

# MRE Regulator Survey: *IRELAND*



Prepared by Deborah Rose and Mikaela C. Freeman

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## Introduction

As marine renewable energy (MRE) is still a new industry, there are many unknowns about the potential environmental effects of MRE deployments. These concerns are largely based in the uncertainty of how wave and tidal devices interact with the environment, or how marine animals behave around devices. This uncertainty makes consenting processes for MRE projects difficult, often requiring extensive monitoring and data collection. This cautious approach may limit the implementation of MRE technologies or create financial barriers to development.

To better understand the viewpoint of regulators involved in consenting MRE devices, a survey was conducted among multiple OES Environmental countries. The survey was intended to understand the familiarity of regulators with MRE technologies, their perceptions of environmental risk, and their recommendations on best approaches to MRE development, including consenting and the potential for data transferability. The survey also included some questions to gather *Tethys* user data. This report summarizes the results from the survey of regulators in Ireland.

## Participants

Email invitations to complete the 2019 Survey on Regulatory Needs for the Environmental Effects of Consenting Marine Energy in Ireland were sent to individuals known to be involved in consenting MRE. Out of 5 total responses received, 4 responses were complete and retained for analysis.

Figure 1 shows the distribution of participants by the jurisdiction they self-identified as representing ( $n = 4$ ). Two out of four respondents have directly participated in environmental consenting and licensing of an MRE project.

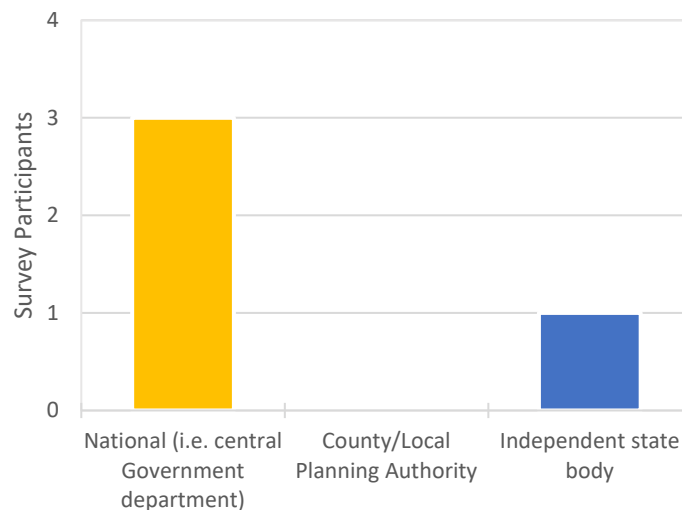


Figure 1. Jurisdiction of survey participants. ( $n = 4$ )

Participants were also asked to indicate their own role in consenting MRE developments and the top focus of their agency. These results are summarized in Figure 2 and Figure 3, respectively. All participants (n = 4) are involved with reviewing applications, and almost all are involved in making recommendations and advising policy decisions (Figure 2). The top priority for the agencies represented was foreshore leasing/licensing, with less focus on environmental factors (Figure 3).

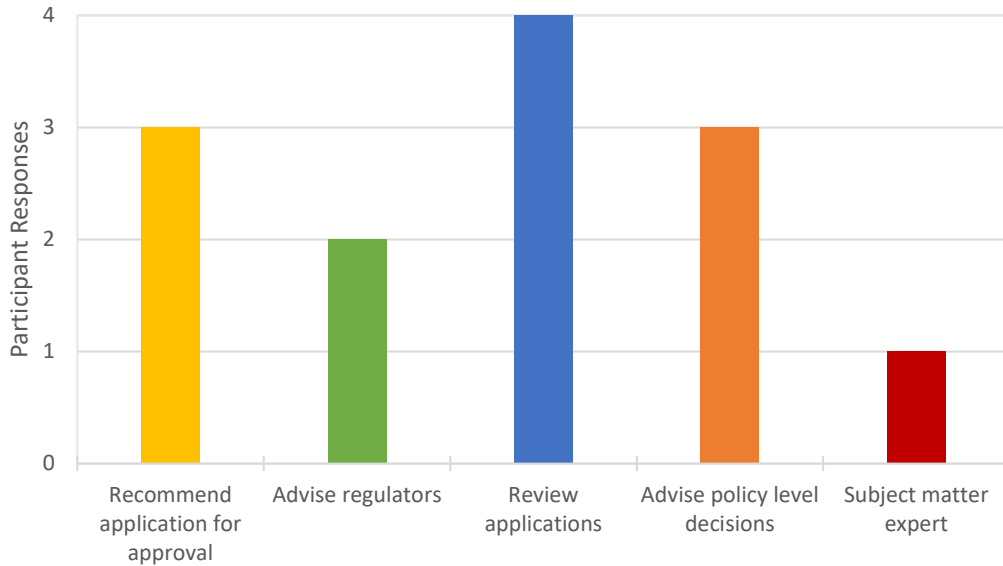


Figure 2. Individual role in marine energy project consenting. (n = 4)

