



## AL 544 Cruise Report week 1

**Jaspers, C.**

*Publication date:*  
2020

*Document Version*  
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

*Citation (APA):*  
Jaspers, C. (2020). *AL 544 Cruise Report week 1*. GEOMAR.

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**Weekly report Alkor Cruise AL544**

Goal of the cruise is to investigate biological oceanography of the Baltic Sea along the extended salinity gradient from intermediate saline SW Baltic Sea towards low saline northern Gotland Basin of the Baltic Sea. Apart from teaching a diverse set of biological oceanographic sampling techniques, the aim is to characterize the macro-zooplankton and ichthyo-plankton community. We observed large accumulations of native and invasive macrozooplankton species in different areas of the Baltic Sea as well as extended anoxia in bottom waters, especially in NE waters. Due to unstable weather conditions, we had to modify the cruise plan along the way. In short, we cancelled northern most investigation area and eastern waters to avoid being trapped by an approaching low pressure. Instead we included an in depth investigation of the SW Baltic Sea, where the invasive comb jelly *Mnemiopsis leidyi* is currently forming local blooms with very high abundance patches. We did not observe *M. leidyi* at stations north of the Bornholm Basin. In summary, we managed to sample large parts of the salinity gradient with very interesting results, especially concerning anoxic conditions in bottom waters and added a high resolution investigation of the SW Baltic Sea in order to understand population dynamics of the invasive comb jelly *Mnemiopsis leidyi*.

Note: Due to the current Corona Pandemie, the scientific staff had been reduced by 50% which makes 24h work impossible.

Daily activities are outlined below and include operation the different gear, both from a practical and theoretical perspective, analyzing all samples alive for macrozooplankton and ichthyoplankton as well as basic principals in sample handling and preservation. All data are entered by the students in the evenings and the practical work is followed up by lectures and student presentations.

Due to heavy weather conditions, the investigation area changed slightly and includes now a station grid in the SW Baltic Sea (see Fig. 1).

**1.9.2020 Tuesday**

8:00 Boarding of students after negative corona test and departure to Kiel Bight for station work.

Station SW4: 9:30 Start with work program at SW4

- CTD (small with fast oxygen sensor)
- Calibration of pressure unit
- Plankton net cast: Bongo

Station KB03

- Plankton net cast: Bongo
- CTD (small with fast oxygen sensor)

Station KB12

- CTD (small with fast oxygen sensor)
- Plankton net cast: Bongo

Station SW14

- Plankton net cast: Bongo
- CTD (small with fast oxygen sensor)

Station work in SW Baltic finished and cruising towards Arkona Basin

**Wednesday 2.9.2020**

station work started at 6:00 in the Arkona Basin

Station **BY1**

- CTD
- Bongo

Station **H18**

- Bongo
- CTD

Station **BY2**

- CTD
- Wasserschöpfer
- Bongo

Station **H14**

- Bongo
- Water rousette collector
- CTD

**Thursday 3.9.2020**

Due to heavy weather, over.night stay off SW Bornholm and continuation towards northern Gotland Basin at 6:00 – first station off south western Øland at 14:00

During the morning 8:00-13:00 was used to deepen the understanding about the physical and biological oceanography of the Baltic Sea with lectures and student presentations.

Station **T8**

- CTD
- Multinetz midi (towed)

Station **T7**

- Multinetz midi (towed)
- CTD

**Station T6**

- CTD
- Multinetz midi (towed)

After station work continuation to HELCOM monitoring station BY32, north east of Gotland.

**Friday 4.9.2020** station work started at 6:00 on

Station **BY32** (205m bottom depth)

- Multinet **Maxi** (towed) – to 190m
- Water rousette collector – up to bottom
- CTD small with fast oxygen sensor (only up to 100m)

**Station T4**

- CTD (small) with fast oxygen sensor
- Multinet **midi** (towed)

**Station T5**

- CTD (small) with fast oxygen sensor
- Multinetz **maxi** (towed)

Due to bad weather and worsening of the situation, northern Stations were skipped, eastern Gotland stations as well and instead SW Baltic Sea targeted as intensive working area. The successful transect along the Swedish coast was extremely timely due to large anoxic events in bottom waters in the extended investigation area. Steaming after successful conduction of Station T5 to SW Arkona Basin, arrival around noon on.

Afternoon and evening was used to conduct Chl a extractions/measurements. The students also got familiar with oxygen measurements and winkler titration for CTD calibrations.

