

# EFFECTS OF SEA ICE AND GLACIERS ON MARINE LITTORAL BIODIVERSITY AND SPATIAL ABUNDANCE IN HIGH ARCTIC FJORDS



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## Why

What environmental drivers are important for the establishment of littoral ecosystems after polar glaciers withdraw from the sea and become land terminating? This study uses sustainable, non-invasive methods to survey macroalgae and coastal fish communities and environmental variables in three sampling stations with different oceanographical conditions:

- a) **Petuniabukta**: high freshwater input and land runoff
- b) **Adolfbukta**: glacier front
- c) **Scottvika**: more typical marine station with irregular winter sea-ice cover



Drop camera



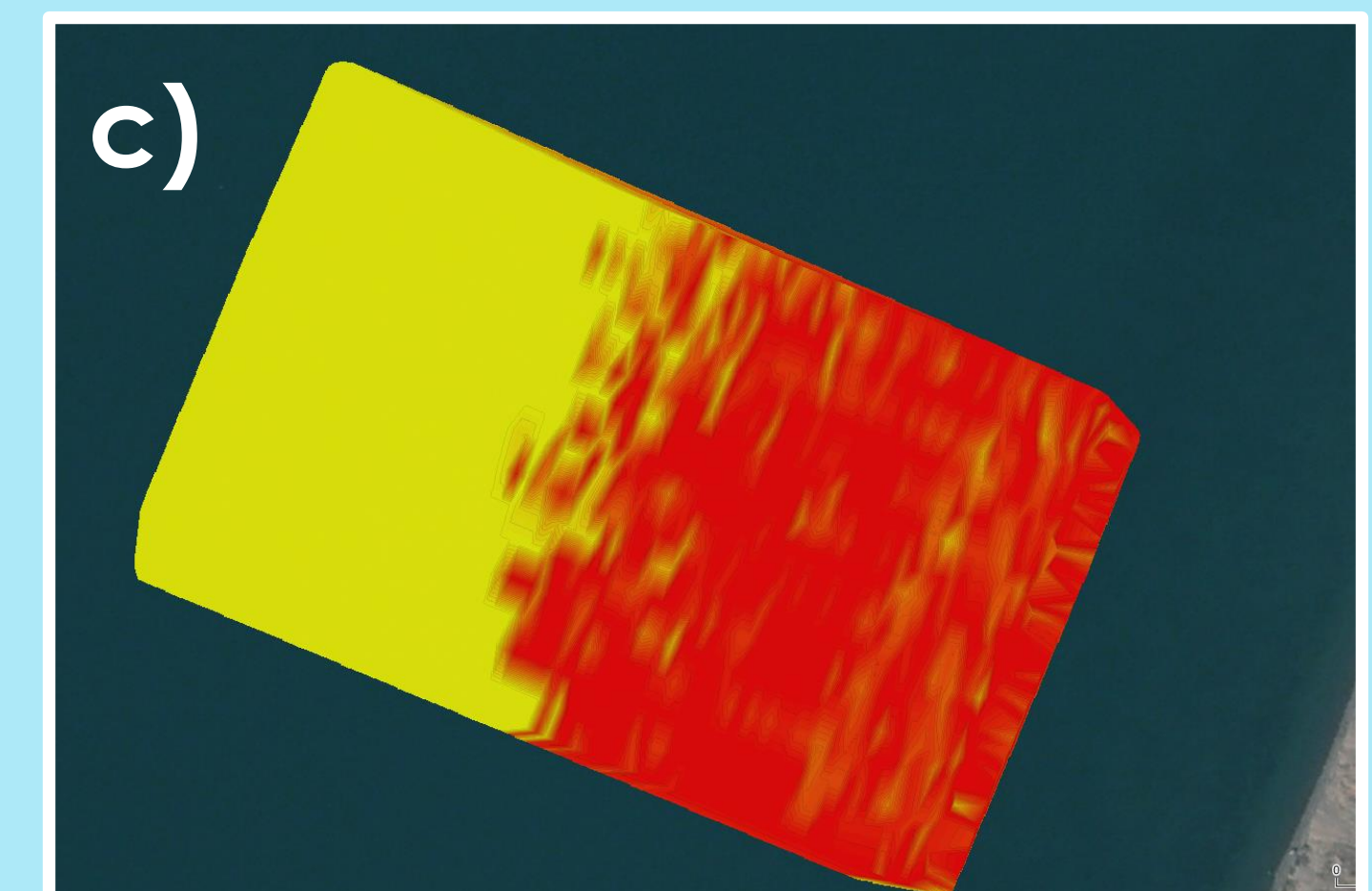
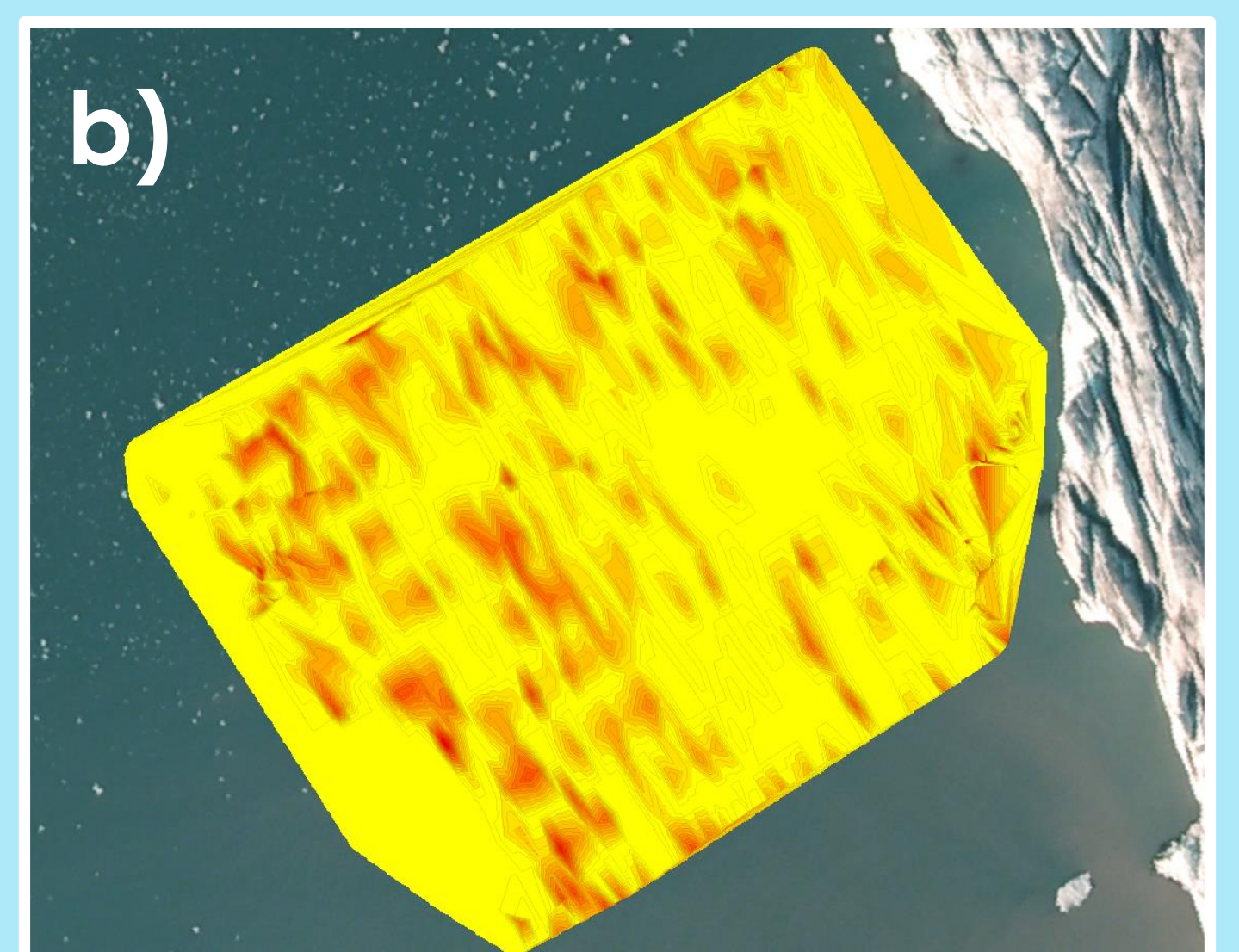
