

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
INFORMATION EXCHANGE FOR MARINE EDUCATORS

DECEMBER 2006

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.

To subscribe to this distribution list, send a blank message to requests@willamette.nos.noaa.gov with "subscribe infoexchange" in the subject field. Similarly, to remove yourself from the list, send the subject "unsubscribe infoexchange".

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 Reference

Marine Mammals Ashore: A Field Guide for Strandings

This updated manual for understanding and dealing with stranded marine mammals contains information for the interested beach dweller or student and for the scientist or marine resource manager. The guide describes rescue operations, how to organize a response team, and how to deal with the media and the public. It includes basic information on marine mammal biology, life history, and health, and an extensive bibliography. Also included are practical guidelines for collecting data and specimens to better understand the biology and behavior of marine animals and the condition of their environment. The 372-page second edition features water- and tear-resistant paper, a vinyl cover, and durable plastic coil binding.

http://www.aqua.org/research_marinemammalsashore.html

WEBSITE OF THE MONTH

Animal Sounds from the Macaulay Library

The Macaulay Library (formerly the Library of Natural Sounds) is the world's largest archive of animal sounds. The library is a principal source of sound recordings for basic research, education, conservation, habitat assessment, media, and commercial projects. The collection is strongest in New World species but also has substantial holdings from Africa and Madagascar, Europe, the former Soviet Union, and Southeast Asia. The Library also archives and preserves an exhaustive sampling of the behaviors of each animal species using digital video and audio recordings. They have more than 160,000 recordings of 67 percent of the world's birds, and rapidly increasing holdings of insects, fish, frogs, and mammals. Their marine collection includes over 3000 recordings. Their Best of the Collection includes courtship, long-distance, stalking, and territorial defense recordings. A search function allows simple and advanced searches.

<http://www.birds.cornell.edu/MacaulayLibrary/About/>

MESSAGE FROM THE BRIDGE

TROLL Top Picks

Each month the Bridge features a new TROLL Top Web Pick. Selected by our Teacher Reviewers of On-Line Learning (TROLLs) as exemplary, these sites are featured on the Bridge front page, complete with a quote from the TROLL. While every site on the Bridge has undergone the rigorous TROLL evaluation process ensuring that visitors are accessing only the top ocean sciences resources on the web, the monthly Top Picks are considered to be the top 10% of educational websites. The review criteria also serve developers of online education resources by describing exactly which elements of an educational website teachers find useful. If you are in search of an ocean science resource or are creating one, the Bridge has the information you need.

Bridge TROLL Review Criteria: <http://www.marine-ed.org/bridge/indexrevinstr.html>
<http://www.marine-ed.org/bridge>

REQUESTS

Citizen Science Project Questionnaire

The Cornell Laboratory of Ornithology has received NSF funding to build community support for emerging and existing citizen science projects, and needs your help. To be a resource for the broadest range of projects, they are exploring the diversity of citizen science programs and concerns. The purpose of this questionnaire is to help them compile a comprehensive, online, searchable database of North American citizen science projects and reference materials; create a toolkit resource, designed to help individuals and organizations develop, implement, and evaluate citizen science projects across disciplines and seek out innovative citizen science practitioners.

<http://www.surveymonkey.com/s.asp?u=282972629584>

Curriculum Writers, Grades 9-12

The San Luis Obispo County Office of Education is seeking experienced writers of instructional materials to work on the development of standards-based instructional materials for the State of California's Education and the Environment Initiative, to develop standards-based instructional materials for 9th-12th grades with emphasis on:

9th-10th grade Biology and Earth Science and 10th, 11th, and 12th grade History/Social Science. Individuals interested in writing for other grades may also submit applications at this time. The deadline for submission of statement of qualifications is December 20, 2006.

[http://www.creec.org/stories/storyReader\\$198](http://www.creec.org/stories/storyReader$198)

Educator Survey

D.J. Case & Associates, specializing in natural resources communications, is seeking input from practicing educators throughout the nation for an education portal. Please complete the survey by December 31, 2006.

<http://djcase.com/selectsurvey/TakeSurvey.asp?PageNumber=1&SurveyID=452383MM5p7KG>

Educational Products Development

The National Marine Sanctuary Foundation is issuing a Request For Proposals to develop a series of educational products that will facilitate access to a large and expanding collection of NOAA data and visualizations by providing a one stop place for teachers, students, and the general public to access NOAA data in a relevant, meaningful way. This will serve as a demonstration project to show how research data can be translated and interpreted to enhance NOAA's ability to achieve a well-informed, ocean-literate and climate-literate public capable of understanding complex ocean and coastal issues and making informed decisions—outcomes specifically outlined in the Ecosystem and Climate mission goals of the NOAA Strategic Plan. In particular, the project will demonstrate how different data parameters can be integrated to tell a compelling story about the ocean and coastal ecosystem; provide a test-bed for development of educational applications of Integrated Ocean Observing System (IOOS) data; analyze the usability of IOOS data by the nonscientific public; serve as a platform for forming unique collaborations among different NOAA line offices in the development of educational materials with an Ocean, Coastal and Earth Systems approach; and serve as an example for regional and national collaboration and integration of NOAA data streams into educational products.

