OOI Status for UNOLs

Jean McGovern

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OOI – Quick Description

- OOI is a multi-scale ocean observatory in Year 3 of Construction
  - $386.42M (NSF is the sole funding agency) **
  - 66 months of construction (Sept 2009 start)
  - Funding budgeted for initial operations (end 2017) **
  - 25 years of planned operations
- OOI is a system of systems that will document, for 25 years, air-sea, water column and seafloor processes, across full ocean depths using the best available technologies
- Pioneer Array is designed to be a redeployable array based on proposal review

** Subject to the realities of federal budgeting process

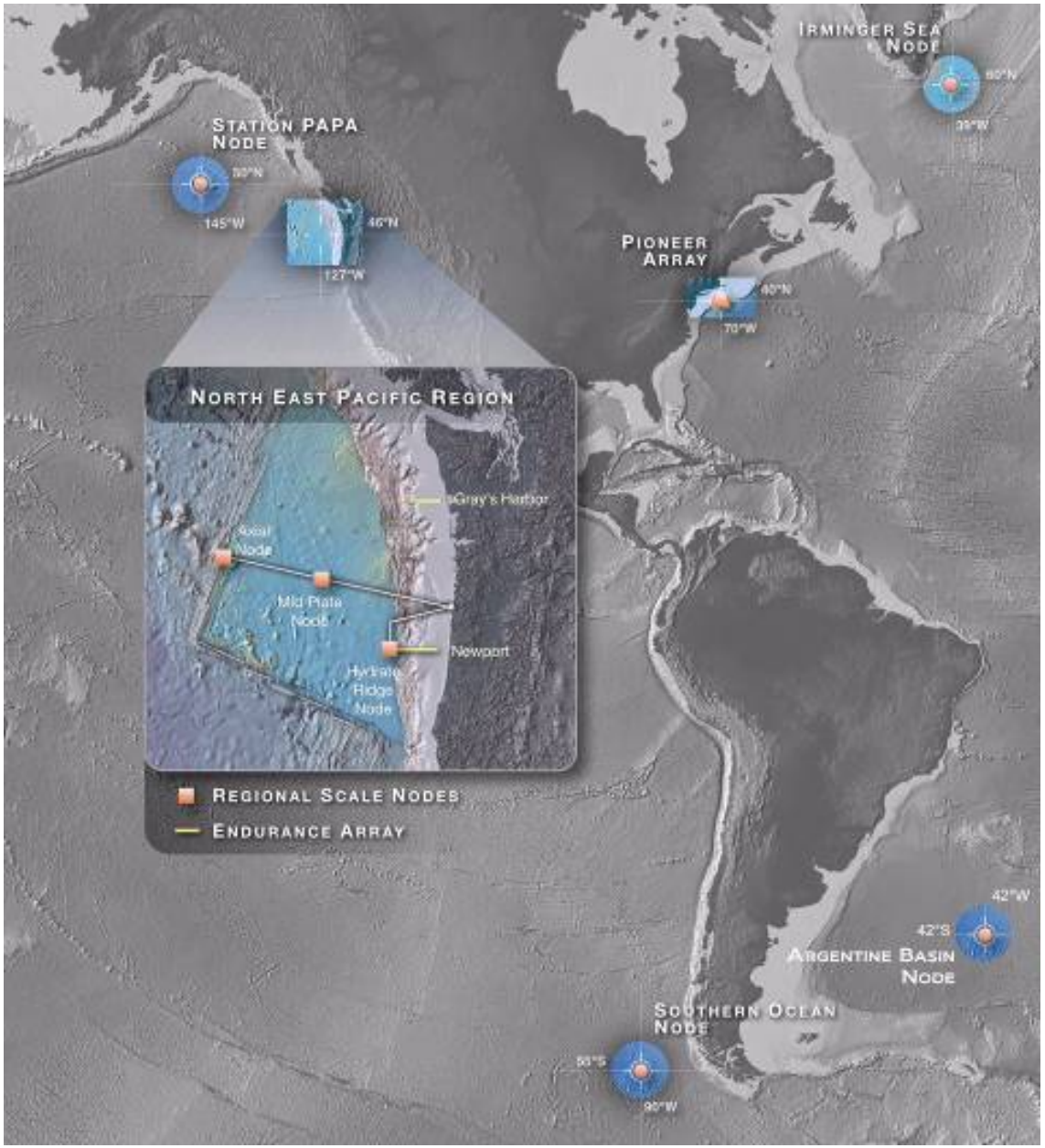
OOI Network Design

Multi-scale Observatory

Global Arrays
- Gulf of Alaska
- Irminger Sea
- Southern Ocean
- Argentine Basin
- Ocean Gliders

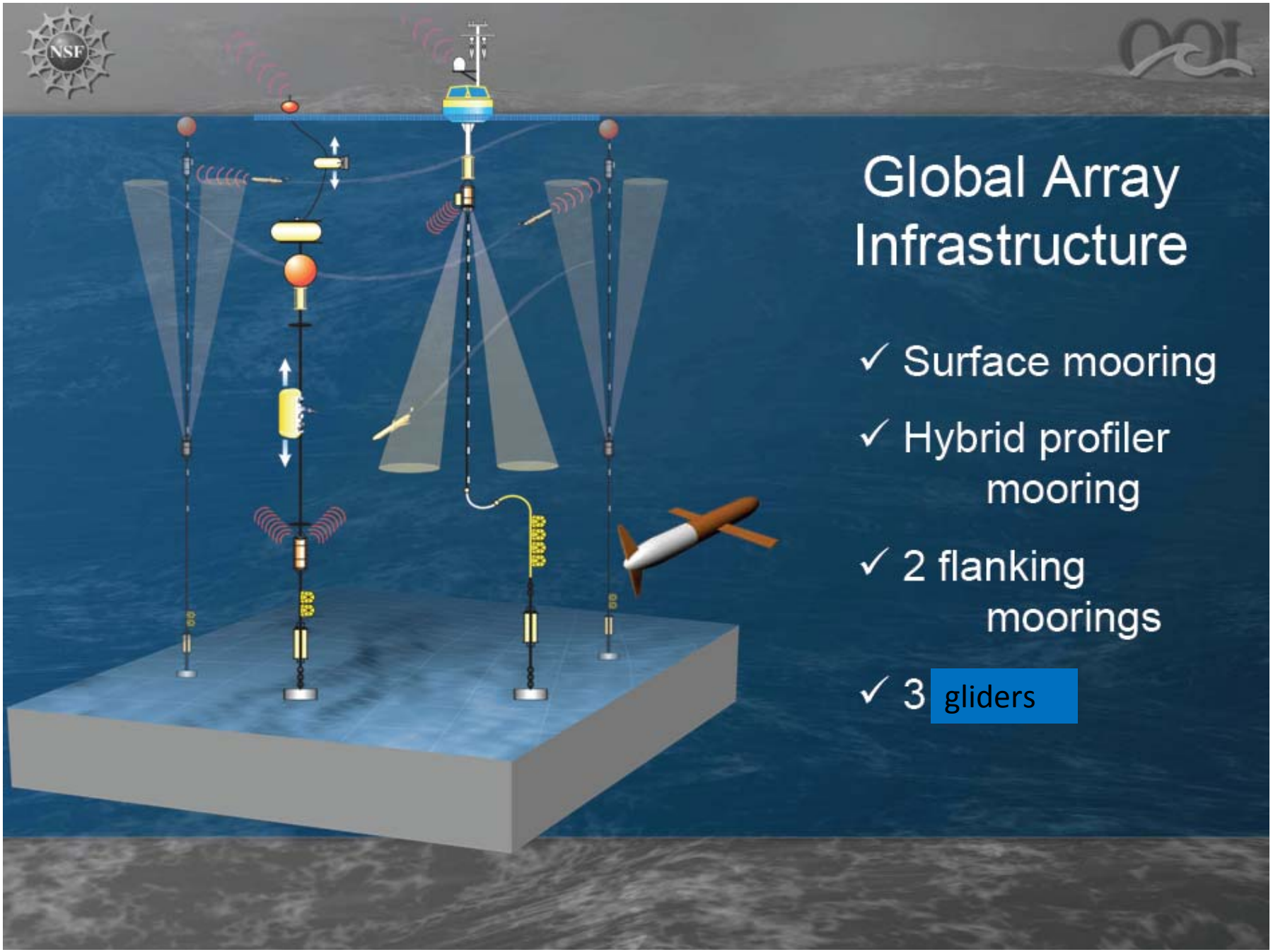
Regional
- Cabled
- Juan de Fuca Plate
- Oregon

