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North Coast Offshore Wind Study: Environmental Considerations

October 3, 2019
Presented by Sharon Kramer, Ph.D.
Baloo

Project Funders

BOEM
Bureau of Ocean Energy Management

OCEAN PROTECTION COUNCIL

Governor’s Office of Planning and Research

Major Partners

HUMBOLDT STATE UNIVERSITY

SCHATZ Energy Research Center

PG&E

MOTT MACDONALD

H. T. HARVEY & ASSOCIATES
Ecological Consultants

Navy Region Southwest

North Coast Offshore Wind Studies | 3 October 2019 | schatzcenter.org
## Research Topics

**Funded by Bureau of Ocean Energy Management (BOEM)**
- Resource assessment
- Grid compatibility
- Subsea cable
- Economic analysis

**Funded by California Ocean Protection Council (OPC)**
- Environmental impact
- Port infrastructure
- Stakeholder engagement
- Policy analysis

**Funded by California Governor’s Office of Planning and Research (OPR)**
- Military compatibility
- Geologic / seismic
- Subsea cable environmental
Regulatory Framework

Information needed to satisfy permitting requirements

- Environmental Baseline
  - Species
  - Habitats
  - Life History/Life Cycle

- Likely and Potential Environmental Impacts
  - Project Construction
  - Operations and Maintenance
Environmental Regulatory Considerations

Federal: BOEM OCS Lease
• Endangered Species Act
• National Environmental Policy Act
• Clean Water Act
• Clean Air Act
• Corps Rivers and Harbors Act
• Magnuson-Stevens Act
• Marine Mammal Protection Act
• Migratory Bird Treaty Act
• Bald and Golden Eagle Protection Act

California
• California Environmental Quality Act
• Submerged Lands Act
• Coastal Zone Management Act
• Endangered Species Act
Areas Addressed

- Offshore Call Area
  - Project size scenarios
- Cable Route
- Cable Landing
- Port Infrastructure
- Terrestrial Transmission
- Hypothetical HVDC

[Map showing the areas addressed with various markers and labels.]
Environmental Considerations

• Bathymetry
• Geology/geophysics
• Project size and siting
• Construction details
  – Timing/phasing
  – Type and level of disturbance
Environmental Considerations

- Animal Interactions
  - Collision
  - Displacement
- Habitat
  - Benthos
  - Structure in the water and on the surface
- Acoustic
- EMF
- Lighting
- Fishing/navigation
- Contaminants

Cumulative Effects of Arrays
- Changes to bird behavior
- Lighting
- Chemicals
- Reduction of wave energy
- Cables
- Entanglement
- Changes to sand transport and sedimentation
- Electromagnetic Fields
- Noise
- Changes to fish, crab behavior
- Scour around anchors
- Attraction of rock-associated species
- Colonization by fouling organisms

Slide provided by NNMREC/OSU
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