

US Army Corps of Engineers Future of Navigation

Jeff Lillycrop

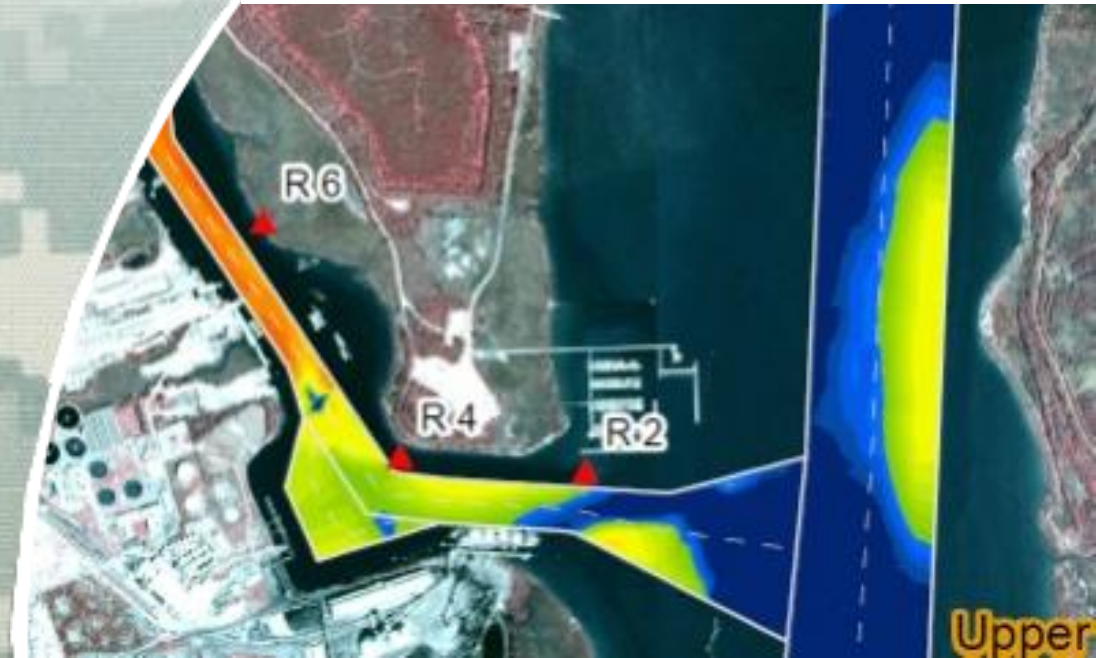
Brian Tetreault

US Army Corps of Engineers

Engineer Research and Development Center

Presentation Outline

- ☐ Inland Electronic Charts
- ☐ Hydrographic Survey Data
- ☐ Lock Operations
- ☐ Marine Safety Information
- ☐ Data Framework



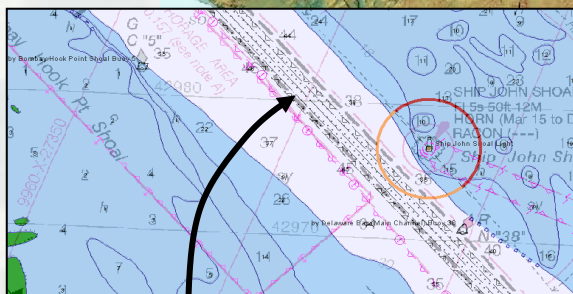
Inland Electronic Navigation Charts



Corps of Engineers,
Inland Waterways



NOAA, Coastal and
Great Lakes



More consistent and reliable
channel data from Corps for
NOAA charts

Coordination of
adjoining charts
for seamless
use by chart
systems



BUILDING STRONG®

Jefferson County Port Authority Proposed Fleeting Area Will It Affect Navigation?

