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OCS Scientific Committee Meeting
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Proposed FY 2015 Studies – Pacific Region

Page	Discipline	Title	Rank
69	BIO	Data Synthesis and High-resolution Predictive Modeling of Marine Bird Spatial Distributions on the Pacific OCS	1
71	BIO	BOEM-MARINe (Multi-Agency Rocky Intertidal Network)	2
73	BIO	Synthesis of Pacific Platform Research	3
75	**FE**	**Consequences of Ocean Energy Projects to Productivity and Trophic Structure in Marine and Coastal Habitats**	**4**
77	FE	Watersipora II: Biological Oceanographic Connectivity of Southern California Reefs and Manmade Structures	5
79	SE	Refining Maps of Ocean Use Compatibility and Cumulative Impacts for Ocean Energy Projects	6
81	BIO	Cross-shelf Habitat Suitability Modeling	7
83	FE	Predicting and Detecting the Effects of Climate Change and Ocean Acidification Using Long-term Ecological Data	8

PO= Physical Oceanography
PS = Protected Species
FE = Fates & Effects
SE = Social & Economic
BIO= Biology
OT = Other

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Consequences of Ocean Energy Projects to Productivity and Trophic Structure in Marine and Coastal Habitats

BOEM Information Need:

- OCSLA mandates consideration of post-lease changes in environmental productivity
- Stakeholders and expert committees interested in understanding potential ecosystem effects from conventional and renewable energy programs
- Useful for NEPA, ESA, MSFCMA, lease stipulations, permit conditions

Relationship to Other BOEM-supported Research:

- Completed Study: *Role of Food Subsidies and Habitat Structure in Influencing Benthic Communities of Shell Mounds at Sites of Existing and Former Offshore Oil Platforms* – results elucidate potential impacts from offshore structure for both conventional and renewable energy
- Ongoing Study: *Predicting the Consequences of Wave Energy Absorption from Marine Renewable Energy Facilities on Nearshore Ecosystems* – results will elucidate potential impacts
- Ongoing Study: *Archaeological and Biological Assessment of Submerged Landforms off the Pacific Coast* – field work will be coordinated between studies

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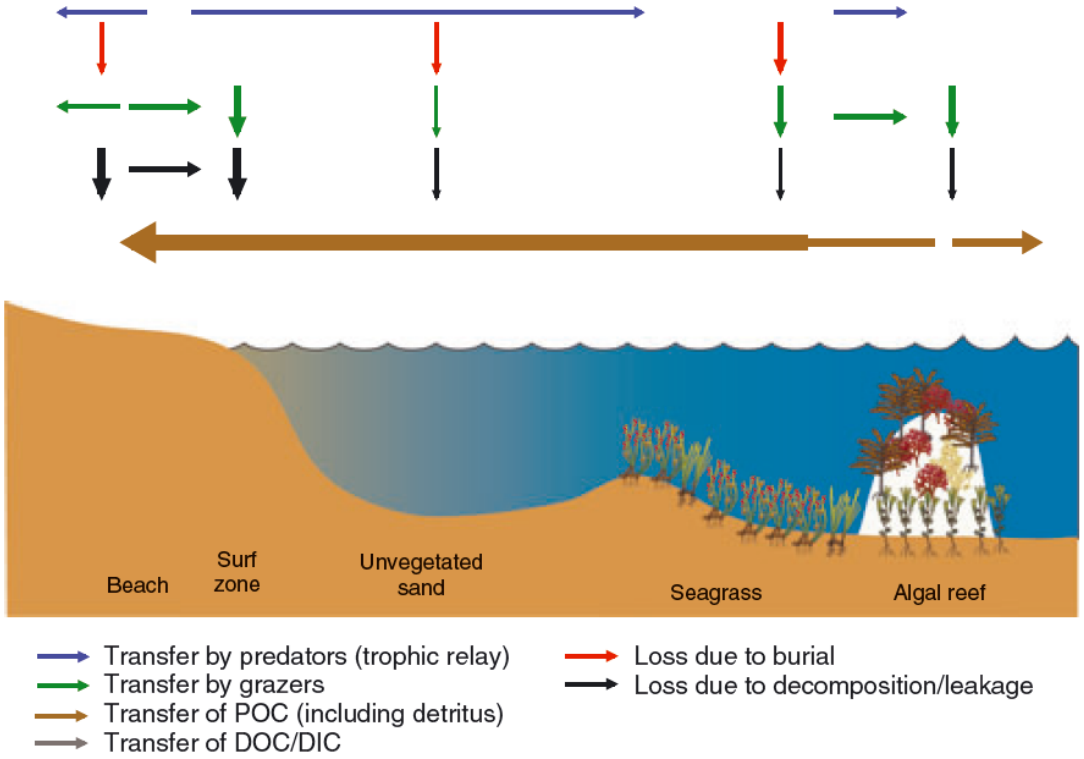
Consequences of Ocean Energy Projects to Productivity and Trophic Structure in Marine and Coastal Habitats

Study Objective:

Assess potential consequences of conventional and renewable energy activities (e.g., offshore infrastructure, oil spills, etc.) on the productivity and trophic structure of sensitive habitats in the California Current Ecosystem, and identify potential mitigation measures when appropriate

Relative magnitude and direction of carbon vectors in temperate open coasts
Hyndes et al. 2014



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Consequences of Ocean Energy Projects to Productivity and Trophic Structure in Marine and Coastal Habitats

Study Methods:

1) **Synthesize information**
   - Summarize potential impacts for ongoing conventional energy and prospective renewable energy
   - Identify which ecosystems/habitats are affected (context and intensity)

2) **Rank habitats by vulnerability**
   - Construct simple models showing sources of productivity, energy flows, trophic structure
   - Vulnerability criteria: spatial scale, frequency, trophic impact, percentage change, recovery time (Teck et al. 2010)

3) **Analyze two case studies**
   - Minimum one case study for each energy program (conventional and renewable)
   - Test model assumptions and predictions

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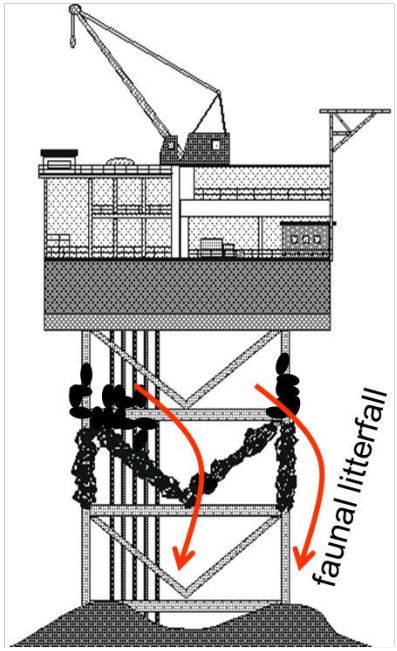
Consequences of Ocean Energy Projects to Productivity and Trophic Structure in Marine and Coastal Habitats

Specific Feedback Sought from Scientific Committee:

1) Are proposed criteria used to rank vulnerability complete? Are there other approaches that could be considered?
2) Are there particular modeling approaches or other methods suitable to meet the overall study objective?



M. Page & J. Dugan

Shell (mussel) mound community