

# What is a 'Sandbank'?

## A Commentary Based on a Maltese Case Study

L. Knittweis<sup>1</sup>, J. Evans<sup>1</sup>, R. Aguilar<sup>2</sup>, H. Alvarez<sup>2</sup>,  
J. A. Borg<sup>1</sup>, S. Garcia<sup>2</sup> and P. J. Schembri<sup>1</sup>

<sup>1</sup> Department of Biology, University of Malta, Msida MSD2080, Malta

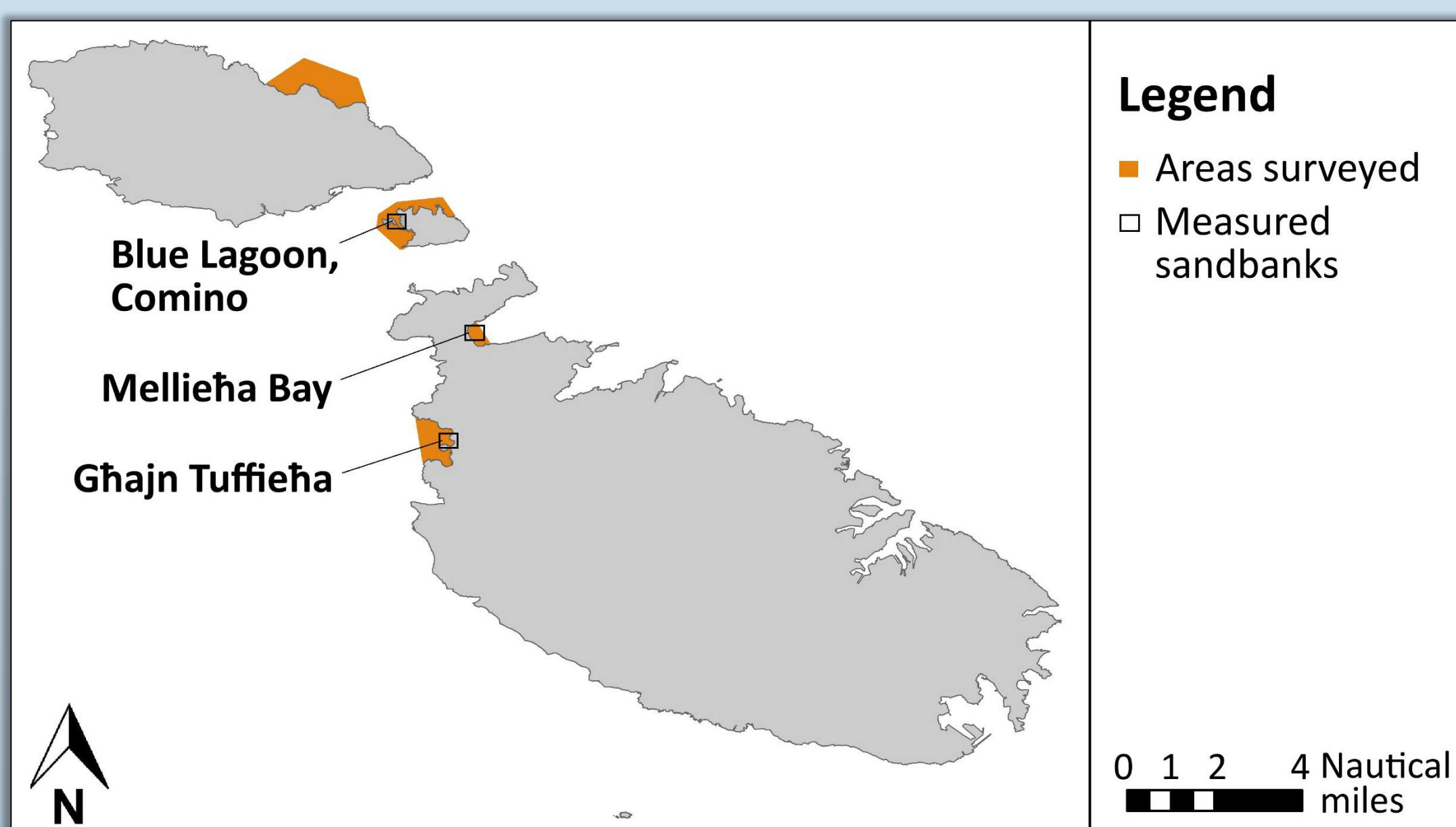
<sup>2</sup> Fundacion Oceana, Gran Via 59, 28013 Madrid, Spain

