OES-Environmental Risk Retirement Best Management Practices
Expert Forum Summary

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8:00AM – 9:30AM PDT

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1. Overview

On June 11, 2025, OES-Environmental hosted an international, online expert forum to present the risk retirement process for marine renewable energy (MRE) developments. The purpose of the expert forum was to gather feedback from MRE developers on the risk retirement and data transferability process, which will guide the development of the Best Management Practices (BMPs) for applying risk retirement.

The expert forum included a presentation of OES-Environmental's risk retirement framework by Pacific Northwest National Laboratory (PNNL), which provided an overview of the risk retirement pathway and case studies, the data transferability process, the current status of risk retirement for key environmental interaction, and BMPs for applying risk retirement. The expert forum included two discussion-based portions focused on receiving feedback and answering questions, the first via an online poll to assess the use of the risk retirement process by the MRE developers and the second via a collaborative whiteboard discussion to gather input on the BMPs and their application. There were 10 participants in attendance at the expert forum.

This summary describes the content and findings from the expert forum, focusing on feedback and areas of development for risk retirement and the BMPs, and a discussion of next steps. Additional event information, including the presentation slides and recording, can be found on the Tethys event page, Expert Forum: Risk Retirement of Environmental Effects. The full agenda of the expert forum is included in Appendix A.

Key takeaways from the expert forum are detailed below:

- The BMPs for applying risk retirement provide valuable structure to the risk retirement process, and the language and space created by OES-Environmental facilitate productive conversations on risk retirement and data transferability.
- The *2024 State of the Science* report was noted as a key resource by developers as it is used frequently to find and apply information for permitting/consenting applications, and to apply existing data to inform new projects and share with regulators.
- Many developers have been able to work with regulators to retire some aspects of environmental risk for their project.

- High regulator turnover rates, MRE device specificities, and the young age of MRE technologies are barriers to risk retirement.
- Need to be careful with data collection consistency guidance to avoid regulators being too focused on particular data collection methods with no room for new methods to be used and applied; instead should focus on what the data and information shows.
- Further guidance for when to apply data transferability based on environmental factors such as species traits (e.g., hearing range, movement patterns) would be beneficial.
- Regulatory guidance for specific countries and locations is needed, especially since information needs and consenting processes can be country, region, or site-specific.

2. Feedback and Discussion

This section describes the feedback including discussions, questions, and poll responses from the expert forum. Feedback was gathered throughout the expert forum through participant responses to targeted questions about risk retirement and data transferability. Poll Everywhere was used to ask specific questions on risk retirement and record responses during the first feedback session. Additional feedback was gathered during the second feedback session on the BMPs using an online Canva collaborative whiteboard and open discussion, as well as through the chat feature on the Zoom platform.

