

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
INFORMATION EXCHANGE FOR MARINE EDUCATORS

APRIL 2007

This update is provided with support from NOAA's Office of Education and by 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

Ecosystems, Livelihoods and Disasters: An integrated approach to disaster risk management

The purpose of this publication from the IUCN – The World Conservation Union is to provide recommendations for making disaster risk reduction strategies more effective. In the direct aftermath of a disaster, saving lives and providing for safety and basic needs is clearly the domain of emergency professionals and humanitarian agencies. As the focus turns to human livelihood recovery, clean-up, and preparing for future hazards, however, considerable negative long-term consequences can arise from neglecting environmental concerns. Although many existing environmental guidelines, laws, and policies are relevant to post-disaster emergency response and reconstruction efforts, they are rarely applied in times of crisis. In many cases they are not integrated with the

procedures of humanitarian agencies and others involved in emergency response, who are generally the first on the ground. They also cannot be easily utilized by non-specialists. This downloadable document, under the Publications & Resources link, seeks to help address these problems.

<http://www.iucn.org/themes/disaster/>

Polar Bibliography

A comprehensive, 182-page polar bibliography has been prepared in the NOAA Central Library Network. *International Polar Year 2007-2008 Resources on Polar Research in the NOAA Central Library Network: A Selected Bibliography* supports activities during International Polar Years 2007 and 2008. It reflects the NOAA Library Network's unique printed and online resources on exploration and research in the polar regions from the 18th century to the present. The bibliography is organized into four sections:

- What is the International Polar Year?
- Historical resources on Polar research in the NOAA Central Library Special Collections
- Current resources on Polar research in the NOAA Central Library Network
- Internet resources on Polar research

It contains all formats, including print, CD-ROM, online full-text documents, digital videos and images, online cruise data, and web resources. The bibliography provides full-text access to significant polar documents in the NOAA Library collections. It links to over one hundred and fifty historically unique, scanned documents as well as to scientific datasets available online via the National Oceanographic Data Center Ocean Archive System. The bibliography is also available online for downloading in Microsoft Word and in PDF formats via the NOAA Central Library's home page and its online catalog, NOAALINC.

<http://www.lib.noaa.gov/uhtbin/webcat>

PROGRAMS OF THE MONTH

Online Ocean and Weather Studies and Diversity Project

Online Ocean Studies and *Online Weather Studies* are introductory college courses developed by the American Meteorological Society (AMS) for licensing and local offering by undergraduate institutions nationwide. Topics in *Online Ocean Studies* include the ocean in the earth system, plate tectonics, marine sediments, life in the ocean, and more. *Online Weather Studies* has been offered by over 350 institutions since fall 1999. Topics include weather monitoring, the atmosphere, storms, and more. Both online courses are turnkey packages with print and Internet-delivered materials that can be offered by faculty members in a variety of teaching environments, ranging from traditional lecture/lab to completely online.

The AMS/NSF/NOAA Online Studies Diversity Project provides expenses-paid workshops for faculty offering either course at minority serving institutions, along with additional support. Workshops will be offered in May and June, 2007.

<http://www.ametsoc.org/amsedu/online/info/>

<http://www.ametsoc.org/amsedu/online/oceaninfo/>

MESSAGE FROM THE BRIDGE

Bridge's NOAA Collection

The Bridge now offers a special NOAA collection. This easy access collection includes more than 145 resources which have been reviewed by our Teacher Reviewers of On-Line Learning (TROLLs). The collection, accessible from the Bridge's home page or through a direct link, includes a roll-over navigation menu and a search engine, which allows for selection of resource by grade and resource type. The navigation menu is arranged by topic, including all science disciplines, habitat, virtual expeditions, and more. Each NOAA resource in the collection features the link to the resource, a brief description, the grade levels for which the resource is appropriate, and a related image. For educators looking for educator reviewed NOAA education resources, the Bridge is your one-stop shop.

<http://www2.vims.edu/bridge/noaa/>

REQUESTS

National Geographic Survey for Online Programming

The National Geographic Education Foundation and The College of Exploration is collecting data related to the needs of teachers for online professional development and identification of priority content topics, especially related to geography and environmental education. They would like to have data both to demonstrate the need for professional development and identify priorities for teachers. The data will be collected through April 15, 2007.

