The background of the slide is a grayscale photograph of an arctic hard-bottom assemblage. It shows a rocky, uneven surface covered with various marine organisms, including what appears to be a large, elongated, light-colored structure, possibly a piece of driftwood or a large organism, and a smaller, dark, horizontal object. The overall texture is rough and complex.

Primary Succession of arctic hard-bottom assemblages

- Insights from a long-term
in situ experiment

Michael D. Streicher

Pacheco (2009)

Introduction

- Why long-term experiments?
- Benefits of ecological studies?



Experimental set-up

- Kongsfjorden,
Svalbard (Norway)



Experimental set-up

- Kongsfjorden, Svalbard (Norway)
- 40 PE growth-panels
- Dominant Taxa:
 - Balanidae, Corallinaceae, Ascidiaceae & Actiniaria
- Time-span: 2002- 2013
 - Maximum exposition 11 years
 - Minimum exposition 6 years



Methods

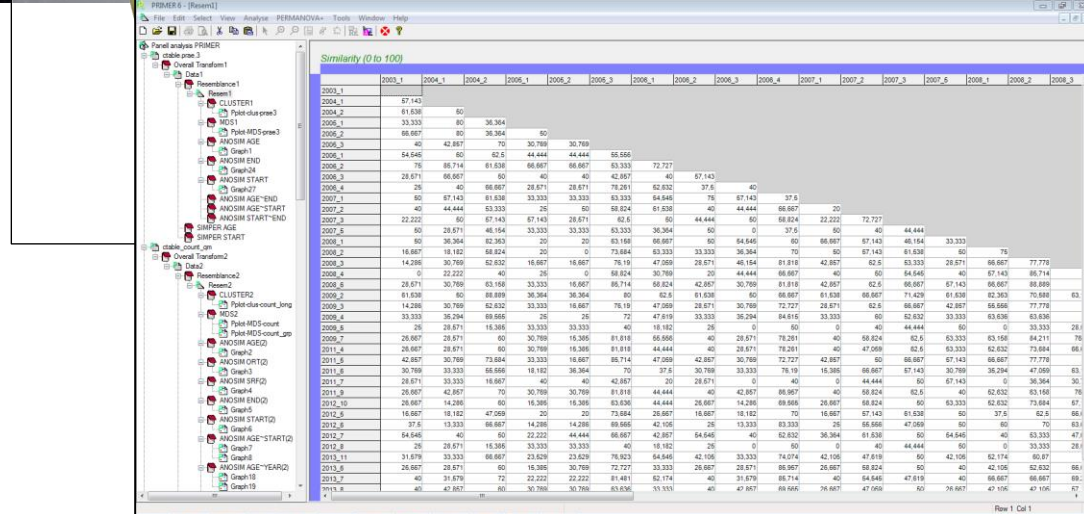
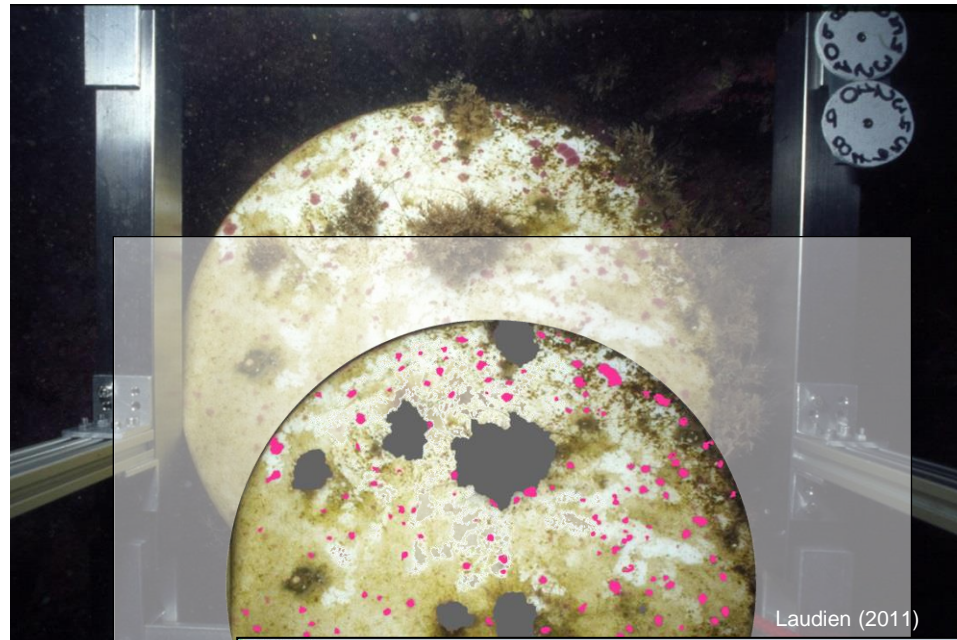
- Photographic documentation



