

Lock, Stock & No Smoking Barrel...

Do stocked fish impact on resident fish populations or species of conservation concern?

Fish stocking can be a bit of a double-edged sword. It unquestionably provides us with the ability to create fantastic new fisheries, and enhance existing ones by bolstering populations that may be lower than desired because of poor recruitment, heavy fishing pressure, or high natural mortality (for example, after a fish kill). But in doing so, questions are sometimes raised as to whether we may actually be doing more harm than good.

Are the hatchery-raised fish that we release simply displacing the wild fish present, or impacting on their survival or growth? And at an ecosystem-scale, do the apex predators that we are introducing to our wild waterways disperse into sensitive environmental habitats and impact on small rare or threatened species such as frogs, small fish species etc?



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Researchers have been looking into the impact of stocking apex predators such as Barramundi on resident fish populations and conservation-dependent species (Source Matt Daniel)

Despite stocking having taken place since 1993 in the Johnstone River system, the researchers found no evidence of genetic impacts on resident populations resulting from stocking, or on the growth or survival of wild fish. There was no evidence of cannibalism, and growth rates of stocked and wild fish were found to be quite similar. However, the researchers noted that this might change under higher stocking rate scenarios.

No evidence was found to suggest that stocking of Barramundi in the Johnstone or Tinaroo Falls Dam is likely to impact on any rare or threatened species present, either. Stocked fish generally stayed away from small tributary inflows where they were considered more likely to encounter rare or threatened species such as small fish species and amphibians.

In order to ensure that we as recreational fishers are being conscientious in how we interact with our fisheries and ecosystems it is vital that we find robust answers to these questions.

Fortunately the results of some recent research funded by the Fisheries Research and Development Corporation has helped to help shed some light.

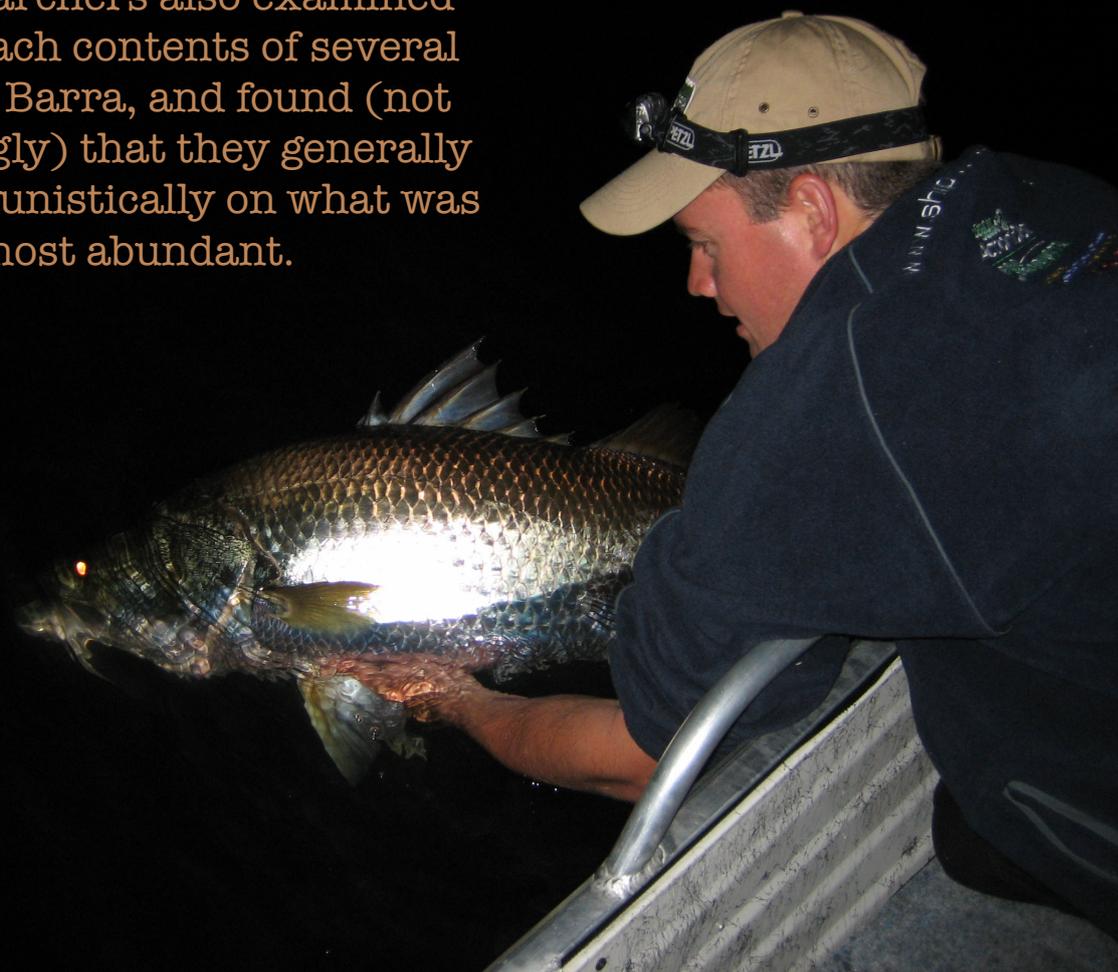
Led by researcher John Russell from Queensland's Department of Agriculture Fisheries and Forestry, the project team used Barramundi as a model species to investigate whether stocking impacts on resident populations through genetic impacts or reductions in survival or growth rates.

The research team also looked at whether stocking causes any ecological impacts in the river and impoundment system studied (The Johnstone River and Tinaroo Falls Dam).



Researchers flushing the stomach of a Barramundi prior to release to work out what it had been eating (source: John Russell)

The researchers also examined the stomach contents of several hundred Barra, and found (not surprisingly) that they generally fed opportunistically on what was most abundant.



Consequently, they concluded that the level of predation of species of conservation significance was likely to be low.

Whilst these findings suggest that both stocked and wild Barra may not eat a lot of rare or threatened species in the river and dam systems examined, we should exercise caution in trying to extrapolate to other systems or species.

It is very possible that introducing a top-order predator such as Barra or Murray cod to a different river or dam system with resident populations of conservation-dependent species small enough to fit in their gob might result in a different outcome.

To me, one of the of interesting findings of this study was the observation that very few of the Barramundi that were stocked into narrow, shallow, swift-flowing tributaries were ever recaptured, suggesting they either died or moved somewhere else. This indicates that for areas where habitat may not be abundant or in good condition, stocking may not be the best way to enhance resident fish populations, and some form of habitat rehabilitation may be required.



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