NSW DEPARTMENT OF PRIMARY INDUSTRIES

JOHN HOLLIDAY STUDENT CONSERVATION AWARD

– 2005 –

2005 WINNER

Matt Taylor

The Hon Ian Macdonald (left) congratulates Mr Matt Taylor on winning the Award for 2005.

OTHER ENTRIES RECEIVED FOR 2005

Nathan Miles

****** 2005 WINNING ENTRY ******

Key habitats and home range of hatchery-reared and wild sub-adult mulloway (*Argyrosomus japonicus*) in a south-east Australian estuary: Finding the estuarine niche

By Matt Taylor

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Summary

The preferred habitats, home range and activity patterns of sub-adult mulloway (*Argyrosomus japonicus*: Sciaenidae) in the Georges River were investigated using ultrasonic telemetry. Key habitats were identified as discrete holes or basins up to 20 m deep. Small and large fish (300 – 500 mm and 500 – 800 mm respectively) remained in these deep holes during daylight. Small fish also remained in deep holes at night, while large fish ventured outside the holes to forage. Maximum home range correlated significantly with length. Activity patterns varied between small and large fish, due to a diet induced shift in behaviour. Diel feeding patterns were evident in significantly longer movements during the night and morning than daytime. The use of key habitats and a foraging arena by mulloway indicate that survival of stocked mulloway will be sensitive to stocking density, which could be estimated from the area of key habitat in the target ecosystem.

Diadromy and riverine fish communities of southern New South Wales

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Summary

The diadromous fish species of Australia have experienced a decline in the distribution and abundance of their populations since European settlement. However, as a group, diadromous fish species have poorly defined and understood life cycles. This study examined coastal riverine fishes in southern New South Wales to investigate the occurrence and importance of diadromous species to these fish communities. Forty seven sites in 17 catchments were sampled on two occasions in 2004-2005. A total of 31 species of fish were caught with abundances being dominated by freshwater species, although the highest diversity was found in marine and diadromous species (10). Diadromous fish were also of significantly larger sizes and when compared with the other groups. Geographical differences in fish communities were noted within the study area, including significant differences in diadromous fish assemblages along the coast. When fish distributions were analysed using recorded habitat and environmental data, the results generally conformed to documented preferences, but also provided further insights into their habitat requirements. The implications of these findings are discussed in relation to current threats to diadromous fish in NSW rivers.