<http://www.betaresourcesinc.com/nc/ngs2007>

National Park Centennial Initiative

The National Park Service is encouraging all Americans to share their ideas about the future of their national parks. A website has been set up to allow you to join the discussion of the National Park Centennial Initiative. Your responses to the following questions will guide the National Park Service and the Department of the Interior in shaping the future of America's national parks. **Hurry – the comment period ends April 2, 2007.**

- Imagine you, your children, or future generations enjoying national parks in 2016 and beyond. What are your hopes and expectations?
- What role do you think national parks should play in the lives of Americans and visitors from around the world?
- What are the signature projects and programs that you think should be highlighted for completion over the next 10 years?

<http://parkplanning.nps.gov/document.cfm?parkId=442&projectId=17892&documentID=18372>

State Resources List

The Environmental Literacy Council is developing state-by-state resource lists of local environmental education centers, parks, museums and natural resource agencies. The site can offer teachers a single place to start planning a field trip, contact experts, and more. The pages are still in development, and your suggestions are welcomed. Send them information about training opportunities, environmental education centers, and good sources of information for your local community. And check out what they've got for your state.

<http://www.enviroliteracy.org/category.php?id=15>

GRANTS AND OPPORTUNITIES

AT&T Excelerator Grants

The 2007 AT&T Excelerator grant program offers competitive technology grants to help local nonprofit organizations integrate technology into their operations and community outreach. AT&T Excelerator helps nonprofit organizations better serve their communities by improving technology resources, including hardware, software, and networking tools. These grants also fund Internet access and computer training to assist organizations with various programs, including those aimed at increased educational learning and job skills development. Check the website for details, as the grants are open to organizations in specific states. The deadline for applications is May 4, 2007.

<http://www.att.com/gen/corporate-citizenship?pid=7745>

Brower Youth Awards

The Earth Island Institute offers the annual Brower Youth Award, recognizing six young people (ages 13-22) for their outstanding activism and achievements in the fields of environmental and social justice advocacy. The awards not only promote the accomplishments of these young leaders but also invest in their continued success by providing ongoing access to resources, mentors, and opportunities to develop their leadership skills through Earth Island Institute's New Leaders Initiative. The deadline for application is May 15, 2007.

<http://www.broweryouthawards.org/article.php?list=type&type=12>

Greenworks! Grants

This grant opportunity from GreenWorks! for Project Learning Tree trained educators supports community action and service-learning projects. Projects should address an environmental issue and involve students from pre-school to high school in hands-on community action. The deadline for application is April 30, 2007.

http://www.plt.org/cms/pages/21_22_18.html

NAAEE/Pierce Foundation Environmental Education Film and Video Festival

The North American Association for Environmental Education (NAAEE) and the Albert I. Pierce Foundation seek film and video productions that inspire environmental excellence. Winning films will be presented at the NAAEE conference, November 14-17, 2007. Both General and Student/Amateur categories are available. The deadline for submission is April 30, 2007.

<http://www.naaee.org/conference/film-festival-2007/>

Preserve America Initiative Grant Program - NOAA

NOAA's Preserve America Initiative Grant Program is designed to stimulate efforts within NOAA to preserve, protect, and promote the agency's heritage assets. While grants will be awarded only to NOAA offices, other federal, state, tribal, Native Hawaiian, academic and non-profit organizations can act as partners. Projects should be designed to address a specific need and be completed within a calendar year. Ongoing projects will be considered, and phased multi-year approaches are eligible although ongoing funding is not guaranteed. Projects that can be replicated are encouraged. The deadline for proposals is April 27, 2007.

<http://preserveamerica.noaa.gov/grant.html>

Road Scholar Educator of the Year Awards

Road Scholar, an initiative of Elderhostel, offers Road Scholar Educator of the Year Awards to deserving educators throughout the United States. The awards honor deserving, experienced educators by providing them with the opportunity to participate in Road Scholar educational adventures throughout the United States and around the world. The deadline for application is August 1, 2007.

<http://www.roadscholar.org/educatorawards/>

Student Achievement Grants

The National Education Association Foundation provides grants to improve the academic achievement of students in U.S. public schools and public higher education institutions in any subject area. The proposed work should engage students in critical thinking and problem solving that deepen their knowledge of standards-based subject matter. The work should also improve students' habits of inquiry, self-directed learning, and critical reflection. Proposals for work resulting in low-income and minority student success with honors, advanced placement, or other challenging curricula are particularly encouraged. Applications are reviewed three times each year, with the next application due June 1, 2007.

http://www.neafoundation.org/programs/StudentAchievement_Guidelines.htm

Toshiba America Grants

Toshiba America Foundation contributes to the quality of science and mathematics education in the U.S. with a variety of grants. The foundation focuses its grants on inquiry-based projects designed by individual teachers, and small teams of teachers for use in their own classrooms. The next Large Grant Applications for grades 7-12 are due August 1st, 2007. Teachers are encouraged to contact the Toshiba Foundation directly before submitting an application.

