

# **NOAA CHIEF SCIENTIST UPDATE**

to the NOAA Science Advisory Board

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# STATEMENT OF TASK



“Build a **robust portfolio logic** for NOAA’s research enterprise as reflected in **clear strategic guidance**

that defines *critical mission-optimized operational and organizational principles and alignment of capabilities*”

# TOPICS

- **Guidance:** Strategic Research Guidance Memorandum (SRGM)
- **Process:** R2X
- **Resources:** Cl21
- **Impacts:** Bibliometric Analytics

## GUIDANCE

# Strategic Research Memorandum Guidance (SRGM)

- Issued on August 22, 2015
- Used to guide FY18 priorities
- SRGM FY19 being drafted

## SRGM FY18 Research Priorities

- Integrated Earth system processes & predictions
- Observing system optimization
- Decision science, risk assessment, & risk communication
- Data science
- Water prediction
- Arctic

# PROCESS

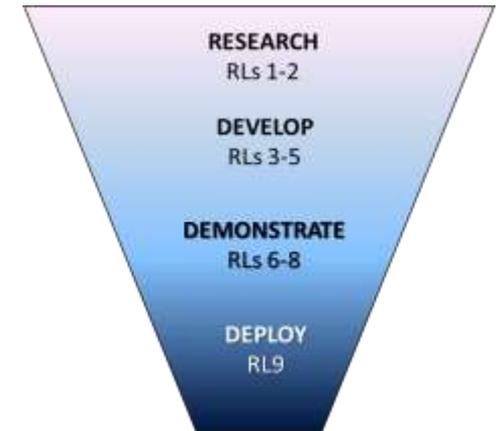
## R2X

### RTAP (Research Transition Acceleration Program)

- 16 Tier 1 projects totaling \$9M approved (FY17 Senate Appropriations mark at \$2M)
- 2 RTAP projects already started under Joint Technology Transfer Initiative (JTII)

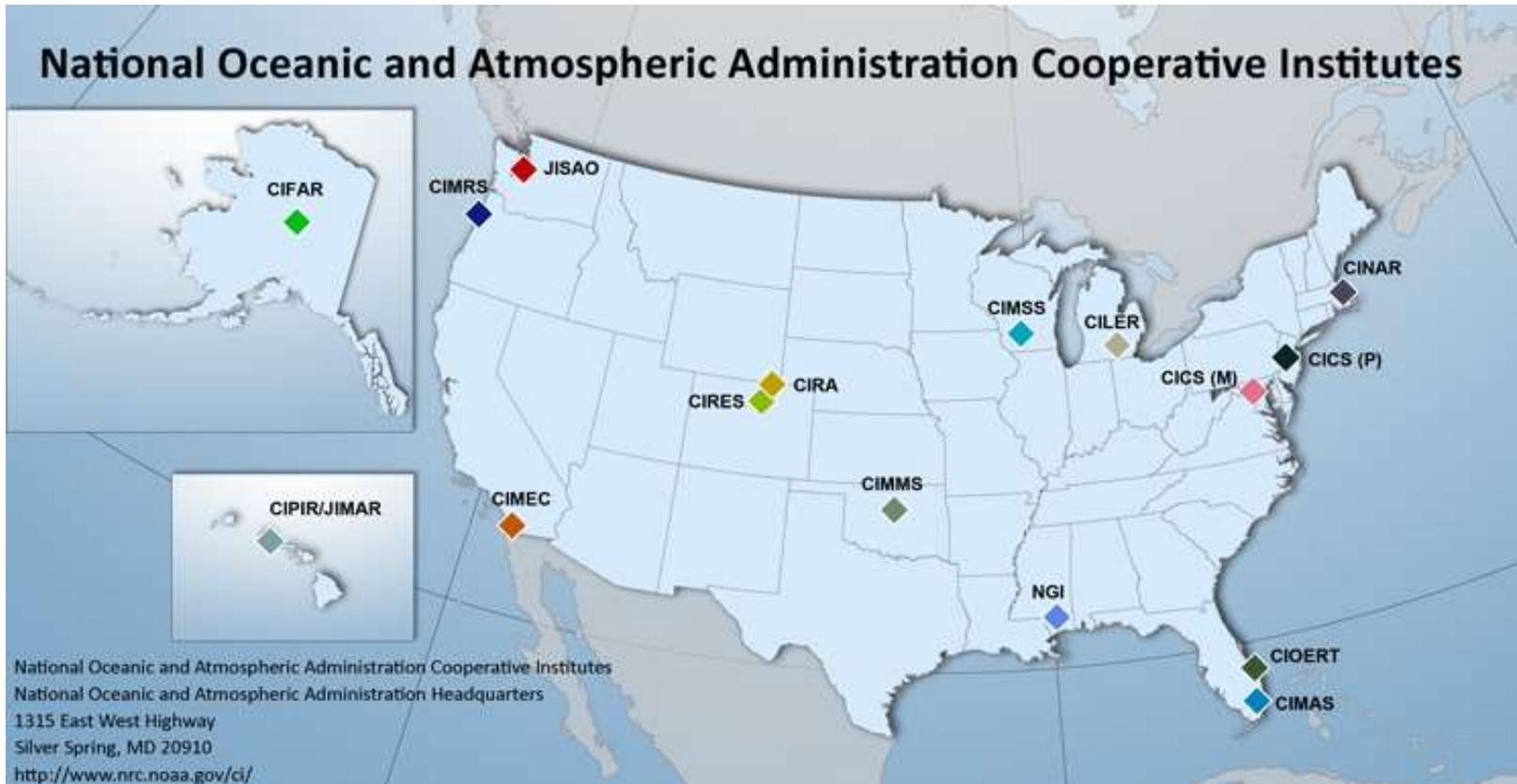
### NOAA Administrative Orders (NAO)

