

## Resources for CMOS Educators

### Climate Change and Oceans

This list was compiled by Anne Stewart of the **Bamfield Marine Sciences Centre** for Educators' Day at the Canadian Meteorological and Oceanographic Society's (**CMOS**), 2011 Congress in Victoria, BC, Canada. Please contact the Public Education Program at <public\_ed@bms.bc.ca> for more information.

**Bamfield Marine Sciences Centre** is a great source for educators and learners. <http://www.bms.bc.ca>

- Come and take an upper-level university course or a fall semester.
- Bring your class on an intense, science-immersion field trip.
- Leave the class behind and come work and play with other educators at a workshop. Please join us July 3- 7, 2011 <http://www.bms.bc.ca/pubed/pdf/Teachersworkshop2011.pdf>
- Without leaving your classroom, do a *Live Lab* or *Live Dive* using our teacher-driven, curriculum-linked, piloted and evaluated learning resources (over the Internet).  
<http://www.oceanlink.info/bmsclive/index.html>
- Without leaving home you can find more resources on our *OceanLink* outreach web-site, <http://www.oceanlink.info> There is an entire issue (#7) of *Ocean News*, dedicated to Oceans and Climate Change <http://oceanlink.info/ONews/ONews7/intro.html> *Ocean News* has background information and learning activities. An example would be lesson plan on the carbon cycle (Middle School) [http://oceanlink.info/ONews/ONews7/acidic\\_oceans\\_lp.html](http://oceanlink.info/ONews/ONews7/acidic_oceans_lp.html)

Here are some links to some of my other favorite Ocean Learning sites:

<http://www.vanaqua.org/education/Teachers.html> The Vancouver Aquarium is of course, the Empress of Ocean Outreach in British Columbia.

<http://www.neptunecanada.ca/o2/> This site has fantastic access to real time oceanographic data and more. Very exciting approach to ocean studies.

<http://virtualurchin.stanford.edu/AcidOcean/AcidOcean.htm> I love this site. It is a really excellent virtual experiment exploring the effects of ocean acidification on sea urchin development.

[http://www.youtube.com/watch?v=kvUsSMa0nQU&feature=player\\_embedded](http://www.youtube.com/watch?v=kvUsSMa0nQU&feature=player_embedded) Great UK student-made movie, (clay animation) on "The Other Carbon Problem" ocean acidification. Kids love it.

<http://www.pacname.org/> BC has a chapter of NAME (Northwest Aquatic and Marine Educators) which also includes Oregon, Washington State and Alaska. Please join us in July for the annual conference [http://www.pacname.org/2011-WA/conf\\_2011.shtml](http://www.pacname.org/2011-WA/conf_2011.shtml) Scholarships and mini-grants are available.

<http://web.vims.edu/bridge/?svr=www> An ocean of teacher-approved (American) resources, co-sponsored by Sea Grant and the National Marine Educators Association (NMEA). NAME is the regional arm of this larger organization.

<http://dels.nas.edu/Materials/Special-Products-Aggregate/12904> Great colour images of carbon cycle and acidification cycle. Lots of great lesson plans.

<http://www.coseealaska.net/> All the COSEE sites are excellent but the Alaska one is closest to home.

<http://cmore.soest.hawaii.edu/education/teachers> C-MORE has great resources for teachers on ocean microbial oceanography. (Including a great resource on ocean acidification).

<http://aquarius.nasa.gov> This is the go-to site for lesson plans and concept maps on changes in Ocean salinity. Aquarius is an Ocean salinity tracking satellite (launch date June 9<sup>th</sup>, 2011).

<http://www.discoveryeducation.com/teachers/free-lesson-plans/elements-of-chemistry-when-carbon-combines.cfm>

[http://cisanctuary.org/acidocean/hands\\_on\\_activities.php](http://cisanctuary.org/acidocean/hands_on_activities.php) Use the cabbage pH test and the dry ice ocean acidification demonstration found at the is site.

<http://coseenow.net/files/2011/04/TheCarbonCycleGame.pdf> This is a great way grasp the carbon cycle. Players end up with a bracelet that they make with all the different forms of carbon (beads). Fun, experiential and memorable.

<http://www.sea.edu/academics/k12> Please note that I have requested permission to use this material for educational purposes but have not heard back. Not sure why they would list these lesson plans if they didn't want us to use them but be careful as they are copyrighted and you should really get permission unless you can find the spot where it is granted.

<http://www.whoi.edu/OCB-OA/FAQs/#2> Woods Hole Oceanographic Institution is the Grand-Daddy of "Marine Stations" in North America and as expected as lots of great resources and information.

This is just the tip of the proverbial iceberg of course.

Anne Stewart