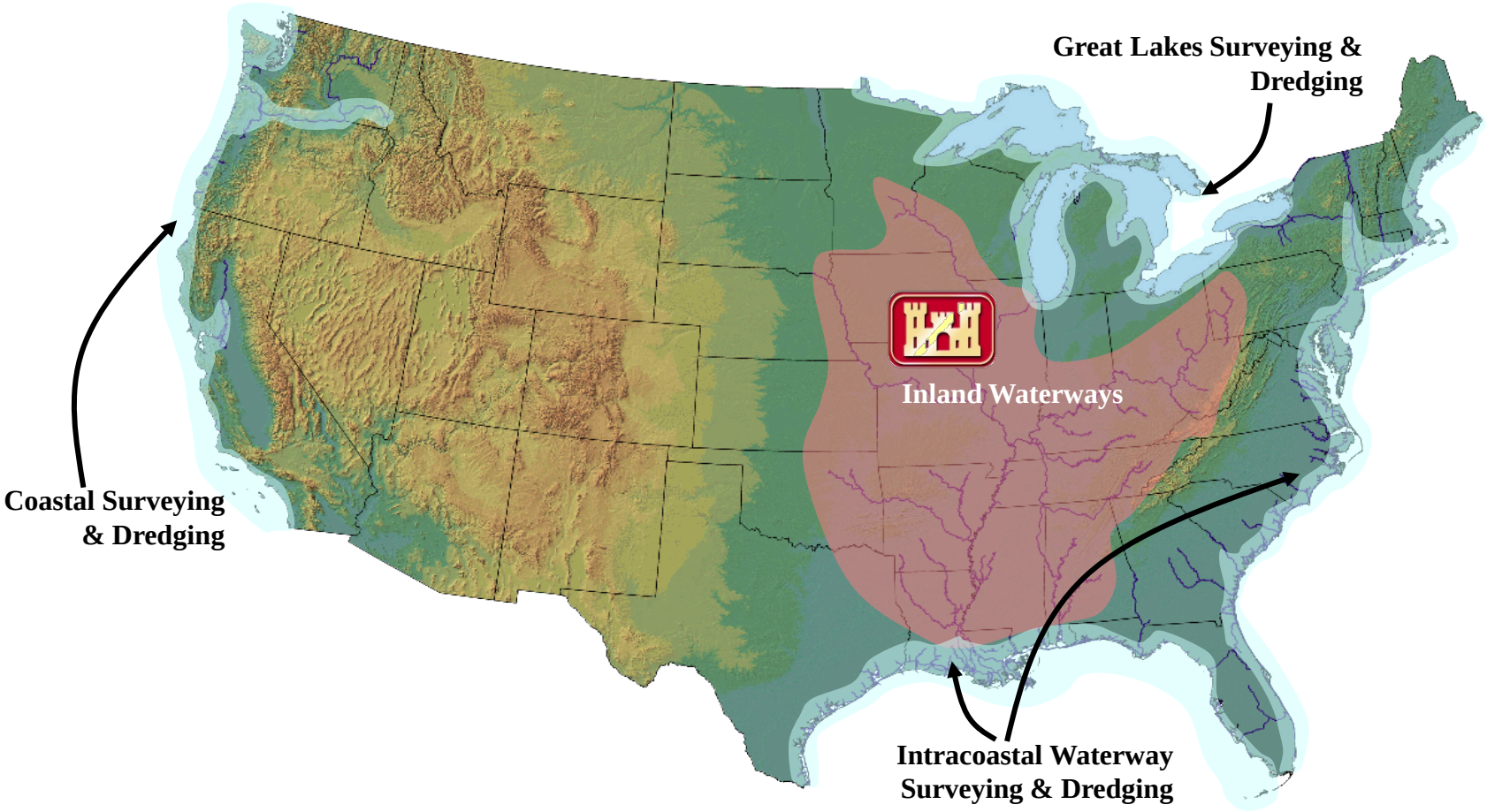
Status of Inland ENCs in the USA

Denise R. LaDue
US Army Corps of Engineers (USACE)

Inland ENC Harmonization Group

US Army Corps of Engineers

USACE Navigation Mission



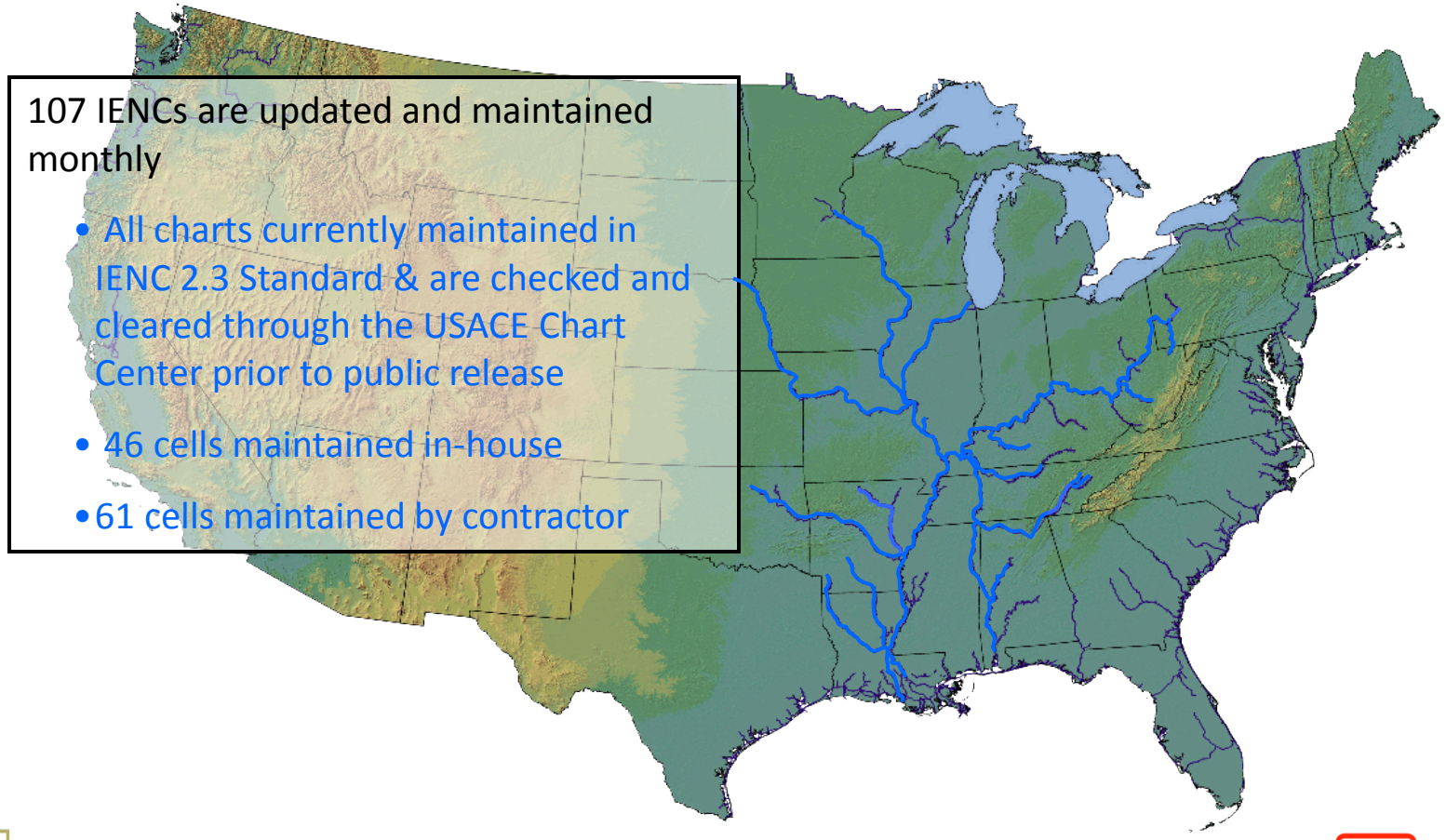
Inland ENC Harmonization Group

US Army Corps of Engineers

Status of IENC Production in the USA

http://www.agc.army.mil/echarts/

7,260 mi (11,684 km) of inland waterways are scheduled for Inland ENC coverage



107 IENCs are updated and maintained monthly

- All charts currently maintained in IENC 2.3 Standard & are checked and cleared through the USACE Chart Center prior to public release
- 46 cells maintained in-house
- 61 cells maintained by contractor

Inland ENC Harmonization Group

US Army Corps of Engineers

Implementation of Inland ENCs in the USA

River / Waterway	Miles	Kilometers	Inland ENC 2.3 (converted Jan. 2015)
Allegheny River	45	72	Published
Arkansas River	445	716	Published
Atchafalaya River	118	190	Published
Black Warrior River	235	378	Published
Cumberland River	381	613	Published
Green River	108	174	Published
Illinois Waterway	337	542	Published
Kanawha River	91	146	Published
Kaskaskia River	36	58	Published
Lower Mississippi River	715	1,151	Published
Missouri River	733	1,180	Published
Mobile / Tombigbee Rivers	217	349	Published
Monongahela River	129	208	Published
Ohio River	981	1,579	Published
Ouachita River	351	565	Published
Red River	237	381	Published
Tennessee River	765	1,231	Published
Tennessee-Tombigbee Waterway	225	362	Published
Upper Mississippi River	866	1,394	Published
White River	245	394	Published
Total	**7,260**	**11,684**	

