

How an A-DBO?

- Developing the Arctic-Atlantic Distributed Biological Observatory

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with

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Michael Karcher and Thomas Soltwedel, AWI

Agnieszka Beszczynska-Möller and Monika Kedra, IOPAN

Angelika Renner, IMR

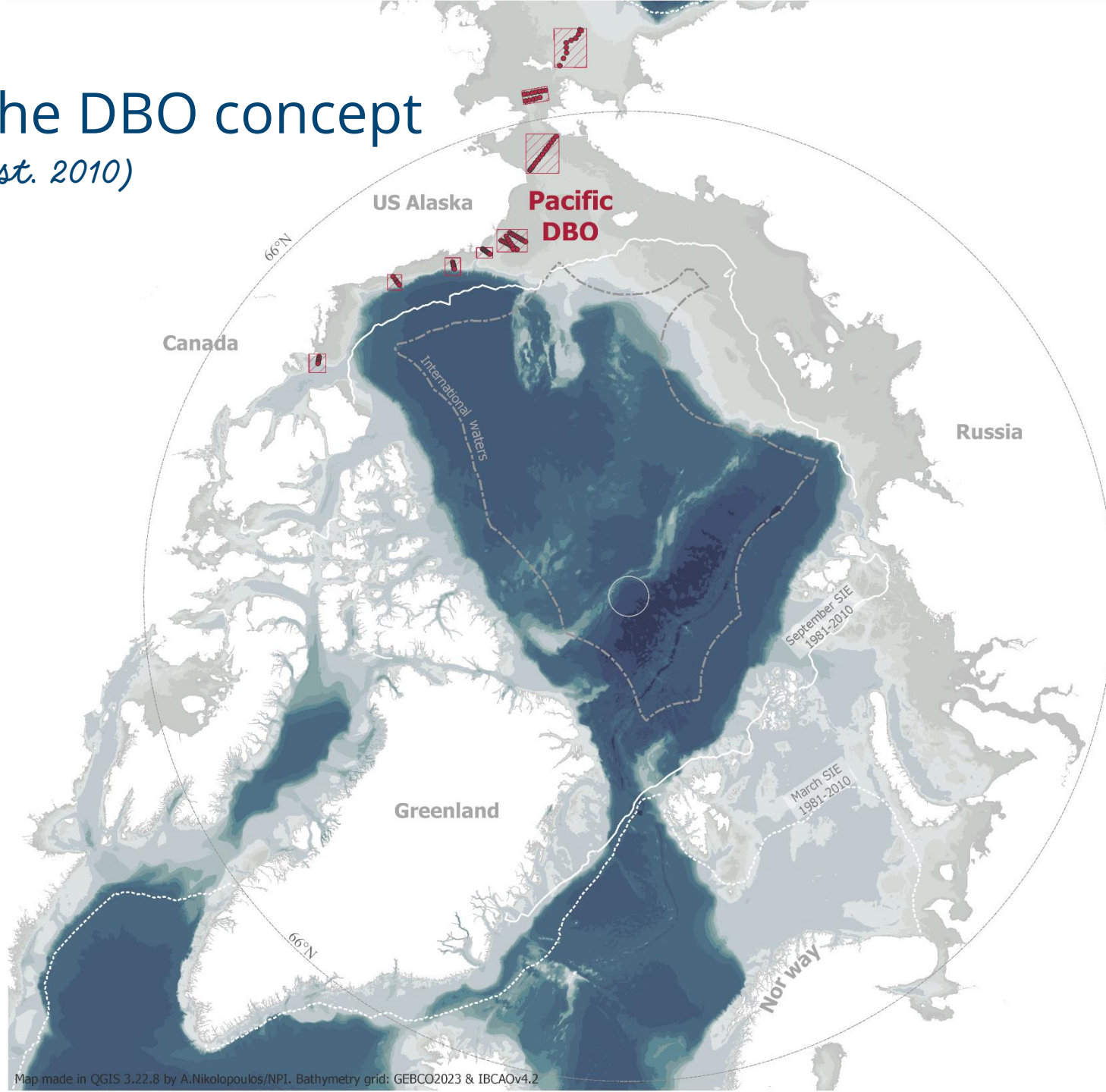
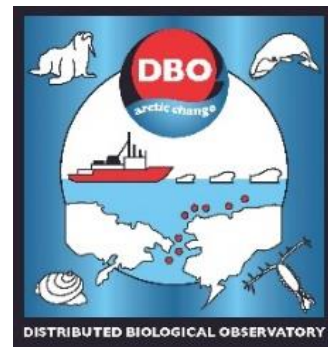
Mikael Sejr, AU

