

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
INFORMATION EXCHANGE FOR MARINE EDUCATORS

MARCH 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.

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Collected archives of the information presented in past newsletters are available at http://www.mpa.gov/information_tools/education.html#InfoExchange. 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 Article
Mapping Human Activity in the Marine Environment: GIS Tools and Participatory Methods

This report summarizes a workshop convened by the National MPA Center focused on mapping human activity in the marine environment using GIS tools and participatory methods. The goal of the workshop was to develop general design criteria for practical participatory methods to collect spatial data on human use patterns to inform local and regional MPA planning processes. The report identifies the types of data needed for characterizing human activities and assesses the applicability of GIS for the collection of these data. The report also includes recommendations for designing a methodological approach for collecting the data types both at regional and local levels.

http://www.mpa.gov/information_tools/social_science.html

PROGRAM OF THE MONTH

Dauphin Island Sea Lab Summer Programs for Students and Teachers - Alabama
Dauphin Island Sea Lab, Dauphin Island, Alabama, is offering a wide variety of summer programs for students and teachers.

For Students

- Oceans Alive!: Half day beach exploration for children 5-8 years with parent; June 9, 23, 2006
- Treasure Island: Half day history treasure hunt for children 9-11 years; June 16, 30, 2006
- Gulf Island Journey: Marine summer camp on a barrier island for middle school students; May 28-June 2, July 9-14, July 16-21, July 23-28, 2006
- Summer High School Course: Four week marine science course for high school students, June 4-30, 2006

For Teachers

CEUs or graduate credit available through the University of West Alabama for an additional fee

- Spring Fossil Workshop: Two day workshop discovering Alabama's fossil resources; March 18-19, 2006
- Exploring the Florida Keys: Hands-on learning about Florida Key habitats and classroom and grade level methods of teaching science principles based on the diversity within these areas, May 28-June 2, 2006
- Marine Application of Science and Technology: introduction to hands-on application of math, technology, and science using coastal Alabama resources, June 4-8 and June 18-22, 2006
- Beaches, Birds & Barrier Islands: Three island tour of barrier islands with classroom application and curriculum materials provided; June 25-29 and July 9-13, 2006
- Coastal Connections - Linking Watersheds to the Gulf of Mexico: Includes animal collection for classroom from research vessel, barrier island field trip, and multi-grade level classroom curriculum guide; July 16-20, 2006
- Submerged Grassbeds of the Northern Gulf of Mexico: Explore St. Andrews and St. Joseph Bays, Florida, exploring beaches, jetties, marshes, and seagrasses; June 11-15 and July 23-27, 2006.

<http://dhp.disl.org/k12.html>

MESSAGE FROM THE BRIDGE

Plan Your Summer with Help from the Bridge

The Bridge can help educators and students plan their summer. In the Professional Development section, educators will find summer programs in addition to information on year-round courses and workshops, grants, awards, and various regional and national organizations. Summer opportunities for students are located in the Guiding Students section. Here, students will find information not only on summer programs, but also on year-round educational opportunities, colleges and universities that feature marine or environmental science, and science fair resources.

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

Educator Summer Programs: http://www.marine-ed.org/bridge/index_teacher_summer.html

Student Summer Programs: http://www.marine-ed.org/bridge/index_summer.html

REQUESTS

Secondary Science Teacher Reviewers Needed

The National Science Foundation will be publishing three free books for secondary science teachers: Reform in the Secondary Science Classroom, Technology in the Secondary Science Classroom, and Science as Inquiry in the Secondary Science Classroom. Teacher reviewers are needed to review one or two of the book chapters. The reviews must be completed by April 1, 2006. Compensation is available.

http://science.nsta.org/nstaexpress/nstaexpress_2006_02_06_asu.htm

Terrapin Survey

Russell Burke is an associate professor at Hofstra University interested in determining the current and past status and range of the diamondback terrapin (Malaclemys terrapin), particularly from the observations and opinions of anyone who has spent time in environments where terrapins might be found, along the United States Atlantic and Gulf coasts. Please help with his research by taking the on-line survey.

<http://www.people.hofstra.edu/terrapin>

GRANTS AND OPPORTUNITIES

Adobe Community Action Grants – Specific Locations

Adobe Systems awards grants for one year general operating and program support to non-profit organizations and schools, which must be located in one of the following areas: San Jose/Silicon Valley, California; Seattle/King County, Washington; and Ottawa, Ontario, Canada. Focus areas include Creativity in Education and Commitment to Community. Grant deadlines are quarterly, with upcoming grant applications due by March 31, 2006.

<http://www.adobe.com/aboutadobe/philanthropy/commgivingprgrm.html>

American Birding Association Youth Scholarships

The American Birding Association provides scholarships to help young people who are interested in birds to attend summer camps, workshops, conventions, and other bird-related activities. Application deadline is April 30, 2006.