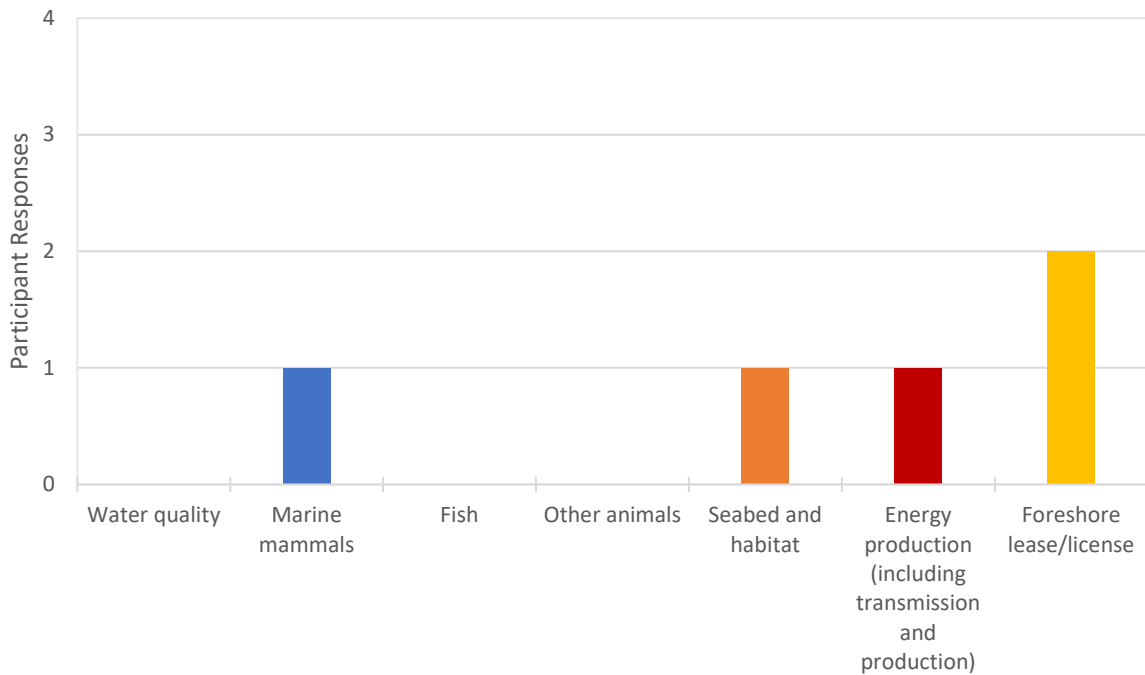


Figure 2. Agency top focus in consenting marine energy projects. (n = 4)

## Familiarity with MRE Technologies

Regulators were asked to rate their familiarity with tidal energy and wave energy technologies on a scale of 1 (not familiar) to 5 (very familiar). None of the regulators surveyed consider themselves very familiar with any wave or tidal technologies. Regulators are slightly more familiar with horizontal and vertical axis turbines (Figure 4). Regulators are slightly more familiar with wave energy technologies than tidal, with mixed experience based on type of device (Figure 5).

