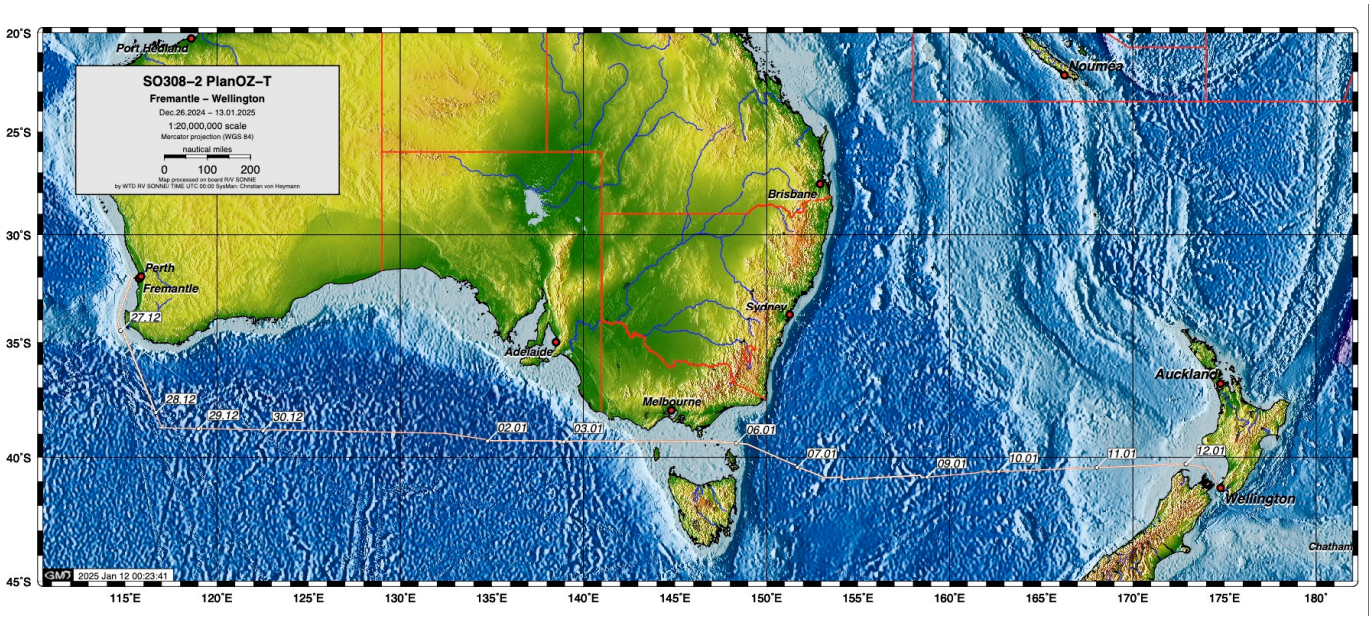
Dr. Holger Auel
University of Bremen (FB02)
BreMarE – Bremen Marine Ecology
Centre for Research & Education
P.O. Box 330 440
D-28334 Bremen, Germany

Tel.: +49 421 218 63040
email: hauel@uni-bremen.de

Short Cruise Report
RV SONNE SO308/2

Fremantle, Australia – Wellington, New Zealand
25.12.2024 – 13.01.2025
Chief Scientist: Dr. Holger Auel
Captain: Oliver Meyer



Objectives

The objectives of PlanOz-T were to study and quantify the productivity, food-web interactions and functional biodiversity of pelagic communities and their role in ecosystem functioning and in the biological carbon pump in waters off Southern Australia across different hydrographic and productivity regimes along the cruise track of SO308/2. A set of inter-linked hypotheses tested whether zooplankton biodiversity is negatively correlated with the ecological productivity of the ocean region, leading to highest species richness in oligotrophic waters. Zooplankton communities in productive marine ecosystems, such as coastal upwelling regions and temperate shelf seas, are often dominated by a few herbivorous species that utilise the abundant food supply. In oligotrophic ecosystems, total abundance is usually lower, but distributed more evenly over a larger number of species, resulting in an overall higher species richness and biodiversity.

We assumed that the dominance of different functional groups within phyto- and zooplankton communities changed along the cruise track depending on differences in abiotic and biotic factors, such as temperature, oxygen concentration, nutrient or food availability, and predation risks. Plankton taxa with different functional traits (cell or body size, feeding mode, trophic level, dietary composition, fecal pellet production, diel or seasonal vertical migration behaviour, metabolic rate, physiological tolerance thresholds) prevail in different regions along the cruise track.

