



# Shoreline Data Standard – Measure Twice, Cut Once...

Coastal Response Research Center  
Environmental Response Data Collection Standard Workshop  
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# Standards and History

IEEE Standards Development Online Home - Mozilla Firefox

http://standards.ieee.org/resources/development/index.html

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IEEE Standards Association PROJECT SEARCH IEEE-SA MEMBER AREA

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WELCOME TO  
**IEEE STANDARDS DEVELOPMENT ONLINE**  
The Freedom to Initiate, Produce and Manage Standards Online from Anywhere

Site Map myProject™ LOG IN

**INITIATE**

- 1 Initiate the project
- 2 Develop the working group

**PRODUCE**

- 3 Write the draft
- 4 Ballot the draft
- 5 Get final approval

**MANAGE**

- 6 Publish the standard
- 7 Reaffirm the standard
- 8 IEEE standards forms

**IEEE SDOL**

Welcome to the world of IEEE Standards Development Online!

Getting involved in IEEE standards provides you the opportunity to network with industry peers, broaden your understanding of industry and technology, and gain familiarity with the context of standards in which you are involved—facilitating early compliance and anticipating market requirements.

There are many ways to get involved in IEEE standards. Some include:

- **INITIATE:** Submit a PAR, and join a working group
- **PRODUCE:** Write the draft, participate in sponsor balloting, and learn about the standard approval process.
- **MANAGE:** Learn about how the draft becomes a published standard, and the maintenance required.

Each IEEE standard follows a set path from concept to completion, which adheres to the principles of due process, openness and consensus. These principles allow for equity and fair play so no one interest category dominates the process, and any organization or person with a desire to participate in a proposed standard can do so.

To learn more about the IEEE Standards Development process click on the links to the left.

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Contact IEEE-SA  
csah@IEEE.org  
URL: standards.ieee.org/resources/development/index.html

## ■ Example - IEEE Standards Development

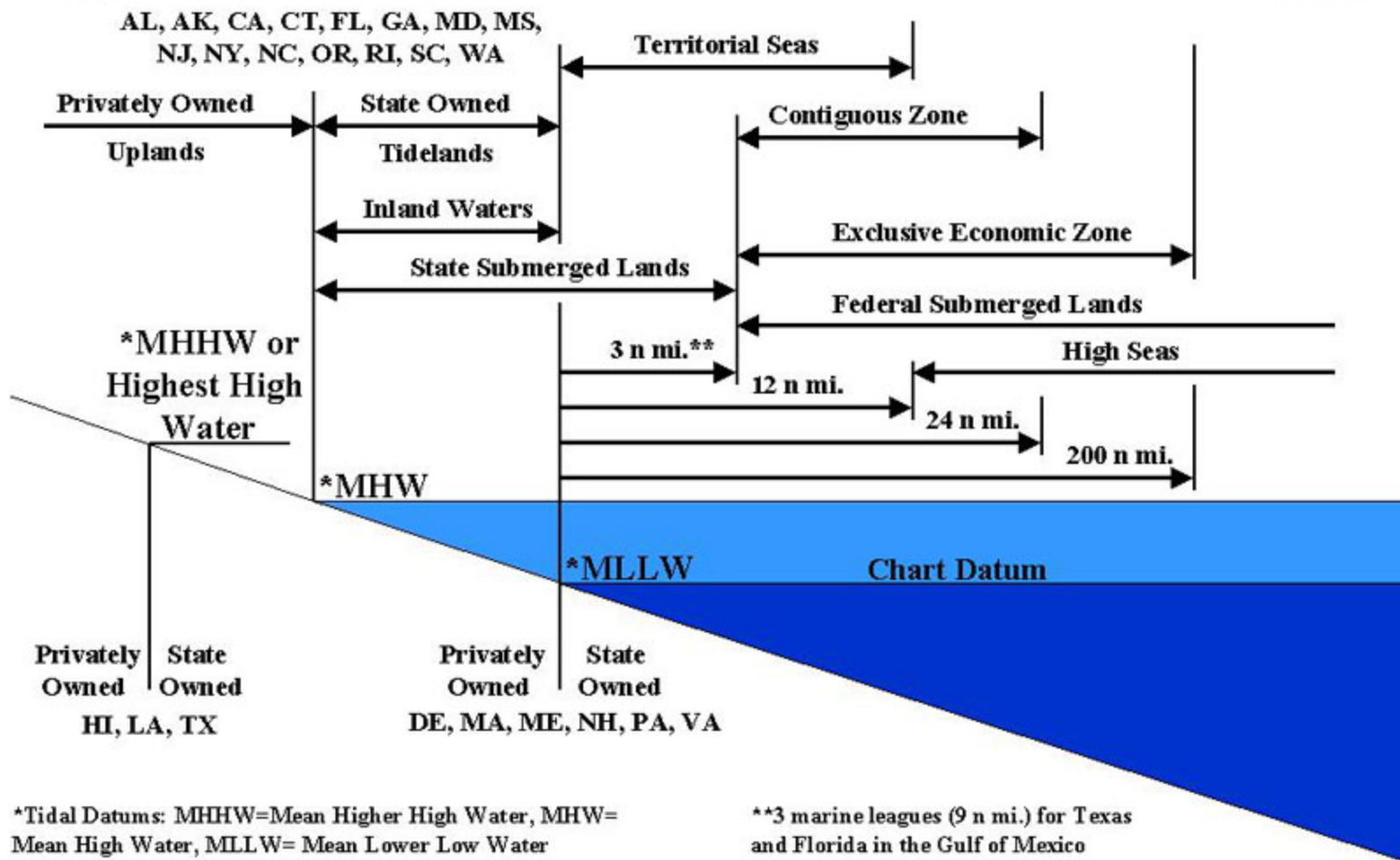
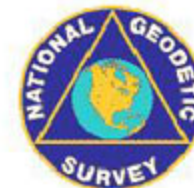
- ❑ Institute of Electrical and Electronics Engineers
- ❑ non-profit organization, the world's leading professional association for the advancement of technology.
- ❑ IEEE has history back to 1884 (AIEE, Thomas Edison)
- ❑ Wire communications/Light & Power systems
- ❑ Laid foundation for all work on electrical standards in the U.S.
- ❑ Well established methodology and user base for commonly developed standards for over 100 years



