

New insight on the biodiversity of the northern Adriatic Sea



A baseline of epibenthic species distribution on the northern Adriatic mesophotic biogenic reefs

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INTRODUCTION

In the northern Adriatic continental shelf, hundreds of mesophotic biogenic reefs, ranging in size from tens to many thousands square meters, are scattered on sandy and muddy bottoms. The study of their epibenthic assemblages, which started in the early 2000s (e.g. Ponti et al. 2011, Curiel et al. 2012, Falace et al. 2015, Fava et al. 2016), is continuing with the exploration of new sites at increasingly depth and distance from the coast providing new insight on species diversity and distribution.

METHODS

In 2013-2014, a survey was carried out on 12 biogenic reefs from Chioggia to Grado (Ponti et al. 2014). In summer 2017, another survey was carried out to investigate other 12 biogenic reefs of whom two remote outcrops and 3 sites in common to the previous survey (Figure 1). Composition and abundances of the epibenthic assemblages were investigated using a non-destructive photographic sampling method (10 photos each site).

Beta diversity of epibenthic assemblages at Chioggia and Grado study sites, sampled in 2014 and 2017, was calculated by the Jaccard's index based on presence/absence data and analysed by multivariate homogeneity of group dispersions (Anderson et al., 2006).

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RESULTS

The two deeper and faraway outcrops, 31-32 m depth and about 27 nm off Chioggia have unveiled sponge gardens mainly composed by dense populations of *Polymastia boletiformis* (Lamarck, 1815, Figure 2a), *Polymastia mamillaris* (Müller, 1806, Figure 2b) and *Ulosa stuposa* (Esper, 1794, Figure 2c). Meanwhile, some previously unexplored sites off Grado, close to the midline between Italy and Croatia, revealed assemblages extremely rich in sponges and colonial ascidians.

Beta diversity analysis indicates some degree of difference in species compositions from Chioggia and Grado assemblages, which last over time (Figure 3).

DISCUSSION

The currently available data represent a new baseline on the diversity of the northern Adriatic mesophotic biogenic habitats. That may help to understand their resistance and resilience to human and climate change threats, and develop transboundary ecosystem-based management.

References

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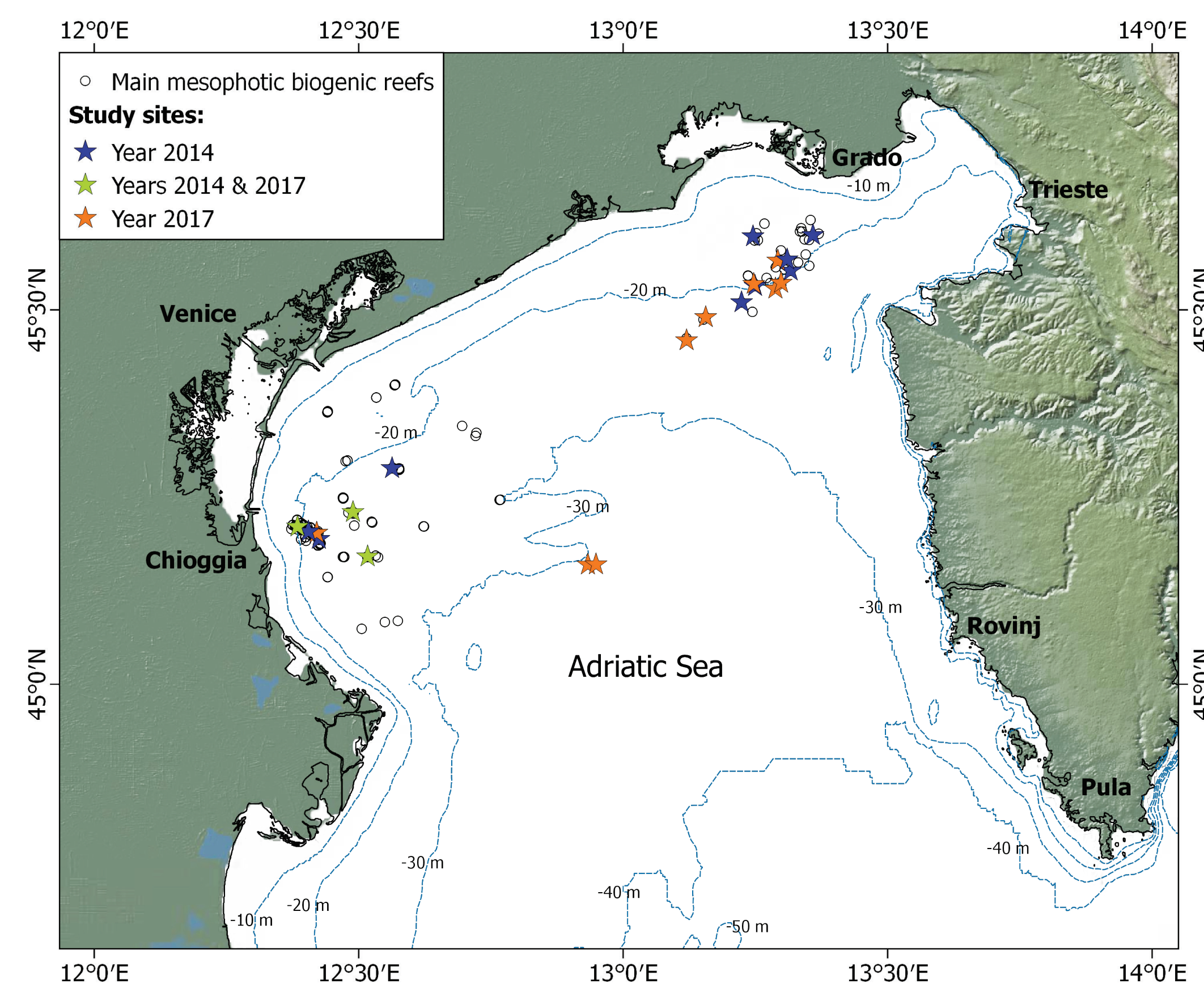