<http://www.toshiba.com/tafpub/jsp/home/default.jsp>

INTERNSHIPS AND TEMPORARY OPPORTUNITIES

Paddle Bayou Lafourche, Louisiana

Paddle Bayou Lafourche, April 12-15, 2007, from the Barataria-Terrebonne National Estuary Program, will feature a 4-day canoe and kayak trip, daytime and evening festivities, plus the opportunity to appreciate bayou communities and life along the bayou from Donaldsonville to the Gulf of Mexico. Learn about the culture and ecology of Bayou Lafourche. Paddlers can participate anywhere from one day to all four days of the paddling trip.

<http://paddling.btnep.org/>

School of Rock Teacher Research Experiences

The Integrated Ocean Drilling Program – U.S. Implementing Organization offers hands-on research experiences for earth and ocean science teachers at the laboratories of the Gulf Coast Repository located at Texas A&M University in College Station, Texas. During School of Rock research experiences, July 22-28, 2007, educators will have daily opportunities to conduct geological, physical and/or chemical analyses of sediment and hard-rock cores. Scientists will instruct participants on topics such as mid-ocean ridges, composition and structure of the oceanic crust, paleoceanography, and more. The workshop will also provide educators with time to brainstorm and begin planning classroom activities based on their research and new knowledge.

<http://www.iodp-usio.org/Education/SOR.html>

SEA Seminars for High School Students

Sea Education Association (SEA) offers three distinct three-week-long programs for high school students interested in the sea, science, and sailing. Modeled after SEA's college program, SEA Semester, the high school summer seminars consist of both shore and sea component. Time on shore is spent living in community and studying coastal ecology, general oceanography, navigation, and maritime history. The sea component is spent aboard one of SEA's 134' brigantine sailing vessels, the *SS/V Corwith Cramer* or the *SS/V Robert C. Seamans* in either the Atlantic or Pacific Ocean respectively. Students are immersed in all operations of a modern sailing research vessel: collecting scientific data, setting and striking sails, operating the ship's diesel engine, and helping in the ship's galley.

http://www.sea.edu/academics/program_highschoolprograms.asp

Summer Camp - Florida

The PAST Foundation (Partnering Archaeology with Science and Technology) is holding a summer camp in the Florida Keys for students, grades 9-10, July 22 - 28, 2007 in Key Largo, Florida. Students will explore the diverse aquatic ecosystems of this area, with snorkeling within the Florida Keys National Marine Sanctuary and John Pennekamp Coral Reef State Park, learning how to catalog and monitor the shipwrecks, flora, and fish of the area. Students will meet professionals who work to protect the parks and sanctuaries, and apply their knowledge about the region's ecosystems to issues confronting the sustainability of the protected resources. The deadline for application is June 1, 2007.

<http://www.pastfoundation.org/2007FloridaMarineSciencesCamp/>

Teacher Sabbatical - Washington, D.C.

The Joint Oceanographic Institutions are seeking an enthusiastic teacher for a one-year sabbatical in Washington, D.C. The teacher will work with JOI Learning staff to develop ocean science curriculum, produce teacher-training workshops, and assist in conference logistics. The position requires a minimum of 3 years experience teaching science in the classroom, a strong background in earth or ocean sciences, and temporary relocation to Washington, DC. Strong computer skills are a plus. The deadline for application is April 20, 2007.

<http://joilearning.org/training/default.html>

CONFERENCES, WORKSHOPS, AND PROFESSIONAL DEVELOPMENT

ACE Basin Adventure – South Carolina

Teachers are invited to participate in a free learning workshop in the ACE Basin, named for the Ashepoo, Combahee and Edisto rivers, a world-class ecosystem rich in habitat diversity, wildlife, and historical significance representing one of the largest undeveloped estuaries on the East Coast. The workshop, June 7-10, 2007 at Bennett's Point, South Carolina, will help teachers learn more about estuarine ecology, hammock islands, sea turtles, water quality, and the historical significance of the ACE Basin. The workshop includes field trips, hands-on activities, meals, and lodging. Program offerings support state standard curriculum guidelines and will allow teachers to use information, ideas and activities within their own classrooms. Teachers are eligible for renewal credit

through participation in the workshop. Hurry - participation is limited and the deadline for application is past, but they are still accepting applications.

