



Workshop: Monitoring Datasets Discoverability Matrix

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Today's Workshop

- Introduction
- Overview of data transferability process
- Monitoring datasets discoverability matrix
 - Demonstration
 - Examples
- Questions / Feedback
- Next Steps



OES-Environmental

- International initiative under Ocean Energy Systems (OES)
- 15 countries currently participating:
 - Australia, Canada, China, Denmark, France, India, Ireland, Japan, Norway, Portugal, South Africa, Spain, Sweden, United Kingdom, United States
- Environmental effects of marine renewable energy (MRE)
- Major themes: data transferability and risk retirement



Environmental Effects of MRE

- Stressors:



Collision Risk



Underwater Noise



Electromagnetic
fields (EMF)



Habitat Changes



Changes in Flow



Displacement

- Receptors:

- Marine animals
- Habitats
- Oceanographic conditions

Barriers to Consenting/Permitting

- MRE industry perceptions:
 - Long time to get projects in the water
 - Complex, extensive consenting requirements (baseline and post-installation)
- We perceive that the regulatory community:
 - Faces many challenges
 - ✓ Novel technologies
 - ✓ Uncertainty of environmental effects
 - Mandate to protect environment and uphold regulations
 - Key for getting devices deployed



OES-Environmental is working to bridge these gaps

Data Transferability

- **Data transferability**

- Using data from an already consented MRE project or analogous industry to be “transferred” to inform potential environmental effects and consenting for a future MRE project
- Data that might be “transferred” need to be collected consistently for comparison