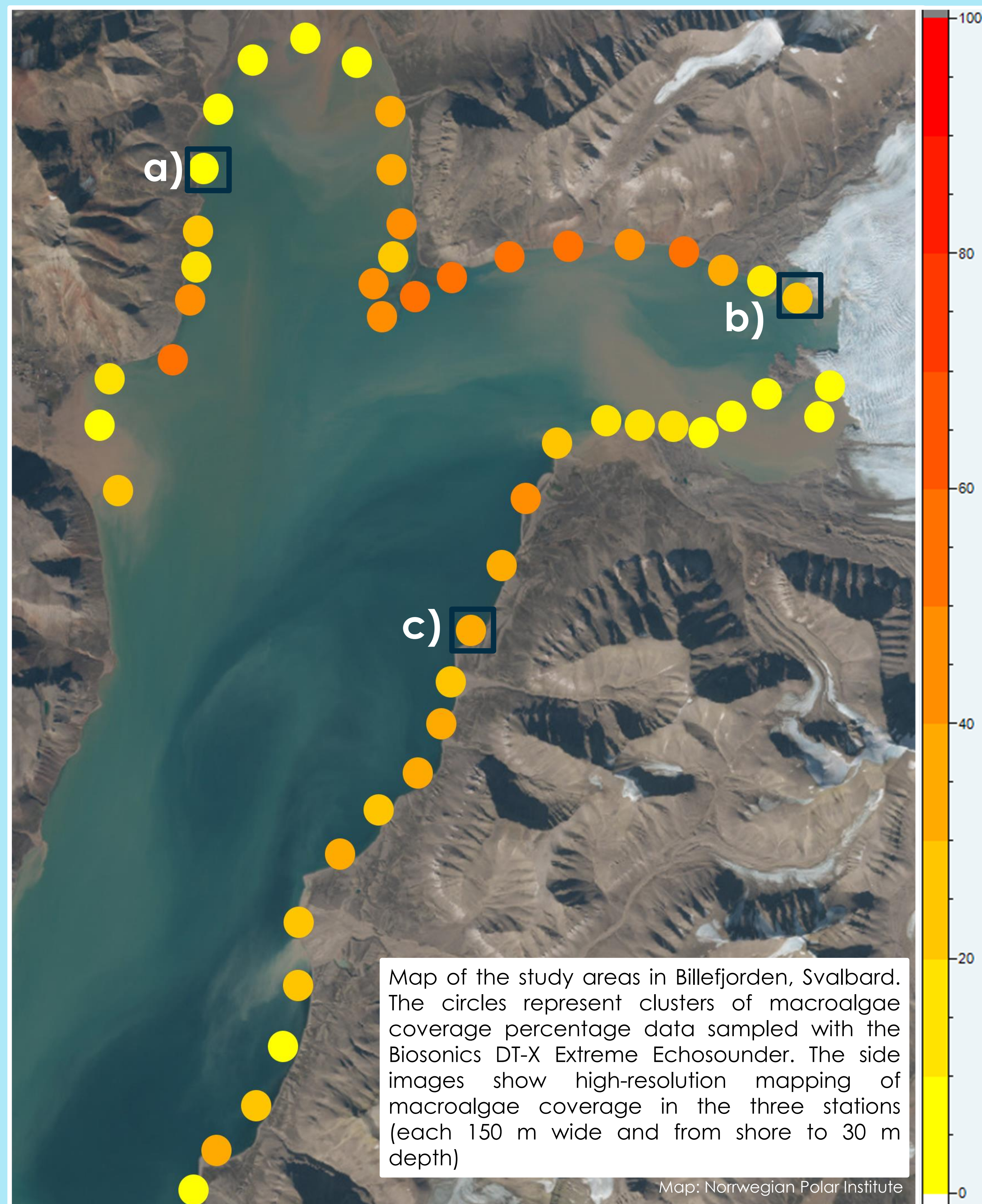
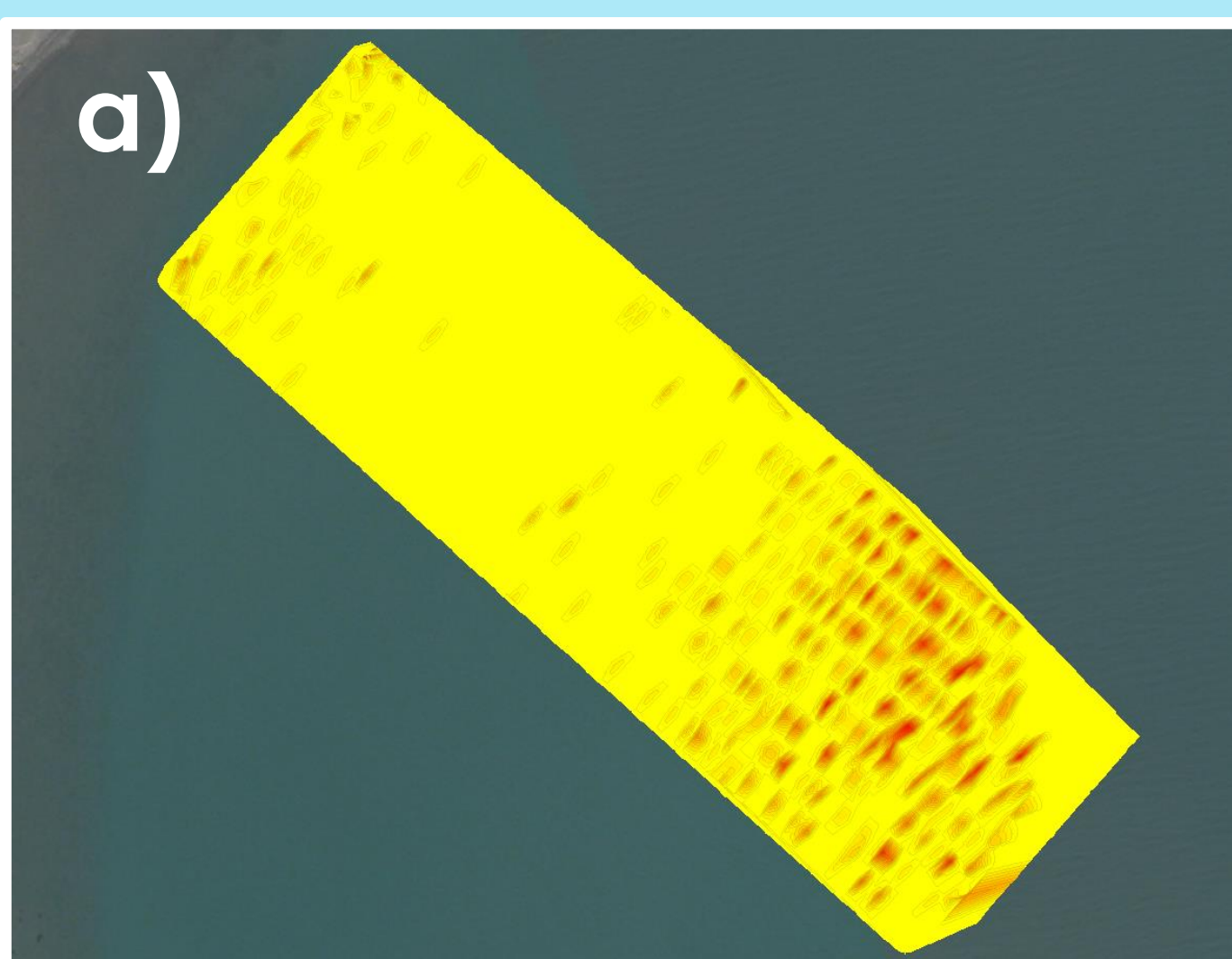
CTD



## How

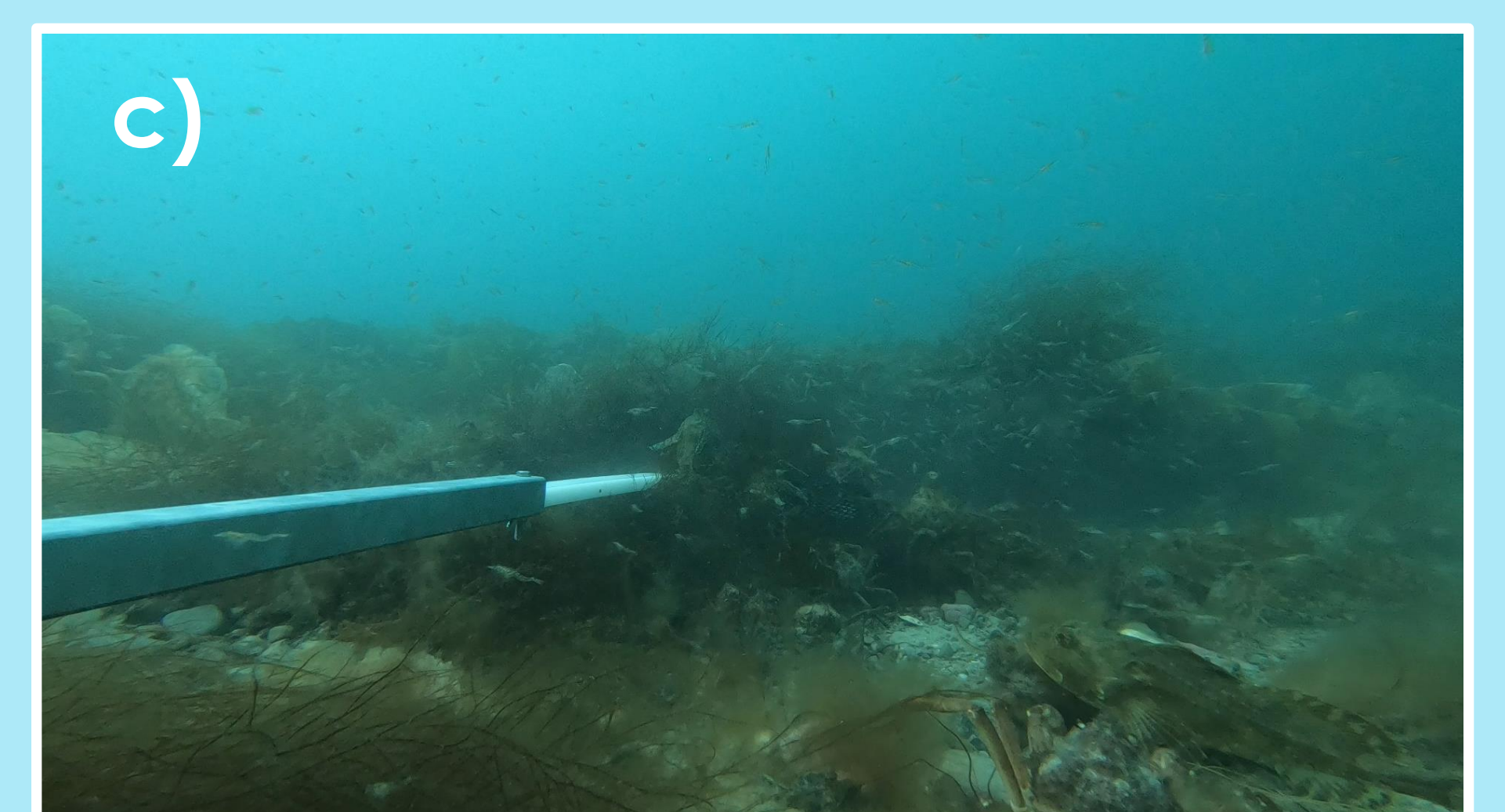
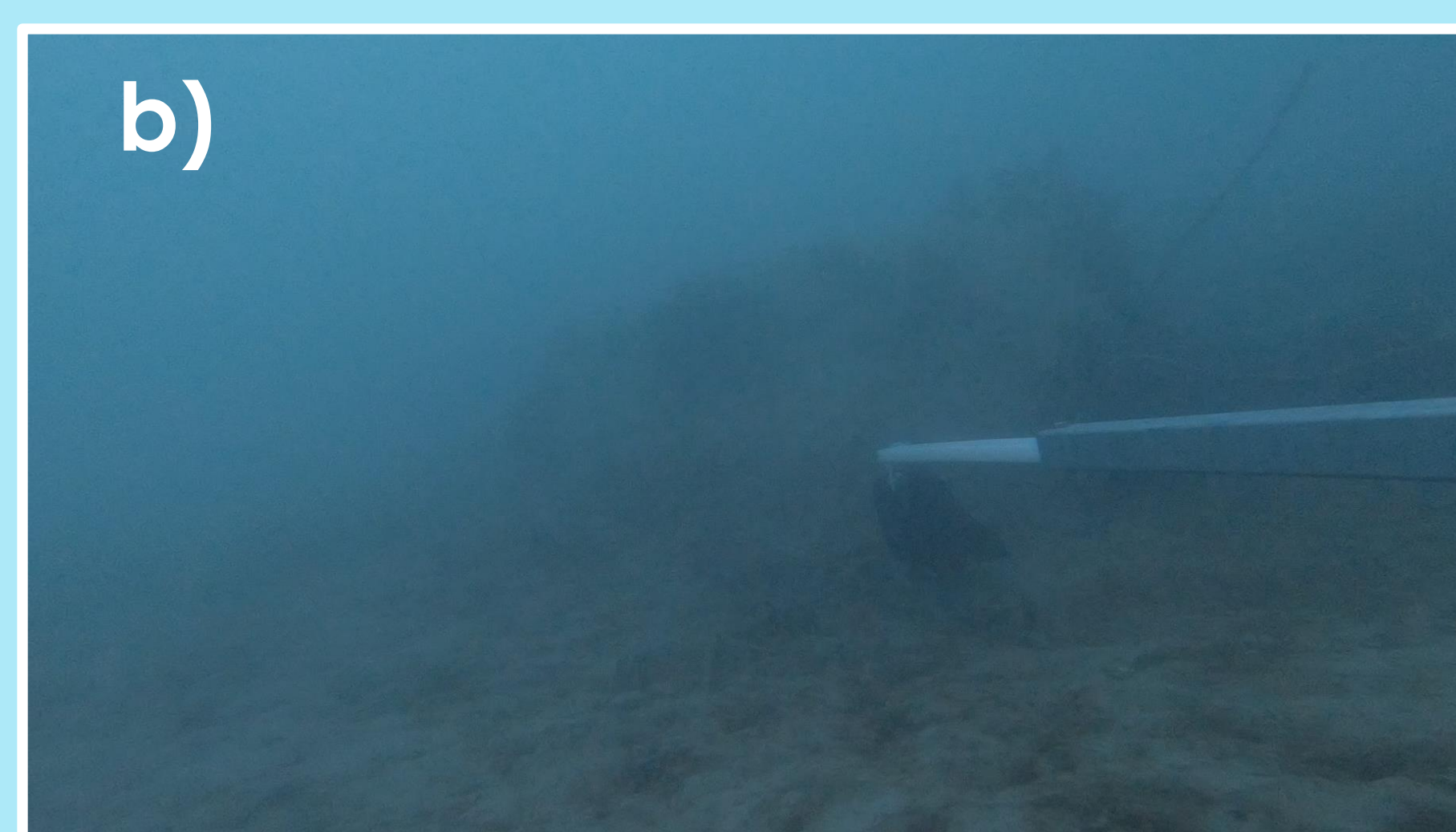
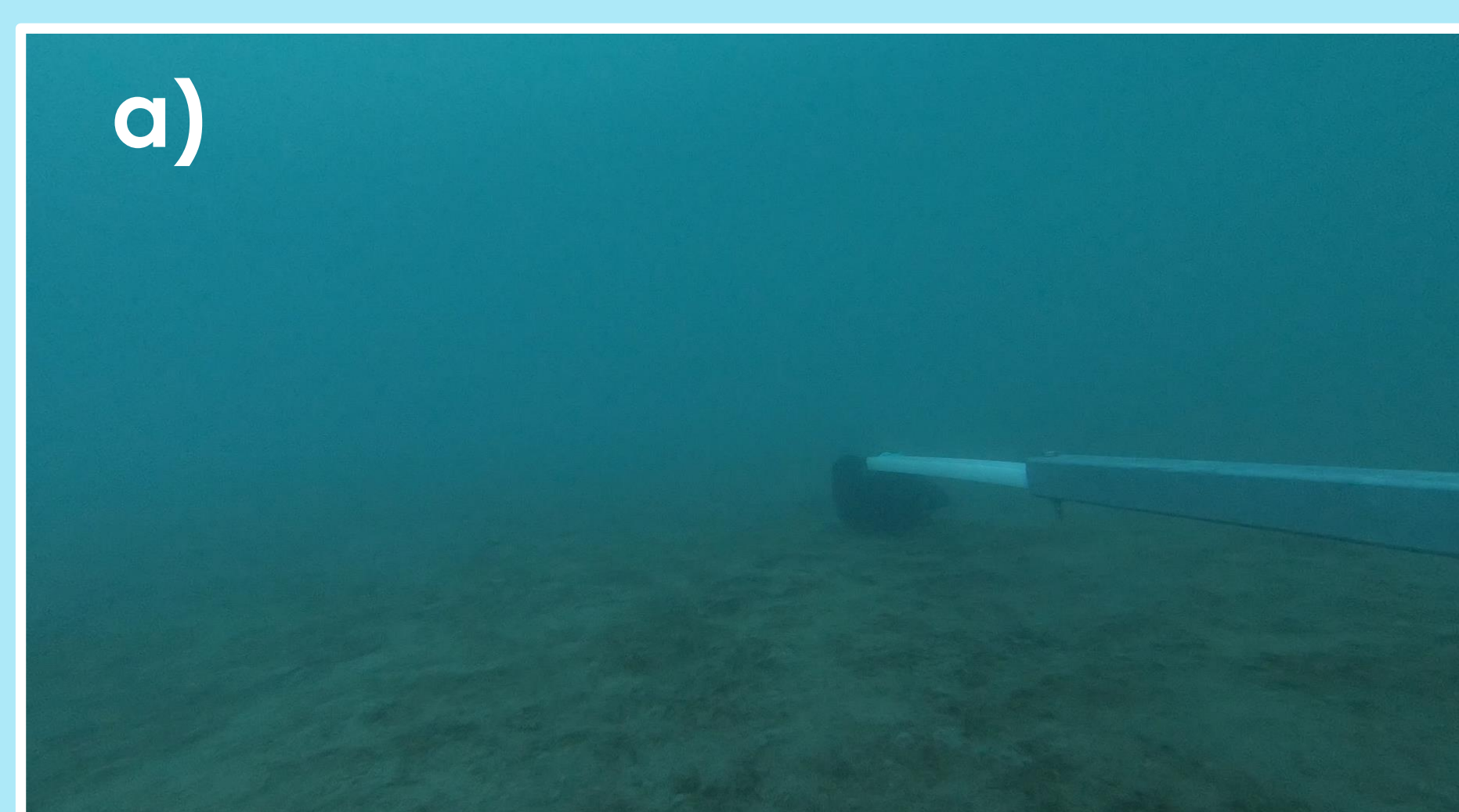
Use of an electric, remotely controlled unmanned surface vehicle (USV) that is programmed to run autonomously. The USV carries a split-beam echosounder and a winch system that deploys a CTD and drop camera. The USV allows to survey inaccessible or dangerous areas, such as shallow waters and glacier fronts.

In addition, we use the baited remote underwater video system (BRUV) to make assessment of macroalgae and feeding fish.



## Impact

The study will allow to further predict how climate changes will affect the Arctic coastal marine ecosystems, and how the links between the cryosphere and other environmental conditions may affect the spatial distribution and ecosystem functions of macroalgae and fish.



Snapshots of footage taken with the baited remote underwater video system (BRUV), deployed at 10 m depth.