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Science & Education Recap



MS Spitsbergen

Northern Lights Expedition 17th February – 2nd March 2024



Science & education program

Within our onboard Science and Education program, we imparted meaningful context to the nature and culture of the destinations we explored.

Through on-board lectures, workshops, and interactive activities, we deepened our understanding of the landscapes and wildlife of Norway.



History & culture

Throughout our journey we learned about the history Norway – both ancient and modern. This included Viking history and mythology; the folklore and fairytales in Norway; the Polar Explorers; and coastal life in Norway.

We also discovered Norwegian, Scandinavian, and Sami culture. From Friluftsliv to Sami symbols; and Stockfish to Waffles!



Arts & crafts

We provided a variety of inspiring options for our art workshops, ranging from photography workshops with our on-board photographer, to creating your own souvenirs with our Historian, Andrea.

Our guests had the opportunity to immerse themselves in onboard workshops including sea waves doodles, sami symbols, and Viking runes. In Fjærland we also discovered traditional weaving practises.



NASA cloud observer

Led by David, we observed the clouds and submitted our observations via NASA GLOBE Observer on four occasions.

Our observations will help NASA improve our understanding of Earth's atmosphere and climate by providing valuable data for scientific research and climate modeling.

[View our data](#) on the global map





Wildlife List: Birds

Bird List: 32 species

Species Name	Latin Name
Birds	aves
Mute swan	Cygnus olor
Mallard	Anas platyrhynchos
Common Eider	Somateria mollissima
Long-tailed Duck	Clangula hyemalis
Red-breasted Merganser	Mergus serrator
Red throated diver	Gavia stellata
Shelduck	Tadorna tadorna
Great crested grebe	Podiceps cristatus
Eurasian oystercatcher	Haematopus ostralegus
Eurasian coot	Fulica atra
Common Guillemot	Uria aalge
Black-legged Kittiwake	Rissa tridactyla
Black-headed Gull	Chroicocephalus ridibundus
Common Gull	Larus canus
Herring Gull	Larus argentatus
Great Black-backed Gull	Larus marinus
Northern Gannet	Morus bassanus
European Shag	Gulosus aristotelis
Great Cormorant	Phalacrocorax carbo
Grey Heron	Ardea cinerea
White-tailed Eagle	Haliaeetus albicilla
Eurasian Magpie	Pica pica
Rock Pigeon (Feral)	Columba livia
Common Wood-Pigeon	Columba palumbus
Hooded Crow	Corvus cornix
Common Raven	Corvus corax
Eurasian Blue Tit	Cyanistes caeruleus
Great Tit	Parus major
European Starling	Sturnus vulgaris
European GREENFINCH	Chloris chloris
House Sparrow	Passer domesticus
Eurasian robin	Erithacus rubecula



Wildlife List: Other

Other: 5 species



Other: 5 species



Other: 5 species

<u>Species name</u>	<u>Latin Name</u>
Harbour Porpoise	<i>Phocoena phocoena</i>
Grey Seal	<i>Halichoerus grypus</i>
Fallow Deer	<i>Dama dama</i>
Reindeer	<i>Rangifer tarandus</i>
Common European Adder	<i>Vipera berus</i>

iNaturalist

We uploaded our observations of anything living and wild to the biodiversity platform iNaturalist.

5 observers contributed 27 observations of 23 different species to our voyage's project.

Contributing our sightings in data-deficient areas helps fill knowledge gaps, enabling researchers to better understand and conserve biodiversity in those regions.

View the observations submitted on our [iNaturalist project](#)



iNaturalist Project

MS Spitsbergen 2024 17th February – 2nd March

EVENT IN PROGRESS



HX MS Spitsbergen 2024 17th Feb - 2nd Mar
FEB 17, 2024 - MAR 2, 2024

About Members 8


Explore the wonderful fauna and flora we spot on our travels with MS Spitsbergen on our Northern Lights expedition.

