

January 14-15, 2026

The UNOLS 2026 Winter AICC Meeting

Report on NABOS Summer 2025 mission in the Siberian Arctic

Igor V. Polyakov

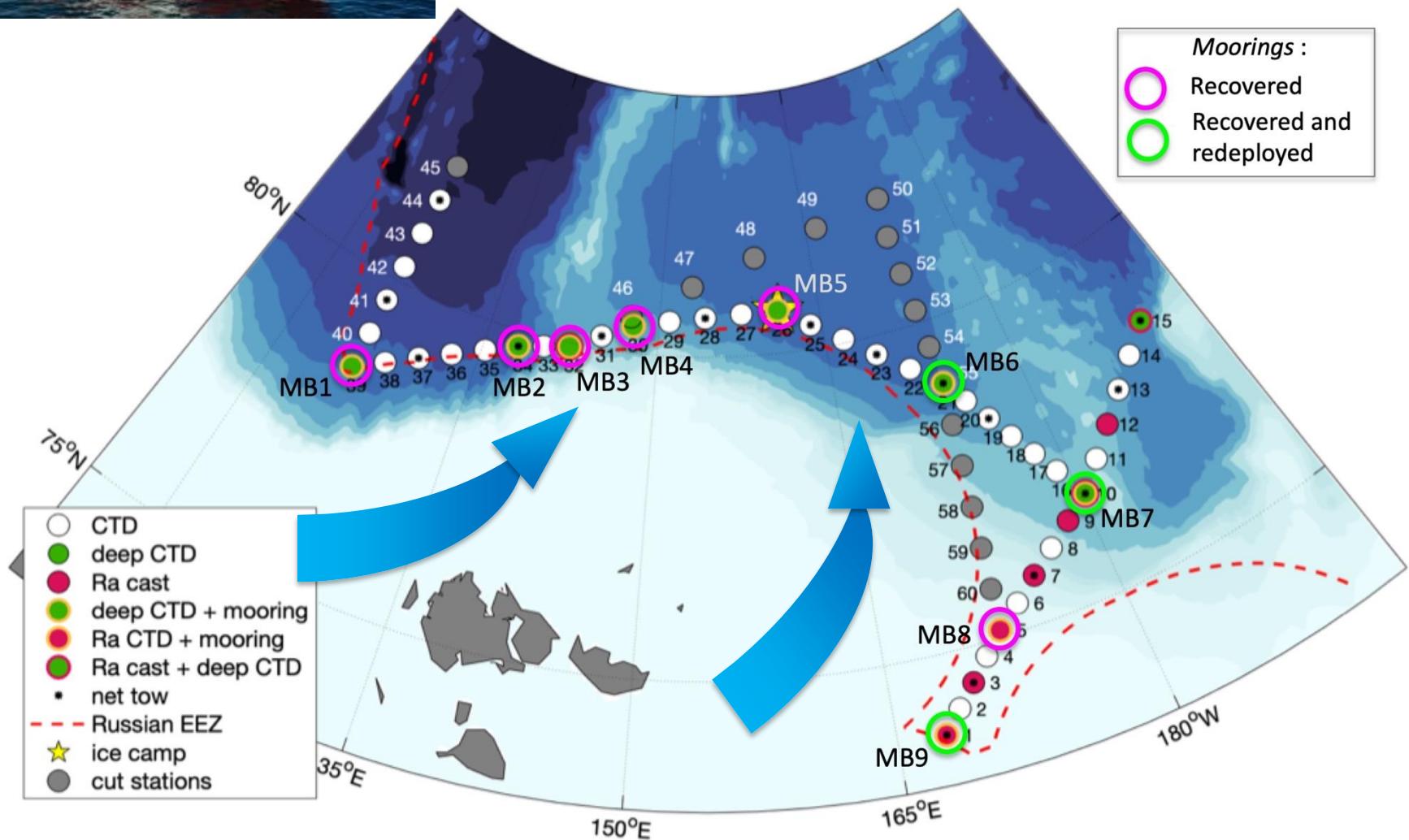




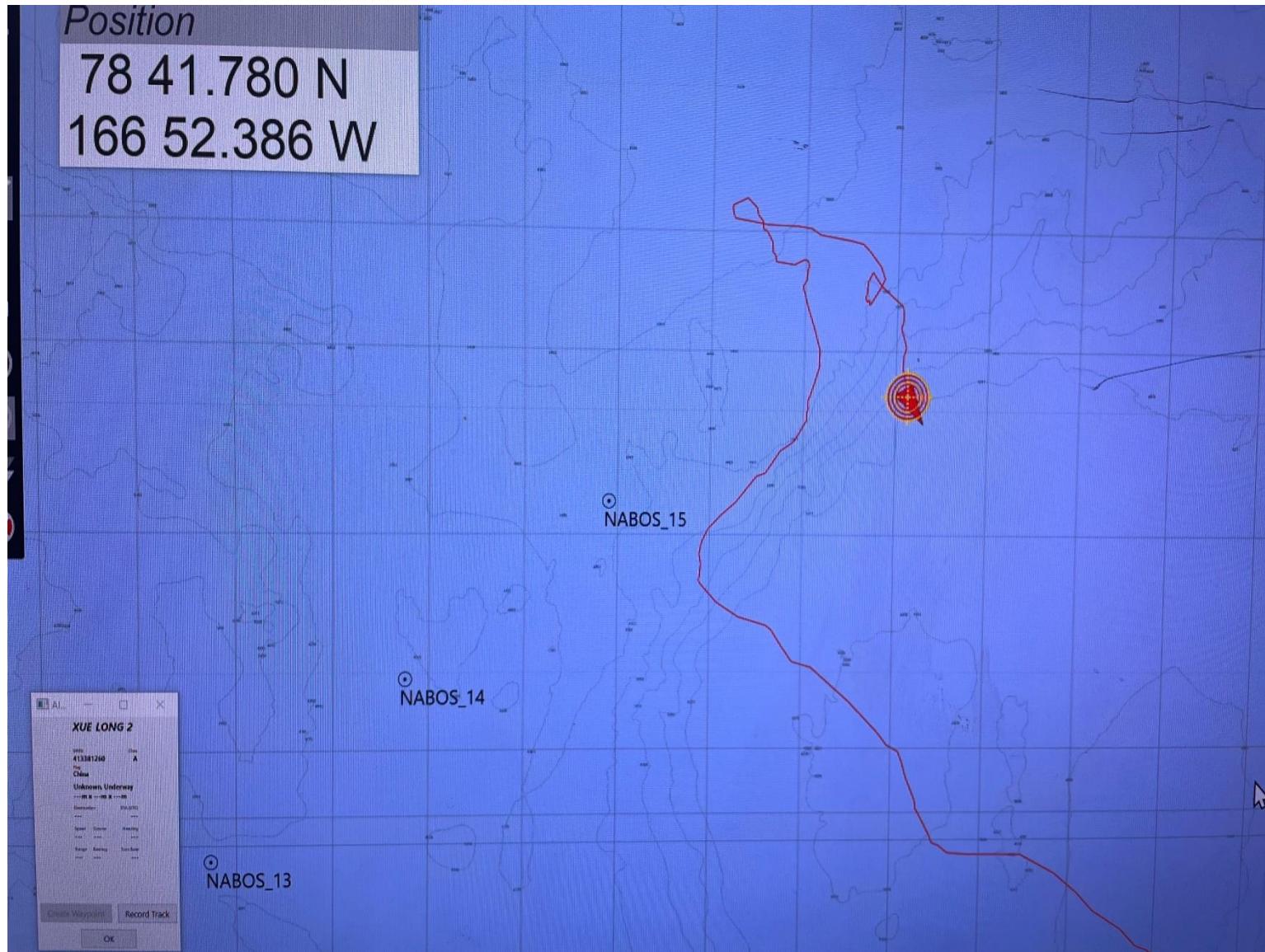
NABOS 2025 Cruise Report



2025 comprehensive survey



Serving Coast Guard mission



Calendar

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9 CTD15,14	10 CTD13,12	11 Bad weather	12 CTD7	13 MB8, CTD6,5,4,3	14 MB9, CTD2,1
15 MB7rec	16 CTD10,11	17 MB7dep	18 CTD16,17	19 CTD18-20	20 MB6rec	21 CTD21
22 MB4, CTD30,31,32	23 MB2, CTD33-35	24 CTD36-38	25 MB1rec, CTD39,40	26 MB1dep, CTD41,42	27 ITP-1, CTD43,44	28 ITP-2
29 MB3	30	1 ITP-II / Ice camp	2	3 MB6dep, ITP-III	4	5
6	7	8	9 Nome	10		