A conference call where respondents will be able to seek additional information about the project is scheduled for December 11, 2006, 2:00 – 4:00 p.m. (eastern). Please dial toll free to 866-663-9736; participant passcode 4412774#. The deadline for proposals is January 5, 2007.

Contact Michiko Martin at michiko.martin@noaa.gov or Joy Williams at Joy@NMSFocean.org

EE Professional Development Survey

The University of Wisconsin-Stevens Point and the Environmental Education and Training Partnership offer on-line training courses aimed at meeting the professional development needs of environmental educators. To better accomplish this, the university is conducting an on-line survey to solicit feedback for a proposed strategic planning on-line training course planned for 2007. It also seeks to identify environmental educator's professional development needs. The information will be used to improve the strategic planning course and identify potential topics for future on-line EE courses. The survey deadline is December 11, 2006.

https://www.uwsp.edu/natres/nres410/Jenn_SPFiles/SP_NeedsAssessment.htm

Call for Papers - Journal of Zoo Biology

Zoo Biology is dedicating a 2007 issue to current research and issues in conservation education in zoos and aquariums. Articles should advance understanding in the field, promote effective practice, and enhance the theoretical base for conservation education. The deadline for submission is February 28, 2007.

Contact Jackie Ogden, Ph.D., Jackie.Ogden@disney.com or Joe E. Heimlich, Ph.D., heimlich.1@osu.edu for details.

GRANTS AND OPPORTUNITIES

Action for Nature Young Eco-Hero Awards

Action for Nature seeks applications from students 8-16 for its Young Eco-Hero Awards program. The awards program recognizes the individual accomplishments of young people whose personal actions have significantly improved the environment. Projects must concern advocacy, environmental health, research, or protection of the natural world. The deadline for application is February 27, 2007.

<http://www.actionfornature.org/eco-hero/ecoheroawards.html>

Advanced Technology Environmental Education Center Fellows Institute for Teachers

The mission of the Advanced Technology Environmental Education Center (ATEEC) is the advancement of environmental technology education through curriculum development, professional development, and program improvement in the nation's community colleges and high schools. Applications are now available for the ATEEC Fellows Institute, June 16-26, 2007, in Alaska. High school science, math, and technology education and two-year college math, science, and environmental technology teachers are eligible for one of 20 awards. The deadline for application is February 2, 2007.

http://www.ateec.org/prof_dev/fellows.cfm

Aquatic Art and Science Contest

Wyland Ocean Challenge offers a *Clean water for the 21st Century* nationwide art and science contest. Have your students create individual works of art or a giant group mural of any aquatic habitat with above and below the water views along with plants and animals that live in the habitat. Each school may submit one entry for each grade for individual artwork and one entry per grade category (elementary, middle, high school) for the group mural. The deadline for entry is February 28, 2007.

<http://www.wylandoceanchallenge.org/index.cfm?do=artcontest>

Barataria-Terrebonne National Estuary Program Mini-Grants

The Barataria-Terrebonne National Estuary Program (BTNEP) offers funding through their Mini-Grants Program to support community-based restoration, outreach and education projects. Through the mini-grants program, citizens gain a greater awareness and understanding of the issues facing the Barataria-Terrebonne Estuary System and join with BTNEP in creating effective solutions. The grants also help BTNEP foster creative partnerships among community groups. The deadline for proposals is December 14, 2006.

<http://grant.btneep.org/>

Canon Envirothon

The Canon Envirothon, July 29-August 4, 2007 in Geneva, New York, is an annual competition in which winning state and provincial teams compete for recognition and scholarships by demonstrating their knowledge of environmental science and natural resource management. The 2007 topic is Alternative/Renewable Energy, with the learning objective for students to comprehend long- and short-term environmental, social, and economic considerations of energy production and usage. Check the website for links to your state competitions and materials.

<http://www.envirothon.org/competition/Canon2007/index.php>

Capital One Youth Service Fund – Washington DC

Capital One and Youth Service America offer grants to support youth-led service projects in low-to-moderate income communities in the Washington, DC area. Applicants must be located in the metro area, including Washington DC, Fairfax, Arlington, Prince George's, and Montgomery Counties, and the city of Alexandria. These grants support youth (ages 5-25), teachers, youth-leaders, youth-serving organizations, or organizations that engage youth in low/moderate-income communities in implementing service projects for National and Global Youth Service Day, April 20-22, 2007. Projects can address themes such as the environment, disaster relief, community education, and any issues that youth identify as a community need. The deadline for application is January 26, 2007.

http://www.ysa.org/awards/award_grant.cfm#nowavailable

Captain Planet Foundation Grants

The Captain Planet Foundation provides grants to school and community groups to support hands-on environmental projects for youth in grades K-12. The objective of the foundation is to encourage innovative programs that empower youth around the world to work individually and collectively to solve environmental problems in their neighborhoods and communities. Upcoming applications are due December 31, 2006.

