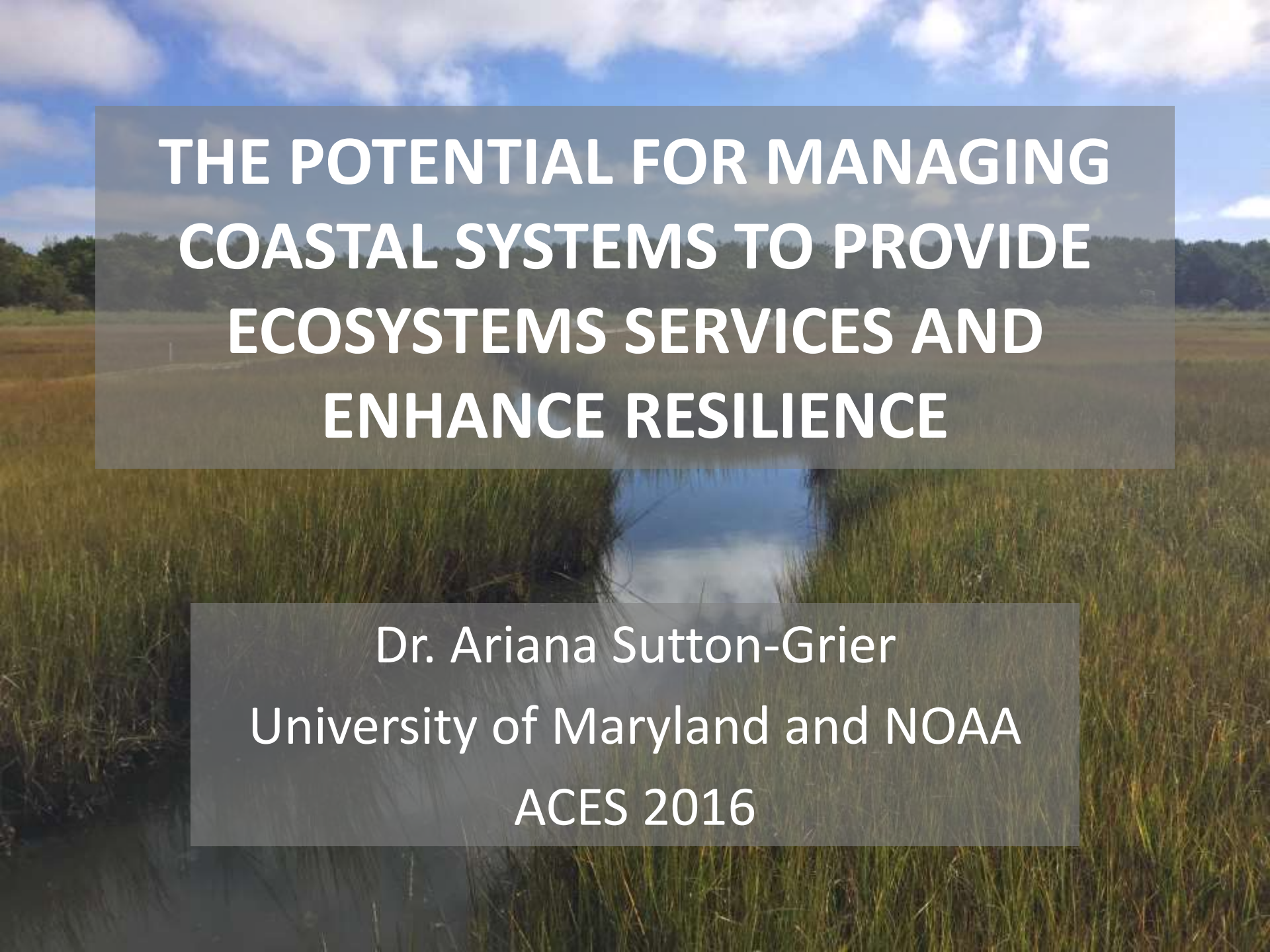
