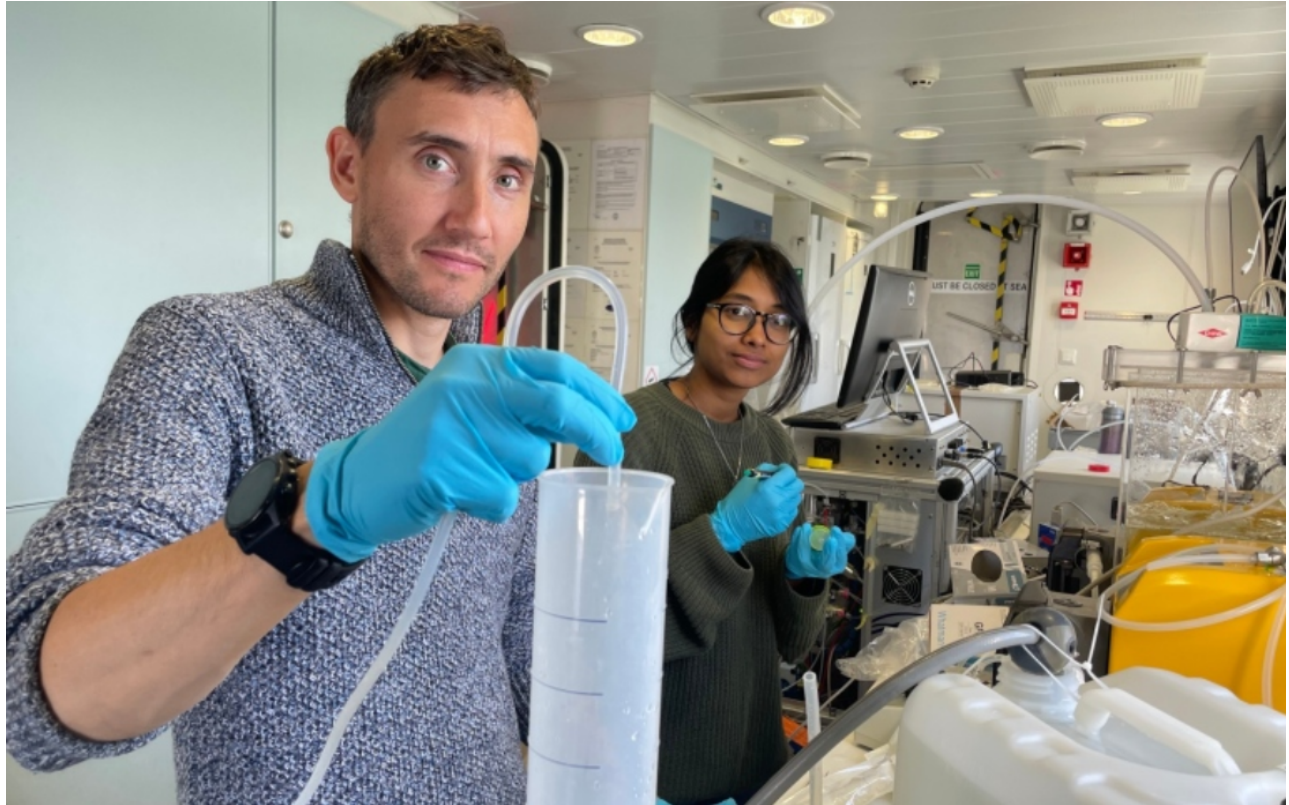




**Coast
Clim** Coastal Ecosystem
and Climate Research



Can the smell of the sea impact the climate?

This question lies at the heart of the research project where aerosol chemists collaborate with microbiologists to investigate the volatile organic compounds that are emitted by cyanobacteria and other plankton residing along the coastlines of the Baltic Sea.

Follow Matt Salter and Sneha Aggarwal, Department of Environmental Science, Stockholm University, on a sampling campaign onboard R/V Electra in the area around the Askö Laboratory.

Join the sampling cruise in this short video that explains how the smell of the sea may impact the world's climate.

28 days of multidisciplinary field work:

Working towards understanding the complex carbon cycling of shallow coastal ecosystems

The extensive CoastClim spatial campaign along a salinity and exposure gradient in the archipelago of Southwestern Finland was successfully conducted in August. The interdisciplinary research team have sampled diverse shallow areas for 28 days, done 100 SCUBA dives, at 20 sites over a range of 50 km from Kolaviken in Hanko to Pojoviken in Raseborg. Many different environments were visited, from more pristine to degraded and eutrophied habitats.

