
[ASLO 2021 HOME PAGE](#) [MEETING PORTAL HOME](#) [ABSTRACT GALLERY](#)[POSTER GALLERY](#) [EXHIBITOR GALLERY](#) [SCHEDULE](#) [LOGIN](#)

Author: Josep Maria G Piqué, *Research Professor* (Institut de Ciències del Mar (CSIC))

Designation:

Description:

The Deep Chlorophyll Maxima (DCM) is likely the most relevant oceanic biological structure of the upper ocean. The combination of opposite vertical gradients of light and nutrients, generate a highly stratified ecosystem in which important changes in environmental conditions are present in relatively small spaces, generating a variety of niches for protists and prokaryotes. While phytoplankton are known to position themselves at varying levels in this oceanic structure, much less is known about prokaryotes and other protists. We investigated the fine distribution of microbial groups across the DCM in open waters of the Mediterranean (in early fall 2017) and the Atlantic Ocean (in March 2019). We inspected several sources of variability, including the day/night cycle, and the size-fraction analyzed (0.2-3, 3-20 and 20-200 μm), implying different cell sizes or free-living versus particle-attached lifestyles. We took between 5 and 7 samples across a 50 m DCM (plus at least two additional samples above and below the structure). Amplicon sequence variants of the 16S- and 18S-rRNA gene were compared to nutrient concentrations, light penetration, microbial abundance and heterotrophic activity across the DCMs. We classified the microbes according to whether they dominate at the surface and persist or not at the DCM, produce one or two different peaks at the DCM, or appear below the DCM and also/or not further down, and also explore the connectivity across the DCM for the various microbial groups. Our data offer insight into niche differentiation in the pelagic across small spatial scales.

Category: Scientific Program Abstract > Special Sessions > SS24
Aquatic microbial structure and function across spatiotemporal scales

Full list of Authors

- Carolina Marín-Vindas (Escuela de Ciencias Biológicas, Universidad Nacional, Heredia, Costa Rica)
- Aleix Obiol (Institut de Ciències del Mar-CSIC)
- Vanessa Balagué (Institut de Ciències del Mar-CSIC)
- Eugenio Fraile-Nuez (Instituto Español de Oceanografía. Centro Oceanográfico de Canarias, Santa Cruz de Tenerife, Spain)
- Jesús Arrieta (Instituto Español de Oceanografía. Centro Oceanográfico de Canarias, Santa Cruz de Tenerife, Spain)
- Isabel Ferrera (Instituto Español de Oceanografía. Centro Oceanográfico de Málaga, Fuengirola, Spain)
- Ramon Massana (Institut de Ciències del Mar-CSIC)
- Marta Sebastián (Institut de Ciències del Mar-CSIC)

FINE-SCALE STRUCTURING OF MICROBIAL POPULATIONS ACROSS THE DEEP CHLOROPHYLL MAXIMA LAYERS IN THE NW MEDITERRANEAN AND CENTRAL ATLANTIC

Category

Scientific Program Abstract > Special Sessions > SS24 Aquatic microbial structure and function across spatiotemporal scales

Preference: Oral

[A Conference by Association for the Sciences of Limnology and Oceanography.](#) | [Powered by OpenWater.](#) | [Need assistance? Click 'Need Help?' in the navbar.](#)

Launch Chat