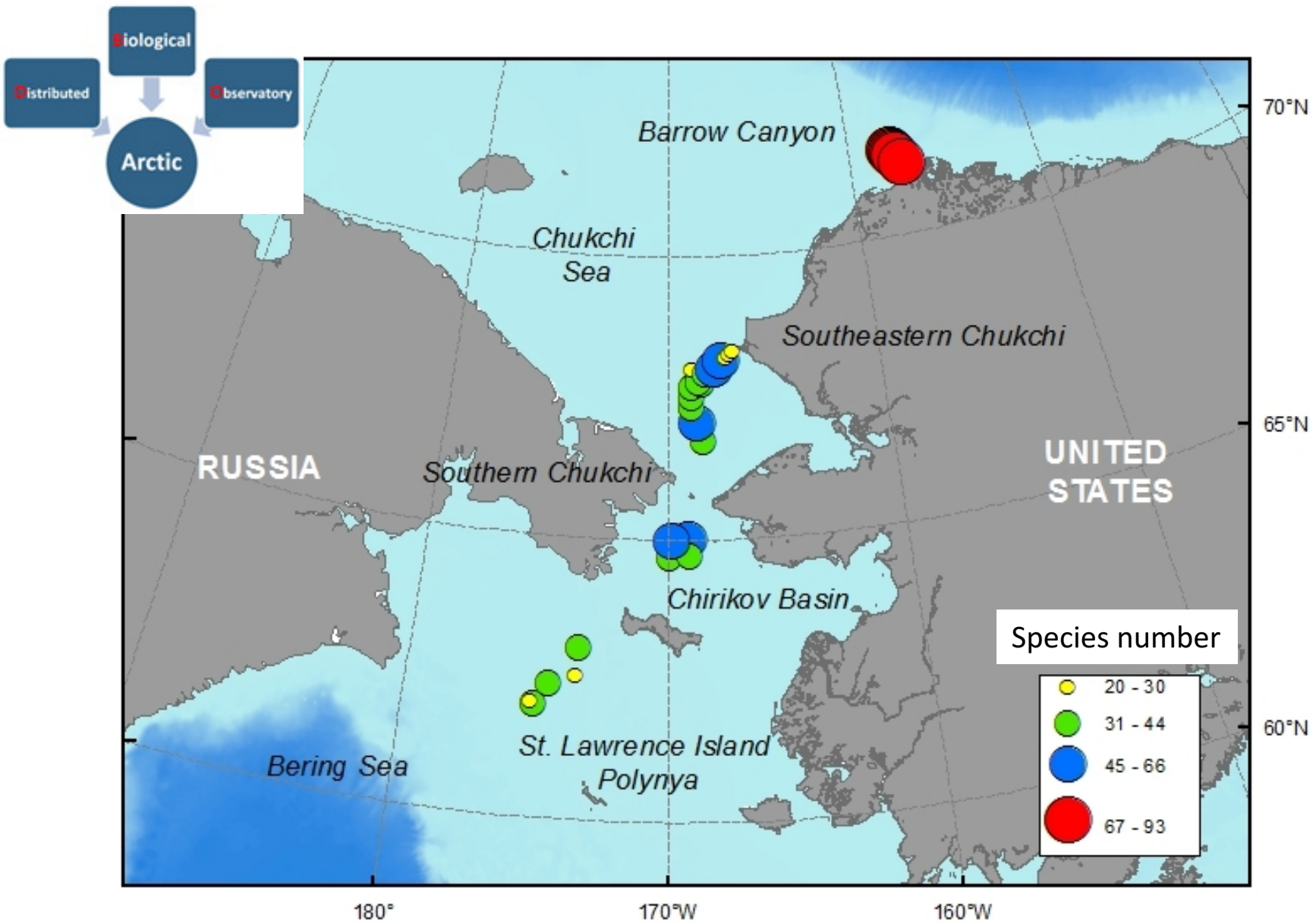


# Biodiversity, community structure and functioning of benthic macrofauna on DBO lines

**Monika Kędra, Jacqueline Grebmeier, Lee Cooper**

## Outline (goals):

- examine the biodiversity, structure and functioning of benthic macroinfaunal organisms in the diversity and biomass “hot spot” areas of the Bering and Chukchi Seas
- how benthic diversity, community structure, function (in relation to densities, biomass, productivity and environmental factors) vary across latitudinal gradient
- evaluate their vulnerability to increasing temperatures and sea ice reduction, as well as to predict potential changes to marine food webs

