

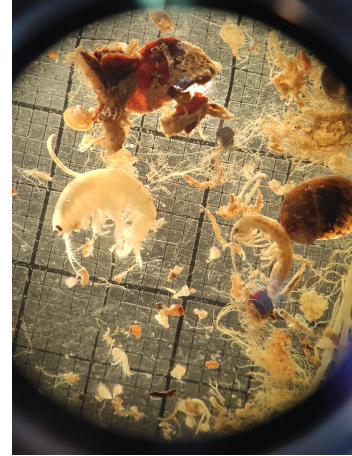


**Coast  
Clim** Coastal Ecosystem  
and Climate Research



## Busy winter for researchers trialling new methods

Our CoastClim divers, Lydia, Anna, Hanna, and Camilla are out trialling new methods to set up monitoring of important underwater environments, such as bladderwrack forests and seagrass meadows. In these times of rapid global change we urgently need to know more about the health of our underwater environments over longer time periods. At the moment such information is largely missing. Based on the new knowledge we aim, for example, to better estimate the potential of the habitats to take up and store carbon. Read more [here](#) (in Finnish).

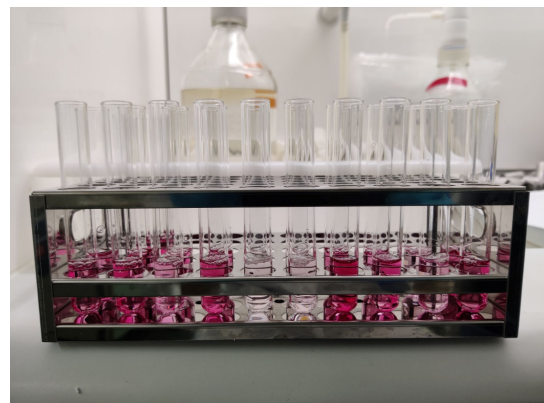


### **Eva Rohlfer surrounded by important seafloor animals**

After intensive fieldwork, Eva has many samples waiting to be processed in the lab. By using a microscope she has found various small invertebrate animals in the samples. Based on the number and weight of the different species, she can calculate their carbon content and estimate their role in the coastal carbon cycle. Mussels, shrimps and worms are the compost workers of the seafloor. They store carbon and affect the degradation of organic matter when they eat and move around.

### **Analysis of carbon in plants**

One of our goals is to understand how aquatic plants contribute to the coastal carbon cycle. Carbon is present in many forms in plants (for example carbohydrates such as sugars and starch). Last autumn, we measured carbohydrates in different parts of plants and examined how they change over time. In the colorful tubes in the picture we have extracted carbohydrates and quantified how much is present based on the intensity of the colour. Stay tuned for the results!



### **Algae bloom in April kicks off the intensive research season**

In addition to the research activities during winter, we are busy planning upcoming field work and experiments for the summer. The first experiments at Tvärminne Zoological Station will begin immediately at the onset of the annual spring bloom in the water (i.e. when small algae increase rapidly). This

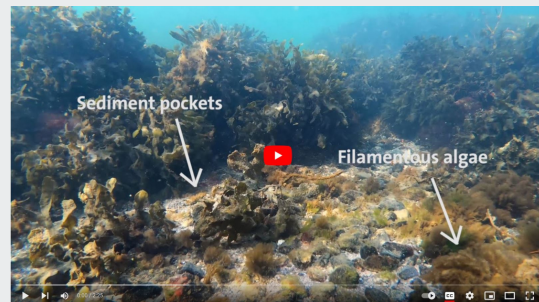
generally happens in April when the temperature rises and more light is available for the algae. This event is the starting point for the intensive period of growth and research activities in the sea.



### Unexpected high emissions of methane from bladderwrack - [Watch a video](#) that explains the findings

Bladderwrack in the Baltic Sea emits significant amounts of methane, which, to some extent, can offset the uptake of atmospheric carbon dioxide by these algae.

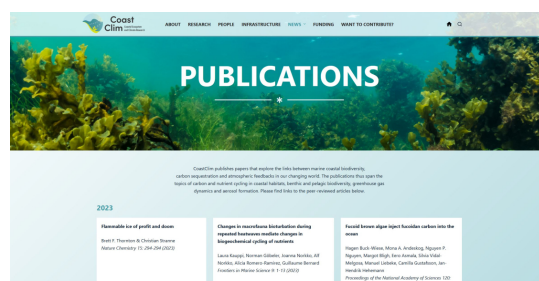
This is shown by a new study from [Askö Laboratory](#), where the fluxes of greenhouse gases between surface waters and the atmosphere were measured continuously over several seasons. Read the article [here](#).



### Want to follow our results?

Now you can find all CoastClim articles on our webpage: [coastclim.org/publications](https://coastclim.org/publications)

CoastClim publishes papers that explore the links between marine coastal biodiversity, carbon sequestration and atmospheric feedbacks in our changing world. The publications thus span the topics of carbon and nutrient cycling in coastal habitats, benthic and pelagic biodiversity, greenhouse gas dynamics and aerosol formation.



# Short news at a glance

- New CoastClim article by Roth et al. (2023). "[Methane emissions offset atmospheric carbon dioxide uptake in coastal macroalgae, mixed vegetation and sediment ecosystems](#)" Nature Communications 14(1): 42. Read more here in [English](#) or [Swedish](#)!
- New CoastClim publication by Buck-Wiese et al. (2023). "[Furoid brown algae inject fucoïdan carbon into the ocean](#)" Proceedings of the National Academy of Sciences 120(1): [e2210561119](#). Read more [here](#) (English)!
- New CoastClim publication by Thornton and Stranne (2023) "[Flammable ice of profit and doom](#)" Nature Chemistry 15: 294-294. Read more [here](#) (Swedish)!



*Who are we?*

## Meet a CoastClim researcher:

***Who are you?***

My name is Mikael Ehn and I'm a professor in atmospheric physical chemistry. My PhD was in physics, but nowadays I mostly try to figure out the chemical reactions of different organic compounds in the atmosphere. These small compounds can contribute to the formation of aerosol particles, which in turn can impact for example cloud formation or the reflection of sunlight.

***What are you doing in CoastClim and why?***

At the Institute for Atmospheric and Earth System Research (INAR), we have a long history of studying the interactions between forest and atmosphere. Much less work has been done, within INAR but also overall, on the interactions between sea and atmosphere, and less still on coastal areas. Therefore, I'm very interested in seeing what we will learn from CoastClim. In particular, I want to learn what kinds of volatile organic compounds are emitted from the sea surface, and then link them both "forward" to understand their atmospheric implications, and "backward" to understand how the emissions depend on the ecology below the sea surface.

***My recommendation to you...***

CoastClim is a great example of truly interdisciplinary science, and I warmly recommend taking the chance to explore all kinds of interfaces to other fields of science. It will not always lead to something, but when it does, and you are able to apply your expertise in a totally new area, doing science becomes so much more rewarding.

Meet the team working in CoastClim!



## Spread the word!

Do you need information about CoastClim? We have flyers available in three languages: English, Swedish and Finnish. Get in contact with us at [coastclim@helsinki.fi](mailto:coastclim@helsinki.fi)



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