<http://www.captainplanetfdn.org/grants.html>

Coral Reef Conservation Fund

The National Fish and Wildlife Foundation is accepting proposals to the Coral Reef Conservation Fund for projects that build public-private partnerships to reduce and prevent degradation of coral reefs. Projects should target key threats to reef habitats in coastal watersheds, reef or associated marine habitats. Proposals should support partnerships that provide solutions to specific problems, mitigate or otherwise address specific threats to reef habitats, and/or help prevent coral reef degradation. The deadline for pre-proposal application is January 31, 2007.

<http://www.nfwf.org/programs/coral.cfm>

Earthwatch Educator Fellowship Awards

Earthwatch expeditions are unique professional development experiences. Educator fellowships are awarded through a competitive application process. Considerations are based on available funding in the applicant's geographic region, financial need, and the benefits that would result from participating on an Earthwatch expedition. Applications are accepted on a rolling basis, but those received after March 1, 2007 are subject to more limited funding and projects. A special Boston, Massachusetts application is due February 1, 2007.

<http://www.earthwatch.org/site/pp.asp?c=dsJSK6PFJnH&b=393763>

Evalee C. Schwarz Charitable Trust for Education

The Evalee C. Schwarz Charitable Trust for Education was created to provide interest-free loans to undergraduate and graduate students who demonstrate exceptional academic performance and significant financial need. High school seniors may also apply. The deadline for application is April 15, 2007.

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

FishAmerica Foundation Community-Based Habitat Restoration

FishAmerica Foundation, in partnership with the NOAA Community-based Restoration Program, offers Marine and Anadromous Fish Habitat Restoration Grants. The partnership requests proposals for local efforts to accomplish meaningful on-the-ground restoration of marine, estuarine and riparian habitats, including salt marshes, seagrass beds, mangrove forests, and freshwater habitats important to anadromous fish species. Emphasis is on using a hands-on, grassroots approach to restore fisheries habitat across coastal America and the Great Lakes. Projects must result in on-the-ground habitat restoration; clearly demonstrate significant benefits to marine, estuarine or anadromous fisheries resources, particularly sportfish; and must involve community participation through an educational or volunteer component tied to the restoration activities. The deadline for applications is February 5, 2007.

<http://www.fishamerica.org/grants/>

Inspired Teacher Scholarship Rookie Awards for Visual Learning

In order to support educators with their ongoing professional development and to champion the integration of visual learning into the curriculum, Inspiration Software offers Inspired Teacher Scholarship Rookie Awards for Visual Learning. The scholarships are for educators just starting out in the area of visual learning who demonstrate a desire and capacity to learn and apply visual learning strategies in the classroom.

<http://www.inspiration.com/prodev/index.cfm?fuseaction=rookieguidelines>

National Fishing and Boating Education Grants

The Future Fisherman Foundation offers Physh Ed grants for physical education teachers to incorporate fishing and boating education into their curricula to help foster active leisure lifestyles and ethical attitudes about the outdoors. Grant monies can be used for fishing and boating equipment, field trips, curriculum materials, and other resources to assist instructors in carrying out fishing and boating education. The deadline for application is March 2, 2007.

http://futurefisherman.org/programs/pegrants_application.php

Olympus and Tool Factory Classroom Grants and Contest

Olympus and Tool Factory award grants to educators whose classroom projects and curriculum ideas illustrate the effective and creative use of digital cameras and software resources. The Classroom Grants program is designed to strengthen education through digital imaging and the power of visual learning. The Student Photo Contest includes two categories, photography and art. The Special Education grants are available for projects with special students or inclusive classrooms. The deadlines for submission are January 5, 2007 and again in June or July, 2007.

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

Outdoor Classroom Grants

Lowe's, International Paper, and National Geographic Explorer have partnered to create an outdoor classroom grant program for K-12 public schools to provide schools with additional resources to improve their science curriculum by engaging students in hands-on experiences outside the traditional classroom. Grants may be used to create new outdoor classrooms and/or enhance existing outdoor learning environments. Grants will be reviewed three times a year, with the next deadline December 31, 2006.

<http://www.lowes.com/lowes/lkn?action=pg&p=AboutLowes/outdoor/index.html>

Volvo Adventure Environmental Award

Volvo Adventure, in partnership with the United Nations Environment Programme, is an educational program that rewards environmental activities among the decision makers of the future. Environmental projects are undertaken by teams of young people ages 10-16 working to improve their local environment. The submission deadline is January 31, 2007.

