



IOOS

INTEGRATED OCEAN OBSERVING SYSTEM™

NOAA's Integrated Ocean Observing System (IOOS) Program

**Brief to PACOOS Board of Governors Meeting
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by

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- Background on NOAA's IOOS Focus:
 - Organize for success
 - Data Integration
- Organizational Relationships
- Program Staff Assignments
- Link to GEOSS
- Regional Collaboration
- The IOOS Challenge: Data Integration
- NOAA's Initial Operating Capability: Data Integration Framework
- Summary
- Questions & Comments



Background on NOAA's IOOS Focus

Organize for Success	Integrate Data
<ul style="list-style-type: none">• Establish NOAA IOOS Program Office<ul style="list-style-type: none">– Lead and manage NOAA's IOOS efforts• Support external collaboration<ul style="list-style-type: none">– Identify and encourage similar data integration, test and evaluation approach by partners	<ul style="list-style-type: none">• Develop a Data Integration Framework as the Initial Operating Capability<ul style="list-style-type: none">– Integrate priority IOOS core variables and deliver to end users and models– Quantify product improvements

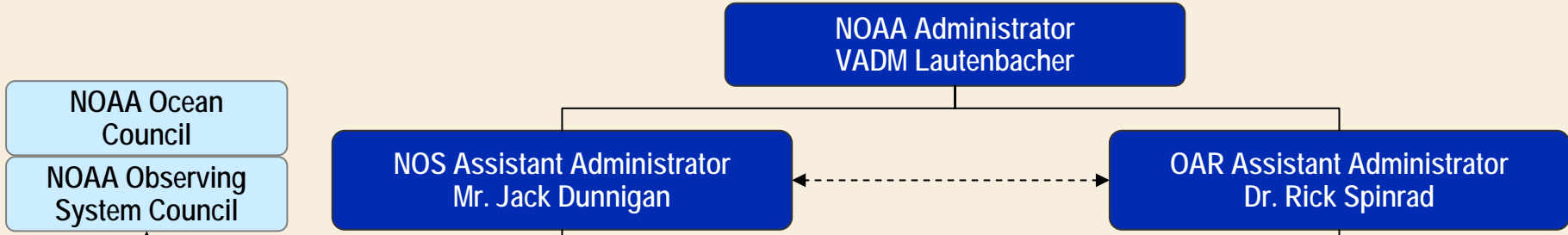


NOAA IOOS Definition:

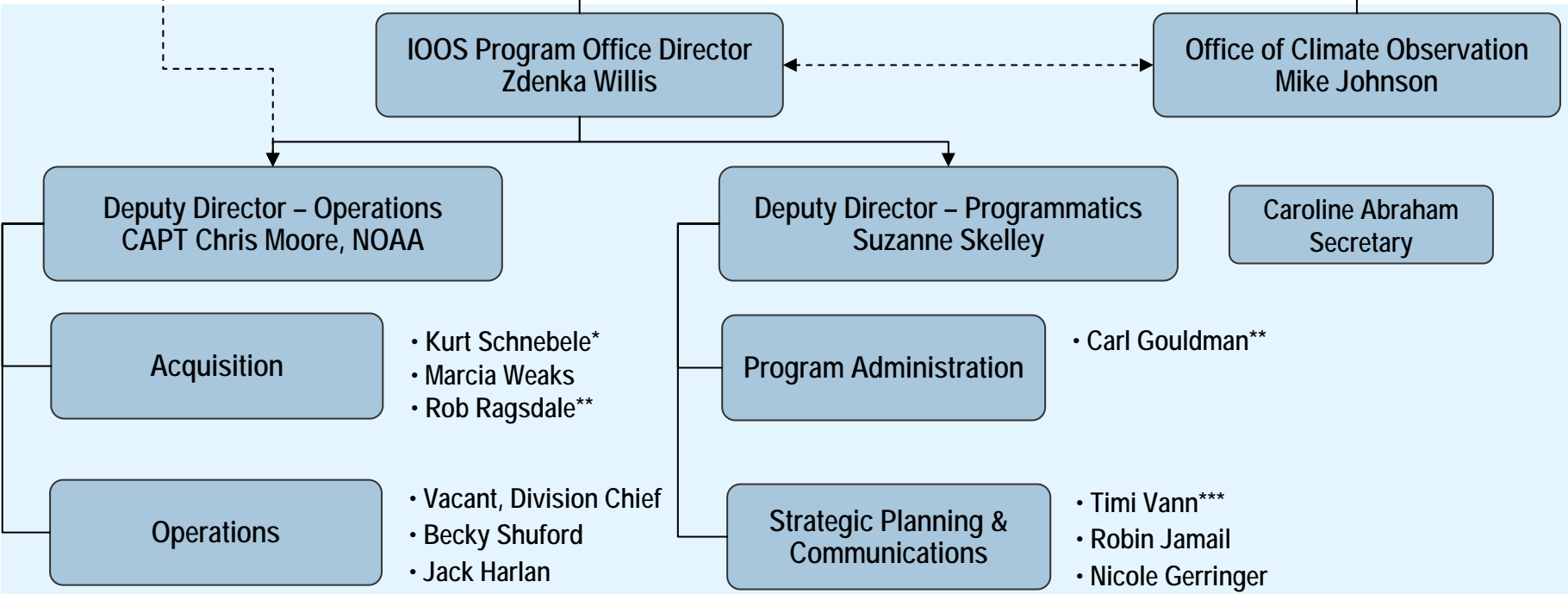
The U.S. Integrated Ocean Observing System (IOOS) is a coordinated network of people and technology that work together to generate and disseminate continuous data on our coastal waters, Great Lakes, and oceans. IOOS is our nation's ocean contribution to an international effort called the Global Earth Observation System of Systems (GEOSS), which is designed to continuously and comprehensively monitor Earth and transmit observations globally. IOOS supports both a coastal and global component of ocean observing.

