

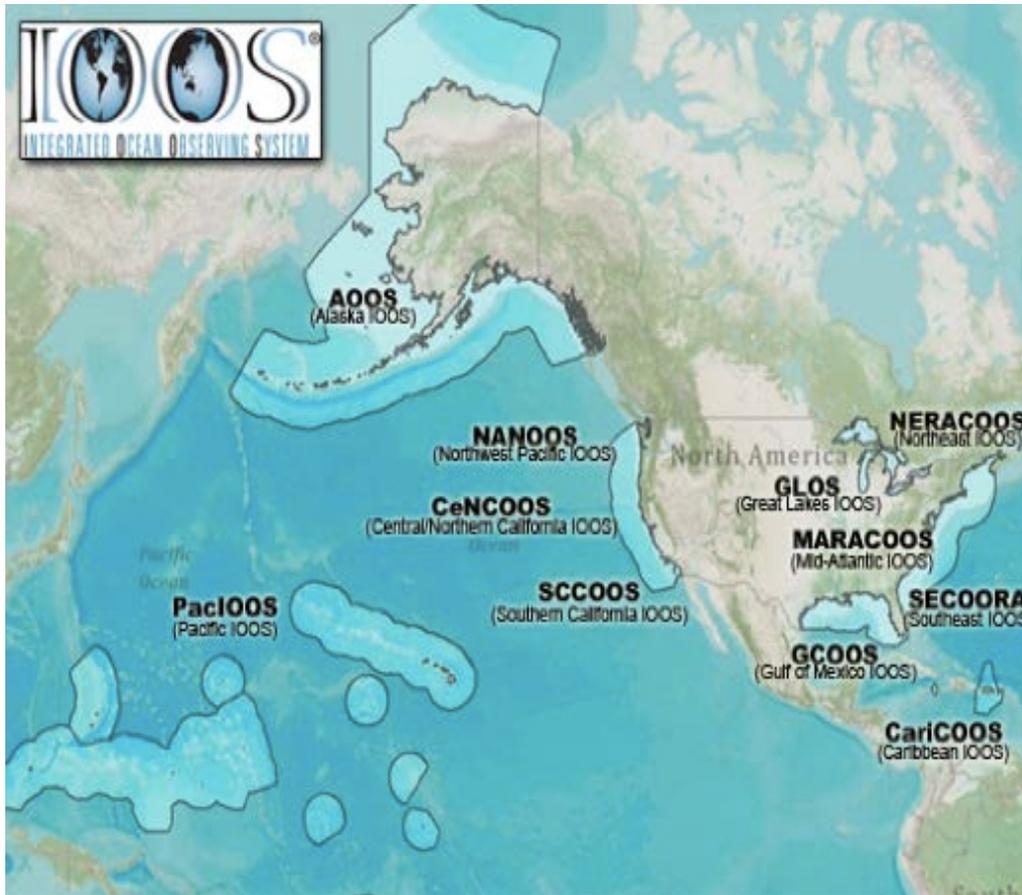


Josie Quintrell, Director  
IOOS Association  
IOOS FAC Meeting  
April 2016



## Observing our oceans, coasts and Great Lakes

*Providing information to those who need it, when they need it*



- Objectives:
  - Advocacy
  - Common Issues
  - IOOS federal/non-federal partnership
    - Administration
    - Congress
    - National Partners
  - Emerging Issues