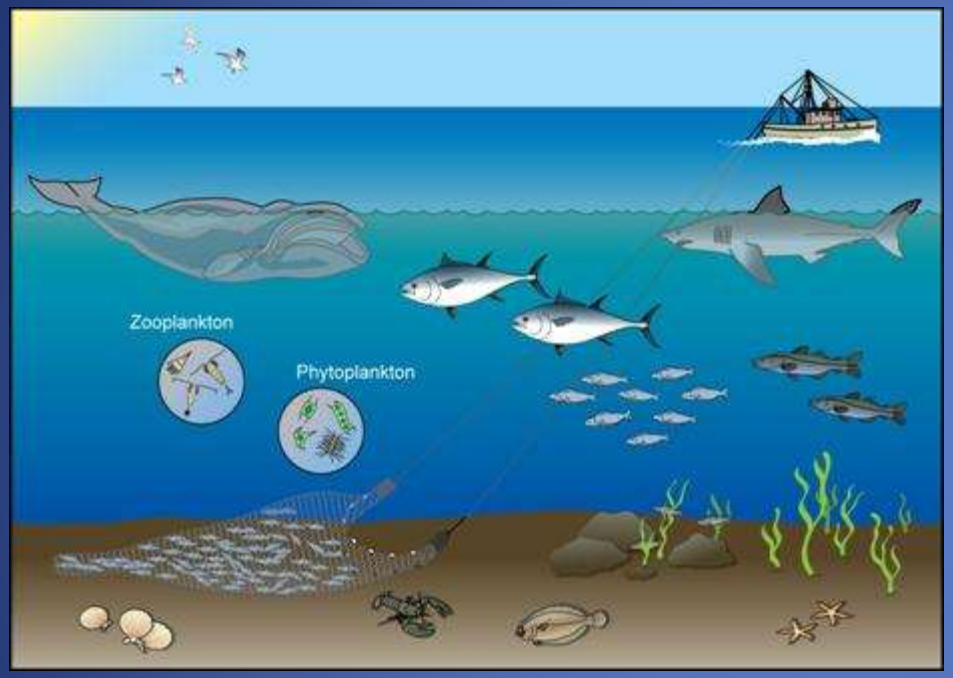


