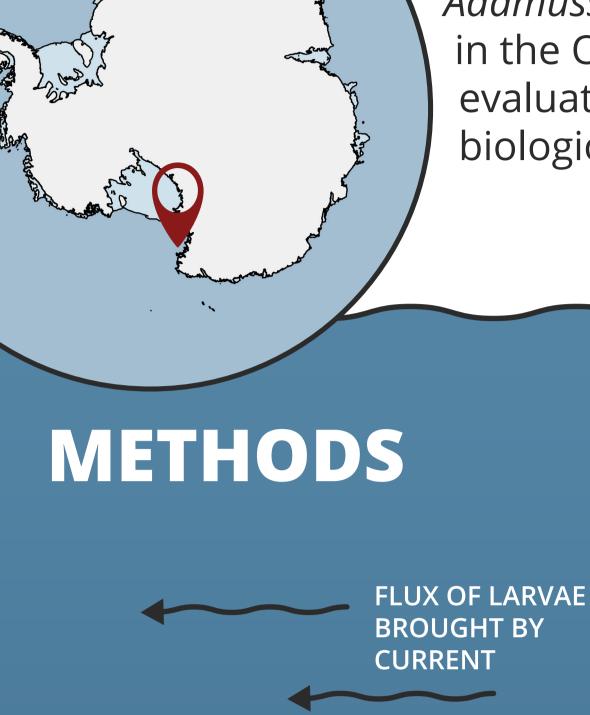
Oceanographic moorings as year-round laboratories for investigating growth performance and settlement dynamics in the Antarctic scallop Adamussium colbecki

### **BACKGROUND**

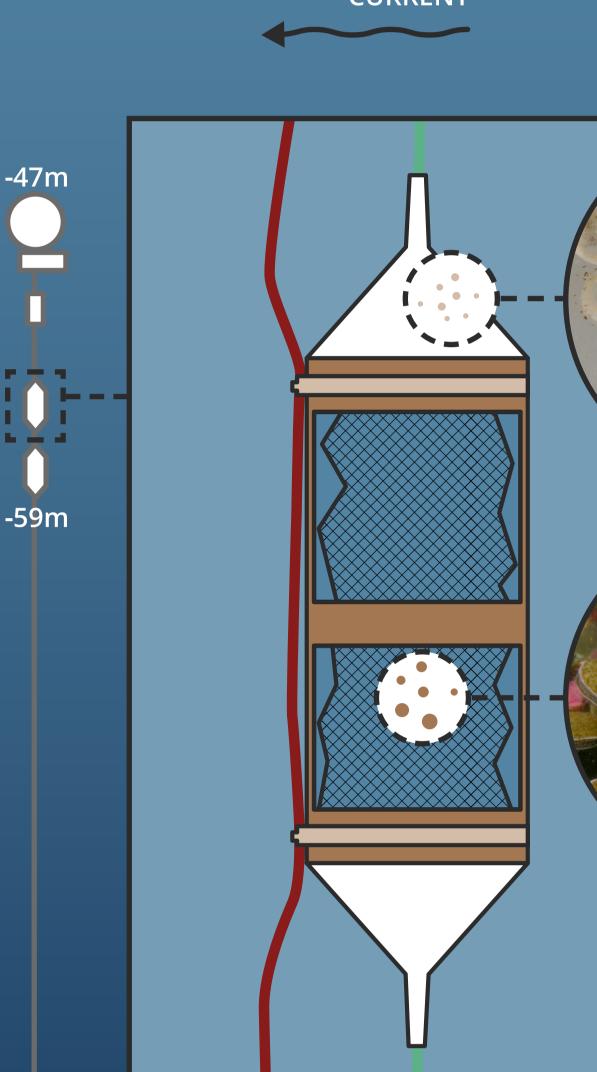
Oceanographic Moorings (OMs) are standard marine platforms composed of wires, buoys, weights and instruments, and are used as in situ observatories to record water column properties. However, OMs are also comprised of hard substrates on which a variety of invertebrates can settle when they encounter these structures along their dispersal routes.

> found on two OMs deployed in the Ross Sea (Antarctica). Furthermore, a cage containing the Antarctic scallop Adamussium colbecki (Smith, 1902) was incorporated in the OM. The growth of the caged *A. colbecki* was evaluated after one year and their shells used as biological proxy for seawater temperature and salinity.

In this contribution, we studied the fouling communities



A variety of settlers were collected from two different OMs deployed in the Ross Sea (Antarctica) and species identified using a combination of morphological and genetic (mainly through **DNA** barcoding) characteristics.



