

**Marine Renewable Energy:
*Growing Demands on NOAA
and Our Oceans***

Marine Law Symposium
Roger Williams University School of Law
October 23-24, 2008

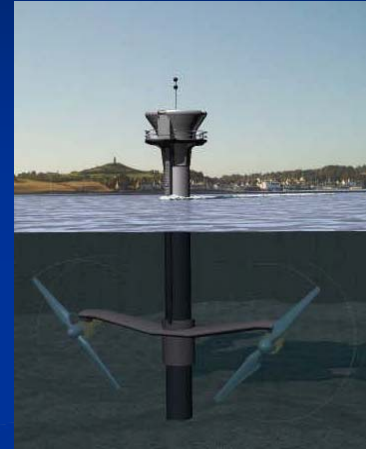
Ralph Lopez
NOAA National Marine Fisheries Service



- NOAA currently has a significant energy role
 - regulatory - hydropower, LNG, oil and gas project review
 - information - critical data and forecasts to industry
- envision a greater role as marine renewables evolve
- working with industry, licensing agencies and stakeholders to avoid or minimize potential impacts
- environmental, social and regulatory uncertainties associated with renewable energy development

Technology Characteristics

- multitude of individual generating units
- expansive spatial footprint
- significant engineering challenges
- uncertainties regarding impacts
 - siting criteria and operating parameters
 - environmental data collection/in-water testing
- shallow capitalization; slow maturation
- balancing promotion and precaution



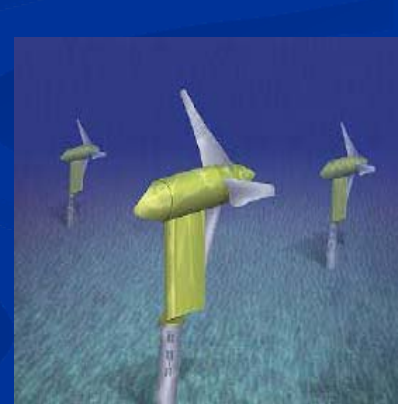
Key Statutory Responsibilities

- Federal Power Act
- Endangered Species Act
- Magnuson-Stevens Fishery Conservation & Management Act
- Coastal Zone Management Act
- Marine Mammal Protection Act
- National Marine Sanctuaries Act
- Ocean Thermal Energy Conversion Act



Hydrokinetic Energy

- potential NOAA concerns:
 - potential lethal and non-lethal impacts to living marine resources and habitats
 - conflicts with navigation and other coastal/ocean users, especially due to exclusion zones
 - scientific uncertainty and lack of information associated with direct and cumulative impacts

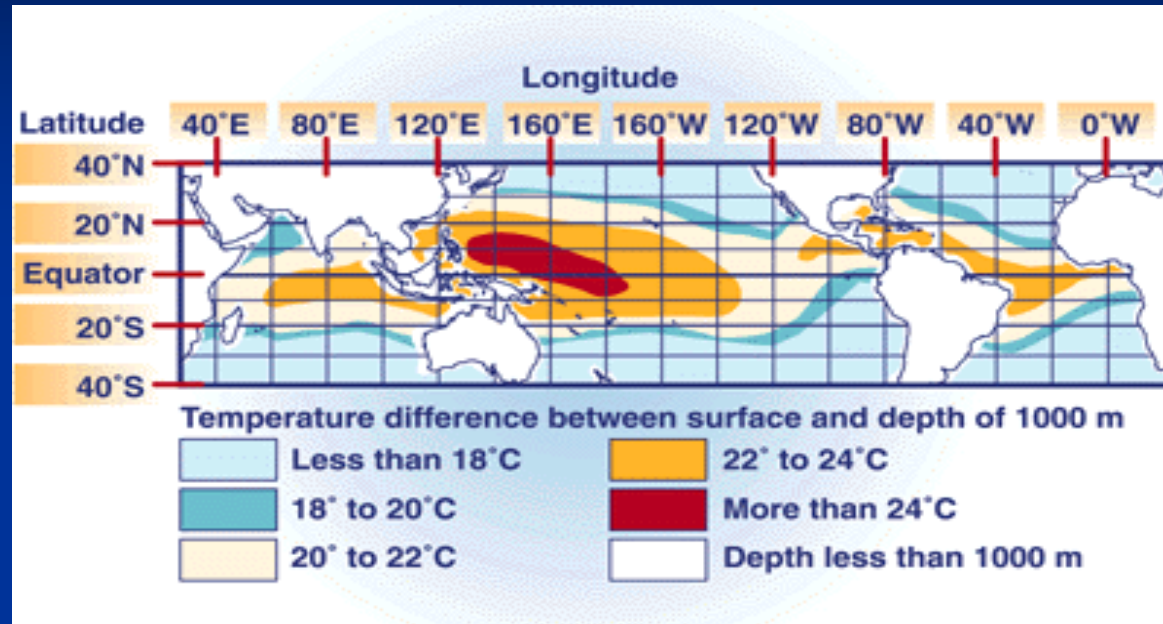


Offshore Wind Energy

- potential NOAA concerns:
 - construction and operational noise and vibration
 - alterations to benthic habitats and migration patterns
 - electromagnetic fields
 - interference with maritime commerce