NOAA IOOS Activities

IOOS Oversight



IOOS Program Office

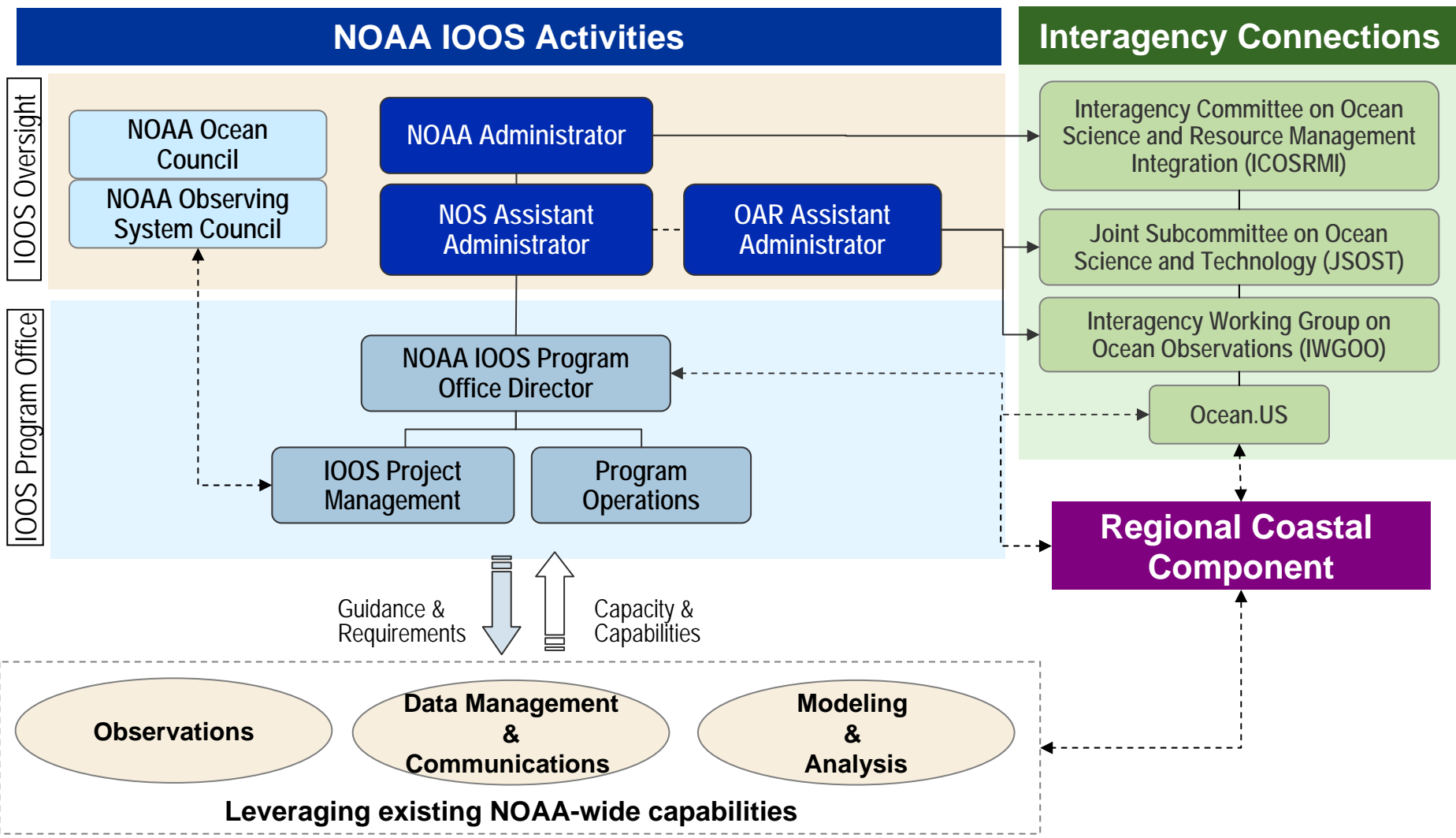


