

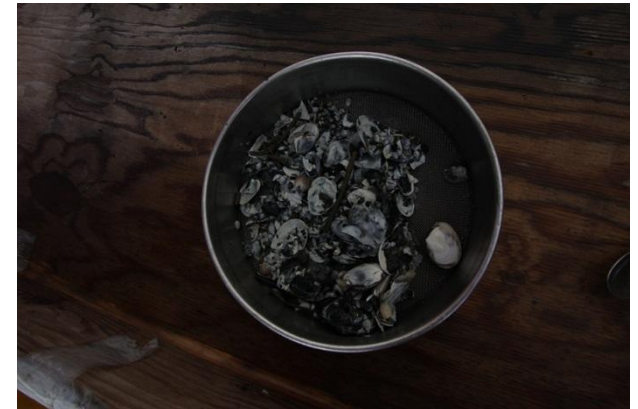
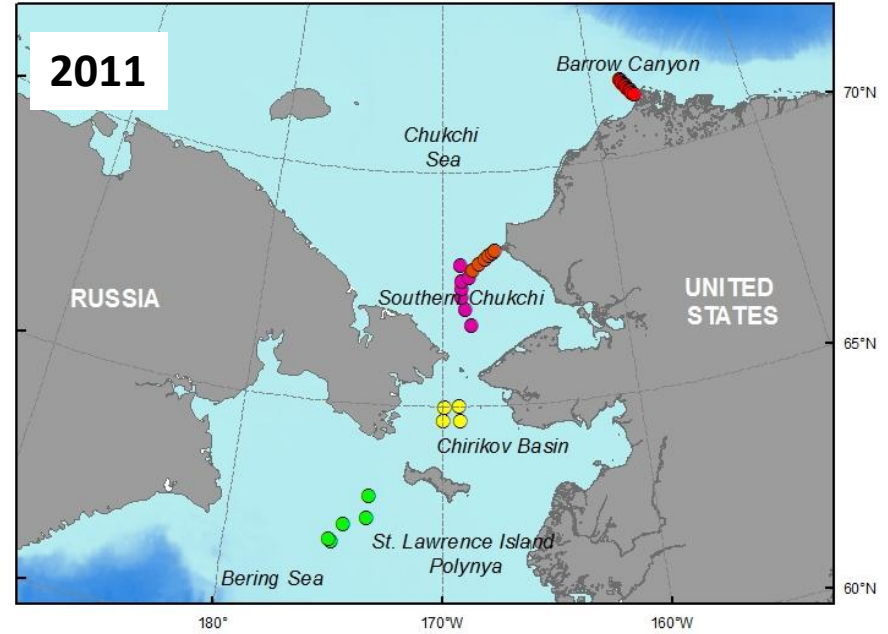
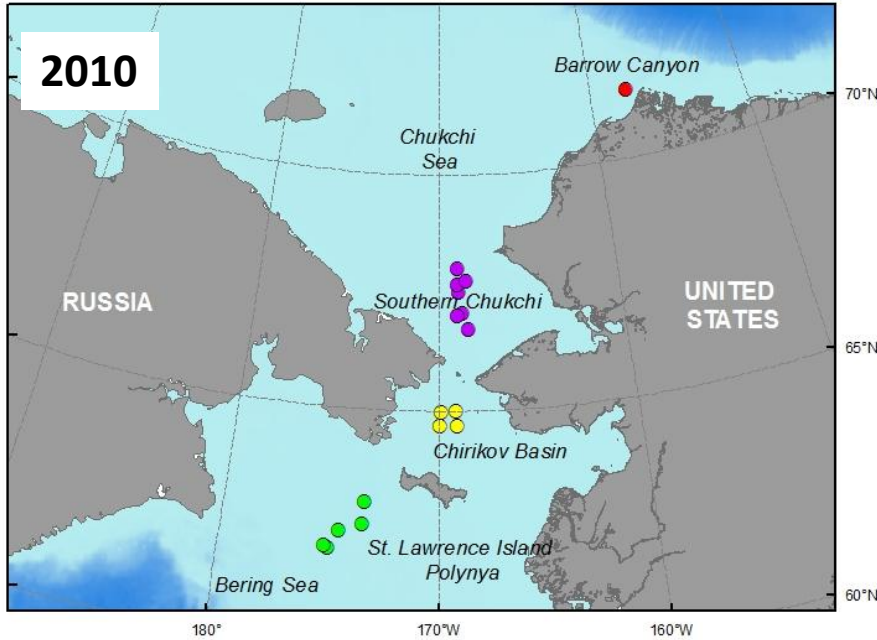
Benthic species diversity and dynamics along the DBO sites.

