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**“The Distribution Of Water Masses And Their Correlation To
Zooplankton Biovolume And Size Distribution Measured By
An Optical Plankton Counter In The Eastern Alboran Sea”**

Abstract: The eastern Alboran Sea is a region of strong interaction between several different surface and deep water masses originating in both the Atlantic and in the Mediterranean Sea. The relationship of zooplankton biovolume and size to the water mass structure at the front between Almeria (Spain) and Oran (Algeria) is investigated using data from a Focal Technologies Optical Plankton Counter mounted on a towed undulating SeaSoar vehicle. The frontal structure and associated mixing processes have been identified to have a significant influence on local phytoplankton and zooplankton communities. In particular, different levels in zooplankton biovolume have been found in two different surface water masses, one on either side of the front. These water masses have also proved to have distinctive size fractionated zooplankton biovolume. Mediterranean Surface Water (MSW) to the Northeast of the front was characterised by a distinct zooplankton biovolume peak throughout most of the size spectrum from 0.3 – 6.6 mm (Equivalent Spherical Diameter). Surface waters of Atlantic origin in part of the frontal jet and on the edge of the EAG to the Southwest showed a bimodal distribution through the whole size spectrum. This distinctive size fractionated zooplankton biovolume distribution follows findings from previous literature identifying the frontal region and the associated strong jet as a region of locally high production in comparison to the relatively oligotrophic adjacent waters. Competition in the more oligotrophic MSW is likely to result in lower biological diversity and a more stable zooplankton community.