The high taxonomic and functional diversity of marine zooplankton communities with diverse feeding types, trophic levels, and dietary spectra creates a complex pelagic food web with alternative trophic pathways. Regional differences in marine food-web structure and the composition of functional traits in plankton affect the impact strength of plankton on the biological carbon pump. For instance, regional differences in the abundance of vertically migrating zooplankton affects the active carbon export.

Besides the research objectives, the second major aim of PlanOz-T was training of students and young scientists from Germany, Australia, and New Zealand in state-of-the-art methods in marine research. The research cruise offered a unique opportunity for hands-on training in an interdisciplinary and international setting.

Narrative

The PlanOz-T research and training cruise used the SO308/2 transit of RV SONNE from Fremantle, Australia, to Wellington, New Zealand, to study functional biodiversity, productivity, and food-web interactions of pelagic communities in the waters off Southern Australia and in the Tasman Sea. At 15 stations along the cruise track, profiles of temperature, salinity, dissolved oxygen concentration, and chlorophyll a fluorescence were determined by CTD casts. Water samples were collected to characterise phytoplankton communities and provide eDNA samples for zooplankton species composition. Depth-stratified MultiNet hauls established the regional and vertical distribution of zooplankton and provided material for trophic biomarker analyses (fatty acids, stable isotopes). An Isaacs-Kidd Midwater Trawl (IKMT) was used to survey macrozooplankton and micronekton. In addition, PlanOz-T acted as an international capacity building initiative of the Universities of Bremen and Hamburg. Students and young scientists from Germany, Australia, and New Zealand received hands-on training in state-of-the-art methods in marine research. Three researchers from the University of Bremen and five scientists from the University of Hamburg participated in the research cruise 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 (JCU) in Australia.

On 26th of December 2024, we left the port of Fremantle with sunny weather and steamed southward to our first sampling station at 38°45‘S 117°E to the south and outside of the Australian Exclusive Economic Zone (EEZ) and South-west Marine Parks Network. Around noon on December 28th, 2024 we reached the first sampling station and deployed the Isaacs-Kidd Midwater Trawl (IKMT), our largest plankton net, which was towed behind the vessel at 2 knots and caught macrozooplankton and micronekton organisms from a maximum sampling depth of 850 m.

After the IKMT haul, an oceanographic probe, the CTD / rosette water sampler, was deployed from the stationary ship to record depth profiles of temperature, salinity, dissolved 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 phyto- and microzooplankton community analysis, primary production measurements on board, and environmental DNA (eDNA) sampling. In parallel to the CTD / rosette water sampler cast, an Apstein net was lowered manually to collect microplankton samples from the surface layer. Thereafter, a multiple opening/closing net MultiNet Midi (5 discrete depth layers, 0.25 m² mouth opening, 55 µm mesh size) was lowered to a maximum sampling depth of 200 m to provide depth-stratified microplankton samples. At the first station, a second, shallow (10 m max. sampling depth) CTD / rosette water sampler cast was conducted in order to provide more water from the surface layer for experimental work on board. Then, a second multiple opening/closing net MultiNet Midi (5 discrete depth layers, 0.25 m² mouth opening, 200 µm mesh size) was deployed to catch mesozooplankton with the coarser mesh size down to a maximum sampling depth of 800 m. The final action at the first station was the deployment of an Argo float for the Australian CSIRO. This particular float was equipped with biogeochemical sensors in addition to the standard CTD sensors. The first station was successful, all gears worked well.

After the end of the first station, RV SONNE continued the transfer voyage eastwards towards the position of station 5 at 39°S 132°33‘E with one sampling station per day. The first five stations along the cruise track were all outside the Australian EEZ. The general sequence of sampling gears was kept similar to stn. 1, whereas the start of station work was shifted into the early morning in order to shift the IKMT deployment into darkness before sun rise.

The second station started on 28.12.2024 around 22:00 UTC with the IKMT deployment, followed by a CTD / rosette water sampler cast, two manual Apstein net hauls and two MultiNet Midi hauls, the first one with 55 µm mesh size for microplankton down to 200 m maximum sampling depth and the second one with 200 µm mesh size for mesozooplankton down to 800 m maximum sampling depth.