Coastal Arrays
- Pioneer
- Endurance
- Coast al Gliders
- AUVs on Pioneer

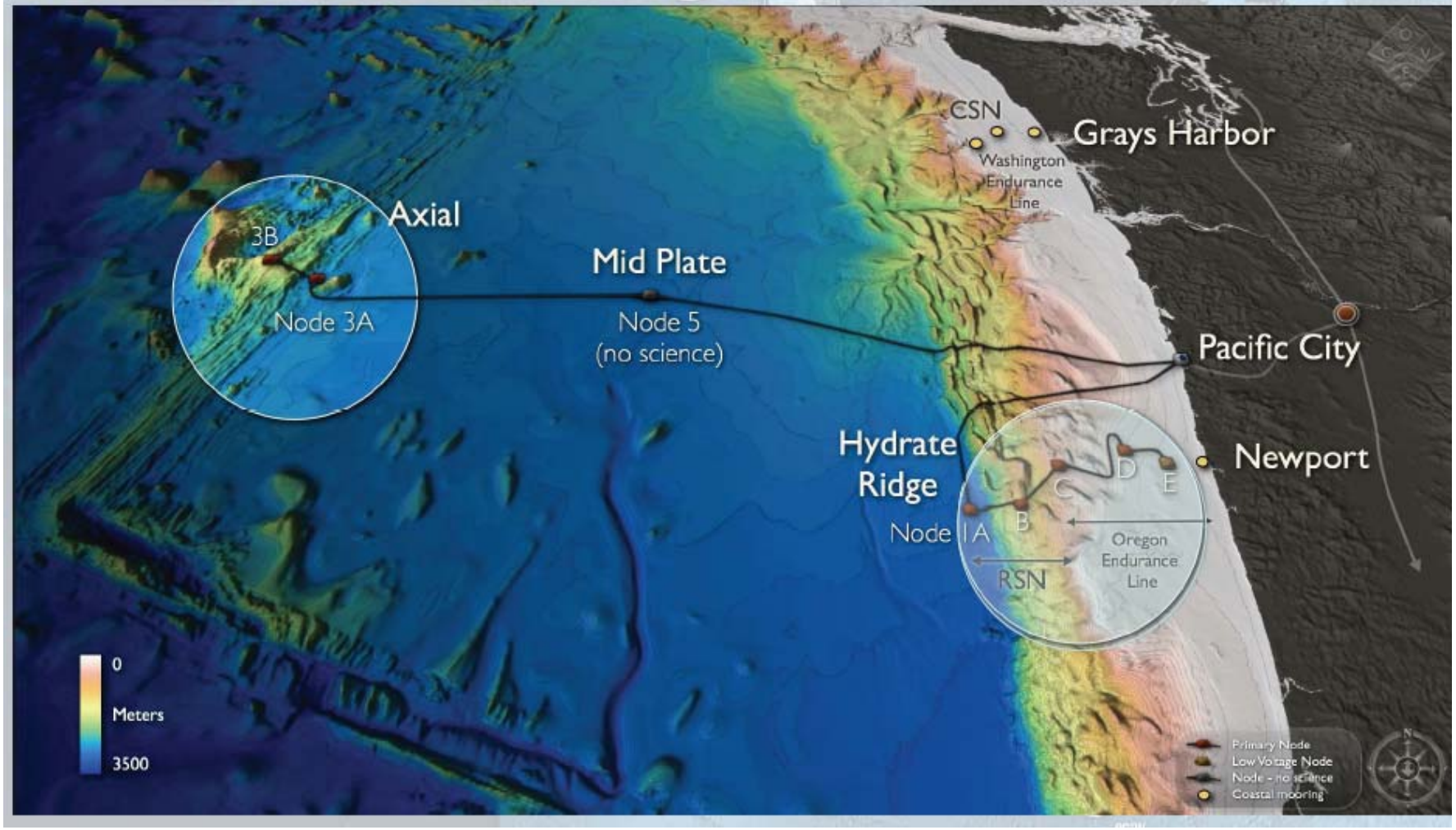


OOI Project Team

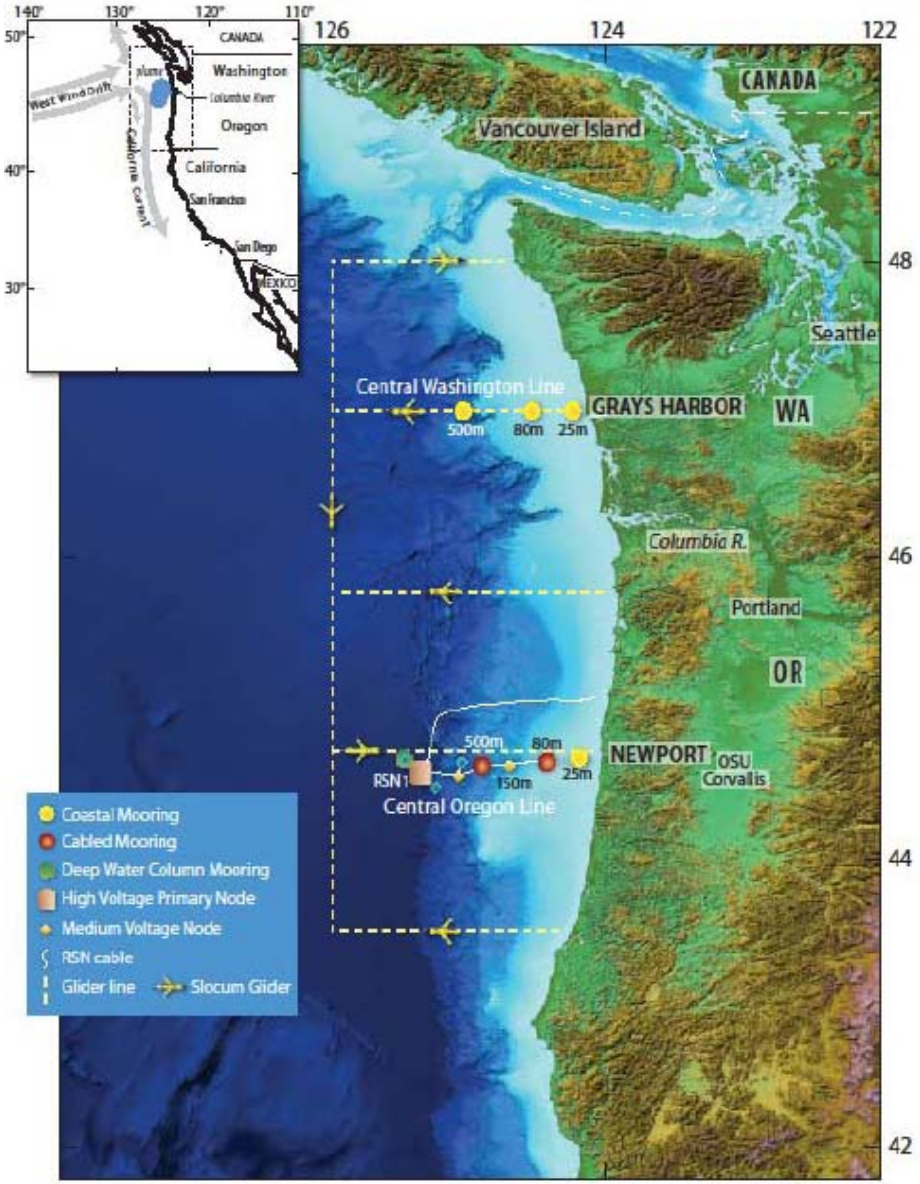
Organization	Project Role
Consortium for Ocean Leadership	NSF Awardee & Systems Integrator
Woods Hole Oceanographic Institution • Oregon State University • Scripps Institution of Oceanography • Raytheon	Coastal and Global
University of Washington	Regional
UC San Diego	Cyberinfrastructure
