

What can microbiomes tell us about marine pollution and their effects on planktonic food-webs?

Project description

Legacy and emerging organic pollutants, including hydrocarbons, reach the open ocean by atmospheric deposition and currents, surpassing annually the amounts released by any oil spill accident. This chronic pollution by background concentrations of organic contaminants (OPs) originates irreversible changes in marine ecosystems, although these effects are understudied in the planktonic fraction of the food web. We aim to fill this knowledge gap by means of molecular techniques. We recently conducted an oceanographic transect crossing the Atlantic ocean (from Vigo (Spain) to Punta Arenas (Chile)) and collected samples of marine environmental DNA (eDNA) and copepod-associated microbiomes along with OPs samples.

Tasks to be performed by the candidate

We offer to train a student on molecular techniques and bioinformatic and statistics skills to learn: (1) DNA extraction, (2) amplification of microbial taxonomical genes (18S and 16S) by PCR (3) sequencing data processing using R (4) basic statistics to extract information from taxonomical matrices and correlate them to changes in environmental parameters (5) scientific writing. Results from this study will identify taxa associated to background marine pollution, as potential candidates of biomarkers of the effects of chronic pollution in the open ocean.

Tutor

Maria Vila (maria.vila@idaea.csic.es) & Carlos Barata (carlos.barata@idaea.csic.es)