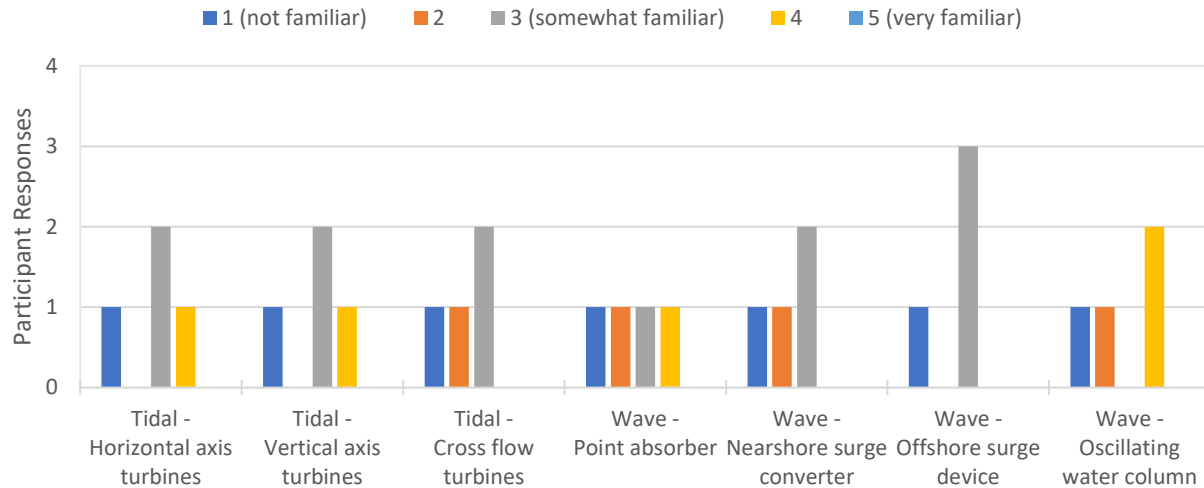


Figure 3. Familiarity with tidal and wave energy technologies. (n = 4)

## Top Challenges and Perceptions

Regulators were asked to rank the following challenges from 1 (most important) to 7 (least important) for consenting projects with single marine energy devices and for arrays.

- Benthic/habitat disturbance
- Risk of animals colliding with underwater devices
- Chemical releases and water quality degradation
- Electromagnetic field (EMF) effect on animals
- Effects of underwater sound emissions from devices on animals
- Avoidance, attraction, and/or displacement of animals
- Energy removal and effects of changes in flow on the ecosystem
- Entanglement of animals with lines and cables

The average ranking of each challenge was calculated by Survey Monkey, such that the answer choice with the largest average ranking score is the top challenge.<sup>1</sup>

<sup>1</sup> Method used to calculate average rank uses the equation below, where w is the weight of the ranked position and x is the response count for each answer choice.

$$\frac{x_1w_1 + x_2w_2 + x_3w_3 \dots x_nw_n}{\text{Total Response Count } (n)}$$

### Single Device

The results for **single devices** are shown in Figure 6 (n = 4). The top 2 challenges of regulators in Ireland for a single device are benthic/habitat disturbance and effects of underwater noise.

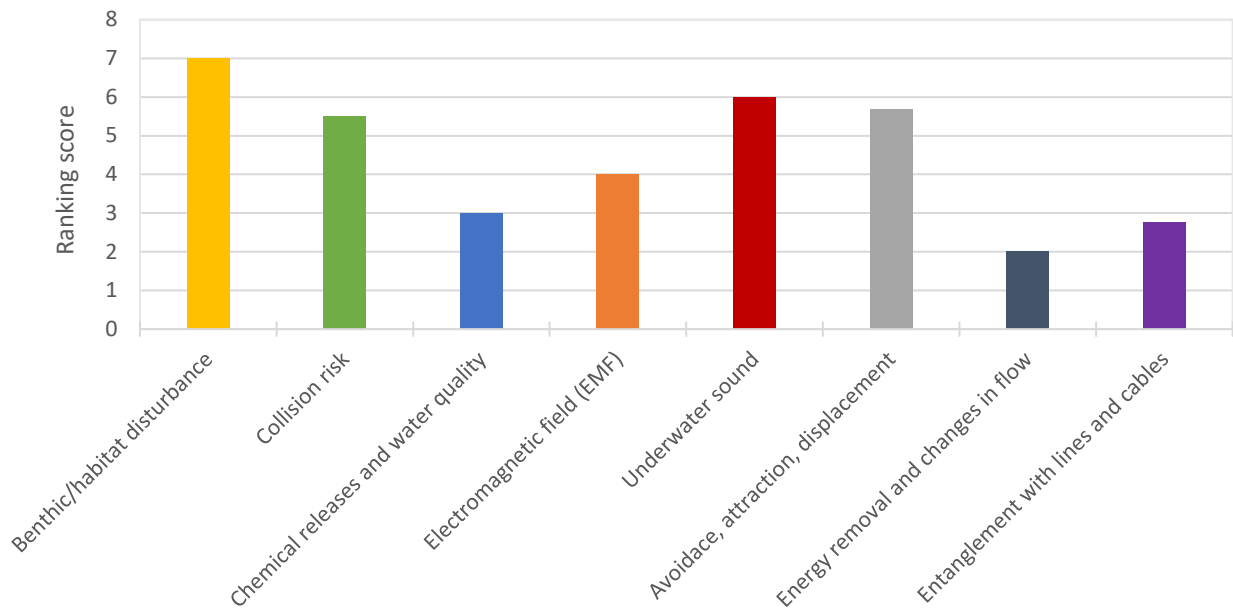


Figure 5. Ranking of challenges to consenting **single devices**. (n = 4)

Regulators were also asked to respond to several statements about consenting for **single devices** with respect to their top ranked challenge.

