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Overcoming Barriers to Marine Renewable Energy Development

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EIMR

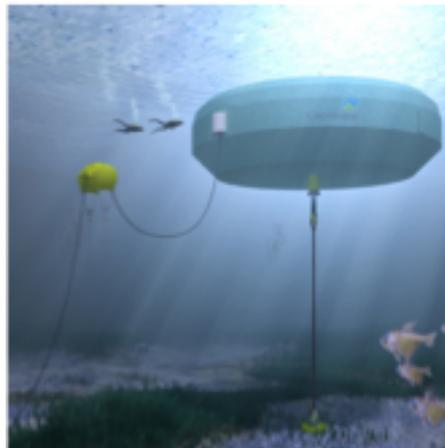
April 2018

Kirkwall, Orkney



Barriers to Consenting

- ▶ MRE industry perceptions
- ▶ Our perceptions of the regulatory community
- ▶ Annex IV working to bridge these gaps
 - 2018 theme: Data Transferability and Collection Consistency
- ▶ Learning as we go...





▶ 2017

- Held two regulator webinars:
 - [Environmental Effects of Permitting MRE Development](#)
 - [Environmental Effects of MRE Development: Regulator Survey Results and Next Steps](#)
- US Regulator Survey

▶ 2018

- White paper on “Data Transferability and Collection Consistency”
- 5 regional Workshops (in-person and online)
- ICOE workshop

Regulatory Needs for Environmental Effects of Consenting MRE

Goal

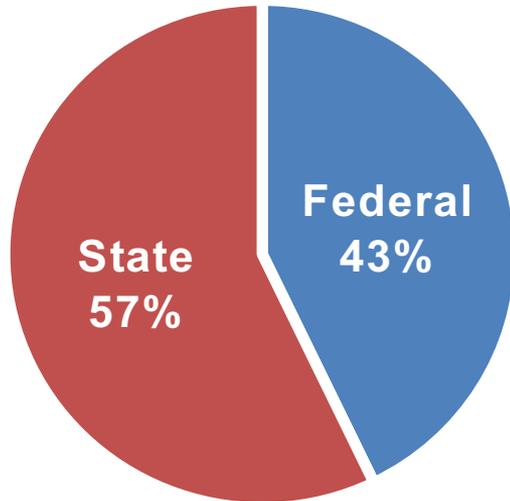
- ▶ Understand information needs, key uncertainties for consenting

Outcome

- ▶ Better understanding of regulator knowledge
- ▶ Methods to best work with regulators



US Participants



Familiarity with MRE technologies

- ▶ Not very familiar with different wave and tidal technologies
- ▶ Offshore wind technologies were the most familiar to participants
- ▶ Federal more familiar with wave and tidal than state



Challenges for Permitting MRE Devices

Single Device

▶ Top Challenges

- Chemical releases
- EMF effect on animals
- Benthic/habitat disturbance
- Collision risk
- Effects of underwater sound noise
- Avoidance, attraction, and/or displacement of animals
- Energy removal/changes in flow
- Entanglement in lines and cables