Mooring recovery in challenging ice conditions

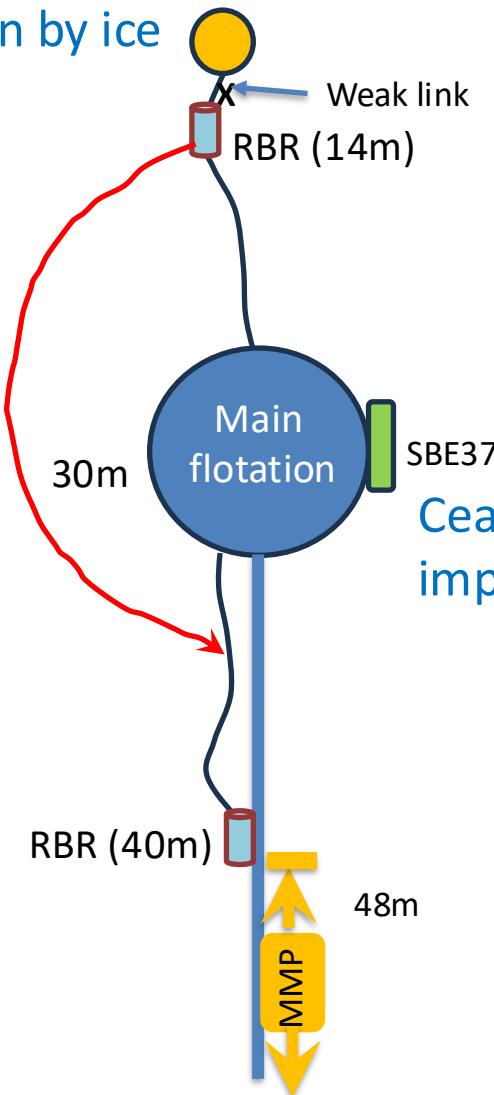


A Rough Encounter with an Ice Floe

This buoy was taken by ice

Without flotation,
RBR flipped down,
but continued working

Ceased operation following ice
impact on the mooring



Key Outcomes

- ✓ Nine moorings were recovered and three moorings were deployed.
- ✓ CTD casts: 44 stations.
- ✓ Water samples: 3,313 water samples for 12 different parameters.
- ✓ Radium samples: 44 stations for a total of 95 samples.
- ✓ Recovery/deployment of chemical and acoustic sensors:
 - two moored radium (Ra) samplers were recovered after two-year deployment and two Ra samplers were deployed,
 - one methane sensor was recovered after two-year deployment,
 - Three RBR chemical sensor (including one belonging to our Norwegian colleagues) were deployed,
 - Acoustic sensor belonging to the Norwegian Polar Institute was deployed at MB6 mooring.
- ✓ Continued our tradition of international collaboration.

2025 Healy Cruise participants

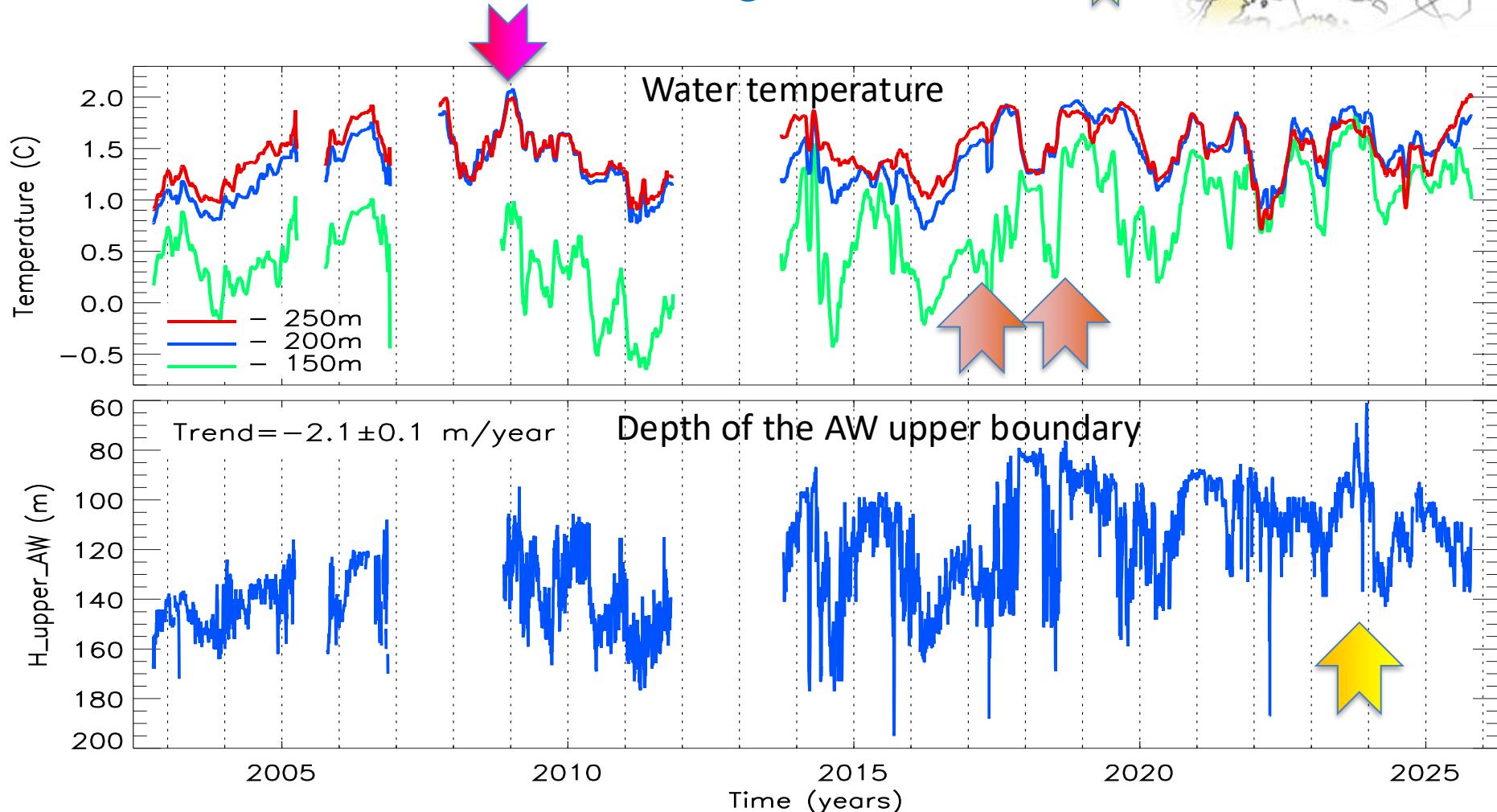
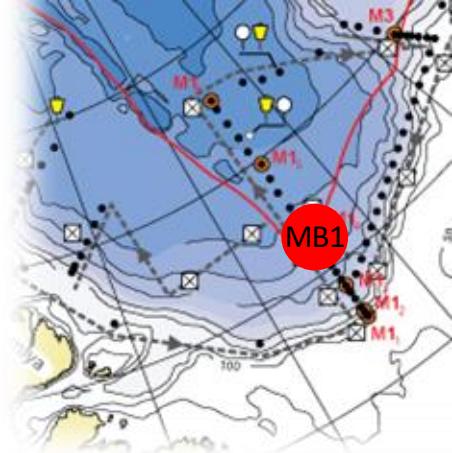


