

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**  
**INFORMATION EXCHANGE FOR MARINE EDUCATORS**

**DECEMBER 2015**

This update is funded by the National Marine Sanctuary Foundation in partnership with NOAA's Ocean Exploration and Research Program, with additional support from the National Marine Protected Areas Center, to share information pertinent to the marine educator community. It is intended to encourage exchange of information and programs. We hope that it will also promote collaboration among the different educators addressing similar issues in their programs.

Please share this email with your colleagues and constituents. If you request materials or respond to a request for information, please mention that you learned about it from NOAA's Information Exchange.

The information included here has been compiled from many different sources, including EE-NEWS@NAAEE, EEinGEORGIA, the Scout Report, scuttlebutt, NSTA Express, and others. We have verified web addresses, but make no guarantee that they will remain active. The Department of Commerce/NOAA does not necessarily endorse or promote the views or facts presented on these sites.

To subscribe or unsubscribe to this list, send information to include in the newsletter, or discuss further enhancements, please contact the editor directly at [phyllis.dermer@noaa.gov](mailto:phyllis.dermer@noaa.gov), or by phone at (865) 932-5074

Collected archives and issues of the newsletter, past and present, are available at <http://marineprotectedareas.noaa.gov/resources/education/>.

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## **NOTABLE REFERENCES**

### **Aquaculture Zoning**

The selection of the spatial area designated for aquaculture development and careful selection of farm sites are essential first steps to ensure the success and sustainability of aquaculture. The FAO, in partnership with the World Bank, helps address spatial planning for promoting aquaculture growth in a sustainable manner by developing key publications and tools and by conducting training workshops. *Aquaculture zoning, site selection and area management under the ecosystem approach to aquaculture* provides guidance to policy-makers and other stakeholders .

<http://www.fao.org/documents/card/en/c/4c777b3a-6afc-4475-bfc2-a51646471b0d/>

### **Explaining Extreme Events of 2014 from a Climate Perspective**

This report, published by the Bulletin of the American Meteorological Society, addresses the natural and human causes of extreme events from around the world in 2014.

<https://www2.ametsoc.org/ams/index.cfm/publications/bulletin-of-the-american-meteorological-society-bams/explaining-extreme-events-from-a-climate-perspective/>

### **MPA Agencies Practical Guide**

The MPA Agency partnership is an informal forum of senior officials of government agencies from around the globe, in charge of the designation, management, and operation of marine protected areas in their respective nations. The partnership offers the on-line MPA Agencies Practical Guide, a how-to reference for practitioners looking to establish or manage MPAs. Sections include decision-making, governance and financing, management, and more.

<https://www.cbd.int/doc/meetings/mar/soiws-2015-02/other/soiws-2015-02-mpaap-en.pdf>

## **OPPORTUNITY OF THE MONTH**

### **Shell Ocean Discovery XPRIZE Competition**

This global, three-year competition challenges teams to advance ocean technologies and create solutions that advance the autonomy, scale, speed, depths, and resolution of ocean exploration. See the website for details about the NOAA bonus and complete details.

<http://oceandiscovery.xprize.org/>

## **WEBSITES OF THE MONTH**

### **Coral Reef Education Portal**

The Khaled bin Sultan Living Oceans Foundation offers a standards-based coral reef curriculum on its coral reef education portal. Students can explore eleven units on topics that can be integrated into a variety of courses such as art, biology, chemistry, environmental and marine science, and physics. This is a beta version; they welcome suggestions for improvement, and will continue to develop and post more resources.

<https://www.livingoceansfoundation.org/education/portal/>

### **Graphic Representation of Human- vs. Natural-Caused Climate Change**

Check out this graphic presentation from Bloomberg.com that compares the contribution of natural and anthropogenic causes of climate change, based on data from NASA's Goddard Institute for Space Studies.

<http://www.bloomberg.com/graphics/2015-whats-warming-the-world/>

## **REQUESTS**

### **Seeking Comments on Possible MPA Designations**

The public is invited to submit comments through the Federal eRulemaking Portal for proposed MPA designations in Mallow's Bay-Potomac River (docket number NOAA-NOS-2015-0111) and Wisconsin-Lake Michigan (docket number NOAA-NOS-2015-0112). The deadline for submission is January 15, 2016.