1. Sufficient field data are needed to determine risks and reduce uncertainty of marine energy projects.
2. Numerical models play an important role in environmental consenting.
3. Agency/policy guidance is needed to interpret risk and uncertainty
4. Staff need to be knowledgeable and trained on technologies, projects, interactions, etc.

The results of this question are summarized in the heat map below (Table 1). All participants were either neutral or in agreement (agreed or strongly agreed) with all statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Sufficient field data	0	0	0	3	1
2. Numerical models	0	0	1	1	1
3. Agency/policy guidance	0	0	1	2	1
4. Staff knowledge/training	0	0	0	3	0

Table 1. Regulator perceptions of **single device** statements. (n = 4)

## Arrays

The results for device **arrays** are shown in Figure 6 (n = 4). The ranking of top challenges changes slightly with arrays, though benthic/habitat disturbance remains the top concern. The second ranked challenge for arrays is collision risk.

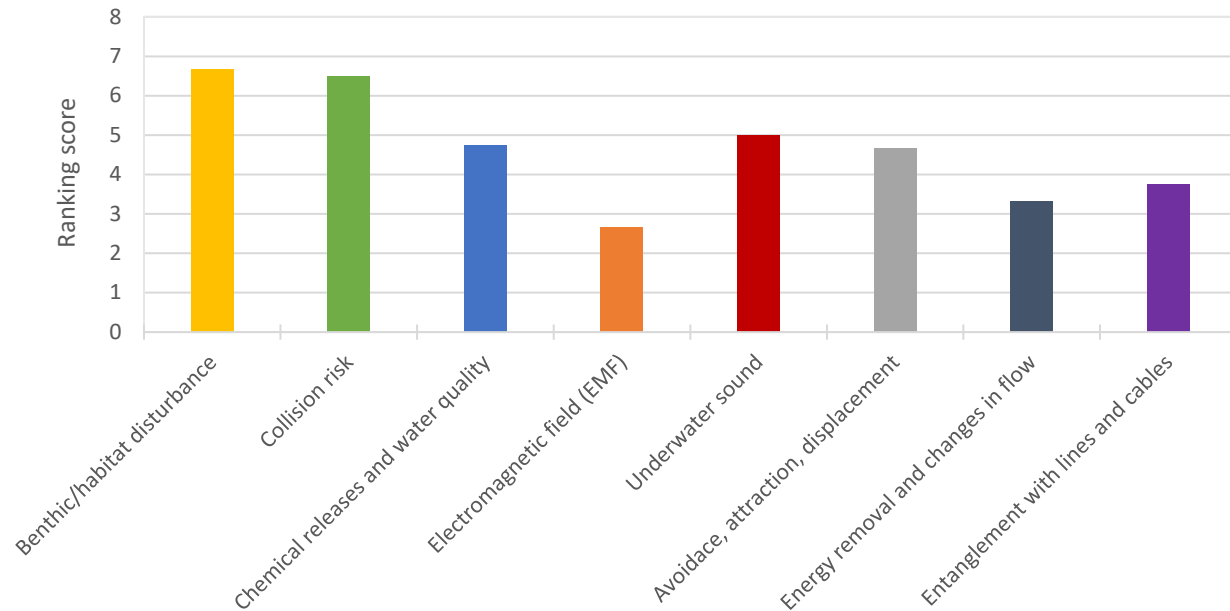


Figure 6. Ranking of challenges to consenting device **arrays**. (n = 4)

Regulators were also asked to respond to the same statements as previously, but this time about consenting for an **array** of devices with respect to their top ranked challenge.

1. Sufficient field data are needed to determine risks and reduce uncertainty of marine energy projects.
2. Numerical models play an important role in environmental consenting.
3. Agency/policy guidance is needed to interpret risk and uncertainty.
4. Staff need to be knowledgeable and trained on technologies, projects, interactions, etc.

