

# MRE Regulator Survey: *SPAIN*



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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 Spain.

## Participants

Email invitations to complete the 2018 Survey on Regulatory Needs for Environmental Effects of Consenting Marine Energy in Spain were sent to 2 individuals known to be involved in consenting MRE. Both responses to the survey were complete and will be summarized in this report. Both participants indicated that they represent a state agency.

Participants were asked to indicate their own role in consenting MRE developments and the top focus of their agency. These results are summarized in Figure 1 and Figure 2, respectively. One participant advises regulators, while the other checked “Other”, commenting that they are the coordinator of a team in charge of environmental consultations of plans and projects. The top priorities for the agencies represented by both participants were water quality, marine mammals, fish, other animals, and seabed and habitat.

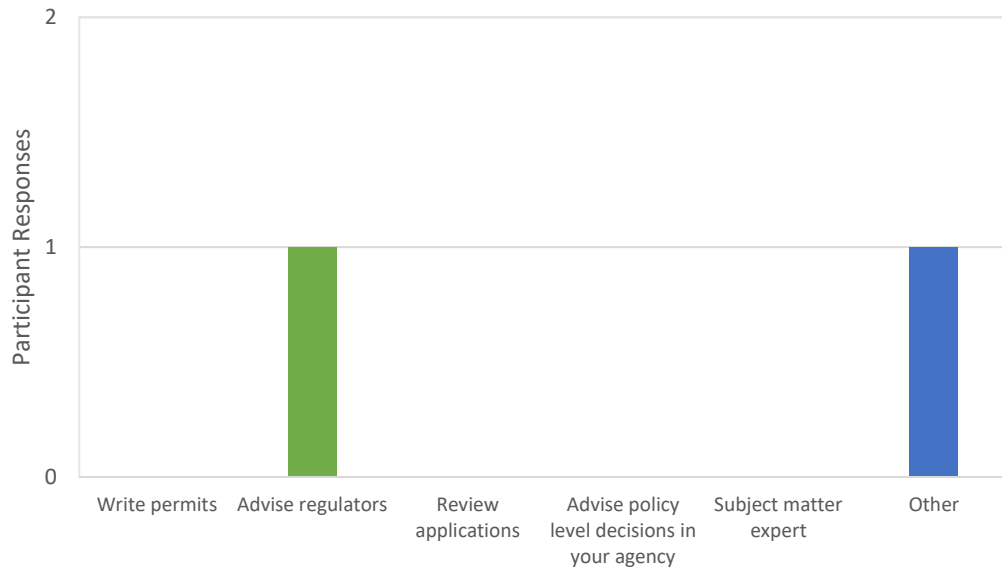


Figure 1. Individual role in marine energy project consenting. (n = 2)