THE POTENTIAL FOR MANAGING COASTAL SYSTEMS TO PROVIDE ECOSYSTEMS SERVICES AND ENHANCE RESILIENCE

Dr. Ariana Sutton-Grier
University of Maryland and NOAA
ACES 2016

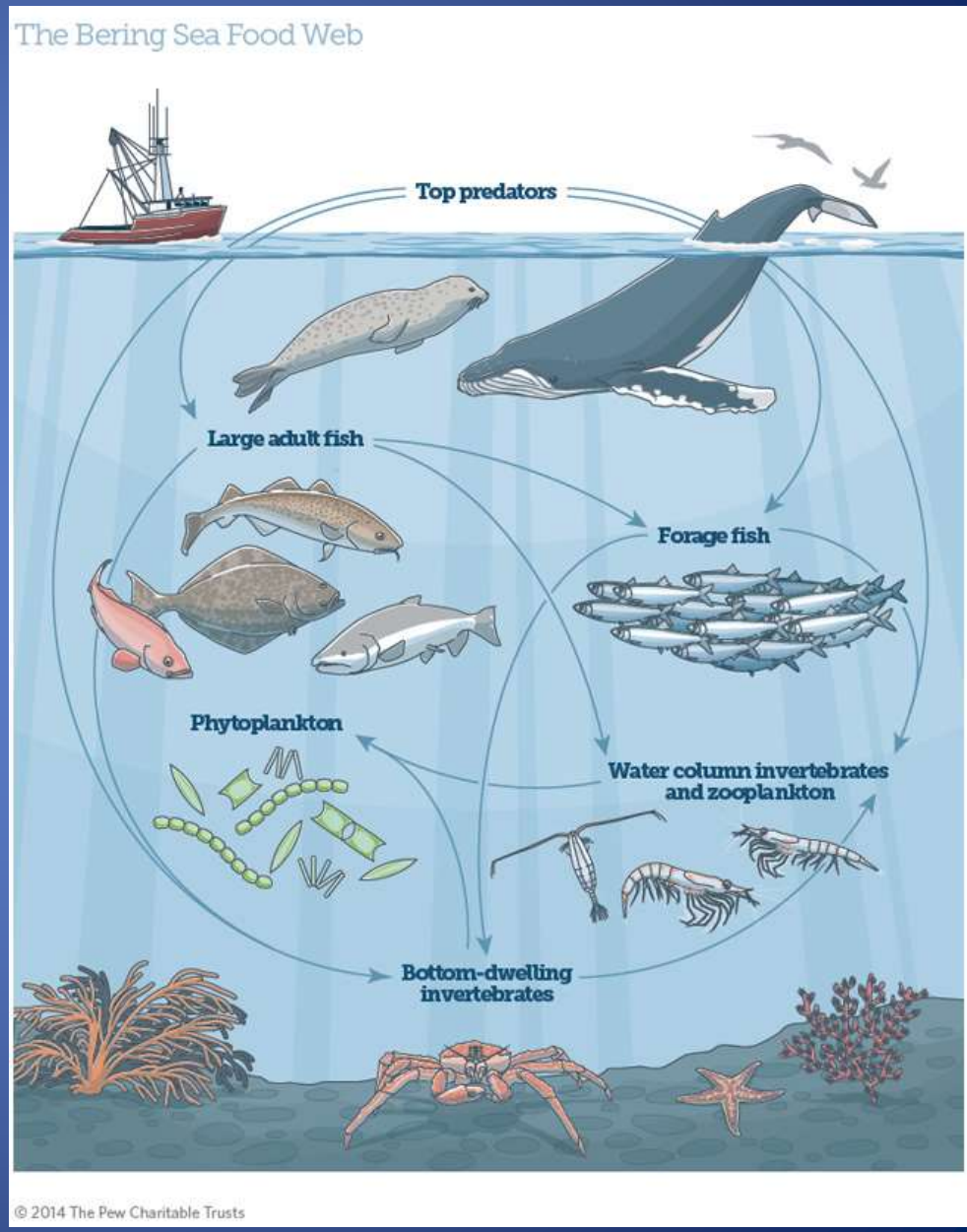
Ecosystem Based Fishery Management



Fishery ecosystem from the base of the food web Phytoplankton and zooplankton to humans

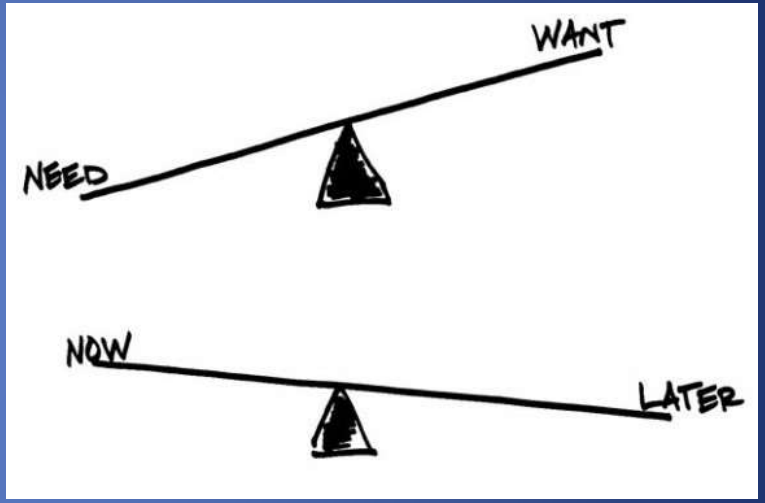
Food Web Focus: Importance of Habitat

- Ecosystems considered from beginning, not just single species
- Focus on multiple species and the different habitats in which they live
- Habitat needs of different life stages of all significant parts of the food web
- Assess the ecological, human and institutional elements of the ecosystem which most significantly affect and are affected by fisheries