<http://www.dnr.sc.gov/ccd/aceadvent.html>

Advanced ROV Building for Classroom Projects - California

The Marine Advanced Technology Education Center offers a faculty workshop, Advanced Remotely Operated Vehicle (ROV) Building for Classroom Projects, July 23-30 2007 in Monterey, California. Educators will work in teams to design and build their own ROVs to complete a set of predetermined mission tasks. The workshop will begin with a SolidWorks tutorial. The educators will program a basic stamp to control sensors and motors on their ROVs. Participants will have the opportunity to interact with industry professionals and participate in field trips.

http://www.mpcfaculty.net/tami_lunsford/SI_07_Institute/Info.aspx

Applied Environmental Education Program Evaluation – Online

The on-line course, Applied Environmental Education Program Evaluation, will be offered June 10-August 24, 2007, and September 10-December 7, 2007, through the University of Wisconsin-Stevens Point. This course was developed as a cooperative effort between the Environmental Education and Training Partnership (EETAP) and the U.S. Fish and Wildlife Service National Conservation Training Center. The course is designed to assist environmental educators and natural resource professionals in evaluating their education programs. Participants have the opportunity to develop and apply skills in designing evaluation tools such as surveys, observation forms, and interview and focus group guides. The deadline for summer registration is May 11, 2007; the fall registration deadline is August 10, 2007. Scholarships may be available.

<http://www.uwsp.edu/natres/rwilke/eetap/Website2006/AEEPE.htm>

Archaeological Field School - Texas

The PAST Foundation (Partnering Archaeology with Science and Technology) will host its 2007 Field School June 2-10, 2007 in Port Isabel, Texas. The site is the wreck of an early 19th century two-masted schooner on the beach. Participants will learn about the different aspects of a scientific archaeological investigation while recording the shipwreck via mapping, test excavation, and artifact analysis. Teachers will participate in developing a public outreach program that can be taken back to the classroom and incorporated in numerous lesson plans and activities. Hurry - the deadline for registration is April 15, 2007.

<http://www.pastfoundation.org/2007BocaChicaFieldSchool/>

Coastal Oceanography Day - California

Coastal Oceanography Day is a free workshop, April 28, 2007 in Tiburon, California, designed to promote interaction between San Francisco Bay Area marine scientists and middle and high school science teachers. Participating teachers will learn about local scientific resources, take home lesson plans and project ideas aligned with state science standards, and have an opportunity to network with other science teachers as they study the coastal ocean through interactive lectures, activities, and a research cruise. This workshop is sponsored by Romberg Tiburon Center for Environmental Studies and NOAA's San Francisco Bay National Estuarine Research Reserve.

Contact Sarah Davies at daviess@sfsu.edu

Fundamentals of Environmental Education - Online

The Fundamentals of Environmental Education online course, developed by EETAP in collaboration with national EE experts, will be offered June 4-August 17, 2007 and September 10-November 23, 2007. The course is appropriate for both classroom teachers and for non-formal educators who work with students and/or teachers. The course provides educators with the knowledge and skills necessary to incorporate quality environmental education into their instruction. Participants discuss the history, definition, and goals of environmental education; develop an understanding of the professional roles and instructional methods of environmental educators; and interact with other educators from across the country. The deadline for summer registration is May 4, 2007; the fall registration deadline is August 10, 2007. Scholarships may be available.

<http://www.uwsp.edu/natres/rwilke/eetap/Website2006/FEE.htm>

International Conference on Education and Information Systems, Technologies and Applications: EISTA 2007

The 5th International Conference on Education and Information Systems, Technologies and Applications will take place July 12-15, 2007 in Orlando, Florida. The conference will provide a forum for the presentation of both solutions and problems of the application of information communication technologies in education and training.

<http://www.cyber-inf.org/imsci2007/website/default.asp?vc=5>

Learning Ocean Science through Ocean Exploration - Florida

NOAA's Ocean Exploration Program and the University of South Florida's College of Marine Science will provide an introductory Learning Ocean Science through Ocean Exploration professional development workshop for grade 6-12 science teachers on April 21, 2007 in St. Petersburg, Florida. This is the first of a two-part workshop series; the second workshop will be September 22, 2007. A stipend is available for educators attending both workshops. Pre-registration is required and spaces are limited. Hurry - the deadline for registration is April 6, 2007.