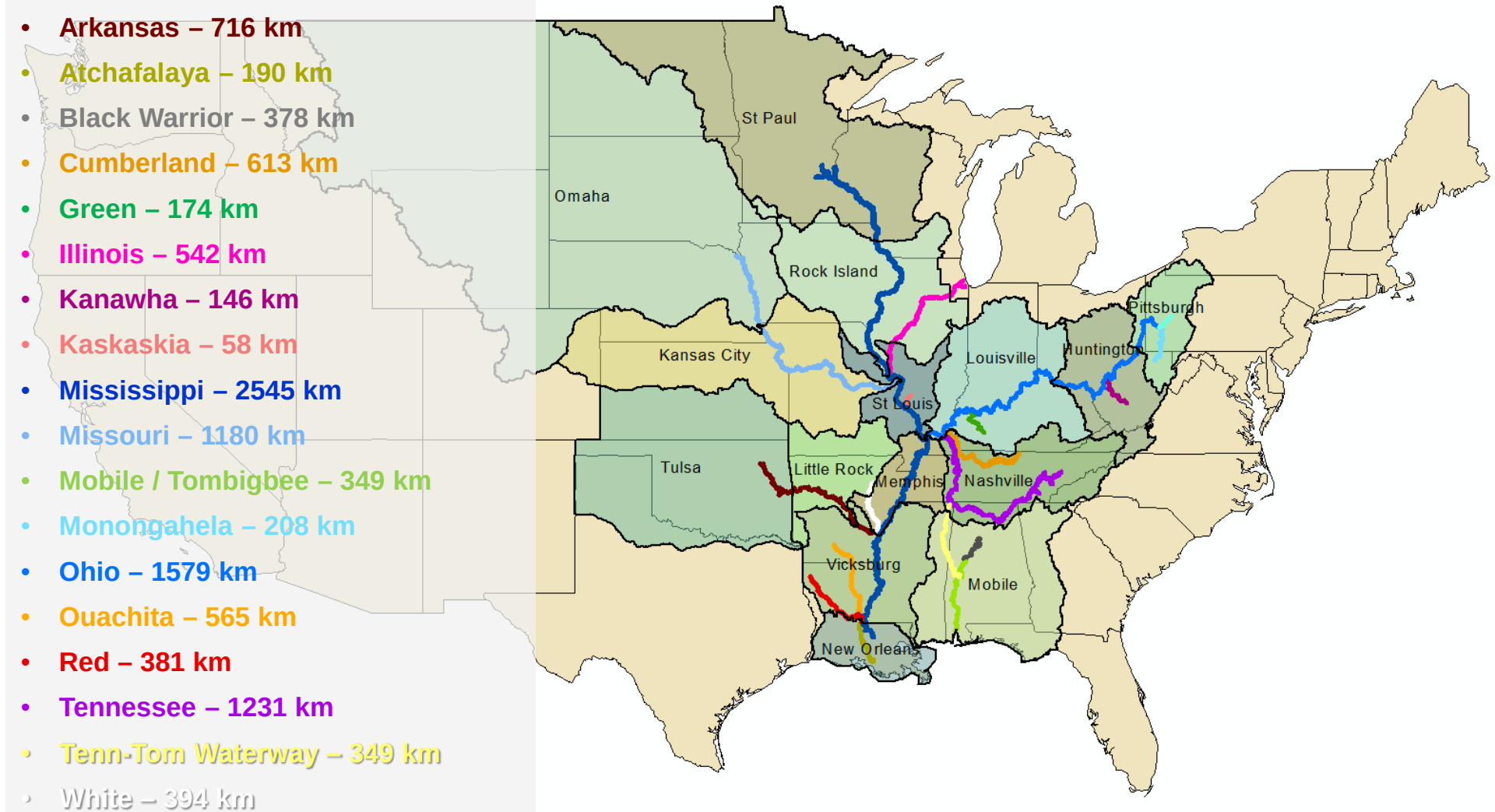
15 USACE Districts in IENC Program

Inland ENC Harmonization Group

US Army Corps of Engineers

Inland Waterways in the USA

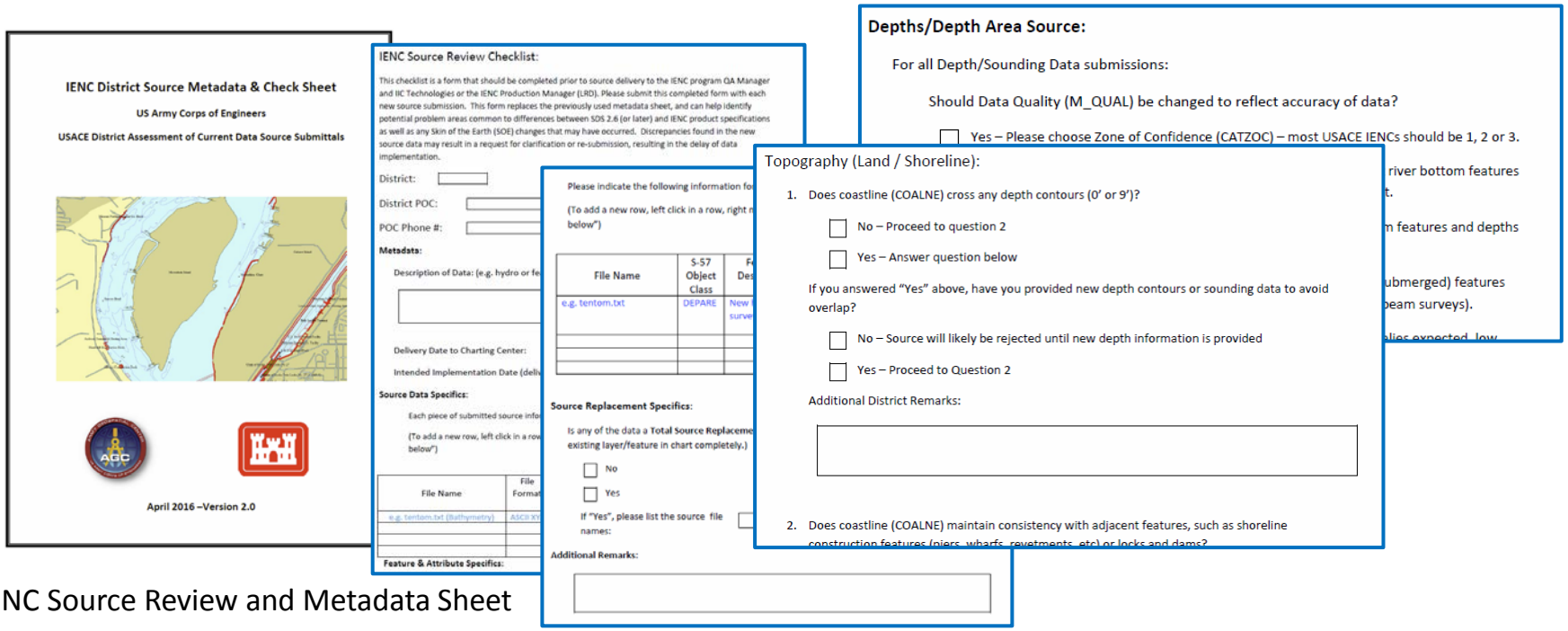
- Allegheny –72 km
- Arkansas – 716 km
- Atchafalaya – 190 km
- Black Warrior – 378 km
- Cumberland – 613 km
- Green – 174 km
- Illinois – 542 km
- Kanawha – 146 km
- Kaskaskia – 58 km
- Mississippi – 2545 km
- Missouri – 1180 km
- Mobile / Tombigbee – 349 km
- Monongahela – 208 km
- Ohio – 1579 km
- Ouachita – 565 km
- Red – 381 km
- Tennessee – 1231 km
- Tenn-Tom Waterway – 349 km
- White – 394 km



Inland ENC Harmonization Group

US Army Corps of Engineers

“Formal” Source Submittal

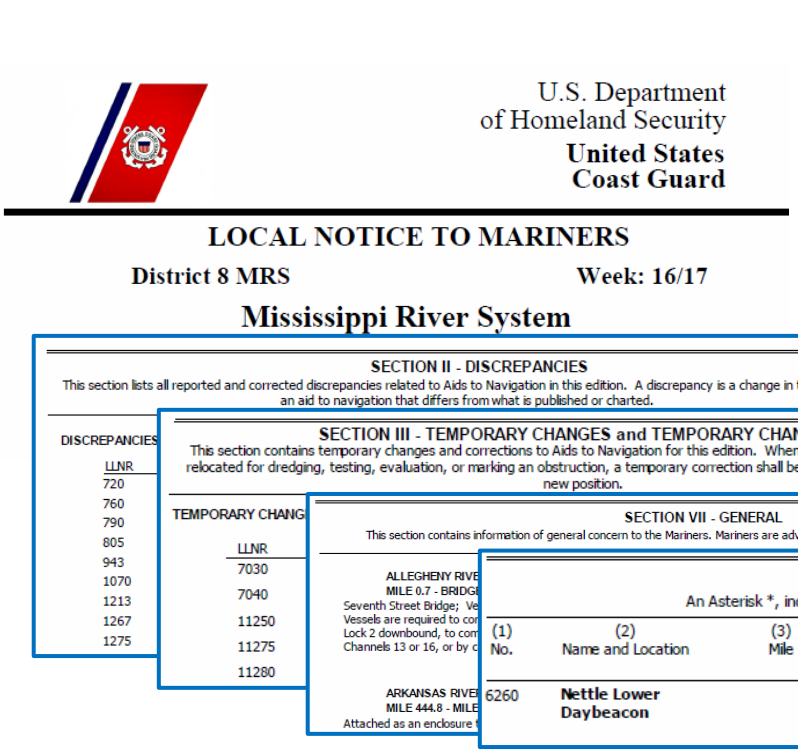


IENC Source Review and Metadata Sheet

Inland ENC Harmonization Group

US Army Corps of Engineers

Other Sources


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

LOCAL NOTICE TO MARINERS

District 8 MRS Week: 16/17

Mississippi River System

SECTION II - DISCREPANCIES

This section lists all reported and corrected discrepancies related to Aids to Navigation in this edition. A discrepancy is a change in the status of an aid to navigation that differs from what is published or charted.

