Ocean Energy orjip working to accelerate offshore consenting

Llywodraeth Cymru Welsh Government

ORJIP Ocean Energy

Information Note: Background Information

Report to: Welsh Government

Issued by Aquatera Ltd and MarineSpace Ltd

P983 – March 2022

aquatera environmental services and products

MarineSpace Making Sense of the Marine Environment™

Information Note: Background Information

1 INTRODUCTION

The Welsh marine environment is an important national asset, home to a diverse range of habitats and species of national and international importance. The waters around Wales' 1,200 km of coastline also contain a rich renewable energy resource with up to 6 GW of generating capacity for wave and tidal stream energy. Wales is well positioned to play a globally leading role in these industries[1].

To capitalise on this opportunity, it is important that wave and tidal energy develops in a way that is both economically feasible and environmentally sustainable. This requires an appropriate level of understanding of how marine renewable energy projects interact with marine animals and habitats. To date there is a limited number of consented marine renewable energy developments and as such our understanding of these interactions is largely based on learning from single device deployments, small arrays, strategic research projects, and data transferred from other sectors (offshore wind, aquaculture, oil and gas etc).

A series of technical, topic specific Information Notes has been co-produced by a Science and Evidence Advisory Group to provide a shared understanding of how the best available science and evidence is currently applied to key consenting issues. The following topics are included in the Information Note series:

1. Collision risk for animals around turbines;
2. Risk to marine animals from underwater noise;
3. Risk to marine animals from electromagnetic fields emitted by electric cables and marine renewable energy devices;
4. Changes in benthic and pelagic habitats;
5. Changes in oceanographic systems;
6. Encounters of marine animals with mooring systems and subsea cables;
7. Environmental monitoring technologies and techniques for detecting interactions of marine animals with marine renewable energy devices;
8. Data transferability; and
9. Cumulative impact assessment.

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[1] Welsh Government (2012), Energy Wales: a Low Carbon Transition. Available online at: https://gov.wales/sites/default/files/publications/2019-07/energy-wales-a-low-carbon-transition.pdf.

These issues have also been highlighted in the Ocean Energy Systems – Environmental *2020 State of the Science Report*[2], which brought together >60 authors and reviewers from 11 countries to synthesise the most current evidence on the interactions between marine renewable energy developments and the marine environment. This report was used as a starting point for the Information Notes, upon which Welsh-specific perspectives were developed for each topic.

2 ABOUT THE SCIENCE AND EVIDENCE ADVISORY GROUP

The Welsh Government established the Science and Evidence Advisory Group (SEAGP)[3] in 2020 as a sub-group of the Welsh Consenting Strategic Advisory Group (CSAG) to provide advice on the science and evidence needs for marine renewable energy projects, with an initial focus on tidal stream technologies. Being sensitive to the need to tackle climate change and the biodiversity crisis, the SEAGP considered how the evidence available from consented wave and tidal stream projects could be used to help de-risk the consenting process for projects in Wales. Members of the SEAGP were nominated by the CSAG in recognition of their specific expertise in marine renewable energy consenting and licensing. The SEAGP membership is comprised of:

- Eurona (Facilitator)
- Welsh Government
- Natural Resources Wales
- The Wildlife Trusts
- ORJIP Ocean Energy
- Cambrian Offshore
- Royal Society for the Protection of Birds
- Nova Innovation
- Marine Energy Wales
- Bangor University
- Offshore Renewable Energy Catapult

2.1 THE ROLE OF NATURAL RESOURCES WALES

Natural Resources Wales (NRW) has two main functions in relation to marine developments:

1. As regulator for marine licensing (acting on behalf of the Welsh Ministers).
2. As marine advisor and statutory consultee.

