Ancient foraminiferal DNA: a new paleocenographic proxy

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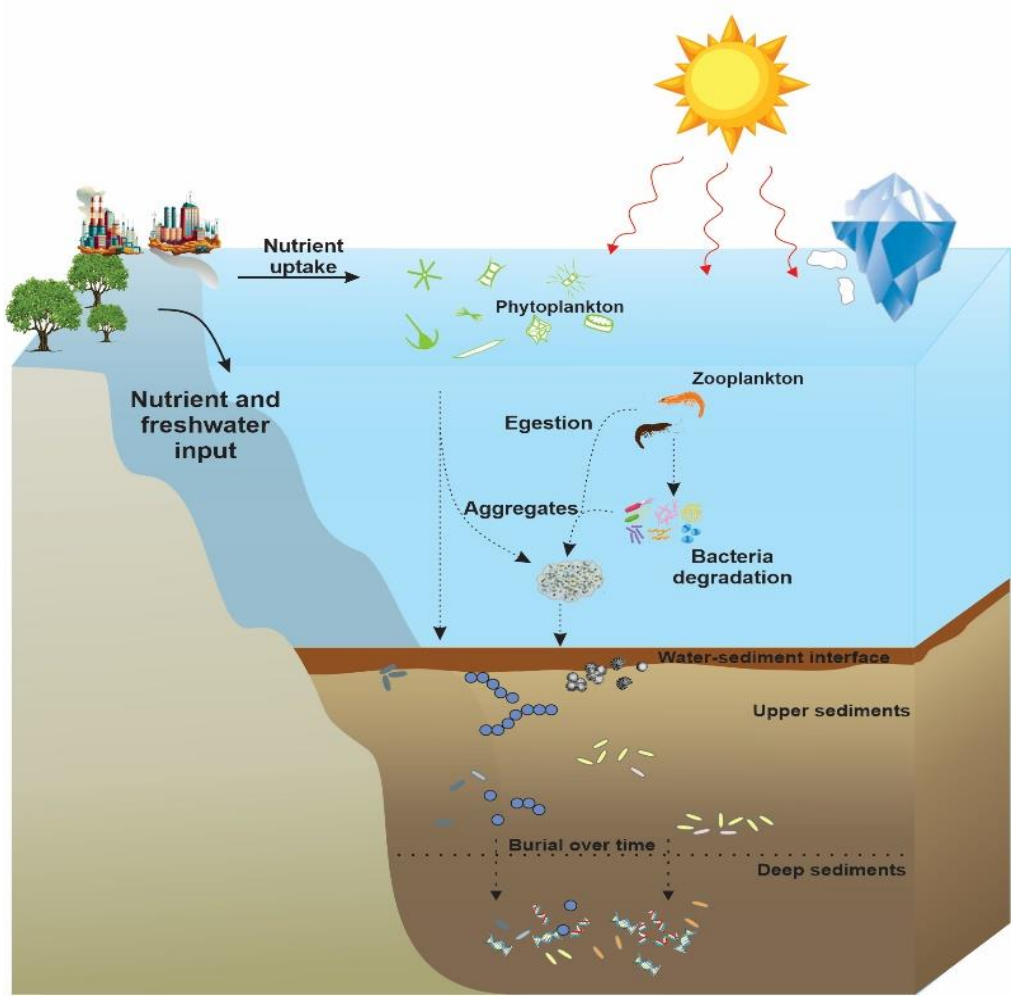
Origins of sedimentary ancient DNA (*seda*DNA)