[Read More >](#) [Your Membership](#)


[Edit Project](#) [Project Journal](#)

Overview **27 OBSERVATIONS** 23 SPECIES 20 IDENTIFIERS 5 OBSERVERS [Stats](#)


[Map](#) [Grid](#) [List](#) [Identify](#) [Search](#) [Export Observations](#)



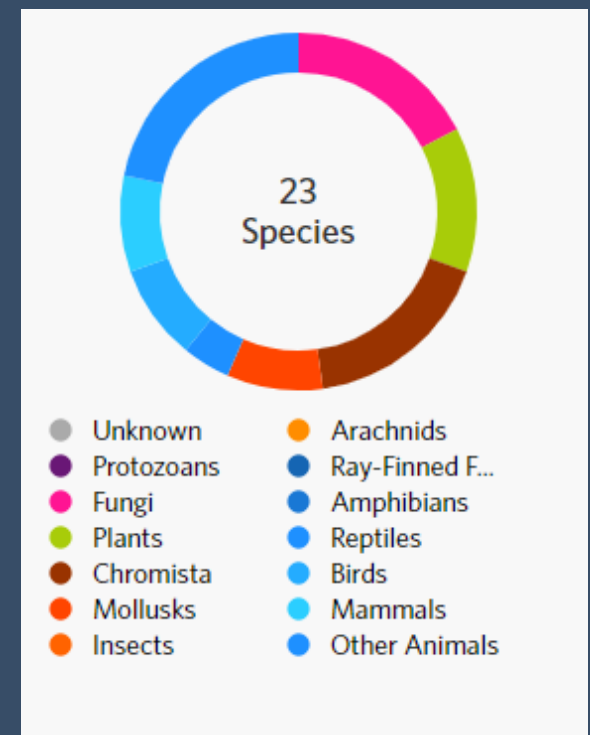
Beard Lichens
Genus *Usnea*
1 21h



Adder
Vipera berus
2 1h



Reindeer Lichen
Cladonia arbuscula
1 9d



Science boat

In Svolvær and Fjærland we took part in citizen science experiments to determine plankton density and diversity.

We used a secchi disk and chlorophyll detector to determine plankton abundance, as well as collecting data on sea temperature and salinity. We then collected samples of plankton to explore back in our science centre.



Science boat

Place	Secchi Depth		
	<u>Feb 2024</u>	<u>Jan 2024</u>	<u>Apr 2023</u>
Fjærland	14.1m	22.4m	8.9m
Svolvær	24.8m	24.0m	9.2m

