

**NATIONAL MARINE PROTECTED AREAS CENTER
INFORMATION EXCHANGE FOR MARINE EDUCATORS
JANUARY 2004**

This update is provided as a service by the National Marine Protected Areas Center to share information pertinent to the marine educator community. It is intended to encourage exchange of information and programs. We hope that it will also promote collaboration among the different educators addressing similar issues in their programs. Contact me directly to discuss further enhancements or to contribute information for future issues. Please share this email with your colleagues and constituents.

The information included here has been compiled from many different sources, including SeaSpan, NSTA Express, edinfo at FREE, EE-NEWS @NAAEE, Creec-LA, EEinGEORGIA, and others. I have attempted to verify web addresses, but make no guarantee of accuracy. The Department of Commerce/NOAA does not necessarily endorse the views expressed or the facts presented on these sites. If you have trouble downloading some of the more interactive activities, try using Internet Explorer[®] instead of Netscape[®]. Please let me know if you wish to subscribe, or do not wish to receive future updates by sending **me** an email (**do not** "reply to all") at phyllis.dermer@noaa.gov.

MPA FACTS

On-Line Inventory of Marine Managed Areas of the United States

The MPA Center is developing an on-line inventory of federal, state, and tribal marine managed areas in the U.S. The website currently includes information about 328 sites, and an on-going data collection process is adding new sites and information all the time. Check out the inventory at http://mpa.gov/mpaservices/mpa_inventory.html.

Notable Addition to MPA Library

Main MPA Library URL: http://mpa.gov/mpaservices/mpa_library.html

NOAA, the World Commission on Protected Areas, and the World Wildlife Fund have published four case studies that test the MPA management effectiveness guidebook, *How is Your MPA Doing?* Check out how the Miramare Natural Marine Reserve in Trieste, Italy, fared with their evaluation at <http://mpa.gov/mpaservices/library/notables.html>.

Contantini, Marco, Maurizio Spoto, Gonzalo Cid. (2003) Miramare: a demonstration case: application of the WCPA-Marine/WWF Guidebook on Evaluating Effective Management in MPAs.

PROGRAM OF THE MONTH

COSEE-West: A Center for Ocean Science Education Excellence

The Division of Ocean Sciences in the National Science Foundation has funded seven Centers for Ocean Science Education Excellence (COSEEs) nationwide to facilitate collaborations and communications between ocean science researchers and educators. One of these centers is COSEE-West, a 5-year collaboration between the University of Southern California and the University of California Los Angeles. Research-oriented marine science faculty at USC and UCLA have partnered with local school districts and informal science centers to create a network of oceanographic researchers, K-12 educators, and informal science educators to disseminate information about ocean sciences as broadly as possible throughout the greater Los Angeles area.

COSEE-West is dedicated to three broad 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.
- Increasing the number of students that choose science and ocean science careers.

To increase public awareness, they partner with informal science centers to provide free public lectures by research scientists on selected themes in ocean sciences. Three lectures are scheduled for early 2004:

- Coral reefs, February 3, 2004, Long Beach Aquarium of the Pacific
- Oceans and human health, March 10, 2004, Santa Monica Pier Aquarium
- Polar seas, April 21, 2004, LA County Natural History Museum

In conjunction with the lecture series, COSEE-West offers professional development workshops for K-12 teachers to help the teachers implement the knowledge picked up from the lecture series and use it in their classrooms. These workshops, linked to both the topics and schedule of the research lectures, provide additional content knowledge presented by scientists, and related hands-on activities presented by a cadre of K-12 Master Teachers trained at UCLA and USC to use ocean sciences as an integrative teaching theme.

Through the College Mentorship Program, they are stimulating careers in ocean sciences. Graduate and undergraduate students majoring in ocean sciences become mentors for students in local schools.

COSEE-West is creating a comprehensive web site as the digital focus of current ocean science education materials and methods. This website has links to ocean science curriculum and will continue to develop and evolve, so remember to check it out periodically to see what's new. For more information, check out

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

WEBSITE OF THE MONTH

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

The National Estuarine Research Reserve (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. Future plans include adding a biological monitoring component, increasing nutrient monitoring, and tracking changes in land use through remote sensing.

Coastal managers have used this monitoring data to inform decisions about local and regional issues, such as “no-discharge” zones for boats and measuring the success of restoration projects. Teachers can use the data with their students for scientific inquiries and to track water quality trends in a national system of estuaries back to 1995.

