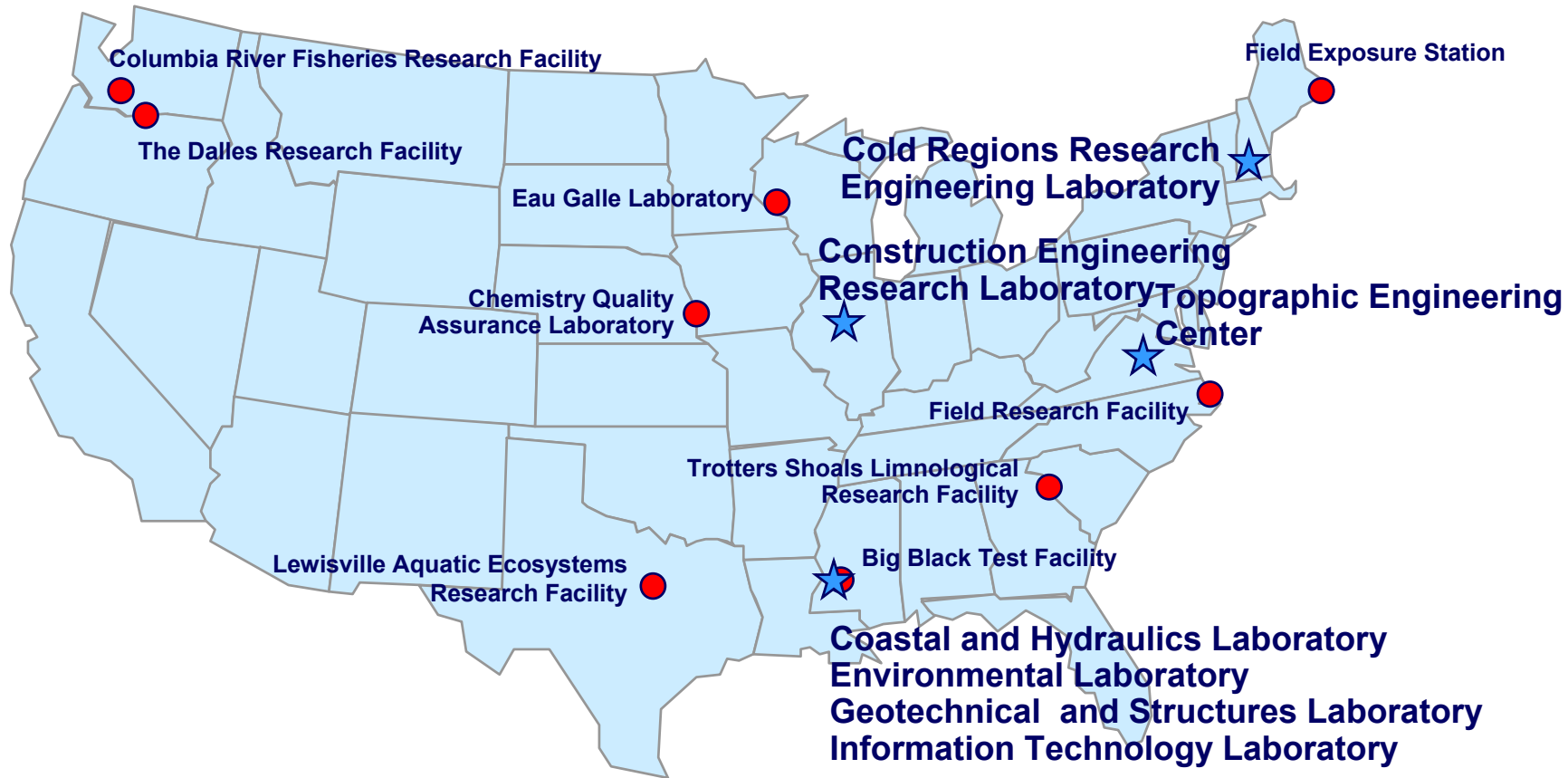
**US Army Corps
of Engineers**
Cold Regions Research &
Engineering Laboratory

Engineer Research and Development Center

Alaska Projects Office

Anchorage Field Office

European Research Office





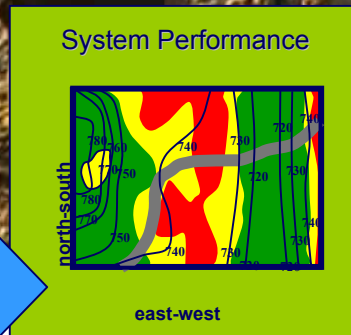
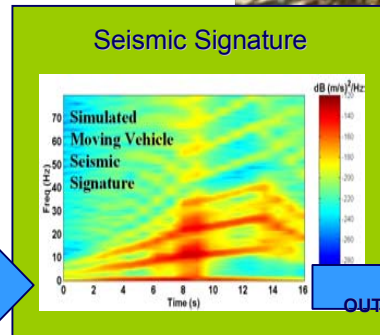
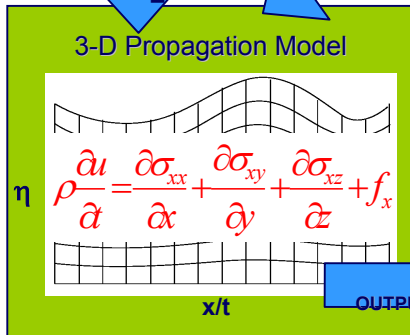
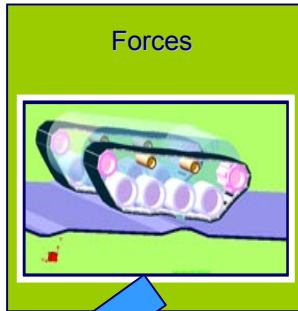
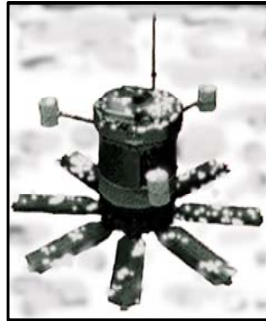
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Conservation, Remediation and Clean-up



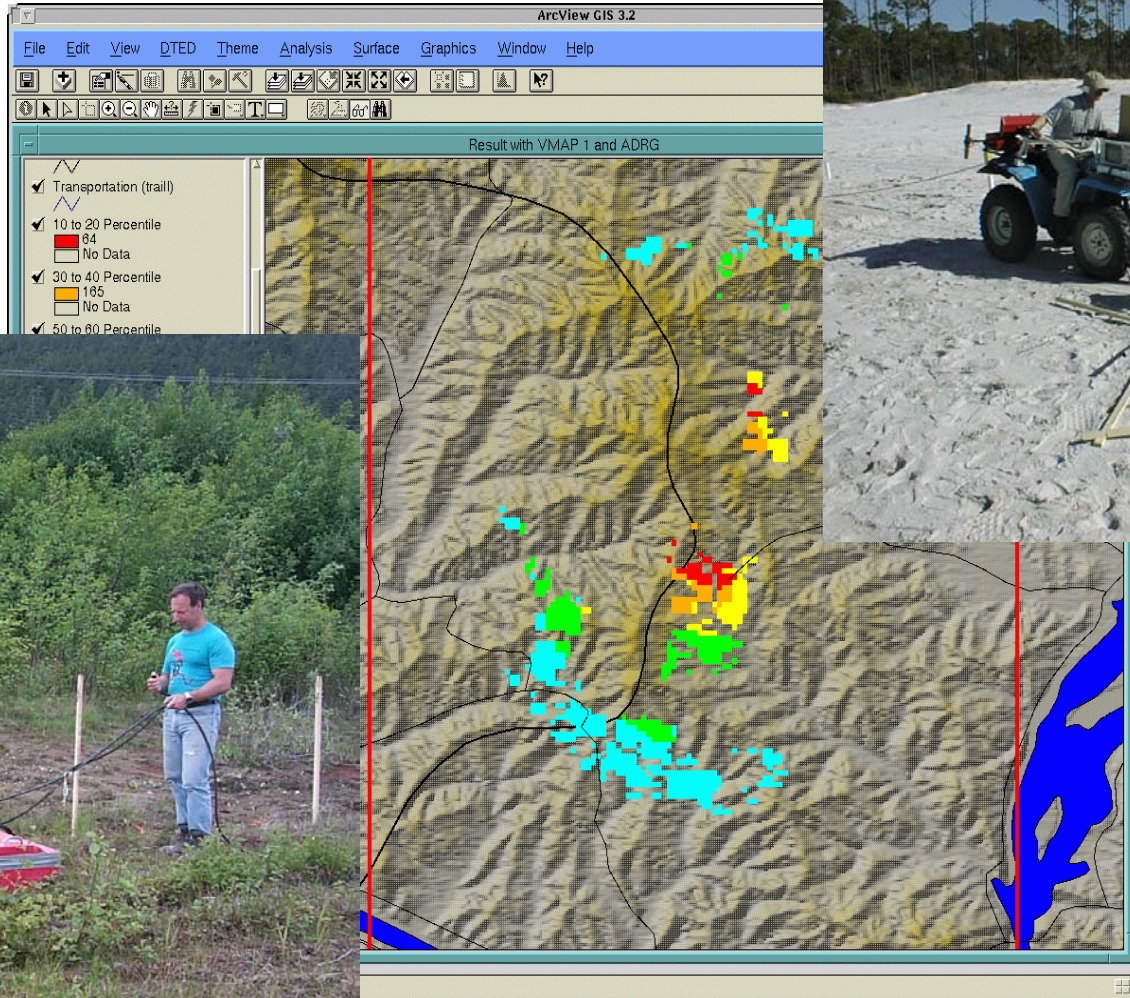


Seismic-Acoustics





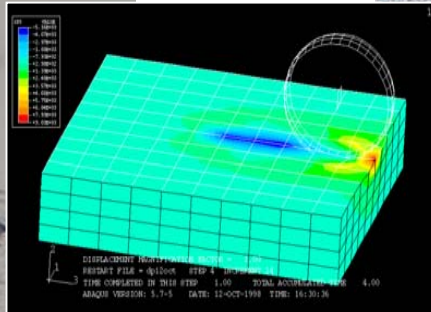
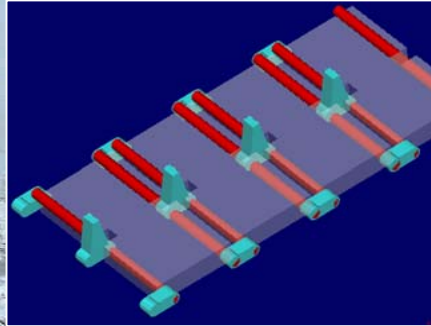
Electromagnetics