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

Youth Environmental Symposium - Georgia

Middle and high schools, as well as student clubs, throughout Georgia are invited to take part in the ninth annual Youth Environmental Symposium, a statewide environmental competition sponsored by the Georgia Conservancy, February 23, 2007 in Atlanta, Georgia. The goal of the symposium is to develop knowledgeable, dedicated, and interested students who are more aware of the environment. In the process, students have an opportunity to learn how they can make a difference in maintaining a natural balance between the quality of life and the quality of the environment in their schools and communities. The deadline for submission is January 31, 2007.

<http://eeingeorgia.org/net/content/item.aspx?s=44698.0.68.4863>

INTERNSHIPS, FELLOWSHIPS, AND TEMPORARY OPPORTUNITIES

AAAS Roger Revelle Fellowship in Global Stewardship

The Roger Revelle Fellowship is designed to provide a unique public policy learning experience; to demonstrate the value of science and technology in addressing important societal problems; and to make practical contributions to the more effective use of scientific and technical knowledge in governmental decision-making. The fellow will work for one year, beginning in September, in the Congress, an executive branch agency, or a non-governmental agency in the Washington, DC, policy community on domestic or international environmental issues encompassed under the umbrella of global stewardship. The focus will be on human interaction with ecosystems, which includes, but is not limited to, population, sustainable development, food, oceans, global climate change, and related environmental concerns. The deadline for application is December 20, 2006.

http://fellowships.aaas.org/02_Areas/02_Global_Stewardship.shtml

Educator Internship

The Newfound Harbor Marine Institute in Big Pine Key, Florida is a residential environmental educational organization offering programs in marine science to visiting elementary, secondary, college, and adult groups. They seek interns for the spring season.

<http://www.nhmi.org/intern.htm>

Everett Hames Fellowship

The American Sportfishing Association (ASA) in Alexandria, Virginia seeks applicants for a two-year fellowship position in support of the Association's natural resource, conservation and related public policy goals. The successful candidate will work integrally with ASA staff as well as with federal and state legislative personnel, resource management agencies, and private conservation organizations to further ASA goals and objectives. The fellowship provides an introduction to the fisheries policy-making process at all levels of government and is an ideal position for students contemplating or completing a Masters degree in fisheries management, science, natural resource policy or a closely related field. The deadline for application is December 31, 2006.

Contact Gordon C. Robertson at grobertson@asafishing.org

Group Fellowship on Land Conservation and Stewardship

The Quebec-Labrador Foundation will host a group fellowship on land conservation and stewardship for professionals from countries of Latin America and the Caribbean in the spring of 2007. The program seeks to ensure diverse members and conversations.

Applications are due before February, 2007.

<http://www qlf.org/programs/latin.html>

CONFERENCES, WORKSHOPS, AND PROFESSIONAL DEVELOPMENT

American Museum of Natural History's Graduate Science Courses – Online

Deepen your knowledge with Seminars on Science courses from the American Museum of Natural History. Spring Session 1 runs January 15-February 25, 2007; the registration deadline is January 5, 2007. Spring Session 2 runs March 19-April 29, 2007; the registration deadline is March 5, 2007. The courses include: Earth: Inside and Out; Genetics, Genomics, Genethics; Diversity of Fishes; the new course, Evolution; and more. Free sample resources are available for each course on the website. Each 6-week course immerses the learner in a collaborative investigation of a current topic within one of the life, earth, or physical sciences. All courses are taught by museum scientists and educators, and highlight current, cutting-edge research.

<http://learn.amnh.org/>

American Shore and Beach Preservation Association Coastal Summit

The theme of the American Shore and Beach Preservation Association's Coastal Summit, set for March 21-23, 2007 in Washington, DC, is America's Coasts, America's Treasures: National Perspective & Policy. This policy and issues conference will look at critical issues affecting beach preservation and management; work to enhance media relations and lobbying skills; offer an understanding of federal budgeting and appropriations; and provide networking opportunities with Members of Congress, federal officials and beach lovers. Early registration ends February 16, 2007; space is limited — registration will be handled on a first-come, first-served basis.

<http://www.asbpa.org/conferences/conferences.htm>

Developing Teacher Training – West Virginia

The National Conservation Training Center will offer Developing Teacher Training (OUT8161), February 12-16, 2007, in Shepherdstown, West Virginia. This face-to-face training presents the essential components of working with schools and school systems,

specifically on designing, conducting, and evaluating teacher workshops/trainings. The course culminates with participants working in groups to apply their skills at an actual 2-hour teacher workshop. Upon returning to their sites, each participant is also expected to plan and conduct a workshop for teachers within a year. The deadline for registration is December 19th, 2006; call for availability after the deadline.