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[2] Copping, A.E. and Hemery, L.G., editors. 2020. OES-Environmental 2020 State of the Science Report: Environmental Effects of Marine Renewable Energy Development around the World. Report for Ocean Energy Systems (OES). DOI: 10.2172/1632878. Available online at: https://tethys.pnnl.gov/publications/state-of-the-science-2020

[3] https://gov.wales/science-and-evidence-advisory-sub-group

Although NRW is a single corporate entity, NRW exercises the distinct functions of statutory advisor and regulator in the context of a single development. There is a distinct legislative framework for each of NRW's respective functions and NRW ensures there is adequate separation between these functions to avoid the risk, including the perception of pre-determination and/or bias. The Information Notes reflect the views of NRW technical specialists, as marine advisor. These comments do not prejudice NRW's future advice on specific project applications.

3 PURPOSE AND USE OF THE INFORMATION NOTES

3.1 PURPOSE OF THE INFORMATION NOTES

The Information Notes aim to provide a shared understanding of how the available science and evidence is currently applied to key consenting issues for marine renewable energy developments in Wales. The ambition is for the Information Notes to support marine licence applications and any potential monitoring and mitigation activities to ensure these are robust, proportionate and focused on assessing the most significant potential impacts and interactions between the marine environment and marine renewable energy projects.

The Information Notes set out the perspectives of various SEAGP members on key consenting issues for marine renewable energy developments in Wales. Where possible, best practices for quantifying, monitoring, and mitigating particular issues will be identified. The Information Notes will also highlight critical evidence gaps for each impact and provide recommendations as to how they could be addressed to reduce overall consenting risk.

The Information Notes sit alongside the Welsh Government's Sector Locational Guidance[4] which provides more spatial and strategic information to support the marine renewable energy sector in Wales, whereas the Information Notes are topic specific and co-produced by SEAGP.

3.2 WHO ARE THE INFORMATION NOTES FOR?

The Information Notes are hosted on the Welsh Government website and have been developed for use by marine renewable energy project developers, regulators, stakeholders and other interested parties. More specifically, this series of Information Notes has been produced for:

- Project developers, their consultants, and other stakeholders who wish to understand the perspective of NRW and other stakeholders on consenting issues associated with marine renewable energy projects in Wales;
- Those within NRW who may be advising wave and tidal energy developers (or their consultants) on their applications; and,

[4] https://gov.wales/sector-locational-guidance-project

- Other competent authorities, regulators, UK Statutory Nature Conservation Bodies (SNCBs), environmental organisations, and members of the general public who may wish to understand the perspectives of SEAGP on environmental consenting issues associated with marine renewable energy projects.

3.3 HOW SHOULD THE INFORMATION NOTES BE USED?

The Information Notes do not reflect a legal position of the organisations described above and should not be interpreted in this way. This series of Information Notes is intended to communicate the current perspectives of a range of stakeholders involved with the marine renewable energy industry in Wales on various consenting issues. These perspectives may change as and when new evidence and information becomes available and therefore the Information Notes will remain "live" documents which can be updated.

The Information Notes may be used to inform initial discussions and consultations around proposed developments and cited (along with other relevant information and data) by applicants within consenting and licensing documentation, particularly during the pre-application screening and scoping stages of consenting. The Information Notes provide preliminary information to applicants about the type and level of data/information that might be expected to be considered during the consenting process for a range of types and scale of marine renewable energy projects. They should be used to improve dialogue and transparency between stakeholders, particularly in pre-application and scoping stages of the marine licensing and consenting process.

While the Information Notes provide general information that can help inform discussions between marine energy stakeholders in Wales, they should not replace any required, project-specific engagement between project developers, consultants, NRW and their statutory consultees. It should also be noted that project developers have a responsibility to apply the mitigation hierarchy when proposing projects. The mitigation hierarchy is a sequential process that should be used to avoid, mitigate, and, as a last resort, to compensate for negative environmental impacts[5].

