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Océanologie
biologique 

Université
de Liège



Msc Thesis

Assessing edge-effects in *Posidonia oceanica* seagrass meadows: A multidisciplinary approach



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ZOOLOGY
2016



POSIDONIA OCEANICA MEADOWS

Endemic *Posidonia oceanica* (Magnoliophyta, kingdom Archaeplastida) dominant seagrass in the Mediterranean.

Most prominent aspect, its ecological role:

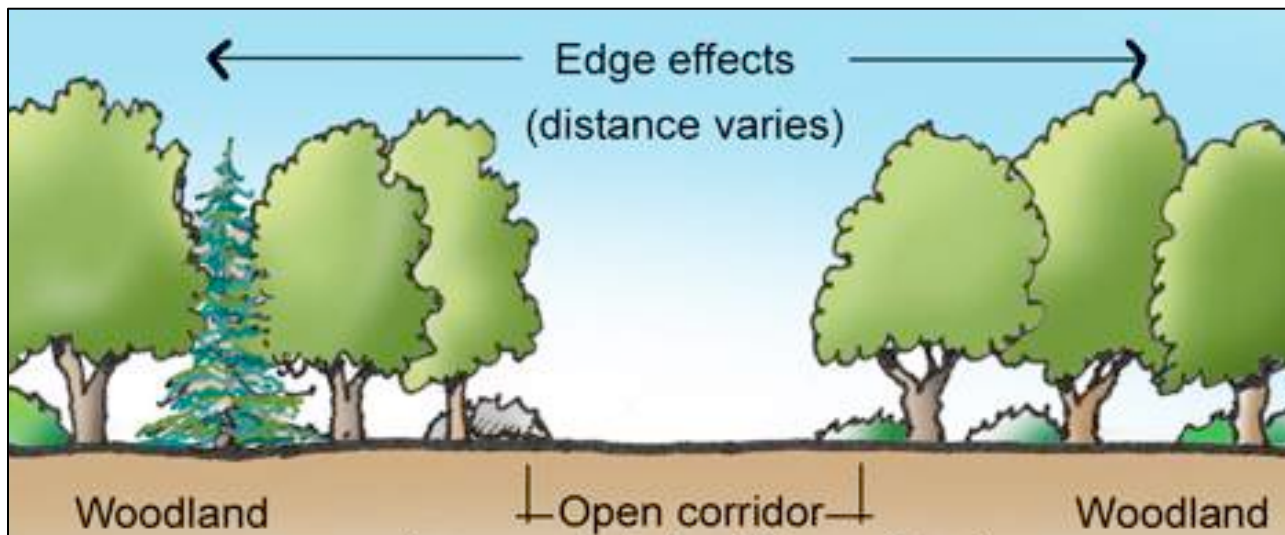
- **Autogenic ecosystem engineer species**
- Nursery areas
- Source of food for many organisms
- Stabilization of seabed → sediment trapping



WHAT ABOUT EDGES ?

Structural boundaries play an important ecological role:

- **“edge”** is the boundary or interface between two biological communities or different landscape elements.
(1m)
- **“effect”** refer to the changes in population or community structure that occurs at these boundaries.





**SAND
CORRIDOR**

From LAND...

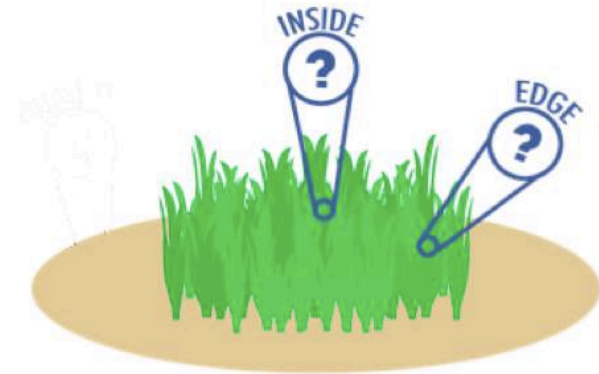
...to SEA

HYPOTHESIS

first approach*



Do the edges in *P. oceanica* differ ecologically from continuous meadow?



Specific Objectives

1. Determine whether there are differences/patterns between the EDGE and the CONTINUOUS meadow in measurements carried out.
2. Investigate if anthropogenic pressures (anchoring) could cause disturbances in the measured parameters.