<http://training.fws.gov/catalog/coursecontents.html>

Contact Georgia Jeppesen at georgia_jeppesen@fws.gov

Duke Environmental Leadership Program – Online

The Duke Environmental Leadership Program improves the knowledge and understanding of environmental issues and leadership capacity among practicing environmental professionals, business executives, graduate students, and K-12 teachers and students. Comprised of an online master's degree, continuing and executive education courses, and community outreach programs, the program is driven by interdisciplinary and global themes, strategic approaches to environmental management, communication, and effective leadership. The deadline for application is March 1, 2007.

<http://www.nicholas.duke.edu/del/>

Flying Wild Conference

Hosted by the Council for Environmental Education and Flying WILD, the national conference, *Bird Conservation through Education: A National Gathering for Bird Education*, February 5-8, 2007 in Austin, Texas, is designed to provide teachers with science-based bird education, case studies on the effectiveness of bird education, panel discussions, funding, and more. The meeting will provide a forum for discussion, network building, and planning to further the reach of bird education efforts. The deadline for registration is January 8, 2007.

<http://flyingwild.org/>

Holbrook Global Field Expeditions

Holbrook Global Field Expeditions offers a series of international professional development workshops in partnership with organizations such as GLOBE, Ocean Futures Society, and others. Designed for K-16 instructors, the workshop participants experience environments and communities around the world while covering new techniques and applications within science curriculum and instruction. The programs are designed to support the bridge between field inquiry and the full incorporation of new themes and topics in the classroom, providing educators a highly motivational and content-rich opportunity to experience the world. Upcoming expeditions in 2007 will travel to Costa Rica, Galapagos Islands, Fiji, New Zealand, and elsewhere.

<http://www.holbrooktravel.com/pages/educationExpeditions/professionaldevelopment.aspx>

International Environmental Law Course - Online

In February, 2007, the United Nations Institute for Training and Research will launch a free, on-line course in International Environmental Law. This basic course provides a general overview of international environmental law, introducing its fundamental principles, law making process, implementation and compliance, negotiations of environmental agreements and developments and trends in international environmental law. It is comprised of the following modules:

- Introduction to International Environmental Law;
- Techniques and Procedures in International Environmental Law;
- International Environmental Negotiations; and

- Developments and Trends in International Environmental Law

The course will be conducted in English. The deadline for registration is January 5, 2007.

http://www.unitar.org/elp/e-learning/the_course.htm

Let's Go Native! - Georgia

Georgia's Native Waters and Georgia's Native Seasons workshops will be held January 11, 18, and 25, 2007 in Newnan, Georgia by the Georgia Conservancy. Learn the skills necessary to complete interactive projects for the indoor and outdoor classroom and connect to the curriculum by participating in hands-on activities and scientific investigations. Georgia's Native Waters is designed to be more than conservation education, with 212 pages of interdisciplinary lessons and over 55 activities for kindergarten through twelfth grade students. Georgia's Native Seasons helps students study the natural world and discover that life has few definite beginnings and endings, but rather passes through stages that are part of a continuing cycle. The deadline for registration is January 3, 2007.

<http://www.gaconservancy.org/Events/Event.asp?id=302&yy=2007&mm=1&dd=11>

Ocean Explorer Workshops

NOAA's Ocean Explorer program offers professional development offerings around the country. Opportunities focus on how educators can use the science, technology, and mathematics associated with exploring the oceans in their classrooms to help increase awareness and understanding of the ocean world. These offerings are designed to introduce educators to premier ocean scientists/explorers and their research and explorations, and at the same time, provide exemplary tools and resources to engage students in ocean exploration by bringing the classroom closer to the ocean than it has ever been before. Workshops in January and February 2007 will take place in California, Washington, South Carolina, and Hawai'i. Check the website for details and contact information.

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

Ocean Sciences Education Leadership Institute - Georgia

Middle and high school teachers, pre-service teachers, and informal educators in North Carolina, South Carolina, and Georgia are invited to build and test their own Remotely Operative Vehicle (ROV) from the MIT Sea Grant SEA PERCH program, which they will take back to their classrooms. This COSEE SE Ocean Sciences Education Leadership Institute, June 24-30, 2007 in Savannah, Georgia, will allow participants to discover how ROVs are used to study the seafloor to understand habitats, geology, and effects of surface storms on the bottom. Participant will be required to develop a classroom unit and teaching portfolio on undersea research and technology based on experiences from the Institute; develop and conduct a 6-hour ocean awareness day (SEPORT) on undersea research with a local informal education site; and participate in evaluation protocols. Lodging, travel, stipends, and more will be provided.

Contact Margaret Olsen at olsen@uga.edu

Projects WET, WILD and Learning Tree Facilitator Workshop - Georgia

The Charlie Elliott Wildlife Center will host facilitator training workshops, January 23-24, 2007 in Mansfield, Georgia. Participants will receive certification and resource materials

to become Project WET, WILD and Learning Tree facilitators. The deadline for registration is January 12, 2007.

