



# NOAA Science Update

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Chief Scientist

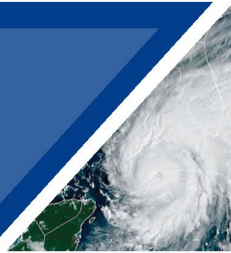
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# 2022 NOAA SCIENCE REPORT



U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



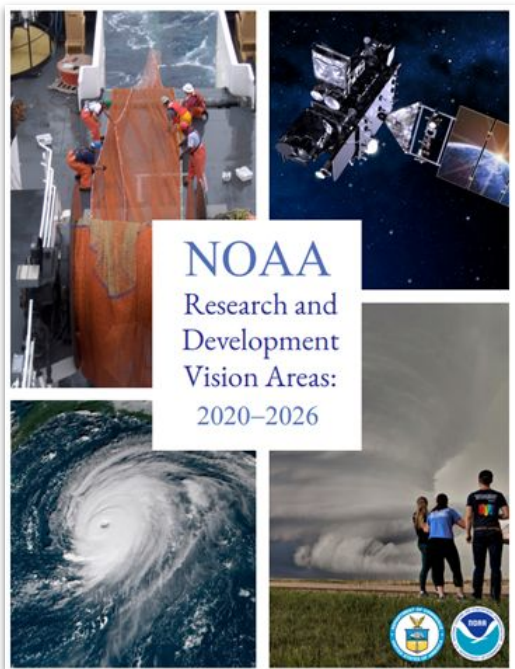
# THE 2022 NOAA SCIENCE REPORT

Released in March 2023





# The NOAA Science Report Communicates NOAA's Progress Towards Strategic R&D Goals and Societal Outcomes



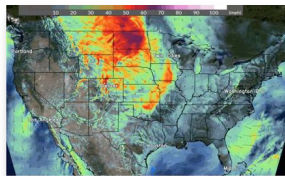
- 1. Reducing societal impacts from hazardous weather and other environmental phenomena**
- 2. Sustainable use and stewardship of ocean and coastal resources**
- 3. A robust and effective research development, and transition enterprise**



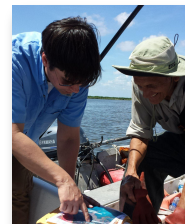
# NOAA's Robust and Effective R&D Enterprise



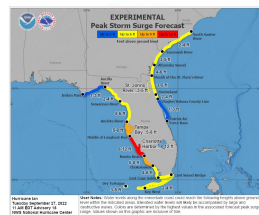
**OBSERVATIONS**



**FORECASTS**



**MODELS**



**HUMAN BEHAVIOR**

# Research Highlights

Wet Bulb Globe Temperature forecast transitions to operational

WHO CAN BENEFIT FROM

**the USE of WET BULB GLOBE TEMPERATURE**

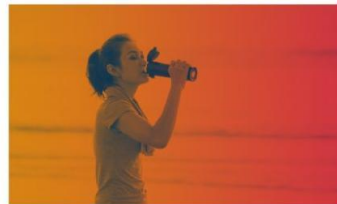
Heat is a major weather-related hazard. Although heat hazards are common in outdoor work environments or during physical activity, heat-related illness and fatalities are preventable.



