

# Fish weight-watchers

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The cleaner fish

(PhysOrg.com) -- Telling your partner to watch her weight is not recommended-unless you're a male cleaner fish, reports a new study in *Proceedings of the Royal Society B*.

Cleaner fish feed in male-female pairs by removing [parasites](#) from larger 'client' fish. While providing this cleaning service, cleaners may get greedy and bite clients rather than sticking to parasites. This cheating by cleaners causes mealtimes to come to an abrupt end as the disgruntled client fish swims off. Females that bite clients receive aggressive punishment from their [male partners](#) for such greedy behaviour.

Scientists from the Zoological Society of London (ZSL) and a number of other leading scientific institutions have now shown that [male fish](#) lose more than just a meal from their partner's big [appetite](#) – they also risk

the female becoming so large that she will turn into a rival male.

Cleaner fish live in groups led by one dominant male with a harem of up to 16 [females](#). All cleaner fish are born female and turn into males when they become the biggest fish in their group. A male cleaner fish usually partners with the biggest female fish in the harem for cleaning duties.

"Our research shows that male cleaner fish are sensitive to their female partner's size. One reason for keeping a cheating female in check may be to stop her eating too much and then challenging his position as the dominant male on the reef," says Dr Nichola Raihani, lead author from ZSL.

The research also shows that the male cleaner fish distinguish between high and low value meals and will punish the female more severely if she drives off a high-value client.

The female fish will respond to this punishment by providing better service to high value clients in the future. This is the first non-human example of where punishment fits the crime and results in the offender adjusting their behaviour according to the potential penalties.

Dr Nichola Raihani says: "Cleaner fish and humans may not share many physical traits, but cleaner fish punish cheating individuals, just as we punish people who step outside of the law. In both situations, harsher punishment may serve as a stronger deterrent against future crimes."

Future research will address how cleaner fish assess how market forces affect the service quality that cleaner fish provide to client species.

**More information:** 'Male cleaner wrasses adjust punishment of female partners according to the stakes' [DOI:10.1098/rspb.2011.0690](https://doi.org/10.1098/rspb.2011.0690)

Provided by Zoological Society of London

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