

KEY STORIES

Marine Renewable Energy



WHY LOOKING AT ... MARINE RENEWABLE ENERGIES?

If deployed worldwide, ocean technologies for producing energy could meet the world's current electricity demand of close to 20,000 TWh (IAE/OES, 2015). The European Union promotes the development of Marine Renewable Energy (MRE) to meet a growing energy demand, to support sustainable jobs and growth in the 'blue economy' and to reduce carbon emissions from burning fossil fuels. Constructing and operating MRE installations requires addressing complex trade-offs between the need to produce 'clean' energy from sustainable sources, the management of technical projects, financial and market based risk, and public and industry concerns about potential environmental and welfare effects. Because of the supporting activities (supply chain) needed for MRE development, the sector is expected to contribute significantly to Blue growth in Europe: the European MRE industry is expected to create 324,000 jobs by 2028.

The addition of a physical structure in the marine environment can have negative environmental impacts. It can lead to habitat loss, changes in species composition and/or change in the dynamics of the existing fauna and flora. MRE also contribute to ambient noise and electromagnetic fields, potentially affecting behavior (e.g. migrations) of marine species.

Thus, the MRE industry needs to design and install MRE devices that protect, or significantly minimize their impact on, biodiversity.

The MRE sector was for a long time composed of a large number of independent SMEs and research centers (spinoffs from universities). More recently, large European power companies and manufacturers have entered the MRE market driven by incentives from Maritime Spatial Planning and renewable energy directives. Actors of the sector can be divided into the following categories: a) direct actors, whose activities have direct impact on marine ecosystems; and, b) indirect actors, who are using products or services (e.g. the sale of green electricity); c) supporting actors provided services required by MRE producers; and, d) governance actors that set up and manage the regulatory framework, policies, and infrastructures.

WHICH CHALLENGES FACED FOR ADDRESSING ... MARINE RENEWABLE ENERGIES?

Despite the diversity of technologies and devices available for wide applications, commercialization and implementation remain slow due to high costs and concerns over environmental impacts in particular in relation to marine mammals and habitats.

One of the main challenges of MRE is to reduce investment risks to guarantee investor confidence and help the sector secure finance. To increase investors' confidence, MRE and supporting infrastructure (e.g. cables) need to be incorporated into Marine Spatial Plans. This would give the industry long-term visibility, facilitating private investments and synergies with other maritime sectors.



MRE also faces social acceptance constraints linked to the actual physical installation of renewable energy schemes, a debate referred to as “NIMBYism” (Not in My Back Yard). MRE schemes are opposed because of perceived negative effects on the aesthetic qualities of the seascape, on potential impacts on tourism and fishing industries and on health impacts related to noise emissions. The challenge here is to develop knowledge in communities about the real effects of construction and operation of MRE devices, rather than having people focus on ‘perceived impacts’ only.

WHAT CAN OCEAN LITERACY DELIVER?

The review of existing communication and media initiatives addressing MRE highlights that the topic is of interest for a diversity of groups—producing and/or targeted by these initiatives. The content of messages, adapted to the specific cultural and institutional context of the given country, does provide limited knowledge on marine ecosystem state components, welfare and responses. Better addressing the relations between the technology (ies) and ecosystem components, their potential environmental and socio-economic impacts and perceptions from citizens and consumers, could help unlocking the debate.



Thus, Ocean Literacy initiative could help:

- Supporting knowledge exchange between the natural science community and MRE developers so as to;
- Sharing knowledge on the long-term opportunities to be seized and their viability, thereby increasing the confidence of investors in sustainable MRE; and,
- Addressing the gap between perceived and actual knowledge on MRE development in local communities.

Ocean literacy initiatives should focus on citizens & inhabitants, local authorities in charge of land use planning & management, local elected people and decision makers and businesses leading MRE developments (both small and large companies).