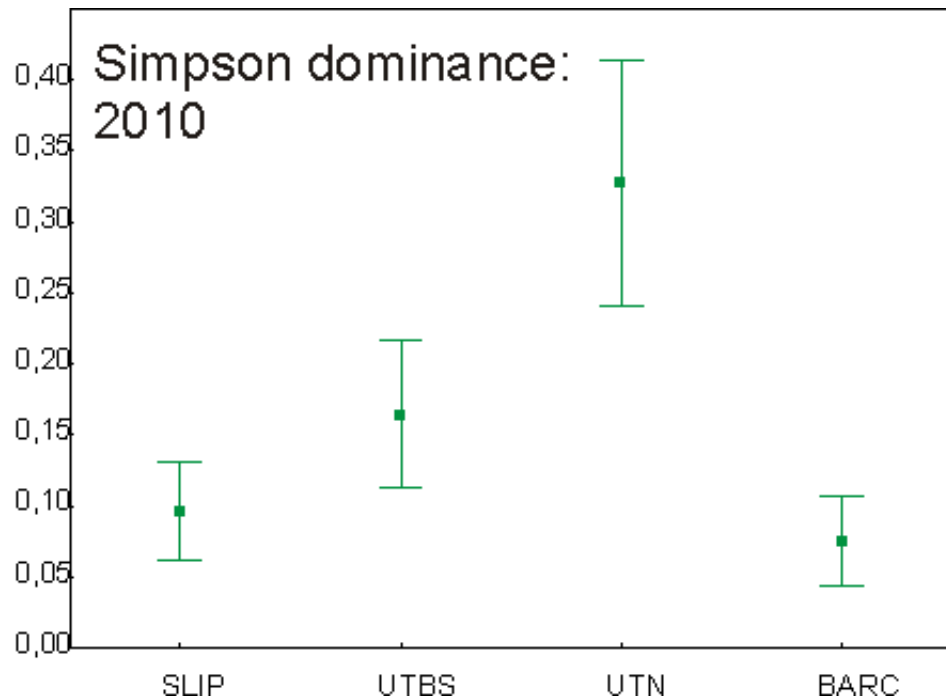
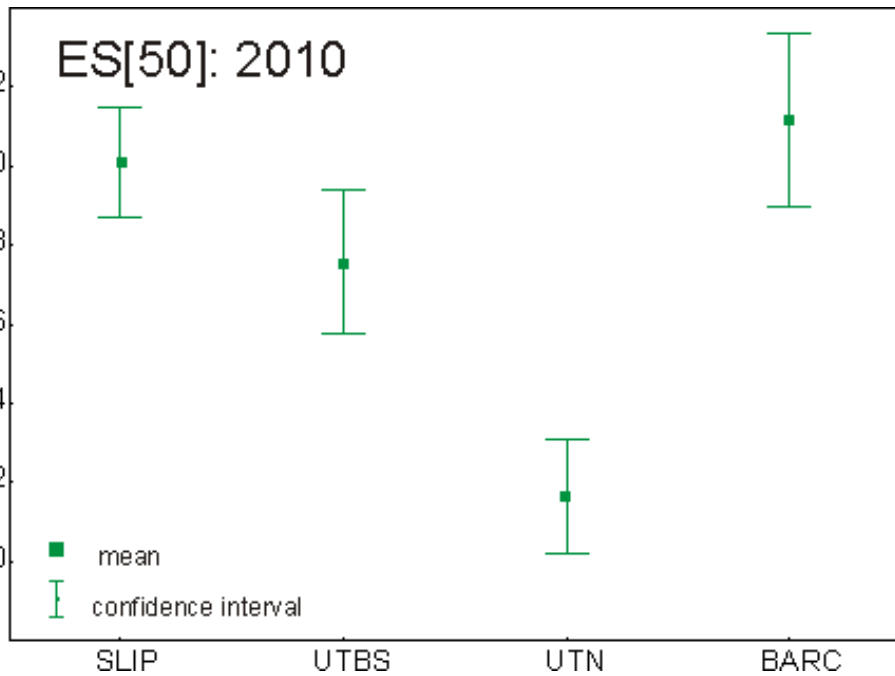
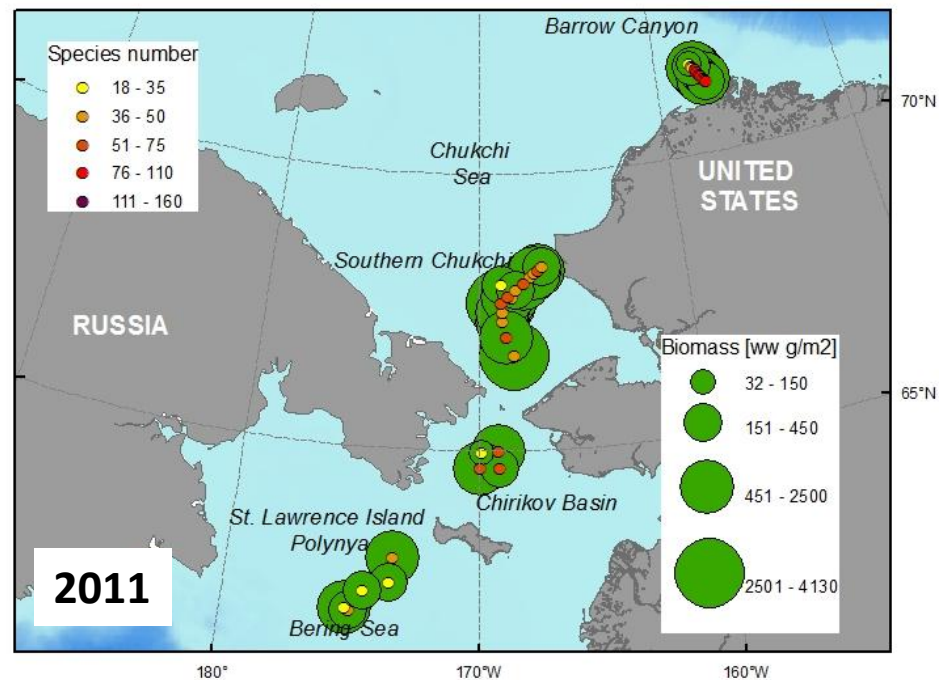
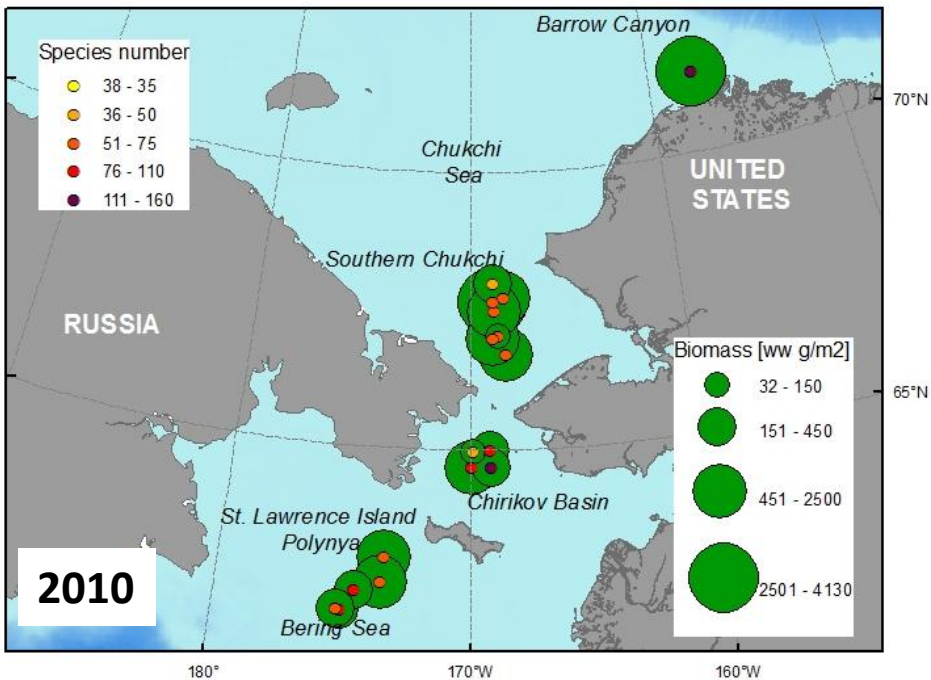
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Sampling area and methods