<http://sanctuaries.noaa.gov/mallows-bay/>

<http://sanctuaries.noaa.gov/wisconsin/>

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

## **GRANTS AND OPPORTUNITIES**

### **Awesome Foundation Grants**

The Awesome Foundation awards micro-grants every month for awesome ideas. Projects funded in the past have ranged from mobile applications to scientific experiments. Come up with something brilliant.

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

### **BirdSpotter Photo Contest**

Enter the Droll Yankees BirdSpotter contest. A new challenge is offered each Wednesday. The contest runs through February 29, 2016.

<http://feederwatch.org/birdspotter2015/>

### **Burning Foundation Grants – Washington and Oregon**

Burning Foundation Grants are awarded to organizations addressing issues in Washington and Oregon. Priority issue areas include protecting threatened rivers and forests, nurturing native fish populations, and conserving land and open space for ecological and recreational purposes. The deadline for application is January 20, 2016.

<http://fdnweb.org/burning/>

### **C-DEBI Request for Education & Outreach Proposals**

The Center for Dark Energy Biosphere Investigations (C-DEBI) offers grants to fund research or education and outreach projects on any area of marine deep biosphere topics. Their education and outreach goals include creating distinctive, targeted education programs and promoting increased public awareness about life below the seafloor. Be sure to check out the teacher and student resources. The deadline for application is January 31, 2016.

<http://www.darkenergybiosphere.org/education/proposals.html>

### **Captain Planet Foundation Grants**

The Captain Planet Foundation provides grants to school and community groups to support hands-on environmental projects for youth in grades K-12. The objective of the foundation is to encourage innovative programs that empower youth to work individually and collectively to solve environmental problems in their neighborhoods and communities. The next deadline for application is January 31, 2016.

<http://captainplanetfoundation.org/apply-for-grants/>

### **Celebrate Urban Birds Mini-grants**

Celebrate Urban Birds Mini-grants help fund creative bird-related neighborhood events. The deadline for application is December 31, 2015.

<http://celebrateurbanbirds.org/community/minigrants/articles-tab/>

### **Climate Adaptation Leadership Award for Natural Resources.**

This award recognizes the actions of individuals and organizations that are making a difference by increasing understanding of climate impacts, adapting to and reducing threats, increasing response capabilities, and providing other innovative approaches to reducing impacts and increasing resilience in a changing climate. The deadline for nomination is January 8, 2016.

<http://www.wildlifeadaptationstrategy.gov/award.php>

### **Coastal Art and Poetry Contest - California**

The Coastal Art & Poetry Contest is open to all K-12 California students, and is a chance for students to explore coastal themes and present them creatively. By encouraging youth to reflect on the beauty and spirit of California's beaches and ocean, the hope is to inspire a greater sense of stewardship for these natural places. The deadline for entry is January 31, 2016.

<http://www.coastal.ca.gov/publiced/poster/poster.html>

### **Congressional App Challenge**

This challenge encourages teens to submit their original apps about the ocean or any topic they choose. The challenge is intended to highlight the value of computer science and STEM education and encourage students to engage in these fields. See the website for complete details. The deadline for submission is January 15, 2016.

<http://www.congressionalappchallenge.us/>

### **Edward C. Roy, Jr. Award for Excellence in K-8 Earth Science Teaching**

This award from the American Geological Institute is designed to recognize one teacher of grades K-8 for leadership and innovation in Earth science education. The deadline for application is January 20, 2016.

<http://www.americangeosciences.org/education/awards/roy>

### **Environmental Literacy Grants**

The NOAA Office of Education grants support education projects designed to strengthen the public's and/or K-12 students' environmental literacy to enable informed decision-making necessary for community resilience to extreme weather events and other environmental hazards. The deadline for application is February 8, 2016. An informational teleconference will be held January 5, 2016.

<http://www.oesd.noaa.gov/grants/elg.html#page=funding>

### **Five Star and Urban Waters Restoration Grant**

The Five Star and Urban Waters Restoration Program seeks to develop nation-wide community stewardship of local natural resources, preserving these resources for future generations and enhancing habitat for local wildlife. Projects should seek to address water quality issues in priority watersheds, such as erosion due to unstable streambanks, pollution from stormwater runoff, and degraded shorelines caused by development. The deadline for application is February 3, 2016.

