

# ECONOMIC VALUE OF OCEAN OBSERVATIONS

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 oceanology  
international  
**CHINA**

# TODAY'S AGENDA

- **NOAA's Mission**
- **Broader Economic Impacts**
  - Measuring the Marine Economy
- **Economic Valuation of:**
  - Marine Vessel Observations
- **Conclusions**

# NOAA's Mission and Vision

## MISSION

### *Science, Service, Stewardship*

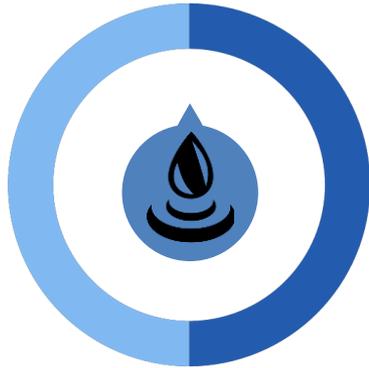
- To understand and predict changes in **climate, weather, oceans and coasts**
- To share that knowledge and information with others
- To **conserve and manage coastal and marine ecosystems and resources**

## VISION

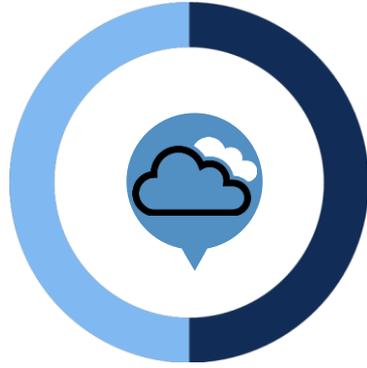
- Resilient Ecosystems, Communities, and Economies
- Healthy ecosystems, communities and economies that are resilient in the face of change.

# NOAA Strategic Priorities

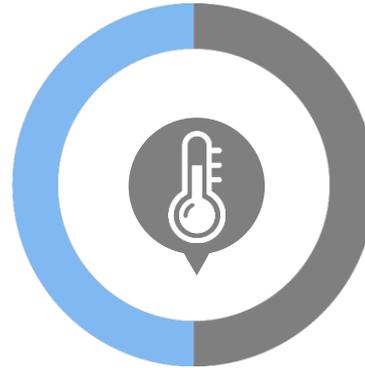
Observations account for \$2.7B of NOAA's \$5.45B budget



**Healthy  
Oceans**



**Climate  
Adaptation and  
Mitigation**



**Weather  
Ready Nation**



**Resilient Coastal  
Communities and  
Economies**

# NOAA Ocean Observations



**Buoy Support**



**Coral Reef Research**



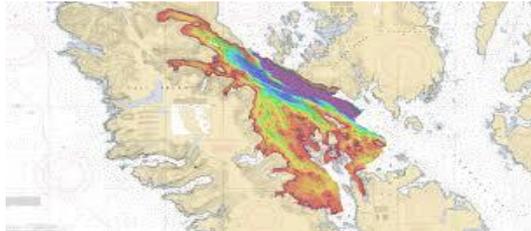
**Fisheries and Stock Assessment**



**Ocean Exploration**



**Marine Mammal Management**



**Hydrographic Survey and Charting**



**Education**



**General Research**

# NOAA Products and Tools: Fisheries Assessments

Nation's fisheries valued at **\$200 billion**

In 2015, approximately **13 million** recreational saltwater anglers took **61 million** saltwater fishing trips around the country, spending **\$4.5 billion** on fishing trips and **\$29 billion** on durable fishing-related equipment

In 2015, more than **9.7 billion pounds** of finfish and shellfish were landed, valued at **\$5.6 billion**, not including the downstream economic value



# NOAA Products and Tools: Weather Forecasts

U.S. GDP varies (positively  
or negatively) **3.4%** year to  
year due to weather;

