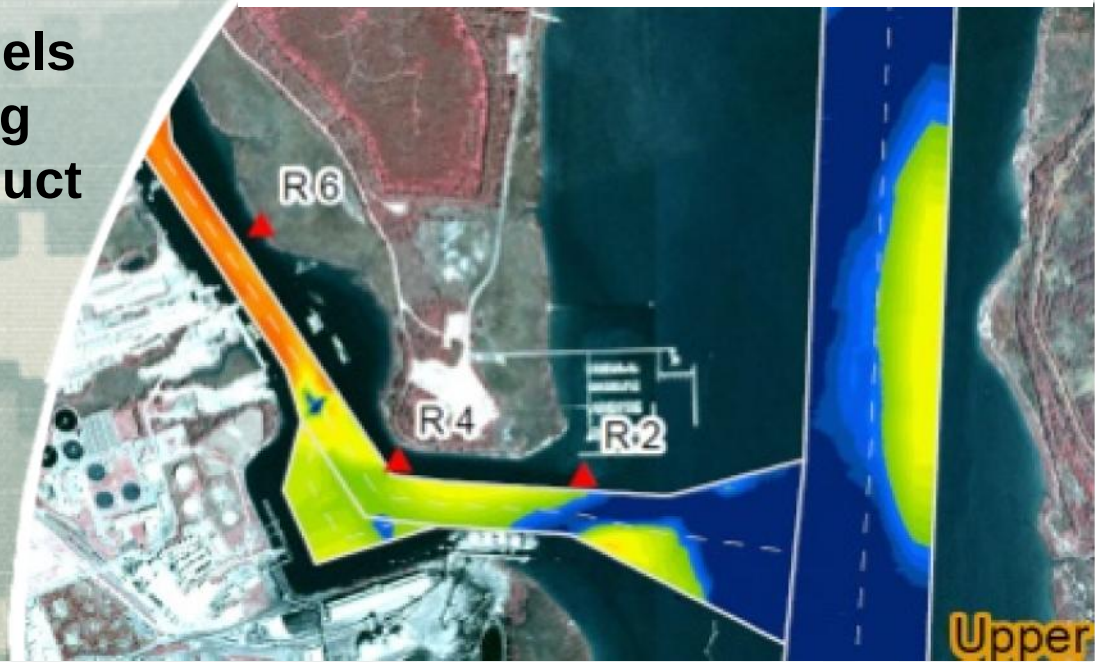
AAPA Harbors and Navigation Committee

Channel Conditions Reporting In USACE

Tony Niles,
Assistant Director for Civil Works
Research and Development

1) **eHydro reporting tool and process for coastal channels**
2) **Inland waterways reporting**
3) **New channel overlay product for Southwest Pass**



US Army Corps of Engineers®
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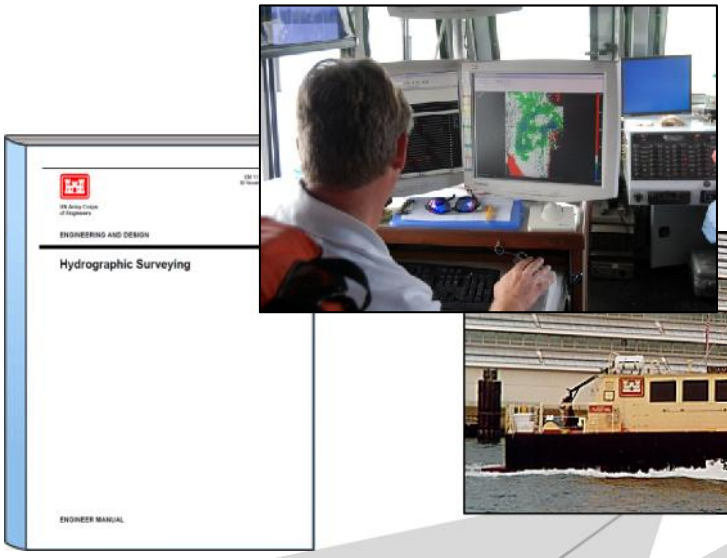
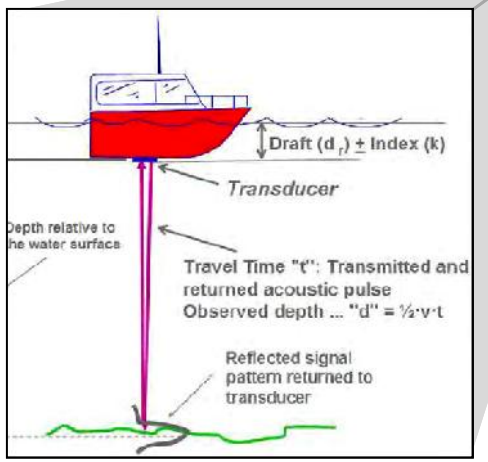
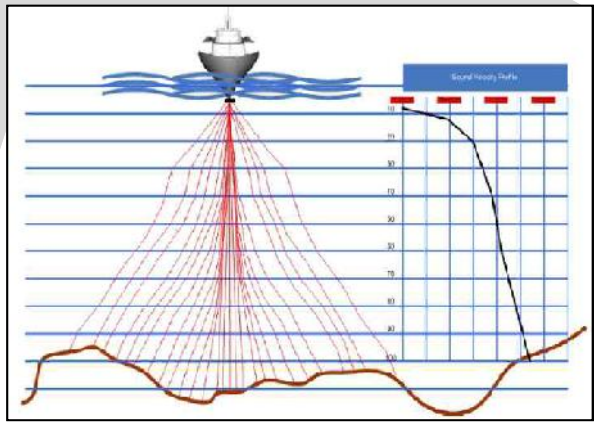
Assessing Channel Conditions