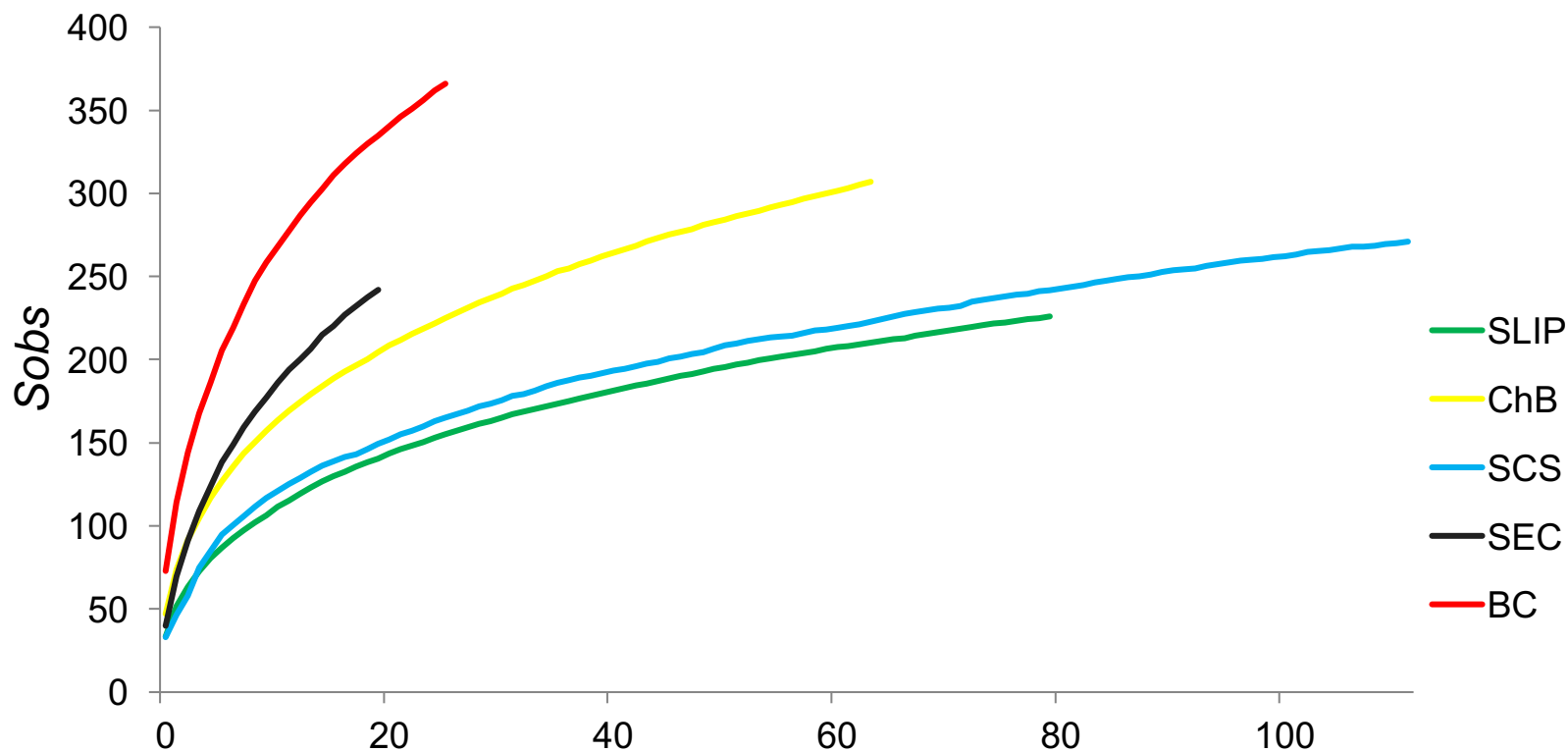


### Material:

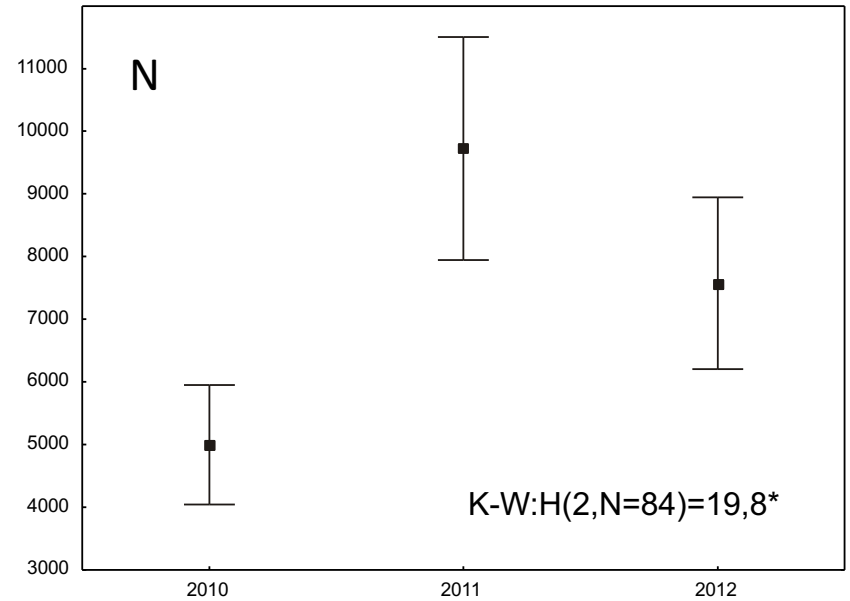
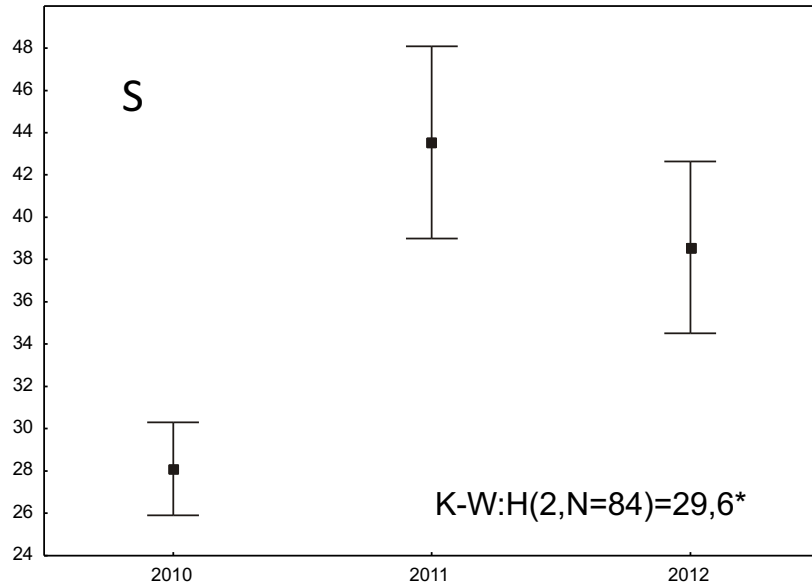
- SWL cruises 2010, 2011, 2012