<http://americanbirding.org/yb/schol/index.html>

Canon National Parks Science Scholars Program

This scholarship program is a collaboration among Canon U.S.A., the American Association for the Advancement of Science, and the U.S. National Park Service. The program awards scholarships to doctorate students to conduct research critical to conserving the national parks of the Americas, including include Canada, the United States, Mexico, the countries of Central and South America, and the countries of the Caribbean. The deadline for application is May 3, 2006.

<http://nature.nps.gov/canonscholarships/>

CalServe Service-Learning Funds – California

Funding is available to educational agencies in California to support the implementation of opportunities for K-12 students to participate in quality service-learning experiences that address community needs and enhance academic learning. The CalServe Initiative is a federal grant program that promotes service-learning where youth address

community needs in the areas of education, public safety, the environment, and health and human needs as they learn the state content standards. The deadline for application is May 1, 2006.

Contact Keisha Wickham at kwickham@cde.ca.gov

Coral Reef Research Fellowships

The International Society for Reef Studies and The Ocean Conservancy are supporting up to six Ph.D. students in coral reef ecosystem research. The intent of the fellowship is to help students develop skills to address problems related to relevant applications of coral reef ecosystem research and management. The Fellowship can be used to support salary, travel, fieldwork, and laboratory analyses. The student can work entirely at the host institution, or can split time between developed and developing country institutions. The deadline for application is March 31, 2006.

<http://www.fit.edu/isrs/>

Gloria Barron Prize for Young Heroes

The Gloria Barron Prize for Young Heroes seeks nominations for its 2006 awards. The Barron Prize recognizes young people ages 8 to 18 in the U.S. and Canada who have shown leadership and courage in public service to people and our planet. The deadline for nomination is April 30, 2006

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

Native Hawaiian Education Funding

Funding is available from the Native Hawaiian Education program to support innovative projects that enhance the educational services provided to native Hawaiian children and adults. Hurry – the deadline for application is March 24, 2006.

<http://www.ed.gov/legislation/FedRegister/announcements/2006-1/012306c.html>

Nature of Learning Environmental Education Grants

The National Fish and Wildlife Foundation solicits applications from organizations interested in initiating or expanding *The Nature of Learning* in their communities. *The Nature of Learning* is a community-based environmental education initiative. It uses National Wildlife Refuges as outdoor classrooms to promote a greater understanding of local conservation issues; encourage an interdisciplinary approach to learning that seeks to enhance student academic achievement; utilize field experiences and student-led stewardship projects to connect classroom lessons to real world issues; and involve a partnership among local schools, community groups, natural resource professionals and local businesses. The deadline for application is April 17, 2006.

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

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.

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

Teaching the Hudson Valley Curriculum Development Grants – New York

Teaching the Hudson Valley makes annual curriculum development grants to K-12 New York schools collaborating with places of cultural, environmental, and/or historic significance located in the Valley and open to the public. The deadline for application is March 20, 2006.

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

Wetlands Recovery Project Small Grants Program – Southern California

The Wetlands Recovery Project Small Grants Program provides funding for community-based restoration projects in coastal wetlands and watersheds in the region from Point Conception in Santa Barbara County to the international border with Mexico. The purpose of the program is to further the goals of the Wetlands Recovery Project Regional Strategy; build local capacity to plan and implement wetland restoration projects; promote community involvement in wetlands restoration activities; and foster education about wetlands ecosystems. The deadline for application is April 28, 2006.

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

White Water to Blue Water Proposals

The National Marine Sanctuary Foundation seeks proposals as part of the White Water to Blue Water initiative to facilitate and strengthen partnerships in support of sustainable development in the Wider Caribbean. Grants will focus on building partnerships to address integrated watershed management, marine ecosystem-based management, sustainable tourism, and environmentally sound marine transportation. The deadline for submission is May 15, 2006.

<http://www.nmsfocean.org/grants.asp>

INTERNSHIPS AND TEMPORARY OPPORTUNITIES

Habitats and Culture of Costa Rica

The Institute for Central American Studies offers *Habitats and Culture of Costa Rica*, a two-week professional development program for teachers, July 2-15 and July 16-29, 2006 on the Osa Peninsula of Costa Rica. The program will provide an environmental overview within a cultural context, emphasizing diverse eco-systems, language, and customs of the people. Hike remote trails, kayak through mangroves, snorkel in coral reefs, participate in field research, in a service project, in discussions on conservation issues.

<http://www.campanario.org/teachersprofessionaldevelopmentprograms.php>

Passport in Time

Passport in Time is a volunteer archaeology and historic preservation program of the USDA Forest Service. The volunteers work with professional Forest Service archaeologists and historians on national forests throughout the U.S. on such diverse activities as archaeological survey and excavation, rock art restoration, survey, archival research, historic structure restoration, oral history gathering, and analysis and curation of artifacts. The professional staff of archaeologists and historians will be your hosts, guides, and co-workers. Current activities explore sites along rivers and lakes.

