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SEAWEED SEMINAR SERIES

Údarás na Gaeltachta organised an international seminar as part of the **SW-GROW** seminar series in September 2021. The seminar focused on cultivation and best practice in the industry. The first speaker **Kasper Hancke**, PhD – Senior Research Scientist from the Norwegian Institute for Water Research (NIVA) spoke about 'The impact of cultivation on the ecosystem with the results of the KELPRO project.' Kasper Hancke is a marine ecologist with research focus on coastal ecosystems and the biological, physical and chemical processes controlling their balance and activity. His current research is focused on macroalgae ecology and cultivation and how blue carbon resources and nature-based solution can improve marine life and provide climate mitigation actions. His research includes field and laboratory work, and remote sensing towards understanding how anthropogenic and climate change impact ecosystem functioning and feedback. He has experience as a project leader and primary investigator in more than 20 national and international research projects and is currently leading NIVA initiatives towards sustainable and eco-friendly kelp cultivation, including the research project Kelp industrial production: Potential impacts on coastal ecosytems (KELPPRO, www.kelppro.net).

Our second speaker **Frank Kane** from the Marine Institute in Ireland presented on 'IMAQT, Seaweed and IMTA'. Frank Kane is a marine biologist working with Aquaculture Section of the Marine Institute in Ireland, having worked with the Institute since 2002. He has previous experience with the salmon farming and shellfish sectors. His areas of research include aquaculture and aquaculture management, integrated multi-trophic aquaculture and the development of novel and lower trophic species in aquaculture, sea lice management, and environmental monitoring. On behalf of the Marine Institute, he is currently coordinating the the Horizon2020 IMPAQT project, which is looking to validate the concept of IMTA and to develop an intelligent management system for the managing of IMTA farms. This is a 3-year project which started in 2018.

Our final speaker was **Dr Steffan Kraan** Chief Scientific Officer at The Seaweed Company that focused on 'Seaweed cultivation in Asia and upscaling from a business perspective'. Born in The Netherlands he graduated with a M.Sc. degree in Marine Biology at National University of Groningen, The Netherlands. He moved to Ireland to pursue a PhD on phylogenetics and aquaculture of edible seaweeds at the National University of Ireland, Galway in 1998. He became manager of the Irish Seaweed Industry Organisation in 1998 and finished his PhD in 2001. He established the Irish Seaweed Centre in 2001, a dedicated R&D centre for seaweed-based research and development, which was launched in 2001. After managing the seaweed centre for

9 years, Dr Kraan resigned from University life in 2009 to pursue and develop some commercial ideas using seaweeds for a variety of purposes amongst them functional food ingredients for fish farming and novel algae cultivation systems for biofuel production. Dr Kraan co-founded Ocean Harvest Technology Ltd, a company that has produced Oceanfeed™, a seaweed based functional feed ingredient for the fish farming industry and other aquaculture industries. He is currently CSO of The Seaweed Company, a company that develops large scale seaweed cultivation to produce biomass for a variety of applications. Dr Kraan's main fields of expertise are aquaculture of seaweeds, sustainable development of algal resources, industrial applications of seaweeds and usage of seaweeds in aquaculture, biotechnology and biomedicine.

The project would like to thank all the speakers and to Dr. Ronán Sulpice, NUIG who chaired a questions and answers discussion after the presentations. The seminar is available to watch on the SW-GROW youtube channel.

ENERGY MODELLING SOLUTIONS

Energy systems modelling for seaweed processing relies on accurate wind speed and solar energy data. Potential seaweed processing sites seldom have wind or solar measurements of sufficient timespan for energy modelling purposes. One solution is to use reanalysis sets, which combine observations and numerical modelling to provide long timespan data for a given location. A team at Lews Castle College UHI have been evaluating two reanalysis models, NASA'S MERRA2 and the EU's ERA5, against UK Met Office station observations in order to determine whether they generate data of sufficient accuracy to be used in energy modelling. The results show that both reanalysis models are adequate for energy modelling, with ERA5 returning slightly better accuracy. We also evaluated the timespan of data required for energy modelling; preliminary results show that there is no advantage to the use of multi-year data compared to single year data. This finding has the potential to considerably streamline energy systems modelling by reducing the required computational time by an order-of-magnitude. We expect to refine and submit this work for journal publication in the near future.

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