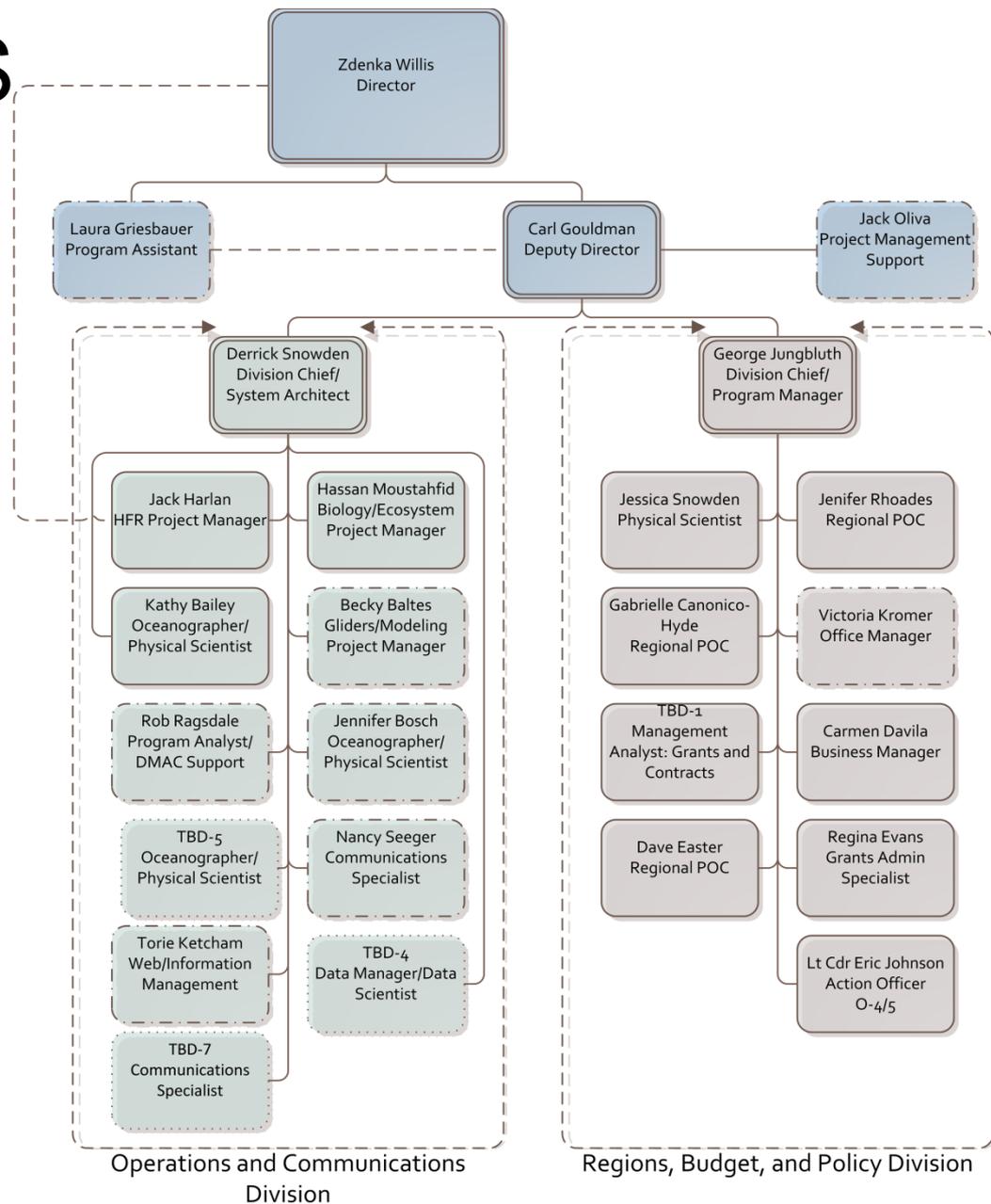


# IOOS Office Update: DMAC etc

- 2014 Highlights
- Maturation of the system
- Looking ahead to 2015 and beyond

# New Faces in IOOS



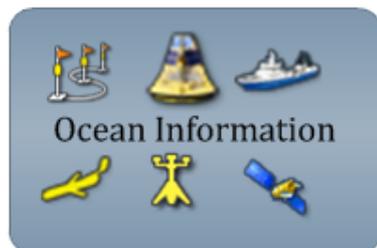
## 2014 Highlights

Data Access Services build out completed

O&M ongoing

- All regions with SOS
- All regions with THREDDS
- Most with ERDDAP and WMS
- Basic service metadata for all RA data
- All regions registering services semi-routinely
- 4600 Datasets
- 9600 Services

## Data and Information Providers



Ocean Information

Information is collected and digitized



Digital information

All information regardless of financial support or transmission mechanism.

RA Supported  
RA Partners (State Local  
Tribal)  
Opportunistic Providers  
*Federal Backbone*

## Stewardship and Curation at the RA DAC



Replication, load balancing, offsite backup, failover etc



Image courtesy <http://rijware.com/process/>

- Ingest
- Reformat into common formats (netCDF, Darwin Core)
- QA/QC
- Map to common vocabularies
- Document the data, origin, processing in metadata
- Publish metadata and data via multiple services (no one size fits all)
- Negotiate for long term preservation
- Plan for reliability and continuity of operations

## Publication of Information via Multiple Avenues

### Machine readable web services

- data.ra.org/thredds
- data.ra.org/erddap
- data.ra.org/sos
- data.ra.org/wms
- data.ra.org/metadata
- data.ra.org/csw