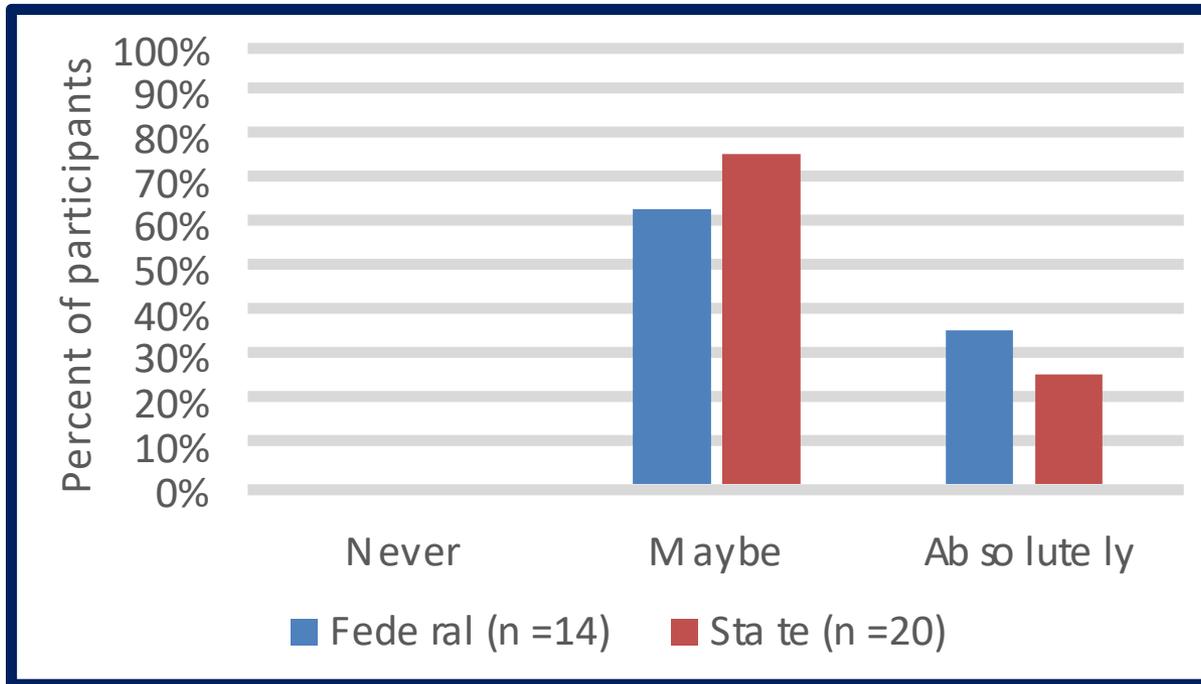
Arrays

▶ Top Challenges

- Chemical releases
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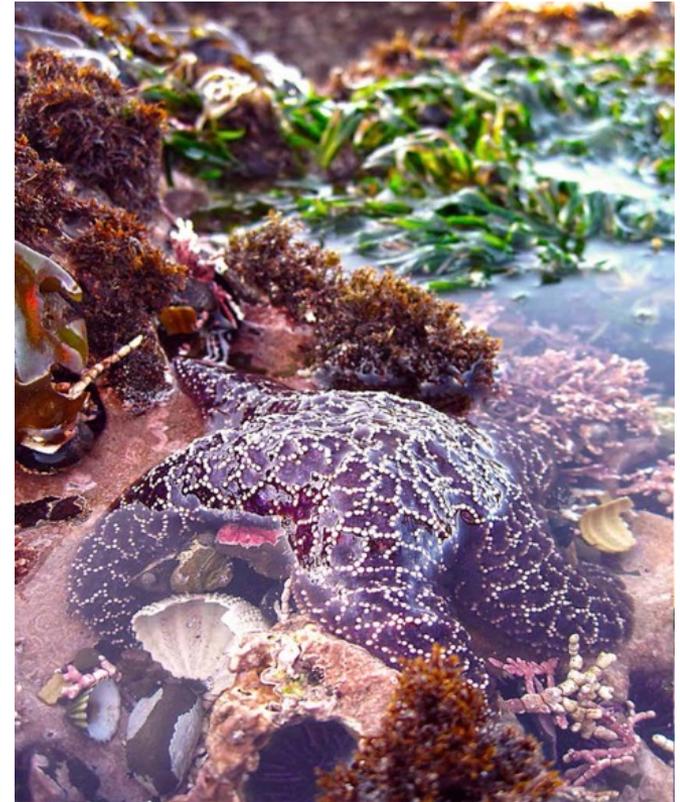
Can data collected from other locations be applied towards environmental permitting within your jurisdiction?



Conclusions of Survey

- ▶ Participants indicated:
 - Difference in impacts between single device and array
 - Risk increases with scale, but more data needed

- ▶ Data transferability should be further explored
 - No one answered “never”
 - 25% state regulators and 36% federal answered “absolutely”



- ▶ Challenges:
 - Lack of access to data from early stage projects
 - Lack of consistent methods for data collection
 - No mechanisms to apply data/information between projects

- ▶ Goal: to transfer learning from early projects to inform future projects

- ▶ What do we mean by “data”?
 - We really mean data and information:

Could be raw or quality controlled data but more likely analyzed data, synthesized data to reach some conclusion, reports, etc.

