

ABSTRACT

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Recruitment variability of chokka squid - role of currents on the Agulhas Banks (South Africa) in paralarvae distribution and food abundance.

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Annual variability in chokka squid catches may be linked to recruitment success. For *Illex* species, recruitment variability has been shown to be strongly related to changes in Western Boundary Currents (WBC's). These currents transport egg masses, maintain paralarvae with food, and connect juveniles with distant feeding grounds. In contrast, a synthesis of currents on the Agulhas Bank indicates flow patterns to be less defined and more complex (both spatially and temporally) than WBC's. Chokka squid eggs are attached to the seabed. Copepods on the shelf are widely available for the paralarvae, which suggests that paralarval starvation is not a limiting factor in recruitment success. Instead of playing an important role in the early life history of the chokka squid, currents appear to present a threat to the survival of paralarvae, particularly in the upper mixed layer. On the preferred inshore spawning ground the upper layer flow is predominantly eastward (68%), away from the cold ridge region where food abundance is generally higher. East of Algoa Bay, copepod abundance decreases sharply and starvation of paralarvae transported here is possible. Paralarvae on the mid shelf of the Eastern Agulhas Bank will be transported westward towards the outer region of the cold ridge. Current patterns generated by a computer model indicate that paralarvae advected onto the outer central and outer western Agulhas Bank will be lost from the Agulhas Bank ecosystem. Similarly, satellite imagery shows Agulhas Current boundary phenomena on the outer shelf of the eastern Agulhas Bank to be potential cause of paralarvae lost.