### Dissemination of real time information via the GIS

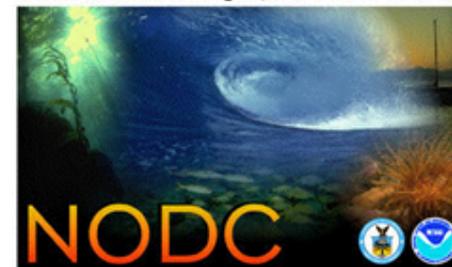


Global Telecommunications System

### Long term preservation at an approved archive

*U.S. Department of Commerce/NOAA/NESDIS*

National Oceanographic Data Center

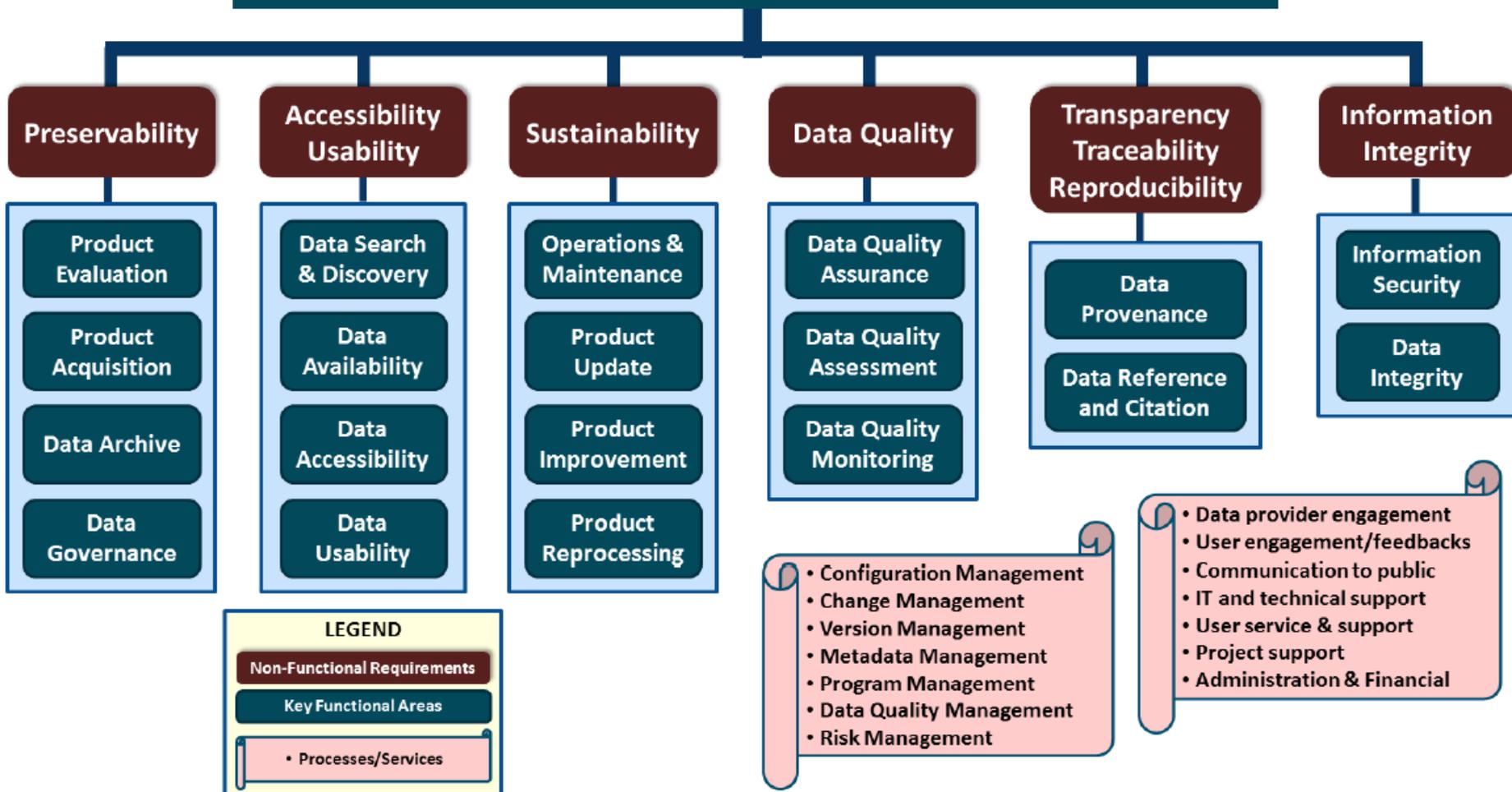


Coming soon: National Centers for Environmental Information (or similar)

# Looking forward: 2015 and beyond, refinement and maturation of past success

- Regional DACs grow in size and scope (*Scalability, Adaptability, Flexibility*)
