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Habitat use and behavioural study of the Mediterranean monk seal (*Monachus monachus*) in Samos Island, Greece

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INTRODUCTION

The **Mediterranean monk seal** (*Monachus monachus*) current distribution is fragmented and the largest known sub-population (350-450 individuals) mainly inhabits the **eastern Aegean Sea** between the Greek and Turkish coastlines¹. The presence of the monk seal is recorded in a wide range of habitats, from open beaches to marine caves². It is an opportunistic predator feeding on bony fish, cephalopods and crustaceans^{3,4} amongst others.

This study aims to develop a holistic understanding of the **habitat** and **behavioural ecology** of the monk seal around Samos Island, North-East Aegean Sea.

METHODOLOGY

Stranding and sightings data were collected by **citizen science** from May 2017 to August 2019 on Samos.

Mykali bay, south-eastern side of Samos, selected due to historical monk seal sightings records, was surveyed with three different methodologies:

- **Land-based surveys**, from 24 April 2018 to 24 April 2019, to monitor the presence and behaviour of the monk seal.
- **Snorkel surveys**, between August 2018 and July 2019, to map the substrate types from the shoreline up to a distance of 200 m from the coast.
- **Underwater visual census**, from September to October 2019, in 21 line transects to investigate the fish abundance.

RESULTS

Citizen science reports resulted in **5 stranded individuals and 21 sightings between 2017 and 2019** (Figure 1).