Rutgers, The State University Of New Jersey	Education


Global Array Infrastructure
✓ Surface mooring
✓ Hybrid profiler mooring
✓ 2 flanking moorings
✓ 3 gliders

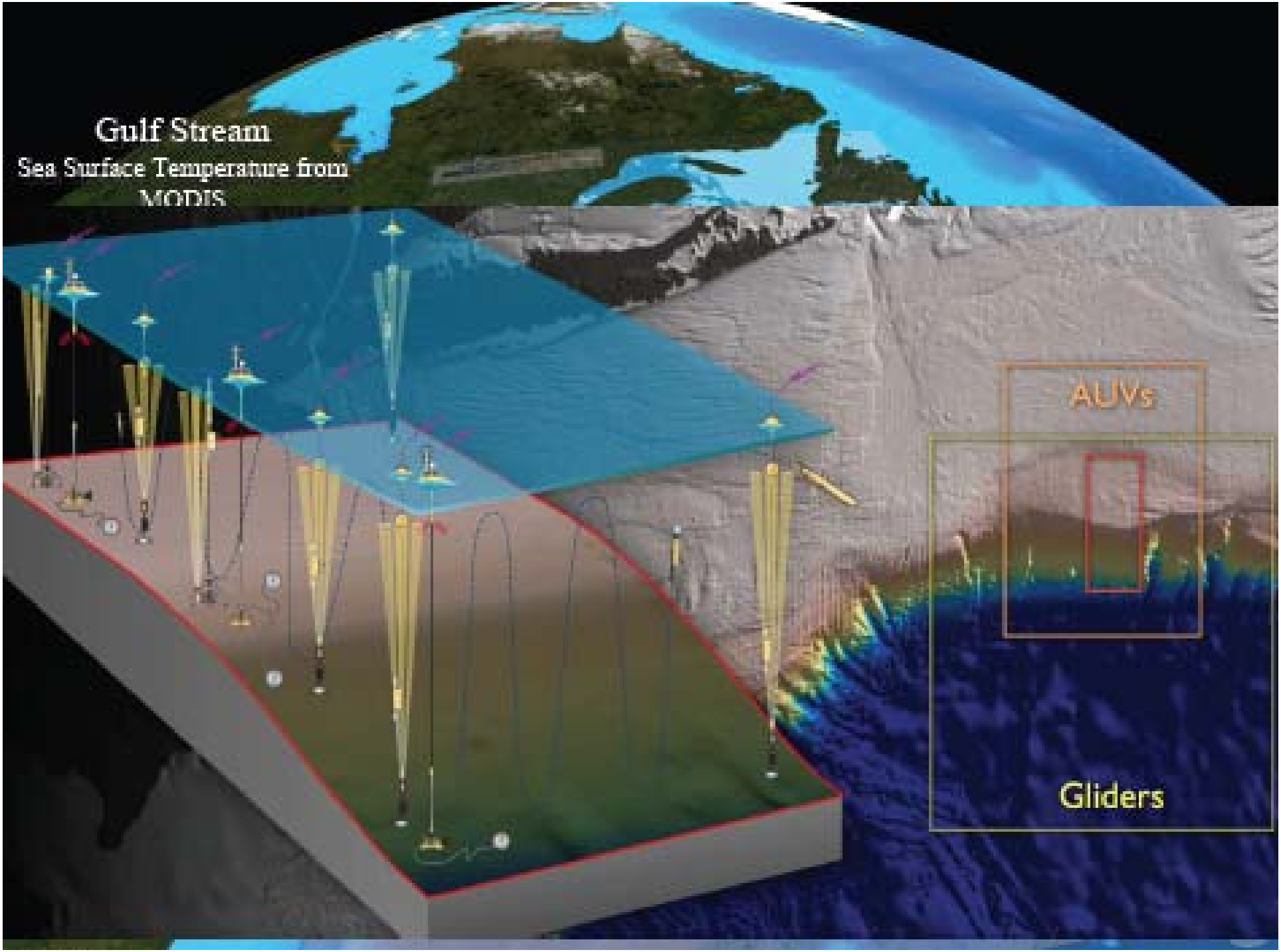
Regional Scale Nodes



Endurance Array



- ✓ 2 cross-shelf lines
- ✓ Moorings on inner shelf, mid-shelf, and slope
- ✓ Air-sea, water column, and benthic observing
- ✓ 6 gliders
- ✓ Oregon Line connects to Regional cable; continuity with RSN mooring and PAPA
- ✓ Coastal to deep ocean observing