# What's so difficult?



## Importance of Shoreline



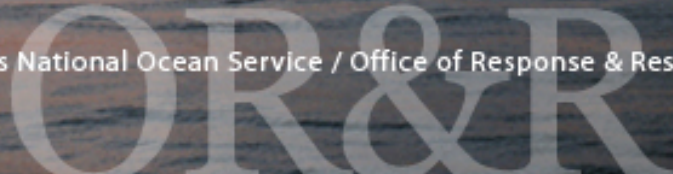
\*Tidal Datums: MHHW=Mean Higher High Water, MHW= Mean High Water, MLLW= Mean Lower Low Water

\*\*3 marine leagues (9 n mi.) for Texas and Florida in the Gulf of Mexico

# What does a Standard get you?

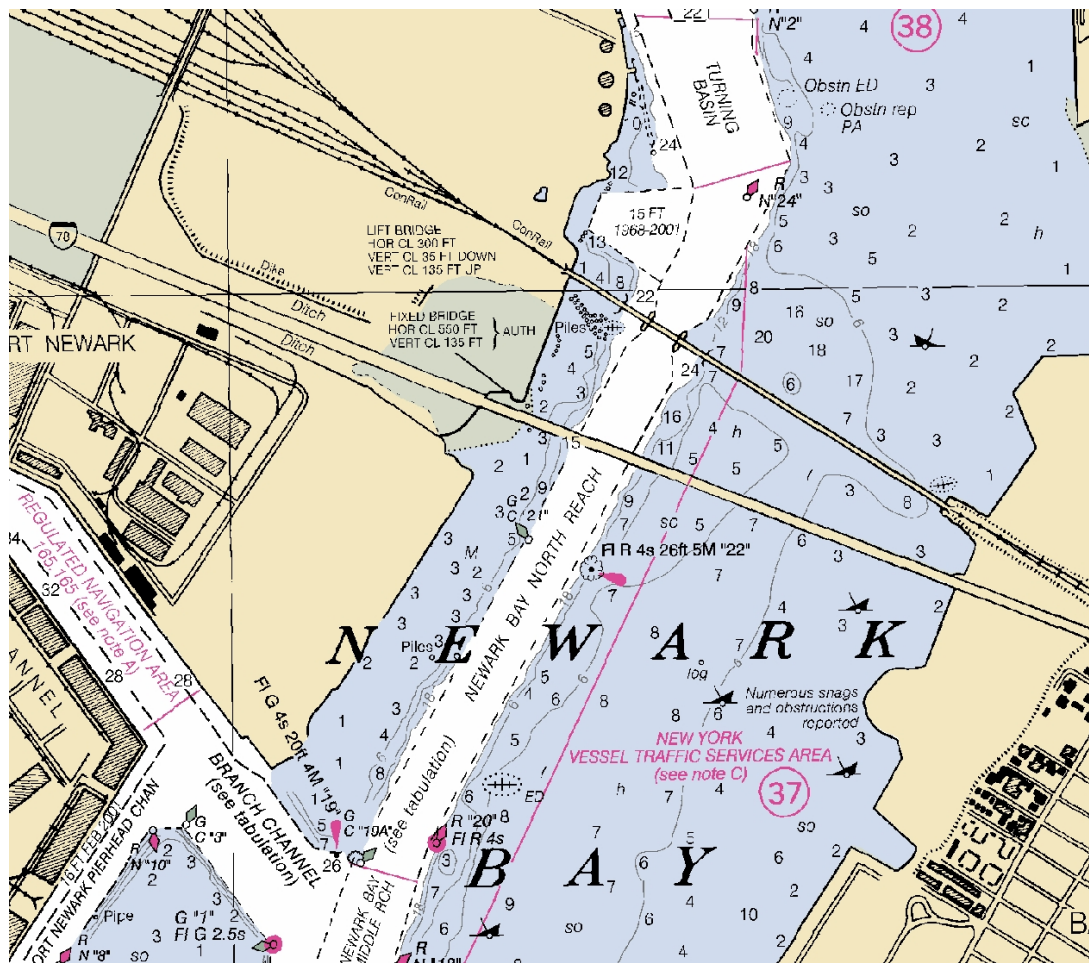
- What makes a USGS 7.5 minute quad map easily recognizable and readable?





