



PAVING THE WAVES

Potential benefits of using floating platforms for offshore Aquaculture

Robbert Jak

Wageningen Marine Research, PO Box 57, 1780AB Den Helder, The Netherlands,

robbert.jak@wur.nl

Marnix Poelman, Edward Schram

Wageningen Marine Research, Korringaweg 7, 4401 NT Yerseke, The Netherlands

Marnix.poelman@wur.nl ; edward.schram@wur.nl

Halvor Mortensen, Kristine Fagerland VALFou

Val FoU AS, Hestvikvegen 73, 7970 Kolvereid, Norway

hmortensen@valfou.no ; kfagerland@valfou.no

Stefan Matthes, Martin Ecke

GICON Grossmann Ingenieur Consult GmbH, Greppiner Strasse 6, 06766 Bitterfeld-Wolfen, Germany

s.matthes@gicon.de ; m.ecke@gicon.de

Maggie Skirtun, Sander van den Burg

Wageningen Economic Research, PO Box 29703, 2502 LS The Hague, The Netherlands

Maggie.skirtun@wur.nl ; sander.vandenburg@wur.nl

Abstract – A growing human population, and changing diets under increased prosperity will cause an increase in the global demand for feed and food. On land, space and water are becoming scarce commodities. Therefore an increase in use of the ocean’s resources is taking place. In Europe, the need to sustainably harvest more food from the oceans is reflected in for example the 2012 Blue Growth strategy. Especially in the inshore and coastal zone however, competition for spaces can be fierce, since many activities already take place, including aquaculture. Ongoing trends are aiming to develop aquaculture in offshore areas, thereby giving the opportunity to enhance production volumes, and to reduce environmental impacts in coastal zones. Within the Space@Sea project, use of modular floating islands for offshore aquaculture was investigated. We evaluated the possibilities and benefits of finfish, shellfish, seaweeds and microalgae culture systems in conjunction with these floating platforms. This following culture systems were then selected to be designed in more detail. Salmon culturing in closed cage aquaculture systems (CCAS) with logistics, operation & maintenance, and processing on the floating modules; recirculating aquaculture systems (RAS) for seabream placed on top of the floating modules; the use of the floating platforms as a workspace for of the culturing of mussels and seaweeds, including processing and logistic infrastructures; the installation of photobioreactors to feed floating tube systems for mass production of microalgae. The space provided by floating platforms can be used to fulfil several functions related to aquaculture production, including the placing of systems, processing of harvest, storage of feed and harvest, and use as workspace and accommodation for staff. In the presentation, a concise overview will be given of the possibilities to use floating modular platforms for aquaculture purposes, and which options seem to be most promising for the near future.

Keywords – *Aquaculture, offshore, floating platforms*

Corresponding Author’s Brief Professional Biography



Dr. Robbert Jak is a senior scientist and research manager in the field of marine ecology. He participated in national and multinational research projects on the impacts of various human activities on aquatic ecosystems. Part of this work was on the development of ecological risk assessment methodologies, such as for offshore oil & gas activities, eutrophication, and aquaculture. Other projects were related to the establishment of marine Natura 2000 sites, and spatial management in marine areas. Current interests are the ecological potentials of floating and fixed constructions, and obtaining sustainable food sources from low trophic levels, such as seaweeds and crabs.