

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
INFORMATION EXCHANGE FOR MARINE EDUCATORS

APRIL 2010

This update is funded by the National Marine Sanctuaries Foundation in partnership with NOAA's Ocean Exploration and Research Program, with additional support from NOAA's 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

Convenient Solutions to an Inconvenient Truth

The World Bank offers a series of manuscripts on environment and development. The latest, *Convenient Solutions to an Inconvenient Truth: Ecosystem-based Approaches to Climate Change*, offers an argument for including ecosystem-based approaches to mitigation and adaptation as an essential pillar in national strategies to address climate change. Ecosystem-based approaches can offer cost-effective, proven and sustainable solutions that contribute to, and complement, other national and regional adaptation strategies. The book can be read on-line.

<http://issuu.com/world.bank.publications/docs/9780821381267>

A Global Analysis of the Effectiveness of Marine Protected Areas in Preventing Coral Loss

A recent paper in PLoS One examined surveys conducted in over 300 tropical MPAs for a meta-analysis, concluding that MPA can be effective at preventing coral loss, especially after they have been established for a while, and argues that MPAs can be effective at increasing coral-reef resilience.

<http://www.plosone.org/article/info:doi/10.1371/journal.pone.0009278>

Marine Reserves Special Feature Articles

A special issue of the journal *Proceedings of the National Academy of Sciences (PNAS)* published in February 2010 is dedicated to recent science on no-take marine reserves, with a focus on how reserves can help meet conservation and fisheries goals simultaneously. The issue's articles are downloadable for free. On the website, do a repeated search on "marine reserves special feature" to view each article.

<http://www.pnas.org/content/early/recent>

Recreational Visitor Diversity

The United States Forest Service has recently issued two social-science reports on culturally diverse recreational visitors to national forests. Many such visitors are from urban areas; they include immigrants and others who have come from places with very different natural environments and attitudes toward nature. The reports, *Recreation visitor research: Studies of diversity* and *Serving culturally diverse visitors to forests in California: A resource guide* are available online.

http://www.fs.fed.us/psw/publications/documents/psw_gtr210/

http://www.fs.fed.us/psw/publications/documents/psw_gtr222/

Special Report on Ocean Literacy Scope and Sequence

The National Marine Educators Association has published the NMEA Special Report #3 on Ocean Literacy featuring the Ocean Literacy Scope & Sequence, intended to provide guidance to teachers, curriculum developers, educational researchers, and the committees developing or revising science standards. Based on the Ocean Literacy Essential Principles and Fundamental Concepts, the report was developed by hundreds of scientists and educators with support from COSEE, NMEA, NOAA, College of Exploration, and Lawrence Hall of Science. You can download the report, extracts, charts, and more from the website.

<http://oceanliteracy.wp.coexploration.org/>

WEBSITE OF THE MONTH

Protected Area of the Week

The World Commission on Protected Areas (WCPA) and the Protected Area Programme (PPA) of the IUCN has launched a new initiative promoting protected areas worldwide as the best places on earth. Each week a different protected area from a different region and representing a different biome will be featured on the homepage of IUCN website, the WCPA website, on twitter, and igoogole.

http://www.iucn.org/about/work/programmes/pa/pa_paday/

MESSAGE FROM THE BRIDGE

The Bridge at NSTA

Are you attending the NSTA National Conference in Philadelphia this week? If so, be sure to visit the Bridge exhibit at the NMEA Whale of a Share-a-thon, Thursday, from 8-9am and the NESTA Share-a-thon, Friday from 11am-12pm. Both of these events take place in the Sheraton Philadelphia City Center Hotel, room Liberty A/B. There will be lots of great resources for the taking. Then, on Saturday morning, the Bridge's Chris Petrone will be demonstrating the Data Analysis Teaching Activity Can't Take the Heat? during the first session of the day-long COSEE Program, which runs from 8am-4:30pm in the Sheraton's Independence C.

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

REQUESTS

Educator Review of Ocean Portal

The National Museum of Natural History, in collaboration with more than 20 partner organizations, invites you to preview and offer feedback on the Smithsonian Ocean Portal. The portal is designed to transport visitors to the coastline, the open water, and the deep ocean through interactive content. The site is a work in progress, and they are looking for input to fine-tune it before the public launch. As you browse, please share your thoughts by leaving comments or using the feedback form in the upper right-hand corner of each page. You may also email your comments to ocean@si.edu.

<http://ocean.si.edu/>

Questions for Voyager Magazine

Scripps Institution of Oceanography at the University of California, San Diego is inviting questions K-12 students for the next issue of their Voyager magazine. The questions selected should relate to each issue's feature. The May/June issue will cover the Ocean Observatories Initiative, an effort to wire the oceans and create real-time streams of biological, geological, chemical, and physical data. The July/August issue will cover a "rapid response" effort to assess tsunami risks off Chile, while the September/October issue will cover medicines from compounds found in the oceans. Questions on these topics will be put to the scientists taking part in this research. Questions received on other science topics will be archived for potential use in later issues.

http://explorations.ucsd.edu/Voyager/Voyager_QA/Submit/

Seeking Collaborators

The Thank You Ocean campaign team is interested in collaborating with partners interested in applying for the NSF Climate Change Education Grant. The deadline for submission of a letter of intent is April 23, 2010.

