seafarm
MAKROALGER FÖR ETT BIOBASERAT SAMHÄLLE

KTH VETENSKAP OCH KONST

MASTER THESIS PROJECT PROPOSAL
Supervisors - Jean-Baptiste Thomas & Fredrik Gröndahl

Title – GIS based evaluation of the macroalgae production potential of the Swedish west coast

Research area - blue growth, macroalgae cultivation, GIS

Seafarm - The overarching goal of this project is to develop a sustainable system for the use of seaweeds as a renewable resource in a future, bio-based Swedish society. The transdisciplinary research approach includes techniques for cultivating seaweeds to be used as raw material in a biorefinery for the production of food, feed, bio-based materials and bioenergy. The project is split into 5 focus areas, the 5th being a sustainability assessment of the project as a whole, which is being tackled here at Industrial Ecology.

Seaweed farming circumvents several disadvantages related to land-based biomass production, e.g. the need for fertilizers and irrigation, and does not compete for valuable arable land. In addition seaweeds grow very fast, their farming counteracts coastal eutrophication and captures carbon.

One of the challenges in the development of a macroalgae industry on the Swedish west coast is the overall credibility, amongst legislators, that a large scale macroalgae industry will ever be viable on the west coast. We need to conduct a GIS based assessment of the algae production potential of the west coast, which in turn will inform policy makers and permit legislations. It will also help to strengthen the sustainability assessment of the Seafarm concept: whether or not there will be room for Seafarms to expand on the Swedish west coast.

Research tasks (*to be discussed*) – The aim is to assess the algae potential of the west coast. Several similar assessments have already been conducted, for instance for blue mussel cultivations, and these could be used as model examples of how to conduct this investigation.

Required competencies - English language proficiency, Swedish would also be preferable, but not essential. Ability to travel to the Swedish west coast to visit and see the cultivations first hand (travel and accommodation expenses covered). Previous knowledge of GIS, or will to learn, is essential.