

*Capitol Hill Ocean Week 2010*

*Clean Energy and a Healthy Ocean:  
Navigating the Future*



# **Our Changing Coasts**

**“Today’s Energy Mix: Impacts on Ocean & Coastal Resources”**

**Holly A. Bamford, Ph.D.**

NOAA National Ocean Service

Acting Deputy Assistant Administrator

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# Energy: Through a Coastal Lens

## Energy Production

- Wind farms
- Offshore oil & gas
- Ocean Thermal Energy Conversion (OTEC)
- Tidal energy

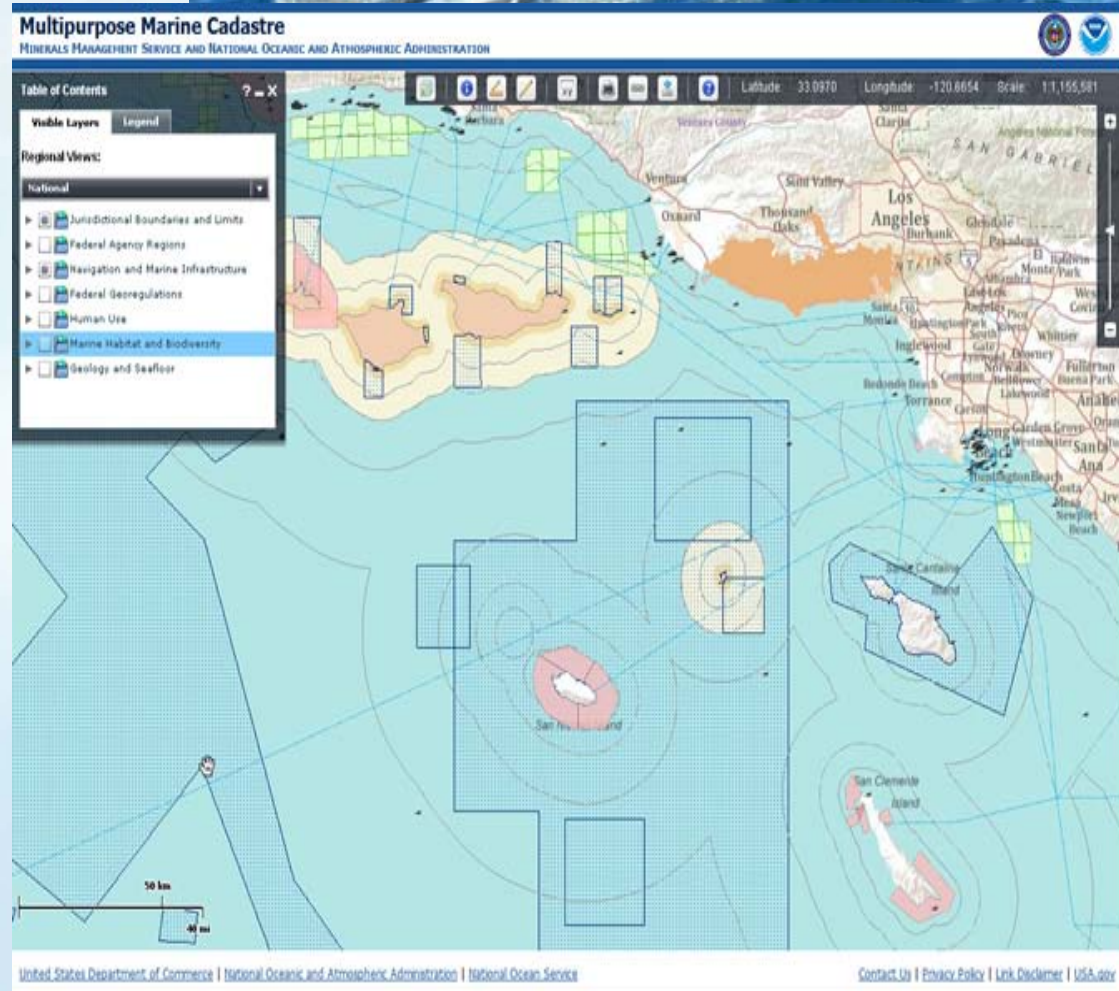
## Energy Transportation and Shore Facilities

- Coastal shipping
- Coastal refineries



# Acute Incidents

- Addition of oil from spills, blowouts (DWH), natural seepages
- Changes in coastal habitat, nutrient cycles and food webs
- Changing bottom habitat with addition of infrastructure
- Research is needed to quantify impacts, potential impacts, adaptation and recovery