Contact Claire Fackler at Claire.Fackler@noaa.gov

GRANTS AND OPPORTUNITIES

Academic Enrichment Grants

The McCarthy Dressman Education Foundation offers Academic Enrichment Grants designed to develop in-class and extra-curricular programs that improve student learning. The foundation considers proposals that foster understanding, deepen students' knowledge, and provide opportunities to expand awareness of the world around them. The deadline for application is May 1, 2010.

<http://www.mccartheydressman.org/academic.html>

Breakthrough Schools

The MetLife-NASSP (National Association of Secondary School Principals) Breakthrough Schools project is sponsored by MetLife Foundation to identify, recognize, and showcase middle level and high schools that serve large numbers of students living in poverty and are high achieving or dramatically improving student achievement. The deadline for application is May 15, 2010.

<http://www.principals.org/AwardsandRecognition/BreakthroughSchools.aspx>

Brimstone Award for Applied Storytelling

The National Storytelling Network's annual Brimstone Award for Applied Storytelling is awarded for a project that focuses on the transformational properties of storytelling to increase understanding of the ways storytelling can promote change in individuals and communities. Educators are invited to submit a storytelling project that is service-oriented, based in a community or organization, and replicable in other places and situations. The preliminary proposal deadline is April 30, 2010.

<http://www.storynet.org/Programs/Grants/Brimstone/index.html>

Brower Youth Awards

The Earth Island Institute's New Leaders Initiative offers the Brower Youth Awards, recognizing six young people (ages 13-22) for their outstanding activism and achievements in the fields of environmental and environmental justice advocacy. The deadline for application is May 15, 2010.

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

Climate Change Education Partnership

NSF's Climate Change Education Partnership program seeks to establish a coordinated national network of regionally- or thematically-based partnerships devoted to increasing the adoption of effective, high quality educational programs and resources related to the science of climate change and its impacts. Each partnership must include representation from at least each of the following communities: climate scientists, experts in the learning sciences, and practitioners from within formal or informal education venues. The deadline for submission of the required Letter of Intent is April 23, 2010.

<http://www.nsf.gov/pubs/2010/nsf10542/nsf10542.pdf>

Earth Day Photo Contest

The Institute for Global Environmental Strategies is holding an Earth Day Photo Contest for students in grades 5-8. During the week of Earth Day, April 19-30, 2010 take a photograph of something that is changing in your local environment. Submit the photo and explanation. The deadline for entry is May 12, 2010.

<http://www.strategies.org/education/index.aspx?sub=education&sub2=earthday&sub3=contest2010>

Free Friday Giveaways

Edutopia wants teachers to have the best new products, resources, and tools for their classrooms, schools, and students. Every Friday, five winners will be randomly selected to receive products to help make 21st-century education easy. Enter your name and email address on the website.

<http://www.edutopia.org/giveaway>

Frog Poetry Contest

Save the Frogs offers its second Annual Frog Poetry contest, welcoming any poems that mention frogs, salamanders, newts, toads, caecilians, amphibians, and/or Save the Frogs. The deadline for entry is May 29, 2010.

<http://savethefrogs.com/poetry/index.html>

Fulbright Scholar Program

The Fulbright Scholar Program offers 41 grants in lecturing, research or combined lecturing/research awards in environmental science. In addition, faculty and professionals in environmental science also can apply for one of the 175 All Discipline awards open to all fields. The deadline for application is August 2, 2010.

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

Global Climate Change Education Solicitation

NASA's Office of Education, in cooperation with Science Mission Directorate, is accepting proposals in response to the NASA Cooperative Agreement Notice, Global Climate Change Education: Research Experiences, Modeling & Data. The project is designed to improve the quality of global climate change and Earth system science education at the elementary, secondary, and undergraduate levels, and through lifelong learning. The deadline for the required Notice of Intent is March 18, 2010.

<http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={76BA26E0-0041-28BE-51F5-3B0D81C5A2ED}&path=open>

InvenTeam High School Invention Grants

Lemelson-MIT InvenTeams is a national grants initiative of the Lemelson-MIT Program to foster inventiveness among high school students. Teams composed of high school students, teachers, and mentors are asked to collaboratively identify a problem that they want to solve, research the problem, and then develop a prototype invention as an in-class or extracurricular project. The deadline application is April 23, 2010.

<http://web.mit.edu/inventeams/>

Kids' Earth Day Contest

Reaping Nature Productions has partnered with LivingGreenPages.com to hold annual environmentally-themed contests around Earth Day, April 22 and America Recycles

Day, November 15. The current contest for children ages 5-12 is Save George the Prince of Green for Earth Day 2010. The deadline for entry is April 5, 2010.

<http://www.reapingnature.com/Contests.html>

Leadership in Science Education Award

The American Association for the Advancement of Science (AAAS) offers the AAAS Leadership in Science Education Prize for High School Teachers. The prize honors a high school science teacher who has contributed to the AAAS goal of advancing science education by developing an innovative and effective strategy, activity, or program. The deadline for nomination is May 21, 2010.

http://www.aaas.org/aboutaaas/awards/hs_scied_leadership/

Live Deliberately Essay Contest

This essay contest from the Thoreau Institute of the Walden Woods Project asks students to respond to Thoreau's call to "live deliberately." In 500 words or fewer, students are prompted to consider what their own deliberate lives look and feel like. The deadline for submission is March 31, 2010.

