Pacific Region Marine Renewables Environmental Regulatory Workshops: The Dashboard Approach

The Science and Art of Permitting of Marine Renewable Energy Projects

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Marine Renewables Environmental Regulatory Workshops

- Purpose:
  - examine recent research findings
  - establish open lines of communication among scientists, industry, and agencies
  - inform and improve the process for permitting and licensing projects
- Three workshops held to date: 2 on MHK, 1 on offshore wind

The Dashboard Approach

- A snapshot/profile of "risk"
  - provides a means for discussing and achieving consensus around the state of knowledge for each environmental interaction;
  - demonstrates where each interaction falls on the continuum from low to high risk;
  - indicates the mechanisms by which risk might be further reduced; and
  - tracks the reduction in risk for each interaction over time.

Environmental Issues Addressed

- Electromagnetic Fields
- Underwater sound
- Habitat changes
- Organism interactions
  - Tidal turbine collision
  - Offshore wind and birds/bats
- Entanglement/Debris
- Physical changes to systems

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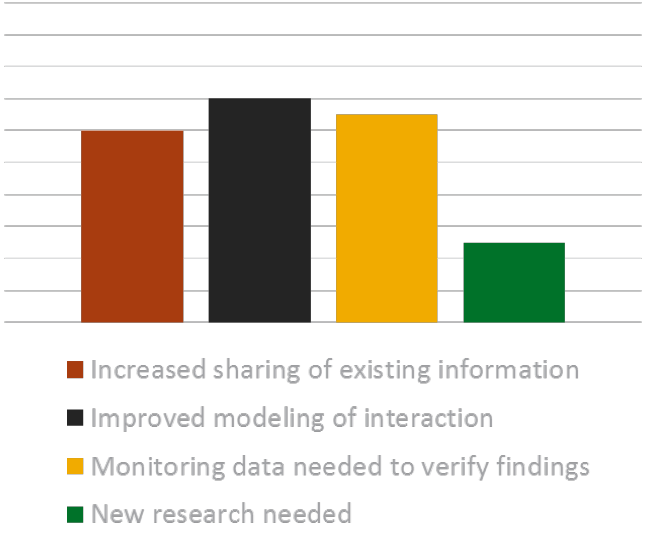
Dashboard Examples: Electromagnetic Fields

- Color: level of risk
- Green: low
- Yellow: data!
- Red: mitigation



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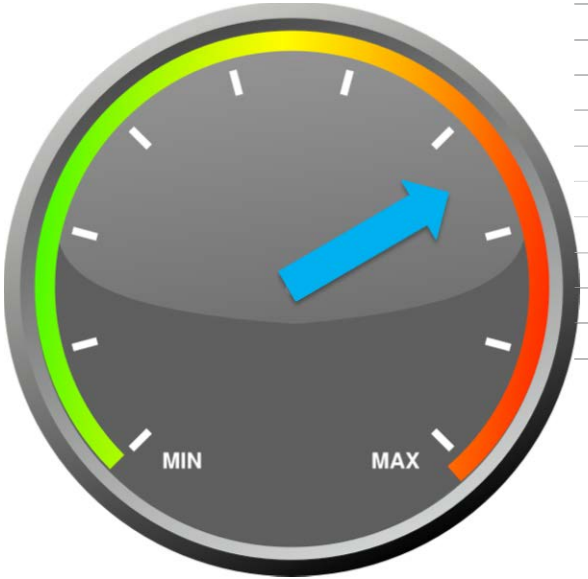
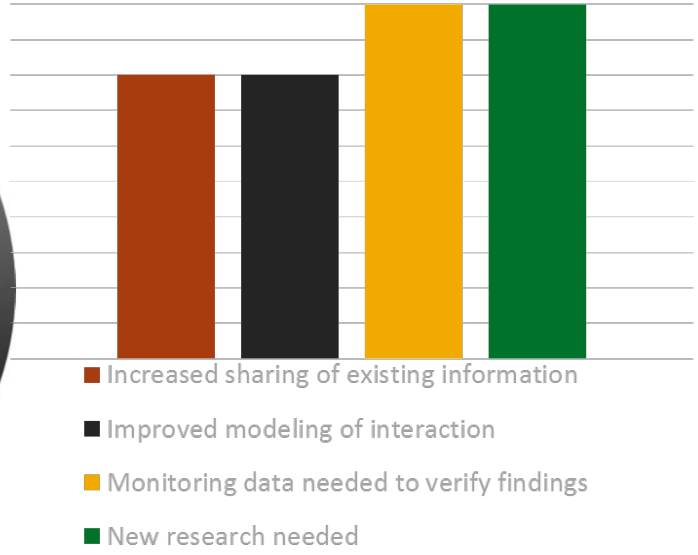
Dashboard Examples: Seabird Collision/OW





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What Other Steps can we Take?