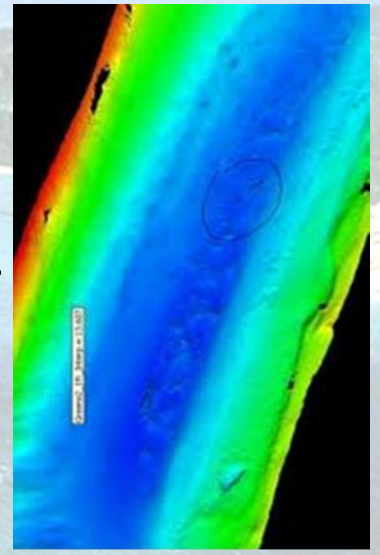




Single-Beam

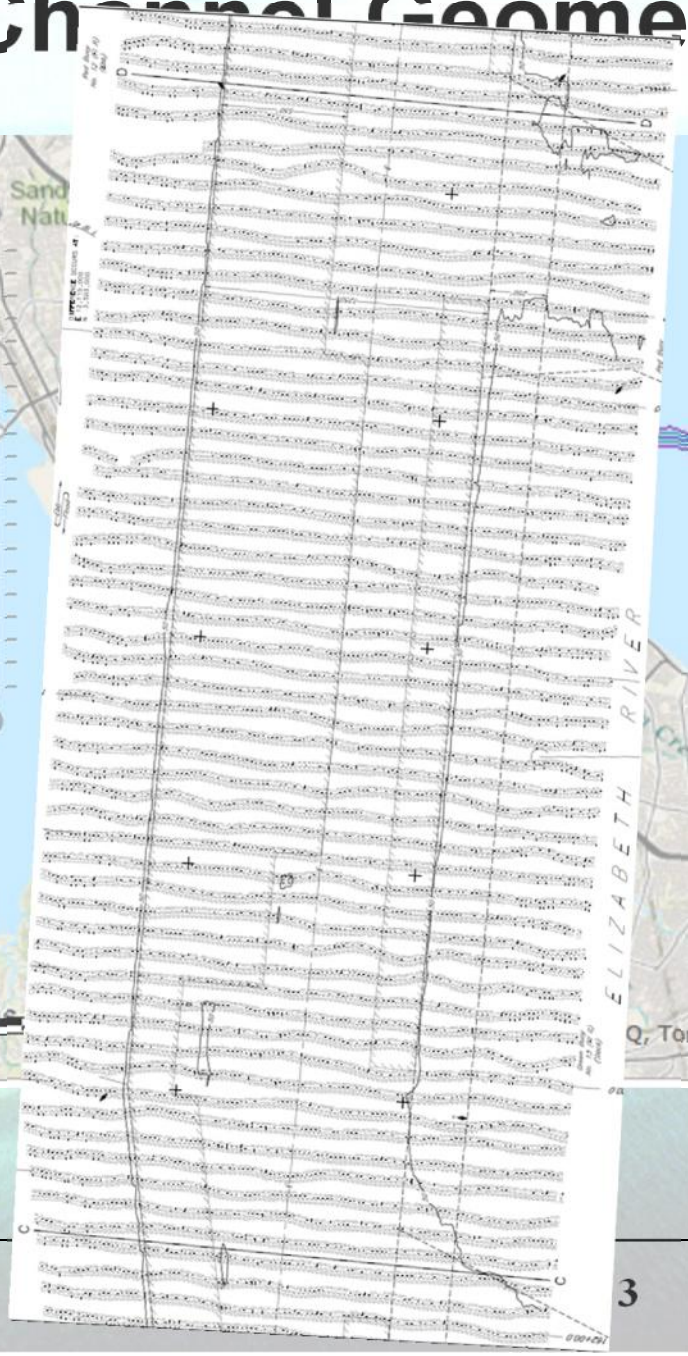


Multi-Beam



Accurate Channel Condition Data

Channel Geometry and Survey Data



Most of the detailed channel geometry and survey data remains at the district level in support of channel maintenance activities

Channel Condition Products to NOAA

33 CFR Sec 209.325: USACE is required to provide results of hydrographic surveys to NOAA within one month of the survey.

LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
37.1	43.5	41.1	44.8
21.2	27.5	30.0	33.6
41.0	37.9	30.1	18.5