- Lines DBO1 (SLIP), DBO2 (UTBS), DBO3 (UTN, SEC) and DBO5 (BC)

## Results:

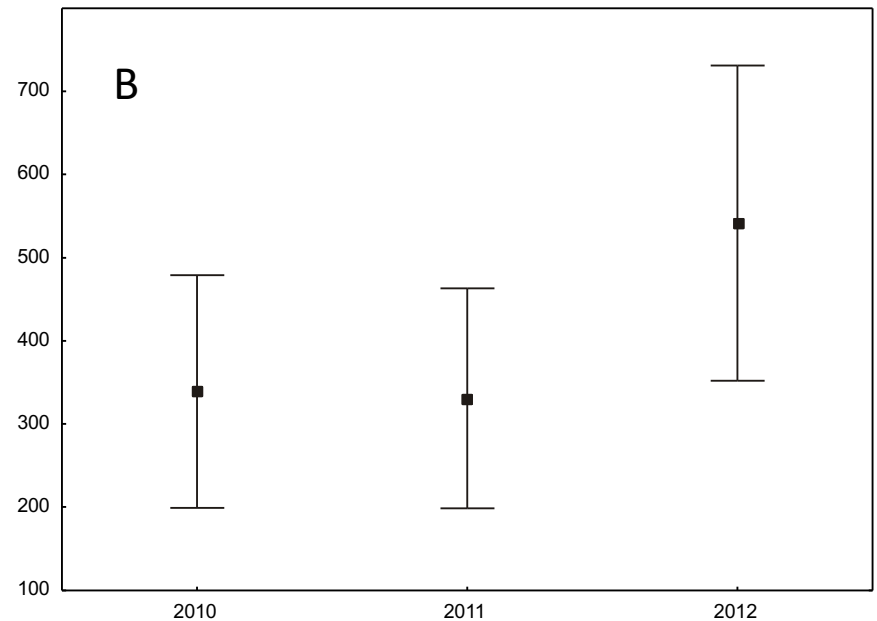
- biodiversity (species richness, biodiversity indices (e.g. ES[50]; species accumulation curves inc. Chao2)