- **“Policy on Research and Development Transitions”** (NAO 216-105A) - Completed as of 12/3/2015
- **Handbook for NAO 216-105A** - under development
- **“Strengthening NOAA’s Research & Development Enterprise”** (NAO 216-115) – revising to codify SRGM principles



## RESOURCES

# NOAA Cooperative Institutes



NOAA's 16 Cooperative Institutes consist of 42 universities and research institutions across 23 states and the District of Columbia.

Approximately \$1 billion went to CIs in the last 5 years.

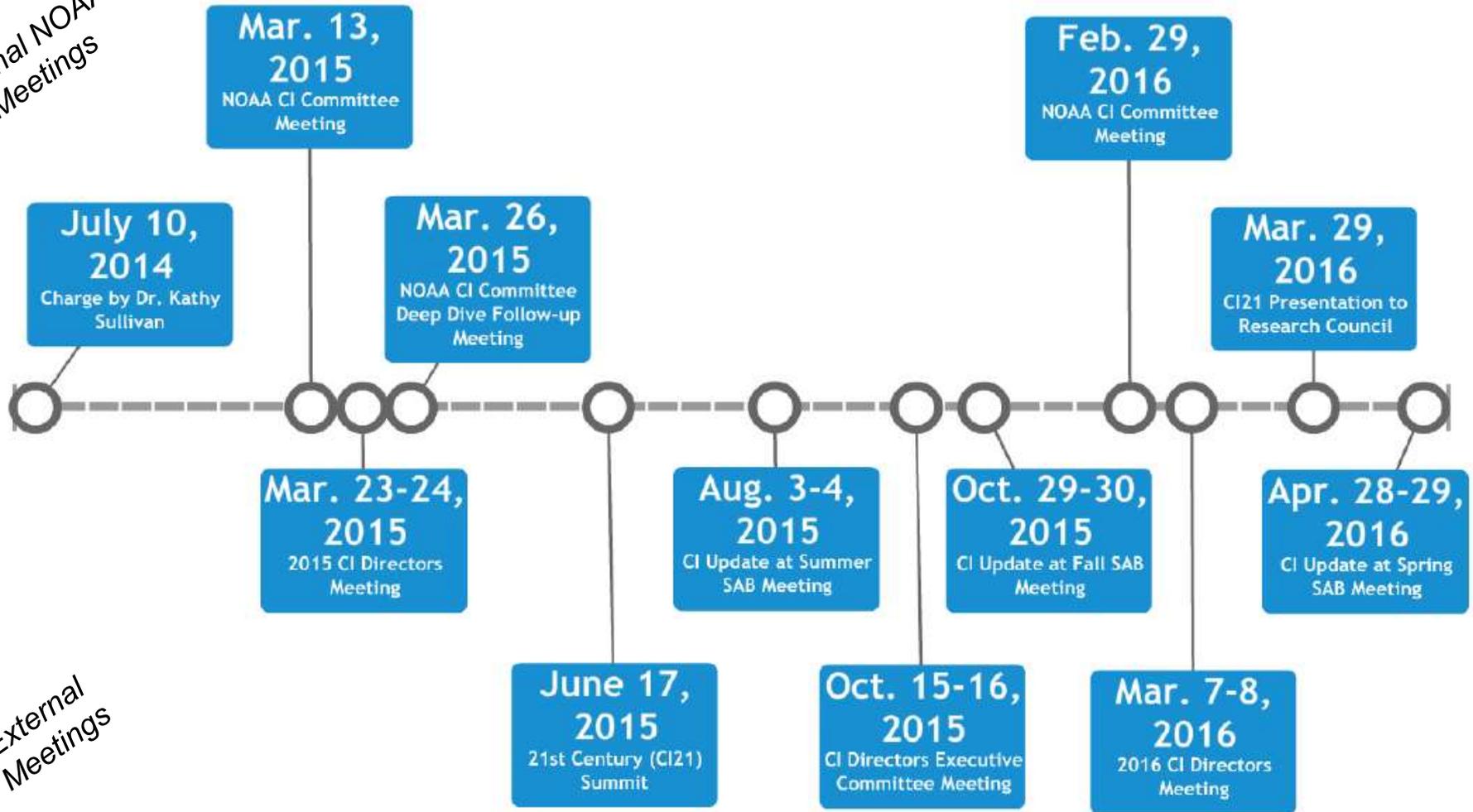
# Why CI21?