Gulf Stream
Sea Surface Temperature from
MODIS
AUVs
Gliders

Pioneer Infrastructure

Moored Array

30 x 10 km

Site spacing

6-8 km cross

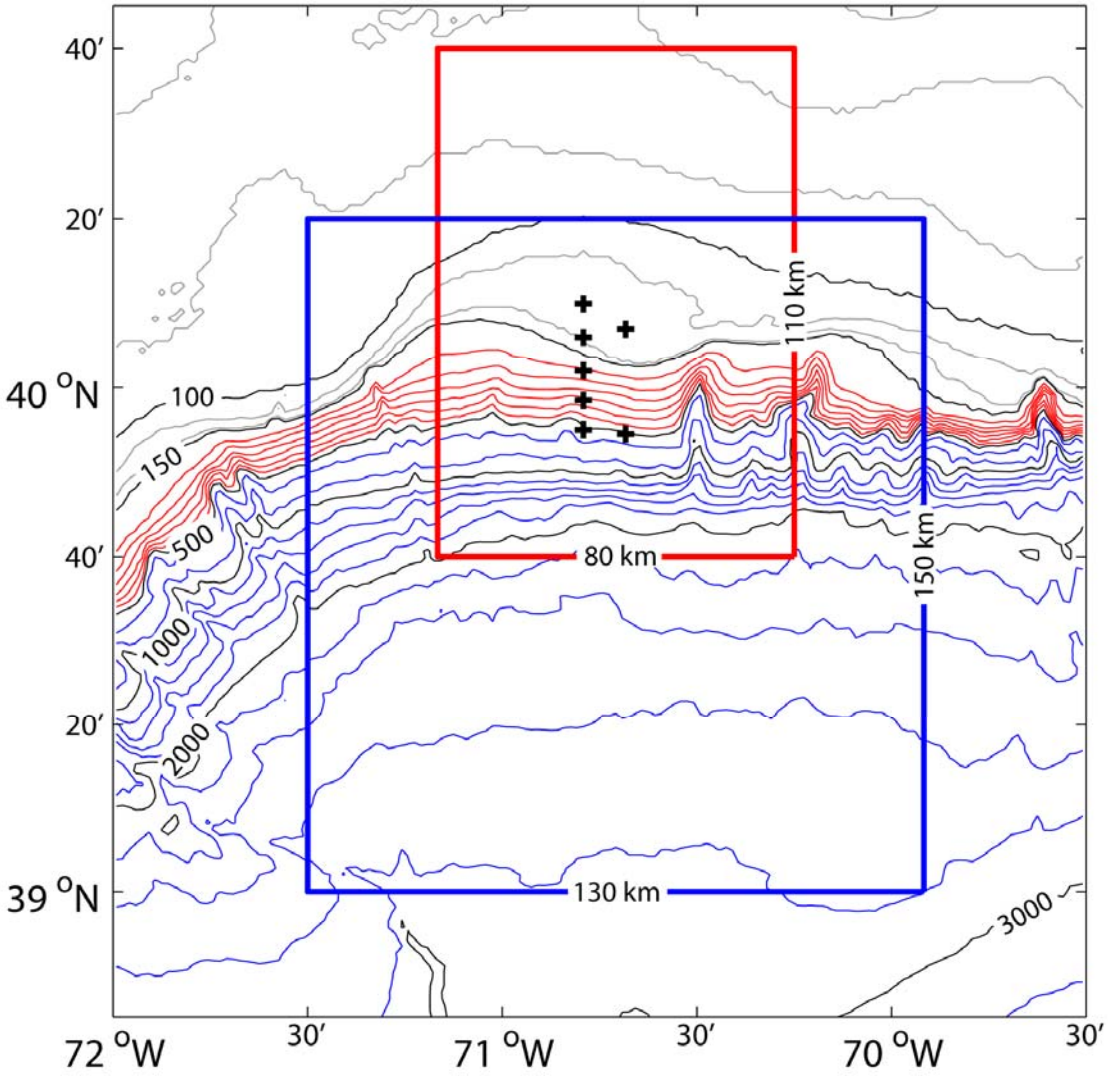
10 km along

AUV Region

