

Scale Loss Critical to Garfish Survival

Eighteen species of garfish are sought by recreational fishers in estuaries and coastal waters throughout Australia, contributing towards a total catch that was most recently (2000/01) estimated at 2.4 million fish per year.

Approximately 95% of the total catch is line-caught and mostly comprises river and eastern and southern sea garfish.

While many of these fish are kept for consumption or to be used as bait, up to about 400,000 are released each year; either because they are too small or because daily bag limits have been reached.

No information is available on the fate of these unwanted fish, although based on their observed fragility and especially their tendency to easily lose scales, there is a concern among anglers that quite a few die.

We aimed to answer this question for eastern sea garfish and identify ways that their survival might be improved during a recent experiment involving anglers (funded by NSW DPI and using money



Even this amount of handling can lead to significant scale loss and mortality for a garfish. Far better to use long-shanked hooks and pliers to unhook a garfish for release without touching the fish at all.

collected from licence fees via the Recreational Fishing Trusts).

Over four days in April, 2008, 185 eastern sea garfish were line-caught off the northern breakwall at Coffs Harbour and immediately released (in groups of five) into large plastic cages moored in the adjacent marina.

Relevant catch data, including anatomical hook location, handling methods, total length and the amount of scale and fin loss were recorded for each fish.

Ninety 'control' fish

were also transferred from tanks at the National Marine Science Centre, Coffs Harbour, to the marina and similarly held in groups of five. All fish were monitored for their survival over 24 hours.

Only one control fish died, indicating that the method of caging garfish had very little effect on their survival.

By comparison, 93 of the 185 caught-and-released fish died, providing an adjusted overall survival rate of 51%.

Only 5% of the angled

fish were hooked in the gills or throat (all of which died). The remaining fish (95%) were hooked in the mouth or beak.

Some of the mortalities to mouth-hooked fish may have been due to hook injuries (e.g., to their eyes or brain) but the clear cause of most deaths was scale loss and skin damage caused by handling during hook removal.

The importance of this factor was demonstrated by the survival of 90% of fish (18 individuals) that had no scale loss after they were shaken free from their hooks and released into cages without being touched.

The two fish that died (even though they were not handled) had no scale loss but sustained eye damage during the hooking process.

These preliminary results suggest that the post-release survival of eastern garfish might be considerably improved simply by avoiding any physical contact during their capture.

While this approach may not always be possible or practical, especially for removing deep hooks, scale

loss and physical damage can be minimised by holding the fish by the head (with wet hands) or, preferably, securing the hook with pliers and flicking the fish free.

Assuming few differences in survival rates among the various garfish species, such simple practices could translate towards the survival of hundreds of thousands of fish each year.

These sorts of figures illustrate the potentially great benefits associated with even a very slight change in the way line-caught fish are handled.

In addition to more closely examining the

available data for garfish, over the next eight months we will be estimating the fate of caught-and-released luderick, tailor and sand mullet and providing simple strategies for minimising any associated unwanted impacts.

As with all of our previous work with other species, including yellowfin bream, mulloway, dusky flathead, sand whiting, trevally, snapper, Australian bass, golden perch and Murray cod, the results from this proposed research will be available from www.dpi.nsw.gov.au/fisheries.

— PAUL BUTCHER,
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The holding cages in the Coffs Harbour Marina.