ABSTRACT

Duncan, F.A. and M.J. Roberts (2005)

Defining oceanographic provinces of southern Africa with respect to temperature, oxygen and chlorophyll properties as well as fish species distribution

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The Agulhas Current is a dynamic western boundary current within which a number a semi-permanent features have been observed. These features include cyclonic eddies, pulses that result in meanders in the current, upwelling cells and plumes extending off the main current. The flow of current is controlled by the bathymetry of the adjacent continental shelf. The interaction of these features with the bathymetry results in “oceangraphic provinces” developing which display varying oxygen, temperature and chlorophyll properties. The relationship between these provinces and previous studies on the distribution of fish species was explored. This was done using amalgamated SADCO and MCM data, which were displayed and overlaid using GIS maps. Remote sensing data were also incorporated. Grids were displayed to the maps and the data points within each block were summarized by average, minimum and maximum. The resulting trends were used to define the provinces. It was found that the provinces and fish species distribution are directly related. Three definite provinces have emerged from this study, one on the west coast, one on the south coast, and one on the east coast. These provinces are subdivided into smaller more specific provinces. The understanding of these oceanographic properties is important due to their influence on the distribution of different fish species around southern Africa.