

SCIENCE TIMES

Up to date information and issues related to Science, Technology and the Environment

STUDENT ACTIVITIES

Carbon Dioxide a Potential Threat to Marine Life

Research and Inquiry

Find out about ocean storage of CO₂ and acidification. (SS)

- www.royalsoc.ac.uk/displaypagedoc.asp?id=13314
- <http://www.ieagreen.org.uk/oceanrep.pdf>
- <http://www.physorg.com/news7109.html>

One third of all CO₂ released into the atmosphere ends up in the ocean. But what will happen if the ocean is no longer able to absorb the CO₂? (MJS/SS)

http://www.llnl.gov/pao/news/news_releases/2000/NR-00-01-08.html

As the oceans turn acidic, could we experience the extinction of marine ecosystems similar to the disappearance of the dinosaurs? (SS)

http://www.carnegieinstitution.org/news_releases/news_0602_20.html

Watch this video to learn more about coral reefs. (All levels)

<http://www.learningdemo.com/noaa/lesson03.html>

Other great coral reef information: (All levels)

<http://oceanexplorer.noaa.gov/edu/curriculum/welcome.html>
http://sciguides.nsta.org/guides/guide_preview.aspx?guide_ID=FsDmzF8hwj8=&grade_band=3

Review this excellent teacher resource on marine education from the States. A must see. (All levels)

<http://oceanexplorer.noaa.gov/welcome.html>

Many of the world's coral reefs have been damaged by deep-sea trawling. Should we be more concerned about this type of destruction of underwater ecosystems? (MJS/SS)

http://news.nationalgeographic.com/news/2004/02/0219_040219_seacorals.html

List as many Canadian organizations as possible whose mandate you think would support protecting the coral reefs? What comparisons and contrasts could you make between osteoporosis and the weakening of the coral reef's exoskeleton?

Discussion and Debate

Listen to the following CBC Quirks and Quarks interview with a scientist who explores the deep sea. Could the best way to store excess CO₂ be in deep-sea reservoirs? (MJS/SS)

<http://www.radio.cbc.ca/programs/quirks/archives/00-01/mp3/qq060101c.mp3>

Discussion questions:

How might storing CO₂ in the ocean remedy our current situation? What might be the long-term effects?
Why are the natural ways of breaking down CO₂ (photosynthesis) not adequate to reduce emissions?

What lifestyle changes have Canadians made in the last hundred years that have resulted in the CO₂ increase?

Take Action

You learn that the Minister of the Environment has recently stated that Canada will not be able to meet its 2012 Kyoto commitment. (The details of Canada's Kyoto commitment can be found at the url below.)

http://www.ec.gc.ca/pdb/ghg/about/kyoto_e.cfm

In small groups, brainstorm a list of actions that Canadian students can take toward reaching our environmental goal. Then write a letter to the Honourable Rona Ambrose with your suggestions.

One of the ways that the Canadian Government is encouraging Canadians to take an active part to reduce CO₂ emissions is through its initiative entitled "The One Tonne Challenge". Find out how much emissions your household is pouring into the atmosphere and plan ways that you can decrease them.

<http://www.climatechange.gc.ca/onetonne/calculator/english/>

Related Links

According to this article, the only way to protect marine ecosystems from acidification is to reduce greenhouse gases.

<http://www.royalsoc.ac.uk/news.asp?latest=1&id=3250>

Learn how this company proposes to capture, separate and store CO₂.

<http://www.cslforum.org/education.htm>

Attention Grade 5 -7 Teachers: FREE Environmental Education Workshop delivered to your students!

<http://www.bcsea.org/activities/ccgame/>

Websites and online resources on climate change (found at the bottom of the page).

<http://www.bcsea.org/activities/ccgame/teachers.asp>

A group of scientists from eight countries author this article entitled "Impacts of Ocean Acidification on Coral Reefs and Other Marine Calcifiers".

http://www.ucar.edu/communications/Final_acidification.pdf

This study examines how coral reefs may be able to protect themselves against climate change.

<http://www.sciencedaily.com/releases/2003/07/030725080225.htm>

Researchers at the University of Illinois suggest that the deep ocean may not be the best place to store excess CO₂.

<http://www.news.uiuc.edu/news/05/0907carbon.html>