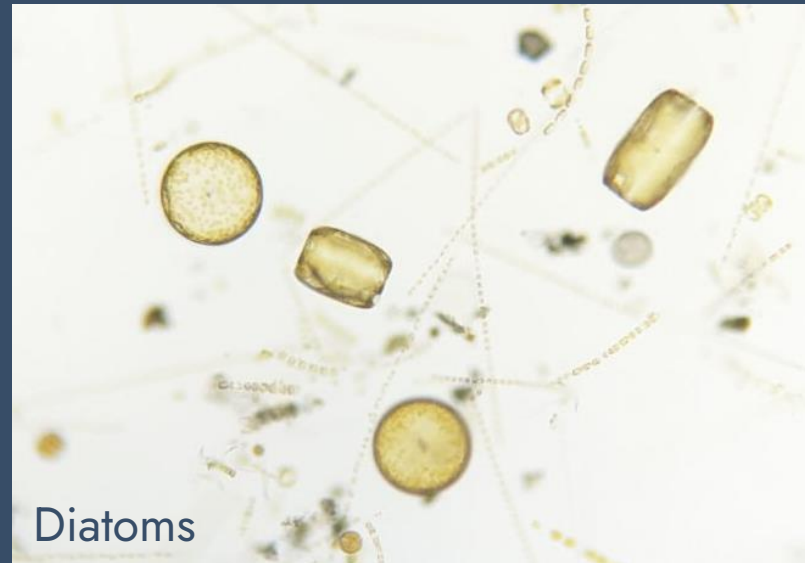


Copepod

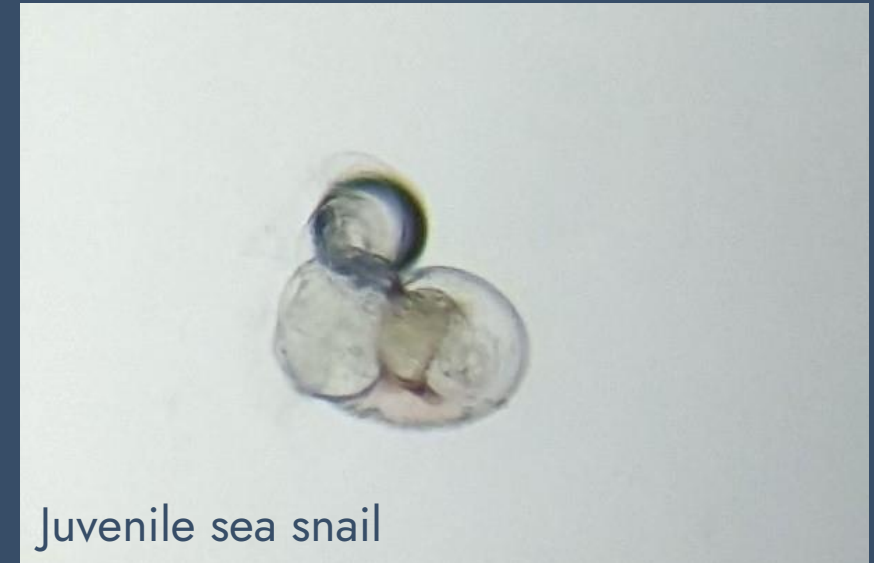
Plankton species found in our samples (Fjærland & Svolvær)