- By “**data**”, we mean

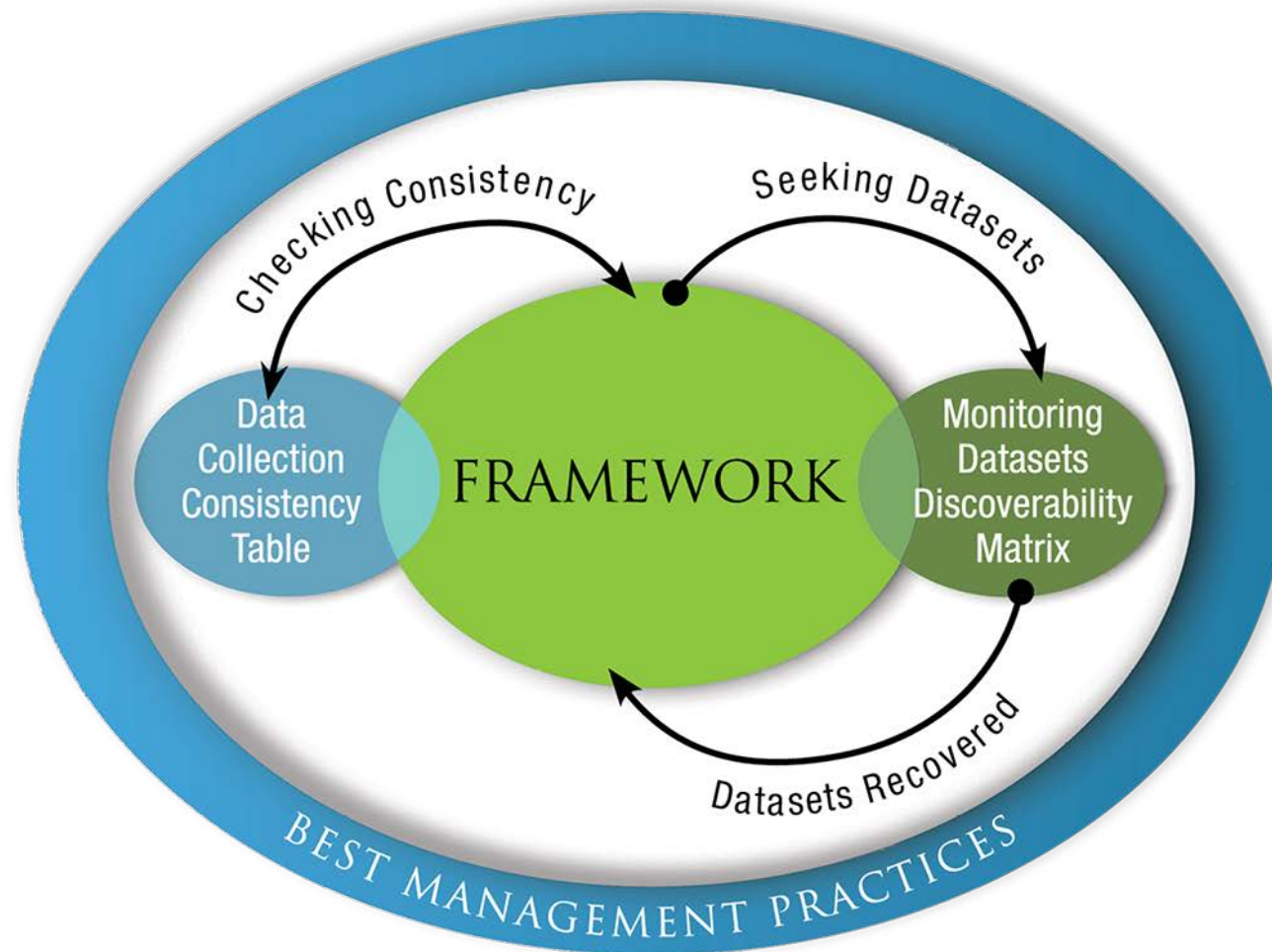
- Data and information

Could be raw or quality controlled data

More likely analyzed data and information, synthesized data to reach some conclusion, reports, etc.



