



## National Marine Protected Areas Center Information Exchange for Marine Educators Archive of Educational Programs, Activities, and Websites

### **4-H Goes to Sea**

*4-H Goes to Sea* is a pilot curriculum project for 4-H youngsters aged 6 - 13. University of New Hampshire marine docent volunteers partner with 4-H leaders to help with the curriculum. There are six modules: open ocean, Gulf of Maine and watersheds, sandy beaches, rocky shores, salt marshes, and estuaries. Field experiences introduce the module and the leaders are asked to use the curriculum in interim meetings.

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### **AAAS Atlas of Population and the Environment**

The AAAS Atlas of Population and Environment provides maps, text, and graphics that quantify and illustrate the broader links between population dynamics and the environment. Analyses of individual topics bring together what is known about the ways in which people impact the Earth's environment. Lastly, the atlas contains six case studies that look at population-environment relationships in selected areas.

<http://atlas.aaas.org/> .

### **AAAS Launches Public Outreach Initiative Focused on Science Literacy**

*Science. It's Everywhere* is a public outreach initiative by the American Association for the Advancement of Science through the Partnership for Science Literacy. Designed to help parents and families play a more active role in their children's science education, it includes multi-media advertising along with a web site, in English and Spanish, to help motivate parents and families to take action in helping their children learn science.

<http://www.tryscience.org/parents/parent.html>

### **Adopt-A-Beach School Assembly Program for Los Angeles Watershed**

The Malibu Foundation offers a comprehensive environmental program designed to motivate teachers and K-12 students to care about beaches and oceans. The *Adopt-A-Beach School Assembly Program* demonstrates how beaches and oceans get dirty and provides hands-on opportunities to make a difference by recycling, reducing litter, and cleaning up the beaches.

<http://www.malibufoundation.org/tmffe004.htm>

### **After the Storm Television Special about Watersheds**

The Environmental Protection Agency and the Weather Channel co-produced *After the Storm*, a television special about watersheds. *After the Storm* shows the connection between weather and watersheds and the importance of watershed protection. Key scientists, water quality experts, and citizens involved in local and national watershed

protection efforts provide insight into the problems as well as solutions to today's water quality crisis.

[www.epa.gov/weatherchannel](http://www.epa.gov/weatherchannel) .

### **El Agua Es Importante**

*El Agua Es Importante: guía de maestro sobre recursos de agua, Volumen 3*, available free, includes a teacher's guide and posters created by the U.S. Geological Survey's Water Resources Education Initiative. Designed to help primary and middle school teachers satisfy National Science Education Standards and promote query-based, hands-on learning, topics include oceans and coastal hazards, watersheds, and more.  
<http://www.epa.gov/ncepihom/ordering.htm>

### **Aiming for Excellence: An Evaluation Handbook for Interpretive Services in California State Parks**

This handbook provides measures and measurement tools for assessing the quality of educational and interpretive services. It includes visitor evaluation, performance appraisals, evaluation forms and a bibliography. It is available for downloading from the website.

[http://www.parks.ca.gov/default.asp?page\\_id=21700](http://www.parks.ca.gov/default.asp?page_id=21700)

### **Alaska Department of Fish and Game Website**

The Alaska Department of Fish and Game's mission is to manage, protect, maintain, and improve the fish, game and aquatic plant resources of Alaska. The website contains many resources of interest to marine and coastal educators, including the Alaska Wildlife Curriculum, the Wildlife Notebook Series, and links to refuges, critical habitats, and sanctuaries.

[http://www.sf.adfg.state.ak.us/region2/ie/Teacher\\_Resources/html/teachres.stm](http://www.sf.adfg.state.ak.us/region2/ie/Teacher_Resources/html/teachres.stm)

### **Alaska Fisheries Science Center Cold Water Coral Video and Science Resource Guide On-Line**

Journey deep beneath the cold waters of the Aleutian Island archipelago from your computer and explore the rich abundance of life on the sea floor. The "Coral Gardens of the Aleutians" streaming video is set up for either Broadband or dial-up connection. Also available from Alaska Fisheries is a down-loadable Science Resource Guide to help students understand the work of NOAA Fisheries.

[http://www.afsc.noaa.gov/abl/MarFish/coral\\_gardens\\_video.htm](http://www.afsc.noaa.gov/abl/MarFish/coral_gardens_video.htm)

[http://www.afsc.noaa.gov/sep/ResGuide\\_TOC.htm](http://www.afsc.noaa.gov/sep/ResGuide_TOC.htm)

### **Alaska Islands & Ocean Visitor Center**

The Alaska Islands & Ocean Visitor Center, in Homer, Alaska, recently opened. This interpretive, educational, & research facility is a partnership of the Alaska Maritime National Wildlife Refuge and the Kachemak Bay Research Reserve, dedicated to the understanding and conservation of the marine environment. The facility offers visitors a window into the world of seabirds and other marine animals, as well as their islands and ocean habitats.

<http://www.islandsandocean.org/index.html> .

### **Alaska Small Press Catalogue**

Wizard Works publishes a variety of titles through the Alaska Small Press Catalogue for the US Fish and Wildlife Service, including *Arctic Nesting Shorebird Guide*, *Wetlands and Wildlife*, and *Teach About Geese*. In addition, they publish the Alaska Wildlife

Curricula for the Alaska Department of Fish & Game. This includes *Alaska's Ecology*, *Alaska's Forests & Wildlife*, *Alaska's Tundra & Wildlife*, *Wildlife for the Future*, and the *Alaska Ecology Cards*.

<http://www.xyz.net/~wizard/home.htm> .

### **Alternatives for Coastal Development: One Site, Three Scenarios**

This website, *Alternatives for Coastal Development: One Site, Three Scenarios*, illustrates three different development scenarios created for a residential area in coastal Georgia. The website includes maps and details of three different designs; comparisons of environmental, economic, and social indicators; three-dimensional views of each; detailed project methodology; and growth and development-related information.

<http://www.csc.noaa.gov/alternatives/> .

### **American Zoo and Aquarium Association National Awareness Campaign**

AZA's National Awareness Campaign will create a unified voice to position the collective member institutions in the minds and hearts of the public as safe and fun family experiences that are also meaningful. They aim to be perceived as trusted experts and a powerful collective voice on animal care, wildlife conservation, and public education about wildlife and wild habitats.

<http://www.aza.org/Publications/2004/03/March04NACTheme.pdf>

### **Applied Environmental Education and Communication**

Applied Environmental Education and Communication is an international peer-reviewed quarterly for both academics and practitioners. It features articles, a discussion and editorial section, and books and materials reviews. A special themed issue on environmental education and communication for biodiversity will be published in 2004.

<http://www.aeec.org/submission/submission.asp> .

### **Aquatic Invasive Species: An Educator's Information and Materials Guide**

This guide is a compilation of selected educational materials on aquatic invasive species, including curricula, posters and print materials, videos, books and compact discs, and web sites. The guide is available for down-loading at

[http://www.seagrant.umn.edu/exotics/ais\\_guide.pdf](http://www.seagrant.umn.edu/exotics/ais_guide.pdf) . But for more information, make sure you check out the rest of this extensive website, at

<http://www.seagrant.umn.edu/exotics/> .

### **Ask Dr. Global Change**

From the U.S. Global Change Research Information Office, "Dr. Global Change" offers a searchable collection of answers to questions about global warming, ozone depletion, greenhouse gases, and other issues related to climate change. Students can also submit questions of their own and explore related links. This reference service also assists researchers, educators, resource managers, and others in finding information relevant to global environmental change.

<http://gcrio.custhelp.com/cgi-bin/gcrio.cfg/php/enduser/home.php> .

### **Assessing and Monitoring Floatable Debris**

*Assessing and Monitoring Floatable Debris* is designed to provide guidance in assessing and monitoring floatable debris as directed by the BEACH Act of 2000. A copy of can be found on EPA's website.

<http://www.epa.gov/owow/oceans/debris/floatingdebris/>

### **At Sea – A Cruise and Virtual Expedition to the Oculina Banks**

Scientists and students explored deepwater coral reefs of the Oculina Banks, stretching 30 miles offshore from Ft. Pierce to Cape Canaveral, Florida. This remote MPA is designated a habitat of particular concern, and is a model for efforts underway to create new MPAs throughout southeast U.S. waters and the Gulf of Mexico. The team used a Remotely Operated Vehicle to study the current health of coral on the banks.

<http://oceanica.cofc.edu/Oculina2003/home.htm>

### **At Sea Newsletter**

The University of Delaware College of Marine Studies and the Delaware Sea Grant College Program have launched a new e-newsletter, At Sea. It provides information on the marine research, education, and outreach activities at the University of Delaware. The website also has links to educational resources.

<http://www.mis4.udel.edu/deptnews/deptnews.html?3501> .

### **Atlantic and Gulf Rapid Reef Assessment Program Report**

The Atlantic and Gulf Rapid Reef Assessment (AGRRA) Program is a joint program of the University of Miami's Rosenstiel School of Marine and Atmospheric Science and The Ocean Research and Education Foundation. A comprehensive survey of coral reefs in 20 areas of the Western Atlantic can be used to compare the current health of one reef to that of another, and to evaluate future changes.

<http://www.coral.noaa.gov/agra/index.html>

### **Atlas of Extratropical Storm Tracks**

From the NASA Goddard Institute for Space Studies comes information about midlatitude storm systems, including maps of storm frequency and intensity as well as plots of individual storm paths. Maps are available as monthly and seasonal means for the years 1961 through 1998 in either global or hemispheric projections.

<http://www.giss.nasa.gov/data/stormtracks/>

### **Atlas of the Biosphere**

The Center for Sustainability and the Global Environment's *Atlas of the Biosphere* contains numerous maps documenting environmental phenomena across the globe, such as water resources, ecosystems, land use patterns, and human impact, at a variety of scales. The Atlas also contains the data sets that were used to generate these different thematic maps.

<http://atlas.aos.wisc.edu/maps.php>

### **Atlas of Wetlands in the St. Lawrence Valley**

The *Conservation Atlas of Wetlands in the St. Lawrence Valley* from Environment Canada, an interactive GIS mapping site, pinpoints the location of some 20,000 wetlands. It provides definitions of the various wetlands and their roles, statistical and descriptive data for specific areas, and conservation options. Users can create their own maps from the original database.

<http://lavoieverte.qc.ec.gc.ca/faune/AtlasTerresHumides/AtlasTerresHumides.html>

### **Audubon Lesson Plans On-Line**

Wild Republic's Learning Adventure features lesson plans about nature, animals and their habitat; this year's focus is on birds. Educators at Audubon provided the necessary content for the 2003-2004 lesson plans, including Puffins, upwelling, coastal food webs,

and more. Each unit is designed to enrich students' knowledge and understanding of birds, their characteristics and habitats.

<http://www.wildrepublic.com/lessonplans/2003/index.html> .

### **Avibase – The World Bird Database**

Avibase is an extensive database information system about birds of the world, containing over 1.4 million records about 10,000 species and 22,000 subspecies of birds, including distribution information, taxonomy, conservation status, and more. This site is hosted by Bird Studies Canada, an affiliate of Birdlife International.

<http://www.bsc-eoc.org/avibase/avibase.jsp> .

### **Back to the Sea of Cortez: Sailing with the Spirits of John Steinbeck and Ed Ricketts**

A team of scientists will embark on a 73-foot fishing boat to retrace the historic expedition that John Steinbeck and Edward F. "Doc" Ricketts made to explore the Sea of Cortez in 1940. Their journey was immortalized in a book they wrote together, *The Log from the Sea of Cortez*. A science writer will travel with the expedition and post a daily log of the journey online. Students and teachers in Baja California will join the expedition for different days of studying life in the tide pools.

[www.seaofcortez.org](http://www.seaofcortez.org) and [www.mardecortez.org](http://www.mardecortez.org) .

### **Best Practices in Boating, Fishing, and Aquatic Stewardship Education Tools**

The Recreational Boating and Fishing Foundation developed Best Practices in Boating, Fishing, and Aquatic Stewardship Education, as well as accompanying tools to facilitate implementation. The document includes guidelines in program development, research, and evaluation and is supported by 11 papers on topics ranging from effective minority outreach to program evaluation.

<http://www.rbff.org/educational/bestpractices.cfm> .

### **Big Blue Bus from Fisheries and Oceans Canada**

The Big Blue Bus is Fisheries and Oceans Canada's Kids Corner with all kinds of activities, contests, and facts. This site has features such as the Water Wizards Club, the Creature Feature, Small Fry Club, a monthly contest, vocabulary, and much more. Among the many offerings, kids can learn about clean water sources, climate change, invasive species, and marine protected areas.

[http://www.dfo-mpo.gc.ca/canwaters-eauxcan/bbb-lgb/index\\_e.asp](http://www.dfo-mpo.gc.ca/canwaters-eauxcan/bbb-lgb/index_e.asp) .

### **Biodiversity Guide for Developing Countries**

SciDev.Net is an organization devoted to providing news and promoting debate on science and technology issues relevant to the needs of developing countries. The online guide to the biodiversity challenges facing developing countries looks at the issues surrounding the need to protect global biodiversity in developing countries and the need to promote social and economic growth.

[www.scidev.net/biodiversity](http://www.scidev.net/biodiversity)

### **BirdLife International Database**

You can find full accounts of all globally threatened birds on this web database. The accounts include a distribution map and an illustration of each bird. There is a concise account and extended report which gives all of the data held in the BirdLife World Bird Database.

[http://www.birdlife.org/datazone/search/species\\_search.html](http://www.birdlife.org/datazone/search/species_search.html) .

### **Boston Harbor Islands Curriculum**

The Boston Harbor Islands, part of the National Park System, include 34 islands that lie within Boston Harbor. The national park area extends seaward 11 miles from downtown Boston. The landmass of the Boston Harbor Islands is between 1,600 - 3,100 acres, depending on the tides. In addition to maps and visitor information, the website includes downloadable curriculum for teachers and on-line quizzes for students.

<http://www.bostonislands.org/learn/index.html> .

### **California Center for Ocean Science Excellence in Education (CA COSEE)**

CA COSEE is dedicated to creating environments in which collaborations among ocean scientists and K-12 educators flourish, with the goal of enhancing the general public's understanding and appreciation of the ocean. The Center marshals the resources of UC San Diego's Scripps Institution of Oceanography, Marine Advanced Technology Education (MATE) Center at the Monterey Peninsula College, the Marine Activities Resources and Education (MARE) Program at UC Berkeley's Lawrence Hall of Science, and California Sea Grant.

<http://www.cacosee.net/index.html> .

### **California Roots & Shoots Festival**

The daylong event is designed to increase young people's awareness of their role as the Earth's caretakers. In addition to student exhibits, the program will include live animals, multicultural music and dance, international children's art, craft activities, storytelling and displays by local conservation groups such as TreePeople and Heal the Bay.

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

### **The Case of the Wacky Water Cycle**

The NASA SCience Files™ series is a distance learning initiative to integrate and enhance the teaching of mathematics, science, and technology in grades 3-5. Each episode includes hands-on classroom and home activities, virtual field trips, subject matter experts, a video broadcast, educator's guide and web-based activities and materials. *The Case of the Wacky Water Cycle* began airing October, 2004.

<http://scifiles.larc.nasa.gov/>

### **Center for Improved Engineering and Science Education (CIESE)**

CIESE at the Stevens Institute of Technology sponsors and designs interdisciplinary projects that teachers throughout the world can use to enhance their curriculum and learn problem-solving through use of the Internet. The *Virtual Gulf Stream Voyage* is a allows students to access real time ocean & atmospheric data and historical primary source materials to explore real world problems, and *The Stowaway Adventure-- Adventures on the High Seas*, offers Language Arts and Social Studies activities.