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

Summer Camps on the River

The Christchurch School in Virginia hosts Summer Camps on the River, using the outdoors as a classroom and providing an introduction to Chesapeake Bay ecosystems. Students, ages 9-17, spend up to two weeks exploring the aquatic ecosystems of the Rappahannock River and the Chesapeake Bay. The hands-on programs include the study of macroinvertebrates in a flowing stream, mucking through a fresh water marsh, seining a sandy beach, and more. Additional camps feature Sailing, Crew, Fishing or Study Skills.

<http://www.christchurchschool.org/summer/science/>

Teacher/Scientist Summer Institutes – Mississippi and Florida

The Centers for Ocean Sciences Education Excellence: Central Gulf of Mexico, with funding from the National Science Foundation, will offer teachers two 5-day Teacher/Scientist Summer Institutes. They are available for teachers and scientists from Alabama, Florida, Louisiana, Mississippi and Texas. These training opportunities will focus on coastal processes, marine habitats and organisms, and marine technology related to the Gulf of Mexico. Once the field component is completed, participants will then take part in an online component during July/August of 2006. The dates for the Florida and Mississippi institutes are June 18-23 and June 25–30, 2006 respectively.

<http://151.200.137.39/index.php?p=210>

CONFERENCES, WORKSHOPS, AND PROFESSIONAL DEVELOPMENT

Advanced Conservation GIS and Remote Sensing course - Virginia

The Smithsonian National Zoological Park's Conservation and Research Center is offering the advanced conservation GIS and remote Sensing course, *Measuring Landcover Change and its Impact on Endangered Species*, April 3-7, 2006 and September 11-15 2006 in Front Royal, Virginia. The course will provide conservation biologists and wildlife managers an opportunity to learn how GIS and remote sensing can be used to assess the conservation status of endangered species. During the hands-on exercises participants will use the Internet, ArcView, ArcView Spatial Analyst, ERDAS Imagine, Fragstats, and other spatial analysis programs. Maximum enrollment in each session is 15 students.

http://nationalzoo.si.edu/ConservationAndScience/ConservationGIS/GIS_training/advanced_GIS

All Wet Teacher Education Course - Georgia

These days of aquatic and watershed studies, June 20-23, 2006 in Gainesville, Georgia, will whet your appetite for water education. Enjoy pond and stream analysis, water testing on Lake Lanier, wetland studies, computer modeling and more. Participants will also receive Project WET certification.

<http://eeingeorgia.org/net/calendar/details.aspx?c=28055&s=30663>

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 classes run March 20-April 30, 2006; hurry, registration ends March 6, 2006. Offerings include the integrated science course on the Ocean System, the Diversity of Fishes, and more. Offerings include the Ocean System and Earth: Inside and Out. 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. Also check out the offerings of the summer session schedule, with registration ending May 29, 2006.

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

California and the World Ocean Conference

California and the World Ocean Conference, organized by the California Resources Agency, the California Environmental Protection Agency, and the Coastal Conservancy Association, will be held September 17-20, 2006 in Long Beach, California. Topics will include the California Ocean Protection Act; the Governor's Ocean Action Plan; and the California Ocean and Coastal Information, Research, and Outreach Strategy. The deadline for abstract submission is April 14, 2006.

<http://resources.ca.gov/ocean/cwo06/>

California and Water Classes - California

Learn about one of California's most limited resources—water—through this course offered on five consecutive Thursdays at the Aquarium of the Pacific in Long Beach, California, March 9-30, 2006. This course is taught by industry experts and explores current issues relating to California's water budget, threats to water quality, desalination and the allocation of water resources such as the Colorado River Basin.

http://www.aquariumofpacific.org/EDUCATION/ADULT/cal_water.htm3

Coastal Ocean Observing Workshop - Georgia

This Coastal Ocean Observing Workshop will take place June 20-25, 2006 in Savannah, Georgia. The workshop is open to middle and high school teachers who are presently involved in teaching marine science, physical science, physics, or earth/oceanography. The deadline for application is April 5, 2006.

<http://eeingeorgia.org/net/calendar/details.aspx?c=28356&s=37717>

Compromise in the Estuary – South Carolina

This workshop, sponsored by the Centers for Ocean Sciences Education Excellence SouthEast (COSEE SE) and the South Carolina Aquarium, will be held March 18, 2006 in Charleston, South Carolina. Learn about the importance of estuaries by participating in a stakeholders' forum of guest speakers which include a biologist, an environmentalist, a politician and a developer. Workshop activities will also include a field trip, an aquarium gallery tour, and a crab lab investigation. The deadline for registration is March 10, 2006.

<http://www.scaquarium.org/visit/upcomingevents.aspx>

Conservation across Borders – Texas and Montana

The Boone and Crockett Club offers a hands-on field course designed for teachers who are interested in integrating natural resource conservation into their curricula, to be held July 11-25, 2006. The course takes a systems approach comparing two distinct ecological regions of North America, and the science behind the conservation and management of wildlife species endemic to these regions. The goal is to enable students to conceptualize a systems view of the underlying causes and solutions to issues regarding wildlife and natural resources. Coursework incorporates hands-on field activities in the coastal prairies and marsh ecosystems in south Texas and in the short-grass prairie and montane ecosystems in north central Montana. The deadline for application is March 31, 2006.

http://www.boone-crockett.org/educationPrograms/education_cab.asp?area=educationPrograms

Coral Ecosystems - Online

Plan ahead. Sign up for free web seminars, offered by the National Science Teachers Association, featuring NOAA scientists and education specialists with a focus on the biology, dynamics, and conservation of coral ecosystems designed for grade 5-12 level educators. The presenters will share their expertise and assist participants in linking this content to hands-on, inquiry-based, classroom activities. All activities will address national science education standards topics. The seminars will take place May 10 and June 7, 2006.