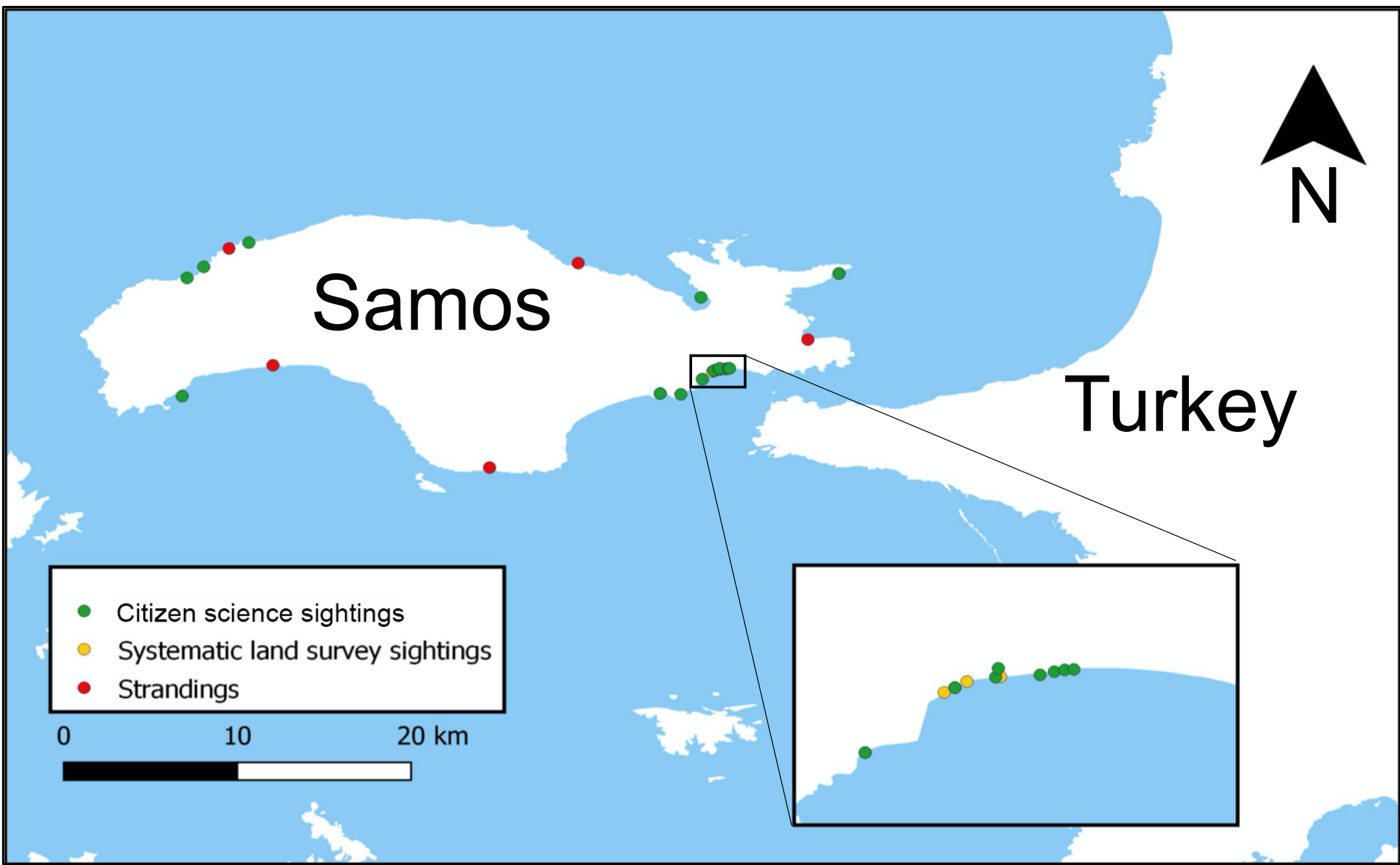


Figure 1 - Map of Samos Island with the locations of the strandings and sightings.

During the land surveys a total of 3 sightings occurred (sighting frequency = 0.31/100h). The most frequently recorded behaviour was surface swimming at 26.53% (Figure 2; 3).