<http://www.k12science.org/currichome.html> .

### **Census of Marine Life**

The Census of Marine Life assesses the diversity, distribution, and abundance of ocean life and to explain how it changes over time. The different elements include: Initial Field Projects; History of Marine Animal Populations; Ocean Biogeographic Information System; Future of Marine Animal Populations; Scientific Committee on Oceanic Research Working Group; and Known, Unknown and Unknowable.

[www.coml.org](http://www.coml.org)

### **Center for Alaskan Coastal Studies**

The Center for Alaskan Coastal Studies (CACs), based in Homer, Alaska, provides spring school field trip programs during April and May to diverse rocky beaches with extreme tides that range from +24 feet to -5 feet, a salt marsh, bog, lake, coastal forest trail system and sites of archaeological and geological interest. CACS has coastal education curriculum units for grades 4-12, along with many other educational programs. <http://www.akcoastalstudies.org>

### **City of Portland Wetlands Education**

The City of Portland (Oregon) Environmental Services, in partnership with City of Portland Parks & Recreation, has been working for two years with all the 6th graders in the David Douglas School District to carry out wetlands investigations and restoration planting. They have two mandatory field trips, and provide several optional classroom programs. All of the programs are free for the students. Pre-field trip classroom options include a *Riparian Restoration* program and *Water Quality Testing in the Classroom*. [http://www.cleanrivers-pdx.org/clean\\_rivers/index.htm](http://www.cleanrivers-pdx.org/clean_rivers/index.htm) .

### **Classroom Earth**

The National Environmental Education & Training Foundation (NEETF) launched Classroom Earth, a free website to help educators find the best and most usable environmental education programs available. It is a collection of environmental education programs and resources for K-12 teachers, parents, and students. This new site will help educators, after-school providers, and home-schooling parents to get started or improve their skills in environmental education. [www.ClassroomEarth.org](http://www.ClassroomEarth.org) .

### **Classroom Exploration of the Oceans: An Online Virtual Teacher Conference**

The National Geographic Society and NOAA's Office of Ocean Exploration (OE) hosted a 9-part virtual teacher workshop series using ocean exploration to enhance learning in the classroom. Teachers were provided with lesson plans and information, with workshop information linking to Geographic's Ocean Atlas Teacher's Guide, OE's lesson plans, and the Oceans Scope and Sequence Matrix for K-12 Teachers. <http://coexploration.org/ceo>

### **Clean Beaches Blue Wave Campaign**

The Clean Beaches Council is a non-profit organization devoted to sustaining America's beaches. Their flagship program is the *Blue Wave Campaign*—America's first environmental certification program for beaches. The goal of Blue Wave is to promote public awareness and voluntary participation in beach sustainability, including water quality, habitat conservation, public information and education. <http://www.cleanbeaches.org/bluewave/bluewave.cfm>

### **Clearing Magazine**

The quarterly resource magazine, *Clearing: Environmental Education Resources for Teachers*, provides the latest news, information, perspectives, teaching ideas, and resources available to teachers of all grade levels and all subject areas with environmental and natural resources education. Published since 1978, Clearing has published over 100 issues. <http://www.clearingmagazine.org/>

### **Climate, Community and Biodiversity Project Design Standards**

The downloadable draft of the Climate, Community & Biodiversity (CCB) Project Design Standards is designed to identify proposed projects likely to deliver measurable climate, biodiversity and community benefits. The standards are primarily designed for land-use carbon markets but can also apply for sustainable development and biodiversity projects more broadly.

[www.climate-standards.org](http://www.climate-standards.org)

[http://www.climate-standards.org/images/pdf/ccb\\_project\\_design\\_standards\\_v1.0.pdf](http://www.climate-standards.org/images/pdf/ccb_project_design_standards_v1.0.pdf)

### **Coastal and Estuarine Science News**

The Estuarine Research Federation offers Coastal and Estuarine Science News, funded by the Ocean and Coastal Protection Division of the EPA, to strengthen the link between science and management in coastal systems. Back issues are posted at

<http://www.erf.org/cesn/> . You can subscribe to the mailing at

<http://www.erf.org/user-cgi/cesnlist.pl> .

### **Coastal Storm Impacts**

The NOAA Ocean Service is working with the Weather Channel on a 30-minute show on the impacts of coastal storms on communities and some of the tools/capabilities that are available to help them. The key issues the show will address include ways that the public can be better informed about coastal storms.

[keelin.kuipers@noaa.gov](mailto:keelin.kuipers@noaa.gov)

### **Coastal Wildlife – Feeling the Squeeze**

University College in Chichester, England hosted a video conference on October 1, 2003, with presentations on climate change, coastal habitats and coastal defense, a field visit, and workshop sessions.

<http://www.excitingscience.com/pages/924510/>

### **Coastwatching by Computer: Water Quality and the System-Wide Monitoring Program (SWMP)**

The NERR System-wide Monitoring Program tracks short-term variability and long-term changes in estuarine waters to understand how human activities and natural events can change ecosystems. It provides long-term data on water quality and weather at frequent time intervals. There are lesson plans giving step-by-step instructions for accessing and downloading the data and a graphing exercise to help use the data in your classroom.

<http://www.nerrs.noaa.gov/Monitoring/welcome.html> .

<http://www.waquoitbayreserve.org/education.htm#lp> .

### **Cold-Water Coral Reefs**

This report by the United Nations Environment Program World Conservation Monitoring Center (UNEP-WCMC) examines the biology, ecology, distribution, and conservation of cold-water coral reefs. Far less known than the coral reefs in warm, shallow waters of the tropics and subtropics, these cold-water reefs are found throughout the world's seas: in fjords, along the edge of the continental shelf, and around offshore submarine banks and seamounts.

<http://www.ourplanet.com/wcmc/pdfs/Cold-waterCoralReefs.pdf> .

### **The C.O.O.L. Classroom Website**

The *Coastal Ocean Observation Laboratory Classroom*, from New Jersey's Jacques

Cousteau National Estuarine Research Reserve, is a series of Internet-based instructional modules aimed at middle and high school students, linking classrooms with active oceanographic research investigations. The website includes movie clips, downloadable worksheets and teaching guides, career cards, a glossary, and more.

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

### **Copper River Delta Shorebird Festival**

The Copper River Delta Shorebird Festival hosts activities, workshops, and community events. The Delta is part of the Western Hemisphere Shorebird Reserve Network and its Shorebird Festival is one of Alaska's premier birding events, with millions of shorebirds and over 30 species of migratory shorebirds resting and feeding there during spring migration. The Delta is the largest continuous wetland on the Pacific coast of North America.

<http://www.cordovachamber.com/index.cfm?showsecondarylinks=true&showcontentlinkID=352&primarylinkID=352> .

### **CORAL Discussion Board**

The Coral Reef Alliance announces the CORAL Discussion Board to stimulate dialogue on a variety of issues related to coral conservation. The discussion board will allow individuals, organizations, businesses and government agencies within the fields of marine conservation, park management, science, education, and tourism to seek technical advice and share lessons learned with others in a global network of communication.

<http://www.coralreefalliance.org/parks/cdb> .

### **Coral Park Buddy Program**

As part of Dive In To Earth Day 2004, divers in the U.S. are being asked to team up with dive buddies and park managers around the world in a campaign to support coral reef protected areas. Participating dive operators, clubs, and associations will organize fundraising events leading up to Earth Day (April 22), and the proceeds will pay for conservation projects at some of the world's most spectacular dive sites.

<http://www.coralreefalliance.org/divein/parkbuddy/> .

### **Coral Reef Conservation Program Web Site**

The NOAA Coral Reef Conservation Program (CRCP) redesigned and updated its program website. The site contains several key sections including: News and Highlights, Funding Opportunities, and Outreach and Education, as well as background information about the program, subscription information for the program newsletter and contacts for media inquiries. This is a companion site to NOAA's Coral Reef Information System.

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

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

### **Coral Reef Education and Outreach Library**

This international library is an online catalogue of tools and publications that can be used to increase awareness about coral reefs. Each entry in the library contains a brief description of the publication and information on how to obtain it. Some publications are available to download directly from the library. In the library you will find descriptions of: brochures, books, posters, fact sheets, materials from marine parks, teacher's guides, videos and other coral reef educational materials.

<http://library.coralreef.org>

<http://fmp.coralreef.org/library/home.htm>

<http://www.coralreef.org/tools/teachers.html>

### **Coral Reef Film Materials**

The Great Barrier Reef Marine Park Authority (GBRMPA) worked with Disney Pixar® To develop a CD of educational materials related to the film *Finding Nemo*. The CD also contains "Fishy Facts" – short videos presenting basic life history information using clips from the movie. The GBRMPA ReefEd website also has many curricular materials, set to Australian educational standards. The MacGillivray Freeman Films'® *Coral Reef Adventure* Teacher's Guide has other downloadable film-related educational materials.

<http://www.FindingNemo.com.au>

<http://www.coralfilm.com/edu.html>

[www.reefed.edu.au](http://www.reefed.edu.au)

### **Coral Reef Report**

This new online magazine has been launched to "celebrate the power and mystery of the planet's coral reefs." The Coral Reef Report features articles, personal stories, and audio interviews with scientists and others. The site also features a rotating photo gallery.

<http://coralreefreport.info> .

### **Coral Reefs: Canaries of the Sea DVD**

The National Wildlife Foundation's Climate Change and Wildlife Program, with funding support from NOAA, has produced a multi-media DVD entitled *Coral Reefs: Canaries of the Sea*, narrated by Jack Hanna. The DVD will help raise awareness of the effects of global climate change and other serious environmental problems on coral reefs around the world. It also provides ideas about what people can do to help protect reefs.

[glick@nwf.org](mailto:glick@nwf.org)

### **COSEE-West: A Center for Ocean Science Education Excellence**

COSEE-West is a collaboration between the Universities of California Los Angeles and Southern California. COSEE-West is dedicated to three goals: Educating the public about oceans and their impact on their daily life and increasing general environmental awareness; using ocean science as an incentive to increase general science literacy; and increasing the number of students that choose science and ocean science careers.

<http://www.usc.edu/org/cosee-west> .

### **Creating Coastal Stewardship Through Science Curriculum Guides**

The Point Reyes National Seashore website hosts a wide range of educational materials. Of special note are seven curricular guides created by teachers for teachers to provide middle school students with the opportunity to observe natural processes at Point Reyes National Seashore, to encourage a greater interest in science and environmental stewardship. Pacific gray whales, northern elephant seals, and the San Andreas Fault, are highlighted.

[http://www.nps.gov/pore/educate\\_curriculum.htm](http://www.nps.gov/pore/educate_curriculum.htm) .

### **Crittercam: See What the Animals See**

What do marine animals do when we're not around? National Geographic's Crittercam allows researchers to follow wildlife through the use of advanced monitoring equipment attached to the animal. The Crittercam website has maps, lesson plans, and activities.

<http://www.nationalgeographic.com/crittercam/index.html> .

### **Cruises and Virtual Expeditions to the Charleston Bump**

From August 2-13, 2003 scientists explored the Charleston Bump, a complex bottom feature of great topographic relief located southeast of Charleston, South Carolina. The rocky, erosion-resistant rise impedes the flow of the Gulf Stream, deflecting it offshore and creating a zone of gyrating eddies and swift, narrow currents. Background material, daily logs, photodocumentaries, a video gallery, and lesson plans are available.

<http://oceanica.cofc.edu/home.htm>

### **DataStreme Ocean Website**

*DataStreme Ocean* is a semester-long distance-learning course for precollege teacher enhancement that is partially delivered via the Internet. It is an initiative of the American Meteorological Society/National Oceanic and Atmospheric Administration Cooperative Program for Earth System Education. The course website offers a comprehensive sampling of ocean information especially suitable for learning in an Earth system perspective.

[www.ametsoc.org/amsedu/DS-Ocean/home.html](http://www.ametsoc.org/amsedu/DS-Ocean/home.html) .

### **Deep-Sea Creatures Quiz from National Geographic**

Dive to the depths to test your knowledge of some of the Earth's most unusual creatures. Try this quiz and read the accompanying background information. And while you're on the website, check out the other games including weather wizard, frogs, and much more in the archives.

<http://magma.nationalgeographic.com/ngexplorer/0309/games/game.cgi> .

### **Digital Library of Earth System Education**

The Digital Library of Earth System Education is creating an online library of educational resources and services to support Earth system science education at all levels in both formal and informal settings. A quick search on "marine" came up with 152 entries.

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

### **Discovery Kits from NOAA's National Ocean Service**

NOAA's National Ocean Service (NOS) Discovery Kits describe the scientific principles underlying NOS's major programs. Each kit includes an on-line tutorial, a roadmap to resources, and a set of lesson plans. Each module of the kit is designed to work together, but comprehensive enough to be used on its own. Currently available kits include *Corals*, *Tides & Water Levels*, and *Geodesy/Global Positioning*. *Estuaries*, *Non-point Source Pollution*, and *Marine Archaeology* are in development.

<http://oceanservice.noaa.gov/education> .

### **Dive In To Earth Day**

Organize a beach or underwater cleanup, host an educational slideshow or film, conduct a fish survey, or raise funds for a marine protected area, by "Diving In" this Earth Day. 2003's event garnered 270 activities, helping protect coral reefs and aquatic ecosystems in 58 countries and territories around the world.

<http://www.coralreefalliance.org/divein/> .

### **The Dune Book**

North Carolina Sea Grant offers a comprehensive book on sand dunes. This publication describes the benefits of dunes and dune vegetation, as well as the best dune management practices along developed shorelines where people, buildings and roads are already in place. It also describes how to select and plant the best dune grasses for

the North Carolina coast and provides tips and colorful illustrations on the most common dune species.

[http://www.vims.edu/bridge/index\\_geology.html](http://www.vims.edu/bridge/index_geology.html) .

### **EarthCare**

This resource features online stories about conservation, earth and ocean stewardship, ecosystems, and more. It showcases the Earth & Sky radio spots, along with links for more information.

<http://www.earthsky.org/shows/earthcare> .

### **Economic Values of the World's Wetlands**

This report highlights the high economic value of functioning wetlands. Seventy billion U.S dollars worth of goods and services from freshwater resources could be at risk annually if governments fail to manage their wetlands sustainably.

<http://www.panda.org/downloads/freshwater/wetlandsbrochurefinal.pdf>

### **Ecoventures: Focus on the Gulf**

EcoVentures: Focus on the Gulf is a multimedia CD designed to help middle school students learn about the Gulf of Mexico's aquatic environment and the issues associated with protecting and managing aquatic resources. Students enter the world of a fictional National Park to explore a variety of ecosystems and develop a management plan for the park. There are on-line activities, expert consultants, and a video encyclopedia.

<http://eea.freac.fsu.edu> .

### **EDGES: Using GIS to Experience Sanctuaries**

Channel Islands, Florida Keys, Gray's Reef, and Stellwagen Bank National Marine Sanctuaries have teamed up to utilize real scientific data in educational materials for teachers and students to explore America's special ocean areas. Exploring Data using Geographic Information Systems to Experience Sanctuaries (EDGES) lessons include underwater treasures, submerged lands, and monitoring from afar.

Contact [Sanctuary.Education@noaa.gov](mailto:Sanctuary.Education@noaa.gov) .

