

ABSTRACT

Dorfler, K.A., Roberts, M.J. and D. Baird (2000)

Benthic Turbidity Events and their Impact on Chokka Squid Spawning and Catches

Abstracts of Cephalopod Biomass and Production, CIAC symposium 3-7 July 2000, Aberdeen, Scotland

The inshore and offshore regions of the Eastern Cape, South Africa, are well documented as spawning grounds for chokka squid (*Loligo vulgaris raynaudii*). Statistical modeling on the inshore spawning grounds have shown that turbidity is the most important environmental parameter which negatively influences catches (Schon et al 2000). SCUBA diving observations reveal, that at times, this region experiences a benthic nepheloid layer which causes “black-out” conditions on the ocean floor. It is believed that high levels of benthic turbidity inhibit the spawning process (Roberts 1998). To understand this relationship in greater detail, with a view to forecasting, an intensive study to determine the dynamics and characteristics of turbidity events, and the effect on catch fluctuations of chokka squid, was initiated in Kromme Bay, Eastern Cape.

Results indicate that turbidity events occur in all areas of the inshore chokka spawning grounds, including sheltered bays and exposed coastlines. Turbidity events have not been found on the offshore spawning grounds. Continuously recording instruments indicate that the dynamics of the benthic nepheloid layer are complex, and appears to be driven by a combination of wind, waves and currents. It is thought that the origin of the nepheloid layer is detrital fallout from the surface layer. Monitoring during the November 1999 closed fishing season revealed that a benthic turbidity event, which lasted for 22 days, rendered this management measure ineffectual. Squid catches made by two commercial squid vessels were exceptionally low during this benthic turbidity event, which it appeared, extended over most of the main inshore spawning grounds. However, once the turbidity event subsided, catches improved considerably.