Laura de Steur, NPI

and many collaborators

The DBO concept

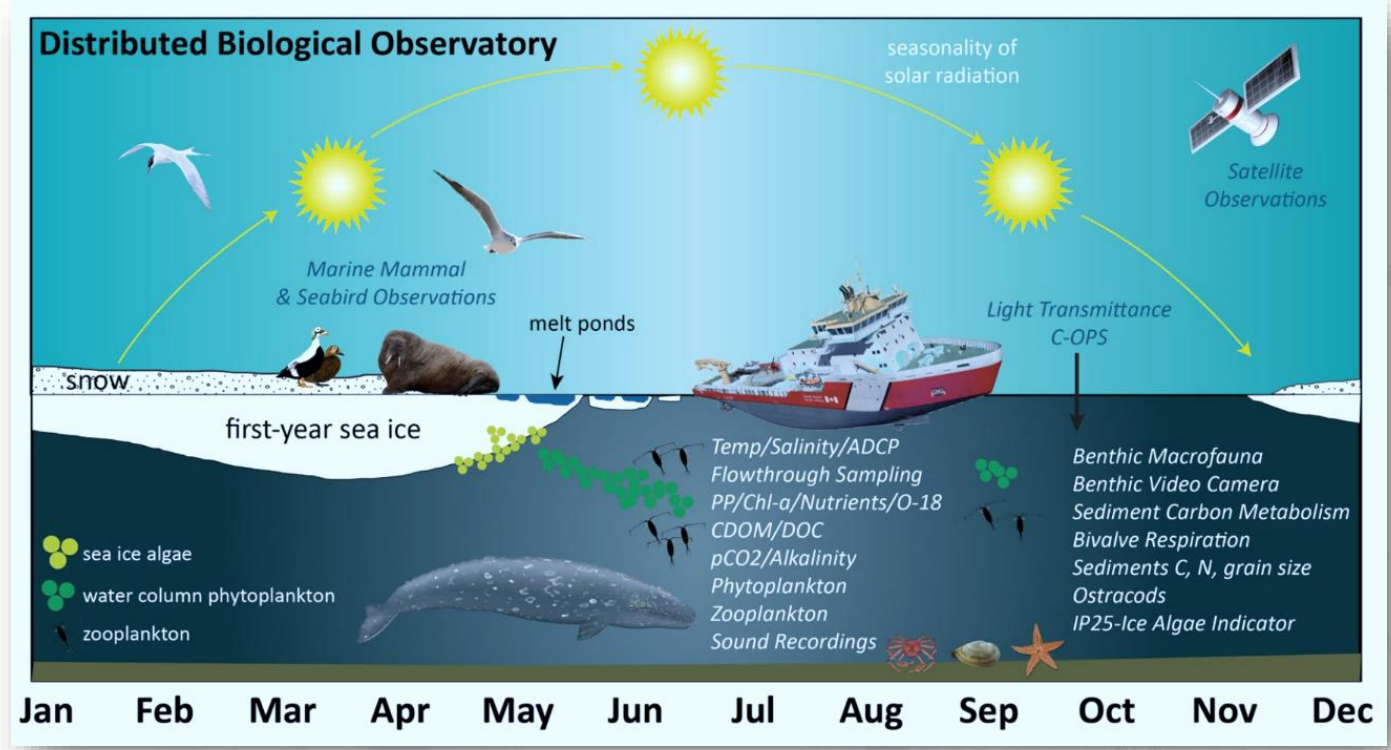
(Est. 2010)



Main incentive:

“To systematically increase the scientific documentation of how biological systems are transforming with the rapid environmental change.”

The DBO concept



From Grebmeier et al., 2019: <https://doi.org/10.1016/j.dsr2.2019.05.005>

Cruise matrix

Cruise Name	Start Date	End Date	Lead	Co-lead	Ship	Port	Region
June 3-20 (Name Name)	2019	2019	ASISAP	Sam Driscoll	Sam Driscoll	Sam Driscoll	Sam Driscoll
July 1-15 (Name Name)	2019	2019	Beaufort Sea Monitoring Program	Andrew Whelan	Silvia Whelan	Andrew Whelan	Andrew Whelan
July 16-22 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
July 23-29 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 1-7 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 8-14 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 15-21 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 22-28 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 29-Sept 4 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 5-11 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 12-18 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 19-25 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 26-Sept 1 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 2-8 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 9-15 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 16-22 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 23-29 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 30-Sept 5 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 6-12 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 13-19 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 20-26 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 27-Sept 2 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 3-9 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 10-16 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 17-23 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 24-30 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 31-Sept 6 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 7-13 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 14-20 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 21-27 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 28-Sept 4 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 5-11 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
Aug 12-18 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara
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Aug 31-Sept 6 (Name Name)	2019	2019	CHINARE	Barbara	Barbara	Barbara	Barbara