### **Edmonds Discovery Programs**

This website contains information about marine life and local Puget Sound ecosystems, and provides downloadable curriculum. The site features a marine life guide and a Beach Etiquette Pledge.

[http://www.ci.edmonds.wa.us/Discovery\\_Programs%20Website/index.html](http://www.ci.edmonds.wa.us/Discovery_Programs%20Website/index.html)

### **Education for a Sustainable and Secure Future Recommendations Online**

The final report of the Council for Science and the Environment for recommendations for educational reform for the U.S. can be read online. The recommendations address topics such as sustainability and security curricula for K-12 and undergraduates, community education, and planetary health.

<http://www.NCSEonline.org/NCSEconference/2003conference/>

### **EETAP Resource Library**

The EETAP Resource Library, now moved to EE-Link, makes environmental education resources more accessible. A major component of the Library is Info-Sheets, 1-2 page descriptions that summarize a specific EE topic and identify resources for additional reading.

<http://eelink.net/eetapresourcelibrary.html> .

### **E-Field Trips on Invasive Species, Alaskan Coast Invertebrates, and Shorebirds**

During April 2004, the National Wildlife Refuge System is offering the eFieldTrip titled, *Invasive Species: America's Least Wanted!*, geared toward 4-6th grade students.

Students will have the opportunity to learn about invasive species and why they are a menace. The eFieldTrip has four interactive components allowing students to complete the program at their own pace. There is no cost for schools or students to participate. Details about other field trips will be posted soon.

[http://www.efieldtrips.org/Schedules/schedule\\_0404.cfm](http://www.efieldtrips.org/Schedules/schedule_0404.cfm) .

### **Energy for Keeps – Electricity From Renewable Energy**

Energy for Keeps is a comprehensive renewable energy publication for middle and high school education that covers the history, availability, impacts, technologies, and management of the resources that are used to generate electricity. Activities have been correlated to National Science Standards. It is available as a free download from the producers, Educators for the Environment.

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

### **Environmental Education Capacity Building Publications Survey**

The National Environmental Education Advancement Project (NEEAP), funded through Environmental Education and Training Partnership (EETAP), has an online survey that seeks to document the value and use of various EE publications by those involved in EE capacity building efforts at the national, state and local levels. Your time and advice is greatly appreciated.

<http://www.uwsp.edu/cnr/neeap/publications/pubsurvey.htm> .

### **Environmental Education In Georgia Website**

The EEinGEORGIA.org website provides: EE lesson plans based on Georgia's Quality Core Curriculum standards, a searchable directory of Georgia's EE providers and the resources they offer, a statewide calendar of EE events, EE news, and easy-to-access facts about Georgia's environment. It also hosts an interactive GIS map of EE providers in the state.

<http://eeinGeorgia.org/net/go/default.aspx?siteid=4863>

### **Environmental Education Program, Lee County**

Lee County, Florida, stretches from the shell-strewn beaches of Sanibel Island to the deep green of Six Mile Cypress Slough. The long history of the Environmental Education Program includes national recognition and awards from the National Science Teachers Association as one of the ten best Environmental Education programs in the US.

Components of the program include the Aquatic Systems/ Mosquito Control program, Estuary Animals and Mudflats field trip, and Six Mile Cypress Slough wet field trip.

[www.lee.k12.fl.us/dept/ee/](http://www.lee.k12.fl.us/dept/ee/) .

### **Environmental Education in New Zealand Schools**

A four-volume report highlighting research on environmental education practice provides lessons for school-based development of New Zealand curriculum for programs in special focus areas, and is meant to serve as a resource for schools who want to develop their own environmental education programs. The report, Environmental Education in New Zealand Schools: Research into Current Practice and Future Possibilities, is from the New Zealand Council for Educational Research and Waikato University.

[www.minedu.govt.nz/goto/eereports](http://www.minedu.govt.nz/goto/eereports) .

### **Environmental Inquiry from Cornell University**

Environmental Inquiry is a website and curriculum series developed at Cornell University to help students conduct environmental science research and participate in communities of fellow student scientists. Students learn specific research protocols and then conduct interactive research projects. The four-part Cornell Scientific Inquiry Series includes Watershed Dynamics, Assessing Toxic Risk, Invasion Ecology, and Decay and Renewal.

<http://www.dnr.cornell.edu/ext/Ext/NATURAL%20RESOURCES%20PUBLICATIONS.pdf>  
<http://ei.cornell.edu/> .

### **Environmental Science Teacher Exchange**

The Environmental Literacy Council's website teacher exchange allows educators to share labs, activities, and ideas with colleagues online. The topics are drawn from the College Board's suggested labs and field investigations for the AP environmental science course. There are lesson plans, classroom curricula, and an AP Environmental Science course outline. Find the marine-oriented offerings under *Teaching Resources*.

<http://www.enviroliteracy.org/category.php/17.html>

### **Environmental Science: Understanding Our Changing Earth Curriculum – Request for Pilot Teachers**

The American Geological Institute seeks up to 12 experienced science teachers in grades 9 through 12 to pilot test their comprehensive *Environmental Science: Understanding Our Changing Earth* curriculum in the fall semester of the 2004-2005 school year. The draft outline of curriculum and chapter headings are on the website and include watersheds and coastal processes.

<http://www.agiweb.org/education/hses/pilottest/index.html> .

### **EPA Water Quality Booklet**

The kids' water quality booklet, *What's Up with our Nation's Waters?* (EPA 841-F-02-002), is ready for distribution. Order individual copies from NSCEP at 1-800-490-9198 or request larger quantities by email at [ncepiwo@one.net](mailto:ncepiwo@one.net). The website highlights earlier versions.

<http://www.epa.gov/owow/monitoring/nationswaters/>

### **ESRI Map Book Offer**

ESRI, a GIS software company, offers copies of the ESRI Map Book Volumes 16 and 17 for the cost of shipping only, \$3.00 per book. Volume 16, *Geography—Creating Communities*, reproduces color digital maps produced in 2000, including images of seafloor topography and geologic analysis of Mars and Venus. Volume 17, *Geography and GIS--Sustaining Our World* features stories from more than 20 disciplines.

[bmanion@esri.com](mailto:bmanion@esri.com)

### **Essential Science for Teachers from the Annenberg/CPB Channel**

*Life Science*, premiering March 3rd on the Annenberg/CPB Channel, is the first in a three-part course series *Essential Science for Teachers*. These courses help K-6 teachers understand science concepts needed to teach a standards-based curricula. Real-world examples, demonstrations, animations, still graphics, and interviews with scientists enrich content segments. Upcoming modules includes *Variation, Adaptation, and Natural Selection; Material Cycles in Ecosystems*; and others.

<http://www.learner.org/redirect/february/lifescience1.html> .

### **Estuary Live: 2004**

National Estuaries Day is a Coast Week celebration to promote the importance of estuaries and the need to protect them. This year's program will include field trips to seven estuaries: Puget Sound, Slough Slough, Weeks Bay, Rachel Carson Reserve, Great Bay, Peconic Estuary, and Waquoit Bay. Visit the website for the education topics and standards; additional information and teaching materials will be posted soon.

[www.estuaries.gov](http://www.estuaries.gov) .

### **Estuary Live! 2003**

National Estuaries Day, an interagency campaign to promote the value of estuaries and the need to protect them, was celebrated September 27, 2003. The feature event for National Estuaries Day is *EstuaryLive*, an interactive Internet journey through estuaries for students of all ages. Naturalists and students tour different estuaries, and web participants interact with the tour guides by emailing questions during the field trips.

[www.estuaries.gov](http://www.estuaries.gov) and <http://www.estuarylive.org/>

### **EurekaAlert! Marine Science Portal**

The American Association for the Advancement of Science (AAAS) has an online news service called EurekaAlert! The online Marine Science Portal includes a calendar of events, links to marine science resources, press releases, and more. It offers marine science information from universities, research institutes, and other organizations engaged in all aspects of marine science research.

<http://www.eurekaalert.org/marinescience/> .

### **Exploring Climate Change Impacts Curriculum Guide**

The Union of Concerned Scientists has produced a *Global Warming: Early Warning Signs* map and teaching materials geared towards students and teachers in grades 9-12, exploring the local and regional consequences of global climate change.. Individual exercises are adaptable to different grade levels and engage students in an exploration of the impacts of global climate change on ecosystems and natural resources.

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

### **Extreme 2004: Expedition To The Deep Frontier**

University of Delaware marine scientists will lead *Extreme 2004: Expedition to the Deep Frontier*, from November 30-December 20, 2004, a National Science Foundation expedition to hydrothermal vents in the Pacific Ocean. Middle- and high-school classrooms are invited to join via a virtual field trip. The University of Delaware will offer participating teachers free classroom materials about the deep sea, including student resource guides, curricula, a video, and more.

<http://www.ocean.udel.edu/expeditions> .

### **Extreme 2003: To the Depths of Discovery**

This website from Delaware Sea Grant highlights an expedition from November 29 - December 21, 2003. Expanded curricula have been developed for both middle and high school, and a new evaluation is in place.

<http://www.ocean.udel.edu/extreme2003>

### **Farming the Seas**

Habitat Media, the California-based non-profit media production house, creators of *Empty Oceans, Empty Nets*, is offering *Farming the Seas* to marine and environmental educators, zoos and aquariums for screening at upcoming events during the summer and fall of 2004. *Farming the Seas* explores what's at stake as the aquaculture industry spreads across the globe. The film highlights ground-breaking efforts by scientists, communities and industry to develop viable, sustainable operations.

[www.habitatmedia.org](http://www.habitatmedia.org) .

[rivkahbeth@habitatmedia.org](mailto:rivkahbeth@habitatmedia.org) .

### **Federal Education Digital Resources Library**

The Federal Education Digital Resources Library (FEDRL) features a collection of free science and mathematics education resources. The site provides descriptions of a range of online materials that were developed with U.S. Department of Education or National Science Foundation funding. These materials include lesson plans, magazine articles, student resources, and materials for teachers' professional development.

<http://encdl.org/search/simple/0.5046..00.shtm> .

### **Federal Resources for Educational Excellence (FREE) Website**

The FREE website makes it easy to find teaching & learning resources from more than 40 federal organizations. A new search produces more precise results. Descriptions of resources are available throughout the site. New topic pages highlight information about literature, biology, geography, U.S. government, and more.

<http://www.ed.gov/free/index.html>

### **Federal Science Website**

A federal website makes scientific information gathered by different agencies accessible to the public. The site is an offshoot of Firstgov.gov, housing information under one roof from the multiple agencies that perform scientific research.

[www.science.gov](http://www.science.gov)

### **FishBase**

FishBase, developed by the WorldFish Center in collaboration with the UN Food and Agriculture Organization (FAO), is a global source for research on living aquatic resources. The site contains information on 28,400 fish species, as well as 35,900 pictures and 32,800 references. Check out the quiz section.

<http://www.fishbase.org/home.htm> .

### **Fish Research of Interest to Students**

Use the article at this website when you want to show your students you can be on the same "wav"-length as they are. Scientists studying underwater fish acoustics have identified another possible mechanism herring use to communicate.

<http://www.newscientist.com/news/news.jsp?id=ns99994343>

### **Fish Species Identification and Data Programme**

The UN's Food And Agriculture Organization (FAO) website for [fish] Species Identification and Data Programme is set up to improve the identification of marine organisms of actual and potential interest to fisheries, provide tools, and improve fisheries data quality. The website has species identification publications, regional

guides, fact sheets, species distribution maps, and more. Many of the publications are downloadable.

<http://www.fao.org/fi/SIDP>><http://www.fao.org/fi/SIDP> .

### **Floating Classroom for Educators and Students - Texas**

On the R.V. Karma, a 57-foot teaching and research vessel, students can use otter trawls, plankton nets, water samplers and test kits, bottom corers and video-enhanced microscopes to investigate topics such as marine biology, ecology, fisheries and environmental impact. Additional initiatives include Elderhostels, youth development camps and courses, marine education workshops and professional development, and short courses for informal educators.

<http://extensioneducation.tamu.edu/karma.htm> .

### **Florida Office of Coastal and Aquatic Managed Areas Interactive Map**

The Florida Department of Environmental Protection's Coastal and Aquatic Managed Areas manages nearly five million acres of submerged lands. These include Aquatic Preserves, National Estuarine Research Reserves, and the Florida Keys National Marine Sanctuary. The website includes an interactive map of the entire state, broken down into regions.

<http://www.dep.state.fl.us/coastal/sites/default.htm> .

### **Flow: The Essentials of Environmental Flows**

IUCN and its *Water and Nature Initiative* published a new guide to "environmental flows" –the water regimes provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated. *Flow* includes chapters on international legal instruments, defining water requirements, covering costs, and building capacity.

<http://www.waterandnature.org/flowlaunch.html>

### **Forest Service Partnership Resource Center**

The Partnership Resource Center is a centralized website from the Forest Service to provide information and tools to promote partnerships. The website includes resource documents, links to training opportunities and funding sources, tools and templates, and lists of organizations and agencies which work collaboratively and in partnerships to manage natural resources.

<http://www.partnershipresourcecenter.org/index.shtml> .

### **Free Use of Camping Equipment Through The REI Gear Bank**

The REI Gear Bank is a program designed to facilitate a positive introduction to the outdoors for kids who have not yet had a wilderness experience. In order to ensure that their first experience in the outdoors is a positive one, REI has set up a program to provide kids with quality gear so they are comfortable and can focus on having fun. The Gear Bank offers camping essentials free of charge.

[reli@rei.com](mailto:reli@rei.com)

### **Gateway to Educational Materials**

The Gateway to Educational Materials offers a database of more than 24,000 education resources, including marine resource education, across more than 400 web sites.

<http://thegateway.org/>

### **GEO Year Book 2003**

The United Nations Environment Programme (UNEP) presents its first annual Global Environment Outlook (GEO) statement to highlight significant environmental events and achievements during the year and raise awareness of emerging issues from scientific research and other sources. Based upon a collaborative/comprehensive tracking and stocktaking process established with many partners, it includes an overview of major global and regional environmental issues, a focus on freshwater, indicators and more. <http://www.unep.org/geo/yearbook/> .

### **Geographic Data in Education (GEODE)**

The Geographic Data in Education (GEODE) Initiative, for middle school through college, uses data visualization and analysis tools to support inquiry-based learning. An integrated program of research and development, the GEODE Initiative provides curriculum, educational software, and teacher professional development. Software includes *WorldWatcher* and *My World*. Curriculum includes *Looking at the Environment* and *Planetary Forecaster Project*. <http://www.worldwatcher.northwestern.edu/> .

### **Georgia's Amazing Coast**

Fun and learning come together in *Georgia's Amazing Coast*, a collection of one hundred short, self-contained features about the flora, fauna, and natural history of Georgia's coast. Each page includes a full-color illustration and fact-filled commentary on coastal wildlife, from fifty-foot-long northern right whales to single-cell plankton. Contact Allison Reid at [areid@ugapress.uga.edu](mailto:areid@ugapress.uga.edu) for details.

### **Georgia Encyclopedia**

The New Georgia Encyclopedia provides an accessible, authoritative source of information about people, places, events, historical themes, institutions, and many other topics relating to the state. It includes a section on Land and Resources, including articles and information on ecological functions of the environment, environmental regions of Georgia, and more. [www.georgiaencyclopedia.org](http://www.georgiaencyclopedia.org) .