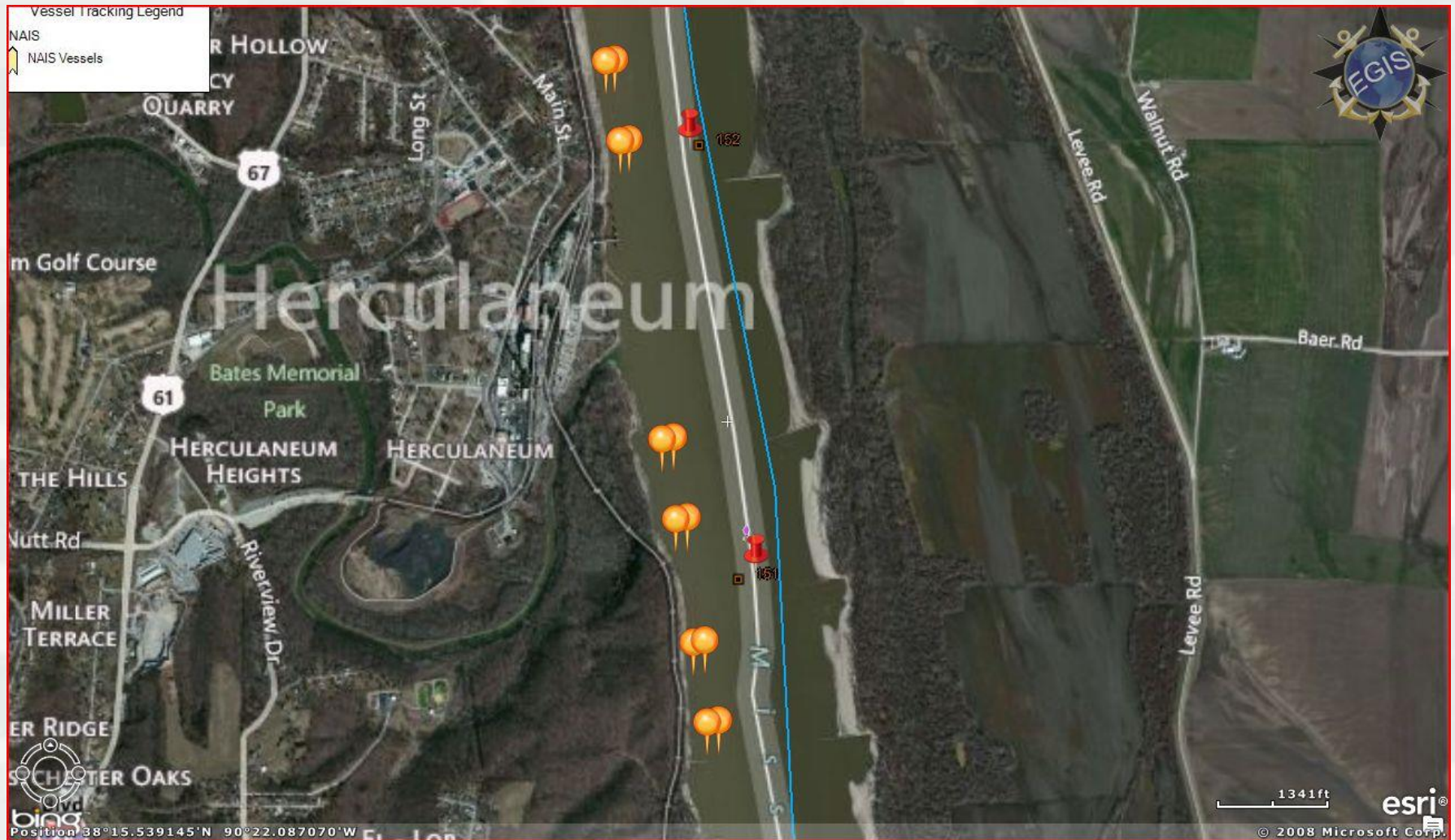
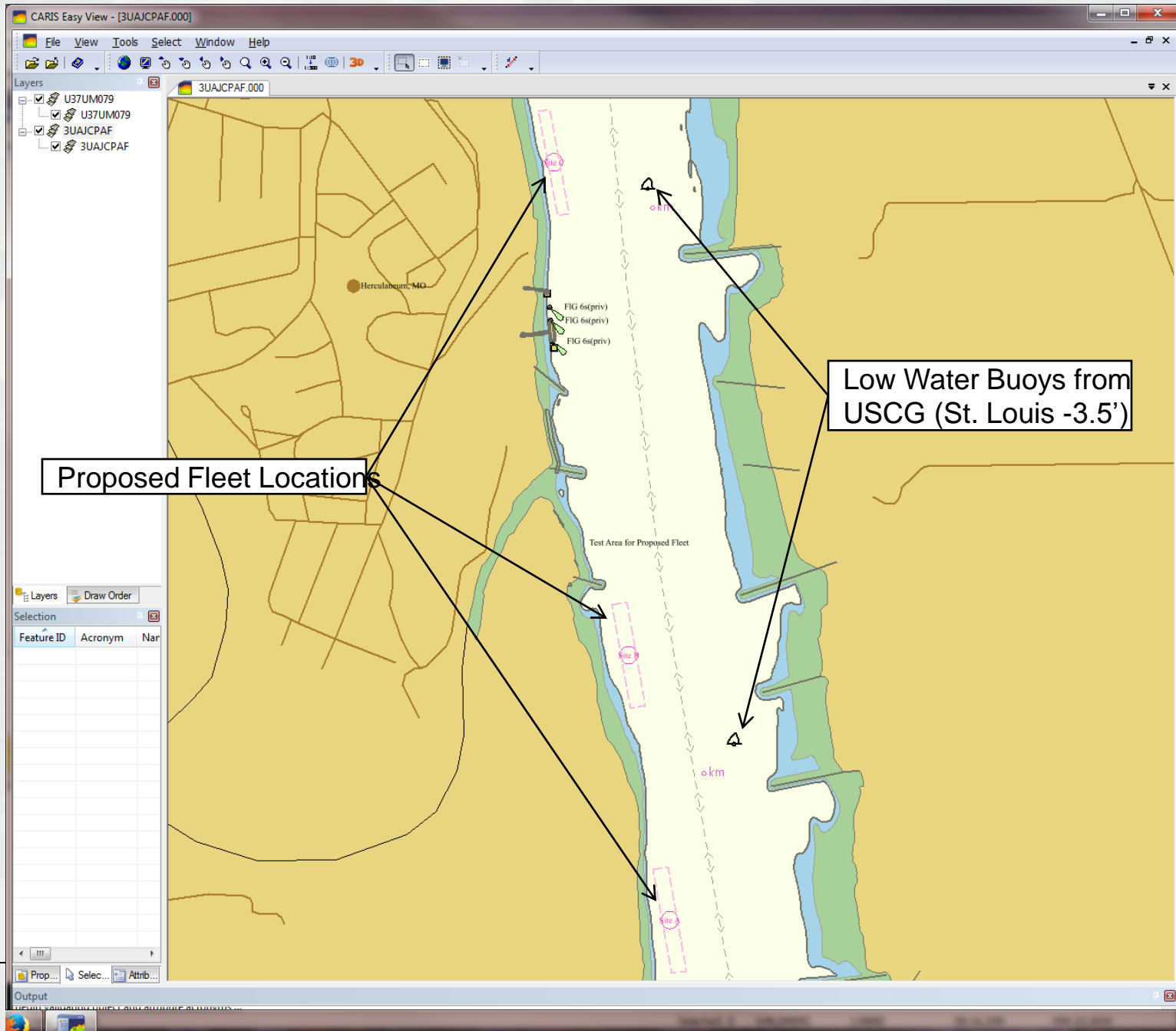
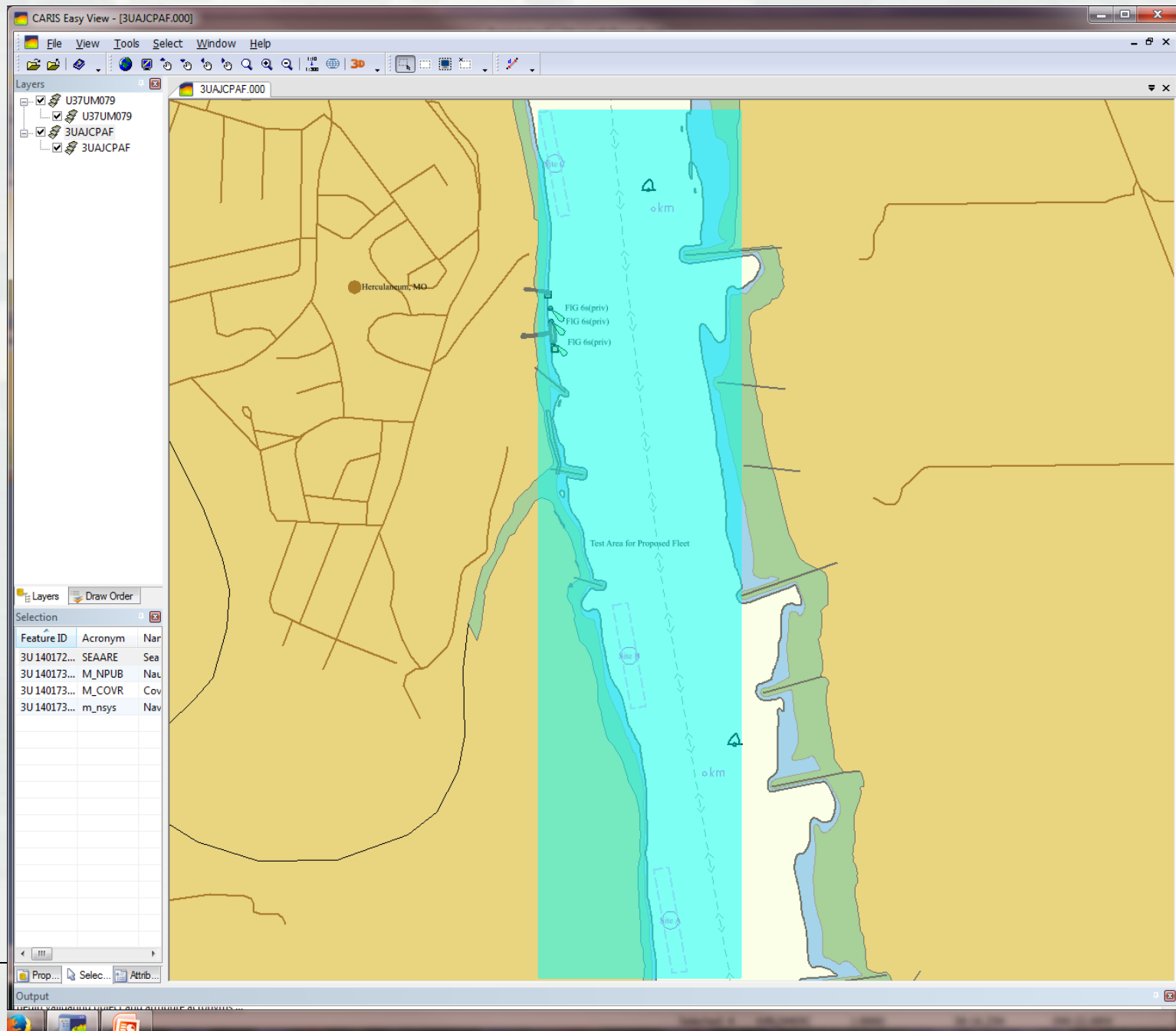