**Saturday 5.9.2020** with station work at

**Station SW10**

- CTD
- WP2
- Multinetz midi (towed)

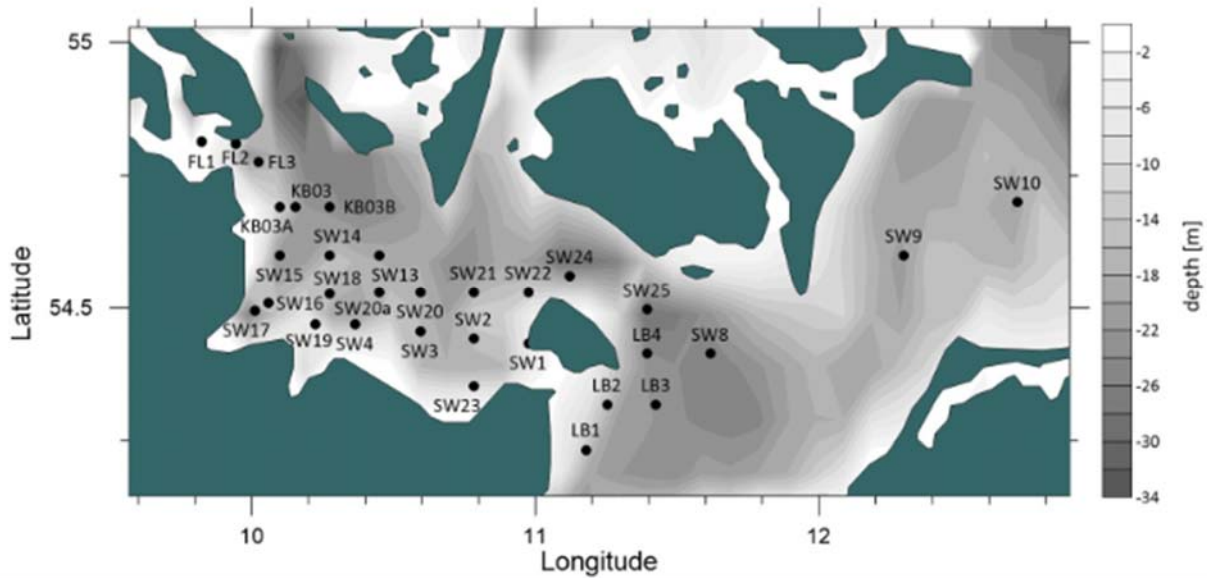
**Station SW9**

- Multinetz midi (towed)
- CTD
- WP2

**Station SW8**

- WP2
- CTD
- Multinetz midi (towed)

**Sunday 6.9.2020** with station work at Stations within the SW Baltic Sea as outlined on Fig. 1



**Fig. 1** Stations in the SW Baltic Sea which were added due to heavy weather conditions in the central and northern Baltic Sea.

**Station LB1**

- Multinetz midi (towed)
- CTD
- WP2

**Station LB3**

- Multinetz midi (towed)
- WP2
- CTD

**Station LB2**

- Multinetz midi (towed)
- CTD
- WP2

**Station LB4**

- Multinetz midi (towed)
- WP2
- CTD

**Station SW25**

- Multinetz midi (towed)
- CTD
- WP2

**Station SW 24**

- Multinetz midi (towed)
- WP2
- CTD

Lectures in the evening along with student presentations.

**Monday 7.9.2020** with station work at

**Station SW23**

- Multinetz midi (towed)
- CTD
- WP2

**Station SW1**

- Multinetz midi (towed)
- WP2
- CTD

**Station SW2**

- Multinetz midi (towed)
- CTD
- WP2

**Station SW22**

- Multinetz midi (towed)
- WP2
- CTD

**Station SW21**

- Multinetz midi (towed)
- CTD
- WP2

**Station SW 3**

- Multinetz midi (towed)
- WP2
- CTD

**Station SW20**

- Multinetz midi (towed)
- CTD
- WP2

**Tuesday 8.9.2020** with station work Flensburg Fjord

**Station FL1**

- Multinetz midi (towed)
- WP2
- CTD

**Station FL2**

- Multinetz midi (towed)
- CTD
- WP2

**Station FL3**

- Multinetz midi (towed)
- WP2
- CTD

**Station KB03A**

- Multinetz midi (towed)
- CTD
- WP2

**Station KB03**

- Multinetz midi (towed)
- WP2
- CTD

**Station KB03B**

- Multinetz midi (towed)
- CTD
- WP2

**Station KB06**

- Multinetz midi (towed)
- WP2
- CTD

**Station SW13**

- Multinetz midi (towed)
- CTD
- WP2

**Station SW14**

- Multinetz midi (towed)
- WP2
- CTD