



**Coast
Clim** Coastal Ecosystem
and Climate Research



Visit the underwater world on our new snorkel trail

Do you want to know more about life under the surface? Now you can learn more about life in the Baltic Sea and identify plants and animals that live in the water off the coast of Hanko.

At Plagen Beach in the centre of Hanko, you can follow the snorkelling trail and discover the mussels, clams, fish and plants that live in the sea!

The snorkelling trail takes you below the surface to six different points where you can learn about marine plants, algae and animals. Each point has a sign at the bottom with information about the different species.

The snorkelling trail is about 500 metres long and the depth varies between 1 and 2.5 metres. Points 1-4 are suitable for children and beginners, while points 5-6 are slightly deeper.

This new snorkelling trail is part of the outreach work done as part of the marine research within [CoastClim](#) and at [Tvärminne Zoological Station](#) in Hanko.



New underwater instruments

Turbulence measurements added to the Tvärminne supersite

Turbulence in the water affects the exchange of greenhouse gases between the sea and the air, and therefore it is an important regulator of carbon cycling in coastal waters. The acoustic doppler velocimeter (ADV) instrument deployed at the Tvärminne supersite in August 2024 will help the researchers disentangle the physical and biological drivers of carbon dioxide and methane fluxes from the water to the air at the Tvärminne ICOS station.

The data from the continuous turbulence measurements will be combined with data on greenhouse gases both in the air and in the water, which are already continuously measured at Tvärminne. With this combined information the CoastClim researchers can quantify processes of greenhouse gas production, chemical conversion and transport at the ecosystem level with a high temporal resolution. This can in the end inform carbon budget estimates of the Baltic Sea coasts.

CoastClim Researchers on stage around the world



Cape Town, South Africa, 18-23 August

The International Symposium on Microbial Ecology is a large conference that gathers researchers from the wide field of microbial ecology. Alexis Fonseca presented his results that demonstrate that presence of infauna increase the abundance and diversity of viruses in the sediments. Viruses are the most abundant entities in aquatic sediments and play a crucial role in shaping bacterial communities through predation and promotion of genetic diversity. There are however many knowledge gaps regarding the drivers behind the viral community dynamics.

Naples, Italy, 16-20 September

European Marine Biology Symposium is a conference that covers themes from marine biodiversity loss and ecosystem changes to marine conservation and restoration. Catharina Uth and Janina Pykäri presented their exciting research on seasonal phytoplankton community composition and its impact on the carbon dynamics, and on drivers of variation in biomass-bound carbon stocks in very shallow seafloor ecosystems.



Tampere, Finland, 25-30 August

The European Aerosol Conference is a conference that includes a wide range of topics related to aerosol research. Roseline Thakur and Maija Peltola presented their novel work on aerosol-precursor measurements at Tvärminne and specifically on marine biosphere-atmosphere interactions as well as local new particle formation at the Baltic Sea coast.

Versailles, France, 10-12 September

The ICOS Science Conference is arranged bi-annually and the presentations revolve around greenhouse gas measurements across Europe. ICOS (Integrated Carbon Observation System) is a European network of research infrastructures that measures greenhouse gases in different ecosystems and that Tvärminne Zoological

Station is a member of. Researchers Märta Brunberg, Nicolas-Xavier Geilfus and Aki Vähä presented their comprehensive work on greenhouse gases around Tvärminne in the water and air, across different habitats and seasons. [Watch Märta's presentation!](#)



Update on current policy affairs:

Governmental strategies and actions for improving the Baltic Sea



Lately work on strategies for improving the status of the Baltic Sea has been taking place at governmental level both in Finland and Sweden. Head of Policy at the Baltic Sea Centre, Gun Rudquist provides an update of the current situation.

In Finland the “Åtgärdsprogram för Finlands havsförvaltningsplan 2022–2027” (“Action plan for the Finnish marine management strategy 2022–2027”, in Finnish and Swedish) was complemented with a programme for improving the state of both rivers and the sea, the so called Ahti-programme, “Förbättring av vattendragens och havets tillstånd 2023–2027” (in Finnish and Swedish). In the latter a special pilot project for the archipelago outside Tvärminne has been initiated focusing on reducing nutrient input.