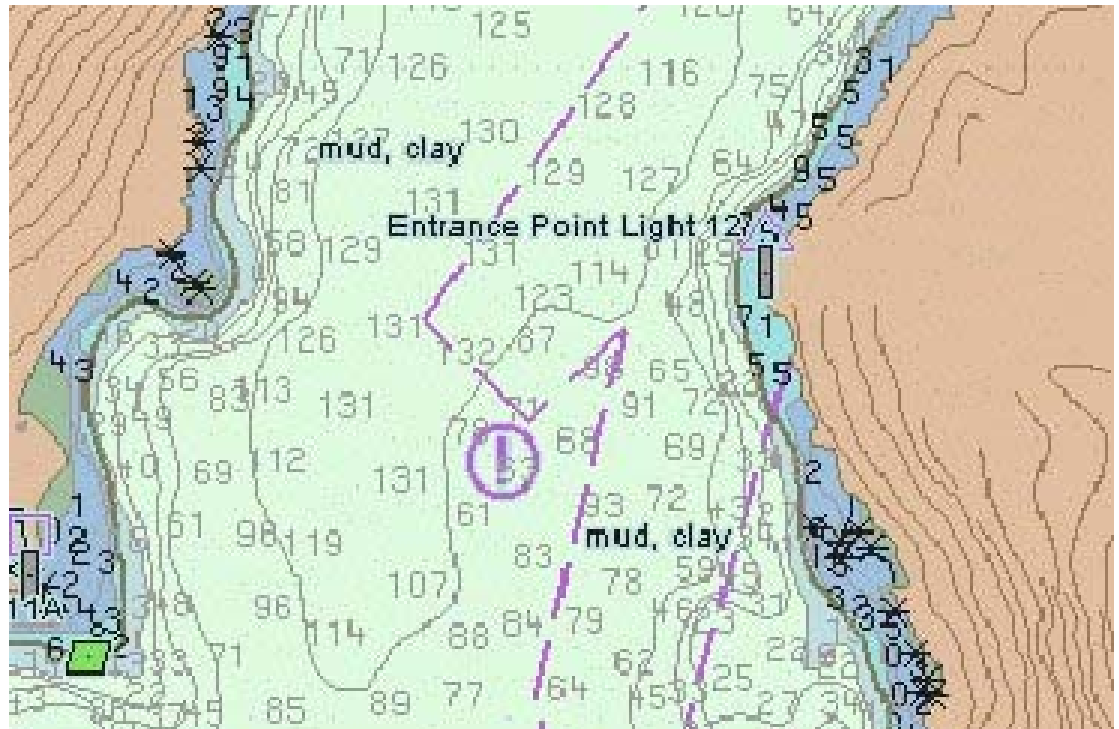
# What does a Standard get you?

- Why can commercial and recreational mariners use NOAA Navigation Charts?



