

Cane Toads and Top End Fish

B. Grace, Senior Research Scientist, Fisheries Research, Darwin

INTRODUCTION

Cane toads (*Bufo marinus*) were introduced into Australia through north Queensland in 1935. Since then they migrated westwards towards the Northern Territory (NT), reaching the Darwin area in 2004-05. Some waterholes now have very large numbers of cane toad tadpoles and small cane toads.

Cane toads are extremely poisonous to most animals when eaten. Much of their poison is in glands on their backs and in their skin. The poisons in their glands are released when they are stressed. Cane toad tadpoles and eggs are also poisonous.



Figure 1. A cane toad (*Bufo marinus*). Photo courtesy of Mark Hearnden.

HOW CAN CANE TOADS AFFECT FISH?

Cane toads, cane toad tadpoles or cane toad eggs can most likely poison fish that eat them. Many freshwater fish often eat native tadpoles and frogs. However, it appears that cane toad tadpoles have a very unpleasant taste. Barramundi and other fish have been observed spitting out any cane toad tadpoles they have attacked. Fortunately, cane toad eggs are usually laid in shallow temporary waterholes, which are not likely to contain many fish.

The possible effects of cane toads on some Top End native freshwater fish are listed in Table 1. The effects of cane toads on several types of fish have been studied. However, for most species, the likely effects of consuming cane toads, cane toad tadpoles and cane toad eggs can only be predicted from what we know about the life cycle and feeding habits of a particular species of fish.

Table 1. Some common freshwater fish of the Top End and how likely they are to be affected by cane toads (modified from Van Dam et al. 2002)

Common name	Scientific name	Susceptibility	Comment
Barramundi	<i>Lates calcarifer</i>	Low	Spits out toad tadpoles with no obvious effect.
Tarpon	<i>Megalops cyprinoides</i>	Possible	Known to eat frogs.
Saratoga	<i>Scleropages jardinii</i>	Possible	Known to eat frogs.
Rainbowfish	<i>Melanotaenia</i> spp.	Low	May eat cane toad eggs and die. Does not eat tadpoles.
Spangled perch	<i>Leiopotherapon unicolor</i>	High	May die, even after spitting out cane toad tadpoles.
Archerfish	<i>Toxotes</i> spp.	Possible	Mainly feeds on insects.
Northern trout Gudgeon	<i>Mogurnda mogurnda</i>	Probable	Known to be affected by cane toads. Some fish may learn to not to eat cane toad tadpoles.
Mouth almighty	<i>Glossamia aprion</i>	Low	May attack and kill cane toad tadpoles, but not swallow them.
Fork-tailed catfish	<i>Arius</i> spp.	Possible	Known to eat frogs.
Mullet	Family Mugilidae	Low	Plankton feeders.

Dead cane toads can also poison the water, although this is probably very rare, because the water would need very strong concentrations of cane toad toxins before fish are affected. It is also possible that cane toads may compete with fish for resources such as food or habitat, but this would be extremely difficult to measure.

On the other hand, cane toads may reduce numbers of some animals that feed on fish, such as some goannas, some snakes and freshwater crocodiles.

WHAT EFFECT DO CANE TOADS HAVE ON FISH IN THE NT?

Most freshwater fish in the NT appear to be not affected by cane toads. The spangled perch is susceptible to cane toads, but as it is one of the most common and widespread freshwater fish in Australia, it is unlikely to be severely threatened by cane toads. The good news for recreational fishers is that fish such as barramundi and Saratoga appear to be not affected by cane toads.

On average five fish kills are reported to Fisheries each year. However, by January 2008, after cane toads had been in the area for four years, only one suspected fish kill by cane toads was reported. Nearly all fish kills are related to poor water quality.

There is no evidence that cane toads have caused a decrease in fish numbers. Figure 2 shows how variable barramundi numbers are naturally, and that cane toads, which reached this area in 2004, have had no obvious effect on them. Saratoga numbers were above average in 2007, although this fish is known to eat frogs.

In conclusion, there is no evidence to suggest that cane toads are having any noticeable effect on populations of any fish in the NT. Further studies are needed to confirm this assumption.

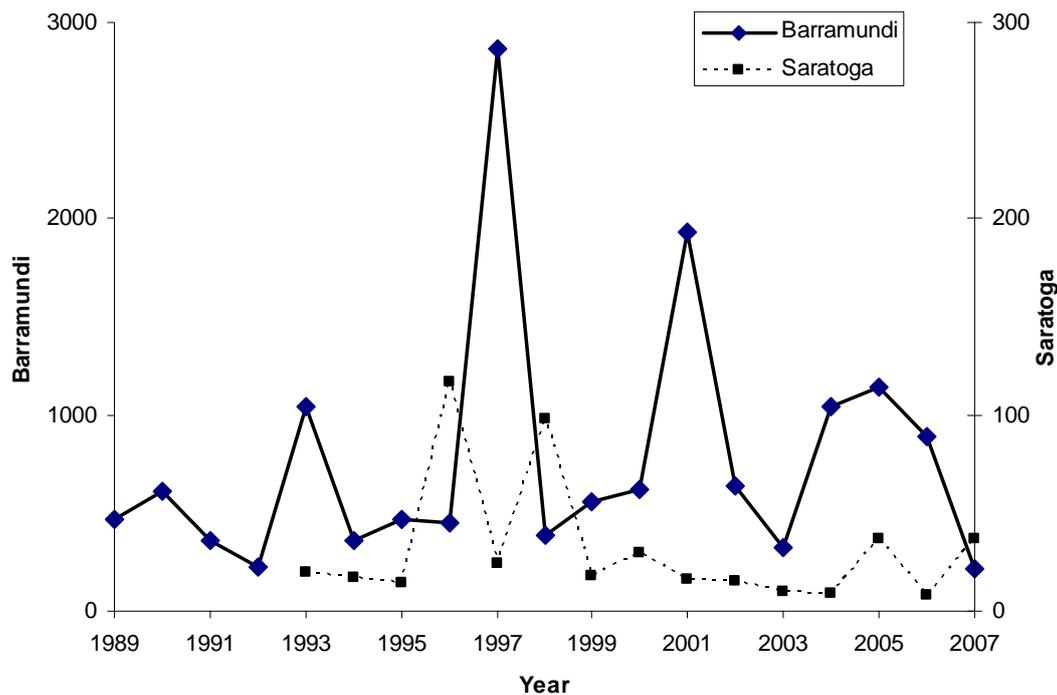


Figure 2. Numbers of barramundi and Saratoga in a section of Corroboree Billabong, Mary River

Data is from Grace (2007). Cane toads entered this area around 2004 and 2005.

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