Contact Teresa Greely at greely@marine.usf.edu

Marine Biology Field Courses - Mississippi

The University of Southern Mississippi Gulf Coast Research Laboratory is now registering for marine biology college field courses to be offered this summer in Ocean Springs, Mississippi. Courses offered May 29-June 20, 2007 are marine biology, marine mammals, shark biology and marine ichthyology. Courses offered June 21-July 13, 2007 are oceanography, marine invertebrate zoology, marine ecology and marine biology for teachers.

http://www.usm.edu/gcrl/summer_field/calendar.php

NASA Earth Scientist Lectures – Washington, D.C. and Online

NASA Goddard Space Flight Center and The Library of Congress announce free public presentations by NASA scientists on current topics such as climate change, urban sprawl, and natural disasters. For those unable to attend the event in person, the lectures will be recorded and available for viewing after the event on the website.

Honey Bees, Satellites, and Climate Change, April 3, 2007

City Lights, Spy Satellites, and Urban Sprawl, June 27, 2007

Predicting, Observing, and Mitigating Damage from Fires and Other Natural Disasters, October 17, 2007

<http://www.loc.gov/rr/scitech/events/events.html#cybercasts>

Ninetyeast Ridge Expedition – Indian Ocean

Prior to scientific ocean drilling projects, marine geological research expeditions explore and map the areas proposed for drilling. The Ninetyeast Ridge Expedition, one such site survey of one of the longest linear features on Earth, will be conducted June 15-August 15, 2007. One educator will be selected as part of the Teacher at Sea Program, to participate and to interpret the expedition for a variety of shore-based audiences. The deadline for application is April 20, 2007.

<http://joilearning.org/training/default.html>

NOAA Seminars

NOAA offers a series of Science Seminars in Silver Spring, Maryland, which can be joined off-site through video, webcast, or by phone. You can view the schedule through Google Calendar, which offers links to a detailed description of the seminar along with viewing and listening methods when available. For example, Stephen Weisberg will present *New opportunities in beach water quality monitoring* on April 11, 2007. You can also join the seminar email list by contacting Hernan Garcia at

Hernan.Garcia@noaa.gov.

<http://www.google.com/calendar/embed?src=39n13ap56usih9flusufcft34o%40group.calendar.google.com&dates=20070401%2F20070501>

Onshore and Offshore: Investigating the Marine Environment - Washington

The Port Townsend Marine Science Center offers Onshore and Offshore: Investigating the Marine Environment, a week-long course on marine science, July 29-August 3, 2007. Learning takes place on the beach, in the Port Townsend Marine Science Center's tanks and labs, and on board the *Adventuress Schooner*. Teachers will receive standards based-activities for K-12 classrooms in content areas ranging from biology, geology, art, chemistry, physics, and language arts.

<http://www.ptmsc.org/education/teacher.html>

Remote Sensing Applications for the Geosciences Workshop - Wisconsin

The University of Wisconsin–Madison offers this remote sensing workshop, July 10-11, 2007 in Madison, Wisconsin. This workshop will equip science teachers with the knowledge and skills to utilize data and teach remote-sensing applications in four geoscience topics: meteorology, oceanography, geology and climate change. Along with presentations by satellite experts, participants will engage in activities to identify cloud types, weather phenomena, ocean currents and geological features in hands-on, break-out sessions. The workshop will culminate with a climate change session that highlights the connections between remote-sensing applications and Earth system science. Lodging and college credit are available. The deadline for participation is May 25, 2007.

http://cimss.ssec.wisc.edu/satmet_workshop/

ROVing the National Marine Sanctuaries - Texas

Discover how ROVs are used in real life ocean science and exploration; build your own ROV with LEGOs; and take home lesson plans, images, and other materials to help bring into your classroom with a new twist. This workshop, brought to you by Texas Marine Education Association and NOAA's Flower Garden Banks National Marine Sanctuary, takes place April 27-29, 2007, in Galveston, Texas. The deadline for registration is April 13, 2007; enrollment is limited to 30 participants.

<http://statweb.org/TMEA/DTMar07.htm>

Teacher at Sea – California

The Channel Islands National Marine Sanctuary is partnering with the NOAA Teacher at Sea Program on board the *R/V Shearwater*, June 19-21, 2007. The selected teacher will work alongside researchers on Xantus's Murrelet seabird population studies. As part of their experience, they will develop an online journal, a mini-unit of lessons, and will present activities at regional or national conferences or submit articles for publication in professional education journals. Eligible applicants must be currently employed K-16 teachers from the Santa Barbara, Ventura, and Los Angeles areas. The application deadline is April 18, 2007.