<http://www.nfwf.org/fivestar/Pages/home.aspx>

### **Garden Club of America Wetlands Scholarship**

The Garden Club of America offers a one-year scholarship for graduate studies in coastal wetlands and support of field-based research, promoting wetlands conservation through the support of young scientists in their fieldwork and research. The deadline for application is January 15, 2016.

[http://ccrm.vims.edu/education/garden\\_club/index.html](http://ccrm.vims.edu/education/garden_club/index.html)

### **Lowe's Toolbox for Education Grants**

The Lowe's Toolbox for Education offers grants to schools and parent/teacher groups. School projects should encourage parent involvement and build stronger community ties; this grant cycle will focus on basic necessities. The next deadline for application is February 12, 2016.

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

### **Marisla Environmental Program**

The Marisla Foundation offers Environmental Program Grants for activities which promote the conservation of biological diversity and advance sustainable ecosystem management. Primary emphasis is on marine resources conservation with a geographic focus on western North America, Chile, and the western Pacific. The next deadline for application is January 15, 2016.

<https://online.foundationsource.com/public/home/marisla>

### **MATE ROV Competition**

The theme of the 15th annual MATE International ROV Competition is *From the Gulf of Mexico to Jupiter's Moon Europa: ROV Encounters in Inner and Outer Space*. There are four levels of competition. Register your team, find your regional events, and more. The final competition will take place June 23-25, 2016 in at the NASA Johnson Space Center's Neutral Buoyancy Lab in Houston, Texas.

<http://www.marinetech.org/rov-competition-2/>

### **NASA Earth and Space Science Fellowships Program**

The NASA Earth and Space Science Fellowship program is soliciting applications from accredited U.S. universities on behalf of individuals pursuing masters or doctoral degrees in earth and space sciences, or related disciplines, for the 2016-2017 academic year. See the document for complete details. The deadline for application is February 1, 2016.

<http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={3D09A726-3A1B-AE98-F96C-5139CDF43BCE}&path=open>

### **Ocean 180 Video Contest Judging**

COSEE Florida invites middle school teachers and their classrooms to participate in this year's Ocean 180 Video Challenge, an international video contest designed to encourage ocean scientists to share their discoveries and excitement for research with students and the public. Ocean scientists will submit 180-second videos highlighting the key findings and relevance of a recent research study. Middle school students will screen the top 10 finalists and select the winners. Judging by registered classrooms will take place between January 4-February 15, 2016.

<http://www.ocean180.org/>

### **PBS LearningMedia Digital Innovators**

The 2016 PBS LearningMedia Digital Innovators Program is a yearlong, free professional development program designed to foster and grow a community of highly engaged, tech-savvy K-12 educators who are effectively integrating digital media and technology to inspire learning. The deadline for application is February 8, 2016.

<http://www.pbslearningmedia.org/digitalinnovators/>

### **President's Environmental Youth Awards**

Sponsored by the EPA, the President's Environmental Youth Awards (PEYA) program recognizes young people for projects which demonstrate their commitment to the environment. The program is available to K-12 individuals, classes, and youth groups. Awards are presented in each of the EPA regions, and one project from each region is presented with a national award. The regional deadline for application is December 31, 2015.

<http://www2.epa.gov/education/presidents-environmental-youth-award>

### **Protect Our Reefs Mote License Plate Grants – Florida**

This grant offers eligible organizations funds to support projects related to research, education and outreach, and/or conservation of the Florida coral reef ecosystem. The deadline for proposals is March 1, 2016.

<http://mote.org/support/protect-our-reefs>

### **Royal Bank of Canada Blue Water Project Grants**

The Royal Bank of Canada Blue Water Project Grants focus on watershed protection and/or access to safe drinking water. Grants are available to local, regional, national, or trans-border organizations for projects in any of the countries in which the bank is located, including Canada, the United States, the Caribbean, and the United Kingdom. The deadline for community action grants is February 18, 2016.

<http://www.rbc.com/community-sustainability/apply-for-funding/guidelines-and-eligibility/blue-water-project.html>

### **Saving Endangered Species Youth Art Contest**

Students in grades K-12 are encouraged to participate in the Saving Endangered Species Youth Art Contest. The deadline for submission is March 1, 2016.

