



SEAMARK DELIVERABLE 2.1: DEVELOPMENT PLAN FOR SEEDING AND HARVESTING EQUIPMENT AND SPECIFICATION OF BIOMASS SUPPLY

Public summary of
confidential report

Urd Grandorf Bak¹, Floor Marsman¹, Harry Whitely¹, Ólavur Gregersen¹, Johan Christiansen¹, Job Schipper¹, Mathilde Lemoine², Margarida Martins³, Helena Abreu³, Jonas Kamašauskas⁴, Harald Sveier⁵

Edited by:

Floor Marsman, Harry Whitely and Urd Grandorf Bak, Ocean Rainforest, Kaldbak, Faroe Islands; Maya Miltell, SUBMARINER NETWORK for Blue Growth EEIG, Berlin, Germany

¹Ocean Rainforest, Faroe Islands, ²Algolesko, France, ³ALGApplus, Portugal, ⁴Sirputis, Lithuania, ⁵Ocean Forest, Norway.

Primary contact for further information: Urd G. Bak, urd@oceanrainforest.com

Reviewed by:

Urd Grandorf Bak and Ólavur Gregersen, Ocean Rainforest, Kaldbak, Faroe Islands; Unn Laksá, Sjókovin, Leirvík, Faroe Islands; Frederick Bruce, SUBMARINER NETWORK for Blue Growth EEIG, Berlin, Germany

Summary:

One of the objectives of the Horizon Europe funded project SeaMark is to develop and demonstrate technical solutions for cultivation, harvesting, and pre-processing for open-ocean and land-based production of sugar kelp (*Saccharina latissima*) and sea lettuce (*Ulva* sp.). This work belongs in work package (WP) 2 and combines the forces of seven partners: Ocean Rainforest (ORF), ALGApplus (ALGP), Algolesko (ALO), Sirputis (SIR), Vattenfall (VAT), Nofima (NOF), and Ocean Forest (OF). This team has the goal to enable the supply of cultivated sugar kelp (30,000 t ww/y) in the Faroe Islands and sea lettuce (750 t ww/y) in Portugal to serve as a reliable feedstock to the processing industry by 2026. Simultaneously, the aim is to bring down the production cost for sugar kelp to below €500/T dry weight (dw) and below €900/T ww for sea lettuce. To achieve this goal, cost-effective seaweed production methods using mechanical seeding, harvesting, and pre-processing technologies in ocean and land-based cultivation systems will be developed and demonstrated.

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The objective of this deliverable is to plan for the development of the mechanised seeding and harvesting equipment, as well as to plan for specific biomass supply to other WPs and for the collection and testing of strains on sugar kelp and sea lettuce production sites. The report will introduce the planning of development of technical solutions. For example, the improved 2-step direct seeding technology and apparatus for on board operation at offshore conditions, integrating all deployment steps. As well as a mechanised harvesting machine that will be developed to automatically lift vertical grow lines out of the water at sea and partially harvest the biomass leaving the meristematic zone, stem, and holdfasts so the algae can grow out again for a later harvest.

Besides scaling up and mechanisation, the seaweed cultivators (ALGP, ORF and ALO) will collect strains as input for the breeding programme in work package 1 and provide test



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space on their cultivation systems. The outgrow phase of the breeding work has been planned and outlined in this report.

Finally, the report describes the planned biomass supply in SeaMark between WP2 and WP3-6. WP2 partners are thus responsible for a reliable high-quality biomass supply for product development in the other WPs.