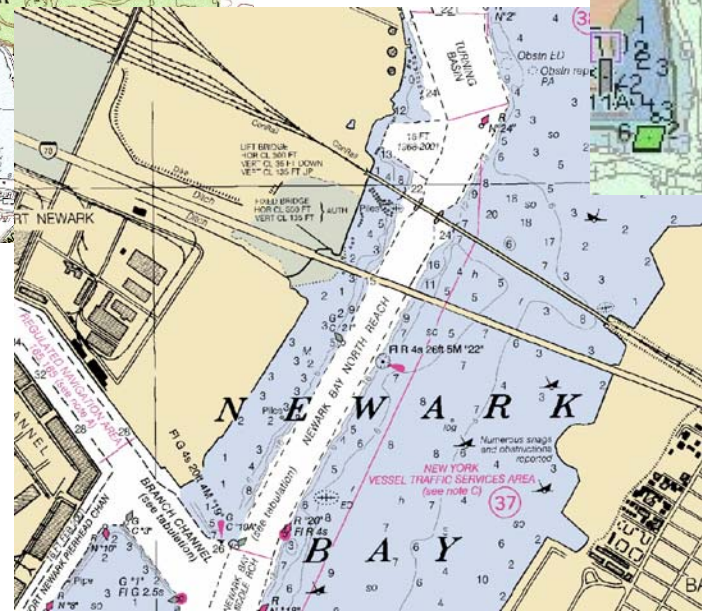
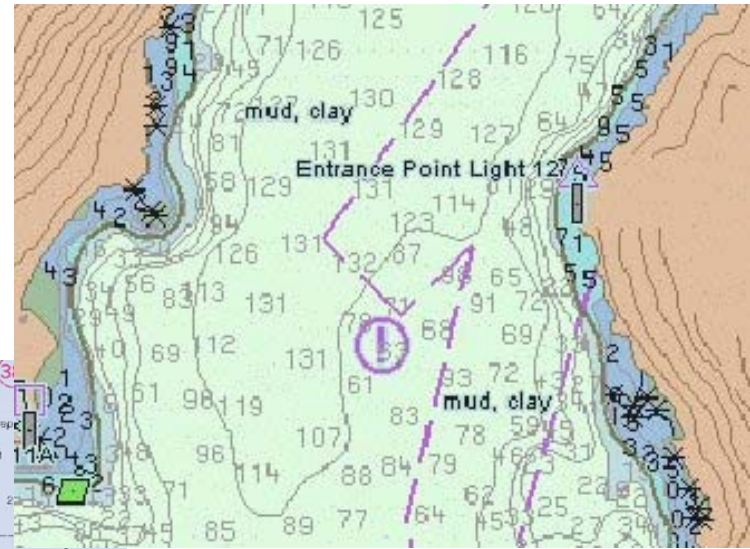
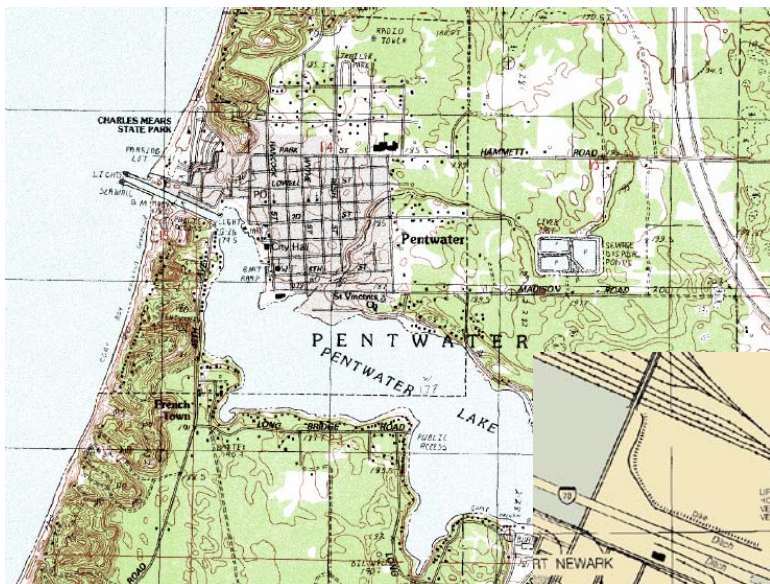
# What does a Standard get you?

- How can the NOAA Electronic Navigation Chart (ENC) be an improvement over the paper charts?





# What's to a Standard?



**...it is the data and standards behind them**

# What makes a good Standard?

- **Recognizable** – Standard symbology and color ensures that we know what we are looking at...
- **Usable** – Allows data from a variety of sources to be interpreted correctly when combined together...
- **Comprehensive** to describe the data to be collected and managed...
- **Compatible** with existing standards...
- **Maintained and Updated** as necessary to reflect changes in requirements...
- **Available** for partner/public use and data sharing...



# NOAA Standards: Raster Charts

## NOAA RNCs

1. Chart number in national chart series
2. Identification of a latticed chart (if any):
3. Chart number in international chart series
4. Publication note (imprint)
5. Stock number
6. Edition note. (Fifth edition published in May 1989)
7. Source data diagram (if any). For attention to navigators: use caution where surveys are inadequate
8. Dimensions of inner borders
9. Corner coordinates
10. Chart title (may be quoted when ordering a chart, in addition to chart number)
11. Explanatory notes on chart construction, etc.
12. Seals: In the example, the national and International Hydrographic Organization seals show that this national chart is also an international one.
13. Projection and scale of chart at stated latitude. The scale is precisely as stated only at the latitude quoted.
14. Linear scale on large-scale charts
15. Reference to a larger-scale chart
16. Cautionary notes (if any). Information on particular features
17. Reference to an adjoining chart of similar scale

The screenshot shows a web browser window displaying the NOAA Office of Coast Survey website. The main content area is titled "Office of Coast Survey Chart No.1, Version 1.0 Nautical Chart Symbols, Abbreviations and Terms". Below this, there is a section for "Basic Chart Elements" with a small map thumbnail. A larger, detailed view of a nautical chart is shown in the foreground, featuring a title block with the text "A Chart Number, Title, Marginal Notes" and "DEPTHS IN METERS". The chart includes various symbols, numbers, and text such as "COOK INLET", "NOMANS LAND", and "PROHIBITED AREA". The chart also displays depth contours and a scale bar.