A photograph of a vast, dark blue ocean filled with numerous icebergs. The icebergs are of various sizes and shapes, with some being large and tall, showing a translucent blue color, while others are smaller and more rounded. The sky above is filled with heavy, grey clouds, creating a somber and cold atmosphere. The overall scene is one of a remote, icy environment.

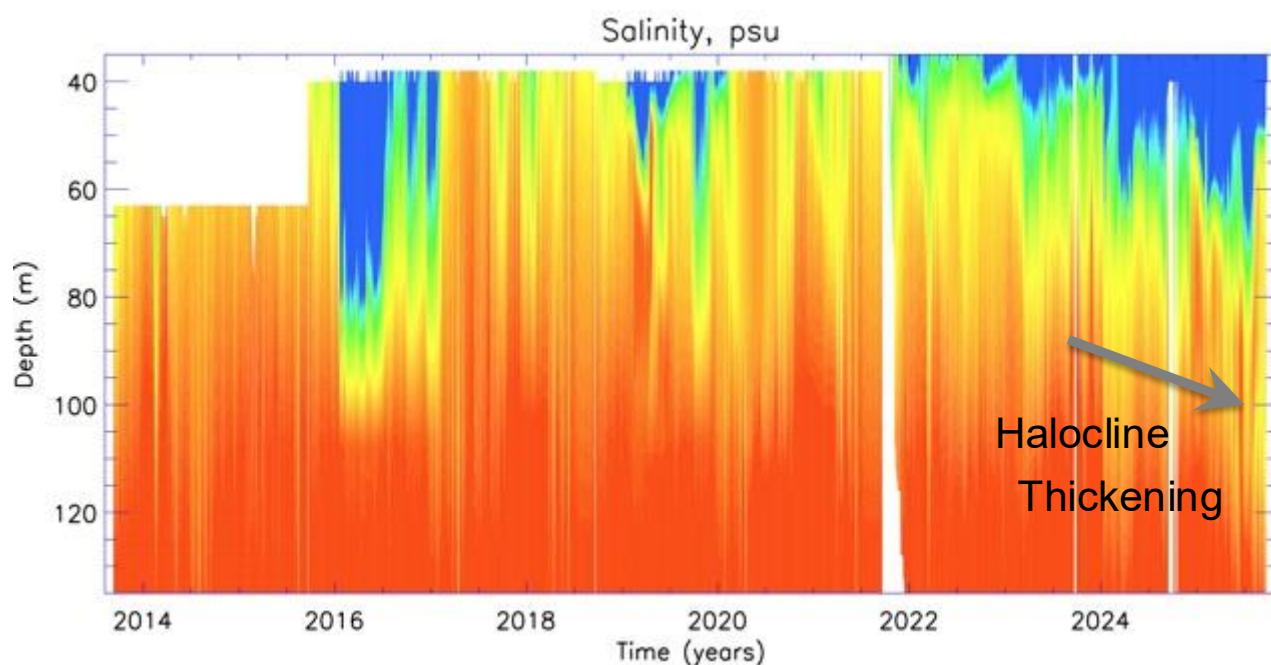
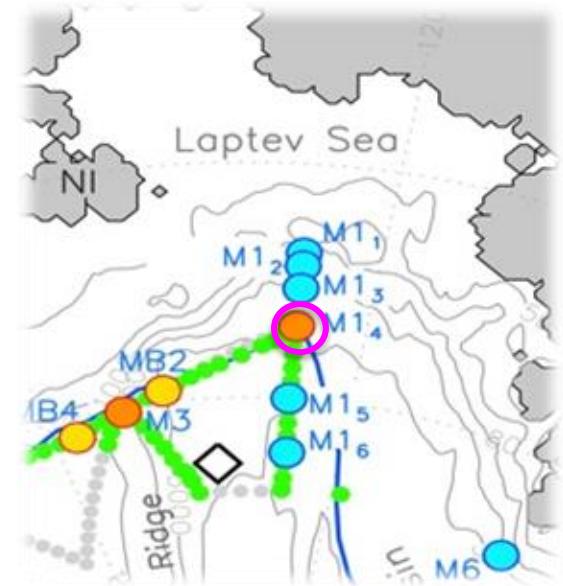
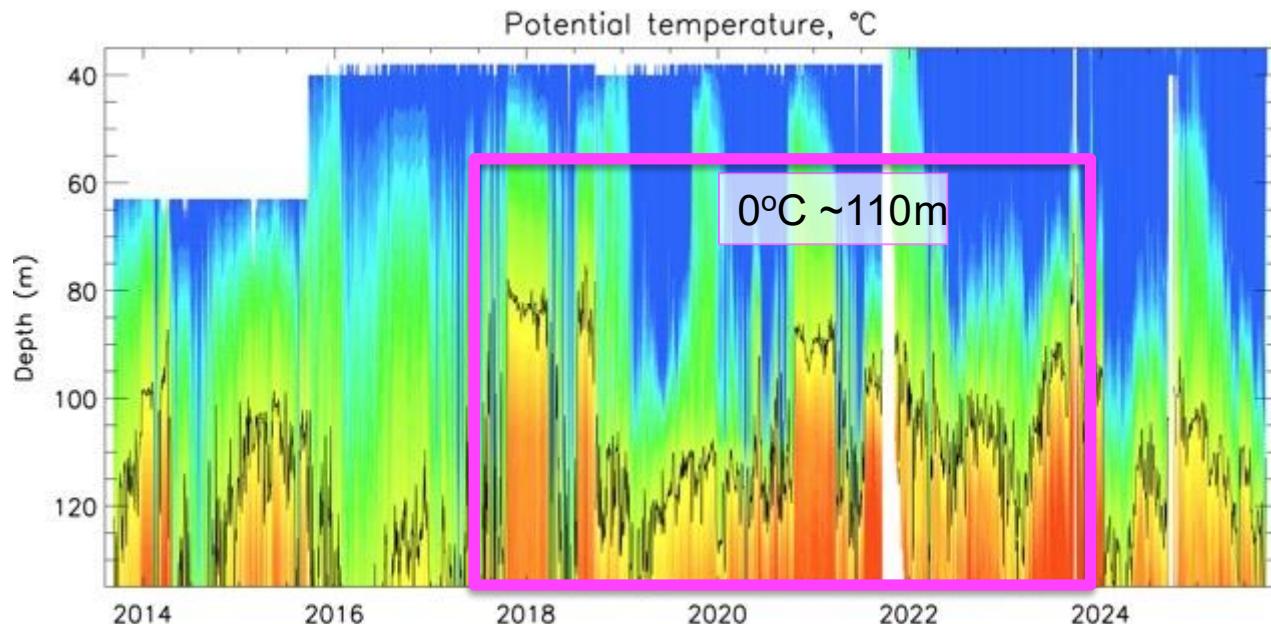
A Brief Overview of Science

20+ YEARS OF MOORING OBSERVATIONS:

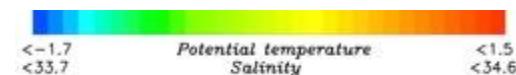
- Shoaling of AW,
- Peak of AW core temperature in 2007-2008, ↘
- Winter disappearance of CHL in the mid-2010s, ↗
- Gradual re-stratification starting from 2020-21. ↗



