

Permitting & Permissions

Global Marine Renewable Energy Conference

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www.nmfs.noaa.gov/habitat/habitatprotection/oceanrenewableenergy



- NOAA has an important energy role
 - understanding and predicting changes to Earth's environment
 - products and services
 - statutory authority for OTEC licensing
 - marine environment stewardship and trustee responsibilities
- increased role as marine renewables evolve
- working with industry to move forward

Key Statutory Responsibilities

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



Office of Habitat Conservation
Habitat Protection Division

Renewable Ocean Energy

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- Renewable Ocean Energy
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Renewable Ocean Energy

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Ocean renewable energy is a term used to describe all forms of renewable energy (energy sources that can be naturally replenished in a relatively short period of time) that are derived from the marine environment. These forms include wave energy, tidal energy, ocean and river current energy, offshore wind energy, salinity gradient energy, and ocean thermal gradient energy.

The U.S. Energy Information Administration estimates that renewable energy will account for over 12% of U.S. electricity production by 2030, with non-hydro renewable generating sectors the fastest growing sources.

A portion of this growth will undoubtedly occur in the marine environment, both to exploit the enormous power available from the oceans, as well as to try to avoid the conflicts and socioeconomic costs associated with



Pelamis Wave Farm



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NMFS's Role and Authorities

NMFS recognizes the growing importance of this new area of energy production and understands that such efforts may impact marine resources, such as endangered species, marine mammals, fisheries, and essential fish habitat. To ensure the protection of these and other resources NMFS provides science-based information, conservation recommendations, and project alternative recommendations to the Federal and state agencies that are responsible for regulating ocean energy and related infrastructure projects.

NMFS statutory authorities require alternative energy permitting and licensing agencies to consult with NMFS regarding the impacts of proposed ocean energy projects on ocean resources. These consultations offer the opportunity to provide recommendations to both the permitting agencies and energy companies on how to avoid, minimize, or mitigate the impacts of their energy projects on living marine resources and essential habitat.

Primary Authorities used in NMFS consultations.

The Federal Power Act (FPA)

Under FPA the Federal Energy Regulatory Commission (FERC) uses its authority to exercise jurisdiction over hydropower projects, but also

Evolving Regulatory Framework

FERC

- **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*)

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*)



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Comments and Presentations

Specific Project Comments

Tidal Projects

- NMFS Comments on Draft Pilot License Application for Verdant Power/Roosevelt Island Tidal Energy Project
- NMFS Comments on Pre-Application Document for Snohomish PUD/Admiralty Inlet Tidal Energy Project