# NOAA Standards: Electronic Charts

Office of Coast Survey - What is an NOAA ENC? - Mozilla Firefox

http://chartmaker.nco.noaa.gov/NCD/enc/

Office of Coast Survey

## NOAA Electronic Navigational Charts (NOAA ENCs)

NOAA ENC Overview    Download NOAA ENCs    News, Events Other Information

FAQ    Resources

### What is a NOAA ENC?

An NOAA electronic navigational chart, or NOAA ENC, is a digital representation of a nautical chart. It contains information about the location of each chart feature, as well as attribution information such as color, shape, depth, and so forth. This information is used by navigation system software to draw a display that resembles a nautical chart, but has greatly enhanced functionality.

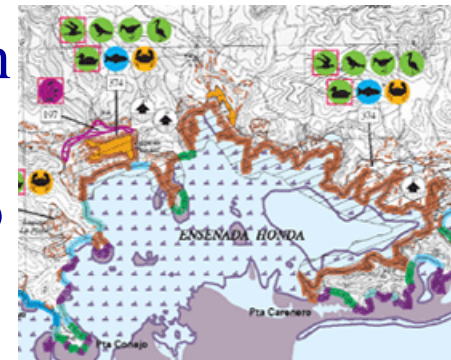
The structure and format of an NOAA ENC is defined by the International Hydrographic Organization S-57 standard, which means that the NOAA ENC is in a non-proprietary, publicly available format. The NOAA ENC contains information about the location of each chart feature, as well as attribution information such as color, shape, depth, and so forth. This information is used by navigation system software to draw a display that resembles a nautical chart, but has greatly enhanced functionality.

## NOAA ENCs

- ❑ International Hydrographic Organization S-57 Standard
- ❑ Non-proprietary, publicly available format
- ❑ Info/attribution for each chart feature (color, shape, depth, etc.)
- ❑ Used by navigation systems, stores what actual features are, the location, and descriptive info
- ❑ Unlike RNCs, ENCs “know” where a navigation hazard would be and how far below the surface that object sits

## Imagine a SCAT Standard...

- Shoreline and resource assessment, Oiling coverage and condition data collected **quickly, accurately and intuitively**
- Data **flow** from the field to the command center with little modification
- Information products to support ICS operations can be generated **on-the-fly**
- Response directions are **recorded** and **delivered** to all operational units **as needed/requested**

