Fish on acid: Hagfish cope with high levels of CO2

April 5 2006

The Pacific Hagfish is a strange animal: it feeds by gnawing its way into a carcass and staying inside to feed for up to 3 days. Scientists at the University of British Columbia (Canada) believe the Hagfish's gruesome method of feeding may cause the stagnant water inside the carcass to become acidic from the build up of CO_2 produced by the fish, which could explain why the fish is able to cope with environmental conditions of up to 7% CO2 (350 × that found in normal air).

Dan Baker is presenting his latest findings at the Society for Experimental Biology Annual Meeting on Wednesday 5th April.

"Our results are exciting because it turns out that Hagfish can not only regulate their acid-base balance, but that they have a greater capacity for rapid pH compensation than any marine or fresh water fish studied to date", explains Baker.

Just as cold-blooded animals have an equal body temperature to their surrounding environment, the Hagfish has the same concentration of salt in its blood as the surrounding seawater. This trait previously led scientists to believe that these fish (known as osmoconformers) could only poorly regulate their pH.

The scientists next want to find the mechanisms by which they do this, and if prolonged exposure to high levels of CO_2 causes any long term effects.

Source: Society for Experimental Biology