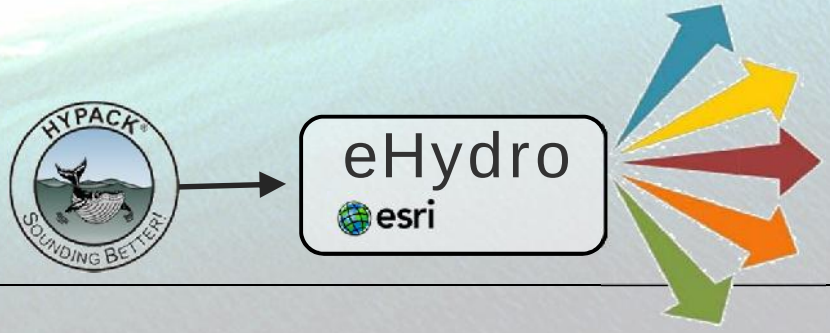
Tabular Channel Condition Report

Digital Survey and Navigation Channel Framework Data

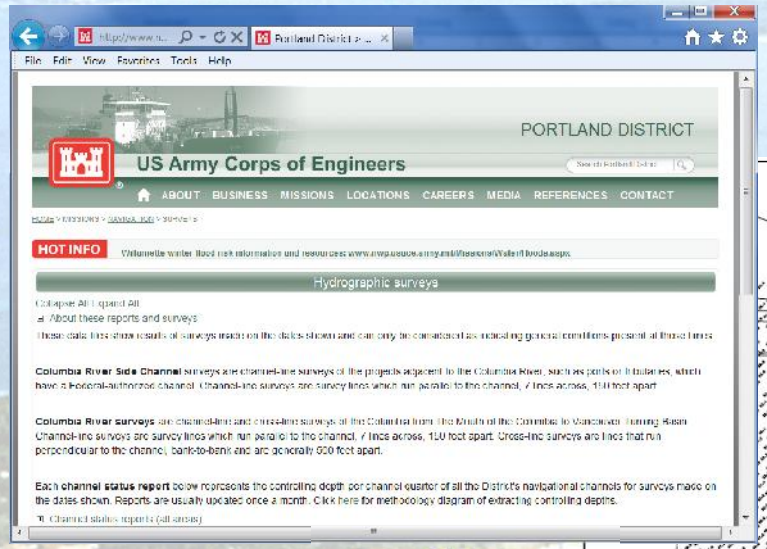
The Quest

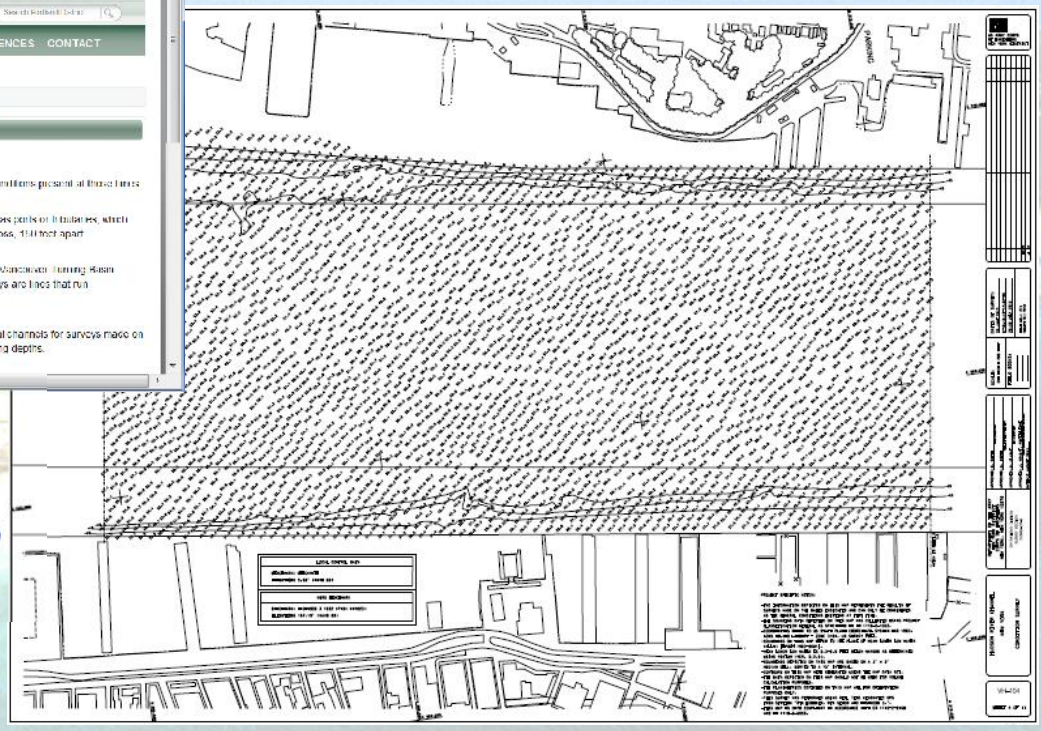
for Enterprise Channel Condition Data

- **1986-1990: Intergraph CADD contract**
- **~ 1991: USACE CADD Standards**
- **Early 1990s: HYPACK becomes de-facto standard**
- **1996: HQ Memorandum to provide CADD survey data to NOAA**
- **2003: Navigation Channel Framework started…**
- **2012: *Still ….. trying***



Channel Condition Product to Navigation Interests



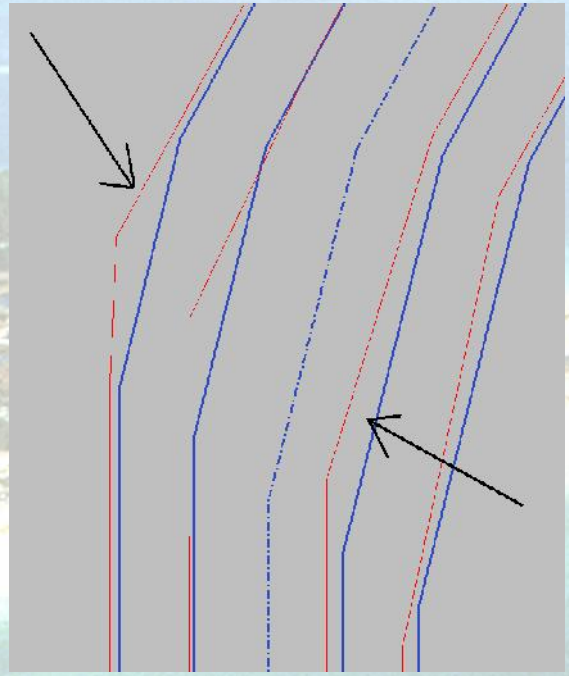


Survey Plot of Reach or Project Area

Data Problems

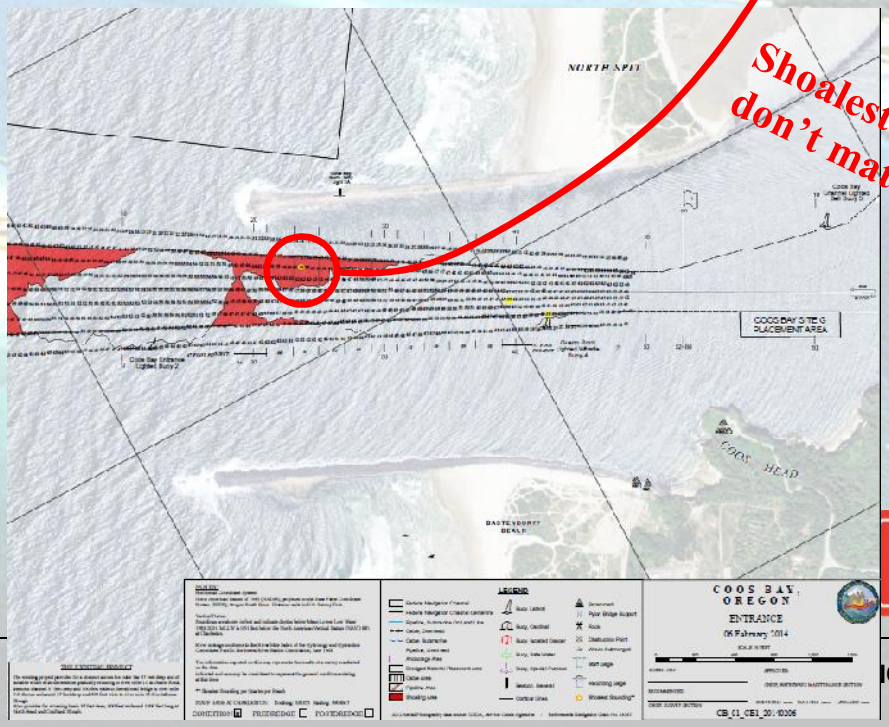
USACE Districts have varying;

- **Data formats**
- **Reporting frequency**
- **Methods of dissemination**



Inconsistent Framework

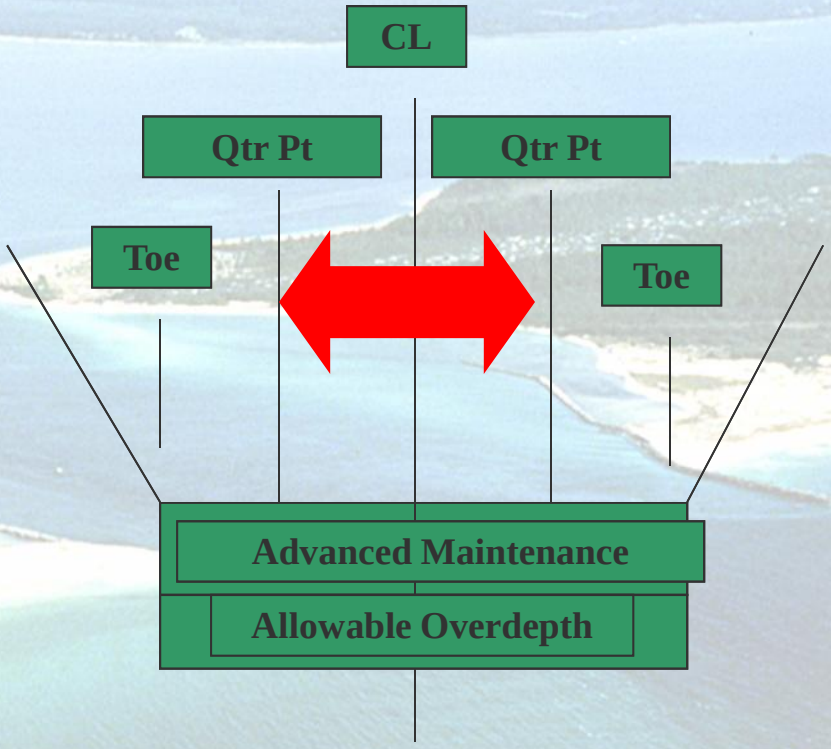
RIVER/HARBOR NAME AND STATE COOS BAY OREGON					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD		
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT WIDTH (feet)	AUTHORIZED PROJECT LENGTH (miles)	AUTHORIZED PROJECT DEPTH (feet)	LEFT OUTSIDE QUARTER (feet)	MIDDLE HALF (feet)	RIGHT OUTSIDE QUARTER (feet)
COOS BAY ENTRANCE Entrance Range	09-03-2013	0	1.90	47	35	40	40
COOS BAY RANGES Entrance Range & Turn	06-06-2013	300	0.80	37	38	42	34
COOS BAY RANGES Coos Bay Inside Range	06-06-2013	300	0.80	37	36	38	39
COOS BAY RANGES Coos Bay Range	06-06-2013	300	0.90	37	38	37	38
COOS BAY AND EMPIRE RANGES Empire Range	07-23-2013	300	2.30	37	35	38	30



Channel Performance – Coastal

High Use Channels, >10M tons/year

- Goal: Half channel width, 95% of time
- Actual: 35% of time
- Analogy to building a 2-lane road; Present funding allows one lane, one-third of the year



Enterprise Needs for Channel Condition Data

Must quantify the impacts of present channel conditions on commercial shipping, and compare to all other channels requesting dredging funds.

