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13.Lessons from local experiences: the Adriatic Sea

13PO.1

IS MARINE PROTECTED AREA OF LASTOVO ISLAND (ADRIATIC SEA) A NATURAL LABORATORY IDEAL FOR TESTING THE ISLAND TRAPPED WAVES PHENOMENA?

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Island-trapped waves (ITWs) are a special case of coastal-trapped waves which occur along closed coastlines, such as islands or lakes. While surface ITWs usually have an amplitude of only a few centimeters, resonantly excited internal ITWs can surpass several tens of meters. Such ITWs can vertically transport nutrients to shallow waters with plenty of light available. Nutrients, combined with increased light availability, can trigger the primary production which is the base of the food web. The research related to ITWs was mostly focused on islands in the deep ocean, while the phenomenon was only recently recognized in a shallow and seasonally stratified sea like the Adriatic Sea. Temperature based measurements at Cape Struga (Lastovo Island), showed that geometric and stratification properties around the island can be close to resonant ones during summer. A recent field experiment was organized to determine the presence of the diurnal internal ITWs around Lastovo Island by placing thermistors on two opposite sides of the island. The thermistors were deployed at 9 equidistant depths between 5 and 45 meters on rocky cliffs facing north and south. The measurements were carried out between summer 2016 and summer 2017. During September 2016 and July 2017 significant diurnal internal waves were observed. Temperature oscillations at opposite sides of the island were out of phase, indicating the clockwise propagation of the internal wave around the island on the northern hemisphere. The question for future studies is if this resonant phenomenon can have an impact on primary production and consequently the whole food web dynamics. By using an interdisciplinary approach in investigating ITWs around Lastovo, we expect to connect physio-chemical processes in the euphotic layer with primary production and the functioning of the entire food web. We also aim to determine the parts of Lastovo Archipelago MPA which might have enhanced primary production.

13PO.2

NEW INTRODUCTION IN THE MEDITERRANEAN SEA: *ACANTHOSIPHONIA ECHINATA* (RHODOMELACEAE, RHODOPHYTA) FROM VENICE (ITALY)

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Acanthosiphonia echinata (Harvey) A.M.Savoie & G. W.Saunders is a small red algae of the family Rhodomelaceae. Thalli form tufts attached to the substratum by prostrate axes with unicellular rhizoids. The erect system is characterized by a delicate texture with polysiphoneus axes radially branched in a subdichotomous pattern and composed of four pericentral cells (Bustamante *et al.*, 2015; Savoie & Saunders, 2018). This species was originally described as *Polysiphonia echinata* Harvey from Florida and then transferred to the genus *Neosiphonia* by Mamoozadeh & Freshwater (2011). Recently, based on molecular phylogenetic analyses, the monotypic genus *Acanthosiphonia* gen. nov. was described for *Acanthosiphonia echinata* (Savoie & Saunders, 2018). This species has been considered to be restricted to the western Atlantic (North Carolina, South Carolina, Florida, Mexico, and Texas) and was reported in bloom proportions along 200 km of coastline from North Carolina to South Carolina (Schneider and Searles 1991). In 2015 Bustamante *et al.* reported the introduction of this species in Southeast Asia (Indonesia). Here the occurrence and proliferation of *A. echinata* seem to be associated with the aquaculture of *Kappaphycus alvarezii*, a kappa carrageenan-producing seaweed commercially cultivated in the tropics (Bustamante *et al.*, 2015). In this study, we report the first finding of *A. echinata* in the Venice lagoon (Mediterranean Sea). Specimens were

identified using the DNA barcoding method and in particular the plastidial *rbc*L and the mitochondrial *cox*1 markers. Probably this taxon was introduced associated with hull fouling and ballast waters, via the western Atlantic-Mediterranean-Indonesia ship route having a high number of major ports (Kaluza et al. 2010). Moreover, the high bootstrap supports obtained in our phylogenies revealed that both *Polysiphonia binneyi* and *P. havanensis* sensu Børgesen can be added to the new genus *Acanthosiphonia* as hypothesized by Savoie & Saunders (2018).