<http://www.worldwidewaldens.org/Activity-Guide/Essay-Contest.aspx>

Marine Technology Society Student Memberships

There are a limited number of complimentary 1-year student memberships to the Marine Technology Society, available to undergraduate or graduate students enrolled in a marine science or a technology program.

Contact Michael Hall at michael.hall@mtsociety.org

NMEA Conference Scholarships

Scholarships to attend the 2010 National Marine Educators Association Conference, July 18-23, 2010 in Gatlinburg, Tennessee, are based on financial need of the applicant. The deadline for application is April 1, 2010.

<http://www.nmeaweb.org/gatlinburg2010/>

Pierce Foundation Photo Contest

For those attending the North American Association for Environmental Education's annual conference, September 29-October 2, 2010 in Buffalo-Niagara, New York, NAAEE seeks photos that will inspire people to achieve environmental excellence. Entries should reflect the theme, Paint Me a Picture. The photography contest is one element of a larger effort by the organization to re-invigorate the use of the arts in the EE field. The deadline for submission is June 10, 2010.

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

The Ready to Teach program

The Ready to Teach program supports the use of telecommunications to improve teaching by assisting elementary school and secondary school teachers to prepare all students to achieve challenging State academic content and student academic achievement standards in core curriculum areas. Applicants must be a nonprofit telecommunications entity or partnership of such entities. Examples include the distribution of digital professional development content through cell phone applications, or the creation of new games, simulations, or other electronic applications that improve the academic achievement of high-need students and are available as open educational resources through the Internet, online portals, or other digital media platforms. In addition, the Secretary encourages applicants to consider developing rigorous research

and evaluation strategies to increase knowledge about the impact of educational technology on improving teaching practices and student outcomes. The deadline for application is May 24, 2010; see the website for full details.

<http://www2.ed.gov/legislation/FedRegister/announcements/2010-1/032310h.html>

Song for the Earth Contest

The Earth Day Network is seeking original songs about the environment that are composed and performed by youths, ages 18 and under, who have not yet graduated from high school. Appropriate themes include Earth Day, conservation, climate change, recycling, energy efficiency and pollution. Submissions may be of any genre, and no longer than three minutes. The deadline for submission is April 2, 2010.

<http://earthday.net/artsfortheearth/songfortheearth.html>

TogetherGreen Innovation Grants

The TogetherGreen Innovation Grants Program supports creative conservation projects that engage diverse communities and find innovative solutions to environmental challenges. The deadline for application is May 7, 2010.

<http://togethergreen.org/Projects/Grantee.aspx>

Tool Factory Podcasting Grant

The Tool Factory Podcasting Grant offers digital media accessories needed to start a school podcasting program. Applicants develop and submit a lesson plan incorporating student involvement and creativity. The next deadline for submission is May 15, 2010.

http://www.toolfactory.com/olympus_contest/olympus_podcasting.htm

Toyota International Teacher Program

The Toyota International Teacher Program offers fully-funded, international, professional development opportunities for U.S. educators. Funded by Toyota Motor Sales, U.S.A., Inc., the program aims to advance environmental stewardship and global connectedness in U.S. schools and communities through creative, interdisciplinary, and solution-based teaching methods. The date of the Galapagos Islands program is November 20-December 4, 2010; the deadline for application is May 26, 2010, 2010.

<http://www.toyota4education.com/pmwiki.php?n=Main.HowToApply>

Write On! Wetlands Illustration Challenge

Environmental Concern, Inc. invites elementary students K-6 to illustrate *Austin the Alligator*, a wetlands-themed children's story book geared toward ages 5-9, which will be published in May to celebrate American Wetlands Month. The theme for 2010 is Amazing Adaptations. The deadline for submission is April 15, 2010.

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

Young Scientist Challenge

The Discovery Education 3M Young Scientist Challenge is a national science competition for students in grades 5-8, designed to encourage the exploration of science and innovation among America's youth and to promote the importance of science communication. Students are challenged to create a one- to two-minute video about food safety, preventing the spread of germs/disease, wind resistant structures, or sun protection. The deadline for entry is May 27, 2010.

<http://www.youngscientistchallenge.com/10challenge/topics.html>

Youth Birding Scholarships

The American Birding Association offers scholarships to help young people attend bird-related summer camps, workshops, training programs, conventions, and other activities. The deadline for submission is April 9, 2010.

<http://www.aba.org/yb/schol/index.html>

INTERNSHIPS AND TEMPORARY OPPORTUNITIES

Coral Restoration Foundation Internship

The Coral Restoration Foundation in Tavernier, Florida, was created to develop coral nurseries and reef reforestation programs for critically endangered corals at the local, national, and global level. They offer a paid three-month internship in 2010; the deadline for application is April 30, 2010.

http://www.coralrestoration.org/CRF/index.php?option=com_content&view=category&layout=blog&id=22&Itemid=50

Discover MarineLab for Small Groups - Florida

MarineLab has opened two weeks, July 17-20, 2010 for grades 9-12 and August 5-8, 2010 for grades 6-8 for teachers to bring small groups (minimum 4 students) to their marine education facility in Key Largo, Florida. Note that this does not have to be a teacher-led program, as long as there is an adult leading the group. See the website for details.