## DBO site #3: Southern Chukchi Sea

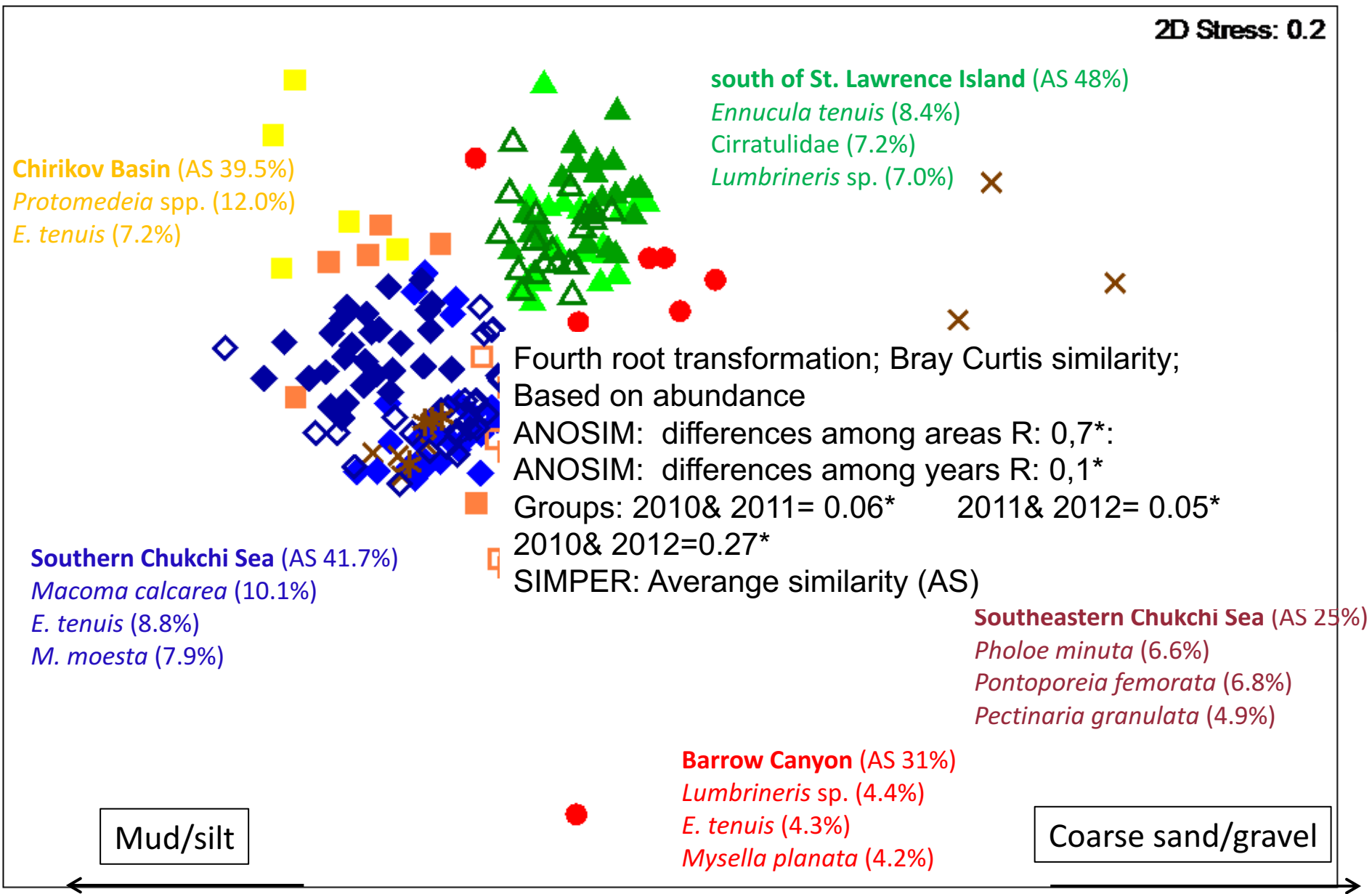


- Biodiveristy in relation to density, biomass and productivity



# Results:

- Community structure



## **Results:**

- Functioning - percentage of different feeding guilds and motility for infauna in each area
- Biodiversity vs environmental factors

## **Discussion:**

- Potential threats to biodiversity related to sea ice retreat
- Consequences of species shifts for ecosystem functioning

# SLIP: south of St. Lawrence Island

## SPECIES RICHNESS

- 14 - 30
- 31 - 45
- 45 - 70
- 71 - 100



Bering Sea

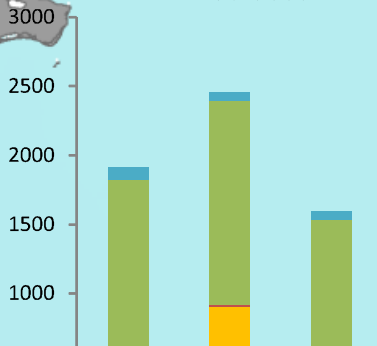
St. Lawrence Island  
Polynya

- Others
- Polychaeta