### Introduction

- The EU 'Habitats Directive' (HD) Annex I habitat "Sandbanks which are slightly covered by seawater all the time" are defined by the EU Habitat Interpretation Manual (EC, 2013) as "elevated, elongated, rounded or irregular topographic features, permanently submerged and predominantly surrounded by deeper water", which "consist mainly of sandy sediments", and where the water depth "is seldom more than 20 m below chart datum".
- The marine angiosperm *Cymodocea nodosa* is listed as a characteristic species for Mediterranean sandbanks, although it is noted that "on many sandbanks macrophytes do not occur".
- Nonetheless, several Mediterranean Member States have considered *C. nodosa* beds as equivalent to the HD Annex I sandbank habitats (Evans et al., 2014).

### Methods

- Marine areas in the Maltese Islands where sandy elevations (i.e. sandbanks in the geomorphological sense) were considered likely to be present were surveyed via snorkelling and SCUBA diving during the LIFE BaHAR for N2K project (Fig. 1). The locations, physical dimensions, and bathymetric characteristics of any sandbanks were recorded.



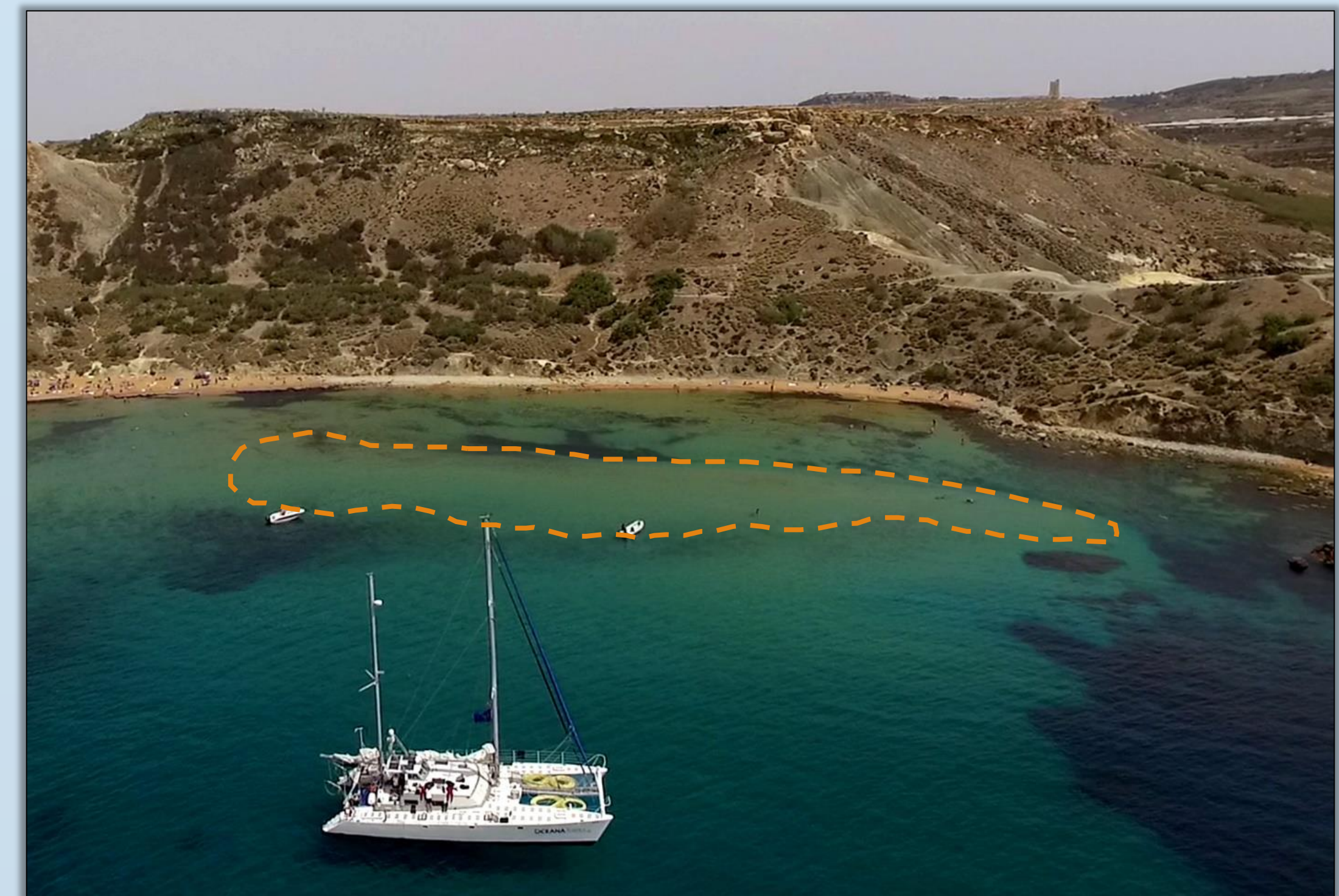
**Figure 1.** Location of areas surveyed for sandbanks, and sandbanks for which physical characteristics were measured.