Ceratium



Diatoms

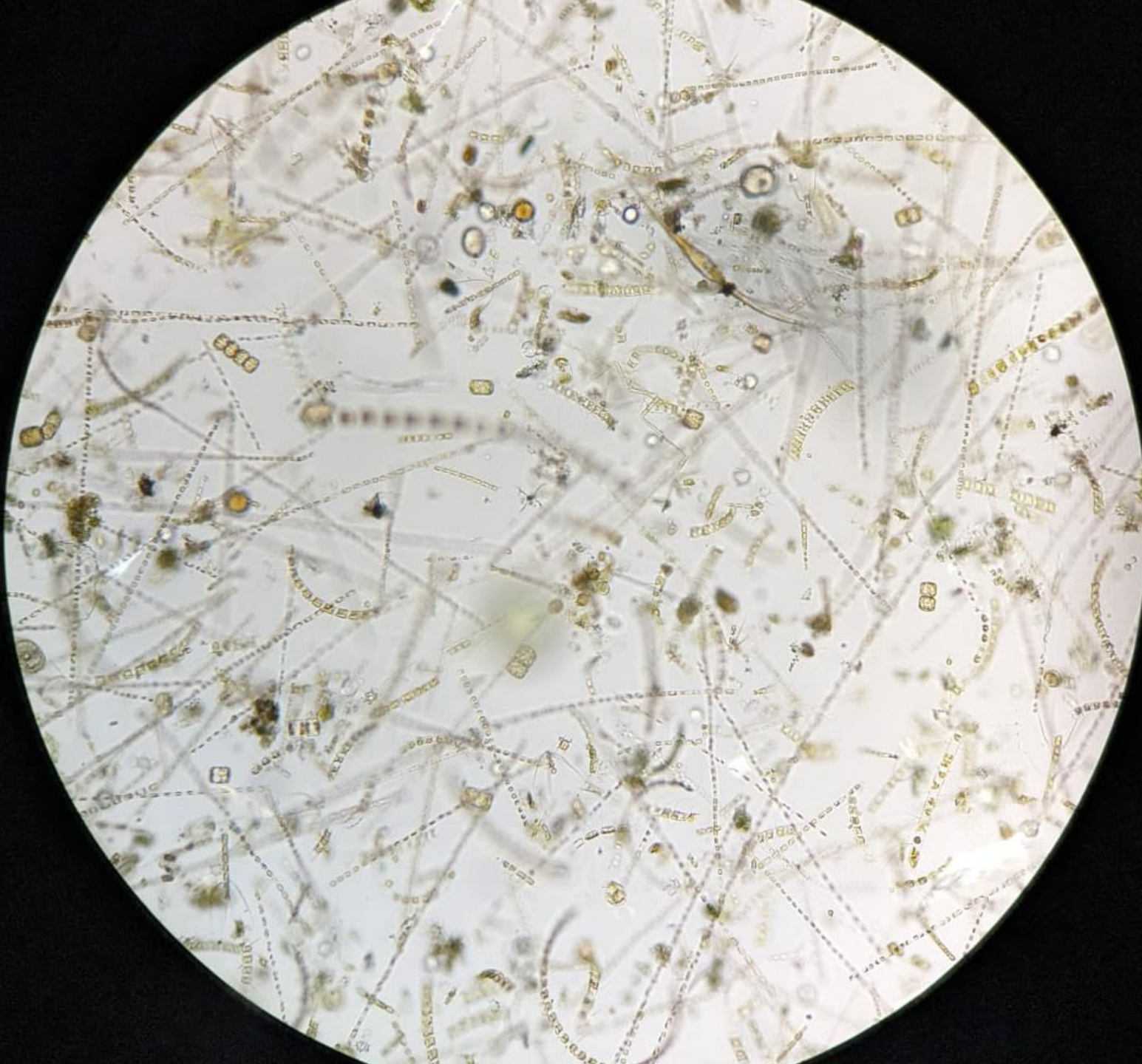


Juvenile sea snail

Mixed phytoplankton sample:

Fjærland 28th Feb
2024

Phytoplankton are microscopic algae which, like terrestrial plants, photosynthesise producing energy and oxygen. Phytoplankton produce over 50% of earth's oxygen and are a vital part of the marine food web. In the image to the left we can see phytoplankton species including diatom chains, nitzschia, and thalassiosirales.



CTD Data: Svolvær 22nd Feb 2024

During the science boat we collected data on water conditions in Svolvær harbour from the surface to 15m depth.