<http://institute.nsta.org/Anaheim/coral/webseminar.asp>

Energy: Stop Faking It! - Online

Plan ahead. Sign up for free web seminars, offered by the National Science Teachers Association, featuring the author of the publication, *Energy: Stop Faking It!* designed for grade 4-8 level educators. The author will guide participants through easy-to-understand explanations and perform activities that will enhance participants' knowledge of common physical science concepts, including potential energy, kinetic energy, work, and the transformation of energy. The author will also provide ideas for activities that can be done using commonly found equipment. The seminars will take place May 18 and June 14, 2006.

<http://institute.nsta.org/Anaheim/energy/webseminar.asp>

Florida Reef Resilience Program Workshop

This workshop, offered March 9 and 10, 2006, will be the first in a series of public workshops that will include one or two-day sessions in 2006 and 2007. The program is designed to improve our understanding of coral reef resilience by exploring the biological and environmental aspects of reef health and by asking a fundamental question of society, "What is it that people want and need from coral reefs?" Ultimately the program seeks to develop strategies to improve the health of Florida's reefs and enhance the economic sustainability of reef-dependent commercial enterprises.

Contact Anna Symington at asymington@tnc.org

Galveston Bay Community Open House - Texas

The Galveston Bay Estuary Program invites you to attend a *Charting the Course to 2015 Galveston Bay Community Open House*. Learn about Galveston Bay's impact on our economic well-being, health, and quality of life, and how you can become involved in shaping its future. Open houses will be held throughout the Houston-Galveston region through the beginning of April. Be sure to check out the extensive information available on the website, including links to estuary education programs.

<http://www.gbep.state.tx.us/hot-topics/ctc%20page.asp>

Geophysical Prospection Workshop - Georgia

The National Park Service sponsored sixteenth annual archaeological prospection techniques workshop, *Current Archaeological Prospection Advances for Non-Destructive Investigations in the 21st Century*, will be held May 15-19, 2006, on St. Simons Island, Georgia. This workshop series is dedicated to the use of aerial photography, geophysical, and other remote sensing methods to identify, evaluate, conserve, and protect archaeological resources. This workshop will focus on the theory of operation,

methodology, processing, interpretation, and on-hands use of field equipment. The application deadline is April 21, 2006.

<http://www.cr.nps.gov/mwac/>

GIS and Underwater Robotics Workshops - California

The Marine Advanced Technology Education (MATE) Center is offering two free Summer Institutes for 2006, in Monterey, California. *Creating a GIS Field Project to Address Marine and Coastal Issues*, July 8-14, 2006 will lead educators through each step of creating their own GIS projects to use their classrooms. *Building Remotely Operated Vehicles (ROVs)*, July 31-August 5, 2006, will teach educators the basic skills to help their students build ROVs that can compete in MATE's regional and National ROV competitions.

http://www.mpcfaculty.net/tami_lunsford/SI_06_Institute/Information.htm

Glacier Bay eFieldTrip

The eFieldTrip, "Glacier Bay: A Living Laboratory for Studying Marine Mammals" premiered February 27, 2006, and is designed to meet state and national education standards. This is offered as a free educational outreach opportunity. In addition to the virtual visit and trip journal, on March 8 and 9, 2006, the park will host *Ask the Experts*, encouraging students to post questions through the website, to be answered by experts at Glacier Bay National Park and Preserve.

<http://www.efieldtrips.org>

Great Lakes Student Summit - New York

The Great Lakes Student Summit, *Recycle, Restore, Recover*, May 18-19, 2006 in Buffalo, New York, encourages students to learn about and take an active role in the protection of the Great Lakes Basin ecosystem. Teachers and students in grades 5-9 from Great Lakes states and Canada and any student group that is actively involved in Great Lakes, watershed projects, or environmental issues are encouraged to attend.

<http://www.greatlakesed.org/2006glss.html>

Green Eggs and Sand Workshops – Delaware, Georgia, and Massachusetts

The Green Eggs and Sand team is offering three full weekend workshops along the Atlantic coast for spring of 2006. Participants will learn about a globally significant ecological phenomenon and take home the middle/high school-targeted curriculum package which is keyed to national standards and offers videos and activities.