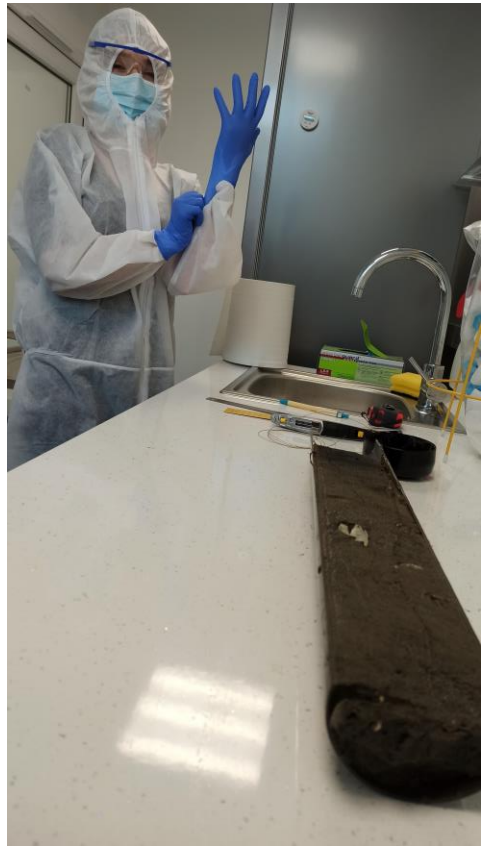


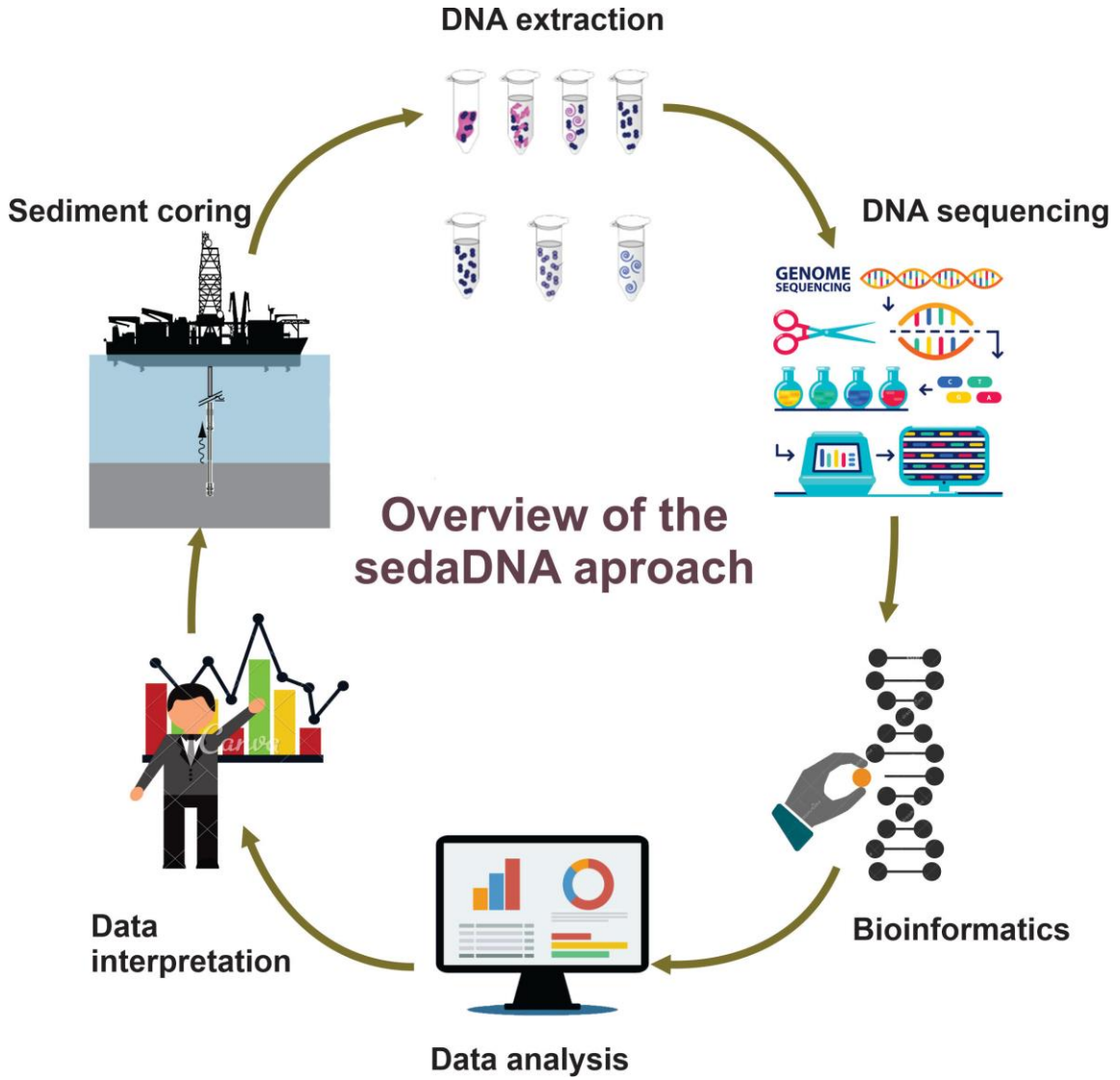
Nguyen et al., 2022, *under review*

Tissues
Faeces
Spores
Plant fine rootlets
Resting eggs
spores

