

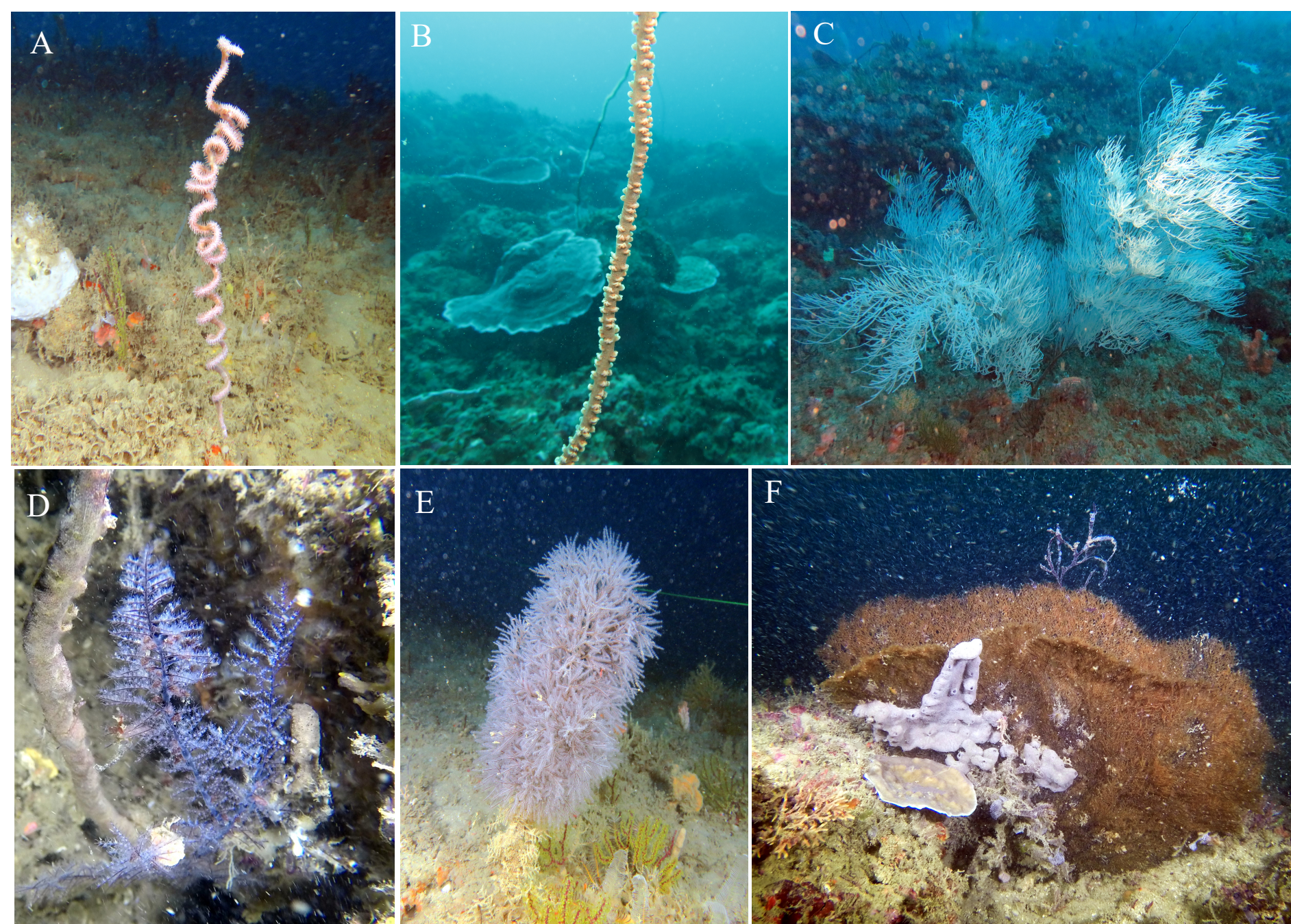
# Revealing the trophic ecology of black corals through stable isotope analysis

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## What are black corals and what do they eat ?