The third station started on 29.12.2024 around 19:00 UTC at 38°52‘S 122°31‘E and followed the same sequence of sampling gears as at stn. 2 with the following exceptitons. After the Apstein net haul, a Secchi disk cast was added for the first time to measure the penetrating depth of sun light into the ocean, and the second Argo float was deployed at the end of stn. 3. In contrast to the biogeochemical Argo float at the first and westernmost station, the Argo floats deployed at stn. 3 and all following stations were standard floats only equipped with CTD sensors.

Station 4 started on 30.12.2024 around 19:00 UTC with the same sequence of sampling gears as at stn. 3, but without the deployment of an Argo float. Station 5 on 01.01.2025

around 03:00 UTC deviated from the standard sampling sequence. We started with a deep CTD cast down to the seafloor at 5559 m water depth to collect data on the structure of the entire water column and stratification of different water masses. In parallel to the CTD cast, two manual hauls with an Apstein net were carried out and the Secchi disk was deployed. Finally, a third Argo float was deployed for CSIRO at the end of stn. 5. No MultiNet or IKMT hauls were carried out at stn. 5.

During our seabird and marine mammal sighting survey, we spotted many different seabird species including several albatross species. We also saw seals and different whale and dolphin species including a large group of more than 50 pilot whales, which approached the vessel during station work on New Year.

The standard sampling campaign continued with station 6 on 01.01.2025 around 18:00 UTC at 39°20‘S 134°42‘E with the deployment of the IKMT, followed by CTD, Apstein net, Secchi disk and the two MultiNets Midi with different mesh sizes. Station 7 followed on 02.01.2025 around 18:00 UTC at 39°22‘S 138°41‘E with the same sequence of gears as at stn. 6 plus the deployment of the fourth Argo float.

During our research work in the Great Australian Bight from stn. 1 to stn. 7, we saw substantial differences in biomass, species composition and vertical distribution of phytoplankton algae and zooplankton species between the different stations. At the first three westernmost stations, zooplankton biomass was rather low, and the majority of phytoplankton algae occurred relatively deep between 50 and 100 m water depth forming a deep chlorophyll maximum. In contrast, the phytoplankton production was highest in the surface layer at the following three stations, and large amounts of copepods fed on phytoplankton algae.

At station 8 at 39°19‘S 142°37‘E over the continental rise at 1200 m bottom depth, we conducted a 24 hours station from 03. to 04.01.2025 with repetitive sampling at the same position during daytime and night in order to study the diel vertical migration of zooplankton and other mesopelagic animals. The campaign started with an IKMT tow, two CTD casts, two manual Apstein hauls, a Secchi disk cast and the deployment of the two MultiNets Midi with different mesh sizes as parts of the first sampling cycle. The second sampling cycle consisted of a CTD cast, Secchi disk cast and deployment of the two MultiNets Midi. In this case, the MultiNet Midi with 55 µm mesh size was lowered to a maximum sampling depth of 1000 m (instead of the standard 200 m) in order to study the vertical distribution of microplankton below the euphotic zone.

The third sampling cycle started with a CTD cast and two manual Apstein net hauls, followed by the deployment of the two MultiNets Midi with different mesh sizes with standard maximum sampling depths of 800 m for the 200 µm mesh and 200 m for the 55 µm net. The third sampling cycle ended with an IKMT tow. The fourth sampling cycle consisted of a CTD cast and the deployment of the MultiNet Midi with 55 µm mesh size down to 1000 m maximum sampling depth. Unfortunately, the fourth deployment of the MultiNet Midi with 200 µm mesh size at the 24 hour station had to be cancelled due to technical problems with the net. A preliminary comparative analysis of the four sampling cycles within one day showed that the vertical distribution of certain copepod species, for instance *Pleuromamma* spp., changed over the day with the occurrence in the surface layer restricted to nighttime and deeper occurrence during the day.

The cruise track continued through Bass Strait between Australia and Tasmania. Hence, station 9 was located in shallow waters of 52 m at 39°19‘S 144°27‘E. The sampling

sequence consisted of the standard gears, i.e. CTD, two Apstein nets, Secchi disk, and two MultiNets Midi. However, due to the shallow water depth, we did not use all five nets on the MultiNet frame for depth-stratified sampling and omitted the IKMT tow. Sampling off the south-eastern tip of Australia and in Bass Strait took part in the Australian EEZ, but outside marine protected areas of the South-eastern Marine Parks Network.