* DMAC Focal Point, Ocean.US

** IWGOO, ExecSec

***IWGOO, NOAA

NOAA's Organizational Relationships

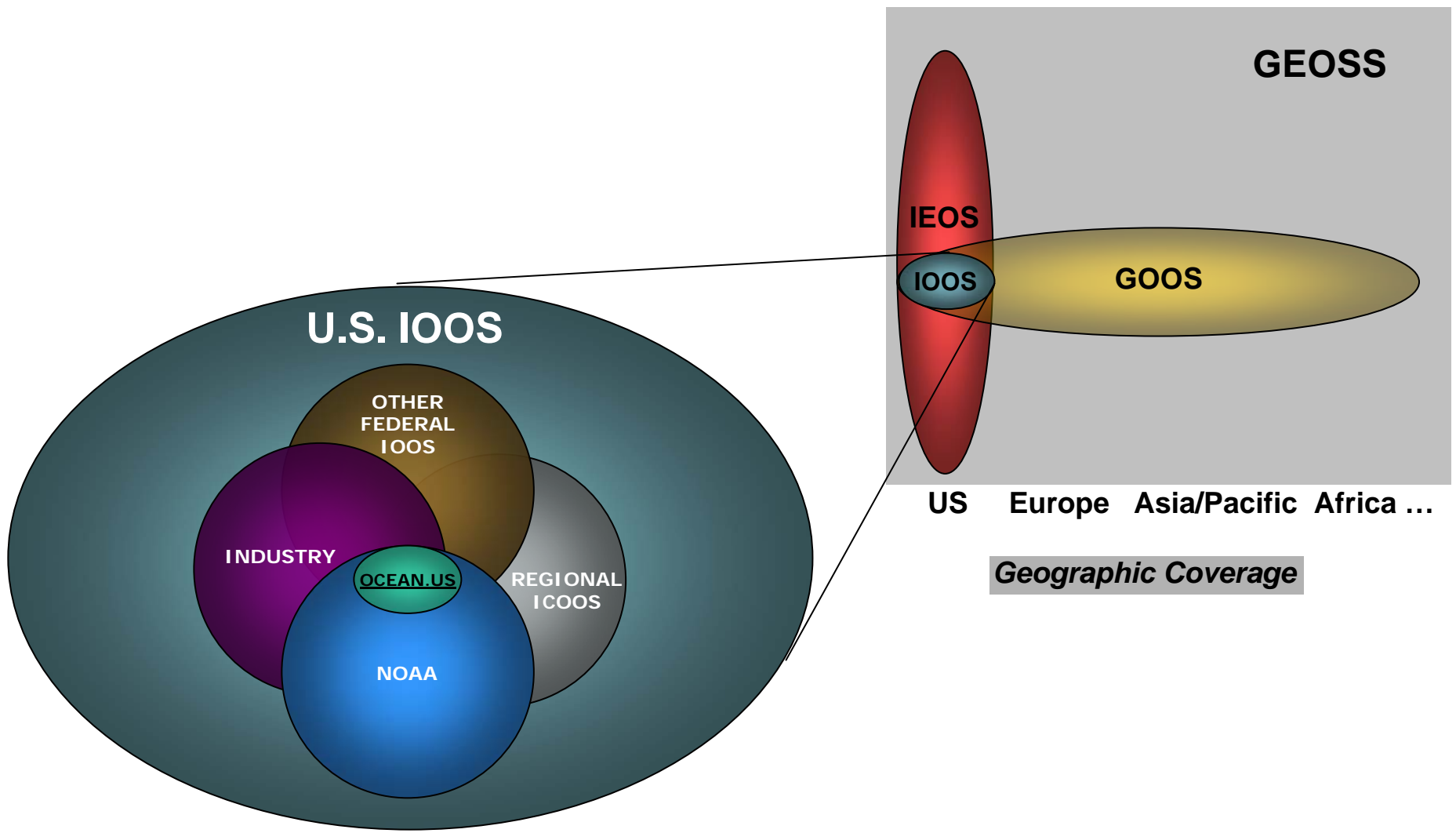