# Appropriations



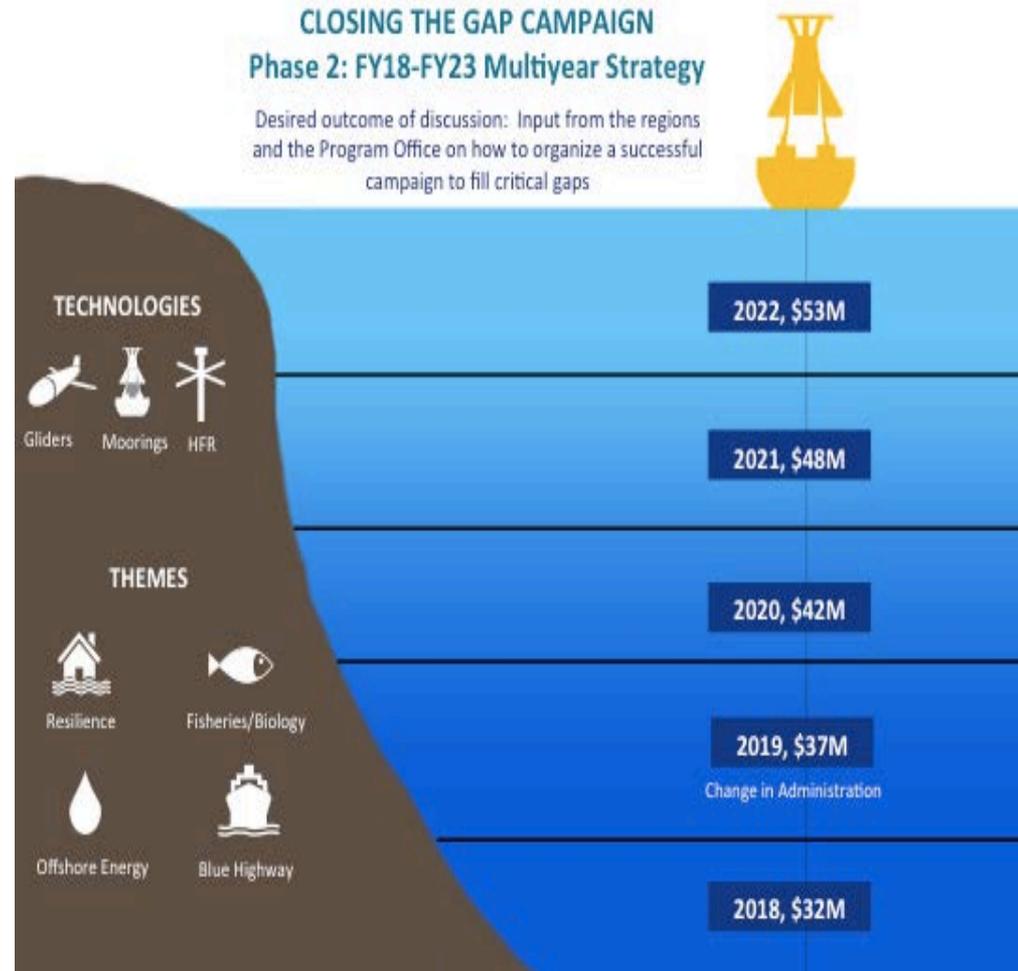
<b>IOOS Appropriations</b>	<b>FY10 Enacted</b>	<b>FY11 Spend Plan</b>	<b>FY 12 Spend Plan</b>	<b>FY 13 Spend Plan</b>	<b>FY 14 Enacted</b>	<b>FY 15 Enacted</b>	<b>FY 16 Enacted</b>	<b>FY 17 Pres Bud</b>	<b>FY 17 Request</b>
<b>Regional IOOS Total</b>	<b>\$27m</b>	<b>\$21.9m</b>	<b>\$23 m</b>	<b>\$26.5m</b>	<b>\$28.5m</b>	<b>\$29.5m</b>	<b>\$29.5m</b>	<b>\$29.5m</b>	<b>33.9m</b>
<i>Competitive funding for the national network of regional systems, including surface currents</i>	<i>\$20m</i>	<i>\$20m</i>	<i>\$22m</i>	<i>\$23.5m</i>	<i>\$24.3m</i>	<i>\$24.5 m</i>	<i>\$24.5m</i>		<i>28.9m</i>
<i>Marine Sensor Innovation Grants, Modeling Test bed, Sensor Verification</i>	<i>\$7m</i>	<i>\$1.9m</i>	<i>\$1m</i>	<i>\$3m</i>	<i>\$4.2m</i>	<i>\$5 m</i>	<i>\$5m</i>		<i>\$5m</i>
<b>U.S. IOOS Program Office*</b>	<b>\$6.5m</b>	<b>\$6.5m</b>	<b>\$6.4m</b>	<b>\$5.9m</b>	<b>\$6.6m</b>	<b>\$6.6m</b>	<b>\$6.6m</b>	<b>\$6.6m</b>	<b>\$6.6m</b>
<b>Total U.S. IOOS</b>	<b>\$33.5m</b>	<b>\$28.4m</b>	<b>\$29.4m</b>	<b>\$32.4m</b>	<b>\$35.1m</b>	<b>\$ 36.1m</b>	<b>\$36.1 m</b>	<b>\$36.1 m</b>	<b>40.6m</b>

\* Starting in FY 14 included in the Navigation, Observations and Predictions budget line

