



# 2015 Aquatic Sciences Meeting

Aquatic Sciences: Global And Regional Perspectives — North Meets South

22-27 February 2015 — Granada, Spain

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## ABSTRACT

### INTERACTIVE EFFECTS OF ELEVATED CO<sub>2</sub>, NUTRIENT ENRICHMENT AND IRRADIANCE ON PHYTOPLANKTON AND BACTERIOPLANKTON FROM A COASTAL ENVIRONMENT

Global climate change effects on coastal plankton (< 200 µm) were investigated in a microcosm experiment conducted as part of the Group on Aquatic Productivity (GAP) workshop in Málaga, Sept. 2012. Screened water from the nearby Alboran Sea (NW Mediterranean) was incubated in triplicate 20 l microcosms at two levels of solar UV+PAR irradiance (32% and 61% of incident), ambient and enhanced nutrients (the latter simulating coastal pollution), and ambient or elevated CO<sub>2</sub> (1000 ppmv) for seven days monitoring phytoplankton and bacterioplankton biomass, taxonomic composition, metabolism and physiological status. The community was initially dominated by picoplankton but removal of mesozooplankton resulted in a trophic cascade and shift in size spectrum to microplanktonic diatoms. Nutrient additions enhanced accumulation of chl a, bacterial productivity and lowered the particulate C:N ratio. Similar nutrient effects were apparent under elevated CO<sub>2</sub> while interactive effects were only observed with light availability, particularly affecting the abundance of diatoms. Physiological assays (Esterase, ROS) indicated a down-regulation of cell metabolism at elevated CO<sub>2</sub>, which improved resource use efficiency at low light, but impaired growth at high UV+PAR.

#### AUTHORS

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#### DETAILS

Oral presentation

Session #:084

Date: 2/24/2015

Time: 09:15

Location: Seminario 3-4-5 (Floor 1)

Presentation is given by student: No



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