Session ICAWA-4

Effect of environmental variables on the structure of micronectonic layers over the Senegalese continental shelf

Ndague DIOGOUL[1,6*], Patrice BREHMER[2,3,6], Yannick PERROT[3], Maik TIEDEMANN[4], Abou THIAM[1], Salaheddine EL AYOUBI[5], Anne MOUGET[3], Chloé MIGAYROU[3], Oumar SADIO[2], and Abdoulaye SARRÉ[6]

[1] University Cheikh Anta Diop UCAD, Institute of Environmental Science (ISE), Dakar, Senegal
[2] IRD, Univ Brest, CNRS, Ifremer, LEMAR, Campus UCAD-IRD de Hann, Dakar, Senegal
[3] IRD, Univ Brest, CNRS, Ifremer, LEMAR, DR Ouest, Plouzané, France
[4] Institute of Marine Research IMR, Pelagic Fish, PO Box 1870 Nordnes, 5817 Bergen, Norway
[5] Institut National de Recherche Halieutique INRH, Agadir, Morocco
[6] Institut Sénégalais de Recherches agricoles ISRA, CRODT, BP 2221 Dakar, Senegal

*Correspondance: Tél: (+221) 77 623 3520; Courriel: diogoulndague@yahoo.fr (N. DIOGOUL)

Reçu le 13/11/2017; publié le 15/06/2019

Abstract

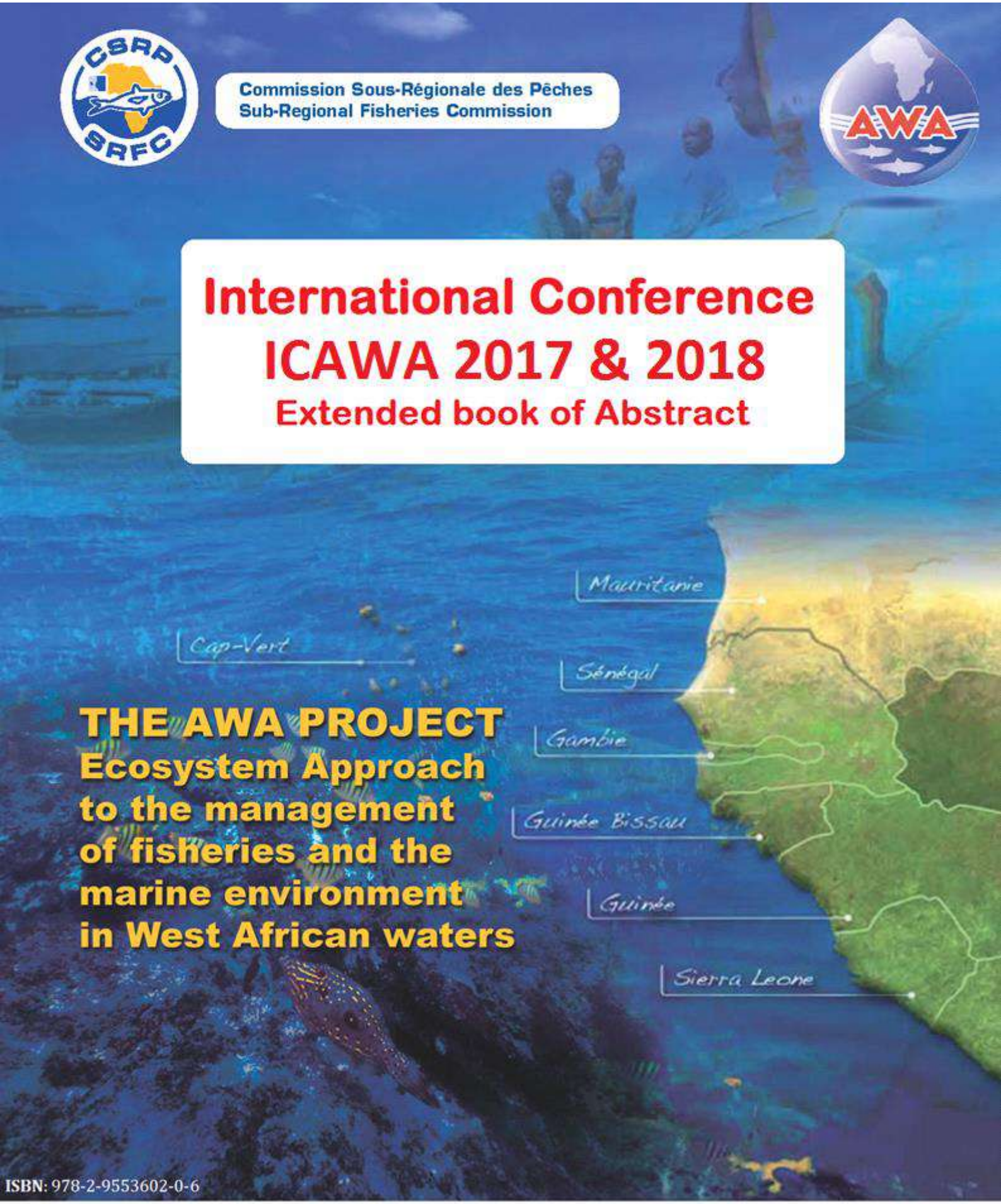
The micronectonic organisms aggregate at specific depths and occur as scattering layer on echosounder records. They constitute an important component in the marine food web in direct contact with primary producers. We characterized the Senegalese water masses of the “Petite côte” on physicochemical and biological criteria using an in situ data set collected during an acoustics survey. Then we described at fine scale spatial and temporal variation of micronektonic layers in relation with their environment. Two areas with different characteristics have been discriminated: the upwelling’s cell area and the upwelling’s offshore area more stratified, warm and sharply separated from the other area by a strong thermal boundary. The spatio-temporal variation of scattering layer’s thickness of micronectonic is strongly influenced by depth and the time of the day. The continental shelf scattering layer’s thickness increases with depth, but no variation is reported in longitudinal plane. In both areas nocturnal layers are thicker and deeper than diurnal ones. The hydrological structure of the water column also influence the micronectonic scattering layer. The scattering layer requires "stable" physical conditions which support vertical stratification. In the upwelling’s area cell, the chlorophyll-a (CHL) concentration is correlated to scattering layer thickness during night time. In the upwelling’s offshore area, sea temperature, water density and oxygen have a significant effect on the scattering layer’s thickness during the nightime. However, during the daytime, CHL has a significant effect on the scattering layer’s thickness. This correlation between CHL and scattering layer thickness in the upwelling’s offshore area during day could be explained by an inverse diel vertical migration of a micronectonic group. On this basis we assume that trophic relationship between phytoplankton and micronecton operate during the day at the surface in this area.