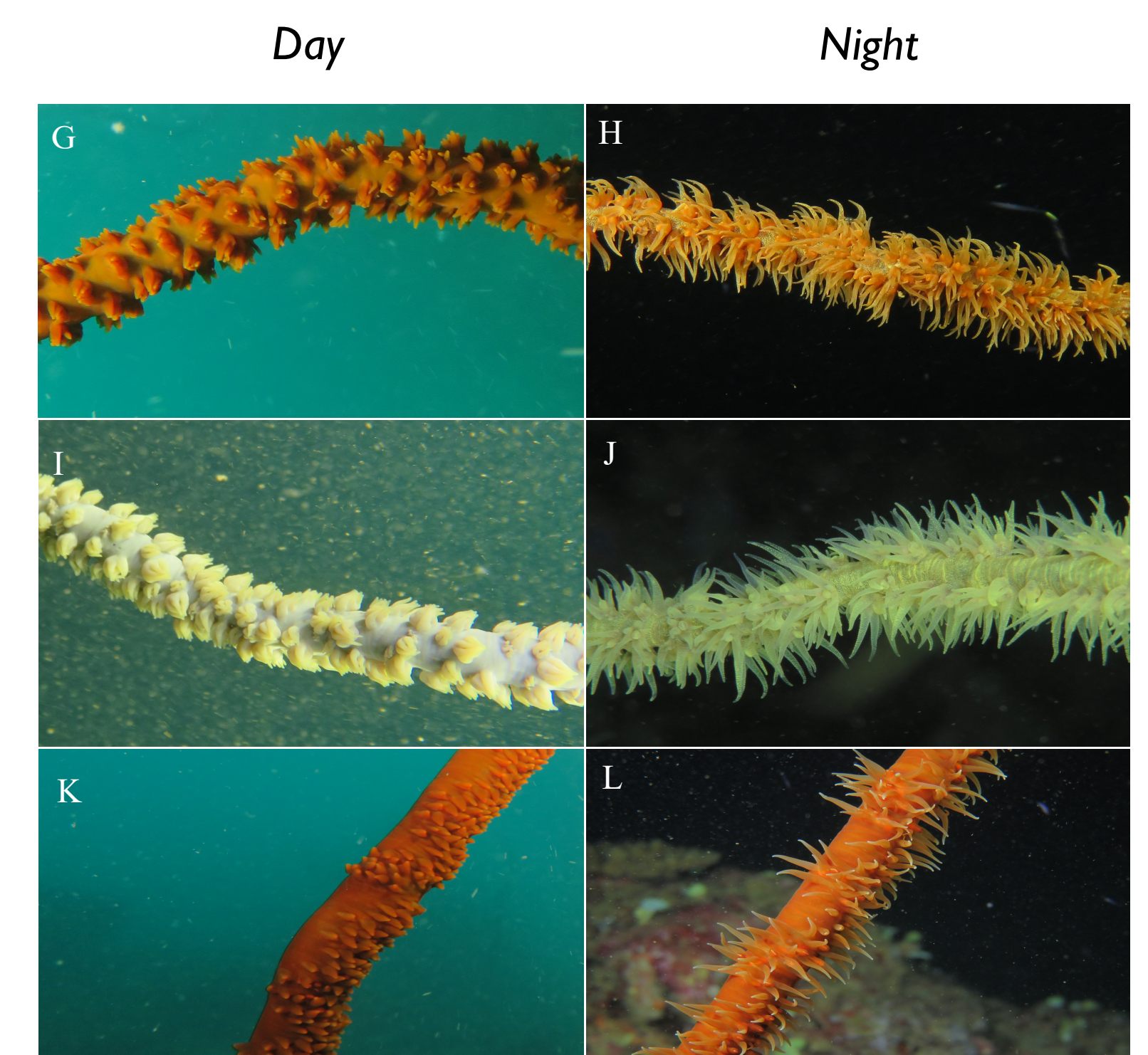
Black corals (Hexacorallia, Antipatharia) are colonial organisms generally found in deep waters (>100 m). In some areas they are so dense that they form black coral beds that might structure the community.