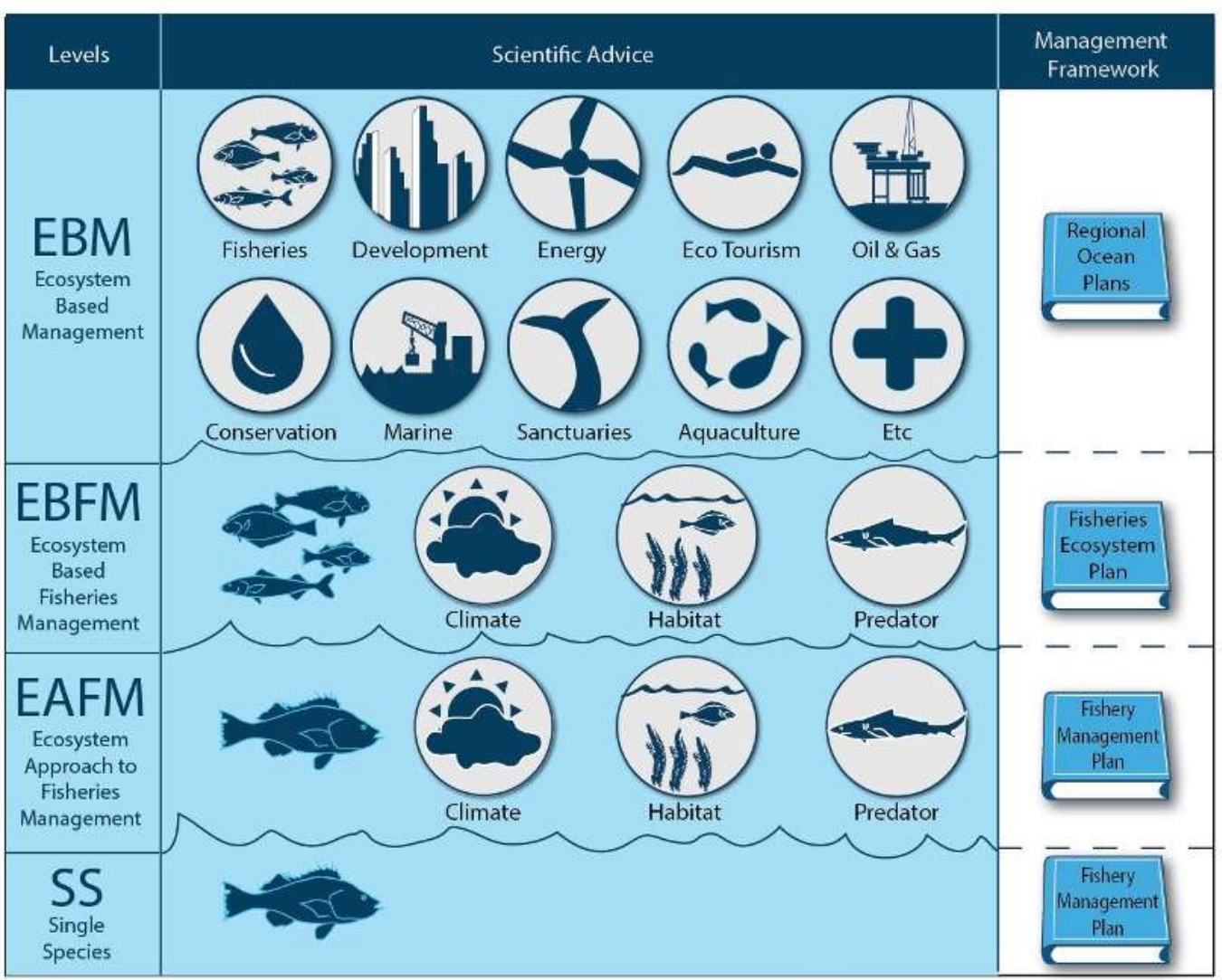
Stakeholder involvement in EBFM

- Key difference in EBFM vs traditional management is involvement of stakeholders
- Competing interests, acknowledge differences and identify management options
- EBFM about trade-off analysis – examining which options meet the most objectives as a collective system



Ecosystem Based Management

- EBM: Includes multiple uses and many benefits provided by ecosystems



NOAA FISHERIES

Ecosystem Services Frameworks

- Common ground with EBFM and EBM
- Focus beyond fish to all of ecosystem benefits

NOAA Conversation about Ecosystem Services Approach and EBFM

- How are they similar? How are they different?
- How do we communicate about both?