<http://www.marinelab.org/DiscoverMarineLab.html>

Instructor and Teaching Assistant Summer Opportunities

The Duke University Talent Identification Program is seeking Instructors and Teaching Assistants for courses being offered to highly gifted middle and high school students, June 9-July 4, 2010 in Beaufort, North Carolina. This paid summer teaching experience is available to doctoral, graduate, and undergraduate students.

<http://www.tip.duke.edu/about/employment/>

Contact John Birch at JBirch@tip.duke.edu

CONFERENCES, WORKSHOPS, AND PROFESSIONAL DEVELOPMENT

2011 AAAS Annual Meeting – Call for Proposals

The theme for the 2011 American Association for the Advancement of Science (AAAS) annual meeting, February 17-21, 2011 in Washington, D.C., is Science Without Borders. The meeting attracts a growing segment of scientists, engineers, educators, and policy-makers who are interested in the latest advances as well as multidisciplinary topics and the influence of science and technology on how we live today. The deadline for online submission of symposium proposals is April 27, 2010.

<http://www.aaas.org/meetings/>

Audubon International Webinars - Online

To celebrate the mid-way point of the United Nation's Decade of Education for Sustainable Development, throughout 2010 Audubon International will be hosting a series of training webinars designed to help people become better stewards of the environment where they live, work, and play. The webinars will focus on topics such as

community sustainability, greening your business or property, eco-development practices, and community outreach ideas. Registration is free, but space is limited.
<http://www.auduboninternational.org/webinars>

California and the World Ocean Conference – Call for Papers

The theme of the upcoming California and the World Ocean Conference, September 7-10, 2010 in San Francisco, California, is *Our changing ocean: a Vision for the 21st Century*. The deadline for submission is April 15, 2010.

<http://www.cce.csus.edu/conferences/cnra/cwo2010/genInfo.htm>

Changing Reefs: Corals on Acid - Florida

The Florida Marine Science Educators Association is hosting FMSEA 2010 - Changing Reefs: Corals on Acid, May 14-16, 2010 in Key Largo, Florida. The conference will offer workshops, field trips, and events. (Note: keynote speakers include Dr. Billy Causey and cartoonist Jim Toomey)

<http://www.fmsea.org/events.html>

Climate Discovery Courses for Educators - Online

The National Center for Atmospheric Research offers a series of free online courses through NSTA Web Seminars for middle and high school science teachers, combining geoscience content, current climate research, easy to implement hands-on activities, and more. The next courses run from March 25-April 28, 2010.

http://www.windows.ucar.edu/tour/link=/teacher_resources/main/gcceptdn_main.html

Climate Educator Conference - California

NASA is hosting an educator conference on the unique climate of the state of California, May 1-2, 2010 in Pasadena, California. The conference is geared toward all educators and students, high school and above, interested in earth and space science and exploration. Presentations will address the current climate, the historical record, long-range trends and future forecasts in context. Special attention will be paid to the California science standards. The deadline for registration is April 26, 2010.

<http://www.jpl.nasa.gov/education/index.cfm?page=130>

Estimation of Population Change From Survey Data - Online

The USGS is offering a free short course, May 3-7, 2010, to assist resource managers in estimating population change from monitoring surveys of natural resources. The course will be presented by live web broadcasts and is open to all who are interested. Those interested are encouraged to register, even if conflicts prevent you from participating in some or all of the sessions or if you are only interested in some sessions. You can participate in the sessions that you are interested in and that are at a convenient time. You can watch the recordings of other sessions at a more convenient time.

<http://www.fort.usgs.gov/brdscience/PopulationChange.htm>

Faculty Development Institute for Middle School and High School teachers - Oregon

The Northwest Center for Sustainable Resources' next Faculty Development Institute for Middle School and High School teachers, Connecting Classrooms to the Community, August 8-13, 2010 in Salem, Oregon, will lead teachers in the process of adapting a community-based instructional process in developing environmental science and field biology lessons. The deadline for application is June 15, 2010.

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

Gislands 2010 – Portugal

Gislands 2010 is an International Summer School on Geo-technologies applied to Marine Spatial Planning and Integrated Coastal Zone Management funded by Science, Technology and Equipment Secretary of the Azores Regional Government, and organized by the Geographical Information and Territorial Planning Centre at the University of the Azores, August 7-12, 2010 in the Azores Islands, Portugal. The deadline for the call for short papers is April 4, 2010; the best 30 papers will be published in the *ACOREANA* scientific journal, Special Issue on Marine Spatial Planning, and the authors will be invited to participate in the workshop. The workshop is free, but participants will be expected to pay their own expenses.