STUDY AREA

ANCHORING OVER THE MEADOW

Site 1 (STARESO)

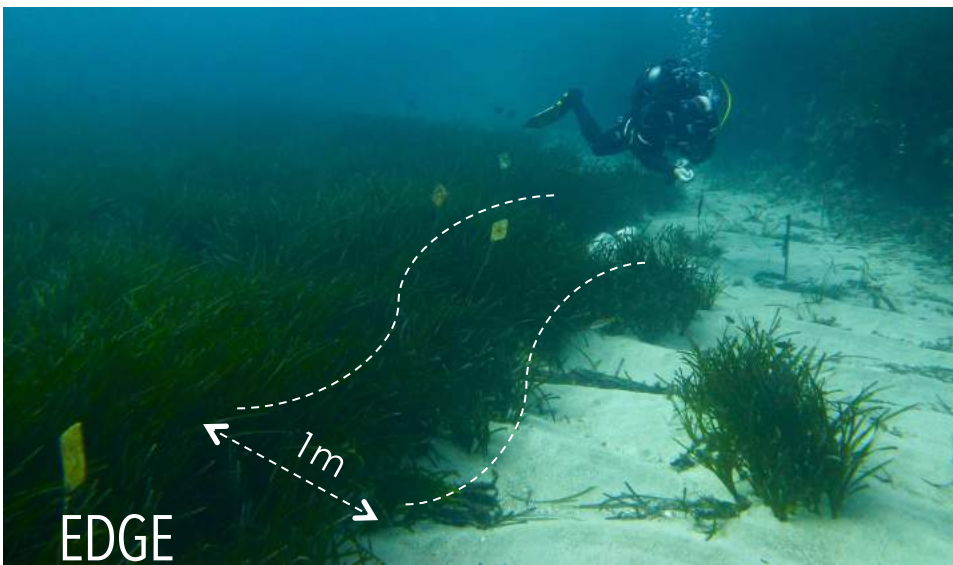
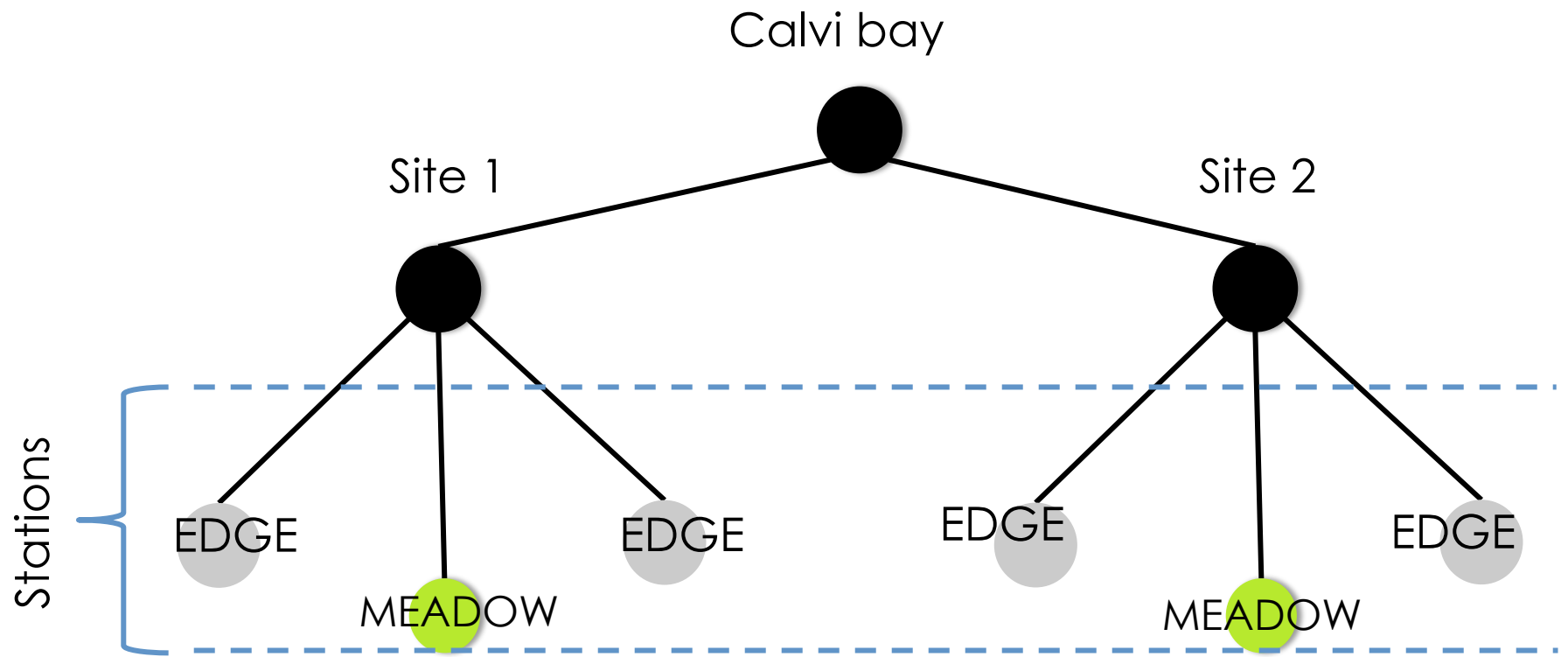
Site 2 (L'ALGA)



