



## MNF Voyage Summary

Voyage #:	IN2026_V01
Voyage title:	Cook Ice Ecosystems and Sediments (COOKIES)
Mobilisation:	Hobart, Thursday, 1 January 2026 (and pre-Christmas 20/21.12.2025)
Depart:	Hobart, Friday, 2 January 2026
Return:	Hobart, Wednesday, 25 February 2026
Demobilisation:	Hobart, Thursday, 26 February 2026
Voyage Manager:	Claire Grubb
Chief Scientist:	Linda Armbrecht
Affiliation:	Institute for Marine and Antarctic Studies (IMAS), University of Tasmania (UTAS)
Principal Investigators (alphabetical):	<p>Tristan Cordier (NORCE, Norway),          Laura De Santis (on-board Deputy; National Institute of Oceanography and Applied Geophysics (OGS), Italy),          Amaranta Focardi (University of Technology Sydney, Australia),          Nicole Hill (IMAS/UTAS),          Jan Jansen (IMAS/UTAS),          Amy Leventer (Colgate University, USA),          Jan Lieser (Bureau of Meteorology, Australia),          Taryn Noble (on-shore Deputy; IMAS/UTAS),          Alix Post (Geoscience Australia),          Alessandro Silvano (University of Southampton, UK),          Jan Strugnell (James Cook University, Australia),          Leonie Suter (Australian Antarctic Division)</p>
ORCID iD:	Linda Armbrecht (0000-0002-1213-1257)

# Voyage Summary

## Executive summary

The COOKIES voyage (IN2026\_V01) set out on the 2<sup>nd</sup> of January on the CSIRO research vessel (RV) *Investigator*, to study the Cook/Ninnis/Mertz Glacier marine region (~150°E), as well as the adjacent Dibble glacier region (~132°E). The voyage had three major objectives:

- to characterise marine ecosystem composition of the Cook Glacier marine region throughout the past and into the present, focussing on warm periods throughout the last 1 million years,
- assess relationships of benthic biodiversity and population genetic signatures with productivity and ice-sheet history, and
- determine the geological and palaeoceanographic conditions that may have influenced the spatial distribution of the Cook region marine life.

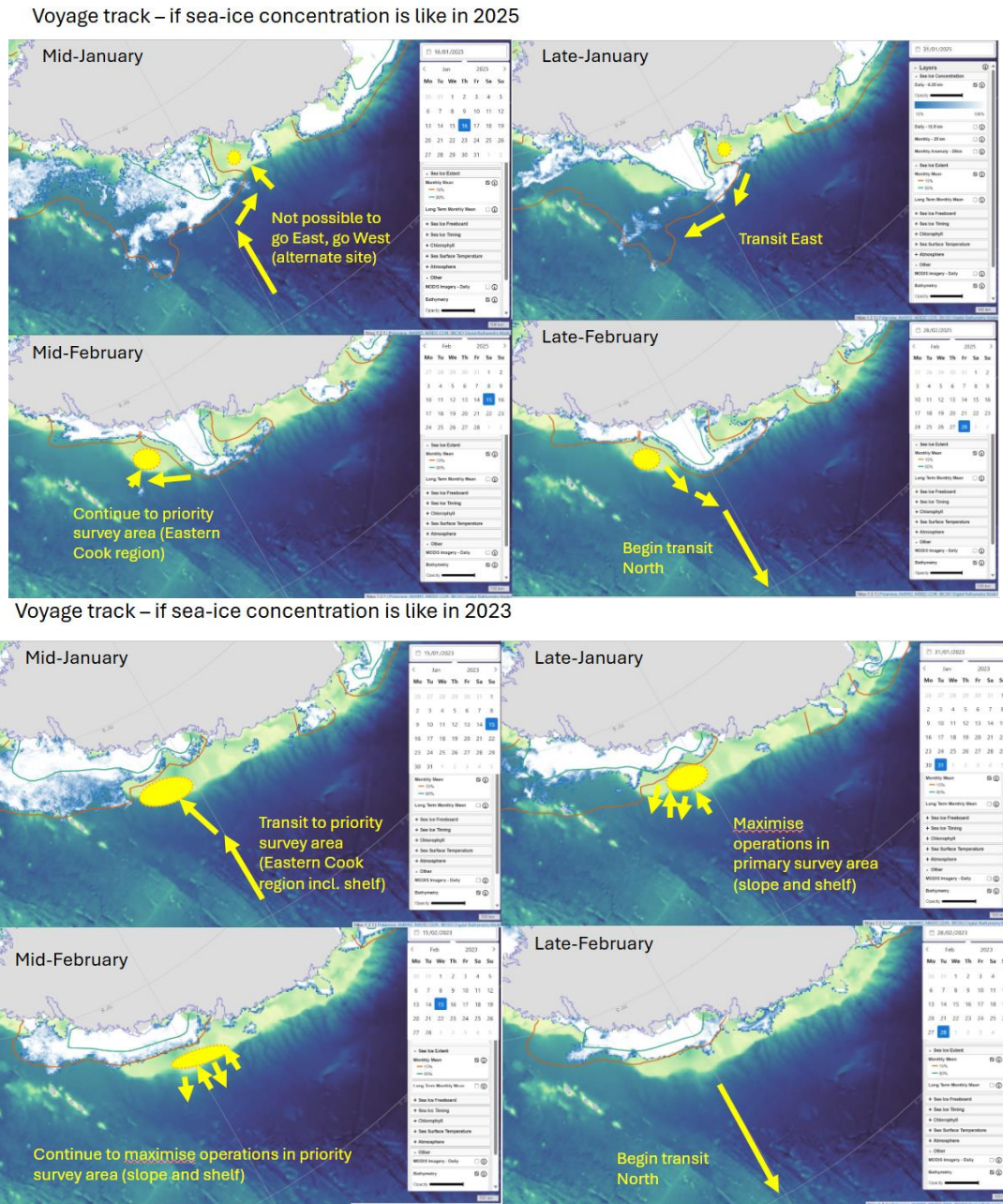
We achieved all three objectives by acquiring and integrating a highly multidisciplinary dataset. We collected bathymetry (multibeam) and sub-bottom profile data, sediment cores (Multi-, Kasten, Piston Cores) for sedimentological, geochemical, paleontological and genomics investigations, imagery of seafloor biodiversity (deep-towed and downward-facing cameras), benthic organisms (epibenthic sled), and physical (CTD, ADCP, Argo floats), chemical (Trace Metal Rosette) and biological oceanography (CTD, underway seawater sampling). We created new seafloor maps spanning 4,206 nm nautical miles across both slope and shelf in the study region alongside novel imagery of the seafloor biodiversity, the acquisition of the longest piston core on *RV Investigator* to date (20.5 m), and the collection of over 400 benthic organisms for population genetic analyses. Our dataset comprises a unique resource of the ice sheet history in the Cook/Ninnis/Mertz and Dibble Glacier regions that will inform future research in this area in the years to come.

