

## Looking at biogenic *Lanice conchilega* reefs from a different perspective

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Several studies have shown the importance of reefs constructed by the ecosystem engineer *Lanice conchilega* (Polychaeta, Terebellidae) for higher trophic levels, such as demersal fish and birds (e.g. Petersen & Exo, 1999). Nonetheless, at present we do not adequately know the impact of the reverse interactions; *i.e.* in which ways these higher trophic levels interact with the physical (*e.g.* elevation) and biological (*e.g.* biodiversity) structures of the *L. conchilega* habitat and what, for example, the effect is of predation pressure on the survival and fitness of *L. conchilega* reefs.

In order to study the conditions of a *L. conchilega* reef in the presence of a predator, reef patches were transported to aquaria in the lab, exposed to a predator and meanwhile tracked for their bio-irrigating and feeding activity. *Crangon crangon* (the brown shrimp) was selected as a predator since it was shown to be one of the most important inhabitants of a *L. conchilega* reef (De Smet *et al.*, 2015). The bio-irrigating activity of a reef patch in the presence and absence of the brown shrimp was investigated by adding a 10 mmol.L<sup>-1</sup> sodium bromide (NaBr) solution to the overlying water column and subsequently quantifying the NaBr decrease over a 24h period by means of anion exchange chromatography. The effect of predation pressure on the feeding activity in the reef patch was studied by adding <sup>13</sup>C labelled algae to the experimental aquaria. After 18 days of incubation, both *L. conchilega* and associated macrofauna were analysed for their  $\delta^{13}\text{C}$  isotope values. First results show a steep decrease in the NaBr concentration in the water column over a period of 24h; both in the presence and absence of *C. crangon*, which is due to the bio-irrigating activity of the tubeworm. Outcomes on the uptake of labelled algae and hence the feeding activity of the fauna inhabiting a reef patch are in the pipeline.

This study will help to explore the top-down effects taking place within biogenic reefs in general. Moreover, in combination with previous research on *L. conchilega* reefs, the outcome of this study will give us a better and more global view of the interactions involving this particular ecosystem engineer in intertidal sandy beaches.