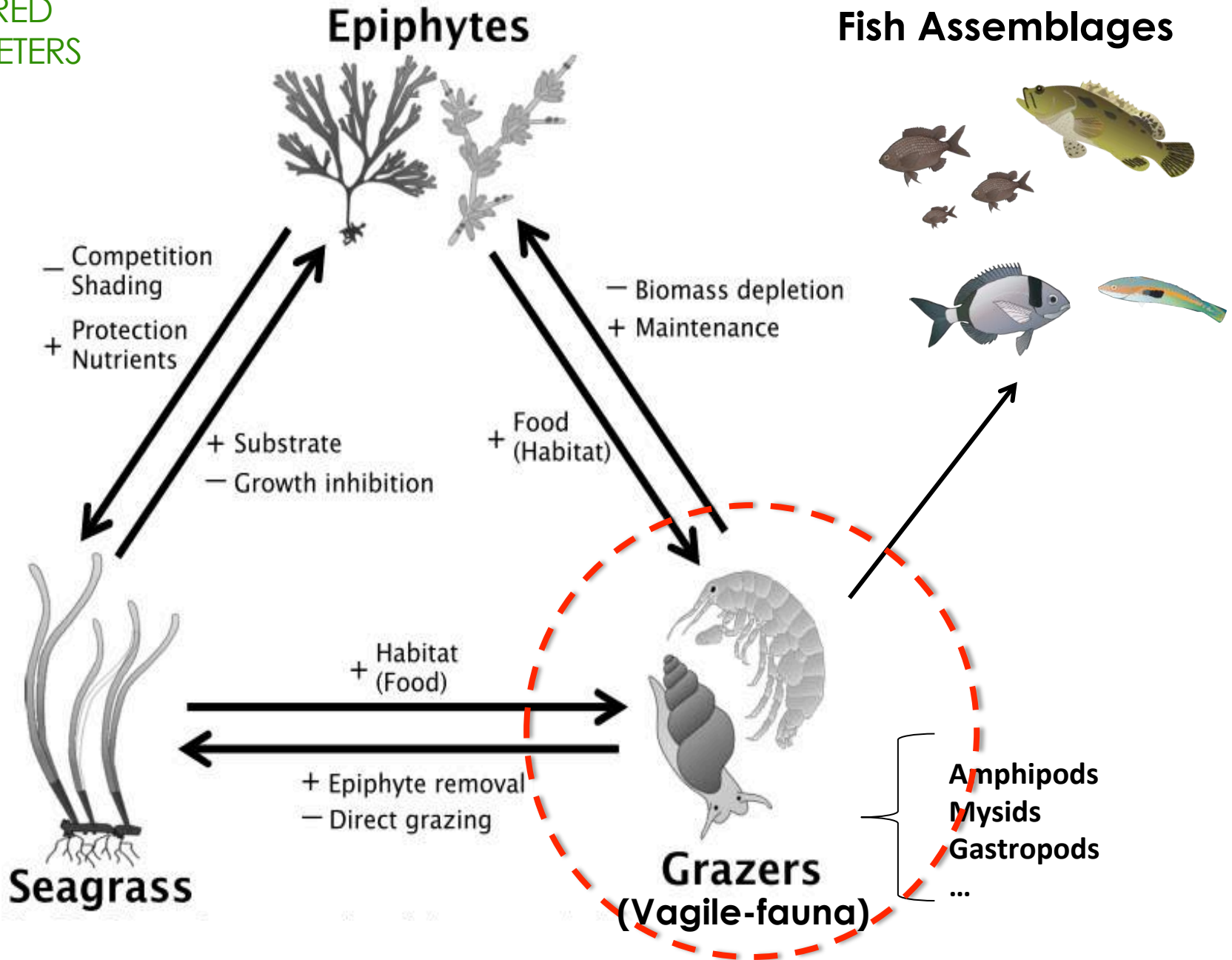
POINTE DE LA REVELLATA



HABITAT
FRAGMENTATION!