## Scientific objectives

Models suggest that a major collapse of the marine-based ice sheet over the East Antarctic Wilkes Subglacial Basin (WSB) could be triggered by 2200. Around 60% of the ice held within the WSB is drained by the Cook and Ninnis Glaciers, which are inferred to be sensitive to ocean warming. Recent modelling suggests that the Cook Ice Shelf is especially vulnerable, with a projected considerable ice mass loss (-14 Gt per year) over the next 200 years. The COOKIES voyage intended to study the Cook/Ninnis/Mertz Glacier marine region (~150°E), as well as the adjacent Dibble Glacier region (~132°E), and had three major objectives:

- to characterise marine ecosystem composition of the Cook Glacier marine region throughout the past and into the present, focussing on warm periods throughout the last 1 million years,
- assess relationships of benthic biodiversity and population genetic signatures with productivity and ice-sheet history, and
- determine the geological and palaeoceanographic conditions that may have influenced the spatial distribution of the Cook region marine life.

To achieve these objectives, we intended to collect bathymetry (multibeam) and sub-bottom profile data (PIs De Santis and Post), sediment cores (Multi-, Kasten, Piston Cores) for sedimentological, geochemical, paleontological and genomics investigations (PIs Ambrecht, Noble, Cordier, Leventer), imagery of seafloor biodiversity (deep-towed camera; PIs Hill and Jansen), benthic organisms (epibenthic Sled; PI Strugnell), and physical (CTD, ADCP, Argo floats; PI Silvano), chemical (Trace Metal Rosette; PI Noble) and biological oceanography (CTD, underway seawater sampling) (PIs Focardi, Suter, Leventer, Noble). Due to the likely presence of sea-ice in the study area (monitored remotely by PI Lieser throughout the voyage), we anticipated a need for flexibility with regard to the sequence of occupying suitable sampling sites throughout the duration of this voyage (Fig. 1).



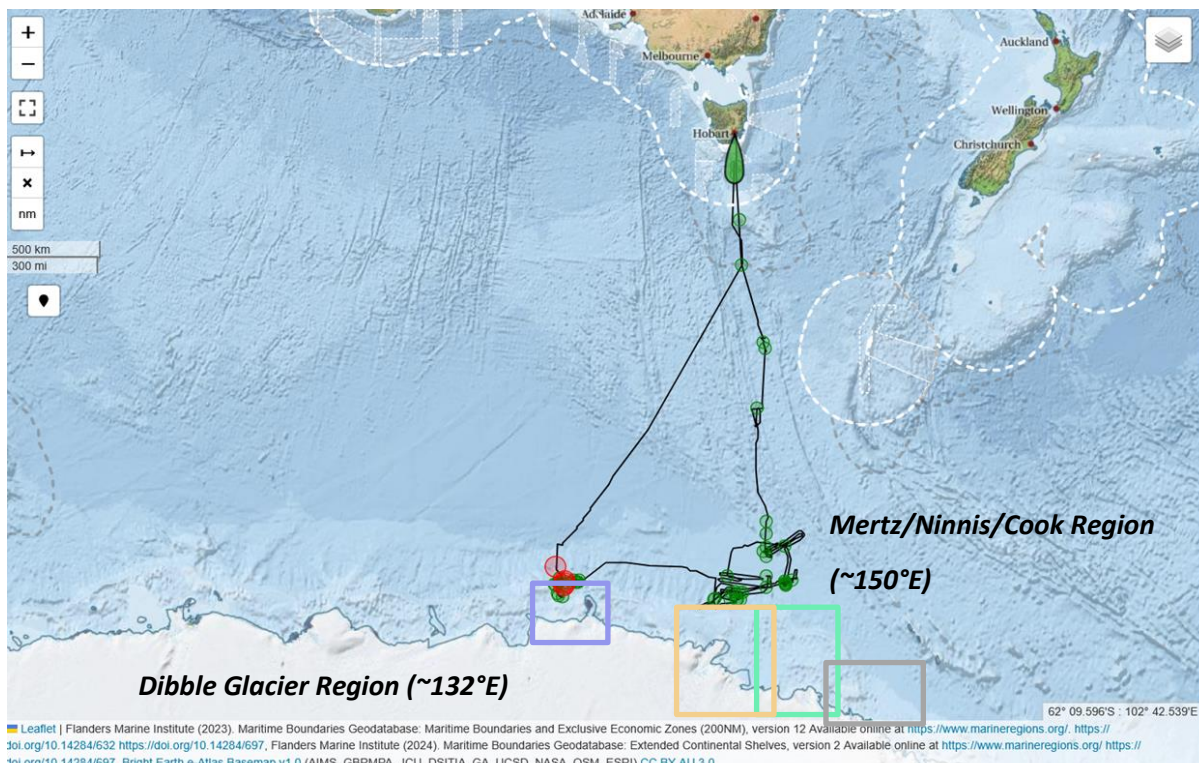
**Figure 1: Sea-ice scenarios that were expected for IN2026\_V01 and voyage track contingency planning.** Maps created with in Nilas Software (Heil, P., Steketee, A., Chua, S. (2023) Nilas Software - mapping tool for displaying multiple layers of physical and biogeochemical variables in the Southern Ocean, Australian Antarctic Data Centre - [doi:10.26179/qh66-7p96](https://doi.org/10.26179/qh66-7p96)).