DISCREPANCIES

LLNR
720
760
790
805
943
1070
1213
1267
1275

SECTION III - TEMPORARY CHANGES and TEMPORARY CHANGES CORRECTED

This section contains temporary changes and corrections to Aids to Navigation for this edition. When charted aids are temporarily relocated for dredging, testing, evaluation, or marking an obstruction, a temporary correction shall be listed in Section IV giving the new position.

TEMPORARY CHANG

LLNR
7030
7040
11250
11275
11280

SECTION VII - GENERAL

This section contains information of general concern to the Mariners. Mariners are advised to use caution while transiting these areas.

ALLEGHENY RIVE
MILE 0.7 - BRIDG
Seventh Street Bridge; Ve
Vessels are required to cor
Lock 2 downbound, to cor
Channels 13 or 16, or by c

ARKANSAS RIVE
MILE 444.8 - MILE
Attached as an enclosure t

SECTION VIII - LIGHT LIST CORRECTIONS

An Asterisk *, indicates the column in which a correction has been made to new information

(1) No.	(2) Name and Location	(3) Mile	(4) Bank	(5) Characteristic	(6) Structure / Dayboard Up	(6) Structure / Dayboard Down	(7) Remarks	
6260	**Nettle Lower Daybeacon**						Remove from list. *	12/17

USCG Navigation Center: https://www.navcen.uscg.gov/

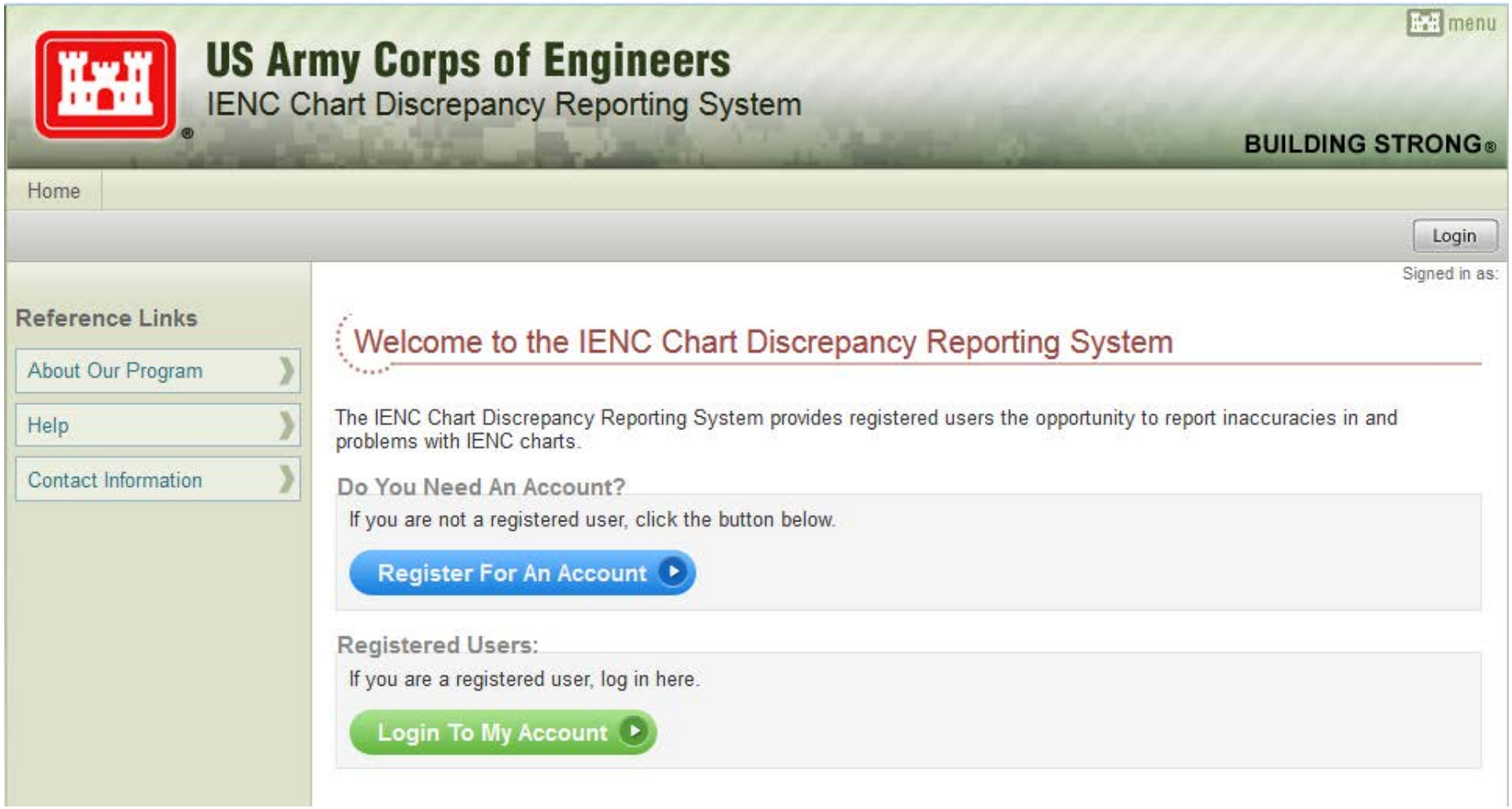
IENC Chart Discrepancy Reporting System: https://ienc-report.usace.army.mil/

Inland ENC Harmonization Group

US Army Corps of Engineers

Chart Discrepancy Reporting System

https://ienc-report.usace.army.mil/



History Files

IENC Meta | **Source Application** | Compiler Reviewer | Discrepancy Report | "Legacy" Source Application

US Army Corps of Engineers
IENC History File

IENC Meta Data

IENC Cell No.	IENC Cell Name	River Name	District	From Mile	To Mile
U37OH912	Bay City, IL to Cairo, IL	Ohio	CELRL	912	981

Product Release History

New Edition (EN) / Update (ER)	IENC File Name	Edition No.	Update No.	Update Application Date	Issue Date
EN	U37OH912.000	33	-	7/13/2016	
ER	U37OH912.001	33	1	8/2/2016	
ER	U37OH912.002	33	2	8/17/2016	
ER	U37OH912.003	33	3	9/14/2016	
ER	U37OH912.004	33	4	10/12/2016	
ER	U37OH912.005	33	5	12/14/2016	
ER	U37OH912.006	33	6	1/18/2017	
EN	U37OH912.000	34	-	2/8/2017	
ER	U37OH912.001	34	1	3/8/2017	
ER	U37OH912.002	34	2	4/12/2017	

Source Application

Item No.	Source Description	Source Name / Identifier	Source Date	Vector / Raster	Location; River Mile & Descending Bank	Action Taken	Date Completed
1	Encoding Guide 4.0 Compliance		5/8/2007	V	Entire Cell		5/8/2007
2	2007 SEAS, Inc. 400' X-section hydrographic survey			V		New shoreline, drying height and 9' depth contour added to cell	5/2/2008
3	McClane Environmental Services feature survey		9/7/2007	V	Entire Cell	Field verification of all lights, facilities & ramps	5/2/2008
4	Homeland Security		-	V	Entire Cell	Removed intakes and pipeline products	5/2/2008
5	M_NPUB	M_NPUB	-	V	Entire Cell	M_NPUB Added to cell	5/1/2008
6	USCG LNM	D8 LNM 19/08	5/8/2008	R	Full File	IENC corrected through LNM 19/08.	5/8/2008
7	USCG LNM	D8 LNM 24/08	6/11/2008	R	Full File	Multiple corrections, to include changes to SOTE	6/11/2008
8	USCG LNM	D8 LNM 24/08	6/11/2008	R	Full File	IENC corrected through LNM 24/08.	6/11/2008
9	USCG LNM	D8 LNM 28/08	7/14/2008	R	Full File	New project depth and shoreline	7/14/2008
10	USCG LNM	D8 LNM 28/08	7/14/2008	R	Full File	Sailing line modified.	7/14/2008
11	USCG LNM	D8 LNM 30/08	7/23/2008	R	Full File	IENC corrected through LNM 30/08.	7/23/2008
12	USCG LNM	D8 LNM 30/08	7/23/2008	R	Full File	Sailing line modified based on pilot comments	9/30/2008
13	USCG LNM	D8 LNM 38/08	9/30/2008	R	Full File	New project depth added based on survey provided by USACE Louisville	9/17/2008
14	USCG LNM	D8 LNM 38/08	9/30/2008	R	Full File	IENC cleared through LNM 38/08	9/30/2008
15	USCG LNM	D8 LNM 42/08	10/16/2008	R	Full File	M_NPUB modified IENC corrected through LNM 42/08	10/16/2008
16	USCG LNM	D8 LNM 46/08	11/13/2008	R	Full File	M_NPUB modified IENC corrected through LNM 46/08	11/13/2008
17	USCG LNM	D8 LNM 46/08	11/13/2008	R	Full File	M_NPUB modified	12/15/2008
18	USCG LNM	D8 LNM 46/08	11/13/2008	R	Full File	Red bridge lights added to bridge piers on I-24 Hwy bridge	12/16/2008
19	USCG LNM	D8 LNM 50/08	12/10/2008	R	Full File	IENC cleared through LNM 50/08	12/10/2008
20	USCG LNM	D8 LNM 50/08	12/10/2008	R	Full File	Section VII of M_NPUB modified	1/13/2009
21	USCG LNM	D8 LNM 01/09	1/13/2009	R	Full File	IENC corrected through LNM 01/09	1/13/2009
22	USCG LNM	D8 LNM 06/09	2/11/2009	R	Full File	IENC cleared through LNM 06/09	2/11/2009
23	USCG LNM	D8 LNM 06/09	2/11/2009	R	Full File	M_NPUB Section VII modifed	3/12/2009
24	USCG LNM	D8 LNM 10/09	3/12/2009	R	Full File	IENC corrected through LNM 10/09	3/12/2009
25	USCG LNM	D8 LNM 15/09	4/16/2009	R	Full File	IENC corrected through LNM 15/09	4/16/2009