<http://www.endangered.org/campaigns/endangered-species-day/2016-saving-endangered-species-youth-art-contest/>

### **Sea Turtle Scholarship**

The Ocean Foundation and The Boyd Lyon Sea Turtle Fund seek applicants for the Boyd N. Lyon Scholarship for the academic year 2015-2016, for sea turtle research and conservation. The deadline for application is January 15, 2016.

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

### **Thunder Bay International Film Festival - Student Film Competition**

As part of Thunder Bay International Film Festival, Friends of Thunder Bay National Marine Sanctuary and partners are hosting a film competition for students in grades 6-12. The theme of the competition is #WaterIs, which aligns with the 2015 UN Water World Water Day's message. The deadline for submission is January 8, 2016.

<http://www.nemiglsi.org/projects.asp?ogt=pv&pid=94>

### **UL Innovative Education Award**

Underwriters Laboratories and NAAEE offer the UL Innovative Education Award, designed to invest in environmental and STEM education, sustainable communities, and youth empowerment. The program offers recognition grants to increase the impact of existing innovative nonprofit programs in the U.S. and Canada that are leading the way to inspire a passion for STEM education in young people through a focus on the environment. The deadline for application is February 22, 2016.

<http://ulinnovationeducation.naaee.net/>

### **Visualizing My Earth Challenge**

This contest, from the American Geosciences Institute and the Center for Geoscience and Society, challenges students ages 14 and up to submit visual representations of natural phenomena from a geoscience perspective. Free registration is required. The deadline for entry is January 29, 2016.

<http://www.earthsciweek.org/visualizing-my-earth>



### **Walmart Foundation Local Giving Programs**

The Walmart Foundation supports charitable organizations through its Local Giving Program. Eligible organizations include K-12 public schools/districts, charter schools, community/junior colleges, and others. Core areas of giving include sustainability and career opportunity. The deadline for application is December 31, 2015.

<http://foundation.walmart.com/apply-for-grants/local-giving>

### **Youth Leadership Council**

The inaugural EarthEcho International Youth Leadership Council will support EarthEcho by providing insight and expertise from a youth perspective to the organization, by engaging young people in active roles in their communities, and by helping lead and develop programs to inspire young people worldwide to act now for a sustainable future. The deadline for application is December 31, 2015.

<http://earthecho.org/eeiyouthleadership>

## **FELLOWSHIPS, INTERNSHIPS, AND TEMPORARY OPPORTUNITIES**

### **California Sea Grant Fellowships**

California Sea Grant offers fellowship opportunities in research, natural resource management, and marine policy that allow graduate students to explore their interests and broaden their experience.

- Coastal Management Fellowship; deadline for application is January 22, 2016
- NMFS-Sea Grant Fellowship in Marine Resource Economics; deadline for application is January 29, 2016
- NMFS-Sea Grant Fellowship in Population and Ecosystem Dynamics; deadline for application is January 29, 2016
- Knauss Fellowship; deadline for application is February 12, 2016

<https://caseagrant.ucsd.edu/fellowships/current-fellowship-opportunities>

### **Chincoteague Bay Internships**

The Chincoteague Bay Field Station is a non-profit environmental education center and field station located on Wallops Island, Virginia. In addition to paid internships, the organization is looking for two interns to join their communication team in summer 2016 in a Photography & Videography and a Marketing & Blogging Internship.

<http://www.cbfieldstation.org/employment.html>

### **Explorer-in-Training**

The University Corporation for Atmospheric Research (UCAR) is currently seeking mapping trainees to participate in the Okeanos Explorer-in-Training program for the 2016 field season. A typical placement will consist of one 5- to 30-day offshore expedition during the late winter, spring, or summer of 2016. The deadline for application is January 31, 2016.

<http://oceanexplorer.noaa.gov/okeanos/training.html>

### **Marine Technology for Teachers and Students – Rhode Island and Connecticut**

The Marine Technology for Teachers and Students Project offers high school teachers a year-long professional development opportunity. The project focuses on providing teachers and students hands-on and virtual experiences with new technologies related

to exploring the global ocean, and discovering pathways to marine careers using these new tools. The deadline for application is January 8, 2016.