Chart U37UM079 with Proposed Fleet & Low Water Buoy Overlay (3UAJCPAF)



Overlay Chart 3UAJCPAF Overlay Area



Overlay Chart 3UAJCPAF Overlay with M_NPUB Text Description

The screenshot shows the CARIS Easy View software interface. The main map displays a river area with a yellowish-brown landmass on the left and a blue river channel on the right. A light blue rectangular area is overlaid on the river, labeled "Test Area for Proposed Fleet". A point labeled "Herculesburg, MO" is marked on the landmass. The left sidebar shows a "Layers" panel with a tree view containing "U37UM079", "U37UM079", "3UAJCPAF", and "3UAJCPAF". Below it is a "Selection" table.

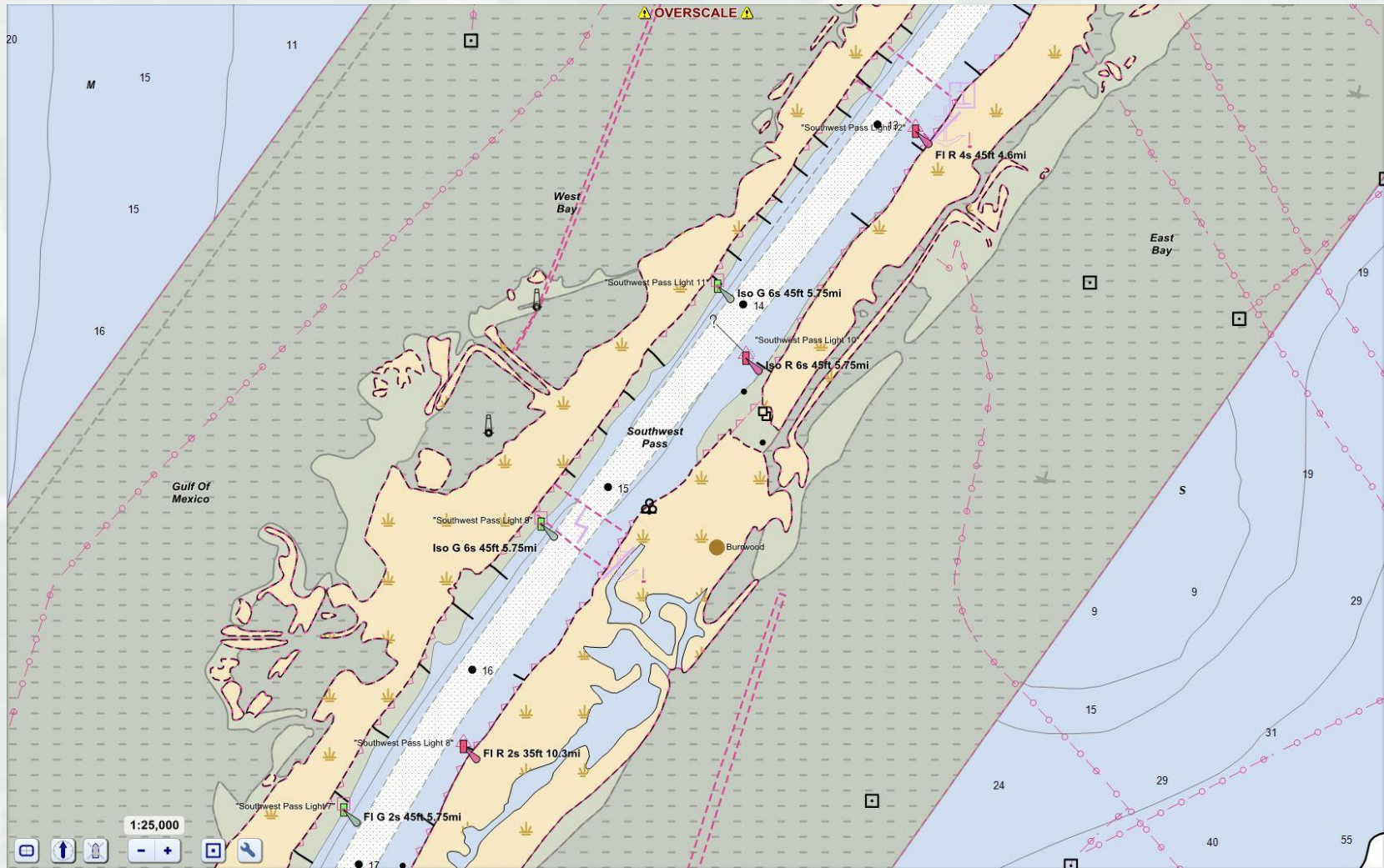
Feature ID	Acronym	Name
3U 140172...	SEAARE	Sea
3U 140173...	M_NPUB	Nav
3U 140173...	M_COVR	Cov
3U 140173...	m_nsys	Nav

Overlaid on the map is a Notepad window titled "3UAJCPAF.TXT - Notepad". The text in the Notepad is as follows:

File Edit Format View Help
JCPAF (Jefferson County Proposed Fleet)
Upper Mississippi River miles 150-153
20140530
This is a testing area for a proposed fleet. The virtual fleets will never change position and virtual buoys are indicative of where they have been set in the past at -3.5 St. Louis River Gage. This is not the actual buoy positions in current state.
The U.S. Coast Guard is asking for feedback from all pilots transiting that area on whether this would be considered a hazard to navigation in the "Extreme Low Water Phase". Please send feedback to SUMRwaterways@uscg.mil.
Please provide feedback no later than 11 June 2014.