### **Geospatial One-Stop Portal**

The Geospatial One-Stop portal helps the public and government agencies access geospatial data and other information from one centralized location. NOAA manages the *Oceans and Estuaries* and *Locations and Geodetic Networks* channels on the portal, and co-manages the *Atmospheric and Climate* channel. <http://www.geodata.gov/gos>

### **Getting in Step: a Guide to Effective Outreach in Your Watershed**

The *Getting in Step* guidebook or on-line web-based training module provides some of the tools needed to develop and implement an effective watershed outreach plan. It helps watershed practitioners trained in the sciences address public perceptions, promote management activities, and inform or motivate stakeholders. <http://www.epa.gov/owow/watershed/outreach/documents/>

### **Ghost Crab Trap Removal Program**

The Barataria-Terrebonne National Estuary Program is supporting this Department of Wildlife and Fisheries' program through a ghost trap "sweep" within the Barataria-

Terrebonne National Estuary, planned for February 28 through March 14, 2004. A ghost crab trap may be an old, bent, barnacle-encrusted trap without a buoy or float, or even be a relatively new trap with a line and buoy still attached (sometimes referred to as "derelict" traps).

<http://www.blue-crab.net/derelict.html> .

### **GIS Day 2003**

GIS Day, Nov. 19, 2003, is part of the National Geographic Society's initiative, Geography Action, a year-long initiative encompassing key educational achievements. The theme of this year's Geography Awareness Week, November 16-22, 2003, is "Habitats."

<http://www.gisday.com/index.html>

### **Global Biodiversity Information Portal**

The Global Biodiversity Information Facility (GBIF) is an international non-profit organization devoted to providing free and universal access to data regarding the world's biodiversity. Check out the GBIF Communications Portal at [www.gbif.org](http://www.gbif.org) . Many countries and organizations participate in GBIF and have made their data available at the GBIF Data Portal.

[www.gbif.net](http://www.gbif.net) .

### **Global Ultraviolet Index**

EPA and NOAA adopted a new Global Ultraviolet Index to help reduce overexposure to dangerous UV rays. The index, developed by the World Health Organization and other international organizations, replaces existing reporting methods. The index is designed to foster understanding of which precautions to take in protecting ourselves from different levels of UV radiation.

[http://www.cpc.ncep.noaa.gov/products/stratosphere/uv\\_index/uv\\_current.html](http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/uv_current.html) or  
<http://www.epa.gov/sunwise/uvlaunch.html> .

### **GLOBE moves to Boulder, CO**

The GLOBE Program now resides at the University Corporation for Atmospheric Research, in Boulder, Colorado. GLOBE is a worldwide hands-on, primary and secondary school-based education and science program. Internationally, GLOBE is a partnership between the United States and 100 other countries.

<http://www.gsfc.nasa.gov/news-release/releases/2003/h03-087.htm>

### **GPA Marine Email Newsletter**

The GPA is the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, for which the United Nations Environment Programme (UNEP) provides the secretariat. Monthly GPA Outreach newsletters and weekly GPA News Updates are a new source of information about related events and information relevant to the wider marine and freshwater sector. To subscribe to GPA Outreach, send an e-mail to [join-gpa-outreach@lists.healthdev.org](mailto:join-gpa-outreach@lists.healthdev.org) .

### **GPA Outreach Online Debate**

The Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA) hosted an interactive online debate as part of GPA Outreach, March 8-17, 2004. The debate focused on *Water Management and Governance* and *Perspectives on Water and Poverty Reduction*.

<http://www.unedforum.org/debate/> .

### **Graduation Pledge of Social and Environmental Responsibility**

The Graduation Pledge of Social and Environmental Responsibility states, "I pledge to explore and take into account the social and environmental consequences of any job I consider and will try to improve these aspects of any organizations for which I work." Students at over a hundred colleges and universities, ranging in size from Whitman to Harvard, have used the pledge at some level.

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

### **Gray's Reef Brought to Atlanta Through Distance Learning**

Through Georgia's distance learning program, Gray's Reef National Marine Sanctuary educators teach and interact live with typically three and as many as seven classes across the state and nation simultaneously. With slides and video footage, they bring Gray's Reef to students from downtown Atlanta and the peanut farming communities of Plains to the mountains of New York and desert of Arizona.

<http://www.graysreef.nos.noaa.gov/education.html>

### **Great Lakes Invasive Species Information, Activities, and Curriculum Guide**

Illinois-Indiana Sea Grant provides a wealth of Great Lakes environmental education on their website, with a focus on invasive species. The Biological Resources page links to aquatic invasives activities and resources, while Water Quality links to many useful classroom resources and information. Download *The Great Lakes Invasive Species Curriculum Guide* to provide students an introduction to aquatic invasive species.

<http://www.iisgcp.org/edu/br/grlksinv.pdf>. <http://www.iisgcp.org/edu/> .

### **Green Conference Guide from EECOM**

From the Canadian Network for Environmental Education and Communication (EECOM), this online guide can help make your next conference or meeting greener.

<http://www.eecom.org/english/greenconf.html> .

### **Guides to the Species of the ACE Basin, South Carolina, and Coastal Habitats of Rhode Island**

The Ashepoo-Combahee-Edisto (ACE) Basin of South Carolina has a largely undeveloped landscape with diverse habitats, with more than 1500 different plant and animal species that interact with the physical environment to create the ACE Basin ecosystem. The Internet-based Species Gallery highlights birds, fish, invertebrates, mammals, plants, and reptiles that make their home in the ACE Basin.

<http://www.dnr.state.sc.us/marine/mrri/acechar/specgal/birds.htm> .

Rhode Island is home to an array of coastal habitats, including salt marshes, seagrass beds, and river systems which contribute greatly to the state's biological integrity and diversity and help support the state's economy. Rhode Island's Habitat Restoration Portal hosts an Internet-based Species Gallery of anadromous fish, seagrass, and salt marsh habitats highlighting invertebrates, birds, fish, and plants found there.

<http://www.edc.uri.edu/restoration/html/gallery/seagrass.htm>

### **A Guide to Understanding a Sense of Place**

The free *Guide to Understanding a Sense of Place* (publication number EPA 842-B-01-003) explores the concepts of community and culture and provides tools for identifying, assessing, and working cooperatively within the social dynamics and local values

connected to environmental protection. The guide is designed for people involved in community-based initiatives.

<http://www.epa.gov/ncepihom/index.htm>

### **Gulf Facts**

Visit the Gulf of Mexico Foundation website for information about the Gulf of Mexico. Representing a wide range of interests (agriculture, business, fisheries, industry, tourism, and the environment), the Foundation promotes and funds research, education, and conservation programs. The focus area encompasses all areas bordering the Gulf. The website covers geography, resources, history, environmental concerns, education, and more.

<http://gulfmex.org/facts.htm> .

### **Gulf of Alaska with NOAA Ocean Exploration**

The Gulf of Alaska 2004 Expedition from NOAA's Ocean Exploration, July 30-August 23, 2004, explored five large seamounts located approximately 200 miles off the Alaska coast. Scientists will focus their investigations on seafloor aging and characterization, deep-sea coral genetics, and community ecology. The website hosts essays and lesson plans that tie directly to the expedition, developed for students in Grades 5-12. Logs, Ask an Explorer, videos, and more were added during the expedition.

<http://oceanexplorer.noaa.gov/explorations/04alaska/welcome.html> .

### **Herpetology of Porto Rico**

The classic herpetology publication of Leonhard Stejneger is available for downloading online. This book was published in 1902 and it includes drawings of the species as well as new species descriptions. It's a great resource to compare and contrast with some of the available herpetology web offerings.

<http://www.coqui.pr.com/herppr/>

### **High School Environmental Center Website from EPA**

This EPA website helps high school students explore and learn about their environment and ways to protect it. The website helps high school students find reliable environmental information, not just on EPA's website, but through other links as well. It links to air and water issues, waste and recycling, conservation, health and safety, ecosystems, and community environmental conditions.

[www.epa.gov/highschool/](http://www.epa.gov/highschool/)

### **High Tides Documentary**

The Weather Channel presents *High Tides*, a 30-minute special, part of the cable channel's Forecast Earth series. The documentary covers land subsidence and storm surges along the Louisiana coast, flooding along the Maryland coast after Hurricane Isabel, and the use of air gap and tide station technology in Tampa Bay. It also tracks the historical use of tide predictions and how modern technology provided by NOAA has improved our understanding of tides.

### **Hofstra University Marine Lab Handbooks**

St. Ann, Jamaica-based Hofstra University Marine Lab has developed an array of handbooks available free upon request. The handbooks vary in length and complexity, and have been written to help with lectures, field trips, student projects, and tourist activities.

[http://people.hofstra.edu/faculty/john\\_f\\_morrissey/HUML/Handbooks.htm](http://people.hofstra.edu/faculty/john_f_morrissey/HUML/Handbooks.htm) .

### **Holiday Tips—Environment-Friendly**

Eco-friendly tips for the holiday season:

<http://www.use-less-stuff.com/ULSDAY/42ways.html>

<http://www.earth911.org/master.asp?s=misc&a=misc/xmas/holiday.html>

<http://www.nwf.org/backyardwildlifehabitat/seasonaltips.cfm>

<http://www.ciwmb.ca.gov/PublicEd/Holidays/NoWaste.htm>

<http://www.care2.com/channels/solutions/home/343>

### **Ichthyology & Other Slimy Words**

The Cabrillo Marine Aquarium, San Pedro, California, offers public classes, marine laboratory workshops, field trips, and voyages for all ages. Their *Ichthyology & Other Slimy Words* workshops allow you to explore the inner and outer workings of sharks and other fish through dissection, fish printing, and more. Two sessions are offered, July 19-23 and August 23-27. They also provide many other programs.

<http://www.cabrilloaq.org/education.html> .

### **iLoveSchools.com**

iLoveSchools.com is a free matchmaking service for education. School teachers request materials and supplies while school supporters search for a school in need of their gifts of money, new or used goods or other educational supplies. iLoveSchools.com supports any institution that educates children, including pre-schools, home schools and private schools.

<http://www.iloveschools.com/index.php> .

### **In the Deep Ocean**

The Ocean Technology Foundation (OTF) has a new science center exhibit, *In the Deep Ocean*. The exhibit explores the past, present and future of our oceans. Its centerpiece is a 12-foot interactive model of an undersea station called Ocean Base, where people can live for weeks or months at a time. This habitat is one of OTF's long-term goals. Watch for curriculum related to Ocean Base on the website in the future.

<http://www.virtualtour.semapp.org> .

### **Interactive Estuary Poster**

Check out this new feature on the Padilla Bay National Estuarine Research Reserve education web site. To access it, select Education, then the Kids Page. Move the cursor around to an animal or plant to bring up more information about it.

[www.padillabay.gov](http://www.padillabay.gov) .

### **Inter-American Biodiversity Information Network**

The IABIN was created in 1996 as an initiative of the Santa Cruz Summit of the Americas meeting of Heads of State. Steadily gaining momentum, there are now 34 countries in the Americas that have officially named IABIN focal points. The website has extensive links to biodiversity databases, a search engine (both under tools), and other information.

<http://www.iabin.net/defaulteng.html> .

### **International Brant Monitoring Project**

The International Brant Monitoring Project monitors the migration of a small sea goose, the brant. Project participants gain a greater understanding of the importance of local ecosystems and global environmental health through the observation of brants and

sharing of information between participants in three countries. The project brings together participants that include students, wildlife biologists, national estuarine research reserves, the U.S. Fish and Wildlife Service and others along the Pacific flyway.

<http://www.padillabay.gov/brant/index.html> .

<http://www.padillabay.gov/educationcurriculum.asp> .

### **International Coral Reef Information Network**

The Coral Reef Alliance (CORAL) manages the Coral Reef Education and Outreach Library as part of the International Coral Reef Information Network (ICRIN), the communications arm of the International Coral Reef Action Network. ICRIN provides internet resources for coral reef conservationists and houses a royalty-free Photobank and the International Directory of Coral Reef Organizations.

<http://www.coralreef.org>

### **Invasive Species Lectures On-Line**

The Virtual Library of the American Institute of Biological Sciences contains plenary lectures by biologists recorded at AIBS annual meetings. Additional content includes presentations from the AIBS National Roundtable series. You can view synchronized audio and video of all presentations, plus slides and transcripts of presentations. The theme of the 2004 meeting was *Invasive Species: The Search for Solutions*.

<http://www.aibs.org/virtual-library/> .

### **Investigating the Climate System**

Investigating the Climate System offers problem-based modules for studying clouds, energy, precipitation, weather, and wind. Learning activities, assessment rubrics, and prerequisite knowledge are included in these down-loadable booklets, correlated to national academic standards for Grades 5-12.

<http://spacelink.nasa.gov/products/Investigating.the.Climate.System/> .

### **IUCN Caribbean Fishes Weblift**

The Caribbean Fishes Specialist Group is composed of ichthyologists and fishery scientists who are engaged in research and conservation of fishes in the Caribbean region. They have created a weblift that provides links to on-line databases around the world that contain information about Caribbean fishes.

<http://caribbeanfish.org/english.html>

### **JASON Expedition: Disappearing Wetlands**

This year's mission for the JASON expedition to the bayous of Louisiana is to better understand what wetlands are, why they are disappearing, and how to best manage these ecosystems in Louisiana, in your neighborhood, and around the world. As students model the work of real researchers, they will gain proficiency in a range of core disciplines, including: math, technology, geography, history, language arts, and life, physical, earth and space sciences.

[www.jason.org](http://www.jason.org) .

### **Journey North**

Journey North is a free online program engaging students in a study of wildlife migration and seasonal change. K-12 students share their own field observations with classrooms across the hemisphere tracking migration patterns of birds and mammals, the budding of plants, changing sunlight, and other natural events and are linked with scientists who

provide their expertise directly to the classroom. Find standards-based lesson plan, activities, and information.

<http://www.learner.org/jnorth/> .

### **Journey South Begins**

Track migration across the Northern Hemisphere. Investigate seasonal change, geography, and much more. Students share their own field observations with classmates across North America and analyze data from other classroom and professional scientists. Each study features standards-based lessons and challenges, weekly migration updates, interactive maps, connections with field scientists, and more. They also provide guidance to conduct local observations and fit them into a global context.

<http://www.learner.org/jnorth/fall2004/index.html> .

### **Juan de Fuca Ridge Expedition**

REVEL expedition, June 14-July 13, 2004, explored the deep ocean off the Pacific Northwest coast on the research vessel Atlantis. During this expedition to the Juan de Fuca Ridge, 200 miles west of Washington and British Columbia, scientists, engineers and educators used an Autonomous Underwater Vehicle to study the transfer of heat from hydrothermal vents plumes into the ocean.

[www.ocean.washington.edu/outreach/revel](http://www.ocean.washington.edu/outreach/revel) .

### **Kenai Fjords Tours' Marine Science Explorers Program**

The Seward-based *Marine Science Explorer Program* turns a whale watching boat into a floating laboratory/classroom where passengers become active observers and explorers, exploring Resurrection Bay. Students use hydrometers, Secchi disks, plankton nets, microscopes, and observation to learn about the Kenai Fjords area. The Prince William Sound Explorer Program explores glaciers, wildlife, weather and navigation.

<http://www.kenaifjords.com/76.cfm>

### **KIDZONE**

The National Wildlife Federation presents this all-new website, with ideas for specific age groups from toddler to teen. The pages contain online games, nature-related activities, and lots of other information and projects. The focus is terrestrial, but there are plenty of interesting ideas.

<http://www.nwf.org/kidzone> .

### **Landscapes of the Heart**

Scholars, writers and environmentalists are invited to submit manuscripts for consideration in an expanded edition of the book *Landscapes of the Heart* – one that will cross the boundaries of ecology, economics, law, culture, health, the social sciences and the humanities.