Parameter file

Example: DBO Parameter File: Transect (GW15): DBO1-5

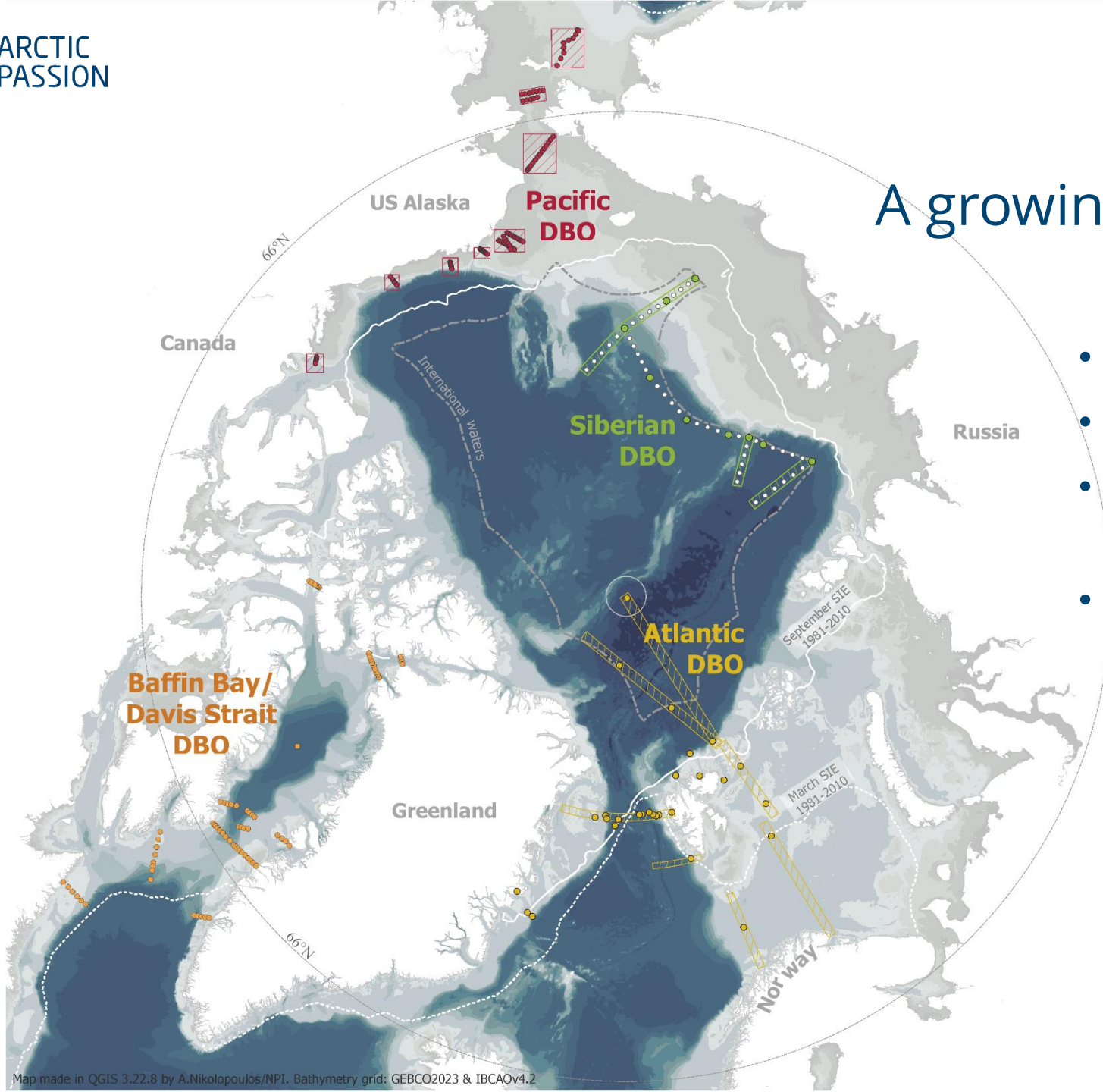
Collaborator: Sarah Vagle, 100/FPO, Sidney, BC, Canada
 Collaborator: Sarah Vagle, University of Victoria, Victoria, Canada
 Collaborator: Sarah Vagle, University of Victoria, Victoria, Canada
 Project: DBO: Collaborative Research: The Distributed Biological Observatory (DBO) Change Detection Array in the Pacific Arctic Region
 Website: <http://arcticdata.ca>

Start Date: 7/14/15
 End Date: 7/14/15

Parameters	1	2	3	4	5	6	7	8	9	10	Other:
DBO1.1	x	x	x	x	x	x	x	x	x	x	x
DBO1.2	x	x	x	x	x	x	x	x	x	x	x
DBO1.3	x	x	x	x	x	x	x	x	x	x	x
DBO1.4	x	x	x	x	x	x	x	x	x	x	x
DBO1.5	x	x	x	x	x	x	x	x	x	x	x
DBO1.6	x	x	x	x	x	x	x	x	x	x	x
DBO1.7	x	x	x	x	x	x	x	x	x	x	x
DBO1.8	x	x	x	x	x	x	x	x	x	x	x
DBO1.9	x	x	x	x	x	x	x	x	x	x	x
DBO1.10	x	x	x	x	x	x	x	x	x	x	x
DBO1.11	x	x	x	x	x	x	x	x	x	x	x
DBO1.12	x	x	x	x	x	x	x	x	x	x	x
DBO1.13	x	x	x	x	x	x	x	x	x	x	x



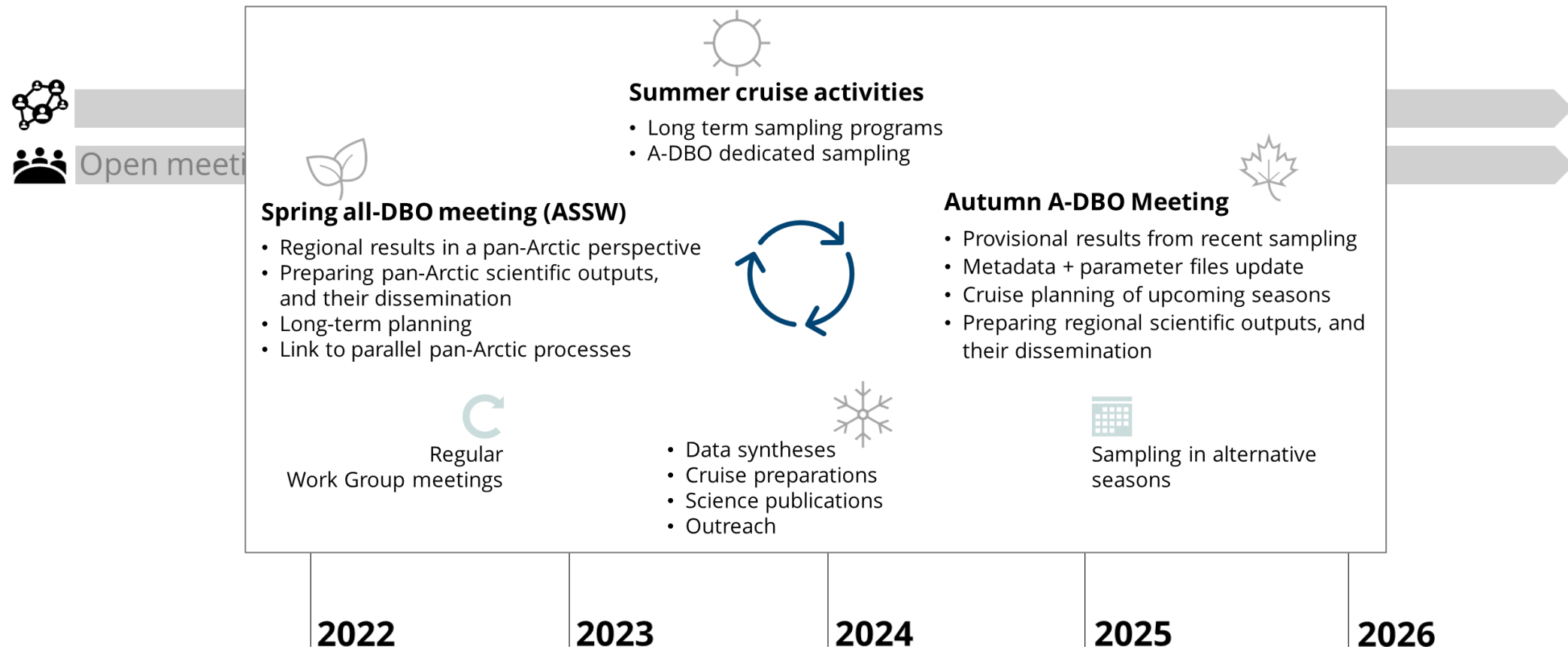
A growing pan-Arctic DBO network!