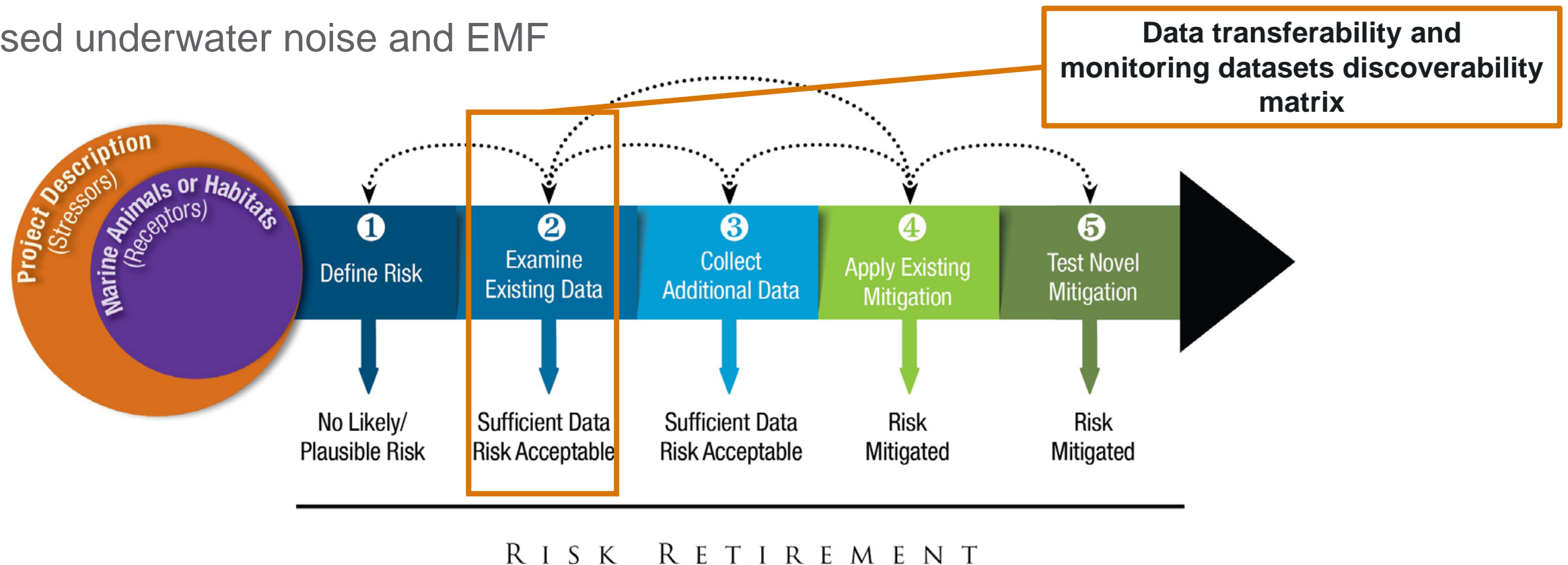
Data Transferability



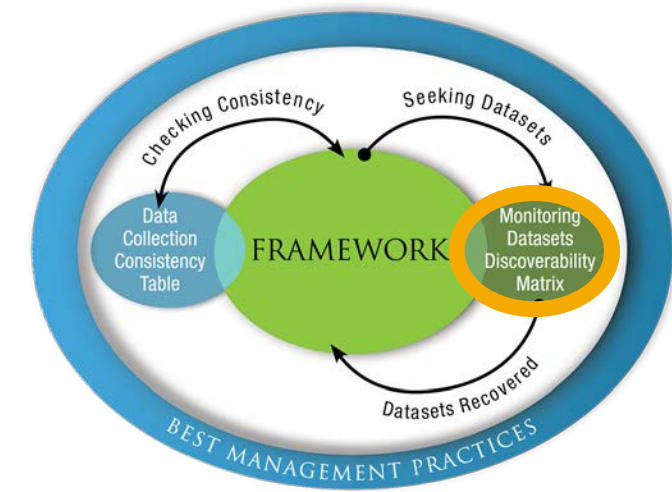
- Framework – classifies stressor/receptor relationships
- Data collection consistency table – outlines parameters for comparison of data between projects
- Best management practices – suggest four practices for implementation
- **Monitoring datasets discoverability matrix** – catalogues relevant datasets

Risk Retirement

- For certain interactions, potential risks need not be fully investigated for every project for small developments (1-2 devices)
- Rely on what is already known from consented projects, research, or analogous industries
- A “retired risk” can be re-examined in the future as more information becomes available for larger arrays
- Assessed underwater noise and EMF



Monitoring Datasets Discoverability Matrix



- The **monitoring datasets discoverability matrix** (matrix) is an interactive tool to guide data transfer
 - Makes datasets from existing projects accessible for regulators, developers, and MRE community to transfer data to future projects
- Categorized by six stressors:



Collision



Underwater Noise



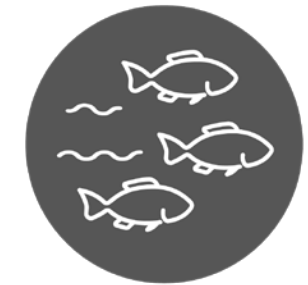
EMF



Habitat Change
(water column
and benthic)



Changes in Flow



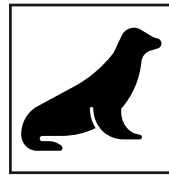
Displacement

How it works

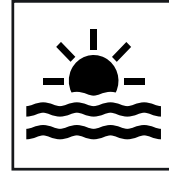
- Classifies existing monitoring datasets and research studies by defined characteristics:



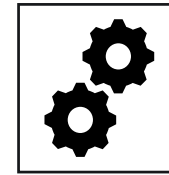
Stressor



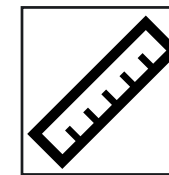
Receptor



Site
Conditions



Technology
Type



Project Size


- Datasets come from OES-Environmental metadata for MRE project sites and research studies
- The matrix filters this information and allows users to sort through the stressors and characteristics to retrieve relevant datasets for future projects

OES-Environmental Metadata

<https://tethys.pnnl.gov/oes-environmental-metadata>

- Provides information on activities exploring the potential environmental impacts of MRE devices
- Categorized by project sites and research studies
- Includes project or research progress, associated reports, and key findings or environmental monitoring data/information

Forms to complete are available on Tethys and can be sent to tethys@pnnl.gov. If you have updates on existing or new metadata, we would appreciate hearing from you!



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OES-Environmental distributes metadata forms (questionnaires) to solicit information from developers involved in environmental monitoring around marine renewable energy project sites around the world. This page provides project descriptions, baseline assessment, post-installation monitoring, and links to available data and reports. Content is updated on an annual basis.