Fourth root transformation; Bray Curtis similarity
ANOSIM: differences between areas R: 0,739*
ANOSIM: differences between years R: 0,18*
SIMPER: Average similarity

2D Stress: 0,19

Coarse sand/gravel



south of St. Lawrence Island (AS 49%)
Ennucula tenuis: 6%
Lumbrineris sp.: 6%

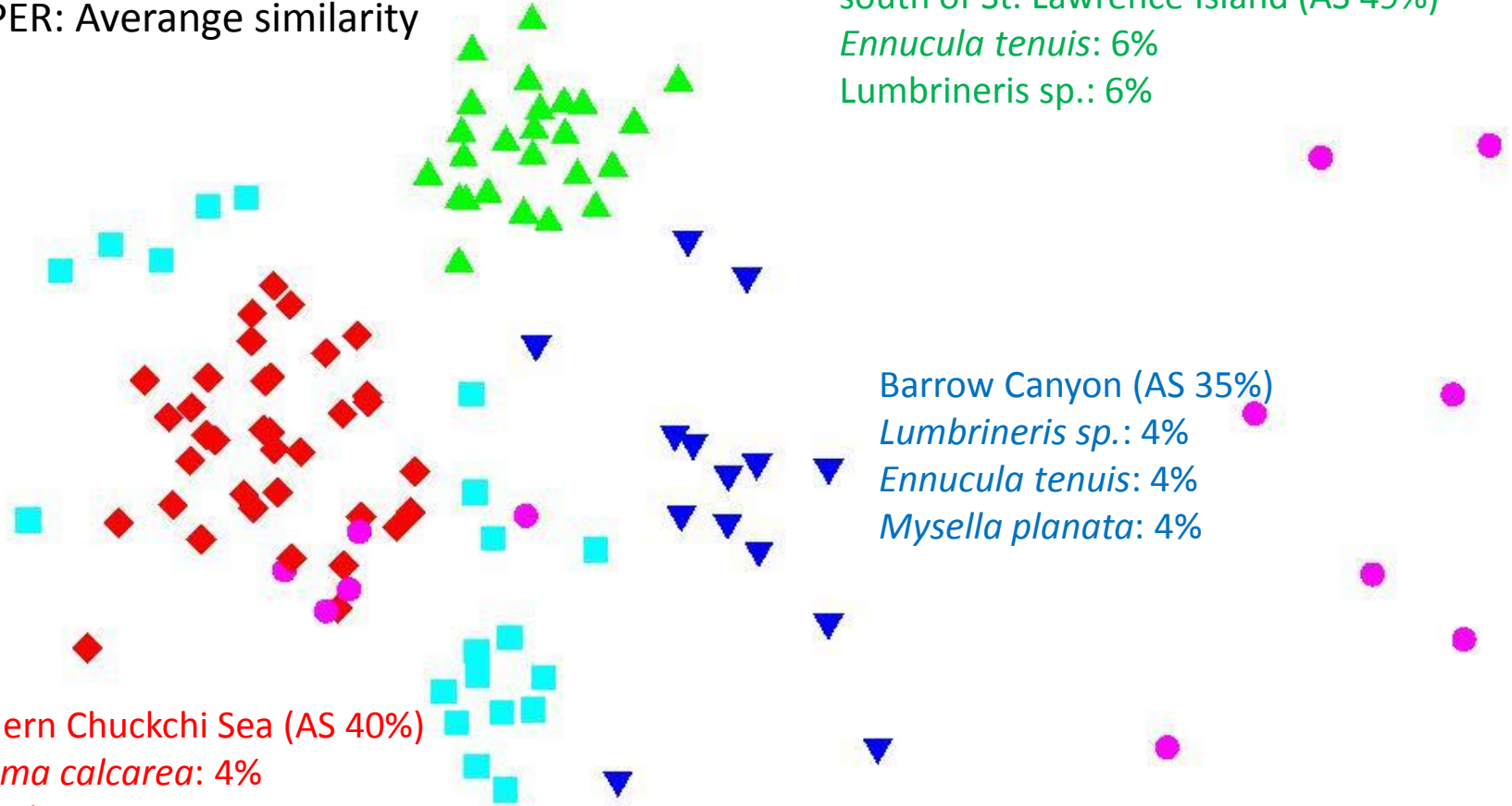
Barrow Canyon (AS 35%)
Lumbrineris sp.: 4%
Ennucula tenuis: 4%
Mysella planata: 4%