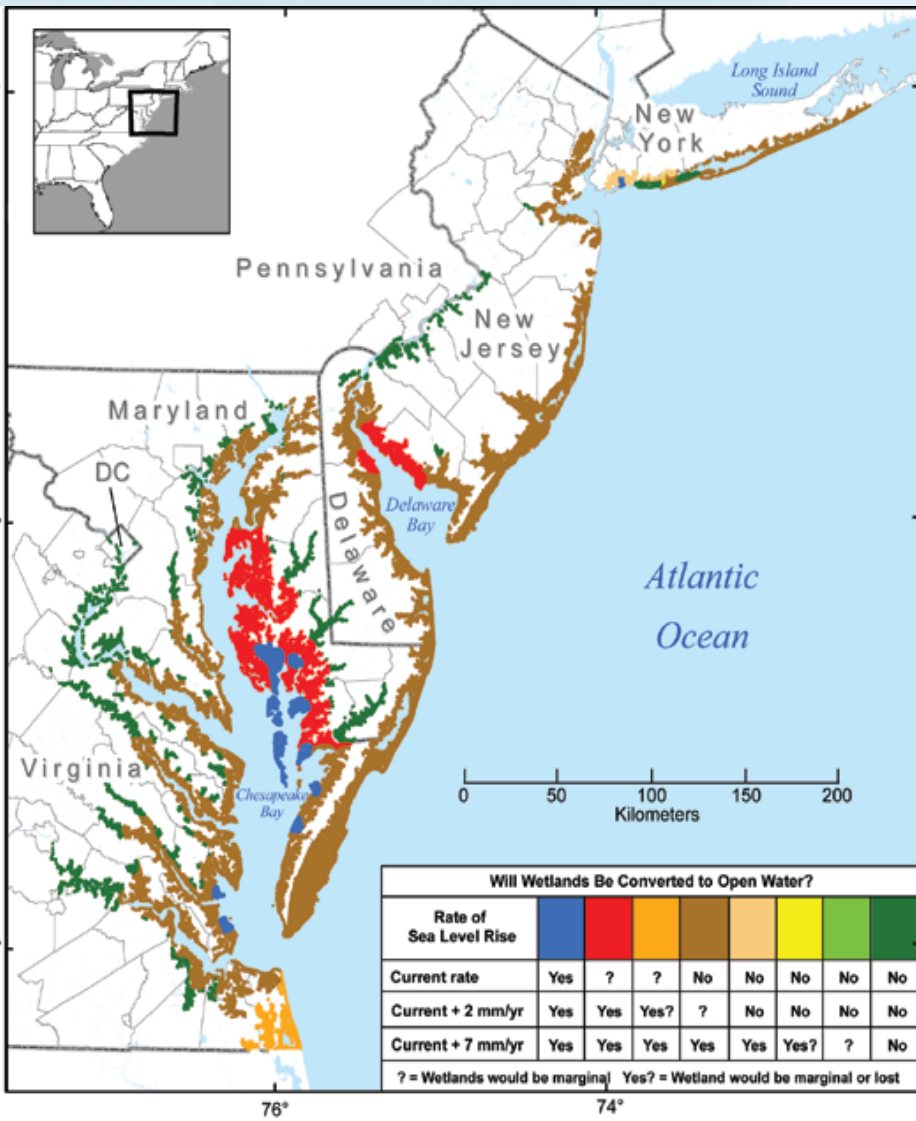


# Chronic Challenge: Climate Change in Marine Ecosystems

- Ocean acidification: Alteration and degradation of ecosystem services
- Coral bleaching: Healthy reefs = healthy economies
- Species shifts and invasive species
- Loss of Sea Ice: Shoreline erosion
- Sea-level rise
  - Tidal Marshes
  - Barrier Islands



