



NOAA

Chief Economist

Natural Capital Considerations for an Extension of the U.S. Marine Economy Satellite Account

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NBER-CRIW Conference on Environmental Public Goods
March 17, 2023



Overview

- 2011 - NOAA published the Economics: National Ocean Watch (**ENOW**)
- 2017 - Congress directed NOAA to produce an ocean economy satellite account
- 2020 - NOAA/BEA releases **Marine Economy Satellite Account (MESA)**,
 - Incorporated into the systems of national accounts
 - Consistent with international practices (Portugal, Ireland, OECD ...)
- 2023 - OSTP released the National Strategy to Develop Statistics for Environmental and Economic Decisions

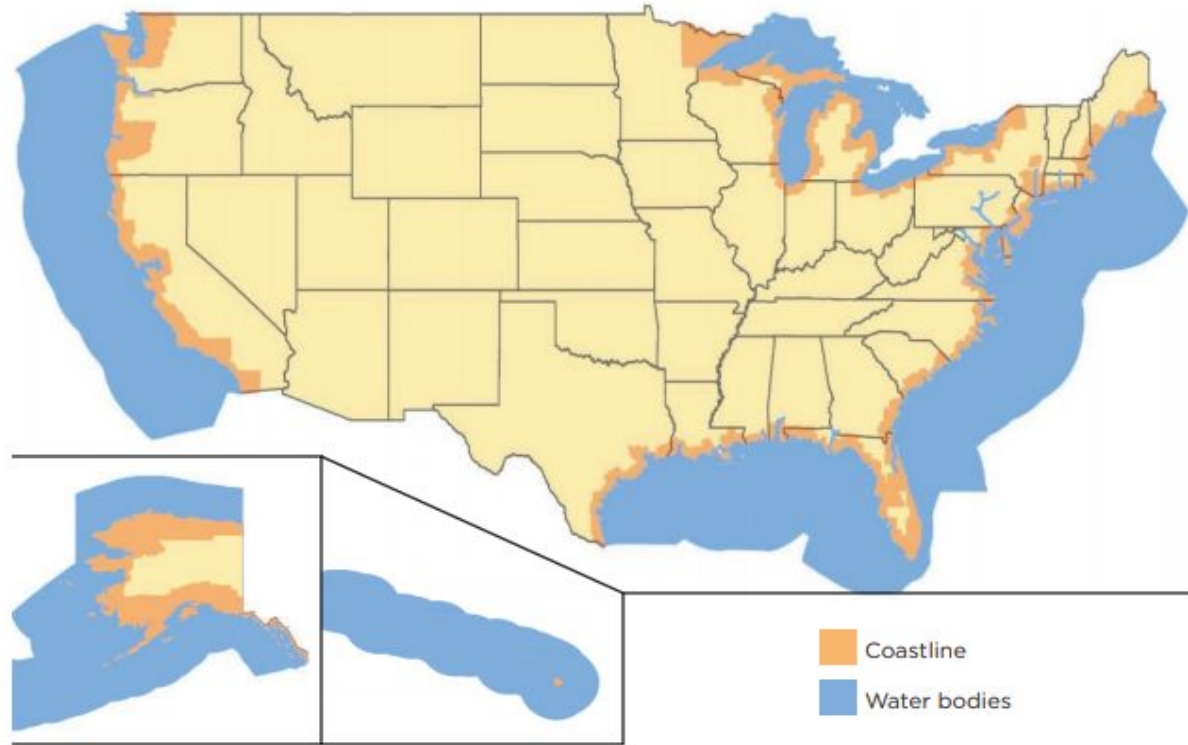
MESA Definition of Marine-Dependency

- **Takes place** in the marine environment, or
- By necessity, **located in proximity** to the marine environment, or
- Uses **essential inputs** from the marine environment, or
- Produces goods/services **predominantly for use** in the marine environment.



Marine Waters of the United States

- EEZ of Atlantic, Pacific, Arctic oceans
- Gulf of Mexico
- Great Lakes
- Estuaries/embayments
- Inland waters leading to international seaports



