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# Sword-slashing sailfish hint at origins of cooperative hunting

By Brian Owens



Sailfish circle the school and break a small section off  
Rodrigo Friscione Wyssmann.

Cooperation makes it happen. Sailfish that work together in groups to hunt sardines can catch more fish than if they hunt alone, even without a real coordinated strategy.

To catch their sardine dinner, a group of sailfish circle a school of sardines – known as a baitball – and break off a small section, driving it to the surface.

They then take turns attacking these sardines, slashing at them with their long sword-like bills, which account for a quarter of their total length of up to 3.5 metres. Knocking their prey off-balance makes them easier to grab.

These attacks only result in a catch about 25 per cent of the time, but they almost always injure several sardines. As the number of injured fish increases, it becomes ever easier for everyone to snag a meal.



The group takes turns striking the sardines with their sword-like bills  
Rodrigo Friscione Wyssmann

“There’s no coordination, no strict turn-taking or specific hunting roles, it’s opportunistic,” says James Herbert-Read, from Uppsala University in Sweden.

But Herbert-Reads computer models now show that even this rudimentary form of cooperation is better than going it alone. Sailfish that work in groups capture more sardines than a lone fish would get in the same amount of time.

That rule holds for groups of up to 70 sailfish, he says.

There is also little incentive to cheat by hanging back until there are lots of injured fish to gobble up easily. The energy cost of making an attack is low enough that the cheaters wouldn’t save enough energy to justify the smaller number of prey they would catch as a result of not being in the thick of the action.

Redouan Bshary, from Neuchatel University in Switzerland, says the work shows that cooperation can be just as self-centred as looking out only for yourself.

“Nature is full of examples where cooperating is rather self-serving,” he says.

Herbert-Read says this work could help scientists understand how more complex group-hunting strategies, like those used by mammals such as lions or chimpanzees, can evolve from simpler ones. “This simple strategy could lead to more complex roles evolving in the future,” he says.

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