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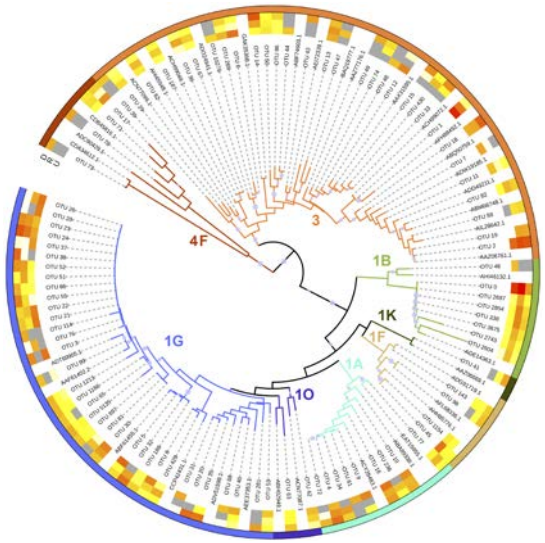
Orientation: Ocean Observation and Global Change
Specialization Area: Ocean Observation
Research Area: 1.4 Biological Oceanography



PhD project: **Biological N_2 fixation in the upwelling region off NW Iberia: magnitude, relevance and players**

Supervisors: Dr. Beatriz Mouriño Carballido (University of Vigo)
Dr. Emilio Marañón Sainz University of Vigo)

Summary: The classical paradigm about marine biological N_2 fixation establishes that this process is mainly constrained to nitrogen-poor tropical and subtropical regions, and sustained by the colonial cyanobacterium *Trichodesmium* spp. and diatom-diazotroph associations. However, the development and application of molecular techniques allowed determining a high phylogenic diversity and wide distribution of potentially active marine diazotrophs, which extends the range of ocean environments where N_2 fixation may be relevant. Between February 2014 and December 2015, we carried out 10 one-day samplings under contrasting hydrographic regimes in the temperate NW Iberian upwelling system in order to: 1) investigate the seasonal variability in the magnitude of N_2 fixation, 2) determine its biogeochemical role as a mechanism of new nitrogen supply versus nitrate diffusive fluxes, 3) investigate the temporal variability of the diversity of the diazotrophic community and its relationship with the hydrodynamic forcing, and 4) quantify the main diazotrophs in the region.