## Voyage objectives

COOKIES was a multidisciplinary voyage where our goal was to deploy a variety of geoscientific and oceanographic instruments. We began sampling and collecting data during the transits between Hobart and Antarctica, involving sampling from the underway seawater intake line (microbial oceanography, eDNA, plankton assemblages), CTD (physical/microbial oceanography), multicores (ancient DNA, porewater geochemistry, fossil assemblages), and continuous seafloor mapping and magnetometer towing (geology/geomorphology). Upon arrival in the primary (or secondary) study area in front of the Cook (or Ninnis/Mertz) Glacier, we intended to map the seafloor to scope out the best coring locations for an anticipated maximum of five main stations on the continental slope (<4000m water depth), to collect Multi, Kasten, and Piston Cores, deploy the CTD and the Trace Metal Rosette. At the upper slope, we were aiming to deploy the deep towed camera to measure biodiversity and the NIWA sled to collect benthic animals. Under reduced sea-ice conditions we wanted to advance onto the shelf and occupy up to three more stations there to collect Multi and Kasten Cores, deploy the CTD, the deep-towed camera and the NIWA sled in this completely unexplored shelf region. In total, we were aiming for 25 video- and 20 NIWA sled-tows, and 5 Argo float deployments (slope and shelf).

The total duration of the planned activities was estimated as follows: 39 days operations + 12 days transit + 5 days weather = 56 days.

We provide details on the number of planned versus achieved operations in the 'Results' section below. The actual voyage track is shown in Fig. 2.



**Figure 2: Voyage Track.** The primary study area was the marine region in front of the Cook Glacier (light green box), a secondary alternate study area is the marine region in front of the Ninnis and Mertz Glaciers (light orange box), a tertiary alternate study area are the Balleny Island (grey box), and the Western Wilkes Subglacial Basin 'Dibble Glacier' region (light purple box).

## Results

### Achievements of scientific objectives:

- a) to characterise marine ecosystem composition of the Cook Glacier marine region throughout the past and into the present, focussing on warming periods throughout the last 1 million years  
*☑ Achieved 100% - We collected a suite of data and samples in the study region's slope and rise, records which exceeded our expectations and likely doubled the timescales of the palaeo-records we had anticipated to collect.*
- b) assess relationships of benthic biodiversity and population genetic signatures with productivity and ice-sheet history. *☑ Achieved 65% - We collected the target animals to allow post-voyage population genetics analyses, this analysis will take 2-5 years' time depending on sequencing resolution, however, the goal of collecting animals during the voyage is fully completed. We had hoped to collect more seafloor imagery than was possible due to technical issues, thus, consider this objective 80% complete.*
- c) determine the geological and palaeoceanographic conditions that may have influenced the spatial distribution of the Cook region marine life. *☑ Achieved 100% - We collected a suite of data and samples in the study region's slope and rise. We would have liked to collect (a) one additional piston core in the Cook region but technical issues prevented us from doing so, and (b) data and samples on the continental shelf, but this was inaccessible during our sea-time (mid-January to mid-February) due to sea-ice. However, as we had planned for contingencies, this objective was fully met.*

### Achievements of voyage objectives:

**Multibeam:** Data was acquired consistently along the continental rise and slope in the Cook/Ninnis/Mertz region and on the shelf in the Dibble region. In total, we travelled 6,534nm from Hobart to Hobart, crossed 60°S at 1700 on 11.01.2026, and mapped 4,206nm between 60°S and 60°S. The multibeam echosounders used were a Kongsberg EM124 (12kHz, operated at water depths greater than 400 m) and an EM712 (high resolution 40-100kHz, operated at water depths of up to 500m).

**Sub-bottom profiles (SBP):** SBP data was acquired concurrently with the multibeam data. We used the gondola-mounted Kongsberg SPB29, where the system source was a linear chirp up with a sweep of 2.0-9.0kHz. For water depths <400 m the SBP was operated using a Ricker pulse with a Bandpass filter. In deep water (>400m), the system was operated using a Linear Chirp Up pulse type with a Matched filter. The power was generally set between -15 and -5dB with a window size of 300ms and pulse length of 35ms.

*Multibeam and SBP data was acquired and analysed prior to any sediment coring to confirm sediment thickness ensure suitability of selected sites for coring.*

**Multicores:** We intended to collect multicores at up to 10 sites, with approximately half each in water depths >3,000m and <3,000m. Exceeding this, we deployed the multicorer 18 times during the voyage, with 15 successful. Multicore sampling was undertaken directly on board.

