

Environmental DNA (eDNA) for monitoring biodiversity in aquatic ecosystems



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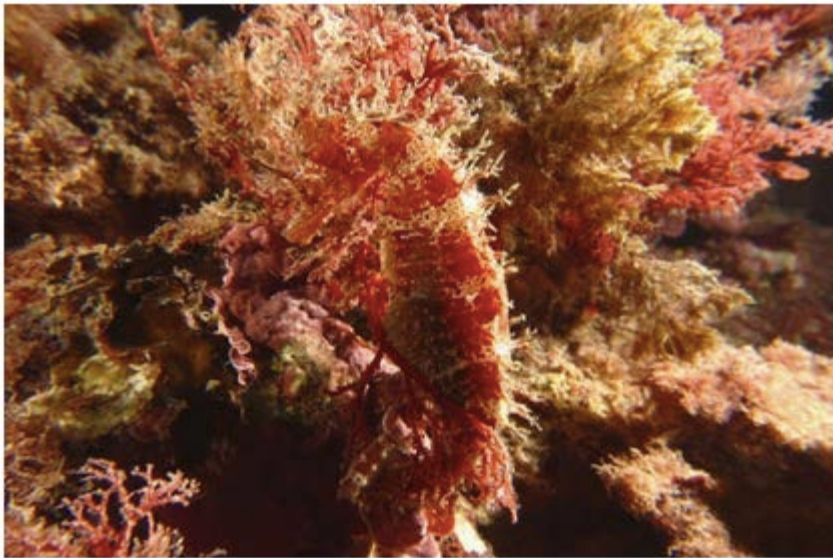
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The problem:

aquatic biodiversity



- **Aquatic species identification and monitoring** is sometimes tedious and highly challenging, leading to lack of information.
- **Management problems:** endangered species, invasive species, pathogens, ecosystem health, etc.



The problem:

aquatic biodiversity



- For example: in USA, **invasive species cost 137 billion US\$/year** because they were **not detected on time...**



The solution: environmental DNA (eDNA)



Early detection with an extremely high sensitive method: eDNA



Species detection with environmental DNA (eDNA)



All **organisms** leave DNA in the environment where they live (through mucus, shed cells, feces, gametes, etc.). This is a **continuous track** that can be followed with **genetic tools** just analyzing a sample of that environment (soil, water, etc.)



Technology: genetic tools



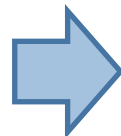
- ❖ Specific markers
(Barcoding)



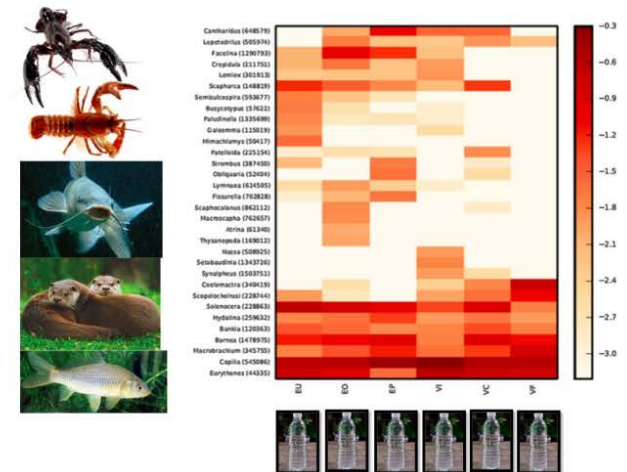
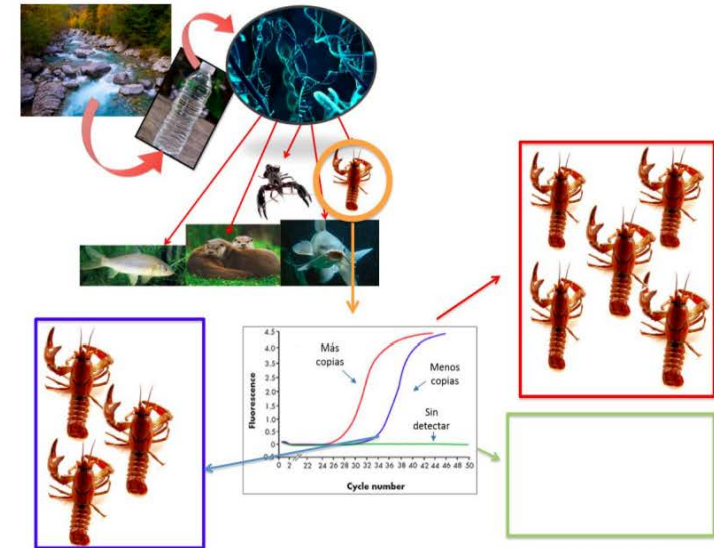
Few species
High sensitive
Real time
Fast response



- ❖ Massive sequencing
(Metabarcoding)



Many species
Biodiversity
Delivery time



Why using environmental DNA (eDNA)



- eDNA present **many advantages** when comparing with traditional monitoring methods:

- ✓ high sensitivity,
- ✓ the possibility of detecting elusive or scarce species,
- ✓ genetic identification of organisms,
- ✓ innocuous simple and fast sampling.



Why ecohydros ?



- More than **30 scientific articles** SCI (Q1 with more than 250 cites)

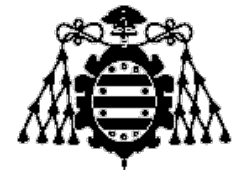
- National Grant **Torres Quevedo** (2019)



- Regional R+D Grant **SODERCAN** (2018-2020)



- Scientific research partnership **University of Oviedo** (Spain)
- Technical partnerships **Edrónica** (Spain) & **BIOMEME** (USA)



Universidad de Oviedo



Biomeme

- Our clients:



Why ecohydros ?



Specialized in the research, monitoring and management of **aquatic ecosystems**.

Multidisciplinary team: biologists, engineers and environmental technicians.

Experienced Pioneers



Thanks for your attention

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