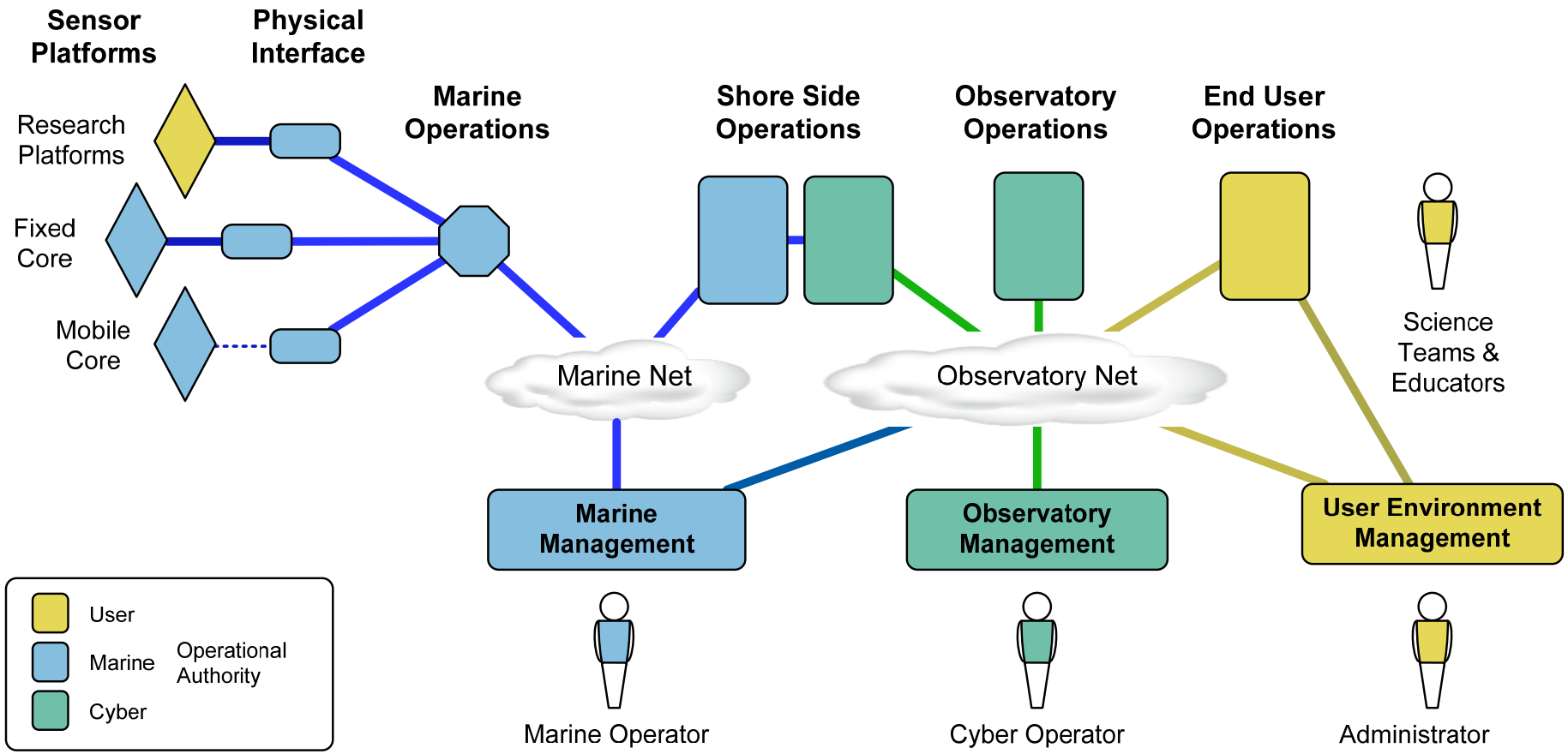
110 x 80 km

Glider Region

150 x 130 km



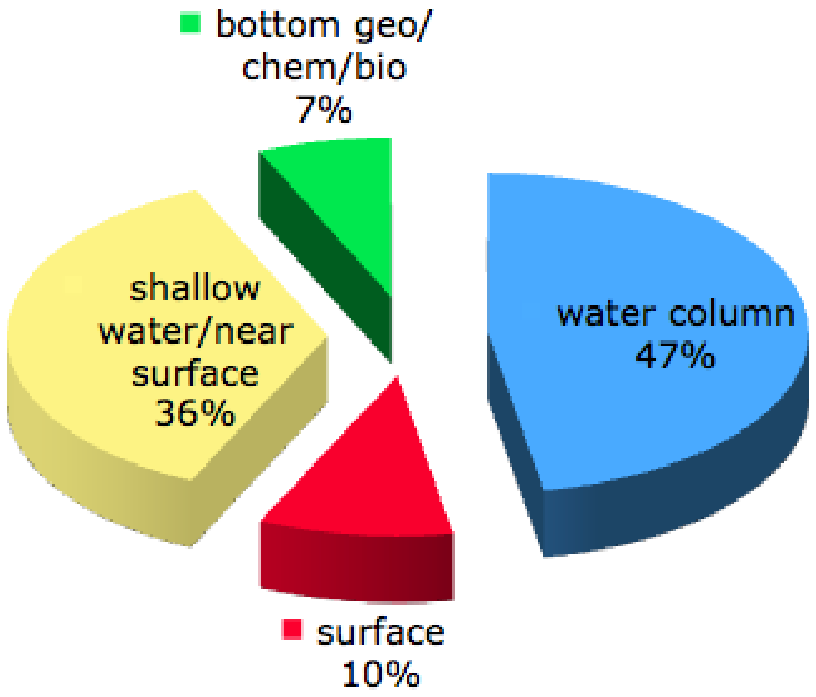
Plueddemann (WHOI)



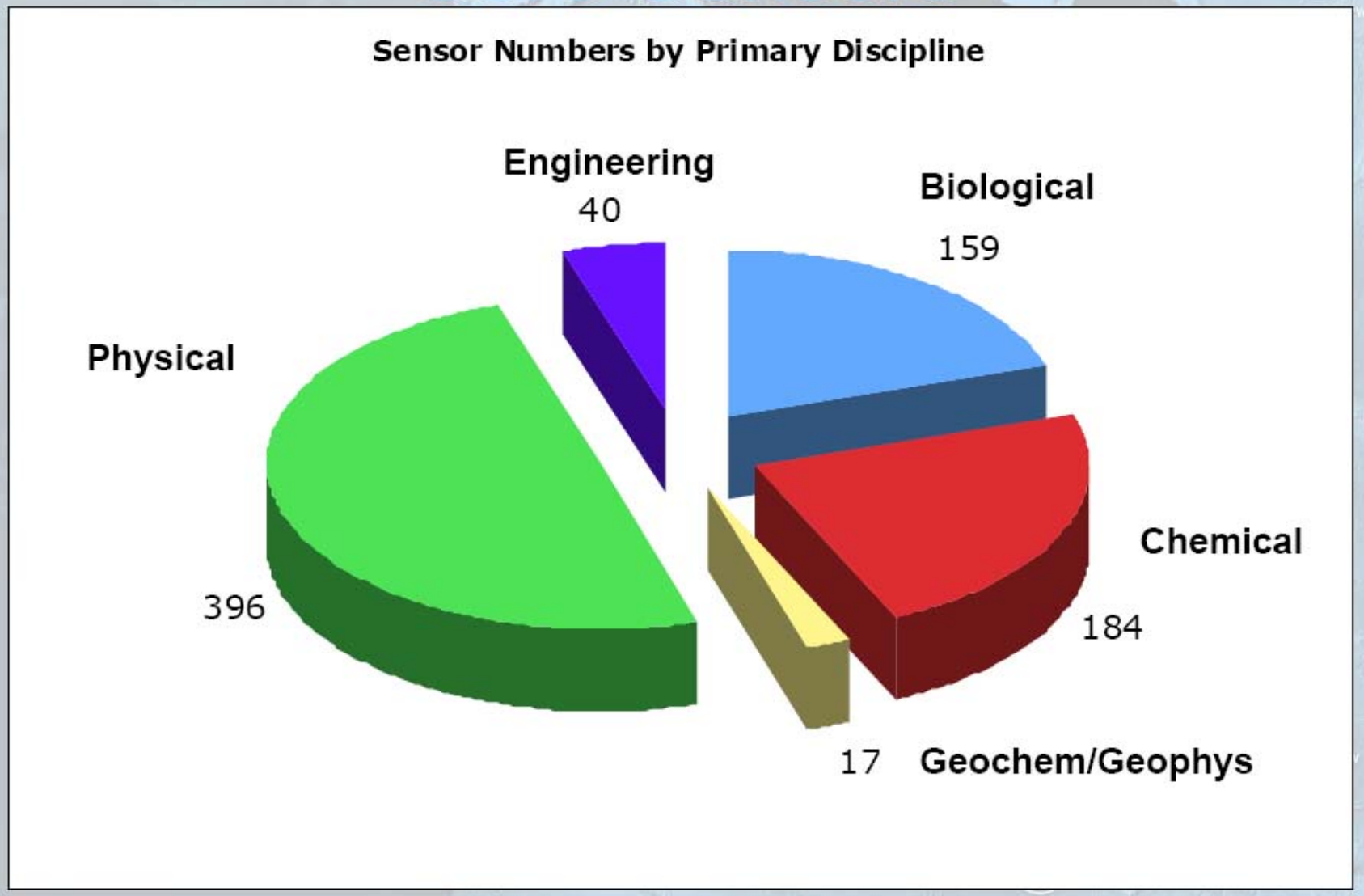
Integrated Observatory Operational Domains