MEASURED
PARAMETERS



FIELD-WORK



RESULTS: VAGIL-FAUNA COMMUNITY COMPOSITION

55 % AMPHIPODS
1546

OUT OF **2653** ORGANISMS



30 % MYSIDS
830



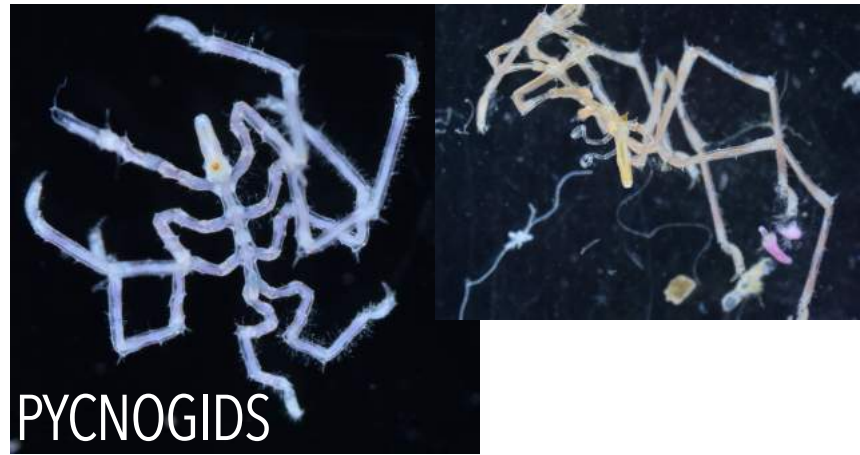
<8 % DECAPODS
192



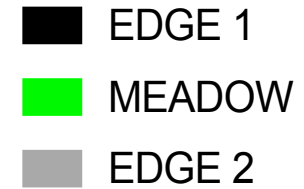
MYSIDACEANS



<4 % OTHERS
85

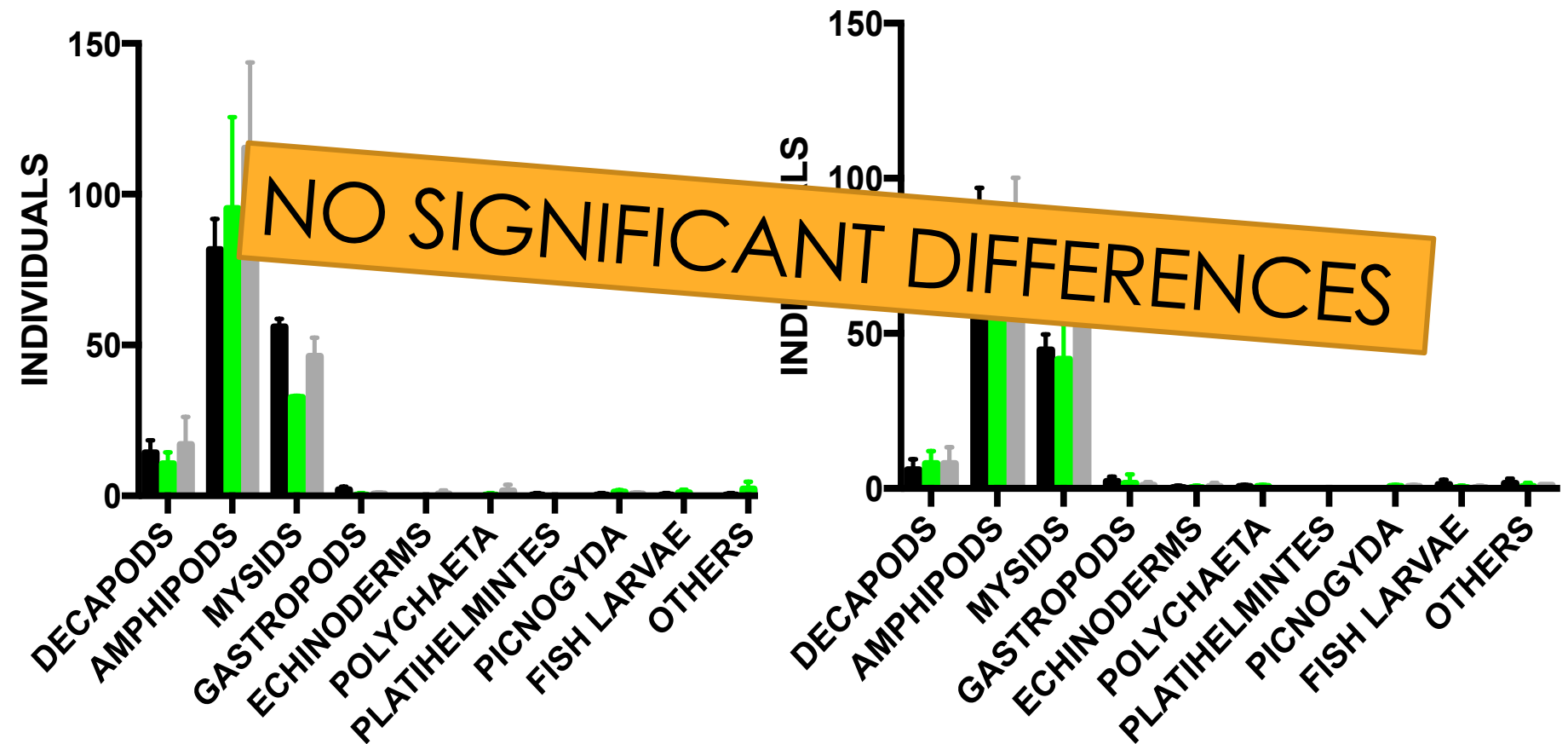


HOW IS COMMUNITY DISTRIBUTED?