- Are both needed?
- Research needed to support this conversation
  - examples
  - applications
  - successes

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Review

Future of our coasts: The potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems

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ES Approach: Complementary to EBFM

Benefits:

1. Improve policy and decision-making to better manage ecosystems

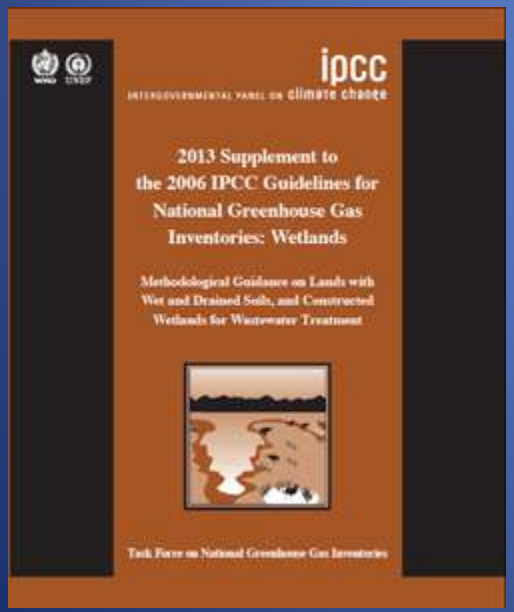
2. Method to find new partners in ecosystem management and conservation

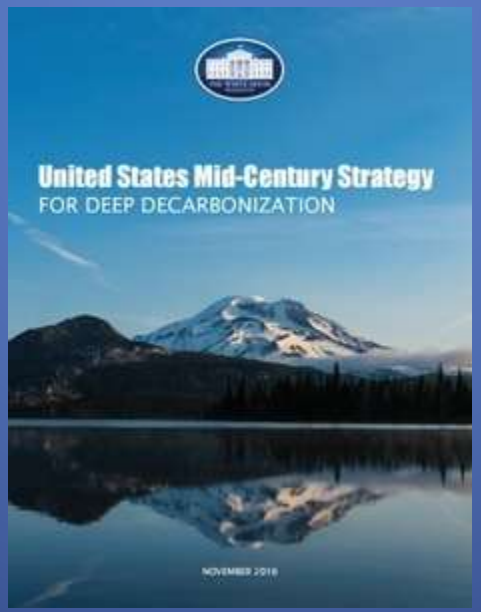
3. Spur innovation

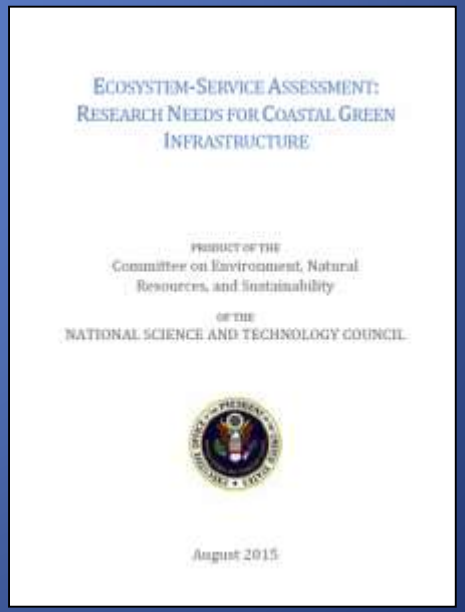
4. Stimulate new funding for conserving ecosystems

