

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
INFORMATION EXCHANGE FOR MARINE EDUCATORS

AUGUST 2009

This update is funded by the National Marine Sanctuaries Foundation in partnership with NOAA's Ocean Exploration and Research Program, with additional support from the Office of Education and the National Marine Protected Areas Center, to share information pertinent to the marine educator community. It is intended to encourage exchange of information and programs. We hope that it will also promote collaboration among the different educators addressing similar issues in their programs.

Please share this email with your colleagues and constituents. If you request materials or respond to a request for information, please mention that you learned about it from NOAA's Information Exchange.

The information included here has been compiled from many different sources, including EE-NEWS@NAAEE, EEinGEORGIA, CREEC, the Scout Report, edinfo at FREE, scuttlebutt, NSTA Express, and others. We have verified web addresses, but make no guarantee that they will remain active. The Department of Commerce/NOAA does not necessarily endorse or promote the views or facts presented on these sites.

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Collected archives of the information presented in past newsletters are available at http://mpa.gov/helpful_resources/education_training.html. Contact the editor directly at phyllis.dermer@noaa.gov, or by phone at (865) 932-5074, to discuss further enhancements or to contribute information for future issues.

Notable References

Global Climate Change Impacts in the United States

The U.S. Global Change Research Program offers the downloadable report, *Global Climate Change Impacts in the United States*. In plain language, the report summarizes the science and the impacts of climate change on the United States, now and in the future. It focuses on climate change impacts in different regions of the U.S. and on various aspects of society and the economy such as energy, water, agriculture, and health.

<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts>

ICRS Proceedings

The International Coral Reef Symposium (ICRS) is held about every four years. With funding from the MacArthur Foundation and the support and permission of the International Society for Reef Studies and the various proceeding publishers, ReefBase has been able to scan and import all individual papers from the proceedings of ICRS 1 to 10, and make these available for downloading from this website.

http://www.reefbase.org/resource_center/publication/icrs.aspx

WEBSITES OF THE MONTH

COSEE Website

The Centers for Ocean Science Education Excellence (COSEE) is a network of 12 Centers and a Central Coordinating Office, located throughout the United States. Each Center is a consortium of ocean science research institutions, informal science education organizations, and formal education entities. The Centers focus on developing innovative ways to bring ocean scientists and educators together to offer high-quality ocean science education. The COSEE program is funded primarily by the National Science Foundation, with support from NOAA. In addition to the work by the Centers, COSEE engages in network-level activities such as scientist-educator partnerships, ocean literacy, and promoting ocean careers.

The newly updated coordinating COSEE website offers news and events, information about the centers, and highlights network activities. Visitors can sign up for the monthly newsletter *COSEE Network News*, search for professional development opportunities, download educational materials, and more. Check out "For Educators" section and find the Beachcomber's Companion, Common Marine Plankton Poster, Greatest of the Great Lakes, and much more. Make sure to check out the "For Scientists" section also, with links to additional resources.

<http://www.cosee.net/>

Scientific Visualization Studio

NASA's Scientific Visualization Studio facilitates scientific inquiry and outreach within NASA programs through visualization. The studio works with scientists in the creation of visualization products, systems, and processes in order to promote a greater understanding of Earth and Space Science. Animations include hurricane upwelling, island underwater flybys, beach erosion, and much more.

<http://svs.gsfc.nasa.gov/index.html>

BOOK OF THE MONTH

Thoreau's Legacy: American Stories about Global Warming

Penguin Classics and the Union of Concerned Scientists offered established writers and fresh voices the opportunity to contribute their personal stories in this new anthology, *Thoreau's Legacy: American Stories about Global Warming*. The essays selected represent a variety of perspectives, voices, and experiences. The writers include scientists, students, grandparents, activists, veterans, journalists, evangelical Christians, artists, and businesspeople; their muses are as diverse as their backgrounds. The chapters are organized by theme, including Water and Ice, Tales from Urban America, and more. The book may be purchased, or read online.

<http://www.ucsusa.org/americanstories/vbook.html>

MESSAGE FROM THE BRIDGE

All in One Place

Educators looking for the latest ocean science news and resources can find them all on the Bridge's front page. From information on the next National Marine Educators Association conference and on-going ocean research expeditions to our teacher-reviewers' top picks, the homepage is a one-stop shop. For those interested in the Bridge's email discussion list, Scuttlebutt, there is a link to more information and signup right underneath information on the Bridge-authored Data Analysis Teaching Activities (DATA) series. If you need resources on a particular topic, you will find the Bridge powerful search engine. The Bridge responds to user feedback and usability testing to suit the needs of aquatic educators all over the world, and welcomes feedback and site nominations to continue to grow this ocean of teacher-approved marine education resources.

<http://www.marine-ed.org/bridge>

REQUESTS

Earth Survey Project

Jeremy Taylor is interested in the interactions between society/culture, religion, and nature/the environment. He has posted the Earth Survey questionnaire and hopes to get responses from a wide cross-section people, and offers a blog of the results.

http://www.surveymonkey.com/s.aspx?sm=VV3x9hd6yHK6c9UAPjBQRQ_3d_3d

<http://jeremyjtaylor.tripod.com/>

LandScope America

LandScope America is a collaborative project of NatureServe and the National Geographic Society. This website is meant to be an online resource for the land-protection community and the public. The site brings together maps, data, photography, and information about the environment from a variety of sources and presents them in dynamic and accessible formats. The goal is to inspire and inform collaborative place-based conservation in the U.S. by increasing the pace and effectiveness of land-protection investments in every state. The website is up and running as a beta version – they would appreciate feedback.