Figure 1: Study sites (Mercator Projection).

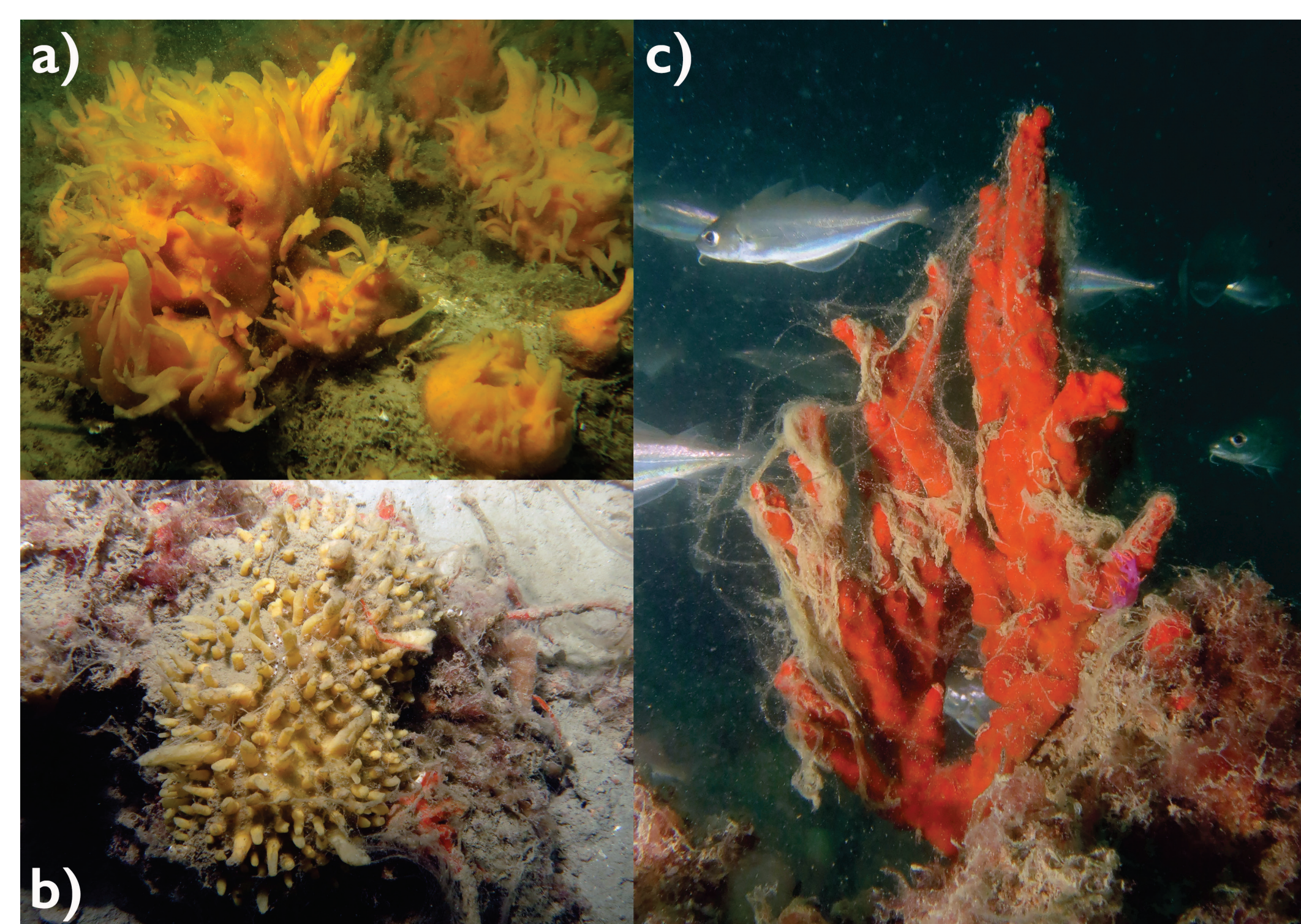


Figure 2: a) *Polymastia boletiformis*; b) *Polymastia mamillaris*; c) *Ulosa stuposa*.