Water Column	Sensor Type	#
	Acoustic Doppler Current Profiler	39
	Conductivity/Temp.	210
	Hydrophone	10
	Inverted echo sounder	5
	pH	37
	Velocity, single point	53
Surface		
	Waves	10
	Meteorology	18
	pCO2	36
	Direct covariance flux	10
Shallow water		
	Fluorometer	81
	Nutrients	25
	Dissolved oxygen	82
	Spectral irradiance	22
	Photosynthetically available radiation	20
	Optical absorption	31
	Zooplankton sensor	13
Bottom		
	Mass spectrometer	2
	Seafloor temperature	1
	Seismometer	13
	Camera	13
	Benthic flow	1
	Particulate DNA	1
	Vent chemistry	2
	Chemical sampling	3
	Seafloor pressure	15

Sensor Distribution



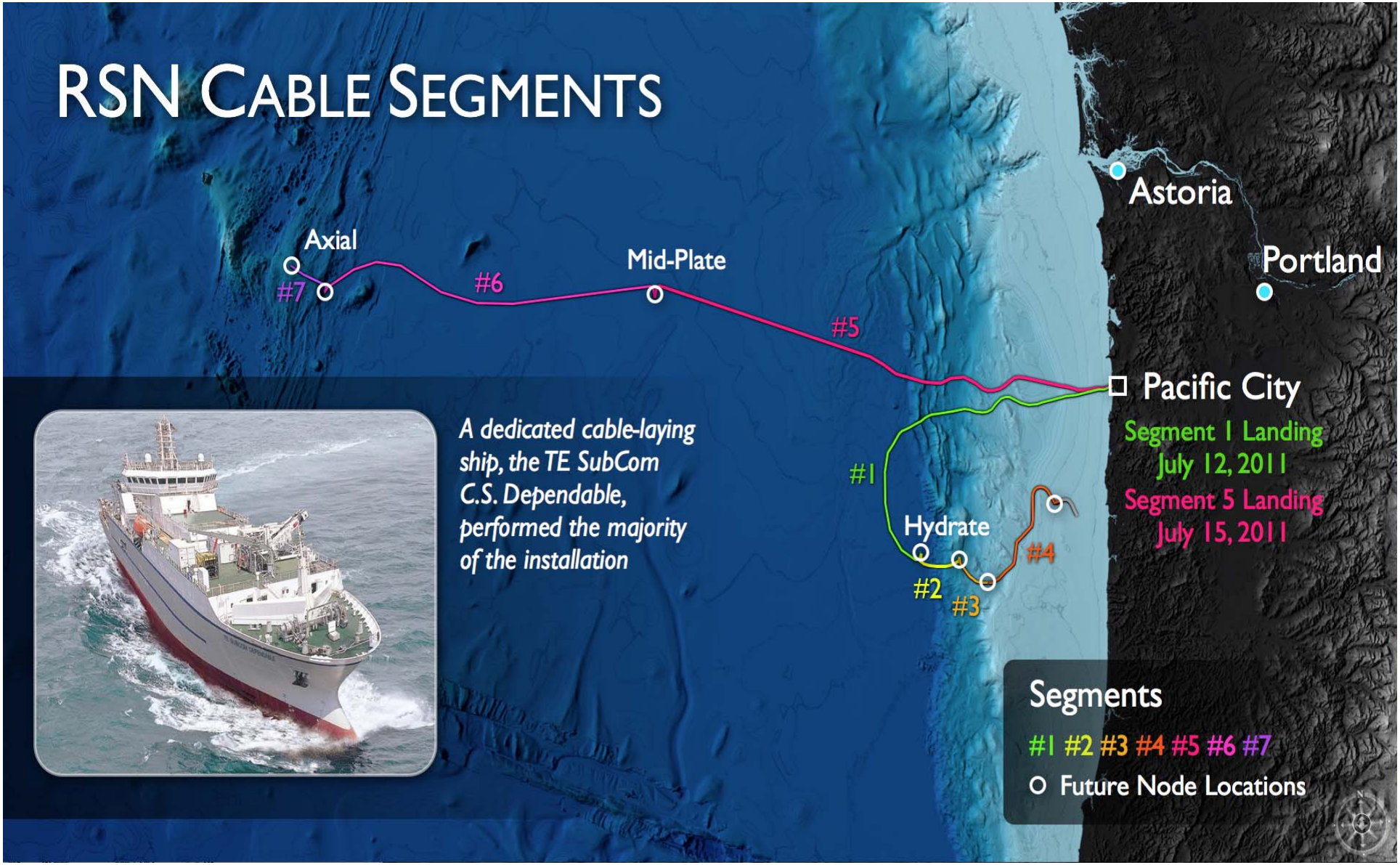
Core Sensors



Status …….since last time

- Many procurements AWARDED
  - Teledyne Webb Gliders – Coastal, Ocean
  - Hydroid – AUVs
  - CTDs (Seabird)
  - Wire Following Profilers (McLane)
- Cable is on the Ocean Floor
- Mooring Designs and tests – underway
- Release 1 of software is complete
- Education piece is awarded to Rutgers
- NSF Funded Science Workshops

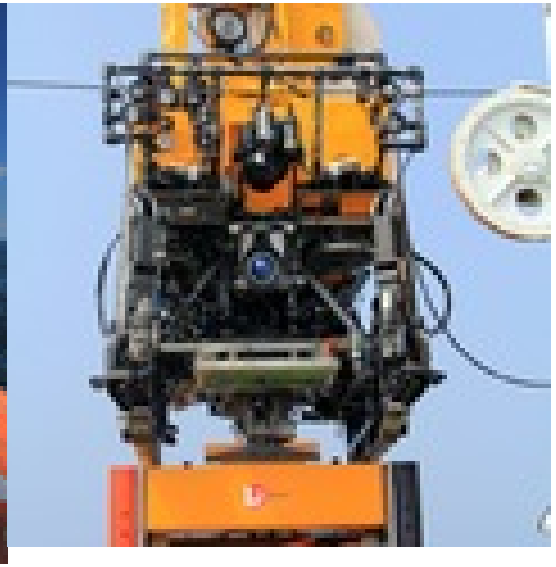
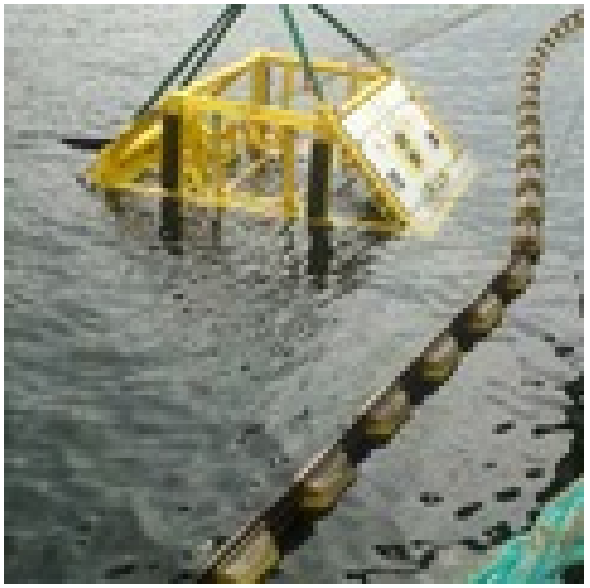
RSN Cable Segments