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

International Pacific Marine Educators Network Conference – Call for Papers

The theme for the International Pacific Marine Educators Network (IPMEN) Conference, July 7-10, 2010 in Sigatoka, Fiji Islands is Vakarau ni se siga toka - Marine education in the new millennium. The deadline for submission to the call for papers in the four strands - Key Challenges in Ocean Literacy, Building Healthy Sustainable Coastal Communities, Women in Fisheries - Partnerships for Change, and How Does Climate Change Affect Children of the Pacific? – is April 15, 2010. Marine educators are encouraged to participate, either in person or virtually via the web, in this conference focused on the Pacific but with worldwide implications. Virtual participation will be through the College of Exploration (presentations from earlier conferences are archived as web-based streaming video). Scholarships may be available.

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

Invaders of Texas Workshop - Texas

The Invaders of Texas Program is a campaign where volunteer "citizen scientists" are trained to detect the arrival and dispersal of invasive species in their own local areas. This information is delivered into a statewide mapping database. Registration for the workshop, May 15, 2010 in Houston, Texas is free.

Contact Bruce Handley at bhandley2@comcast.net

Lab and Field Exploration in Marine Science - California

The Teacher Enhancement Program at Moss Landing Marine Laboratories, with funding from NOAA's B-Wet Program, offers this workshop on Monterey Bay, July 12-16, 2010 in Moss Landing, California. The deadline for application is May 1, 2010.

<http://teach.mlml.calstate.edu/LabField>

Learning Ocean Science through Ocean Exploration - Various

NOAA's Ocean Exploration Program and partners will offer 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.

- June 5, 2010 with Nauticus, The National Maritime Center, a follow up workshop. The deadline for registration is May 21, 2010. Contact Jennifer Tabor at

jennifer.tabor@norfolk.gov

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

Making Maps with Google Earth and Google Maps - Online

The Ecosystem-Based Management Tools Network offers a series of free webinars on Google Earth, Google Maps, KML, mashups, APIs, and publishing GIS maps on-line.

- Making Maps with Google Earth and Google Maps, April 6, 2010
- Advanced Mashups – KML and the Mapping API, April 14, 2010
- From ArcGIS to Web Maps: Techniques for Publishing GIS Maps Online, April 22, 2010

http://www.ebmtools.org/tools_training/presentations.html

2010 NAI National Workshop

The 2010 National Association of Interpreters Workshop, November 16-20, 2010 in Las Vegas, Nevada will offer professional development and networking opportunities through informative keynote speakers, concurrent sessions and pre-workshop training. Check out the scholarships and awards, and deadlines for submission.

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

National Conservation Training Center Courses – Utah and West Virginia

The U.S. Fish and Wildlife Service offers professional development courses. For more information about a specific course, contact the noted educator.

- OUT8101: Public Outreach and Education: Overview and Program Planning, June 7-11, 2010 in Shepherdstown West Virginia. The deadline for registration is March 29, 2010. Contact Sandy Spakoff at sandy_spakoff@fws.gov
- OUT8163: Connecting People with Nature through Birds, June 21-24, 2010 in Brigham City, Utah. The deadline for registration is April 13, 2010. Contact Jim Siegel at Jim_Siegel@fws.gov
- OUT8106: Powerful Presentation Tools and Techniques, July 12- 16, 2010 in Shepherdstown West Virginia. The deadline for registration is May 3, 2010. Contact Don Tollefson at Don_Tollefson@fws.gov

http://training.fws.gov/documents/Section1_NCTC_Sponsored_Courses.pdf

Ocean Exploration and Research Professional Development - Online

NOAA's Office of Ocean Exploration and Research, in partnership with The College of Exploration, offers free online professional development, providing educators with in-depth studies into specific ocean science content through the context of ocean exploration. The online campus setting provides a venue for educators worldwide to meet, view keynote addresses given by ocean explorers, and ask questions of keynote speakers online. Hands-on and inquiry-based activities, along with many other resources, are provided in a facilitated environment. The following courses are scheduled:

- Why Do We Explore? Okeanos Explorer Online Teacher Professional Development Series, Offering #2, June 21–July 2, 2010. The workshop features keynote addresses by ocean explorers who have made significant ocean discoveries, inquiry-based lessons for all grade-levels, and facilitated online reflective conversations about the importance of ocean exploration on a global scale. Areas of focus include climate change, energy, human health and ocean health.
- How Do We Explore? Okeanos Explorer Online Teacher Professional Development Series, Offering #3, October 11 - 29, 2010. Topics will include searching for anomalies, selecting sites for exploration, communication tools

including telepresence technology, mapping techniques, water column study, and operating remotely operated vehicles.

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

http://oceanexplorer.noaa.gov/edu/development/online_development.html

Oceans, Literacy and Science Residential Teacher Institute - California

The Educator Programs of the Monterey Bay Aquarium in Monterey, California, offers this free summer institute for non-local K-5 teachers, August 1-6, 2010. The program offers curriculum, inquiry investigations, explorations of ocean and coastal habitats, and more. The deadline for application is April 30, 2010.

http://www.montereybayaquarium.org/lc/teachers_place/edu_program_literacy.aspx

Reef Resilience Training Course - Online

The Nature Conservancy, in partnership with NOAA and with support from MacArthur Foundation, is offering a free online training program on reef resilience to provide coral reef managers, trainers, and policymakers guidance on building resilience to climate change into the design of MPAs and daily management activities. The course incorporates the science, lessons learned, case studies, and practices that have been included in the on-line Reef Resilience toolkit and is designed to accelerate the knowledge and facilitate access to essential information and tools needed to incorporate resilience principles into management strategies. Free registration is required.

