



Observations of plankton communities in the Senegalese upwelling system

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Abstract

The southern Senegalese upwelling region is one of the most productive marine ecosystem where small pelagic fish (SPF) represent an abundant marine resource for West African countries. The distribution of SPF shows a high spatio-temporal variability partly driven by the distribution of plankton which constitutes their diet. Four pluridisciplinary oceanographic surveys were conducted since 2012 in order to fill the gap of knowledge in this part of the Canary Upwelling System which has been understudied the last 30 years. Diatoms and dinoflagellates dominate the microphytoplankton compartment. More than 100 species have been identified for each voyage, diatoms dominating the abundance while dinoflagellates been able to dominate in terms of biovolume due to their size. Five out of twenty nine harmful algae recorded in eastern boundary upwelling systems have been encountered in the Senegalese upwelling. The distribution of phytoplankton biomass is tightly coupled to hydrodynamics but the fate of this production which integrates both physical and biological processes imply a complex and highly variable distribution. The degradation of this production superimposes on depleted oxygen waters upwelled onto the shelf that results in the production of hypoxia and anoxia events where denitrification processes take place.



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