2.1. Online Poll

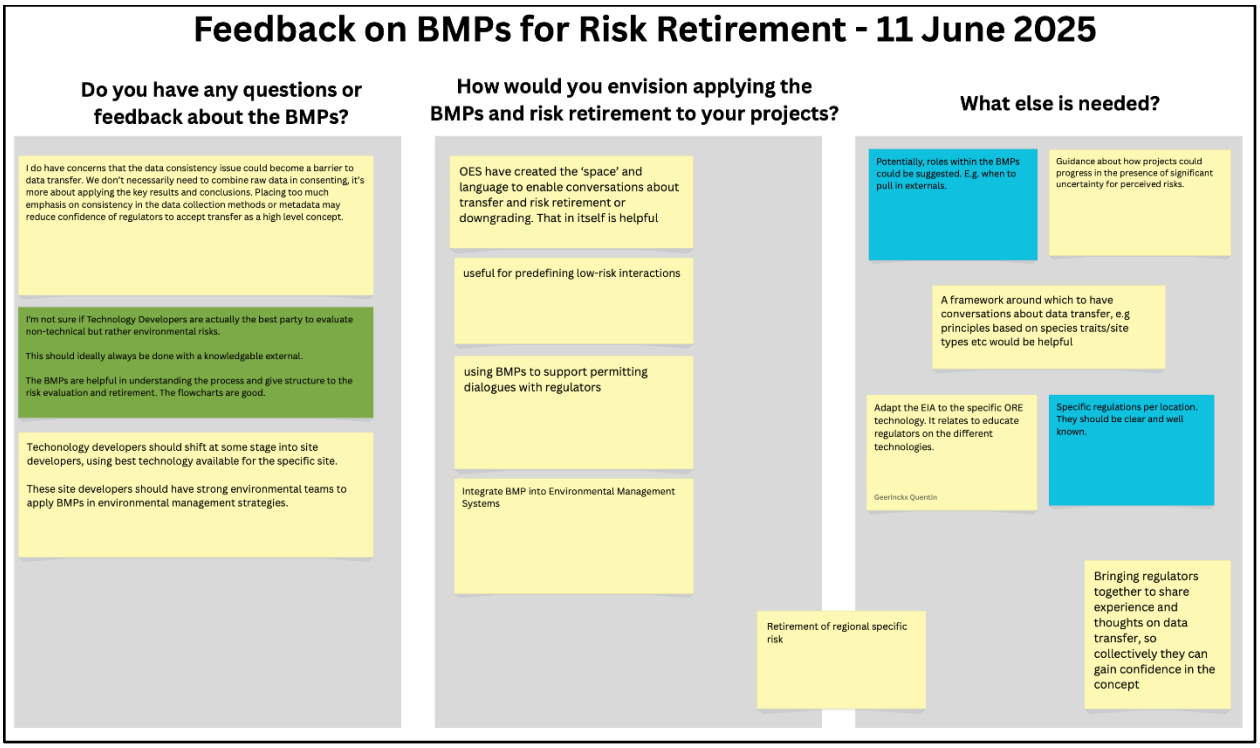
Following a presentation on the risk retirement and data transferability process, expert forum participants were presented with questions and asked to respond with their experience using risk retirement or data transferability through Poll Everywhere. The results from these questions are shown in the following table.

Poll Everywhere Feedback - Risk Retirement Best Management Practices	
Have you been able to retire a risk during permitting/consenting for a project? For what stressor-receptor interaction?	
• Yes, for benthic organism disturbance. • Yes: EMF and noise was assessed on a desk-top basis for the permitting of a tidal array in the Bay of Fundy primarily using data from the State of the Science. • We have managed to retire a few risks for a certain number of turbines. An example you have given is the benthic. We are currently looking at retiring collision risk with black guillemot thanks to a couple of studies that	• Using and referencing the State of the Science Report and Risk Retirement directly in permitting applications to federal and provincial regulators has been very useful. EMF, underwater noise, and putting collision risk into context (i.e., size of the rotor swept area for a single turbine in comparison to the width of the channel) while also noting that it remains an area in need of further monitoring. • Yes, we've been able to prove that our device does not involve habitat displacement or cause

were carried out in the past few years, showing that they stay to shallower areas for foraging than were the turbines are deployed. We are also working on finding a solution for the harbour seal collision risk. • Noise due to machine operation by providing experimentally collected sound profiles. Avoidance due to anchor placement based on survey of impact on seafloor.	underwater noise at levels which to compromise marine animals. • Not really, it's been difficult to retire any risk as the regulators / reviewers continue to ask the same questions on the technology. And we have to go through the same explanations each time.
How have you transferred data from one project to inform permitting/consenting for a new project?	
• By publication and reporting. • Referencing existing projects and monitoring efforts to put risk into context. No direct transfer of data yet. • Thanks to an Environmental Monitoring and Mitigation Plan we were able to transfer investigations and compromises with the marine environment to the rest of our tidal sites. • Emails to key stakeholder: Existing pre-deployment and post-deployment assessment reports. Existing state of the science reports.	• Yes, we drew on data from our Tidal Array and published data from other tidal energy projects as part of the evidence base to assess collision risk for our Tidal Array project. It didn't allow us to retire the risk altogether, but we believe it helped ensure a proportionate approach to how this risk was assessed and the mitigation required. • Not from project to project, but yes from phase to phase. Recently we submitted a screening report using the retiring framework for EMF for a single turbine. • No, so far this will be our first marine energy project to work on. • Difficult to apply as different countries have different practices and guidelines.