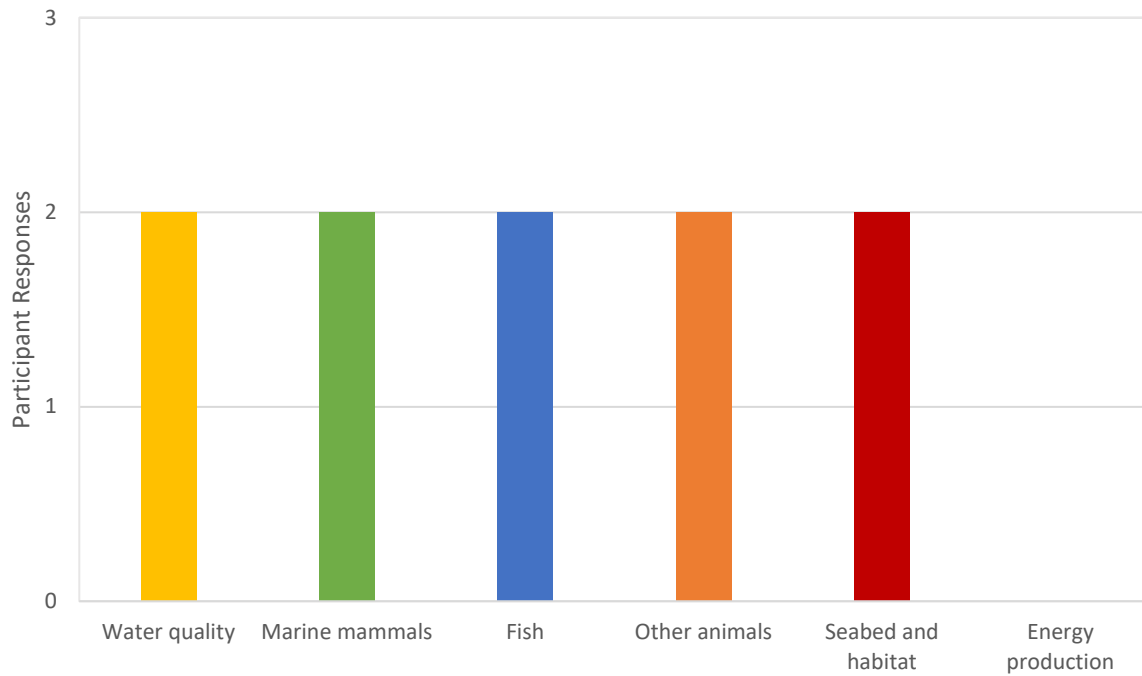


Figure 2. Agency top focus in consenting marine energy projects. (n = 2)

## Familiarity with MRE Technologies

1 out of 2 respondents indicated that they have directly participated in the environmental consenting and licensing of an MRE project (Figure 3).



Figure 3. Have you directly participated in the environmental consenting of an MRE device? (n = 2)

Regulators were also asked to rate their familiarity with tidal energy and wave energy converter technologies on a scale of 1 (not familiar) to 5 (very familiar). The results are presented in Figure 3. Both regulators consider themselves ‘not familiar’ with any type of MRE device.

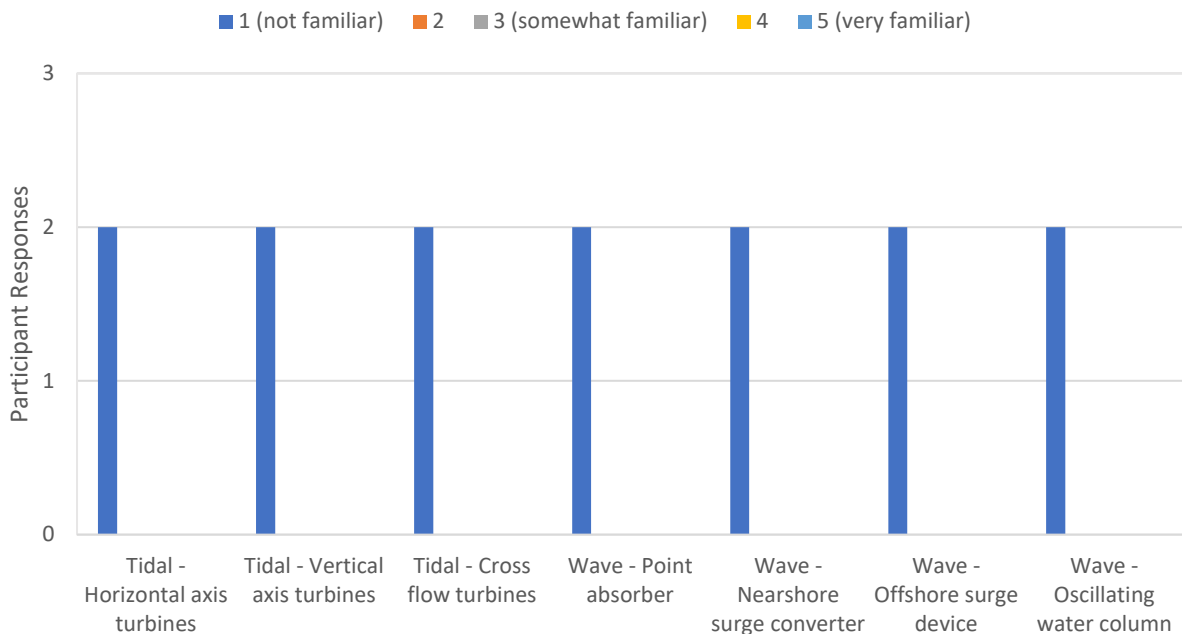


Figure 1. Familiarity with wave and tidal energy technologies. (n = 2)

## 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.

- Chemical releases and water quality degradation
- Electromagnetic field (EMF) effect on animals
- Benthic/habitat disturbance
- Risk of animals colliding with underwater devices
- 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 is the top challenge.<sup>1</sup>

### Single Device

The results for **single devices** are shown in Figure 4 (n = 2). The top 2 concerns of regulators in Spain for a single device are energy removal and electromagnetic fields (EMFs).