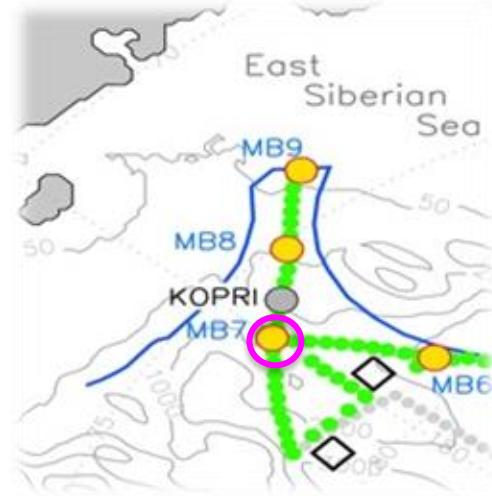
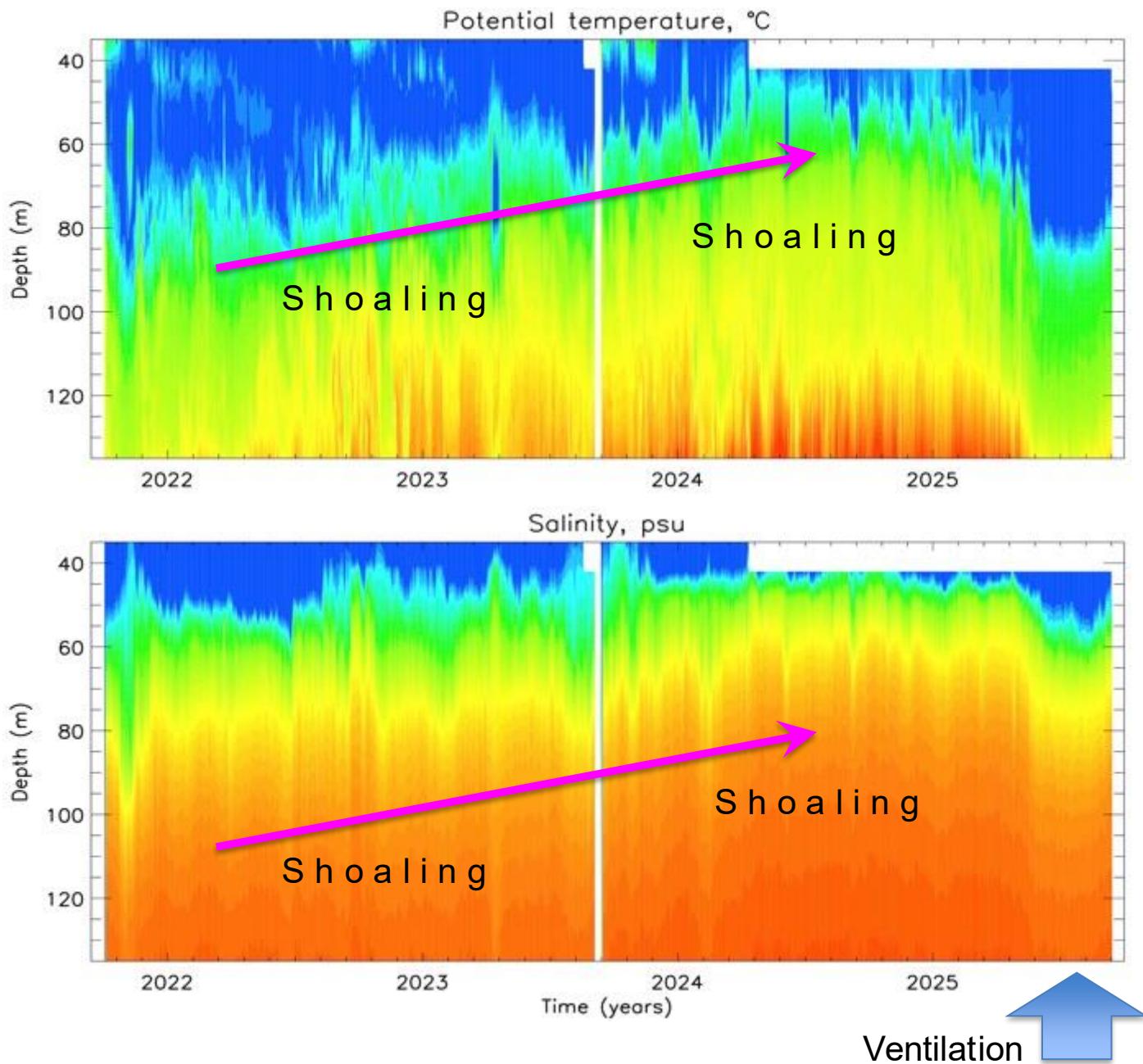
MB7 MOORING DATA REVEAL A STRIKING STORY OF CHANGES