- Strengthen our observational capacity
- Increase the international connectivity
- Improve the flow of information and data
- Bridge long-term mandates and short-term efforts




The A-DBO time table for 'proof of concept'

- Coordination means by the EU Horizon project Arctic PASSION for 2022-2025.



The A-DBO time table for 'proof of concept'

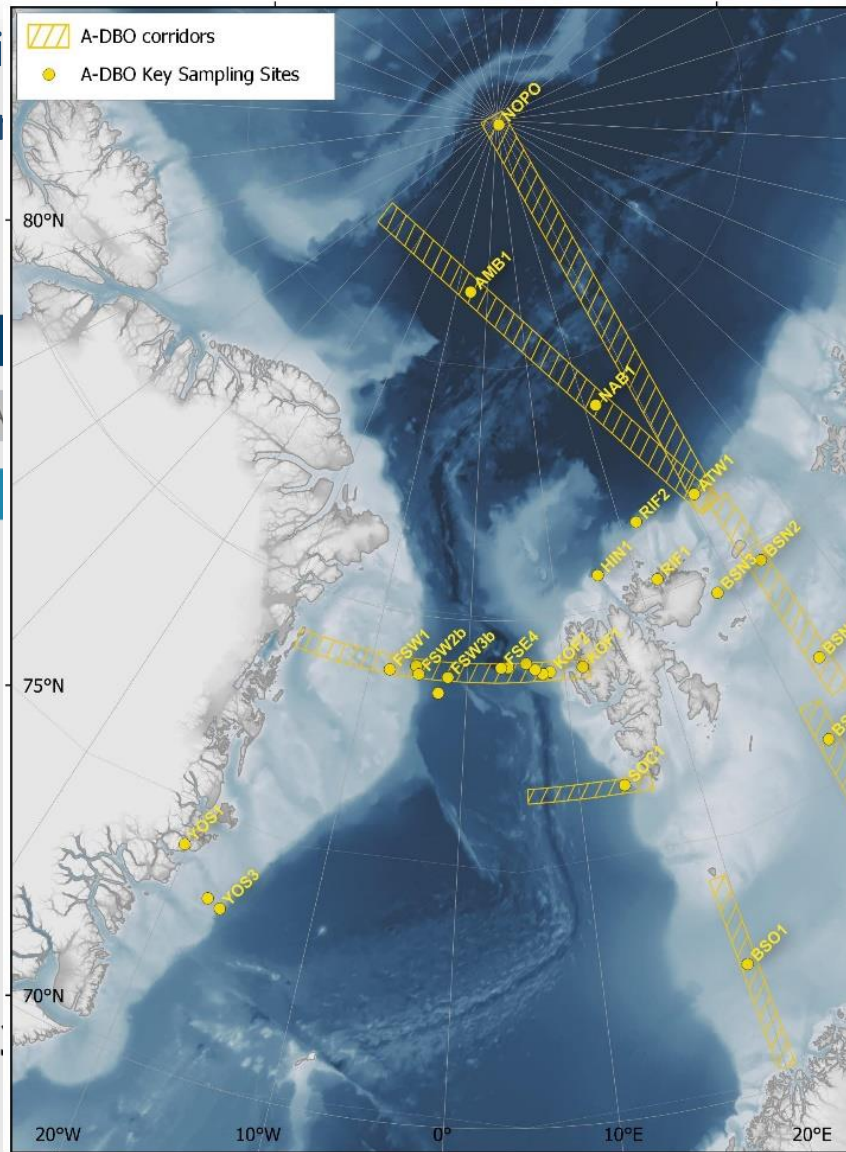
- Coordination means by the EU Horizon
- Outline the geographical A-DBO corridors

