

## ABSTRACT

O'Dor, R.K., Andrade, Y., Roberts, M.J., Sauer, W.H.H., Smale, M. and D. Webber (1996).

**Upwelling impact on spawning behaviour of tracked *Loligo vulgaris*.**

**Abstracts of the Benguela Dynamics Symposium, Cape Town, November 1996: p. 54.**

A four buoy Radio-Acoustic Positioning (RAP) system using new software to solve 3-D hyperbolic equations provided real-time tracks, on-shore, of squid swimming 1.5km offshore at speeds up to  $0.5\text{m}\cdot\text{s}^{-1}$  in fished concentrations above egg beds at Oyster Bay, just west of Cape St Francis. Large males (32cm mantle length), females (21cm ML) and small 'sneaker' males (15cm ML) concentrated near the beds during the day, returning for up to one week. Positional accuracy of 1-2m resolved stereotypical courtship behaviours. During 14days of tracking in the closed season, November 1994, the array also recorded temperature, current and turbidity, noting two minor upwelling events during which colder, clearer water flushed over the egg beds to a depth of a few meters above the bottom. Two of the large males were fitted with transmitters that continuously telemetered information about the temperature of the water they were swimming through. Analysis of the data proved complex because of the rapid changes in depth of these fast swimming animals and the hysteresis of the telemetry device, but even post hoc analysis utilizing smoothing filters to provide best fit estimates from all squid position and temperature data combined with recorded bottom temperatures and profiles failed to show any evidence that upwelling events on this scale had any impact on male behaviour. Female behaviour, which may be more sensitive, is harder to assess directly because they are too small to carry telemetering devices. We hope to monitor males during more dramatic events this season, and, if such events occur, high resolution. Tracks of smaller position-only 'pingers' should be adequate to provide some information about females as well.