- Data Transferability and Data Collection Consistency

- 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.

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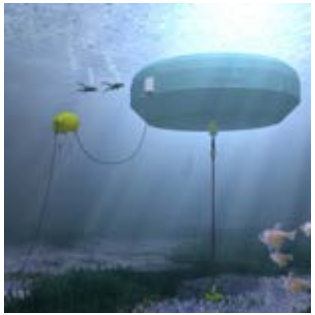
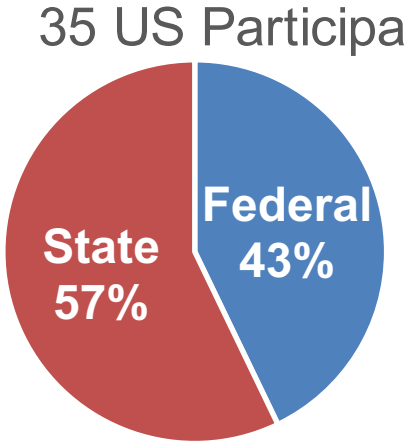
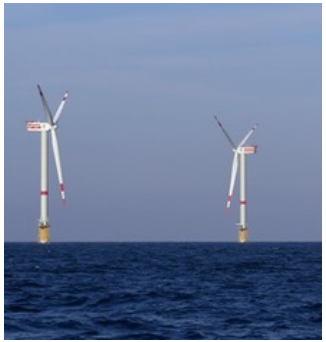
Barriers to Consenting

- 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…

Survey of US regulators





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

Challenges for permitting MRE devices

- Top Challenges

Arrays

  - Chemical releases
  - EMF effect on animals
  - Benthic/habitat disturbance
  - Collision risk
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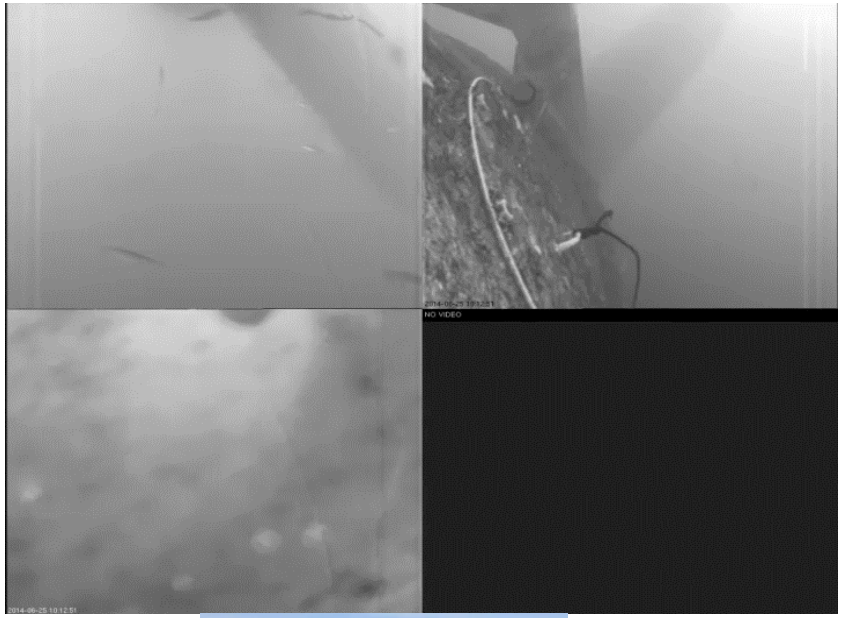
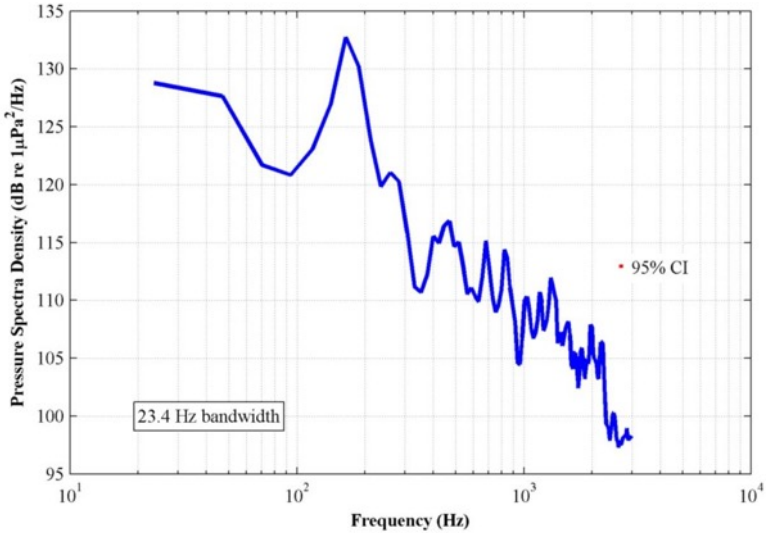
Sample data from regulator workshops