[http://www.telusplanet.net/public/aleksiuk/homepage/call\\_for\\_papers](http://www.telusplanet.net/public/aleksiuk/homepage/call_for_papers) .

### **Learning Center on Caribbean Weather and Climate**

The Learning Center on Caribbean Weather and Climate is designed for a wide range of users, especially from the secondary school level upwards. The general, fundamental phenomena that create weather and climate are explained, including atmospheric composition, solar radiation, the hydrological cycle, and more. Learning projects in the Caribbean are presented alongside tips and resources for teachers.

<http://cawedu.net/index.htm> .

### **Less Than One Campaign**

SeaWeb and the Ocean Wilderness Network, a non-profit coalition of regional and national organizations dedicated to protecting the ocean, have launched *Less Than One*, a public awareness campaign calling for greater protection of the ocean through the establishment of a network of fully protected marine reserves along the U.S. Pacific Coast.

[www.lessthanone.org](http://www.lessthanone.org)

### **Lessons Learned About Collaboration**

The Eisenhower Mathematics and Science Consortia and Clearinghouse Network is producing a series of Lessons Learned reports from its 12 years of work in mathematics and science reform. The first publication, *What Experience Has Taught Us About Collaboration*, looks at how collaboration is characterized in the literature, presents strategies and steps for building effective collaborative relationships, and explores several "deep structure" issues that represent barriers to collaborative work.

<http://www.mathsciencenetwork.org/collaboration.pdf> .

### **Life Story of the Queen Conch**

The life story of the Queen Conch, *Strombus gigas*, is available in Spanish, French or English on this website, by CD, or available for downloading in pdf format. (Note: the pdf loads very slowly). The book is a revised and updated edition of *La vie des Lambis* by Katherine Orr and Liliane Frenkiel published in 1986 in Guadeloupe and used in the French Caribbean for educational purposes.

<http://www.mda.cinvestav.mx/biblioteca/strombus/inicio.htm> .

### **Living Waters: Aquatic Preserves of Florida**

A one hour documentary, "*Living Waters: Aquatic Preserves of Florida*", highlights 12 aquatic preserves in Florida. Clyde Butcher, the Department of Environmental Protection through the Florida Coastal Management Program and the Office of Coastal and Aquatic Managed Areas cooperated with several sponsors to create this educational and artistic documentary to educate, inform and entertain, letting us experience the complexity of the essential components of these water-bound ecosystems.

[http://www.liveoakproductiongroup.com/Aquatic%20 Preserves/AP\\_Home.html](http://www.liveoakproductiongroup.com/Aquatic%20Preserves/AP_Home.html) .

### **Long-term Monitoring Program and Experiential Training for Students (LiMPETS)**

NOAA's National Marine Sanctuary Program introduces the LiMPETS network for middle school, high school, and other volunteer groups to monitor the rocky intertidal, sandy shore, and offshore areas of the five west coast sanctuaries (Olympic Coast, Cordell Bank, Gulf of the Farallones, Monterey Bay and Channel Islands). The collected data allows users to follow long-term changes. All of the information in this website is public and free to be used in any way.

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

### **Local Fisheries Knowledge Project**

Looking through the lens of marine fisheries, high school students learn about history, culture, science, language arts, and business as part of NOAA's pilot Local Fisheries Knowledge Project. This new website highlights a pilot education project in which high school students interview fishermen and others in related industries. The site includes a description of the project, its educational framework, and will be updated as the project progresses.

<http://www.st.nmfs.gov/lfkproject/> .

### **Looking at the Environment from the WorldWatcher Project**

The WorldWatcher project at Northwestern University recruited teacher leaders in environmental science to support *Looking at the Environment*, a new research-based GIS-based environmental science curriculum for high school.

<http://www.worldwatcher.org>

### **Mapping an Ocean Sanctuary – GIS in the Classroom**

*Mapping an Ocean Sanctuary* introduces the techniques and applications of geographic information systems. Developed by the Center for Image Processing in Education and the Channel Islands National Marine Sanctuary, in collaboration with Sustainable Seas Expeditions, the six lessons teach fundamental marine and environmental concepts.

Students work with case studies, data, and images from the Channel Islands, California.

[http://www.cinms.nos.noaa.gov/edu/edu\\_teacher.html](http://www.cinms.nos.noaa.gov/edu/edu_teacher.html)

### **Marine Aquarium Council Certification and Standards**

The Marine Aquarium Council's mission is to conserve coral reefs and other marine ecosystems by creating standards and certification for those engaged in the collection and care of ornamental marine life from reef to aquarium. It offers certification, training, outreach, and more.

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

### **Marine Conservation Photo Gallery From Norbert Wu**

Underwater photographer Norbert Wu has established a website where photographs taken under his Pew Fellowship are available at a nominal cost as a discretionary service to valid nonprofits and researchers.

[www.norbertwu.com/pew/index.html](http://www.norbertwu.com/pew/index.html)

### **Marine Virtual Explorer: Hydrothermal Vents on the East Pacific Rise**

The *Marine Virtual Explorer* is a simulation of a research dive in the Alvin submersible to a hydrothermal vent field on the East Pacific Rise, part of the global mid-ocean ridge system. Mid-ocean ridges are volcanic and, of course, underwater. When you put all the heat and all the water together, you get spectacular hydrothermal activity.

<http://pangea.stanford.edu/marve/>

### **Meaningful Bay Outdoor Experience**

NOAA's Chesapeake Bay Office is committed to connecting individuals and groups to the Bay through their shared sense of responsibility and action. The office administers the *Bay Watershed Education and Training Program*, B-WET, to provide a meaningful outdoor experience for school students in the watershed, and to provide teacher training supporting meaningful outdoor experiences for students.

<http://noaa.chesapeakebay.net/education.htm>

### **Meeting Standards Naturally**

A free CD-ROM, *Meeting Standards Naturally*, developed for K-12 educators, was developed by the Environmental Education and Training Partnership (EETAP) which is funded by the U.S. EPA's Office of Environmental Education. The CD explores how teaching about the environment can be used to achieve national education standards for core disciplines, discusses what environmental literacy means, and how it helps prepare students to effectively make environmental decisions that impact their daily lives.

[http://www.eetap.org/html/new\\_products.php#CDROM](http://www.eetap.org/html/new_products.php#CDROM) .

### **Mixing It Up**

*Mixing It Up* is a compilation of 25 articles from the National Science Teachers Association's elementary school member journal, *Science & Children*. The collection of teacher-tested methods blends science with math, language and the arts. Each article is categorized by grade Science Education Standards. They include lesson plans and idea starters using interdisciplinary, integrated, and thematic approaches.

<http://store.nsta.org/searchBasic.asp?searchTerm=Mixing+It+Up>

### **Museum of Comparative Zoology: Entomology Primary Type Specimen Database**

The Museum of Comparative Zoology at Harvard University has an incredible collection of insects on their website. This online database contains records for primary types in the entomology collections of the Museum of Comparative Zoology (MCZ). In addition to type label data, type stage and status, the database includes high-resolution images of the type specimens. Check out the other department databases (e.g.ichthyology), too.

<http://mcz-28168.oeb.harvard.edu/mcztypedb.htm>

### **NASA Oceanography Website**

See what NASA does in the field of oceanography. NASA Oceanography conducts a program of satellite missions and research projects with its partners to enable global ocean science. This website has links to NASA missions, projects, partnerships and educational materials. For more information, check out

<http://oceans.nasa.gov/Home.htm>

### **NASA SCI Files™ and The Case of the Ocean Odyssey**

The NASA SCience Files™ is an award-winning series of instructional programs for grades 3-5, integrating mathematics, science, and technology through the use of Problem-Based Learning (PBL), scientific inquiry, and the scientific method. The series seeks to motivate students to become critical thinkers and active problems solvers. Each episode in the series includes a 60-minute instructional broadcast, an educator's guide, a unique interactive online PBL activity, plus instructional resources.

<http://scifiles.larc.nasa.gov>

### **National Coastweek**

National Coastweek is coordinated by the Coastal States Organization in conjunction with NOAA, state Coastweek and Coast Day observances, and in partnership with a variety of federal government agencies and national coastal and ocean organizations. Events are held around the country to celebrate the vibrancy of our coastal communities and beauty of our coastal resources. Start the celebration with the Ocean Conservancy's International Coastal Cleanup, and bring it to a close with National Estuary Day.

<http://www.living-edge.org>

### **National Energy Education Development Project**

NEED (National Energy Education Development) develops curriculum and conducts teacher training for K-12 teachers and students. The program is focused on the production, uses and science of energy in all its forms. The NEED program and website includes curriculum materials, professional development, evaluation tools, and an awards program. Note that you may be more successful opening some of the pdf files from the website if your Adobe Acrobat Reader® is already open.

[www.need.org](http://www.need.org) .

### **National Geographic Crittercam**

The Crittercam is a research tool using a video camera temporarily attached to animals (including marine mammals) to study their behavior. The National Geographic Channel hosts a TV series highlighting Crittercam footage and research. Samples of the videos are available on the website, along with excerpts from the shows.

<http://www.nationalgeographic.com/channel/crittercam/> .

### **National Geographic Xpeditions**

The National Geographic Xpeditions website hosts the lesson plan, *Taking Care of Our Oceans*. In this lesson, students consider why so many people live near the coast and learn about the impacts of this trend on ocean animals. They will make posters to educate coastal residents and visitors about human impacts on marine life.

<http://www.nationalgeographic.com/xpeditions/lessons/14/gk2/seascare.html>

### **National Science Teachers Association's (NSTA) Resources and Resource Lists**

The National Science Teachers Association periodically publishes lists of different web resources. Recent lists include

- Free Opportunities for High School Science Teachers, [http://science.nsta.org/enewsletter/2004-06/high\\_school.htm](http://science.nsta.org/enewsletter/2004-06/high_school.htm)
- Free Resources For Science Teachers, at [http://science.nsta.org/enewsletter/2004-06/news\\_stories\\_high.htm](http://science.nsta.org/enewsletter/2004-06/news_stories_high.htm)
- Summer reading list for books, <http://science.nsta.org/enewsletter/2004-07/highcatalog.pdf>

Check the NSTA website for links to other websites, resources, and educational materials.

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

### **National Student Summit on Ocean Issues**

Coastal America is partnering to host a National Student Summit on Ocean Issues, January 14-16, 2004, Washington, DC. Students, teachers, and marine educators from 14 Coastal Ecosystem Learning Centers will present their research on regional ocean issues to a panel of experts, and present their findings as a national issue paper, along with a "Proclamation of Student Commitment to Action on Ocean Issues."

Contact [gene.cope@noaa.gov](mailto:gene.cope@noaa.gov) for more information

### **Natural Inquirer Journal from USDA**

This journal, *The Natural Inquirer*, was created so that scientists can share their research with middle school students. Each article describes scientific research conducted by scientists in the USDA Forest Service. The website lets you search for articles by topic and by issue. While it focuses, naturally, on forests, topics of interest for marine educators include wildlife, habitat, and water.

[www.naturalinquirer.usda.gov](http://www.naturalinquirer.usda.gov) .

### **Navigating Change**

The goal of Navigating Change is to motivate, encourage and challenge people to take action to improve the environmental conditions in their own backyards, especially as it pertains to our coral reef ecosystems. Navigating Change promotes responsibility for the stewardship and sustainability of our islands and our ocean. Classroom videos, teacher curriculum and more are available.

<http://www.hawaiianatolls.org/research/NavChange2002/index.php> .

### **NOAA Coral Reef Conservation Program Launches External Newsletter**

NOAA *Coral Reef News* is a new monthly e-newsletter established to provide current information on the activities of NOAA's Coral Reef Conservation Program and other relevant NOAA programs. The NOAA Coral Reef Conservation Program supports effective management and sound science to preserve, sustain and restore valuable coral reef ecosystems.

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

### **NOAA Fisheries Bycatch Website Updated**

The bycatch section of the NOAA Fisheries website has received a major update to include recent activity, including sea turtle bycatch reduction research; amending the fishery management plan for Atlantic tunas, swordfish, and sharks; management to reduce seabird incidental take; and amending the fishery management plan for the shrimp fishery of the Gulf of Mexico.

<http://www.nmfs.noaa.gov/bycatch.htm> .

### **NOAA's National Marine Sanctuary Education Listserv**

The new National Marine Sanctuary Education Listserv is a closed list server that allows for efficient communication between America's teachers and National Marine Sanctuary Program Education Coordinators. Please use this list server for disseminating pertinent information about NOAA and National Marine Sanctuary education opportunities and other related information to the entire group.

Claire Johnson, at [claire.johnson@noaa.gov](mailto:claire.johnson@noaa.gov).

### **NOAA Ocean Explorer Educator E-mail Update List**

NOAA Ocean Exploration has developed a new listserv for educators. The listserv will include professional development, virtual courses and other online offerings, notifications of upcoming NOAA Ocean Exploration Expeditions and launches of associated web site materials and lesson plans, and information about ocean career webcasts and web forums.

[http://oceanexplorer.noaa.gov/backmatter/email\\_update.html](http://oceanexplorer.noaa.gov/backmatter/email_update.html) .

### **NOAA Science Camp**

A weeklong pilot program summer session designed to expose school age children to NOAA's activities in the monitoring and protection of the environment was piloted in the Seattle area at Sand Point.

[Sarah.Morison@noaa.gov](mailto:Sarah.Morison@noaa.gov)

### **Non-Point Source Pollution Model from Environment Canada's Georgia Basin Ecosystem Initiative**

The *Non-Point Source Pollution Model* is an interactive environmental education tool for understanding pollution, where it comes from, and what we, as individuals, can do about it. Instructions for making the model are available on the website, along with resources and curriculum connections.

<http://www.pyr.ec.gc.ca/EN/IPM/index.shtml>

### **NowCOAST Web Mapping Portal**

NowCOAST provides spatially-referenced links to real-time information from meteorological, oceanographic, and river observing networks. Coast Survey's Web Portal allows rapid spatial location of real time weather, ocean, and river information for

coastal areas. It also links to NOAA's model forecast guidance and NWS' weather and marine forecasts for major estuaries and seaports, the Great Lakes, and coastal regions.  
<http://nowcoast.noaa.gov>

### **NSTA Teacher's Grab Bag**

The National Science Teachers Association's Teachers' Grab Bag is on the web. You can find hundreds of free and almost free items such as videos, publications, CD-ROMs, lab kits, and much more. The database is searchable by cost and type of product. Keep it in mind if you have items you'd like to distribute, as the current database comes up empty from a search on "marine."

<http://www.nsta.org/resourcesgrabbag>

### **OBIS-SEAMAP Digital Archive**

The Ocean Biogeographic Information System – Spatial Ecological Analysis of Megavertebrate Populations (OBIS-SEAMAP) project is part of the Census of Marine Life initiative. It is a publicly-available, web-based digital archive of marine mammal, seabird and turtle data, along with oceanographic and environmental data. Useful tools include on-line mapping capabilities, species profiles, and down-loadable data.

<http://obis.env.duke.edu>

### **OceanAGE Web Chats with Marine Explorers**

*Ocean Careers to Inspire Another Generation of Explorers (OceanAGE)* invites students to interact with women and men who explore our ocean planet to better our world. Explorers provide students with first-hand knowledge of careers through live interviews, profiles, and mission logs. Video profiles, biographies, and background materials related to their work are available, and the website features interactive video Web Casts.