**Kasten cores:** We intended to collect 8 Kasten cores, with 5-6 from across the Cook (Ninnis/Mertz) region continental slope (<3,500m), and 2-3 from the continental shelf (<500m). This expectation was exceeded, having deployed the Kasten corer 14 times during the voyage with 13 successful cores. The Kasten cores were opened, described and subsampled directly on board.

**Piston cores:** We intended to collect 5 Piston cores from across the Cook/Ninnis/Mertz region continental slope. We achieved this target, thus meeting the highest priority sample collection of this voyage. Piston cores were sectioned and sampled and measured for magnetic susceptibility directly on board, then wrapped and archived for transport.

**Mini-temperature sensors (Piggyback):** The sensors were attached to the outside of each Kasten core, which had initially been tested successfully. We also attached the sensors to the first 2 Piston Cores to test them on these much longer cores. This met the goals of this piggyback project by J. Whittaker.

**Trace Metal Rosette (TMR):** We intended to deploy the TMR at 5 sites (paired with multicore collections) along the continental slope (<3,500m). We exceeded this expectation by deploying the TMR 12 times, successful each time.

**CTD:** We intended to deploy the CTD at 30 sites along transits in the Cook/Ninnis/Mertz region, at each coring site and at the Argo float deployment sites to acquire physical oceanographic data. Including the Test CTD we deployed the instrument 37 times, exceeding our expectations. Rather than deploying Expendable Bathythermographs (XBTs), which are not recoverable, we deployed 4 RapidCASTs in locations where CTD data but no water samples were required.

**ADCP:** Hydrographic measurements were collected continuously while underway (SADCP) and at specific sites (LADCP; concurrently with the 37 CTDs). This met our goals.

**Argo Floats (Piggyback):** Two Argo floats (DeepSOLO and BGC) were deployed off the Cook Glacier region (150°E), another float (deep) off the Mertz Glacier region (~145°E), and two more (regular) Argo floats were deployed in the Dibble Glacier region (~132E). While deployment of the two regular floats would have been preferred on the shelf in front of the Cook Glacier, the deployments met the needs of the piggyback projects (by S. Rintoul in collaboration with PIs Silvano and De Santis).

**Deep-Towed Camera (DTC):** We intended to deploy the DTC at 25-30 key locations along the upper slope and shelf at depths ranging from ~400 to 1500m. We achieved 18 deployments, thus did not meet our target. This was due to sea-ice preventing us from getting to the required, relatively shallow depths as well as technical issues with the DTC.

**eDNA sampler:** We intended to run this instrument that attaches to the DTC with every DTC deployment, i.e., at 25-30 locations. We achieved 3 deployments, due to technical issues.

**Epibenthic Sled:** We intended to deploy the epibenthic sled in 20 locations with up to 20 mins on the seafloor. We achieved 11 sled deployments, with the last 2 recovering over 90% of the collected animals, which included 41% of our target species objectives.

**Towed Magnetometer:** The MNF magnetometer was towed on both the transit South and North as well as along the continental slope in E-W or W-E direction, as planned. Thus, this met our goals.

**Underway Seawater line:** Water from the underway clean seawater line was continuously sampled. In total we sampled 138 points for analyses of chemical, biological oceanography, plankton assemblage and eDNA/genomics analyses. This met our target sampling frequency.

**Outreach:** Sea2SchoolAU (Ms Joline Lalime) provided 45 outreach sessions to ~2,600 students and communities around the world via live-broadcasts using the RV *Investigator's* WebEx system and social media. We also created digital content for the design of a virtual field trip for use in UTAS teaching. This exceeded our expectations and met our goals.

**Total duration of planned activities:** We had planned 39 days operations + 12 days transit + 5 days weather = 56 days. This estimate was realistic with slight adjustments as we mostly encountered very favourable and calm weather conditions. However, unexpected technical issues and protected industrial actions by the crew at sea and on land: 12 days transit + 2.5 days weather + 1.5 days lost due to technical issues and 1 day lost due the need to arrive back in Hobart one day earlier to manage protected industrial action impacts.

## Voyage narrative

The Cook Ice Ecosystems and Sediments (COOKIES) voyage (IN2026\_V01) set out on the 2<sup>nd</sup> of January on the Australian research vessel *RV Investigator*, to study the Cook/Ninnis/Mertz Glacier marine region (~150°E), as well as the adjacent Dibble glacier region (~132°E). The on-board science team consisted of 23 members: Linda Armbrrecht (Chief Scientist), Laura De Santis (Deputy Chief Scientist on-board), Tristan Cordier (PI), Lucinda Duxbury (student), Amaranta Focardi (PI), Ana Gomes (student), Talia Hawkes (student), Jan Jansen (PI), Sarah Jessop (student), Rebecca Knight (student), Joline Lalime (Sea2SchoolAU), Sally Lau (postdoc), Amy Leventer (PI), Luca Magri (postdoc), Noah Menner (student), Ezra Timothy Nugroho (student), Gina Paroz (AAD staff), Katharine Prata (postdoc), Jan Strugnell (PI), Fiorenza Torricella (postdoc), Amy Wells (student), Isabelle White (student), Luca Zurli (postdoc). This means that 40% of the science team were students who were mentored by the senior scientists on board, and 60% were women. Together, the scientists came from five countries (Australia, Italy, Norway, UK, USA) to undertake this research voyage.

COOKIES had three major objectives:

- a) to characterise marine ecosystem composition of the Cook Glacier marine region throughout the past and into the present, focussing on warm periods throughout the last 1 million years,
- b) assess relationships of benthic biodiversity and population genetic signatures with productivity and ice-sheet history, and
- c) determine the geological and palaeoceanographic conditions that may have influenced the spatial distribution of the Cook region marine life.