**Outdoor  
Workers**



**People Doing Strenuous  
Outdoor Activities**



**Active  
People**



**Athletes and  
Marching Band**

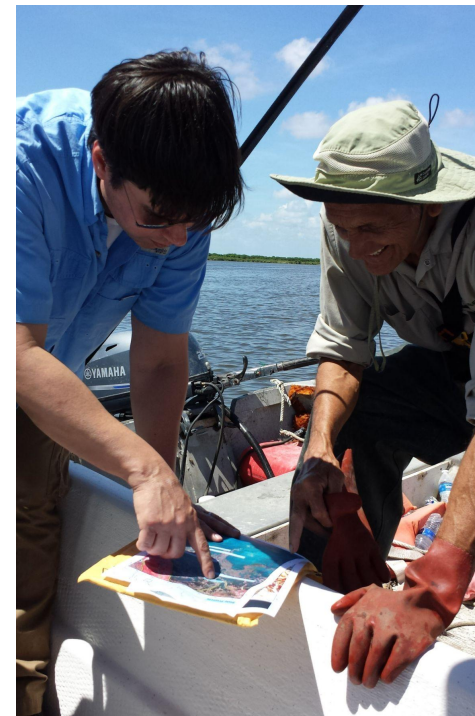




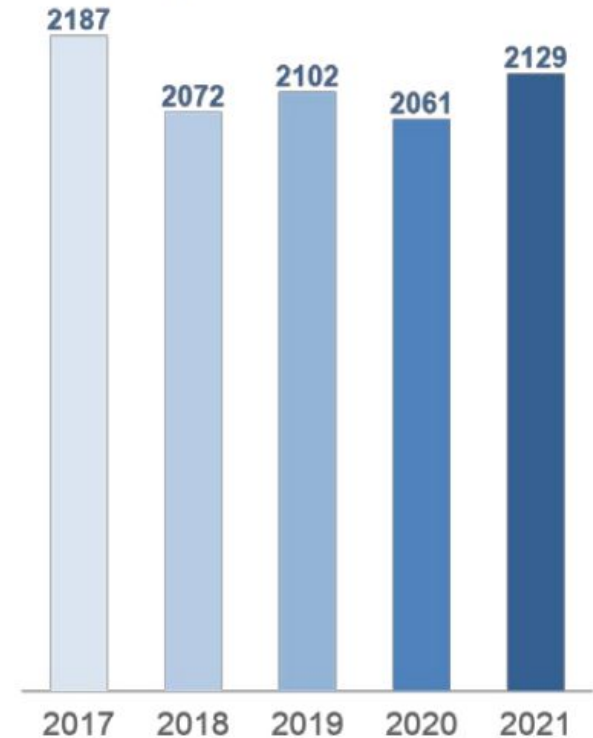
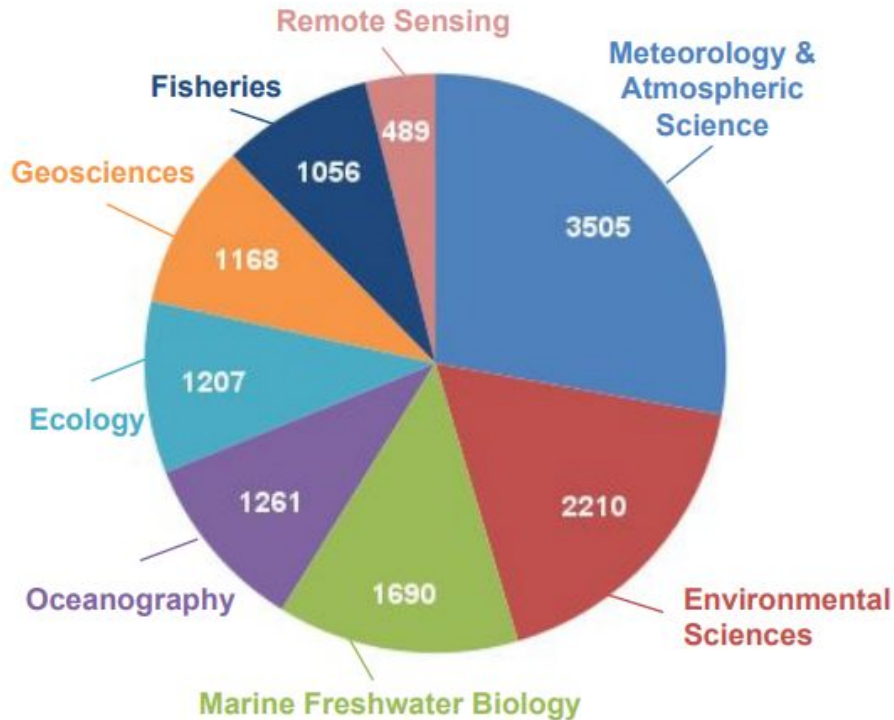
# Research Highlights