NOAA's Cooperative Institute (CI) Program is a unique and powerful tool addressing the cutting edge research & development needs of the NOAA Line Offices and the missions they are required to meet.

In July 2014, NOAA Administrator Dr. Kathryn Sullivan charged the Office of the Chief Scientist to work with the directors of NOAA's Cooperative Institutes (CIs) to prepare the CI program for the challenges they will face in the 21st century

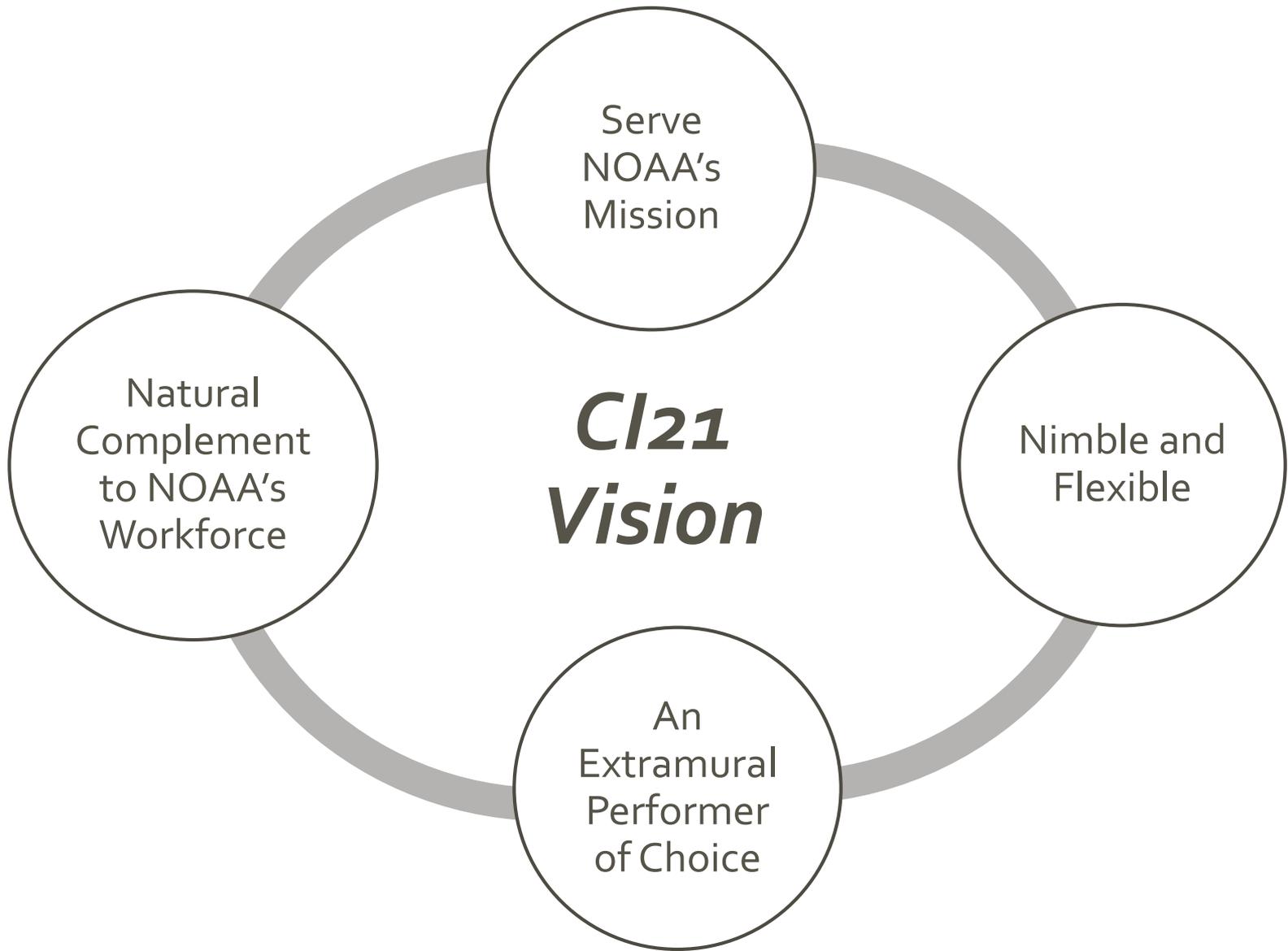
# Timeline

Internal NOAA Meetings



External Meetings





# Key Findings

- Strategies needed for coordination
- Cost and effectiveness assessment
- NOAA central point of contact for CIs
- Task 1 funding consideration for resourcing & consistency
- Challenge dealing with high turnover in CI workforce
- Increasing need for partnerships with the private sector

# Recommendations Overview

NOAA and Cooperative Institutes staff developed a set of **22 draft recommendations** to improve the CI portfolio systematically. They have been categorized by **four key areas** and **three different timescales**.

## Key Areas



Mission Alignment and Enhancement

Work Force Development

Finance and Management

Private Sector Engagement

## Timescales



ST Short-term (6-9 months)

MT Medium-term (1-3 years)

LT Long-term (3-5 years)

# Strategic and Tactical Recommendation **Examples**

## Mission Alignment and Enhancement

- Conduct a review of CI research themes and efforts (MT)
- Develop thematic language that promotes social science (ST)

## Work Force Development

- Establish fair and consistent use of best practices for CI employee career advancement (MT)
- Recruit and train a more diverse workforce (LT)
- Develop a workforce management plan to ensure flexibility for grad students and postdocs, and stability for core staff/faculty (MT)

# Strategic and Tactical Recommendation **Examples**

## Finance and Management

- Establish a NOAA lead Technical Program Manager (ST)
- Conduct an RFI towards a cost-benefit analysis (MT)