Different colony morphologies: unbranched; spiral-shaped (A), straight (B). Branched; bush-like (C), feather-like (D), bottle-brush (E), fan-shaped (F).

Little is known about the specific **diet** or feeding behavior of shallower black corals. Yet we observed:

- That they show a high heterogeneity in their colony and polyp **morphology**.
- That some species, contract their **polyps** during the day and expand them at night.



Polyps (day vs. night): *Cirripathes anguina* (G-J) and *Stichopathes maldivensis* (K,L).

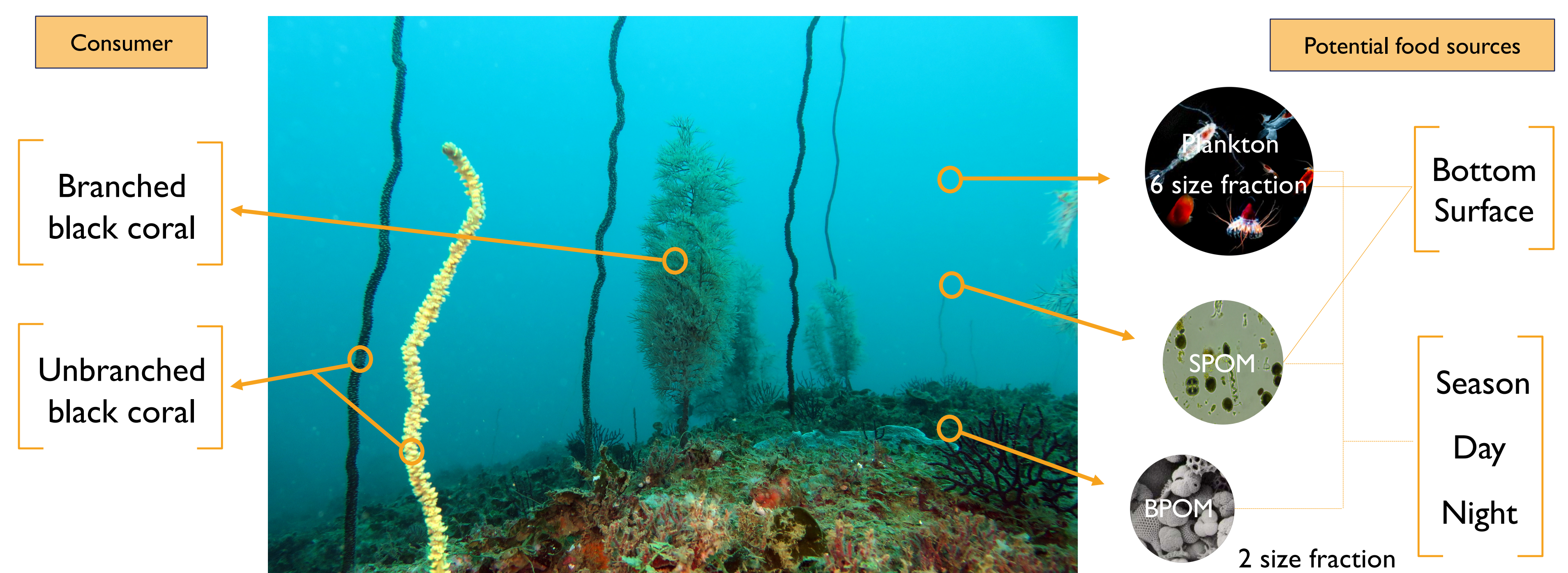
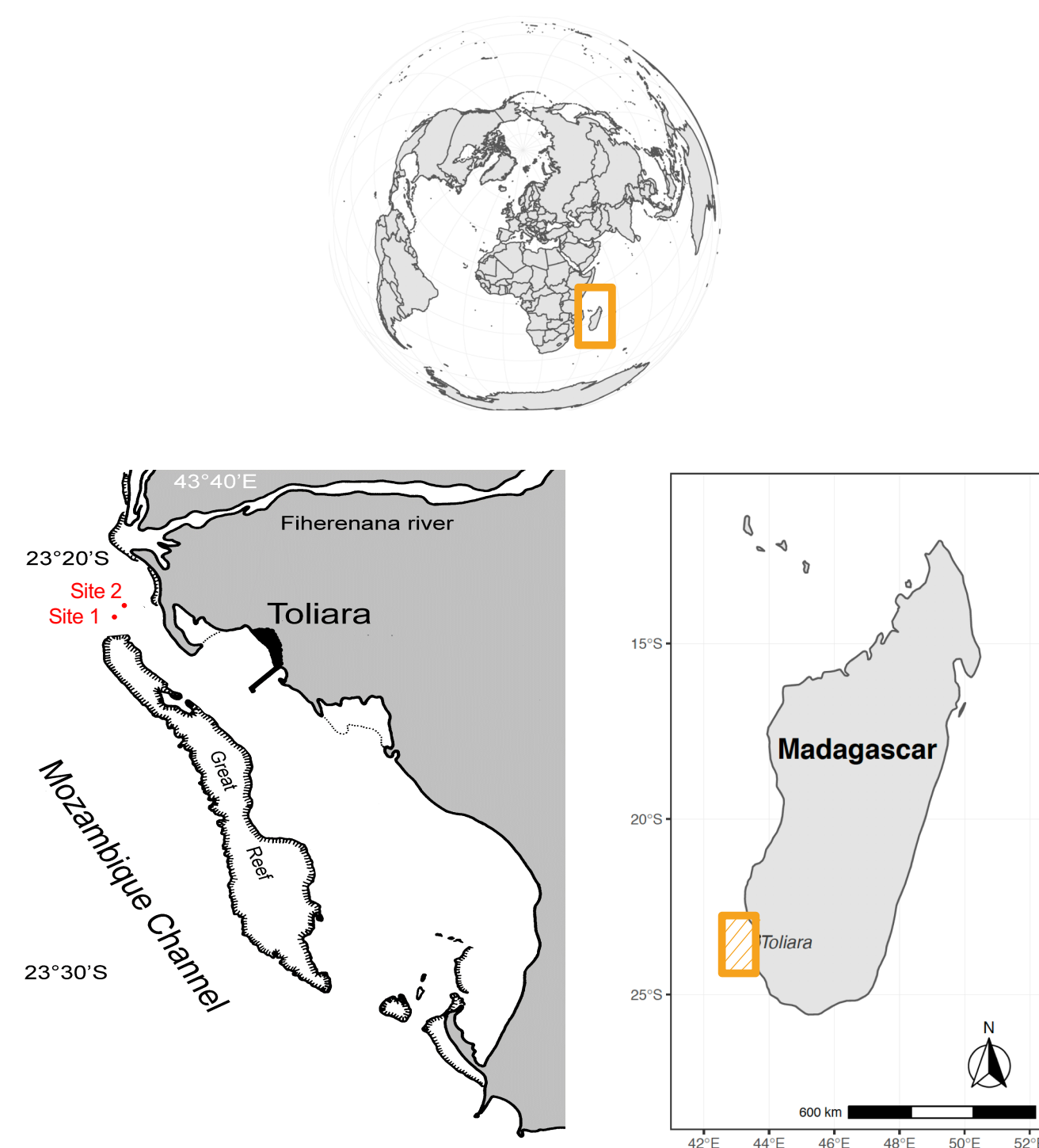
## Our hypothesis and aim

