How to keep jew alive!

Here's some updated information on the survival of juvenile mulloway after being released from capture by hook and line from NSW Fisheries boffins Paul Butcher, Matt Broadhurst and Darren Reynolds.

IN the August 2005 issue of *Fishing World*, we presented some results from a research project (funded by NSW DPI and the Saltwater Trust - using money from recreational fishing licences) to show that more than 68 per cent of hooked mulloway survived being released with either (i) the hook removed as per normal fishing practices or (ii) the line cut and the hook left in the fish. While these results were very encouraging, we lacked information on some of the factors contributing towards the few observed mortalities, such as the effects of anatomical hook location and/or exposure to air during capture.

We aimed to address these issues in a recent experiment at the Cronulla Fisheries Research Centre in southern Sydney. During this work, mulloway (between 21 and 42cm) were hooked from a 5000 L tank or a cage (5 x 5 x 2.5 m) located in a large pool. Fish were then released in three different ways that included (i) being left in the water and the line cut, or being pulled from the water (total air exposure less than 1 minute) and (ii) the hook removed or (iii) the line cut. Each fish was categorised according to anatomical hook location (gut- or mouth-hooked) before being released into an appropriate floating cage. All "water-released" fish were brought close to the surface of the pool or tank, lifted in a 25 L container along with about 20 L of water and then transferred to an appropriate cage. None of the "water-released" fish were exposed to air. Appropriate numbers of control fish were placed into cages on the same day of angling.

ABOVE: Technician Matt Timmins caught this juvenile mulloway while testing different designs and sizes of hooks on his day off.

A mulloway being released into a sea cage.

All fish were fed prawns and monitored daily for up to seven days.

Table 1 summarises the survival of hooked-and-released mulloway according to their various treatments. Like for yellowfin bream and sand whiting, anatomical hook location appeared to have a significant effect on the short-term survival of released mulloway;

Researcher Paul Butcher catching mulloway from the pool.

especially if swallowed hooks were removed (e.g. survival less than 28 per cent). Cutting the line and leaving swallowed hooks in fish greatly increased their short-term survival, particularly if the fish were released underwater (e.g. survival less than 90 per cent).

While mouth-hooked fish generally have a much greater overall probability of surviving, this can be maximised via simple procedures such as landing the fish and removing the hook to prevent subsequent swallowing or, alternatively, cutting the line and releasing the fish underwater.

As part of ongoing research, we are examining the utility of different sizes and shapes of hooks for mitigating the swallowing of hooks by mulloway. In addition, a mulloway C&R fishing event has been planned for a NSW estuary during summer 2005/06 (TBA at a later date). Using recreational anglers, this research will help us to isolate other factors influencing the survival of released mulloway, as well as the utility of simple alterations to handling practices that increase their survival.

Percentage of mulloway surviving according to their treatments

No. of fish	Air exposure	Hook location	Hook removal	% surviving (7 days)
22	yes	gut	yes	27.3
25	yes	gut	no	84.0
19	yes	mouth	no	84.2
42	no (water release)	gut	no	90.5
31	no (water release)	mouth	no	93.5
24	yes	mouth	yes	95.8