The results of this question are summarized in the heat map below (Table 2). All participants were either neutral or in agreement (agreed or strongly agreed) with all statements (n = 4). Responses are about the same for these statements for both single devices and arrays.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Sufficient field data	0	0	0	2	2
2. Numerical models	0	0	1	1	1
3. Agency/policy guidance	0	0	0	3	1
4. Staff knowledge/training	0	0	0	3	0

Table 2. Regulator perceptions of device *array* statements. (n = 4)

### Data Transferability

Regulators were asked to respond to the question: “Can data collected from other locations be applied towards consenting and licensing marine energy projects within your jurisdiction?” Participants were given the option of ‘Never’, ‘Maybe’, and ‘Absolutely’. Results are shown in Figure 8.

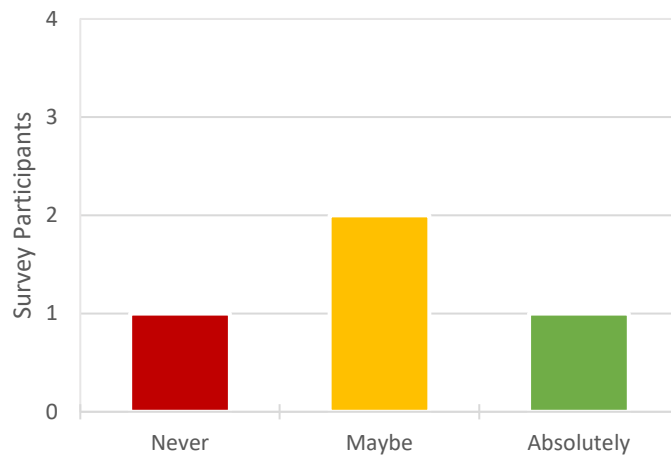


Figure 7. Possibility for data transferability. (n = 4)

Additional comments left in response to this question include:

- “The data from studying habitat disturbance of varying technologies in other regions should be applicable and valid”
- “In order to avoid duplications, it should be possible to use any relevant information available and obtained through risk assessments carried out pursuant to EU legislation.”



## Best Approach to MRE Development

Regulators were asked, “Which of the following approaches best describes your vision of how the MRE industry should develop? (Choose one)”. The options, as provided to regulators in the survey, are as listed below:

- *Precautionary Principle*: There is a high degree of uncertainty and potentially negative outcomes associated with marine energy project deployment and operation. Measures should be taken to avoid the negative outcome by proceeding very cautiously or not pursuing projects at all.
- *Mitigation Hierarchy*: Impacts or risks should be systematically limited by taking actions to avoid, minimize, mitigate and/or compensate for risks through siting and/or mitigation measures.
- *Phased Approach*: A small number of devices should be deployed first, followed by slowly ramping up to larger array scale after potential risks are better understood and managed.
- *Adaptive Management*: A learning-based management approach should be applied that includes adapting monitoring and mitigation over time to understand risks, decrease uncertainty, and mitigate for impacts.
- *Survey, Deploy, Monitor*: Enables a strategic adaptive management approach through demonstration that decision making regarding pre-consent survey effort/design is risk-based and proportionate.
- *Just do it*: Risks to the marine environment are almost certainly low, so projects should be able to move forward.

Results from this question are described in Figure 9. Regulators are split between preference for mitigation hierarchy and phased approach.

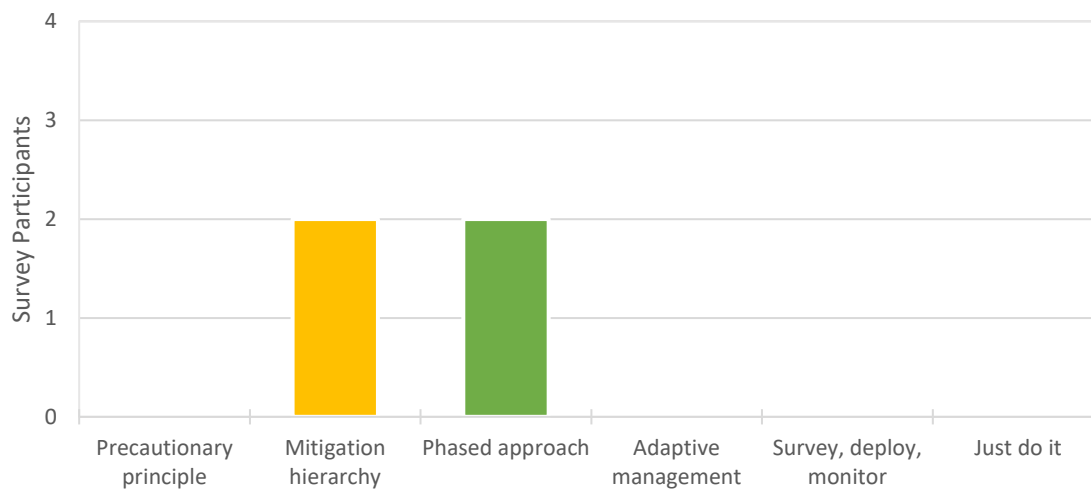


Figure 8. Regulator perspectives on management approaches. (n = 4)

