Detached effects seaweeds on soft-bottom community structure

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INTRODUCTION

Climate change has increased the frequency and strength of storms in the Arctic. This may trigger high waves and strong swell, causing the detachment of sessile organisms like seaweeds.

The deposition of seaweeds on the shore could modify the structure and composition of sedimentary communities due to the advantages (↑ food, ↑ complex habitat) and disadvantages (↓ oxygen and ↑ physical disturbance) of the presence of the seaweed.

GOAL AND HYPOTHESIS

To determine if detached seaweeds can interfere with the structure of the intertidal sedimentary communities in Svalbard, Arctic Norway.

Presence of detached seaweeds will

- Decrease abundance
- Decrease biomass
- Decrease diversity
- Change the species composition of the sedimentary community.

STUDY SITES

Map of Svalbard, Norway

EXPERIMENTAL DESIGN AND SAMPLING

Field experiment (FACTORIAL) 2 sites

- Thisbukta
- Longyearbyen

Seaweed treatment (Fixed factor) 2 levels

- Control (Unmanipulated area)
- Seaweed (net + seaweeds)

Blocks (random factor) 1...6

Start: May 2017
End: August 2017

RESULTS

- The presence of detached seaweeds increased evenness (17.6%) only in one site (Thisbukta).
- Only in Longyearbyen, the number of individuals (14.3%) and biomass (30%) were negatively affected by detached seaweeds. No effect by manipulation.

CONCLUSION

Detached seaweeds affect the sedimentary community.

The impact of seaweeds on sedimentary communities will be negative or positive depending on the conditions of the site. Possibly the effects of the detached seaweeds on sedimentary communities will have repercussions on food-web.