

Titel	Marine sector – the future of water treatment?
Type	Project & Master thesis
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Location	NTNU (and/or Norconsult Lillestrøm)

Project background:

Norway is a coastal nation and have vast marine resources that are increasingly utilized to great financial benefit. This is followed by a strong knowledge base from research, Universities and companies. Nye uses of marine ingredients are constantly fining its way to the market, ranging from cosmetics, skin- and haircare, pharma, food etc.

This development is followed by environmental challenges and increasing demand for treatment process well known from the water industry.

The stronghold of knowledge and resources in the marine sector holds a great potential for use in the water industry. The use of chitosan (a biproduct of shrimp and crab-harvest) has been demonstrated for water treatment, alginate (made form seaweed) is discussed as a potential green alternative to more industrial polymers, and algae technology receives great attention as a potential means to enhance waste water treatment. All these technologies are based on renewable resources currently in abundance in Norway and other countries.

At the same time the marine sector may have a great benefit of well-established technology from the water industry to solve its challenges with residual waste from fish farming, using well known waste water treatment processes, biogas production etc.

This master aims at being a feasibility study of a closer collaboration between marine sector and the water industry, describing the most potent applications and its benefits and prerequisite.

Student tasks:

- Literature review of water sector use of marine ingredients in Norway and abroad, as well as status of current research
- Identification of Norwegian and international stakeholders in research, development and application of marine ingredients with potential for the water industry
- Present a selection of case studies with evaluation of market potential
- Find volume and characteristics of Norwegian fish farming waste
- Theoretical calculations of biogas potential from marine waste
- Theoretical calculation of algae technology for use in waste water treatment
- The candidate must be prepared to collect information and know how from specialist in waste water treatment, biogas production, algae technology and to browse huge amounts of available research data.
- The feasibility study may represent the basis for a larger research consortium collaboration between marine sector and the water industry, further evaluating and shaping the future of water treatment
- Collaboration contacts will be from FMC biopolymer, Teta Vannrensing, University of Bergen and Norconsult