To achieve these objectives, a highly multidisciplinary dataset was acquired and integrated. We collected continuous bathymetry (multibeam) and sub-bottom profile data, covering a distance of 6,534nm (Hobart-to Hobart) and newly mapping 4,206nm at latitudes higher than 60°S. We collected 15 Multi-, 13 Kasten, and 5 Piston Cores for sedimentological, geochemical, paleontological and genomics investigations. Our second Piston Core (PC02), was the longest ever recovered on *RV Investigator* to date (20.5m). All cores were opened, described and sampled on board with archive material being brought back on land for future investigations. We collected novel imagery of seafloor biodiversity and habitats by deploying the deep-towed camera 18 times collecting over 9 hours of footage. We deployed the epibenthic sled 11 times collecting >400 seafloor animals for population genomics analysis, cataloguing and archiving, and discovered benthic life at much greater depths than previously assumed (in >3,000m of water). Physical oceanographic data was acquired via 37 CTD and LADCP deployments, continuous SADCPC recordings, and deployment of five Argo floats (2x regular, 1x deep, 1x DeepSOLO, 1x BGC). Chemical oceanographic data and samples were collected through 12 Trace Metal Rosette deployments, and biological oceanographic, eDNA, plankton and biogeochemical samples and data at 138 underway seawater sampling locations, on

top of discrete water sampling throughout the water column via the 37 CTD casts. Our dataset comprises a unique resource of the ice sheet history in the Cook/Ninnis/Mertz and Dibble Glacier regions that will inform future research in this area in the years to come.

An important factor in meeting our science objectives as listed above was the development and implementation of an opportunistic science plan approximately half-way through the voyage (week 4). At this time of the voyage, extended sea ice was still present above the continental shelf in our primary, secondary and tertiary study areas Cook/Ninnis/Mertz region. Thus, until then we were able to significantly progress towards meeting voyage objectives (a) and (c), by deploying seven CTDs, six Trace Metal Rosettes (TMR), ten multicores (MC), three Kasten Cores (KC) and three Piston Cores (PC) (9.8m, 24m, 19.6m, respectively). To achieve objective (b), we had intended to collect seafloor imagery data using the DTC and benthic animals using the epibenthic sled. These activities required water depths of 1500m or less. With sea-ice conditions remaining unpredictable, and no guarantee of access to the slope and shelf in the study region during the remaining 4 weeks, the science team assessed alternative locations where objective (c) could be met. The closest accessible (i.e., sea ice free) location to meet our objective (c) was the Dibble Glacier region at 132 °E. Similarly to the Mertz region, the Dibble region is characterised by:

- a trough and a bank near the shelf break and canyons which indicated potential locations for discharge of Antarctic bottom water off the shelf (particularly interesting for benthic biodiversity) and for up-slope rising of Circumpolar Deep Water (inferred to be able of ice shelf melting),
- a coastal polynya with high primary productivity,
- a paleo grounding zone wedge and sediment deposition from the glacier from a historic glaciation period.

The Dibble Glacier region had been studied previously, but only providing limited bathymetric and subbottom profile data and oceanographic data (Nitzsche and Correia, *Marine Geology*, 2019; Yamazaki et al., *Communications Earth & Environment*, 2026). Thus, we proposed the following operations without changing the risk profile of the voyage (in order of priority):

1. Mapping (multibeam and subbottom profiling) (shelf and slope)
2. Camera tows to characterise seabed communities (shelf and slope)
3. Epibenthic sled to collect benthic animals (shelf and slope)
4. Multicores and Kasten Core (shelf and slope)
5. CTDs (shelf and slope)
6. Argo Float deployment (shelf)

The collection of seafloor imagery and tissue samples of benthic fauna for genomic research was a first for the Dibble Glacier region, filling an important gap in our understanding of the spatial patterns of East Antarctic seafloor biodiversity. The DTC was deployed 15 times and the sled 10 times and sampled a similarly wide range of environmental conditions as originally planned for the main study region. The collection of sediment cores was also a first for the Dibble Glacier region, providing age and maximum expansion of the glacier last advance and retreat over the continental shelf. The provenance of the sediment will reveal the geology of the bedrock below the East Antarctic Ice Sheet drained by the Dibble Glacier. The sedimentary record in the continental slope will shed light into past Antarctic Bottom Water production changes.

## Outreach, education and communications activities

Joline Lalime, Outreach Coordinator from Sea2SchoolAU provided the outreach, education and communications activities. Sea2SchoolAU's role was to:

1. Provide outreach – ship to shore sessions via WebEx – to students in classrooms;
2. Bring ocean science from research to the community, via social media, including Facebook, Instagram and LinkedIn
3. Connecting community with the ocean by translating ocean science beyond journals to blogs in everyday language;
4. Take 360° images of the Dirty Wet Lab to create a virtual tour of the lab to be used by Dr Armbrecht as a university teaching tool.
5. Document the voyage through photography – providing images of processes and of the team or individuals at work.

### Outreach

Sea2SchoolAU delivered a six-week series of live “ship-to-shore” video-broadcasting sessions connecting primary, secondary, home school, and university students directly with the research vessel and scientific team. Designed to be flexible, curriculum-aligned, and responsive to time zones, sessions were tailored to each class based on teacher input, including year level and learning focus. To maximise accessibility, the outreach window was expanded beyond the original midnight–midday AEDT timeframe to include late evening sessions for European audiences and extended afternoon sessions for Australian and New Zealand participants. Sessions also incorporated collaboration with the Great Barrier Reef Marine Park Authority's Reef Guardian Schools Program, broadening reach and engagement.