- Regional DACs assume the role of trusted source of data for both regional and national stakeholders (*Quality, Reliability, Usability, Accessibility*)
- Regional DACs are participating in long term data stewardship and curation (*Quality, Preservability*)
- Product development gains momentum (*Sustainability*)

# Long-Term Scientific Data Stewardship



## Scientific Data Stewardship

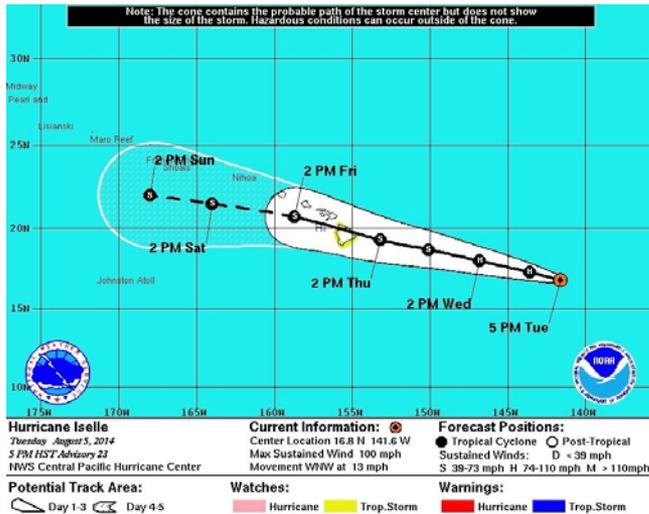
All activities that ensure and improve the information content and preservability, accessibility, usability, sustainability, quality, reproducibility, and integrity of data and metadata



