eDNA supplements scuba diver observations in hard substrate monitoring

Interreg North Sea Region GEANS
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Hard substrates that are protected by the EC Habitats Directive need long term monitoring to understand responses in species composition, coverage and diversity in relation to changes in environmental conditions.

Traditionally, reef monitoring is done by divers equipped with underwater video and radio communication. While this approach is robust, it is of interest to explore the usefulness of modern techniques that are less expensive and/or provide more detailed information on plants, animals and microorganisms associated with the reefs.

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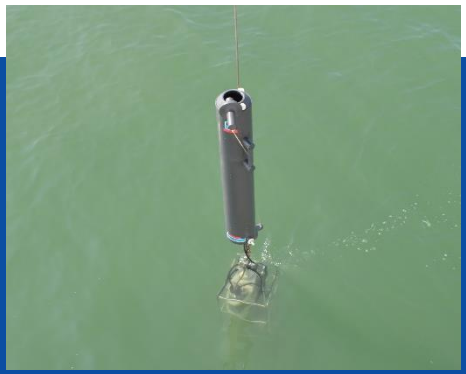
For **eDNA** analysis, water should be sampled near the bottom, over the reef and upstream & downstream. Metabarcoding can be done using COI, 18S and/or 12S primers.

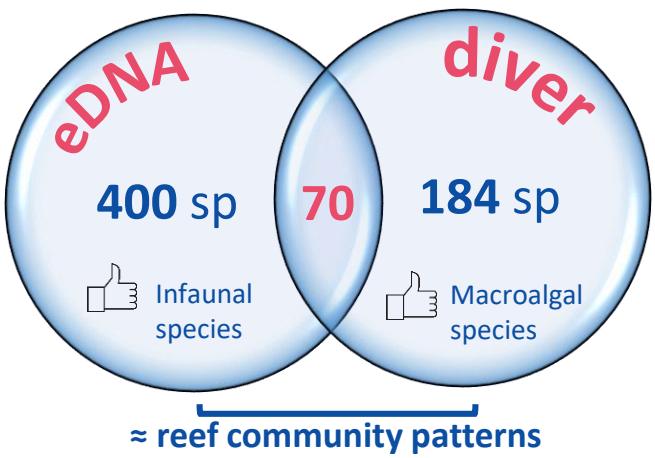


! eDNA adds substantially to observations of infauna and fish => difficult to detect from diver observations.

! Water movement around reefs is substantial ⇒ eDNA samples taken just above a reef include traces of species from the surrounding soft bottom habitats.

! Environmental conditions affect DNA degradation rates.

(Based on GEANS case study on Danish boulders, 2021)



eDNA provides an interesting SUPPLEMENT to traditional diver based monitoring of biodiversity around benthic hotspots.

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