# Long Term Impacts: Sea-Level Rise



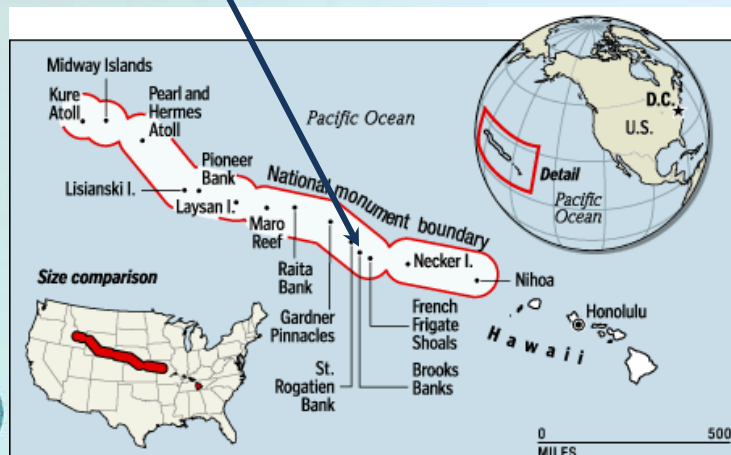
- **57% of U.S. national GDP** is contributed by coastal watershed counties.
- **53% of nation's population** – only 17% of U.S. land area (excluding Alaska)
- **\$1 trillion industry** supporting >13 million U.S. jobs.
- Coastal **habitats help reduce impacts** of floods, storms, and climate change on communities by absorbing water, wave energy, and other stressors.

# Sea-level Rise Effects on Threatened Species

Example: Whaleskate Island  
French Frigate Shoals, NWHI

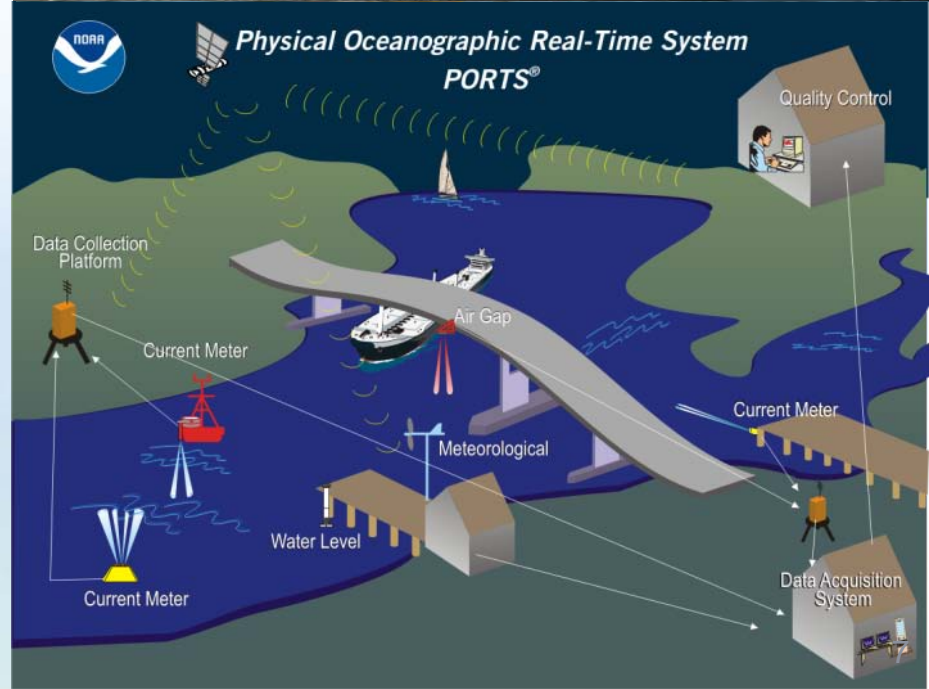


- Once an important nesting island for Hawaiian green sea turtles and a primary pupping site for endangered Hawaiian monk seals
- Few feet above sea level; what would be the impacts of observed rates of SLR on Protected Species breeding and nesting habitat?



# Sea-level Rise Effects on Energy Infrastructure

- Off-shore and on land energy production facilities
  - Platforms and pipelines
  - Refineries
  - Transportation
- Communities that support oil production and refineries
- Need to be prepared to deal with local sea level rise impacts



# Monitoring and Protecting Sensitive Habitats

- Environmental mapping
- Marine and coastal monitoring
  - Coral reefs
  - Harmful Algal Blooms
  - Hypoxia
- Ocean observing
- Oil spill and contaminants response and restoration activities
- Marine and Coastal Management Areas
  - National Marine Sanctuaries
  - Marine Protected Areas



# What's Next: Powering Forward Together

## Federal Coordination

- ✔ Interagency Ocean Policy Task Force - Coastal & Marine Spatial Planning
- ✔ Climate Change Adaptation Task Force -Coasts and Oceans Working Group

## Work with Partners

- ✔ State and Local Governments
- ✔ Academic community
- ✔ NGOs
- ✔ Industry

Evaluating ecosystems comprehensively by the services they provide communities