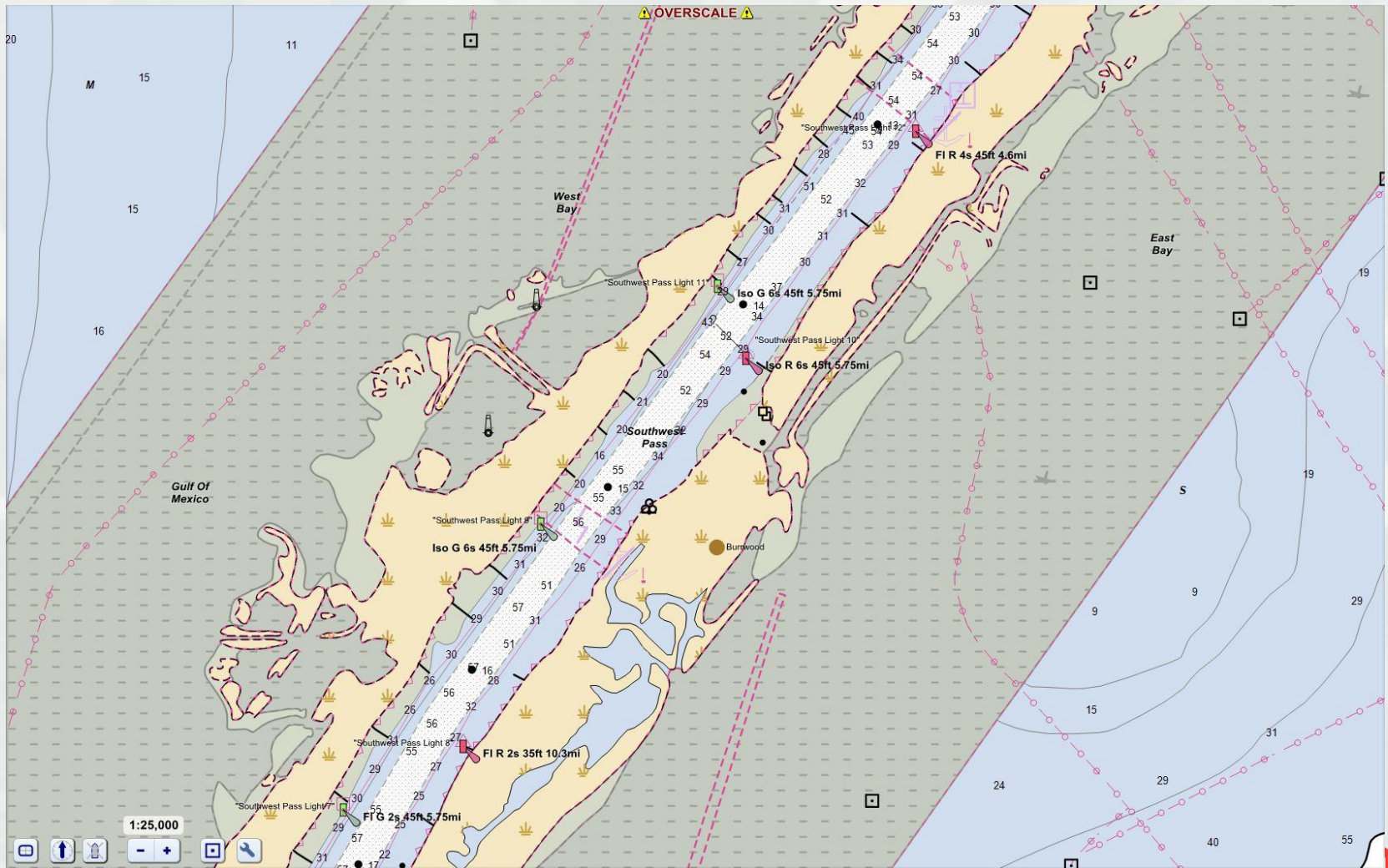
In the bottom right corner, there is a red logo with a white castle icon and the text "RONG®".

Miss River Southwest Pass



BUILDING STRONG®


Miss River Southwest Pass



BUILDING STRONG®

eHydro Survey Application

NOAA Reports



MISSISSIPPI RIVER - GULF OUTLET CHANNEL
FROM SURVEYS BY THE CORPS OF ENGINEERS - SURVEYS TO NOV 2000
ROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WATER

NAME OF CHANNEL	LEFT OUTSIDE QUARTER	MIDDLE HALF OF CHANNEL	RIGHT OUTSIDE QUARTER	WIDTH (FEET)	DATE OF SURVEY
LT. BUOY 1 (29°25'27"N, 88°50'31"W) TO LT. BUOY 20 THENCE TO END OF JETTY OPPOSITE LIGHT 82	22.9	36.9	25.9	600	7/18/11-03
THENCE TO INTERSECTION WITH U. S. R. W.	28.9	34.9	26.9	500	6/7/10-03
THENCE TO INTERSECTION WITH U. S. R. W.	26.9	32.9	22.9	500	6/7/10-03
THENCE TO INNER HARBOR NAVIGATION CANAL	26.9	28.9	29.9	500	8/9-03

NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGING CONDITIONS
SUBSEQUENT TO THE ABOVE

HQ Channel Indices

Channel Conditions

Project: Charleston Harbor
Reach: Bennis
Auth Depth: 50
Length: 6500
Can Depth: 50
Width: 600

Controlling Depths
Green: At or Below Authorized Depth
Red: Above Authorized Depth

	LO QTR	LI QTR	RI QTR	RO QTR
9/15/2010				
1/28/2011				
5/10/2011				
5/25/2011				
9/12/2011				

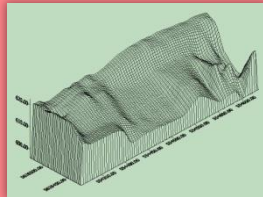
Condition Plots



Metadata

Identification_Information:
Citation:
Citation_Information:
Originator: U.S. Army, Corps of Engineers,
New England District (comp.)
Publication_Date: 20090306
Title: Boston Harbor, Boston, Massachusetts,
After Dredge/Condition Survey
Geospatial_Data_Presentation_Form: map
Series_Information:
Series_Name: N/A
Issue_Identification: N/A