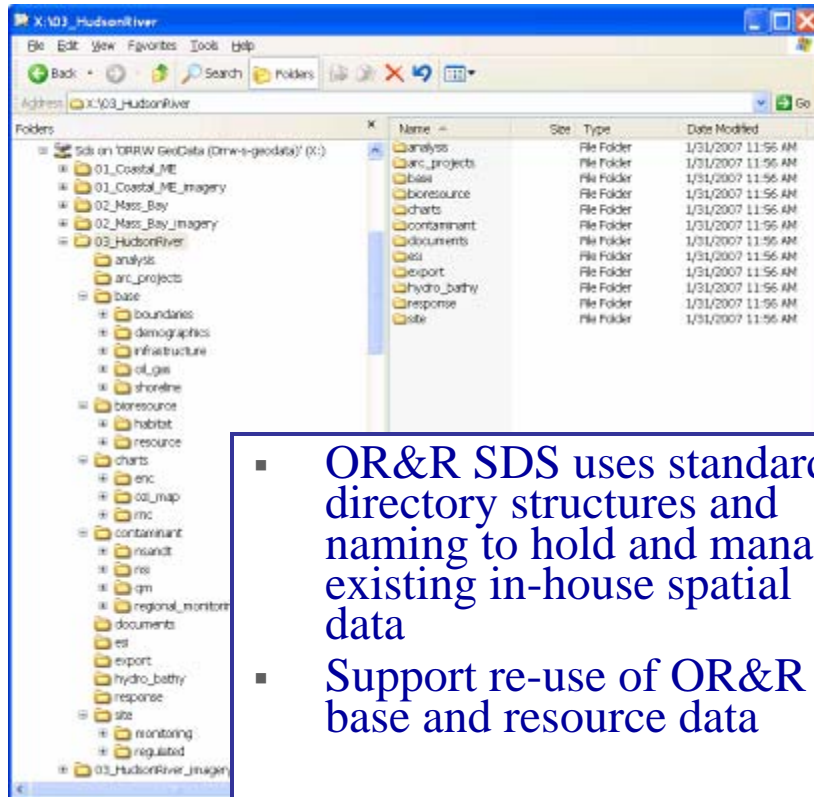


## OR&R Spatial Data Server (SDS)

- **Create OR&R Data library from existing spatial data**
- **Provide on-line/off-line access to OR&R data products for secondary use such as SCAT and Marine Debris activities**
- **Store data in standard structure using geographic framework**
- **Separate data from projects to SDS library so data can be access quickly and easily for response, remedial or restoration activities**
- **Cooperatively developed by ARD and ERD**

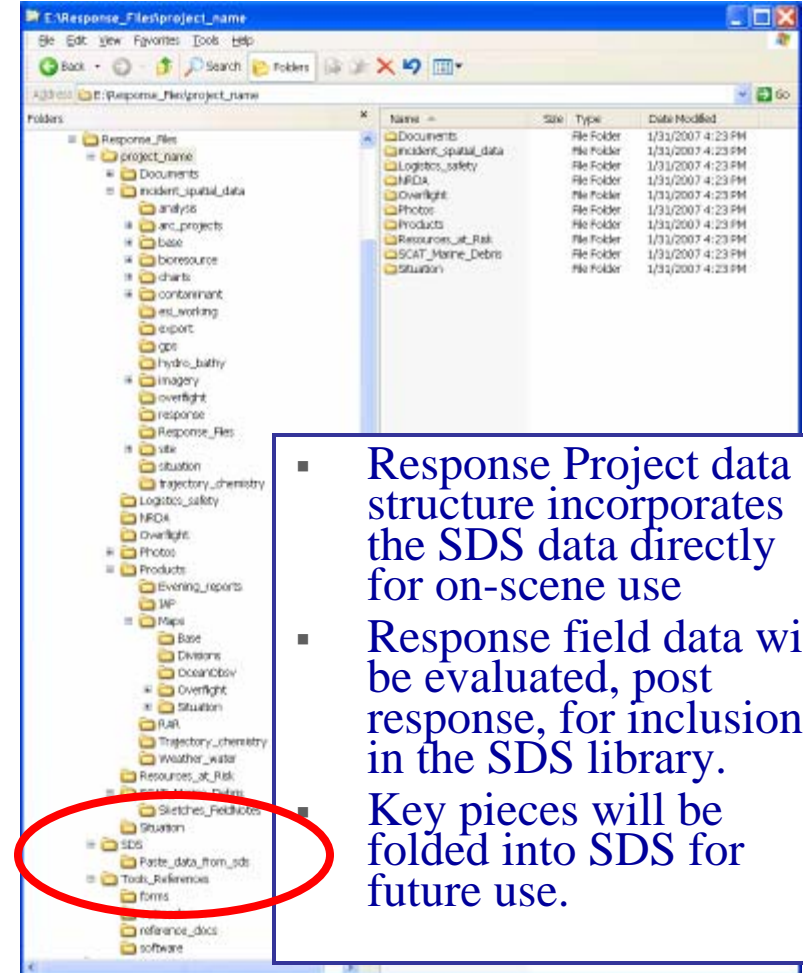


## SDS Directory Structure: ORRW-S-GEODATA (Seattle)



- OR&R SDS uses standard directory structures and naming to hold and manage existing in-house spatial data
- Support re-use of OR&R base and resource data

## SDS resources embedded in On- scene Directory Structure (Field)



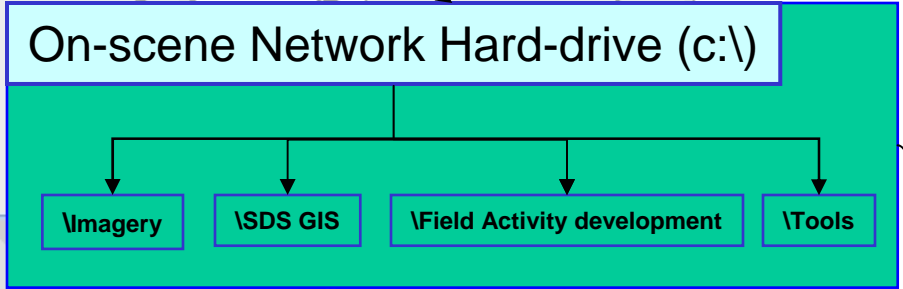
- Response Project data structure incorporates the SDS data directly for on-scene use
- Response field data will be evaluated, post response, for inclusion in the SDS library.
- Key pieces will be folded into SDS for future use.