The Ten Sectors of the Marine Economy



Living Resources



Research and Education



Professional and Technical Services



Marine Construction



National Defense and Public Administration



Offshore Minerals



Marine Transportation



Ship and Boat Building



Tourism and Recreation

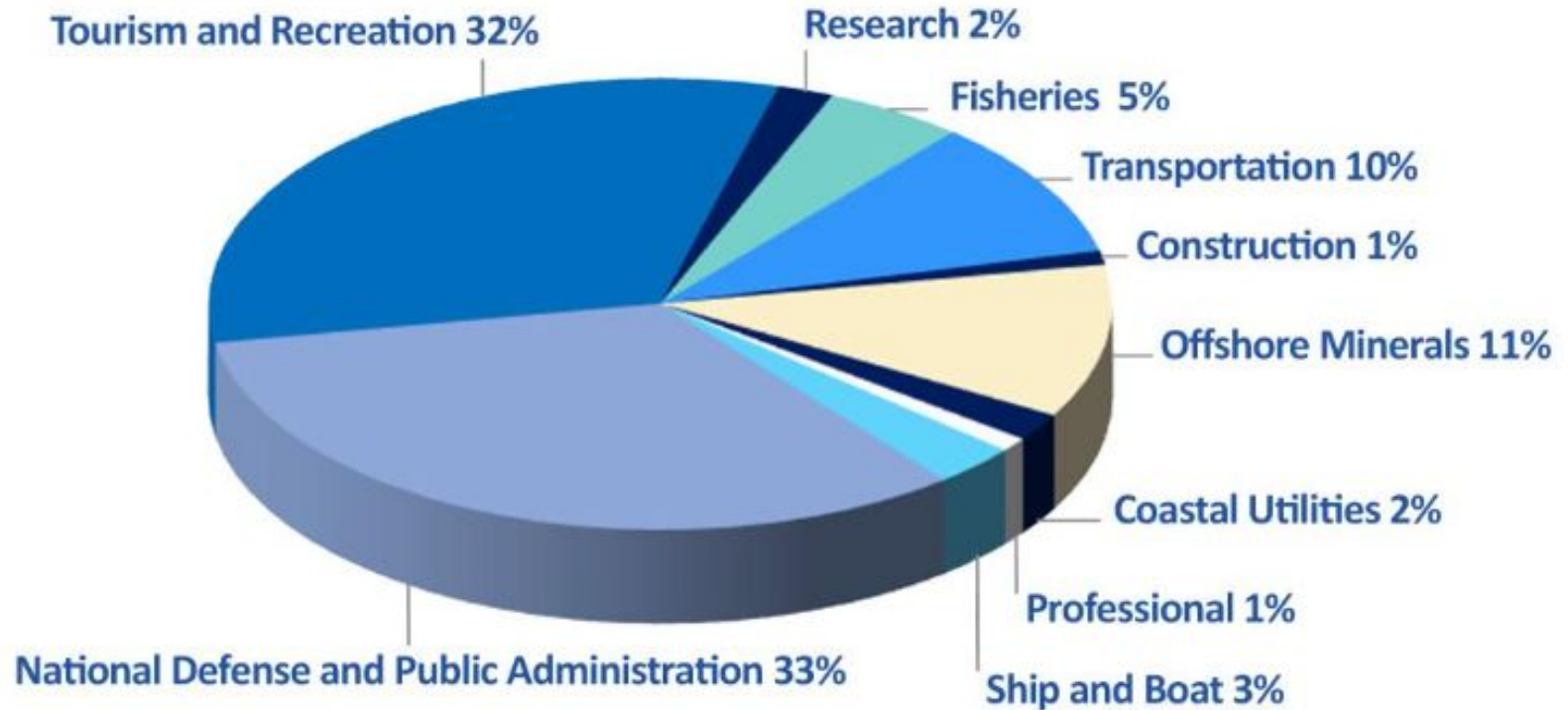


Utilities

High-level Results

Marine Economy	2020 levels (\$billions)
Nominal GDP	\$361.4
Nominal Gross Output	\$610.3
Compensation	\$117.2
Employment	2.2 (millions of employees)

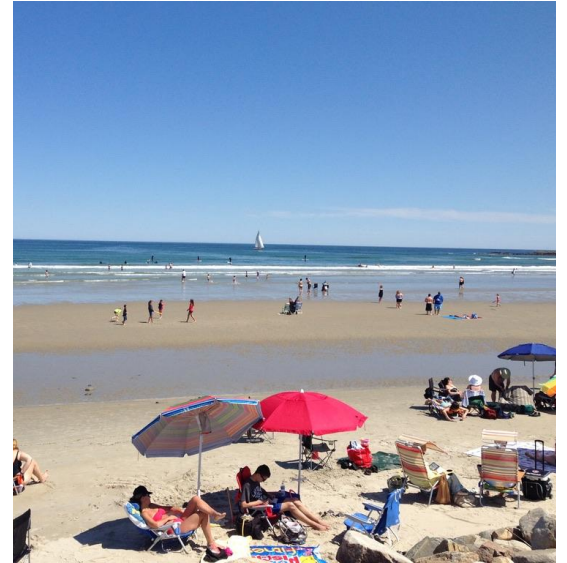
Marine Gross Output by Activity, nominal 2020