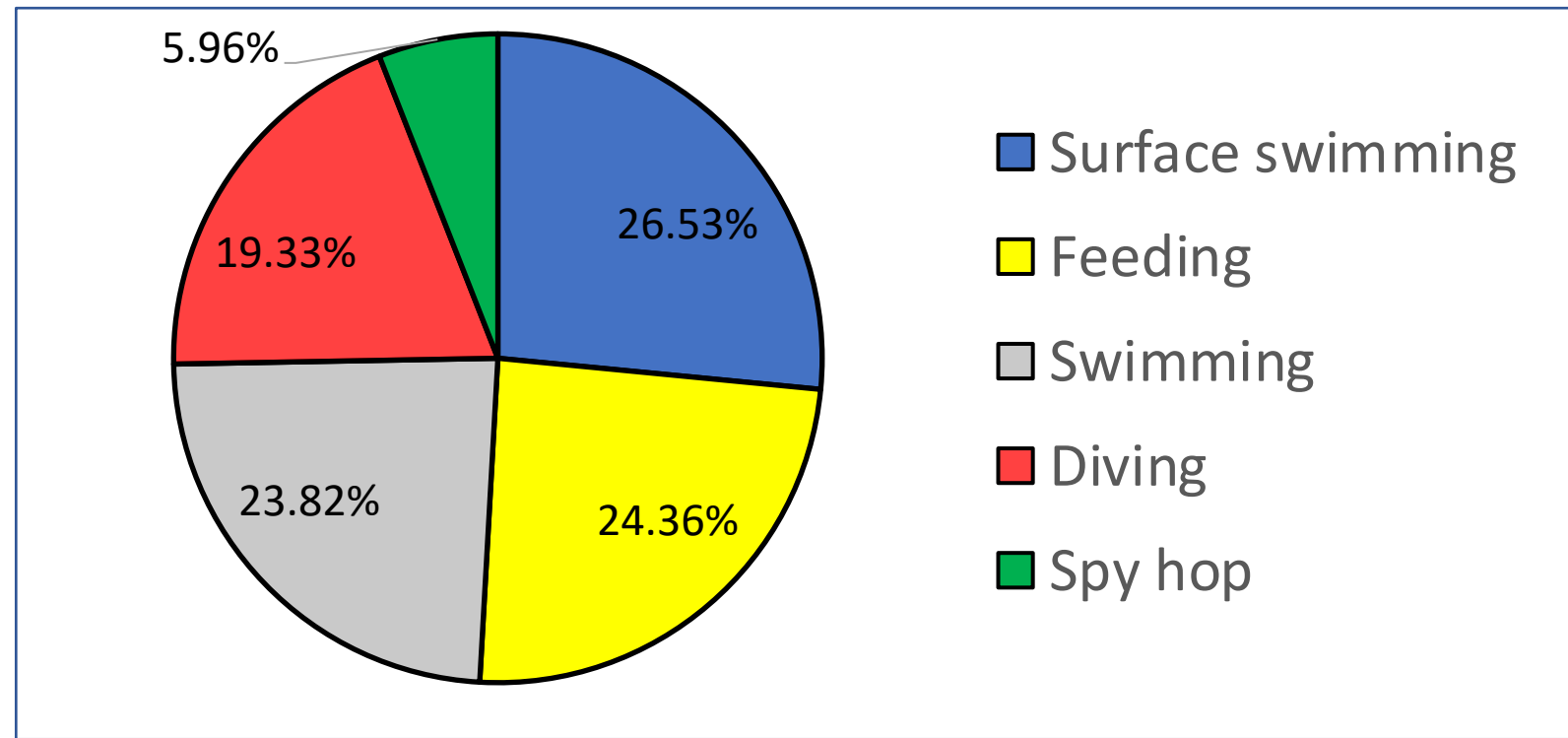


Figure 2 – Monk seal behaviour recorded.



Figure 3 – Monk seal swimming at the surface.

Snorkel surveys in Mykali bay revealed that the dominant substrate types was cobbles (44.32%) (Figure 4).