this equated to **\$545 billion**  
in 2016



# NOAA Products and Tools: Seaports

U.S. seaports support **\$4.6 trillion** in economic activity

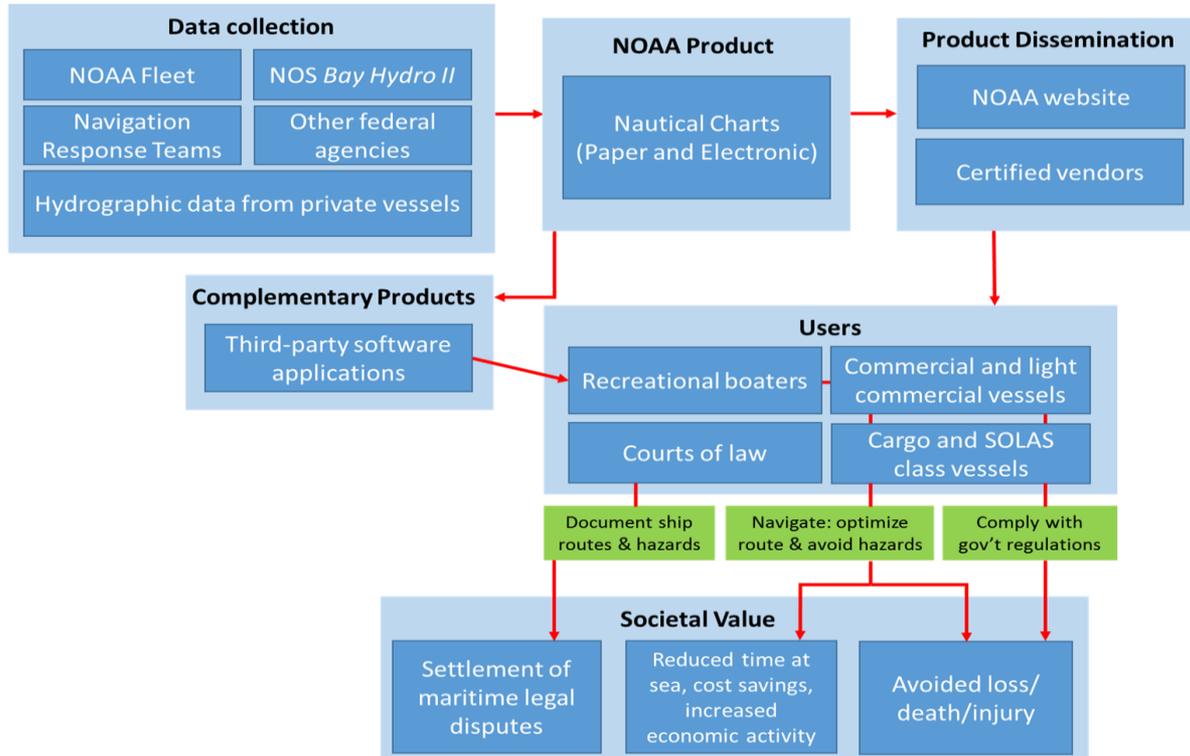


# Economic Value of Observations from NOAA Vessels

- Estimated the **value of data** collected by NOAA ships
- **638** products supported by NOAA ships
- **12** product value chain descriptions
- Estimated the **value** for **6 NOAA products**



# Nautical Chart Value Chain



# Annual Benefit of NOAA Products and NOAA Fleet

Product	Anticipated benefit of product (\$million)	Anticipated benefit attributed to NOAA fleet (\$million)
<b>Seasonal forecasts:</b> El Niño Southern Oscillation Outlook	\$560 - \$1,300	\$26 - \$266
<b>Coral reefs:</b> Coral Status and Trends Report	\$593 - \$1,185	\$90 - \$711
<b>Sea level rise:</b> Sea Level Rise Viewer	\$1,480	\$29.6 - \$556
<b>Hydrographic surveys:</b> Nautical Charts Products	\$58 - \$119	\$17 - \$48
<b>Ecosystem management:</b> National Marine Sanctuary Condition Reports	\$2,420 - \$5,230	\$605 - \$1,830

# Value Chain Conclusions

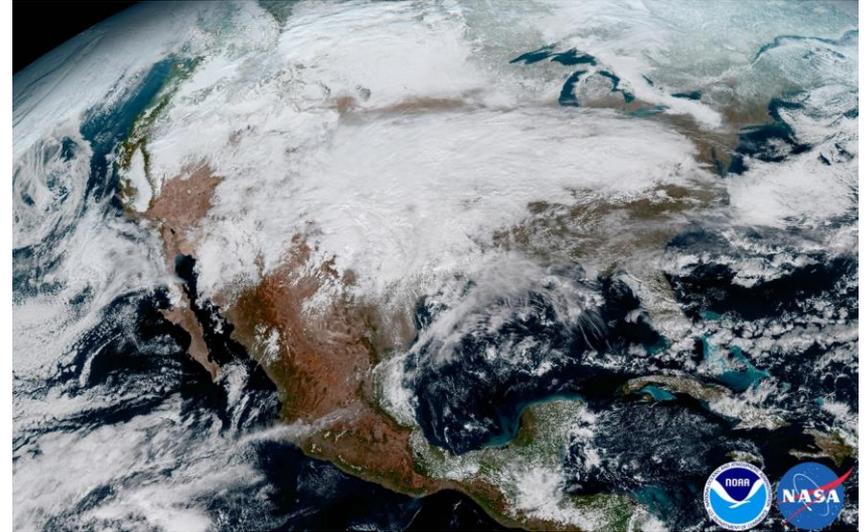
- Value chain analysis useful to understand final products and end users
- Value chains can identify products for further analysis
- Ultimately estimate the value of observational infrastructure/products

# What is the Ocean Economy?

## Economic activities that:

- take place in the ocean,
- use outputs from the ocean, or
- make products for use in the ocean.