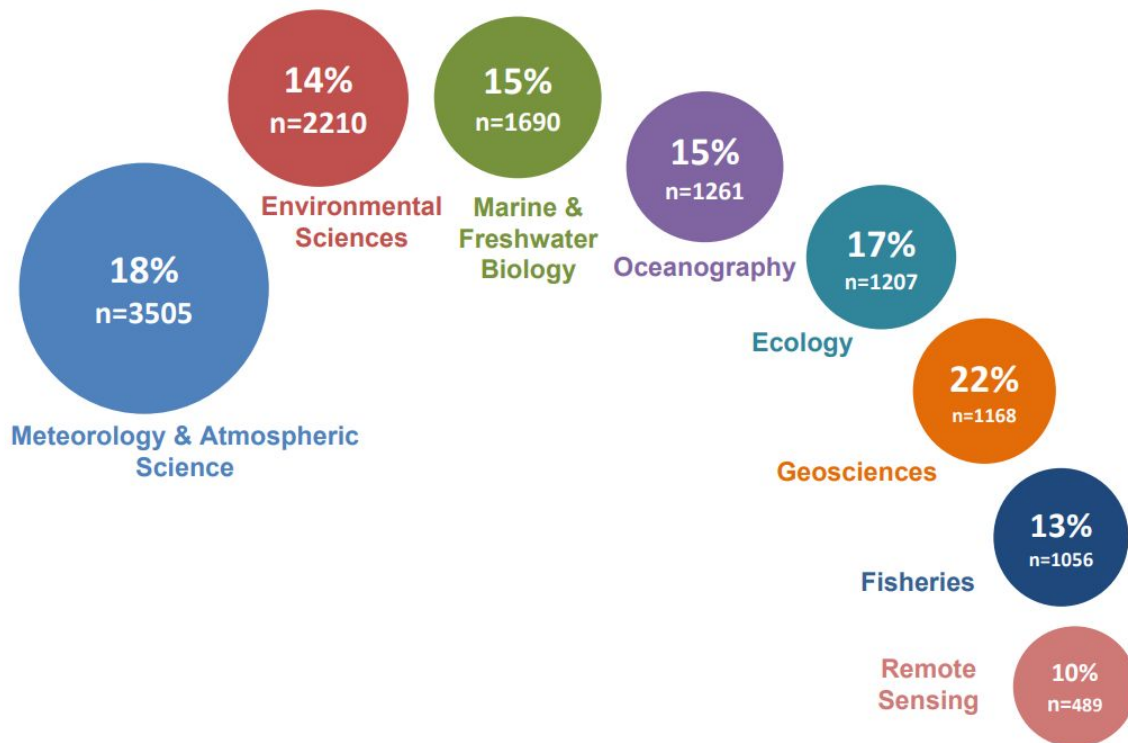
Collaborative mapping with the Pointe-au-Chien Indian Tribe supports local adaptation coastal Louisiana planning