<http://www.landscape.org/>

Ocean Picture of the Day

The Ocean Project will maintain an Ocean Picture of the Day service for world citizens to show and profess their affection for the ocean. They need contributions from around the world with a picture and caption as to what emotions it evokes in you or how the picture makes you feel. An example posting is on-line; to contribute, digitize your favorite ocean-themed photograph (to which you have copyright) as a JPEG- or PNG-formatted image, and upload it using the Ocean Picture of the Day form. The service will start on September 1, 2009.

<http://theoceanproject.org/opod/index.php?date=2009-01-09>

GRANTS AND OPPORTUNITIES

B-WET Funding - California

The Office of National Marine Sanctuaries announces the availability of funding for the CA Bay Watershed Education and Training (B-WET) Program. The California B-WET grant program supports existing environmental education programs, fosters the growth of new programs, and encourages the development of partnerships among environmental education programs throughout the San Francisco Bay, Monterey Bay, and Santa Barbara Channel watersheds. Projects support organizations that provide students "meaningful" watershed educational experiences and teachers professional development opportunities in the area of environmental education. The deadline for application is October 8, 2009.

<http://sanctuaries.noaa.gov/news/bwet/welcome.html>

Coastal Bend Bays and Estuaries Fieldtrip Funding – Texas

The Coastal Bend Bays & Estuaries Program is accepting proposals for educational fieldtrips to area facilities from local organizations to conduct environmental education learning experiences for students and their teachers. The fieldtrip program must expand on current environmental programs already in existence in your facility and must target primary-middle school age children within their 12 county outreach area. The deadline for submission is August 30, 2009. Click on the link at the right of the page.

<http://www.cbbep.org/>

Coral Reef Conservation Grants

The NOAA Coral Reef Conservation Program announces the availability of funding for General Coral Reef Conservation Grants. Applications must fall within at least one of the following categories: Fishing Impacts; Land-Based Sources of Pollution; Climate Change; and Local Action Strategy Projects. The deadline for application is November 2, 2009.

<http://www.grants.gov/search/search.do?mode=VIEW&oppld=48526>

Earth Day Challenge

The Mobile Learning Institute Earth Day Challenge invites young people internationally, working alone or in teams, to develop brief films that share their views on the environment and Earth's future. Prizes will be awarded to winners in each of two divisions - elementary/middle school and high school. The deadline for entry is September 1, 2009.

<http://www.earthdaychallenge.org/awards.html>

Free Water Quality Test Kits

World Water Monitoring Day (WWMD, September 18, 2009) and National Public Lands Day (September 26, 2009) are teaming up to provide volunteers with free water quality test kits. The test kit includes everything necessary to test for temperature, pH, turbidity, and dissolved oxygen, and is ideal for use with elementary and middle school students. To receive a free test kit you must be one of the first 100 groups to register to participate in WWMD and indicate your participation in National Public Lands Day.

<http://www.publiclandsday.org/>

<http://www.worldwatermonitoringday.org/>

Gannett Foundation Community Action Grants

The Gannett Foundation Community Action Grants support local groups involved in education and neighborhood improvement, economic development, youth development, community problem-solving, assistance to disadvantaged people, environmental

conservation, and cultural enrichment. Grant applications are reviewed twice a year; the next deadline for application is August 17, 2009.

<http://www.gannettfoundation.org/guidelines.htm>

Georgia Pacific Foundation Grants

The Georgia-Pacific Foundation supports a wide range of organizations that improve the quality of life in communities where Georgia-Pacific operates. The Foundation has identified the following key investment areas: educational efforts; community enrichment; environmental programs; and entrepreneurship initiatives. Applications may be submitted online from January 1 through October 31, annually. Check the website for eligibility.

<http://www.gp.com/gpfoundation/grantprocess.html>

Green School Projects - New England

KIDS Consortium, with support from State Farm Youth Advisory Board, is offering mini-grants for "green" service-learning projects developed by K-12 schools in New England. Grants will support green school service-learning projects proposed by K-12 educators, students, and community organizations working with youth. Funded projects must solve a problem or address a local need related to making schools and neighborhoods healthier and more environmentally sustainable. The deadline for application is August 31, 2009.

<http://www.kidsconsortium.org/minigrants.php>

International Coral Grant

The NOAA International Coral Grant Program announces a FY2010 grant opportunity. The program solicits proposals under three funding categories; see the grant announcement for details and eligible applicants. The deadline for pre-application is November 9, 2009.