Many teachers and environmental educators also conduct their own water quality measuring activities with their students. Although these activities can be important hands-on learning experiences in themselves, real understanding of the concepts behind monitoring involves actually analyzing the data. Teachers working with Pat Harcourt, the Community Educator at the Waquoit Bay NERR, indicated that they didn't feel comfortable following up with their students after field monitoring. So Pat developed exercises for them to analyze the data, as well as a user-friendly graphing exercise. These materials are just out so Pat encourages anyone with comments on this draft to contact her at Pat.Harcourt@state.ma.us .

To take a look at the SWMP water quality monitoring data from all the NERRs along with synthesis documents, check out <http://www.nerrs.noaa.gov/Monitoring/welcome.html> . For the lesson plans giving step-by-step instructions for accessing and downloading the data, the graphing exercise to help use the data in your classroom, and other educational resources, check out <http://www.waquoitbayreserve.org/education.htm#lp> .

REQUESTS

Looking for Fish Adaptations Activities

Erin is looking for a few good activities that illustrate fish adaptations or form and function, suitable for families or young children on a brief museum visit. Does anyone have any tried and true fish activities for a museum audience? If you can help, please contact Erin Blackwood from the Bay Area Discovery Museum at eblackwood@badm.org .

Looking for Teachers to Pilot Earth Science Curriculum

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. The chapters include sections on human interactions with the natural world, e.g. “Living with Unstable Land.” For more information, check out <http://www.aqiweb.org/education/hses/pilottest/index.html> .

Looking for Water Quality Monitoring Data in USVI and Puerto Rico

Hector is the Water Quality Management Planning Program Coordinator at the Division of Environmental Protection, St. Thomas, VI. He is collecting water quality monitoring data for use in the 2004 Integrated Report. If you know of any other organization, agency or even individual (besides the EPA or NPS) who has water quality monitoring data that they would like to share, please contact Hector Squiabro by email at hector_squiabro@yahoo.com or at (340) 774-3320 ext. 5177.

Antony is looking for information on any data collected on ambient water quality or chemistry in Puerto Rico within the past few years. He is aware of USGS/Puerto Rico's monitoring program done quarterly, but suspects that other projects exist in Puerto Rico (e.g. research/academia, commissions, etc.) that may have involved producing water quality data. Please contact Antony Tseng at TSENG.ANTONY@epamail.epa.gov, or at (212) 637-3777.

GRANTS AND OPPORTUNITIES

Environmental Film Festival

The Oakland Museum of California is calling for submissions for its 1st Annual Environmental Film Festival. Films can be serious, informative and/or funny, but they must address an environmental topic. Write, produce, direct, and film your story. Ten videos will be selected and shown on the night of the festival, April 2, 2004. Prizes will be awarded for Best Film, Best Content, and Audience Favorite. Submissions must be received no later than 5pm on March 22, 2004. For more information, check out http://www.museumca.org/events/earthdance_film_festival.html.

Update on the EPA Environmental Education Grant Program

The EPA posted their FY2004 Solicitation Notice in mid-November, with an APPLICATION DEADLINE OF JANUARY 6, 2004. The grant program supports environmental education projects that enhance the public's awareness, knowledge, and skills to make informed decisions that affect environmental quality. Congress hasn't quite passed the Federal Budget for 2004, but make sure that your applications are sent in by the deadline. For more information, check out <http://www.epa.gov/enviroed/grants.html>.

Morris K. Udall Scholarships

Eighty scholarships are available for sophomore and junior undergraduate students studying in fields related to the environment. Past majors have included biology and other natural sciences, natural resource management, and public policy. The candidate's plan of study should include coursework in ethics and public policy and/or public or community service experience. A Udall Faculty Representative must nominate students before March 3, 2004. For more information, check out http://www.udall.gov/p_scholarship.htm.

National Wildlife Federation's Species Recovery Fund

The National Wildlife Federation's Species Recovery Fund encourages habitat restorations, species reintroductions, private land conservation activities, and other creative endeavors that directly improve conditions for species listed under the U.S. Endangered Species Act. The fund supports projects that improve on-the-ground conditions for one or more listed species, with preference given to local grassroots organizations. Projects designed solely for public education or scientific research will

not be funded, but education accompanied by significant on-the-ground activities can be considered. Application deadline is February 16, 2004. For more information, check out <http://www.nwf.org/keepthewildalive/speciesrecoveryfund.cfm> .