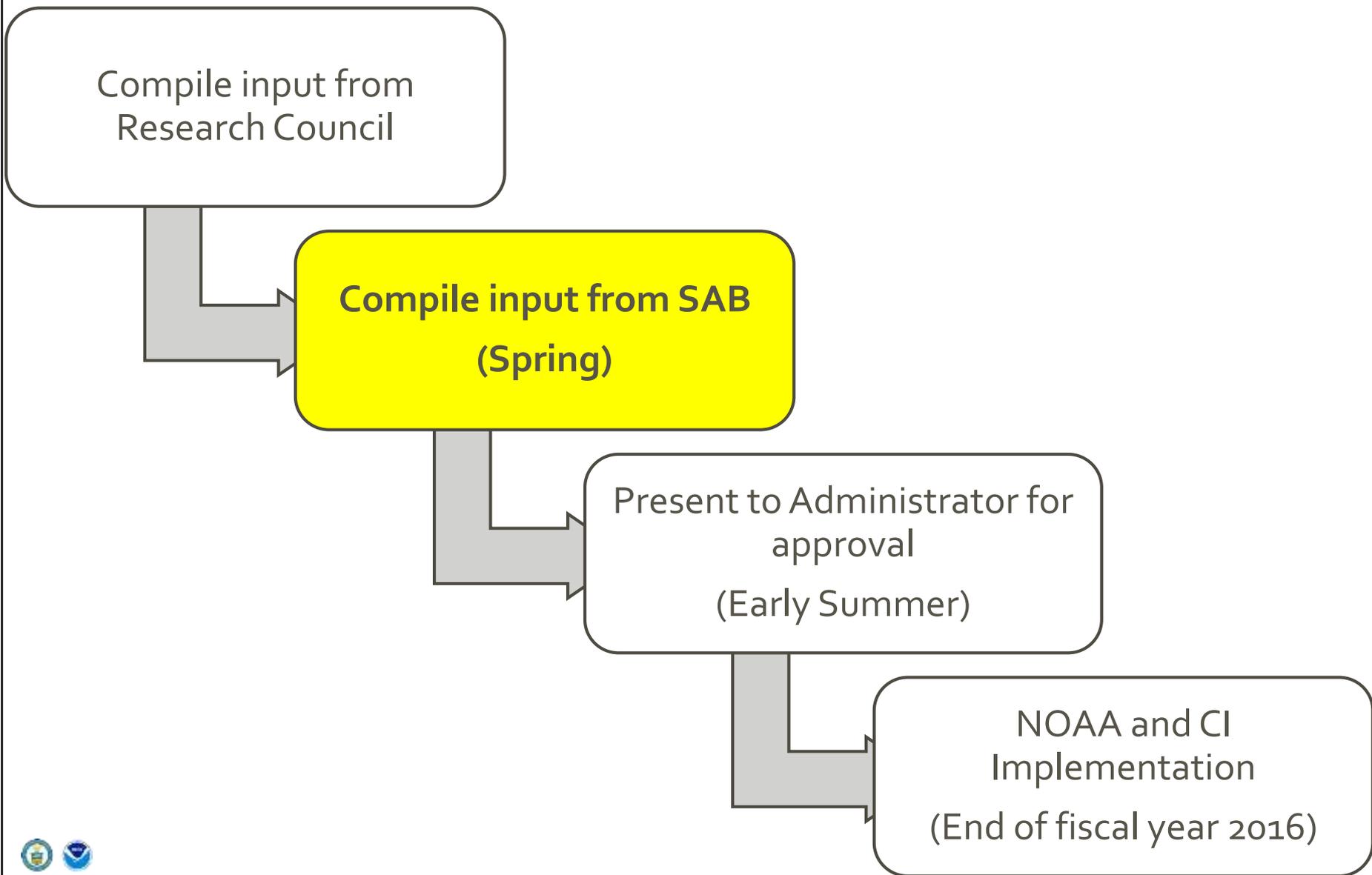
## Private Sector Engagement

- Develop opportunities for students at their institutions to conduct externships (MT)
- Create incentives to encourage CIs to identify PS needs and establish relationships that benefit all parties (LT)

# From Senate Appropriations Committee Report (4/21/16)

"Additionally, as part of its "Cooperative Institutes in the 21st Century" [CI21] initiative, the Committee directs NOAA to consider how additional ocean and coastal Cooperative Institutes could support NOAA's mission objectives, including those related to coastal resilience and other key research priorities, and shall update its CI21 report with guidance explaining how new research institutions can partner with NOAA scientists to expand the Cooperative Institute network in future years."

# What are our next steps?



# Analytics

## Why?

- What is the **IMPACT** of NOAA research?



## How?

- Credible & repeatable methods, i.e. bibliometrics
  - Numbers
  - Impact
  - Engagement/Collaboration
  - Trends