<http://www.grants.gov/search/search.do?mode=VIEW&oppld=48541>

International Green Pen Awards

The Asia-Pacific Forum of Environmental Journalists offers the International Green Pen Awards for environmental journalists who have made a significant contribution in promoting environmental journalism. The award is open to all journalists working in all forms of media. It recognizes the leadership of individuals in the field of environmental journalism - people who help, inspire, and support others in the field. The deadline for nomination is August 31, 2009.

http://www.environmentaljournalists.org/green_pen.html

International Science & Engineering Visualization Challenge

With science literacy rare, illustrations provide immediate connection between scientists and other citizens, and hope for nurturing popular interest. The National Science Foundation and *Science* offer the International Science & Engineering Visualization Challenge to support communicating science, engineering, and technology for education and journalistic purposes. The competition offers five categories: photographs, illustrations, informational graphics, interactive media, and non-interactive media. The deadline for entry is September 15, 2009.

http://www.nsf.gov/news/special_reports/scivis/challenge.jsp

International Year of Planet Earth Photography Contest

The theme of the International Year of Planet Earth 2009 Photo Contest is *Exploring Earth Science Around the World*. Entrants are encouraged to submit photos that show people engaged in Earth science exploration in the natural environment of their part of the world. The deadline for submission is October 16, 2009.

<http://www.earthsciweek.org/contests/iyephotocontest/index.html>

Let's Go Outside Photomosaic

Share your best photo of you and your family enjoying nature with the U.S. Fish and Wildlife Service and its *Let's Go Outside* photo mosaic project. Get outside and visit a national wildlife refuge, a national fish hatchery, or even a stream or woods in your own neighborhood. The deadline for submission is September 7, 2009.

<http://www.yououtdoors.org/>

Lowe's Toolbox for Education Grants

The Lowe's Toolbox for Education offers grants to schools and parent/teacher groups across the United States. School projects should encourage parent involvement and build stronger community ties. Samples of funded projects include those that engage students with their school's surrounding environment. The next deadline for application is October 16, 2009.

<http://www.toolboxforeducation.com/>

Marine Education Awards – Mid-Atlantic

The Mid-Atlantic Marine Education Assn (MAMEA) offers the 2009 Marine Education Awards for a classroom and/or non-traditional teacher who has demonstrated exceptional teaching abilities in Delaware, Maryland, DC, Virginia, and North Carolina. The deadline for nomination is August 31, 2009.

<http://www.mamea.org/awards.html>

National Public Lands Day Volunteer of the Year

National Public Lands Day, September 26, 2009, Volunteer of the Year Award recognizes the efforts of hardworking individuals who have gone above and beyond the norm to care for our public lands. The nominee must have participated in at least one National Public Lands Day event. The deadline for nominations is October 1, 2009.

<http://www.publiclandsday.org/managers/volunteer-contest-details.htm>

Rural Technology Grants

The Technology Grants for Rural Schools program was created to help meet the growing need for innovative technology in the classroom. The grants are funded by a donation from Rural Telephone Finance Cooperative and strive to help public schools in rural areas served by OPASTCO members bring modern computers to every classroom, connect schools to the information superhighway, and make sure that effective and engaging software and online resources are an integral part of the school curriculum. Check the website for eligible communities. The deadline for application is September 14, 2009.

<http://www.fred.org/tech.html>

Share the Experience Photo Contest

This photo contest encourages nature lovers, amateur photographers, and kids of all ages to take pictures of a national park and share the experience. The deadline for submission is December 31, 2009.

<http://nationalparks.promo.eprize.com/experiencecontest2009/>

St. Andrews Prize for the Environment

The St. Andrews Prize for the Environment, an initiative by the University of St. Andrews in Scotland and ConocoPhillips, provides funding to help promote the implementation of innovative solutions to environmental problems. Solutions should be practical; combine good science, economic reality, and political acceptability; and have the potential for wider application elsewhere. The deadline for submission is October 31, 2009.

<http://www.thestandrewsprize.com/>

Tom's of Maine Community Involvement Grants

Tom's of Maine is looking for applications for community involvement projects from nonprofit organizations from all 50 states. The deadline for application is August 30, 2009.

<http://www.tomsomaine.com/community-involvement/project-sponsorships.aspx/>

Wal-Mart State Giving Program

Wal-Mart's State Giving Program strives to award grants that have a long-lasting, positive impact, primarily in four areas of focus: Education, Workforce Development / Economic Opportunity, Health & Wellness, and Environmental Sustainability. The deadline for application is September 18, 2009.

<http://walmartstores.com/CommunityGiving/8168.aspx?p=8979>

INTERNSHIPS AND TEMPORARY OPPORTUNITIES

EarthCorps

EarthCorps' work fosters strong community, healthy habitat, and young leaders. EarthCorps has brought young people from across the United States and around the world to restore habitat and lead environmental service volunteers. Applications are accepted on a rolling basis, May 1-June 15 for crews starting in October, and October 1-November 15 for crews starting in February; sessions run 10.5 months each. Stipends and health insurance are provided for participants, along with housing (international) or paid vacation (U.S.).

<http://www.earthcorps.org/index.php>

CONFERENCES, WORKSHOPS, AND PROFESSIONAL DEVELOPMENT

Atlas of Science Literacy Workshops – North Carolina and Washington, D.C.

The American Association for the Advancement of Science offers three-day workshops on the Atlas of Science Literacy, September 14-16, 2009 in Durham, North Carolina, and October 19-21, 2009 in Washington, D.C. Participants will use Atlas 1 and 2 and other Project 2061 resources to enhance their understanding of science literacy and to improve curricula, instruction, and assessment. Registration is limited; earlybird rates scholarships are available – check the website for details and deadlines.

