

**Conference Title:**

Sea and the City: spatio-temporal variability in coastal systems

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**Abstract:**

Focoastal areas play a fundamental role in the functioning of marine ecosystems. These are strategic areas, transition zones in which terrestrial, atmospheric and oceanic factors come together and whose dynamics determines a wide variety of natural resources. Unlike what happens in vast regions of the ocean, where planktonic organisms exhibit recurring seasonal cycles and a clear synchrony with the physical forcing, coastal planktonic communities show a strong temporal and spatial variability. Seasonal patterns are not always visible and the dynamics of the community is often dependent on specific local processes. In recent decades, the step-up of urban pressure along the coast and the growing impact of human populations have increased the influence of terrestrial factors on coastal waters, pressing the need to understand the singularities and the functioning of coastal ecosystems. In this context, the lecture will address the variability of plankton in an urbanized coastal area, placing special emphasis on (i) the various time scales at which physical forcing factors operate and their different effects on the organisms, (ii) the divergence between coastal plankton dynamics and the variations observed in open ocean regions, (iii) the heterogeneity of coastal waters, which integrate different geomorphological, oceanographic and land use properties that are key to understand the response of the organisms to environmental perturbations.