Source Application

261	USCG LNM	Section 7: General	-	32/16	Chart	Chart	M_NPUB Text File - U3OH912NP1.TXT	Text	Added text entry: MILE 953.0 - MILE 968.0 - L/D REPAIRS/TOW RESTICTIONS - UPDATE Removed text entry: MILE 935.0 - CONSTRUCTION OPERATION	20160817	US,U3,Light,USCG Light List - LNM 33/16	8/18/2016
262	IENC Cleared through week 33/16 (August 17, 2016)												
263	USCG LNM	Section 7: General	-	37/16	Chart	Chart	M_NPUB Text File - U3OH912NP1.TXT	Text	Added text entry: MILE 953.0 - MILE 968.0 - L/D RESTICTIONS Removed text entry: MILE 953.0 - MILE 968.0 - L/D TOW RESTICTIONS	20160914	US,U3,Light,USCG Light List - LNM 37/16	9/21/2016
264	Email	Email from G. Thornberry - "RECTRC misalignment at Cairo"	-	9/20/2016	981	-	RECTRC	-	Modified RECTRC to alignment with U37UM000.	20131231	US,U3,GRAPH,2013_USCG_AIS	9/21/2016
265	IENC Cleared through week 37/16 (September 14, 2016)												
266	USCG LNM	Section 7: General	-	55/16	Chart	Chart	M_NPUB Text File - U3OH912NP1.TXT	Text	Added text entry: MILE 962.6 - L/D REPAIR	20161012	US,U3,Light,USCG Light List - LNM 41/16	10/14/2016
267	IENC Cleared through week 41/16 (October 12, 2016)												

Inland ENC Harmonization Group

US Army Corps of Engineers

Status Report

US Army Corps of Engineers
Louisville District
PO Box 59
Louisville, KY 40201
Ph: 502-315-6926

IENC MAINTENANCE STATUS REPORT - PROJECT DETAILS

Project:	IENC Monthly Maintenance	**Prepared by:**	Denise LaDue
Date	March 8,2017	**E-Mail Address:**	Denise.R.LaDue@usace.army.mil

1. PROJECT SCHEDULE UPDATE

IENC Cell No.	Chart Name (River Miles)	Update Date: 11/9/2016 Corrected/Cleared through: LNM 45/16 (November 9, 2016)	Update Date: 12/14/2016 Corrected/Cleared through: LNM 50/16 (December 14, 2016)	Update Date: 1/18/2017 Corrected/Cleared through: LNM 03/17 (January 18, 2017)	Update Date: 2/8/2017 Corrected/Cleared through: LNM 06/17 (February 8, 2017)	Update Date: 3/8/2017 Corrected/Cleared through: LNM 10/17 (March 8, 2017)
U37AG001	Allegheny River (001 to 046)	✓	U37AG001.003 Ed. 10.3	✓	✓	✓
U37CL007	Clinch River (007 to 062)	U37CL007.012 Ed. 4.12	✓	✓	✓	✓
U37CR003	Cumberland River (003 to 075)	U37CR003.004 Ed. 13.4	U37CR003.000 Ed. 14.0	U37CR003.001 Ed. 14.1	U37CR003.002 Ed. 14.2	U37CR003.003 Ed. 14.3
U37CR075	Cumberland River (075 to 149)	U37CR075.005 Ed. 9.5	U37CR075.000 Ed. 10.0	U37CR075.001 Ed. 10.1	✓	✓
U37CR149	Cumberland River (149 to 221)	U37CR149.012 Ed. 10.12	U37CR149.000 Ed. 11.0	U37CR149.001 Ed. 11.1	✓	✓
U37CR221	Cumberland River (221 to 307)	✓	✓	✓	✓	✓
U37CR307	Cumberland River (307 to 381)	U37CR307.001 Ed.8.2	✓	✓	✓	✓
U37GR001	Green River (001 to 108)	✓	✓	✓	✓	U37GR001.000 Ed. 9.0
U37KA001	Kanawha River (001 to 024)	U37KA001.006 Ed. 12.6	U37KA001.007 Ed. 12.7	U37KA001.008 Ed. 12.8	✓	✓
U37KA024	Kanawha River (024 to 050)	U37KA024.014 Ed. 13.14	U37KA024.015 Ed. 13.15	U37KA024.016 Ed. 13.16	✓	✓
U37KA050	Kanawha River (050 to 065)	✓	U37KA050.014 Ed. 12.14	U37KA050.015 Ed. 12.15	U37KA050.016 Ed. 12.16	✓
U37KA065	Kanawha River (065 to 091)	U37KA065.010 Ed. 11.10	U37KA065.011 Ed. 11.11	U37KA065.012 Ed. 11.12	U37KA065.013 Ed. 11.13	U37KA065.014 Ed. 11.14
U37MN001	Monongahela River (001 to 042)	✓	✓	✓	✓	✓
U37MN042	Monongahela River (042 to 086)	U37MN042.002 Ed. 12.2	U37MN042.003 Ed. 12.3	✓	U37MN042.004 Ed. 12.4	U37MN042.005 Ed. 12.5

- Monthly change log
  - Current edition
  - Which cells changed
  - Descriptive summary of changes
- Summary of all History files in a small package

Quality Assurance

Inland Electronic Navigational Charts
District QA Chart Documentation Sheet

Delivery Cycle Date: 12 APR 17 Date QA Started: 18 APR 17 Date QA Completed: 18 APR 17
Chart Name: OH736 Edition and Update #: 28.2 Date Produced: 12 APR 17
River Name: Ohio River Section Covered: From mile: 736 To mile: 852
USACE District: Lrl Chart Producer: Denise LaDue

Deliverables:

- ☒ Chart Exchange Set (*.000 file(s), catalog file(s), Image file(s))
- ☒ Final Report
- ☒ Metadata File
- ☐ Error Report
- ☒ Final Chart Production Files
- ☐ Other files requested in Scope/Task Order:

S-57/IENC Compliance:
Performed by: Glt

Compiler / Reviewer Information

Source Application Item No.s	Completed By	Date Complete	Reviewed By	Review Complete; Ready for USACE Review	USACE Reviewer	Approved Date	Notes
166-168	Denise LaDue CELRL-OP-E	12/16/2013	Todd Davis CELRL-OP-TM				Sharps Bar light removed in Dec. delivery.Removed 1 MORFAC at Mile 961.0 and 1 at Mile 961.4 (Verified)
169-170	Denise LaDue CELRL-OP-E	1/14/2014	Todd Davis CELRL-OP-TM				Metropolis Light has been removed
171-172	Denise LaDue CELRL-OP-E	2/13/2014	Todd Davis CELRL-OP-TM				Added text entry: MILE 962.5-MILE 966.0 - USACE VESSEL RESTRICTION Removed text entry: MILE 963.0 - MILE 966.0 - NO PASSING ZONE/CHANGE IN L/D OPERATING HOURS VERIFIED BY LOOKING AT TXT FILE
173-175	Denise LaDue CELRL-OP-E	3/19/2014	Todd Davis CELRL-OP-TM				Owens Island Light changed from 934.6 to 934.2
177-179	Denise LaDue CELRL-OP-E	5/8/2014	Todd Davis CELRL-OP-TM				Verified - SCAMIN changed to 60,000 for LNDRGN (P) & (A Verified - Modified text entry: MILE 962.5-MILE 966.0 - USACE V RESTRICTION
180-184	Denise LaDue CELRL-OP-E	6/17/2014	Todd Davis CELRL-OP-TM				Verified - Added CATSEA, Added CATCBL, Bird Nesting Platform Added text entry
185-186	Denise LaDue CELRL-OP-E	7/10/2014	Todd Davis CELRL-OP-TM				Verified-Added text entries: MILE 925.0 - DREDGE OPERATION a 963.0-MILE966.0 - USACE VESSEL RESTRICTION. Removed text MILE 962.5-MILE 966.0 - USACE VESSEL RESTRICTION
187-189	Gerald Thornberry CELRL-OP-E	8/28/2014	Todd Davis CELRL-OP-TM				Verified -"DISCONTINUED" added to OBJNAM for Grand Chain La Daybeacon / Removed text entries: MILE 925.0 - DREDGE OPERA
	Denise LaDue						

Discrepancy Reports

Discrepancy Report No.	Reference Source Application	Discrepancy Description	Date Reported	Date Resolved
248		small DEPARE and DEPCNT from 20140820 remains inside new DEPARE and DEPCNT in Lock 53 pool at mile 956.6 (Sharps Bar)	5/9/2016	
249		small DEPARE and DEPCNT from 20141209 remains inside new DEPARE and DEPCNT in Lock 52 pool, backchannel of Cumberland Island at Cumberland River mile 1.0	5/9/2016	

- Contains QA comments
  - "PASSED" if all is okay
  - Otherwise, a statement describing the problem with the edit to help the Producer resolve the issue

Inland ENC Harmonization Group

US Army Corps of Engineers

Inland ENC Data Download Services

ARMY GEOSPATIAL CENTER

US Army Corps of Engineers

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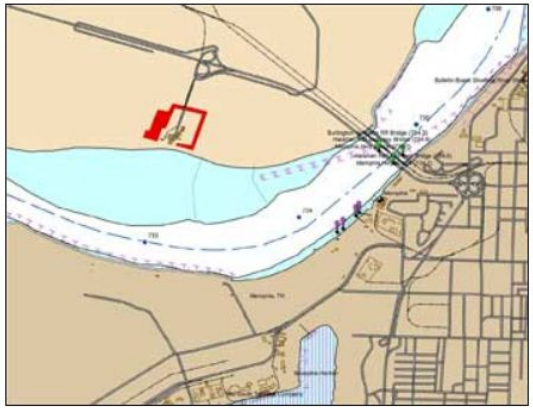
HOME > MISSIONS > ECHARTS