- Savannah, Georgia, April 28-30, 2006; contact Dodie Sanders at sandersd@uga.edu
- Smyrna, Delaware, May 19-21, 2006; contact Gary Kreamer at gary.kreamer@state.de.us
- Sandwich, Massachusetts, June 10-11, 2006; contact Katy O'Connell at katy.oconnell@state.de.us

Guiding National Ocean Research Investment - Colorado

The National Science and Technology Council is holding a public workshop, April 18-20, 2006 in Denver, Colorado, to solicit input and guidance from the ocean science communities on the Ocean Research Priorities Plan called for in the Ocean Action Plan. In addition to the workshop, interested parties will have the opportunity to provide comments during a 45-day public comment period, scheduled to open mid-March, 2006. Check back to the web page often for more information.

http://ocean.ceq.gov/about/jsost_workshop/welcome.html

Invasive Species Coastal Science Institute – Maine

Bowdoin College will offer a weeklong Summer Institute for middle school teachers to help improve coastal and marine literacy with a focus on invasive species, June 25-30, 2006 in Brunswick, Maine. Interdisciplinary teams involving a science teacher and a teacher representing another discipline are encouraged to apply. The institute will introduce teachers to laboratory and field techniques that will help to identify, monitor, and trace the spread of introduced species. The program will be problem-oriented and designed for two-person teacher teams. Teachers will receive course packets, equipment, and software training that will help them implement invasive species monitoring and analysis in their own classrooms. Hurry – the deadline for application is March 3, 2006.

<http://academic.bowdoin.edu/csc/>

Learning Ocean Science through Ocean Exploration – North Carolina

Join fellow educators for this Ocean Exploration Professional Development - Learning Ocean Science through Ocean Exploration in Wilmington, North Carolina on April 22, 2006 for an introductory session, or May 20, 2006 for a follow-up session with the Ocean Exploration curriculum. Learn as you do inquiry- and standards-based activities tied directly to ocean expeditions. Materials will be provided which will enable your students to model ocean science exploration in your classroom. Registration is required and space is limited. A stipend and six renewal credits are available. The course is offered to teachers of grades 5-12. The deadline for registration is April 3, 2006.

Contact Jim Nesbit at jnesbit@ec.rr.com

National Marine Educators Association Conference – Call for Proposals

The theme of this year's National Marine Educators Association Conference, July 15-23, 2006, in Brooklyn, New York, is *A City of Islands!* The call for presentations is now available; select "presenters" from the toolbar on the left of the web page. The deadline for application is April 1, 2006. General conference registration forms will be posted soon. If you intend to submit an abstract for a presentation that involves the use of research, data, and technologies associated with coastal ocean observatories, please contact Eric Simms. With enough interest in these topics, he will work with the conference organizers to highlight these presentations in a thematic fashion.

<http://nysmea.org/con06/>

Contact Eric Simms at simms@marine.rutgers.edu

Ocean Observing Educator Workshop – New Hampshire

This free educator institute, Seasons in the Sea: Understanding Change in the Gulf of Maine Through Buoys, Boats, and Satellites, June 26-30, 2006 in Durham, New Hampshire, will help grade 7-12 classroom teachers link the ocean to their classroom. Learn how the ocean undergoes seasonal from regional to microscopic scales. Learn content, gain lab and sea research experience, and identify new classroom activities to translate ocean science to learners. All content provided through this workshop has been aligned with the National Science Education Standards and could easily be aligned with individual state standards. The deadline for application is April 7, 2006.

<http://www.cooa.unh.edu/workshop2006.jsp>

Oceans'06 MTS/IEEE-Boston Conference

The Oceans'06 MTS/IEEE-Boston Conference and Exhibition will be held September 18-21, 2006 in Boston Massachusetts. This comprehensive ocean engineering, science,

and technology conference and exhibition will emphasize the traditional core areas of marine science and technology development. Papers are requested on ocean observing, remote sensing, policy, education, and more; the deadline for abstract submission is March 31, 2006.

<http://www.oceans2006americas.org/>

Professional Grant Proposal Writing Workshop - Michigan

The Grant Institute's Grants 101: Professional Grant Proposal Writing Workshop will be held April 10-12, 2006 in Detroit, Michigan. The course is a detailed introduction to the process, structure, and skill of professional proposal writing. It can provide a thorough overview, introduction, and refresher at the same time. Check out the website for additional times and locations.

<http://www.thegrantinstitute.com>

Resource Management and Conservation Workshop – Panama

A Darwin Project conference and workshop, *Resource Management and Conservation in the Las Perlas Special Management Zone*, will be held March 29-31, 2006, in Panama City, Panama. This free meeting will include presentations on the scientific results of the 3-year Darwin Project aimed at assessing the biodiversity and conservation needs of the Las Perlas Archipelago in the Gulf of Panama, along with additional presentations from similar projects in Ecuador and Colombia, and issues on Marine Protected Areas.

Check the website for background information about the projects, documents produced, a photo gallery, and more. Contact Inez Campbell at campbeli@si.edu for more information about the workshop.

http://striweb.si.edu/darwin_initiative/

State of the Planet Conference

The Earth Institute at Columbia University will convene the fourth biennial State of the Planet Conference, *Is Sustainable Development Feasible?*, March 28-29 in New York, New York. The conference will include discussions and presentations which explore the fundamental requirements of science, economy, governance, and human behavior needed to achieve sustainable development.