Southern Chuckchi Sea (AS 40%)
Macoma calcarea: 4%
Ennucula tenuis: 6%

Chirikov Basin (AS 37%)
Ennucula tenuis: 8%
Protomedeia fasciata: 8%

Southern Chuckchi Sea – SEC (AS 21%)
Ophiura sarsi: 9%

Mud/silt



**DBO site #1;
south of St. Lawrence Island**

162 taxa, 22 new in 2011

inc. 74 polychaeta and 41 crustaceans

biomass : 11.2 – 35.35 gCm²

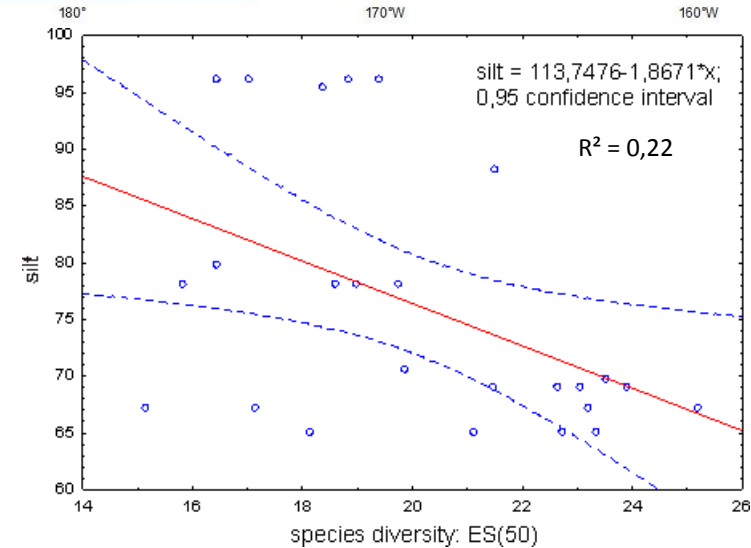
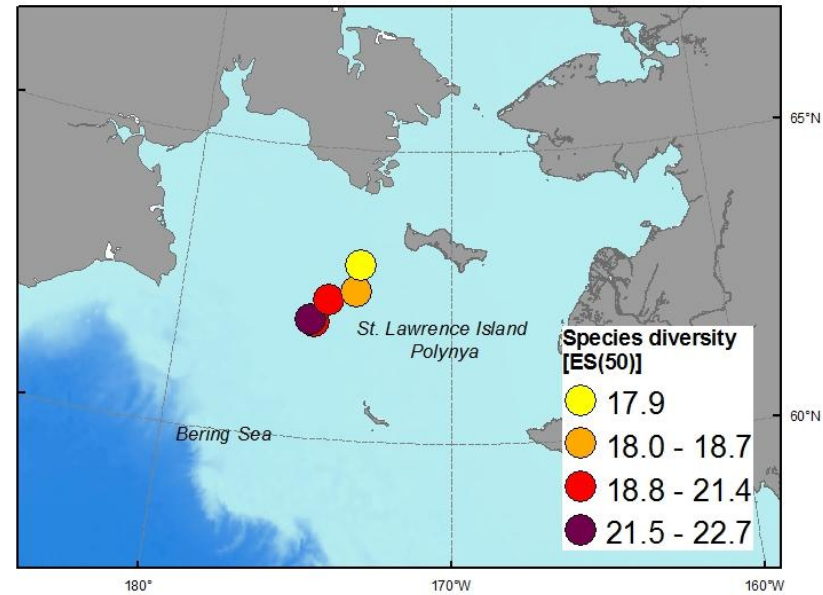
abundance: 1637.5 - 2995.0 m²

Simpson dominance: 0.07- 0.13

Shannon index: 3.04 – 3.53

Decreasing trend for *Nuculana radiata*

Surface or subsurface deposit feeders:
Dominating subsurface deposit feeding *Nuculana radiata*,
Ennucula tenuis and surface feeding cirratulids



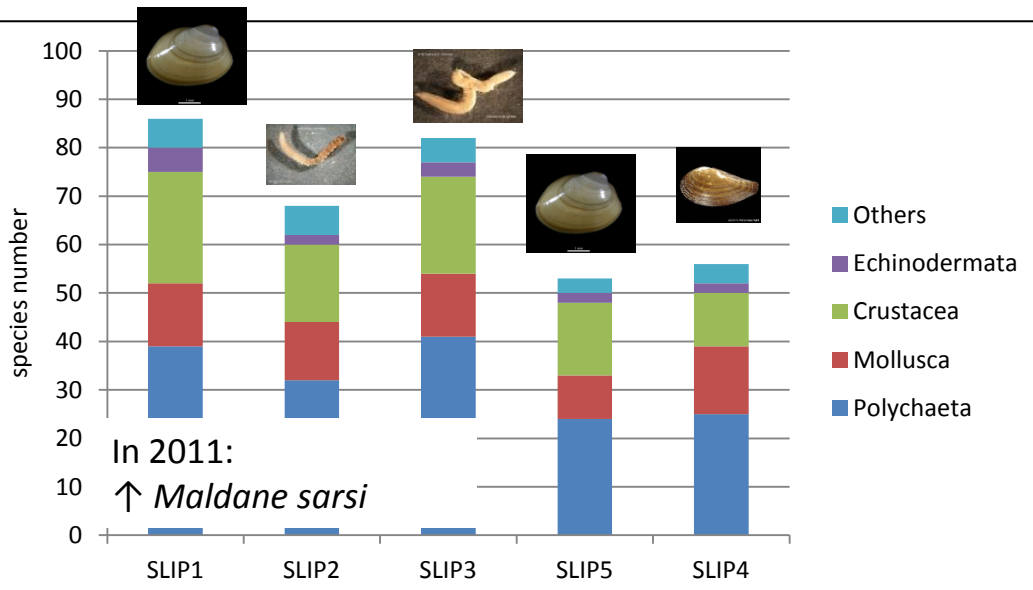
Spearman correlations:

