

Detecting phytoplankton dynamics in the central Benguela current upwelling ecosystem off Namibia by using in situ chlorophyll- α measurements.

D.C. Louw (Ministry of Fisheries and Marine Resources)

National Marine Information and Research Centre, PO Box 912, Swakopmund, Namibia

* Corresponding author, e-mail: dclouw@mfmr.gov.na

Anja Eggert (Leibniz Institute for Baltic Sea Research Warnemünde)

Leibniz Institute for Baltic Sea Research Warnemünde, Seestrasse 15, D-18119 Rostock, Germany

anja.eggert@io-warnemuende.de

Anja van der Plas (Ministry of Fisheries and Marine Resources)

National Marine Information and Research Centre, PO Box 912, Swakopmund, Namibia

avaderplas@mfmr.gov.na

Volker Mohrholz (Leibniz Institute for Baltic Sea Research Warnemünde)

Leibniz Institute for Baltic Sea Research Warnemünde, Seestrasse 15, D-18119 Rostock, Germany

volker.mohrholz@io-warnemuende.de

Abstract

Surface chlorophyll-a was measured in situ quasi monthly over a period of 12 years over the shelf on the 23°S line off the Namibian coast. The pigment concentration is used as an estimator of phytoplankton biomass and primary production. Although the time series reveals no typical seasonality at first sight, three chlorophyll-a peaks occur regularly inshore and two offshore. The main chlorophyll-a peak coincides with the cooling of the atmosphere at the end of summer in March/April. The next peak coincides with the introduction of cooler upwelled water into the surface water in August/September and a smaller peak just before summer in November/December. These peaks become clearer in an offshore direction; however at the furthest measuring point only a late summer and an early upwelling peak are found. As in all eastern boundaries upwelling systems high biomass was noticed inshore and low biomass offshore.

Basic in situ biomass indices are developed for the state of the environment for Namibia and used for management.