



1. Weekly Report on the Cruise Leg SO308/2 from Fremantle, Australia, to Wellington, New Zealand, covering the period from 26th December 2024 to 29th December 2024

Current Position: 38°47,6'S 119°05'E in the Great Australian Bight off Southern Australia

The PlanOz-T research and training cruise uses the cruise leg SO308/2 of the research vessel SONNE from Fremantle, Australia, to Wellington, New Zealand, to study biodiversity, productivity, and food-web interactions of pelagic communities in the waters off Southern Australia.

Moreover, PlanOz-T is an international capacity building initiative of the Universities of Bremen and Hamburg in their research-strong scientific focus on marine and climate research. On board, there are three researchers from the University of Bremen, five scientists from the University of Hamburg together with four Ph.D. candidates from the University of Tasmania and two Ph.D. candidates from the University of Wellington in New Zealand, as well as 21 bachelor and master students from the Universities of Bremen, Hamburg and from the James Cook University in Australia.



Fig. 1: RV SONNE in the port of Fremantle. Photo: H. Auel

On 26th of December 2024, we left the port of Fremantle with sunny weather and started on a southerly course towards our first sampling station.



Fig. 2: Leaving Fremantle. Photo: H. Auel

A focus of our research will be plankton, the basis of marine food chains. Plankton includes all organisms in the sea that are so small and/or limited in their mobility that they drift with the ocean currents and cannot swim against currents for a longer period of time. The plankton is a very diverse community from viruses to bacteria, single-celled algae, protozoans to smaller crustaceans and larvae of many marine animals. The largest representatives of plankton include jellyfish, which can grow to a size of several meters.

Depending on the body size of the planktonic organisms, we use different methods to sample them. For the smallest size fractions  $<20\ \mu\text{m}$ , water samples are taken from the sea and filtered on board. Larger phytoplankton algae between 20 and  $200\ \mu\text{m}$  and mesozooplankton and macrozooplankton animals  $>200\ \mu\text{m}$  are caught with nets of different mesh sizes.

In the night from 26th to 27th of December 2024, we set the clocks forward by one hour for the first time. On the eastbound course to New Zealand, we have to repeat the time change four more times till the end of the journey in order to compensate for the five-hour time difference between the departure port of Fremantle and the destination port of Wellington. As with the change from winter time to summer time at home at the end of March, sunrise gets later in the morning. For scientific research on board, we benefit from the “turning of the clock” to carry out some of the gear deployments early in the morning still during darkness, when many marine animals are closer to the sea surface than during daytime. This daily vertical migration of zooplankton is the largest animal migration on our planet and will be the subject of one of the following weekly reports.

Around noon on December 28th, 2024 we reached our first sampling station at  $38^{\circ}45'S$   $117^{\circ}00'E$ . There we first deployed the Isaacs-Kidd Midwater Trawl (IKMT), our largest plankton net, which is towed behind the ship at 2 knots and catches larger and rarer macrozooplankton and micronekton organisms from a maximum depth of 850 m.



Fig. 3: First deployment of the Isaacs-Kidd Midwater Trawl. Photo: H. Auel

An oceanographic probe, the CTD, was then used to record depth profiles of temperature, salinity, oxygen concentration and other parameters down to a depth of 1200 m. On the way back to the surface, water samples were collected from different depths for different analyses on board. After that, we used additional plankton nets with different mesh sizes.

The first station was successful, all gears worked well, and we are happy about our first samples and data.



Fig. 4: Analysing a zooplankton sample. Photo: H. Auel

We would like to thank Captain Meyer and the entire crew of RV SONNE for their warm welcome on board and are looking forward to our scientific work in the coming days.

All families, friends and colleagues at home, we wish relaxing Christmas holidays and a Happy and Healthy New Year 2025.

On behalf of all cruise participants,  
Holger Auel  
Chief Scientist SO308/2