<http://sanctuaries.noaa.gov/education/teachers/fieldstudies.html>

Teacher Training Expeditions - Alaska

Discovery Southeast in partnership with Alaska Discovery, Alaska Natural History Association, U.S. Forest Service, and the Alaska Department of Fish and Game are offering three Teacher Training Expeditions for 2007. Professional development credits are available.

- The Brown Bears of Admiralty Island, June 5-11, 2007
- Seals, Ice and the Wilderness Idea, June 26-July 2, 2007
- Whales of Icy Strait, July 19-25, 2007

<http://www.discoverysoutheast.org/content/view/32/40/>

EDUCATIONAL RESOURCES

Anatomy of Sea Turtles

The Anatomy of Sea Turtles is available for downloading in English and Spanish. The manual provides background information, reference photos of normal anatomy, and diagrams. Species identification, standard dissection techniques, standard measurements, and basic anatomy are covered with a diverse audience in mind. Hard copies in English are no longer available, and only a limited number of Spanish hard copies remain.

English http://www.sefsc.noaa.gov/PDFdocs/TM_470_Wyneken.pdf

Spanish http://www.sefsc.noaa.gov/PDFdocs/TM_470_Wyneken_spanish.pdf

Discover Your World with NOAA: An Activity Book

NOAA is celebrating 200 years of delivering science, service, and stewardship. Making this happen leads the people of NOAA from the edge of space to the bottom of the ocean. *Discover Your World with NOAA: An Activity Book* helps you learn more about the world and how NOAA helps explore, understand, and protect our Earth. The book contains 43 different activities, and can be downloaded in full or by individual activity.

<http://celebrating200years.noaa.gov/edufun/book/welcome.html>

Exploring Data

The Exploring Data website makes understanding statistics a bit easier for students, teachers, and researchers needing a review. The site is easy to navigate, with an index of topics and materials on the home page ranging from linear regression to sampling. Each of these sections includes activities, worksheets, and datasets that can be used in a variety of ways. The site includes both introductory and advanced materials.

<http://exploringdata.cqu.edu.au/>

Exploring Environmental Issues: Biodiversity

Exploring Environmental Issues: Biodiversity was developed by Project Learning Tree in partnership with the World Wildlife Fund. This module uses biodiversity as a window through which secondary students investigate the environment. It permits educators and students to step back from specific issues and species and instead, examine broader concepts and larger connections - not just biological, but political, cultural, ethical, and economic as well. Some of the materials are available for downloading online, and more will be added.

http://plt.org/cms/pages/21_21_16.html

Global Climate Change

Global Climate Change, from the Exploratorium website, offers a window into the world of scientific research on climate change. Learn about physical processes underlying the earth's climate, data on how the climate is changing and the role of human activity, and questions and uncertainties that researchers continue to explore. The site is organized in five parts: the atmosphere, hydrosphere (oceans and water), cryosphere (snow and ice), biosphere (living organisms), and global effects.

<http://www.exploratorium.edu/climate/index.html>

Global Warming Web Resources

The National Association of Biology Teachers offers a number of instructional materials designed for use in the classroom along with grants, awards, and professional development opportunities. Their list of instructional materials includes a short listing of some global warming websites.

<http://www.nabt.org/sites/S1/index.php?p=83>

Great Explorations in Math and Science

Great Explorations in Math and Science (GEMS) is a program of the Lawrence Hall of Science, the public science education center at the University of California at Berkeley. They offer specialized professional development workshops, an international support network, and science and math curriculum for teachers of grades pre-K thru 8. They have more than 70 teacher's guides, a series of home activity kits, online activities and videos, an email newsletter, and more. GEMS offers a broad range of earth and ocean science related science units, including *On Sandy Shores*, *Only One Ocean*, and *Ocean Currents*. GEMS is also introducing a line of integrated science and literacy curricula entitled *Seeds of Science/Roots of Reading*, to be published by Delta Education, which will launch Fall 2007 with the title *Shoreline Science*.

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

<http://seedsofscience.org/>

ICT in Schools: A Handbook for Teachers

ICT in Schools: A Handbook for Teachers or How ICT Can Create New, Open Learning Environments is principally designed for teachers and educators who are currently working with, or would like to know more about, Information and Communication Technologies (ICT) in schools. A major theme in the book concerns how ICT can create new, open learning environments and their instrumental role in shifting the emphasis from a teacher-centered to a learner-centered environment; where teachers move from being the key source of information and transmitter of knowledge to becoming a collaborator and co-learner; and where the role of students changes from one of passively receiving information to being actively involved in their own learning.