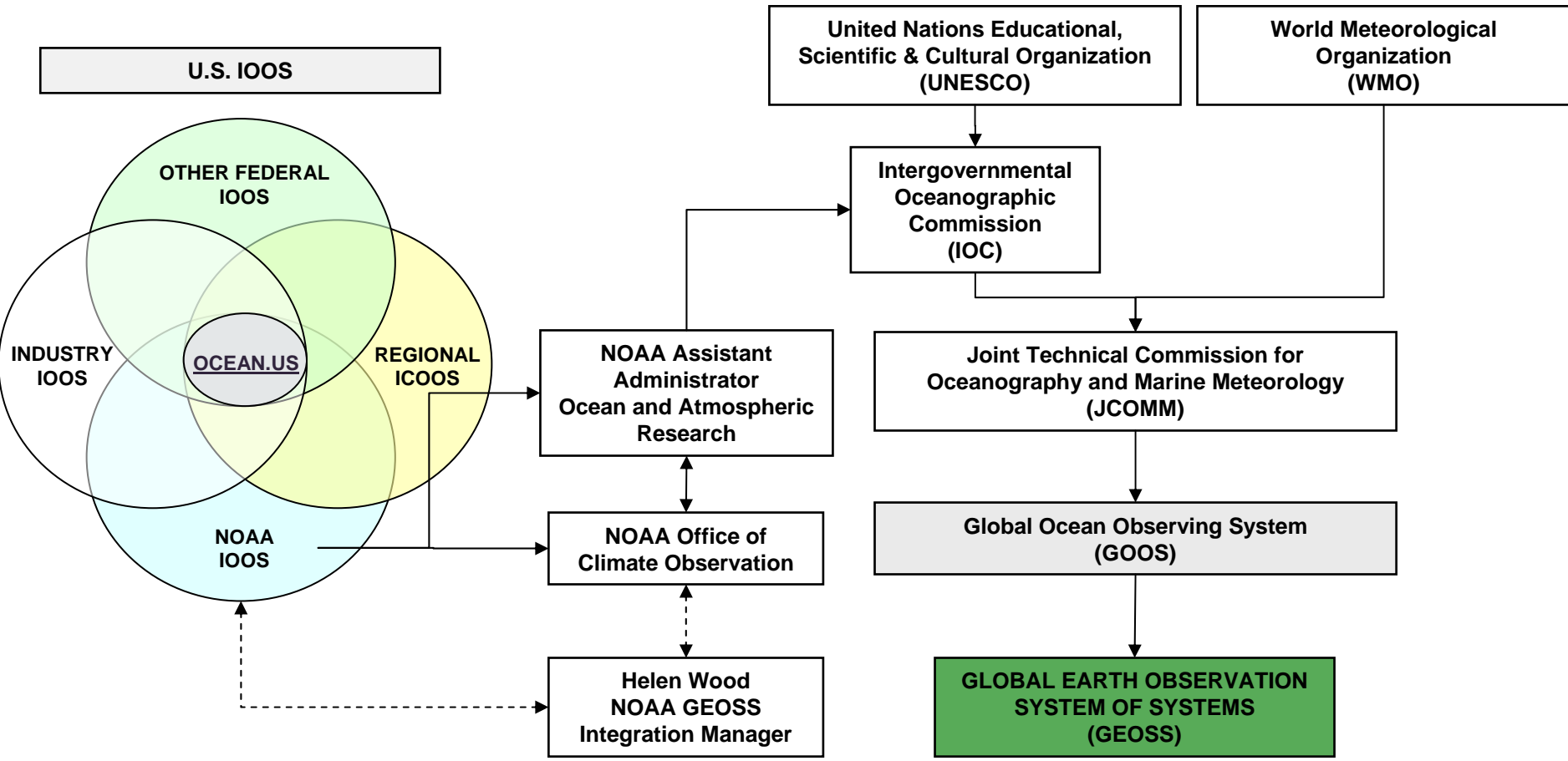


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