NEW PERSPECTIVES FOR AQUACULTURE IN A MULTI-USE ENVIRONMENT

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The European North Sea is becoming more intensely used for a range of activities. Windfarms are increasing in size and number and claim large areas of marine space. In addition, the need for sustainable food sources shifts to increased ambition for marine sources on one hand, and fresh water aquaculture production expansion and optimisation on the other hand.,. Since near- and onshore space is limited, many activities tend to move to nearshore and offshore areas. This holds also for the culturing of marine species. In the Netherlands, mussels and oysters have been cultured for centuries in inshore waters, and offshore culturing may provide opportunities with regard to space and growing conditions. Seaweed culturing is an emerging business in the Netherlands and seems viable in case high value constituents and bulk compounds for feed and energy can be produced and marketed. The offshore environment provides several advantages over land or coastal production, avoiding negative impacts such as deforestation and eutrophication. However, the challenges to provide an economic viable and sustainable offshore production are still significant, which require the development of offshore technologies and innovation based aquaculture principles.

Several initiatives are currently taking place to further develop offshore aquaculture in a multi-use environment. Windfarms offer opportunities for co-existence with aquaculture by providing space, and by reducing costs by combining maintenance activities. At the moment, windfarms are located in shallow locations and fixed to the seafloor. Floating wind turbines would bring these structures further offshore which may provide new opportunities for aquaculture combinations.

Floating platforms may extend workspace at sea, being flexible with regard to location and size, and providing opportunities for combinations with other applications like the production of sustainable energy (wind, tidal, solar energy), logistics (mooring, transport), and accommodating for operational personnel. A European consortium has just started the Horizon 2020 project Space@Sea with the aim to develop multi-use platforms with the objective to develop safe and cost efficient deck space at sea by means of standardised floaters. Specific types of applications islands will be validated and demonstrated, including for aquaculture, an energy hub, living area and a floating logistics hub. Concepts for integrating possibilities for aquaculture will be developed in conjunction with supporting services, including mooring, storage, processing of harvest, energy supply and transport by shipping. In order to develop sustainable aquaculture process chains that meets technical, health and safety and environmental requirements, several categories of marine faming will be considered in relation to the floating structures.

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