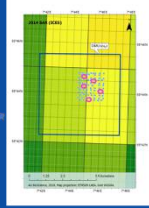
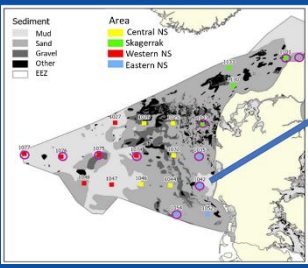
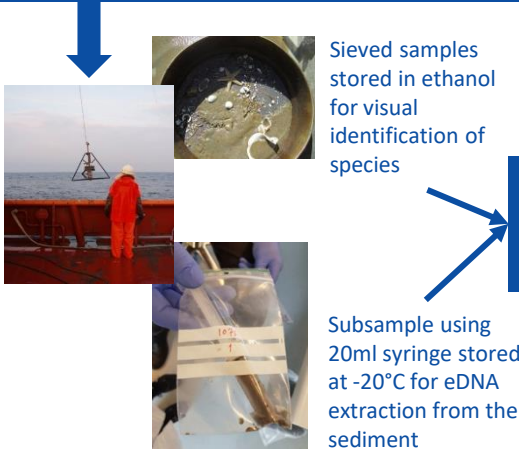


# Soft sediment monitoring for the Marine Strategy Framework Directive



Denmark has an established MSFD monitoring program for its sandy sediments: NOVANA. It is based on Haps corer samples and morphological analysis of infauna. Sediment eDNA is being considered as an addition to the program. But can the method give a good representation of diversity? And does it detect depth-related patterns?

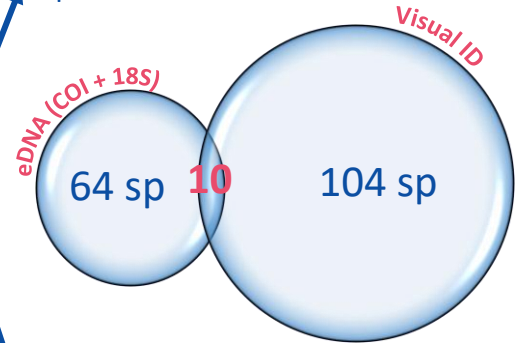


Sieved samples stored in ethanol for visual identification of species

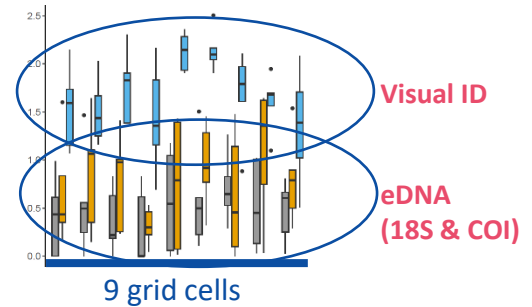
Subsample using 20ml syringe stored at -20°C for eDNA extraction from the sediment

9 grid cells, 5 replicates each for comparison of methods

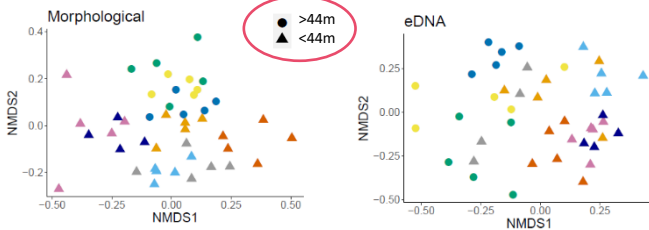
Species detection



Shannon-Wiener diversity



Depth-related patterns



(GEANS data 2023, based on samples taken in 2019)

- Significantly more species were detected with traditional morphology-based identification than with the eDNA - only 10 species were found by both methods.
- Diversity patterns were similar across stations
- A clear distinction was seen with both methods between deeper and shallower stations. However, the species explaining the differences between the two depth zones were completely different!

*Sediment eDNA obtained from a very small syringe sample hardly provides a representative picture of the metazoan species detected with a larger grab sample. It is, however, able to detect ecological patterns linked to differences between stations and depth zones.*