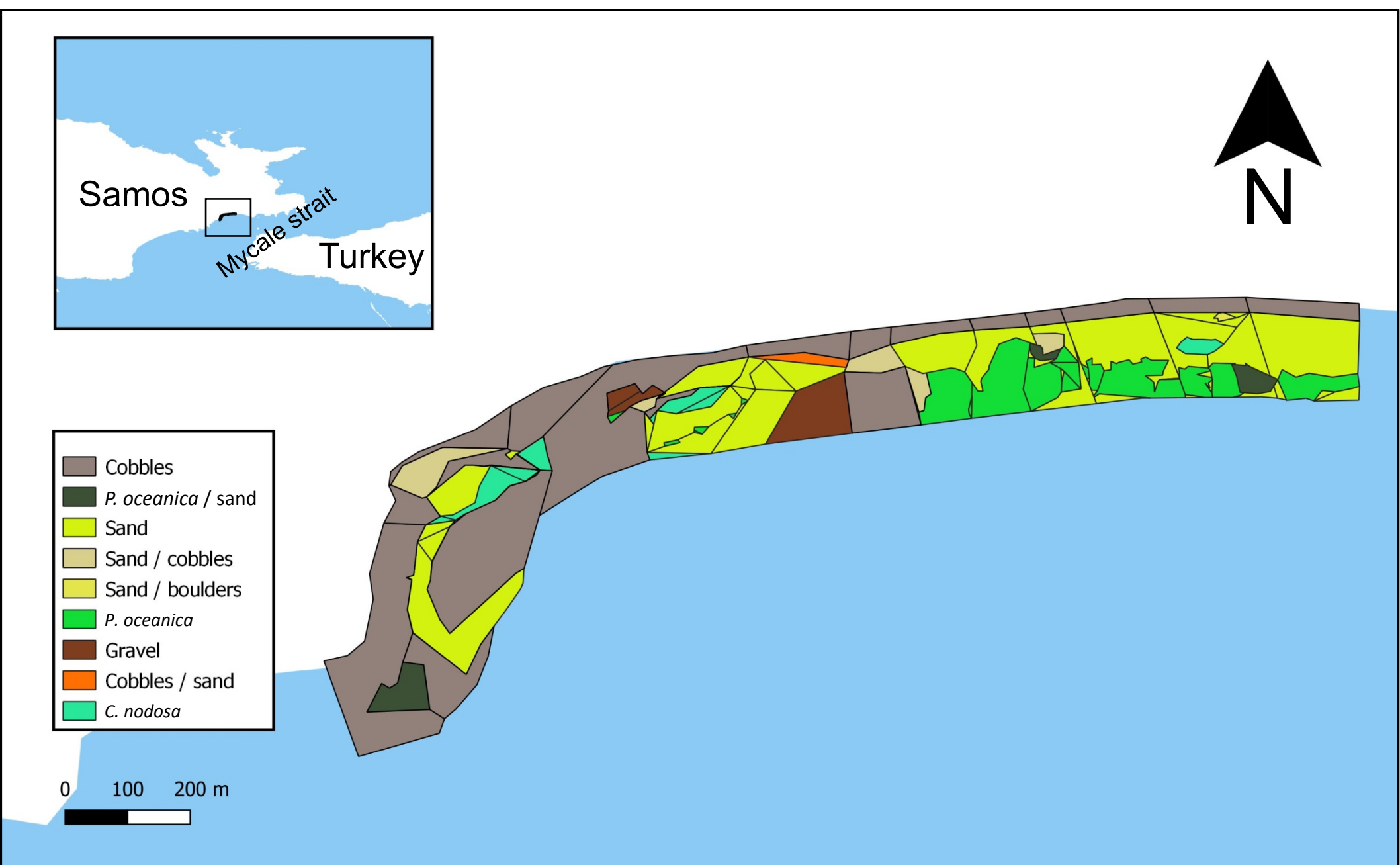


Figure 4 – Substrate types recorded in Mykali bay.

A total of 35 fish species were encountered. Diplodus was the prevalent genus (24.64%) (Figure 5).

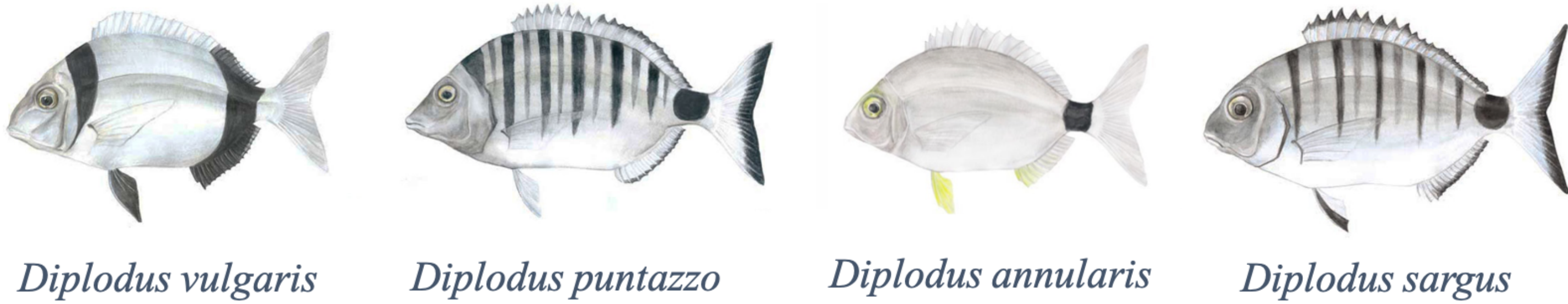


Figure 5 – Diplodus species recorded in Mykali bay. Source: Archipelagos Institute of Marine Conservation.

DISCUSSION AND CONCLUSION

Samos Island stands out as an important area for the Mediterranean Monk seal. The habitat along the coast of Mykali bay could be considered as a representative example of the eastern Aegean Sea⁵ without apparent remarkable characteristics amongst the substrate types recorded. However, the feeding behaviour displayed and the fish species recorded in the area could suggest Mykali bay as a possible **feeding ground**.

The use of a **multivariate approach** involving different methodologies and data collection sources constitutes a baseline to understand where to **focus monitoring efforts** and improve **localised protection** of **endangered species** such as the Mediterranean monk seal.

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