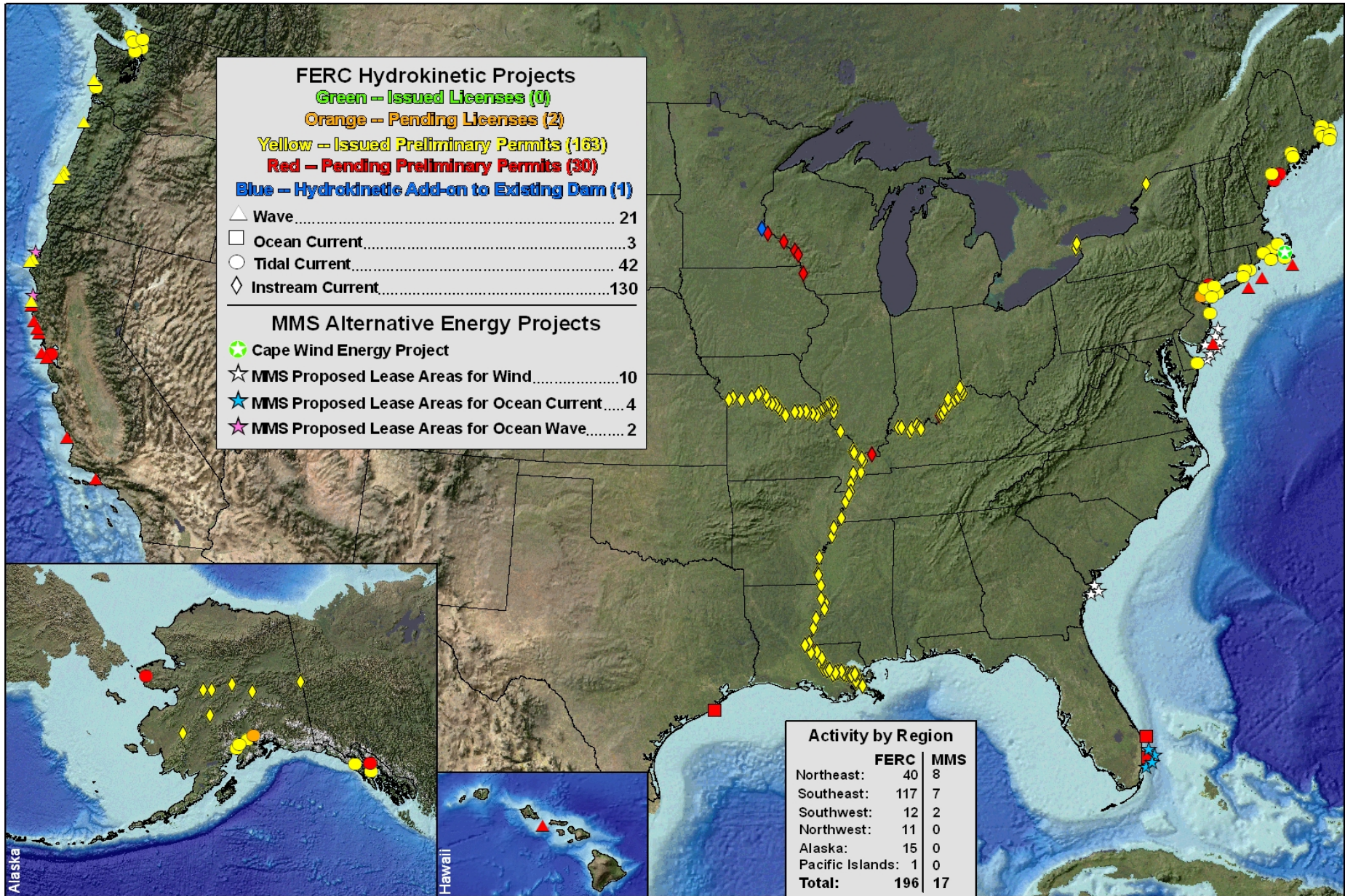
Wave Projects

- NOAA Comments on Pilot License Application for Finavera/Makah Bay Tidal Energy Project
- NMFS Requested Study Plans for Reedsport, OR Wave Energy Project
- NMFS Comments on Pre-Application Document for Douglas County, OR Wave Energy Project

NOAA Comments to Ocean Energy Permitting Agencies

- NOAA/NMFS Comments on the Federal Energy Regulatory Commission's (FERC) Notice of Inquiry for Preliminary

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





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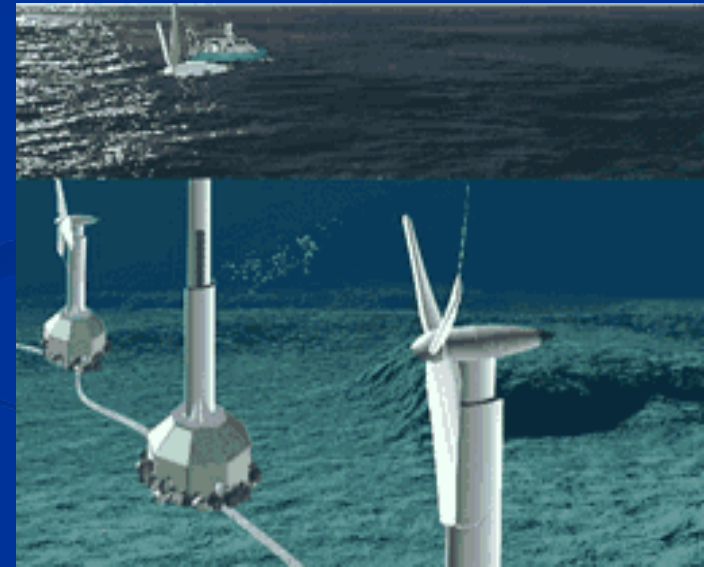
Challenges & Opportunities

- scientific uncertainty and lack of information associated with direct and cumulative impacts
- new forms of collaboration with outside partners needed
- substantial workload for NOAA, as traditional sectors expand and new ones evolve
- opportunities



For Consideration

- two-stage pilot process
- sensitive area designations
- adaptive management metrics
- thresholds for permits
- strict performance targets
- limited access
- permit/license moratoria