<http://www.earth.columbia.edu/sop2006/about.html>

Teaching Science by Ocean Inquiry Summer Workshop - Maine

The School of Marine Sciences and the College of Education & Human Development at the University of Maine and the Center for Ocean Sciences Education Excellence-Ocean Systems are offering a summer workshop, July 17-21, 2006 in Walpole, Maine. The goals of the workshop are to help teachers develop inquiry-based units for teaching physical concepts using oceans and their climate-links as a vehicle; and to develop a network between teachers, scientists, and experts in education. The workshop is intended for high school and middle school teachers who teach physics, chemistry, physical science, and/or earth sciences.

<http://server.dmc.maine.edu/courses.html>

EDUCATIONAL RESOURCES

Beyond the Moon

James Greig McCully, author of *Beyond the Moon: A Conversational, Common Sense Guide to Understanding the Tides*, has written a comprehensive explanation of the tides

on earth that is both simple enough for students and solid enough for their professors. Through analogy and illustration, this book describes how the cyclical motion of the near solar system acts upon the earth's oceans, and how the hydraulics over the continental shelf and the geography of the coastline orchestrate this rhythm into the variety of tide patterns seen around the globe.

<http://www.worldscibooks.com/environsci/6015.html>

Biodiversity Information Center

The Convention on Biological Diversity offers this website to facilitate access to and exchange of information on biodiversity related publications, bibliographies, and other resources. There are currently over 3000 monographs, reports, and serials available from the website. In addition, there are links to a variety of glossaries, case studies, and information on biosafety.

<http://www.biodiv.org/doc/info-centre.shtml>

Biology Classroom Resources

The National Science Digital Library offers links to lessons and resources about biology from one convenient location. Learn about cells, slugs, whales and dolphins, turtles, biodiversity, and more. Find online references, images, and interactive games on evolution and the animal kingdom.

<http://www.nsf.gov/news/classroom/biology.jsp>

CLASS Data Library from NOAA

The Comprehensive Large Array-data Stewardship System (CLASS) is an electronic library of NOAA environmental data. This website provides capabilities for finding and obtaining those data. CLASS is NOAA's premiere on-line facility for the distribution of NOAA and US Department of Defense Polar-orbiting Operational Environmental Satellite (POES) data, NOAA's Geostationary Operational Environmental Satellite (GOES) and derived data. CLASS provides data free of charge.

<http://www.class.noaa.gov/nsaa/products/welcome>

Climate Change, Wildlife, and Wildlands: Toolkit for Teachers and Interpreters

The Climate Change, Wildlife, and Wildlands: Toolkit for Teachers and Interpreters was produced by the EPA in partnership with the National Park Service. Most of the Toolkit components can be downloaded from the website.

<http://yosemite.epa.gov/OAR/globalwarming.nsf/content/ResourceCenterPublicationsOutreachMaterialORWKit.html>

Education Discovery Classroom

Three new lesson plans have been added to NOAA's Education Discovery Classroom series: Ecological Forecasting/The Dead Zone; Marine Navigation/Do You Need a Map?; and Aerial Photography and Shoreline Mapping/Images of Katrina,. The National Ocean Service (NOS) Education Discovery Center is a collection of lesson plans developed in collaboration with NOS program offices. The 38 existing lesson plans cover 19 topical areas and emphasize hands-on activities using on-line data resources.

<http://oceanservice.noaa.gov/education/classroom/welcome.html>

Engineering Disasters: New Orleans

Hurricane Katrina devastated New Orleans, submerging it under a torrent of floodwater. The History Channel presents *Engineering Disasters: New Orleans*, a one-hour documentary investigating why the levees and water-pumping system failed in the wake

of the hurricane. Students will follow Geological Detectives as they sift through the rubble to uncover how 80% of the city was left underwater; expose how the levee system was a disaster in the making; and delve deep into the 100-year-old pump system to unearth why it failed and took weeks to drain the city. The program is appropriate for upper level high school students. The program first airs February 28, 2006.

<http://www.historychannel.com/modernmarvels/?page=home>

ENO-Environment Online

ENO-Environment Online is a free, international Internet-based school for teachers and students interested in environmental issues and global education, administrated by the city of Joensuu, Finland. Themes include: local community issues; climate change; ecological footprint; and traditional food. Approximately 250 new English-speaking schools will be selected to become members for the school year 2006 -2007. The deadline for application is March 31, 2006.

<http://eno.joensuu.fi/apply/>

Environmental Pathways – Youth Investigating Pollution Issues in Illinois

The Illinois EPA offers *Environmental Pathways – Youth Investigating Pollution Issues in Illinois*, a downloadable teacher's guide for grades 5-6. The guide meets the criteria of NAAEE's Environmental Education Materials: Guidelines for Excellence and is correlated with the Illinois Learning Standards. The packet is designed to develop critical thinking skills, encourage students to think constructively about environmental issues, and to make informed decisions about our natural resources.

