Macroalgal communities in the European Arctic

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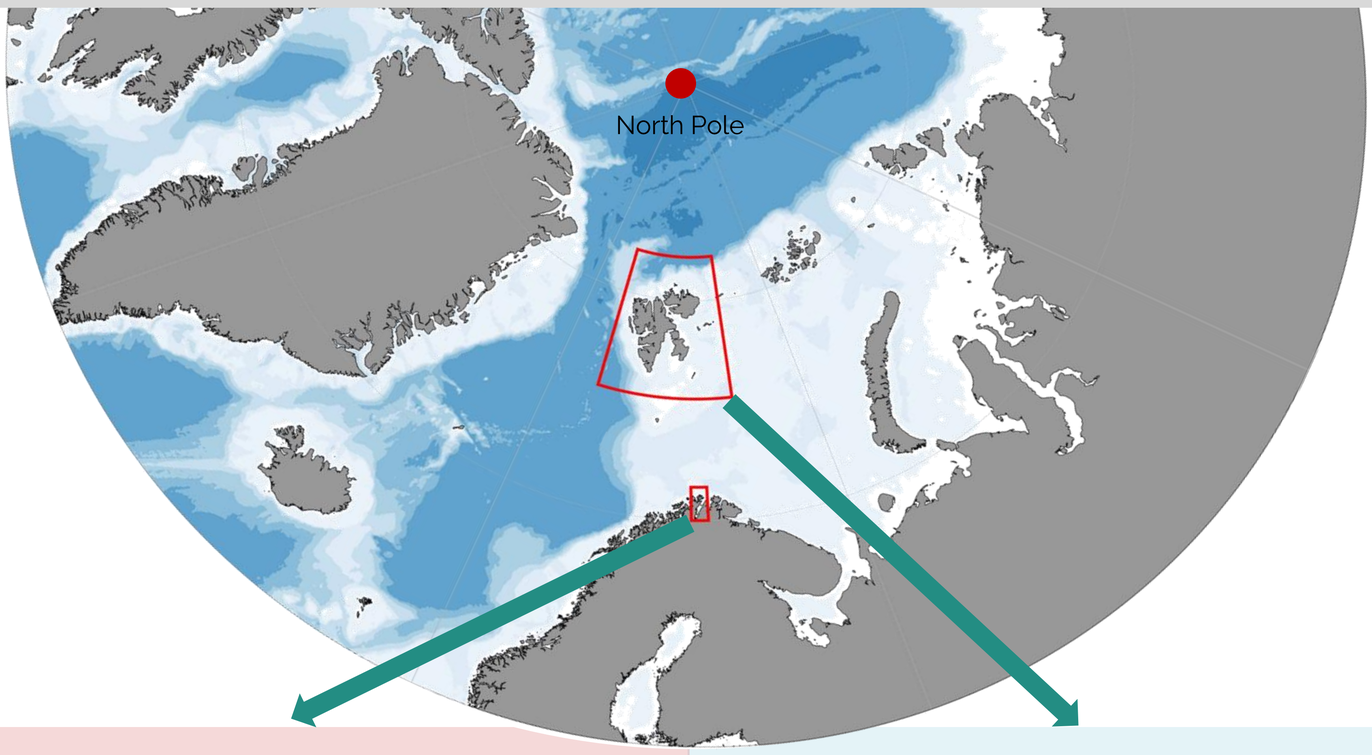
Macroalgae are major primary producers and ecosystem engineers along Arctic coasts. Intertidal macroalgae communities of Arctic rocky shores are a good indicator to study the impact of climate change and are easy to access and monitor.



High macroalgal biodiversity and biomass in Porsangerfjorden. A maximum fresh biomass of 20 kg m^{-2} was collected in summer 2022 at the western tip of the fjord.

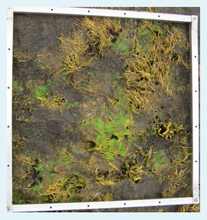
A single specimen of the biomass dominant brown algae species (here *Fucus serratus*) present in the intertidal of Porsangerfjorden can weigh up to 1.5 kg.

Porsangerfjorden 70°N		Kongsfjorden 79°N
Southern Arctic fjord	**Fjord type**	High Arctic fjord
Finnmark, Northern Norway	**Location**	Svalbard
Cold-temperate to Arctic	**Climate**	Cold-temperate to Arctic
No	**Glaciers**	5 (sea terminating)
Only the inner part fjord	**Sea ice in winter**	Large parts of the fjord

High intertidal

Mid intertidal

Low intertidal



High	**Macroalgal biomass**	Low
7 species	**No. of brown algae species**	1 species
High (23 species)	**Biodiversity**	Lower (16 species)
No	**Green algae bands**	Yes

Temperate species are moving northwards! This fertile drift specimen of a cold-temperate brown algae species (*Fucus vesiculosus*) was collected in summer 2021 for the first time in Kongsfjorden.

Climate change will transform Kongsfjorden's high Arctic macroalgae communities towards the cold-temperate communities found in Porsangerfjorden. This change will include the establishment of new species in the high Arctic and an increase in intertidal biomass.

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