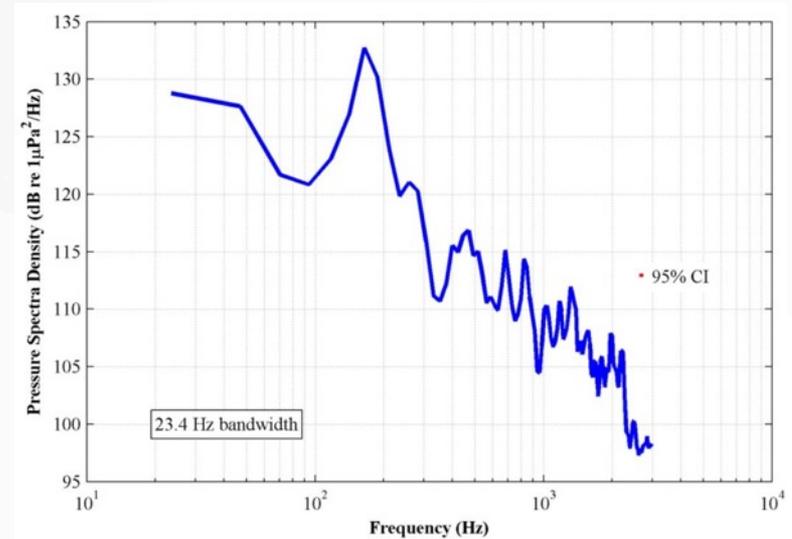
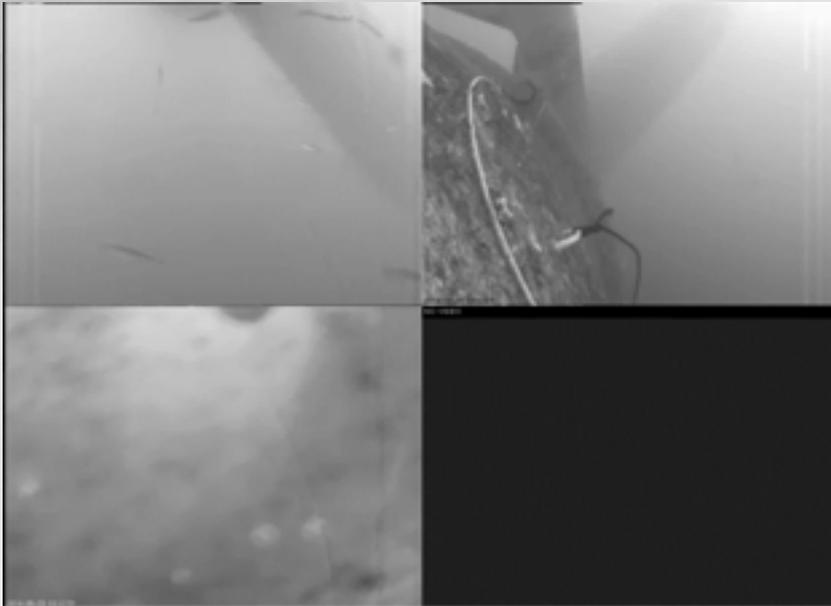
Working with US Regulators

- ▶ Data can be transferred from:
 - Research studies and established projects (monitoring)
 - Other industries with similarities
- ▶ Site specific data collection could be reduced
- ▶ Data for “transferring” need to be collected consistently for comparison
- ▶ 5 Data Transferability Workshops (~2 hours)
- ▶ Share MRE data, understand regulators’ needs and willingness to transfer data
- ▶ Gather feedback on our data transferability framework



