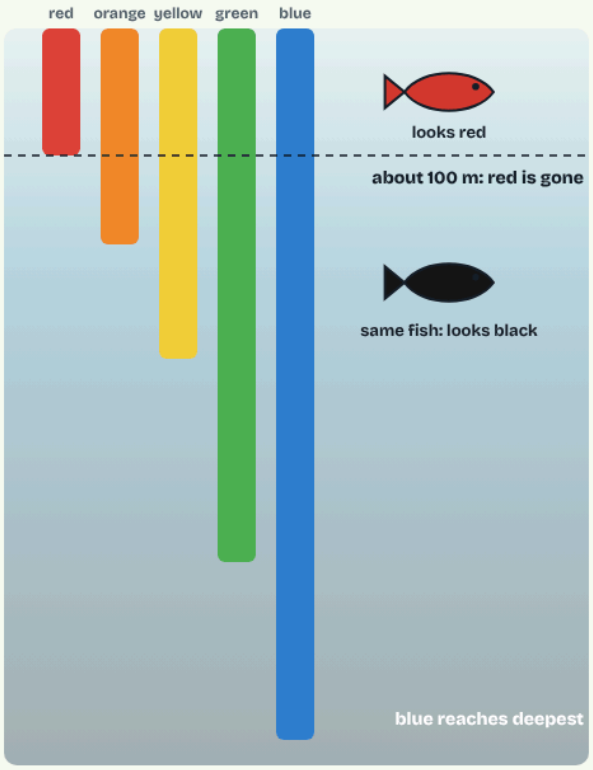
That is why

Why are so many deep-sea animals red?

Water absorbs red light first. Below about 100 m there is no red light left to reflect, so red animals look black.

A Colours fade with depth



Bars show roughly how deep each colour of sunlight reaches.

B Colour needs the right light

White light (camera flash)



Red is reflected: the fish looks red.

Deep-sea blue light

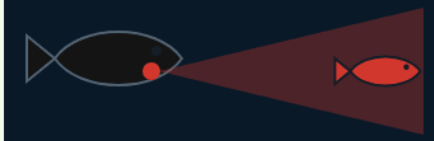


Blue is absorbed, nothing is reflected: it looks black.

Blue animals would reflect the blue light and stand out, so red and black are the best disguise. Bright red deep-sea photos were all taken with white lights carried down by the camera.

C The dragonfish loophole

A secret red searchlight



The shrimp lights up, but cannot see it.

1 Light nobody sees

Most deep-sea glow is blue. Some dragonfish shine deep red, about 705 nm, nearly infrared.

2 Borrowed from plants

The loosejaw dragonfish sees red using a pigment made from chlorophyll in its eyes.

In a world of blue light, red is the colour of invisibility.

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