# Closing the Gaps: 5 yr Campaign

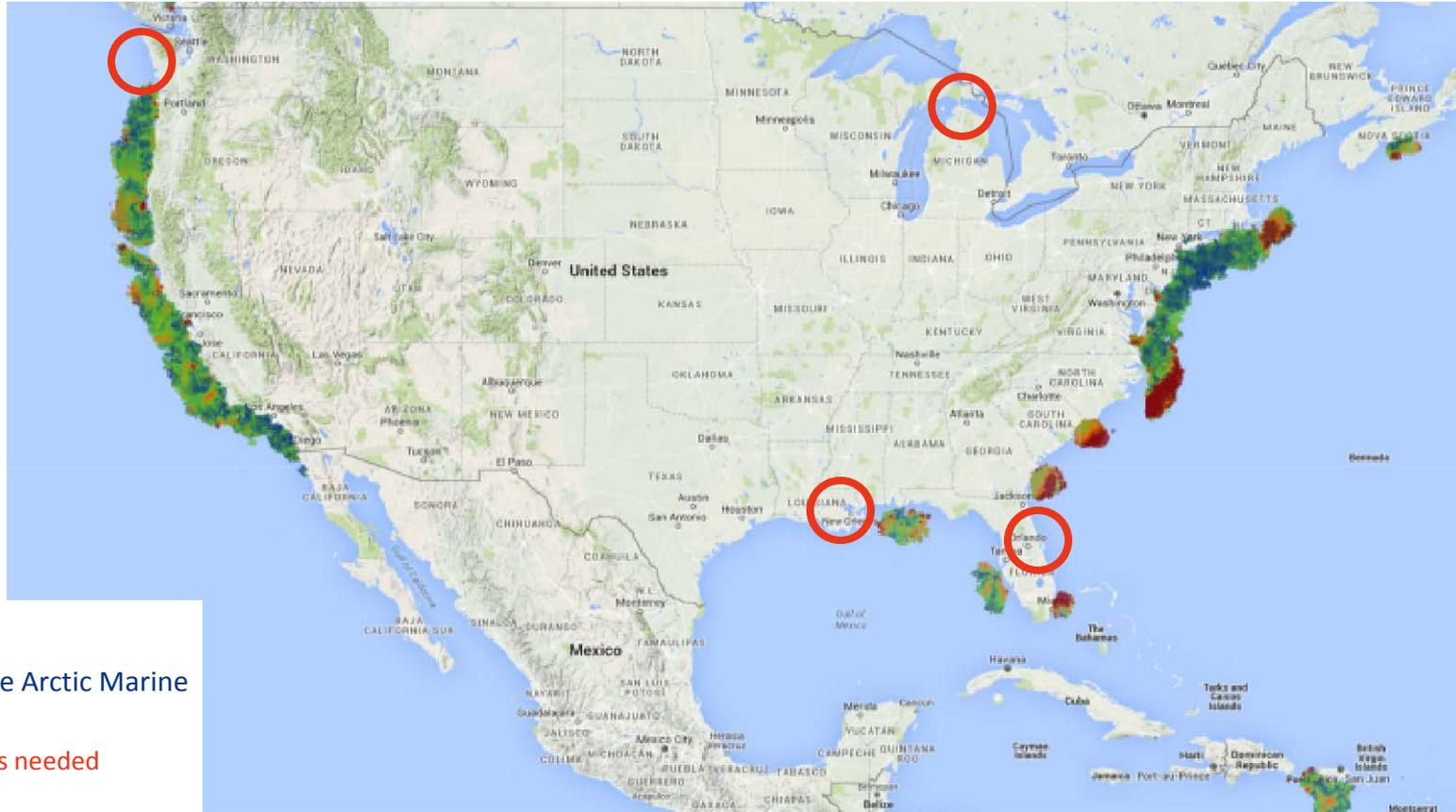
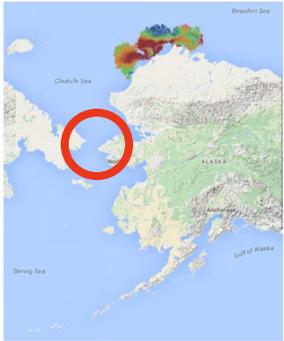


- Scalable campaign
- Tangible outcomes
- Align with Administration Priorities
- Initial focus
  - Water levels
  - Precision navigation
  - HAB forecasting
- Defining IOOS niche - Federal/Non-federal partnership



# US IOOS FY 17 High Frequency Radar Request

\$3.1 million to install 12 high frequency radar systems



Safeguarding the Arctic Marine Highway

2 remote radars needed



Protecting Lives and Public Health in the Pacific Northwest

3 radars needed



Cleaning up the Great Lakes

3 radars needed



Saving Lives off Florida's Coast

2 radars needed



Saving Millions in the Gulf of Mexico

3 radars needed

# US IOOS FY 17 High Frequency Radar Request

## Saving Lives off Florida's Coast



2 radars needed

## Protecting Lives and Public Health in the Pacific Northwest



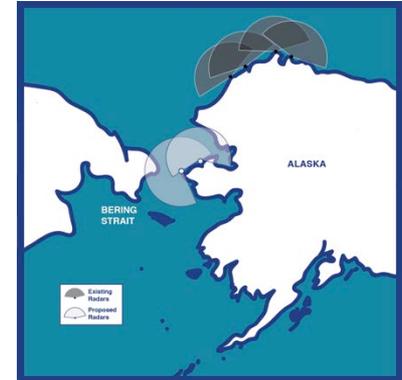
6 3 radars needed

## Responding to spills in the Gulf



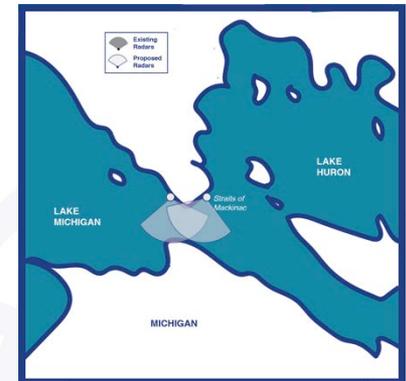
3 radars needed

## Safeguarding the Arctic Marine Highway



2 remote radars needed

## Cleaning up the Great Lakes



2 radars needed

# US IOOS FY 17 Request

## Regional System Request: \$33.9 million

**\$24.3 million** for the national network of 11 regional coastal observing systems

**\$1.5 million** for upgrades and repairs for aging regional systems

**\$3.1 million** to install 12 high frequency radar systems, to close key gaps and make the U.S. surface current mapping system the most reliable, efficient and comprehensive in the world

**\$5.0 million** for research and development, including competitive grants, modeling and verification to develop new products and systems to ensure comprehensive coverage

## National System Request- \$6.7 million

These funds will support the IOOS Program Office, to help:

- integrate federal and non-federal data
- develop the nation's first quality control standards for real-time data
- coordinate across NOAA and the 12 Federal IOOS agencies and
- certify the regional systems.

