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## **Turbidity sensor response to seasonal and spatial variability of suspended particle composition in open clear waters –(Portuguese continental shelf)**

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As part of AQUIMAR project (MAR2020 n° MAR-02.01.01-FEAMP-017 – AQUIMAR – Caraterização geral das áreas aquícolas para estabelecimento de culturas marinhas), intensive CTD surveys and turbidity/concentration data were collected in four cruises along the Portuguese continental shelf (30-200m depth), in 5 aquaculture areas from 2018 to 2020. In-situ calibration of the turbidity sensor (Seapoint Turbidity Meter) was done using the traditional gravimetric method of suspended sediments concentration (SSC) determination with water sampling and filtering. The obtained FTU/SSC relations resulted in correlations in the order of  $R^2=70-80\%$  for all considered surveys.

Measured turbidity and concentration values, were generally very low (<2 FTU and <2 mg/l) for all measuring periods, however variations of the FTU/SSC sensitivity between the different areas indicate that significant variations of suspended matter composition exist throughout the Portuguese continental shelf.

This study aims to understand the seasonal and spatial variations of the turbidity signal sensitivity to SSC. To this end, a closer look will be given to samples collected during two contrasting seasonal periods (spring and late autumn 2019), as well as to the general water column structure at the time of the sample collection. Additionally, results from X-Ray diffraction analysis performed in some of the filtered samples will be used to better understand the variations of the suspended sediment composition in open clear waters. The mineralogical signal shows a dominance of clay minerals in suspension (mean 83%) and calcite (mean 10%), reflecting the detritic and organic fraction of SSC, respectively.