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Mobility / State of Terrain





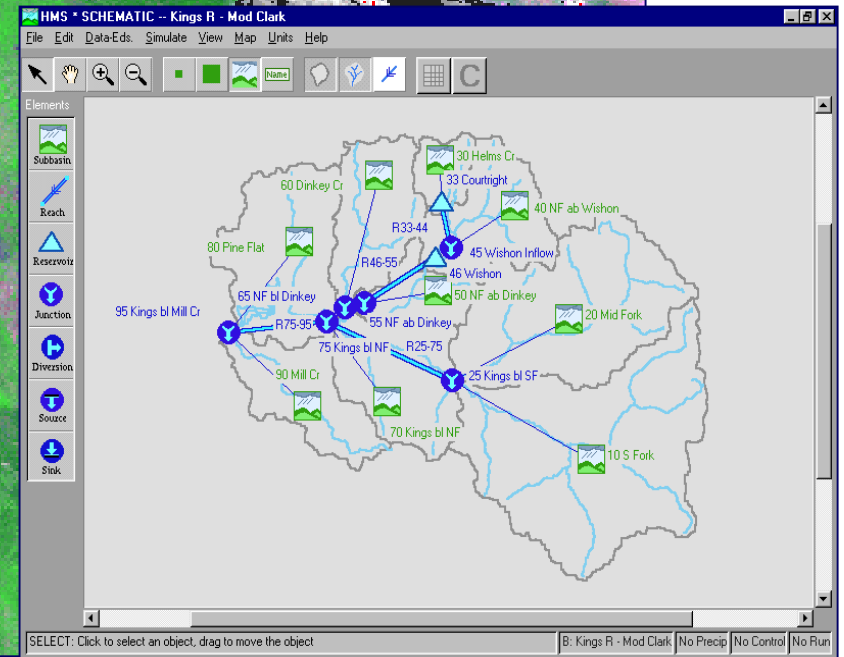
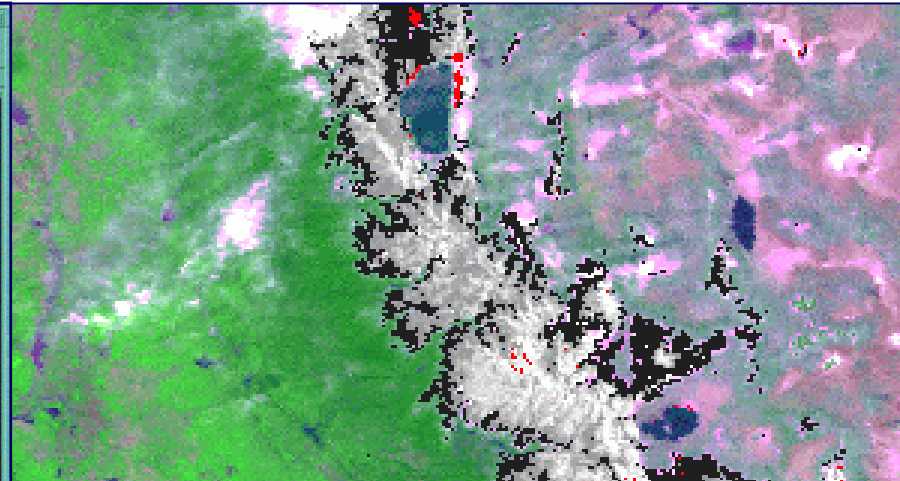
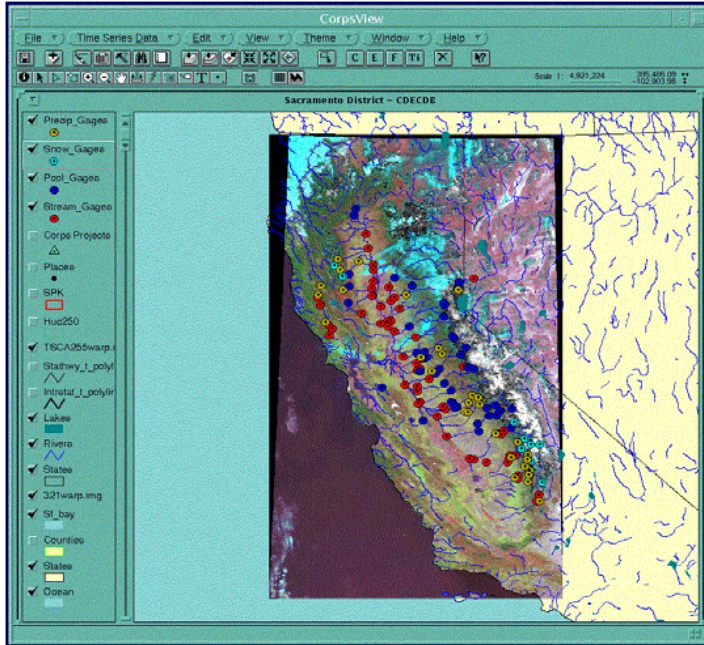
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Antarctic Support





Snow Hydrology





**US Army Corps
of Engineers**
Cold Regions Research &
Engineering Laboratory

Cold Regions Engineering

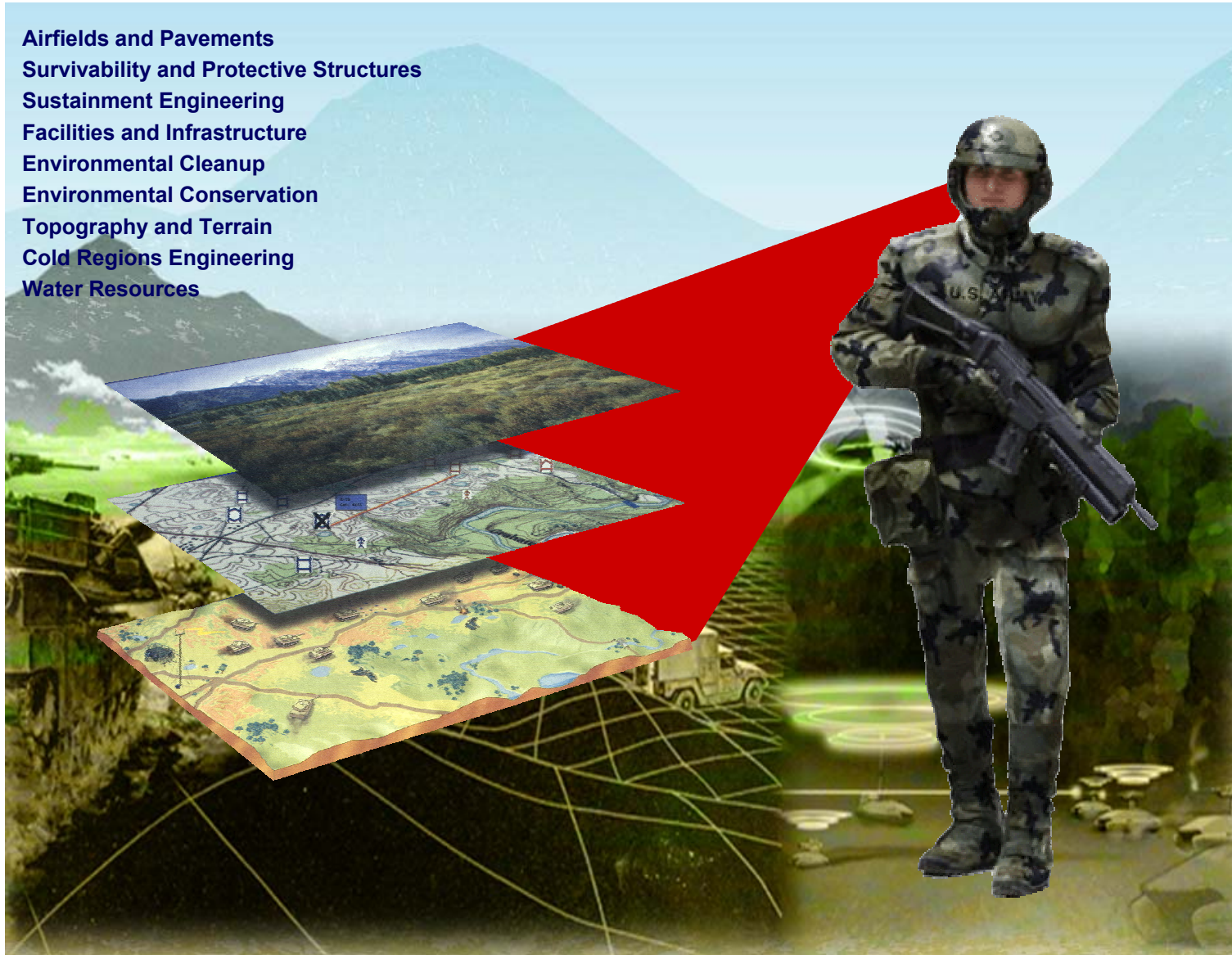




**US Army Corps
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Cold Regions Research &
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Science & Technology Leadership

Airfields and Pavements
Survivability and Protective Structures
Sustainment Engineering
Facilities and Infrastructure
Environmental Cleanup
Environmental Conservation
Topography and Terrain
Cold Regions Engineering
Water Resources





But ...

***“I’ve got experience with
You guys from the labs ...
You like to build systems ...
And we can’t afford them ...
We’re not going to support it ...
We want off the shelf solutions”***



Yet, after 20 years of GIS software development federal agencies are still not “spatially enabled”

- ❖ Vendor Product Lines & strategies are unclear and changing
- ❖ Software and maintenance costs remain high and are going up
- ❖ Software quality is perceived to be low
- ❖ Systems are too complex to configure
- ❖ Training is expensive and in short supply
- ❖ Mis-conception by management of what is available out of the box and off the shelf
- ❖ GIS is often synonymous with ARCIMS
- ❖ GIS professional often means an ESRI user/advocate/sales rep
- ❖ Professional service contracts are required to install, configure & customize software in almost every case
- ❖ Transition from ArcView/Avenue to Arc8 is a HUGE but unmeasured cost
- ❖ Web based GIS is the most cost effective approach for agency-wide implementations, but ArcIMS is not the answer.



Business Requirements/Constraints

- Account/password management for thousands of users
- Support for PKI Infrastructure (DoD Common Access Card)
- Strictly Defined Roles and Access
- Formal Release/Version Control & Reporting Mechanism
- 24x7 Systems with Fail-Over/Disaster Recovery
- Replication to Secure Networks
- Support Data Calls & Data Snapshots
- Formal Software Development Process (LCMIS, DITSCAP)
- Distributed Development Teams
- No ad-hoc-off-line-async-cron-job-slight-of-hand solutions
 - ie a shell script to put the model in an arcims acetate layer



RSGIS Approach to Application Development

- ❖ Enterprise class applications with unlimited scalability ...
- ❖ Based on the same platform as the Mission Critical Systems of the Corps
- ❖ We run on Sun Servers at Agency Data Centers
- ❖ We support for development, testing and production environments
- ❖ We use Oracle as our primary RDBMS
- ❖ We use Oracle as our primary application & web environment
- ❖ Oracle Spatial geometry for application specific geospatial data
- ❖ We use shape files or Oracle for rendering read only/basemap data
- ❖ PL/SQL for domain logic
- ❖ University of Minnesota Map Server for Map Generation
- ❖ DMS OWTchart for graphing
- ❖ Refrations OGC->IMS script for ESRI compatibility