1. ES to improve policy and decision-making

- New opportunities for accounting for nature's benefits
  - IPCC Wetlands Supplement and including wetlands in national greenhouse gas inventories
  - White House interest in climate mitigation potential of wetlands→ Coastal wetland restoration potential in U.S.?
  - Coastal Green Infrastructure for coastal resilience





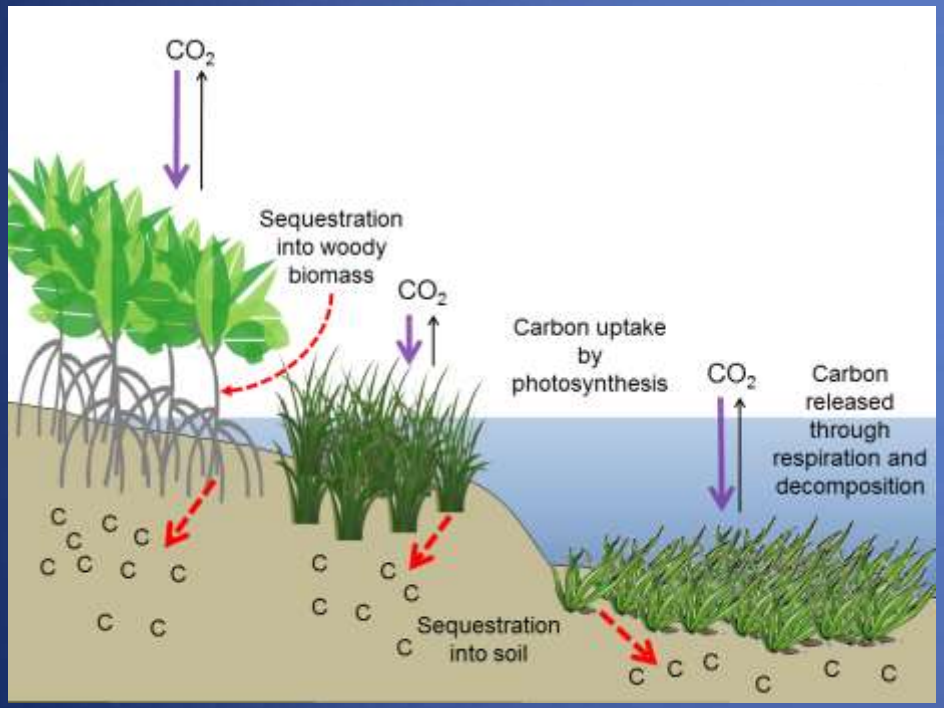


Sutton-Grier et al. 2014. Marine Policy & Sutton-Grier & Moore, 2016. Coastal Management