Researchers from the University of Tasmania planned to conduct phytoplankton grazing experiments on board. For that purpose, they required a sufficient number of large-sized copepods as grazers. Since we did not catch enough copepods at stn. 9 in Bass Strait, we added another station over the south-eastern Australian continental rise at 1200 m bottom depth and started with the MultiNet Midi with 200 µm mesh size at stn. 10 to establish whether a sufficient number of copepods could be obtained there for the grazing experiments. Deviating from the standard maximum sampling depth of 800 m for the MuliNet 200 µm, we only sampled down to 150 m maximum sampling depth to provide a higher vertical resolution of the upper water column and to reduce the time, which caught zooplankton organisms had to stay in the cod end of the net to ensure their fitness for the grazing experiments. A CTD cast, Apstein net haul and Secchi disk completed the sampling programme at stn. 10.

The remaining five stations, stn. 11 to stn. 15, were located in the Tasman Sea. Station 11 started on 06.01.2025 around 18:00 UTC with an IKMT tow, followed by a CTD cast and the deployment of the two MultiNets Midi with different mesh sizes. At station 12 on 07.01.2025 around 07:00 a.m. UTC, we again started with the MultiNet Midi 200 µm to look for copepods for the grazing experiments on board. Thereafter, a CTD cast and an Apstein net haul followed. The station ended with an IKMT tow to collect mesopelagic micronekton for a Ph.D. candidate from the University of Tasmania.

Station 13 on 07.01.2025 and station 14 on 08.01.2025 continued our regular sampling scheme with an IKMT tow in the early morning, followed by a CTD cast and parallel manual Apstein net haul and Secchi disk measurements. At both stations, the two MultiNets Midi with different mesh sizes were deployed. At the end of stn. 13, the fifth Argo float was deployed for CSIRO.

On 09.01.2025 around 16:00 UTC, our final station 15 started with an IKMT haul to collect again mesopelagic micronekton for a Ph.D. candidate from the University of Tasmania, who already had samples from this position from a previous research cruise and wanted to revisit and re-sample this station to analyse potential changes in species composition. After that, a CTD cast, manual Apstein net haul, Secchi disk, and both MultiNets Midi with different mesh sizes followed. At stn. 15, there were many salps and siphonophores (colonial jellyfish) in the surface water. Some of them produce their own light in a process called bioluminescence. From the working deck, we could see plankton organisms all around the ship starting to glow, once they were stimulated by the vessel’s bow wave or wake. The final action of the research cruise SO308/2 was the deployment of the sixth and final Argo float for CSIRO at the end of stn. 15.

During the last few days of the research cruise, we packed our expedition equipment into the freight container and cleaned the labs on board. Moreover, students presented the outcome of their project work. The cruise leg SO308/2 ended on Monday morning, 13.02.2025, with our arrival in Wellington, New Zealand. We are very satisfied with the scientific data and samples obtained during this very successful research and training cruise.

Acknowledgements

We would like to thank Captain Meyer and the entire crew of R/V SONNE for the very friendly and inspiring atmosphere on board and their very skillful support of our scientific programme. We are very grateful to DFG and GPF for the approval of our cruise proposal, BMBF and PTJ for the funding and the German Research Fleet Coordination Centre for the organisational support.