Diversity & Bottom salinity: -0,45*

Diversity & Bottom oxygen: 0,40*

Diversity & Coarse sand: 0,40*

Diversity & Silt: -0,41*

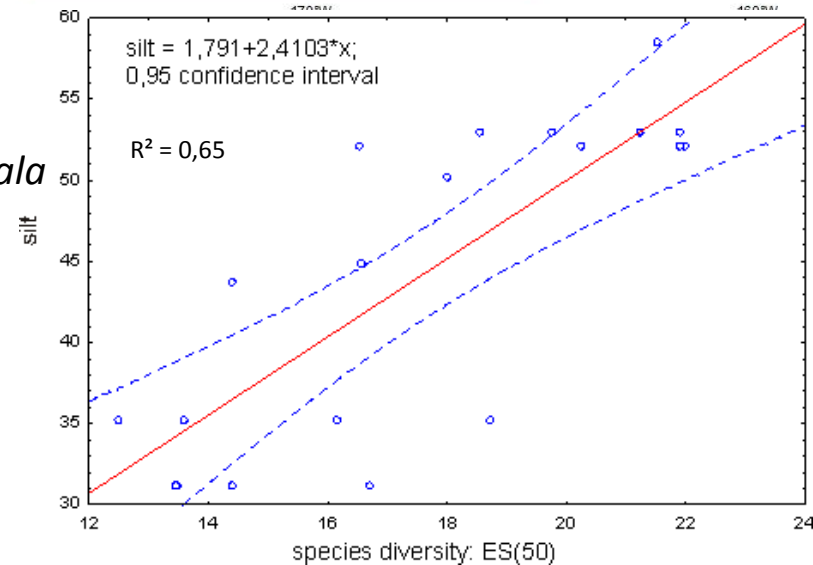
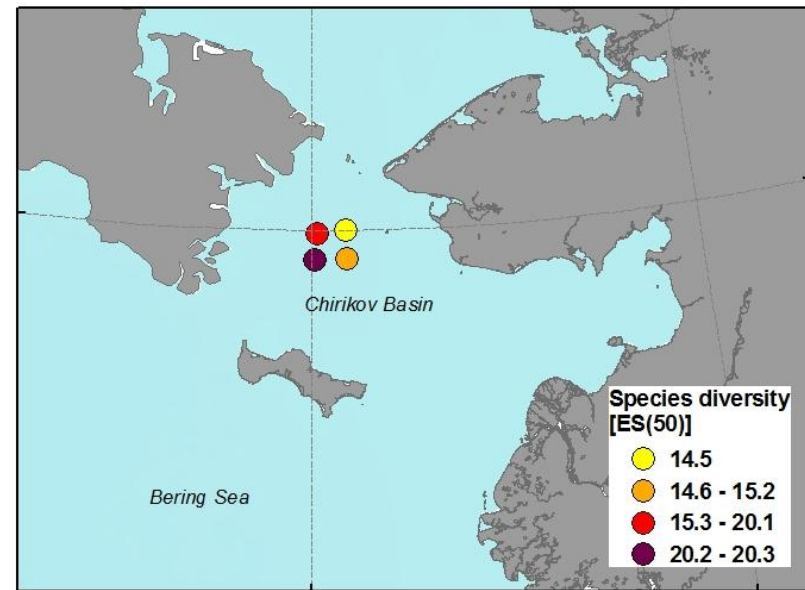


**DBO site #2;
Chirikov Basin**

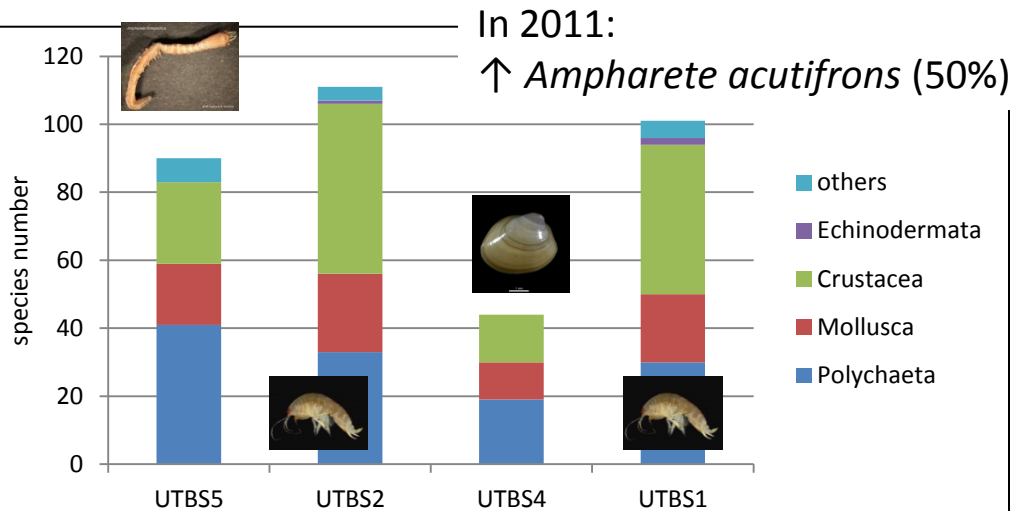
211 taxa (37 new in 2011)
inc. 78 crustaceans and 71 polychaetes
biomass : 4.38 – 24.84 gCm²
abundance: 580 – 15507.5 m²
Simpson dominance: 0.1- 0.25
Shannon index: 2.35 – 3.35