	Network Coordination
	Open meetings
	2016/17 Version

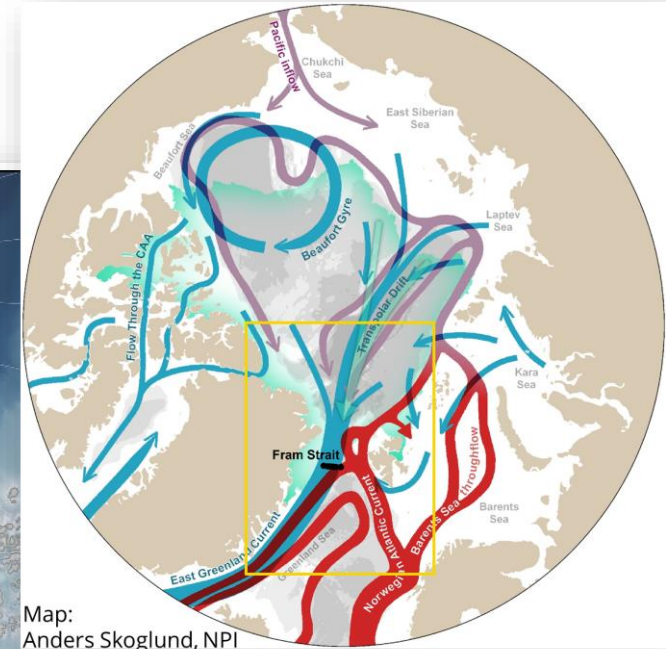
2022

202

026

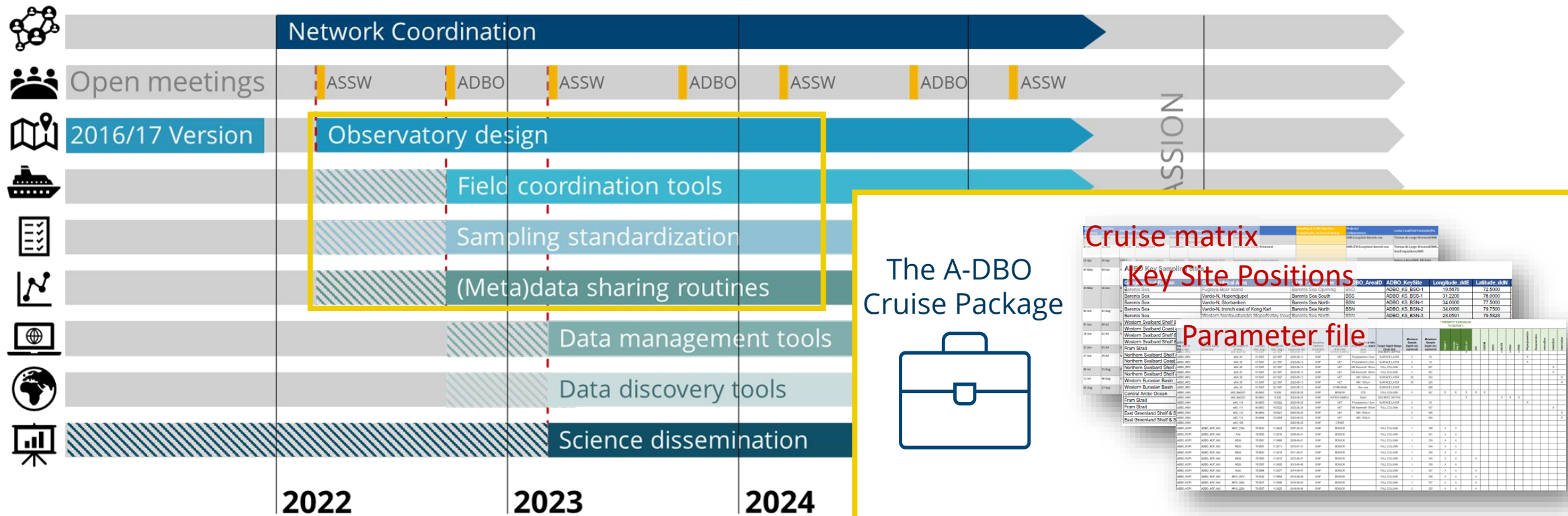


Map: Anders Skoglund, NPI

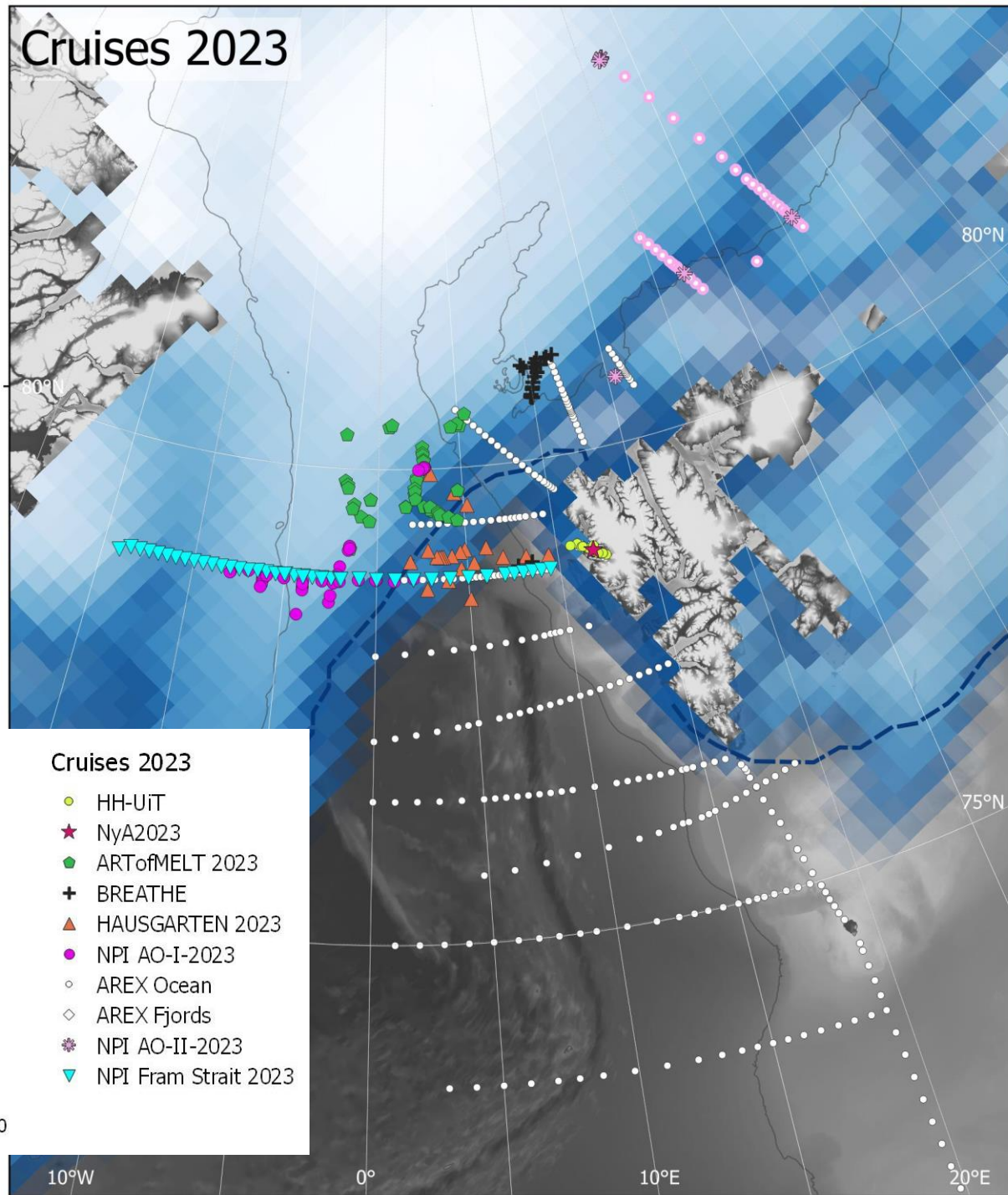


The A-DBO time table for 'proof of concept'

- Coordination means by the EU Horizon project Arctic PASSION for 2022-2025.