Teilnehmerliste / List of Participants

No.	Surname	First name	Discipline	Affiliation
1	AUEL	Holger	Chief Scientist, zooplankton ecology	UniHB
2	ASSHAUER	Luca Alexandra	eDNA sampling	UniHB
3	CATALDO MÉNDEZ	Camila Javiera	Grazing experiments	UTAS
4	D SOUZA	Alston Bernard	Physical Oceanography	UniHH
5	ENGELHAUPT	Sonja	Phytoplankton / Microplankton	UniHB
6	GARING	Madeline Rowena	Macrozooplankton / Micronekton	JCU
7	GILL	Alisha Marie	IKMT, mesopelagic fauna	NIWA / Uni Wellington
8	HARTMANN	Vanessa	Mesozooplankton, MultiNet 200 µm	UniHH
9	HEINATZ	Knut	Grazing experiments	UTAS
10	HESIDENCE	Savannah Mary Hope	Mesozooplankton, MultiNet 200 µm	JCU
11	HUETTER	Aaron	Macrozooplankton / Micronekton	UniHH
12	JANSSEN	Silke Helga	IKMT, Chl a measurements	UniHH
13	KABADE	Madhumita Amit	Mesozooplankton, MultiNet 200 µm	JCU
14	KOFLER	Amelie Rabea	Phytoplankton / Microplankton	UniHH
15	KOPPELMANN	Rolf	Biological Oceanography	UniHH
16	KULKARNI	Eshna Girish	Physical Oceanography	JCU
17	LAHAJNAR	Niko	CTD, Biogeochemistry	UniHH
18	LINKE	Charlotte Marie	Phytoplankton / Microplankton	UniHB
19	MARTIN	Bettina Julia	Phytoplankton	UniHH
20	PAKER	Laura	Seabird & marine mammal survey	UniHB
21	RAZALI	Halimah Binte	Macrozooplankton / Micronekton	JCU
22	RHODES	Emily Grace	Phytoplankton / Microplankton	JCU
23	ROUT	Vishwadeep	eDNA sampling	UTAS
24	RUIZ	Micaela Belen	eDNA sampling	UniHB
25	SCHAAR	Julia	Mesozooplankton, MultiNet 200 µm	UniHB
26	SHOWERS	Molly Grace	Macrozooplankton / Micronekton	UniHH
27	SICKERT	Chiara Annabelle	Macrozooplankton / Micronekton	UniHB
28	SPRINGER	Barbara Maria	CTD	UniHB
29	STUART	Lauren Anne	Physical Oceanography	JCU
30	TOWER	Meghan Eleanor	Seabird & marine mammal survey	JCU
31	VAN BEUSEKOM	Justus Engbertus Eduard	Primary production measurements	UniHH
32	WINTERHOF	Carlotta Lu Meret	Phytoplankton / Microplankton	UniHH
33	WINTERHOLLER	Lasse Lee Demian	Mesozooplankton, MultiNet 200 µm	UniHH
34	WOLF	Lisa	Stable isotope sampling	NIWA / Uni Wellington
35	ZHANG	Bowen	IKMT, mesopelagic fauna	UTAS

Institutes

UniHB
Universität Bremen
Fachbereich 2: Biologie/Chemie
BreMarE – Bremen Marine Ecology
Centre for Research & Education
Postfach 330 440
28334 Bremen / Germany
www.uni-bremen.de

UniHH
Universität Hamburg
IMF – Institut für marine Ökosystem- und Fischereiwissenschaften
Große Elbstraße 133
22767 Hamburg / Germany
www.uni-hamburg.de

UTAS
University of Tasmania
Institute for Marine and Antarctic Studies
Private Bag 129
Hobart, TAS 7001 / Australia

NIWA
National Institute of Water & Atmospheric Research Ltd
301 Evans Bay Parade Hataitai
Wellington / New Zealand