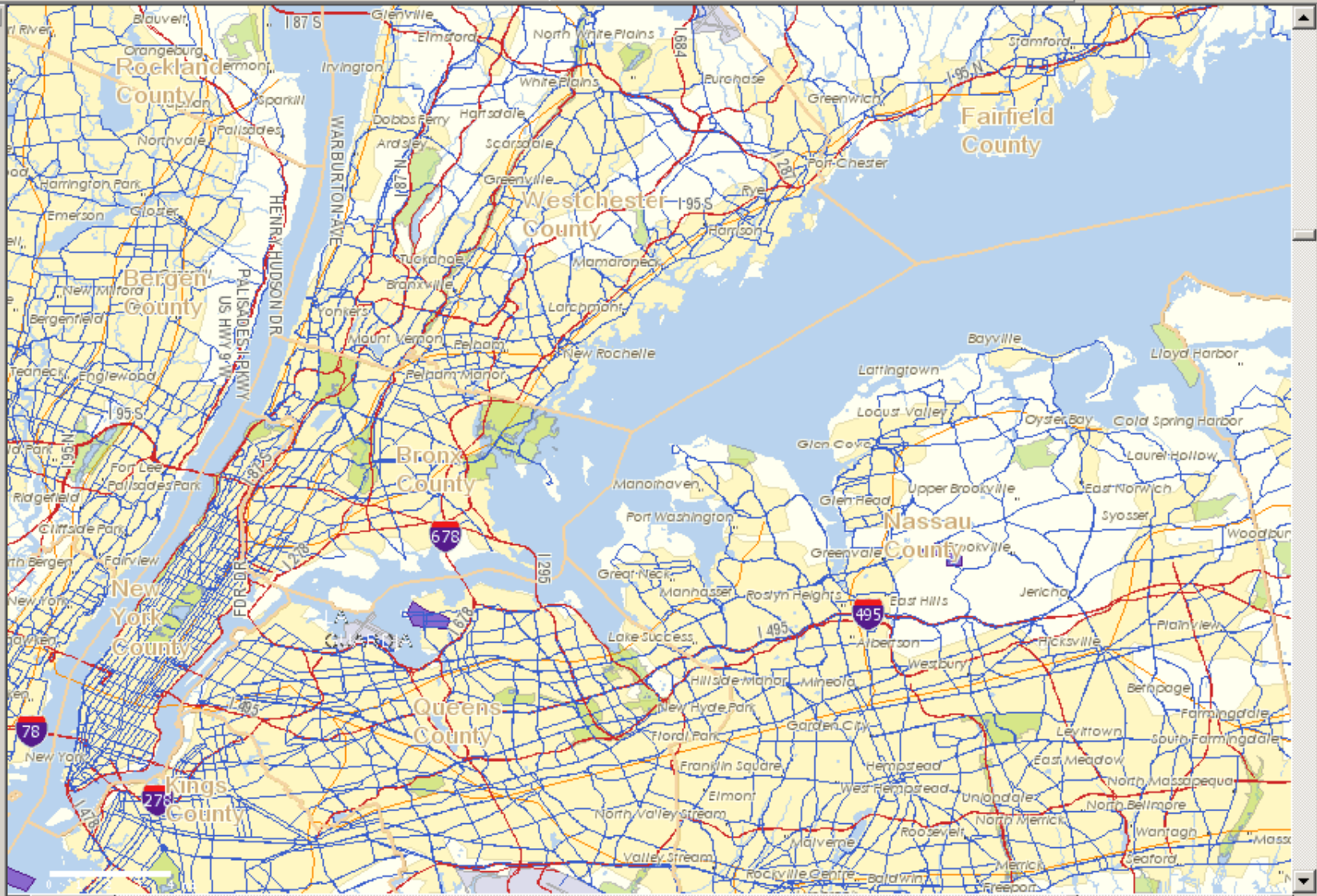
“Use What Works” – Clint Brown,

Director of Software Products - ESRI

Layers

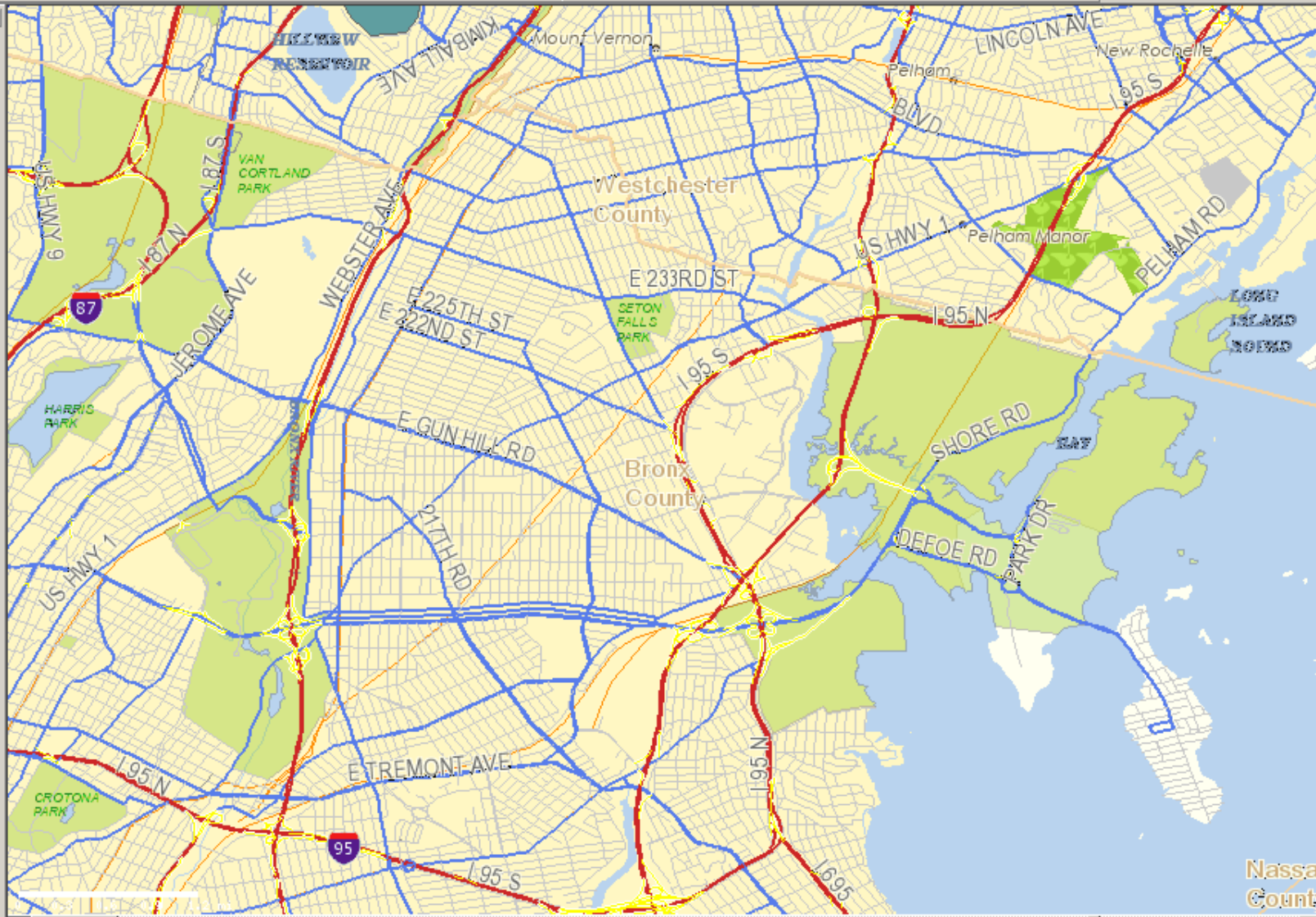
- Dynamap
- labelLay
- xxxxcb
- ra
- tr
- x
- rd_label
- roads
- roads
- roads
- al
- pk
- pk
- water
- rr
- edoq
- rr
- fedland
- ap
- ap
- milbase
- cities3
- cities3
- cities2
- cap
- intersta
- intersta
- rivers
- rivers
- rivers
- lakes
- lakes
- lakes

Display Source



Map navigation toolbar including tools for pan, zoom, pan back, pan forward, and navigation. Scale: 1:62,779

- Layers**
- Dynamap
 - labelLay
 - xxxxcb
 - ra
 - tr
 - x
 - rd_label
 - roads
 - roads
 - roads
 - al
 - pk
 - pk
 - water
 - rr
 - edoq
 - rr
 - fedland
 - ap
 - ap
 - milbase
 - cities3
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 - lakes
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 - lakes



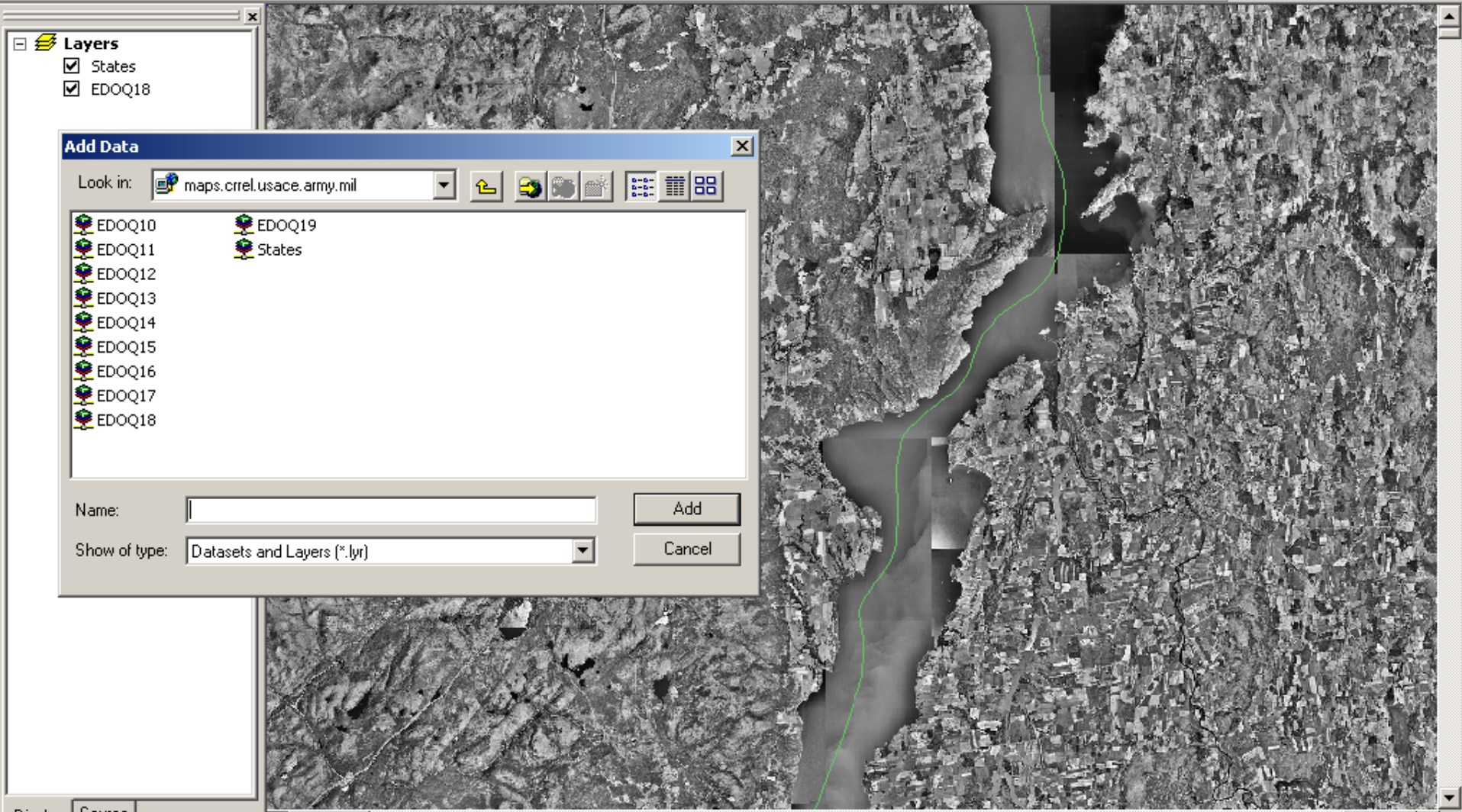
Map navigation and drawing toolbar. Includes drawing tools (point, line, text) and settings for font (Arial) and size (10).

73°52'37.28"W 40°53'17.87"N

1:207,667

3D Analyst Layer:

100%



Layers

- States
- EDOQ18

Add Data

Look in: maps.crrel.usace.army.mil

- EDOQ10
- EDOQ11
- EDOQ12
- EDOQ13
- EDOQ14
- EDOQ15
- EDOQ16
- EDOQ17
- EDOQ18
- EDOQ19
- States

Name:

Show of type: Datasets and Layers (*.lyr)

Add Cancel

Display Source

Drawing Arial 10 B I U

622648.12 4911013.44 Meters

Map toolbar with icons for file operations, navigation, and editing. Scale: 1:27,525

Layers panel showing a list of map layers with checkboxes:

- Dynamap
- labelLay
- xxxxcb
- ra
- tr
- x
- rd_label
- roads
- roads
- roads
- al
- pk
- pk
- water
- rr
- edoq
- rr
- fedland
- ap
- ap
- milbase
- cities3
- cities3
- cities2
- cap
- intersta
- intersta
- rivers
- rivers
- rivers
- lakes
- lakes
- lakes

Buttons: Display Source



Map toolbar with drawing tools and text formatting options. Font: Arial, Size: 10. Buttons: B, I, U, A, color selection.