## Use of *Tethys*

In addition to questions about consenting of MRE devices, regulators were asked about their awareness and use of the *Tethys* database. The results are summarized in the sections below.

### Awareness

Most participants (3 out of 4) were not aware of *Tethys* and one regulator has been using it for less than 6 months (Figure 10).

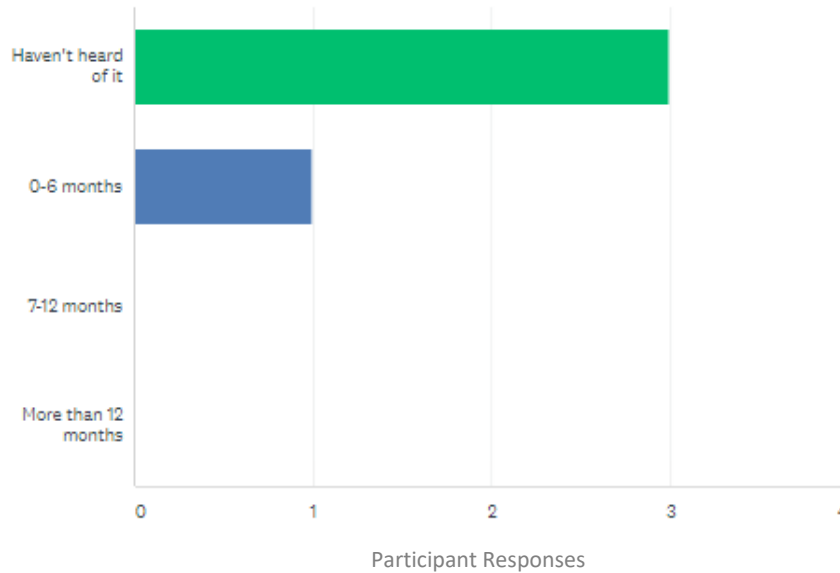


Figure 9. How long have you been aware of *Tethys*? (n = 4)

### Purpose and Usefulness

The respondents that are familiar with *Tethys* were asked to indicate the ways they use it by indicating all uses that apply from the following list:

- To find papers and reports on marine energy environmental issues
- To learn more about environmental effects of the marine energy industry
- To participate in webinars and expert forums
- To review archived webinars and expert forums
- To receive the *Tethys* Blast newsletter
- To search the *Tethys* event calendar

The regulator that has used *Tethys* has only used it to learn more about environmental effects of the MRE industry. This regulator indicated that *Tethys* has been moderately useful.

## Conclusion

The Irish regulators that participated in this survey have mixed experience consenting MRE and are most familiar with wave devices, though overall have relatively low familiarity with all MRE technologies. This agrees with the fact that Ireland has a greater wave energy potential than tidal, and that there are no commercial scale projects, only demonstrations of devices in test sites. The main concerns of regulators in consenting MRE developments, for both single devices and arrays, are centered around benthic/habitat disturbance, underwater sound, and collision risk. Regulators have mixed perspectives on transferring data to consent projects, though three out of four indicate that that it could be possible. Regulators lean towards the conservative side of the risk spectrum for consenting as they are split between mitigation hierarchy and phased approach as a means to move the MRE industry forward.

Regarding *Tethys* use, most regulators were not familiar with *Tethys*, though the regulator that used it for environmental effects information found it moderately useful. Going forward, the use of *Tethys* as a platform for additional engagement, including data transferability and risk retirement, will require increased promotion of *Tethys* and demonstration of its features and capabilities in order to reach regulators in Ireland.

The relatively low response rate of this survey is likely due to expected changes in the current policy, legislation and governance structures related to MRE in Ireland, which are currently under review and expected to change in the coming year. Regulators may not be keen to respond to a survey while there is no clear guidance. If the regulatory climate in Ireland changes, there may be an opportunity to repeat the survey and expand the number of participants.