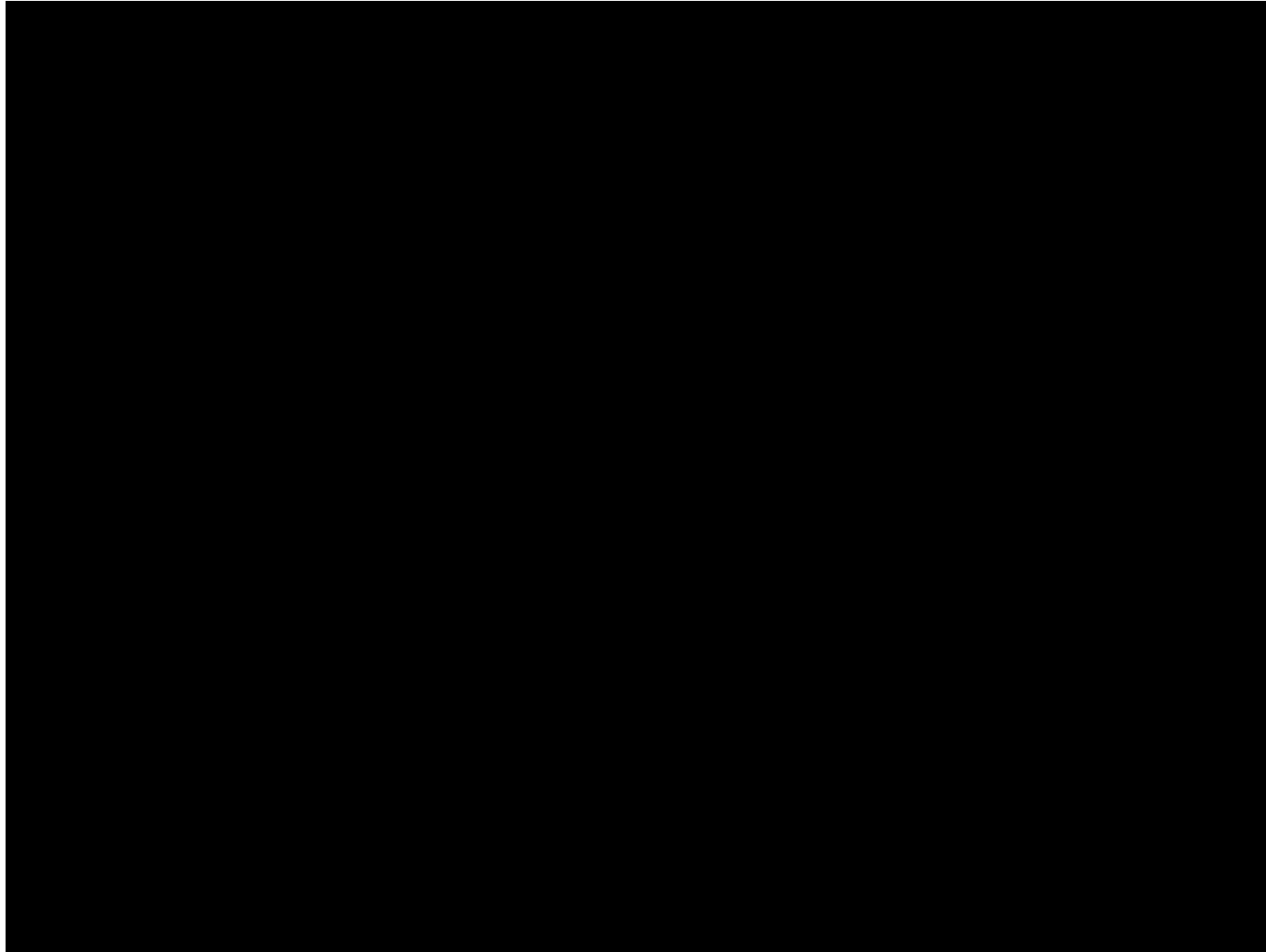
- Image analysis



- Statistical analysis

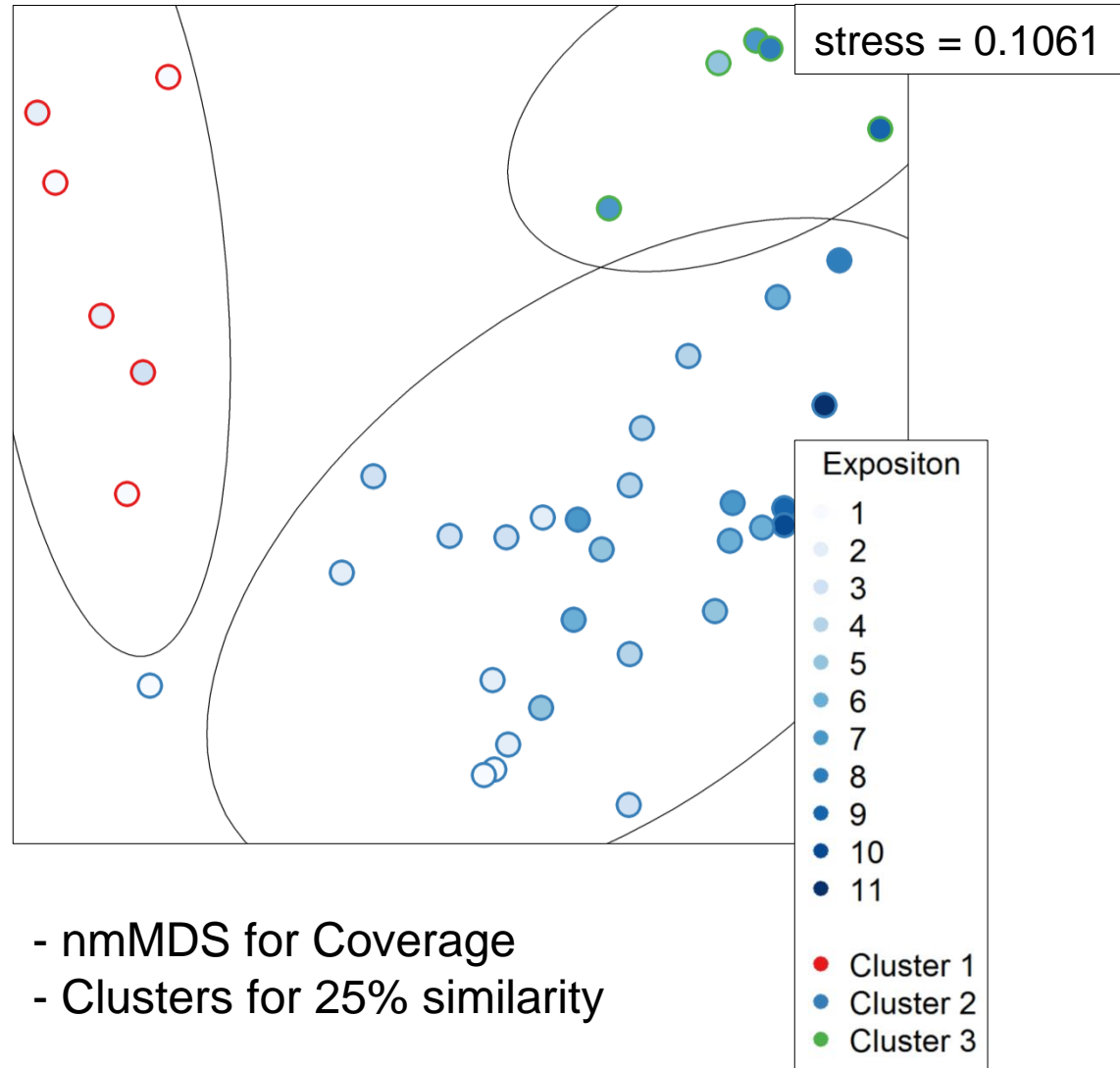


Development of assemblages



Effect of exposition time

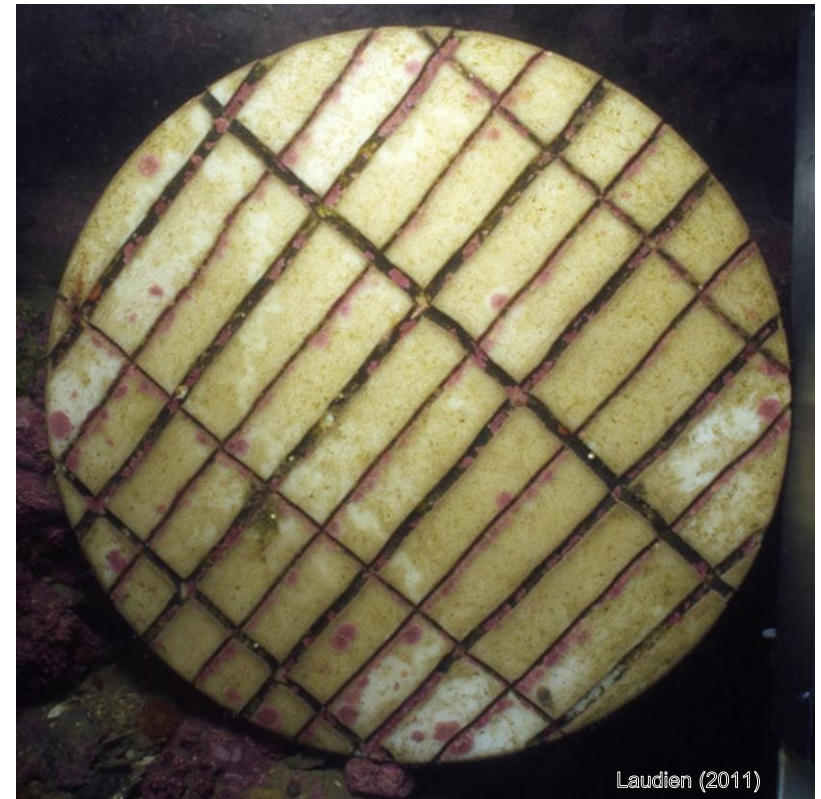
- Statistical analysis further shows influence of:
 - age group &
 - sampling year
- Climax community not yet reached



- nmMDS for Coverage
- Clusters for 25% similarity

Effects of structure-diversity

- no evidence found...
 - ... but possibility of small scale shifts of distribution
- Grooves seem preferred for settlement
- Similar results for marine assemblages in Canada (Bourget 1994)



Laudien (2011)