73°51'22.27"W 40°52'21.38"N



**U.S. Army
Corps of Engineers**
Engineer Research and
Development Center
Topographic
Engineering Center



electronic charting for navigation

ABOUT

**INLAND ELECTRONIC
NAVIGATION CHARTS**

**ELECTRONIC NAVIGATION
CHANNEL DATA**

**MEETINGS
AND PRESENTATIONS**

INLAND CHART BOOKS

LINKS

CONTACT US

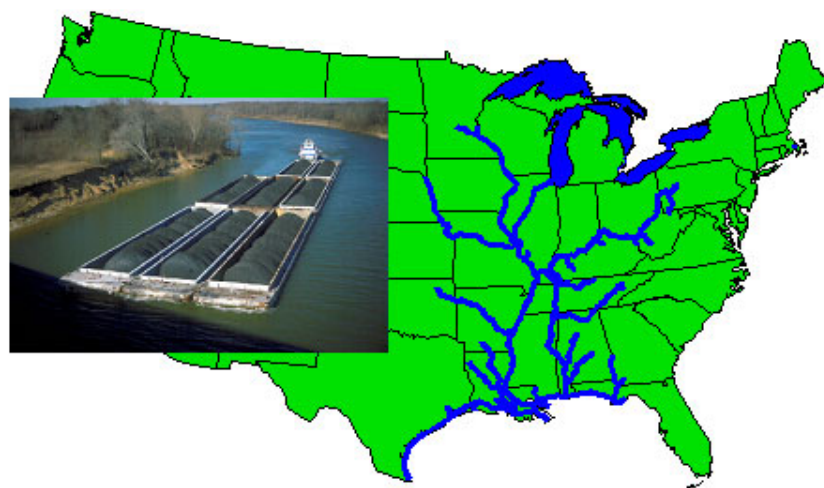
*Accurate geospatial information for waterway maintenance and flood control activities,
now being made available for safety of navigation applications.*

[HOME](#) | [About](#) | [Inland Navigation](#) | [Channel Navigation](#) | [Meetings and Presentations](#)

[Links](#) | [Discussion Forum](#) | [Contact Us](#)

Inland Electronic Navigation Charts

[Appropriation](#) | [Download Electronic Charts](#) | [IENC Format](#)



The U.S. inland navigation system consists of 8,200 miles of rivers maintained by the Corps of Engineers in 22 states, and includes 276 lock chambers with a total lift of 6,100 feet. The highly adaptable and effective system of barge navigation moves over 625 million tons of commodities annually, which includes coal, petroleum products, various other raw materials, food and farm products, chemicals, and manufactured goods (Reference [Corps Navigation Data Center](#)). The shallow draft waterways have many unique characteristics and difficulties over coastal harbor and ocean navigation; river levels can change by over 30 feet in a seasonal cycle, the navigation channel can shift significantly within the river banks, and shifting yet ever present river currents pose constant challenges in these confined waterways. Electronic chart systems can offer significant benefits to vessels including accurate and real-time display of vessel position relative to waterway features, voyage planning and monitoring, training tools for new personnel and integrated display of river charts, radar, and Automatic Identification Systems.

Following recommendations by the National Transportation Safety Board, the National Academy of Science and the American Waterways Operators, [Congress](#) directed the Corps of Engineers to develop and publish electronic charts for the inland



Who's Involved

- Board of Directors
- Federal Partners
- E-government

GeoData Marketplace

- NSDI Clearinghouse
- Existing Inventory
- Data Investments
- State Links
- Regional and Local Governments
- Private Sources

Best Practices, Data Sharing

- Geospatial Standards
- Portal Development
- Metadata

Geospatial One-Stop

Geospatial One-Stop makes it easier, faster, and less expensive for all levels of government and the public to access geospatial information. The Geospatial One-stop is one of 24 e-government initiatives sponsored by the Federal Office of Management and Budget to enhance government efficiency and improve citizen services.

With the support of all levels of government working together, Geospatial One-Stop will:

- Make it easier to access existing geospatial information across the nation
- Facilitate sharing of information and planning for future investments in geospatial data
- Expand collaborative partnerships to help leverage investments and reduce duplication of data
- Work collaboratively to develop and implement standards to facilitate sharing and use of best practices.
- All of these activities advance implementation of the National Spatial Data Infrastructure.

The purpose of Geospatial One-Stop is two-fold:

1. Support the businesses of government - almost every aspect of government including but not limited to; disaster management, recreation, planning, homeland security, public health, environmental protection, etc. has a geographic component.
2. Support decision making - issues occur in places (e.g. floods, events, crimes) and decisions addressing one issue often have broader implications, sometimes affecting entire communities. Geospatial information allows decisions to be viewed in a community context; and can facilitate cross-agency coordination.

To find [more about](#) Geospatial One Stop

To find out [what's new](#) at Geospatial One Stop

To find out more about Federal, State and local [geospatial partnership](#)



MapServer & OGR for IENC

LAYER

NAME m_covr # 32

PROJECTION

"proj=latlong"

"ellps=GRS80"

END

TYPE POLYGON

CONNECTIONTYPE OGR

CONNECTION "/fire/usa/s57"

DATA "M_COVR"

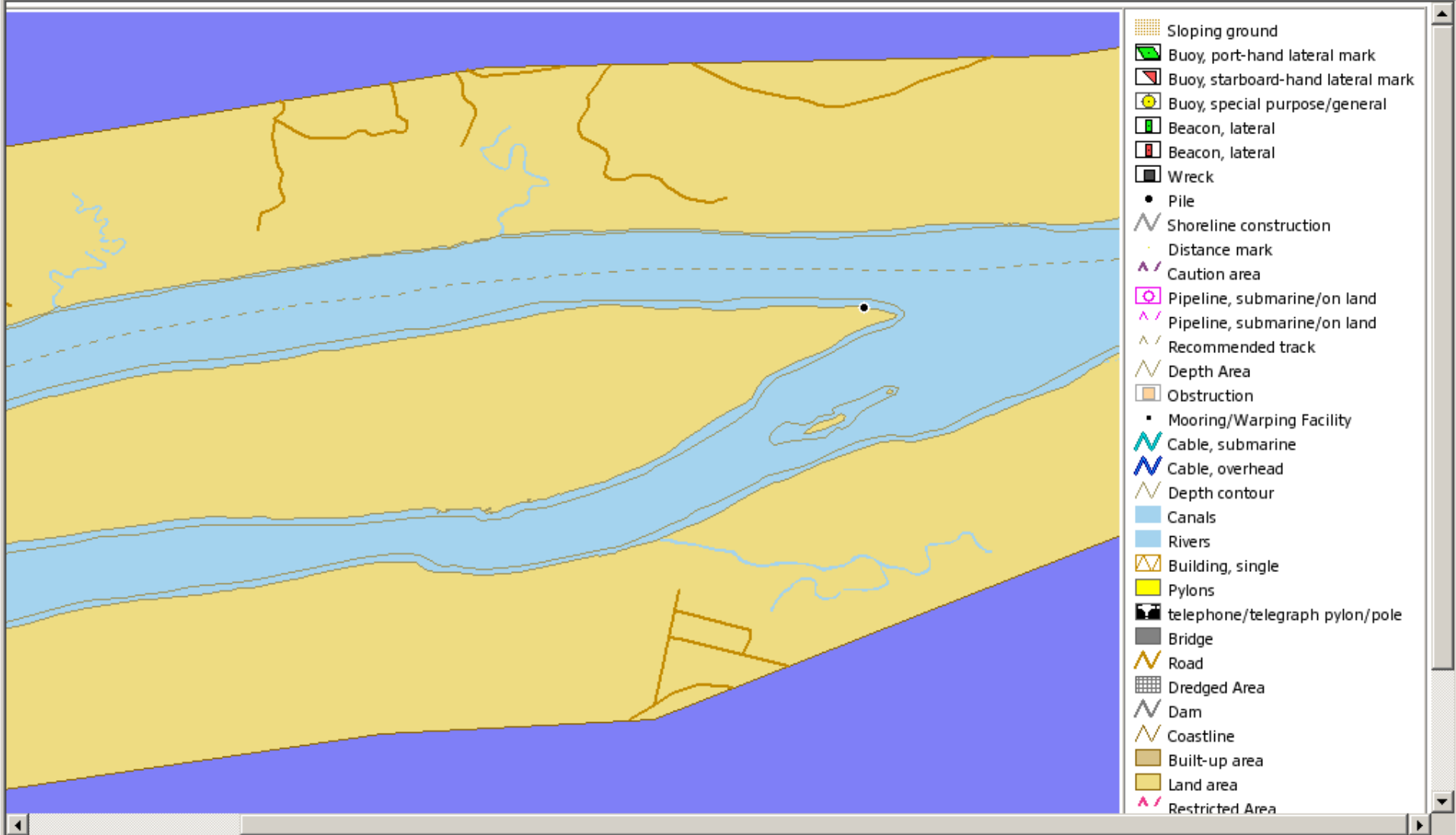
STATUS default

TRANSPARENCY 50

CLASS

NAME "Coverage"

COLOR 230 230 230





PL/SQL to identify HUC name where point click lat/lon has any interaction with HUC geometry:

```
SELECT z.reg_name
FROM earth.hucs_00 z
WHERE
    mdsys.sdo_relate (
        z.shape,
        mdsys.sdo_geometry (2001, null,
        mdsys.sdo_point_type(
        longitude,latitude,null),null,null),
        'mask=ANYINTERACT querytype=WINDOW ')='TRUE';
```




SECURITY NOTIFICATION

This is a DoD computer system. Before processing classified information, check the security accreditation level of this system. Do not process, store, or transmit information classified above the accreditation level of this system. This computer system, including all related equipment, networks and network devices (includes internet access) are provided only for authorized U.S. Government use. DoD computer systems may be monitored for all lawful purposes, including to ensure that their use is authorized, for management of the system, to facilitate protection against unauthorized access, and to verify security procedures, survivability, and operational security. Monitoring includes, but is not limited to, active attacks by authorized DoD entities to test or verify the security of this system. During monitoring, information may be examined, recorded, copied, and used for authorized purposes. All information, including personal information, placed on or sent over this system may be monitored. Use of this DoD computer system, authorized or unauthorized, constitutes consent to monitoring. Unauthorized use of this DoD computer system may subject you to criminal prosecution. Evidence of unauthorized use collected during monitoring may be used for administrative, criminal, or other adverse action. Use of this system constitutes consent to monitoring for all lawful purposes.

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Information contained in this system is subject to the privacy act of 1974 (5 U.S.C. 552a, as amended). Only authorized persons in the conduct of official business may use personal information contained in this system. Any individual responsible for unauthorized disclosure or misuse of personal information may be subject to fine of up to \$5,000.

IMPORTANT BROWSER INFORMATION: You are responsible for the security of your Personal Data Sheet (PDS). Information you enter in your PDS remains active until you exit the browser. If you leave this computer before exiting the browser, anyone who comes to this computer can access your data by pressing the back button. If this application is still active, someone other than you can submit or make changes to your PDS. It is imperative that you exit the browser when you leave this computer. Exit the browser by pressing the x button in the upper right hand corner of this page.



If you have any questions or comments about this security notification, please forward them to [Thomas J. Aubin](#), Information Systems Security Program Manager, United States Army Corps of Engineers.

