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CHARACTERIZATION OF THE RIA FORMOSA WATER BODIES IN SPRING 2017

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Abstract: The susceptibility of coastal systems to climate change and anthropogenic pressures is an important issue for the management of ecosystem values and services. In this context, UBEST project aims to improve the global understanding of the biogeochemical buffering capacity of coastal systems, regarding their responses to futures global changes. Ria Formosa lagoon is one of the most valuable ecosystems in the south coast of Portugal and one of our goals was to characterize the seasonal variability of its water bodies, defined by Ferreira *et al.* (2005) under the Water Framework Directive. Here we present data for Spring, from seven places covering globally the Ria Formosa water bodies. *In situ* measurements (temperature, salinity, pH, dissolved oxygen), and water samples for nutrients, chlorophyll *a* and suspended solids quantification were taken every two hours during a semidiurnal tidal cycle. The results, while typical for this season, clearly describe a spatial variability pattern. The lowest variability occurred at the boundary station – the main inlet, in opposition to the stations located at the edges of the lagoon. Globally, temperature, chlorophyll *a*, phosphate and silicate were highest at the eastern station where the water column was the shallowest, accompanied by an extreme variation of dissolved oxygen. The only site influenced by freshwater input showed a maximum of nitrate and ammonium concentrations. Despite that, nutrients as well chlorophyll *a* concentrations were relatively low for Spring. However, it is known that this ecosystem responds rapidly to the oceanographic processes occurring on the coast, such as upwelling, able to supply nutrients and fertilize the Ria Formosa. These data, together with others gathered under different seasonal conditions, will contribute to better understand the global functioning of this system and further to validate the numerical hydrodynamic-biogeochemical models used to simulate and anticipate the susceptibility of Ria Formosa to future scenarios.

Key words: Coastal lagoon, Ria Formosa, nutrients, chlorophyll *a*, dissolved oxygen.

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