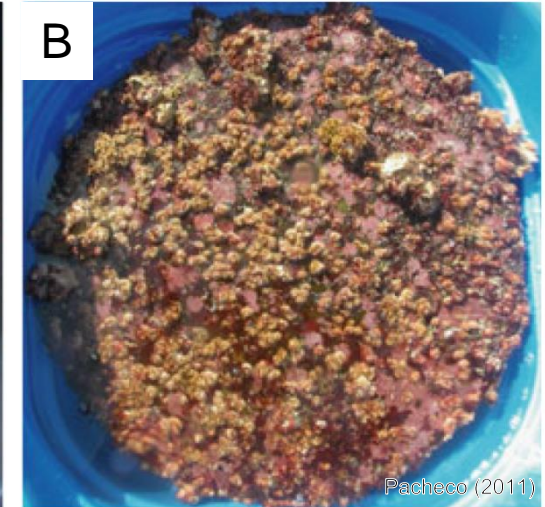
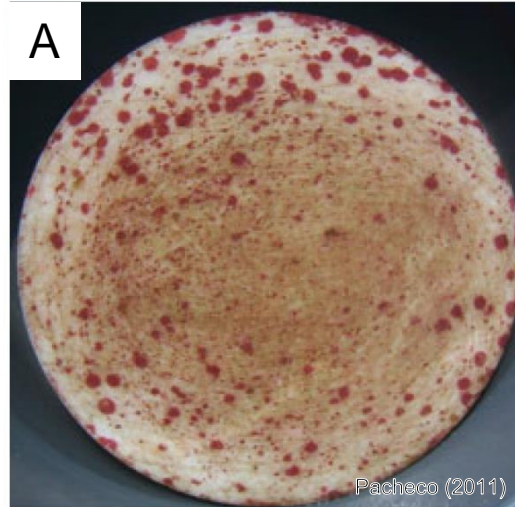
Comparison of climate zones

Chile

→ Temperate

A = 0.5 years

B = 1 year

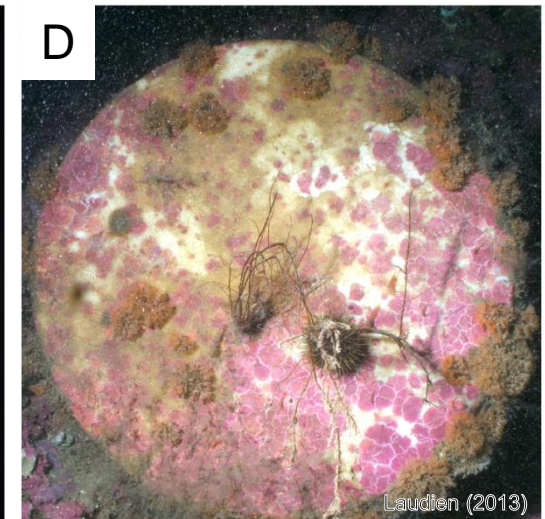
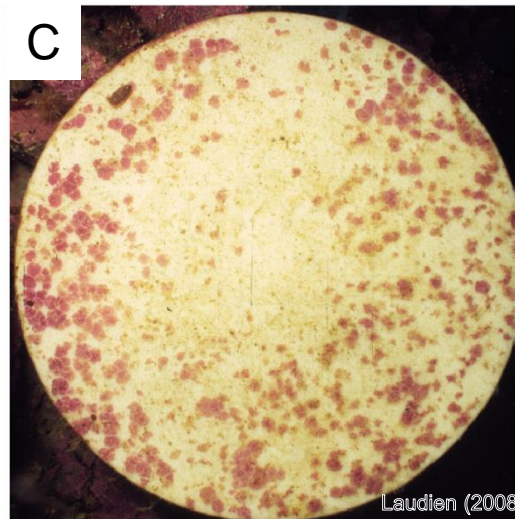


Svalbard

→ Arctic

C = 6 years

D = 7 years



- Exposition time, date of installation and sampling year influence benthic hard-bottom assemblages in the arctic
- Resilience time exceeds a decade
- Substrate Diversity does not seem to influence assemblage structure
- Succession is much slower in comparison to temperate zones

Thank you for your attention!

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