- Mollusca
- Echinodermata
- Crustacea

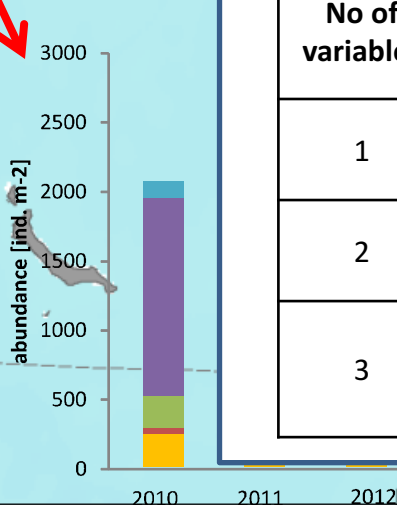
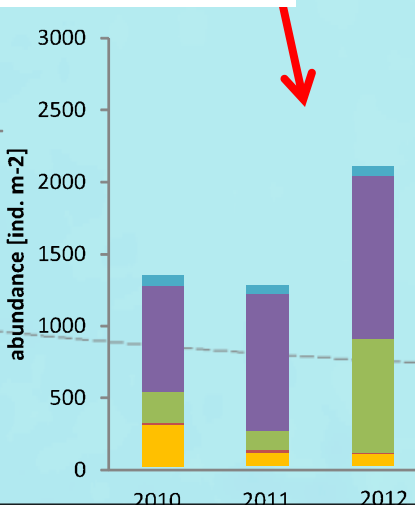
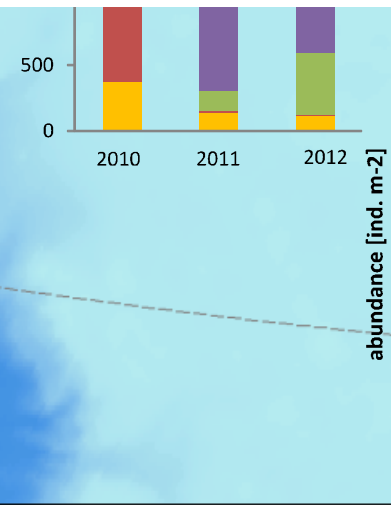
abundance [ind. m<sup>-2</sup>]



abundance [ind. m<sup>-2</sup>]



Spearman's correlations:  
 Species richness & bottom oxygen: 0.33\*  
 Species richness & coarse sand: - 0.4\*



## BIO-ENV results:

| No of variables | Best variable combination                         |
|-----------------|---|
| 1               | Fine sand (0.5)                                   |
| 2               | Fine and very fine sand (0.505)                   |
| 3               | Very coarse sand, fine and very fine sand (0.505) |

170°W

60°N