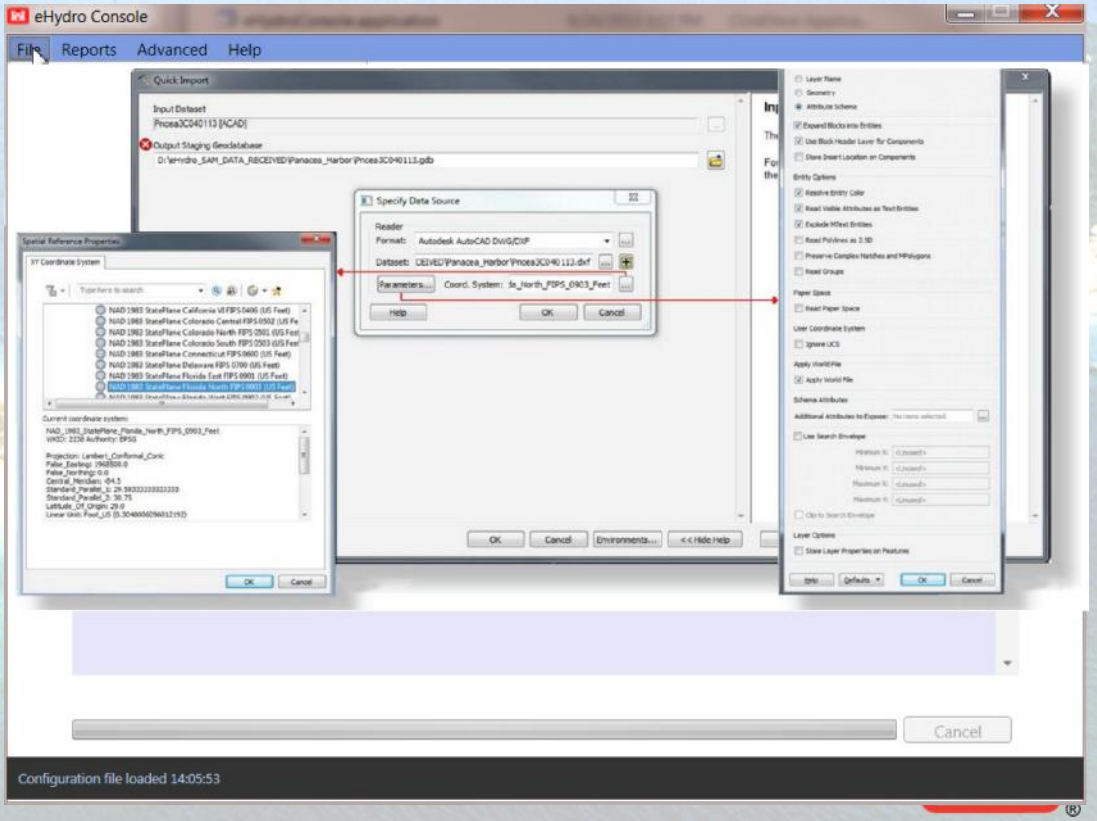
- **Data must be quantitative, objective, repeatable, consistent, and straightforward enough that it can be applied rapidly and affordably to all channels in the navigation portfolio of projects.**

eHydro Application and Reporting Process

Agency-wide software and process that must pass the unfunded mandate requirement;

1) Minimal burden on the districts' resources,

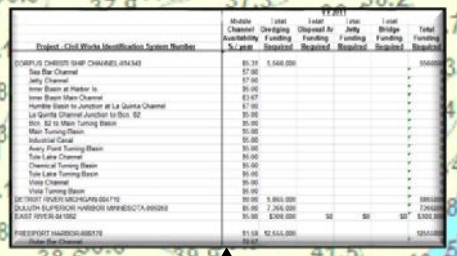
2) Must benefit the field's project workflow.



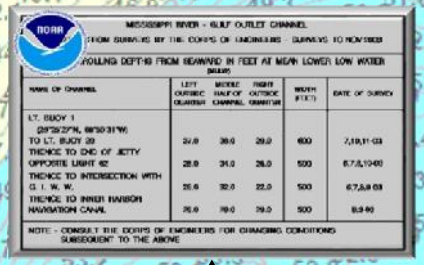
eHydro Application and Reporting Process

Condition Plots

HQ Channel Indices



NOAA Reports



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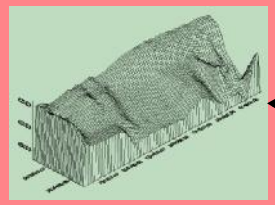
Citation_Information:
Originator: U.S. Army, Corps of Engineers,
New England District (comp.)
Publication_Date: 20090306
Title: Boston Harbor, Boston, Massachusetts,
After Dredge/Condition Survey
Geospatial_Data_Presentation_Form: map
Series_Information:
Series_Name: N/A
Issue_Identification: N/A

