

Selected findings

- ▶ Common collection methodologies and data formats can foster cross-site comparisons and European-wide analysis;
- ▶ Potential impacts and EIA requirements are influenced by site characteristics and sensitivity of local habitat, range of environmental conditions experienced, type and number of devices deployed and the local regulatory authority;
- ▶ Limited experience with deployments to date provides no evidence for significant negative impact on the environment but great care must be exercised when scaling up to larger scale projects;
- ▶ Recommendations across a range of receptors suggest developers must allow for 2 years of baseline studies;
- ▶ In the UK, DECC has ruled that armoured electrical cables buried to a depth of at least 1.5 m pose no significant impact;
- ▶ Wave energy devices will most likely act as fish aggregating devices (FADs) and create an artificial reef effect with the potential to increase species and biomass abundance [see SOWFIA Brochure “Improving understanding of environmental impacts of wave energy using test centres” for more info].



Gannet, Bass Rock, Scotland



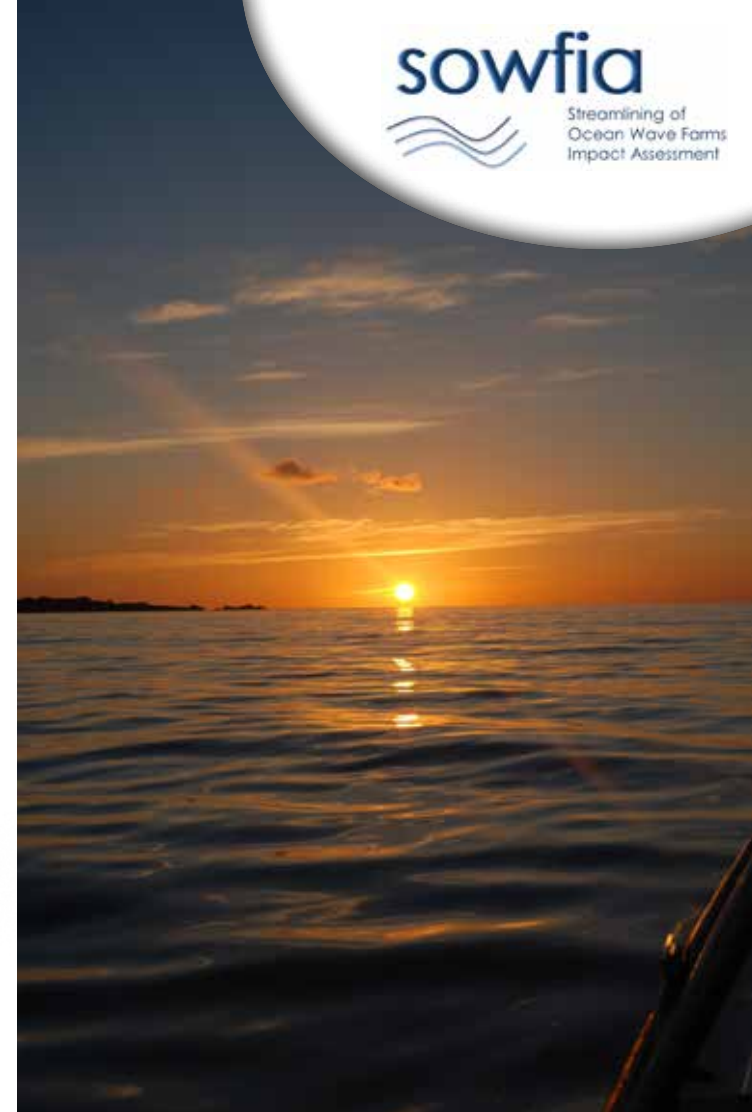
Submarine cable installation

More details and specific monitoring recommendations can be found in the final report from Work Package 3 which can be downloaded from the SOWFIA website.

Keep up to date with the SOWFIA project by joining the SOWFIA network on www.sowfia.eu. Access the SOWFIA DMP at: sowfia.hidromod.com.



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Assessing the Environmental Impacts of Wave Energy Farms



Co-funded by the Intelligent Energy Europe Programme of the European Union

Introduction

Wave energy is seen as an innovative and promising technology, which has the potential to contribute significantly to achieving EU renewable energy goals.

The European-funded SOWFIA project aims to facilitate the development of European wide coordinated, unified and streamlined environmental and socio-economic Impact Assessment (IA) tools for offshore wave energy conversion deployments.



Deployment of Wave Hub infrastructure, Cornwall

One of the overarching goals of the SOWFIA project is to summarise EU experience related to the detection of environmental impacts at wave energy test centres along with information gained from relevant Environmental Impact Assessments (EIA). This informs the development of recommendations on streamlining European-wide IA and broader consenting processes.

A Data Management Platform (DMP) has been developed through the SOWFIA project to assist and facilitate the decision-making process.

Review of monitoring

During the SOWFIA project:

- ▶ environmental impact studies conducted at wave energy test sites in Europe,
- ▶ protocols and methodologies used for monitoring of environmental receptors,
- ▶ evaluation of the likelihood and significance of impacts.



European wave energy test centres associated with the SOWFIA project

This work has been done in order to:

- ▶ understand what monitoring is required and how it is undertaken,
- ▶ assess types of data collected and how they are used to reduce uncertainties around potential impacts,
- ▶ attempt to identify uniformity in methodologies which would provide readily comparable data across the European test sites,
- ▶ provide scientifically robust data on the potential environmental effects, in a suitable format for a non-technical audience, through the DMP.

Information on the protocols developed for different environmental receptors can be divided into two main categories:

- ▶ **Physical environment** including:
 - Waves
 - Tides and currents
 - Noise
- ▶ **Flora and fauna** including:
 - Marine Mammals
 - Seabirds
 - Benthos
 - Fish and shellfish



Seal on a rock, north coast Cornwall

Why monitor the physical environment?

- ▶ Because the marine biosphere is uniquely interlinked with the physical environment.
- ▶ To determine sediment transport, ocean turbidity and primary productivity.
- ▶ To address concerns about anthropogenic noise, which is of increasing importance in the marine environment.

Why monitor flora and fauna?

- ▶ It is a legal requirement!
- ▶ To provide baseline data, which is key in identifying eventual impacts (and benefits).
- ▶ To comply with the strict protection requirements for listed species.
- ▶ To conform with increased monitoring needs for operations in or near sensitive areas (SAC, SPA etc.).