ENGLink Event Viewer

Reference Map:



Legend:

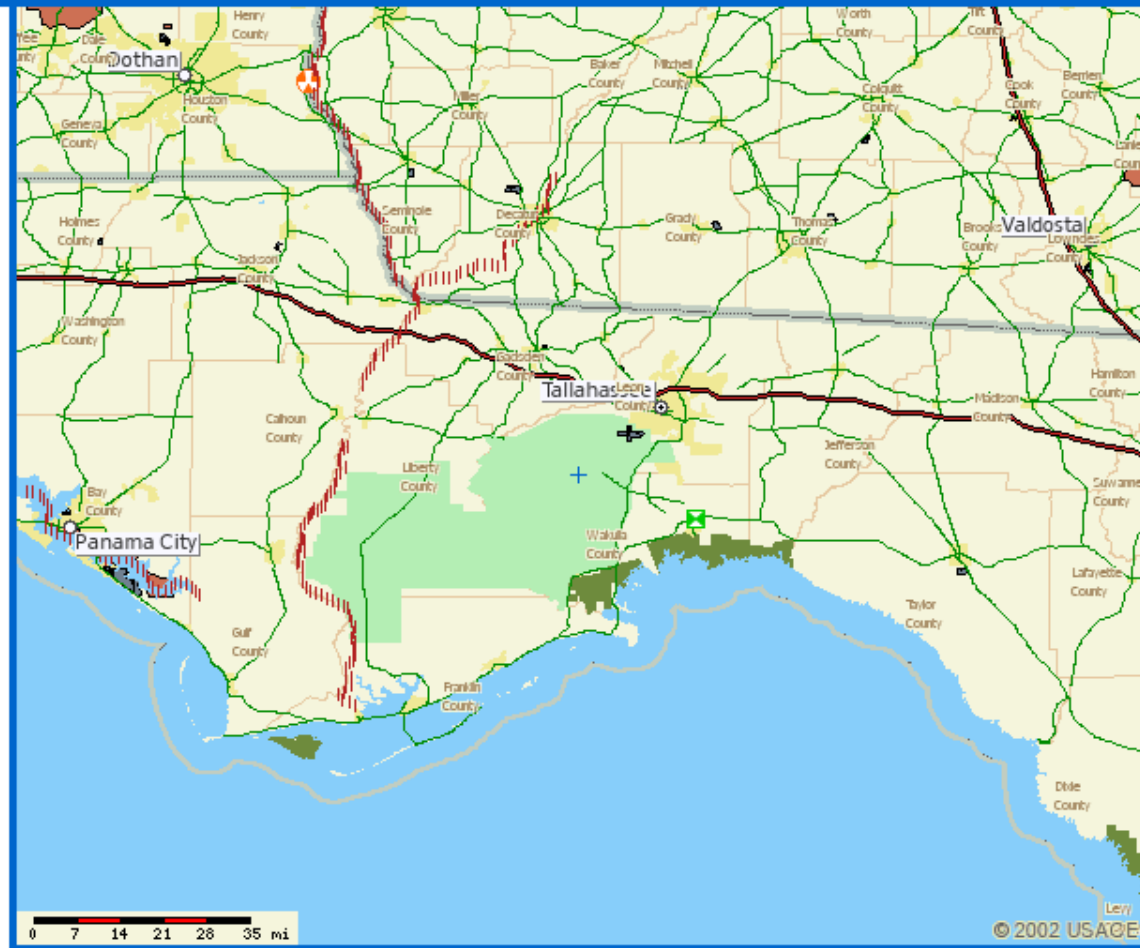
Click to view legend

Map Size:

Map Size

Data Layers:

Click to set data layers



Map Filters:

Event Type
- OR -
Organization
- OR -
All Events

Search:

Search Type

Reports:

Click to run reports





CorpsMap

A centralized map source for the Army Corps of Engineers.

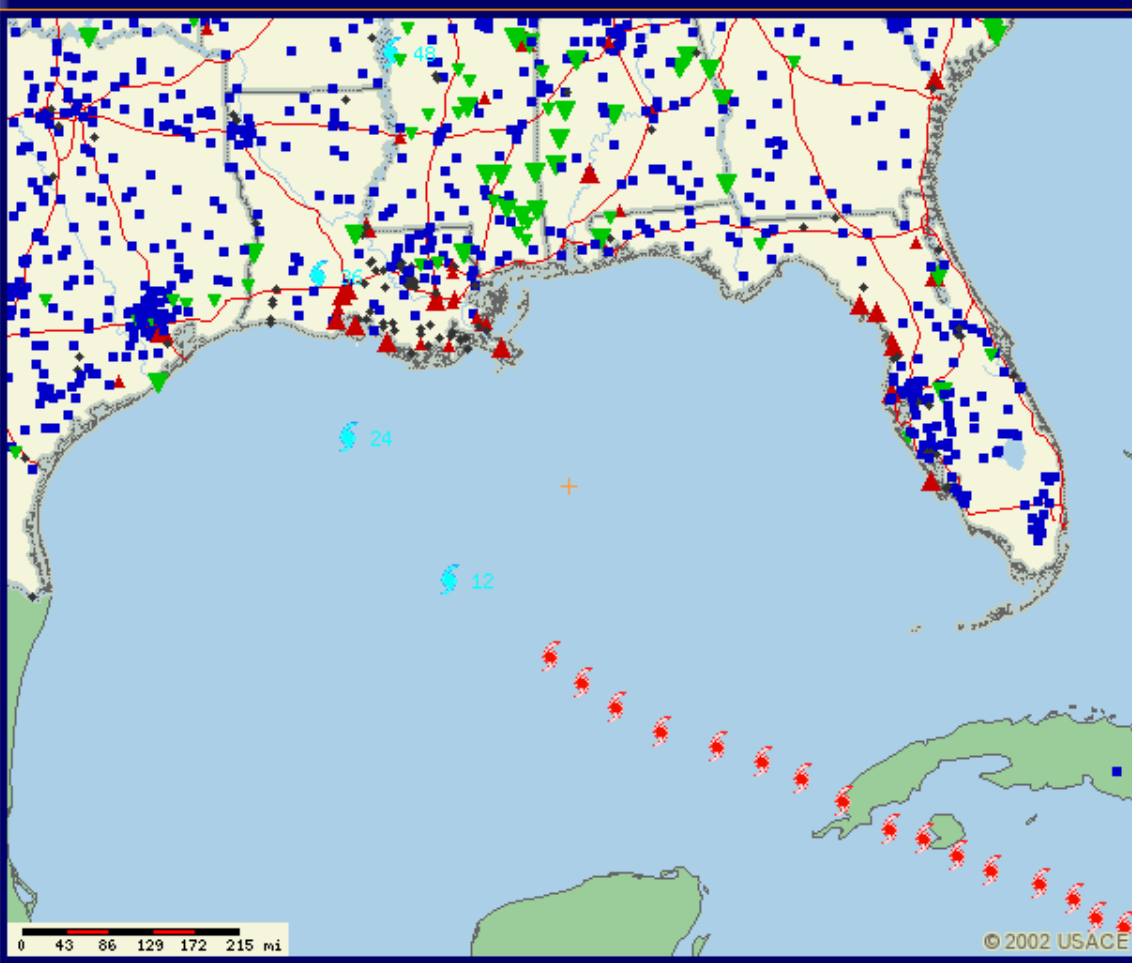
... click to continue ...

The POC for this page:
Nancy Blyler, CECE-EE
(202) 761-5540
Washington, D.C.
nancy.j.blyler@usace.army.mil

The Technical POC for this page:
Joel Schlagel, CRREL
Joel.D.Schlagel@erdc.usace.army.mil

Send questions/comments to: corpsmap@usace.army.mil

Main Map Preferences Find Reports About



CorpsMap



LEGEND

Data Layers:

- Base Maps
- Boundaries
- Emergency Mgmt
 - ENGLink Event
 - FEMA Q3
 - Stormtracks (Q)
 - Stream Gages (Q)
- Environmental
- Infrastructure
- Operations
- Real Estate
- Other Layers



Main Map | Preferences | Find | Reports | About



CorpsMap



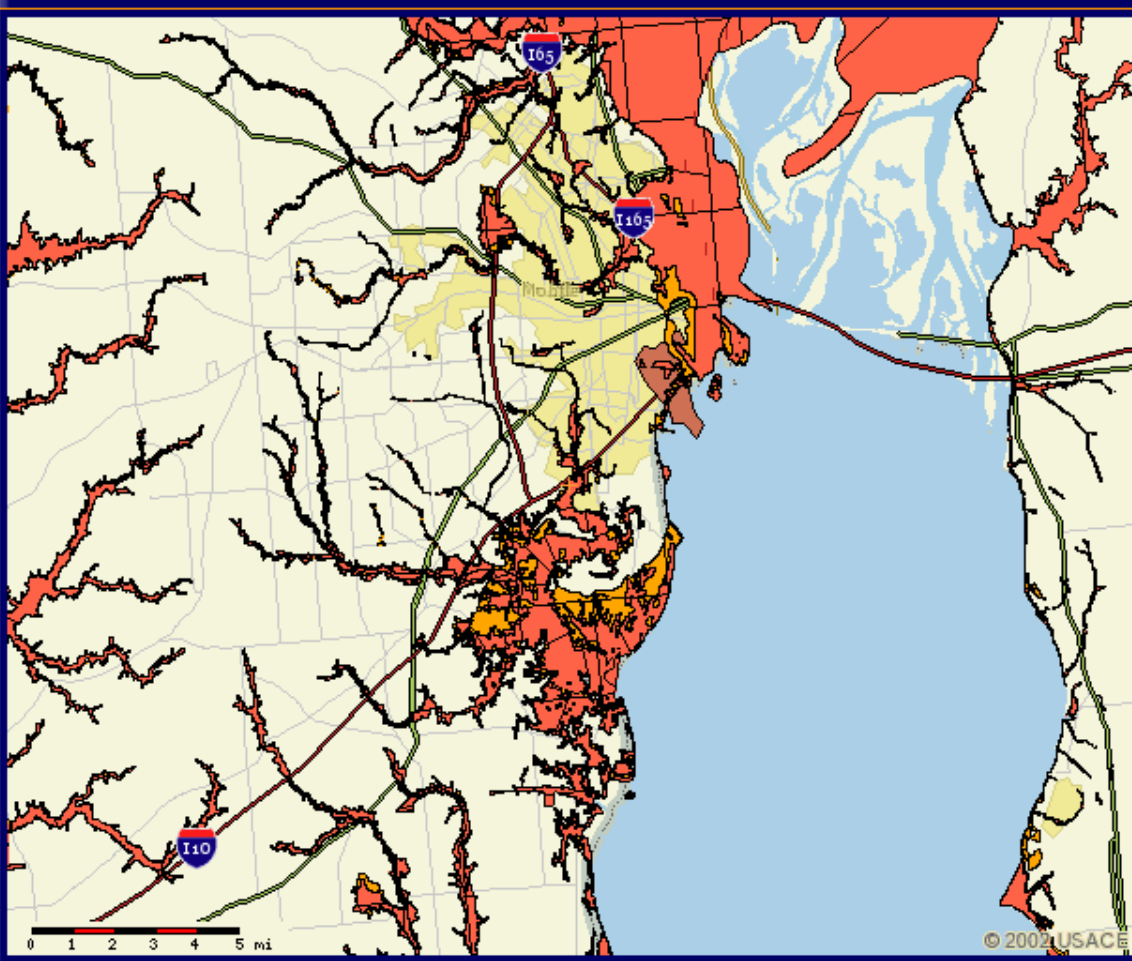
LEGEND

Data Layers:

- Base Maps
- Boundaries
- Emergency Mgmt
- Environmental
- Infrastructure
- Operations
 - Waterway Mile Markers (Q)
 - Locks (Q)
 - Docks (Q)
 - Waterway Network
 - Dredging Locations (Q)
 - Ports (Q)
- Real Estate
- Other Layers



Main Map Preferences Find Reports About



CorpsMap



LEGEND

Data Layers:

- Base Maps**
- Boundaries**
- Emergency Mgmt**
- Environmental**
- Infrastructure**
- Operations**
- Real Estate**
- Other Layers**
 - Principal Aquifers
 - Federal Land
 - Military Bases
 - Airports
 - Abandoned Mines
 - Nuclear Reactors
 - Watershed