<https://www.conservationtraining.org/>

Sawfish in Peril Workshop – Florida

The purpose of this free workshop developed by the Florida Program for Shark Research at the Florida Museum of Natural History, with funding provided by NOAA's National Marine Fisheries Service, to be held April 16, 2010 in Gainesville, Florida, is to educate educators in Florida and surrounding states about endangered sawfish including biology, behavior, research, and conservation. There will also be a stingray dissection activity. Workshop participants will each receive a teaching kit consisting of an educator's guide, teaching activities, and power point presentations.

<http://www.flmnh.ufl.edu/fish/sharks/sawfish/SawfishInPeril.html>

Sea Turtle and Coastal Ecology Workshops - Georgia

The Sapelo Island National Estuarine Research Reserve is sponsoring a Sea Turtle and Diamondback Terrapin Conservation Workshop, June 14-18, 2010, and the Coastal Ecology Workshop, June 22-25, 2010 on Sapelo Island, Georgia, for formal or informal educators. The deadline for registration is May 1, 2010.

Contact Georgia Graves at georgiabeachwalk@bellsouth.net

State of the Arctic Conference - Online

The State of the Arctic Conference, March 16–19, 2010 in Miami, Florida, is an international science conference focused on understanding the arctic system, arctic change, its connections to the Earth system, and translating research into solutions to environmental change. The conference will be webstreamed to allow virtual participation, including real-time video and text chat. Webstreaming is free; registration as a participant is appreciated.

<http://soa.arcus.org/>

Stone Laboratory Summer Courses – Ohio

Stone Laboratory, Ohio State University's island campus on Lake Erie, offers more than 25 science courses each summer for educators and advanced high school students, as well as undergraduate and graduate students. They also offer non-credited workshops. In one week of intensive, hands-on experiences, teachers can learn innovative ways to incorporate Great Lakes science into their classrooms. Educator courses include Ocean and Great Lakes Literacy, Teaching with Google Earth and Google Ocean, and much more. Scholarship funds are available.

<http://stonelab.osu.edu/>

Teacher Institutes – California

The Monterey Bay Aquarium offers various summer teacher institutes in Monterey, California. They are free, and stipends and/or housing may be available.

- *Splash Zone* for pre-K-2 teachers; June 28-July 2, 2010, October 2, 2010, January 22, 2011, and April 2, 2011. The deadline for application is April 1, 2010
- *Coastal Systems Teacher Institute* for teachers of grades 3-5; July 12-16, 2010, October 16, 2010, March 12, 2011, and May 7, 2011. The deadline for application is April 1, 2010
- *Middle School Institute* for teachers of grades 6-8; June 21-25, 2010, September 18, 2010, February 5, 2011, and April 16, 2011. The deadline for application is April 16, 2010
- *High School Institute* for teachers of grades 9-12; July 26-30, 2010. The deadline for application is April 30, 2010.

http://www.montereybayaquarium.org/lc/teachers_place/edu_programs.aspx

Teachers on the Estuary – Maine, Massachusetts, and Rhode Island

Teachers on the Estuary is a National Estuarine Research Reserve System program featuring field and research-based professional development integrating content, methods, and activities on watersheds and estuaries. Three programs are scheduled in New England this summer: June 28-July 1, 2010 in Bristol, Rhode Island, July 12-15, 2010 in Falmouth, Massachusetts, and July 26-29 in Wells, Maine. Each includes a half-day follow-up program on November 6, 2010 for the Rhode Island and Maine workshops and November 20, 2010 for the Massachusetts workshop. The TOTE workshops are free and funds are available for participation. The deadline for application is April 30, 2010.

<http://estuaries.gov/estuaries101/Resources/Default.aspx?ID=387>

Teacher's Workshop - California

The Ocean Futures Society's Ambassadors of the Environment offers this teacher's workshop, June 21-25, 2010 in Santa Barbara, California. The workshop offers experiential learning alongside specialists in the fields of marine and terrestrial ecology, sustainable living, and more. The deadline for early registration is April 1, 2010.

<http://www.oceanfutures.org/learning/ambassadors-environment/additional-opportunities/teachers-workshop>

Teaching the Water-Energy Connection - Online

Registered National Environmental Education Week (EE Week) 2010 participants are invited to join EE Week's first webinar, Teaching the Water-Energy Connection, March 31, 2010. Educators will learn about the water-energy connection, water and energy

conservation projects taking place in schools, lesson plans developed by Earth Day Network on the water-energy connection, and much more. Registration is free.

http://www.eeweek.org/webinars/water_energy

Wildlife Conservation Society Courses - Online

The Bronx Zoo offers online programs for environmental educators. Upcoming classes include Predators: Biology and Conservation; Energy, Climate and Wildlife Connections; Conservation Communication; and more. Teacher scholarships are available, and free webinars are offered.