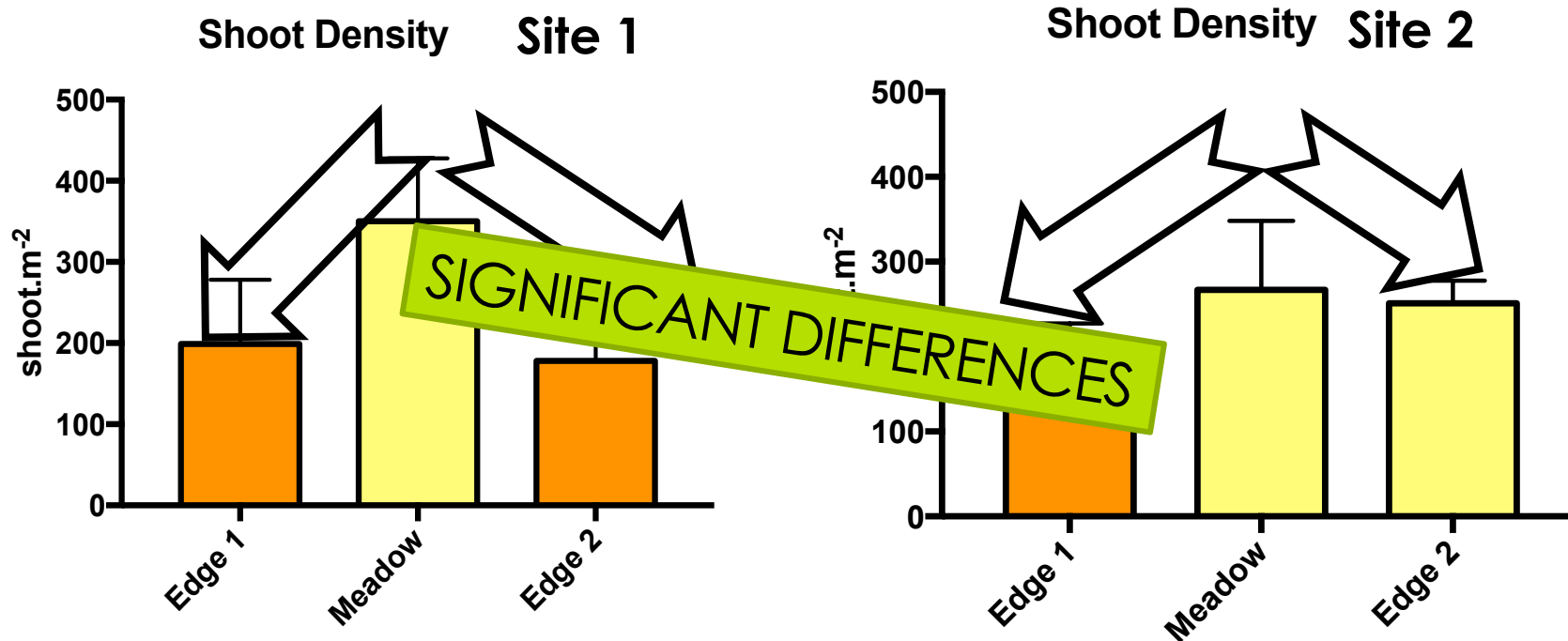


Community Site 1

Community Site 2



SEAGRASS STRUCTURE