Tellabs Foundation Grants for Education and the Environment

The Tellabs Foundation provides direct grants to eligible organizations, generally in the amount of \$10,000 and above. The Foundation supports education programs with a particular focus on local and national programs and curricula for engineering, science, mathematics, and technology. The Tellabs Foundation Environment grants support programs to encourage understanding and the protection of the environment. Grants will be considered primarily to institutions that effectively allocate funds to local and national protection/improvement programs. Grants will also be considered for organizations that protect the environment, particularly in the areas of public health, clean air, clean water, recycling and waste reduction. For more information, check out <http://www.tellabs.com/about/foundation.shtml> .

CONFERENCES AND PROFESSIONAL DEVELOPMENT

American Museum of Natural History Online Diversity of Fishes Seminar

In partnership with the NSTA Institute, The American Museum of Natural History offers Seminars on Science, its award-winning online professional development program. From February 16 to March 28, a six-week course in ichthyology will be available to K-12 educators. Participation requires Internet access and can occur at any time and at any location. The course provides participants with unique access to the Museum's scientific research, collections, exhibitions, and laboratories, facilitated by an instructional team composed of a scientist and an educator. Participants receive learning resources for use in the classroom. The course is aligned with the National Science Education Standards and available for graduate credit. For more information, check out <http://learn.amnh.org/welcome.php?w=NSTAIW041> .

ARMADA Project – Research and Mentoring Experiences for Teachers

The ARMADA Project provides K-12 teachers an opportunity to actively participate in ocean science research and peer mentoring. Prior to their research experience, teachers participate in a training workshop that encompasses standards-based pedagogies, mentoring and coaching strategies, and investigations of advanced ocean science content and resources. As part of the project, they develop ways to bring their research experiences into their classrooms. They also share their experience by mentoring new teachers in their school district and by presenting their results at National Science Teachers Association National Conventions. For more information, check out <http://www.armadaproject.org/overview.htm> .

Communicating Complex Biological Stories in National Parks

This workshop, March 30-31, 2004, Atlanta, Georgia (immediately preceding NSTA's Conference), focuses on communicating and designing educational programs for National Park Service biological resources. The workshop will:

- Provide natural resource training for park interpreters to supplement their current skills
- Explore the scientific process as a foundation for reaching educators
- Provide tips and techniques for enhancing public stewardship, from interpretation to management

Participants will complete a pre-workshop assignment, a post-workshop product, and contribute to a publication on techniques for bringing the biological sciences to both the general public and educators. A small travel stipend is available for NPS employees and limited space is available for non-NPS staff. The application deadline is February 16, 2004. For more information, check out http://www.nature.nps.gov/LearningCenters/new/biowrkshp_flyer_mar03.pdf .

Designing for Distance Workshop Series

This six-part Designing for Distance workshop mentors you through the design and development of a distance learning course, and then offers methods to teach your creation to your audience. The workshop is taught entirely using distance methodologies, so you are learning by doing. The workshop begins January 26, 2004. For more information, check out <http://www.creative-conservation.com/Flyer2/Flyer2.htm>

Environmental Concern's Wetlands Training Schedule for 2004

Environmental Concern, Inc. has posted their schedule for wetlands training for the upcoming year. In addition to advanced delineation techniques, topics include Fern and Fern Allies ID, Grasses, Sedges and Rushes, Wetland Botany for Non-Botanists, Wetland Mitigation Design. There are also plans to offer their WOW! and POW! workshops in Puerto Rico. For more information, check out www.wetland.org .

Monitoring Science and Technology Symposium – Call for Papers

Plan ahead – the deadline for Special Focus Sessions is January 30, 2004. The Monitoring Science and Technology Symposium takes place September 20-24, 2004, Denver, Colorado, with a central theme of *Unifying Knowledge for Sustainability in the Western Hemisphere*. Senior policy makers, resource managers, and scientists across a wide range of disciplines will address critical needs for unified information and knowledge, how this information is obtained to support monitoring for ecosystem sustainability, and how to make monitoring of ecosystem sustainability both effective and efficient. The symposium emphasizes working across disciplinary through cross-disciplinary presentations and discussion. Regular session abstracts are due April 2, 2004. For more information, check out <http://www.monitoringsymposium.com/sub1-a-philosophy.cfm> .