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

EDUCATIONAL RESOURCES

Atlantic Coastal Fish Habitat Database

NOAA's National Centers for Coastal Ocean Science has recently launched a tool linking various bibliographic resources to their corresponding geographic area. The web-based tool links standard bibliographic and relevant assessment information within a spatial framework to corresponding fish habitats. This approach is also unique in that it provides summaries of habitat condition, indicators of threats to habitats, and recommendations on conservation efforts for the selected area.

<http://www8.nos.noaa.gov/bhv/spatbibindex.html>

California ScienCenter Fun Lab

The California Science Center offers the Fun Lab website for kids, with games, videos, and hands-on activities. Color Full Inks offers an easy-to-do chromatography experiment, Build a Bug lets students create their own edible bug, and Habitat Match helps animals find their way home.

<http://www.californiasciencecenter.org/FunLab/FunLab.php>

Celebrate World Oceans Day with Dr. Seuss

Partners in The Ocean Project network can take advantage of the opportunity to download the Dr. Seuss' One Fish World Oceans Day materials for free. Materials include a manual, games and activities, and more.

<http://theoceanproject.org/wod/seuss/>

Climate Change Stories for Children

The Professor Sneeze stories and educational materials were developed in the framework of a project of the International Polar Foundation. Stories for 5-12 year olds explain ways to save energy; 8-12 year olds learn how energy is produced by wind, sun, and water. The website also offers crafts, photos, and other materials.

http://www.contespedagogiques.be/pages/accueil_angl.html

Expeditionary Learning

King Middle School in Portland, Maine has been refining its expeditionary learning projects for nearly two decades, and has developed Fading Footprints, a six-step rubric for designing a project. The Fading Footsteps project is a twelve-week interdisciplinary ecology unit centered around the guiding question: How does diversity strengthen an ecosystem? Using this project as an example, see how King Middle School creates an action plan around each step.

<http://king.portlandschools.org/files/onexpedition/expeditionproducts/footprints/frame/rame.htm>

Explore the Ocean

This website by the author of the Agnes Pflumm books offers links to a variety of ocean literacy resources students and teachers. Check out the links to science and art, the Science Rap, and much more.

http://www.agnespflumm.com/secret_seven_explore.htm

Extremophilic Bacteria and Microbial Diversity

This online enhancement chapter of a textbook for undergraduate majors examines the many prokaryotic organisms that inhabit extreme. Topics include using new molecular techniques to discover more about bacteria; life at high temperatures, low temperatures, extreme pH levels and in a brine; and extremophiles in the evolution of life.

http://www.mhhe.com/biosci/genbio/raven6b/graphics/raven06b/enhancementchapters/aven30_enhancement.html

Google Ocean Showcase

Google Ocean Showcase features multimedia tours of shipwrecks and underwater mountains, surf and dive spots, and more. The tours incorporate more than 1,000 images and video from a variety of sites and scientific organizations, and include underwater topographical maps, narration, and photos.

<http://earth.google.com/ocean/showcase/>

International Society for Reef Studies

International Society for Reef Studies offers this new website, with links to organizations, publications, and more. The principal objective of the organization is to promote the production and dissemination of scientific knowledge and understanding of coral reefs, both living and fossil.

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

International Year of Biodiversity

The United Nations Convention on Biodiversity has set up a website to celebrate 2010 as the year of biodiversity. The website offers links to worldwide celebrations, multimedia resources, and more.

<http://www.cbd.int/2010/welcome/>

Mission to the Abyss 2002 Expedition

This website detailing the 2002 Mission to the Abyss was developed by the University of Delaware Graduate College of Marine Studies, highlighting the mission and crew, seafloor geology, creature features, and high-tech tools used during the expedition. This interactive website allows students to explore the submersible Alvin, find out how hydrothermal vents form, define the deep ocean, study plate tectonics, and meet hydrothermal vent organisms. The site includes experiments, video, and more.

<http://www.ocean.udel.edu/extreme2002/home.htm>

Mountains in the Sea

The March 2010 issue of Oceanography magazine is a special issue on deep-sea seamounts. The open-access articles are posted online.

<http://tos.org/oceanography/issues/current.html>

NASA Data Lesson Plans

Check out the new additions to the MY NASA DATA lesson collection, including lessons on Correlation of Variables by Graphing, Ocean Impacts of an El Niño Event, Phytoplankton in the Gulf of Maine, and more. MY NASA DATA is a project to enable K-12 teachers and students, as well as citizen scientists, to explore the large volumes of data that NASA collects about the Earth from space. Students use scientific inquiry and math skills as they access and display microsets of the Earth System.

<http://mynasadata.larc.nasa.gov/lessons.html>

NOAA Social Media

Social media provides a platform from which content transforms into community. NOAA is using social media tools to share information and greatly increase the potential for better understanding for all about our oceans, coasts, climate, and weather sciences. Topics include whale disentanglements, sea turtle rescues, underwater volcanoes, oil spills, marine debris, corals, dam removals, fisheries management, weather and climate, and much more. Media used includes Twitter, Facebook, YouTube, Podcasts, and RSS Feeds. Check these out and keep up with the latest news from the oceans.