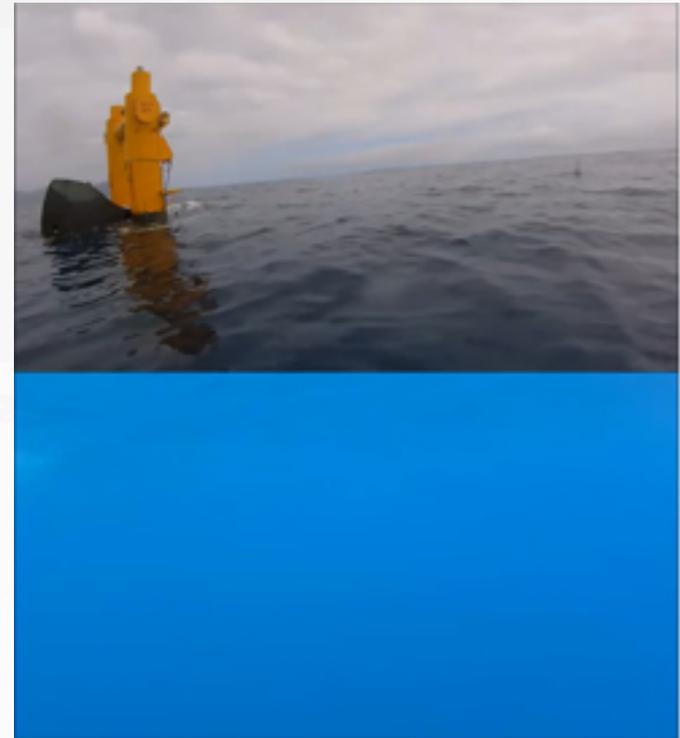
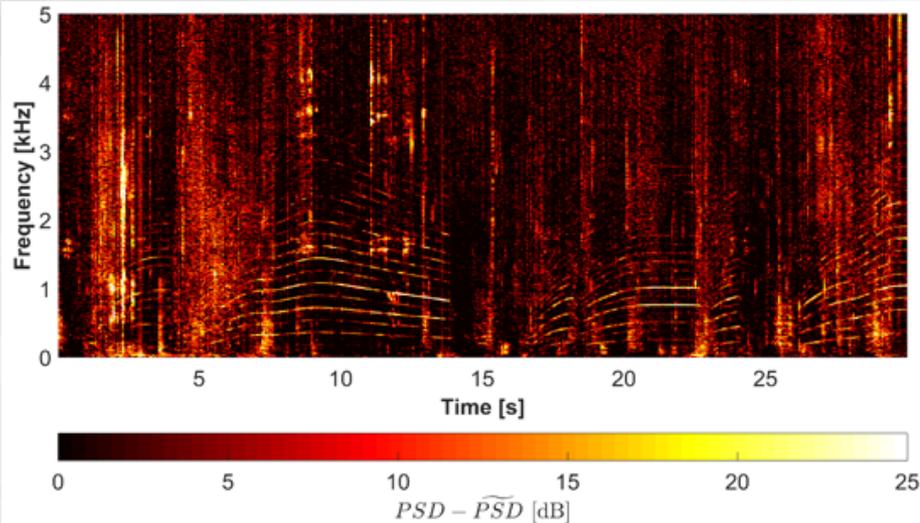
Sample data from regulator workshops

▶ Tidal turbines at EMEC



Sample data from regulator workshops

▶ WECs at WETS (Hawaii)





Annex IV proposes: Framework for Data Transferability

- ▶ Develop common understanding of data types and parameters to address potential effects of MRE development.
- ▶ Create best practices for consistent collection of data.
- ▶ Engage regulators to test framework, solicit input on acceptance for data transfer.
- ▶ Guide implementation of best practices for siting, permitting, post-installation monitoring, and mitigation.

Framework:

1. Method for describing environment, evaluating the comparability of data sets (MRE project archetypes);
2. Description for applying framework; and
3. Method for implementing framework, to support regulatory processes

Framework: MRE Project Archetype

Underwater Noise



Site Condition	Technology	Receptors
Isolated/Quiet Environment	Tidal Device	Marine Mammals
		Fish
	Wave Device	Marine Mammals
		Fish
Noisy Environment	Tidal Device	Marine Mammals
		Fish
	Wave Device	Marine Mammals
		Fish

Framework hierarchy

Necessary

- Same MREPA

- Same receptor species (or closely related)

Preferred

- Similar technology and project size

- Similar wave/tidal resource

Optional

- Close geographical proximity



- ▶ Continue seek their input from US and other Annex IV country regulators, on what is needed
- ▶ Draft BMPs for data transferability
- ▶ Explore researchers', developers' perspectives:
 - Workshop at ICOE in Cherbourg, France, Tuesday June 12th 2018
- ▶ Present findings via web-based tool on *Tethys*

<https://tethys.pnnl.gov/>



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Thank you!

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