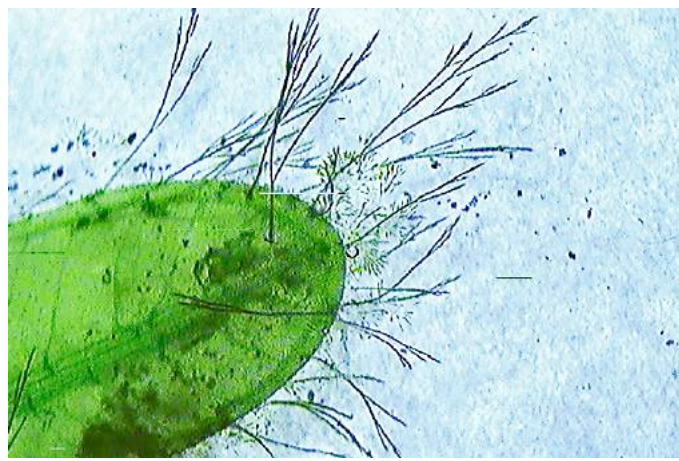
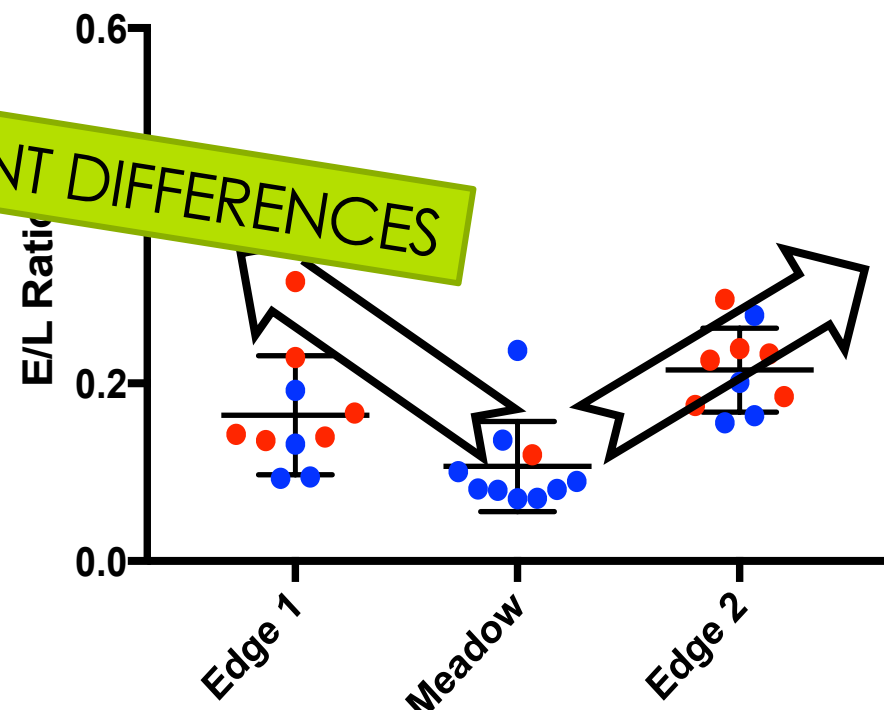
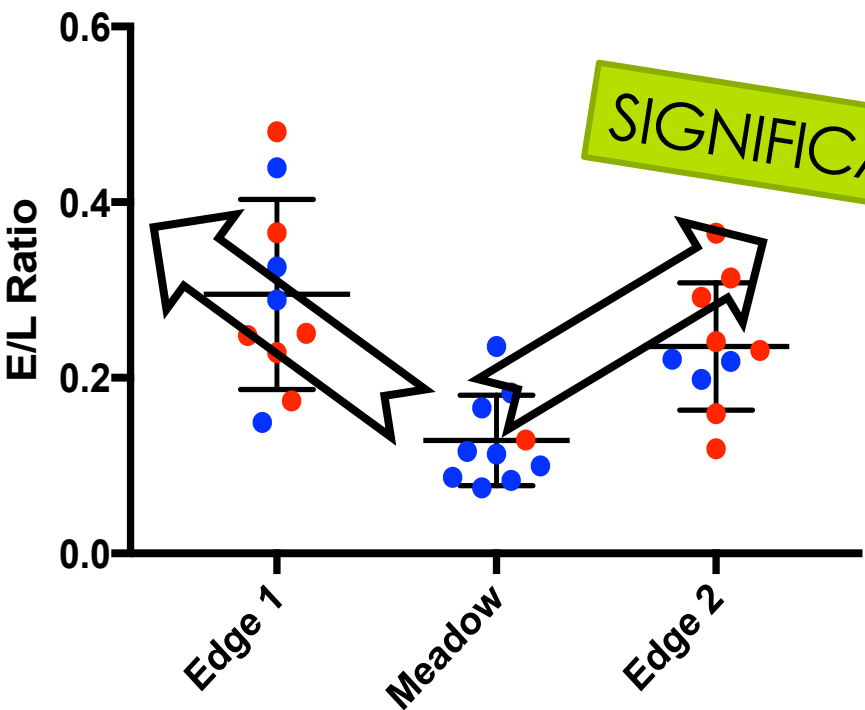