# “March Madness”

- Over 70 Offices visited
- Dear Colleague Letters
  - 35 signers in House
  - 16 in Senate



# Senate Reauthorization: S 1886



## Oceans, Atmosphere, Fisheries and Coast Guard

Rubio – Chair  
Wicker (MS)  
Ayotte (NH)  
Cruz (TX)  
Sullivan (AK)  
Johnson (WI)

Booker (NJ),  
Cantwell (WA)  
Blumenthal (CT)  
Schatz (HI)  
Peters (MI)

Co Sponsors – To date  
Sullivan R-AK  
Murkowski R-AK

*Thru Committee Mark Up  
Report Completed*

# House Reauthorization Bill: HR 2744

## Natural Resources Committee, Subcommittee on Water, Power and Oceans

25 Co-Sponsors – 14 D, 10R, 1I



Rep Young -  
Lead



Sablan – Lead

Guinta R-NH1  
Sablan R-MPO  
Crenshaw R-FL4  
Amata R- AS0  
Clawson R-FL19  
Jones R- NC3  
Kilmer D- WA6  
Larsen D-WA2  
Lowenthal D- CA47  
Peters D- CA 52

Pierluisi D-PR0  
Rooney R-FL 17  
Rouzer R-NC 7  
Thompson D-CA5  
Bordolla D-GU0  
Huffman D-CA2  
Jolly R-FL13  
Takai D-HI1  
Honda D-CA17  
Rohrabacher R-  
CA48

Davis D-CA53  
Herrer Beutler R-  
WA3  
Bonamici D-OR10  
Heck D-WA10  
Pingree D-ME1



# IOOS Spring Meeting 2016: Closing the Gaps



# Closing the Gaps: Water Levels

- Coastal counties contribute \$6.6 trillion, or just under half of the country's GDP
- Home to almost 40 percent of the U.S. population.
- Vulnerable to extreme events and climate hazards.
- Natural Hazards losses between 2010-2014 >\$1 billion (68% coastal)
- Coastal population rise 8% by 2020



# Closing the Gaps: Next Generation Navigation

## Lessons Learned from Long Beach:

- Precision navigation needs for an area vary
- Similar needs will exist in other areas but will require both national as well as tailored solutions
- Need to identify gaps as well as specialized needs in partnership with RAs and others
- Need to integrate data streams and improve delivery of them
- Need a systematic approach to soliciting precision navigation needs for other areas

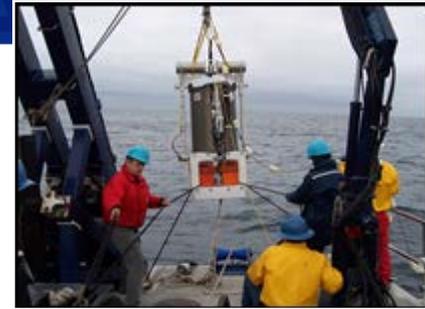


# NOAA HAB Observing Networks: Where are we going?

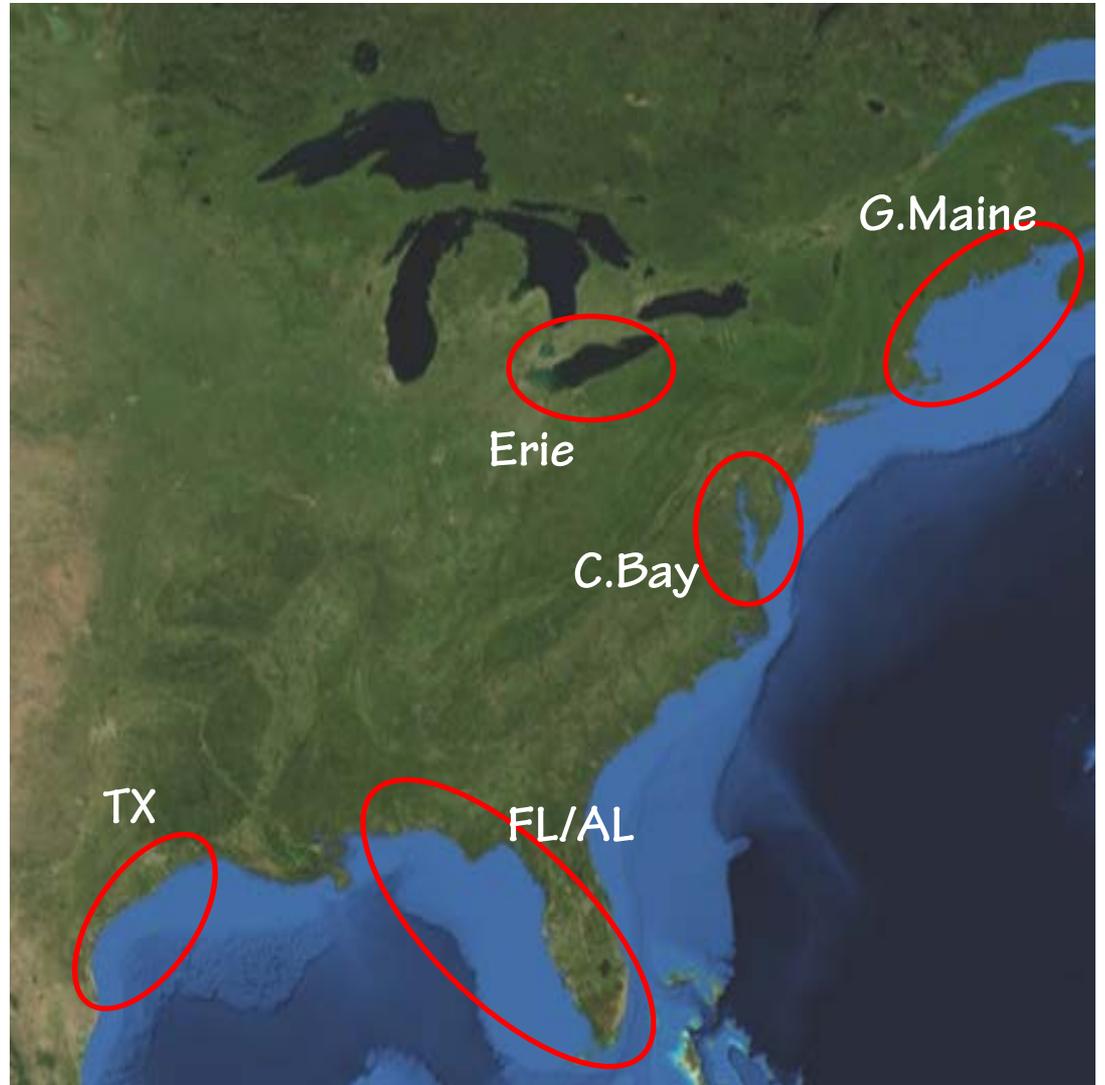
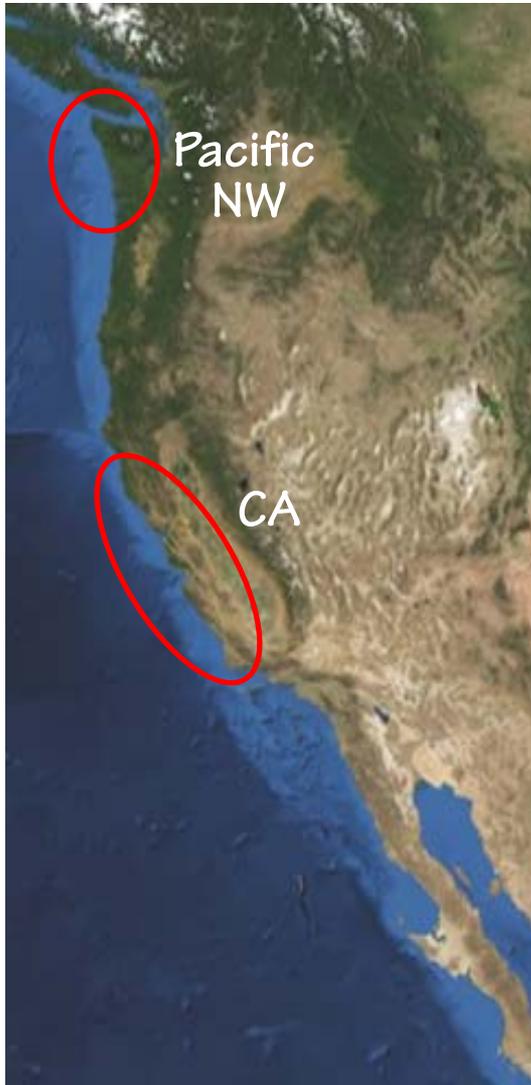
**Overall Aim:** observing networks will be fully integrated as components supporting a national HAB forecasting infrastructure