<http://www.project2061.org/events/workshops/default.htm>

AZA Annual Conference

The annual conference of the Association of Zoos and Aquariums (AZA) will be held September 12-17, 2009 in Portland, Oregon. The website offers the schedule of events,

registration information, and the online, interactive conference issue of *Connect*, AZA's magazine.

<http://aza.org/annualconference/>

COSEE Informal Education Workshop – Florida

COSEE Central Gulf of Mexico and partners offer a weekend marine education workshop, September 11-13, 2009 in Fort Pierce, Florida. Educators will learn about Florida's coastal ecosystem and marine life from research scientists and marine education specialists. Participants will be provided both lecture and hands-on activities that will provide them with new skills that they can use in conducting field and classroom based experiences with youth. The deadline for application is August 26, 2009.

<http://florida4h.org/projects/marine/COSEE.shtml>

EETAP Fall Courses - Online

The University of Wisconsin-Stevens Point and the Environmental Education and Training Partnership (EETAP) offer the following online summer courses:

- Fundamentals of Environmental Education, September 8-November 25, 2009
- Making EE Relevant for Culturally Diverse Audiences, September 8-November 13, 2009.
- Applied Environmental Education Program Evaluation, September 7-December 4, 2009
- Leadership Development in Natural Resources: Strategic Planning and Implementation, September 22–November 21, 2009

Check the website for availability and registration deadlines.

<http://www.uwsp.edu/natres/eetap/index.aspx>

Learning Ocean Science through Ocean Exploration - Various

NOAA's Ocean Exploration Program and partners will offer introductory Learning Ocean Science through Ocean Exploration professional development workshops for science teachers. Participants will receive the curriculum with CD-ROM's, certificates of participation, and more. Contact the noted educator for registration and more information.

- August 22, 2009 with Tennessee Aquarium, Chattanooga, Tennessee. The deadline for registration is August 7, 2009. Contact George Bartnik at gpb@tennis.org
- September 19, 2009 with Georgia Aquarium, Atlanta, Georgia. The deadline for registration is September 4, 2009. Contact Kim Morris-Zarneke at kzarneke@georgiaaquarium.org
- September 26, 2009 with University of South Florida College of Marine Science, St. Petersburg, Florida. The deadline for registration is September 11, 2009. Contact Teresa Greely at greely@marine.usf.edu
- September 26, 2009 with Dauphin Island Sea Lab, Dauphin Island, Alabama. The deadline for registration is September 11, 2009. Contact Denise Keaton at dkeaton@disl.org

<http://oceanexplorer.noaa.gov/edu/development/development.html>

Maryland Association for Environmental and Outdoor Education Annual Conference – Maryland

The Maryland Association for Environmental and Outdoor Education (MAEOE) Annual Conference, *Many Paths, One Destination: From Knowledge to Action*, will be held

February 4-7, 2010 in Rocky Gap, Maryland. The conference will kick off a year-long program of events designed to pay tribute to MAEOE's past, celebrate its present, and plan for its future. Check out the scholarship opportunities. The deadline for submissions for presentations is September 4, 2009. Conference strands include using technology in EE, environmental literacy, and more.

<http://www.maeoe.org/conference/>

MS PHD'S Professional Development Program

NSF and NASA support the Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science (MS PHD'S) Professional Development Program. The program provides professional development experiences that facilitate the advancement of minorities committed to achieving Earth system science careers. The program includes mentoring and networking activities for minority undergraduate and graduate Earth system science and engineering majors, and provides a supportive environment in which participants develop strategies and professional skills necessary to excel in Earth system science and engineering fields. The deadline for application is September 8, 2009.

<http://www.msphds.org/>

2009 NAI National Workshop

The 2009 National Association of Interpreters Workshop, November 17-21, 2009 in Hartford, Connecticut will offer professional development and networking opportunities through informative keynote speakers, concurrent sessions and preworkshop training in 13 different tracks, special events, and offsite sessions. The theme is *Navigating Change, Revolutionizing Interpretation*.

<http://interpnet.com/workshop/>

NAAEE Conference

Earlybird registration for the North American Association of Environmental Education's annual conference, *The Power of Partnerships: Creative Leadership in Environmental Education*, October 7 - 10, 2009 in Portland, Oregon, ends August 15, 2009 for the discounted rate.

<http://www.naaee.org/conference>

NASA Endeavor Science Teaching Certificate

The NASA Endeavor Science Teaching Certificate Project awards one-year fellowships each year to more than 40 current and prospective teachers. In partnership with state departments of education, Endeavor Fellows take five graduate courses in a live online format and learn to apply research-based pedagogical strategies and cutting-edge STEM content to their classroom contexts. Courses include Life and Marine Science: Tracking Live Marine Animals, NSF's SPRINTT [Student Polar Research with IPY National (and International) Teacher Training], Lessons from the Ocean: Science on the Water Planet, and more. The deadline for application is September 30, 2009.