Echart Menu

- Chart Discrepancy Reports
- Inland Chart Books
- Inland Electronic Navigation Charts
- Product Downloads

IENC Program Overview



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.

http://www.agc.army.mil/Missions/Echarts.aspx

Inland ENC Harmonization Group

US Army Corps of Engineers

Inland ENC Data Download Services

http://ienccloud.us

Inland ENC Harmonization Group

US Army Corps of Engineers

Inland ENC Data Download Services

- Product Catalogue:
  - XML based: universal and flexible
  - Allows automated data updates for software clients
  - Allows automated querying of available products
  - Expandable and scalable to accommodate future products and services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Inland ENC Harmonization Group

US Army Corps of Engineers

IENC On-line Feature Catalogue

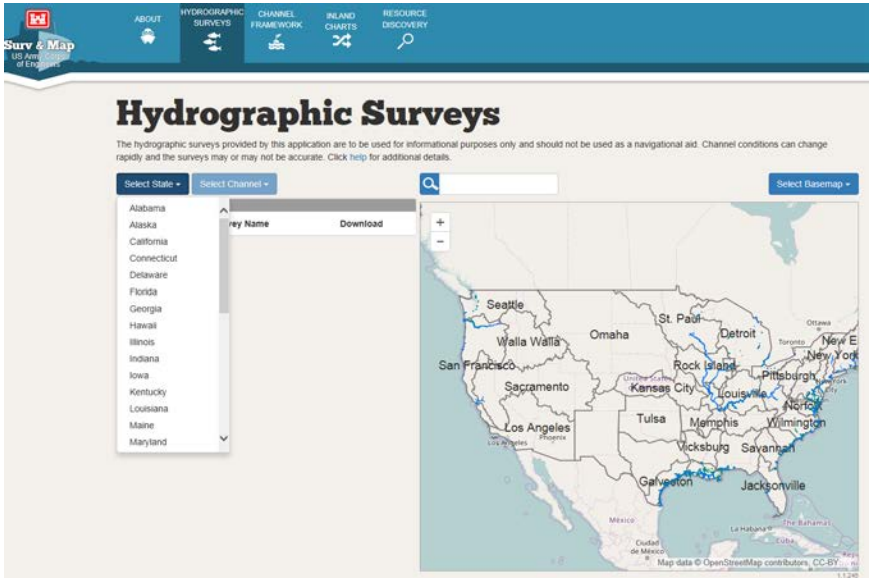
- Available as IENC FC 2.3 and as IENC FC 2.4

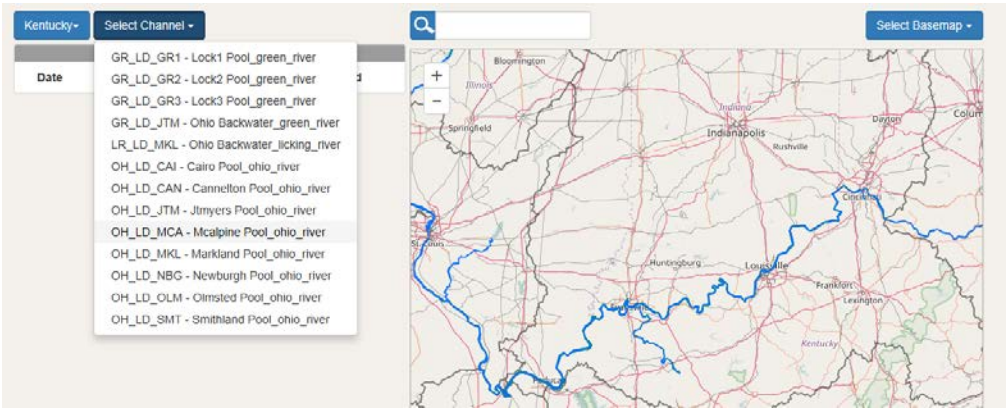
  http://ienccloud.us/ienc/web/s-57

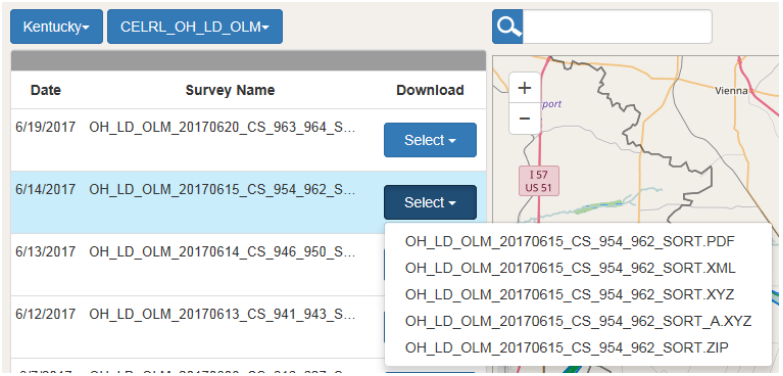
Inland ENC Carriage Requirements in the USA

- Presently there are no mandatory carriage requirements for electronic charts on US Inland waterways. However …
  - US Coast Guard NVIC 01-16, which was revised earlier this year, states that Inland ENCs, when displayed in certain charting systems, are now considered a suitable alternative to paper charts.

