

## Main findings

... so far ...

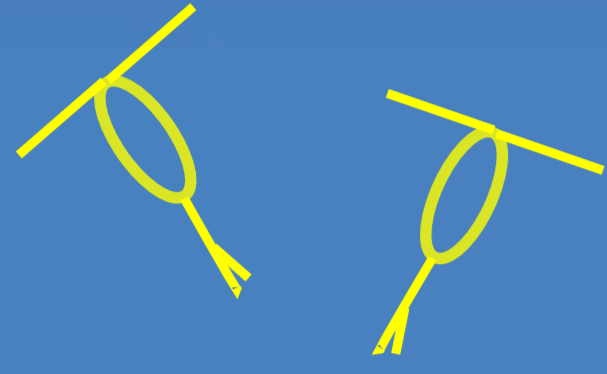
Relatively low zooplankton numbers were found in the core of Atlantic Water in January and May, higher numbers in August.

The highest biomass of secondary producers was observed outside the core of Atlantic Water in January and May.



Current velocities at the location of the mooring were higher during the winter season, and lower in summer, when most zooplankton was observed in the upper layer.

Transport of lipid-rich zooplankton into the Arctic Ocean thus might be lower than expected due to seasonal ontogenetic migration. Transport of smaller zooplankton and omnivorous food webs might be more important.



## Field data

Three cruises in January, May and August 2014 were undertaken. Data were collected along transects crossing the Atlantic inflow west and north of Svalbard.

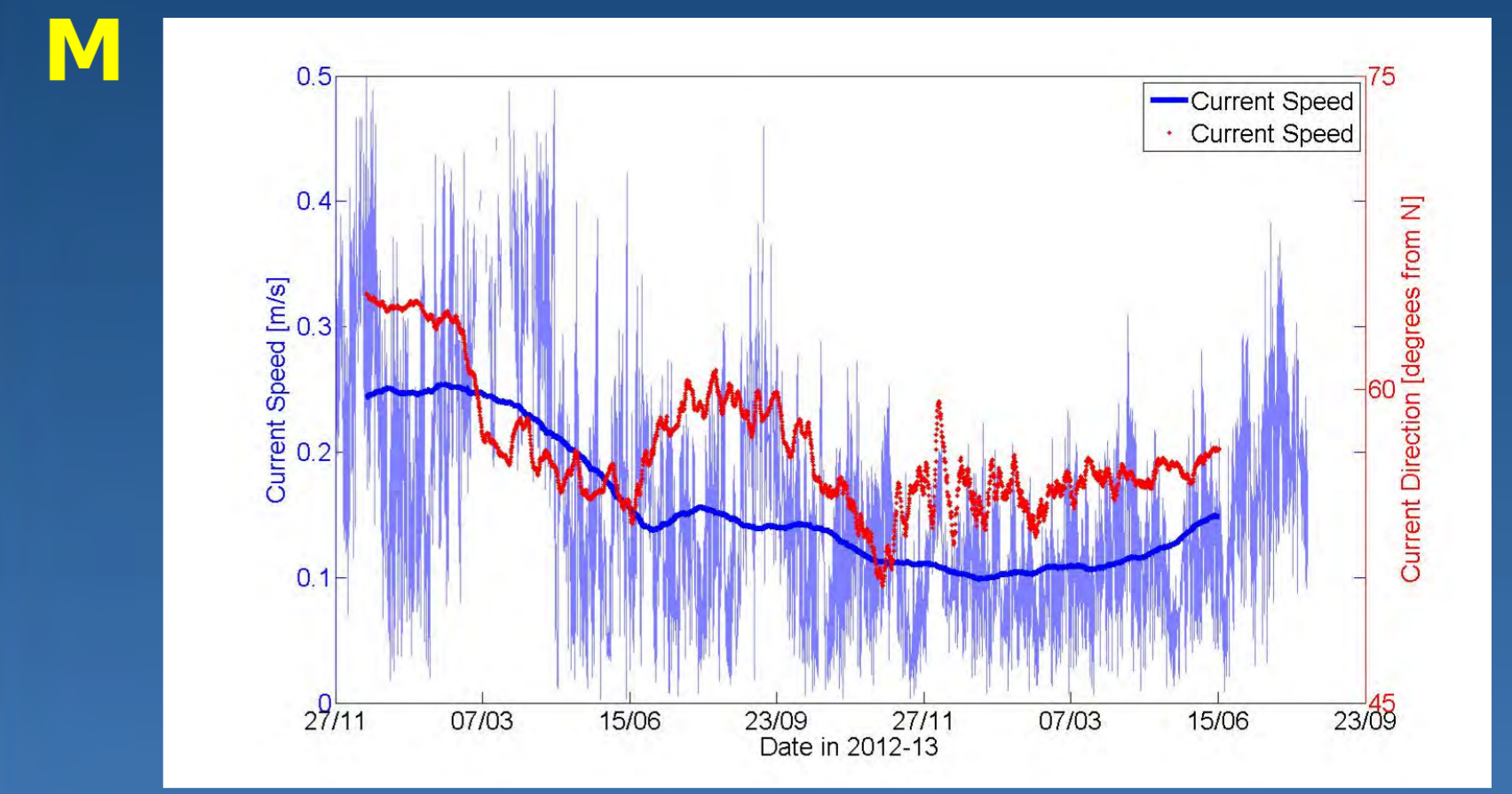
Data on hydrography, currents and zooplankton distribution with **high spatial resolution** were obtained.