60th Annual Northeast Fish and Wildlife Conference

The 60th annual Northeast Fish and Wildlife Conference will be held April 25-28, 2004, Ocean City, Maryland. The conference will address fish and wildlife management issues and strengthen the relationships among the members of the region. This year's theme is *Managing Resources for Competing Users*, with sessions scheduled for Engineering, Administration/Licensing, Conservation Law Enforcement, Fisheries, Wildlife, and Human Dimensions/Information and Education. Please note that the abstract deadline is January 20, 2004, and all abstracts must be submitted on-line. For more information, check out <http://northeastconference.fws.gov/index.html> .

NMEA Call for Papers

The Florida Marine Science Educators Association is hosting the National Marine Educators Association (NMEA) 2004 Conference, July 18-22, 2004, St. Petersburg, Florida. The goal of this year's theme, *Bridge the Gulf: Marine Science in the Sunshine*, is to highlight and build marine and aquatic science and education connections (bridges). In keeping with the conference theme, they invite educators and scientists to submit proposals on current marine and aquatic topics related to scientific content,

technology and research; science and education partnerships; teaching methods and materials; and education standards and technology. They seek subjects and methods that are relevant to both formal and non-formal audiences. Successful presentations are hands-on, interactive experiences from which participants can take home usable materials. The deadline for proposal submission is February 20, 2004. For more information, check out <http://www.floridamarine.org/conference/> .

Sea ExChange

NMEA and the Australian based Marine Education Society of Australasia (MESA) have teamed up to bring marine educators together for professional development experiences through Sea ExChange, a cooperative program to assist marine educators working at similar jobs and facilities to set up exchanges. You must be a member of NMEA to participate. The program offers three types of exchange:

- Partner ExChanges, short-term reciprocal exchanges between participants at similar marine education facilities,
- Education Group ExChanges between small groups of students from similar marine educational institutions, and
- Job ExChanges for longer term (6 to 12 month) job trades.

As teachers have access to International Teaching Fellowships and similar existing schemes, they are not included here. For more information, check out http://www.mesa.edu.au/careers/sea_ExChange.asp

University of New Hampshire Marine Science Graduate Fellowships

There will be approximately 10 fellowships offered for a summer 2004 start. These fellowships are coordinated by the UNH Marine Program on behalf of the following UNH /NOAA Centers of Excellence and Cooperative Institutes:

- Center for Coastal and Ocean Mapping
- Northeast Consortium
- Cooperative Institute for Coastal and Environmental Technology (CICEET)
- Cooperative Institute for New England Mariculture and Fisheries
- Center for Excellence in Coastal Ocean Observation and Analysis
- UNH/NOAA Joint Hydrographic Center

For more information, check out <http://www.marine.unh.edu/aboutmpfellowship.html> .

EDUCATIONAL RESOURCES

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. The students enter the fictional world of R. U. Green 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. The CD was produced by Florida State University's Interactive Media Science Project with support from the Florida Department of Environmental Protection and the National Park Service. For more information, click on "materials" at <http://eea.freac.fsu.edu> .

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. For more information, check out <http://www.partnershipresourcecenter.org/index.shtml> .

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, where land meets sea. 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. Written and designed by Georgia Sea Grant and published by The University of Georgia Press, the book is available at a 30% educators' discount off the list price of \$14.95. Call UGA Press at 1-800-266-5842 to order (please mention the educators' discount). Special discounts for classroom sets (25 copies) of this title are also available. Please contact Allison Reid at areid@ugapress.uga.edu for details.

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. Illinois-Indiana Sea Grant, in cooperation with the Great Lakes Sea Grant Network and The Chicago Tribune News in Education Program, has also produced *The Great Lakes Invasive Species Curriculum Guide*, which provides students an introduction to aquatic invasive species and is down-loadable at <http://www.iisgcp.org/edu/br/grlksinv.pdf>. For more information, check out <http://www.iisgcp.org/edu/> .