# Reliability



# Reliability





# Configuration Management: IOOS SOS Upgrades

Partner	Server	Version
AOOS	i52N	0.8.1-SNAPSHOT
CariCOOS	ncSOS	1.2
CeNCOOS	i52N	0.8.1-SNAPSHOT
GCOOS	i52N	0.8.1-SNAPSHOT
GLOS	i52N	0.8.0-SNAPSHOT
MARACOOS	ncSOS	1.1
NANOOS	i52N	0.8.1-SNAPSHOT
NERACOOS	ncSOS	1.1
PacIOOS	ncSOS	1.1
SCCOOS	ncSOS	1.1
SECOORA	ncSOS	1.2

# Scalability, Flexibility: new data sets, data types (e.g. biology)

[ioos\\_tech@googlegroups.com](mailto:ioos_tech@googlegroups.com): When folks ask "I have obs data. How can I contribute this data to IOOS", what do we say?



1. Put it on a list, when we can get to it
2. Try to encourage the provider to do some work. Training.
3. Relationship building; hope things don't change over time.

*How much data is out there and are we doing enough to address it?*

# **QARTOD Schedule, Status, & Plans**

## **02/12/15 (Mark Bushnell, Technical Coordinator)**

### **Manuals**

04/01/14 - 11/25/14 Marine Wind Speed/Direction QC Manual - Completed

10/01/14 - 06/30/15 Ocean Optics Manual - Out for 2nd review by RAs

04/01/15 - 09/30/15 Dissolved Nutrients - Identifying potential committee members

01/05/15 - 04/03/15 Refresh Dissolved Oxygen - Update out for 2nd review by RAs

04/06/15 - 07/02/15 Refresh Waves - Pending

07/06/15 - 09/30/15 Refresh Currents - Pending

10/02/15 - 12/29/15 Refresh Temperature & Salinity - Pending

### **Implementation**

3rd Wed IOOS DMAC telcons – Sep, Oct, Nov, Jan

### **Board of Advisors Meetings (telcon)**

11/24/14 - Completed

02/23/15 - Draft agenda in preparation

05/26/15 - Pending

08/31/15 - Pending



# Preservability: NCEI Service Level Agreement for Archive and Access

## Service Level Agreement

*between the*

**National Centers for Environmental Information**

*and the*

**U.S. Integrated Ocean Observing System (IOOS)  
Program**

For the Archive and Access Services of environmental data  
supporting the IOOS Regional Associations

Version 1.0  
January 20, 2015



1. Matt Biddle: 2 years beginning CY2015.
2. Certification support:
  1. Minimal documentation for application approval followed by execution of SIF at on a agreed schedule
3. Cookbook with best practices for archiving AND integration with IOOS Data Services

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→ [data.ra.org/sos](http://data.ra.org/sos)

→ [data.ra.org/wms](http://data.ra.org/wms)

→ [data.ra.org/metadata](http://data.ra.org/metadata)

→ [data.ra.org/csw](http://data.ra.org/csw)

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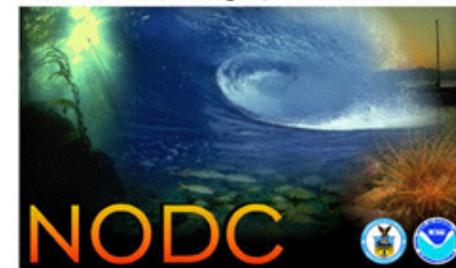


Global Telecommunications System

Long term preservation at an approved archive

*U.S. Department of Commerce/NOAA/NESDIS*

National Oceanographic Data Center



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similar)