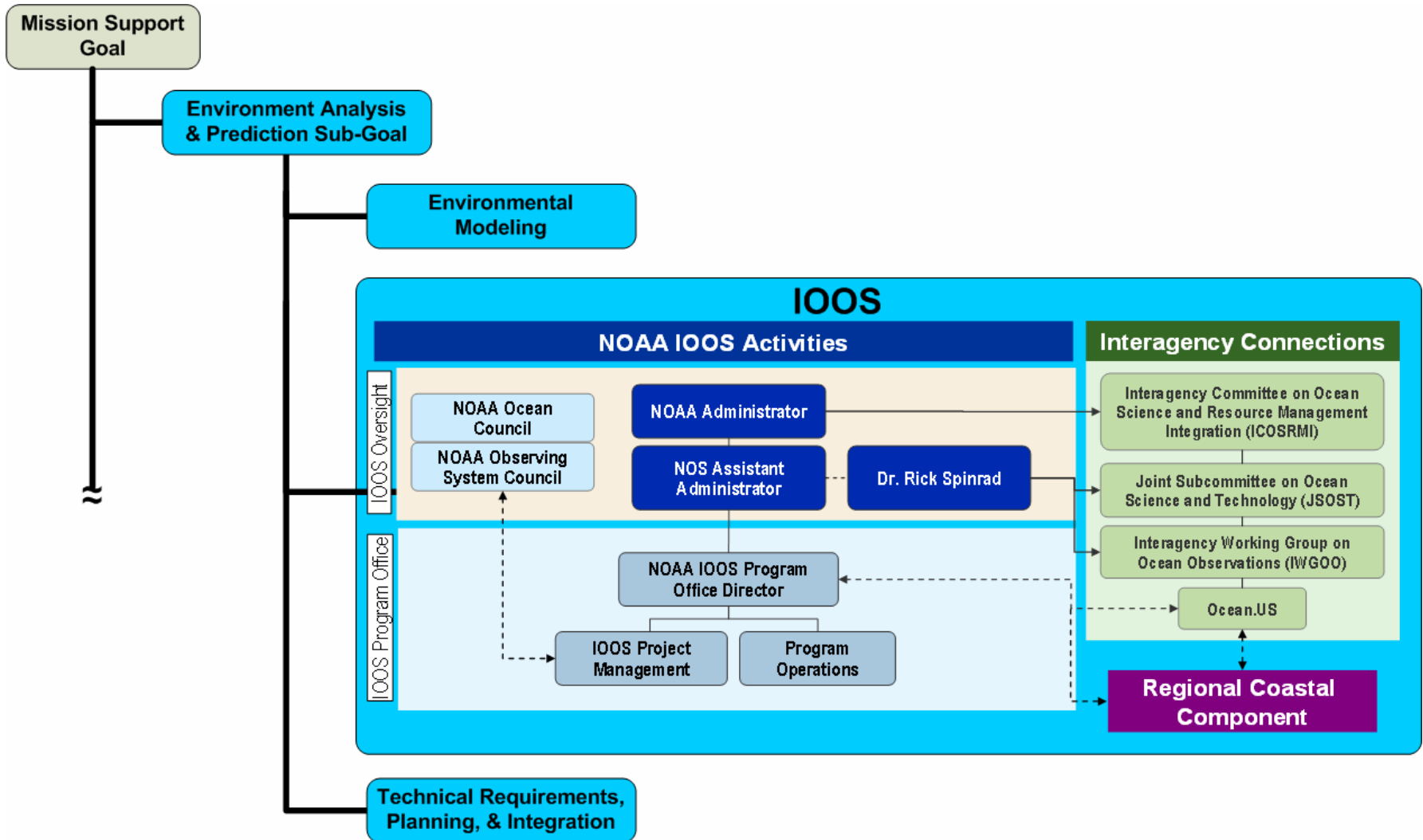
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NOAA IOOS Link to GEOSS