2.2. Collaborative Whiteboard

After the presentation of the risk retirement BMPs, expert forum participants were asked to provide feedback through discussion and an online Canva collaborative whiteboard. The comments provided on the collaborative whiteboard are shown in the following image.



2.3. Additional Feedback from Participants

Additional comments left in the chat throughout the webinar indicated that participants find risk retirement, the BMPs, and the expert forum helpful. Several developers indicated that they were appreciative of the presentation and discussion and looked forward to similar opportunities in the future.

Some caveats to risk retirement, data transferability, and BMPs for risk retirement were brought up during the live discussion, including the following:

- Risk retirement is fantastic, although it relies on regulators following guidelines and the risk retirement framework.
- Regulatory turnover is an issue; need to build capacity within these agencies to prevent a total loss of knowledge when individuals leave.
- Risk retirement is helpful as a short-term regulatory communication tool.
- Risk retirement is hard to apply for specific technologies that are not well represented (e.g., unique tidal kite).
- MRE technologies are too young to retire risks, the focus should be on collecting data.

3. Summary of Findings

This section presents what was learned from developers throughout the expert forum. Feedback on risk retirement, data transferability, and the BMPs is summarized below.

3.1. Risk Retirement

Most developers agreed that risk retirement and associated resources are helpful. Several developers stated that they frequently use the *2024 State of the Science* report for different purposes such as finding and sharing information with regulators and applying information to new projects. Most developers have used the risk retirement process to retire stressor-receptor interactions, including underwater noise, electromagnetic fields (EMFs), displacement, and changes in habitat. Challenges to applying risk retirement include the young age of MRE technologies, application to specific MRE device archetypes, and frequent regulator turnover. While most developers have applied data transferability at a sub-project level or project level (e.g., between project phases), approximately half of the developers at the expert forum have transferred data between projects during permitting/consenting processes. A barrier to data transferability mentioned by one developer was the difficulty of applying data across countries with differing practices and guidelines. Suggestions from developers included ensuring data is comparable and transferable and developing a framework for determining the applicability of data transferability based on species traits (e.g., hearing range, movement patterns).

3.2. Best Management Practices

Developer feedback for the BMPs raised questions about whether technology developers are the best suited to assess environmental risks and recommended instead that site developers or external entities with environmental expertise implement BMPs into environmental management strategies. Developers envisioned using the BMPs to predefine low-risk interactions, enhance communication with regulators, and integrate into environmental management systems. They also offered additional suggestions for BMP development, including guidance for advancing projects with uncertain risks, increased emphasis on what data and information show rather than overemphasis on collection methods, adaptation of environmental impact assessments to MRE-specific technologies to help educate regulators on different MRE technologies, clear regulatory guidance tailored to specific locations, regulator outreach to collect feedback on data transferability, and the retirement of region-specific risks.

Appendix A – Expert Forum Agenda

Timing*	Item
8:00 – 8:10am	Introduction • OES-Environmental overview • Purpose of the expert forum
8:10 – 8:15am	Risk retirement presentation • Pathway for retiring risk • Data transferability process • Tools and resources
8:15 – 8:35am	Feedback poll and discussion on risk retirement • Poll Everywhere
8:35 – 8:45am	Best Management Practices (BMPs) presentation
8:45 – 9:20am	Discussion and feedback on BMPs • Canva whiteboard
9:20 – 9:30am	Next steps

*All times in PDT.