# Bibliometrics: NOAA Peer-reviewed Articles 2017-2021



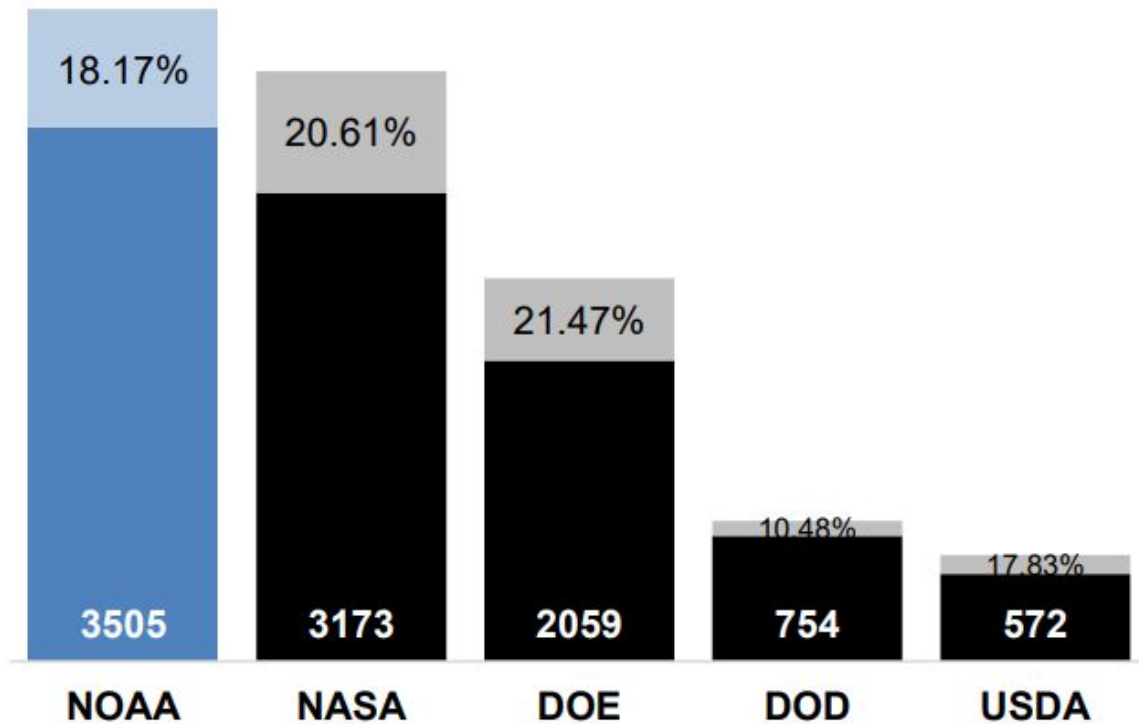
# Bibliometrics: Percentage of Articles in Top 10% by Citation