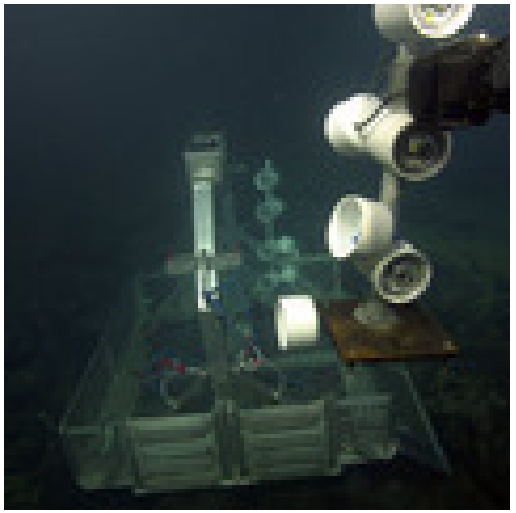


Plow on Deck….

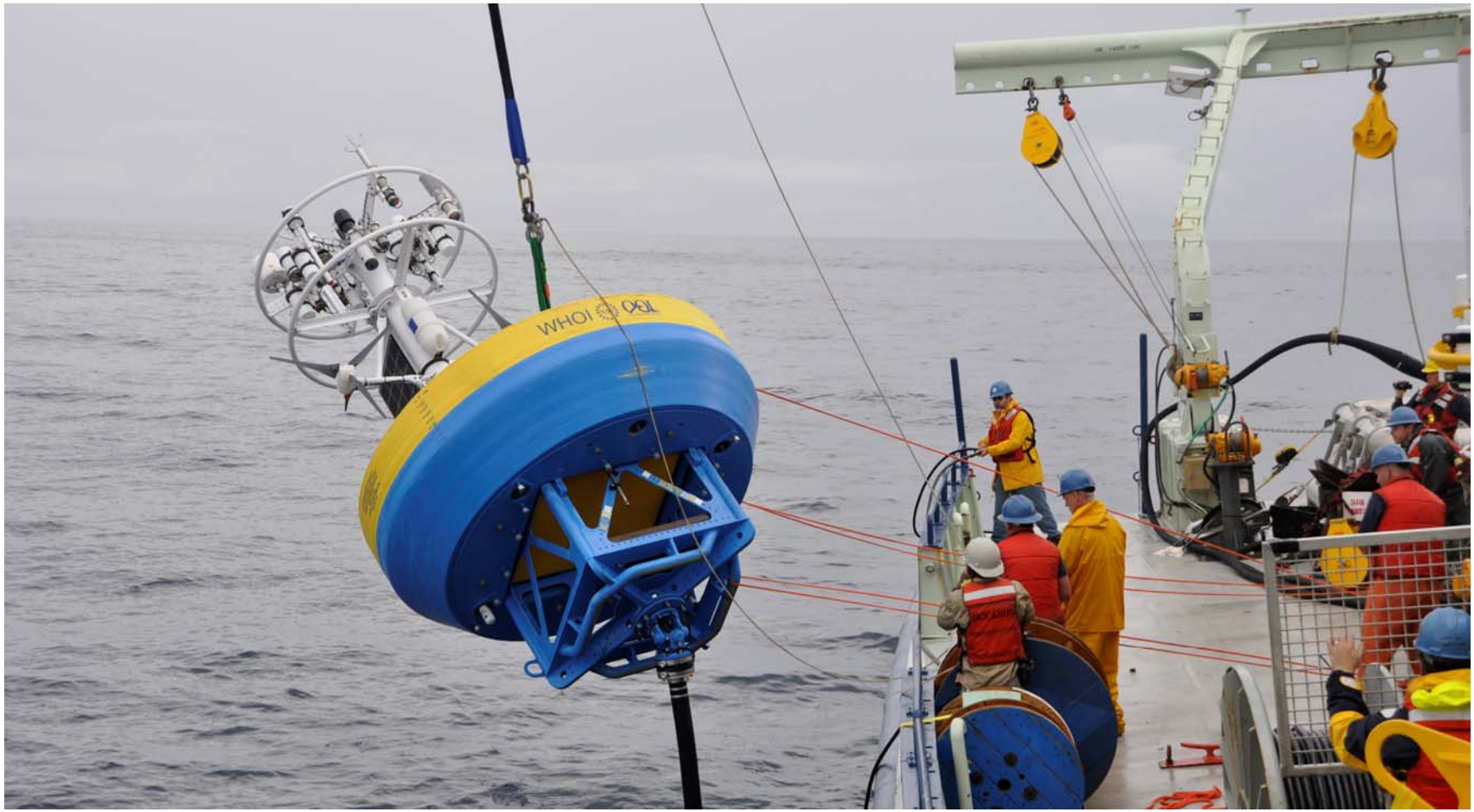
The Cable Has Landed!