- ✓ Atlantic Water shoaled before late 2023
- ✓ Halocline thickened over the past two years
- ✓ Deep ventilation persisted into 2024–2025

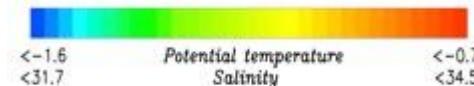


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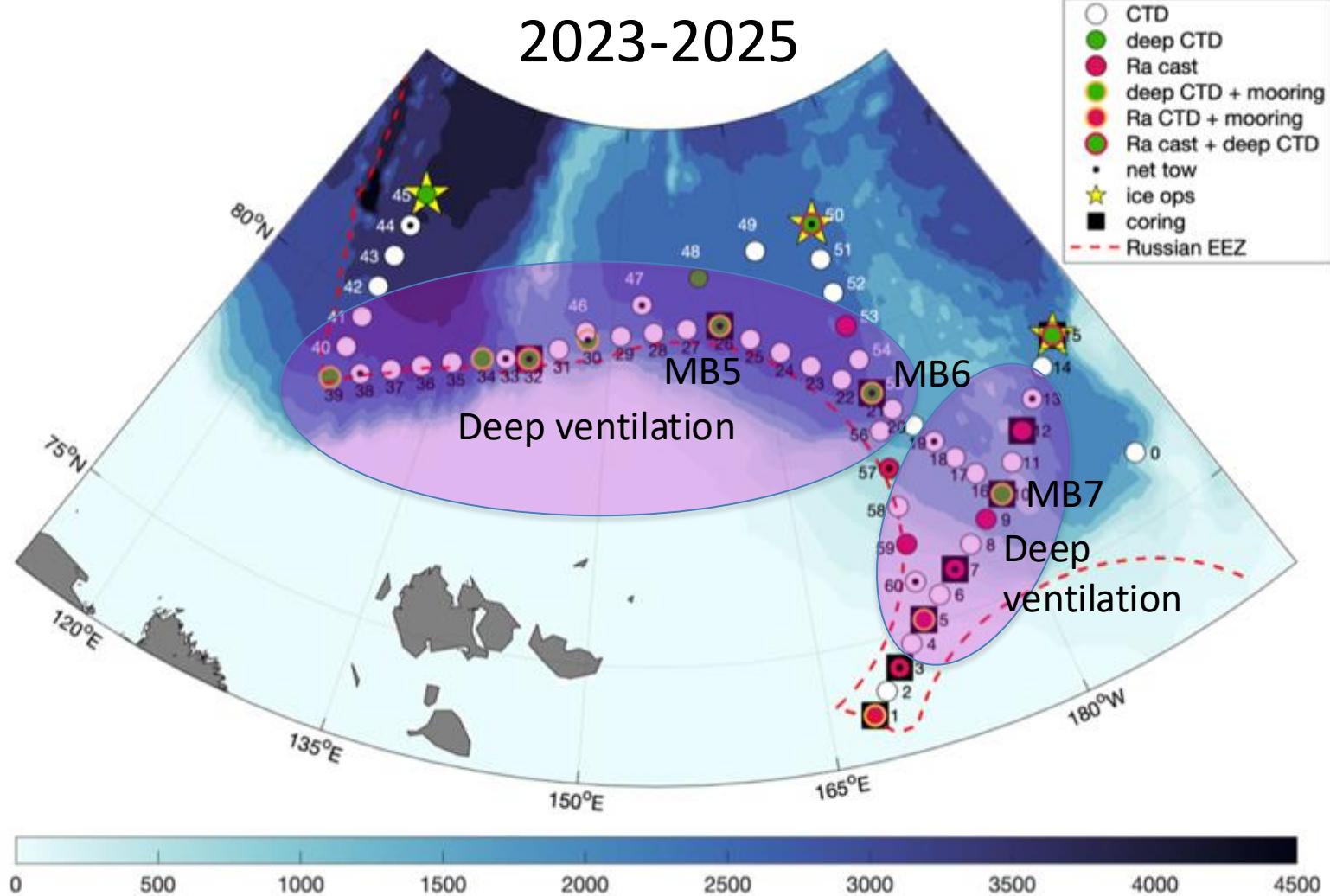


- ✓ Shoaling of Atlantic Water in 2021-2024; no deep ventilation.
- ✓ Deep ventilation in winter of 2025.

Biological consequences?