JCU
James Cook University
Australia

Stationsliste / List of Stations

Station No.	Device	Comment	Date & Time [UTC]	Latitude	Longitude	Depth [m]
SO308/2_1-1	IKMT-L	max. wire length 1758 m	2024/12/28 05:39:29	38° 44,734' S	116° 56,001' E	4989.4
SO308/2_1-2	CTD		2024/12/28 07:17:27	38° 44,634' S	116° 52,112' E	4924.1
SO308/2_1-3	Apstein Net (APNET)		2024/12/28 07:29:31	38° 44,636' S	116° 52,114' E	4922.4
SO308/2_1-4	MultiNet (MSN) 55 µm	max. wire length 200 m	2024/12/28 08:47:44	38° 44,641' S	116° 52,107' E	4921.5
SO308/2_1-5	CTD	max. wire length 10 m	2024/12/28 09:22:02	38° 44,637' S	116° 52,110' E	4919.0
SO308/2_1-6	MultiNet (MSN) 200 µm	max. wire length 800 m	2024/12/28 10:05:30	38° 44,643' S	116° 52,113' E	4925.0
SO308/2_1-7	ARGO FLOAT		2024/12/28 10:46:32	38° 44,645' S	116° 52,032' E	4914.3
SO308/2_2-1	IKMT-L	max. wire length 1784 m	2024/12/28 22:34:02	38° 47,607' S	119° 03,179' E	4813.2
SO308/2_2-2	CTD		2024/12/28 23:54:07	38° 47,564' S	118° 59,526' E	4784.5
SO308/2_2-3	Apstein Net (APNET)	2 deployments	2024/12/29 00:02:36	38° 47,563' S	118° 59,522' E	4784.0
SO308/2_2-4	MultiNet (MSN) 55 µm	max. wire length 198 m	2024/12/29 01:15:24	38° 47,583' S	118° 59,507' E	4787.8
SO308/2_2-5	MultiNet (MSN) 200 µm	max. wire length 803 m	2024/12/29 02:15:55	38° 47,641' S	118° 59,402' E	4778.7
SO308/2_3-1	IKMT-L	max. wire length 1208 m	2024/12/29 19:55:49	38° 51,603' S	122° 32,873' E	5130.4
SO308/2_3-2	CTD	max. wire length 1000 m	2024/12/29 20:56:39	38° 52,584' S	122° 30,971' E	5050.6
SO308/2_3-3	Apstein Net (APNET)		2024/12/29 21:00:43	38° 52,588' S	122° 30,964' E	5095.3
SO308/2_3-4	Secchi Disk (SD)		2024/12/29 21:17:29	38° 52,594' S	122° 30,975' E	5070.3
SO308/2_3-5	MultiNet (MSN) 55 µm	max. wire length 200 m	2024/12/29 22:18:35	38° 52,588' S	122° 30,979' E	5055.8
SO308/2_3-6	MultiNet (MSN) 200 µm	max. wire length 800 m	2024/12/29 23:11:51	38° 52,591' S	122° 30,967' E	5055.5
SO308/2_3-7	ARGO FLOAT		2024/12/29 23:49:28	38° 52,605' S	122° 30,915' E	5101.9
SO308/2_4-1	IKMT-L	max. wire length 1223 m	2024/12/30 19:58:38	38° 55,162' S	126° 34,718' E	5296.4
SO308/2_4-2	CTD		2024/12/30 21:01:55	38° 56,215' S	126° 31,879' E	5231.6
SO308/2_4-3	Apstein Net (APNET)		2024/12/30 21:04:35	38° 56,215' S	126° 31,878' E	5212.1
SO308/2_4-4	Secchi Disk (SD)		2024/12/30 21:18:32	38° 56,217' S	126° 31,878' E	5239.5
SO308/2_4-5	MultiNet (MSN) 55 µm	max. wire length 199 m	2024/12/30 22:28:39	38° 56,223' S	126° 31,886' E	5229.8
SO308/2_4-6	MultiNet (MSN) 200 µm	max. wire length 800 m	2024/12/30 23:24:54	38° 56,223' S	126° 31,888' E	5230.2
SO308/2_5-1	CTD	max. wire length 5559 m	2025/01/01 03:01:39	39° 00,059' S	132° 32,672' E	5576.1
SO308/2_5-2	Apstein Net (APNET)	2 deployments	2025/01/01 03:09:25	39° 00,022' S	132° 32,623' E	5577.8
SO308/2_5-3	Secchi Disk (SD)		2025/01/01 03:22:14	39° 00,013' S	132° 32,611' E	5577.7
SO308/2_5-4	ARGO FLOAT		2025/01/01 07:12:20	38° 59,692' S	132° 32,272' E	5577.9
SO308/2_6-1	IKMT-L	max. wire length 1365 m	2025/01/01 19:05:12	39° 18,268' S	134° 44,627' E	5540.1
SO308/2_6-2	CTD	max. wire length 1000 m	2025/01/01 20:08:28	39° 19,614' S	134° 42,397' E	5539.9
SO308/2_6-3	Apstein Net (APNET)		2025/01/01 20:11:20	39° 19,610' S	134° 42,400' E	5535.9
SO308/2_6-4	Secchi Disk (SD)		2025/01/01 20:28:49	39° 19,618' S	134° 42,406' E	5540.6
