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Fish poop rules the seas; Helps control harmful acid levels: Profs

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Page: 26

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The world's oceans are getting help controlling harmful acid levels from an unseemly source, according to a new study that found fish waste plays a key role in neutralizing carbon dioxide in the marine environment.

Canadian scientists found that when fish drink seawater they excrete calcium as calcium carbonate -- a chalky substance that can make seawater more alkaline and diminish the carbon dioxide in the water.

The unusual finding is helping researchers understand the marine carbon cycle and how nature works to reduce CO₂ levels that can raise sea temperatures and harm sea life.

"It's going to be critical that we understand how much carbon dioxide the oceans can absorb," said Pat Walsh, a University of Ottawa marine biologist who co-wrote the study that appears today in the journal *Science*.

The teams of researchers from Ontario, B.C., the U.S. and the U.K. discovered that the bulk of the world's fish species, excluding sharks and rays, produced the carbonate to counter the salt they ingested in seawater.

The carbonate binds to the salt and is expelled as pellets, which then dissolve in the ocean.

Walsh said they knew before that something in the water was producing carbonate, but believed it came from other sources such as microscopic marine plankton near the bottom of the food chain.

But they didn't understand why they were seeing so much of the carbonate at shallower depths.

Walsh said the discovery helps explain that phenomenon and has given them a clearer idea as to how much carbonate fish are producing.

"Our most conservative estimates suggest three to 15% of the oceans' carbonates come from fish, but this range could be up to three times higher," said lead author Rod Wilson of the University of Exeter.

That could mean that fish are playing a much bigger role in combatting the effects of rising CO₂, which can acidify the ocean and imperil corals, plankton and other sea life after it is absorbed from the atmosphere.

Villy Christensen, a fisheries professor at the University of British Columbia, said the implications for climate change and the warming of the world's oceans could be far-reaching if more fish are caught

and stripped of their ability to help maintain the delicate acid balance in the watery environs.

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