Web Site

Web Services

District

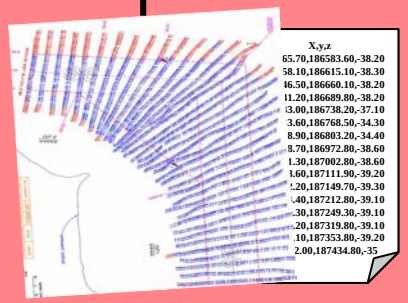


Planning Quantities

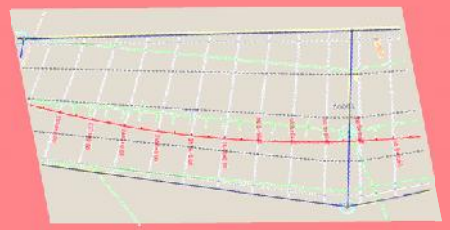
eHydro GIS Application

esri

Enterprise Navigation Channel Framework



Surveys



Framework

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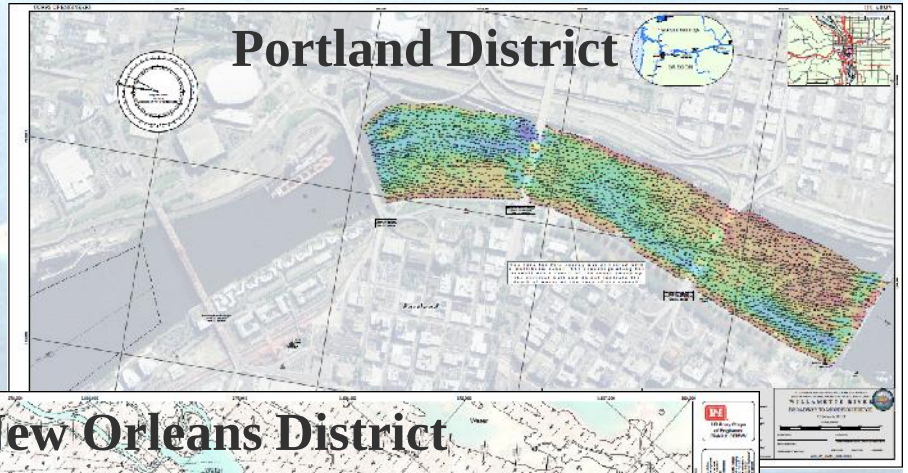
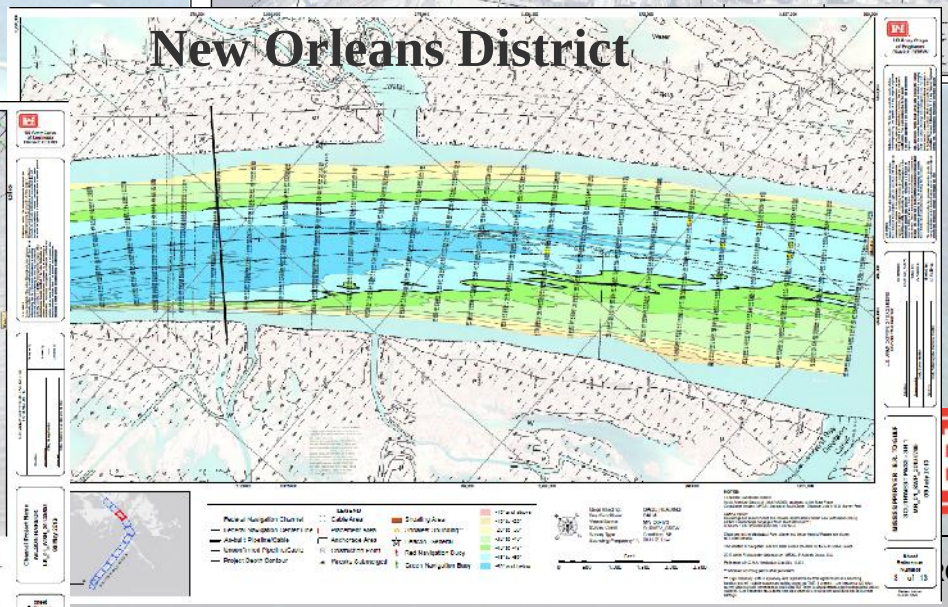
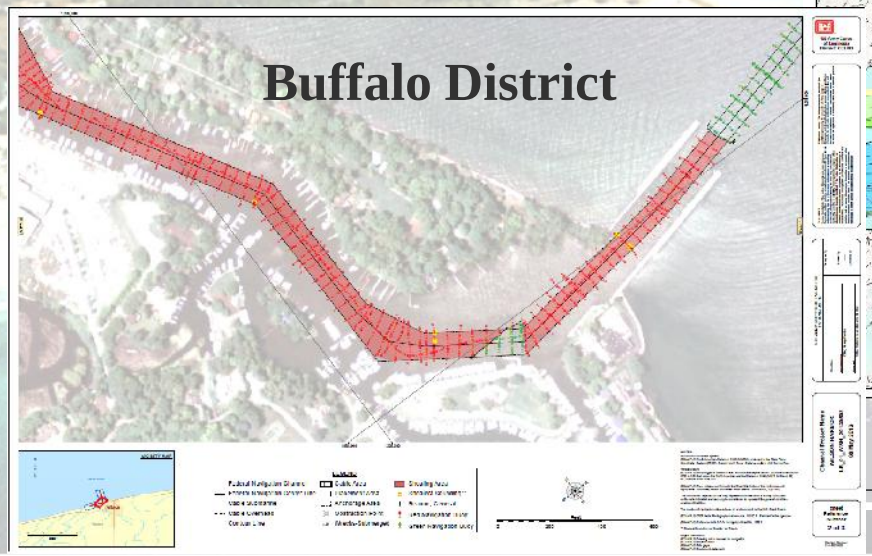
eHydro – Condition Plots

- **Minimum list of features to include NAIP Imagery, channel geometry, controlling depths, official NAVAIDs**
- **flexible size and orientation**
- **basic notes**
- **additional features to suit local requirements**







eHydro - Channel Condition Report

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eHydro Condition Assessment

COLUMBIA 43 FOOT FY2012

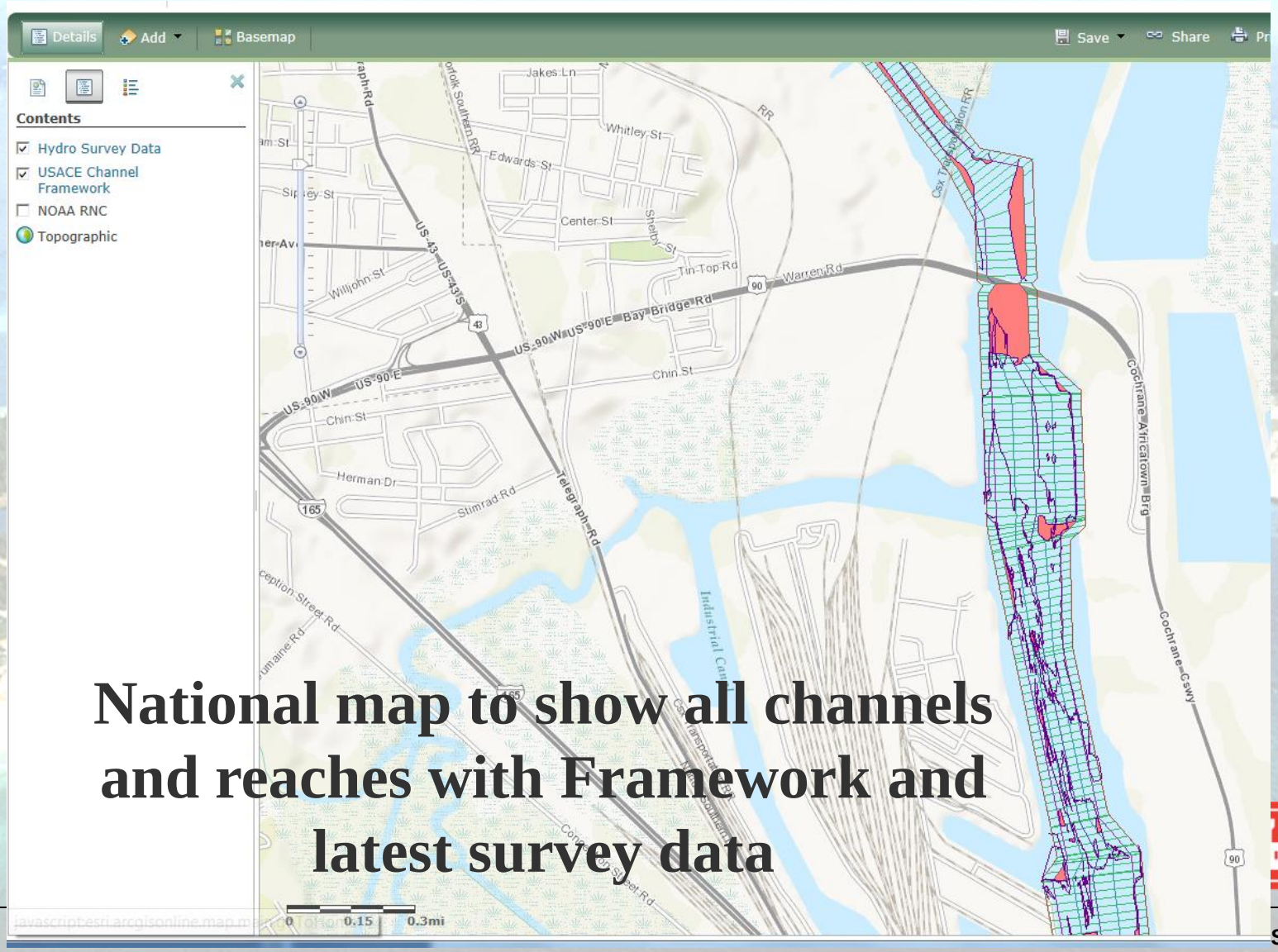
Sheet Name	Reach Number	Depth	Left Outside Quarter	Left Inside Quarter	Right Inside Quarter	Right Outside Quarter
LOWER DESDEMONA SHOAL	1	43	45\100\4	47\100\4	49\100\4	47\100\4
UPPER DESDEMONA SHOAL	1	43	42\36\4	43\100\4	44\100\4	42\91\4
FLAVEL BAR	1	43	38\0\10	40\64\10	42\81\10	33\0\10
UPPER SANDS	1	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