Temperature: Ranged from 2.5 – 3.0°C

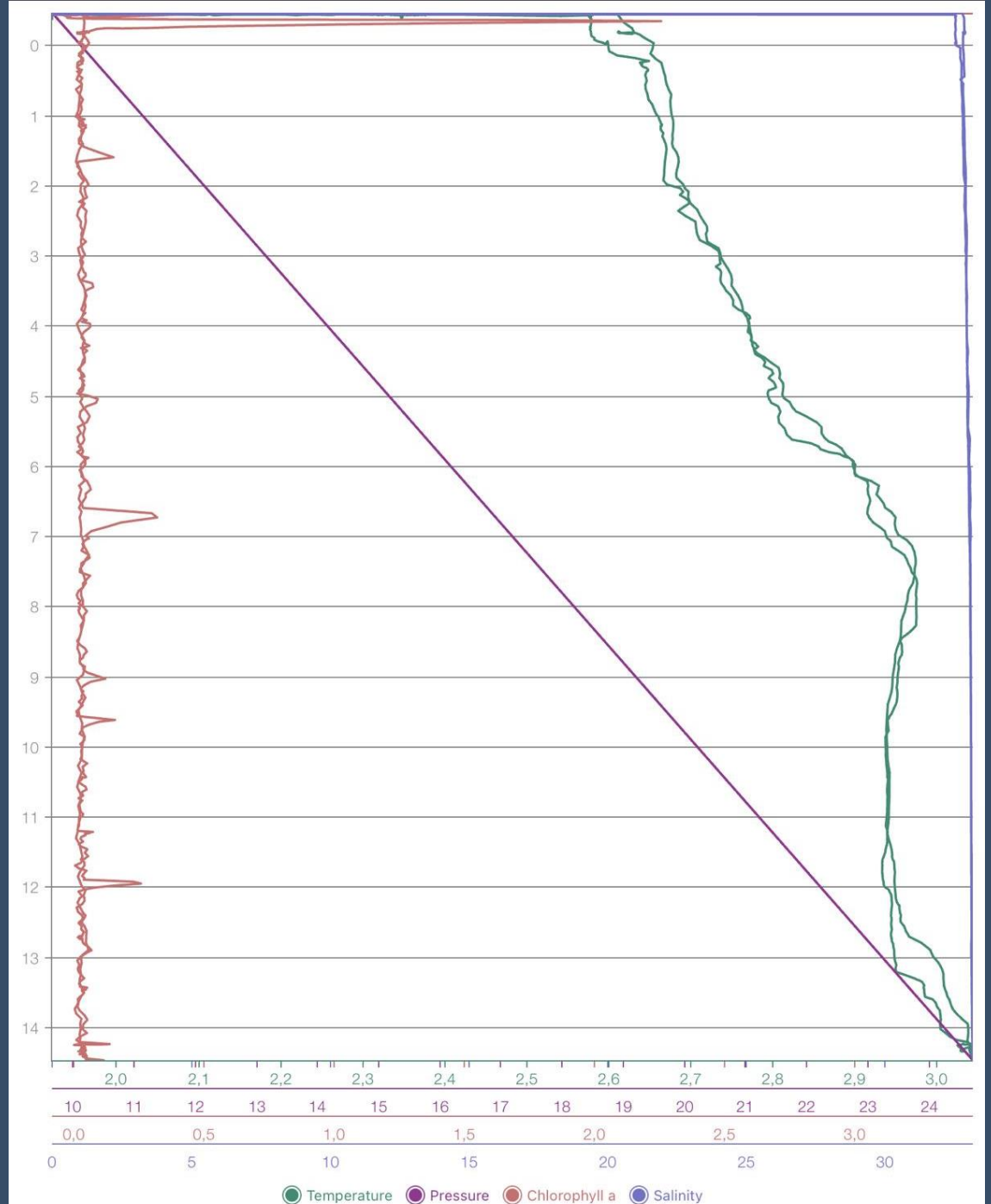
Salinity: 25 PSU

Chlorophyll a (Plankton): Ranged from 0.1 – 0.5µg/l **low**

What does this tell us?

The data shows that on this sampling occasion salinity, temperature and chlorophyll a levels remain relatively constant with depth down to 15m.

Chlorophyll a concentration is used to measure the amount of chlorophyll, and therefore plankton in the water. The low reading we see is typical for winter in Norway when days are short and therefore sunlight-dependant growth is limited.



CTD Data: Fjærland 28th Feb 2024

During the science boat we collected data on water conditions in Fjærland from the surface to 11m depth.