<http://eeingeorgia.org/net/calendar/details.aspx?c=29418&s=43308.0.68.4863>

EDUCATIONAL RESOURCES

3D Topographic and Wave Simulations

ForgeFx is an interactive 3D simulation and visualization company. Their website showcases several useful interactive simulations, including a topographic map and 3D wave simulation. Students can see immediate changes online resulting from their variable input.

www.forgefx.com/casestudies/prenticehall/ph/topo/topo.htm

BioLEARN

BioLEARN (Linking Educators As a Resource Network) is an on-line collection of biology education materials created for and by Wisconsin high school and middle school biology teachers, coordinated by the Center for Biology Education at UW-Madison. The website includes teaching activities and resources aligned with Wisconsin Model Academic Standards and incorporating standards-based student performance measures. Sample activities are included in ecology, classification, botany, and more.

<http://www.wisc.edu/cbe/biolearn/index.html>

Catalog of Conservation Social Science Tools

The Society for Conservation Biology's Social Science Working Group is a global community of conservation scientists and practitioners. The group is dedicated to strengthening conservation social science and its application to conservation practice. The website offers a catalog designed for conservation practitioners, planners, students and researchers interested in the social dimensions of conservation. The aim is to provide conservation practitioners with greater capacity to integrate social sciences into their work by linking practitioners to key social science tools and methodological approaches, and by providing context for these tools.

<http://www.conbio.org/WorkingGroups/SSWG/catalog/index.cfm>

Cetacean Curriculum

The American Cetacean Society offers a downloadable teacher's guide to introducing and using whales, dolphins, and porpoises in the classroom. The curriculum contains basic background information on cetaceans and offers ideas for activities to engage students. The website also includes individual cetacean fact sheets.

<http://www.acsonline.org/education/curriculum/index.html>

Clean Water for the 21st Century

The Wyland Ocean Challenge offers the Clean Water for the 21st Century classroom program, exploring the world of aquatic ecosystems above and below using tools and techniques from science and art. The downloadable materials include a teacher's guide containing detailed art and science activities, background information, tips on using art in your classroom, and standards alignment charts. These activities can be used to study any water-based ecosystem and are designed to work with the student Eco-Guides. The Eco-Guides offer a full color student supplement with articles, fun facts, people profiles, images, and a set of organism cards. They are organized by ecosystem, including river, lake, wetland, and ocean.

<http://www.wylandoceanchallenge.org/index.cfm?do=part2>

Communications Primer

Strategic communications is basically marketing by another name, but it's not just for the for-profit world. Creating an effective strategy involves identifying your goals and who you need to enlist to accomplish those goals; learning their motivations and creating a compelling message based on those motivations; and, of course, getting your message to them. The *Communications Primer for Great Lakes Habitat Advocates* is not designed for communications experts, but for grassroots organizers dedicated to enhancing public education and outreach efforts. The website also offers sample press materials, evaluation pointers, and more

http://glhabitat.org/GL_Toolbox_v1/Leave_Alone/primerintro.html

Coral Reef Photographs

The on-line Coral Reef Ecosystem Database, developed and managed by the National Centers for Coastal Ocean Science and funded by the Coral Reef Conservation Program, now provides public access to new digital photographs from six years of coral reef field studies. Access to images of coral reef species and habitats, taken during studies in Puerto Rico and the U.S. Virgin Islands, facilitates a variety of coral reef research, management and educational opportunities. More than a thousand new digital photos have been added to the searchable database, which includes images of fishes and invertebrates, hard and soft corals, mangroves, seagrass beds, and other benthic habitats.

http://www8.nos.noaa.gov/biogeopublic/reef_photos.aspx

Doing Science: The Process of Scientific Inquiry

This website helps students understand the basics of scientific inquiry. This NIH curriculum supplement series for grades 6-8 offers lessons, a teacher's guide, and more to help guide students from what they already know about scientific inquiry, or think they know, toward a more complete and accurate perspective. Activities include distinguishing questions that can be tested by a scientific investigation from those that cannot and participating in a computer-based scientific investigation as members of a fictitious community health department.

<http://science.education.nih.gov/supplements/nih6/Inquiry/default.htm>

From Sea to Shining Sea

The National Geographic Society and NOAA's Office of Ocean Exploration have collaborated to create an ocean focused map, *From Sea to Shining Sea, Exploring America's Ocean Realms*, along with three new online lesson plans. In addition, there a limited number of paper versions of the map. If you would like to receive a copy of this map, please send an email to fcava@ngs.org with "Request a copy of the Sea to Shining Sea map" in the subject line.