<http://www.epa.state.il.us/kids/teachers/environmental-pathways/index.html>

Implementation and Management of Marine Protected Areas

The December 2005 issue of the journal *Conservation Biology* provides a special free-content section dedicated to implementation and management strategies for marine protected areas (MPA), with cases drawn from sites worldwide. The special section was assembled by the Society for Conservation Biology and the Pew Fellows Program in Marine Conservation based on a symposium on MPAs held at the 2003 SCB Annual Meeting in Duluth, Minnesota, USA. To access the articles, click on the link for the December 2005 issue (Volume 19), then scroll down to the special section.

<http://conbio.net/SCB/Publications/ConsBio/Search>

Indonesian Discovery Links from NSTA

The discovery of nearly 100 new species in Indonesia made worldwide headline news this month. The National Geographic News article offers news and photos on this latest discovery, while NSTA's SciLinks online teacher-approved Internet service identifies several grade-specific websites and resources to help you expand your lessons without spending hours searching the web. Note that the online SciLinks sites are normally available to NSTA members only, but are available for a short time for non-members to assist educators interested in bringing the news into the classroom.

- Grades K-4:
http://www.scilinks.org/retrieve_outside.asp?sl=638234471421103310661011
- Grades 5-8:
http://www.scilinks.org/retrieve_outside.asp?sl=638234471455103310661011
- Grades 9-12:
http://www.scilinks.org/retrieve_outside.asp?sl=638234471499103310661011

http://news.nationalgeographic.com/news/2006/02/0207_060207_new_species.html

Last Journey for the Leatherback?

This documentary about the plight of leatherback sea turtles, from the Sea Turtle Restoration Project, is available to teachers, libraries, and non-profit educational organizations at a discounted price, along with a free teacher's kit. It is appropriate for ages 12 and up. The DVD version is available in English and Spanish. VHS is also available. Download the teacher's kit at: <http://www.seaturtles.org/pdf/ACF36A.pdf>.
http://seaturtles.org/press_release2.cfm?pressID=220

Limnology and Oceanography

The National Centers for Coastal Ocean Science and the Office of Response and Restoration, in conjunction with the U.S. Environmental Protection Agency, funded a special issue of the peer-reviewed journal *Limnology and Oceanography* to advance the understanding of eutrophication in freshwater and marine ecosystems. The issue, available on-line, provides a valuable multidisciplinary synthesis of the current understanding of the causes and effects of excessive amounts of nitrogen and phosphorus entering lakes, rivers, and coastal waters. The articles also identify gaps in existing knowledge to help guide future research endeavors.

http://aslo.org/lo/toc/vol_51/issue_1_part_2/index.html

Marine Photobank

The Marine Photobank, a program of SeaWeb, is a free resource of ocean imagery that highlights pressing ocean issues and includes accompanying downloadable Photo Stories. The Marine Photobank was founded in response to a lack of readily available, high quality underwater and above water marine imagery. Images are available at no cost for non-commercial purposes as well as for media use. Some subjects covered are Marine Pollution and Trash, Fishing Methods, and Reefs in Peril/Coral Bleaching.

<http://www.marinephotobank.org/home.php>

Nautical Chart Data

NOAA's Office of Coast Survey now provides nautical chart data to The National Map, a U.S. Geological Survey Project with an application similar to Google Earth. Layered with data that can be integrated on multiple levels, The National Map ensures that key coast-to-coast geographic information is immediately available to industry and governments at all levels. This tool can be used for economic and community development, land and natural resource management, health care, safety services, defense, and emergency management. Depth areas, navigation routes, buoys, and harbor facilities, are now incorporated into The National Map.

<http://nationalmap.gov>

Planet H2O

Planet H2O, a two-part special from Thirteen/WNET New York, will premier on public television in April to mark Earth Day. The two episodes, *The Secret Life of Water* and *Water World*, focus on fresh water systems around the world and their impact on land, air, and living things. In addition, the website will offer a downloadable teachers' guide to accompany the program.

<http://www.thirteen.org/edonline/educators.html>

Project 3D-VIEW

Project 3D-VIEW (Virtual Interactive Environmental Worlds) combines NASA Earth science mission data and three types of 3D learning technologies in a curriculum-based program for student explorers using 3D-viewers and the Internet. The project is

designed primarily for Grades 5-6, and will create a virtual telepresence for students in each Earth's biosphere, lithosphere, hydrosphere, and atmosphere. Additionally, a module on global climate change introducing Earth systems may be used with more experienced students. The project is currently being piloted in 3 schools.