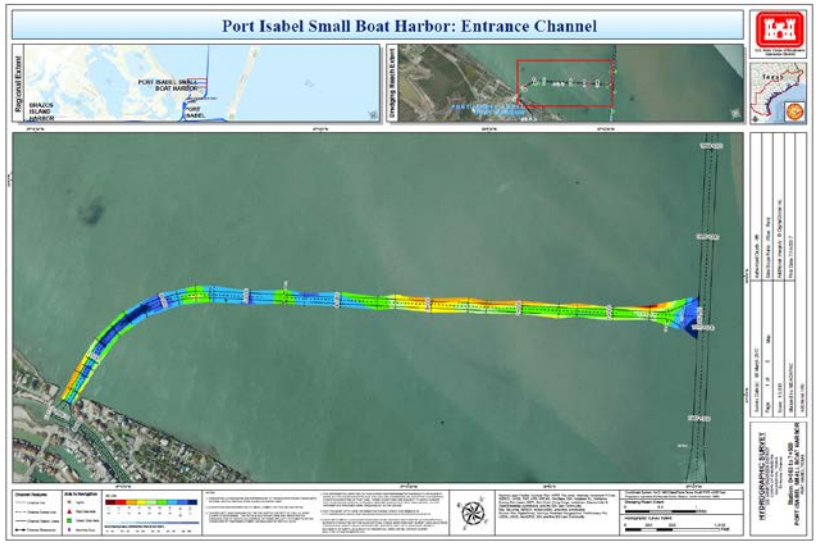
eHydro Interface

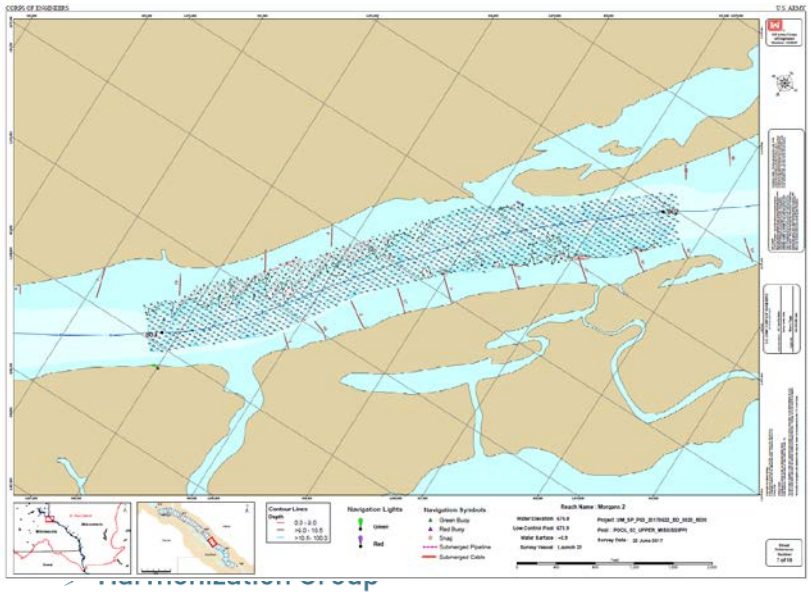


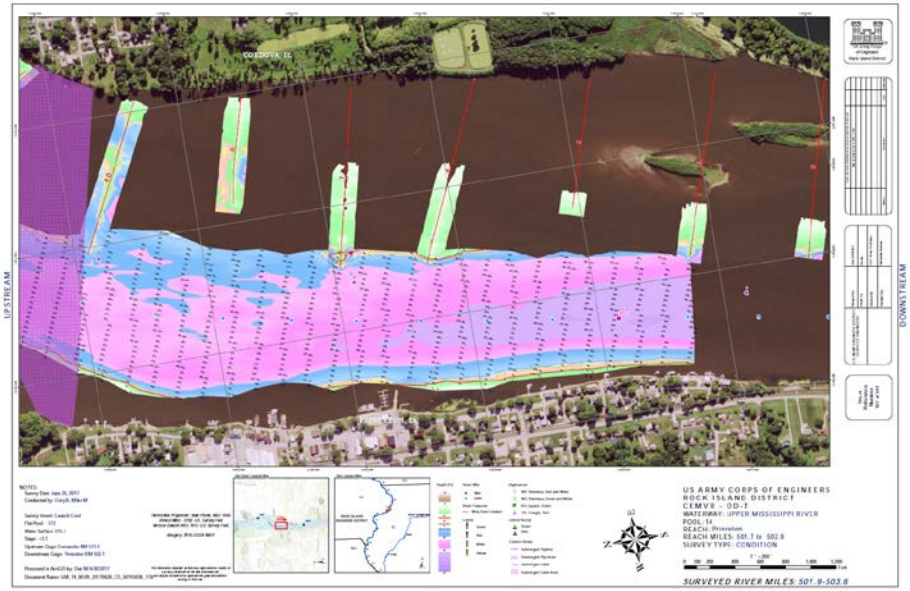




eHydro Output







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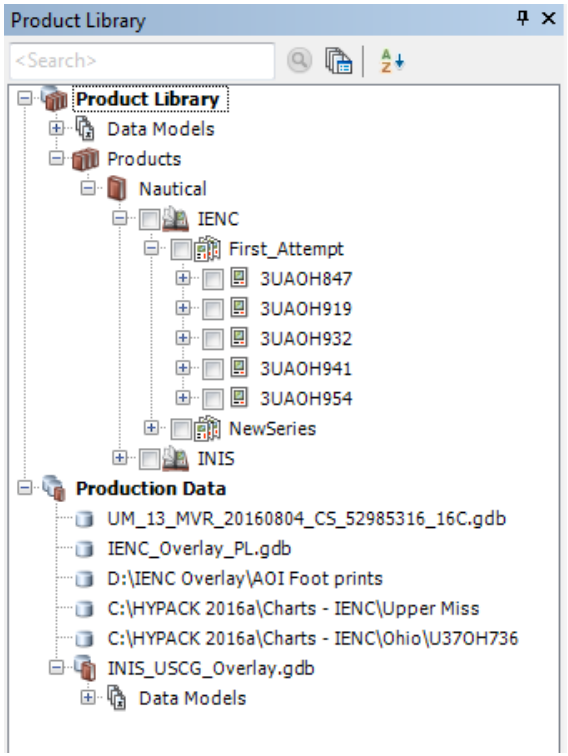
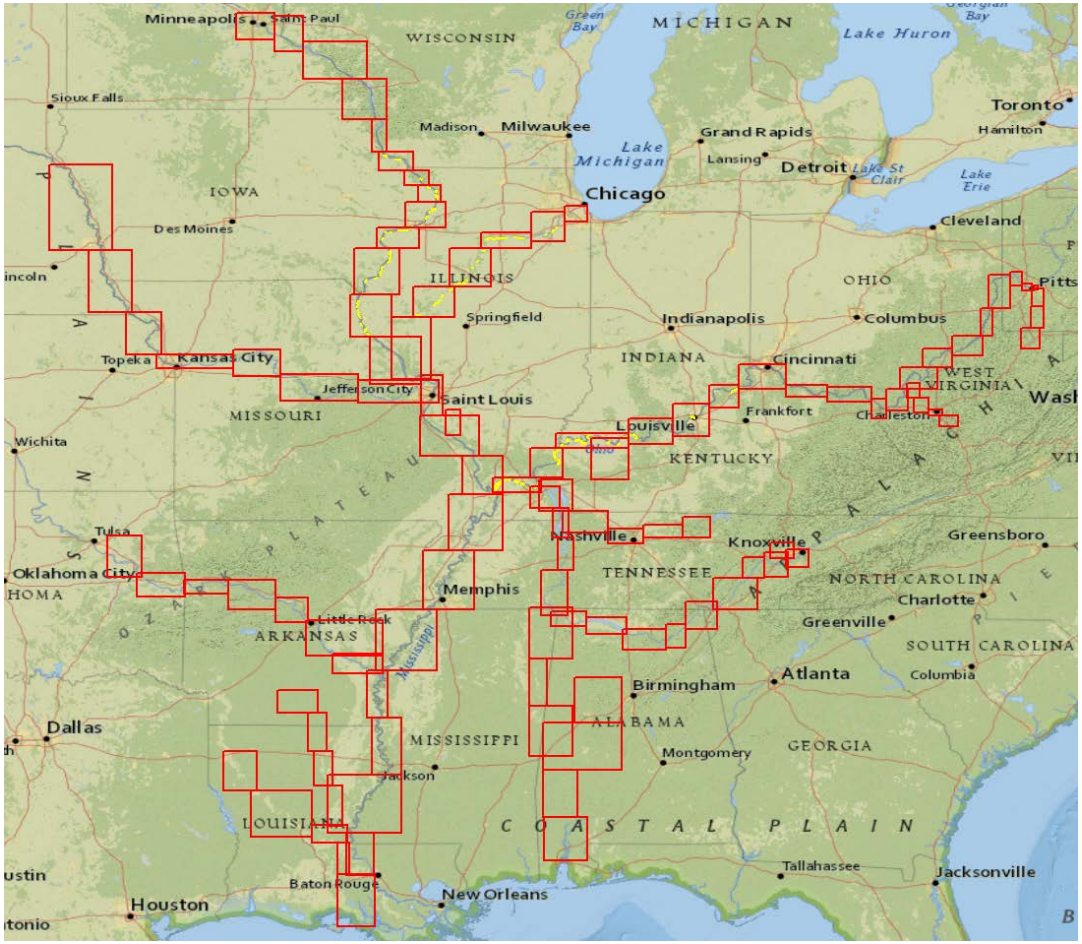
eHydro Overlay Module

IENC – Automated Overlay Production Using ArcMap 10.4.1





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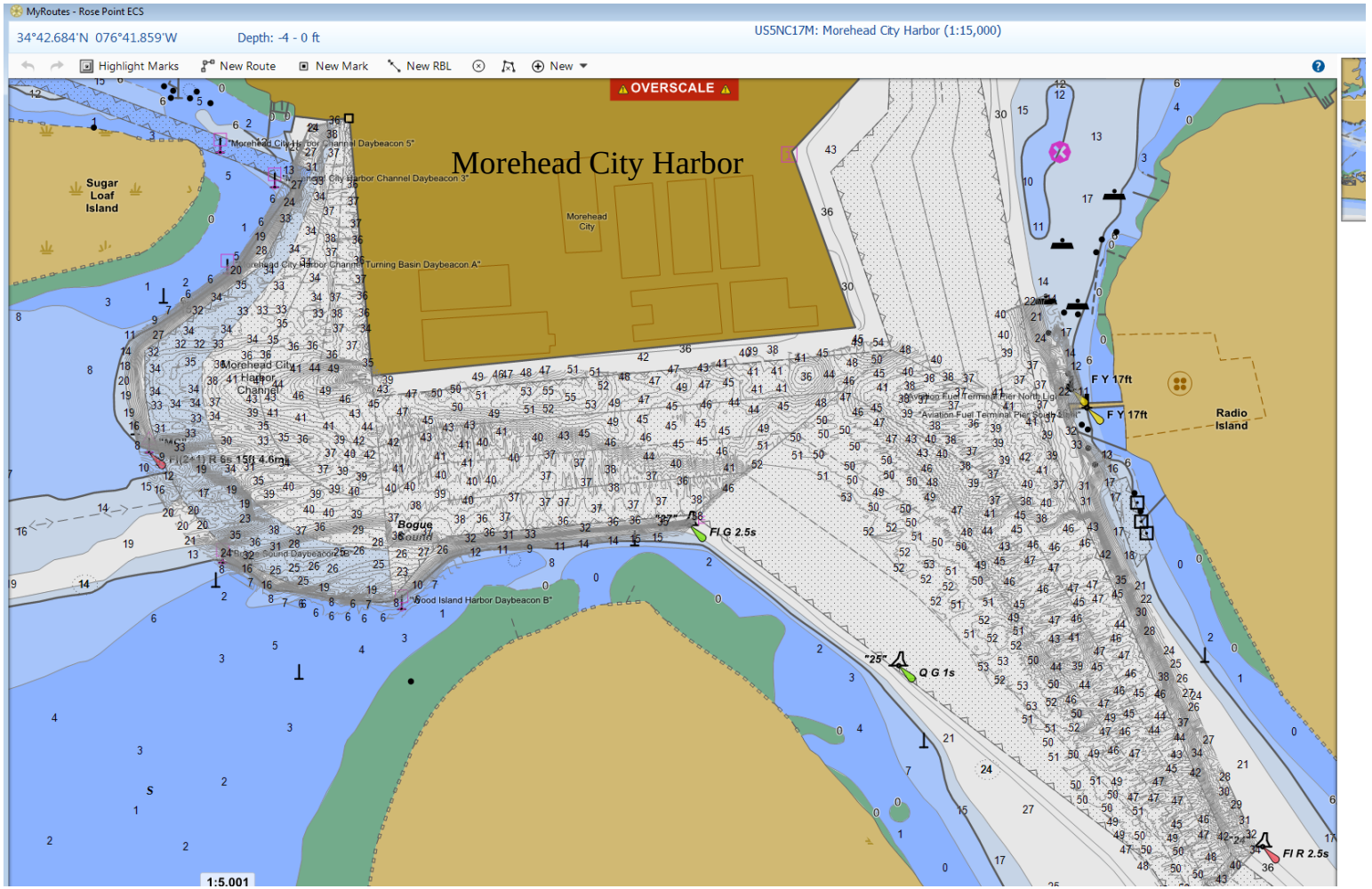
IENC Overlay Output

Shown using Rose Point Electronic Chart System (ECS)