While many of the online Xpeditions lesson plans can be used with the map, the following were created specially for *Sea to Shining Sea*:

The Ocean: Our Global Connector

<http://nationalgeographic.com/xpeditions/lessons/15/g68/seatoshiningsea1.html>

Polar Regions: Arctic Adaptations and Global Impacts

<http://nationalgeographic.com/xpeditions/lessons/08/g68/seatoshiningsea2.html>

The Mariana Trench: Stewardship of the Deep Seas?

<http://nationalgeographic.com/xpeditions/lessons/15/g68/seatoshiningsea3.html>

Download the map at

<http://nationalgeographic.com/xpeditions/lessons/15/g68/s2ssmap.pdf>

Hurricane Portal

Hurricanes: The Greatest Storms on Earth

NASA offers these websites with background information, data, images, and weblinks about hurricane formation, anatomy, climatology and more. The Hurricane web portal is designed for viewing and studying hurricanes with a variety of measurements from satellite-based NASA instruments.

<http://disc.gsfc.nasa.gov/hurricane/index.shtml>

<http://earthobservatory.nasa.gov/Library/Hurricanes/>

Learning about Renewable Energy

This website provides basic information about solar, wind, biomass, hydrogen, and geothermal power. Students can view a video on how solar panels work, learn about advanced vehicles, alternative fuels, energy delivery and storage, and more. The website also offers information about internships, fellowships, and professional development opportunities.

<http://www.nrel.gov/learning/>

Mitigating Coastal Hazards

The Association of State Floodplain Managers offers an on-line handbook, *No Adverse Impact in the Coastal Zone*. The handbook provides a vision, principles, and tools that communities can use to help mitigate the effects of coastal hazards. The No Adverse Impact principle holds that the actions of a community or property owner should not adversely impact other people or the coastal resource.

http://www.floods.org/noadverseimpact/cnai_handbook_10-06.pdf

Ocean Careers

This new resource on ocean careers comes from the Centers for Ocean Sciences Education Excellence (COSEE). The website includes information on more than 50 careers, as well as information on schools and universities that offer related training programs, internships, and jobs; professional societies, profiles, and more.

<http://www.oceancareers.com/2.0/index.php>

Ocean Currents Radio Show

Discover the depths and far reaches of the ocean realm by tuning in to these live or archived radio broadcasts. Listen as Cordell Bank National Marine Sanctuary personnel talk with experts in the field about current research, management issues, natural history, and stewardship associated with the marine environment. Check out the schedule for live broadcast dates and times, download archived radio shows, or subscribe to Ocean Currents podcasts.

<http://cordellbank.noaa.gov/education/radioshow.html>

OceansLive Videos

OceansLive.org aims to bring the ocean world to communities worldwide and make oceans accessible and local through a multi-media system approach. Visit OceansLive.org to view new archived videos, including the Northwestern Hawaiian Islands Marine National Monument, the Hunt for the Alligator, History of the Macon, and

more. Live video feeds are also available, along with downloadable complimentary educational resources.

<http://oceanslive.org>

Operation Laser Line 2006

NOAA's Ocean Explorer website highlights Operation Laser Line 2006, a 6-day research cruise from November 8-13, 2007, which utilized the only commercially-available laser line scan system in the world to survey several sites off the coast of Maui. This new technology called laser line scan (LLS) may provide a bridge between broad-scale approaches such as side-scan sonar and fine-scale video and still photography. LLS systems can detect objects as small as about one centimeter. While LLS systems are unable to cover as much area as side-scan sonar, these systems provide two to five times the coverage of video. The purpose of the Operation Laser Line 2006 expedition was to determine if LLS technology can provide the data needed to effectively manage coral reef ecosystems. Web coverage for this mission includes content essays written especially for this mission and much more.

<http://www.oceanexplorer.noaa.gov/explorations/06laserline/welcome.html>

Physorg.com

Physorg.com offers online news and articles related to science, physics, and technology. Categories include Space & Earth science, General Science, and more. Topics one day might include climate change, tsunamis, carbon sequestration, and much more.

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

Population Connection

Population Connection's education program is a national population education program with a strong emphasis on teacher training for educators of grades pre-K through 12. The program offers age-appropriate curricula to complement students' science and social science instruction about human population trends and their impacts on natural resources, environmental quality, and human well-being. In addition to the curriculum, they provide hands-on training to teachers and student teachers. They emphasize hands-on learning and balanced discussion of different viewpoints. All curriculum materials are interdisciplinary and classroom-ready.

<http://www.populationeducation.org/index.jsp>

Science Animations

In some instances, practical demonstrations of various scientific principles may be difficult, if not impossible. North Harris College offers this website, which functions as a clearinghouse for science animations created by a wide range of institutions from the University of Hawaii to Cambridge University. Categories include ecology, plants, animals, with animations of the greenhouse effect, classification schemes, pond life videos, and more.