# By the Numbers

## Corporate (NOAA)

**Publications  
(FY14-FY16)**

**8315**

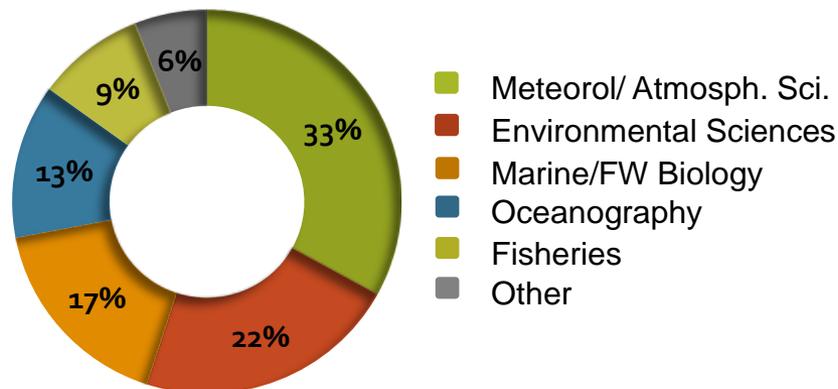
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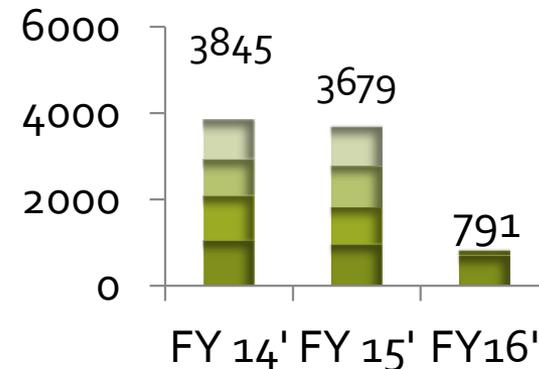
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**Publications by  
WOS Subject Area (Top 5)**