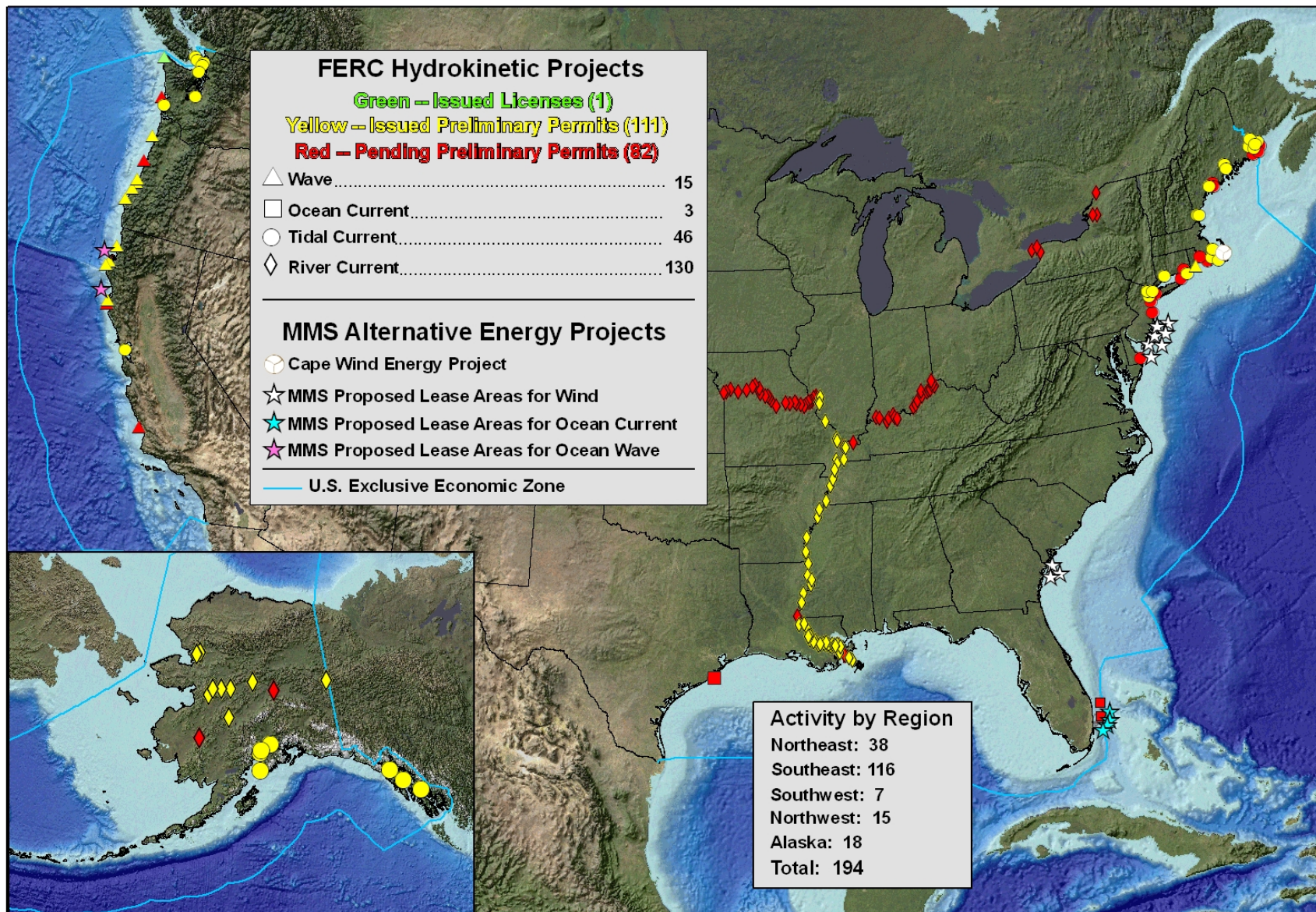


Ocean Thermal Energy Conversion



- potential NOAA concerns:
 - entrainment and impingement
 - effects of localized temperature changes
 - increased nutrients in surface waters

FERC Hydrokinetic Projects and MMS Alternative Energy Projects in the U.S



Evolving Regulatory Framework

FERC

- **Hydroelectric Infrastructure Technical Conference** (*December 2006*)
- **Notice of Inquiry and Interim Statement of Policy for Preliminary Permits for Wave, Current, and Instream New Technology** (*April 2007*)
- **Hydrokinetic Energy Pilot Project Licensing Process** (*November 2007*)
- **Hydrokinetic Conditioned License Policy** (*December 2007*)

Evolving Regulatory Framework

MMS

- **Draft PEIS for Alternative Energy Development and Alternative Use of Facilities on the OCS**
(May 2007)
- **Request for Information and Nominations of Areas for Leases Authorizing Alternative Energy Resource Assessment and Technology Testing Activities** *(January 2008)*
- **Alternative Energy and Alternative Uses of Existing Facilities on the OCS Proposed Rule**
(spring/ summer 2008)

Challenges

- difficulty in balancing multiple uses of the marine environment
- new forms of collaboration with outside partners needed
- energy issues represent a substantial workload for NOAA staff, as traditional sectors expand and new sectors evolve



Opportunities

- working with new energy sectors; industry inviting NOAA participation
- NOAA data and data collection expertise can assist the design of new technologies
- rare opportunity to avoid and mitigate impacts at early stages
- input into the design of new regulatory processes