eHydro - Metadata

FGDC or ISO Standard….

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
Publication_Information:
Publication_Place: Concord, MA
Publisher: Navigation, Project M
Management Section, NE District

eHydro – Web Map Display



National map to show all channels and reaches with Framework and latest survey data

eHydro Deployment Status

By 1 August, all 23 districts;

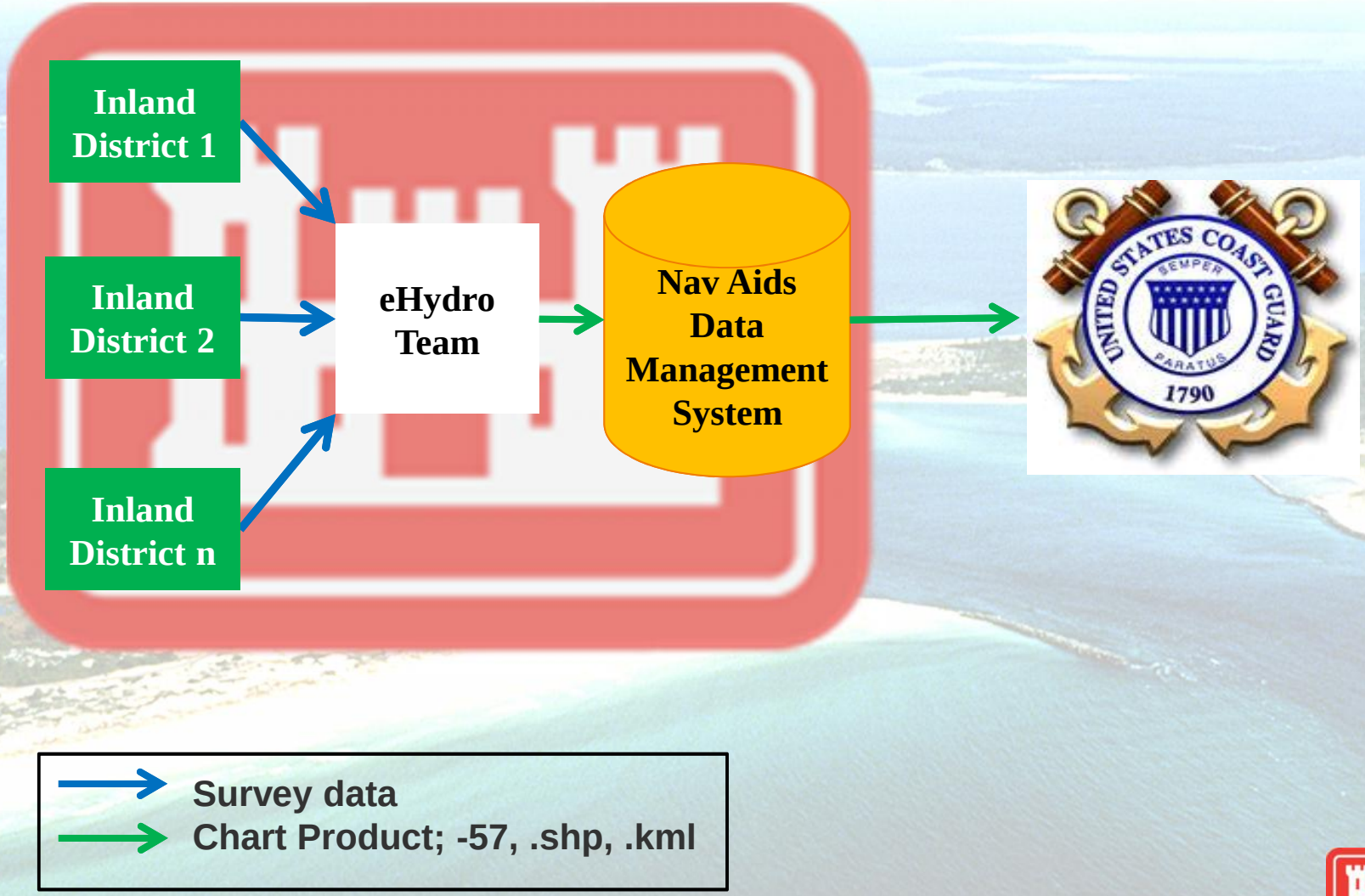
1) **Complete initialization files for all High and Moderate use channels.**
2) **Begin processing all condition survey data;**
    - **Upload survey data (append) as soon as data is reviewed and approved within the district.**
    - **Upload Channel Framework data along with survey data**
3) **Process and upload, for all High and Moderate use channels, any condition surveys performed in FY14….**

OR

At least the two latest surveys for each channel, if multiple surveys not performed in the past year.

