

# Sharks are colour-blind: study

January 18 2011

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A shark at an aquarium in Saint-Malo, France. Sharks may be unable to distinguish between colours, according to a laboratory study that could benefit swimmers, surfers and sharks.

Sharks may be unable to distinguish between colours, according to a lab study published on Tuesday that could benefit swimmers, surfers and sharks themselves.

Researchers in Australia, using a technique called micro-spectrophotometry, looked at the [retinal cells](#) of 17 species of shark caught off Queensland and Western Australia.

In all 17 species, the commonest kind of light receptors were "rod" cells, which are highly sensitive to light and allow night vision but cannot tell colours apart, they found.

Yet the sharks lacked [cone cells](#), which respond individually to light at specific wavelengths. In human eyes, a variety of cone cells helps us to distinguish between colours.

In 10 of the 17 shark species, no cone cells were found at all. Cone cells were found in the other seven species, but they were all of a single type, sensitive to wavelengths of around 530 nanometres, which is green.

This retinal system means sharks are able to tell between shades of grey but, most probably, not between colours, say the investigators.

Monochromatic vision is very rare among land species, because [colour vision](#) is a tool for survival in terrestrial habitats.

But it is less important in the marine environment, where colours are progressively filtered out at depth and survival depends on distinguishing contrasts, to determine whether a shape in the gloom is prey or predator.

Previous research has found that whales, dolphins and seals also possess green-sensitive cone cells, which suggests that these marine mammals and sharks arrived at the same visual design in parallel, says the paper.

The study, published in English in the German journal [Naturwissenschaften](#), could help prevent shark attacks on humans and develop fishing gear that could reduce accidental catches of sharks by long-line trawlers.

"Our study shows that contrast against the background, rather than colour per se, may be more important for object detection by sharks," said lead scientist Nathan Scott Hart at the University of Western Australia.

"This may help us to design long-line fishing lures that are less attractive

to sharks as well as to design swimming attire and surf craft that have a lower visual contrast to [sharks](#) and therefore are less 'attractive' to them."

**More information:** Hart NS et al (2011). Microspectrophotometric evidence for cone monochromacy in sharks. *Naturwissenschaften – The Science of Nature*; DOI:10.1007/s00114-010-0758-8

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Citation: Sharks are colour-blind: study (2011, January 18) retrieved 21 June 2024 from <https://phys.org/news/2011-01-sharks-colour-blind.html>

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