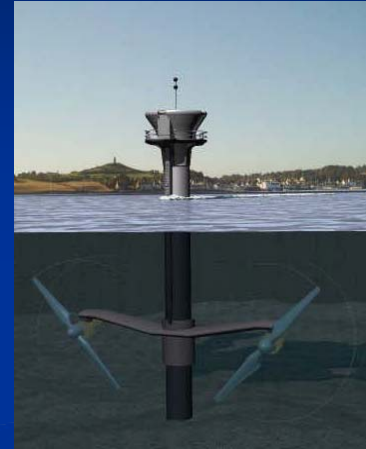


Background

www.nmfs.noaa.gov/habitat/habitatprotection/oceanrenewableenergy

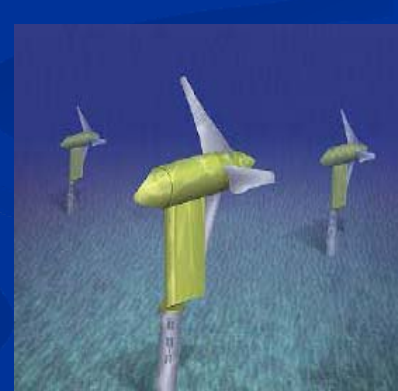
Technology Characteristics

- 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



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



Pilot Hydrokinetic R&D

- baseline information: ecological, socio-economic, historic-cultural, aesthetic
- pilot project monitoring: installation, operation and maintenance, decommissioning and removal
- bioengineering: designing prototypes to prevent or reduce adverse ecological effects
- model development: extrapolation of individual impacts to commercial levels; assessing cumulative impacts
- “fish” “passage”

'Commercial' Hydrokinetic R&D

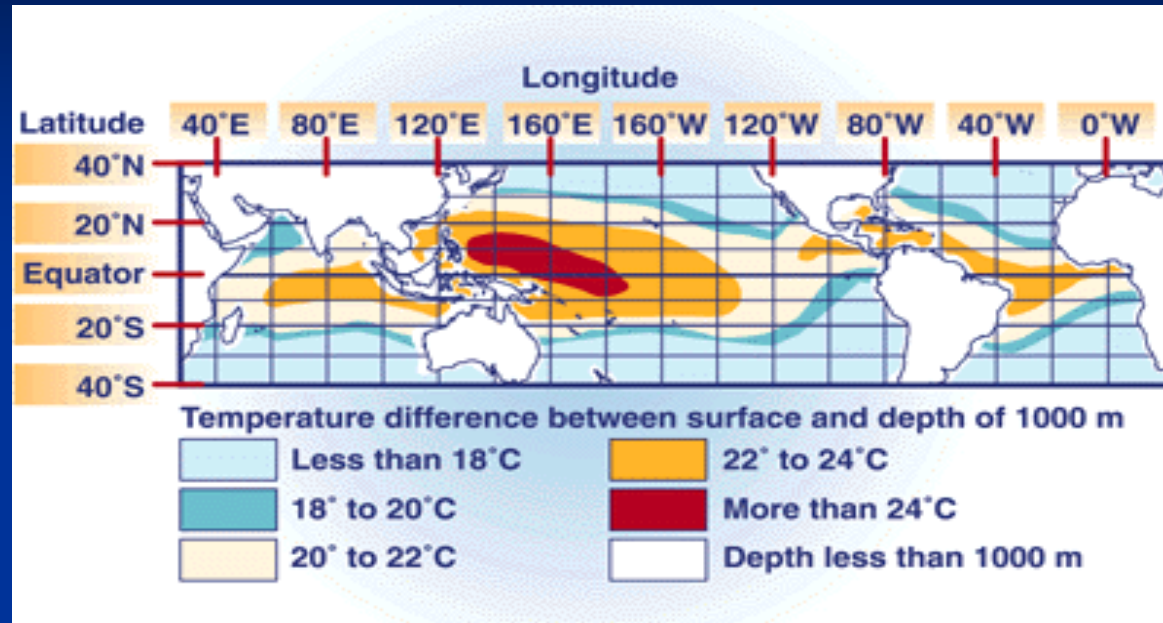
- expanded project monitoring: refining siting criteria, sensitive area closures
- continued bioengineering: adjusting technology capabilities and operating parameters to individual species characteristics
- multiple-array and ecosystem-level impact modeling
- information exchange (repository/clearinghouse)
- independent research capacity

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