Content was adapted for different education levels, with sessions focusing on foundational concepts such as habitats, Antarctic ecosystems, ocean layers, and human adaptation, while secondary sessions explored more advanced topics including ocean sampling, seafloor mapping, climate science, sediment coring, and Antarctic biology.

In total, 45 sessions were delivered across five countries, reaching over 2,500 students, with some large multi-class and multi-school sessions significantly increasing participation. Teacher feedback highlighted a wider “ripple effect,” with students sharing their experiences beyond the classroom, extending the audience to over 5,000 people. The dedicated outreach role was identified as a key strength, ensuring consistent delivery and effective communication of complex scientific research to diverse audiences.

Education Level	#Sessions	#Education Organisations	#Students
Primary	26	~25 + ~40 Homeschools	~1,905
Secondary	15	~10 + ~25 Homeschools	~ 625
University	4	4	~ 60
TOTAL	45	~41 + ~65 Homeschools	~2,590

*\*A session may have a single class or it may have several classes in attendance. The classes may not be from the same school. Numbers are approximate as teachers had provided estimates and were not asked to confirm exact numbers in attendance on the day. Additionally, in the GBRMPA sessions where individuals or a classroom teacher logged on it was not possible to identify final numbers.*

### Social Media

Social media updates were shared throughout the voyage to provide real-time insights into research activities, including equipment deployments, recovery processes, and the types of samples being collected. Additional posts highlighted key features of the Antarctic environment such as icebergs and wildlife. Content was generally distributed across Facebook, Instagram, and LinkedIn, with minor adjustments to suit each platform's format and audience, ensuring that visuals and messaging were optimised for engagement.

As a result of the COOKIES posts, the existing [Sea2SchoolAU Facebook](#) page grew from an established follower's base from 350 to 405. A total of 34 posts across the voyage period reached nearly 18,000 views. [Sea2SchoolAU Instagram](#) featured over 15 voyage posts, generating approximately 6,500 views in total (averaging 444 views per post). On [Sea2SchoolAU LinkedIn](#), for which an account was created specifically for the voyage, 15 posts were published and the number of followers reached 103, with an average engagement rate of 0.25.

[ACEAS Blogs - https://antarctic.org.au/cookies-blog/](https://antarctic.org.au/cookies-blog/)

A total of 14 blogs were produced and published on the Australian Centre for Excellence in Antarctic Studies website with a total of 2,507 page visits. Ms Lalime authored several key pieces including those on the significance of the COOKIES voyage, Sea2SchoolAU virtual outreach, the International Day of Women and Girls in Science, international collaboration in Antarctic research, and the voyage wrap-up, with input from Dr Ambrecht to confirm statistics and contextual accuracy. The remaining blogs were authored by on board researchers, and edited by Ms Lalime to enhance clarity, accessibility, and the use of plain language, including clear explanations of key scientific terms. ACEAS also promoted the Blogs via their LinkedIn and Twitter accounts accruing over a staggering 10,800 views and impressions. BlueSky does not provide statistics, however, the ACEAS has over 6.6K followers. Statistics for each Blog provided below:

Blog Title	Date Uploaded	Page Visits
Main COOKIES Blog page	16 Jan	647
#1 Cook Ice Shelf research - Why it's important	16 Jan	276
#2 Voyage to Antarctic - without leaving the classroom	20 Jan	75
#3 What's the big deal about sedimentary ancient DNA?	22 Jan	131
#4 Listening to the deep - how sound maps the seabed	27 Jan	79
#5 The longest story every pulled from the seafloor on the RV Investigator	29 Jan	124
#6 International collaborative science at the edge of Antarctica	3 Feb	95
#7 Global circulation and the humble CTD	5 Feb	90
#8 Leading from the front: women shaping Antarctic science on the COOKIES voyage	11 Feb	86
#9 The invisible engineers of the Southern Ocean: a story from a drop of seawater	16 Feb	54

Blog Title	Date Uploaded	Page Visits
#10 'Pass the pool noodle': the ordinary items doing extraordinary things for science at sea	17 Feb	300
#11 Science and art meet in the Southern Ocean	19 Feb	100
#12 Sailing on the spectrum: an autistic perspective of life on a research voyage	24 Feb	116
#13 Finding stranger things: catching a real-life 'Demogorgon' from the Antarctic deep	26 Feb	225
#14 COOKIES wrap up: 55 days in the Southern Ocean	5 Mar	109

### Virtual Field Trip - UTAS Teaching Resources Content Creation

Images and videos in 360° format were taken of the Dirty Wet Lab to support the development of an interactive virtual field trip resource for Dr Armbrecht's university teaching, enabling students to explore the space and its equipment in an immersive, accessible way.

### Voyage Photography and Videography

Hundreds of photographs were taken by Ms Lalime throughout the voyage, documenting key scientific processes, equipment use, and the research team at work. These images provide a valuable visual record of life and operations on board *RV Investigator*, supporting both education and outreach by bringing the realities of Antarctic research into classrooms and the broader community.