- Outline the geographical A-DBO configuration. Build on 2016/17 efforts!
- Agree on the remaining DBO components as well. Make use of existing practices and tools!



Cruises 2023



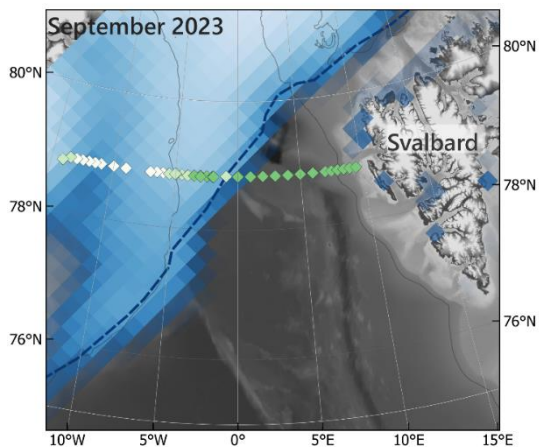
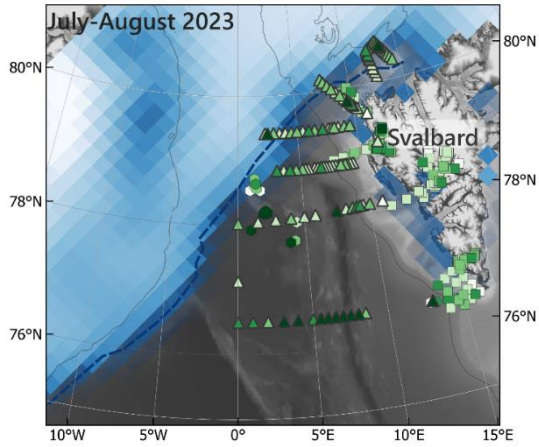
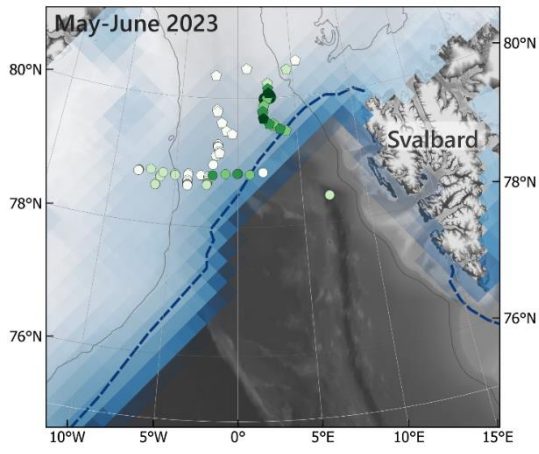
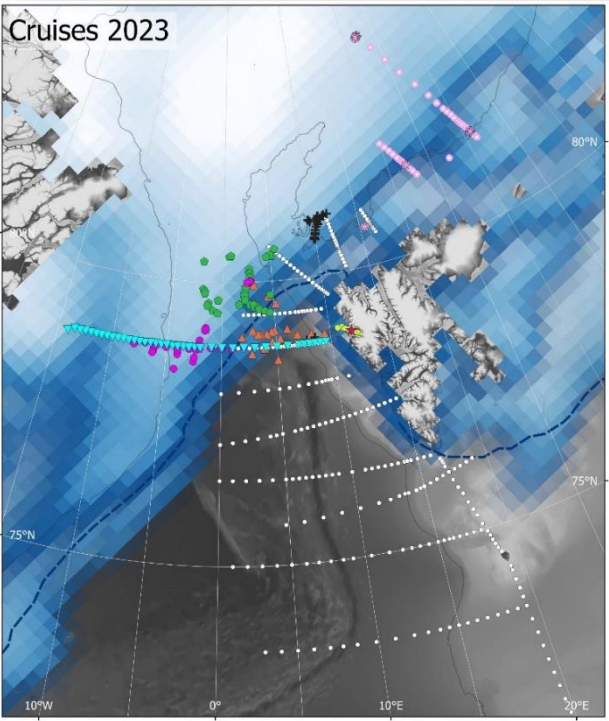
Practice makes perfect (?)