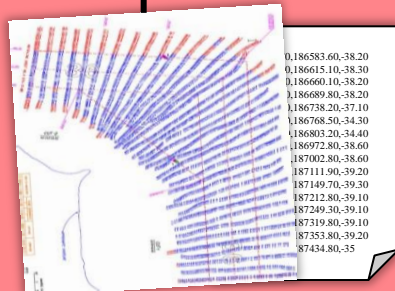
District



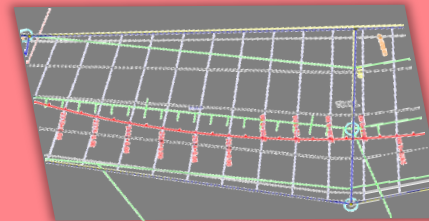
Planning Quantities

eHydro GIS Application
esri

Enterprise Navigation
Channel Framework



Surveys



Framework



BUILDING STRONG®

eHydro Condition Assessment

COLUMBIA 43 FOOT FY2012

Sheet Name	Reach Number	Depth	Left Outside Quarter	Left Inside Quarter	Right Inside Quarter	Right Outside Quarter
LOWER DESDEMONA SHOAL	1	43	45\100\4	47\100\4	49\100\4	47\100\4
UPPER DESDEMONA SHOAL	1	43	42\36\4	43\100\4	44\100\4	42\91\4
FLAVEL BAR	1	43	38\0\10	40\64\10	42\81\10	33\0\10
UPPER SANDS	1	43	41\0\9	43\100\9	44\100\9	42\93\9
UPPER SANDS	2	43	42\24\9	43\100\9	43\100\9	42\3\9
TONGUE POINT CROSSING	1	43	38\0\11	41\96\11	42\96\11	41\96\11
TONGUE POINT CROSSING	2	43	38\0\11	40\62\11	40\64\11	35\0\11
MILLER SANDS	1	43	41\52\11	39\92\11	37\61\11	31\0\11
MILLER SANDS	2	43	37\0\11	43\100\11	41\71\11	31\33\11
MILLER SANDS	3	43	37\3\11	40\54\11	40\74\11	38\9\11
PILLAR ROCK RANGES	1	43	37\17\13	41\72\12	38\60\12	37\0\12
PILLAR ROCK RANGES	2	43	32\38\12	40\53\12	41\90\12	41\37\12

Lock Operations Management Application (LOMA)

□ Purpose:

- ▶ Provide end users information needed for decision support

□ Goals:

- ▶ Increase lock operator situational awareness
- ▶ Provide vessel operators better information
- ▶ Provide better information to Corps management
- ▶ Exchange information with external users

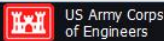
□ AIS is the central LOMA technology



LOMA Operational Capabilities

- Lock operator situational display
- AIS vessel information
- Zone management
- Playback capability

Lock Operations Management Application (LOMA) v1.0.357



[LPMS](#) [Support](#) [Logout \(tetreault\)](#)

[Live Plotter](#) [Playback Plotter](#) [Zone Configuration](#) [Zone Reports](#) [Gadgets](#)