**Decreasing trend for *Ampelisca macrocephala*,
increase in *Ampharete* spp.**

Surface deposit and suspension feeders:
Dominating surface deposit feeding *Protomedeia* spp and
Ampharete spp and suspension feeder *Ampelisca macrocephala*



Spearman correlations:
Diversity & Coarse sand: -0,68*
Diversity & silt: 0,75*
Diversity & TOC: 0,45*

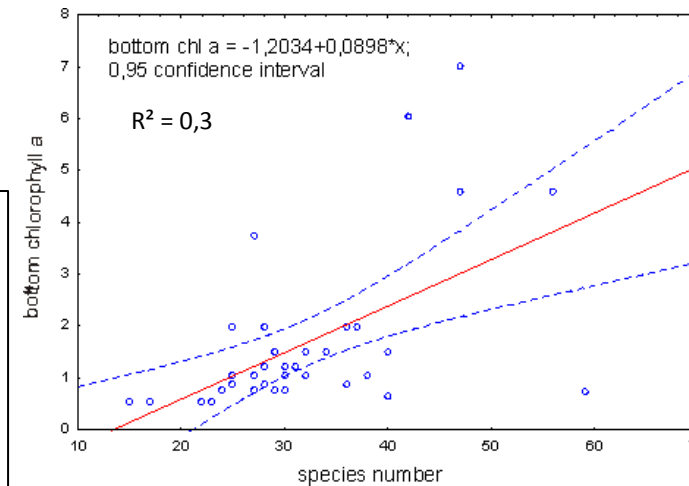
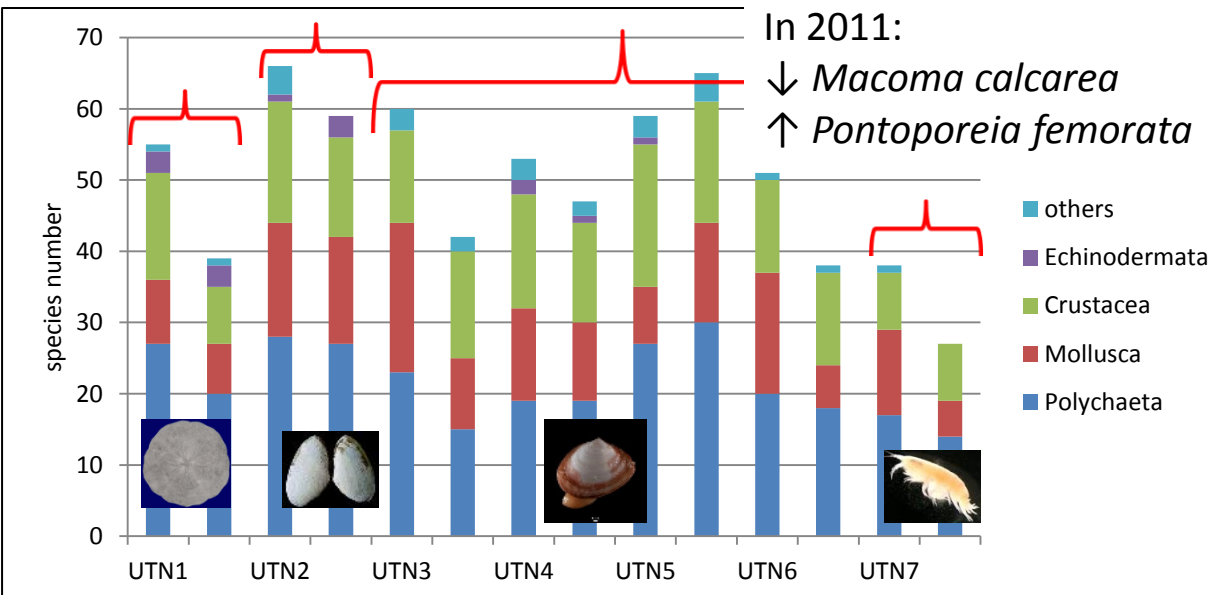
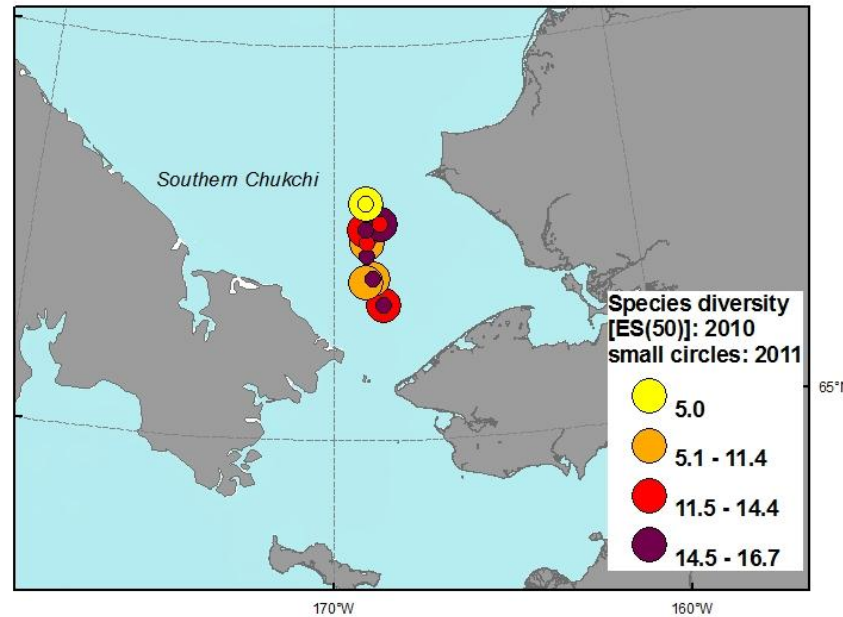


