Octopuses seen throwing things may be using shells as weapons

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Octopuses have siphons on the side of their body, which they normally use for jet propulsion – they expel water forcefully through them, shooting forward as a result.

Gloomy octopuses (*Octopus tetricus*) living on a bed of shells at Jervis Bay, Australia, seem to have co-opted this system to throw things at each other in what may be the first use of projectile weapons seen in octopuses.

“Very few animals have been reported to throw things at one another, so it would be significant if the octopuses are doing it”, says Peter Godfrey-Smith, a marine biologist from City University of New York, who presented video evidence at the Behaviour2015 conference in Cairns, Australia, this month.

Enthusiastic housekeeping

The technique the gloomy octopus uses seems to be a throw helped with a spit (see video above).

“In the ‘throwing’ behaviour, it gathers up a pile of stuff in its arms, and then directs the jet under the web of its arms, and throws out all the stuff under pressure,” says Godfrey-Smith. “So it’s a throw rather than a spit, though the throw uses water pressure – it uses a sort of

inverted jet propulsion."

Godfrey-Smith is not yet certain that the behaviour is intentional. It may just be a case of enthusiastic housekeeping showering the neighbours with debris.

"Octopuses often clean out their homes with a jet of water, pushing out sand and rubble. They also jet at intruders like pesky fishes," says Jennifer Mather, a behavioural ecologist from the University of Lethbridge in Alberta, Canada, who was not involved in the study.

However, other octopuses were hit with the debris more often than you would expect by chance.

Eight-armed boxing

If indeed it is intentional, it may have evolved as a response to unusually crowded conditions at Jervis Bay.

The octopuses live on a midden made of shells, where they excavate dens. But with each octopus only having an area around a meter square to themselves, their neighbours can be as close as 30 centimetres away.

This is not the ideal living arrangement for solitary octopuses. But they probably put up with it because of overabundance of scallops – their favourite food – and a lack of other suitable nesting sites.

Even without the throwing behaviour, the crowding has brought out the worst in the inhabitants, it seems. A large female-male pair was caught on camera, for example, fighting intermittently for almost 2.5 minutes. Another time, a large octopus bullied a smaller one into leaving its den.

The team also observed many episodes of "boxing", where two octopuses probed rapidly at each other with their arms.