<http://science.nhmccd.edu/biol/animatio.htm>

Shedd Educational Adventures

The online, searchable, Shedd Educational Adventures (SEA) contains myriad aquatic science resources for K-12 teachers and students. SEA brings the Philippines to life for your students with fact sheets and multimedia interactives based on the Wild Reef exhibit at the Shedd Aquarium. Materials include lesson plans, interactives, and explorer guides – fact sheets about plants, animals, people, and places. Many materials are also available in Spanish. While you're on the website, check out the education link

(top of the page) and follow it for teachers. You'll find an upcoming workshop (Life on the Reef, December 9, 2006 in Chicago, Illinois), a quarterly newsletter, and more.

<http://www.sheddaquarium.org/sea/>

Sounds of the Southern Ocean

Join Oregon Sea Grant marine educator Bill Hanshumaker November 20-December 13, 2006 on this expedition to Antarctica with researchers from Oregon State University's Hatfield Marine Science Center. This will be the first attempt of deep-water ROV survey of hydrothermal vents and ecosystems in Antarctica. The deployment of deep-water autonomous hydrophones will record sounds generated by moving ice sheets, undersea earthquakes and volcanoes, even vocalizations from large baleen whales.

NOAA's Pacific Marine Environmental Laboratory's VENTS Program website offers a variety of materials complementary to the expedition. The Acoustic Monitoring Project of the VENTS program section offers on-line multimedia about sound. Other sections provide graphics and information about seafloor geology, bioacoustics, physical modeling, and much more.

Expedition's website: <http://hmscblog.blogspot.com/>

Vents Program: <http://www.pmel.noaa.gov/vents/index.html>

Teachers' Domain Available through netTrekker

Teachers' Domain, from WGBH Educational Foundation, is an online educational service offering collections and courses that help teachers enhance their students' learning experiences and advance their own teaching skills. The collections include classroom-ready multimedia resources for use in lessons or independent study; the professional development courses utilize many of the same resources along with videos of exemplary classroom practice. Thinkronize, developer of the netTrekker suite of safe educational search products, and Teachers' Domain have partnered to provide netTrekker subscribers with access to Teachers' Domain multimedia content for teachers and students.

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

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

Water's Journey Everglades

This website offers a wealth of information about the history and contemporary situation in and around the Everglades. It helps users understand the complicated ecological history and operation of the Everglades, including the role that humans play in its transformation. The website includes interactive maps, management information, history, lesson plans and other educational resources, and links to other materials and further background information.

<http://theevergladesstory.org/>

Webcams in Marine Protected Areas

MPA NEWS, Vol. 8, No. 5 from November 2006 published *Bringing MPAs Online: The Use of Webcams for Education, Monitoring, and Other Purposes*, offering a discussion of the use of webcams in marine protected areas for education, monitoring, and other purposes. It offers min-case studies of some of the ongoing projects, successes, and problems associated with this technology.

<http://depts.washington.edu/mpanews/issues.html#Nov%202006>

Writing Guidelines for Engineering and Science Students

The University of Vermont offers this helpful website for both students and educators alike. These guidelines for scientific writing are designed to help students communicate their technical work. To that end, these guidelines contain advice, models, and exercises for common writing and speaking assignments in engineering and science. Some of the specific resources include short pieces on how to write for different audiences and how to design both presentation slides and scientific posters. Also included are sample memos, letters, and resumes.

<http://www.writing.eng.vt.edu/>

INITIATIVES AND MISCELLANEOUS

Earth Alerts

Earth Alerts is a free, downloadable Windows-based application that provides alert notifications, reports, and imagery on many types of natural phenomenon that are occurring real-time both worldwide as well as in specific locations within the United States, including Guam, Puerto Rico, and the U.S. Virgin Islands. Earth Alerts makes use of the resources from organizations such as the National Weather Service, U.S. Geological Survey, and other agencies. You can specify the activity types and locations of interest for notification.

<http://earthalerts.manyjourneys.com/>

Ebbinghaus

Ebbinghaus allows users the opportunity to create flash cards and then review them at their leisure. The program also allows you to export “boxes” of cards to devices such as an iPod.

<http://www.christian-kienle.de/Ebbinghaus/>

Sanctuary Calendars

The National Marine Sanctuary Foundation is a non-profit organization created to assist the National Marine Sanctuary Program with education and outreach programs designed to preserve, protect and promote meaningful opportunities for public interaction with the nation's marine sanctuaries. The foundation offers five types of calendars for 2007, each offering photos of national marine sanctuaries. Purchasing these products helps support efforts of conservation-based education and outreach programs designed to preserve, protect and promote the National Marine Sanctuary System.

<http://nmsfocean.org/>

SustainLane

SustainLane is a website designed for state and local government officials to exchange best practices in sustainability and network among peers. Categories include climate change policy, water/wastewater, parks/open space/habitat, and more. The website offers a secure directory of government officials.

<http://www.sustainlane.us/home.jsp>