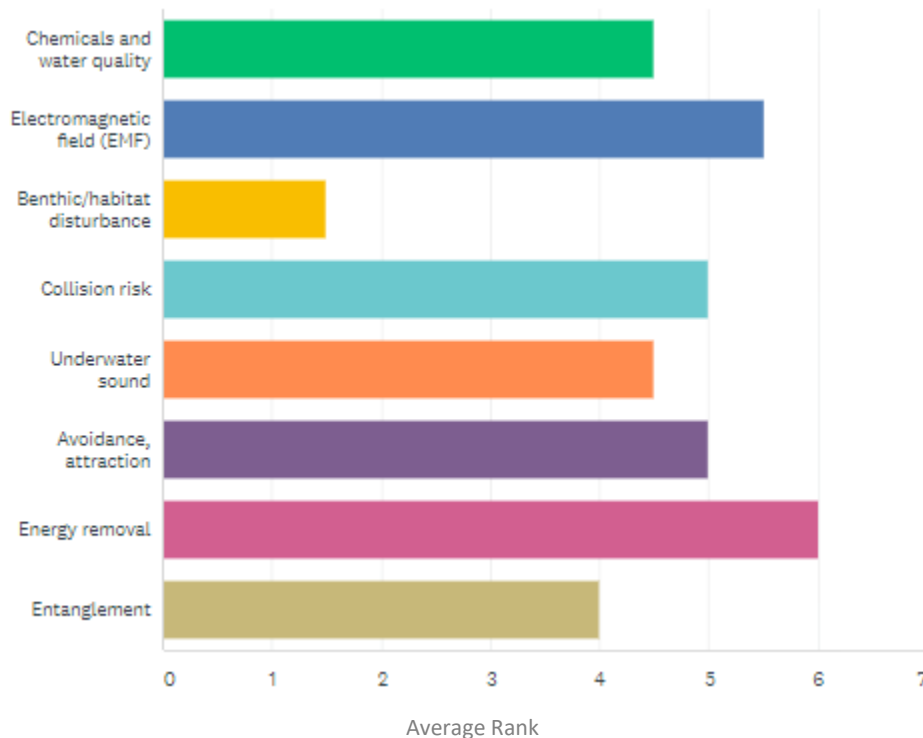


Figure 2. Ranking of challenges to consenting **single devices**. (n = 2)

<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.

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

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 MRE development.
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 agreed or strongly agreed with all statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>1. More field data</b>	0	0	0	1	1
<b>2. Numerical models</b>	0	0	0	2	0
<b>3. Guidance</b>	0	0	0	2	0
<b>4. Training</b>	0	0	0	2	0

Table 1. Regulator perceptions of *single device* statements. (n = 2)

### Arrays

The results for device **arrays** are shown in Figure 5 (n = 2). The ranking of the importance of concerns changes slightly with arrays, but energy removal is still the top concern.

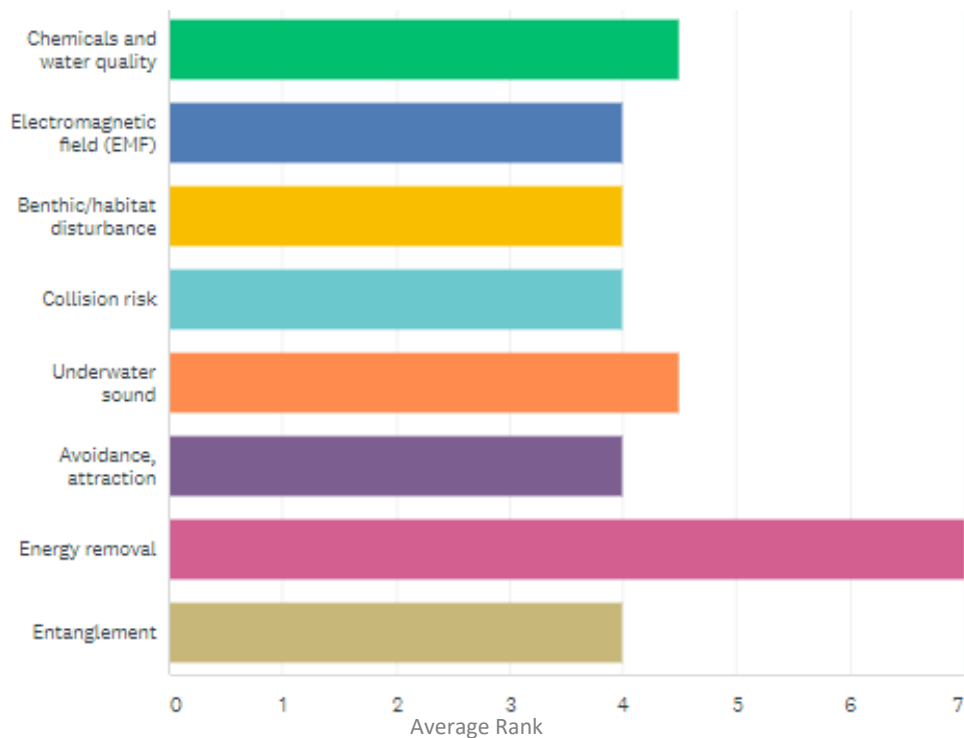


Figure 3. Ranking of challenges to consenting *arrays*. (n = 2)