JUST-RECOVERED MOORING DATA REVEAL A STRIKING STORY OF CHANGE

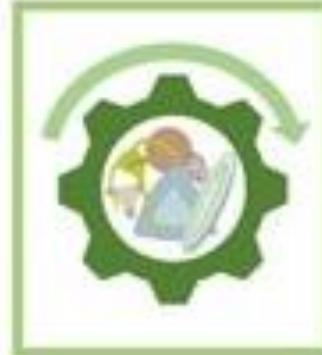




NABOS 2025 biology & chemistry

Microorganisms
incl. phytoplankton

Primary productivity



Zooplankton



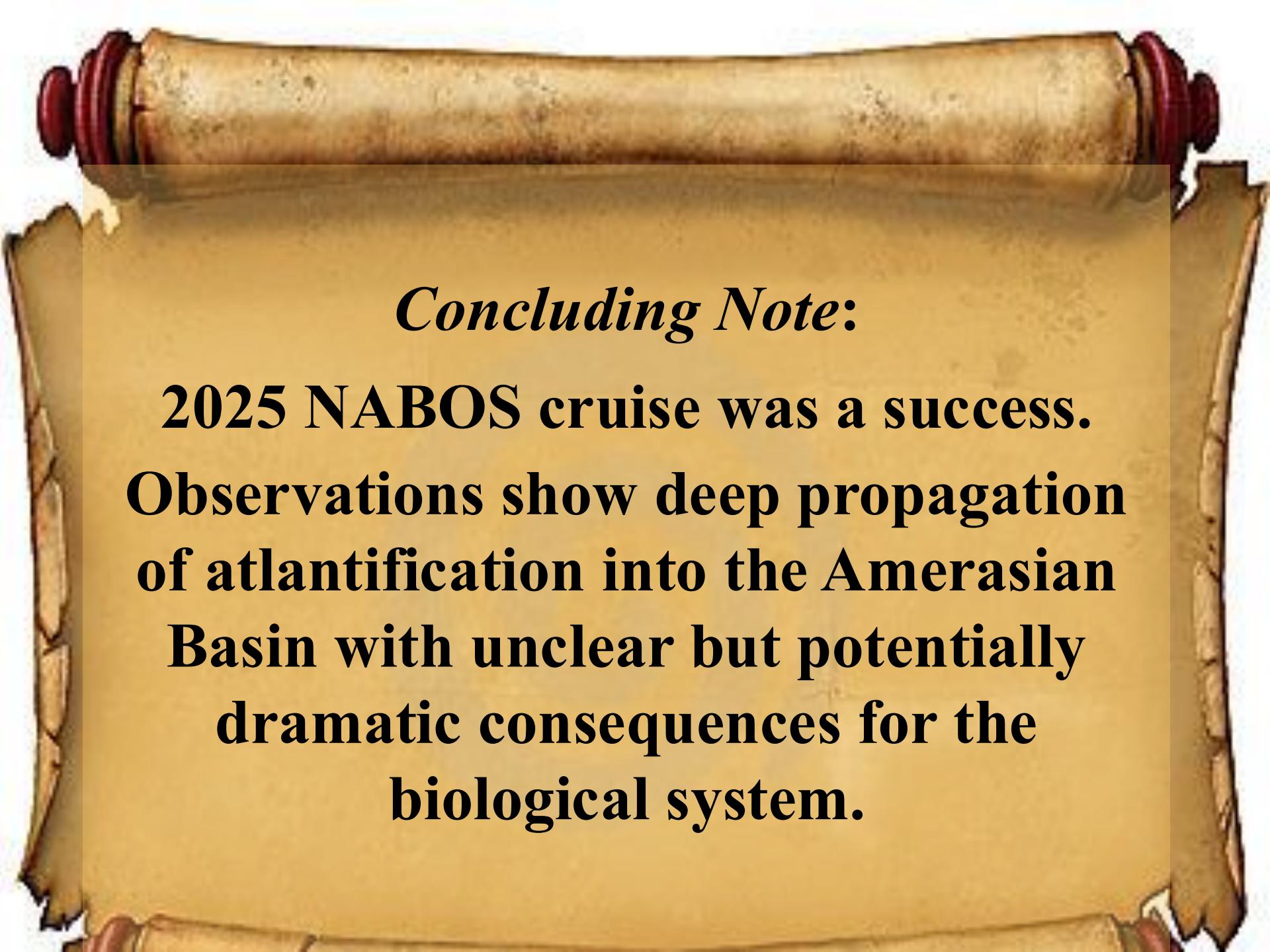
Sea ice algae



Microplastics



Measuring these parameters provides a comprehensive view of the ecosystem and its changes.



Concluding Note:

**2025 NABOS cruise was a success.
Observations show deep propagation
of atlantification into the Amerasian
Basin with unclear but potentially
dramatic consequences for the
biological system.**