Movement patterns of a piscivorous predator leervis *Lichia amia* (Carangidae) determined by passive acoustic tracking

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Leervis is an estuarine-dependent recreationally important fishery species. Since estuaries are essential habitats in their life-history, one needs a better understanding of area use patterns and movements for fisheries management. This project uses acoustic telemetry techniques to better understand aspects of estuarine-dependency, movement dynamics and multiple habitat connectivity of leervis.

Acoustic telemetry is being used to assess fine-scale area use and movement patterns of estuarine-dependent juvenile leervis *Lichia amia* in the Kowie Estuary, South Africa. Twenty individuals (303 – 464 mm FL) have been surgically equipped with coded acoustic transmitters and, to date, have already been monitored for three months using an array of 20 acoustic receivers (VEMCO VR2Ws).

There was a significant difference in the mean proportion of time spent at the various receivers ($H_{(19, 400)} = 202.83; P < 0.05$). Differences between the upper receivers and middle and lower receivers were evident, with areas of high use being near receivers 6 and 12 (Figure 2).

The dominant movement observed by tagged leervis was continuous movements up and down the estuary (Figure 3a), where the mean length of the estuary used was 17 km ($\pm$ S.D. = 2.91 km). However, the movements of some leervis (15%) were confined to a 4-km stretch of the estuary (Figure 3b). Despite these different movement behaviours, all tagged fish displayed a distinct circatidal activity pattern.

While most leervis remained in the Kowie Estuary, three individuals left the estuary and were recorded on acoustic receivers in the adjacent Kariega Estuary (23 km away), Swartkops Estuary (130 km away) and Gamtoos Estuary (216 km away) (Figure 1).

A similar acoustic telemetry study was initiated in the Goukou Estuary (approximately 620 km away). The information gained from both telemetry studies will be complimented by information collected from extensive conventional tag-recapture efforts.