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

1. More 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. Guidance is needed to interpret risk and uncertainty
4. Regulators, advisors and stakeholders 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 agreed or strongly agreed with all statements (n = 2).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. More field data	0	0	0	0	2
2. Numerical models	0	0	0	2	0
3. Guidance	0	0	0	2	0
4. Training	0	0	0	2	0

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

## Data Transferability

Regulators were asked to respond to the question: “Can data be 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’. One participant answered ‘Never’, and one participant answered ‘Maybe’.

Additional comments left in response to this question include:

- “The [Environmental Impact Assessment] studies usually can reuse data or studies from other projects”
- “It is always necessary [to collect] data from the place, but if you have collected data from a similar place [it may orient] the new stud[y]”

## 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 6. One regulator selected mitigation hierarchy and the other selected a phased approach as their preferred vision for the MRE industry.

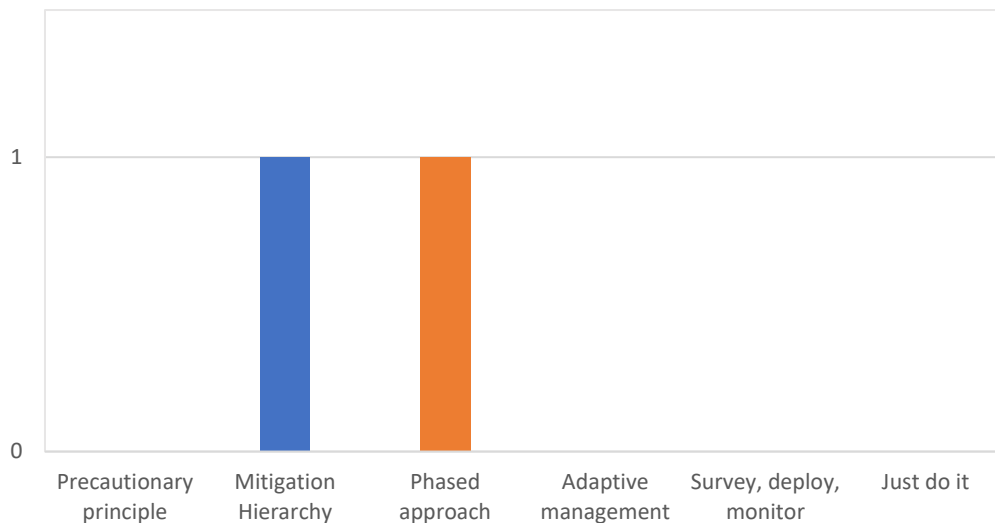


Figure 6. Regulator perspectives on management approaches. (n = 2)

## 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 below in Figures 7, 8 and 9.

### Awareness

One participant was aware of *Tethys* and has been using it for more than 6 months. The other participant had not heard of it.

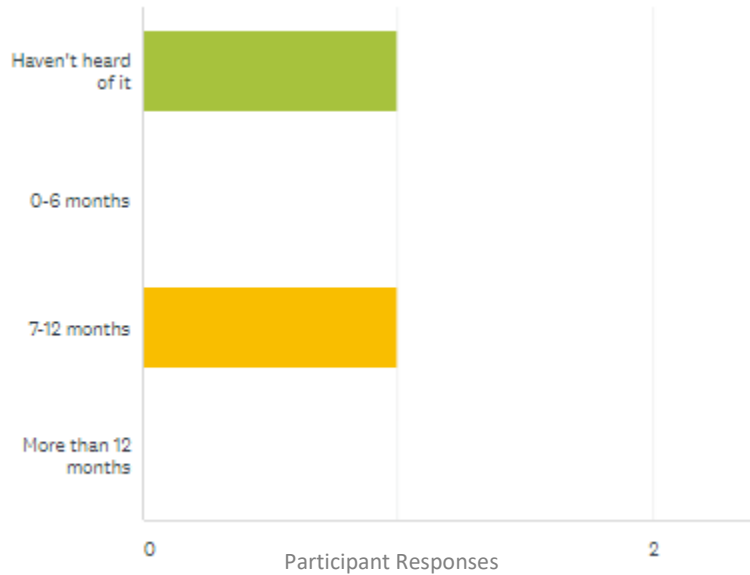


Figure 7. How long have you been aware of *Tethys*? (n = 2)

### Purpose

The respondent who had heard of *Tethys* was asked to indicate how they use *Tethys* 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 responses are summarized in Figure 8. The participant who has used *Tethys* has used it to learn more about environmental effects of marine energy and to review archived webinars.