Natural Capital in MESA

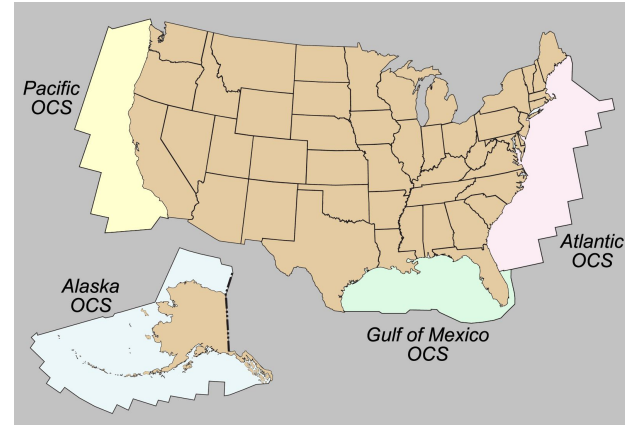
- 1) Sectors that extract natural resources from the ocean**
 - Marine Living Resources (including commercial fishing) and the Offshore Minerals (including offshore oil & gas)
- 2) Directly benefit from a healthy and sustainable marine environment**
 - Marine Living Resources and the Ocean and Coastal Tourism and Recreation (including beach recreation)
- 3) Do not heavily rely on the health of the natural ecosystems but may bring potential significant impacts to the environment**
 - Offshore Minerals, Marine Transportation, Marine Construction, Ship and Boat Building, and Coastal Utilities
- 4) Provide regulation, management, scientific and technological advances, and education**
 - Defense and Public Administration, Research and Education, and the Professional and Technical Services

Piloting an Initial Extension of MESA



U.S. Offshore Oil & Gas Regime

- Outer Continental Shelf: U.S. Government Ownership
- OCS Lands Act:
 - U.S. ownership of lands
 - Development by private sector
 - Land leased for development at fair market price
 - Payments:
 - Lease on land (annual)
 - Royalty (Percent of annual sales)
 - Bonus (Up-front payment for right to explore and produce)
- Lease Sales
 - Held according to 5 Year Plan
 - Sealed bid auction
 - Bonus is the bid variable



Capital Value of Oil and Gas

- Bonus is a measure of the resource rent
 - To win the auction the bid must be the maximum amount the oil company can offer and still make a profit
- The bonus is an expected value
 - You can't know until you drill, and you can't drill until you pay the bonus
- Automatic risk and discount rates
- Environment Values?
 - Environmental management
 - Resource management
 - External costs
 - Oil Spills



Valuing Fish Stocks

- What is the value of the fish stock?
 - Population of fish from which catch is drawn
 - 220 Recognized Fish Stocks, 150 under management
 - Management is state/federal
- Quasi-open access
 - Permits required but generally not restricted
 - Management by Quotas
 - Generally unpriced access



Calculating the Resource Rent

- No market mechanism
- No shadow prices
- Most common method: Residuals
 - Landed Value –
 - Trip consumables
 - Fuel, Bait, Ice
 - Labor
 - Capital costs
 - Boat, Equipment
 - Data?
- Future catch
 - Hold inputs constant
- Management effects
 - With and without



Natural Capital in Beach Recreation

- Nonmarket values
 - Large literature, mostly Florida, California, North Carolina, New Jersey
 - Many different approaches both revealed and stated preferences
 - Need for a meta-analysis
 - SEEA Standard: Market-based shadow prices
- Market Values
 - Contribution to profits of beach businesses
- Data
 - Beach visitors
 - Beach businesses
- Analysis
 - Future Use
 - Risks of Sea Level Rise



Next Steps

- Oil and Gas
 - Data from BOEM
- Commercial Fisheries
 - Select stock case studies
- Beaches
 - Select beach case studies
- Case Studies:
 - Selected on basis of data availability and representativeness
 - Emphasis on methodology development more than definitive answers

Conclusions

- NOAA/BEA Marine Economy Satellite Account (MESA) measures the contribution of the ocean to national and regional economies
- NOAA will extend MESA to NCA through pilot accounts in offshore oil and gas, commercial fishing, and beach recreation
- Even in these data rich topic areas, there will still be difficulties in organizing and processing the data, understanding complex ecological processes (predator/prey relationships), and developing robust valuation approaches.

Thank you!

For questions, please contact:

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