**Publications by  
Year**



## Laboratory (PMEL)

**Publications  
(FY12-FY15)**

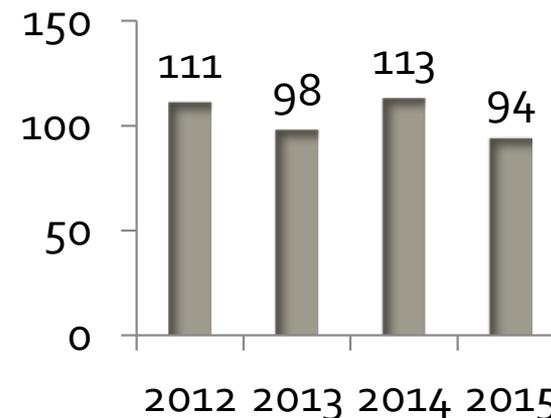
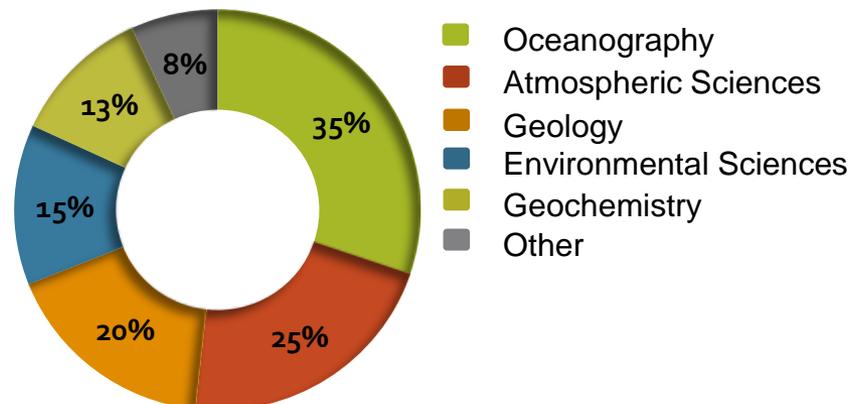
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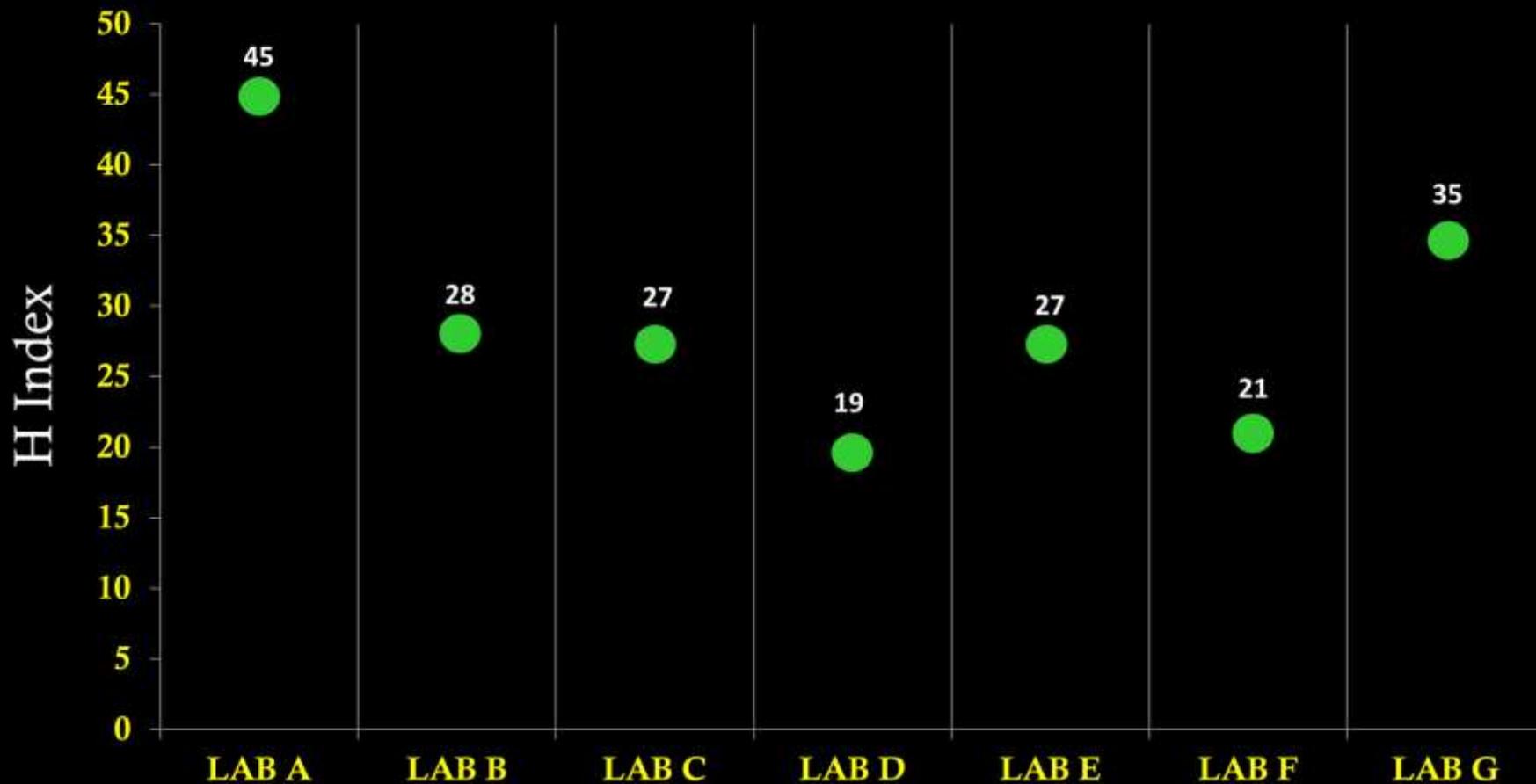
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# Impact