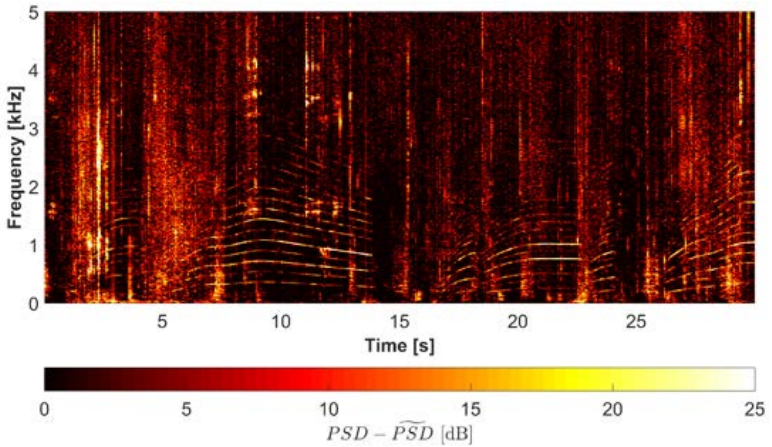
- Tidal turbines at EMEC

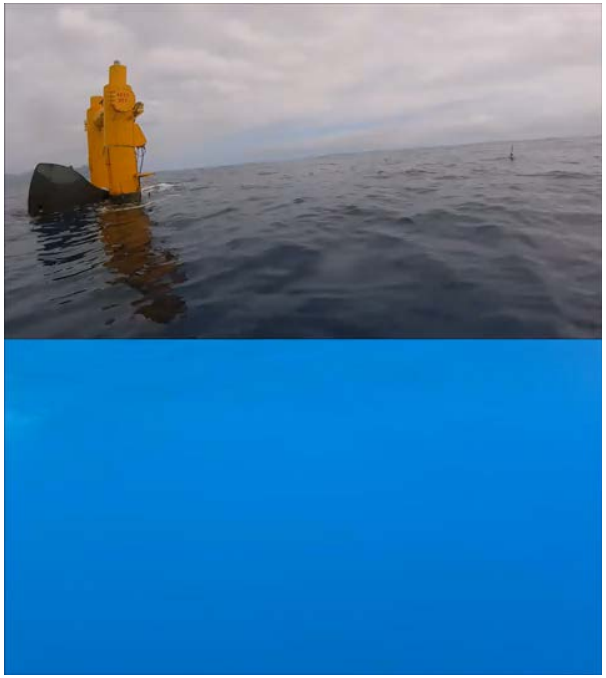




Sample data from regulator workshops

- WECs at WETS (Hawaii)