# Looking forward: 2015 and beyond, Activities upcoming

Data  
Management  
plans

Publish  
metadata locally  
(WAF/CSW)

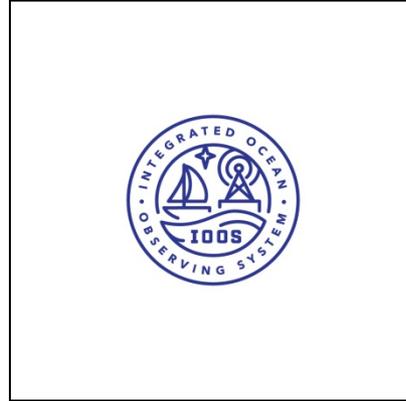
Increased focus  
on quality  
control and data  
documentation

Increased focus  
on usability and  
reliability of data  
services

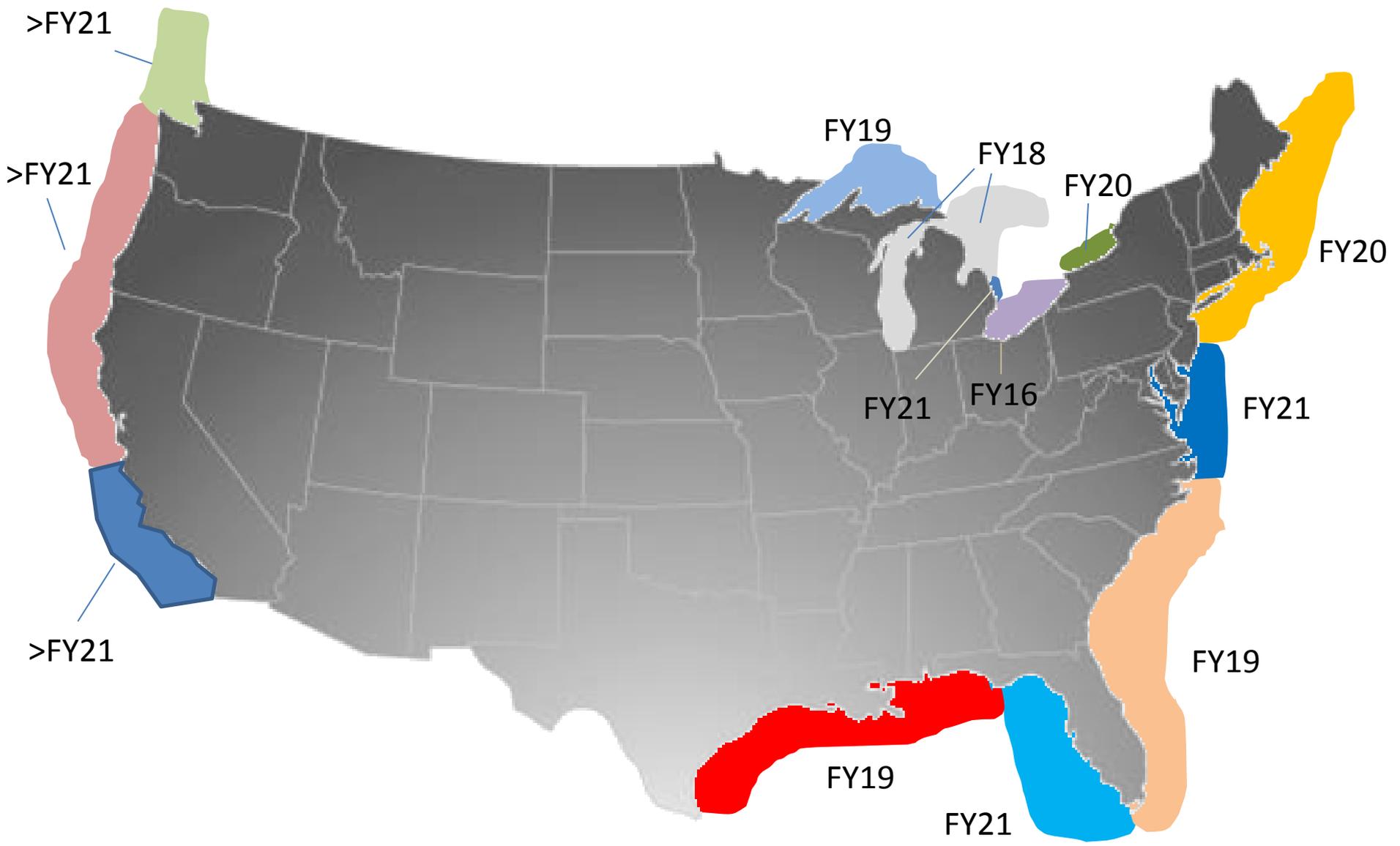
Archiving and  
preserving

More data into  
RA's (Bio, ATN,  
Small providers)

# New IOOS Emblem, identity, web presence



# CO-OPS/CSDL: Proposed CONUS Regional Models



# Thoughts for the RA Breakout discussion

- QC implementation
- Messages to IOOS PO
- Messages from IOOS PO to RA leadership
- Technical challenges we're not seeing
- Opportunities for collaboration amongst RAs
- FFO 2016
- Thoughts on the pan-regional portal idea

# Questions? Now, or....

## Over beers later, Chris O is buying!



# Archive Certification Requirements

## Certification Application Contains

1. List of parameters/observations being collected.
2. Processing steps/quality control including final format.
3. Timing/frequency of data submissions and approximate sizes.
4. Development of Data Documentation (metadata).
5. Data disposition (path to archive center).

## Post Certification but within terms defined in MOU

1. Codification of the terms in Submission Information Form or a replacement vehicle
2. Execution of the SIF terms (routine submission of Archive Information Package)

Data affiliations. (where did it come from? where does it



**Table 1.** The stewardship maturity matrix for digital environmental data products (Documentation ID: NCDC-CICS-SMM-0001; Version: 12/09/2014 Rev. 1)

<b>Key Component</b>	<b>Level 1 Ad Hoc Not Managed</b>	<b>Level 2 Minimal Managed Limited</b>	<b>Level 3 Intermediate Managed Defined, Partially Implemented</b>	<b>Level 4 Advanced Managed Well-Defined, Fully Implemented</b>	<b>Level 5 Optimal Level 4 + Measured , Controlled , Audit</b>