SO308/2_6-5	MultiNet (MSN) 55 µm	max. wire length 199 m	2025/01/01 21:30:32	39° 19,610' S	134° 42,399' E	5535.0
SO308/2_6-6	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/01 22:27:31	39° 19,617' S	134° 42,405' E	5538.4
SO308/2_7-1	IKMT-L	max. wire length 1622 m	2025/01/02 19:05:52	39° 20,666' S	138° 44,125' E	5290.8
SO308/2_7-2	Apstein Net (APNET)		2025/01/02 20:07:44	39° 22,422' S	138° 41,376' E	5298.0
SO308/2_7-3	CTD	max. wire length 1006 m	2025/01/02 20:13:19	39° 22,420' S	138° 41,385' E	5296.1
SO308/2_7-4	Secchi Disk (SD)		2025/01/02 20:26:25	39° 22,425' S	138° 41,382' E	5296.9
SO308/2_7-5	MultiNet (MSN) 55 µm	max. wire length 199 m	2025/01/02 21:24:12	39° 22,415' S	138° 41,384' E	5294.4
SO308/2_7-6	MultiNet (MSN) 200 µm	technical failure	2025/01/02 21:48:29	39° 22,425' S	138° 41,375' E	5296.4
SO308/2_7-7	ARGO FLOAT		2025/01/02 22:33:37	39° 22,439' S	138° 41,347' E	5296.9
SO308/2_8-1	IKMT-L	max. wire length 1546 m	2025/01/03 20:04:39	39° 20,035' S	142° 33,341' E	1450.4
SO308/2_8-2	CTD	max. wire length 151 m	2025/01/03 21:17:56	39° 18,702' S	142° 36,875' E	1215.9
SO308/2_8-3	CTD	max. wire length 1200 m	2025/01/03 21:56:56	39° 18,690' S	142° 36,874' E	1217.2
SO308/2_8-4	Apstein Net (APNET)	2 deployments	2025/01/03 22:03:51	39° 18,691' S	142° 36,871' E	1214.9
SO308/2_8-5	Secchi Disk (SD)		2025/01/03 22:12:55	39° 18,692' S	142° 36,871' E	1212.3
SO308/2_8-6	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/03 23:48:11	39° 18,698' S	142° 36,874' E	1222.2
SO308/2_8-7	MultiNet (MSN) 55 µm	max. wire length 200 m	2025/01/04 00:40:36	39° 18,695' S	142° 36,872' E	1216.4
SO308/2_8-8	CTD	max. wire length 1210 m	2025/01/04 03:01:25	39° 18,697' S	142° 36,870' E	1214.0
SO308/2_8-9	Secchi Disk (SD)		2025/01/04 03:07:36	39° 18,699' S	142° 36,870' E	1213.3
SO308/2_8-10	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/04 05:00:59	39° 18,691' S	142° 36,867' E	1230.0
SO308/2_8-11	MultiNet (MSN) 55 µm	max. wire length 1002 m	2025/01/04 06:21:19	39° 18,698' S	142° 36,872' E	1214.1
SO308/2_8-12	CTD		2025/01/04 09:15:40	39° 18,689' S	142° 36,869' E	1213.2
SO308/2_8-13	Apstein Net (APNET)	2 deployments	2025/01/04 09:36:08	39° 18,694' S	142° 36,869' E	1214.6
SO308/2_8-14	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/04 10:59:23	39° 18,697' S	142° 36,880' E	1214.5
SO308/2_8-15	MultiNet (MSN) 55 µm	max. wire length 200 m	2025/01/04 11:54:53	39° 18,687' S	142° 36,877' E	1224.0
SO308/2_8-16	IKMT-L	max. wire length 1111 m	2025/01/04 13:10:52	39° 17,838' S	142° 39,011' E	992.9
SO308/2_8-17	CTD	max. wire length 1215 m	2025/01/04 14:40:25	39° 18,839' S	142° 36,780' E	1240.8
SO308/2_8-18	MultiNet (MSN) 200 µm	technical failure	2025/01/04 15:59:02	39° 18,703' S	142° 36,874' E	1213.7
SO308/2_8-19	MultiNet (MSN) 55 µm	max. wire length 996 m	2025/01/04 17:21:03	39° 18,702' S	142° 36,869' E	1214.9
SO308/2_9-1	CTD	max. wire length 52 m	2025/01/05 03:06:16	39° 19,026' S	144° 27,337' E	51.5
SO308/2_9-2	Apstein Net (APNET)	2 deployments	2025/01/05 03:12:24	39° 19,030' S	144° 27,330' E	51.7
SO308/2_9-3	MultiNet (MSN) 55 µm	max. wire length 40 m	2025/01/05 03:47:38	39° 19,022' S	144° 27,336' E	50.5
SO308/2_9-4	Secchi Disk (SD)		2025/01/05 03:47:11	39° 19,023' S	144° 27,336' E	50.8
SO308/2_9-5	MultiNet (MSN) 200 µm	max. wire length 43 m	2025/01/05 04:17:16	39° 19,025' S	144° 27,330' E	52.0

