



Environmental pressures in the construction phase of wind energy generation at sea

Summary - development educational program

ResponSEAbLe project WP 5, deliverable 5.5: Educational packages for professionals

Produced by: ProSea Foundation, marine education (www.prosea.info).

For more information: info@prosea.info

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Project coordinator:



Project beneficiaries:



1. Description of the product

While the construction of wind energy at sea is seen as a sustainable solution to the energy demand of our society, the construction of these wind parks also has environmental challenges.

This OL tool is an educational program about environmental disturbances in the construction phase of wind energy generation at sea for professionals involved in this construction phase.

The workshop strives to make participants aware of the environmental issues connected to the construction of wind energy structures at sea, and to strengthen Ocean Literacy, as a basis for pro-active thinking (in all situations) and taking adequate responsibility for environmental/sustainability in construction projects.

The 2,5-hour program consists of three elements:

- The program starts with a practical element that uses a shark (or ray) from a fish vendor to introduce the subject of sensitive species. Participants are invited to investigate and talk about the shark, learning how it perceives its environment and discuss how human activities can interfere with these abilities. By introducing and focusing on these sensitive species (sharks and rays), environmental disturbances get more tangible, enabling the educator to discuss the subject from the perspective of such animals.
- The workshop leader conducts a PowerPoint presentation that is designed to start and structure the discussion on man's impact on elasmobranchs, fish and cetaceans. During the presentation, the educator shares knowledge about the environmental disturbances of electromagnetic radiation, turbidity and underwater noise, when possible connecting it to the experiences of the practical shark workshop.
- The workshop is closed with a plenary Q and A/discussion session, aimed at answering any questions participants might have, and discussing potential consequences of this information for MRE construction projects, sharing experiences and ideas of best practices (tips and tricks) in mitigating environmental impacts and exploring personal opportunities to work towards solutions.

2. Target audience

Offshore and onshore staff of companies involved in the construction phase of wind energy generation at sea.

3. Ocean Literacy goals

The educational program can be used as a stand-alone program but is more effective when it is part of a one or two-day long awareness workshop. The program especially contributes to two of the main messages of the ResponSEable project:

- We are collectively responsible for the state of the marine ecosystems
- From understanding to ... taking actions (the road might be long)

4. Design and Development process

This educational workshop was developed together with a Maritime Services company from The Netherlands, originally as a specific workshop for one of their wind farm construction projects in the North Sea. After several preparatory meetings (living lab), where both the ProSea foundation and the project management contributed to the content of the program, a one-day workshop was conducted by Prosea on April 4, 2017. This workshop was paid for by the company.



Figure 1: Pilot course -practicum sensitive species

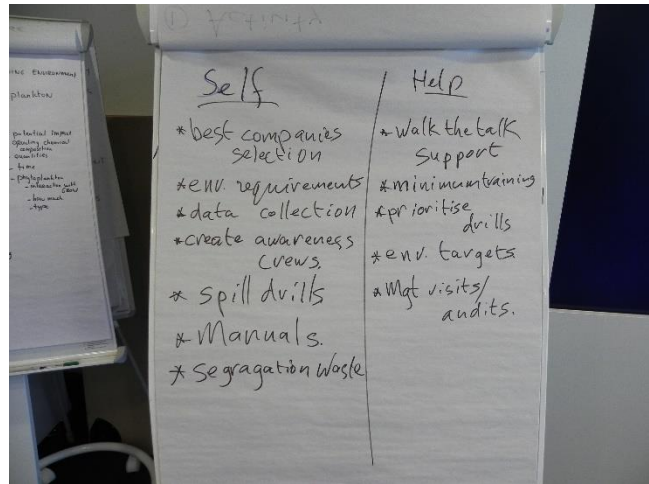


Figure 2: Pilot course – workshop results

In addition to the direct results as shown in figure 2 (answers to the question what I can do myself to minimize the impact), the workshop was evaluated by asking the participants to fill out a questionnaire. At the time the workshop was organized, there was no fixed approach on testing effectiveness in the ResponSEable project (yet), so, a ProSea form was used, where we asked questions about the different parts of the course, the opinion of the participants regarding usefulness of the course (figure 3), knowledge gained in the course (figure 4) and personal attitudes and behavioral intentions after the course (figure 5).

