OES-Environmental Workshop: Environmental Effects of Offshore Energy: International Knowledge and the Chilean Perspective

April 12, 2021

1:45 PM – 3:00 PM PST / 4:45PM – 6:00 PM GMT

OES-Environmental hosted a workshop as part of the Chile Riding the Blue Energy Wave International Conference on April 12, 2021. The workshop covered the environmental effects of marine renewable energy (MRE) and floating offshore wind from an international perspective as well as from the Chilean context. There were 26 workshop attendees from several countries, including Chile, Argentina, Mexico, Portugal, Canada, Egypt, and the United States.

Presenters:

- Andrea Copping, Pacific Northwest National Laboratory
- Lysel Garavelli, Pacific Northwest National Laboratory
- Lenaïg Hemery, Pacific Northwest National Laboratory
- Sergio Navarrete, Marine Energy Resource and Innovation Center (MERIC) – Pontificia Universidad Católica de Chile

Event Page: https://tethys.pnnl.gov/events/oes-environmental-workshop-environmental-effects-offshore-energy-international-knowledge

Workshop Presentation Recording: https://youtu.be/XNOIVmGgGmM

Agenda:

- Environmental Effects of Offshore Energy: International Knowledge (Andrea Copping, Lysel Garavelli, Lenaïg Hemery)
- Environmental Effects of Offshore Energy: The Chilean Perspective (Sergio Navarrete)
- Breakout Room Discussions
- Report Out

Key Findings:

During the breakout room discussions, Google Jamboards were used to capture the participant ideas around key themes. Their responses are summarized by theme below.

What concerns are peculiar to Chile?

- Environmental:
    - Absence of environmental regulations in the marine industry
    - Impacts on exploited species (e.g., coastal rockfish)
    - Impact of wave energy converters on marine food webs, microbial communities, and zooplankton
    - Overlap of marine mammal distributions with energy resources, particularly in southern Chile
    - Entanglement of large marine flora (e.g., kelp) with devices
    - Contaminants from desalination discharge or antifouling paints
- Socioeconomic:

- Visual components: impacts on coastal communities and tourism (particularly in central and northern Chile)
- Effects on fisheries communities - need policies to allow the co-existence of marine energy and artisanal fisheries
- Effects on Indigenous communities (Lafkenche law passed in 2008 for exclusive access rights of coastal marine areas and resources)
- Possible conflicts with Chilean naval operations
- Adequacy of ports to support expanded marine operations
- Limited funding for research, and difficulty of accessing international funding without marine energy projects in the water
- Effects on wave for surfing communities

How does the international information apply to the Chilean context?

- The international experience can provide a starting point for the study of environmental effects of marine energy in Chile but the biodiversity along the Chilean coast is specific, and local studies are needed to address particular concerns.
- Lessons learned from offshore energy industries in other countries can help to not repeat mistakes in Chile.
- Understanding behavior of marine species around tidal energy devices (no analog from other industries).
- Offshore wind is successful outside Chile, Chilean government needs to start being interested in this technology.
- Application of international protocols and standards (e.g., TC 114) could be helpful.
- Carbon offset trading could help bring funding into Chile with a globally established network.

What are Chile's strengths for international collaboration?

- Very well-connected Chilean scientific community, with MERIC as a great platform for collaboration. Open for sharing projects outcomes and collaborations.
- Strong local knowledge of Chilean ecosystems, and experience with industry implementation (aquaculture).
- Sufficient industry capacity to support the building of components for wave energy converters (WECs). As marine energy grows, the Chilean industry will be a great resource to help reduce the cost of WEC development. They are interested in developing technologies for both local and international projects.
- Chile has excellent resources for marine energy (wave, tidal).
- Experience in design and testing concepts on electrical energy conversion.
- Experience in extreme events (tsunamis).

Path forward for International Cooperation

- Continue international collaboration with Chilean scientists to exchange information on environmental effects of marine energy, risk retirement, and data transferability.
- Involve Chilean marine energy experts and environmental scientists in the tropical/subtropical task initiated under OES-Environmental in 2021 to collect data and information on environmental effects that are relevant to the subtropical and tropical areas.
- Engage Chile to join OES and OES-Environmental.