Temperature: Ranged from 3.25 – 4.5°C

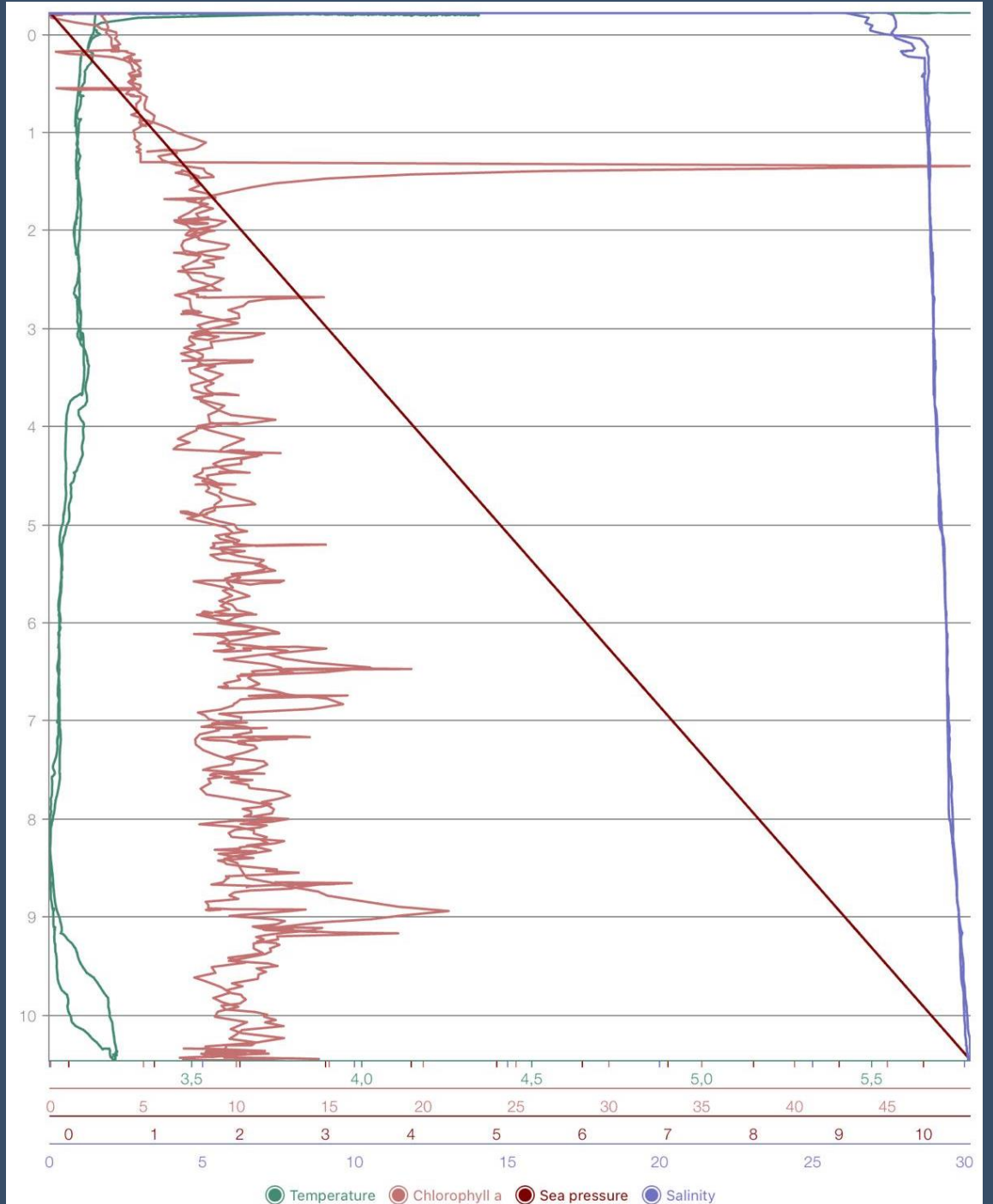
Salinity: 26 - 30 PSU

Chlorophyll a: Average approx. 8µg/l, **high**

What does this tell us?

The data shows that on this sampling occasion, salinity increased with depth. This happens because more saline (or salty) water has increased density so sinks to lower depths.

The data also shows a very high reading of chlorophyll a, this could suggest an 'algal bloom' which usually occurs in March/April, however unseasonably warm temperatures may have resulted in this 'spring bloom' happening earlier in the season.



Aurorasaurus

Whilst in northern Norway we submitted images of the aurora borealis.

The main colour we saw in the aurora was green. This colour is caused by charged sun particles hitting oxygen in our atmosphere at approximately 120-180km altitude.

Our observations and the photograph we submit to Aurorasaurus will help scientists improve our understanding of auroras, and help to improve prediction methods.

[Submit your photos](#) to Aurorasaurus



E-bird

During wildlife watches we recorded bird species seen with eBird.

10 different species of birds were observed in a total of 3 separate checklists.

Our checklists help eBird to enhance the scientific understanding of bird distribution and abundance, contributing valuable data for conservation efforts and ornithological research.

View our data on our [e-Bird trip report](#)

The screenshot shows an eBird trip report interface. At the top, the title is "Winter Norway: Northern Lights 17th Feb - 2nd Mar 2024" with a date range of "17 Feb - 2 Mar 2024 (15 days)" and a "Public" status. Below the title, there are links for "Denmark", "Norway", and "Subregions", and a "Science Coordinator" field. There are "Share" and "Edit" buttons. A map of Northern Europe is displayed, showing Norway, Sweden, Finland, Denmark, and parts of Iceland, with several blue location pins. Below the map, there are statistics: "10 Species observed" and "3 Checklists". Underneath, it says "LIFERS 3". The main section is titled "Species observed" and lists the following species with their counts and a "Show all details" link:

Count	Species	Details
2	Mute Swan	1
16	Common Eider	2
4	Red-breasted Merganser	1
3	Common Murre	1
4	Black-headed Gull	1
2	Herring Gull	1
4	Great Black-backed Gull	2
1	Common Loon	1
1	Northern Gannet	1

Beach Clean 65kg

During our exploration day on Mindlandet we conducted a beach clean.

In total we collected 65kg of waste. This included fishing nets, plastic containers, cable ties, and plastic bottles.

The waste was brought back onboard MS Spitsbergen and disposed of in the appropriate manner.

A huge thank you to all that took part!



Thank you for participating!