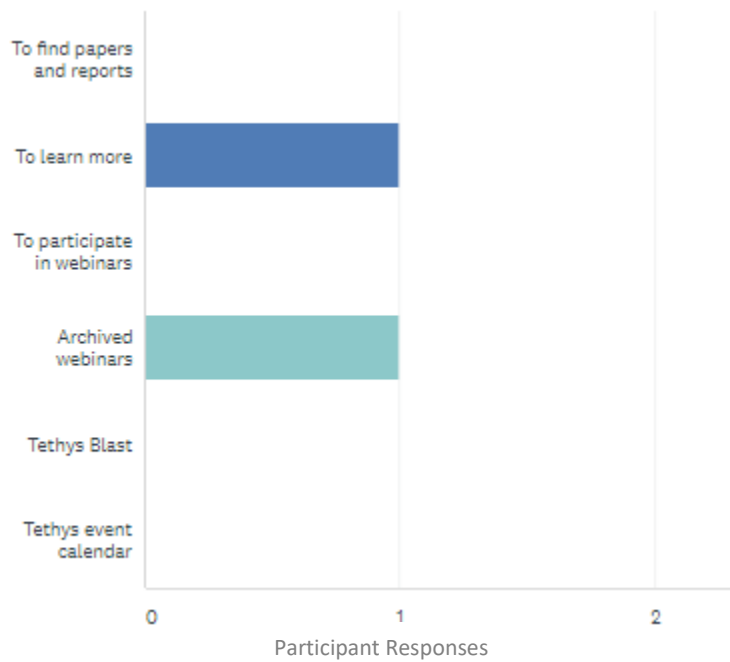


Figure 8. How do you use Tethys? (n = 1)

### Usefulness

The participant who was familiar with *Tethys* has found it to be very useful.

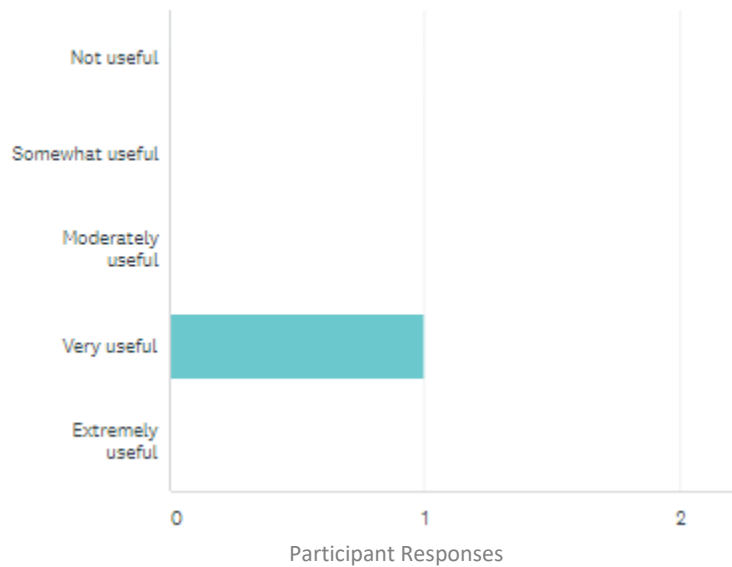


Figure 95. How useful is Tethys for providing information on the environmental effects of marine energy projects? (n = 1)

## Conclusion

The Spain regulators that participated in this survey have mixed experience consenting MRE and are not familiar with MRE devices. The government agencies they represent focus on the effects to marine mammals, fish, birds, and other animals without an energy production perspective. Their main concerns in consenting MRE developments, for both single devices and arrays, is energy removal from the environment and changes to flow patterns. In general, regulators are open to transferring data to consent projects, but note that it depends on the applicability of the data to the specific site of the project to be consented. Gaining additional surveys from a larger number of regulators at different levels of government is recommended to provide a more representative view of Spanish regulator opinions.

Regarding *Tethys* use, one regulator has been using *Tethys* for a while to gather information about environmental effects and has found it very useful. Going forward, the use of *Tethys* as a platform for additional webinars and trainings seems useful but will require increased promotion for awareness in Spain.