**Strategies to advance observing capabilities:**

- identify & understand regional observing needs useful to managers & stakeholders
- leverage existing infrastructure to provide contextual data (IOOS RAs, NDBC, NWS, etc.)
- coordinate to influence siting of regional observing assets to include HAB 'hot spots'
- plan for data dissemination & assimilation



# Regions with chronic severe HABs



# Closing the Gaps: Next Steps

- HFR Scoping Committee
  - O&M cost, recapitalization of the system, new radars, metrics, communications
- Water Levels
  - Convene working group with NOAA and RAs
- HAB
  - Better define “the gap”
  - Id specific needs to support forecasting - strategy for cells and toxins
  - Prioritize operational forecasting needs by region
  - Blended approach of human and autonomous sensing
- Navigation
  - Mississippi
  - Define role of regions
- Ocean Acidification



# Emerging Issues

- Gaps – IOOS FAC support - FY 18 Appropriations Request for NOAA
- National Surface Current Monitoring - Unique to IOOS
- National buoy plan - writing team meeting now in Stennis
- National glider plan - meeting this week
- Sustaining the OTT projects
  - What happens when funding ends in FY 18?
- Regional Resiliency Grants
  - SECOORA, NERACOOS, PacIOOS, MARACOOS
- OA Coastal Acidification Networks
  - NERACOOS, MARACOOS, SECOORA, GCOOS
- Regional data and information – roles and relationships
  - Regional Ocean Partnerships
  - Marine Cadaster
  - Digital Coast
  - Regional IOOS



# Preparing for New Administration

Closing the Gaps - Funding  
Innovation partnership -

- Lower cost technologies
- Extramural partnerships - flexible, agile

Next Generation IOOS

- Program Review
- Sustaining observations

Leadership for observations  
Connection to atmosphere and oceans

*And ... still in development*



Messaging:

Democratic concerns

Resilience

Climate

Republican concerns

Navigation

Government efficiencies

Thank you

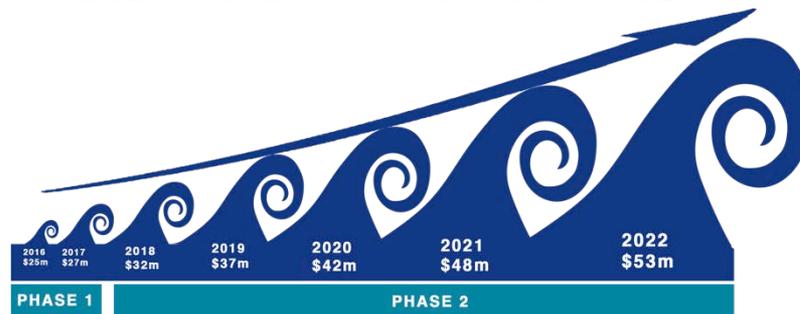




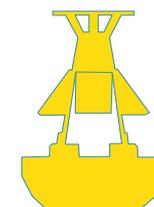
- Back up slide

# CLOSING THE GAPS CAMPAIGN

- Scalable campaign
- Tangible outcomes
- Initial focus
  - Water levels
  - Precision navigation
  - HAB forecasting
  - Ocean acidification
- Defining IOOS niche - Federal/Non-federal partnership



Double IOOS funding in 5 years to fill key gaps in the nation's coastal, ocean and Great Lakes observing systems.



2022, \$53M

2021, \$48M

2020, \$42M

2019, \$37M

Change in Administration

2018, \$32M

## TECHNOLOGIES



Gliders



Moorings



HFR

## THEMES



Resilience



Eco Forecasting



Ocean Acidification



Blue Highway

# Honorary Directors

Admiral Gaffney, Mary Glackin, Norm Dicks and  
Admiral Lautenbacher (ex officio)

- Transition white paper
- Identify strategic partners
- Champions for the IOOS enterprise
- Diversify membership

# RA Certification



- PacIOOS certified
- GLOS submitted
- All RAs Planning to submit this year
- Opportunity to engage federal agencies
  - Regional data sharing
  - Outreach
  - BOEM/BESSE



# A national network of regions...

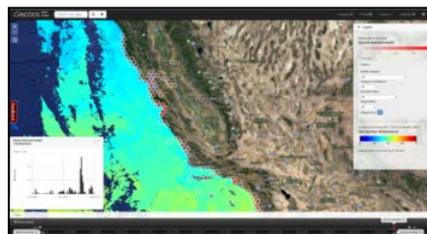
AOOS



CariCOOS



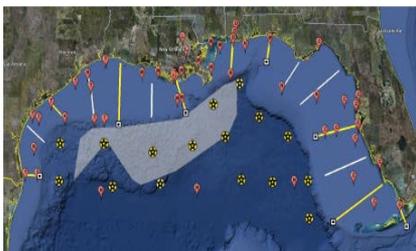
CeNCOOS



GLOS



GCOOS



MARACOOS



NANOOS



NERACOOS



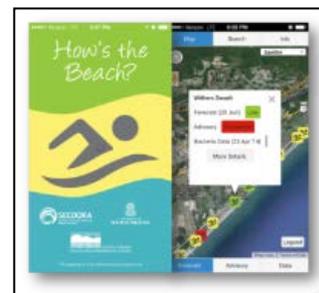
PacIOOS



SCCOOS



SECOORA



# Closing the Gaps: Port of LA/Long Beach Project

## SHIP MOTION DUE TO OCEAN SWELLS

WITH ZERO PITCH

76' MLLW

65' max draft per COTP

11' under keel clearance

ONE DEGREE OF PITCH

76' MLLW

65' max draft per COTP

1.4' under keel clearance

*With one degree of pitch, there is a 9.6' increase in draft for a 1,100 foot taker.*

# .... beyond NOAA

**BOEM/BESSE –**

**Data sharing, regional portals  
Atlantic – conventional and  
renewables**

**National Fish and Wildlife Foundation**

**Permit and monitoring requirements –  
Discharge permits, facilities, etc.**



# HAB Observing Networks: Development & Transition

**Objective:** promote development & transition to operations of regional & national HAB observing networks

**Rationale:** observations & measurements of HAB species & toxins are important for:

- support of forecasting
  - validate satellite/airborne observations
  - data assimilation for model correction
- early warning of HAB events
- assessing bloom toxicity (potential impacts)
- identifying drivers of HAB growth & toxicity



