# MARINE BIOLOGICAL SECTION UNIVERSITY OF COPENHAGEN

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## Marine molecular microbial ecology group

#### **Group members**

Assoc. Prof. Lasse Riemann Ph.D. stud. Julie Dinasquet Ph.D. stud. Hanna Farnelid (based at Linneaus Univ., Sweden) Ph.D. stud. Johanna Sjöstedt (based at Linneaus Univ., Sweden) Res. Ass. Hanna Alfredsson

Associated people in the section:

Prof. Michael Kühl Assoc. Prof. Mathias Middelboe Assoc. Prof. Niels-Ulrik Frigaard

#### Techniques in use/used

DNA and RNA work	
Community fingerprinting:	DGGE, cloning, sequencing
Community structure:	clone libraries (16S, 18S, COI, nifH)
	454 tag sequencing (16S, nitrogenase (nifH))
Basic bioinformatics	
Real-Time PCR:	SybrGreen/TaqMan
CARD-FISH:	common probes
Pulsed Field Gel Electrophon	resis

Flow cytometry (bacteria, viruses), cultivation (plates, enrichments, continuous cultures), acetylene reduction, light/fluorescence/electron microscopy, isotope work, ectoenzymes

**Techniques to implement** Nano-SIMS Increased expertise in bioinformatics

### **Current projects**

Our research concerns marine microbial ecology. We apply molecular and microbiological tools to identify factors that regulate bacterioplankton community composition in the ocean. Recent and ongoing projects are especially related to the ecological role of heterotrophic  $N_2$ -fixing bacterioplankton, virus-host dynamics, and bacterial diversity and population dynamics.

In parallel with the microbiology projects, we apply molecular tools in projects addressing ecological aspects of larger plankton. Current projects concern molecular identification of fish larvae and their prey as well as species-specific quantification of nauplii of copepod taxa. Our work also includes general plankton ecology, namely cascading food web effects elicited by a gelatinous to predator.

Currently funded projects include:

- N<sub>2</sub>-fixation by heterotrophic marine bacteria (Danish Research Council (FNU) 2010-2013)
- BAZOOCA: BAltic ZOOplankton CAscades (European Union and the Swedish Research Council Formas. Duration: 2009-2011)
- Nitrogen fixing heterotrophic bacterioplankton of the Baltic Sea (Swedish Research Council FORMAS. 2007-2011)
- Marine bacterial community structure and its patterns. (Swedish Research Council to Å. Hagström/Lasse Riemann, 2009-2011)
- Regulation of key functional genes in marine bacteria: analyses of protein and gene expression (Crafoord Foundation to Jarone Pinhassi, Linnaeus Univ. and Lasse Riemann, 2010-2013)