EPIPHYTES ABUNDANCE

Epiphyte/leaf RATIO Site 1

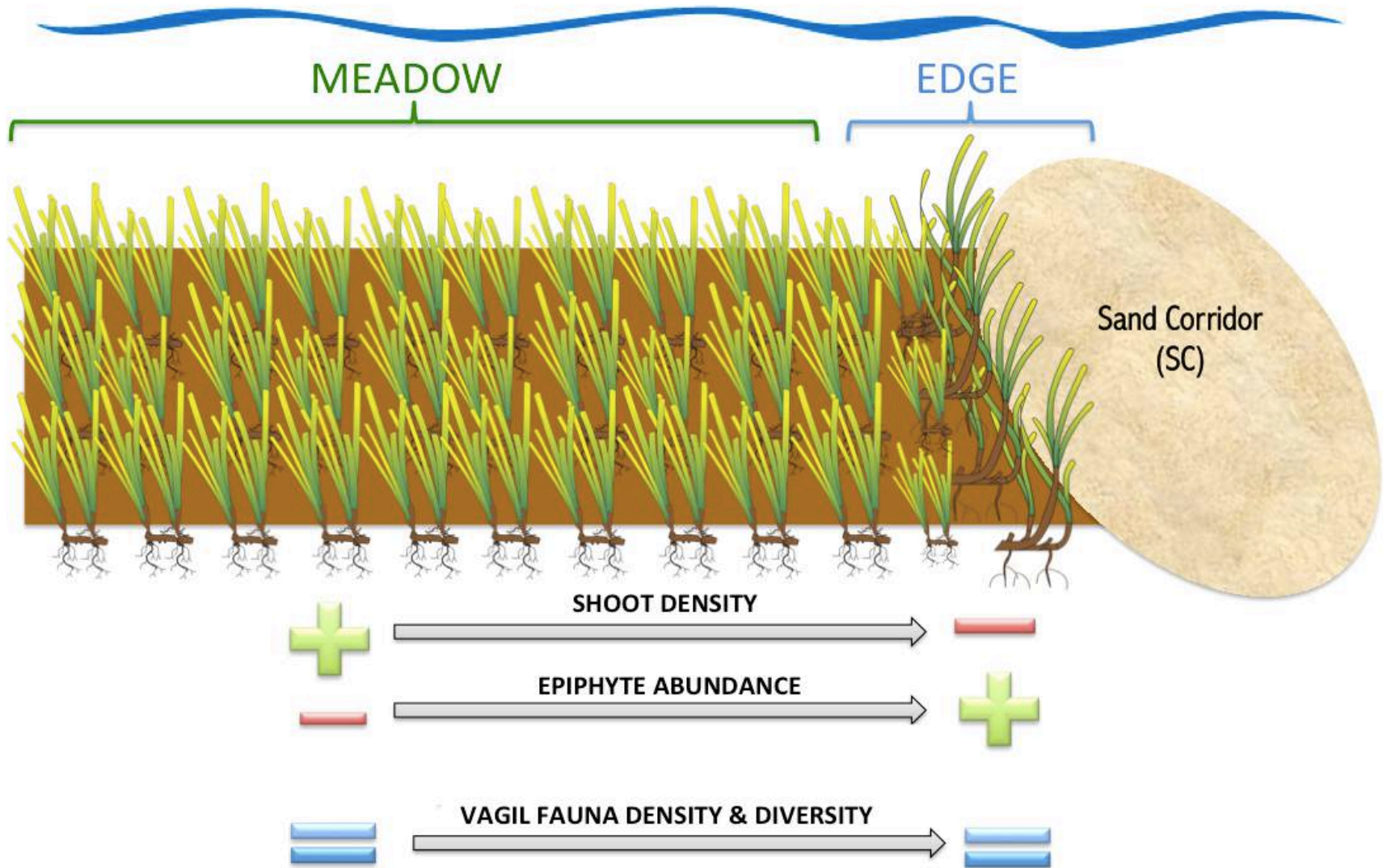
Epiphyte/leaf RATIO Site 2

SIGNIFICANT DIFFERENCES



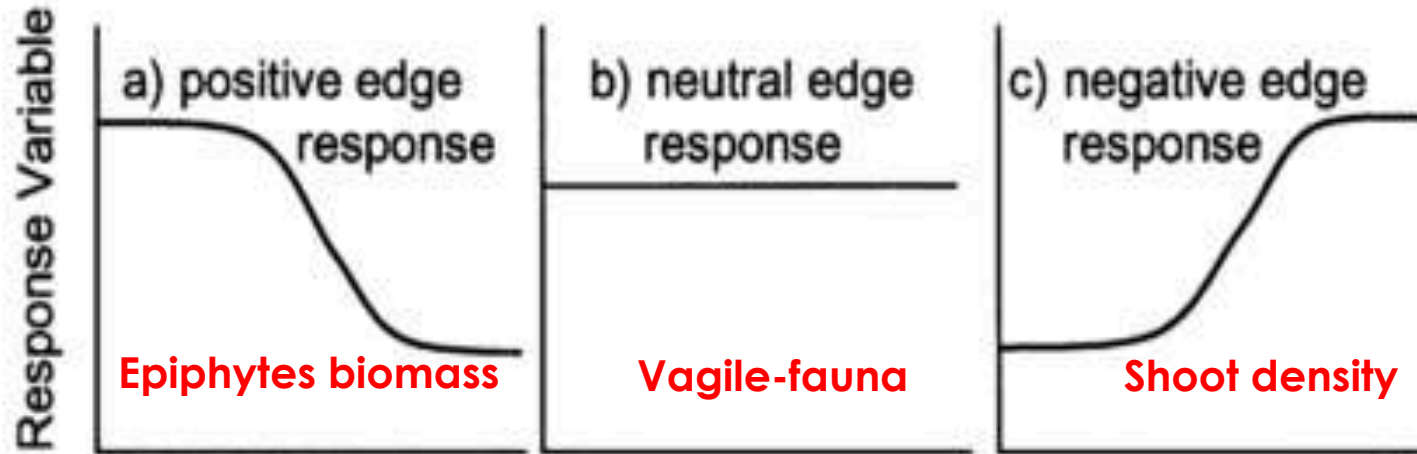
MAIN OUTCOMES

DISCUSSION

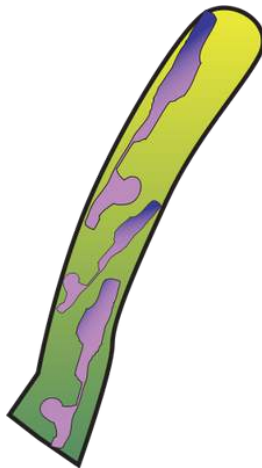


**Changes in seagrass structure and epiphyte biomass.
However, no changes in vagile-invertebrates community structure.**

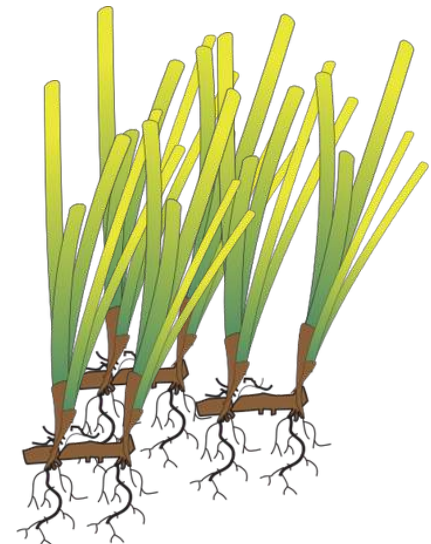
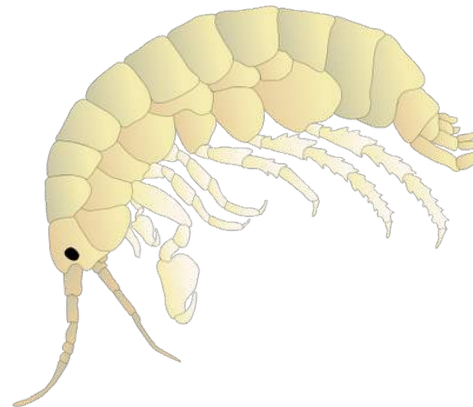
ECOLOGICAL RESPONSE TO HABITAT EDGES



Ries et al. (2004)



Distance to edge



CONCLUSIONS

- ✓ **Edges differ from continuous meadow**
- ✓ Epiphytes increase?
 - ✓ **Exposed areas**, light penetration due to low shoot density
- ✓ Deeper vagile-fauna taxonomic studies needed.
- ✓ No differences between sites were detected.
 - ✓ The ecological distinctions of natural and anthropogenic fragmented meadow is far from being well understood.

감사합니다 Natick
Grazie Danke Ευχαριστίες Dalu
Thank You Köszönöm
Спасибо Dank Gracías
谢谢 Merci Seé
ありがとう
ESKERRIK ASKO

Obrigado

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Océanologie 
biologique



ALL MEASURED PARAMETERS