DNA: extracellular
intracelluar

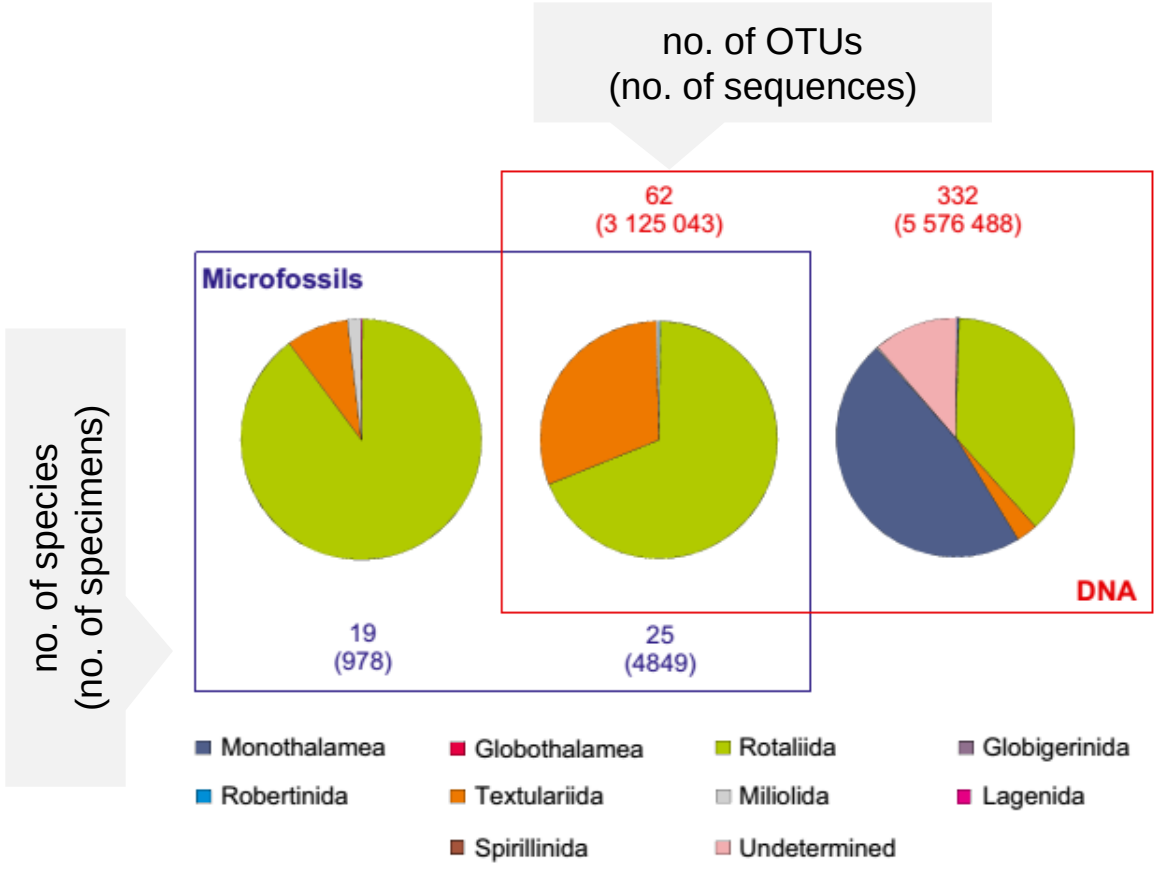
DNA binding to sediment particles
Microbial degradation
Chemical degradation
Incorporation into bacterial genomes