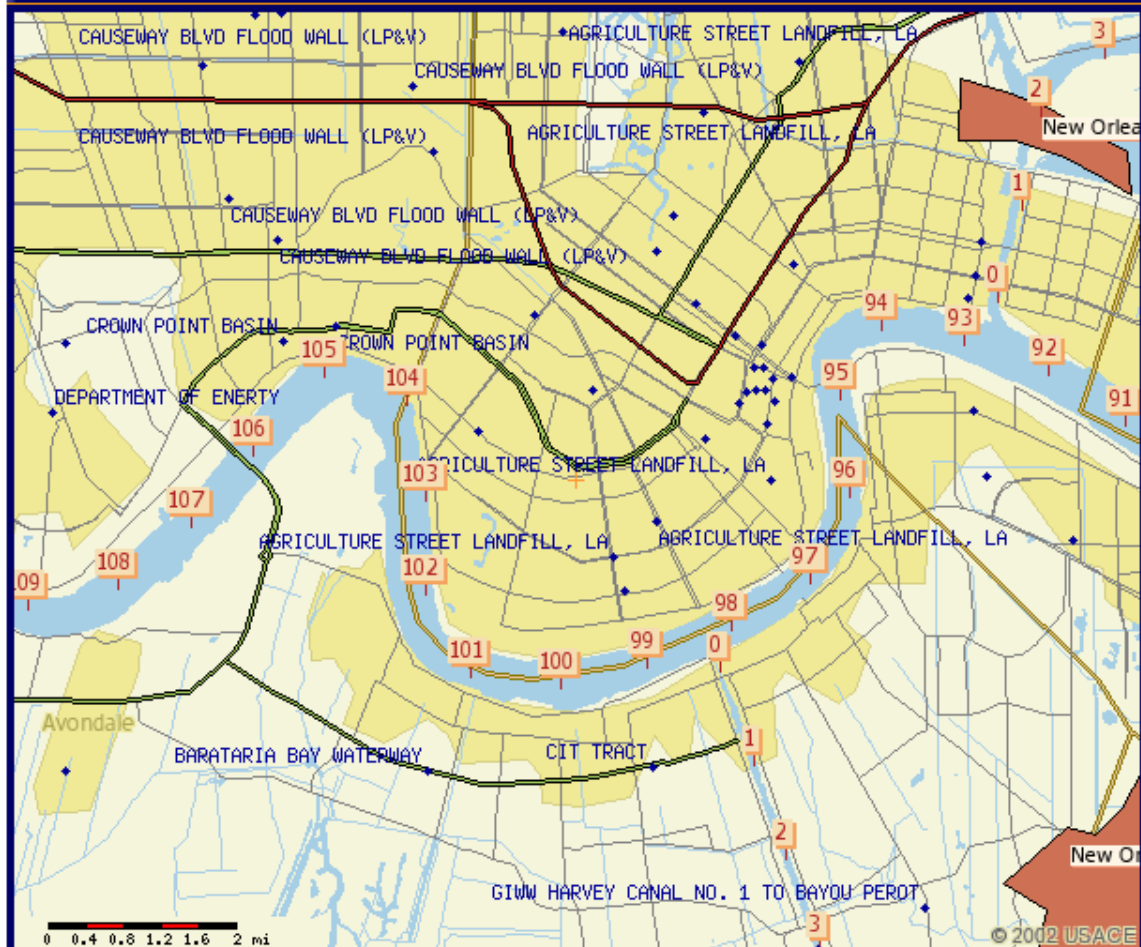
Main Map

Preferences

Find

Reports

About



CorpsMap



LEGEND

Data Layers:

Base Maps

Boundaries

Emergency Mgmt

 ENLink Event FEMA Q3 Stormtracks (Q) Stream Gages (Q)

Environmental

Infrastructure

Operations

Real Estate

Other Layers



CorpsMap

Report on:

- Corps Projects
 ENGLink Events
 NID Dams
 Formerly Used Defense Sites (FUDS)
 Real Estate Holdings

Located in:

- County: State:
 Congressional District:

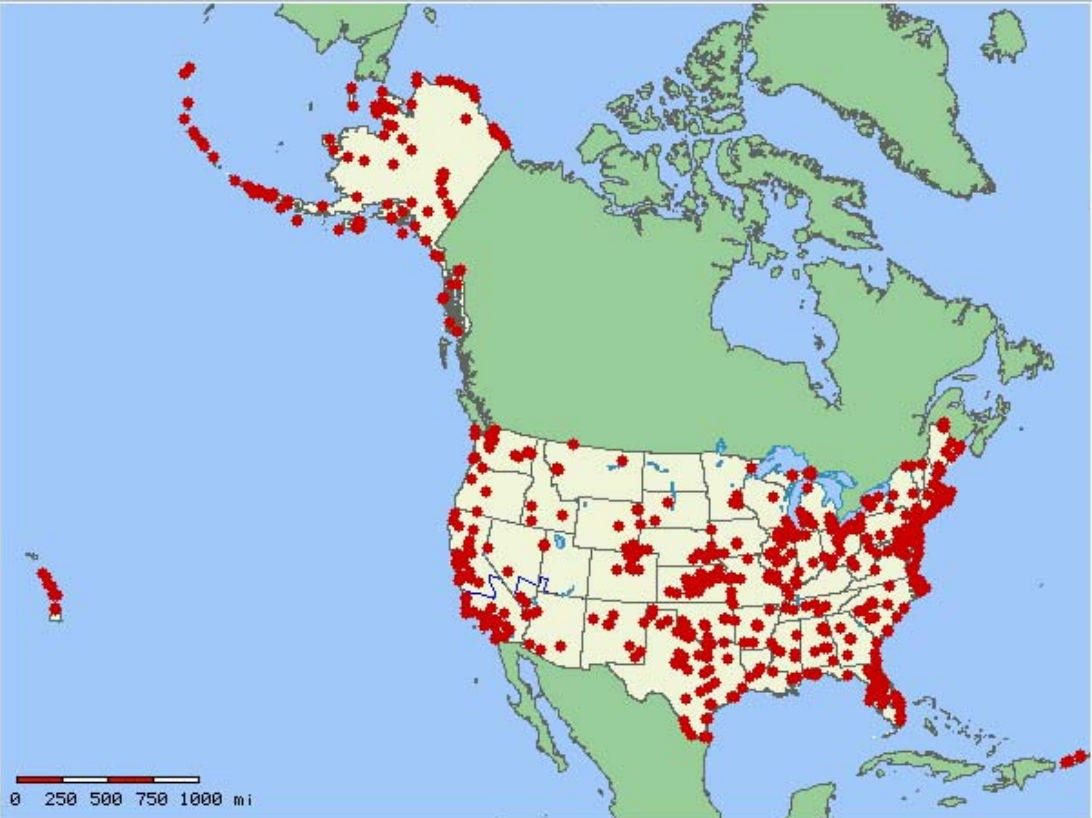
Formerly Used Defense Sites in Fairfax County, VA:

Property Name	Property ID	County	State	Representative	District
AAA SITE	C03VA0169	Fairfax County	VA	James P. Moran (D)	VA08
AAA, HUNTLEY MEADOWS	C03VA0170	Fairfax County	VA	James P. Moran (D)	VA08
ARMY-NAVY COUNTRY CLUB	C03VA0041	Fairfax County	VA	Thomas M. Davis, III (R)	VA11
DEF MAP AGE HER SITE	C03VA0509	Fairfax County	VA	Thomas M. Davis, III (R)	VA11
FORT BELVOIR	C03VA0518	Fairfax County	VA	Thomas M. Davis, III (R)	VA11
FORT HUNT	C03VA0004	Fairfax County	VA	James P. Moran (D)	VA08
LORTON SM ARMS RNG ANX	C03VA0115	Fairfax County	VA	James P. Moran (D)	VA08
NIGHT VIS LAB	C03VA0514	Fairfax County	VA	James P. Moran (D)	VA08
NIKE 64/65	C03VA0075	Fairfax County	VA	James P. Moran (D)	VA08

Data Layers: Terrain USACE Military Boundaries States Cities Counties Zip Codes Congressional Federal Land Native Land Flood Risk Aquifers

Latitude/Longitude Lines

FUDSMIS Data: CTC RIP RAC Proximity to BIA *Some layers are scale dependent...



Map Size: 600x450 FOA Filter: ALL
Set Scale: Pan Property Filter: Active
Scale: 1:45,704,004 State Filter: ALL

Click property on map to: get property info pan/zoom

- Formerly Used Defense Site
- ∨ USACE Districts

Search by Geography: State County Congressional Representative - OR - District Zip: Go zip!

Links: [FUDSMIS Home](#) | [Switch to World View](#) | [Switch to States View](#) | [Reset Map](#) | [Printable Map](#) | [Iqleri](#) | [Search by Property](#)



https://maps.usace.army.mil/fuds/

Search



FUDSMIS GIS v3.0

FUDSMIS GIS v3.0

FUDSMIS Home

Help Documentation

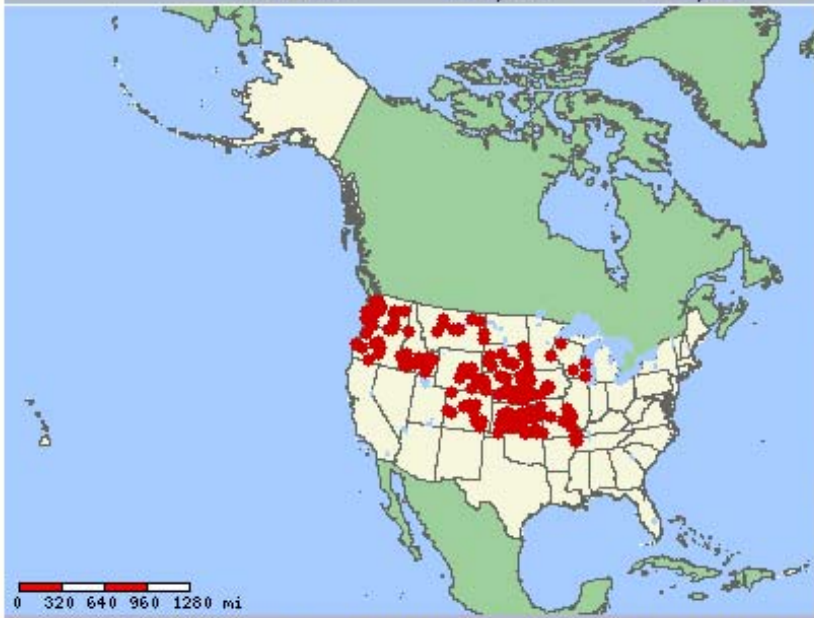
Questions?

Data Layers:

<input type="checkbox"/> Terrain	<input type="checkbox"/> Counties	<input type="checkbox"/> Cities	<input type="checkbox"/> Federal Land	<input type="checkbox"/> USACE Military Boundaries	<input type="checkbox"/> FEMA Flood Risk Boundaries
<input type="checkbox"/> Aquifers	<input type="checkbox"/> States	<input type="checkbox"/> Zip Codes	<input type="checkbox"/> Native Land	<input type="checkbox"/> Congressional Districts	<input type="checkbox"/> Latitude/Longitude Lines

FUDSMIS Data:

<input checked="" type="checkbox"/> all FUDS	<input type="checkbox"/> by CTC	<input type="checkbox"/> by RIP	<input type="checkbox"/> by RAC
--	---------------------------------	---------------------------------	---------------------------------



Map View
Change the spatial extent and/or size of the map



Scale 1:68,976,107 or Set Scale

-- Zoom by Geography --

-- Zoom by Property --

Map Size: 400x300

Property Labels:

None Name Number

Force all Labels to draw Draw only labels that fit

Property Display Filters
View only properties meeting specific criteria

FOA Filter: NWD

State Filter: All States

Property Filter: Eligible

Project Category Filter: OEW

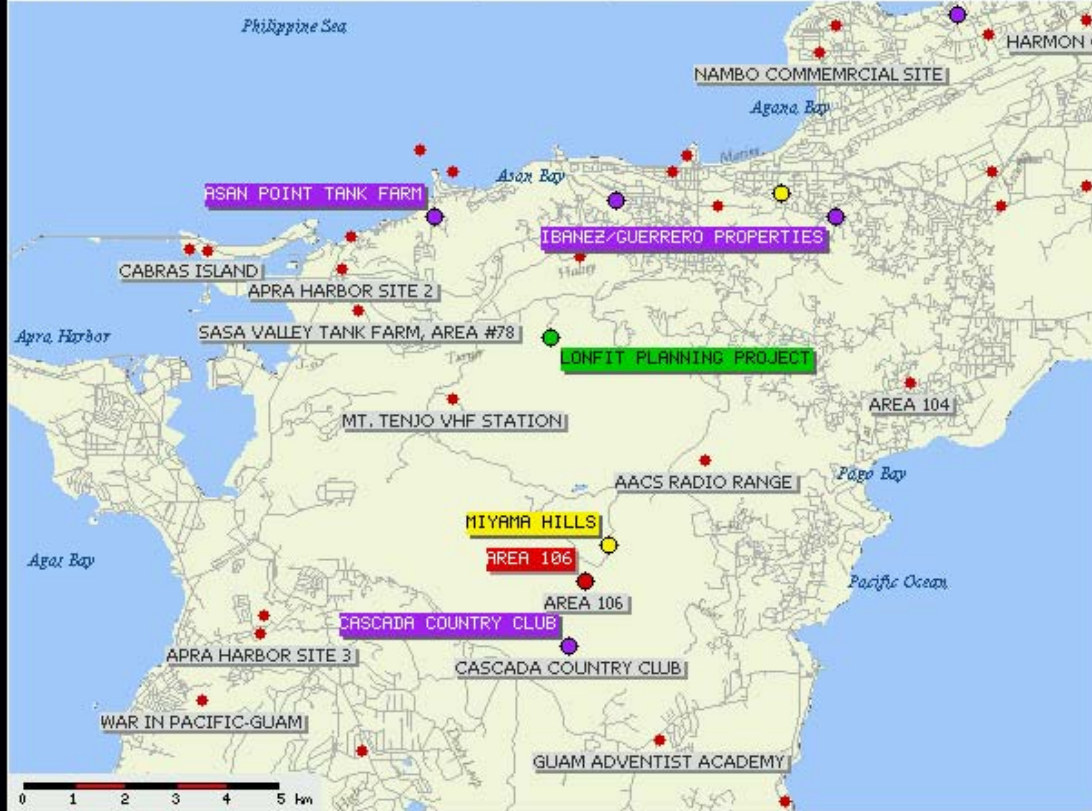
Submit Filters

* Formerly Used Defense Site

Data Layers: Terrain USACE Military Boundaries States Cities Counties Zip Codes Congressional Federal Land Native Land Flood Risk Aquifers

Latitude/Longitude Lines

FUDSMIS Data: CTC RIP RAC Proximity to BIA *Some layers are scale dependent...



