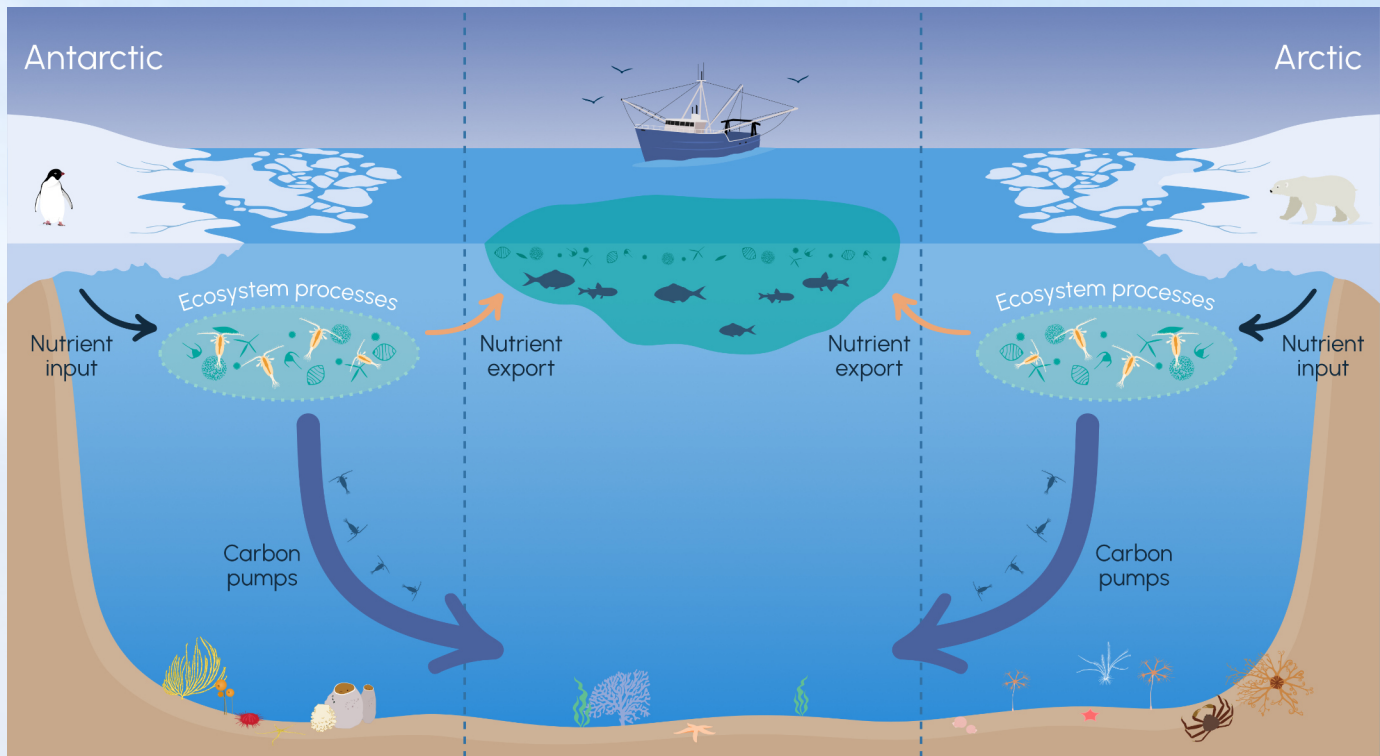# POLAR ECOSYSTEMS
BIOPOLE
GLOBAL IMPACTS

BIOPOLE will determine how polar ecosystems regulate the balance of carbon and nutrients in the world's oceans, driving primary productivity and the global carbon cycle

- What are the key inputs that contribute to nutrient balance in the polar oceans?
- How do polar marine ecosystems regulate this balance and sequester carbon?
- What are the global impacts to primary productivity, carbon cycles and fisheries?

TOOLS

Data mining - to make extensive use of existing data that has already been collected in the polar regions.