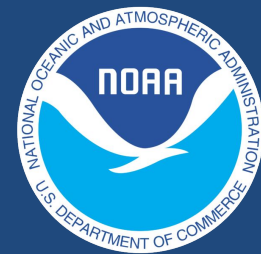






# Bibliometrics: Total Number of Articles by Agency





# Ocean Climate Action Plan (OCAP)

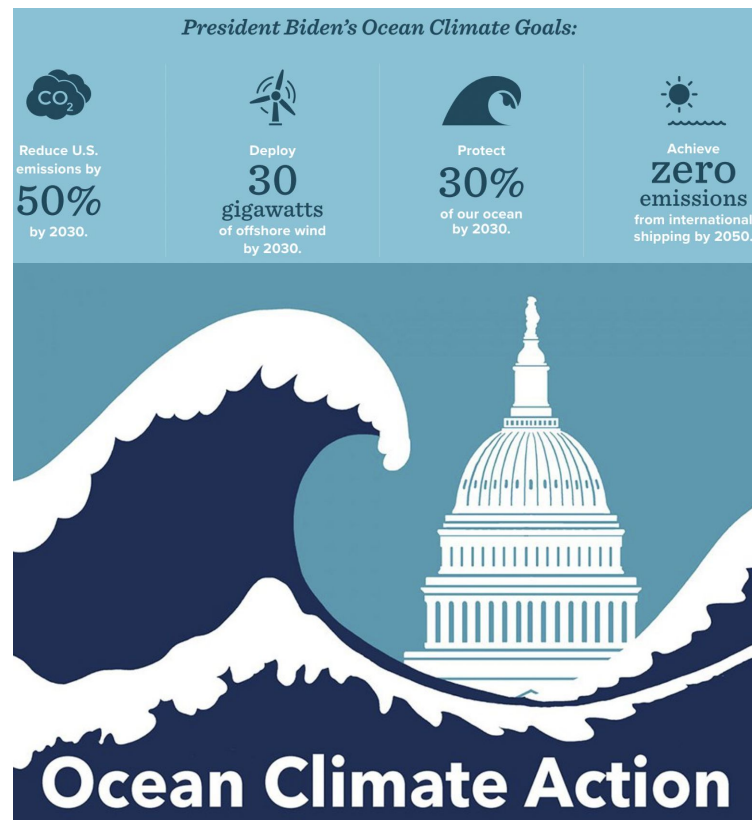


# OCAP Background

**Framing:** The OCAP outlines a whole-of-government approach to climate action.

**Workgroup co-leads:** NOAA, NSF, DOI, OSTP

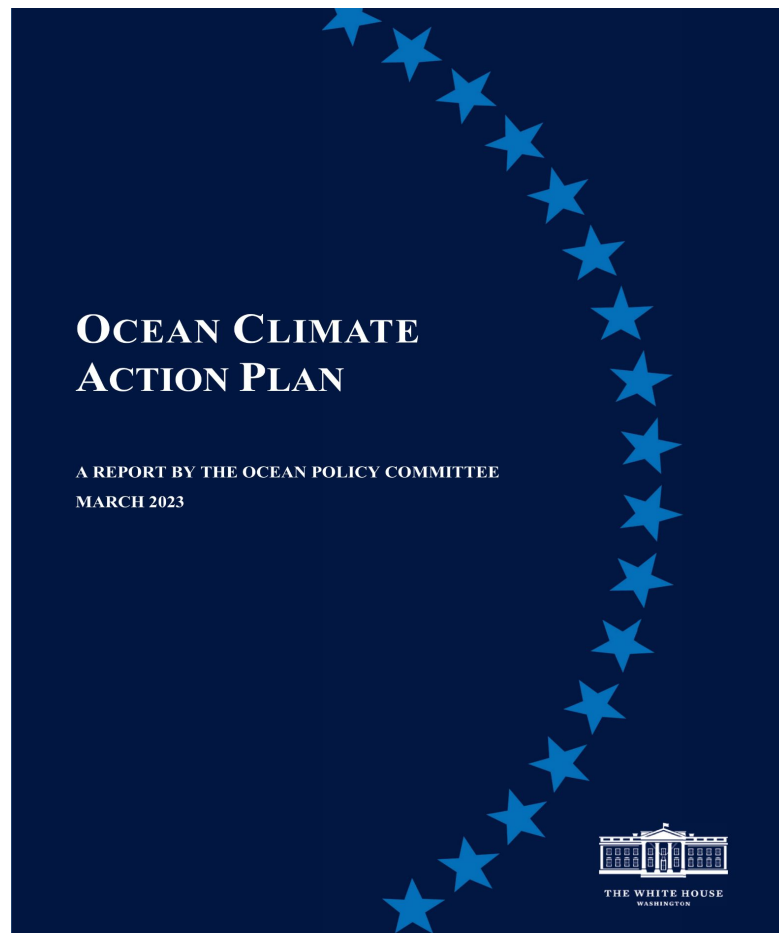
**Produced by the Ocean Policy Committee (22 agencies & offices)**



(Credit: Image credit Jim Toomey, creator of Sherman's Lagoon )

# OCAP Input

- **Sept. 2022:** Agency data call
- **Oct. 2022:** Federal Register Notice: Request for Information
- **Dec. 2022:** Tribal Consultation & Native Hawaiian Information Session
- **March 2023:** OCAP released





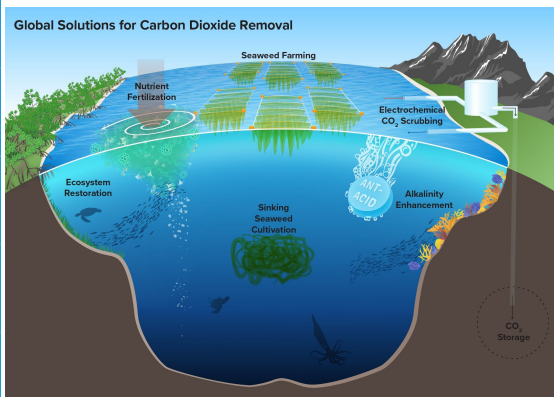
# OCAP Contents

- Lays out climate mitigation and adaptation actions for the ocean, coasts, and Great Lakes that will meaningfully advance climate solutions, environmental justice, and a sustainable ocean economy.
- Recommendations focus primarily on bold, new actions that will accelerate rapid progress on ocean-based climate adaptation and mitigation, actions that build on the numerous Federal ocean climate initiatives planned or underway, and highlight partnership opportunities.
- New ocean climate actions are recommended across three broad themes: **carbon-neutral future, nature-based solutions, community resilience**



# Carbon-Neutral Future

This set of ocean climate actions directly addresses climate mitigation objectives and a carbon-neutral future by reducing CO<sub>2</sub> emissions from electricity generation and shipping and by pursuing potential approaches for actively removing CO<sub>2</sub> from the atmosphere and sequestering in ocean reservoirs.