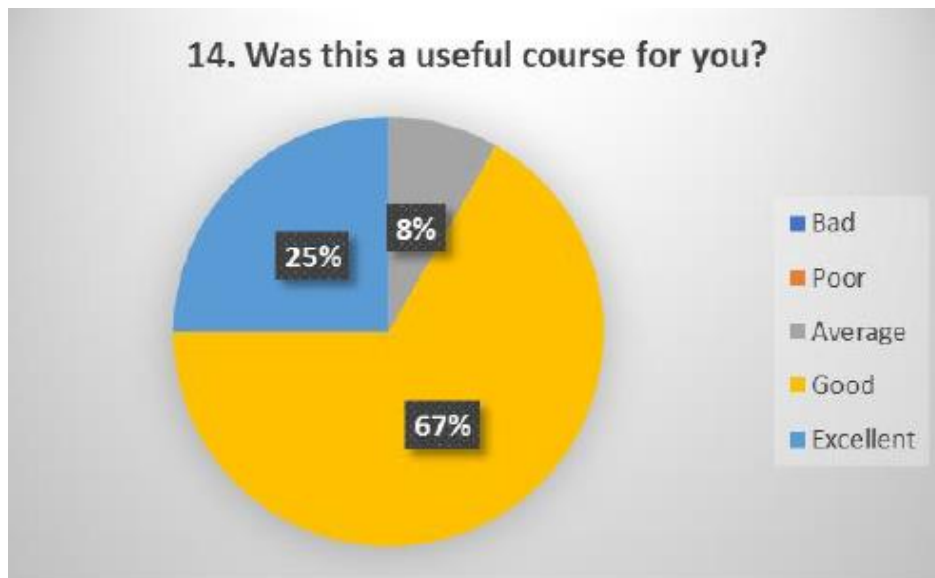


Figure 3: Evaluation – usefulness of the course

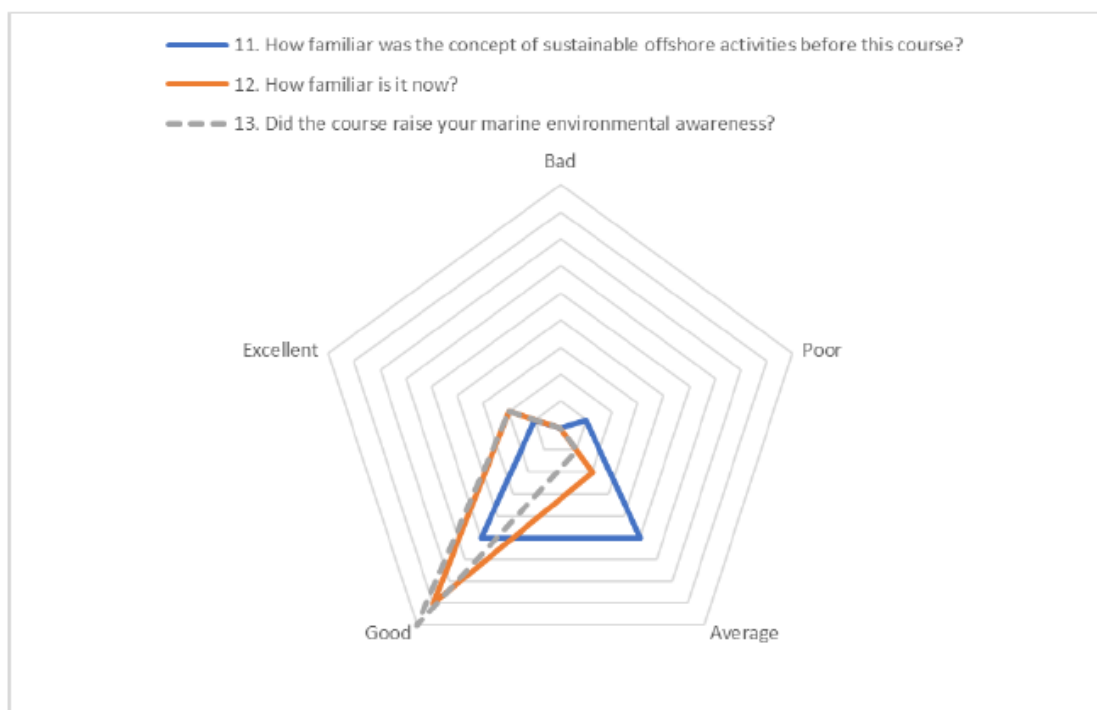


Figure 4: Evaluation – knowledge gained by the course

Question 16. Do you see a role for yourself in sustainable offshore activities? Which role? What is your intention – how to play this role?

- *"Promoting/sharing info as PM"*
- *"Environmentally sensitive installation methods"*
- *"Promote HSE"*
- *"Implementation into manuals and preparations"*
- *"Increase awareness, advise project team on environmental"*
- *"Create Awareness - Toolbox"*
- *"Lead by example"*
- *"Promote environmental awareness initiatives"*
- *"Create awareness"*
- *"Sufficient project preparation"*
- *"Use design decision log and take E-impact into account in decision making"*

Figure 5: Evaluation – attitude and behavioral intentions

After this successful workshop, ProSea used the evaluation responses to finalize the course content. We added background articles, resources and suggestions for future teachers, and will make the content available through the ResponSEable network.

5. Planning

ProSea includes this educational program in the one-day workshop it offers to maritime companies. In addition, ResponSEable partners and other potential partners are encouraged to advertise this in their network.

At this point, there are no other pilots planned.