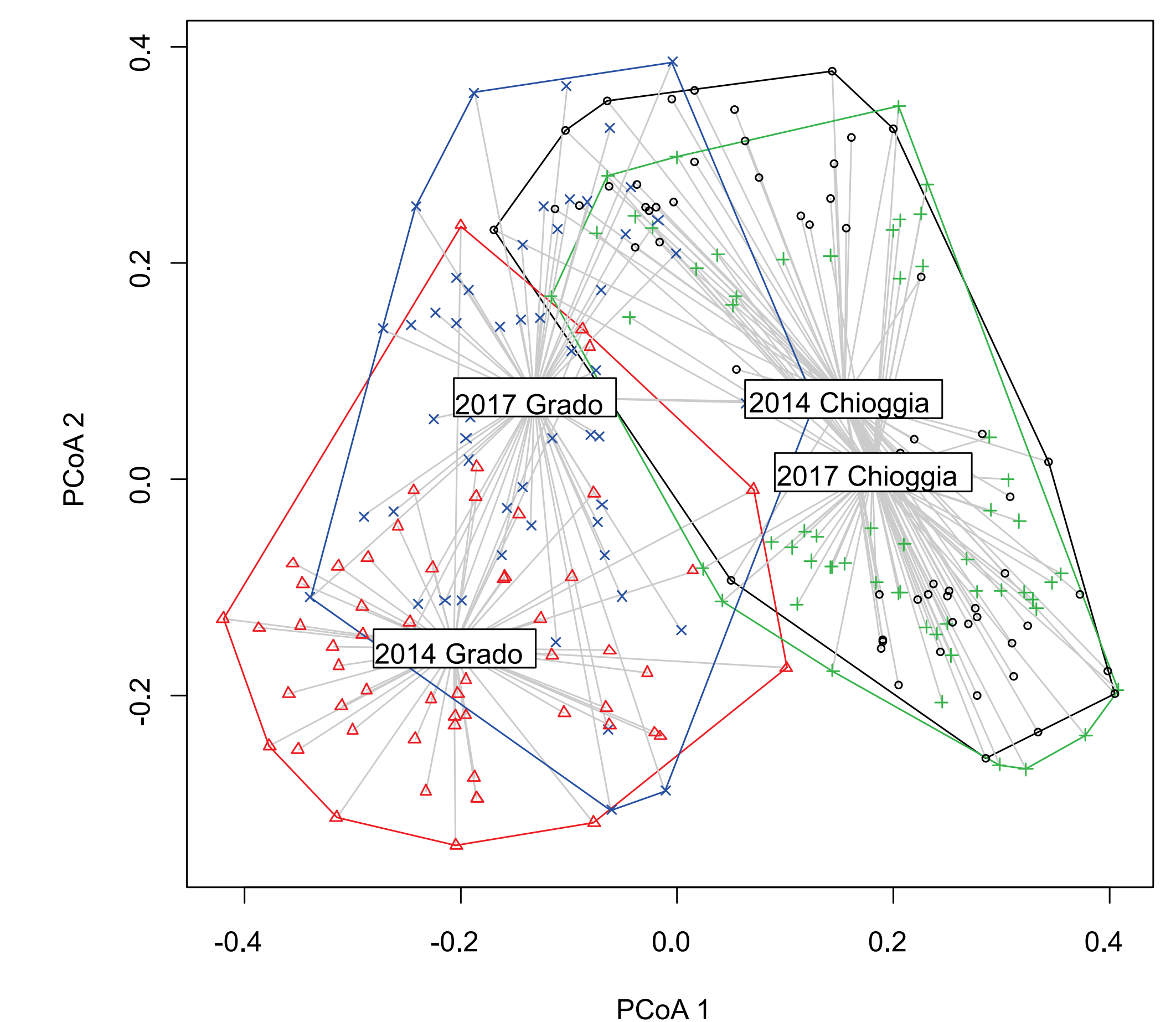


Figure 3: Comparison of the beta diversities of epibenthic assemblages at Chioggia and Grado study sites, sampled in 2014 and 2017.



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