WE THUS HYPOTHEZIZE THAT BLACK CORALS DIFFER IN THEIR **TROPHIC DIVERSITY**.

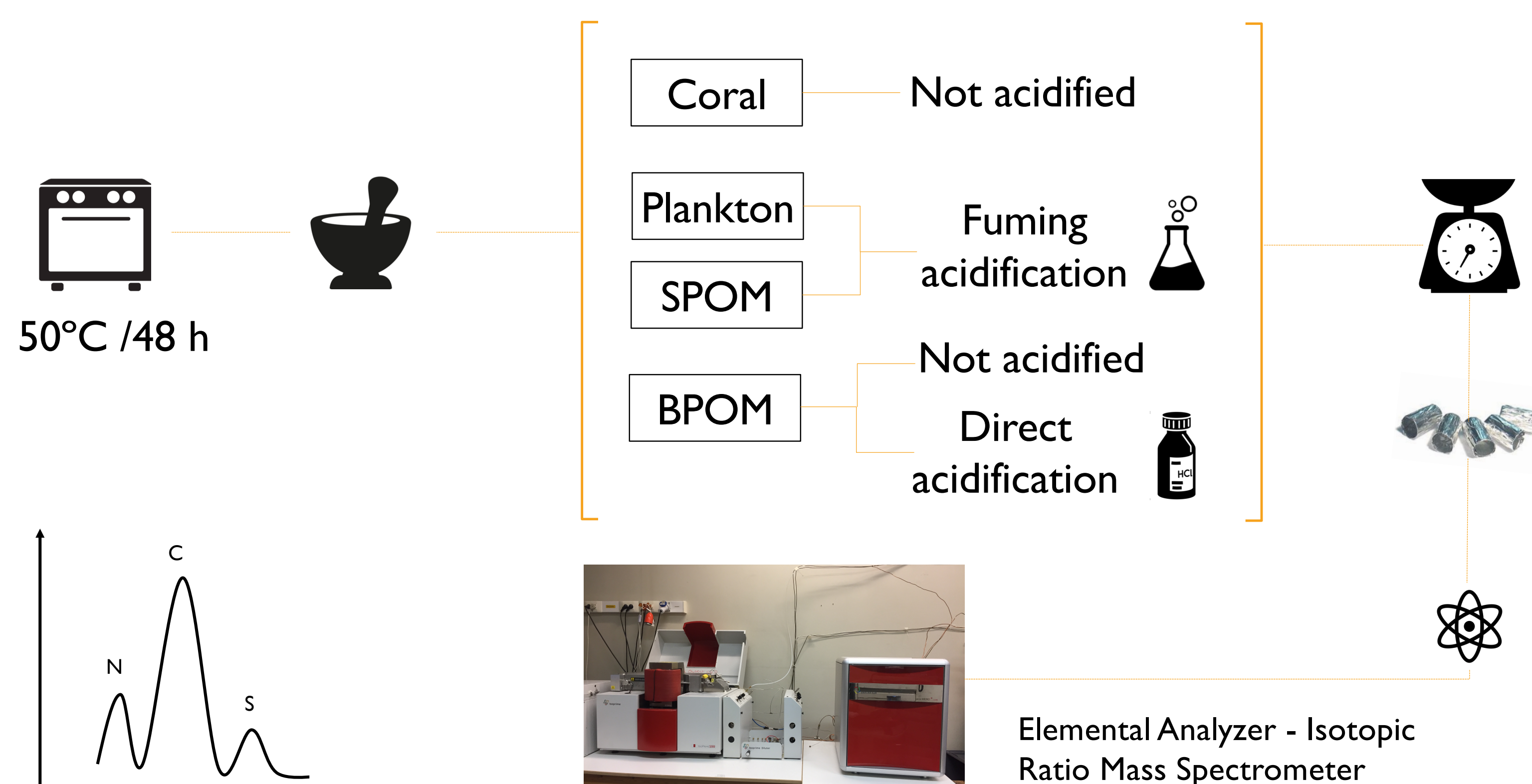
OUR AIM IS TO QUANTIFY THE RELATIVE CONTRIBUTION OF VARIOUS FOOD SOURCES TO THEIR DIET.

## Where and what did we sample?

In **Madagascar**, a black coral bed occurs in shallow waters of the Great Reef of Toliara. Samples were collected at **two sites** (15 to 25 m), at **two seasons** and at **day and night**.



## Work in progress: stable isotope analysis



- We are currently **measuring stable isotopes ratios** of carbon, nitrogen and sulfur of black coral and their potential food sources.
- Bayesian modeling tools in R (SIAR, Stable Isotope Mixing Model and tRophicPosition) will be used to determine the proportional contribution of food items in the **coral's diet & trophic position**.
- Results will allow to better understand the feeding ecology of black corals, and maybe give some clues about how these species coexist in the same environment, forming these dense black coral beds.