<http://www.us-satellite.net/endeavor/index.cfm>

National Conservation Training Center Courses – West Virginia

The U.S. Fish and Wildlife Service offers professional development courses at the National Conservation Training Center campus in West Virginia. For more information about a specific course, contact the noted educator.

- OUT8116: Grant Writing for Conservation, December 7-9, 2009; the deadline for registration is September 28, 2009. Contact Ora Dixon at Ora_Dixon@fws.gov.

- OUT8115: Balancing Nature and Commerce in Communities that Neighbor Public Lands, January 25-28, 2010; the deadline for registration is November 30, 2009. Contact Laura Jones at Laura_Jones@fws.gov
http://training.fws.gov/documents/Section1_NCTC_Sponsored_Courses.pdf

NSTA Fall Conferences

The National Science Teachers Association conferences offer the latest in science content, teaching strategy, and research to enhance and expand your professional growth. Upcoming conferences will be held October 29-31, 2009 in Minneapolis, Minnesota, November 12-14, 2009 in Fort Lauderdale, Florida, and December 3-5, 2009 in Phoenix, Arizona.

<http://www.nsta.org/conferences/?lid=exp>

Student Environmental Conference – Iowa

The National Mississippi River Museum & Aquarium in Dubuque, Iowa and partners will hold their third high school student environmental conference on September 24-25, 2009. This conference focuses on environmental and conservation topics of the Mississippi River and its connection to the ocean. The conference is open to groups of four high school students and their teacher from the five Upper Mississippi River states of Minnesota, Iowa, Missouri, Wisconsin, and Illinois. Students will stay overnight on the William M. Black dredge boat located at the museum, and take land and river field trips to look at the wildlife, fish, land use, river navigation, and environmental problems and solutions in the 31 state watershed of the Mississippi River. The conference is open to 100 participants who register from this five state region.

Contact Mark Wagner at Mdwagner@rivermuseum.com

Summer Institute for Climate Change Education - Online

The 2009 Will Steger Foundation Summer Institute for Climate Change Education, August 19, 2009, online, will focus on the international climate negotiations in Copenhagen and will unveil a new curriculum on international climate solutions for grades 9-12. The institute will highlight the critical need for international cooperation on climate change solutions, and equip educators with the tools necessary to empower student learning and leadership on the topic.

<http://www.willstegerfoundation.org/>

Wetland Courses for Educators - Various

Environmental Concern, Inc. offers a variety of courses designed for formal and non-formal educators who are interested in learning more about wetlands, and who would like to bring the excitement of wetland education into their classroom. Upcoming course offerings include *WOW! The Wonders of Wetlands*, *POW! The Planning of Wetlands*, and more. Fall classes are scheduled in Virginia, Texas, and elsewhere. Check out their schedule on-line, or contact the education department to learn how to arrange for a course in your area. They can also design a custom course to meet your needs. Scholarships may be available.

http://www.wetland.org/education_schedule.htm

Why Do We Explore - Online

Join the College of Exploration and NOAA's Ocean Explorer for the free online teacher workshop, *Why Do We Explore*, October 5-16, 2009. This is the second workshop in a series of teacher professional development opportunities focused around NOAA's new ship, the *Okeanos Explorer*. Scientific keynote presenters and education facilitators will

work with participants to delve into the benefits of ocean exploration targeting climate change, energy, human health and ocean health. Interact with scientists, converse and share classroom applications with other educators, and find a wealth of multimedia resources. The workshop will introduce the first in a series of Leader's Guides for *Classroom Explorers Why Do We Explore?* with associated exploration lessons and hands-on activities. The workshop will be available 24 hours a day, 7 days a week.

<http://www.coexploration.org/oe/>

Wildlife Conservation Society Professional Development - Online

Wildlife Conservation Society Online Teacher Training Courses are for audiences of K-12 educators. The six-week courses provide an opportunity to examine the life sciences of zoology, ecology and conservation, through topics such as predators, marine biology, habitat ecology, and climate connections. Participants will learn from virtual and interactive simulations, videos, presentations from scientists and educators, while interacting with other teachers from around the world. Courses include Conservation Biology, Marine Biology, Conservation Communication, and more.

<http://www.wcs.org/teachers/online-professional-development.aspx>

EDUCATIONAL RESOURCES

Adopt a Drifter Program

NOAA's Office of Climate Observation established the Adopt a Drifter Program in December 2004. The program provides teachers with an educational opportunity to infuse ocean observing system data into their curriculum. The website includes lesson plans, background information, and more.

<http://www.adp.noaa.gov/index.html>

American Museum of Natural History: Climate Change

This online exhibit from the American Museum of Natural History on climate change offers interactive features that mirror the in situ exhibits, complete with charts, informative text, photographs, and graphs. There are resources, the *Signs of Change* blog, and sections for Educators and for Kids.

http://www.amnh.org/exhibitions/climatechange/?src=h_h

Bioluminescence 2009: Living Light on the Deep Sea Floor Expedition

NOAA's Ocean Exploration and Research Program has launched the *Bioluminescence 2009: Living Light on the Deep Sea Floor Expedition* webpage, following a July 20-30, 2009 expedition. The educators working with scientists from the expedition have developed an Ocean Explorer Expedition Education Module (EEM) for the mission. Designed for teachers of students in grades 5-12, the EEM offers educational materials tied to the National Science Education Standards and the Ocean Literacy Essential Principles and Fundamental Concepts. The website includes interactive media, career connections, web logs, and much more. Be sure to check out ORCA's Eye-in-the-Sea and other visual media.