**Marine CO<sub>2</sub> Removal**



**Green Shipping**



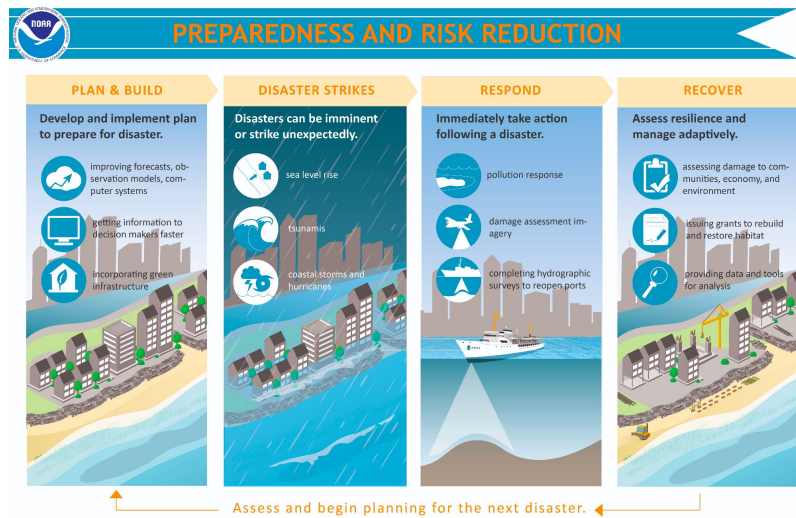
**Offshore Renewable Energy**

# Bolstering Community Resilience

The third set of ocean climate actions involve bolstering community resilience to ocean change through support of climate-ready fisheries and enhanced coastal climate resilience.




Climate-Ready Fisheries






Coastal Resilience



# OCAP Next Steps



Ocean climate action requires robust and sustained Federal investment in ocean and climate science.

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- Prioritize Federal ocean research specific to the OCAP themes
  - Support formal and ongoing mechanisms for engaging multi-sectoral representatives
  - Maintain and expand investment in ocean basic and applied research, observing networks, modeling, forecasting, and technology development

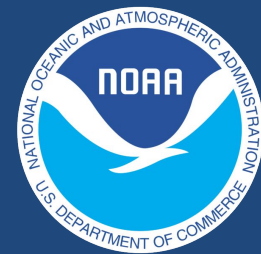


OCAP will help set our ocean workplan.

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- The OCAP Work Group began discussions on implementation in April 2023
  - It's important to note what is not in the OCAP (e.g., protected species)



Moving forward: Begin developing Ocean Policy Committee's National Sustainable Ocean Plan to help guide sustainable economic development of U.S. ocean and coastal waters



# NOAA's Role in Nature-Based Solutions





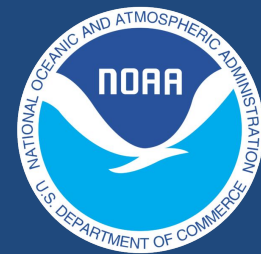
# Nature-Based Solutions

NBS (wetlands, living shorelines, islands, dunes, reefs) are key components of resilient ecosystems, communities, and economies and are integral to NOAA's mission. Addressing flooding and erosion and improving resilience often incorporate NBS either directly or indirectly.

- NOAA conducts research to quantify the value of NBS to mitigate inundation, to improve predictive models, and to understand how people value coastal ecosystems.
- NOAA partners with coastal states and territories and other federal agencies to support coastal communities.
- NOAA shares knowledge through decision support tools and training.







