

## Results and future perspectives of the Seafarm project

Fredrik Gröndahl

[www.seafarm.se](http://www.seafarm.se)

[fgro@kth.se](mailto:fgro@kth.se)

Industrial Ecology

KTH

SE-100 44 Stockholm

SWEDEN

The overarching goal of SEAFARM is to develop a sustainable system for the use of seaweeds as a renewable resource in a future biobased 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, biobased materials and bioenergy. 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 fast and their farming counteracts coastal eutrophication. A holistic approach is used where utilization of the resource is maximized in each step of the cycle. Seaweeds are cultivated at the Swedish west coast and methods suitable for preservation and storage are evaluated. The obtained biomass will subsequently be fractionated in an integrated biorefinery. The different fractions are thoroughly characterized and recovered for production of biochemicals, polymers, and food/feed additives. The residues from the biorefinery are utilized for production of biogas and biofertilizers. In parallel, a general multi-process sustainable assessment method is developed to analyse the overall sustainability of the system. The multi-disciplinary research team collaborates closely with a set of state agencies, commercial enterprises and other stakeholders in the different tasks of the project.