

Science for Environment Policy

Shipping noise puts endangered European eels at risk of predators

The noise generated by commercial shipping can impair the ability of the critically endangered European eel to avoid predators, new research has found. The results show that marine noise can have serious effects on these animals with potentially fatal consequences.

Noise is recognised as a marine pollutant by the European [Marine Strategy Framework Directive](#)¹, which aims to ensure the good environmental status of marine waters by 2020. Examining how background and sudden noises can affect marine ecosystems is an important part of this process. Loud underwater noises could not only cause direct harm, deafening, or even killing animals, but can also mask dangers – similar to driving when the sun is in your eyes.

The European eel (*Anguilla anguilla*), a critically endangered species, hears sound at frequencies which overlap that produced by ships. As part of their life-cycle these eels have to pass through busy shipping channels as they move from the deep ocean into rivers. In this study researchers examined whether recordings of ship noise changes how these eels respond to predatory threats.

The researchers played recordings of background harbour noise, either with or without ship noise, to juvenile European eels in two aquarium-based experiments. The first experiment measured the eels' response to an ambush predator, a suddenly introduced model fish. The second measured their response to a pursuit predator, simulated by chasing them with a net. The experiments were videoed and the eel's behaviours and response times measured.

Eels exposed to ship noise were 50% less likely to react and 25% slower to react to the ambush predator than eels exposed to harbour noise alone. In the pursuit predator experiment, eels exposed to ship noise were caught twice as quickly by a catcher (who did not know which eels were being exposed to the sounds) as those exposed to harbour noise alone.

The researchers also examined the physiological effects shipping noise had on eels. They found shipping noise caused eels to breathe more quickly and increase their metabolic rate – both signs of stress – as well as change their patterns of movement.

Further research is needed to confirm the degree to which eels and other aquatic animals are affected by marine noise in their natural environments, and if long term exposure causes cumulative damage, the researchers say.

However, these results show that recordings of ship noise, even over short duration, can have a severe effect on antipredator behaviour, and hence survival, of this severely endangered species. In addition, the physiological responses the researchers detected suggest that shipping noise has the potential to affect other behaviours, such as those related to feeding or reproduction.



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1. http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm