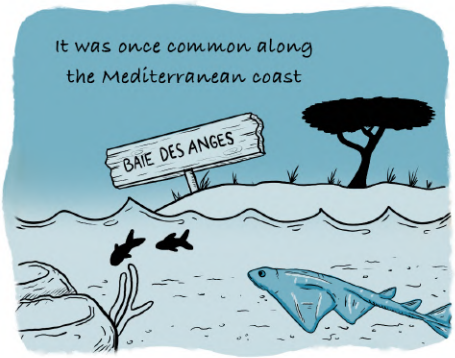
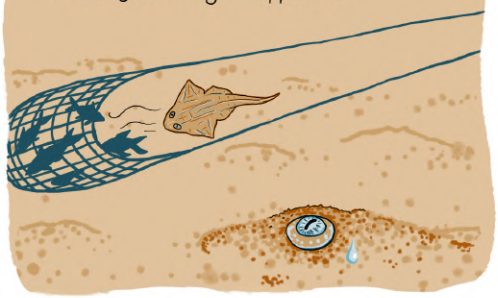
One of the last refuges for Angelsharks

The Angelshark (*Squatina squatina*) lives on coastal sandy seabeds between 5 and 150m depth

It was once common along the Mediterranean coast



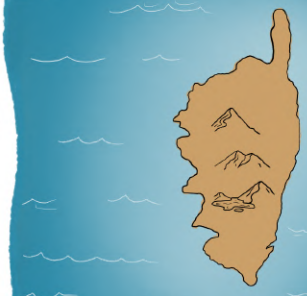
But it gradually disappeared...



...until it became very rare everywhere from the 1950s.

Since 2006, the species has been classified as Critically Endangered by the IUCN*

In the middle of the Mediterranean...



The island of Corsica appears to be the last refuge for Angelsharks in French waters

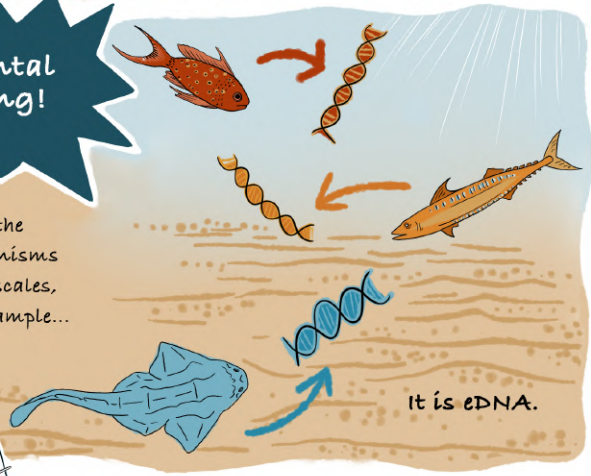
A few individuals, including juveniles, are still observed by local fishermen on the east coast.

Therefore, we decided to go to Corsica to better know the distribution of this rare shark

With a powerful method...

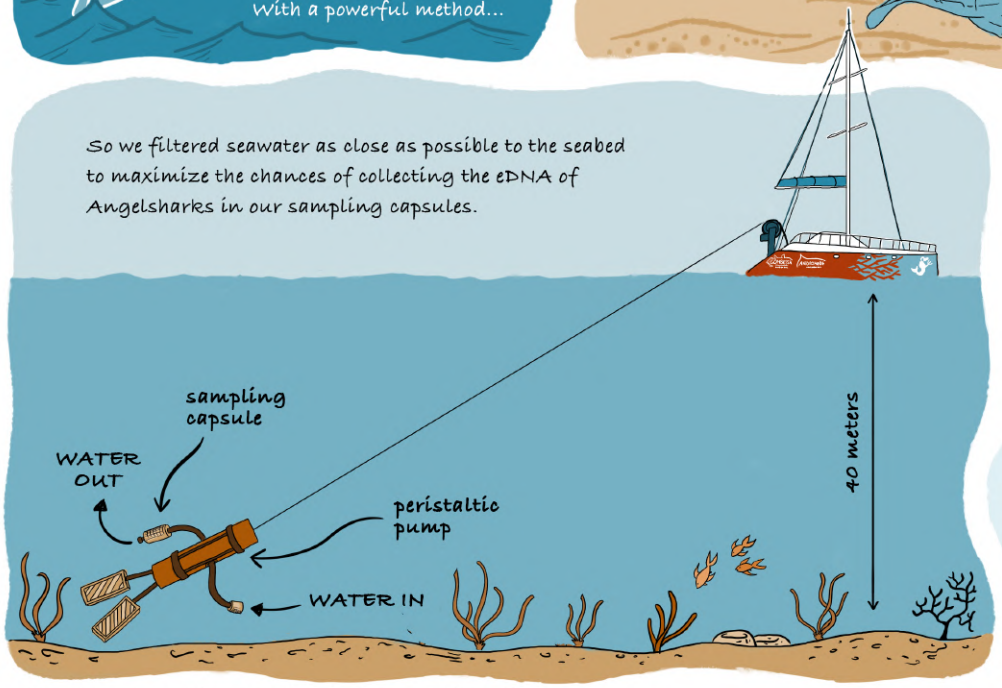
...environmental DNA barcoding!

This technique relies on the DNA left behind by organisms through the loss of their scales, blood or excrement for example...



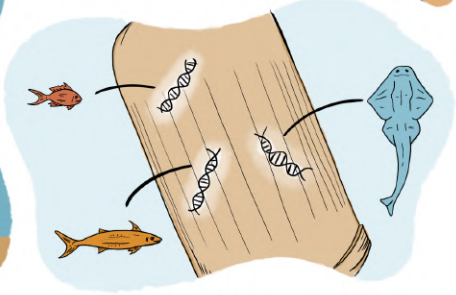
It is eDNA.

So we filtered seawater as close as possible to the seabed to maximize the chances of collecting the eDNA of Angelsharks in our sampling capsules.



This is a sampling capsule

through which 30L of seawater was filtered for 30 min.



*IUCN : International Union for Conservation of Nature

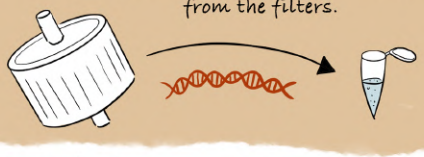
After 6 days of filtration...

...along 190 km of Corsican coastline

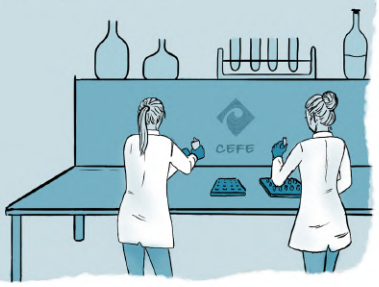
We obtained 76 sampling capsules full of eDNA!

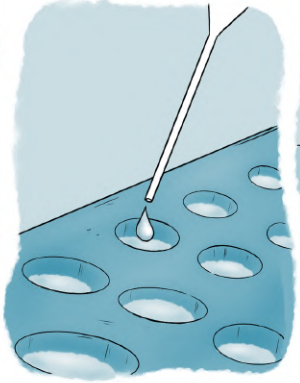
Then we took these samples directly to a laboratory in the Alps

Where they extracted all the DNA molecules from the filters.



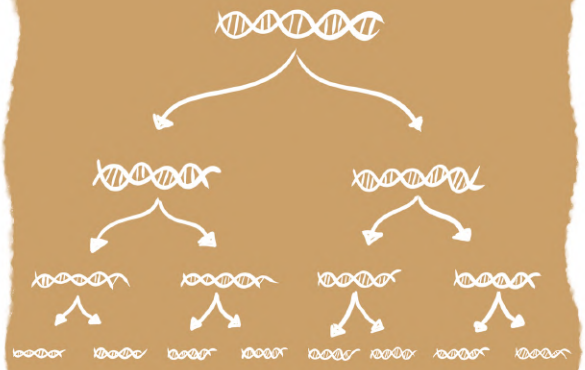
Back in Montpellier, we analysed our samples in Lab...





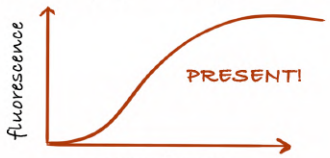
...by quantitative PCR (qPCR)

The qPCR method allows to amplify only a target DNA: in our case Angelshark eDNA

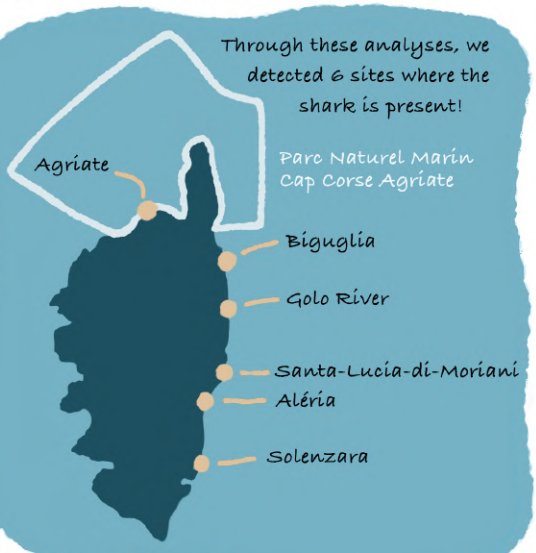


This method relies on a fluorescent dye that binds only to Angelshark eDNA

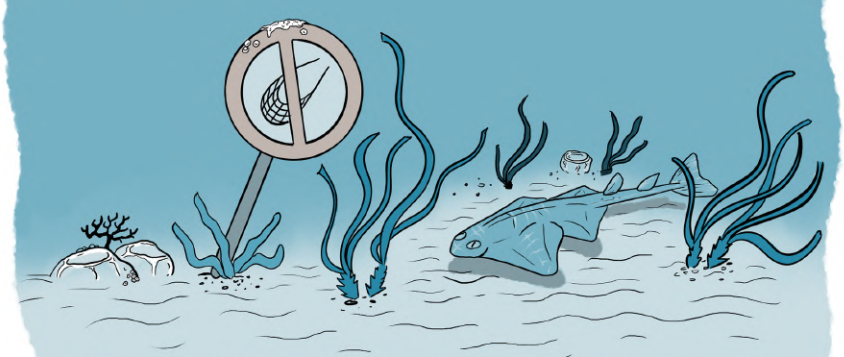
So when Angelshark eDNA is present in a sample, even in low quantity, we observe an increase in fluorescence due to amplification of this eDNA.



Through these analyses, we detected 6 sites where the shark is present!



These positive results could lead to the implementation of protection measures on these sites.



Particularly on seagrass beds on which this species depends. END.

Faure et al. (2023). An environmental DNA assay for the detection of Critically Endangered angel sharks (Squatina spp.). Aquatic Conservation: Marine and Freshwater Ecosystems. From the ANGE project led by the university of Montpellier in partnership with Agence de l'eau Rhône Méditerranée Corse, Office Français de la Biodiversité, Parc naturel marin Cap Corse Agriate, Andromède Océanologie, Ecole Pratique des Hautes Etudes and Bastia Offshore Fishing.