Budget-Goal Alignment & Governance Model



NOTE: Pre-Decisional View as a Sub-Goal



NOAA IOOS Program Interfaces for Regional Implementation

PLANNING:

NOAA IOOS Program Office

- Strategic direction and outreach
- NOAA IOOS planning and budgeting
- Develop NOAA's Initial Operating Capability
- Lead NOAA's interagency planning and coordination – e.g., rep to IWGOO, DMAC.
- Coordinate execution of grants and contracts with CSC
- Liaison with CSC and RAs to understand needs
- Interface to NFRA on policy issues
- Coordinate liaison to regions conducted by customer support interfaces (larger than IOOS):
 - National Sea Grant College Program
 - National Marine Sanctuary Program
 - National Estuarine Research Reserve System
 - Office of Response and Restoration
 - Geodesy
 - Center for Operational Oceanographic Products

IMPLEMENTATION:

NOAA Coastal Services Center

- Administer cooperative agreements & COTS grants
- Design and implement competitive award process
- Assist RAs in needs assessments
- RA advocacy in NOAA planning and budgeting
- Interface to NFRA on regional projects
- Support DMAC, and development of coastal management tools that utilize IOOS assets
- Develop case studies and success stories of IOOS data enhancing coastal communities

NOAA National Data Buoy Center

- Collect observations for QC and distribution to GTS
- Organize QA/QC community workshops.
- Support DMAC through standards definition
- Host National HF Radar server
- Provide sensor and technology expertise



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Integration

- Integration is the process by which the different parts of NOAA's ocean observing systems data are made a functional and structural whole by reducing barriers among line organizations to transactions and to movement of data, including harmonization of processes and the establishment of standards.
- In a systems design sense, this integration can be viewed as the process that allows separate functions to use a common technology and database, pass data and information without requiring translation, reformatting or duplicate entry, and enable cross functional views and management.
- In the business operations sense, it is a strategy of controlling the sources that supply the data such as CO-OPS, NDBC, NCDDC, etc., and the individual observing components (backward integration) and the method of distributing the data (forward integration).

The IOOS Challenge: Data Integration

Societal Challenges

- Global climate not well understood
- Coastal populations at risk
- Ocean, coastal, and Great Lakes ecosystems at risk

Information Needs

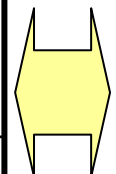
- Characterize the state of the global climate system and its variability
- Improved models (e.g., hurricane intensity, coastal inundation, and harmful algal bloom model)
- Improved ecosystem assessments
- Updated management approaches
- Improved access to data, and scientific information

IOOS Core Variables

- Temperature
- Salinity
- Sea Level
- Surface currents
- Ocean color
- Bathymetry
- Surface waves
- Ice distribution
- Contaminants
- Dissolved nutrients
- Fish species
- Fish abundance
- Zooplankton species
- Optical properties
- Heat flux
- Bottom character
- Pathogens
- Dissolved O₂
- Phytoplankton species
- Zooplankton abundance

Decision Tools

- Hurricane Intensity Model
- Coastal Inundation Model
- Harmful Algal Bloom Model
- Integrated Ecosystem Assessment