- To characterise biotic assemblages, three replicate sediment core samples were collected from two stations on each of two sandbanks (at Ghajin Tuffieħa and Mellieħa Bay), and from two reference stations.

### Results

#### Question 1: What kind of 'sandbanks' occur in Maltese waters?

- Three of the surveyed areas had sandy elevations that may be classified as 'sandbanks' as per the EU Habitat Interpretation Manual definition (Fig. 1 & 2).
- These elevations occurred in very shallow waters (less than 2 m), had variable dimensions (lengths ranged from 11 m to 180 m while widths ranged from 1.5 m to 17 m), and were only marginally (around 0.2 m) elevated compared to the surrounding deeper water.



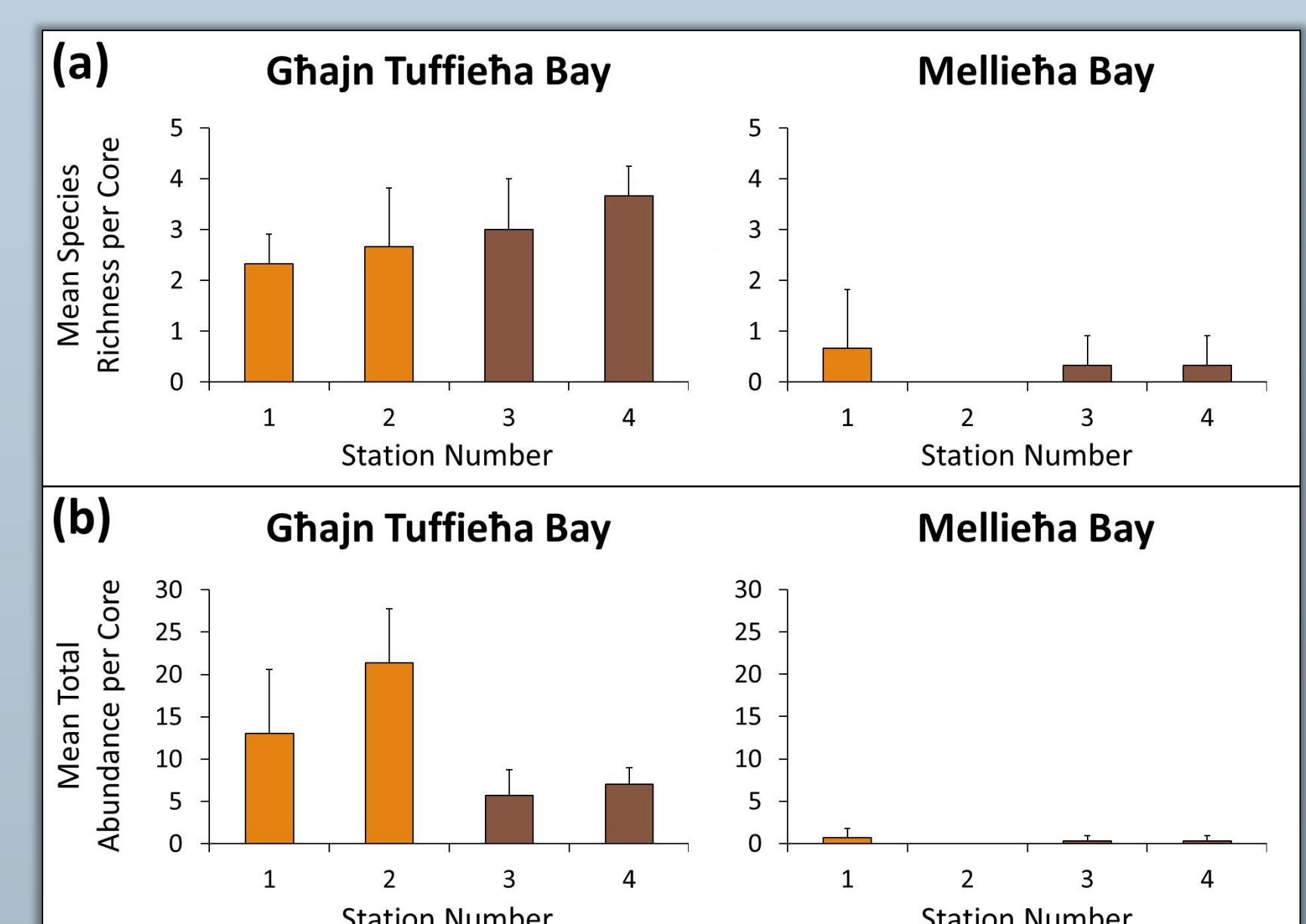
**Figure 2.** Aerial view of sandbank at Ghajin Tuffieħa Bay (dashed line).

#### Question 2: Is *C. nodosa* a good indicator species for sandbanks?

- No vegetation was recorded at any of the surveyed sandbanks, confirming that "on many sandbanks macrophytes do not occur".
- *Cymodocea nodosa* could occur on sandbanks, but was also observed on non-elevated sandy bottoms, as both sparse individuals and dense meadows. In Maltese waters this species can occur monospecifically, or in association with other seagrasses or macroalgae, and can be found down to depths of 45 m.
- Therefore, *C. nodosa* is not limited to the environmental conditions created by sandbanks, and is thus not a useful indicator species for this habitat type.

#### Question 3: Do sandbanks have unique biotic assemblages?

- Polychaetes dominated the sandbank infauna, but the same taxa (Capitellidae, Orbiniidae, Paraonidae, Spionidae) were also recorded from reference stations; the amphipod *Monoculodes* sp. was only found on sandbanks, while the amphipod *Bathyporeia* sp. and the bivalves *Donax venustus* and *Loripes orbiculatus* were only recorded from reference stations.
- Some differences were recorded between the two locations (Ghajin Tuffieħa and Mellieħa Bay), but there were no significant differences in mean total abundance or mean species richness between sandbanks and nearby reference stations (Fig. 3).



**Figure 3.** (a) Mean (+ 1 SD) species richness and (b) mean (+ 1 SD) total abundance per core recorded from the sandbank (orange bars) and reference (brown bars) stations at Ghajin Tuffieħa Bay and Mellieħa Bay.

### Acknowledgments

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### References

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