**DBO site #3;
Southern Chukchi Sea**

185 taxa, 40 new in 2011
inc. 72 polychaetes and 59 crustaceans
biomass : 5.15 – 111.62 gCm²
abundance: 4270 - 8120 m²
Simpson dominance: 0.11 – 0.91
Shannon index: 0.62 – 2.82

Decreasing trend for *Macoma calcarea*

Surface deposit feeders:
Dominating surface deposit feeding *Macoma calcarea* and *Telina spp.*, *Protomedeia spp* and *Pontoporeia femorata*
suspension feeder *E. parma*: indicator of hydrodynamic stress



Spearman correlations:
Spec nr & Bottom temp: 0.58*
Spec nr & Bottom chl a: 0.53*
Spec nr & TOC: -0.50*
Spec nr & TON: -0.44*

**DBO site #3;
South Eastern Chukchi Sea; SEC transect**

180 taxa; inc 85 polychaeta and 38 crustacea

biomass : 5.1 – 30.8 (101.46 – UTN5) gCm²

abundance: 580 – 9165 (10740 – UTN5) m²

Simpson dominance: 0.07 – 0.62

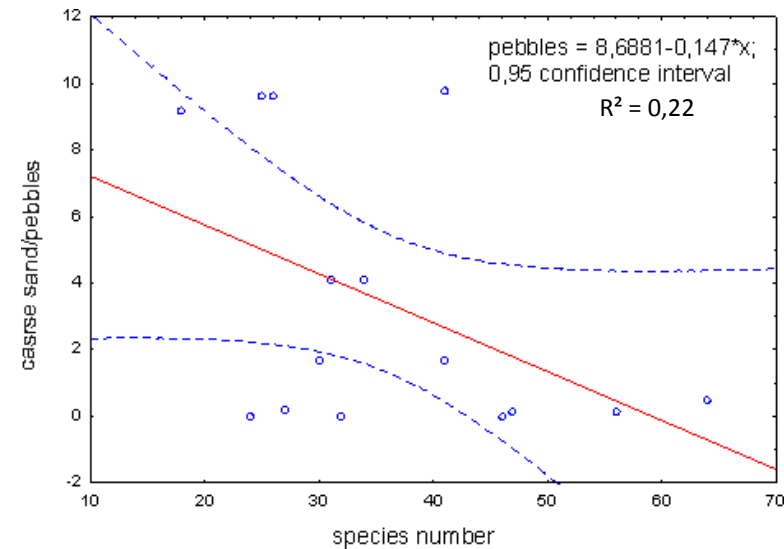
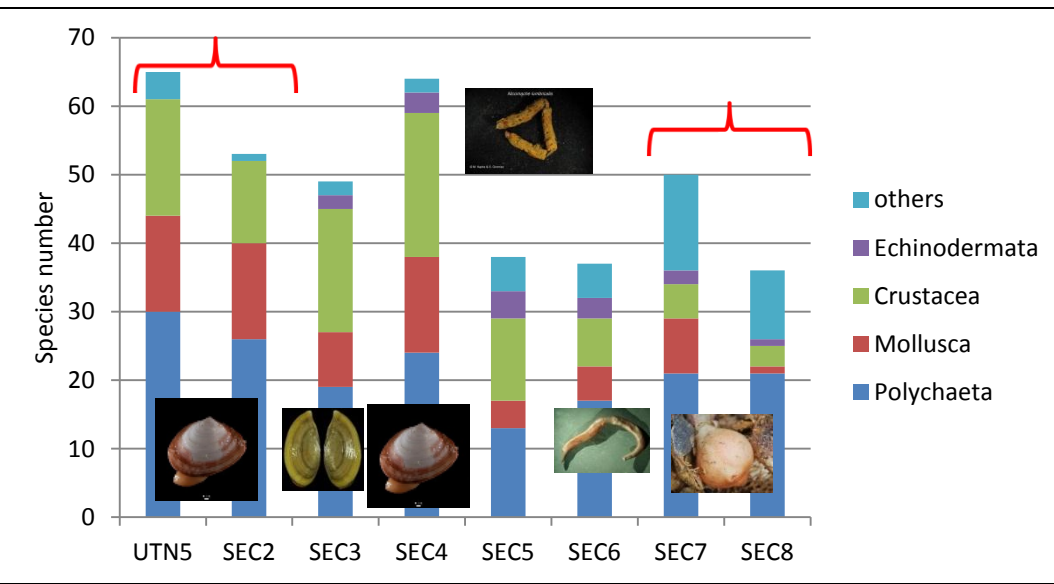
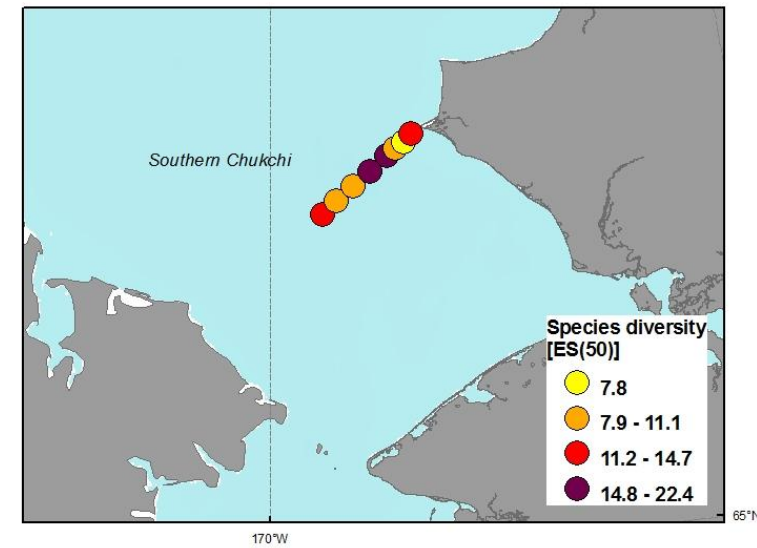
Shannon index: 0.7 – 3.26