<http://oceanexplorer.noaa.gov/explorations/09bioluminescence/welcome.html>

Climate Literacy Guide

The United States Global Change Research Program offers the downloadable report, *The Climate Literacy Guide: The Essential Principles of Climate Science*, an interagency guide providing a framework and essential principles for formal and informal education

about climate change. The guide presents information about climate, impacts of climate change, and approaches for adapting and mitigating change.

<http://globalchange.gov/resources/educators/climate-literacy>

Coral Reef Watch Website Redesign

NOAA's Coral Reef Watch website has been reorganized and redesigned. The new pages make it easier for users to discover and understand the data products, and new sections highlight research projects and partnerships. Check out the bleaching outlook, datasets, and the outreach and education materials.

<http://coralreefwatch.noaa.gov/satellite/index.html>

CoRIS Education and Outreach Search Tool

NOAA's Coral Reef Information System (CoRIS) Library offers a new tool to facilitate retrieval of items that are useful for education and/or outreach purposes. Records for coral education and outreach materials in the NOAA Library and the CoRIS Virtual Library have been updated with education and outreach tags, and the advanced search website allows users to search through these records. Select "Education and Outreach" under "Publication Type," then enter other search terms as needed, and submit. In addition, the materials can be retrieved by clicking on the "Education and Outreach" link under "Browsable Collections" on the left side of the webpage.

<http://coris.noaa.gov/library/search.cgi>

Economic Instruments

The United Nations Environment Programme's International Working Group on Economic Instruments for Environmental Policymaking is comprised of experts from governmental, intergovernmental, and non-governmental organizations as well as academia from developed and developing countries. The Working Group helps identify ways to enhance policy coordination related to the design and use of economic instruments at the national and international level and assists UNEP in defining its work program on economic instruments. The website offers practical tools and tailored solutions to policy makers to help them design economic instruments that fit prevailing local economic, political, social, institutional, and environmental conditions. The training manual, *The Use of Economic Instruments for Environmental and Natural Resource Management*, is available for downloading from the website, along with a variety of other materials.

<http://www.unep.ch/etb/areas/econInst.php>

End of the Line

The End of the Line is a documentary film highlighting the impact of overfishing on the oceans. It examines the imminent extinction of bluefin tuna, brought on by increasing western demand for sushi; the impact on marine life resulting in huge overpopulation of jellyfish; and implications of a future world with no fish. The website hosts the cinema trailer and links to short episodes that you can view online, expected screening dates, and more.

<http://endoftheline.com/>

FGBNMS Mapping Tool

Flower Garden Banks National Marine Sanctuary (FGBNMS) offers an online GIS-based mapping tool of the sanctuary through a Google-based map. The interactive page includes information about a number of reefs and banks of the northwestern Gulf of Mexico. One notable feature is the incorporation of ROV (Remotely Operated Vehicle)

tracks with associated photos. While only one dive track has been uploaded to date, others will be added in the future.

http://flowergarden.noaa.gov/news_events/gismaparticle.html

Georgia River Posters

Brown's Guide to Georgia now offers the popular Georgia river posters online. Each of the 14 posters may be viewed in detail on the computer in pdf format, printed in small format on a desktop printer, or sent to a local print shop and reproduced in full 24-inch X 36-inch format. The posters tell the story of each river basin through illustrations, graphics, and text.

<http://brownsquides.com/srl/georgia-river-posters/>

Giant Squid Curriculum Module

The Smithsonian Institution's National Museum of Natural History, Mississippi State University, and partners offer this on-line Giant Squid Curriculum Module. Lessons in the module are related to information in the web pages of the Smithsonian Institution's National Museum of Natural History. Educators are encouraged to visit three websites prior to considering the lessons; two of the links are old but newer ones are below.

<http://giantsquid.msstate.edu/index2.html>

http://www.mnh.si.edu/natural_partners/squid4/

<http://www.mnh.si.edu/cephs/>

Harmful Algae Digital Library

The Harmful Algae Digital Library from the National Sea Grant Library contains a collection of downloadable Sea Grant documents arranged by subject area: red tide/PSP, brown tide, ciguatera, killer algae, and Pfiesteria.

<http://nsql.gso.uri.edu/bloom.html>

How to Turn Project-Learning Setbacks to Your Advantage

EduTopia offers resources to help make education meaningful. This guide offers tips about negotiating the uncertainty of a project-oriented curriculum and turning setbacks to advantages. Check out the related links to the right of the page for more advice.

<http://www.edutopia.org/project-learning-curriculum-development-advice>

Introduction to Geology

This undergraduate level course offered as part of MIT's OpenCourseWare Initiative offers an Introduction to Geology. The materials include readings, lecture notes, and more. The course introduces major minerals and rock types, rock-forming processes, and time scales; temperatures, pressures, compositions, structure of the Earth, and measurement techniques; geologic structures and relationships observable in the field; sediment movement and landform development by moving water, wind, and ice; crustal processes; and planetary evolution in terms of global plate tectonics with an emphasis on ductile and brittle processes.