Caged scallops were individually marked with permanent tags and their growth studied in terms of Size-Increment Data (SID). Cages were specifically designed to prevent damage to individuals due to water drag during OM deployment and retrieval. Growth parameters from the

caged individuals were applied to the Adamussium juveniles that had settled on the mooring, to trace the likely settlement period.

-145m

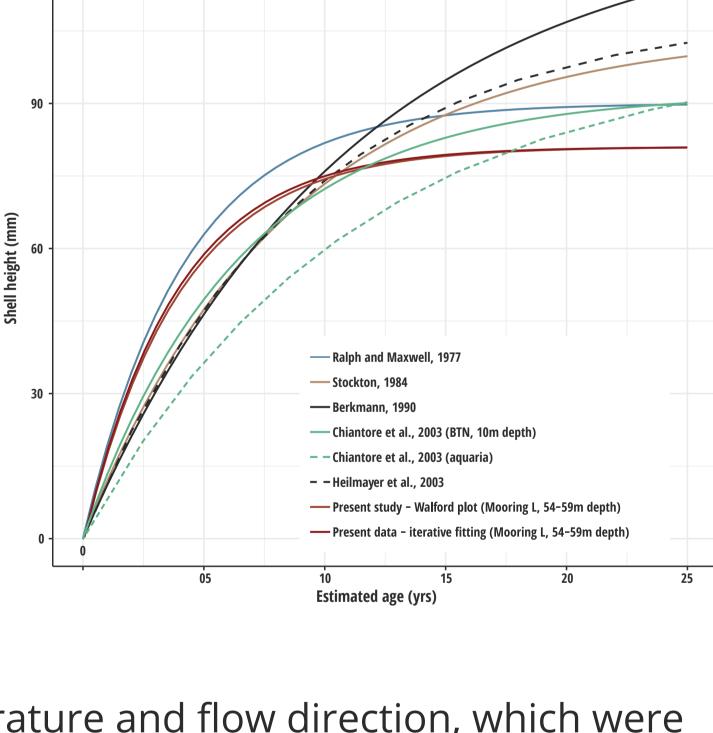
A. colbecki was similar to that from previous growth studies of this species. The remarkable survival rate of caged specimens (96.6%) supports the feasibility of caging experiments, even for a species with a fragile shell such as the Antarctic scallop. Some of the new recruits found on the mooring were the Antarctic

The growth performance of caged

scallop *A. colbecki*, the same species we put into special cages fixed to it. The settlement of the *Adamussium* juveniles started during the Austral spring with a peak in summer months and, remarkably, coincided with seasonal changes in water temperature and flow direction, which were recorded by the mooring's instruments. Genetic data from other settlers

# for Adamussium colbecki

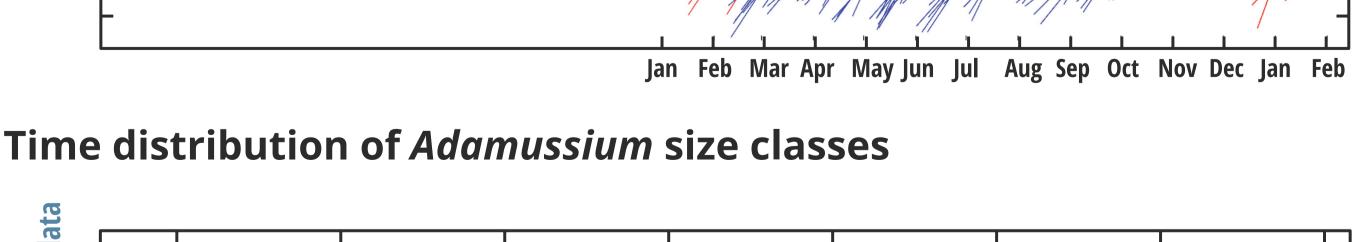
Von Bertalanffy growth functions



provided new information about their larval ecology and connectivity. Water current timeseries 2006-2007

## Blue: seawater temperature < -1.7 °C. Red: > -1.7 °C, indicating sea ice melting.

30 cm/s



### parameters present data Size classes % VB Nov/06 **Jul/05 Oct/05 May/06** Feb/07 **Mar/05 Jan/06** Aug/06 Time

DISCUSSION The outcome of this study represents a baseline for the characterization of Antarctic fouling biodiversity. We hope that in the near future an internationally coordinated systematic study of settlers could be initiated around the Antarctic continent. This could utilise 'new generation OMs'

equipped with standardized settlement structures and agreed sampling

protocols for the study of fouling communities.

investigating growth performance and settlement dynamics

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