3.4 HOW WERE THE INFORMATION NOTES PRODUCED?

Members of the SEAGP and several subject experts from NRW were asked to consider a series of development scenarios (single device, small array, large array) relating to a tidal stream energy development (gravity-based, horizontal axis turbines) in Welsh waters, and to provide their perspectives on different potential impacts from each development type. SEAGP members were asked to comment on:

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[5] https://gov.wales/mitigation-and-compensation-opportunity-marine-consenting

- how their responses would change for different types of devices (tidal kites, wave energy devices, etc);
- how their responses would change for different development locations;
- the level of evidence available to support decision-making; and
- any monitoring or mitigation strategies that could be employed.

SEAGP members were advised to read the OES-Environmental Short Science Summary document relating to each impact. Respondents were also encouraged to consult the full chapter on each potential impact within the OES-Environmental 2020 State of the Science Report[6]. Additional key references are listed at the end of each Information Note.

SEAGP responses for each impact were collated and summarised in a topic-specific Information Note. All Information Notes have been reviewed and endorsed by the SEAGP and by the CSAG.

4 TERMINOLOGY

Throughout the Information Notes and supporting literature many terms are used to describe the environments that may be affected by marine renewable energy development. For clarity, we have chosen to use the following terms and definitions throughout the series of Information Notes.

- **Stressors** are elements of the environment that may cause harm or stress to a marine animal, a habitat, oceanographic process, or ecosystem process[7]. Stressors are often associated with particular stages of development (e.g. construction, operation, decommissioning), and are often quantified in terms of the duration, frequency, and intensity of the stress applied to the environment[8]. Stressors might include (but are not limited to) moving tidal turbine blades, power export cables, foundations, mooring lines, and emissions of electromagnetic fields or noise.

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[6] https://tethys.pnnl.gov/publications/state-of-the-science-2020

[7] Copping, A.E 2020. Marine Renewable Energy: Environmental Effects and Monitoring Strategies. In A.E. Copping and L.G. Hemery (Eds.), OES-Environmental 2020 State of the Science Report: Environmental Effects of Marine Renewable Energy Development Around the World. Report for Ocean Energy Systems (OES). (pp. 19-27). DOI: 10.2172/1632880. Available online at: https://tethys.pnnl.gov/publications/state-of-the-science-2020-chapter-2-environmental-effects

[8] Boehlert, G. W., & Gill, A. B. (2010). Environmental and ecological effects of ocean renewable energy development: a current synthesis. Oceanography, 23(2), 68-81.

- A **receptor** is a collective term for ecosystem elements with potential for some form of response to a stressor[9]. The terms "receptors" and "receptor groups" are often used to refer to groupings of plants, animals, or habitats that would normally be included in an application (e.g. fish, seabirds (ornithology), marine mammals, coastal processes, benthic habitats). It should be noted that:
    - Some receptors are "protected" and/or "sensitive", but others may not be.
    - Some receptors are animal groups (e.g. marine mammals), but others are not (e.g. coastal processes, benthic species such as algae and seagrass).
    - Some receptors are mobile, but others are not.

It is the interactions between stressors and receptors that define the impacts of marine renewable energy developments. Individual receptor groups (i.e. seabirds, fish marine mammals, benthic habitats, coastal processes) or species are named when the information being communicated specifically refers to them.

- **Protected species or habitats** are those species and habitats afforded legal protection in Wales, either as an individual species or as a designated feature of a marine protected area.

- **Sensitive species or habitats** are species or habitats that are more sensitive to impacts from a particular stressor such as electromagnetic field emissions (EMF) or underwater noise. Sensitive species or habitats may be less resilient to impacts. Although there is likely to be substantial cross-over between protected and sensitive species and habitats, it should be noted that:
    - Not all sensitive species and habitats are protected.
    - Not all protected species and habitats are sensitive.

- **Mobile species** refers to species of animals that can move across wide areas. They may have large home ranges that extend substantial distances beyond areas affected by MRE development or they may undertake long journeys or migrations for example to feed or to reproduce.

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[9] *Ibid.*

In this series of Information Notes, the term "mobile species" will usually refer to marine mammals, seabirds, and/or fish.

ISBN: 978-1-80364-174-4