<http://oceanexplorer.noaa.gov/edu/oceanage/>

### **Ocean Alaska Science and Learning Center**

The Ocean Alaska Science and Learning Center, a partnership dedicated to understanding and preserving the marine ecosystem connecting Alaska's National Parks through research and education, announces the launch of its new web site. The site has information, images, video clips, and audio clips related to marine research in Alaska's National Parks. Also, review the Request for Proposals.

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

### **Ocean Discovery Kits**

NOAA's National Ocean Service has launched three discovery kits explaining the science behind NOS activities, designed to make complex subjects accessible to teachers and students at the high school level. Each kit includes an on-line tutorial, a roadmap to resources, and a set of lesson plans correlated to National Science Education Standards. Discovery Kits have been developed for Corals, Tides & Water Levels, and Geodesy.

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

### **Ocean Exploration: H.M.S. Challenger and Beyond**

Join the College of Exploration's Challenger Team under the sponsorship of NOAA's Office of Ocean Exploration for this upcoming virtual workshop, April 19-May 7, 2004. Dialogues with colleagues and experts will explore topics from the mid-19th century history of ocean exploration, current expeditions, and a glimpse into the future of ocean exploration.

<http://www.coexploration.org/oe2004> .

### **Ocean Literacy**

This web site and online survey are the result of a partnership of agencies and institutions concerned with improving ocean literacy. Check out the extensive links under Education Resources, Links, and National & Regional Programs.

<http://oceanliteracy.org/> .

### **Ocean Literacy Educational Materials Available**

The National Geographic Office in Santa Barbara has had quantities of the following materials available:

- Ocean Atlas Teacher's Guides
- Oceans for Life Brochures

Contact Sally Ziegler at [Sally.Ziegler@noaa.gov](mailto:Sally.Ziegler@noaa.gov) for inquiries.

### **The Ocean Project Community Conservation Action Map**

The Ocean Project website has a searchable map of their partner organizations that utilize the help of volunteers and members. Website visitors can click on their state or Canadian province and find a list of organizations and volunteer opportunities related to aquatic or ocean conservation in their community.

[http://www.theoceanproject.org/action\\_map/](http://www.theoceanproject.org/action_map/)

### **Oceans of Life—An Educator's Guide to Exploring Marine Biodiversity**

World Wildlife Fund presents their new educator's guide, *Oceans of Life*. The marine biodiversity module, designed for middle-school educators and students, has background information, activities, and case studies. Appendices offer a framework, mini case studies, marine legislation, planning charts, a glossary, a bibliography, and more. Order the guide through Acorn Naturalists.

[www.acornnaturalists.com](http://www.acornnaturalists.com)

### **Oceanworld**

Oceanworld is a web site for middle-school, high-school, undergraduate, and graduate students and teachers interested in the ocean. It has tutorials for middle-school and high-school students, materials for middle-school teachers, an on-line textbook in physical oceanography, all course material for five college courses, and on-line resources which include links to hundreds of site with on-line data. The tutorials cover fisheries, weather, Forams, coral reefs, currents and more.

<http://oceanworld.tamu.edu/>

### **Of Sand and Sea: Teachings From the Southeastern Shoreline**

*Of Sand and Sea: Teachings From the Southeastern Shoreline*, by Paula Keener-Chavis and Leslie Reynolds Sautter, is an introductory text which covers the ocean's geology, biology and chemistry. It is written at a reading level for middle and high school students. While you're on the website ordering a copy, check out the other offerings available at nominal or no charge.

[http://www.scseagrant.org/library/library\\_pubs\\_marine.htm](http://www.scseagrant.org/library/library_pubs_marine.htm)

### **O'Neill Sea Odyssey in Monterey Bay National Marine Sanctuary**

The *Sea Odyssey* program is a 3-hour learning experience that takes place aboard the 65-foot Team O'Neill catamaran with follow-up lessons at the shore-side Education Center. The students rotate through three stations: marine biology, ecology, and

navigation. There is a curriculum guide, *Investigations in a National Marine Sanctuary*, which accompanies the different stations.

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

### **Operation DeepScope Expedition**

NOAA Ocean Exploration launched the Operation DeepScope Expedition, August 3-14, 2004. This expedition used advanced technologies, such as the sophisticated Eye-in-the-Sea underwater camera system. The Harbor Branch Oceanographic Institution's research vessel Seward Johnson and its manned submersible, the Johnson-Sea-Link, took scientists to the northern Gulf of Mexico, with basins, canyons, escarpments and methane seeps. The website includes lesson plans, logs, videos and more.

<http://oceanexplorer.noaa.gov/explorations/04deepscope/welcome.html>

### **Outstanding Science Trade Books for Students K-12**

The National Science Teachers Association, in conjunction with the Children's Book Council, releases an annual list of outstanding science books for Students. The 2004 list is out and includes books on marine-related topics. Each entry includes a brief description of the book, the name of the publisher and current price, and recommended reading levels.

<http://www.nsta.org/ostbc> .

### **Ozone Forecasts**

Experimental air quality forecasts have begun. NOAA's National Weather Service will produce hourly forecasts updated twice daily for the northern U.S. from Maine to the Carolinas and west to Indiana, Kentucky and Tennessee. The air quality forecast was developed by NOAA Research and the weather service, in partnership with the EPA. EPA's site will also include interpretive health-based air quality index maps based on the forecast guidance.

<http://www.epa.gov/airnow/>

### **Paddle Bayou Lafource, Louisiana**

*Back to the Bayou 2003*, November 7-10, 2003, from the Barataria-Terrebonne National Estuary Program, featured a 4-day canoe and kayak trip, daytime and evening festivities, plus the opportunity to appreciate bayou communities and life along the bayou from Donaldsonville to the Gulf of Mexico.

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

### **Participatory Management Clearinghouse for Wetlands**

The Participatory Management Clearinghouse has been set up to facilitate the sharing of information concerning participatory management of natural resources and disseminate field experiences. Classified thematically by ecosystems, regions, or themes, the posted documents, specific projects and case studies cover issues such as biodiversity and traditional knowledge, gender, water, equitable sharing, protected areas, and indigenous peoples. The website includes dynamic maps and a search system.

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

### **The PBS Borders Environmental Project**

Each POV Borders episode asks visitors to consider an aspect of their everyday lives in ways that challenge their preconceptions, and expand our own "borders" of understanding. Lesson plans for K-12 teachers are designed to facilitate online storytelling and sharing. Each of the three downloadable lesson plans focuses on Earth,

Water, or Air. Also check out the link to the Watershed Game (<http://www.bellmuseum.org/cgi-bin/start.pl?user=bellmuse&prog=start.pl&name=&submit=Let%27s%2Bgo!>) <http://www.pbs.org/pov/borders/2004/educators/index.html> .

### **Pennies for the Planet**

World Wildlife Fund sponsors the *Pennies for the Planet* campaign. Kids learn about three priority regions around the world, helping get them excited about conservation and connecting environmental education with environmental action. The 2003 program includes the Everglades and South Florida. The website includes links to free posters, education activities, and additional educator's materials.

<http://www.worldwildlife.org/windows/pennies/>

### **Pew Fellowship Nominators**

The Pew Fellows Program in Marine Education solicited nominators for Pew Fellowships. Their goal was to recruit a diverse group of nominators who have knowledge of outstanding individuals doing innovative work in marine conservation around the world.

[dmeck@neaq.org](mailto:dmeck@neaq.org)

### **Plastic in the Ocean**

Marine debris has recently been highlighted in newspapers and was featured on Canada's Discovery Channel. TV documentary maker Ian Connacher describes a flood of junk flowing into the sea – some to circulate endlessly in currents, some to be eaten by fish, and then by humans. He produced a feature piece on ocean plastic sampling, highlighting the implications of land-based sources of pollution on the marine environment.

<http://www.exn.ca/dailyplanet/view.asp?date=1/15/2004> .

### **Point2Nature Environmental Education Software Developers**

Point2Nature by CD Meyer, Inc. is a multimedia company that specializes in environmental education software for zoos, aquariums, nature centers, and museums. They use graphics, dynamic animations, music, sound effects, panoramic photography, and video to engage students.

[www.point2nature.com](http://www.point2nature.com)

### **The Polyquarium**

The Macrogalleria is a website from the Department of Polymer Science at the University of Southern Mississippi. The project provides working knowledge of polymers and related concepts to students of all levels, at multiple levels. The program is informative and entertaining to both beginners and more advanced students of polymer science. The Polyquarium mimics aquarium displays.

<http://www.psrc.usm.edu/macrog/sea/index.htm>

### **PRBO Marine Division**

The mission of PRBO's Marine Division is to use science to guide ocean ecosystem protection, conservation, and management. The website features detailed information about our many marine projects. These focus on predators as climate change and habitat quality bio-indicators; population dynamics; life history characteristics seabirds in relation to marine fisheries and pollution; and the creation of marine protected areas and marine reserves to protect ocean ecosystems.

[www.PRBO.org/marine](http://www.PRBO.org/marine)

### **Project Dolphin Campaign**

NOAA Fisheries Office of Protected Resources has developed educational materials about the dangers of feeding and otherwise closely interacting with wild dolphins, including brochures, posters, warning signs, and public service announcements.

[jill.lewandowski@noaa.gov](mailto:jill.lewandowski@noaa.gov)

### **Project Oceanica**

Project Oceanica continues to add new features to their website, including Fish Watch and Shelf Edge Reefs. Check out the Transects Program, designed to immerse undergraduate and graduate students in oceanographic research by taking them to sea to collect biological and geological samples and later analyze the data in the laboratory. Transects is funded for two years, and a total of four 5-day research cruises and follow-up oceanographic research courses will be offered over the 2 year project.

<http://oceanica.cofc.edu/home.htm> .

### **Project WILD Science and Civics: Sustaining Wildlife Curriculum**

Project WILD's high school curriculum is designed to serve as a guide for involving students in environmental action projects aimed at benefiting the local wildlife found in a community. It involves young people in decisions affecting people, wildlife, and their shared habitat in the community. The program consists of four major components: awareness, participatory democracy, habitat exploration and taking action.

[http://www.projectwild.org/materials/science\\_and\\_civics/science\\_and\\_civics.htm](http://www.projectwild.org/materials/science_and_civics/science_and_civics.htm)

### **Ramsar Site Database**

The Ramsar Sites Database is now online. Wetlands International manages and develops the database. A search facility now makes it possible to find one or more Ramsar sites by selecting on nearly any combination of criteria, including wetland type or land use, designation date, and others.

<http://www.wetlands.org/RSDB/default.htm> .

### **Ramsar 'Toolkit', second edition (2004)**

The 14-volume Ramsar Convention Handbooks for the Conservation and Wise Use of Wetlands, 2nd edition, is available for downloading. The Convention promotes an integrated package of actions to ensure the conservation and wise use of wetlands. The handbooks incorporate the guidelines, relevant material from other sources, and case studies designed to illustrate key aspects of the guidelines. Most of the full case studies can be found on the website of the Convention ([http://ramsar.org/wurc\\_index.htm](http://ramsar.org/wurc_index.htm)).

[http://ramsar.org/lib\\_handbooks\\_e.htm](http://ramsar.org/lib_handbooks_e.htm) .

### **Ramsar Video**

The 22-minute Ramsar video, available in English, French, and Spanish, offers an introduction to the problems facing wetlands everywhere and focuses upon international case studies. For easier downloading, "Save Target As" (Microsoft Internet Explorer) or "Save Link Target As" (Netscape) and save the whole film to your hard disk, then launch.

[http://www.ramsar.org/wwd2003\\_index.htm#offer](http://www.ramsar.org/wwd2003_index.htm#offer)

### **Rare: Inspiring Conservation**

The RARE Center for Tropical Conservation has pioneered innovative approaches to achieving conservation results through community-based education. Rare supports hundreds of grassroots conservationists around the world each year, providing them with training, technical support, and resources. Its Pride campaign bridges the gap between the scientific realm and the daily lives of local people through social marketing techniques, making conservation messages relevant to the local community.  
<http://www.rarecenter.org/> .

### **Reach the World**

Reach the World is a nonprofit educational media developer and a provider of schoolbased training in instructional technologies. Its mission is to link students and teachers in low-income communities with real-world, global expeditions that have the power to expand learning beyond the classroom. Follow the voyage of the Makulu, as the trade winds carry her across the Atlantic Ocean towards Barbados in the Caribbean Sea. Check out the materials in the Floating Classroom.  
<http://reachtheworld.org/> .

### **Resource Ranger Club**

The Environmental Education Coordination Team was formed to coordinate EE efforts in the Pensacola, Florida area. Team members include agency and industry personnel, teachers, and others. They have developed the curriculum-based Resource Ranger Club, an environmental club in elementary and middle schools. This club includes classroom presentations, follow-up activities, field trips, and a series of award-winning video shows.  
[godwine@wfrpc.dst.fl.us](mailto:godwine@wfrpc.dst.fl.us) or 850-595-8910 ext 226.

### **Ridge 2000 Deep Sea Explorations**

Ridge 2000 is a multidisciplinary science research program focused on integrated geological and biological studies of the mid-ocean ridge system. The premise of Ridge 2000 science is that life in deep-sea ecosystems is linked to the flow of energy and material from Earth's deep mantle, through the volcanic and hydrothermal systems of the oceanic crust, to the deep ocean. The website offers a materials and information; the expeditions page links to current and past research cruises,  
<http://www.ridge2000.com/index.html> .

### **Rip Currents: Break the Grip of the Rip**

NOAA's National Weather Service and National Sea Grant Program, in partnership with the United States Lifesaving Association, are working together to raise awareness about the dangers of rip currents. Research is also being conducted in order to develop and improve the ability to predict the occurrence and strength of rip currents. A new website has background information, a downloadable brochure and sign, and links to other information.  
<http://www.ripcurrents.noaa.gov/index.shtml> .

### **Riverquarium to open in Georgia**

The Flint Riverquarium will open in Albany, Georgia, to promote conservation through aquatic exhibits and educational experiences that engage diverse audiences by interpreting the unique ecosystems of the Flint River watershed. Exhibits will feature fish and other aquatic animals from the Flint River and downstream, including Apalachicola

Bay, Lake Seminole and the Gulf of Mexico. In addition, the Riverquarium hosts a World of Water exhibit featuring river systems from around the world.

[www.flinriverquarium.com](http://www.flinriverquarium.com) .

### **RMS Titanic Expedition 2004**

Dr. Robert Ballard and scientists from NOAA and other institutions spent 11 days, May 27-June 12, 2004, at the site of the sunken remains of the R.M.S. Titanic, mapping the ship and conducting scientific analyses of its rapid deterioration. The team worked aboard the NOAA research vessel Ronald H. Brown and used ROVs to document the current state of Titanic. Educators and scientists developed a series of lesson plans for students in Grades 5 – 12 that are specifically tied to the Return to Titanic Expedition.

<http://oceanexplorer.noaa.gov/explorations/04titanic/welcome.html> and

[www.returntotitanic.com](http://www.returntotitanic.com) .

### **RubiStar – Free Generic Rubrics for Teachers**

Rubrics can be quite time-consuming to develop. The RubiStar website provides tools to help the teacher who wants to use rubrics but does not have the time to develop them from scratch. RubiStar provides generic rubrics that can simply be printed and used for many typical projects and research assignments, or customize your own from their format.

<http://rubistar.4teachers.org> .

### **Sanctuary Integrated Monitoring Network**

The Monterey Bay National Marine Sanctuary launched the Sanctuary Integrated Monitoring Network (SIMoN). Users can access the website to obtain local water quality monitoring information, generate watershed maps, locate monitoring information, link to data sets from individual stations, and download GIS layers.

