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Project seeks to 'fill knowledge gaps' about potential toxins in kelp and seaweed

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By Responsible Seafood Advocate

SeaSoil project will seek to reduce and manage potentially toxic substances in kelp and seaweed

Nofima scientists are coordinating a research project to expand the knowledge of potentially toxic elements in cultivated sugar kelp and wild-harvested kelp and seaweed.

The project, called SeaSoil, will also increase the understanding of how using algae material as a soil enhancer impacts the uptake of potentially toxic substances in cultivated crops, as well as the effect on carbon sequestration and carbon storage in soil.

The overall goal is to "promote value creation, including ecosystem service and a further expansion of the seaweed industry in Europe."

"We need to improve our understanding regarding potential toxic elements in seaweed before we can succeed in expanding the seaweed industry in Europe," Nofima **wrote about the project** (<https://nofima.com/projects/reduction-and-management-of-potentially-toxic-substances-in-seaweed>). "Kelp cultivation in particular is currently in an early phase of development and



Harvesting sugar kelp at Ocean Forest in Austevoll in 2020. Photo by Ingrid Olesen, courtesy of Nofima.

implementation.”



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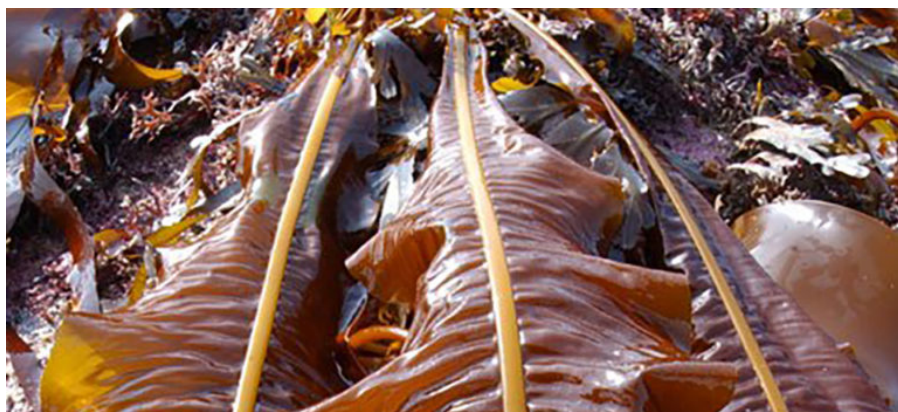
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Kelp farming can ensure “blue vegetation” and “blue forests” that capture and bind carbon – thereby mitigating climate change – and absorb excess phosphorus (P) and nitrogen (N) from the sea to maintain marine biodiversity.

“The use of mineral fertilizers in agriculture has a large environmental footprint, increasing the demand for sustainable alternatives,” wrote Nofima. “Using seaweed material (fresh, dried, extracted or as a residual material from chemical treatment) as a soil enhancer can increase plant growth and improve soil structure. It also has great potential for increased soil carbon storage.”



Ocean Rainforest foresees a bright future for ocean plants, and not just in Asia

Faroe Islands company believes nutritious and fast-growing seaweed is a versatile raw material and the oceans' best defense against climate change.



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However, the increased use of seaweed for food, feed and soil enhancement raises concerns about the high content of potentially toxic elements (such as iodine, cadmium and arsenic) in kelp and seaweed.

"The overall goal of SeaSoil is to fill knowledge gaps about potentially toxic elements (PTE) in cultivated sugar kelp and arsenic in seaweed used in agriculture for fertilization, soil improvement and carbon storage (CSS)," wrote Nofima.

Nofima is coordinating the project and leading the work on genetic analyses of cadmium, arsenic (As) and iodine in sugar kelp from two regions in Norway (Ocean Forest in Austevoll and Tromsø). This will provide a basis for assessing a potential selection response to reduce the content of these substances in cultivated sugar kelp.

Samples from a cultivation experiment at the Aquaculture Research Station in Tromsø will be analyzed at Norwegian University of Life Sciences (NMBU) for chemical content, in addition to genomic analyses.

Read more about the SeaSoil project (<https://nofima.com/projects/reduction-and-management-of-potentially-toxic-substances-in-seaweed>).

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