Connected

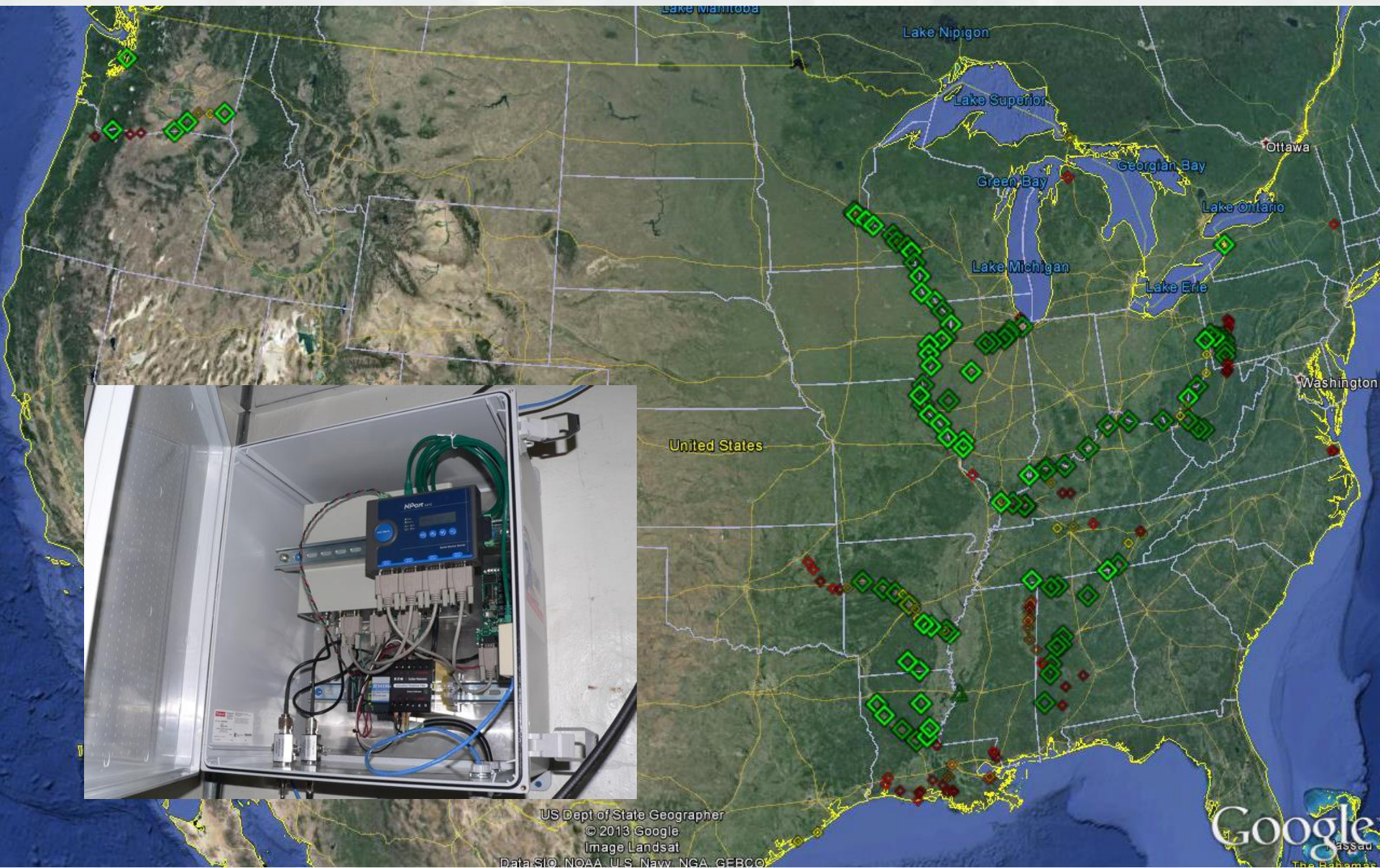
Target Information

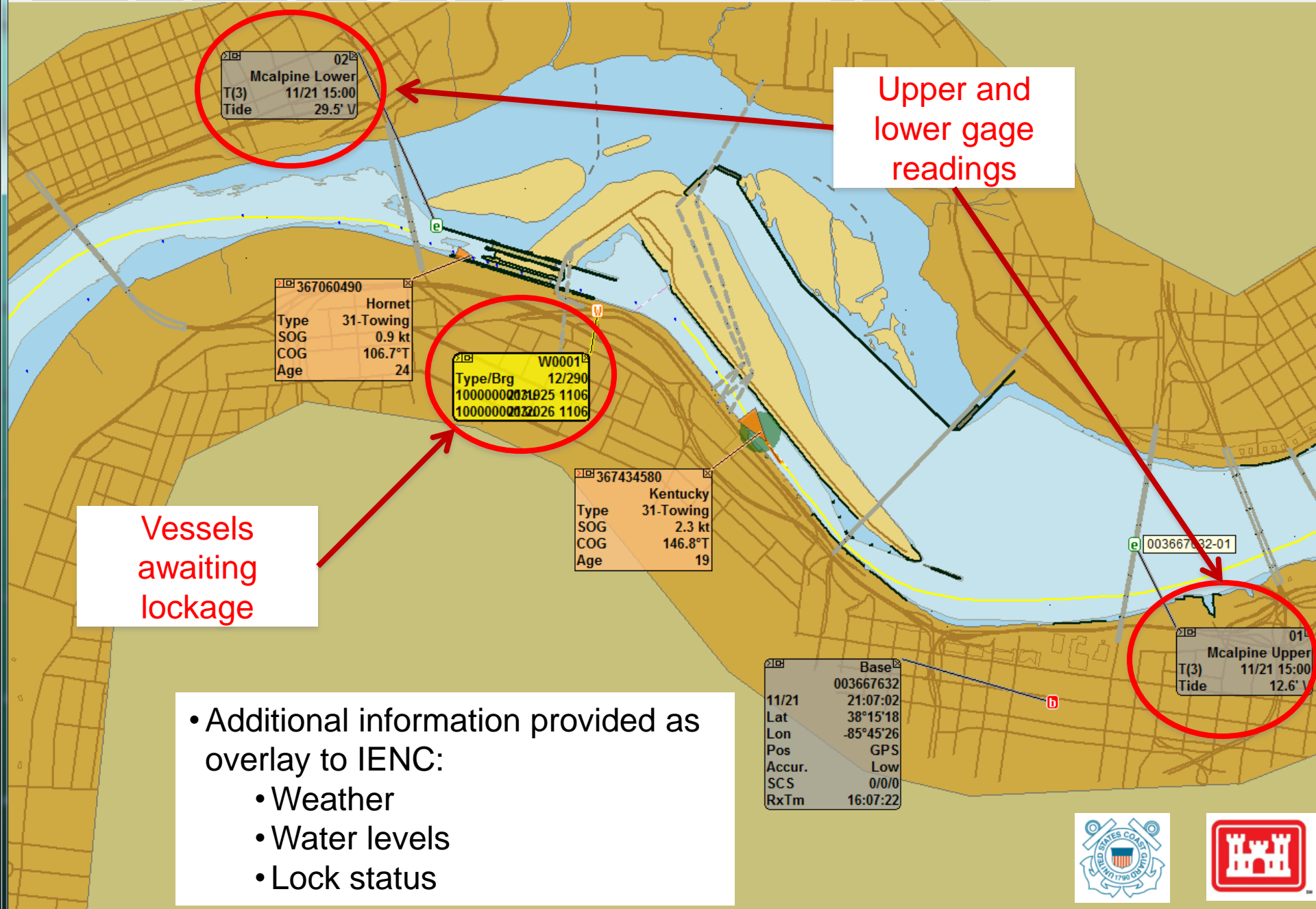
Name	CAPT. MARVIN REED
MMSI	367504960
Callsign	WDF9419
Latitude	038°52'43"N
Longitude	090°10'04"W
SOG	4.6 kts
Heading	300°
COG	301°
Nav Status	Under Way Engine
Operating Mode	Autonomous
Rate Of Turn	0
Destination	UNKNOWN
Length	88.56 ft
Beam	29.52 ft
Type of Ship	Vessel - Towing
Type of Cargo	N/A
CargoType	31
IMO Number	0
Draught	10.17 ft
Nav Sensor	GPS
ETA	7/24/2014 3:00:00 AM
DTE Status	Available
Nationality	United States of America
Mile	202



BUILDING STRONG®

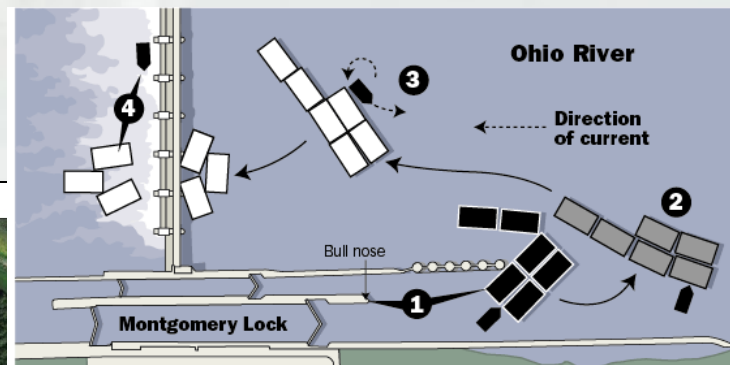
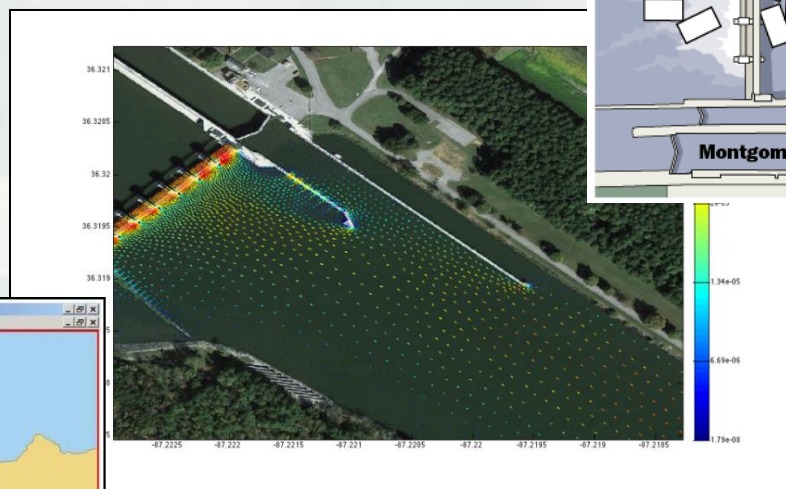
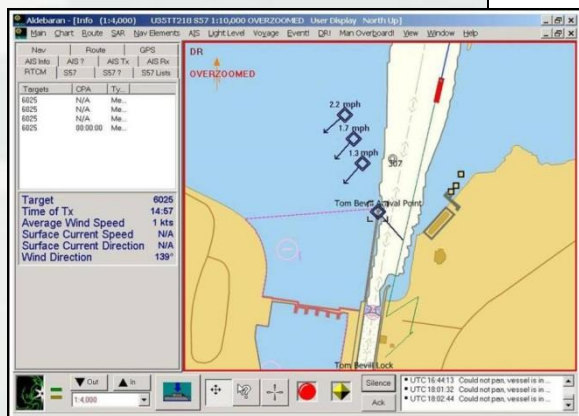
LOMA Equipment Deployment Aug 2014






Lock Approach Current Modeling

- ⑧ Vessel operators need river current information at critical locations (e.g., lock approaches)
- Sensors are expensive to install and maintain; provide limited information



Marine Safety Information (MSI)

"Notices to Skippers"




U.S. Department
of Homeland Security
**United States
Coast Guard**

LOCAL NOTICE TO MARINERS
WEEKLY EDITION

District: 17 **Week: 01/06**


~Navigation Information Service (NIS)
Watchstander, 24 hours a day at (703) 313-5900
~Navcen Internet Address~
www.navcen.uscg.gov
~Local Notice to Mariners~
www.navcen.uscg.gov/lnm