<http://unesdoc.unesco.org/images/0013/001390/139028e.pdf>

Marine Education Society of Australasia

MESA - the Marine Education Society of Australasia, Inc. website has a number of resources which can help you to teach about marine and coastal environments. These include teaching units on the Great Barrier Reef and coastal areas (including sample activities for young students), Field Activities for Coastal and Marine Environments, a monthly newsletter, and more.

<http://www.mesa.edu.au/teachers.asp>

Marine Technology Society Club

The Marine Technology Society has launched the Marine Technology Society Club, a free club for students (grades 6-12) who have a thirst for knowledge about technology and the oceans. Club members will receive a bimonthly newsletter featuring information on careers, academics, student programs, and stories about technology and the people who use technology to investigate and understand the oceans. Members will also have access to an experts directory, where they can ask questions regarding specific topics in the industry.

<http://www.mtsociety.org/youthclub.cfm>

NOAA Watch: NOAA's All-Hazard Monitor

NOAA's All-Hazard Monitor website draws on an array of weather-tracking devices, satellites, and more. Visitors can monitor a number of types of weather and hazards here, including tropical weather, droughts, floods, coral bleaching, harmful algal blooms, oil spills, and more. A U.S. Weather Outlook map is front and center on the homepage, along with links to detailed maps of additional phenomena. The website offers basic background information along with useful links to more in-depth information and educational materials.

<http://www.noaawatch.gov/>

Planet Earth

The Discovery Channel presents *Planet Earth*, an eleven-part series showcasing global habitats from deep oceans to mountains. The series airs Sunday nights, March 25- April 22, 2007, and concludes with an 11-hour Earth Day marathon showing each episode. The website offers video clips, background information, online animal guides, games, and much more. The Journey to Planet Earth website includes information about the programs, basic ecosystem and country profiles, educational resources including downloadable teacher guides, and more.

<http://dsc.discovery.com/guides/planetearth/planetearth.html>

<http://www.pbs.org/journeytoplanetearth/>

Project Evaluation Website Updated

The National Marine Sanctuary's California B-WET Program has completed the second phase of the Education Project Evaluation website. The website includes information on how to plan, design, implement, and report on evaluation of your education project, along an evaluation overview and links to helpful resources

<http://sanctuaries.noaa.gov/education/evaluation/welcome.html>

ReefTemp

ReefTemp is a mapping product that provides information on coral bleaching risk for the Great Barrier Reef region through a Google Earth application. Climate change projections for the Great Barrier Reef include increased frequency and severity of mass

coral bleaching events. ReefTemp images are updated daily and include the raw SST, positive SST anomaly, the Degree-Heating Days, and a new thermal stress index, the Heating Rate, all calculated at 2km resolution. ReefTemp produces high-resolution nowcasts of bleaching risk and provides an improved ability to monitor heat stress in the Great Barrier Reef. The work builds on the family of products developed by the NOAA Coral Reef Watch team.

<http://www.cmar.csiro.au/remotesensing/gbrmpa/ReefTemp.htm>

Resources for Environmental Literacy: Science-Environment Modules for Teachers

The Environmental Literacy Council's Resources for Environmental Literacy project brought together scientists, classroom teachers, and curriculum developers who gathered materials from a variety of disciplines and sources to produce professional development materials for middle level and high school teachers in physical science, earth science, life science, biology, and physics. The project focuses on the needs of teachers to cover core discipline-specific concepts and then demonstrates how environment-related science can be used to further students' understanding of those core concepts. Downloadable modules include:

- Earth Science - earthquakes, volcanoes, and plate tectonics;
- Life Science - species diversity and the impact of mass extinctions;
- Biology - the science, risks, and tradeoffs of genetically modified crops;
- Physical Science - Earth's energy balance and global climate change; and
- Physics - the science of radioactivity and issues surrounding the disposal of radioactive waste.

The materials are correlated to the National Science Education Standards and the AAAS Benchmarks.