By 30 September, process at least two surveys performed in FY13 for all High use channels

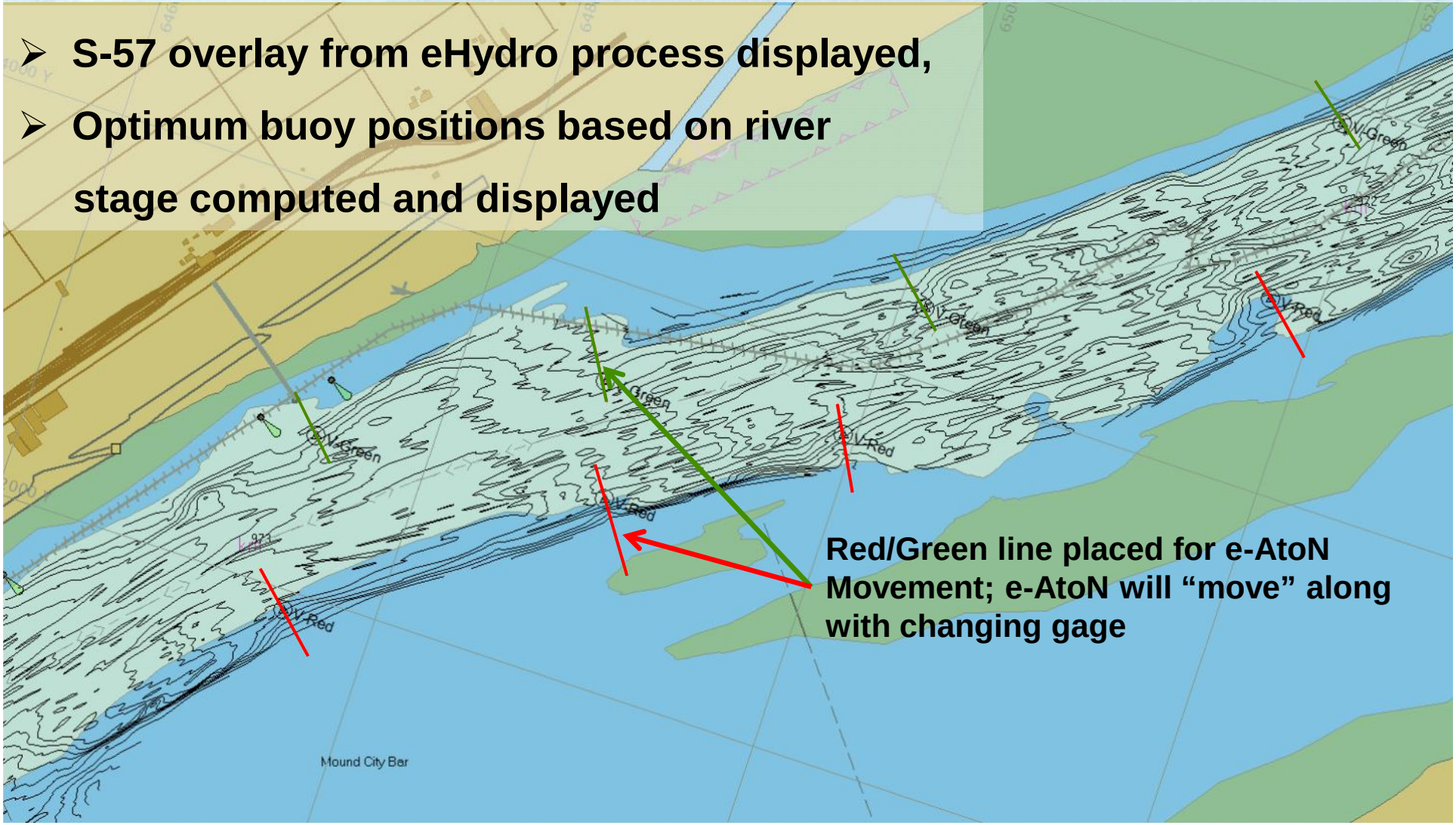
Inland eHydro Data Plan



USCG Use of S-57 Overlay Data

IENC displayed in chart system on river tender;

- **S-57 overlay from eHydro process displayed,**
- **Optimum buoy positions based on river stage computed and displayed**



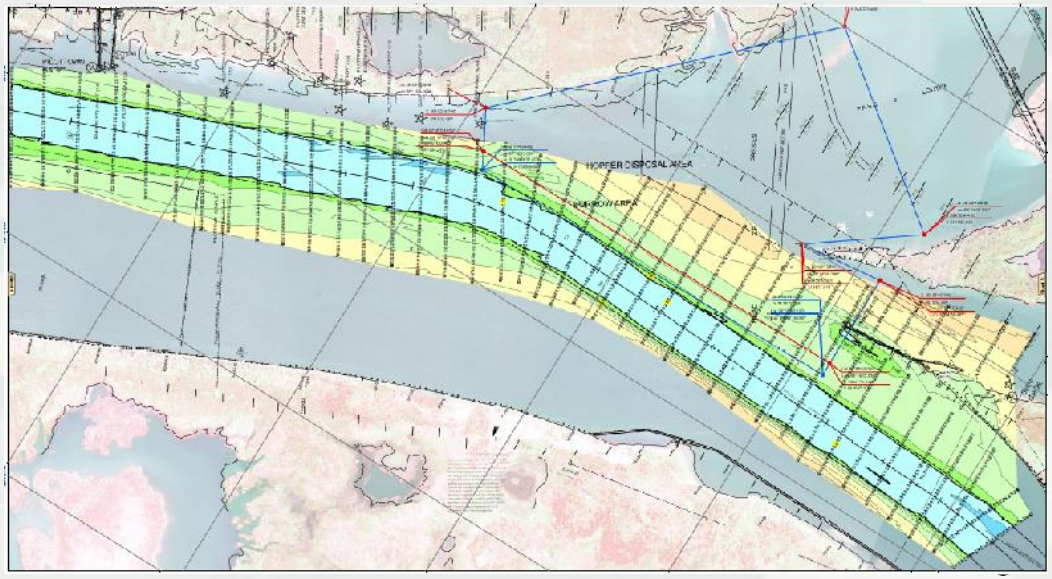
Red/Green line placed for e-AtoN Movement; e-AtoN will “move” along with changing gage