Map Size: 600x450 FOA Filter: ALL
Set Scale: Pan Property Filter: All
Scale: 1:101,380 State Filter: ALL

Click property on map to: get property info pan/zoom

- < \$5 Million
- \$5 - \$10 Million
- \$10 - \$30 Million
- > \$30 Million
- ★ Formerly Used Defense Site
- Airport
- Urban Area

Search by Geography: State County Congressional Representative - OR - District Zip: Go zip!

Links: [FUDSMIS Home](#) | [Switch to World View](#) | [Switch to States View](#) | [Reset Map](#) | [Printable Map](#) | [help!](#) | [Search by Property](#)



Formerly Used Defense Sites Program Public Information System

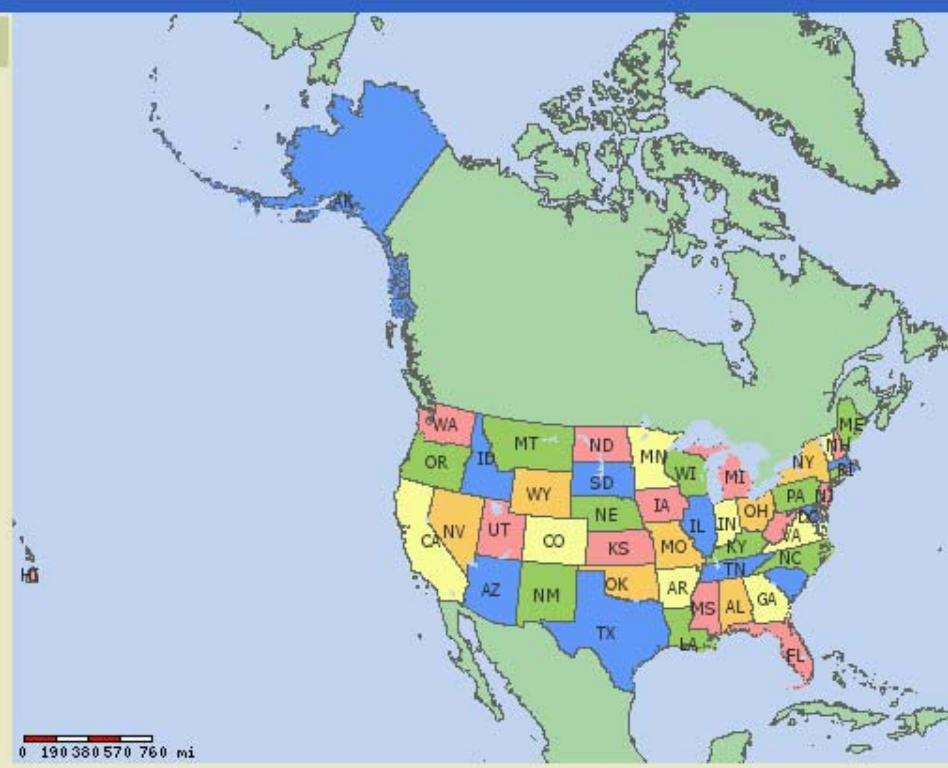


Map Navigation Tools



Move around the map
(zoom in, zoom out, recenter)
using the Navigation tools above.

To get information about FUDS
properties in your state,
select the 'identify' button
and click on the state you
are interested in.



Legend

- [Reset Map](#)
- [Help Documentation](#)
- [Review Instructions](#)
- [Return to FUDS Home](#)

Property locations are based on the best available data, and are believed to be accurate as of the last update of this web site. However, all information is subject to change if new information becomes available. For verification of the above information or additional information on Formerly Used Defense Sites please contact the U.S. Army Corps of Engineers Public Affairs Office at (202) 761-1806.

Zoom to a FUDS Property

Property Name

- AIKEN AAF
- AINSWORTH AAF
- AIR FORCE FINANCE & ACCOUNTING CENTER**
- AIR FORCE PLANT #16 (NASA)
- AIR FORCE PLANT #28
- AIR FORCE PLANT #39
- AIR FORCE PLANT #46
- AIR FORCE PLANT #58
- AIR FORCE PLANT #64 (NASA)
- AIR FORCE PLANT 45
- AIR FORCE PLANT NO. 26

State

County

Zip:

GO

Congressional District:

Representative Name

- OR -

District

Zoom by FUDS Property

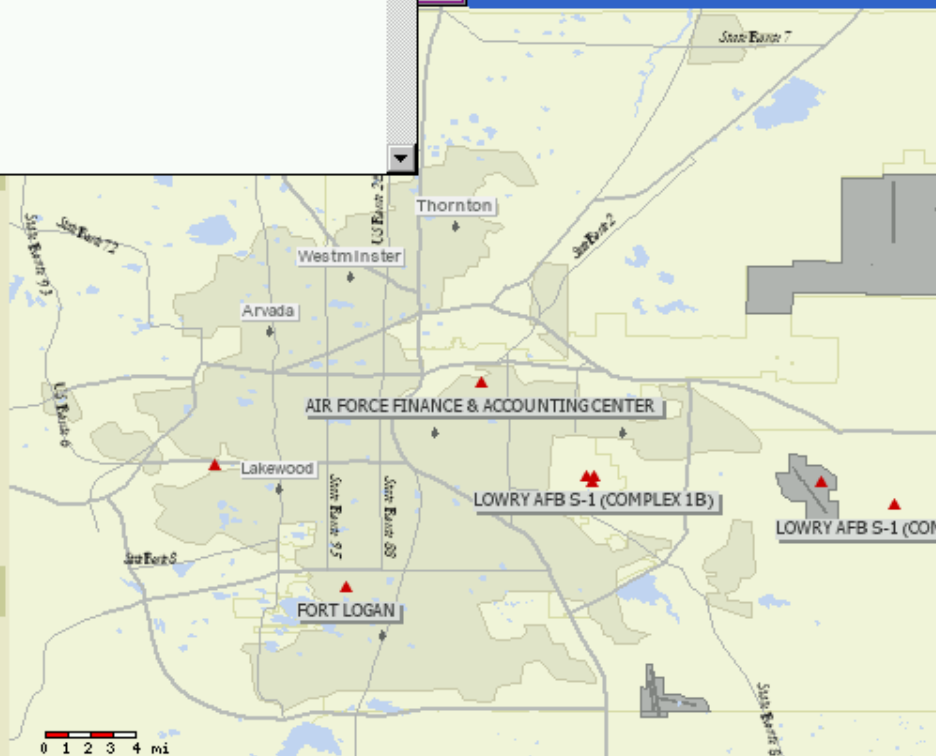
Select a Property Name

Sites Program
System



Legend

- ▲ FUDS Properties
- Airport
- Urban Area



Reset Map

[Help Documentation](#)

[Review Instructions](#)

[Return to FUDS Home](#)

* You must click on the red triangle, not on the property label, when selecting a single FUDS property.

Property locations are based on the best available data, and are believed to be accurate as of the last update of this web site. However, all information is subject to change if new information becomes available. For verification of the above information or additional information on Formerly Used Defense Sites please contact the U.S. Army Corps of Engineers Public Affairs Office at (202) 761-1806.

[<<< Back to the map](#)

Property Name: AIR FORCE FINANCE & ACCOUNTING CENTER

Latitude:	39° 46' 12" N
Longitude:	104° 57' 18" W
City:	DENVER
County:	ARCHULETA
State:	CO
Corps Geographic Office:	Omaha District (NWO)
FUDS Property Manager:	BOB DWORKIN
Phone Number:	(402) 221-7716
Status on National Priorities List:	Not Listed
EPA Region:	8
Congressional District:	1
Restoration Advisory Board Available:	No



Property Description

This site consists of 37.66 acres located 2.5 miles northeast of Denver Central Business District. Many administrative and utility support buildings remain on the property which is being used for storage by City and County of Denver and Denver Public School system.

Property History

On September 16, 1942, the Army acquired this land for the Denver Medical Depot for use by the Army Medical Corps as a Medical Supply Depot and T.S.U. Surgeon General Office. The site was determined to be surplus by the War Department and was transferred to the Veterans Administration after WWII. In 1950, 5.57 acres were re-transferred to the Army for use as the HQ-CO Senior Army Instructor-Organized Reserve Corps. In 1951, the same land was transferred to the Air Force for office space and storage for the AF Finance and Accounting Center. The property was excessed to GSA in 1969.

Current Ownership Types(s): CITY

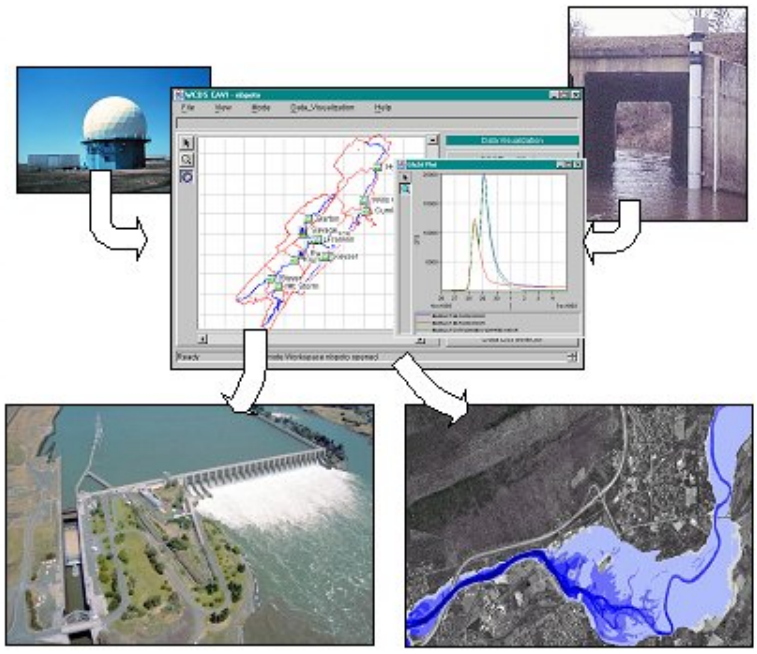


US Army Corps
of Engineers ®

CWMS

- Home
- Who We Are
- Newsletter
- Software
- Publications
- Training
- Visitors
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- Contact

Water
Management
Field Sites
Support



The **C**orps **W**ater **M**anagement **S**ystem (CWMS) is the automated information system used by the U.S. Army Corps of Engineers to support its water control mission. This mission encompasses the regulation of river flow through more than 700 reservoirs, locks, and other water control structures located throughout the Nation.