Sabella D10 tidal turbine at Ushant Island

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Description

The Sabella D10 project was nominated in 2011 as part of the "Marine Renewable Energy Demonstrators" call for interest launched by ADEME (French Agency for Environment and Energy Management) and received funding through the "Investments for the Future" national program. A complementary subsidy from the European Regional Development Fund was awarded by the Brittany region.

The project is noteworthy in a number of respects:

- widespread social acceptance;
- 100% French construction;
- structural industrial partnerships;
- output dispatched to Ouessant under the control of EDF SEI and ENEDIS; and
- environmental considerations supervised by the Iroise Marine Natural Park.

The project consisted of the construction and 12-month deployment of an industrial tidal stream generator in Fromveur Passage (also known as St Vincent's Channel). During slack water periods in May 2015, the cable to export the electricity produced was installed between the generator site and the coast of Ouessant (Ushant). In June 2015, the D10 was lowered into the Fromveur Passage in a water depth of 55 m; by November 2015 the D10 was connected to the island network via the previously installed cable. The D10 was the first tidal turbine to supply electricity to the French grid. The generator is 17 m high and has a footprint of 20 x 20 m; its 10-metre rotor can generate 1 MW from the currents in the Fromveur Passage.

Initial results for the project were promising and in line with expectations, and also opened up future avenues for improvement. In July 2016, at the end of the period for which on-site installation was authorised, the turbine was raised to the surface for technical inspection and expert appraisal.

The turbine was redeployed in October 2018 as part of the **European Intelligent Community Energy (ICE) project #**. Following continuous electricity production over several months, Sabella's team focused on testing new control methods at the beginning of 2019 in order to significantly improve the efficiency of the turbine and contribute to the competitiveness of this emerging sector.

Location


Fromveur Passage, off the coast of Ushant Island, Brittany.

Project Progress

In April 2019 Sabella recovered the D10 turbine from the Fromveur Passage for a servicing period of approximately three months off the port of Brest. The turbine is planned to be redeployed on its foundation and connected to Ushant Island, for operation until 2021 and the commissioning of the PHARES (**Progressive Hybrid Architecture for Renewable Energy Solutions in Islands #**) project, led by AKUO Energy, including two Sabella tidal turbines, a wind turbine, solar energy and energy storage (implemented by EDF SEI).

Papers, Reports, Research Studies

- ETIP Ocean (2017). Minimising negative environmental impacts. Ocean Energy Europe 2017 presentations [online]. Available from: <https://www.etipocean.eu/assets/Uploads/2017-08-29-ETIP-Ocean-webinar-Minimising-negative-environmental-impacts.pdf>



Sabella D10 tidal turbine at Ushant Island is located in France.

Project Site

Title:	Sabella D10 tidal turbine at Ushant Island
Status:	Device in operation
Project Manager:	Sabella
Tech Developer:	Sabella
Website:	External Link
Start Date:	January 1, 2011
End Date:	January 1, 2021
Info Last Updated:	September 30, 2019
Contact:	Diane Dhomé

Details

Technology:	Marine Energy (General), Tidal
Technology Subtype	Bottom-Mounted
Support Structure:	Gravity Base, Gravity/Deadweight Anchor
Project Scale:	Single Device
Installed Capacity:	1 MW
Electrical Infrastructure:	Draped Cables
Country:	France
Physical Site:	Open Coast
Water Depth:	55 m

Post-Installation Monitoring: Sabella D10 tidal turbine at Ushant Island

Stressor	Receptor	Study Description	Design and Methods	Results	Status
				Turbine at rest: from June 2015 there were	

Demonstration of the Matrix

<https://tethys.pnnl.gov/monitoring-datasets-discoverability-matrix>



Discussion and Feedback

- What are your thoughts on “data transferability”?
- Could you make use of the matrix for transferring data to consent MRE projects?
- General feedback on the matrix: usefulness, organization, accessibility?

Next Steps

- Recording will be available on *Tethys* shortly
- For more information on data transferability and risk retirement:
 - <https://tethys.pnnl.gov/data-transferability>
 - <https://tethys.pnnl.gov/risk-retirement>
- Continue risk retirement efforts:
 - Webinar in September
 - Guidance documents
 - To provide guidance on risk retirement in an accessible format for the entire evidence base that regulators can use
 - Developed for each stressor





Thank you!

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