

ABSTRACT

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ADCP measured currents along the Tsitsikamma Coast (South Africa) and potential transport of squid paralarvae.

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A bottom mounted ADCP was deployed in the center of the Tsitsikamma National Park (TNP) in 36m of water for 12 months. Flow in the surface layer was found to be mainly eastward (longshore)(68%) caused by seven distinct eastward flow events lasting between 2 and 6 weeks each. These had no obvious temporal pattern. Maximum surface u – component velocities of $+115\text{cm.s}^{-1}$ and -101cm.s^{-1} were recorded, with respective averages of $+24\text{cm.s}^{-1}$ and -21cm.s^{-1} . In contrast, bottom flow data did display a seasonal trend. During winter, the water column was mainly isothermal and the bottom flow was in the same direction as the surface layer. Opposite flows between the surface and bottom were found to occur between December and March, during which vertical stratification was most intense. Maximum bottom u – component velocities of $+65\text{cm.s}^{-1}$ and -40cm.s^{-1} were recorded with respective average velocities of $+10\text{cm.s}^{-1}$ and -11cm.s^{-1} . Calculated net monthly displacement for three depths (5,23 and 31m) for the period July 1998 – June 1999 indicated that passive, neutrally buoyant material (e.g. larvae) was transported eastward in the surface layer for 8 of the 12 months, and commonly exceeded 150 km/month. Displacement in the bottom layer was more evenly distributed between the east and west, with the net monthly transport typically 50 km. This suggests that both squid and line fish larvae are exported from within the TNP to adjacent areas.