<http://www.noaa.gov/socialmedia/>

Ocean Acidification FAQs

The U.S. Ocean Carbon and Biogeochemistry program has compiled a list of frequently asked questions (FAQs) about ocean acidification. The website also offers additional links to presentations, educational tools, and resources.

<http://www.whoi.edu/OCB-OA/FAQs/>

Ocean Cores

This University of Arizona course website features an outline to interpreting ocean cores as they relate to past environmental conditions such as sedimentation rates and climate. The outline includes figures and information about sedimentation, the history of interpreting ocean cores, how proxies in ocean cores reveal past climate, and use of oxygen isotopes to infer past climate. Key terms are hyperlinked to related pages and further information, and an extensive reference list is posted.

<http://www.geo.arizona.edu/palynology/geos462/06ocencore.html>

Ocean FEST

Ocean FEST (Families Exploring Science Together), developed by educators at the University of Hawai'i at Mānoa, puts science in the hands of Hawai'i's students, teachers, and their families. The overarching goal of the program is to interest Hawai'i's kids in careers in ocean science and related Science, Technology, Engineering and Mathematics (STEM) fields through fun, hands-on activities. The website offers links to information on marine science careers, program information for Hawaii schools, and additional links, resources, and activities for teachers.

<http://oceanfest.soest.hawaii.edu/>

PIMRIS Portal

The Pacific Islands Marine Portal project is a collaborative project between the Pacific Islands Marine Resources Information System (PIMRIS) and the International Oceanographic Data and Information Exchange Programme (IODE) of the Intergovernmental Oceanographic Commission (IOC) of UNESCO to improve access to Pacific marine information for the Pacific Islands community. The portal offers news,

articles, and directories of websites relevant to Pacific fisheries and to the coastal and marine environment of the Pacific.

http://www.pimrisportal.org/pop/index.php?option=com_content&view=frontpage&Itemid=1

Sea Turtle Education Program

SEE Turtles, a non-profit conservation project, offers school outreach programs, including classroom presentations by sea turtle experts, lesson plans on sea turtle ecology, hands-on educational trips to Costa Rica and Mexico, and more.

<http://www.seeturtles.org/1350/school-programs.html>

Seafloor Characterization of the U.S Caribbean

Students interested in marine science, coral reefs, seafloor mapping, or GIS can join the crew for the Spring 2010 research mission aboard the NOAA Ship Nancy Foster, March 18-April 6, 2010. Check out the daily logs from scientists, along with an audio podcast from the mission, and more.

http://ccma.nos.noaa.gov/products/biogeography/usvi_nps/nf2010.html

State of the Coast

NOAA's State of the Coast website is a source for quick facts and more detailed statistics offered through 14 interactive indicator visualizations, presented across four themes: Communities, Economy, Ecology, and Climate. Collectively, this information highlights connections among a healthy coastal ecosystem, a robust U.S. economy, a safe population, and a sustainable quality of life for coastal residents. Visitors can investigate changes in coastal population from 1970 to 2040; explore the impact coastal areas have on the U.S. economy; survey the overall health of the U.S. coast; and explore the vulnerability of our coasts to long-term sea level rise.

<http://stateofthecoast.noaa.gov/>

Talking Fire without Getting Burned

The National Interagency Fire Center has posted the recording of Talking Fire without Getting Burned, the webinar presented in February 2010.

http://www.nifc.gov/fire_info/PIO_bb/webinar.html

Warming World

NASA's Warming World website hosts a series of articles, data visualizations, space-based imagery, and interactives that explore the recent winter weather that gripped the United States, Europe and Asia, and how El Nino and other longer-term ocean-atmosphere phenomena may affect global temperatures this year and in the future.

<http://climate.nasa.gov/warmingworld/>

Water Quality and Dissolved Oxygen<

This website from Science Junction features general information and three lesson plans about dissolved oxygen, geared toward middle and high school students. Lessons cover topics such as what dissolved oxygen is, why it is important, and more, including an activity in which students are instructed to design an experiment to test effects of changes in dissolved oxygen concentration.

<http://www.ncsu.edu/sciencejunction/depot/experiments/water/lessons/do/>

INITIATIVES, JOURNALS, and MORE

Discovery Day at the Dauphin Island Sea Lab

This family event, April 17, 2010 on Dauphin Island, Alabama, includes a variety of environmentally-themed children's activities; an open house at the research facilities of the lab where the public can interact with scientists and graduate students to explore their ongoing research projects; and free children's admission to the Estuarium, the aquarium at the Sea Lab.

http://press.disl.org/3_11_10dday.htm

Environment Yale

The Journal of the School of Forestry & Environmental Studies, environment: Yale is published twice a year by the Yale School of Forestry & Environmental Studies. Current and previous issues are available online. Previous issues have the advantage of a search feature.

<http://environment.yale.edu/magazine/>

Get Hip to Habitat

Get Hip to Habitat is a program of the Galveston Bay Foundation that brings education and marsh restoration initiatives together in one program. The foundation works with students and teachers to establish a salt marsh wetland nursery on their school campus grounds and later transplant their established grasses to Galveston Bay wetlands.

http://galvbay.org/education_gethip.html