<http://www.enviroliteracy.org/subcategory.php/316.html>

Sound Science

Sound Science is a "state of the science" document encapsulating what is known about the greater Puget Sound ecosystem and, given present trajectories and trends, what may occur in the future. Reflecting the collaborative expertise and perspectives of over 30 authors, nearly 100 reviewers, and hundreds of workshop participants, the document emphasizes the linkages and dynamic interplay between human and natural ecosystems.

http://www.nwfsc.noaa.gov/research/shared/sound_science/index.cfm

Sustainable Marine Aquaculture: Fulfilling the Promise; Managing the Risks

Sustainable Marine Aquaculture: Fulfilling the Promise; Managing the Risks is a report of the Marine Aquaculture Task Force, published in January, 2007. The Marine Aquaculture Task Force consisted of scientists, legal scholars, aquaculturists, and policy experts, whose mission was to examine the status and trends in marine aquaculture and to recommend standards and practices for U.S. marine aquaculture to protect the health of marine ecosystems.

http://www.pewtrusts.org/pdf/Sustainable_Marine_Aquaculture_final_1_07.pdf

Texas Coastal Connection

The Texas Coastal Management Program offers the Texas Coastal Connection website, providing the public with easy access to a wide array of online resources on coastal marine issues. The website highlights hot topics along the Texas coast; assists users in

finding answers to questions on coastal issues; and serves as a source for information on the state's rich coastal resources. Check out the extensive links section.

<http://www.TexasCoastalConnection.com>

WaterWatch

The United States Geological Survey offers WaterWatch, with a map of real-time streamflow on the homepage. The data is organized into seven percentile classes that draw on historical data to illustrate how the current streamflow activity compares to activity in the past. Using a series of drop-down menus on the top allows users to look for current flood and drought watches and also access historical maps and graphs that offer some perspective on monthly streamflow. The site also contains an explanation of streamflow data and how such data is compiled and analyzed.

<http://water.usgs.gov/waterwatch/>

Writing Resource Center

Effective strategies for becoming a better writer are useful resources for all of us, and this website from Empire State College, developed specially for adult learners and faculty use, presents a myriad of material. The website offers sections such as Grammar & Punctuation, ESL Resources, and Documenting Resources. The site contains specific resources that range from worksheets for faculty on how to conduct informal writing activities, to a writing exercise on developing a research question, to a primer on when to write out numbers and when to use numerals in different types of documents.

http://www.esc.edu/ESOnline/Across_ESC/WritingResourceCenter.nsf/homepageForm?OpenForm

INITIATIVES, JOURNALS, and MORE

Coastal and Estuarine Science News en Español

Coastal and Estuarine Science News offers an on-line Spanish version of their newsletter for the benefit of the international community.

<http://erf.org/cesn/vol29n6Bes.html>

Discovery Day at the Dauphin Island Sea Lab - Alabama

Celebrating 200 Years of NOAA, the Dauphin Island Sea Lab in Alabama is celebrating with a Discovery Day, April 14, 2007, featuring the groundbreaking of a new building at Sea Lab, special NOAA programs and activities, free children's and reduced adult admission to the Estuarium, discounts, and much more.

http://press.disl.org/1_31_07dday.html

Live Earth

Live Earth, a 24-hour concert on July 7, 2007, will bring together top musical acts with the proceeds from the concerts going to create the foundation for a new, multi-year global effort to combat the climate crisis.

<http://liveearth.msn.com>

Meet David Doubilet - Alabama

Dauphin Island Sea Lab is offering two chances to meet National Geographic Photographer-in-Residence, David Doubilet. *Cocktails with the Critters*, on May 3, 2007, will take place at Five Rivers in Mobile, Alabama. On May 4, 2007, Mr. Doubilet will host

a multi-media presentation, Water Planet - a Look beneath the Surface. All proceeds from these events will benefit the Dauphin Island Sea Lab Foundation, which supports the Sea Lab's mission to promote wise stewardship of Mobile Bay and the Northern Gulf of Mexico.

http://press.disl.org/1_31_07doubilet.html

NOAA Careers

NOAA Careers is a new recruitment website designed to showcase NOAA career opportunities and all that NOAA has to offer. The website showcases a variety of career fields and allows a search for current vacancies by location or nation-wide. In addition, the website offers links to student opportunities.

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

Ocean Book of the Month

Each month, The Ocean Project will highlight a book focused on our blue planet or environmental sustainability. Books for all age groups, non-fiction and fiction, prose and poetry will be covered.

<http://seastheday.theoceanproject.org/seastheday/book/index.htm>

WaterFest – California

The San Luis Obispo County is holding WaterFest 2007, May 5, 2007 in San Luis Obispo, California. There will be games, hands-on educational activities, a water challenge contest, and more.

http://www.special-places.org/ecm/News_and_Events/WaterFest/Home.html