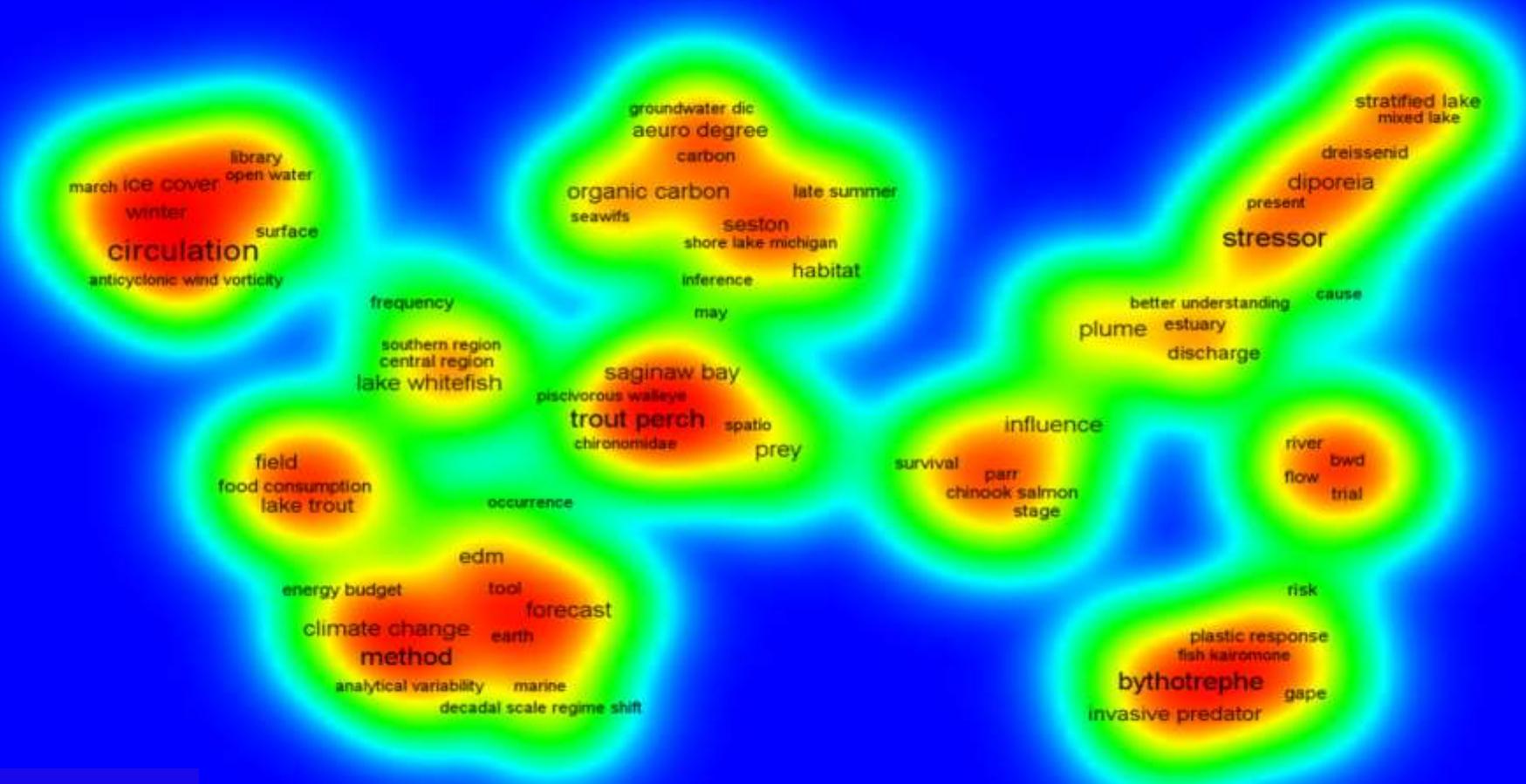
**H Index for NOAA research facilities (FY12 – FY16)**