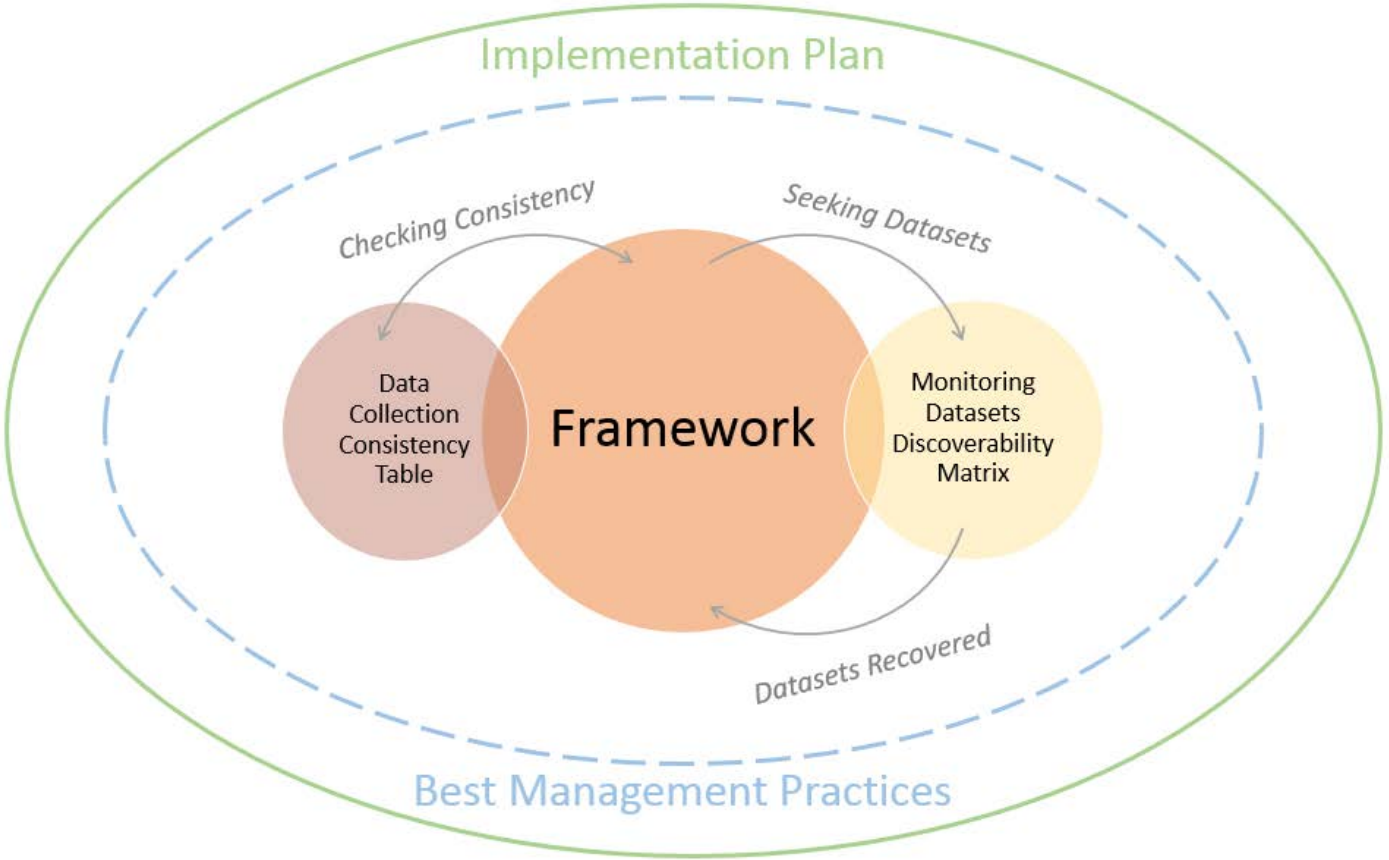




Regulator feedback

- Regulators not looking for raw data
- Liked seeing videos, audio clips and other data/information
  - Helped increase understanding of potential impacts

Process for data transferability



Best Management Practices

- BMP 1: Meet the minimum requirements (Guidelines for Transferability + MREPAs) to be considered for data transfer from an already consented/permitted project to a future project.
- BMP 2: Determine likely datasets that meet data consistency needs and quality assurance requirements.
- BMP 3: Use of models in conjunction with and/or in place of datasets.
- BMP 4: Provide context and perspective for datasets to be transferred.

Next Steps

- Developed process to "transfer" data from consented projects to future projects, including BMPs
  - Overall, positive feedback
  - Helping regulators find data/information easier
  - Regulators support ensuring data consistency

- Continue seek input from US and other Annex IV country regulators, on what is needed
- Present findings via web-based tool on Tethys

https://tethys.pnnl.gov/

Thank you!

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- Sharon Kramer
- Scott Terrill
- Pete Nelson
- David Ainley

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- Andrea Copping
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- Alicia Gorton
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