Just before the summer, the Swedish Government presented its marine bill, ‘A Living Sea - Increased Protection, Reduced Eutrophication and Sustainable Fisheries’ 2023/24:156 (in Swedish). It was a long-awaited bill that was partly based on previous studies, such as the

Environmental Objectives Committee's comprehensive report '[The Sea and Man](#)' (in Swedish). Stockholm University's Baltic Sea Centre, BSC, together with researchers from SU's Department of Environmental Science, has [commented](#) (in Swedish) on the bill.

Short news at a glance

- **Watch the latest Baltic Breakfast** on restoration of shallow habitats in the Baltic Sea (in Swedish).
 - **New publication** by Uth et al. (2024) [Phytoplankton community composition as a driver of annual autochthonous organic carbon dynamics in the northern coastal Baltic Sea](#). Marine Ecology Progress Series.
 - **New publication** by Hermans et al. (2024) [Ebullition dominates methane emissions in stratified coastal waters](#). Science of the Total Environment. [Read a news article about the study!](#)
 - **New publication** by Manca et al. (2024) [Projected loss of brown macroalgae and seagrasses with global environmental change](#). Nature communications.
 - **Interesting reading:** A lesser-known carbon pump in cold seas - 'ikaite'. Read a [news article](#) or the [scientific publication](#) about the fascinating new findings.
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Who are we?

Meet a CoastClim researcher:

Who are you?

My name is Ivan Mammarella, and I am a Professor at INAR, University of Helsinki. My research and teaching interests are particularly related to surface-atmosphere vertical exchange of energy and mass, ecosystem greenhouse gas (GHG) budgets, and how carbon and water cycles in different natural ecosystems are affected by climate change.

While working in Helsinki, I have focused mostly on widespread high latitude terrestrial ecosystems such as boreal forests, water systems such as lakes, rivers and coastal waters, and wetlands. My approach is multidisciplinary,

including micrometeorology, biogeochemistry, and hydrology, and based both on long-term observations and modelling.

What are you doing in CoastClim and why?

Within CoastClim, I am focusing on air-water interactions, including studies of physical and biogeochemical processes in coastal ecosystems especially related to carbon cycling. As PI of the ICOS Ecosystem Station in Tvärminne, I am responsible for flux measurements of carbon dioxide and methane by using the atmospheric eddy covariance flux tower, located in Tvärminne. The Station provides unique data being the only coastal water Station in the European network ICOS (Integrated Carbon Observation System) and we are also developing new methods for precise greenhouse gas measurements in the field. All these coastal measurements will improve our understanding and the models used to estimate, for example, greenhouse gas fluxes and budgets at regional, continental, and global scales.

My recommendation to you...

Find time to enjoy the nature and get inspired. Go for a walk in the forest or for a swim in the sea or lake and try to listen to the different feelings. Being creative in science, talk with students and other colleagues and explore the benefits of multidisciplinary collaborations, by sharing research ideas and field data.

[Meet the CoastClim team >>](#)

Available position

Postdoctoral Researcher in molecular food web ecology.

The Faculty of Biological and Environmental Sciences, Tvärminne Zoological Station and Academy Research Fellow Dr. Susanne Kortsch are seeking a Postdoctoral researcher. The 3-year position is funded by the Research Council of Finland project entitled 'Heatwave-driven rewiring of coastal food webs'. The overarching aim of this project is to predict how coastal ecosystems respond to marine heatwaves, which is a common feature of climate change and one of the most pervasive threats to marine biodiversity globally.

The postdoctoral project will contribute to developing a framework for predicting the rewiring of coastal food webs exposed to heatwaves. This will be achieved through a combination of approaches: mesocosm experiments, DNA sequencing, and food web modeling.

Apply before 15.10.2024



CoastClim

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