

Cod may serenade females with rhythmic grunts

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Male cod may 'sing' to females during mating, suggests a new study investigating the sounds cod and pollack produce during the spawning season.

The research, published in the *Journal of Fish Biology*, aimed to learn more about these noises, and why the fish make them. They discovered that the grunts were produced in [rhythmic patterns](#), suggesting that the females in the shoal may use these rhythms to choose a mate.

To investigate the noises, the team studied two populations of fish in tanks at a fishery in Scotland. Cod, had previously been recorded making grunting noises as they got ready to spawn, but the pollack's grunt had never been recorded until now. You can hear the grunts produced in the recordings on this page.

'We already knew male cod produce these sounds, we just wanted to dig a bit deeper, and find out if the sound changed over time to indicate that a spawning event might be occurring. But it was really exciting to find pollack also produce these sounds,' says Lindsay Wilson, a NERC-funded PhD student at the Scottish Association for Marine Science (SAMS) who led the research.

'Over time we started to see differences between the noises in the day and those at night. It hinted that night-time was a more active time for the fish. We found a really lovely pattern with more grunts overnight than during the day for cod, but this didn't happen for pollack.'

Not only were the fish louder at night, but the noises they produced appeared to have a pattern. Both fish produced a lot of sound over 15 minutes, but then pollack would take a 45 minute break, and cod up to an hour.

When the team investigated this pattern further, they were surprised to find the fish made their noises in a rhythm.

'We found the [cod](#) grouped their loud periods of grunting in bouts of about 7,' explains Wilson.

'Bouts that had a greater number of grunts would occur during periods of greater sound production overall. So the fish were not just making more grunts ad hoc, they were being produced in a rhythmic manner, in a pattern.'

'The physical structure of sound being produced was different during a period of high grunt. The dominant frequency of the sound was lower, the repetition period increased and each grunt got longer,' says Wilson.

The team suspect the break between bouts of grunting might be a way to avoid predators as the drop in noise would mean the fish wouldn't be

constantly targeted, but the reason for their rhythmic humming remains a mystery.

'This change is dramatic so it indicates that something is happening. It's an important time, the [fish](#) are pushing themselves and investing more to produce these sounds. It could be that they're encouraging a female who is making a mate choice.'

'We don't know yet thought whether this is one individual animal investing more or it could be that multiple males are competing, almost like a chorus,' Wilson concludes.

More information: Wilson, L. J., Burrows, M. T., Hastie, G. D. and Wilson, B. (2014), "Temporal variation and characterization of grunt sounds produced by Atlantic cod *Gadus morhua* and pollack *Pollachius pollachius* during the spawning season." *Journal of Fish Biology*, 84: 1014-1030. [DOI: 10.1111/jfb.12342](https://doi.org/10.1111/jfb.12342)

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