<http://mbnms-simon.org> .

### **Science, Education, and Marine Archeology Program in Portugal (SEMAPP)**

The Ocean Technology Foundation offers a submersible diving expedition to explore Portimao Canyon off the coast of Portugal from April 12-19, 2004. They will study the biodiversity and geology of the canyon and look for 14th-18th century shipwrecks from the Age of Exploration. The web offerings will include "Ask the Explorers," daily logs, and questions related to the expedition that can be turned into lessons for your students.

<http://www.oceantechnology.org/semapp.htm> .

### **Science Events At Your Fingertips**

The National Science Teachers Association has an online calendar identifying science-related events and activities. This information includes programs, grants, and workshops in the field of science. Visitors can search by category, grade level, or region, and submit their own upcoming event.

<http://www.nsta.org/main/calendar/events.php>

### **SciLinks Assignment Tool**

SciLinks<sup>®</sup>, NSTA's Internet referencing system, now features a new Assignment Tool to help teachers create and review student online assignments, and help gauge student progress. SciLinks is accessible using print-linked codes found in many textbooks, NSTA Press books and journals, and independently as a benefit for all NSTA members.

[http://science.nsta.org/nstaexpress/nstaexpress\\_2004\\_05\\_10\\_extra.htm](http://science.nsta.org/nstaexpress/nstaexpress_2004_05_10_extra.htm) .

### **Sea Ducks of Alaska**

The Center for Alaskan Coastal Studies has developed a hands-on activity guide for grades 4-6 on the Sea Ducks of Alaska. The guide offers teacher background information and teaching activities that explore sea duck adaptations, their role in food webs, provides an opportunity to research Alaskan species, and looks at conservation issues.

[www.akcoastalstudies.org](http://www.akcoastalstudies.org)

### **Sea Education Association K-12 Lesson Plans**

The Sea Education Association offers at-sea experiential programs with shore and sea components to develop students' and teachers' ability to apply scientific thinking and method to the marine environment. Lesson plans are posted for teachers to help bring the ocean into the classroom. Topics include marine biology and ecology, geological and physical oceanography, and nautical science, listed by grade level and topic.

<http://www.sea.edu/k12LessonPlans/k12pgmtop.htm>

### **Sea to Shining Sea – Partners in Conservation Webcast from Texas and Alaska**

The *Sea to Shining Sea – Partners in Conservation* webcast, November 14, 2003, covers global topics and issues from Alaska to Texas. It is divided into three major topical areas: A Sense of Place: Understanding the Habitat; Wildlife: Adaptations and Concerns; and Human Impact and Involvement. Topics, guiding questions, curriculum standards, Internet resources and activity ideas are included online.

<http://www.tpwd.state.tx.us/expltx/eff/seacenter/guide.phtml>

### **Sea Turtles Resources**

Check out these sea turtle web resources

<http://www.sefsc.noaa.gov/seaturtlepublications.jsp> .

[http://www.nmfs.noaa.gov/prot\\_res/PR3/Turtles/symposia.html](http://www.nmfs.noaa.gov/prot_res/PR3/Turtles/symposia.html) .

[http://www.floridamarine.org/features/view\\_article.asp?id=2156](http://www.floridamarine.org/features/view_article.asp?id=2156) .

[www.widecast.org](http://www.widecast.org) .

<http://www.ex.ac.uk/~pcthornt/EuroTurtle/homep.htm> .

[www.seaturtles.org](http://www.seaturtles.org) .

[www.seaturtle.org/mtn](http://www.seaturtle.org/mtn) .

[www.floridaleatherbacks.com](http://www.floridaleatherbacks.com) .

### **Seabird Aware Brochure**

As animals of the open ocean, seabirds are important allies in the effort to conserve ocean environments. To encourage kayakers, pilots, fisherman, and others to respect the sensitive nature of seabirds, PRBO Conservation Science has developed a brochure that identifies the problem of disturbance to seabirds and simple solutions that can reduce human impact. This brochure and website will help to prevent disturbance to seabirds during the sensitive breeding period.

[www.prbo.org/seabirdaware](http://www.prbo.org/seabirdaware) .

### **Seafood Watch Pocket Guides**

The Seafood Watch program has launched a new pocket guide for the Southeast region and updated the West Coast pocket guide. The Southeast guide includes several new species such as tilefish, conch, mackerel, and mullet. Seafood Watch has also added or updated species reports to their website. To learn more about these new recommendations please visit the All-Fish List on their website.

[http://www.seafoodwatch.org/cr/cr\\_seafoodwatch/](http://www.seafoodwatch.org/cr/cr_seafoodwatch/) .

### **Seas the Day Initiative**

The Ocean Project, together with SeaWeb, launched *Seas the Day* to promote awareness and elevate importance of the ocean, and also to encourage people to take action to make a difference for the health of our ocean planet. The initiative will include development of mission-driven products. The first product is a monthly calendar.

[www.TheOceanProject.org](http://www.TheOceanProject.org) .

### **Seashore Survivors eField Trip**

The Alaska SeaLife Center launched *Seashore Survivors*, a virtual tour of Alaskan intertidal invertebrates. The tour focuses on the adaptations that intertidal animals need to brave the surf, tides, and predators. In addition to the virtual tour, students can submit their questions for scientists to answer, and teachers can download a trip journal for their students to complete as they follow the tour.

<http://www.efieldtrips.org/Invertebrates/index.htm> .

### **SeaWinds Scatterometer**

One of NASA's Earth-observing instruments, the SeaWinds scatterometer, Midori 2, transmits radar data to measure wind speed and direction over Earth's oceans. It provides high resolution and broad geographic coverage of ocean wind speed and direction, sea ice extent and properties of Earth's land surfaces.

<http://winds.jpl.nasa.gov>

### **SE-PORT Ocean Awareness Days from SouthEast COSEE**

The South East Portal to Ocean Research for Teachers (SE-PORT) is an initiative from the SouthEast Center for Ocean Sciences Education Excellence (SouthEast COSEE). The targeted region includes Georgia, North Carolina and South Carolina. SE-PORTs are partnerships between SouthEast COSEE, an informal education institution (e.g. aquarium, science center), and the teachers who participate in the SouthEast COSEE Ocean Sciences Education Leadership Institutes.

<http://www.scseagrant.org/se-cosee/partners.htm> .

### **Shark Tagging Through Project Oceanica**

Charleston Bump research conducted in 2003 includes tagging and tracking of oceanic sharks using satellite tags. Tagging results will be transmitted by satellites and posted on the Project Oceanica website. Students e-mailed questions to the shipboard and laboratory researchers and the results are posted on the web. Student activities and other information are also posted.

<http://oceanica.cofc.edu/SharkTagging/Home.htm>

### **Shifting Baselines**

The Ocean Conservancy is partnering with other organizations, scientists, and filmmakers to produce Public Service Announcements, slide shows, and other multimedia resources to communicate some of the issues involved in ocean resources declines and the shifting baseline phenomena. All materials may be downloaded from the website. Both English and Spanish versions are available.

[http://www.shiftingbaselines.org/index\\_site.html#](http://www.shiftingbaselines.org/index_site.html#)

### **Shorebird Management Listserve**

A monitored shorebird management listserv, a cooperative partnership of the U.S. and Canadian Shorebird Conservation Plans and maintained by the U.S. Fish and Wildlife

Service, provides users with: a forum to discuss approaches to managing shorebird habitats and discuss regional-scale projects; information on shorebird management resources; answers to specific questions; and technical advice on monitoring shorebirds.  
[Brad\\_Andres@fws.gov](mailto:Brad_Andres@fws.gov)

### **Shorebirds of the Pacific Flyway eField Trip**

The U.S. Fish and Wildlife Service offers schools nationwide the opportunity to participate in an eFieldTrip titled, "Shorebirds of the Pacific Flyway: Who Are These Olympic Flyers?" The trip is designed to help students learn about what a shorebird is and how to identify shorebirds of the Pacific Flyway.  
<http://www.efieldtrips.org/Shorebirds/index.htm> .

### **Shorebird Sister Schools Program**

The Shorebird Sister Schools Program is an Internet based environmental education program that connects students, educators, biologists, and birding enthusiasts along migratory flyways. The program includes three key components: K-12 curriculum, email network, and web site. A webcast on April 7, 2003 explored shorebirds, their migration, and the Shorebird Sister Schools Program.  
<http://sssp.fws.gov>

### **Shoreline Trash: Studies at Padre Island National Seashore**

For advanced students interested in pursuing more exploration of the problem of marine debris, the National Park Service published a comprehensive study: *Shoreline Trash: Studies at Padre Island National Seashore, 1989-1998*.  
[phyllis.dermer@noaa.gov](mailto:phyllis.dermer@noaa.gov)

### **SimForest**

Not quite marine, but too good to miss: SimForest is an NSF-funded project aimed at developing simulation-based software to support inquiry learning. It enables students to plant more than 30 kinds of trees and then choose the environmental factors that affect their growth, such as rainfall, temperature, and soil conditions. The down-loadable software and materials are intended for biology and ecology classes in grades 7-12. Teacher and professional development materials are included.  
<http://ddc.hampshire.edu/simforest/> .

### **Smithsonian Folklife Festival**

The Smithsonian Folklife Festival, Washington, DC, June 23-27, and June 30-July 4, 2004. One of the festival themes this year is *Water Ways: The Past, Present, and Future of Maritime Communities in the Mid-Atlantic*, celebrating the coastal region stretching from Long Island, New York, through New Jersey, Delaware, Maryland, and Virginia to the Outer Banks of North Carolina. Maritime workers and artisans from 15 communities in these states will come together to demonstrate their skills and share their stories.  
<http://www.folklife.si.edu/CFCH/festival2004/Festival2004.htm> .

### **SouthEast Portals to Ocean Research for Teachers**

SouthEast Center for Ocean Sciences Education Excellence (SouthEast COSEE), reaches out to the education community with ocean science information in the southeastern region of NC, SC and GA. 12 *SE PORTs* (SouthEast Portals to Ocean Research for Teachers) have been formed in partnerships between SouthEast COSEE, an informal education institution (such as a museum or aquarium), and teachers.  
<http://www.scseagrant.org/se-cosee>

### **State of the Nation's Ecosystems: Annual Update 2003**

The first annual update of the 2002 report *The State of the Nation's Ecosystems: Measuring the Lands, Waters, and Living Resources of the United States* has been released by The Heinz Center. The report was published in 2002, with a 20-page chapter on Coasts and Oceans, as well as chapters on five other types of ecosystems. The 2003 update provides access to data on ecosystem conditions that have become available since the full report was published.

<http://www.heinzctr.org/ecosystems/report.html> .

### **State Policies and Programs Related to Marine Managed Areas: Issues and Recommendations for a National System**

CSO and the National MPA Center conducted research and interviews related to state level marine managed areas (MMAs) and the potential for future federal/state coordination within a national MPA system. This report characterizes existing MMA policies and programs at the state level; presents the potential implications of the proposed national system of MPAs for coastal states; and proposes recommendations toward national MPA system for consideration by both state and federal officials.

[http://www2.mpa.gov/mpa/mpaservices/virtual\\_library/publications.lasso](http://www2.mpa.gov/mpa/mpaservices/virtual_library/publications.lasso) .

### **Sustainability Education Resources from Facing the Future**

Facing the Future: People and the Planet is a non-profit organization providing teachers, students, and the public with global issues education and action opportunities to shape our future. Their programs include curriculum development, teacher workshop, service learning opportunities and more.

<http://www.facingthefuture.org/About/index.htm>

### **Teacher At Sea Program**

Join NOAA's *Teacher at Sea Program*, August 26-September 26, 2003, as they crossed the equator while servicing the TAO/TRITON buoy array in the equatorial Pacific Ocean. This array is critical to our understanding of El Niño and for monitoring the dynamics of our oceans. There are webcasts, videos, and opportunities for teachers on future voyages.

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

### **Teachers' Domain Multimedia Digital Library**

WGBH, through funding from NSF, provides a digital library of multimedia for teaching and studying life sciences, including ecology and ecosystems, evolution, adaptation, genetics, and more. It includes broadcast clips and video modules from programs such as NOVA, A Science Odyssey, and ZOOM; interview segments; out-take footage; and interactive web-based activities, along with contextual information for teachers.

<http://www.teachersdomain.org>

### **Team OCEAN – On-Water Ocean Conservation Education Action Network**

The Team OCEAN Program promotes public education, including informative brochures as well as one-on-one interpretation; stewardship, by instilling a sense of personal understanding, ownership, and responsibility for the Sanctuary among the general public; and sanctuary presence on the water, emphasizing the importance of the proper use of our resources, now and for future generations.

<http://www.fknms.nos.noaa.gov/edu/ocean.html> .

### **This Week at Hilton Pond – Seagulls**

While the focus for this research center is the South Carolina Piedmont, the latest posting on seagulls underscores the fact that you cannot separate “marine” from the greater environment.

<http://www.hiltonpond.org/ThisWeek040115.html> .

### **Tidepool Math**

From the Minerals Management Service (MMS) and the Multi-Agency Rocky Intertidal Network (MARINE) comes Tidepool Math, curricula for K-8 and high school. Students use a plot of a mussel bed to better understand sampling, estimating, and the scientific method. The website has downloadable curricula, photographs to use for the sampling exercises, and flash cards of typical tidepool organisms, or order the CD. Check out the MMS Kids' Pages for other information on Ocean Energy, Sand, and more.

<http://www.mms.gov/mmskids/> .

### **Track Sea Turtles On-Line**

SEATURTLE.ORG provides sea turtle researchers with a tool for collecting, managing and sharing sea turtle satellite tracking data in near real-time. There is a list of tracking projects, links to background information about each program and the turtles they are tracking, and maps that are updated daily. A section for teachers is under development.

<http://www.seaturtle.org/tracking/>

### **Travel Matters**

The Travel Matters website helps students, teachers, and others learn about how their travel habits and vehicular choices affect climate change. TravelMatters offers interactive emissions calculators, on-line emissions maps, and education content that emphasizes the close relationship between more efficient transit systems and lower greenhouse gas emissions. The website includes questions, activities guides, an interactive quiz, resource lists, and more.

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

### **Traveling Wetland Education Trunks for Texas**

Twenty-five *Wetland Education Trunks* have been distributed to educators and education centers across Texas and are available for loan to teachers. The trunks contain lesson plans, books, posters, videos, Texas Amphibian Watch materials and field equipment to guide students in their investigations of wetland habitats. The trunks emphasize learning in the classroom and in the field.

<http://www.tpwd.state.tx.us/edu/>

### **Tread Lightly! Play Nice Campaign**

Tread Lightly! has just completed a revamp of its *Play Nice* Public Service Announcement Campaign, created to encourage and inspire recreationists to minimize their impact and be responsible in the outdoors. Available PSAs include fishing, personal watercraft use, and more.

<http://www.treadlightly.org/edu.mv?edu=Public%20Service%20Announcements> .

### **Underwater Videos Available On-Line**

The Perry Institute for Marine Science / Caribbean Marine Research Center posts three educational videos to provide a glimpse at our underwater environments, including MPAs, coral reefs, and Nassau Grouper.

<http://www.cmrc.org/pubs.htm>

### **UNEP Publications on Water & Waste Management and Tourism & Biodiversity**

*A Manual for Water and Waste Management: What the Tourism Industry Can Do to Improve Its Performance* looks at solid waste and water management and provides guidelines and examples of how tourism operations can achieve positive results.