Laboratory bioassays - to determine the sensitivity of plankton to changes in nutrients and climate

Fieldwork - to collect new field data from land, rivers, sea ice and seas in both the Arctic and Antarctic, using small boats, ships (including the RRS Sir David Attenborough), and autonomous instruments

Modelling - to use a range of modelling approaches (Lagrangian, idealised, regional and global modelling) to investigate the flows of carbon and nutrients from the polar regions to the global ocean and their climate sensitivities

BIOPOLE is operating in both poles simultaneously. In the Antarctic, it will lead a number of science expeditions while, in the Arctic, it will mainly utilise collaborator led fieldwork

Antarctic

Arctic

⬤ BIOPOLE led fieldwork

△ Collaborator led fieldwork
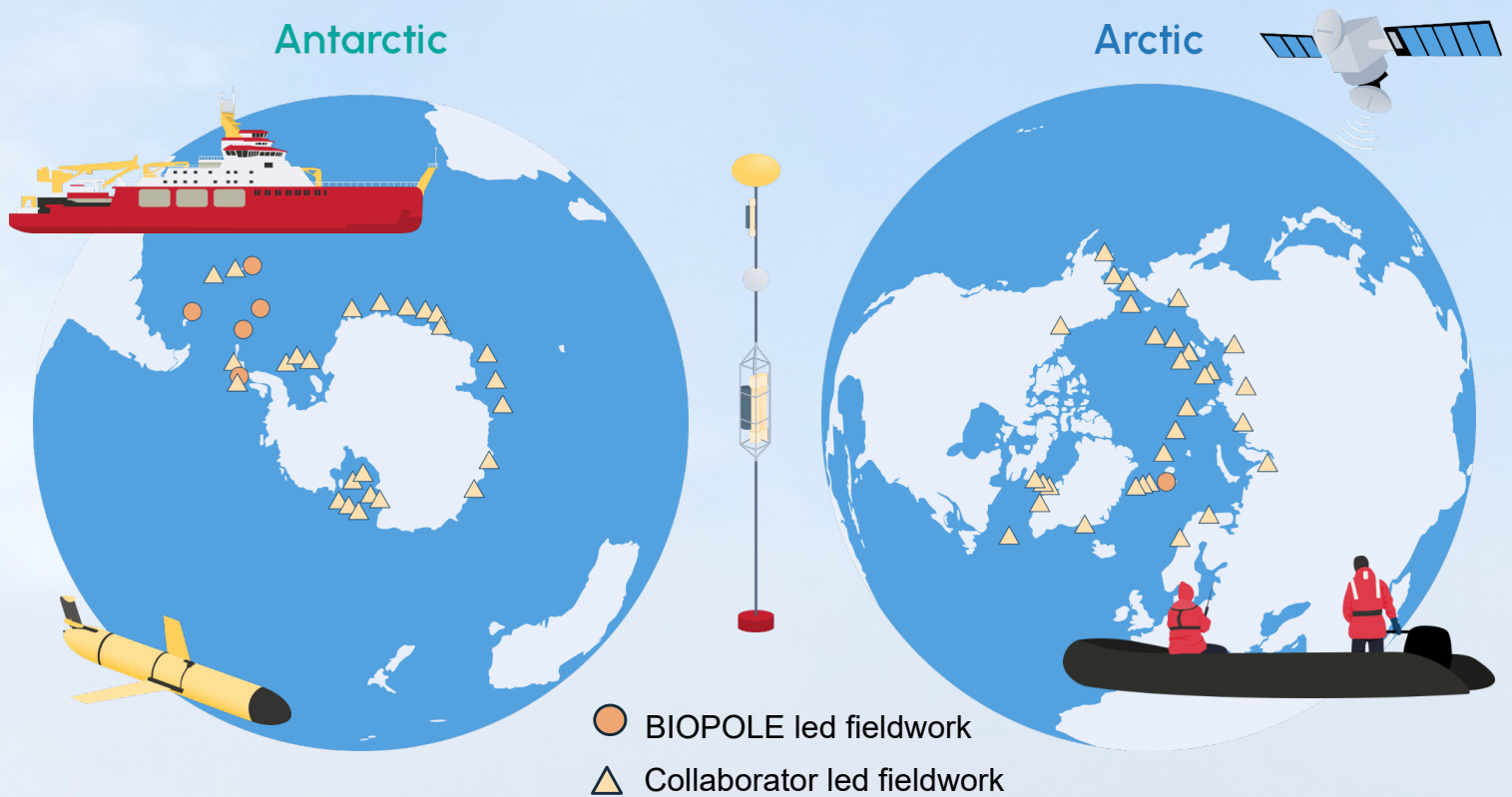
IMPLICATIONS

BIOPOLE will address urgent ecosystems challenges in Earth system modelling, the budgeting of key processes in the carbon cycle and the impact of climate change on fisheries

MORE DETAILS AT: www.biopole.ac.uk

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