Decrease in abundance towards the shore (exp SEC7)

Surface deposit feeders at first 4 station of the transect:

Pontoporeia femorata and *Protomedeia spp*

Towards the shore suspension feeders: *Hiatella arctica* and ascidians



Spearman correlations:

Diversity & sed chl a: -0.69*

Diversity & coarse sand/pebbles: 0.57*

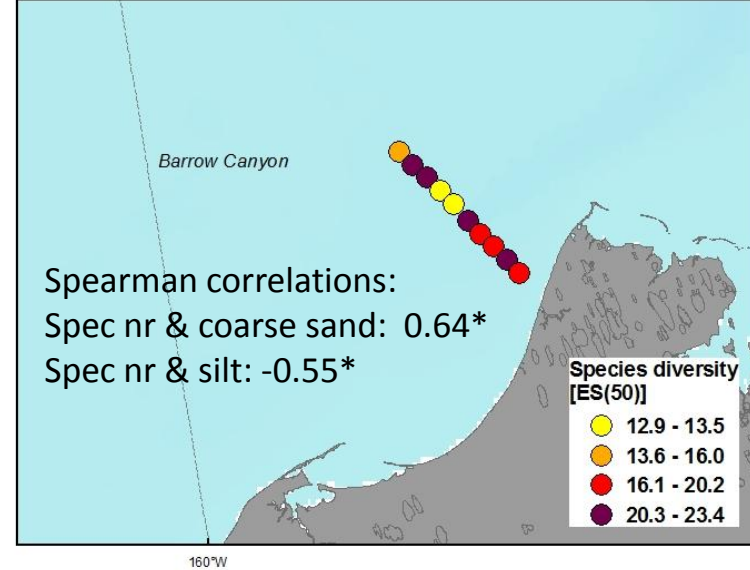
Diversity & silt: -0.67*

Diversity & TOC: -0.69*

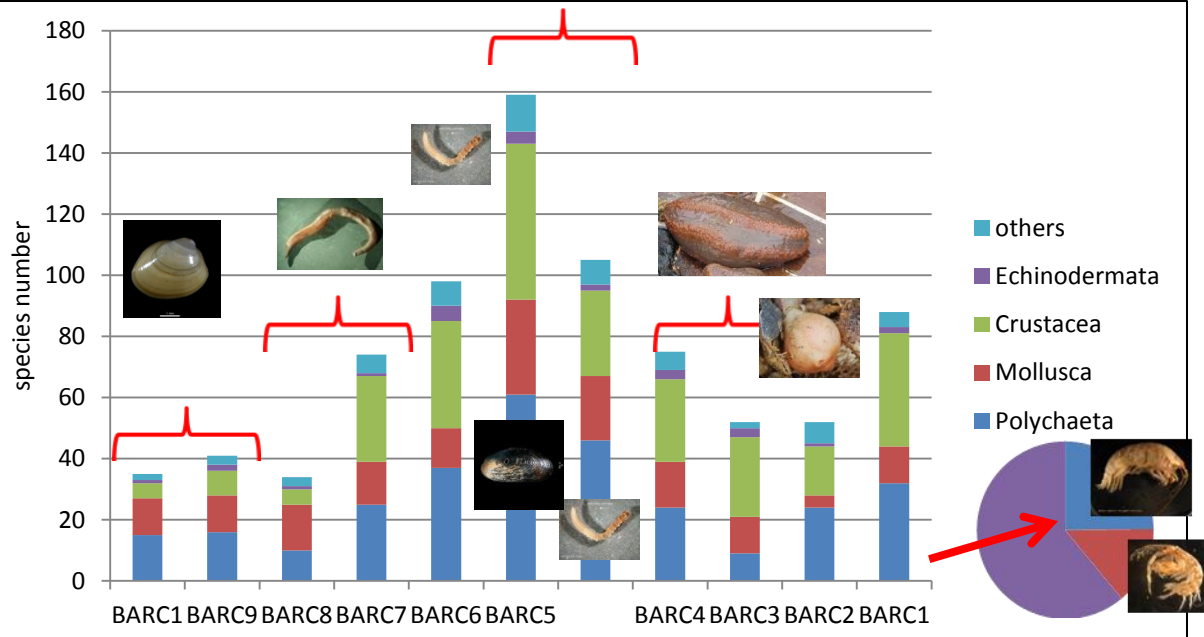
Diversity & TON: -0.76

**DBO site #5;
Barrow Canyon**

312 taxa; inc 120 polychaetes and 103 crustaceans
 biomass : 1.4 – 66.37 gCm²
 abundance: 2970 – 48390 m²
 Simpson dominance: 0.06 – 0.38
 Shannon index: 1.95 – 3.19



Towards the shore:
 Surface deposit feeders (*Ennucula tenuis*), subsurface deposit feeders (*Maldane sarsi*) and suspension feeders (*Brachydistylis resima* and *Mytilus spp.*), ascidians: stronger current indicators



Barc 5 – drop in species number, diversity and biomass but not abundance; switch from mytilidae to terebelidae and maldanidae

Summary

- Higher species richness with further sampling effort yet to be identified
- Diversity, species id and function related to sediment characteristics and food quality and availability (mainly TOC), and to lesser extend water currents
- Highest species diversity in biomass and abundance ,hot spots' in Barrow Canyon, Southern Chukchi and St Lawrence Island areas
- Though often changes in benthic characteristics need time before can be observed, some might be rapid and therefore need for year-to-year monitoring should be emphasized



Thank you for your attention