<b>Preservability</b>	Any storage location Data only	Non-designated repository Redundancy Limited archiving metadata	Designated archive Redundancy Community-standard archiving metadata Conforming to limited archiving standards	Level 3 + Conforming to community archiving standards	Level 4 + Archiving process performance controlled, measured, and audited Future archiving standard changes planned
<b>Accessibility</b>	Not publicly available Person-to-person	Publicly available Direct file download (e.g., via anonymous FTP server) Collection/dataset level searchable online	Level 2 + Non-standard data service Limited data server performance Granule/file level searchable Limited search metrics	Level 3 + Community-standard data service Enhanced data server performance Conforming to community search metrics Dissemination report metrics defined and implemented internally	Level 4 + Dissemination reports available online Future technology and standard changes planned
<b>Usability</b>	Extensive product-specific knowledge required No documentation online	Non-standard data format Limited documentation (e.g., user's guide) online	Community standard-based interoperable format & metadata Documentation (e.g., source code, product algorithm document, processing or/and data flow diagram) online	Level 3 + Basic capability (e.g., subsetting, aggregating) & data characterization (overall/global, e.g., climatology, error estimates) available online	Level 4 + Enhanced online capability (e.g., visualization, multiple data formats) Community metrics of data characterization (regional/cell) online External ranking
<b>Production Sustainability</b>	Ad Hoc or Not applicable No obligation	Short-term Individual PI's commitment	Medium-term Institutional commitment (contractual deliverables with	Long-term Institutional commitment Product improvement process	Level 4 + National or international commitment