# Congressional Reauthorization Briefings



House Ocean Caucus Briefing: Feb 2015

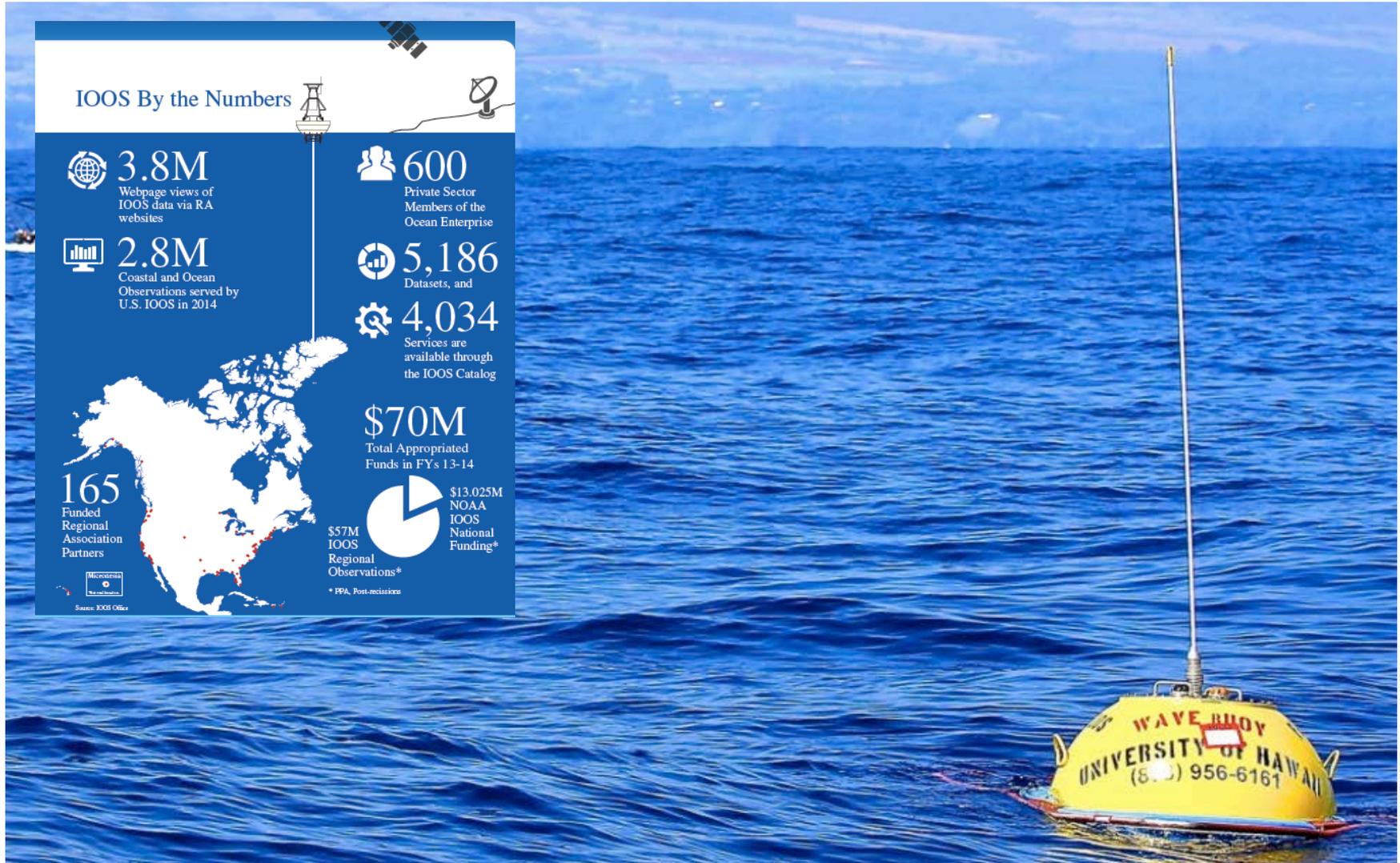


Senate Ocean Caucus Briefing: July 2015

Full House - Over 75 attendees at both

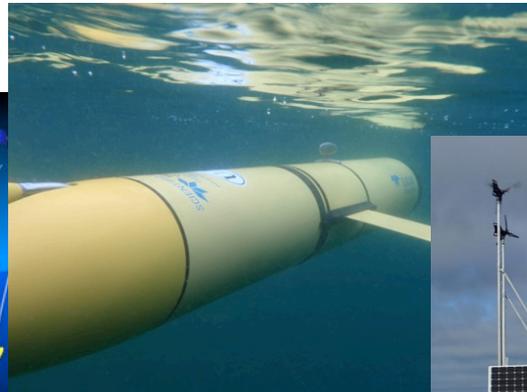
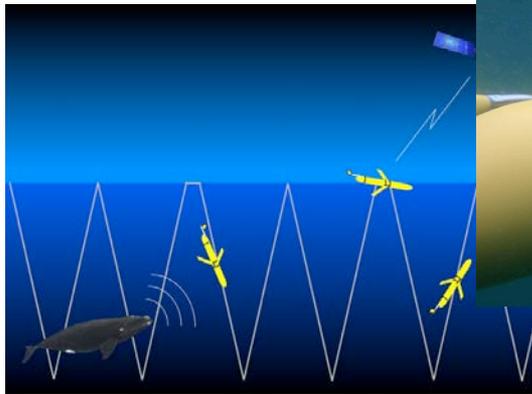
# Next Steps

# Messaging: IOOS by the Number



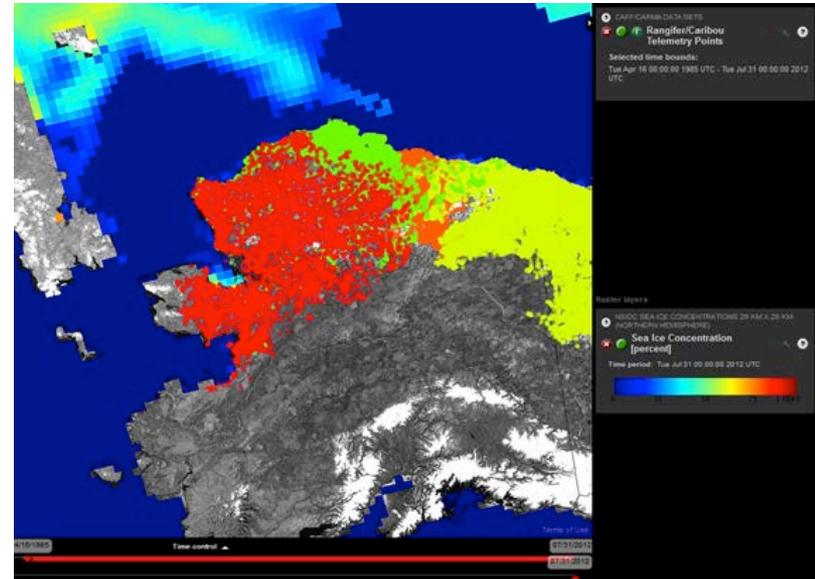
# AOOS Observing Assets

- Chukchi Mooring (UAF, Conoco-Phillips, Shell, Ogloonik-Fairweather, AOOS, NPRB)
- HF Radar (UAF, BOEM, AOOS) – Point Lay, Wainwright, Point Barrow, Cape Simpson
- Autonomous Glider (UAF, UW, Rutgers, AOOS)
- Wave buoys
- AIS/weather