**Currently no broad consensus about what should be included:**



# Challenges for Characterizing U.S. Ocean Economy

- Scale of U.S. EEZ
- National accounts do not distinguish between maritime and terrestrial based economic activity.
- Difficult to define what counts as maritime/ocean industry
- Emerging maritime based industries (e.g. blue technology, aquaculture, offshore renewable energy)
- Dependence on natural systems that are difficult to measure and monitor

# The U.S. Economy and Relationship to GDP



**U.S. ECONOMY**  
**GDP = ~\$20 TRILLION**  
**(2017)**

# The U.S. Economy and Relationship to GDP



**TOTAL ECONOMY OF  
SHORE-ADJACENT  
COUNTIES  
~46% of U.S. GDP**

# The U.S. Economy and the Relationship to GDP



**ECONOMIC ACTIVITIES  
USING OCEAN  
RESOURCES AS AN  
INPUT  
~2 % of U.S. GDP**

# Economics: National Ocean Watch (ENOW)



# Economics: National Ocean Watch (ENOW)

- Provides time-series data (2005- 2014) on the ocean and Great Lakes economy
- Includes six economic sectors dependent on the oceans and Great Lakes
- Available for counties, states, regions, and the nation in a wide variety of formats
- Updated annually

# Economics: National Ocean Watch (ENOW)

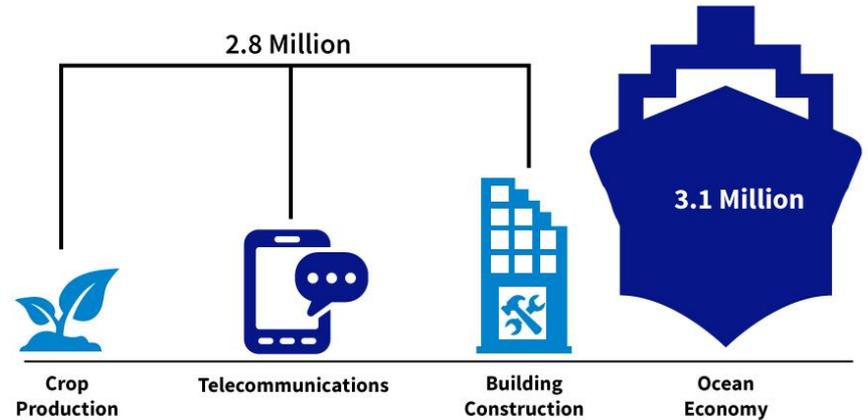
## INDICATORS

- Establishments
- Employment
- Wages
- GDP
- Self-Employed Workers
- Gross Receipts

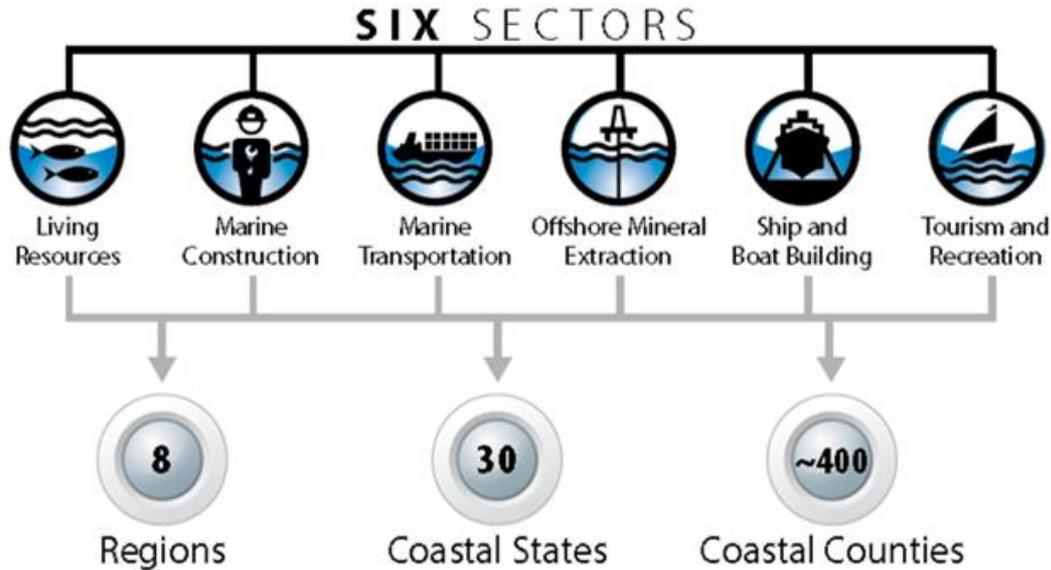


## ECONOMICS

U.S. Total Employment Comparison



# Economics: National Ocean Watch (ENOW)



# Accessing ENOW Data

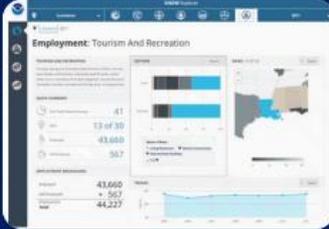
**See**



**Ocean Jobs Snapshot**

**Story Maps**

**Interact**



**ENOW Explorer**

**Get**



**Quick Report Tool**

[www.coast.noaa.gov/digitalcoast/data/enow](http://www.coast.noaa.gov/digitalcoast/data/enow)