*Tourism and Biodiversity: Mapping Tourism's Global Footprint*, illustrates the overlap between tourism development and biodiversity hotspots.

[http://www.uneptie.org/pc/tourism/library/mapping\\_tourism.htm](http://www.uneptie.org/pc/tourism/library/mapping_tourism.htm)

[http://www.uneptie.org/pc/tourism/library/waste\\_manual.htm](http://www.uneptie.org/pc/tourism/library/waste_manual.htm)

### **Virtual Whale Watch**

Bring a whale to school. Landlocked pre-K-6 students in Mid-Atlantic states can participate in a simulated whale watch and activities to stimulate their interest in marine science and endangered species. The website features a Kid's Page with whale sounds, "Ask a Scientist," resources, and information appropriate for pre-K-6.

<http://members.aol.com/passintime> .

### **Vocalizations of Georgia's Frogs CD**

Presenting the unique calls of all 31 species of Georgia's frogs, the Calls of the Wild CD is produced by the Georgia Department of Natural Resources, Wildlife Resources Division to introduce the wonderful and often bizarre calls of Georgia's frogs and toads. The CD has separate recordings of every native species. Narration is provided for each of the individual species' recordings, along with a 15-page booklet.

<http://eeingeorgia.org/page.asp?itemid=13156>

### **Walt Disney's Sacred Planet**

Walt Disney's new film, Sacred Planet has been released in IMAX theaters. Some of the film locations include old growth forests of British Columbia, underwater Borneo, New Zealand beaches. The images include the landscape, the people, and the animals indigenous to the land. There is also a downloadable Educator's Guide.

[www.sacredplanet.com](http://www.sacredplanet.com) .

### **Watchable Wildlife Program**

The *Watchable Wildlife Program* is a cooperative, nationwide effort made up of state and federal agencies to support the public's interest in viewing wildlife and conserving wildlife habitat. NOAA Fisheries' Office of Protected Resources and the National Ocean Service's National Marine Sanctuary Program ensure that marine species and habitats are included in the program, and develop appropriate marine viewing guidelines.

[jill.lewandowski@noaa.gov](mailto:jill.lewandowski@noaa.gov)

### **Water Education Posters**

This U.S. Geological Survey series offers six educational posters, on Wetlands, Water Use, Wastewater, Navigation, Ground Water, and Water Quality. Each poster is available in two versions, one for elementary students and one for middle-school students.

<http://water.usgs.gov/outreach/OutReach.html>

### **Water for Life: UN Proclaims International Water Decade 2005-2015**

At its 58th session, the United Nations General Assembly adopted a draft resolution proclaiming the period from 2005 to 2015 as the International Decade for Action, "Water

for Life”, starting on World Water Day, 22 Mar 2005. The goal of the Decade is “a greater focus on water-related issues, with emphasis on women as managers of water to help to achieve internationally agreed water-related goals”.

<http://www.unesco.org/water/> .

### **WaterNews**

WaterNews is a weekly on-line publication of the U.S. Environmental Protection Agency's Office of Water that announces publications, policies, and activities.

<http://www.epa.gov/water/waternews/> .

### **Water Resources of the Caribbean Countries & Territories**

The CD *Water Resources of the Caribbean Countries & Territories* is now ready for distribution (for a nominal cost). The CD has information for 35 countries, islands and/or territories, including maps; size, population, climate, economy; water availability, supply, and demand; vulnerability of coastal aquifers; coastal zone issues; and legal setup and institutions.

[jasminko.karanjac@uwimona.edu.jm](mailto:jasminko.karanjac@uwimona.edu.jm) .

### **Water Science for Schools**

This site from the U.S. Geological Survey explores many aspects of water. This website includes pictures, data, maps, and an interactive center where you can test your water knowledge. A glossary and related links are also included.

<http://ga.water.usgs.gov/edu/>

### **Watershed Patch Project**

The EPA's Watershed Patch Project teaches students what watersheds are and motivates them to get involved in local watershed protection activities. The booklet includes step-by-step instructions for community-based watershed protection activities, including stream walks, monitoring projects, and stream cleanups. The project, with certificate awards, is modeled after a similar project with the Girl Scouts of the USA.

<http://www.epa.gov/adopt/patch/certificates/>

### **Watery Ring of Life: Saving our Estuaries, a PBS Broadcast**

The Teaching Learning Network has produced a documentary featuring four National Estuary Programs: Maryland Coastal Bays, Narragansett Bay, Mobile Bay, and Puget Sound. The documentary presents information about estuaries, including their social and economic importance, and highlights steps the four estuaries are taking to protect and restore their valuable resources.

[drvolk@erols.com](mailto:drvolk@erols.com)

### **Waves, Wetlands, and Watershed, and Coastal Bluffs**

The California Coastal Commission presents *Waves, Wetlands, and Watersheds*, an activity guide that addresses issues such as endangered species, coastal geology, and water use. A four-page primer on *Coastal bluff erosion* further investigates coastal processes. A Marine, Coastal & Watershed Resource Directory contains information on organizations working on issues related to the coast, including educational resources.

[www.coastforyou.com](http://www.coastforyou.com), click on "For Educators."

### **Wayfinders: A Pacific Odyssey**

This website is the companion for a PBS film that features a community of Pacific Islanders as they build sailing canoes & follow the stars on a 2,000-mile voyage across

the ocean. The site includes a wayfinder game, an essay on navigating "blind," an interview with a wayfinding expert, links to related websites, and more.

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

### **Weather and Climate Data at the National Climatic Data Center (NCDC)**

The National Climatic Data Center operates the World Data Center-A for Meteorology, in Asheville, North Carolina, and the World Data Center for Paleoclimatology, in Boulder, Colorado. NCDC provides access to all of the on-line data at no cost to users with .k12.xx.us or .edu domains. Free products include, but are not limited to monthly weather data summaries for a range of sites, historical weather maps, hourly precipitation data for a range of sites, and more.

<http://ols.ncdc.noaa.gov/phase3/freeaccess.html> .

<http://www.ncdc.noaa.gov/oa/ncdc.html> .

### **Wetland User's Guide**

*An Introduction and User's Guide to Wetland Restoration, Creation and Enhancement*, produced by EPA and NOAA, introduces non-technical readers to the basics of wetland projects, including planning, implementing and monitoring, and provides other references. To request a free copy, key EPA843B03001 into the search engine.

<http://www.epa.gov/ncepihom/index.htm>

### **Wetlands Documents**

A variety of publications are available for downloading at the Wetlands International website, including *The Socio-Economics of Wetlands* and *The 7th Directory of Wetlands of International Importance*.

<http://www.wetlands.org/pubs&/nwdnloads.htm>

### **Wetlands Training and Curricular Guides**

*POW! Planning of Wetlands* guides educators through the creation, restoration or enhancement of a wetland on school grounds or within the community. *Wow! The Wonders of Wetlands* includes activities in lesson plan format, background information on wetlands, ideas for student action projects, and a wetlands resource guide. An online wetlands course covers basic wetland ecology, types, functions and management.

<http://www.wetland.org/educa.htm>

### **WET-WASH Initiative for Coastal Sewage Contamination**

Globally, sewage is the largest source of marine contamination by volume. To address this, the United Nations launched a new campaign to clean up the seas by ensuring that people have access to toilets and safe drinking water. The partnership combines the Wastewater Emission Targets initiative with the Water, Sanitation and Hygiene for all campaign. The WET-WASH website has downloadable resources, including a training manual and 10 keys for sustainable municipal wastewater management.

<http://www.gpa.unep.org/pollute/sewage.htm> .

### **What's an Estuary, Now You Know**

The Association of National Estuary Programs, in partnership with the National Estuarine Research Reserves, launched the *What's An Estuary? Now You Know* campaign to make the word "estuary" a household word by 2005. A multimedia presentation is available for viewing and downloading from the website. In 2004, the campaign will launch a media campaign featuring television, radio, and print ads.

[www.whatsanestuary.com](http://www.whatsanestuary.com)

### **What's an Estuary? Now You Know CD-ROMs Available**

4900 copies of the Association for National Estuary Program's *What's an Estuary? Now You Know* CD-ROMs are available to order from the US EPA's National Service Center for Environmental Publications. There will be a limit of 25 CDs per order, though requests for larger quantities will be considered for special events or estuary education and outreach needs.

<http://www.epa.gov/ncepihom/> .

### **Whooping Cranes Migration**

This educational website was developed through a partnership of Annenberg/CPB, Journey North, and the Whooping Crane Eastern Partnership. This site connects to an extensive selection of lessons, activities and information, facts about Whooping Cranes in question/answer format, and background information about the Whooping Crane Reintroduction Study. Users can also connect to highlights from the Year 3 Reintroduction and Migration including maps, video clips, and photos

<http://www.learner.org/jnorth/fall2003/crane/index.html> .

### **The Why Files**

Science touches our lives in countless ways. Yet people often think science is relevant only to a white-coated, lab-dwelling elite. The Why Files portray science as a critical human endeavor conducted by ordinary people. They use news and current events as springboards to explore science, health, environment, and technology, with plenty of focus on the ocean. Their real-life approach to science writing, and correlation to science teaching standards, can help you bring the news and science into the classroom.

<http://whyfiles.org/index.html> .

### **Wild Things 2003 - Habitat is Home Sweet Home**

The U.S. Fish and Wildlife Service and its partners sponsor a *Wild Things* Electronic Field Trip yearly. This year they broadcasted a free, live, interactive satellite learning adventure geared towards Grades 5-7. *Wild Things* helps students and teachers explore and learn about National Wildlife Refuges and the fascinating critters that inhabit them.

[www.nationalgeographic.com/geographyaction](http://www.nationalgeographic.com/geographyaction), <http://www.wildthingsfws.org/>

### **Wings Over Water Festival**

Wings Over Water, on North Carolina's Outer Banks, celebrates the wildlife and wildlands in eastern North Carolina, drawing visitors from all over the country to experience the unique landscape, dunes, marshes, and inland forests of the Outer Banks while participating in birding, natural history, outdoor recreation, and paddling programs. The festival is a partnership between the Fish and Wildlife Service, the National Park Service, the Outer Banks Chamber of Commerce, and more.

[www.wingsoverwater.org](http://www.wingsoverwater.org)

### **Wonderful World of Weather**

This standards-based Real Time Data Module for elementary students, developed by the Center for Improved Engineering and Science Education (CIESE) at the Stevens Institute of Technology, allows students to investigate weather phenomena locally and in other places around the world. By using hands-on activities and real-time data investigations, the students develop an understanding of how weather can be described in measurable quantities, such as temperature, wind and precipitation.

[http://www.k12science.org/curriculum/weatherproj/index\\_NEW.html](http://www.k12science.org/curriculum/weatherproj/index_NEW.html) .

### **World Atlas of Seagrasses**

UNEP/World Conservation Monitoring Center released the World Atlas of Seagrasses. The Atlas is the first book to summarize the global status of seagrasses. The book is a collaboration of leading experts in the field.

<http://www.unep-wcmc.org/marine/seagrassatlas/>

### **World Conservation Monitoring Center Interactive Map Service (IMAPS)**

UNEP-WCMC has been pioneering the delivery of interactive map-based conservation data on the Internet. Current GIS data sets that UNEP-WCMC maintain include Coral reefs, Seagrasses, Mangroves, and Protected Areas. The web GIS maps are easy to use and offer a basis for scientific inquiry and exploration in the classroom.

<http://www.unep-wcmc.org/index.html?http://www.unepwcmc.org/reception/ims.htm~main> .

### **World Conservation Monitoring Center Publications and Information**

The United Nations Environment Program – World Conservation Monitoring Center maintains a large number of reports on different aspects of the environment, including biodiversity, ecosystems, and climate change. The website has a list of reports, many downloadable.

<http://www.unep-wcmc.org/index.html>

### **World Environment Day**

World Environment Day, commemorated each year on June 5, is a principal vehicle through which the United Nations stimulates worldwide awareness of the environment and enhances political attention and action. This year's theme is *Wanted! Seas and Oceans – Dead or Alive?*, and the host nation will be Spain. A down-loadable poster is available in six languages.

<http://www.unep.org/wed/2004/> .

### **World Heritage Sites**

The United Nations Educational, Scientific and Cultural Organization (UNESCO) encourages the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity. The World Heritage List has 754 properties - 582 cultural, 149 natural and 23 mixed properties in 129 States. The natural site datasheets provide plenty of information for comparisons. The *World Heritage Information Kit* is a downloadable document that provides a program overview.

<http://whc.unesco.org/pg.cfm?cid=1> .

### **World Ocean Passport**

The World Ocean Network's mission is to inspire and foster a change in individual behavior towards a sustainable management of the global ocean, and its task is to coordinate communication to the public about ocean issues and marine resource management. The World Ocean Passport is an educational tool for its member organizations to promote ocean awareness and conservation with their visitors.

[www.nausicaa.fr/reseau/](http://www.nausicaa.fr/reseau/) .

### **World Oceans Day**

World Oceans Day, celebrated yearly on June 8, was created in 1992 at the UN Earth Summit in Rio de Janeiro. The Ocean Project has established a North American World Ocean Day planning committee in an effort to coordinate efforts, develop and suggest

awareness-raising tools, resources, and activities, and establish an annual theme. Please let them know what you are planning so they can highlight your organization on their WOD website. Visit the website periodically as people send in their activities.  
<http://www.theoceanproject.org/news/oceanday.html> .

### **World Water Day 2004**

The UN International Strategy for Disaster Reduction and the World Meteorological Organization have been charged with coordinating World Water Day 2004 on March 22, 2004. This year's theme is *Water and Disasters*.  
[http://www.unesco.org/water/water\\_celebrations/index.shtml](http://www.unesco.org/water/water_celebrations/index.shtml) .

### **World Water Monitoring Day**

America's Clean Water Foundation and the International Water Association invite citizens and organizations to share in the experience of water quality monitoring. World Water Monitoring Day, October 18, 2003, serves as a global educational platform for watershed leaders, educators, and trained volunteers to help the public better understand how the actions of individuals in a watershed can impact many others.  
<http://www.worldwatermonitoringday.org/>

### **World Wetlands Day, Yearly on February 2**

World Wetlands Day takes place yearly on the 2nd of February and offers an opportunity "to undertake actions aimed at raising public awareness of wetland values and benefits in general and the Ramsar Convention in particular." The Ramsar Bureau hosts a central website for the use of everyone organizing World Wetlands Day activities. The theme for 2004 is "From the Mountains to the Sea - Wetlands at Work for Us", and 2005 is *Cultural and biological diversity of wetlands*. Information is also available in Spanish and French.  
[http://ramsar.org/wwd\\_index.htm](http://ramsar.org/wwd_index.htm) .

### **Wyland Ocean Challenge, "Clean Water for the 21st Century"**

The Wyland Ocean Challenge promotes student understanding of the complex and interrelated issues that affect our water systems through art. The program is a marine life art and science educational curriculum available free to every K-6 classroom. The program meets national standards for science and art, and includes art activities, case studies, and science experiments to teach students about the water on our planet.  
<http://www.wylandoceanchallenge.org>

### **Year of Clean Water Outreach Materials – Nonpoint Source and Stormwater**

The EPA website highlights different monthly topics to celebrate the Year of Clean Water and 30 years of the Clean Water Act. Materials include information brochures, posters, and even crossword puzzle placemats that can be customized for your organization. The Watershed Events newsletter highlights several education and outreach campaigns.  
<http://www.epa.gov/water/yearofcleanwater/month.html>  
<http://www.epa.gov/owow/watershed/eventspring03.pdf>