

First cruise report of POS506, Practical course at sea for students of Biological Oceanography (MNF-bioc-301)

The main aim of our cruise is to investigate horizontal and vertical distribution of abiotic factors as well as planktonic and benthic components along the environmental salinity gradient from the Southwestern Baltic Sea to the Kattegatt and Skagerrak regions. Eight students of the “Biological oceanography” (M.Sc.) course participate in the cruise to receive hands-on training by three staff scientists. During the cruise students collect, sort and analyze data to test whether *Remane’s* concept of species diversity gradient (Fig. 1) holds for both pelagic and benthic communities.

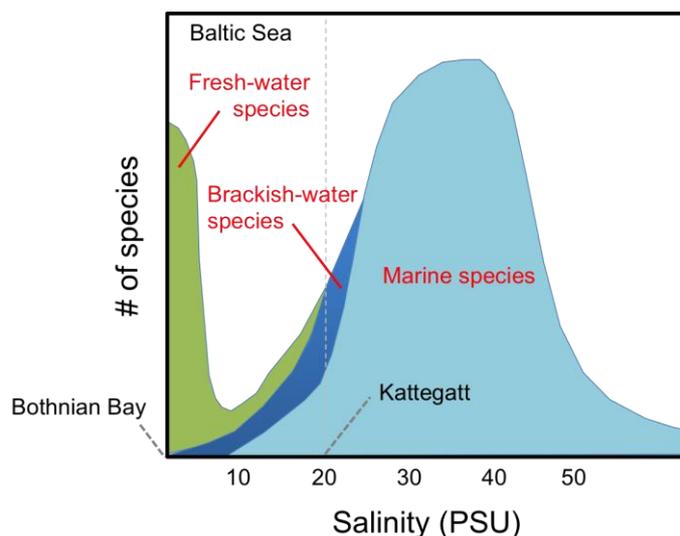


Fig. 1 – Remane’s concept explains species diversity along the salinity gradient of the Baltic Sea with more diversity in marine and freshwater areas compared to brackish water. (adapted from www.helcom.org)

Abiotic measurements are performed with the CTD, which is deployed at each station before any sampling. Water temperature, salinity, oxygen and other hydrographic measures are recorded along the water column and used to decide depth of sampling for planktonic organisms as well as for general data analysis. During the first leg of the cruise (Kiel-Malmö) we collect planktonic samples at 15 stations using a Bongo net with mesh sizes of 300 and 500 μm . Jellyfish samples are measured alive upon sampling as they are not easy to fix, while mesozooplankton and phytoplankton samples are fixed and counted later to estimate abundance and

community composition. At three stations we collect benthic samples using a dredge and a Van Veen grab.

In the early morning of the 30th September, we left Kiel and reached the first station within Kiel Bight at 15:20 in the afternoon to practice with the student preparation and deployment of each device. Here, the students practised communication with the crew and bridge and the casting of the different devices used throughout the cruise, such as CTD, water sampler, Bongo nets, dredge and van veen grab. Students were afterward divided in two groups of four to work in shifts. In each group two students were in charge of preparing and cleaning sampling devices on deck, while the other two communicated with the bridge and the winch, supervised recording of CTD data and filled out the station protocol. All students participated in counting of specimens, data analysis and preparation of a presentation during anchor time in Malmö. So far, 15 stations were casted in total, from which three stations were selected for benthos sampling. We are now on our way to the second sampling block, which will cover the Kattegat and Skagerrak area before processing the samples and data in Gotheburg, Sweden.

Second cruise report of POS506, Practical course at sea for students of Biological Oceanography (MNF-bioc-301)

Malmö - Gothenburg -Kiel

During the second slot of the cruise, we sampled 18 stations, two of which for benthos. Nine stations were sampled in the Kattegat and 9 in the Skagerrak. We intentionally selected deeper stations (deeper than 300 m) in the northern Skagerrak, to be able to compare hydrography and biodiversity between shallow and deep water bodies. Unfortunately, due to technical reasons (type of winch), we could not cast both WP2 and WP3 with closing systems to take depth specific plankton sampling. The WP3 was used to sample the entire water column. The bongo net sampling for the very last station had to be cancelled due to strong wind and risks of material damage.

Both, students and tutors were working in day-night shifts to sort and count samples. We entered Gothenburg harbor on the 6th of October around 4 p.m. Samples were analyzed further during the following two days. On October 7th, we left the ship in order to visit the Sven Lovén Centre for marine Sciences in Kristineberg, at the Swedish west coast. We received a warm welcome from the head of the center, Prof. Michael Klages, who introduced us to the center, their activities, missions and future perspectives as well as to their cultivation systems and lab facilities. In an interesting talks to the local scientists, we agreed upon using a newly developed jellyfish counter for the next cruise, after they finished the validation phase of the device in January 2017.

On October 8th, four master students of Marine Sciences from Gothenburg University visited the ship. Upon their arrival, captain Guenther welcomed them on board and gave a short introduction to Poseidon, and provided some insides into the world of navigation. Our guests participated in our mini symposium, where our students presented the preliminary results of the cruise and discussed the outcome. The guest students also introduced two current projects at their university: one on the invasive jellyfish *Mnemiopsis leidyi* and the second on the

Swedish benthic-lander and its applications. Later on, Swedish students took us for a walk through the oldest part of the city.

On the 9th of October, we left the harbor of Gothenburg. Dr. Barco and Dr. Pansch presented their own research projects and interests on the way back. Our students have also prepared their text blog to be posted on our ocean blog page, Jelly Meter.

All in all, this was a successful excursion elucidating the distribution and composition of benthic and pelagic communities along a steep salinity gradient and a valuable experience for a group of international students to work and research at sea.