



Setup of the 1000-l tanks on the edge of Lake Glenbawn.

The fate of BASS

Recent research suggests that Australian bass have high post-release survival rates after being hooked on some lures and baits. By PAUL BUTCHER, MATT BROADHURST, SHANE McGRATH and CRAIG BRAND.

LATE last year, NSW DPI (using money from recreational fishing licenses) started a two-year research project to examine and improve the survival of Murray cod, golden perch and Australian bass released by anglers. These species were chosen because a recent national fishing survey estimated that between almost 400,000 and 800,000 of each are released annually throughout Australia, and very little information is available on their survival. Like related work done with saltwater species, the bulk of this research project involves using anglers during recreational fishing events to catch & release their fish into sea cages or large tanks supplied by researchers, who then monitor survival over up to five days.

Originally, this research was to be done on all three species simultaneously, but owing to the low water levels in dams and rivers throughout NSW (which mostly affects fishing events for Murray Cod and goldens), bass are being examined first. So far, we've completed two experiments with recreational anglers to incorporate some of the different fishing practices used to target this popular species. This work was designed to estimate the survival of fish that are caught and released during (i) live weigh-in events using lures and (ii) regular fishing with both lures and baits where fish are immediately released owing to size restrictions, bag limits or C&R fishing.

The first event was held at Lake Glenbawn in September 2006 and involved 66 anglers fishing during two sessions.

A quality bass caught in the Clarence by DPI researcher Paul Butcher.



After catching a bass, anglers measured their total length before placing them into their live-wells and recording information on the playing time, hook location, and types of terminal rigs and landing nets used. At the end of each fishing session, boats returned to a weigh-in area where all fish were removed from the live-wells, placed in a wet synthetic bag and weighed by the tournament director. Researchers then assessed each fish for damage to their body or fins before releasing them into one of six land-based, flow-through 1000-l tanks. The fish were monitored for mortalities over 48 hours.

The second event was held on the upper Clarence River near Copmanhurst in



October 2006 and involved 46 volunteer anglers, three marshal boats and eight anchored cylindrical sea cages (2.3 x 2.5 m). On the day before the event, 80 control fish (previously collected from Lake Glenbawn) were transferred from the Grafton Agriculture Research and Advisory Station to the eight sea cages. The anglers were given aerated live-wells and were asked to target bass using either bait or lures during three sessions over two days. As soon as an angler caught a fish, they placed it into their live-well, raised a catch flag and recorded relevant data. Researchers travelled to the angler boat, removed each fish from the live-well and measured their TL before checking



Competitors waiting next to the 1000-l tanks during the Lake Glenbawn event.



Some of the fish caught in the Glenbawn event were pretty good.



This bass research looked like hard work!

for damage to the body or fins. Data was also collected on the water temperature and dissolved oxygen in each live-well. All fish were then transported in aerated tanks on the marshal boats and released into the sea cages where they were monitored for five days.

During both events, all fish were regularly fed school prawns. Any dead fish were removed and replaced with fish from the wild to maintain stocking densities. At the end of both experiments, all fish were transported to the aquaria at GARAS.

In total, 90 and 80 bass were hooked during the Lake Glenbawn and Clarence River events, respectively. In both events, most fish were exposed to air for less than 30 seconds during capture, had

no visible fin, scale or blood loss when released, and all were observed to feed within 24 hours of confinement. In addition to the methods of catch & release, the key differences between fish caught from Lake Glenbawn and the Clarence River were their average sizes (366 vs. 277mm TL), rates of mouth hooking (97 vs. 90 per cent), playing times (87 vs. 20 seconds), depth of capture (5.4 vs. 2.2m) and handling using fine-mesh landing nets (80 vs. 26 per cent). Further, the average water temperature during the Lake Glenbawn event was 13.5 oC compared to 23.3 oC in the Clarence River. All fish from Lake Glenbawn were caught on hard and soft lures, while 25 per cent of the Clarence River fish were hooked using natural baits, including worms and prawns. Of the fish caught using natural baits, 40 per cent had ingested the hook.

All of the Lake Glenbawn bass survived, and only five of the angled Clarence River fish died (there were no control deaths); providing survival rates of 100 per cent and 94.4 per cent. The few mortalities occurred within 24 hours of release and comprised three fish that ingested hooks (baited with prawns), one that was hooked in the gills (also baited with prawns), and one after being hooked in the upper jaw by a hard-bodied lure. Of the surviving 75 hooked and 80 control fish from the Clarence River event that were transferred to GARAS, only two (both controls) died during the following five months.

While these results are quite positive, it should be remembered that they are restricted to the specific gears, practices and conditions encountered during the events. Other unexamined factors could contribute towards mortalities. For example, one of the concerns of holding fish in live-wells is the effects of elevated water temperature. Previous overseas studies done as part of live weigh-in events have demonstrated much greater mortalities to fish held in live-wells during summer than in winter. At the Lake Glenbawn event, the average surface water temperature was about 14oC, but can exceed 26oC during late summer – which could have a negative impact on confined fish. A related issue is the practice of deep jigging for bass in dams during summer when they remain below thermoclines in deep (about 30m) cooler water and could, conceivably, suffer some adverse effects due to barotrauma.

Further research will be done to examine the potential for these negative effects on bass (and the other species) and, if required, methods for their mitigation. Like our earlier and ongoing work with coastal saltwater fish, this research will contribute towards providing clear protocols for maximising post-release survival.