Nguyen et al., 2022, *under review*

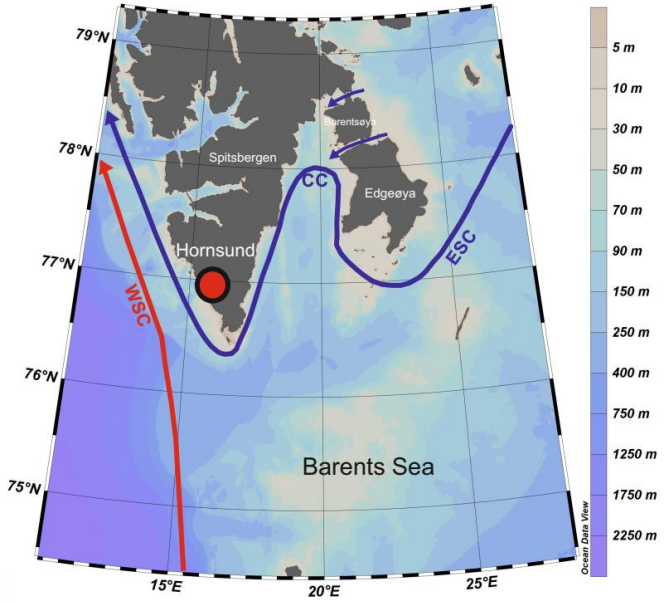
Fossil and molecular records are rather complementary than overlapping



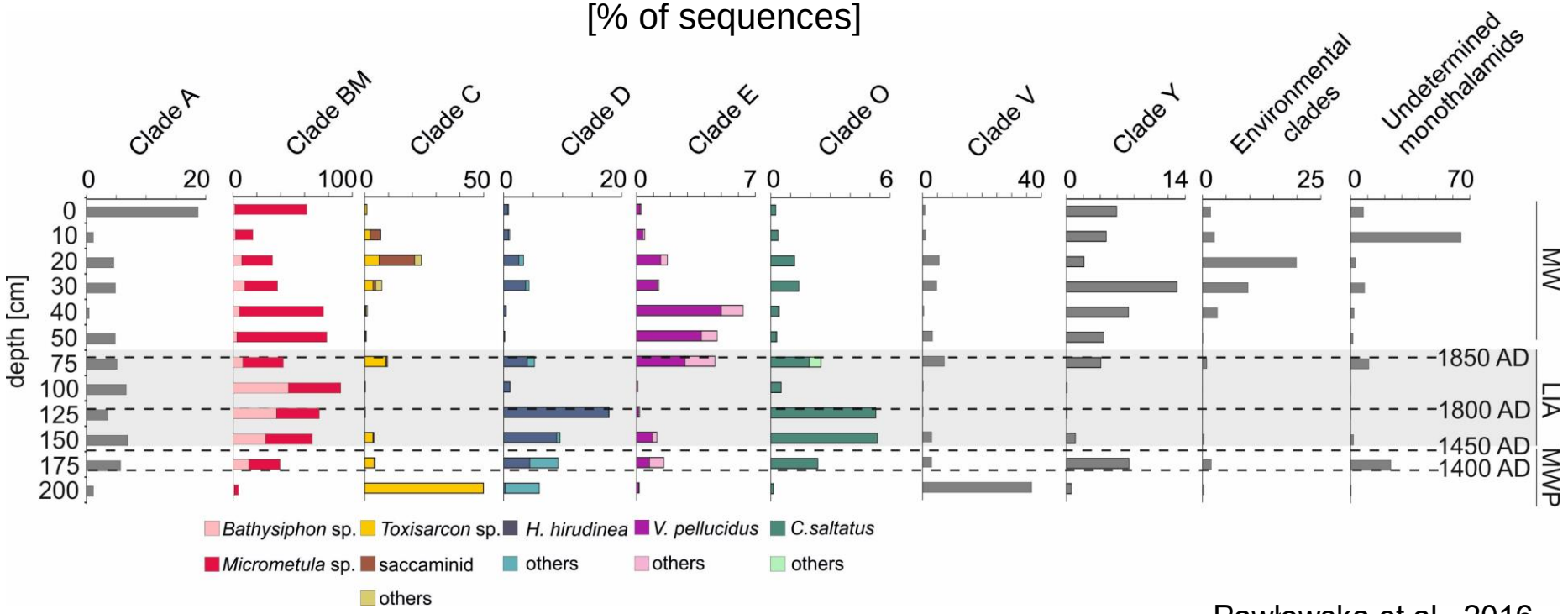
Pawłowska et al., 2014

- 394 OTUs vs. 44 fossil species
- 57% of fossil species were present in aDNA record