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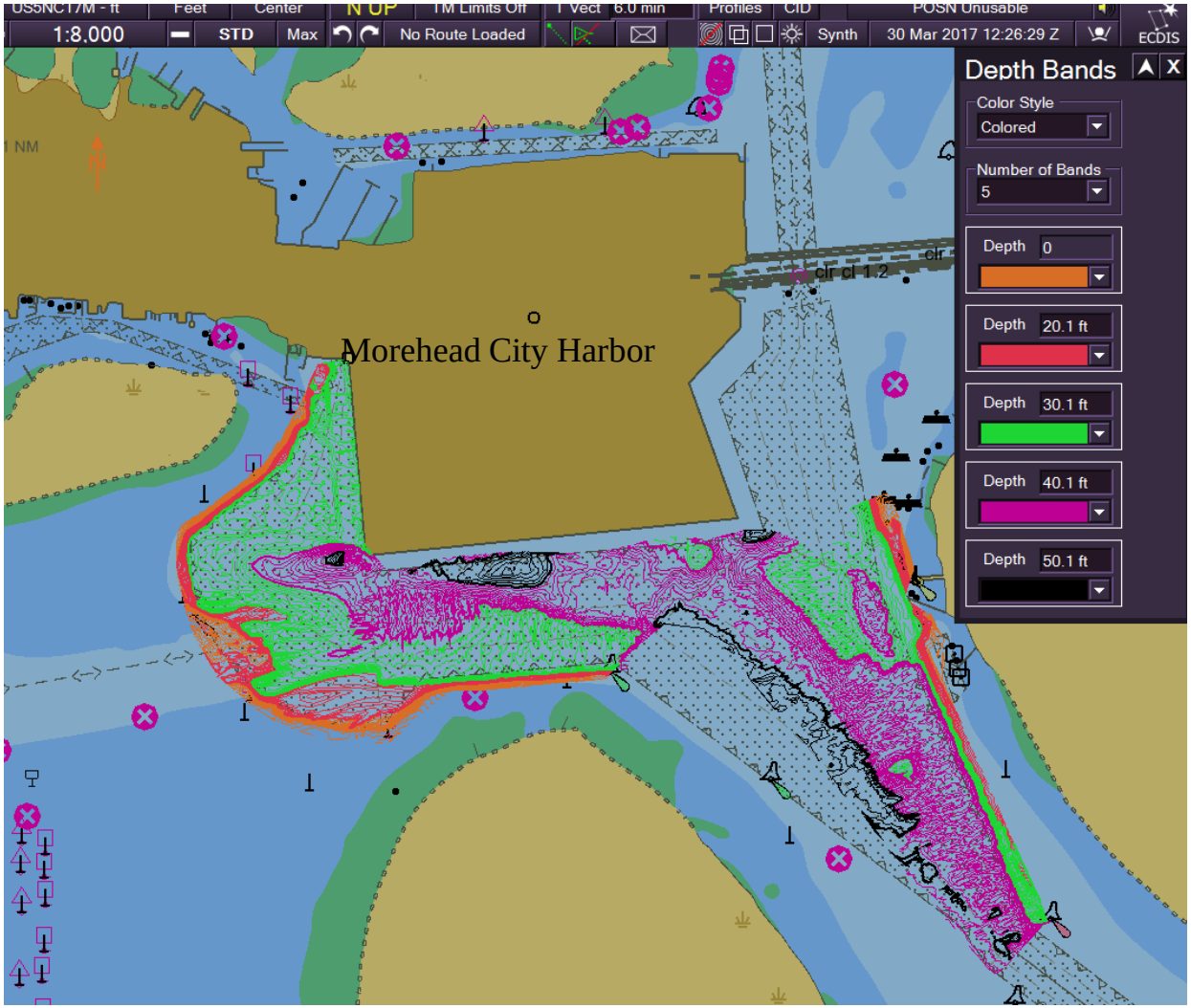
US Coast Guard ECS



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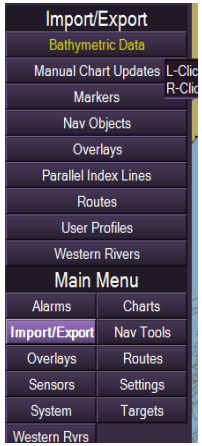
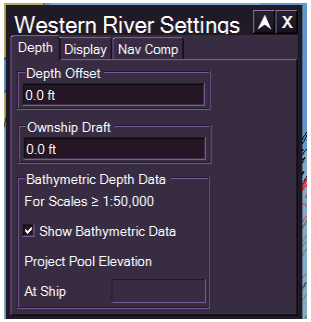
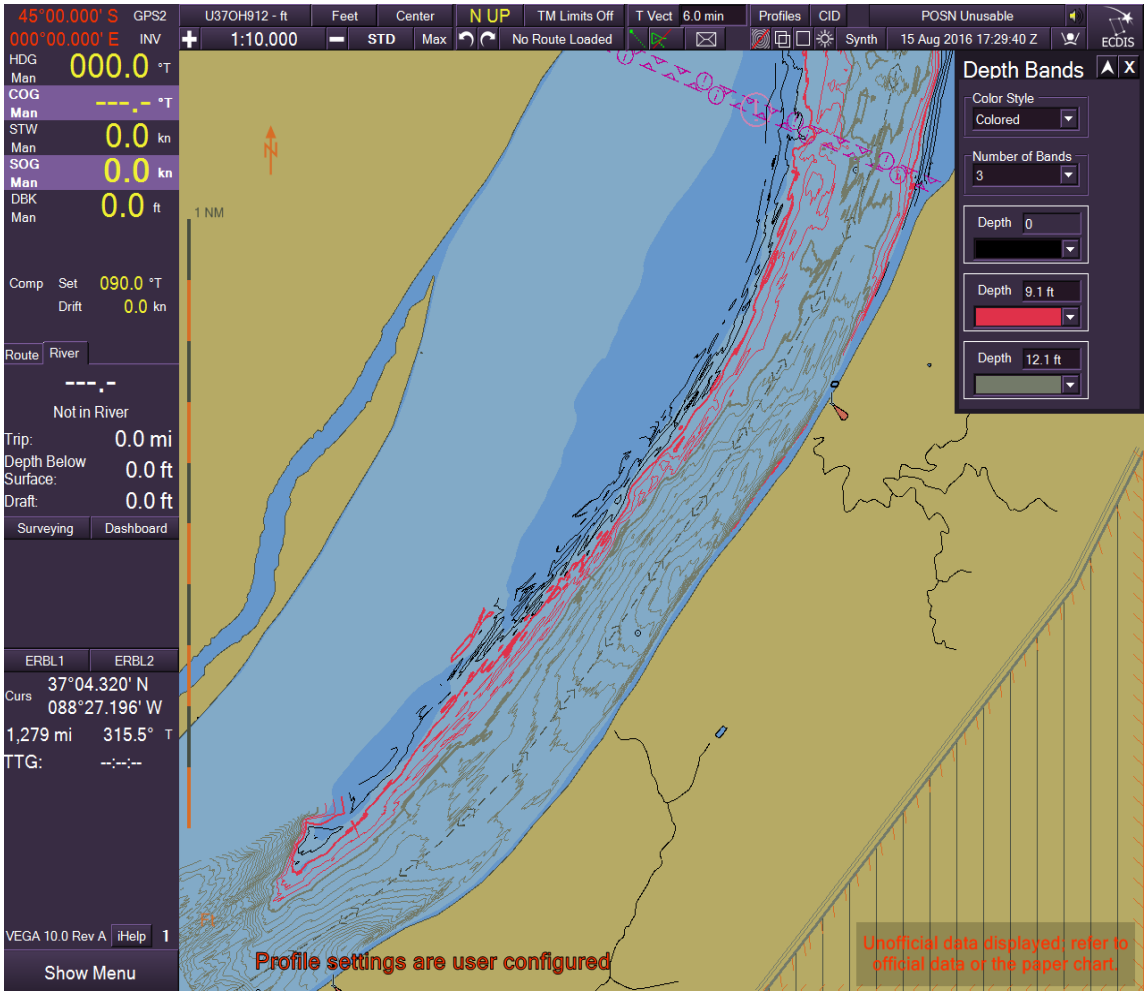


Depth Offset





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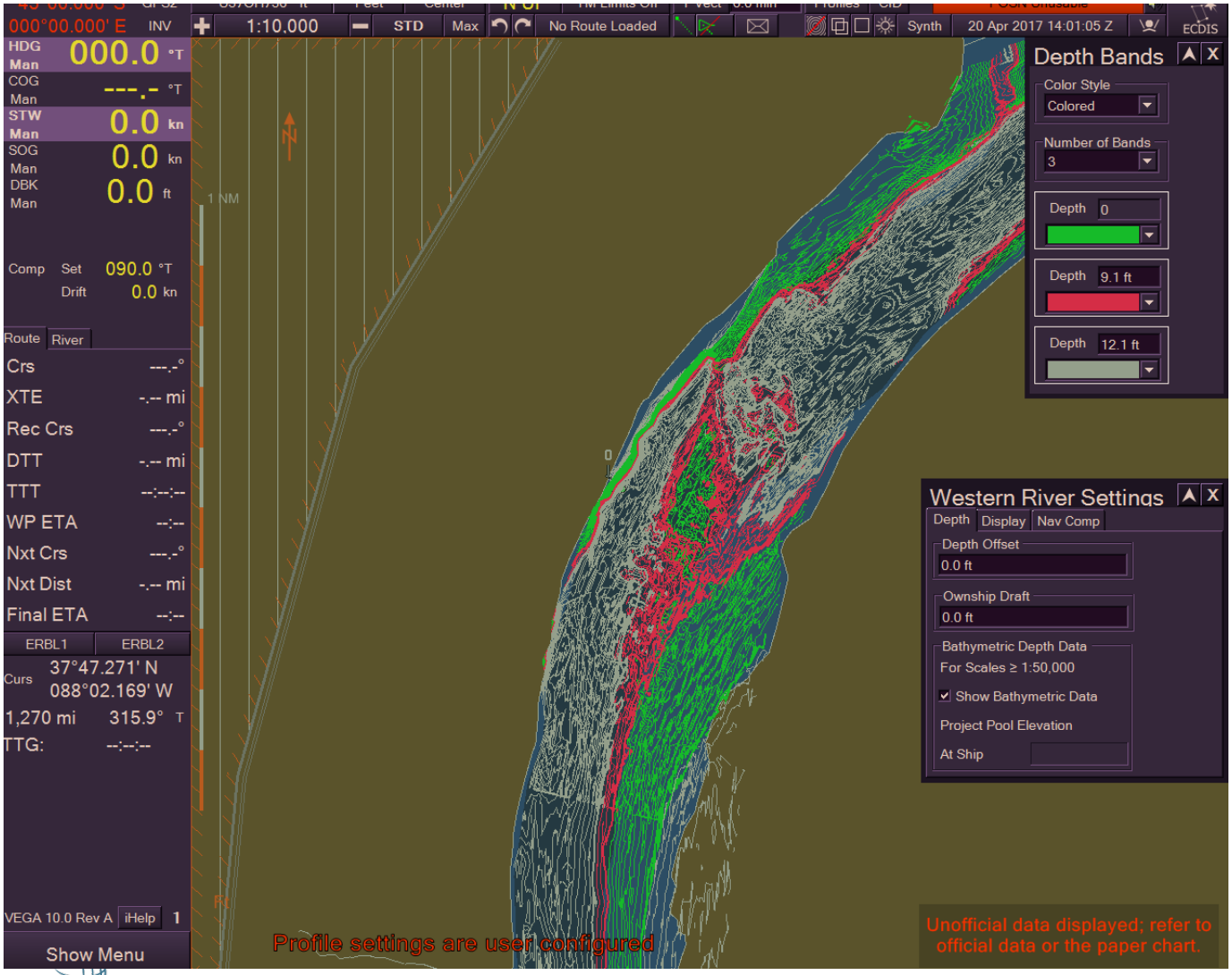