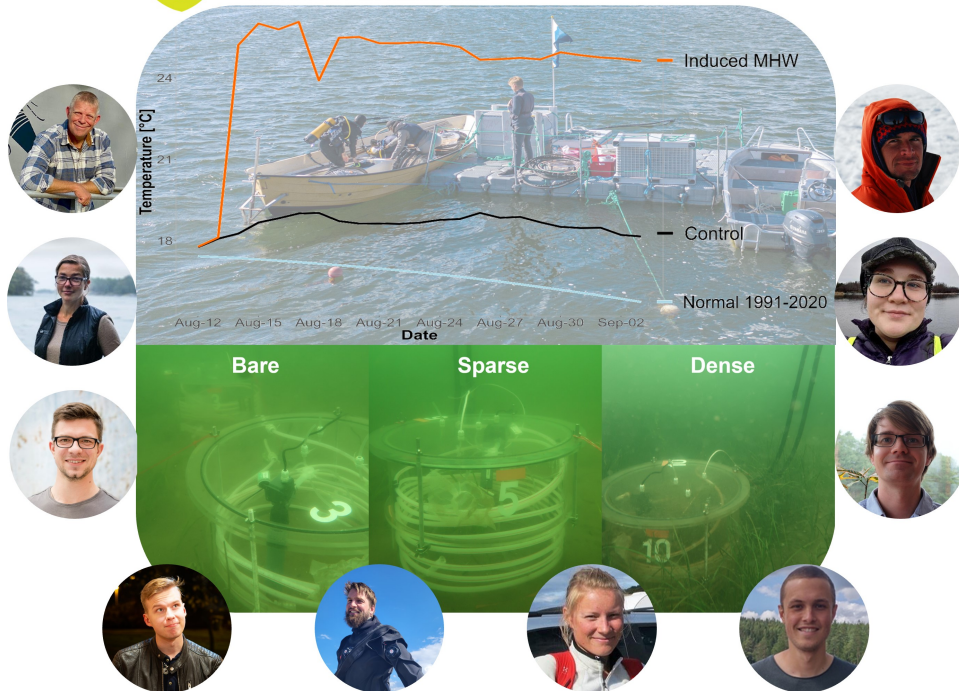


The ocean plays a key role in the Earth's carbon cycle but there are knowledge gaps. The aim of this campaign was to estimate how much carbon is stored in aquatic plants, in the water column through phytoplankton and zooplankton, in the sediment and in animals that live on or in the seafloor, as well as measure emissions of volatile organic compounds and greenhouse gases from the different habitats. Through combining the results of the different disciplines, we will obtain a rarely seen holistic picture of the carbon stocks and cycling in coastal areas and how the atmospheric processes are affected by the biodiversity of the sea. With this, we will provide real-world data on how healthy versus degraded coastal environments mediate climate change.



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Hotfloor



CoastClim experiment:

Hotfloor - Heating up the seafloor

We aim to better understand the marine heatwaves' influence on communities in areas with different eelgrass (*Zostera*) densities. Through methodical fieldwork and advanced

technology, we simulated marine heatwave conditions on the seafloor.

Organizing the logistics required careful planning. Establishing the Hotfloor system necessitated the installation of 160 m of land cable, 100 m of sea cable, and the integration of several adapters to ensure the system's functionality on a floating platform.

Our team, comprising 16 divers, conducted 129 dives from April to September, amounting to 5956 minutes underwater. We appreciate the consistent efforts of the entire dive team and the contributions from the FSDA students.

After simulating marine heatwave conditions for over 20 days, and gathering significant water samples and sediment cores, we have transitioned to the data analysis phase. We look forward to presenting our observations and insights on the effects of marine heatwaves on marine ecosystems.



The members of the Baltic Sea parliament agreed on resolution for a healthier Baltic Sea.

Professor Christoph Humborg, Scientific Director of the Stockholm University Baltic Sea Centre, was one of the invited keynote speakers at the conference, presenting the state of the Baltic Sea and the measures needed to improve it. He stressed the

importance of the coastal areas in climate change, the need for a fishing moratorium on several stocks, such as herring, and that eutrophication must be resolved if other ecosystem goals are to be achieved.



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Short news at a glance

- At the seminar "[A healthy Baltic Sea is a prerequisite for a blue economy](#)", CoastClim research was presented by Prof. Christoph Humborg. Many foundations and HRH The Crown Princess Victoria attended.
 - The [Baltic Sea Science Congress](#) was held in Helsinki during August, and was attended by many CoastClim researchers presenting their interesting results.
 - Latest media coverage of CoastClim and related topics: [YLE](#), [Helsingin sanomat](#), [YLE for youth](#).
 - What does research currently know about how nitrogen and phosphorus inputs to the sea are distributed between sources and countries, and over time? Watch this [Baltic Breakfast seminar](#) (in Swedish) held in August by Stockholm University.
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Who are we?

Meet a CoastClim researcher:

Who are you?

My name is Aleksandra Lewandowska and I am an associate professor in marine functional biodiversity at the Tvärminne Zoological Station. I have a background in environmental engineering, but became community ecologist studying plankton biodiversity and food web interactions.

What are you doing in CoastClim and why?

Within CoastClim I am responsible for the pelagic ecology research looking into biodiversity patterns and the dynamic of plankton communities. I am fascinated how species shift and shuffle in response to climate change and what consequences it has for their carbon storage capacity. As plankton are a basis for marine life and a main source of oxygen that we breath, they are incredibly important for our survival. But the microscopic universe of plankton is also beautifully complex and full of surprises.

My recommendation to you...

Is to cherish even the smallest and ugliest forms of life, because they all have their function in the ecosystem.

CALENDER:

11/10 Baltic Breakfast webinar in Swedish: Havet som metankälla

31/10 HELCOM webinar presenting the summary report: State of the Baltic Sea 2023, Third Holistic assessment (HOLAS 3)

7–8/11 CoastClim annual meeting in Stockholm

Available positions

12 PhD positions open in CoastClim research in Stockholm!

Within the new graduate school “Perspectives on climate change in coastal seas”, 12 doctoral students at several of Stockholm University's departments will be hired. The graduate school is directed towards students who are interested in understanding their own research in a broad and interdisciplinary context. A particular focus is on deepening the understanding and provide new knowledge of the specific conditions and challenges of the Baltic Sea in a changing climate.

Application deadline is November 3, 2023.



CoastClim

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