# Strategic Research Guidance Memorandum (SRGM)





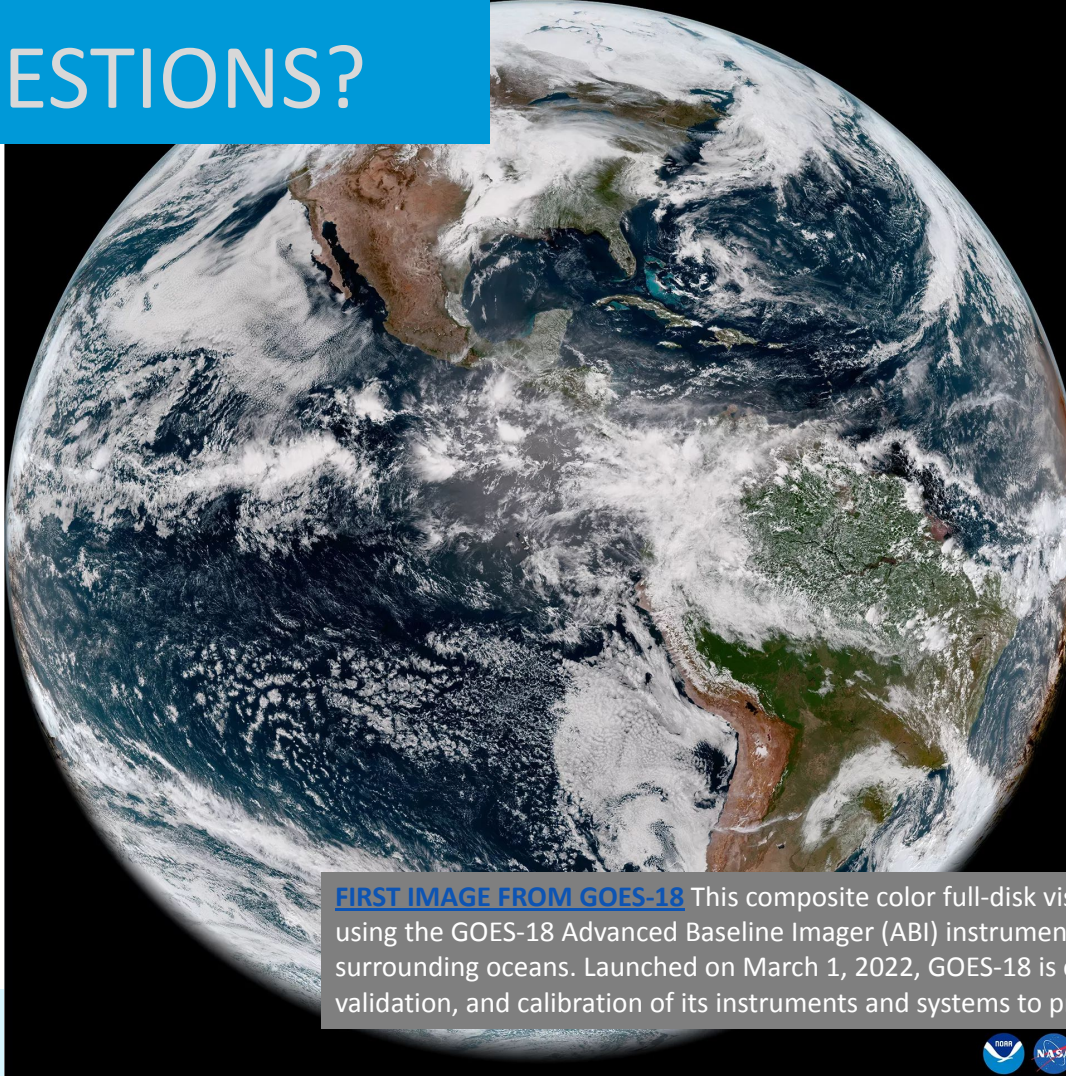
# FY25 SRGM

Provides the portfolio logic by which NOAA's R&D enterprise can be continually reviewed, evaluated and rebalanced in light of the Agency's evolving mission needs.'

- Data acquisition, open data, big data
- Data assimilation and reanalysis
- Earth system modeling across timescales
- Social, Behavioral, Economic Sciences
- Workforce and partnerships
- Accessibility and equity



# QUESTIONS?



**FIRST IMAGE FROM GOES-18** This composite color full-disk visible image is from May 5, 2022 and was created using the GOES-18 Advanced Baseline Imager (ABI) instrument. The image shows North and South America and surrounding oceans. Launched on March 1, 2022, GOES-18 is currently undergoing post-launch testing, validation, and calibration of its instruments and systems to prepare it for operations.