

ABSTRACT

LE CLUS, F., AGENBAG, J. J., HENNIG, H. F-K. O., ROBERTS, M. J.,
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Seasonal and interannual variability in wind field and commercial catch rates of *Austroglossus pectoralis* (Soleidae).

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The impact of deviations in the direction and strength of the wind field on the spatial, seasonal and inter-annual variability in catch rates of Agulhas sole *Austroglossus pectoralis* was investigated. Temporal variability in the wind cycle on the Agulhas Bank during the period 1981-1996 was deduced mainly from trends in the pressure gradient, measured from south of Cape Agulhas (35°S) to the region of west wind drift (40°S). Because inter-annual deviations in the catch rates differed between seasons, catch were assessed by season. Coastal catch rates of Agulhas sole between Cape Agulhas and Cape Infanta were high in autumn and winter, when offshore north-westerly winds prevailed, and low in spring and late summer, when offshore south-easterly winds dominated. There was often a secondary peak in catch rates in November-December, coincident with a midsummer change in the pressure gradient. Between the period 1982 and 1996, catch rates in autumn and early winter (April-July) were highest during years when the winter north-westerly winds were strongest ($r^2=0.62$, $p<0.01$). Catch rates usually peaked in May-June. This pattern changed in some years, depending on the timing and rate of change to winter wind conditions. Seasonal and inter-annual fluctuations in catch rate are associated with deviations in the wind field, but the mechanism whereby this effect is mediated remains unknown.