A **mooring** north of Svalbard was deployed to analyse **seasonal variation** in the inflow.

**Ancillary data** from project partners will indicate **long term changes** in the inflow.

## Seasonal variation

The inflow of Atlantic Water into the Arctic Ocean at the mooring at 30 °E was ca. two times higher during winter than during summer (thick blue line).



Large short-term variability was observed (thin blue line).

A steady inflow of Atlantic Water can be seen in the data (red line).

# Inflow of Zooplankton into the Arctic Ocean through the Fram Strait

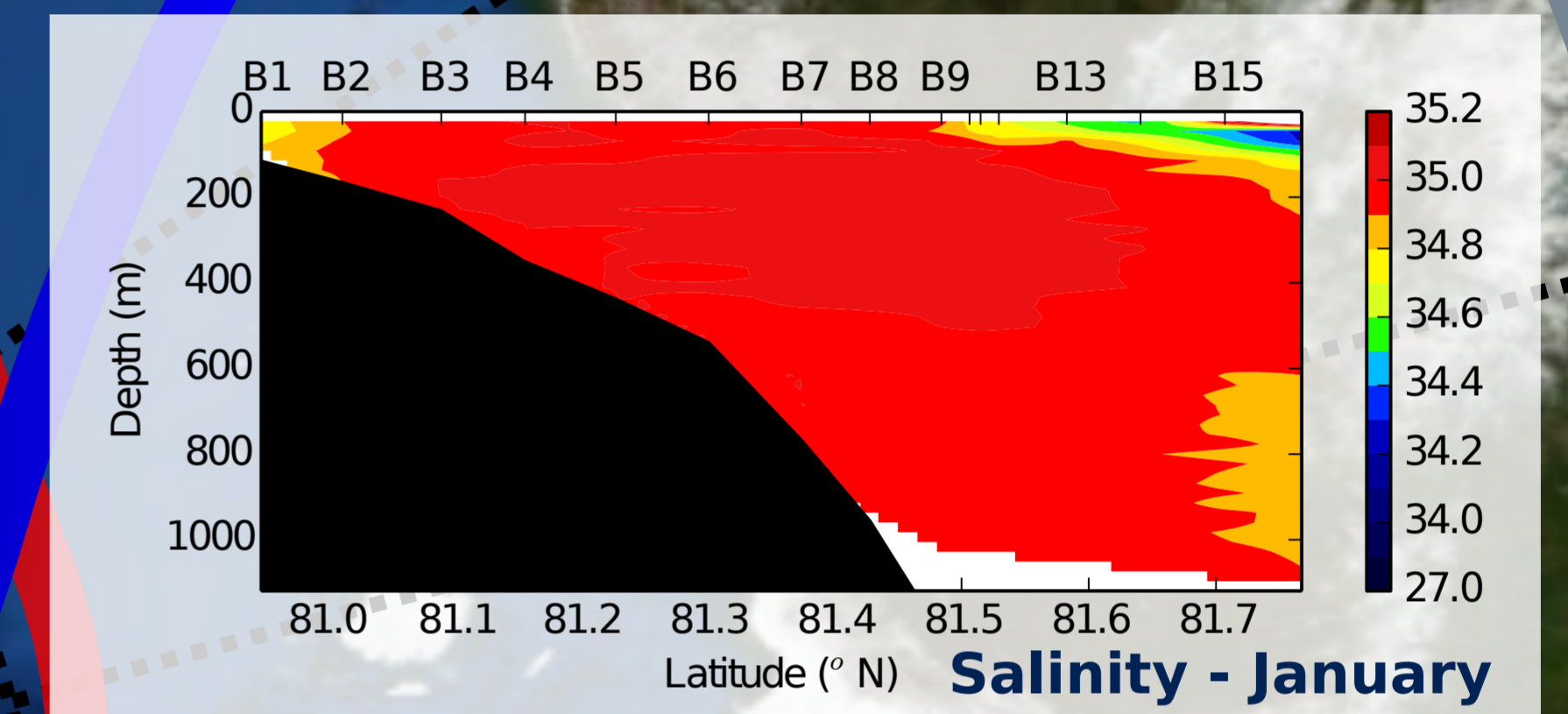
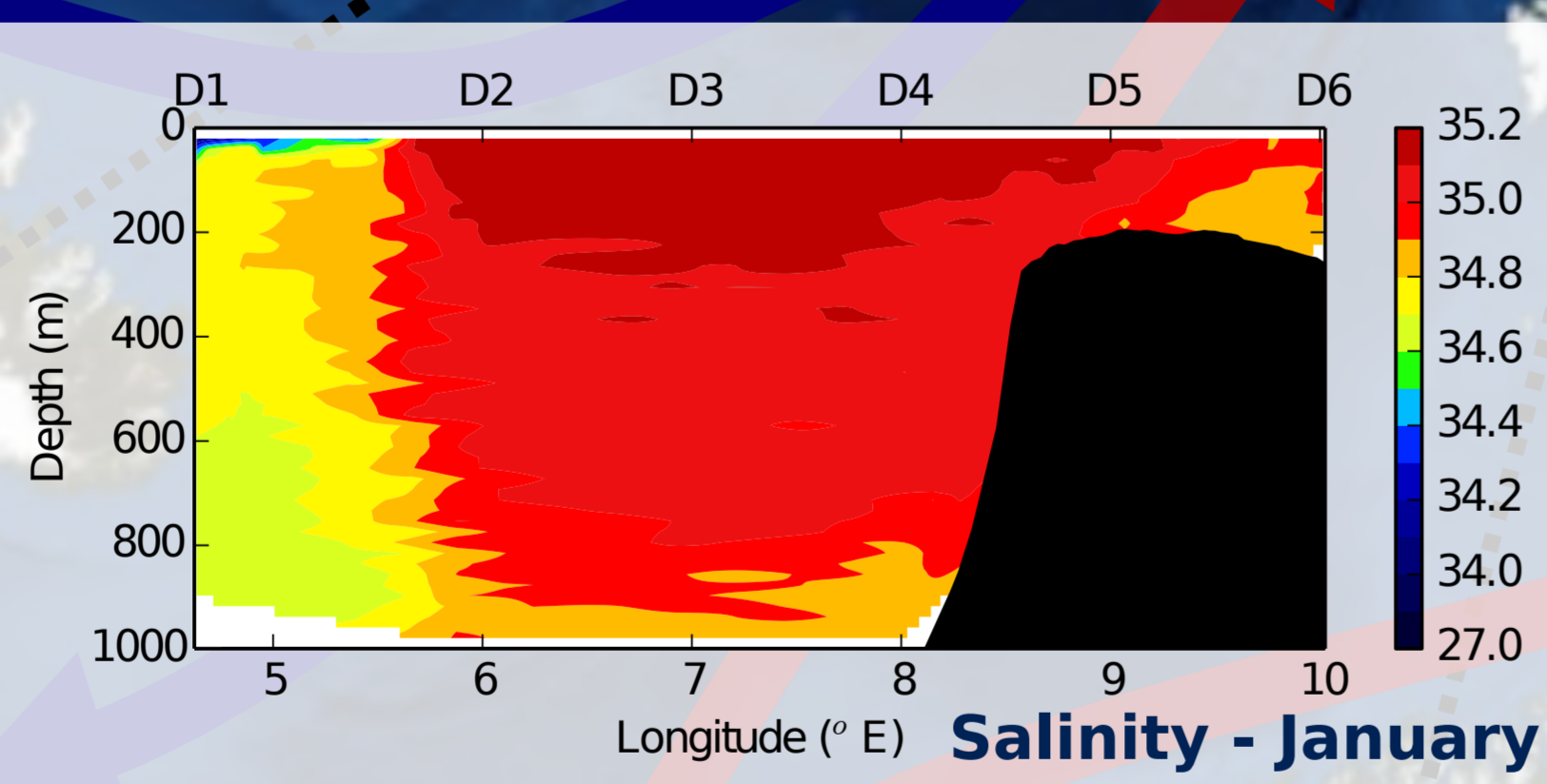
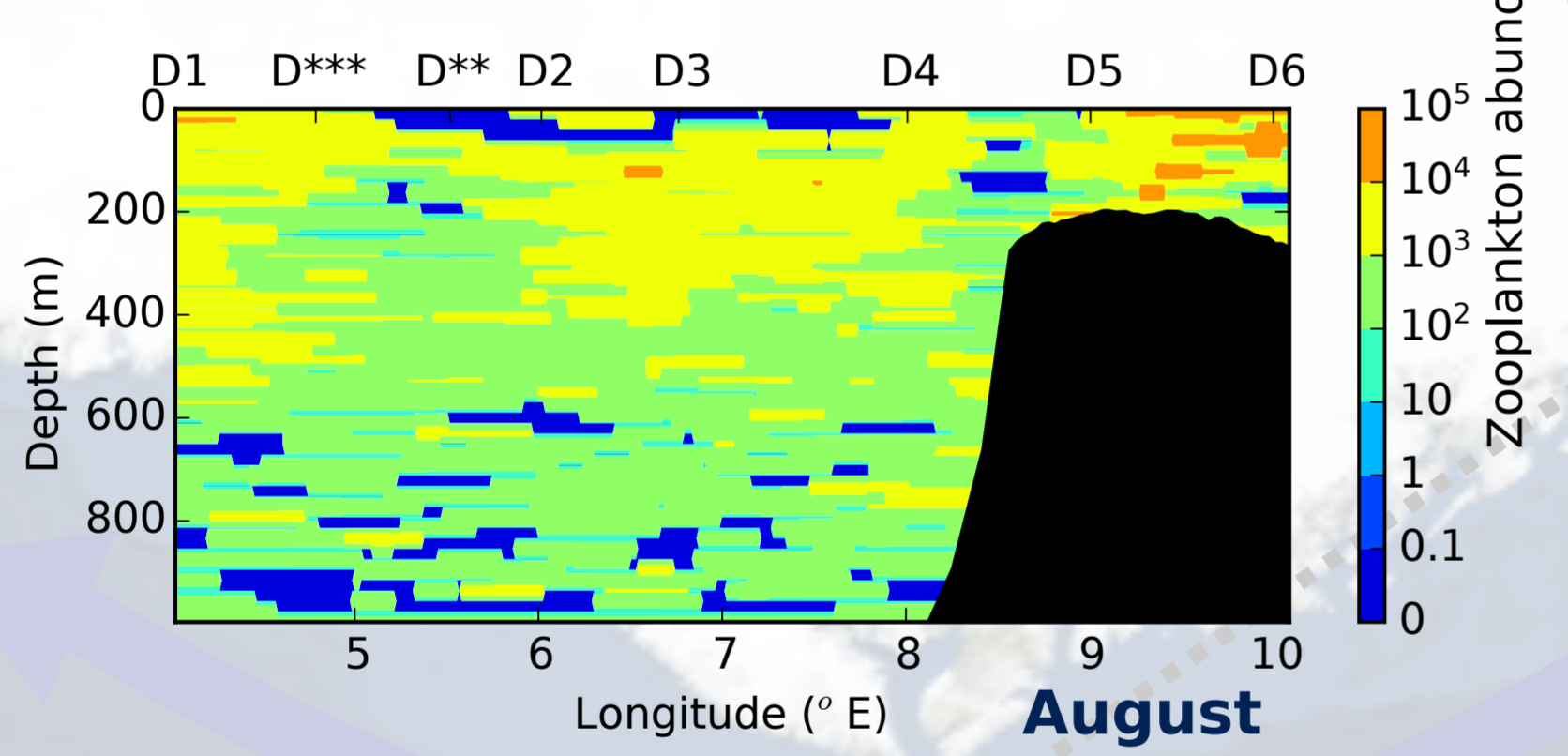
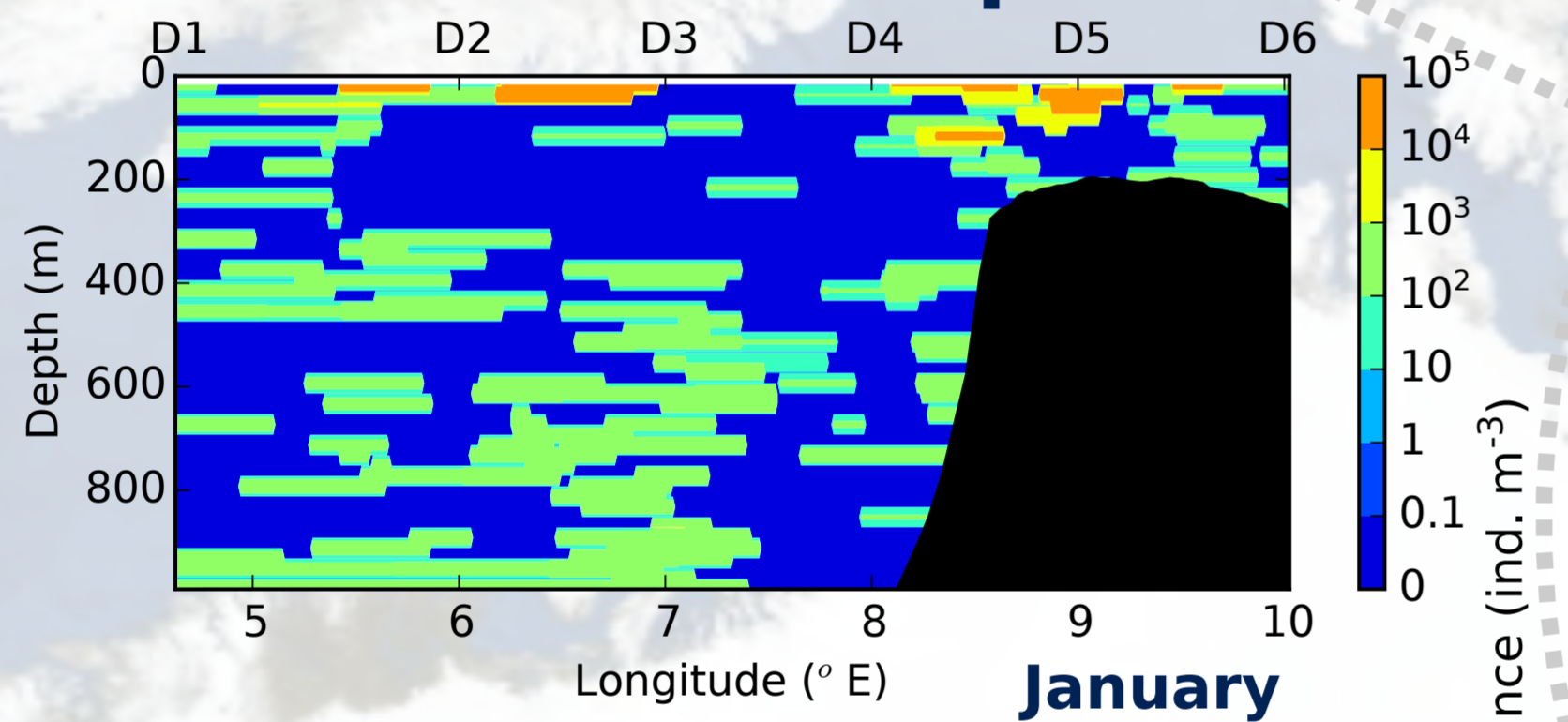
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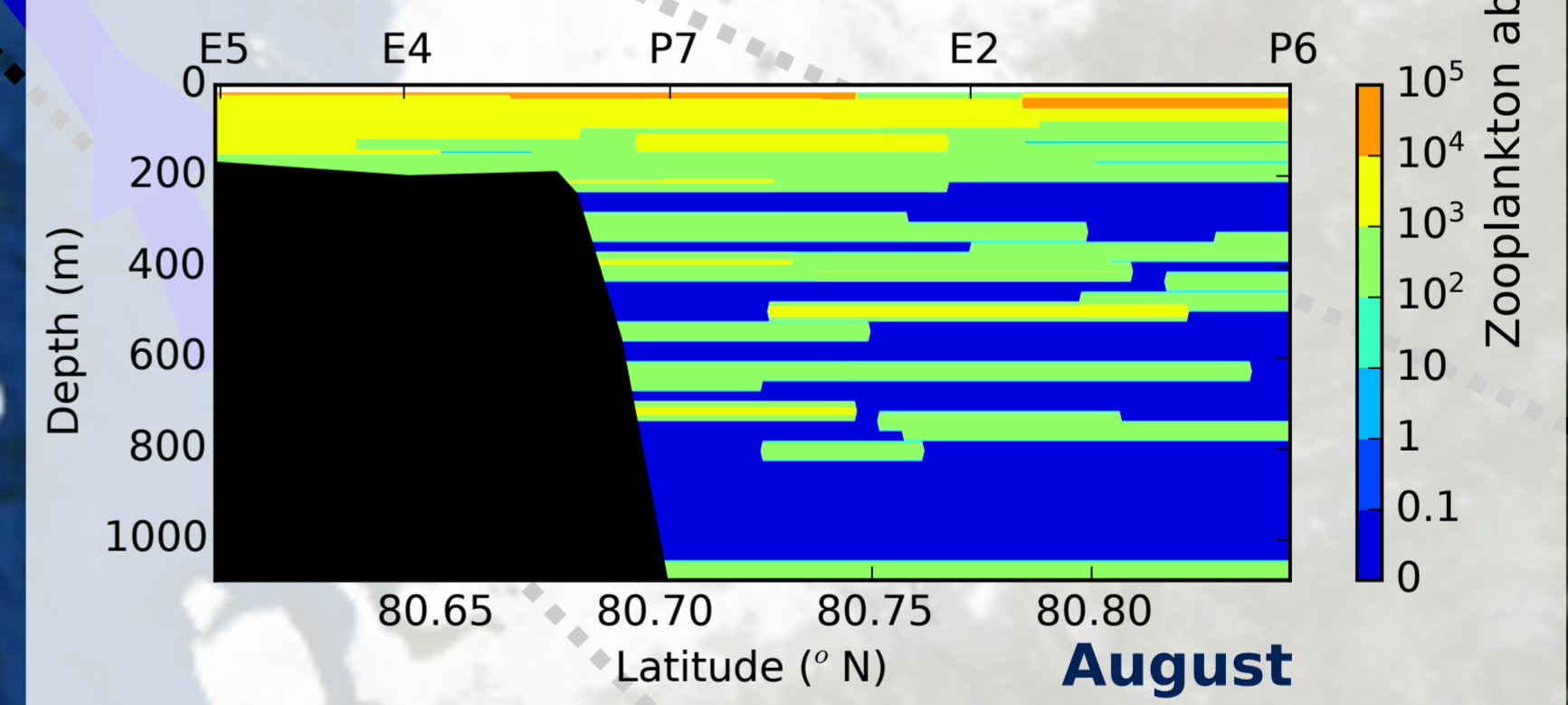