<http://ocw.mit.edu/OcwWeb/Earth--Atmospheric--and-Planetary-Sciences/12-001Spring-2008/CourseHome/index.htm>

Laboratory Techniques Videos

Those with the need to work in an organic chemistry lab may find this website from the University of Calgary helpful. Created by a team of educational experts at the university, videos demonstrate a variety of techniques that are commonly used in laboratory settings. There are also interactive tutorials for different techniques.

<http://www.chem.ualberta.ca/~orglabs/Techniques.html>

Library of Congress Nature and the Environment

The Library of Congress has compiled a collection of resources supporting education on nature and the environment. The multimedia resources include presentations, exhibitions, webcasts, news, and classroom materials. Selections include The Everglades: Exploitation and Conservation, Global Warming and Climate Change, and more.

<http://www.loc.gov/teachers/classroommaterials/themes/nature/exhibitions.html>

Marine Debris Assessment Expedition

Follow the R/V Manta on its journey as it headed out into the Gulf of Mexico for the 2009 Marine Debris Assessment Expedition, July 20-25, 2009. You can follow along on the web as technical divers tackled the challenge of evaluating and removing derelict fishing nets and more from the Stetson Bank. Learn about the focus of the expedition, meet the team of divers and scientists that made it happen, and read the daily blogs.

<http://flowergarden.noaa.gov/science/techdive09.html>

Marine Microbial Ecology

This image-rich website from the Australian Antarctic Division's Biology program describes its research in marine microbial ecology. The program studies the microscopic life in the Southern Ocean: single celled plants and animals (phytoplankton and protozoa), bacteria and viruses. The website includes an introduction of microbial ecology and microbial processes, information about the research project, and much more, all discussed using vivid imagery.

http://www-old.aad.gov.au/science/AntarcticResearch/Biology/MME/default_print.asp

National Park Service Photos & Multimedia

This redesigned National Park Service website offers photos and multimedia resources from the full range of the Park Service holdings. Offerings include webcams, photo galleries, multimedia presentations, and virtual tours.

<http://www.nps.gov/photosmultimedia>

Ocean Facts Website

NOAA's National Ocean Service offers an ever-growing Ocean Facts Website. The questions range from basic (What is an estuary?) to the more unusual (What does peanut butter have to do with the ocean?).

<http://oceanservice.noaa.gov/facts/welcome.html>

Okeanos Explorer Education Materials Collection

The Okeanos Explorer Education Materials Collection encourages educators, students, and citizen scientists to become personally involved with the voyages and discoveries of America's first federal ship dedicated to ocean exploration. Lesson plans in the collection focus on three themes: reasons for ocean exploration; exploration methods; and recent discoveries. For each of these themes, a Leader's Guide for Classroom Explorers provides background information, links to resources, and an overview of recommended lesson plans. In addition, an Initial Inquiry Lesson for each of the three themes leads student inquiries that provide an overview of key topics. A series of lessons for each theme guide student investigations that explore these topics in greater depth. Additional guides will be developed to support the involvement of citizen scientists.

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

Poisoned Waters Documentary and Teacher's Guide

Poisoned Waters, a two-hour PBS documentary, examines how water pollution from many sources threatens human health and the environment and also explores potential answers to the crisis. The website includes the complete video, broken into easily viewed sections, along with a teacher's guide intended for grades 9-12. The transcript of the video is also available from the website.

<http://www.pbs.org/wgbh/pages/frontline/poisonedwaters/>

Resilience Websites

The Nature Conservancy and partners offer two websites addressing the issues of resiliency: Reef and Coastal Resilience. Check out the downloadable Reef Resilience Toolkit, Future Scenarios Mapper, upcoming events, background information, and much more.

<http://www.reefresilience.org/home.html>

<http://www.coastalresilience.org/>

Safeguarding Wildlife from Climate Change Webinars

The National Wildlife Federation offers a series of monthly webinars with experts on climate change and wildlife related issues. They will highlight experts in the emerging climate change and wildlife field as well as state and federal agencies in the forefront of integrating climate change into their wildlife management efforts. The archives are posted and include a pdf of the presentation, background reading, the recorded seminar, and more.

http://training.fws.gov/EC/Resources/climate_change_webinars/archives.html

Science is Fun!

The Committee on Science and Technology is responsible for overseeing research and development programs and includes all non-defense federal scientific research and development at a number of federal agencies. Their *Science is Fun!* website includes sections on wildlife games, environmental science games, science fair projects, and much more. Links from the website include the Annals of Improbable Research, The Yuckiest Site on the Internet, Bad Astronomy, and more, along with more conventional game and information websites. Check this one out.

http://science.house.gov/resources/science_fun.shtml

Sea Level Affecting Marshes Model

The U.S. Fish and Wildlife Service has posted simulations of sea-level rise impacts for several coastal estuaries online on this website. The simulations are the product of the landscape-change model which uses existing wetland, land use, and elevation data combined with local information on subsidence, accretion, and other factors, along with a variety of projections of sea level rise to predict the effect of 45 different sea-level rise scenarios on coastal marshes and shorelines. The online tool, SLAMM-View, allows users to display the results for two time periods simultaneously. By viewing the two maps, users can readily see predicted changes in marshes and shorelines at 25-year or greater intervals (to the year 2100). Simulations are posted for select estuaries; additional simulations will be posted for other areas including National Wildlife Refuges. The website also offers a PowerPoint presentation providing an overview of changes in sea level during and since the last Ice Age.