Integration
Long-term data series, coordinated in space and time





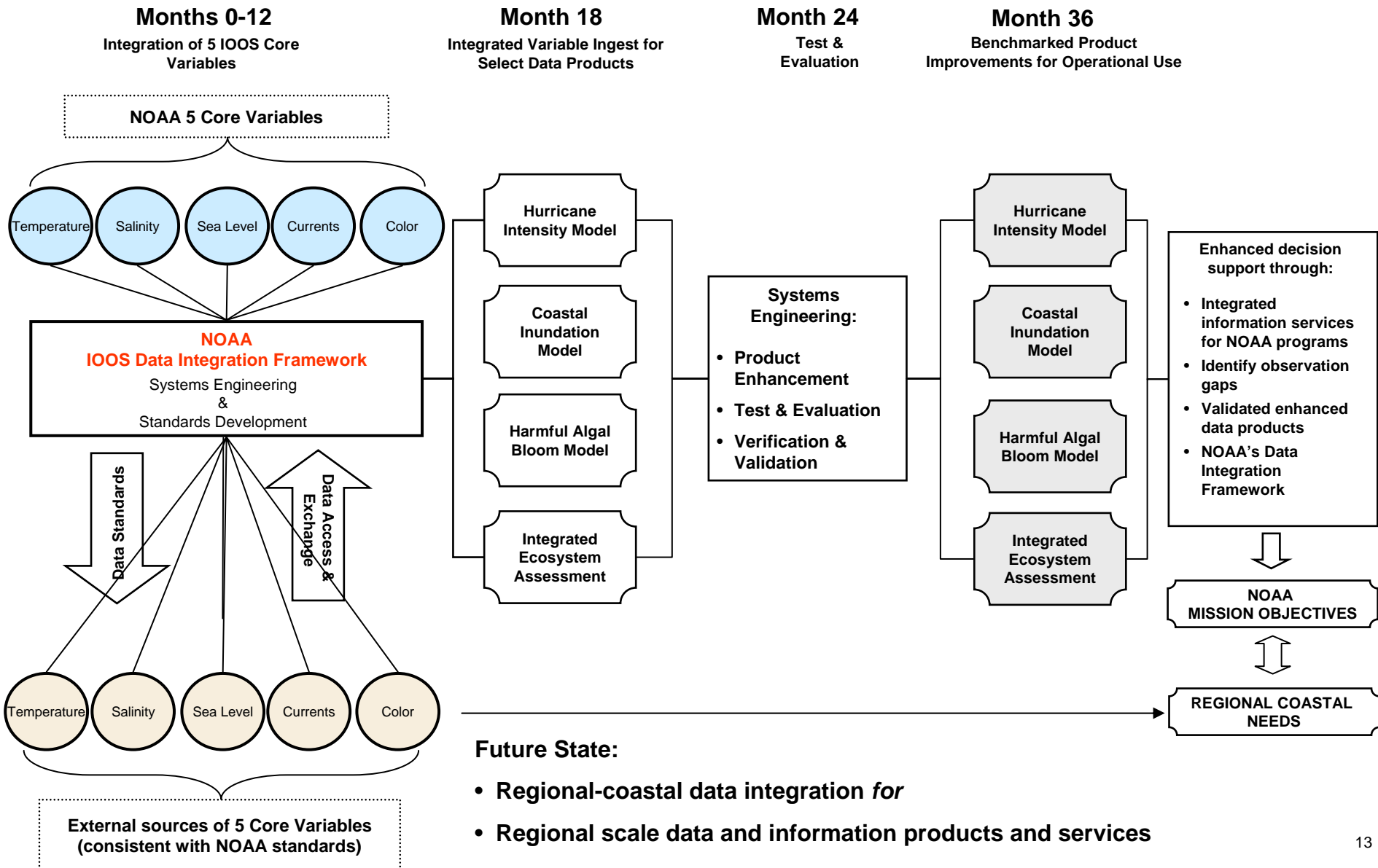
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What's the DIF?

- The NOAA Data Integration Framework is a risk-reduction effort to better define the technical requirements and risks on a small scale and at a low cost before proceeding further on a larger scale and higher costs.
- There are two hypotheses being tested in establishing this framework (1) That NOAA has the ability to integrate data with the current organizational structure, regulations, and decision processes (2) that there is value to this integration that can be measured.
- The DIF has selected the top 5 prioritized variables from the IOOS Development guide as the first variable it will attempt to integrate and deliver to 4 models/applications with no further processing required due to the method of transport for ingest into its processes.

Initial Operating Capability: Data Integration Framework



- NOAA is advancing IOOS through improved organization, management, and focus
 - The process for establishing a NOAA IOOS Program Office is underway
 - The NOAA IOOS Program Office is building an Initial Operating Capability (IOC) for IOOS
 - The IOC will be tested, evaluated, and benchmarked for success
- NOAA continues to coordinate larger U.S. IOOS efforts with federal and international partners through participation in inter-agency forums
- NOAA continues to support development of the regional component of IOOS to enable a fully configured and scalable U.S. IOOS



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Questions & Comments