

## Natural History Note

### Some interesting information from tagging returns for the riverbream, *Acanthopagrus berda*, in the Kosi lakes, Kwazulu/Natal

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The riverbream, *Acanthopagrus berda*, is a popular angling species in the estuaries of KwaZulu-Natal but its abundance is seriously threatened through degradation of these areas (Van der Elst 1981). Considerable attention has been focussed on it in the Kosi lakes (Garratt 1992; Kyle 1986; Kyle & Robertson 1987) where it is abundant and important in the catches of the traditional, recreational and subsistence fisheries.

Most work included tagging adults, to show that the species undergoes sex reversal (Garratt 1992) and to calculate preliminary estimates of the population in the Kosi lakes (Kyle & Robertson 1997). As a result, between 1980 and June 1998 over 980 *A. berda* were tagged in the Kosi lakes. Floyd FD 67 tags were used until 1989, then replaced with Halitag "D tags" supplied through the Oceanographic Research Institute/Sedgewicks Marine Linefish Tagging Project. The site used was always below the rear of the dorsal fin, midway to the lateral line. Although tagging was carried out specifically to establish if the species changed sex and to obtain an estimate of population, the tagging and resultant recoveries gave additional information both on the species and the tagging process. Information from the tagging, not given in either Garratt (1992) or Kyle & Robertson (1997), can be described under the following headings:

#### Species information

##### *Teritoriality or localised movement*

During intensive tagging operations, where most *A. berda* were caught on rod and line, tagged fish were occasionally recaptured in the same area days or even weeks after being tagged. One fish caught on 10 January 1995 using bait, was recaptured in the same place by spinning on 3 February 1995. During April 1998 six fish, tagged from a jetty in north-west Nhlange Lake, were recaptured between one and twelve days later from the same jetty. On 22 May 1998, twenty days after the last fish was tagged, three of eight *A. berda* seen swimming round the jetty in the clear water had tags on them.

It appears that *A. berda* in the Kosi lakes remain within a localised area for considerable periods.

##### *Returning to a "home range"*

One *A. berda* tagged from the jetty in April 1982 was recovered from the jetty in December 1983. In a similar manner, one tagged at the jetty in February 1997 was recovered there in March 1998. Both Garratt (1992) and Kyle (1986) suggest that mature *A. berda* undertake annual migrations to the estuary mouth to spawn. These results sug-

gest that they return, through two lakes and shallow channels totalling about ten kilometres, to very specific “home ranges” where they spend much of the year.

## Tagging impact information

### *Impacts on behaviour*

The capture of *A. berda*, as little as one day after initial tagging and recaptures after short periods, suggest that feeding behaviour is not adversely impacted by tagging. One fish, caught on rod and line and tagged in April 1998 was recaptured on rod and line two days later in the same place, and caught yet again after another two days. Tagged *A. berda*, seen swimming round the jetty were in company with untagged fish and no difference in behaviour was obvious. Over the years many *A. berda* were tagged prior to annual spawning runs to the estuary mouth and all recoveries, made within a few weeks of tagging, were made downstream of where they were tagged. This suggests that tagging did not stop the movement to the spawning grounds.

### *Impacts on growth*

The *A. berda* tagged in April 1982 and recovered in May 1993—a period of twenty months—had grown from 255–299 mm (fork length) an increase of 44 mm. Another one, tagged in November 1984 and recovered in May 1987—a period of 30 months—had grown from 253 mm to 288 mm (fork length), an increase of 35 mm. Several fish, recovered long after initial tagging, had not grown and some even seemed to have shrunk. Even allowing for normal variations in growth rates it appears that tagging could have marked impacts on growth.

### *Tag loss*

The longest period between tagging and recovery was just over six years. Tag sites on recovered fish never looked completely healed but the tags had to be cut out as pulling them was very difficult, the tag eventually breaking. Only *A. berda* specimens > 220 mm were tagged in the field, but five *A. berda* of between 150 mm and 200 mm were tagged and placed into a freshwater circular cement reservoir. None died or showed signs of the tags working out over a three-month test period in 1998. Available evidence suggests that the tag loss rate in *A. berda* is low.

The above shows that useful management information can be obtained from fish tagging in estuaries and that *A. berda* may be a particularly good candidate species for such studies.

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## References

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