<http://www.fws.gov/slamm/>

Seamounts

The SeamountsOnline website provides data on species that have been observed or collected from seamounts worldwide. The online portal is designed to facilitate research into seamount ecology, and to act as a resource for managers. It is also the database component of the Global Census of Marine Life on Seamounts. Besides the interactive map, the website offers links to background information about seamounts, research papers, and more. The Seamount Catalog is a complementary but separate initiative that provides bathymetric maps on more than 1800 seamounts and data on their geology, rather than ecological data. The two projects are now collaborating to develop a link between their respective data systems.

<http://pacific.sdsc.edu/seamounts/>
<http://earthref.org/cgi-bin/er.cgi?s=sc-s0-main.cgi>

Solutions to Avoid Red Tide

The Solutions to Avoid Red Tide (START) webpage offers basic information and videos about red tide, effects of red tide, and research being done regarding red tide.

<http://www.start1.com/Default.aspx>

Teacher's Aquarium Guide

The Ocean Animal Aquarium: Collection of Intertidal Organisms: Mini-Marine Ecosystem, Teachers' Guide: Lessons and Activities for grades K-6 is a 15-page teachers' guide for using a classroom aquarium. At the end are suggestions for activities and ways to integrate the aquarium into daily classroom activities.

<http://neosec.wordpress.com/2009/07/08/teachers-aquarium-guide-grades-k-6/>

Topographic Map of Earth

NASA and Japan released a new digital topographic map of Earth. The map was produced with detailed measurements from NASA's Terra spacecraft.

<http://www.nasa.gov/topics/earth/features/20090629.html>

Tour de Turtles

Tour de Turtles is a fun, educational journey through the science, research, and geography of sea turtle migration using satellite telemetry. Created by the Caribbean Conservation Corporation with help from sponsors and partners, this event follows the migration of ten sea turtles, representing four different species, from their nesting beaches to their foraging grounds. On July 31, 2009, biologists will gather at the Archie Carr National Wildlife Refuge in Florida for a live webcast of a satellite-tagged sea turtle release. In addition to the webcast, the live event at location is free.

<http://www.tourdeturtles.org/>

Virtual Team Challenge – Spill!

The Virtual Team Challenge from Deloitte is a Virtual World 3D simulation-based learning curriculum for high school teachers and students for Fall 2009. The program meets National Standards for Environmental Science and Business Education and is supported by lesson plans that incorporate the game's missions. The Virtual Team Challenge will give participants a taste of the different aspects of working as an employee of a fictional professional services firm. Every participant will fulfill one of several roles on a simulated professional services team and compete against other teams to clean up an oil spill in the river of New City.

<http://www.virtualteamchallenge.com>

Western Soundscape Archive

This aural database is housed at the University of Utah's J. Willard Marriott Library and features recordings contributed by state and federal agencies, conservation groups, and volunteers. The collection currently offers representative sounds from approximately 80% of the West's bird species and 90% of the region's frog and toad species. The website also has weekly podcasts and a number of thematic sound collections, including the Sounds of the Arctic National Wildlife Refuge. Check this one out.

<http://westernsoundscape.org/>

INITIATIVES, JOURNALS, and MORE

Hazard Education and Awareness Tool

The Hazard Education and Awareness Tool (HEAT) is a website template that uses Google Maps technology, spatial hazard data, and preparedness information to help increase awareness of coastal hazards. NOAA's Pacific Services Center uses HEAT to develop a tsunami information service that provides residents and visitors convenient, online access to interactive evacuation zone maps, along with the education and awareness information needed to be prepared in the event of a tsunami. The tool is currently available for Maui and the Oregon Coast.

http://www.csc.noaa.gov/psc/project_pages/HEAT.html

Project Kaisei

Project Kaisei will examine the largest area of the Plastic Vortex, an ocean gyre situated to the northeast of Hawaii, to collect and study plastic and other marine debris in order to showcase some of the new technologies that may be used for processing and recycling. Expected departure dates are August 2, 2009 for *The New Horizon* from San Diego, and August 4, 2009 for the *Kaisei* from San Francisco. Sign up to follow the expedition online, and check out the website for background information.

<http://www.projectkaisei.org/>

Science Nation

National Science Foundation's *Science Nation* is billed as the online magazine that's all about science for the people. The online magazine reports on science breakthroughs and technological developments using video clips, first-hand reporting, written articles. Topics include tornadoes, climate change effects on Emperor penguin populations in Antarctica, and much more.

http://www.nsf.gov/news/special_reports/science_nation/index.jsp

Twists in the "Name That Jellyfish Contest"

As often happens in science, there has been an unexpected twist in the process of naming the Bonaire Banded Box Jellyfish. While the contest is over, there is more to the process than expected. Check out this website for another example of the scientific process.

http://www.yearofscience2009.org/themes_ocean_water/general/top-seven-jellyfish-names.html