Cruise this summer

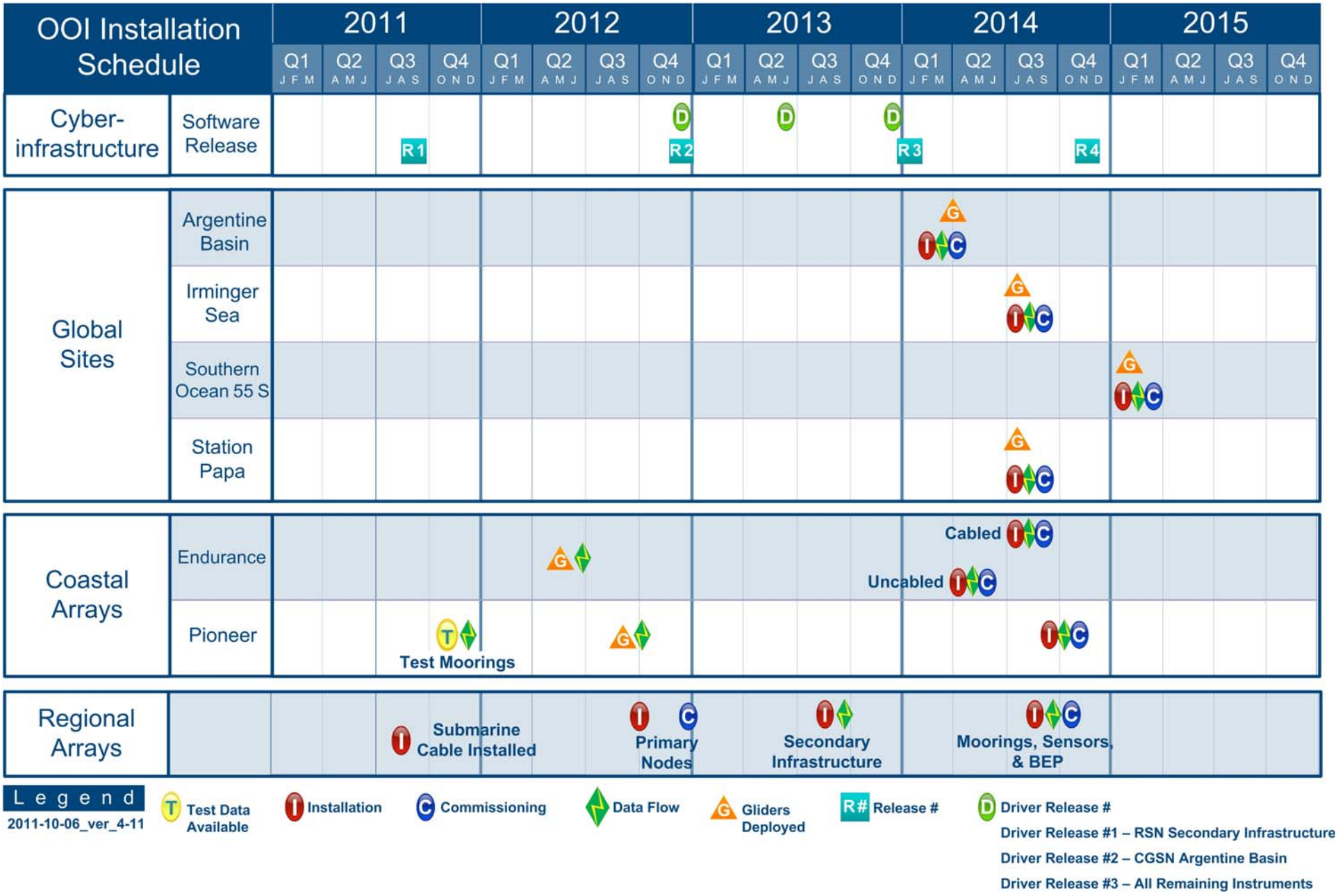



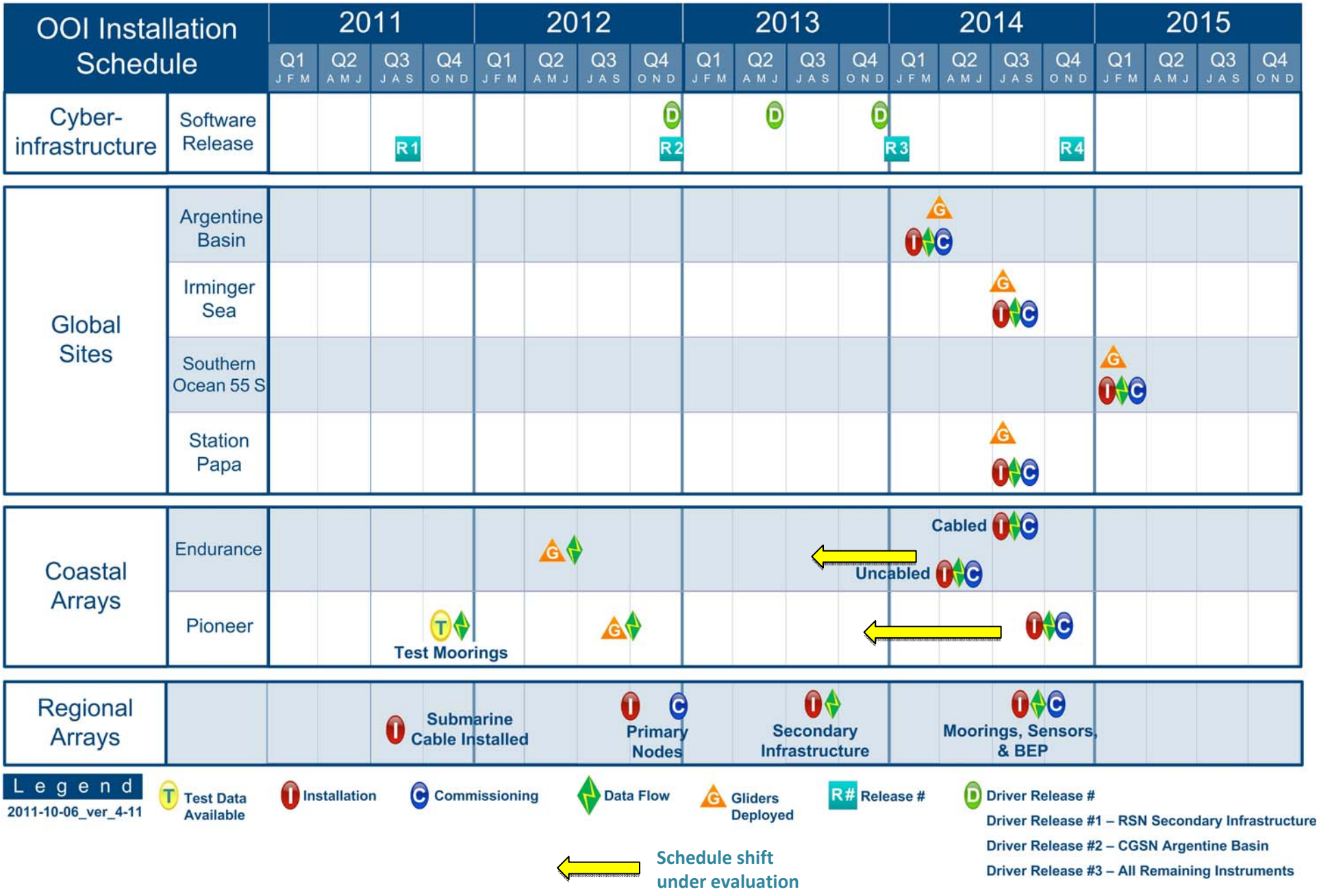
Test Mooring Development



Global Hybrid Profiler

West Coast Tests


OOI Installation Schedule
2011
2012
2013
2014
2015
Q1 J F M
Q2 A M J
Q3 J A S
Q4 O N D
Cyber-infrastructure
Software Release
R1
R2
R3
R4
Global Sites
Argentine Basin
Irminger Sea
Southern Ocean 55 S
Station Papa
Coastal Arrays
Endurance
Cabled
Uncabled
Pioneer
Test Moorings
Regional Arrays
Submarine Cable Installed
Primary Nodes
Secondary Infrastructure
Moorings, Sensors, & BEP
Legend
2011-10-06_ver_4-11
Test Data Available
Installation
Commissioning
Data Flow
Gliders Deployed
Release #
Driver Release #
Driver Release #1 – RSN Secondary Infrastructure
Driver Release #2 – CGSN Argentine Basin
Driver Release #3 – All Remaining Instruments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Schedule shift under evaluation