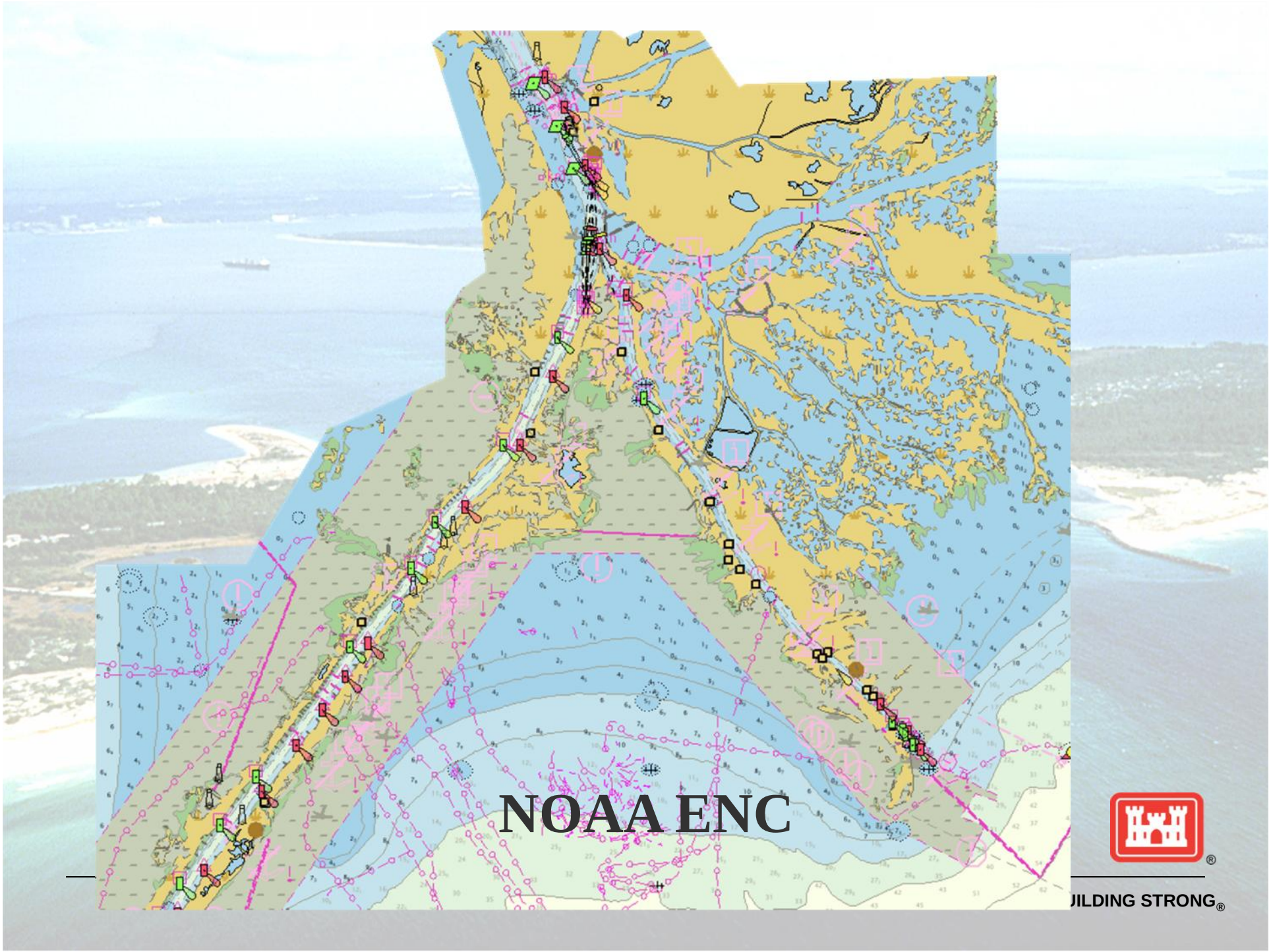
New Channel Product for Navigation Interests

Goal: S-57 overlay of latest channel condition data for Southwest Pass.

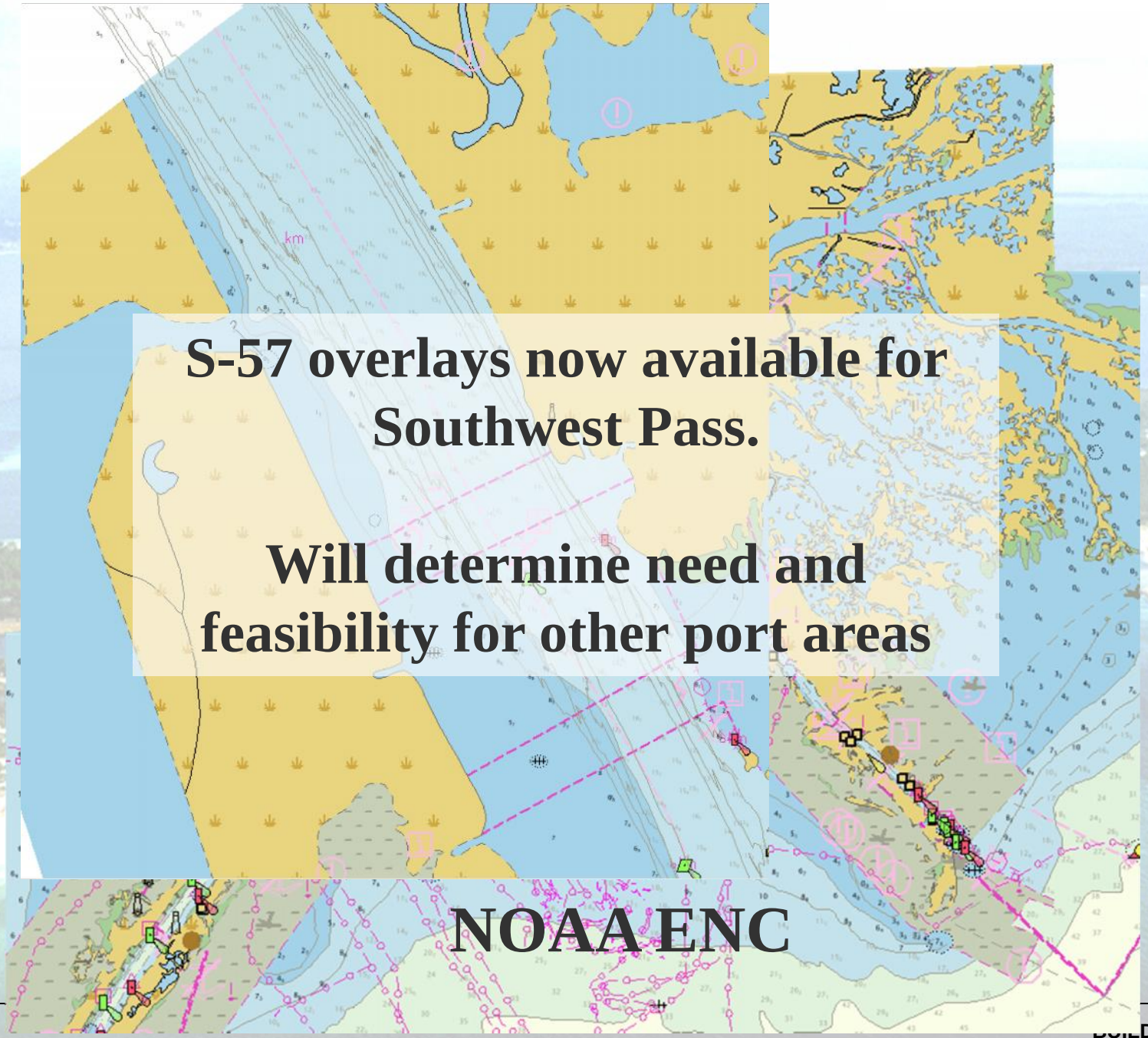
Result:

- **Channel survey data that can be overlayed on the NOAA ENC.**
- **No modification or preparation needed by the ECS vendor.**
- **Compatibility with data and display standards.**





NOAA ENC



S-57 overlays now available for Southwest Pass.

Will determine need and feasibility for other port areas

NOAA ENC

Channel condition and Framework data that is;

- quantitative
- objective
- repeatable
- consistent
- usable

Questions??