

Looking after Lizards

Recent research by the NSW Department of Primary Industries Fisheries Conservation Technology Unit suggests that dusky flathead have very high post-release survival rates if handled correctly

Recreational fishers target several species of flathead throughout Australia, catching more than 13 million individuals each year. Dusky flathead (*Platycephalus fuscus*) are the most common flathead species along the east coast where they occur in rivers, estuaries and bays across a range of sizes from less than 15cm total length (TL) to a maximum of 120cm TL (15 kg). The presence of juveniles in the same areas as adults, combined with bag and minimum and maximum size limits means that recreational anglers release between a third and

almost half of their total dusky catch.

Such high release rates have raised concerns over the potential for post-release mortalities of dusky flathead, and led to two studies aimed at quantifying their post-release fate. The outcomes of this research have been positive, with short-term survival rates (over up to four days) of 93% for duskies caught using baits and lures as part of an experiment using 34 anglers in southeastern Queensland, and 96% for lure-caught fish during an established live weigh-in tournament involving 53 anglers in NSW.

While these preliminary studies suggest that duskies are quite hardy, more work is still required to assess their survival after being caught and released across a wider range of conditions. We aimed to contribute towards this information during a recent research event involving 33 anglers on the Clarence River.

On the day before the event, 84 control fish (previously collected from various rivers in northern NSW), were transferred from a large aquaria system at Coffs Harbour to six land-based, flow-through 3000 litre tanks on the banks of the Clarence River at the Iluka Caravan Park. Anglers were provided with aerated live wells and asked to target duskies using either bait or lures during two sessions.

As soon as an angler caught a fish, they placed it into their live well and recorded relevant catch information (anatomical hook location, handling methods, etc). Researchers travelled to the angler boat, removed each fish from the live well using a water-filled synthetic bag (to prevent air exposure) and measured the fish (TL) before checking for damage to the body or fins. Information was also collected on the water quality in each live well.

All fish were then transported in aerated tanks and released into one of the land-based

3000 litre tanks where they were monitored and fed school prawns and live herring twice daily for five days. Any dead fish were removed and replaced with tagged fish from the wild to maintain stocking densities.

In total, 79 line caught duskies were monitored for their survival in the holding tanks. About 60% of these fish were caught with lures and the remainder using either whitebait, herring, blue pilchards or prawns. Most fish were hooked in the mouth from shallow water (< 2m), exposed to air for less than 30 seconds and handled using a wet towel or bare hands. Few fish had visible blood loss and most were feeding within 24 hours. While some trophy-size duskies were caught including five fish over 70cm and one at 91.5cm TL, their average size was 38cm TL, and 53% of all fish were smaller than the minimum legal size (36cm TL).

All of the control fish survived, and only seven of the line caught duskies died, providing an overall survival rate of 91%. The few mortalities occurred within 12 hours of release and comprised fish between 25 and 46cm TL. While there were no clear causes for most of the seven deaths, two factors were identified as having negative impacts on fish.

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All captured fish were handled carefully and placed in a live well before being handed over to researchers

The high survival rate of duskies observed here supports the conclusion from the two earlier studies done in NSW and QLD that this species is well suited to catch and release fishing

Champion angler of the day Troy Colless handing his catch to the research boat via a water-filled synthetic bag



All surviving fish were tagged and released at the end of the 5 day monitoring period

First, knotted landing nets caused considerably more damage to the scales and fins of fish than knotless designs. Second, owing to insufficient water exchange, some live-wells had ammonia concentrations that may have stressed fish. These factors can be easily addressed via simple changes to handling procedures during capture (e.g. using knotless landing nets) and the onboard storage of live fish (e.g. flow-through live-wells or regular water changes with aeration).

The high survival rate of duskies observed here supports the conclusion from the two earlier studies done in NSW and QLD that this species is well suited to catch and release fishing. These findings are important since they validate the existing use of bag limits and maximum and minimum size restrictions as appropriate tools for protecting stocks of this species, especially those juveniles that are regularly caught in the same areas as adults.

In addition to duskies, over the next 8 months the NSW Department of Primary Industries (DPI) will be researching (using money collected from recreational licence fees) the post-release survival of other species, including luderick, tailor and sand mullet. Any questions about this research can be directed to the NSW DPI Fisheries Conservation Technology Unit, Coffs Harbour, 2450 or (02) 6648 3910.

As with all of NSW DPI's 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. **SWF**