Mechanization of seaweed cultivation: the upcoming industrial revolution of sea agriculture

Suzan Kroeze (http://seagriculture.eu/author/suzan/)

In Session 4: The technology behind seaweed farming, Bernardete Castro will go into mechanization in seaweed cultivation. Bernardete Castro has a background on Mechanical Engineering and obtained her PhD on "Design for sustainable resource use". She has been working in several R&D projects with Royal IHC since 2006. She is currently project manager of the Seaweed Harvesting Technology project, that has the goal of developing mechanized technology for seaweed cultivation. Read her abstract below!

Title:

Mechanization of seaweed cultivation: the upcoming industrial revolution of sea agriculture

Authors:

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Abstract:

Seaweed cultivation is a growth market worldwide. Seaweed has multiple uses and is a promising resource to contribute to the societal challenges of food security and climate change in the future. However, the mechanisation of seaweed cultivation is essential for further growth, especially in Europe or comparable regions with high labor costs. This development is comparable to the mechanisation of land based agriculture which started with the Industrial Revolution. The seaweed industry will make a similar transition from small scale artisanal cultivation to large scale fully mechansised farming, and we expect this to happen withing the timespan of a few decades. This is going to take place at sea, in the hostile marine environment, and it has to take place in a sustainable way.

IHC adressses this formidable challenge from its strenghts and maritime engineering background. Seaweed cultivation mechanisation knowledge is being developed and and combined with our profound understanding of marine engineering. This is necessary in order to realise equipment which fullfils its harvesting functionalities and survive the unforgiving sea environment. IHC MTI, the R&D centre of Royal IHC, has developed a first prototype harvesting machine and tested it to try out and understand harvesting principles and also to demonstrate the potential of mechanised harvesting. The initial prototype realises a cost reduction of 50% and harvesting time reduction of 90%, even at this early stage without impeding sustainability aspects. This presentation exhibits the results of the initial trials with the harvesting prototype. In addition we adress the next steps and technological challenges to achieve mechanised seaweed farming.

About IHC MTI:

IHC MTI is Royal IHC's knowledge and research centre. IHC MTI provides sustainable solutions for today’s and tomorrow’s problems from ocean floor to water surface. In this way we improve and extend IHC’s product portfolio and the gained knowledge

enables us to offer measuring and diagnostics and consultancy services to our customers. We work theoretically and practically on solutions for the industry validated in the in-house testing facilities and the facilities of our partners. We do this with respect to People, Planet and Profit; inspired by and in a corporate social responsible way.

IHC MTI is a member of the Royal IHC Group. Royal IHC is focused on the continuous development of design and construction activities for the specialist maritime sector. It is the global market leader for efficient dredging and mining vessels and equipment – with vast experience accumulated over decades – and a reliable supplier of custom-built ships and tools for offshore construction. Royal IHC is continuously following the developments in the maritime sector and looking for new growth maritime markets.

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