## Summary

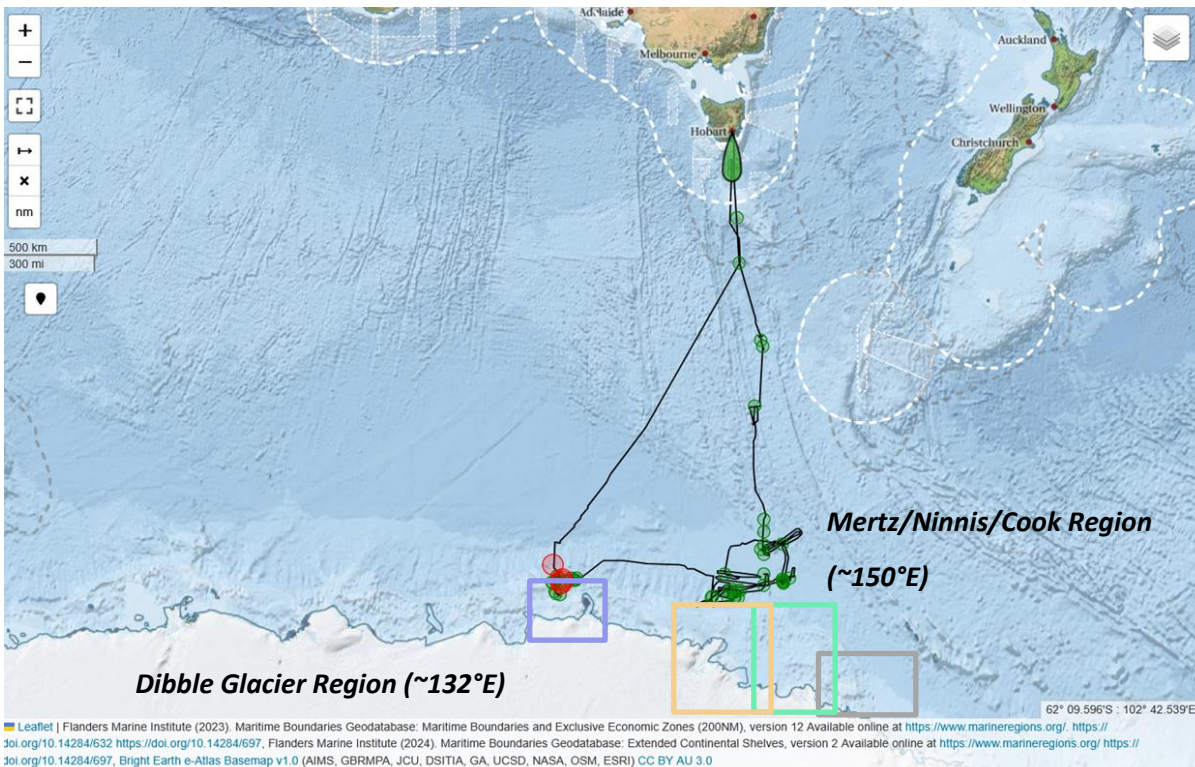
The COOKIES voyage was a success - we achieved all our science objectives. The quantity of deployments for most of our anticipated operations exceeded our targets, and our priority operation, namely piston coring off the Cook/Ninnis/Mertz Glaciers was a success with five 14.4 - 24 m long Piston Core assemblies. Epibenthic sled and DTC deployment quantities remained below our target, which was due to a mixture of sea-ice preventing us to get to shallower depths in the primary study area (Cook region) and technical issues. However, we diverted to the Western edge of the WSB (Dibble Glacier region) to acquire samples and data from these shallower depths to meet our animal collection and seafloor imagery science goals.

## Curation Report

Item #	Description	Storage	Access	Custodian
1	Piston core sections (split halves)	IMAS	Contact custodian	Linda Armbrecht
2	Kasten Core U-Channels (archive)	IMAS	Contact custodian	Taryn Noble
3	Multicore archives (in bags)	IMAS	Contact custodian	Linda Armbrecht/Taryn Noble
4	Sediment samples from all core types (Microfossils)	Colgate University	Contact custodian	Amy Leventer
5	Sediment samples ancient DNA from all core types	IMAS	Contact custodian	Linda Armbrecht
6	Sediment samples ancient DNA from Multicores and PC01	NORCE	Contact custodian	Tristan Cordier
7	Sediment samples for geochemical, geochronological, grainsize analyses	IMAS	Contact custodian	Taryn Noble
8	Sediment samples for biomarker analysis	IMAS	Contact custodian	Linda Armbrecht
9	Sediment samples from multicores centrifuged (porewaters removed)	IMAS	Contact custodian	Taryn Noble
10	Porewaters from Multicores and Kasten Cores	IMAS	Contact custodian	Taryn Noble
11	Water samples on filters (BSi)	IMAS	Contact custodian	Linda Armbrecht/Taryn Noble
12	Water samples on filters (POC)	IMAS	Contact custodian	Linda Armbrecht/Taryn Noble
13	Water samples on filters (Biomarkers)	IMAS	Contact custodian	Linda Armbrecht

Item #	Description	Storage	Access	Custodian
14	Water samples on filters (plankton)	Colgate University	Contact custodian	Amy Leventer
15	Water samples on filters ( <i>F. kerguelensis</i> )	IMAS	Contact custodian	Zanna Chase / Neve Clippendale
16	Water samples on filters & slides (phytoplankton)		Contact custodian	Fiorenza Torricella
17	Water samples on filters (microbiology)	IMAS	Contact custodian	Linda Armbrecht / Amaranta Focardi
18	Water samples on filters or cellulose sponges (eDNA)	AAD	Contact custodian	Leonie Suter / Gina Paroz
19	Water samples on filter (DNA)	NORCE	Contact custodian	Tristan Cordier
20	Seawater acidified (30 x 10L)	IMAS	Contact custodian	Taryn Noble
21	Animal tissues	JCU	Contact custodian	Jan Strugnell
22	Seafloor imagery	IMAS	Contact custodian	Nicole Hill / Jan Jansen
23	CTD data	MNF	Contact MNF	MNF
24	Multibeam data	MNF	Contact MNF	MNF
25	Sub-bottom profile data	MNF	Contact MNF	MNF
26	ADCP data	MNF	Contact MNF	MNF
27	Hydrochemistry data	MNF	Contact MNF	MNF

## Track Chart



**Voyage Track.** The primary study area was the marine region in front of the Cook Glacier (light green box), a secondary alternate study area is the marine region in front of the Ninnis and Mertz Glaciers (light orange box), a tertiary alternate study area are the Balleny Island (grey box), and the Western Wilkes Subglacial Basin 'Dibble Glacier' region (light purple box).