# Ocean Economy Satellite Account (OESA)



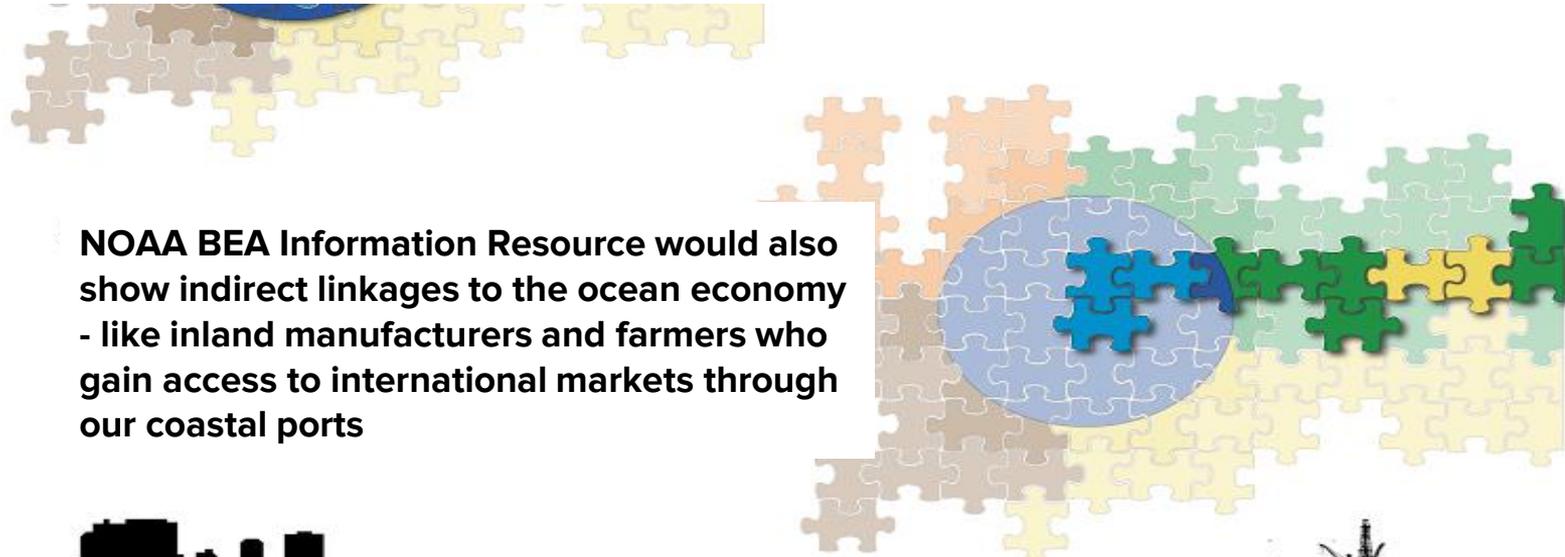
# Ocean Economy Satellite Account (OESA)

- Estimates the ocean-dependent shares where only part of an industry's output is ocean-dependent
- Provides a more complete and accurate estimate of maritime based economic activity that NOAA supports
- Accounts maintained over time can monitor trends, highlight emerging industries, and show dependencies between industries.

# What is a Satellite Account?

- Satellite accounts are statistics produced by the Bureau of Economic Analysis (BEA) that focus on a particular aspect of the economy that is not directly addressed in other economic statistics
- The data presented in a satellite account supplement and are consistent with BEA's core statistics such as gross domestic product (GDP).
- The Ocean Economy Satellite Account (OESA) measures contributions of ocean and coastal dependant industries to GDP
- The goal of the OESA is to highlight ocean production and spending already present in the national accounts data

# ENOW AND OESA



**NOAA BEA Information Resource would also show indirect linkages to the ocean economy - like inland manufacturers and farmers who gain access to international markets through our coastal ports**



# OESA Progress

- An experimental Ocean Economy Satellite Account will be released this month
- Extensive vetting will occur with industry, government, and researchers, including Federal Register notice and industry associate meetings (Oceans 18, Blue Tech Week, Offshore Technology Conference)
- Industry specific estimates will be refined based on feedback and additional research
- Updated statistics will be generated in September 2019

# Questions?

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