sedaDNA: a paleoceanographic proxy

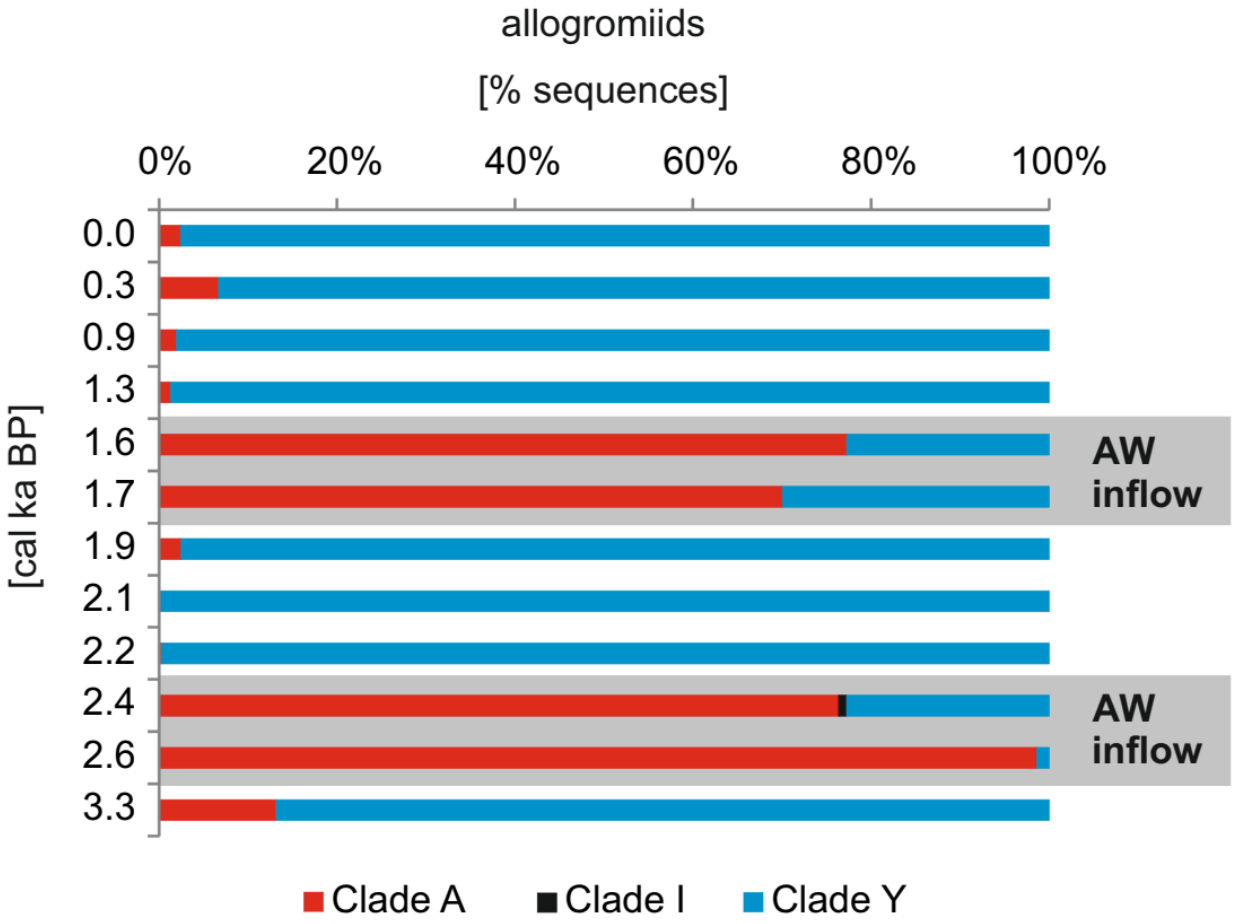


[% of sequences]