Guides to the Species of the ACE Basin, South Carolina, and Coastal Habitats of Rhode Island On-Line

The Ashepoo-Combahee-Edisto (ACE) Basin of South Carolina has a largely undeveloped landscape with diverse habitats, including salt- and brackish-water marshes, maritime forests, and bottomland hardwoods. These habitats are characterized by more than 1500 different plant and animal species that interact with the physical environment to create the ACE Basin ecosystem. NOAA's Coastal Services Center, working with South Carolina Department of Natural Resources' Marine Research Institute, have built an Internet-based Species Gallery highlighting birds, fish, invertebrates, mammals, plants, and reptiles who make their home in the diverse habitats of the ACE Basin. The gallery includes a description, photograph, habitat and biology, species significance, and references for each species. For more information, check out <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. These habitats support a wide variety of fish and wildlife, contribute greatly to the state's biological integrity and diversity, and help support the state's economy: 75 million dollars in commercial fishery landings; a recreational fishery valued at 150 million dollars; and a tourism and outdoor recreation industry valued at two billion dollars on Narragansett Bay alone. Rhode Island's Habitat Restoration Portal hosts an Internet-based Species Gallery of seagrass, salt marsh, and anadromous fish habitats highlighting invertebrates, birds, fish, and plants found in these diverse habitats. For more information, check out <http://www.edc.uri.edu/restoration/html/gallery/seagrass.htm>

Mixing It Up

This book is a compilation of 25 articles from the National Science Teachers Association's elementary school member journal, *Science & Children*. The book is a collection of teacher-tested methods for blending science with math, language and the arts. Each article is categorized by grade level and by the National Science Education Standards it addresses. They include lesson plans and idea starters using interdisciplinary, integrated, and thematic approaches. You can view the entire book online before you buy. For more information, check out

<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). One of the largest in North America, it preserves the primary types of more than 28,000 species, representing 29 orders, 565 families, and 7,578 genera. In addition to such information as type label data, type stage and status, the database includes high-resolution images of the type specimens. While you're on the MCZ pages, check out the other department databases (e.g. ichthyology). For more information, check out

<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> .

Tidepool Math

From the Minerals Management Service and the Multi-Agency Rocky Intertidal Network (MARINe) comes Tidepool Math, a curriculum 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 curriculum, photographs to use for the sampling exercises, and flash cards of typical tidepool organisms. For those with slower Internet connections, there's a CD available. For more information, check out the Minerals Management Service Kids' Pages (and while you're there, check out their other offerings on Ocean Energy, Sand, and others) at <http://www.mms.gov/mmskids/> .

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. If you are not familiar with the presentation, it is available for viewing and downloading on the www.whatsanestuary.com website. Order copies of the CD from the US EPA National Service Center for Environmental Publications at

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

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
- Protected Areas

The web GIS maps are easy to use and offer a basis for scientific inquiry and exploration in the classroom. Please note: They are looking for new data sets, including Caribbean bird distribution, turtle nesting and or feeding sites, and others. For more information, check out <http://www.unep-wcmc.org/index.html?http://www.unep-wcmc.org/reception/ims.htm~main> .

INITIATIVES

Dive In To Earth Day 2004 and the 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. Projects include education and outreach materials, mooring buoys, and monitoring equipment. For more information, check out <http://www.coralreefalliance.org/divein/parkbuddy/> .

ECOLEX Environmental Law Database

ECOLEX, a comprehensive on-line environmental database, combines the legal libraries of the UN Food and Agriculture Organization (FAO), IUCN-the World Conservation Union, and the UN Environment Programme (UNEP), providing online access to over 100,000 legal references. The information in the system covers treaties, national legislation, soft law, and other non-binding policy and technical guidance documents, judicial decisions, and law and policy literature. For more information, check out <http://www.ecolex.org/index.php> .

National Student Summit on Ocean Issues

Coastal America (CA), in conjunction with the National Geographic Society, EPA, NOAA, CORE, CA's National Corporate Wetlands Restoration Partnership, the National Science Foundation, and the White House Council on Environmental Quality, is hosting a National Student Summit on Ocean Issues, January 14-16, 2004, Washington, DC. Groups of students, teachers, and marine educators from 14 of CA's Coastal Ecosystem Learning Centers will present their research on pressing regional ocean issues to a panel of federal and non-governmental experts, after which they will work together to blend their findings into a national issue paper. They will also write a "Proclamation of Student Commitment to Action on Ocean Issues." These documents will be presented to representatives of the current Administration for consideration and possible action. For more information, contact Gene Cope at gene.cope@noaa.gov .