canada.com
WHERE PERSPECTIVES CONNECT

Monday » January 19 » 2009

Fish poop helps keep our oceans healthy

Calcium excreted offsets acid increase from CO2

Lena Sin
The Province; With a file from Bloomberg

Friday, January 16, 2009

Scientists have discovered that fish guts play a major role in the marine carbon cycle, making it an unexpected ally against climate change.

United Nations scientists have warned that, when the ocean absorbs carbon dioxide from the atmosphere, it becomes more acidic, threatening coral reefs and other sea life.

The new study, published today in the journal Science, shows fish excrement of calcium carbonates can offset this acidity. It affects how easily the ocean will absorb and buffer increases in atmospheric carbon dioxide, which scientists believe accelerates climate change.

"This study really is the first glimpse of the huge impact fish have on our carbon cycle -- and why we need them in the ocean," said Villy Christensen, associate professor at the University of B.C. Fisheries Centre.

"We must buck the current trend of clear-cutting of the oceans and foster these unrecognized allies against climate change."

Until now, scientists believed the ocean's calcium carbonate, which dissolves to control the acidity, or pH, of seawater, came from the external "skeletons" of plankton.

The new findings show that fish are actually responsible for producing between three and 15 per cent of marine calcium carbonate.

The researchers from Canada, the U.S. and U.K. say the estimate is conservative and that it could actually be three times higher.

By continuously drinking sea water, fish are ingesting an excess of calcium, which they turn into calcium carbonate crystals in the gut. They then excrete these unwanted "gut rocks" in a process that's separate from digestion and production of feces.

The fish that produce calcium carbonate are "bony fish," a group that includes 90 per cent of marine fish species, but not sharks or rays.

As part of the study, Christensen helped answer the daunting question of how many fish are in the sea.

Christensen and colleague Simon Jennings from the U.K.'s Centre for Environment, Fisheries and Aquaculture Science estimate there are between 812 million and two billion tonnes of fish in the ocean.

lsin@theprovince.com