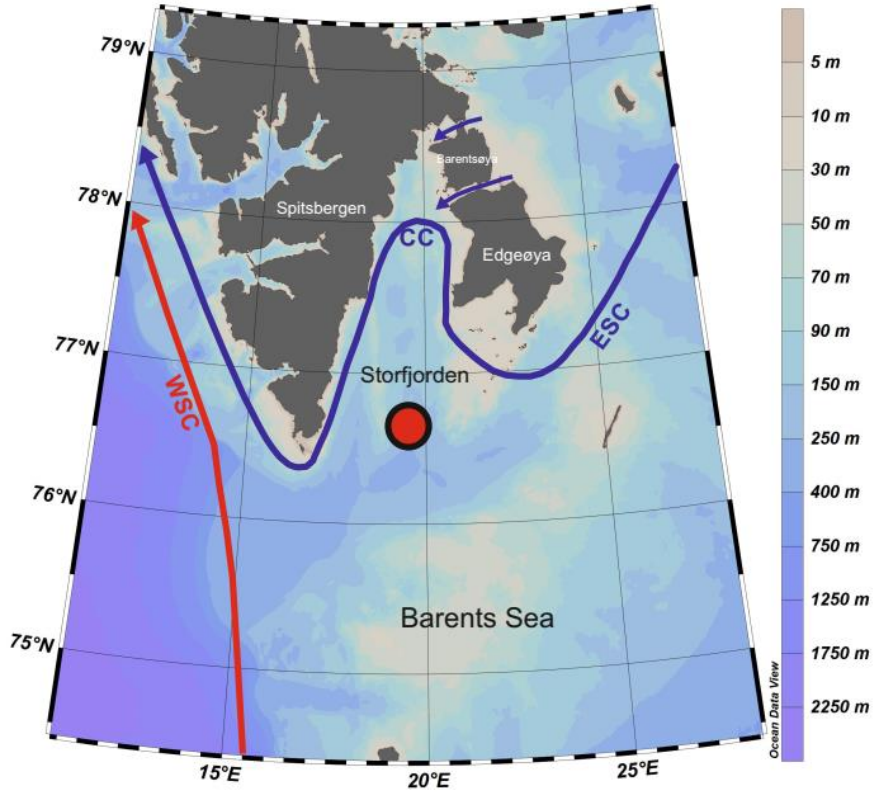


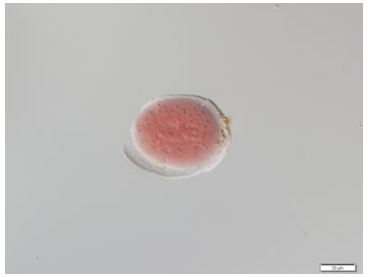
Pawłowska et al., 2016

sedaDNA: a paleoceanographic proxy

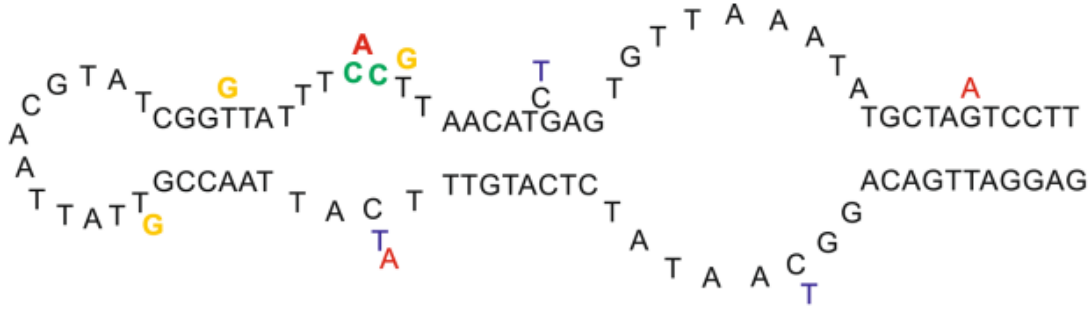


Pawłowska et al., 2020

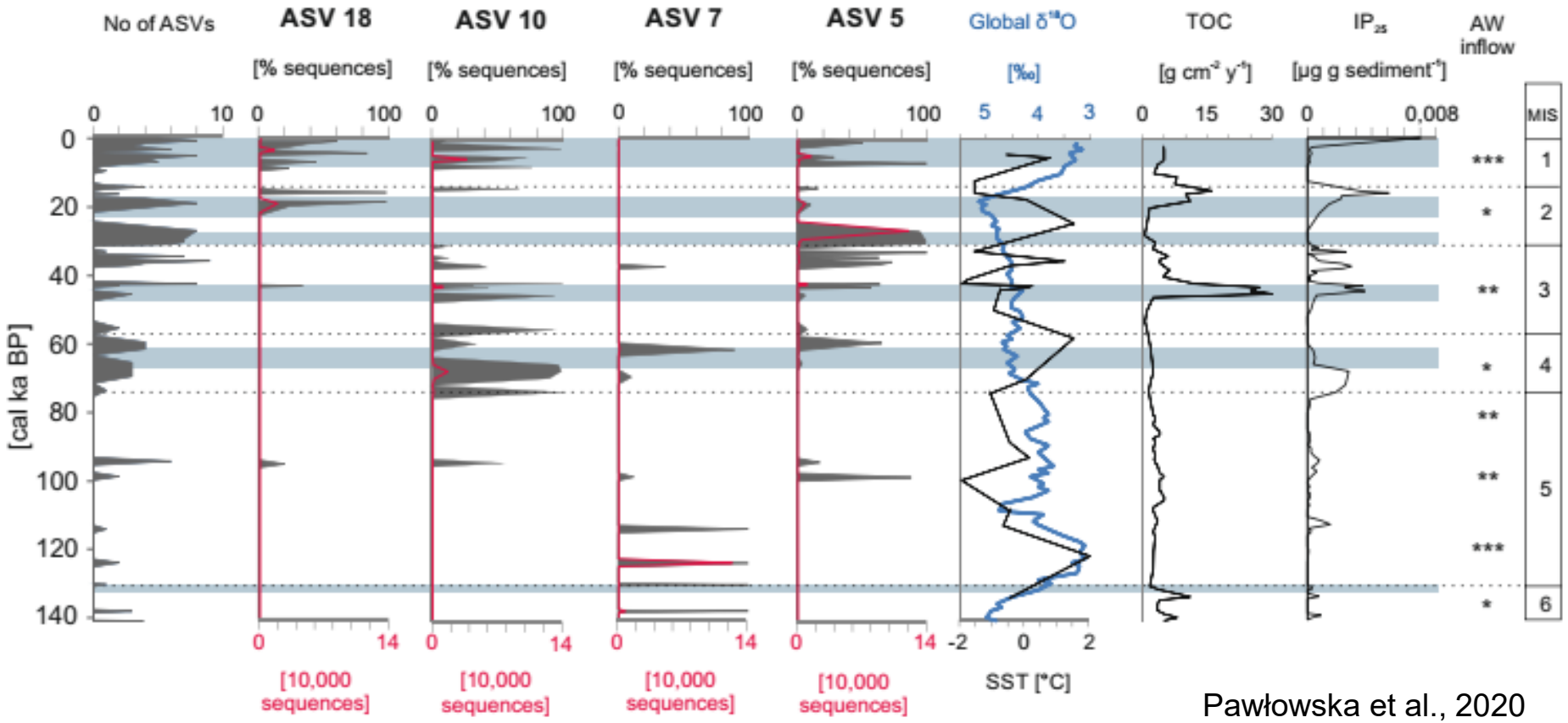




sedaDNA: a paleoceanographic proxy



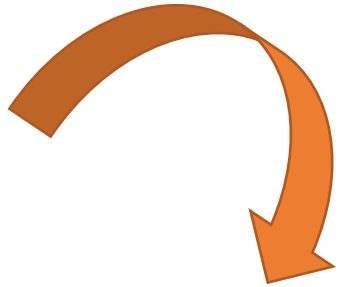
N. pachyderma type I DNA secondary structure



Pawłowska et al., 2020

- unique insight of the past of marine communities, including non-fossilized organisms
- different levels of variability – from population to intragenomic
- additional validation of other proxies
- new proxy species

Can *seda*DNA outcompete microfossils?



- incomplete reference databases
- optimization of sampling and laboratory procedures
- authentication of sedaDNA
- evaluation of limits of the method