Wabash Island:
Survey Processed to
Low Pool
(Project Pool/MLLW)

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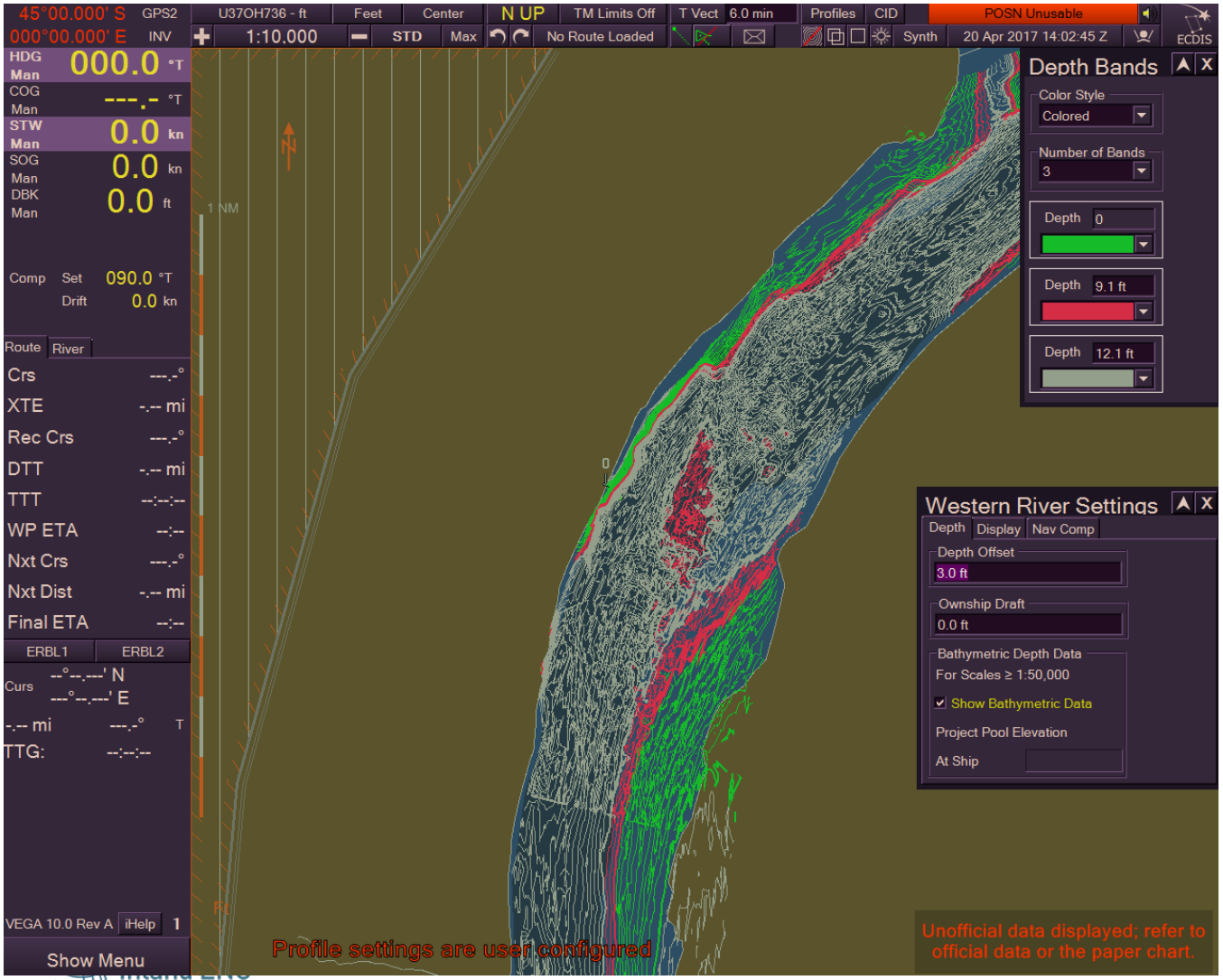

Wabash Island: Survey 3’ over Low Pool

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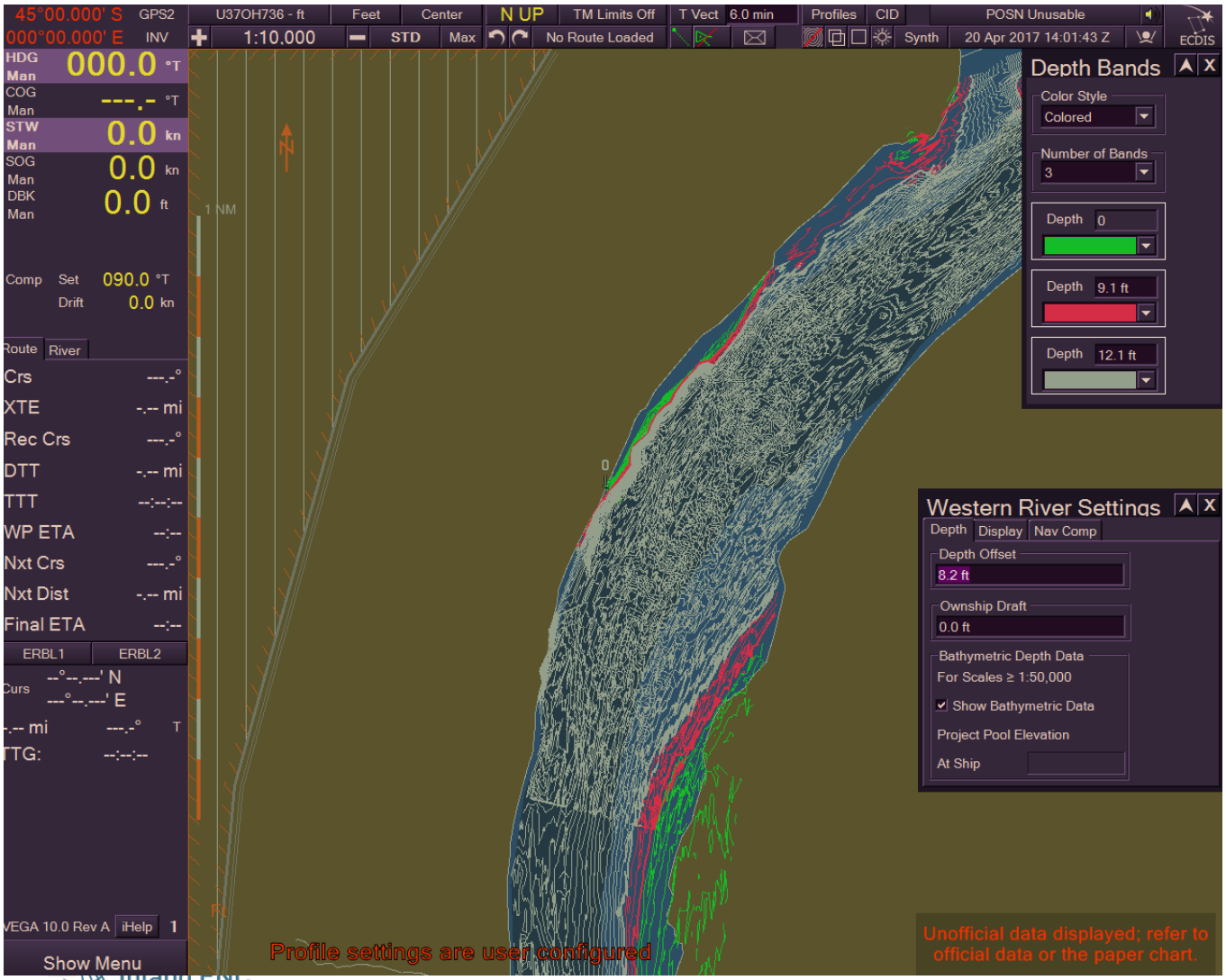

Wabash Island: Survey 8.2’ Over Low Pool - Conditions Date of Survey

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Implementation of Inland ENCs in the USA

Questions ?

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