Example: 2023-workshop exercise

Convergence of several more 2023 cruises in the Fram Strait beyond the longterm monitoring efforts by AWI, IOPAN and NPI

→ Longer and better resolved summer field season (May to September)



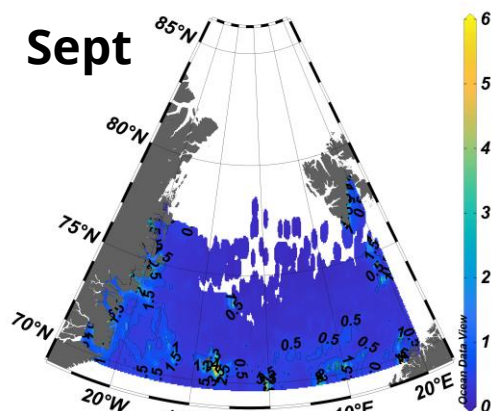
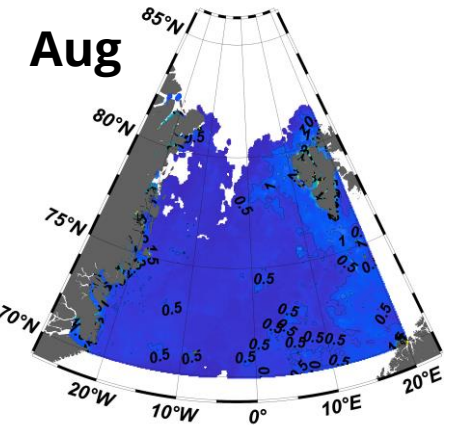
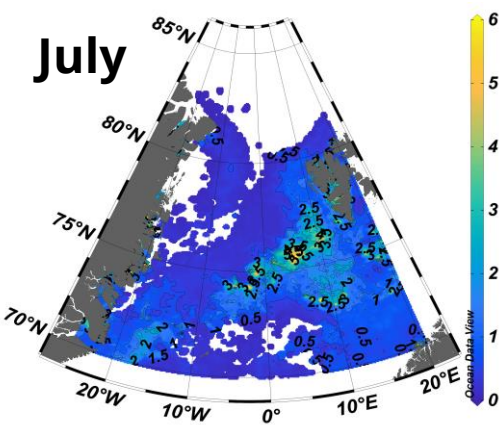
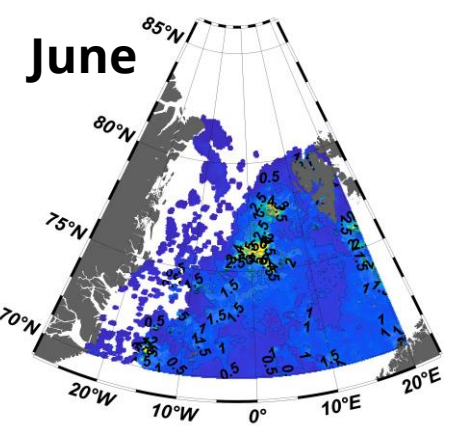
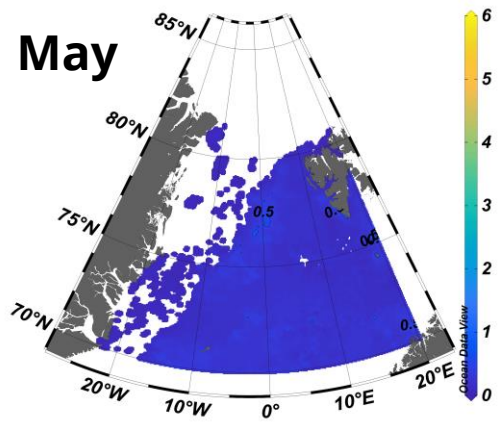


NSIDC Monthly Sea Ice Concentration

- 15%
- 30%
- 50%
- 70%
- 90%
- 100%

max Chl/Fluorescence

- "nothing"
- "a lot!"

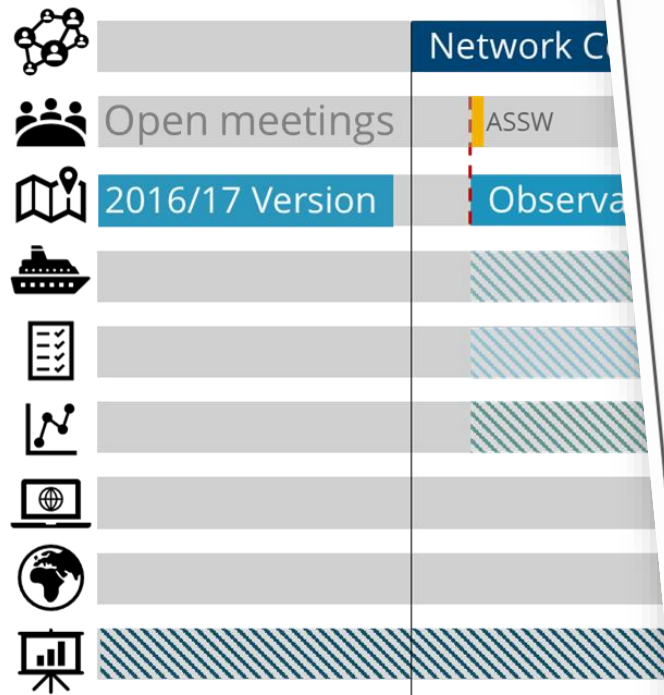


Work in progress:
 distribution and timing of
 Chl-max from *in situ*
 observations.
 A. Nikolopoulos, NPI,
 J. Muchowski, SU,
 A. Strzelewicz, IOPAN, et al.

Work in progress:
 monthly composites of
 remote sensing products.
 Here Chl-a from
 Aqua MODIS/4km.
 M. Bensi, OGS,
 I. Goszczko, IOPAN, et al.

The A-DBO time table for 2022-2025.