Station No.	Device	Comment	Date & Time [UTC]	Latitude	Longitude	Depth [m]
SO308/2_10-1	MultiNet (MSN) 200 µm	max. wire length 151 m	2025/01/06 03:02:51	39° 26,538' S	148° 56,959' E	1702.8
SO308/2_10-2	CTD	max. wire length 1677 m	2025/01/06 03:18:30	39° 26,541' S	148° 56,966' E	1699.5
SO308/2_10-3	Apstein Net (APNET)	2 deployments	2025/01/06 03:24:27	39° 26,537' S	148° 56,962' E	1698.3
SO308/2_10-4	Secchi Disk (SD)		2025/01/06 03:37:07	39° 26,538' S	148° 56,959' E	1703.3
SO308/2_11-1	IKMT-L	max. wire length 1308 m	2025/01/06 19:02:33	40° 21,358' S	151° 35,727' E	4663.2
SO308/2_11-2	CTD	max. wire length 999 m	2025/01/06 20:09:23	40° 23,565' S	151° 35,905' E	4668.0
SO308/2_11-3	MultiNet (MSN) 55 µm	max. wire length 201 m	2025/01/06 21:35:03	40° 23,567' S	151° 35,954' E	4667.3
SO308/2_11-4	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/06 22:38:44	40° 23,590' S	151° 36,364' E	4667.4
SO308/2_12-1	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/07 07:55:53	40° 48,558' S	153° 04,207' E	4826.4
SO308/2_12-2	CTD	max. wire length 999 m	2025/01/07 08:29:21	40° 48,557' S	153° 04,205' E	4825.2
SO308/2_12-3	Apstein Net (APNET)		2025/01/07 08:37:07	40° 48,562' S	153° 04,200' E	4829.5
SO308/2_12-4	IKMT-L	max. wire length 1157 m	2025/01/07 11:17:13	40° 49,819' S	153° 04,329' E	4844.1
SO308/2_13-1	IKMT-L	max. wire length 1381 m	2025/01/07 18:01:14	40° 52,271' S	154° 09,097' E	3270.8
SO308/2_13-2	CTD	max. wire length 1003 m	2025/01/07 19:32:22	40° 54,543' S	154° 10,090' E	2426.2
SO308/2_13-3	Apstein Net (APNET)		2025/01/07 19:08:39	40° 54,546' S	154° 10,075' E	2426.2
SO308/2_13-4	Secchi Disk (SD)		2025/01/07 19:17:15	40° 54,541' S	154° 10,083' E	2425.5
SO308/2_13-5	MultiNet (MSN) 55 µm	max. wire length 200 m	2025/01/07 20:30:54	40° 54,545' S	154° 10,072' E	2428.3
SO308/2_13-6	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/07 21:29:38	40° 54,549' S	154° 10,084' E	2422.9
SO308/2_13-7	ARGO FLOAT		2025/01/07 22:11:43	40° 54,583' S	154° 10,100' E	2417.7
SO308/2_14-1	IKMT-L	max. wire length 1424 m	2025/01/08 18:02:28	40° 47,651' S	158° 26,223' E	4819.6
SO308/2_14-2	CTD	max. wire length 997 m	2025/01/08 19:12:54	40° 50,012' S	158° 27,809' E	4730.9
SO308/2_14-3	Apstein Net (APNET)		2025/01/08 19:15:54	40° 50,017' S	158° 27,810' E	4739.9
SO308/2_14-4	Secchi Disk (SD)		2025/01/08 19:28:54	40° 50,011' S	158° 27,814' E	4732.3
SO308/2_14-5	MultiNet (MSN) 55 µm	max. wire length 199 m	2025/01/08 20:29:33	40° 50,012' S	158° 27,802' E	4736.1
SO308/2_14-6	MultiNet (MSN) 200 µm	max. wire length 800 m	2025/01/08 21:27:19	40° 50,012' S	158° 27,801' E	4736.3
SO308/2_15-1	IKMT-L	max. wire length 1478 m	2025/01/09 16:58:11	40° 35,569' S	162° 06,650' E	4668.4
SO308/2_15-2	CTD	max. wire length 1000 m	2025/01/09 18:05:23	40° 37,271' S	162° 04,253' E	4692.8
SO308/2_15-3	Apstein Net (APNET)		2025/01/09 18:08:34	40° 37,272' S	162° 04,249' E	4690.7
SO308/2_15-4	Secchi Disk (SD)		2025/01/09 18:18:10	40° 37,276' S	162° 04,253' E	4692.2
SO308/2_15-5	MultiNet (MSN) 55 µm	max. wire length 201 m	2025/01/09 19:30:21	40° 37,271' S	162° 04,248' E	4692.3
SO308/2_15-6	MultiNet (MSN) 200 µm	max. wire length 801 m	2025/01/09 20:25:22	40° 37,319' S	162° 04,316' E	4688.9
SO308/2_15-7	ARGO FLOAT		2025/01/09 21:06:07	40° 37,439' S	162° 04,374' E	4692.5