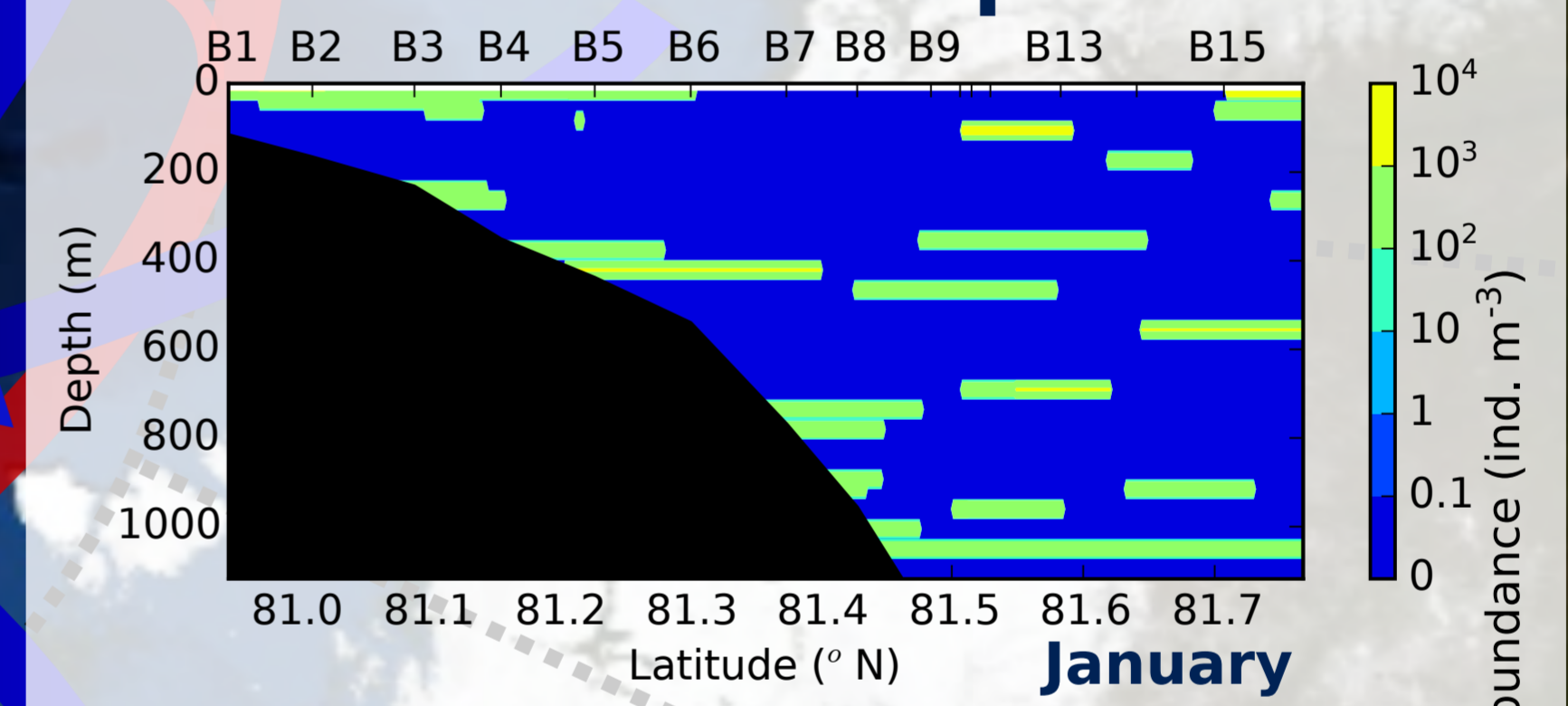
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### Transect D - zooplankton



### Transect B - zooplankton



## Why bother?

The inflow of Atlantic Water into the Arctic Ocean is a main driver of climate change in the Arctic.

It channels heat and energy from lower latitudes into the high-latitude system. Thereby productivity and carbon cycling in the Arctic are impacted.

Large areas of the Arctic Ocean are influenced by extensions of the Atlantic Water current.

## What's next?

Combining data on current velocity and zooplankton abundance we aim to **quantify the flux** of zooplankton across transect lines. This will allow us to calculate the influx of secondary producers into the Arctic Ocean.

Utilising the size distributions of zooplankton, which we obtained from our sampling, we will **estimate zooplankton productivity** based on biovolume spectrum theories.

In concert with project partners we will then look at the **changes of Arctic food webs** that are induced by the inflow of different, Atlantic, zooplankton communities, and how these impacts carbon cycling within the Arctic Ocean.

## The Project

Carbon Bridge is an interdisciplinary project run by the University of Tromsø and financed by the Norwegian Research Council for four years (2013-2017).

Within the Carbon Bridge project we aim to quantify the biomass of secondary producers that are advected into the Arctic Ocean, and how this impacts Arctic food webs.

Partners are from Russia, Canada, Poland, Spain, Denmark, the USA and Norway.