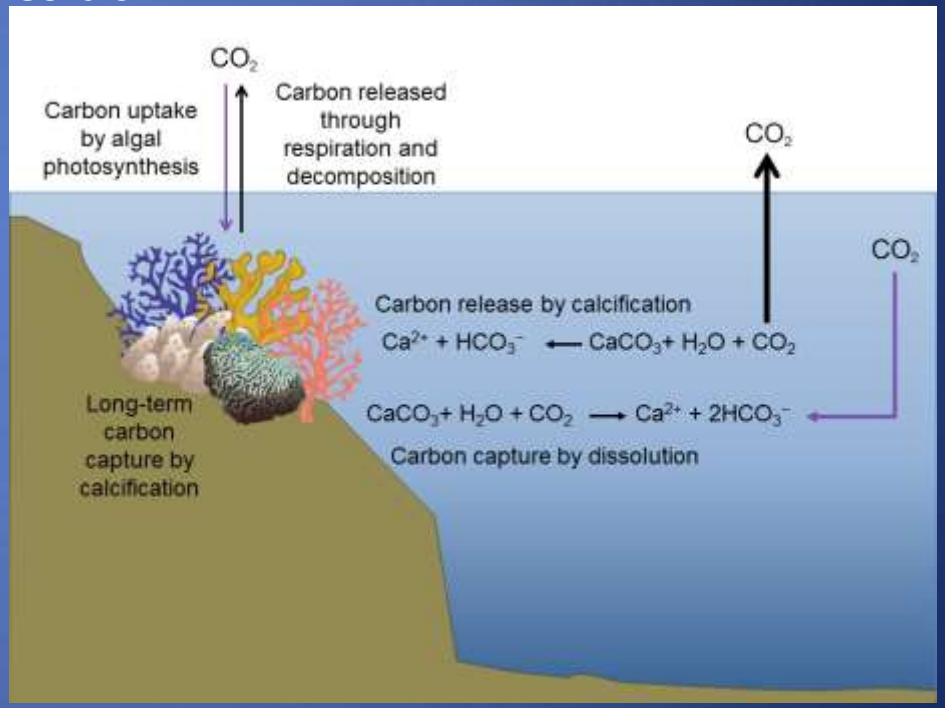
Sutton-Grier et al. 2015. Env Science & Policy

Coastal wetlands are best option for climate mitigation policy

Coastal Wetlands



Corals



Howard & Sutton-Grier et al. In press.

2. ES opportunity to find new partners

- New partners in conservation of coastal wetlands for climate mitigation
  - International mechanisms for coastal conservation (United Nations Framework Convention on Climate Change)
  - Agencies (State Department, USAID)
  - Countries, carbon market groups like Verified Carbon Standard and registries, businesses interested in sustainability
- Partners in coastal resilience efforts
  - American Institute for Architecture, American Society for Civil Engineering, Businesses

Wylie et al. 2016 Marine Policy, Sutton-Grier et al. 2014. Marine Policy

ES and New Partners (con't)

- Biodiversity may have direct, positive impacts human health
- Implement findings to enhance human well-being ***and*** develop increased public support for biodiversity conservation and restoration
  - Partner with local municipalities, cities, states, etc.

Sandifer & Sutton-Grier et al. 2015. Ecosystem Services

3. ES Spurs Innovation

- Post-Sandy → Focus on combining storm and erosion protection benefits provided by ecosystems and community needs

Innovation in Coastal Urban Landscape

REBUILD BY DESIGN MEADOWLANDS

AECOM

Rebuild By Design: "Big U" Project Provides Climate Adaptation and Recreational Opportunities

- Hard and soft infrastructure with recreational benefits
- Actual Implementation: East Side Coastal Resilience Project
- Integrate flood protection into community, improve water access
- Berms and flood walls or barriers

Sutton-Grier et al. 2015. Env Science & Policy

4. ES as additional way to fund conservation and resilience

- Rebuild By Design
  - Changed the federal response to disasters
  - Housing and Urban Development + Rockefeller Foundation funded projects (6 projects funded)
  - Led to the National Disaster Resilience Competition ($1 billion to 13 cities)
- Carbon credits
  - Mikoko Pamoja mangrove restoration, Kenya,
    - Carbon payments to communities → piped water, school supplies
  - Potential to change coastal restoration funding

National Disaster Resilience Competition

Wylie et al. 2016. Marine Policy

Benefits of ES Approach

1. Improve policy and decision-making to better manage ecosystems

2. Method to find new partners in ecosystem management and conservation

3. Spur innovation

4. Stimulate new funding for conserving ecosystems

- Thank you!
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