CorpsView Web

Main Map Preferences Find Query About

263+-2305277.337037138+2640358.3614357263+-2305277.337037138+3149481.600166945

CorpsView - Web

Layers Classes Legend

Map Layers

- Nationwide Layers
 - Base Layers
 - Government
 - Water Control
 - Projects
 - Imagery
 - CWMS Gages
 - SPL CWMS Gages | L
 - [Dropdown]
 - NWD CWMS Gages | L
 - [Dropdown]

0 150 300 450 600 mi

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Real-Time CWMS Data In CorpsView - Web

Main Map | **Preferences** | **Find** | **Query** | **About**

The screenshot displays the CorpsView - Web interface. The main map shows Oregon with county boundaries and major highways (405, 90, 5, 205, 82, 84). CWMS gages are marked with colored triangles (red, green, blue) across the state. A scale bar at the bottom left indicates 0, 17, 34, 51, and 68 miles. Navigation icons (zoom in, zoom out, home, info, refresh) are located at the bottom center.

CorpsView - Web

Layers | Classes | Legend

- Map Layers
 - Nationwide Layers
 - Base Layers
 - Government
 - Water Control
 - Projects
 - Imagery
 - CWMS Gages
 - SPL CWMS Gages | L
 - NWD CWMS Gages | L
 - ELEV



CorpsMap

CorpsMap-STORM: Support To OMBIL Regulatory Module
- Demonstration -

OMBIL ORM Permit Information

Permit ID: **XCT10006**

Applicant Name: **Bob Jones**

Permit Type: **Nationwide Permit**

State / Zip Code: **VT** **05055**

Geolocate Permit

Query Geodatabase

Add New

Geospatial Query Results

Latitude / Longitude: **43.809** **-72.285**

UTM Northing / Easting / Zone: **718379.454**
4854225.052 **18**

Hydrologic Unit Name: **New England Region**

Sub-Hydro Unit Name: **Connecticut**

Hydrologic Unit Code: **1080103**

Township / Range / Section: **Not Part of Public Land Surveys System**

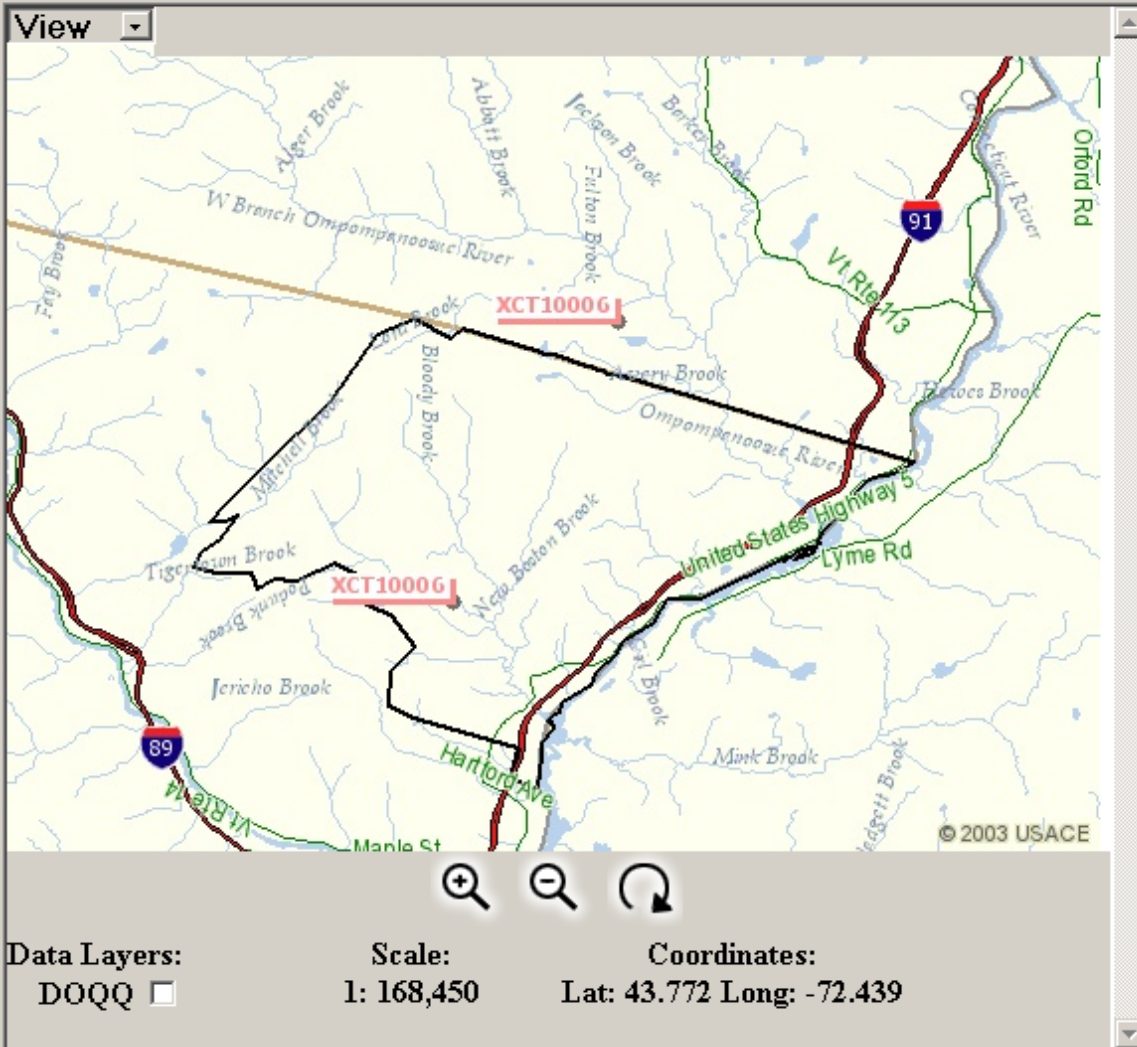
City: **THETFORD CENTER**

County: **Orange County**

State / Zip: **Vermont** **05075**

Congressional District: **Bernard Sanders (I)**

Corps District: **New England**



Query: **[REDACTED]**

Response: **select PERMITID, LATITUDE, LONGITUDE, ZIPCODE, PLACE, CONGDISTRICT, COUNTY, STATE, HUCID, HUCNAME, HUCSUB, PLSS,**

Status: **Query:5/2/2003 11:52:29 AM Result:5/2/2003 11:52:29 AM Elapsed Time:0 seconds**

STORM-Web

Delineation



CorpsMap

CorpsMap-STORM: Support To OMBIL Regulatory Module
- Demonstration -

OMBIL ORM Permit Information

Permit ID:

Applicant Name:

Permit Type:

State / Zip Code:

[Geolocate Permit](#)[Query Geodatabase](#)[Add New](#)

Geospatial Query Results

Latitude / Longitude:

UTM Northing / Easting / Zone:

Hydrologic Unit Name:

Sub-Hydro Unit Name:

Hydrologic Unit Code:

Township / Range / Section:

City:

County:

State / Zip:

Congressional District:

Corps District:

Add Point Invalid

Microsoft Internet Explorer
Are You Sure You Wish To Discontinue Editing And Save Work?

© 2003 USACE

Data Layers: DOQQ

Scale: 1: 169,080

Coordinates: Lat: 39.807 Long: -105.095

Query:

STORM-Web

Response: Status: Connected to Spatial Server Ready

Delineation



CorpsMap

CorpsMap-STORM: Support To OMBIL Regulatory Module
- Demonstration -

OMBIL ORM Permit Information

Permit ID:

Applicant Name:

Permit Type:

State / Zip Code:

[Geolocate Permit](#)[Query Geodatabase](#)[Add New](#)

Geospatial Query Results

Latitude / Longitude:

UTM Northing / Easting / Zone:

Hydrologic Unit Name:

Sub-Hydro Unit Name:

Hydrologic Unit Code:

Township / Range / Section:

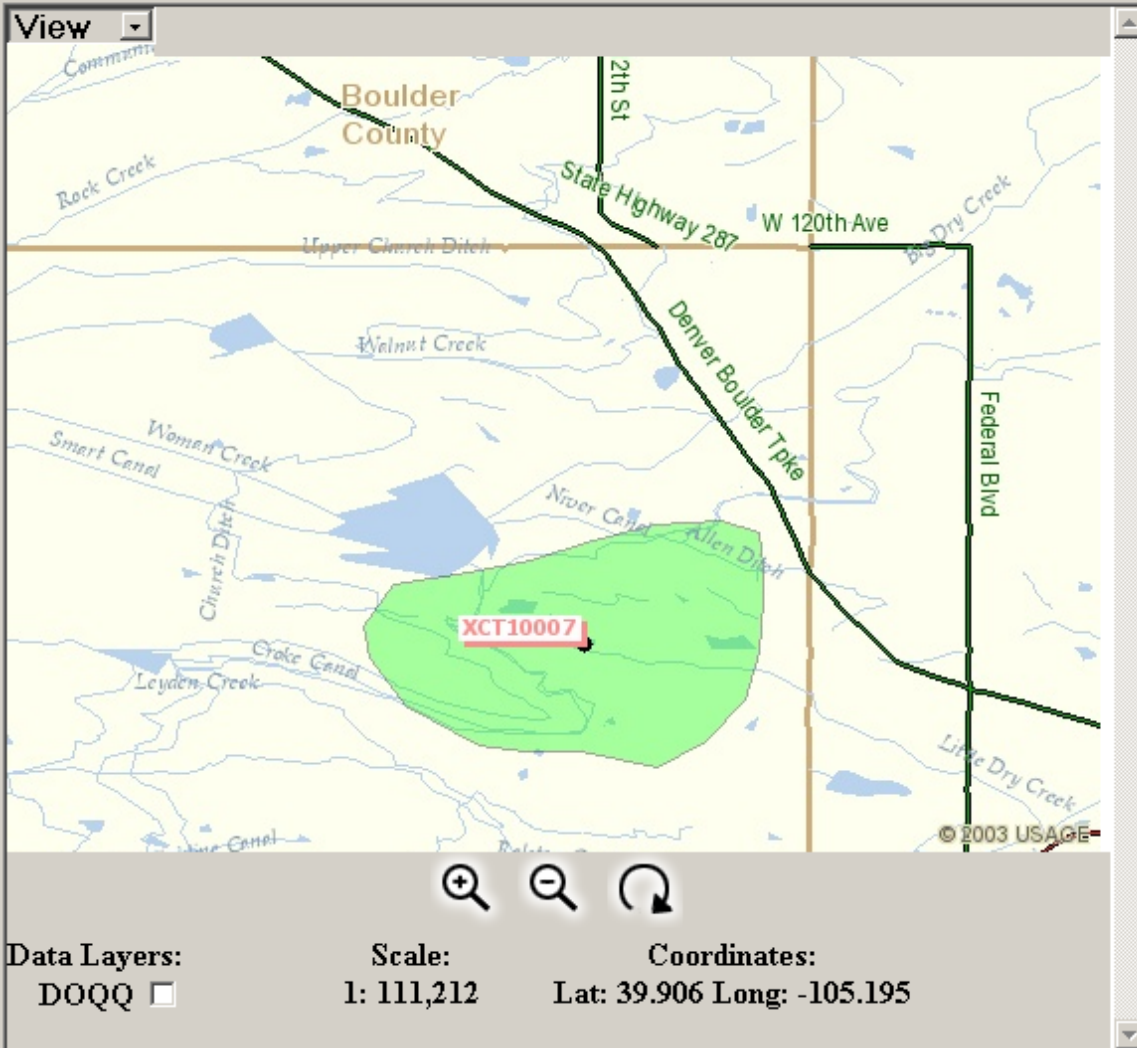
City:

County:

State / Zip:

Congressional District:

Corps District:

Query:

STORM-Web

Response: Status:

Delineation



MapServer applications are the key to spatially enabling the Army Corps of Engineers

- ❖ Database driven applications with MapServer as the mapping engine is the best available technical solution for bringing the display and analysis of enterprise geospatial data to 30,000+ non-GIS users in the Corps.

- ❖ MapServer Provides:
 - ❖ Stable mapping platform
 - ❖ Conformance with industry standards
 - ❖ File format support
 - ❖ Multi-platform support
 - ❖ Performance
 - ❖ Flexibility
 - ❖ Scalability
 - ❖ Excellent User Tools
 - ❖ Excellent User/Technical Support
 - ❖ Benefit/Cost