

# Fish behaviour of the highest order

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New research, which has been published in *Nature*, has uncovered evidence of fish behaviour more commonly associated with humans.

Dr Lexa Grutter, from The University of Queensland's School of Integrative Biology, along with colleague Dr Redouan Bshary, from the Swiss University of Neuchatel's Department of Zoology, have shown client fish eavesdrop to determine the trustworthiness of cleaner fish and cleaner fish in turn behave altruistically to be considered more trustworthy.

Cleaner fish are fish sought out by client fish who queue up to have their parasites removed.

Dr Grutter said the interactions between the cleaner fish *Labroides dimidiatus* and its client fishes are a well-known example of mutually beneficial behaviour involving different species.

Cleaners may cooperate and remove parasites from client fish, however they may also cheat by feeding on client mucus, which they prefer. As such there is a temptation for cleaners to cheat.

“Our experiments suggest image scoring is one of several alternative mechanisms used by clients to avoid exploitation by cheating cleaners,” Dr Grutter said.

“Given a choice, clients preferred to spend more time with a cleaner that behaved cooperatively than with a cleaner whose cooperative level was

unknown.”

Image scoring, which happens when bystanders notice the altruistic act and are then more likely to interact with the altruists in the future, is another explanation for seemingly altruistic behaviour, which should not exist according to evolutionary theory.

“Our research shows complicated behaviours in cleaner fish where the benefit of cooperation was not reciprocated directly but instead gave them a better reputation,” Dr Grutter said.

“This may be the important intermediate step to the more complex form of indirect reciprocity that humans are able to play, where each act is altruistic.

”Until now, there was only evidence that humans are capable of indirect reciprocity based on image scoring, so to show this in fish as the first other animal is pretty amazing.”

“It shows the way for how these behaviours evolve and can help us better understand our own more complex behaviour.”

Source: University of Queensland

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