# AOOS Arctic Portal

- Polar projection
- Handles many data types
  - GIS/project type data
  - Satellite imagery
  - Real-time sensors
  - Forecast models
  - Infrastructure & Transit
  - Habitat & Sensitivity
- Visualize data stacks
- Explore by time
- Data downloads





# Challenge

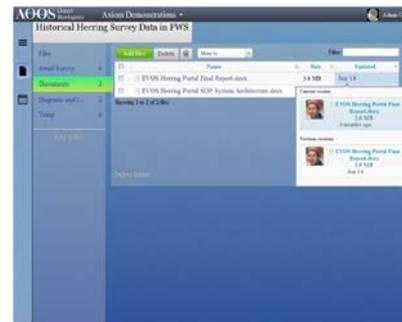
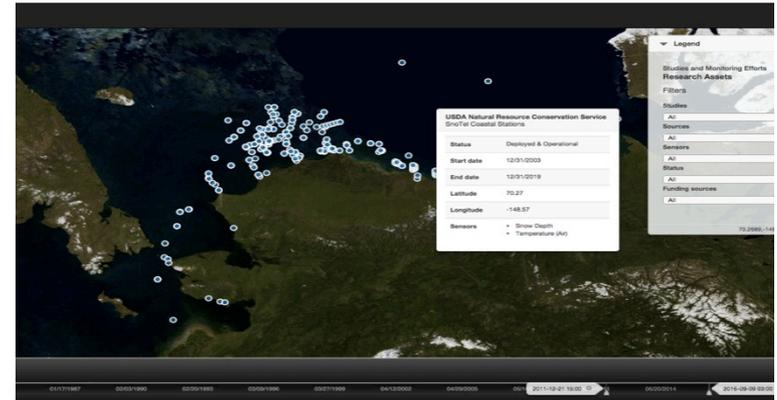
*“ Investing in key observational platforms sustains the vital environmental intelligence our citizens and businesses rely upon.”* --

Dr Kathy Sullivan, NOAA Administrator 8/24/15



# Research Support

- Research Asset Portal: What instruments are deployed and what are they collecting?
  - Assist planning
  - Reduce Duplication
  - Avoid collisions
  - Holistic picture
- Research Workspace
  - Web-based data management system for assembling, storing, and sharing data between members of biological and physical oceanography communities



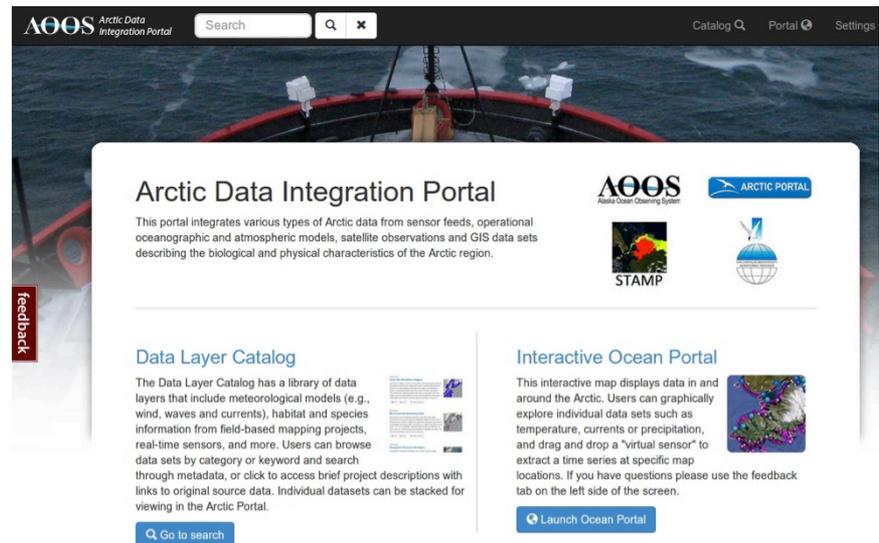
# International Partnerships

- Protection of the Marine Environment Working Group of the Arctic Council – Norway, Russia, Canada, Iceland, US
- Pacific Arctic Group (PAG) – Canada, China, Japan, Republic of Korea, Russia, US
- Distributed Biological Observatory (DBO) – Canada, China, Japan, Republic of Korea, Russia, US
- Marine Arctic Ecosystem Study (MARES) – Canada, US
- Canada Department of Fisheries and Oceans – Canada, US
- Russian-American Long-term Census of the Arctic (RUSALCA) – Russia, US
- Industry Arctic Data-sharing Agreement – Shell, ConocoPhillips, Statoil

# Interior Title Page

# Data Management & Products

- Maintain AOOS website and data portal
- OCEAN DATA EXPLORER
- Real-time Sensor Map
- Model Explorer
- Research Assets Map
- Arctic Portal
- Industry Arctic Data
- Research Workspace
- Seabird Portal



# March 2016 Hill Visits