# OR&R Spatial Data Server Conceptual model



- \SDS GIS**
- \Major Geographical Boundary**
- \ESI**
- \Charts**
- \ENC**
- \RNC**
- \Ozi .map**
- \Imagery**
- \Base**
- \Oil Gas**
- \Pipelines**
- \Platforms**
- \Boundaries**
- \Infrastructure**
- \City**
- \County**
- \Political**
- \ORR Regions**
- \Roads**
- \Bioresource**
- \Habitat**
- \Seagrass**
- \Coral**
- \Marsh**
- \WQ**
- \Resource**
- \Bird**
- \Fish**
- \Invertebrate**
- \Mammal**
- \Contaminant**
- \NS&T**
- \NSI**
- \QM**
- \Facility**
- \Regulated**
- \Hydro\_bathy**

Incident/Activity occurs  
– data extracted from  
ORR SDS

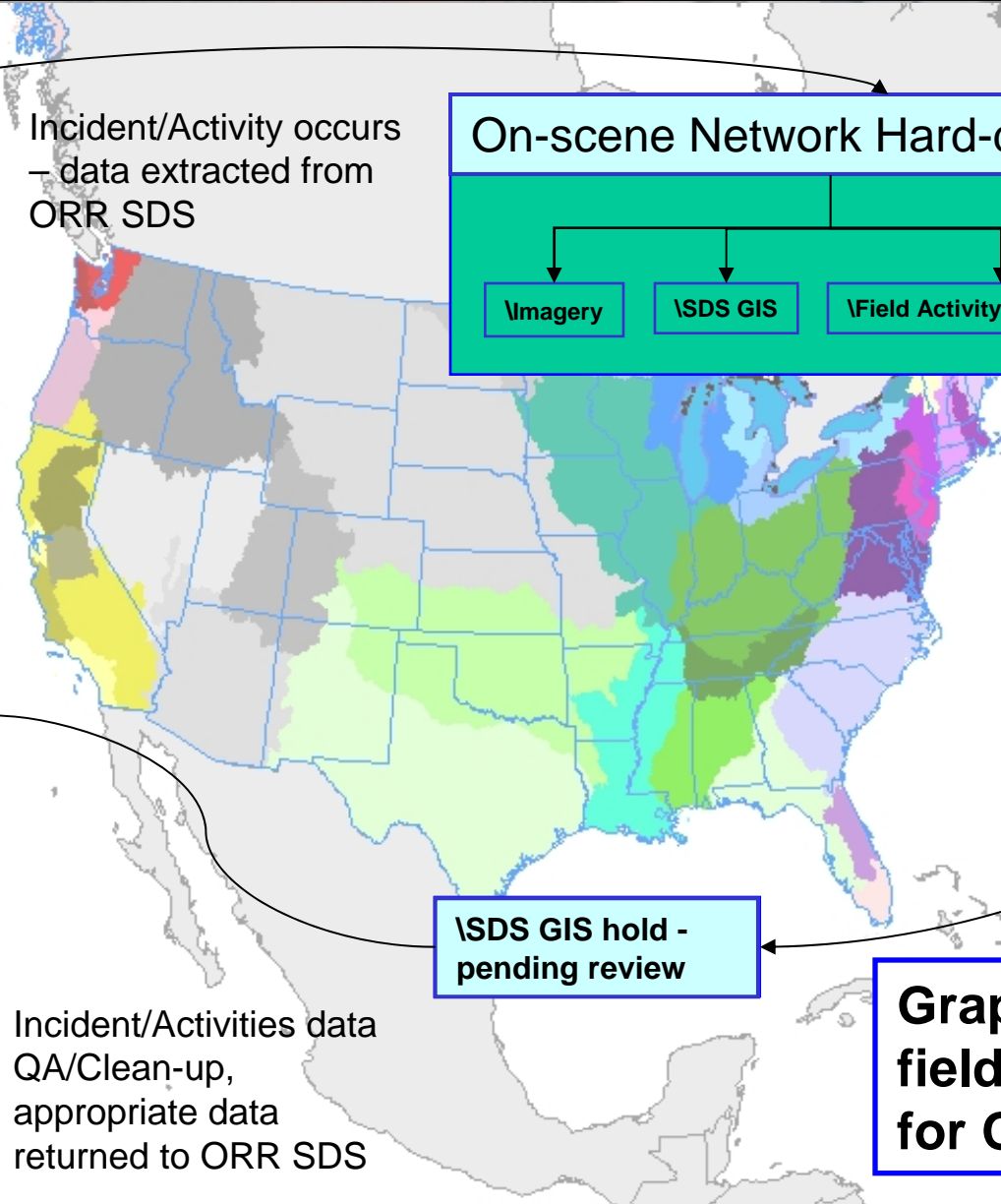


Incident/Activities  
ends – data are  
returned to  
ORR Seattle

\SDS GIS hold -  
pending review

Incident/Activities data  
QA/Clean-up,  
appropriate data  
returned to ORR SDS

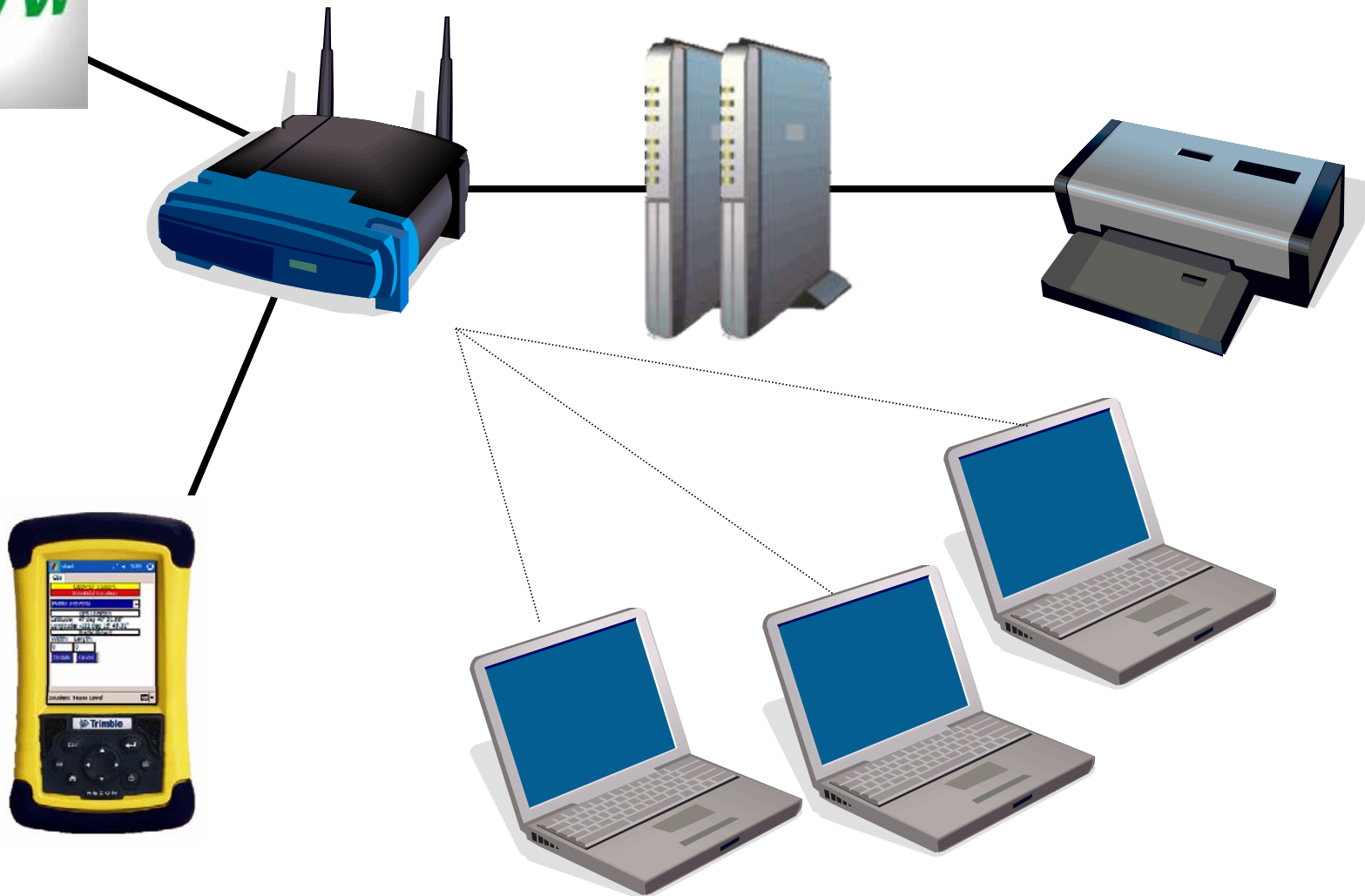
**Graphic Layout for  
field Data Life-cycle  
for ORR SDS**





# Conceptual Model Applied

## On-scene Network



## Our Challenge

# Define SCAT Data Requirements:

Create a SCAT data standard that is:

- Intuitive and easily implemented in time critical operations
- Built with input from a broad user community
- Detailed enough to capture the required data elements to support emergency response shoreline cleanup
- Compatible with other appropriate site focused data standards





## SCAT Data Standard:

Create a SCAT data standard that is:

- Comprehensive in supporting the needs of NOAA/Partner Emergency Response and Marine Debris activities
- Community developed and serves as a model for shoreline data collection and management
- Straight forward and widely applied throughout the response community



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