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

DO MAR
PHD PROGRAM IN MARINE SCIENCE, TECHNOLOGY AND MANAGEMENT

PhD project: **Effect of the CO_2 increase in the marine phytoplankton: Physiology, metabolism and consequences to others factors of the marine Global Change**

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Summary: After the Industrial Revolution, the CO2 produced by humans and emitted to the atmosphere has been increased exponentially. As a result of this CO2 increase, the ocean surface absorbs one third of the carbon emissions per year. In this investigation planning we propose to test the CO2 effects in different marine phytoplankton species, which are really important as primary producers in the Earth. The investigation planning is going to be focused in the effect of the CO2 increase in the Carbon Concentrating Mechanisms (CCMs)and its physiological and metabolic consequences to the cell system, population and community, this last one by analyzing the effect of CO2 in marine natural samples. Recent works demonstrate that the downregulation of these mechanisms are more responsible of the increase of marine primary production than the CO2 atmospheric increase. These results have been observed basically in diatoms and it is not known how they affect to other phytoplankton groups and marine ecosystem. The experimental approach is going to be test by the physiological and metabolic responses to CO2 increase in phytoplankton laboratory cultures and in phytoplankton natural samples of Ría de Vigo exposing them to different environmental factors.