Issued by: Commander (DPW) Telephone: (907) 463-2269 (0800-1600)
Seventeenth Coast Guard District After Hours: (907) 463-2004 (1600-0800)
PO Box 25517 Facsimile: (907) 463-2273




No. 31
2 AUGUST 2014
UNITED STATES OF AMERICA


NOTICE TO MARINERS



Published Weekly by the
National Geospatial-Intelligence Agency

Prepared Jointly with the
National Ocean Service and U.S. Coast Guard





Office of Coast Survey

HOME | ABOUT US | CONTACT | REGIONAL MANAGERS

Search

Nautical Charts & Pubs Surveys & Wrecks GIS & Other Products Research & Development Customer Service Business Opportunities Education


Chart: 11354, Current Edition: 28, Print Date: Jul. /2012
Intracoastal Waterway Morgan City to Port Allen, including the Atchafalaya River

[Download RNC](#)
[View Chart Image](#)
[Paper/RNC Catalog](#)

Action	Item Name	Charting Label	Latitude	Longitude	Published Document	Kapp	RNC Panel	RNC Posted	PDF Posted
Add	Atchafalaya Channel Daybeacon 21	G "21" Ra Ref	N 29° 18' 40.355"	W 091° 26' 18.323"	LNM 25/14, 8th Dist	35	11354_3	7/3/2014	7/3/2014
Delete	Atchafalaya Channel Buoy 21	G C "21"	N 29° 18' 40.322"	W 091° 26' 18.315"	LNM 25/14, 8th Dist	35	11354_3	7/3/2014	7/3/2014
Relocate	Atchafalaya Channel Buoy 57	G C "57"	N 29° 28' 00.632"	W 091° 16' 50.653"	LNM 24/14, 8th Dist	35	11354_3	6/26/2014	6/26/2014
Relocate	Atchafalaya Channel Lighted Buoy 58	R "58" FIR 2.5s	N 29° 28' 02.045"	W 091° 16' 40.421"	LNM 24/14, 8th Dist	35	11354_3	6/26/2014	6/26/2014
Change	Atchafalaya RIVER	tabulation - ATCHAFALAYA RIVER	N 29° 36' 00.000"	W 091° 10' 00.000"	LNM 24/14, 8th Dist	35	11354_3	6/19/2014	6/19/2014
Change	Atchafalaya RIVER	tabulation - ATCHAFALAYA RIVER	N 29° 36' 00.000"	W 091° 10' 00.000"	LNM 15/14, 8th Dist	35	11354_3	4/10/2014	4/10/2014
Add	Dump Site Label	Dump Site (dredged material) (see note S) Depths from surveys of 1935-2010	N 29° 14' 55.730"	W 091° 31' 52.360"	LNM 15/14, 8th Dist	35	11354_3	4/10/2014	4/10/2014
Add	Atchafalaya River & Bayous Chene, Boeuf, and Black - West dump site PT 3 OF 4	Chart No. 1 N24	N 29° 20' 30.000"	W 091° 25' 13.000"	LNM 15/14, 8th Dist	35	11354_3	4/10/2014	4/10/2014
Add	Atchafalaya River & Bayous Chene, Boeuf, and Black - West dump site PT 1 OF 4	Chart No. 1 N24	N 29° 18' 12.690"	W 091° 31' 04.080"	LNM 15/14, 8th Dist	35	11354_3	4/10/2014	4/10/2014
	Atchafalaya River & Bayous Chene,								

Navigation Notices

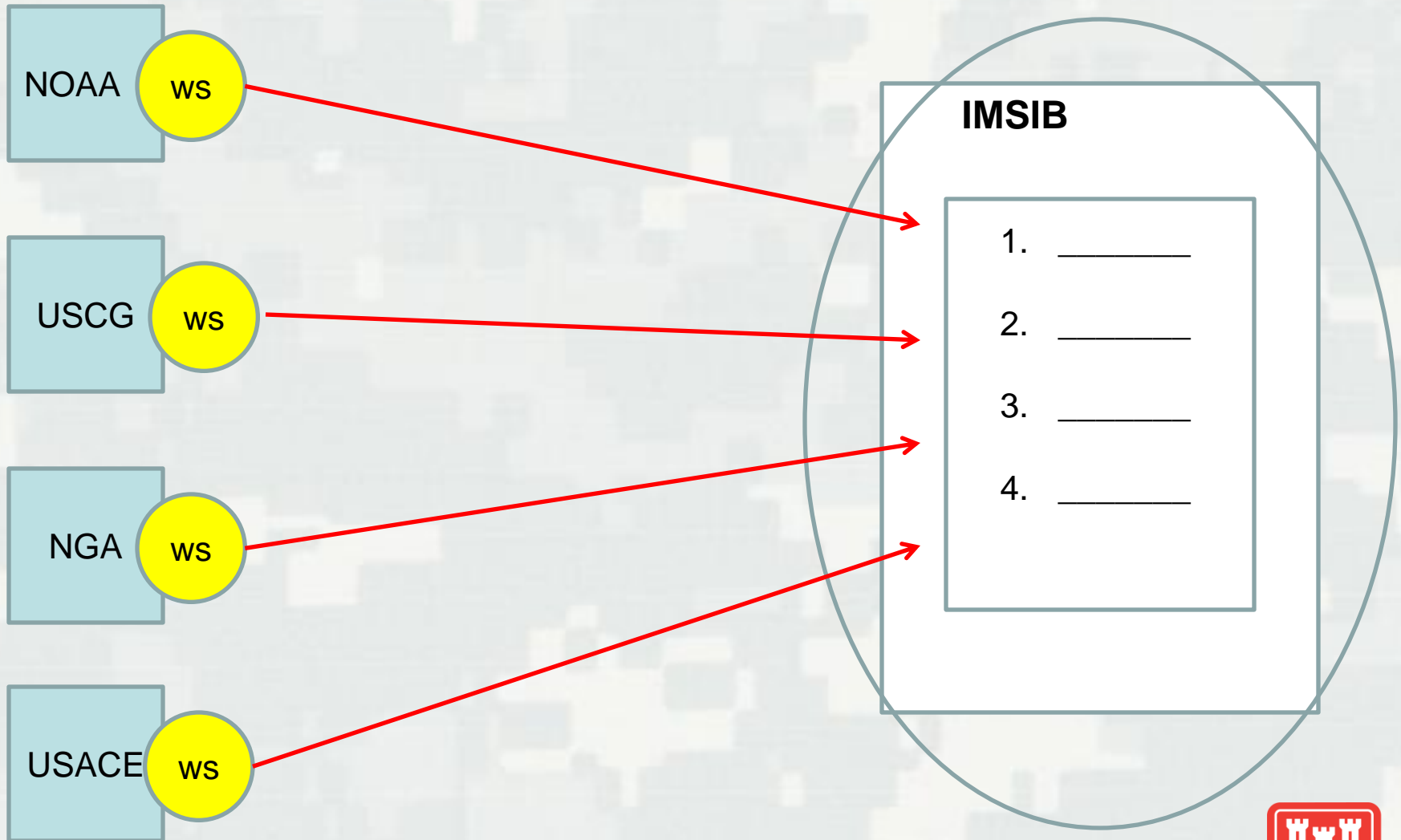
Notice to Navigation Interests
In Reply Refer to:
OP-TN, P.O. Box 2288, Mobile, AL 36628
251-694-3710



