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Orientation: Ocean Observation and Global Change
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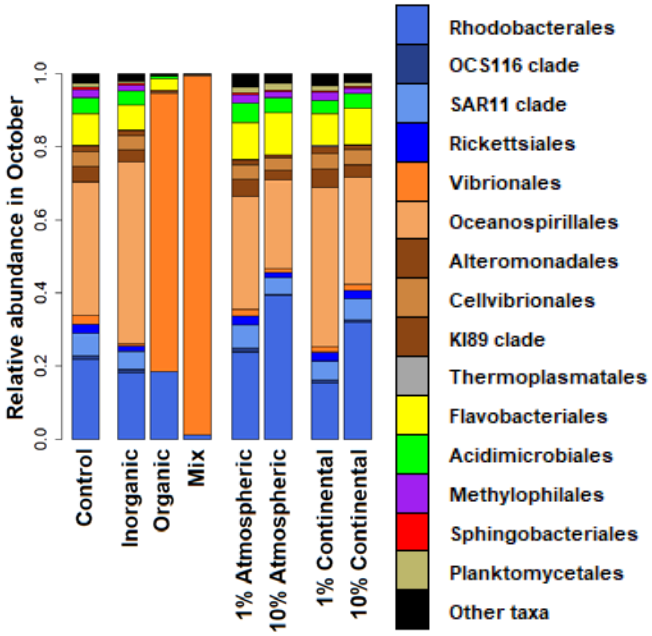
Research Line: 1.4 Biological Oceanography



PhD project: **Effect of increasing nutrient inputs on the community structure of microbial plankton using sequencing techniques**

Supervisors: Dr. Emilio Fernández Suárez (University of Vigo)
Dr. Eva Teira González (University of Vigo)

Summary: Anthropogenic nitrogen enrichment can cause eutrophication in coastal waters, causing changes in microbial biomass. The Ría de Vigo, located at NW Iberian Peninsula, is affected by anthropogenic nutrient enrichment deriving from the discharge of incompletely treated wastewater into the coastal waters. The responses of coastal microbial communities to these inputs are known to depend on the magnitude and nature of these inputs. However, little is known about the changes in bacterial community composition resulting from enhanced anthropogenic nutrient inputs.

To understand the response of bacterioplankton communities from the Ría de Vigo to different levels of nutrient inputs from different sources, three nutrient addition experiments were performed in spring, summer, and autumn. The experiments consisted of controlled (inorganic, organic, and mixed), and natural (atmospheric and riverine) nutrient additions to surface water samples taken from the middle of the ria. After 48-h incubations, under in situ temperature and irradiance conditions, the resulting prokaryotic community DNA was collected and analyzed using high-throughput amplicon sequencing of the 16S rRNA gene.

Moreover, DNA samples were collected from the Bohai Sea (China), in order to carry out research in different environments.

Further experiments are expected to be performed by sampling water from the continental shelf.