## Links to Further Data and Information

[NCMI Information and Data Centre \(csiro.au\)](https://ncmi.csiro.au)

[Data Trawler \(csiro.au\)](#) – Data Extraction tools for Voyage Data

[MNF Reporting \(csiro.au\)](#) – Publications and reports from research on vessels run by the Marine National Facility

[Marlin3 - Marlin - CSIRO Oceans and Atmosphere Metadata Catalogue](#)

[Open Access to Ocean Data \(aodn.org.au\)](https://aodn.org.au)

[AusSeabed \(ausseabed.gov.au\)](https://ausseabed.gov.au)

[CAAB - Codes for Australian Aquatic Biota \(csiro.au\)](https://caab.csiro.au)

[Ocean Biodiversity Information System - Australia \(obis.org.au\)](https://obis.org.au)

[Atlas of Living Australia \(ala.org.au\)](https://ala.org.au)

[CSIRO Data Access Portal \(data.csiro.au\)](https://data.csiro.au)

[Global Biodiversity Information Facility \(GBIF\) \(gbif.org\)](https://gbif.org)

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## Signature

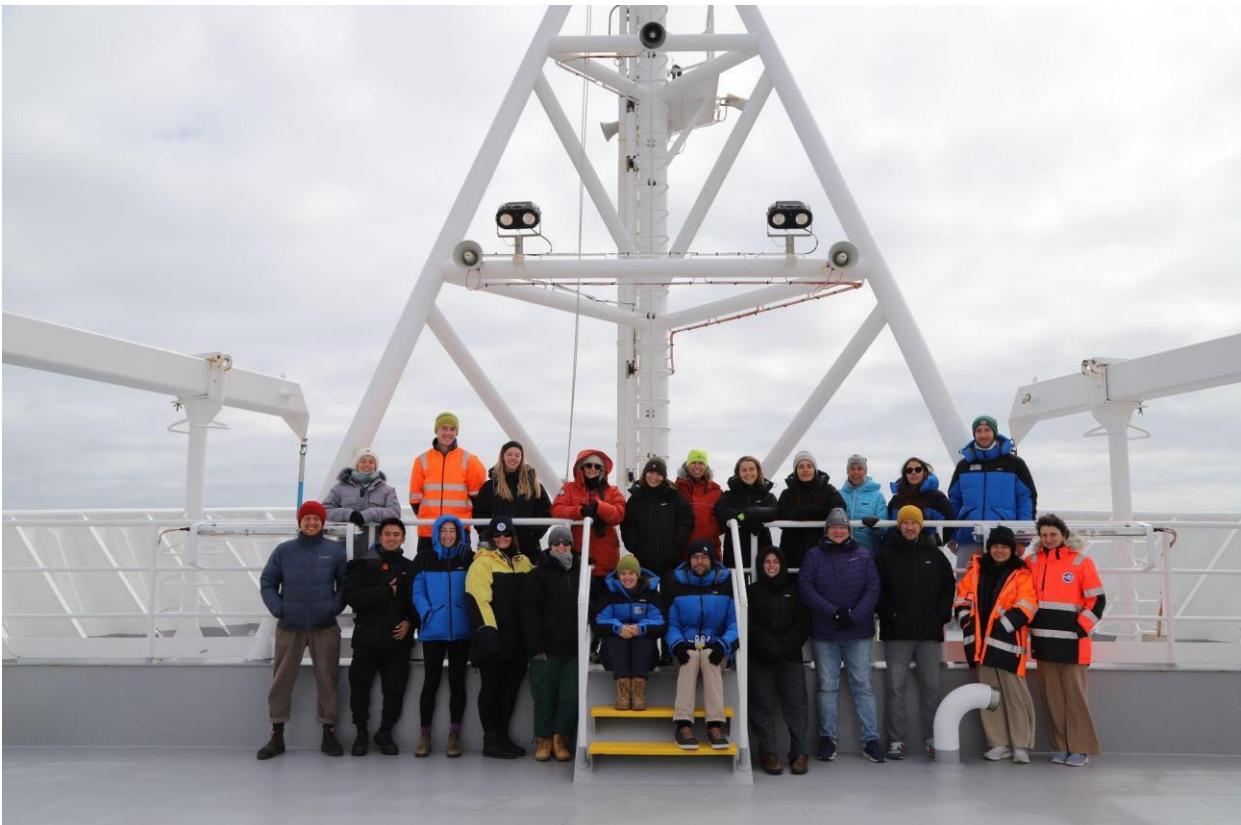
Your name:	Linda Armbrecht
Title:	Chief Scientist
Signature:	
Date:	23.04.2026



## Appendix A – Photographs



*Photo 1: The science and science support team on RV Investigator in front of an iceberg in East Antarctic waters during Expedition IN2026\_V01. Photographer: Ella Pietraroia/MNF.*



*Photo 2: The science team on RV Investigator in front of an iceberg in East Antarctic waters during Expedition IN2026\_V01. Photographer: Ella Pietraroia/MNF.*



Photo 3: Record Piston core PC02 (20.5m) held in the core frame on deck during Expedition IN2026\_V01. Photographer: Linda Ambrecht/IMAS.



Photo 4: Linda Ambrecht, Amy Leventer and Amaranta Focardi next to the late Prof. Leanne Armand's postcard collection decorating the walls of the RV Investigator in memory of Leanne. Photographer: Lucinda Duxbury/IMAS.