- Coordination means by
- Outline the geographical
- Agree on the remaining



2022

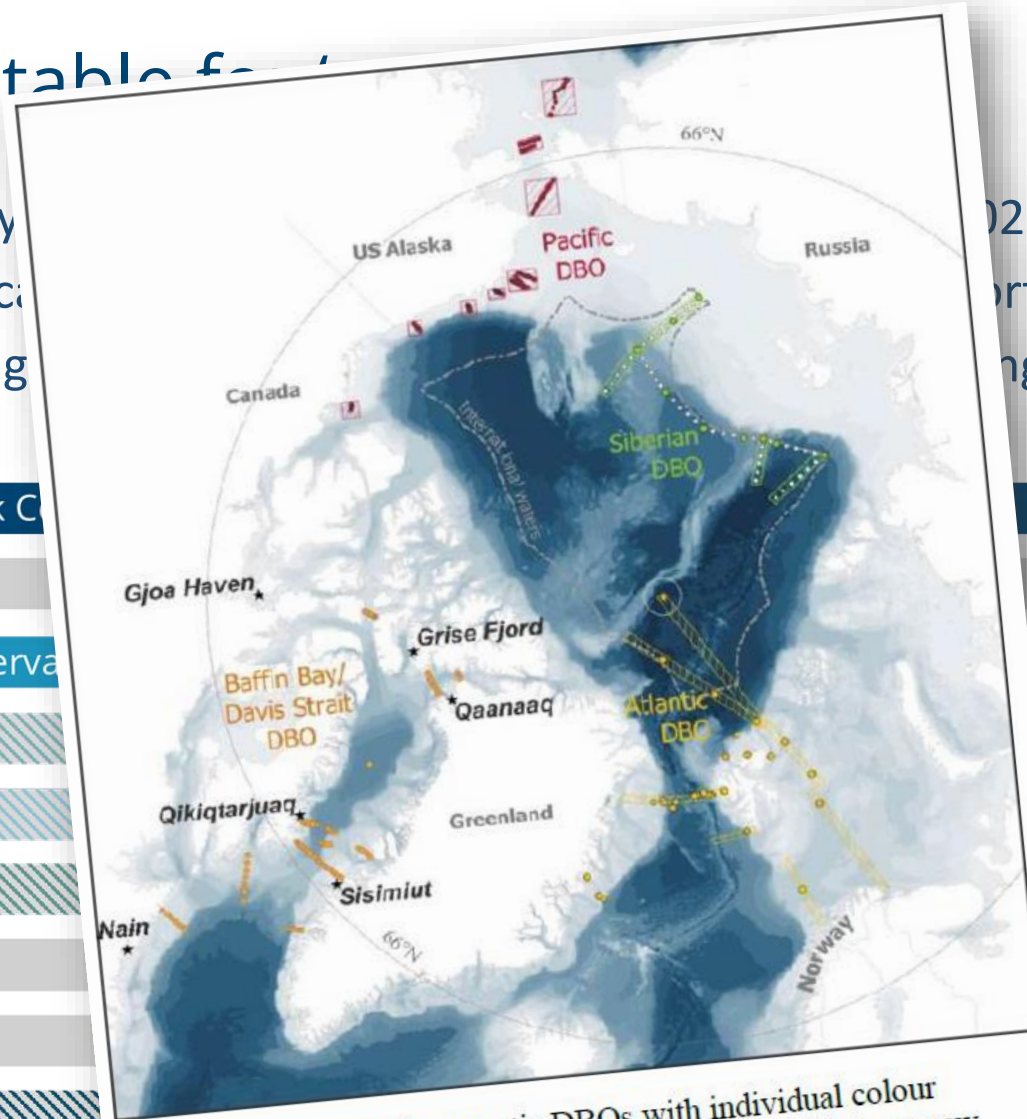


Figure 1. Map of the four Arctic DBOs with individual colour coding. Confirmed Indigenous communities that will join as new coastal DBO sites (black stars/place names). EEZ limits in the Central Arctic Ocean shown as grey dash-dot line.

2022-2025.

ports!

ing practices and tools!

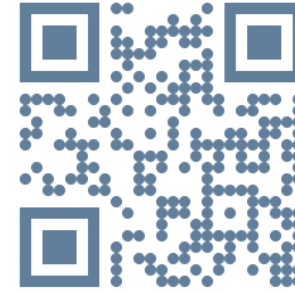
End of Arctic PASSION



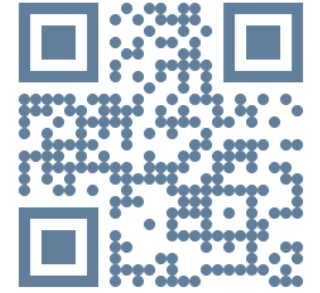
2026



Upcoming opportunities to get involved!



dbo.cbl.umces.edu

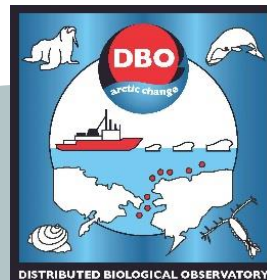


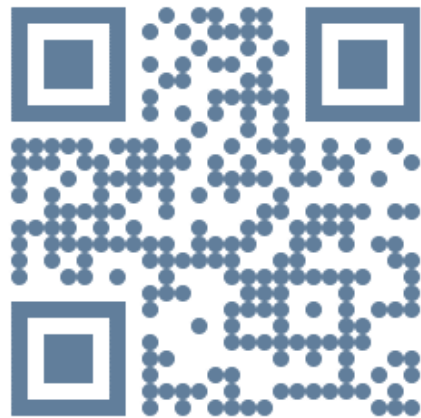
arcticpassion.eu/adbo

- 29-31 October 2024:
PAG 2024 fall meeting and 7th P-DBO data meeting, Baltimore/Maryland, USA
Contact: Jackie Grebmeier, UMCES
- 10-12 December 2024:
A-DBO 2024 fall meeting in Bremen, Germany
Contact: Anna Nikolopoulos, NPI
- 20-28 March 2025 (day TBD):
3rd Joint pan-Arctic DBO Community meeting at ASSW2025, Boulder/Colorado, USA
Contacts: Anna Nikolopoulos, NPI, Laura Whitmore, IARC/UAF, Jackie Grebmeier, UMCES



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