Keywords: sound scattering layer, plankton, fish, upwelling, ecosystem, ECOAO, West Africa.

Commission Sous-Régionale des Pêches
Sub-Regional Fisheries Commission

International Conference ICAWA 2017 & 2018

Extended book of Abstract



THE AWA PROJECT
Ecosystem Approach to the management of fisheries and the marine environment in West African waters

ISBN: 978-2-9553602-0-6

Bundesministerium
für Bildung
und Forschung

Institut de Recherche pour le Développement
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Trilateral German-French-African research initiative

Edited by

Patrice BREHMER (IRD, France)

Technical support: Ndague DIOGOUL (IRD, Sénégal), Cordula Zenk (Geomar, Germany) and Mahaut de Vareilles (UiB, Norway)

With the collaboration of

Noel Keenlyside (Norway), Jorge M. NASCIMENTO (CABO VERDE), Vito Melo RAMOS (CABO VERDE), Bamol Ali SOW (SENEGAL), Heino FOCK (GERMANY), Joern SCHMIDT (GERMANY), Werner EKAU (GERMANY), Adama MBAYE (SENEGAL), Assane FALL (MAURITANIA), Ivanice MONTEIRO (CABO VERDE), Aka Marcel KOUASSI (IVORY COAST), Osvaldina SILVA (CABO VERDE), Timothée BROCHIER (FRANCE), Moussa SALL (SENEGAL), Mohamed MAYIF (MAURITANIA), Vamara KONÉ (IVORY COAST), Thomas GORGUES (FRANCE), Carlos FERREIRA SANTOS (CABO VERDE), Idrissa Lamine BAMY (GUINEA), Iça Barry (GUINEA BISSAU), Momodou Sidibe (THE GAMBIA), Hamet Diaw DIADHIOU (SENEGAL)

ISBN: 978-2-9553602-0-6

Cover design: AWA (BMBF – IRD) project

Logo and flyers: Laurent CORSINI (IRD)

The both last ICAWA edition, 2017 and 2018, was done as a joint event with other closely related meeting. In 2017 with the inauguration of the OSCM in Cabo Verde underlining AWA cooperation with INDP and UNICV as well as Geomar and collaborators. In 2018 ICAWA was join to Preface final meeting following the memorandum of understanding signed a couples of years before between the two consortium and which have led at the end to a common policy session followed by the redaction of a policy brief taking advantage of the results of the both projects. Some abstract aside ICAWA joint session are missing see the orgniser to get more information.

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These two edition of ICAWA were joint with OSCM inauguration and the final meeting of the European preface project, respectively in 2017 and 2018.

International Workshop on Marine & Atmospheric Sciences in West Africa Joint with ICAWA 4th, edition 2017

Ocean Science Centre Mindelo Cabo Verde, Nov 13th to 17th, 2017

Book of abstract