Contact Glen Schuster at info@3dview.org

PreK-8 Environmental Education Activity Guide

Project Learning Tree has released its PreK-8 Environmental Education Activity Guide. There were six main goals addressed with the comprehensive revision: improved reading connections; teacher support for differentiated instruction; assessment techniques; technology connections; content through updated issues, statistics, and facts; and the overall design. Two new activities include *The Global Climate* and *Invasive Species*.

http://www.plt.org/cms/pages/21_21_10.html

Scaling Weather – Northeast Snowfall and Tornadoes

NOAA has devised two enhanced scales for rating severe weather phenomena – northeast US snowfall impact, and an enhanced Fujita scale for tornadoes. NESIS, or the Northeast Snowfall Impact Scale, calculates the impact of a powerful snowstorm soon after it strikes, giving it a rank similar to that given to tornado strength. NESIS ranks reflect snowfall amounts and the population of affected East Coast areas, enabling scientists to quickly assess a snowstorm's impact, compare it with a past storm, and assign it one of five categories, ranging from Notable to Crippling and Extreme. The enhanced Fujita scale for tornadoes will continue to rate tornadoes from F0 to F5, but the range of wind speed in each category will now be more accurate and more variables will be taken into account, including building type, structure and trees. Ranging from the beginning of visible damage to complete destruction, the enhanced scale will consider eight degrees of damage for each damage indicator, details not factored into the original scale.

<http://www.ncdc.noaa.gov/oa/climate/research/snow-nesis/>

<http://www.spc.noaa.gov/efscale/>

Service-Learning: Education Beyond the Classroom

The EPA offers *Service-Learning: Education Beyond the Classroom*, describing seven environmental conservation projects that schools and community groups have conducted with elementary school-aged youth. The document includes additional projects for middle and high school youth, as well as a list of partnering national organizations.

http://epicenter.nationalserviceresources.org/index.taf?_function=abstract&Layout_0_uid1=33334

Steal This Picture

StealThisPicture.com is an open source photo archive by Michael L. Baird. You can use any picture for personal or non-commercial purpose, with attribution. Pictures include mostly birds, along with some marine mammals and more. While not yet extensive, check it out; you may find just the picture you're looking for.

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

Vailulu'u: Eel City and the Moat of Death

NOAA's Ocean Explorer has posted information from recent expeditions to the waters around American Samoa. Vailulu'u is an underwater volcano that lies approximately 20

miles east of Ta'u Island in American Samoa. The crevices of the volcano are occupied by thriving aggregations of cutthroat (synphobranchid) eels which had never before been studied in their natural habitat. Find a summary of this expedition, a slideshow of marine life around Vailulu'u, and a dramatic video of swarming underwater eels on the website.

<http://oceanexplorer.noaa.gov/explorations/05vailuluu/welcome.html>

Water and Energy Use in California

Water and Energy Use in California is a new middle school curriculum produced by the California Department of Water Resources and is available for a free download. There is a student book and teacher guide, along with additional information and links.

<http://www.owue.water.ca.gov/>

What Bird

This online bird guide for identifying birds of North America offers users a visual search engine to identify birds, the ability to create your own bird field guides, and consult with experts. You can browse by location, body shape, size, color, and field marks.

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

Windows to the Universe

Windows to the Universe is a website covering earth and space sciences for use by the general public. It includes documents, animations, data sets, and much more, exploring the historical and cultural ties between science, exploration, and the human experience. The site is written in three reading levels approximating elementary, middle school, and high school reading levels. Topics include the hydrosphere, climate and global change, and more.

www.windows.ucar.edu/cgi-bin/tour_def/earth/earth.html

INITIATIVES and JOURNALS

Little Cayman Research Centre

The Central Caribbean Marine Institute announces that the Caribbean's newest field station, the Little Cayman Research Centre, fringed by the coral reefs of Bloody Bay Marine Park, is open to researchers. Shallow lagoon, wall, and deep ocean habitats are all within swimming distance of the field station. The coral reefs of Little Cayman are isolated from continental and anthropogenic influences and water quality is excellent.

<http://www.reefresearch.org>

National Environmental Education Week

National Environmental Education Week, April 16-22, 2006, is coordinated by the National Environmental Education & Training Foundation (NEETF) in cooperation with hundreds of outstanding schools, environmental education organizations, education associations, state and federal agencies. Sign up now for this full week of educational preparedness for Earth Day.

<http://www.eeweek.org>

NSTA's Journals

The February issues of the National Science Teachers journals are now available online. Science Scope (grades 6 – 9) features Weather for its theme, while The Science Teacher (grades 9–12) focuses on Science and Literacy. Members can access all

articles online using their member number; nonmembers can read one free article from each journal every month. <http://www.nsta.org/journals>

World Water Day

The theme for this year's World Water Day, March 22, 2006, is *Water and Culture*. Check out the UNESCO website for examples of past celebrations and downloadable booklets to help celebrate water for life. Annenberg Media offers lessons about water in many of their free Video on Demand offerings, including:

- Water properties, The World of Chemistry, <http://learner.org/redirect/march/wchem67.html>
- Role of water in formation of landscapes and threats from pollution, Earth Revealed, <http://learner.org/redirect/march/earth68.html>
- Water is for Fighting Over, Human Geography: People, Places, and Change, <http://learner.org/redirect/march/hgeog69.html>
- Egypt: Gift of the Nile and Oil and Water, The Power of Place: Geography for the 21st Century, <http://learner.org/redirect/march/place70.html>

http://www.unesco.org/water/water_celebrations/index.shtml