# Trends

## GLERL Word Co-Occurrence (FY13)



# Next Steps for Bibliometric Analytics?

- Assess in terms of **TRANSITIONS**
- How should this be used?
- Where is this going?
- Sustainability?

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Chief  
Scientist's  
Report

# Thank you

[www.noaa.gov](http://www.noaa.gov)



# Additional Slides

# RL definitions

- **RL 1:** Basic research: experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view. Basic research can be oriented or directed towards some broad fields of general interest, with the explicit goal of a range of future applications (OECD, 2015);
- **RL 2:** Applied research: original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective. Applied research is undertaken either to determine possible uses for the findings of basic research or to determine new methods or ways of achieving specific and predetermined objectives (OECD, 2015).
- **RL 3:** Proof-of-concept for system, process, product, service or tool; this can be considered an early phase of experimental development; feasibility studies may be included;
- **RL 4:** Successful evaluation of system, subsystem, process, product, service or tool in laboratory or other experimental environment; this can be considered an intermediate phase of development;
- **RL 5:** Successful evaluation of system, subsystem process, product, service or tool in relevant environment through testing and prototyping; this can be considered the final stage of development before demonstration begins;
- **RL 6:** Demonstration of prototype system, subsystem, process, product, service or tool in relevant or test environment (potential demonstrated);
- **RL 7:** Prototype system, process, product, service or tool demonstrated in an operational or other relevant environment (functionality demonstrated in near-real world environment; subsystem components fully integrated into system).
- **RL 8:** Finalized system, process, product, service or tool tested, and shown to operate or function as expected within user's environment; user training and documentation completed; operator or user approval given;  
For definitions and guidance concerning NOAA Testbeds and Proving Grounds, see <http://www.testbeds.noaa.gov>
- **RL 9:** System, process, product, service or tool deployed and used routinely .