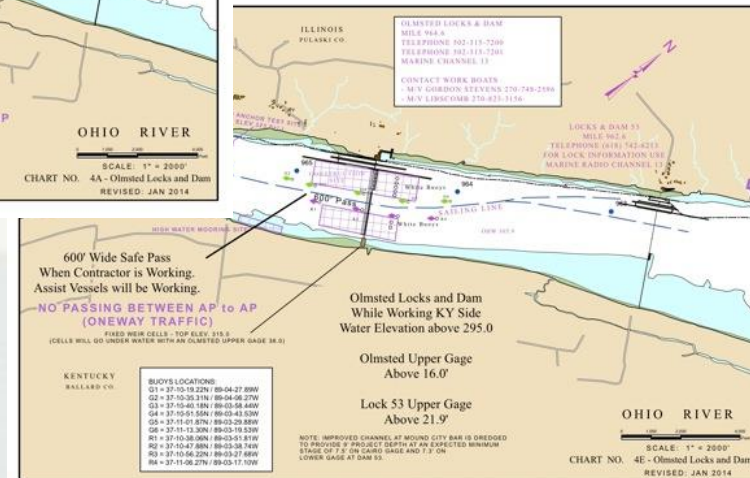
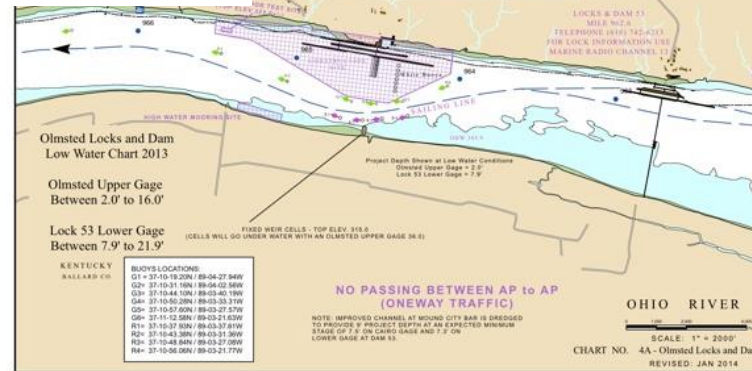
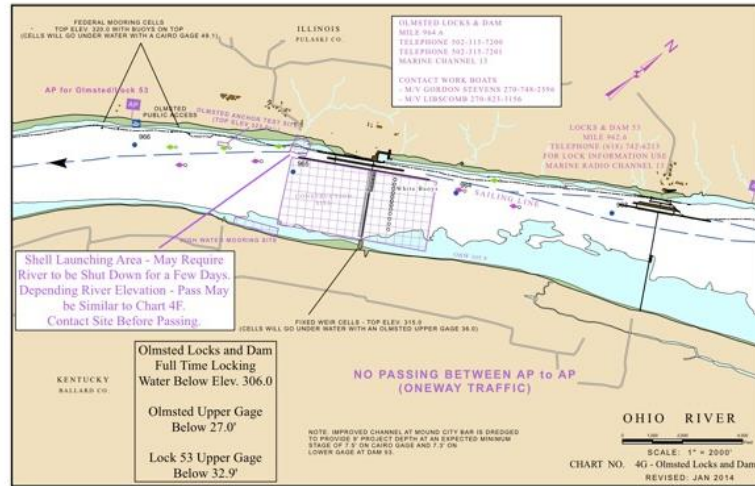
Date Bulletin Issued	Bulletin	System / Location
9/17/2012	Navigation Bulletin No. 12-24	TENNESSEE-TOMBIGBEE WATERWAY, MISSISSIPPI
9/14/2012	Navigation Bulletin No.12-23	TENNESSEE-TOMBIGBEE WATERWAY, MISSISSIPPI
6/29/2012	Navigation Bulletin No. 12-17	BLACK WARRIOR & TOMBIGBEE RIVERS, ALABAMA
6/28/2012	Navigation Bulletin No. 12-16	TENNESSEE TOMBIGBEE WATERWAY, MISSISSIPPI
6/5/2012	Navigation Bulletin No. 12-15	TENNESSEE-TOMBIGBEE WATERWAY, MISSISSIPPI
6/5/2012	Navigation Bulletin No. 12-14	MOBILE SHIP CHANNEL, MOBILE CO., ALABAMA
6/5/2012	Navigation Bulletin No. 12-12	BLACK WARRIOR & TOMBIGBEE RIVERS, ALABAMA
6/4/2012	Navigation Bulletin No. 12-13	TENNESSEE-TOMBIGBEE WATERWAY, MISSISSIPPI
5/25/2012	Navigation Bulletin No. 12-11	TENNESSEE-TOMBIGBEE WATERWAY, MISSISSIPPI
5/9/2012	Navigation Bulletin No.12-10	TENNESSEE TOMBIGBEE WATERWAY, MISSISSISSIPPI
5/4/2012	Navigation Bulletin No. 12-09	BLACKWARRIOR & TOMBIGBEE RIVERS, ALABAMA
5/3/2012	Navigation Bulletin No. 12-08	BLACKWARRIOR & TOMBIGBEE RIVERS, ALABAMA
4/25/2012	Navigation Bulletin No. 12-07	PERDIDO PASS, ALABAMA
4/3/2012	Navigation Bulletin No. 12-06	BLACK WARRIOR RIVER, ALABAMA
4/4/2012	Navigation Bulletin No. 12-05	BLACK WARRIOR RIVER, ALABAMA
3/5/2012	Navigation Bulletin No. 12-04	BLACK WARRIOR RIVER, ALABAMA
3/2/2012	Navigation Bulletin No. 12-03	GULF INTRACOASTAL WATERWAY/APALACHICOLA BAY, FLORIDA

BUILDING STRONG®

Integrated “eMSI Bulletin” concept



Olmsted Lock and Dam Construction Project



Navigation Data Integration Framework

Navigation DIF Components

- Source Databases
- Hub Catalog
- Tools
- Web Services
- Portals

Navigation Sub-categories

- Dredging
- River Information Services
- Surveying & Mapping
- Infrastructure & Asset Management
- Engineering With Nature & Regional Sediment Management
- Marine Transportation System



Thank you for your attention!

USACE Emerging Capabilities

- ❑ Inland Electronic Charts & Expanded use of AIS
- ❑ eHydro
- ❑ Lock Operations Management Application
- ❑ Enhanced Marine Safety Information (eMSI)
- ❑ Data Framework

Jeff Lillycrop

Jeff.lillycrop@usace.army.mil

Brian Tetreault

brian.j.tetreault@usace.army.mil



BUILDING STRONG®