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

### **NASA GISS Climate Change Research Initiative – New York**

The NASA GISS Climate Change Research Initiative is a summer internship opportunity for high school and undergraduate students to work directly with NASA scientists in a NASA research project associated with the science related to climate change. The deadline for application is March 1, 2016.

<http://smdepo.org/post/8474>

### **Polar Science Exploration Programs**

Applications are being accepted for the Joint Science Education Project to Greenland, and the Joint Antarctic School Expedition to King George Island, through the Institute of Arctic Studies at Dartmouth. High school students and educators may apply for one or both programs using the same application. The deadline for application is January 31, 2016.

<https://dickey.dartmouth.edu/environment/programs>

### **Red Sea Summer Program**

The King Abdullah University of Science and Technology offers a free Red Sea Summer Program, July 22-August 12, 2016. The program exposes students to several aspects of Red Sea reef science, including ecology, biological oceanography, and more, and includes fieldwork, labwork, lectures, and data workshops. In addition to the free course, successful applicants will receive full funding for travel, room and board, academic credit, and a stipend.

<https://reefecology.kaust.edu.sa/Pages/summer.aspx>

### **Research Experience for Undergraduates - Panama**

The Central Caribbean Marine Institute invites undergraduate students to apply to the Research Experience for Undergraduates (REU) program in Integrative Tropical Biology, June 6-August 13, 2016 in Panama. The deadline for application is January 30, 2016.

<http://www.stri.si.edu/reu/english/>

## **CONFERENCES, WORKSHOPS, AND PROFESSIONAL DEVELOPMENT**

### **Career Edge: Communication and Teamwork - Online**

In this free MOOC from FulbridgeX, students learn how to create and deliver high-impact communications and effectively collaborate on teams. The four-week course is self-paced.

<https://www.edx.org/course/career-edge-communication-teamwork-fullbridgex-career2x>

### **Climate Change Game Night – Washington, D.C.**

The Smithsonian's National Museum of Natural History Q?rius program will host a Climate Change Game Night, January 21, 2016 in Washington, D.C. Play newly developed games, talk with their designers, and give them feedback during this open-house event. Along the way you'll explore Arctic ice-melt, conserve marine ecosystems, and try to keep the global temperature from rising.

<http://go.si.edu/site/Calendar/65562556?view=Detail&id=101021>



### **Climate Change: The Science - Online**

This free edX course from the University of British Columbia will provide an introductory level course on climate science to help participants better understand the news, evaluate scientific evidence, and explain global warming to anyone. The seven-week course begins January 11, 2016.

<https://www.edx.org/course/climate-change-science-ubcx-climate1x>

### **Coastal Restoration Project Design and Evaluation - Virginia**

The NOAA Coastal Restoration Project Design and Evaluation Training, February 2-3, 2016 on Wallops Island, Virginia, will help restoration practitioners and education professionals to gain valuable knowledge, skills, and tools to enhance their ability to design and evaluate targeted restoration projects. In 2016-2017, the Chincoteague Bay Field Station will award four grants for local organizations to create or improve on coastal restoration projects on the Eastern Shore of Virginia or Maryland; organizations that participate in this training will be given preference in the selection process for these funds.

<https://coast.noaa.gov/digitalcoast/training/coastal-restoration>

<https://msconsortium.wufoo.com/forms/zky4rt0asugdt/>

### **Communicating Science - Distilling Your Message CLM8204 – West Virginia**

This course from the U.S. Fish & Wildlife Services' National Conservation Training Center, February 1-5, 2016 in Shepherdstown, West Virginia, will help participants learn to communicate more effectively about science with people outside their field, including the general public, policy makers, the media, and more. Through discussion and practice, the course will first focus on fundamental skills - knowing your audience, connecting with your audience, and speaking clearly and conversationally about your work and why it matters. Then students will work on applying these skills productively in challenging settings.

<http://training.fws.gov/nctcweb/catalog/CourseDetail.aspx?CourseCodeLong=FWS-CLM8204>

### **Ecological Basis of Environmental Education OUTUWSP09 - Online**

The objective of this free course from the U.S. Fish & Wildlife Services' National Conservation Training Center, is to familiarize K-12 educators and pre-service educators with modern ecological theory, issues, and practices. The basic principles of ecology will be applied to contemporary environmental issues and will focus on the values and roles of ecology in diverse human cultures, and the problems and solutions that arise due to competition between humans and other living organisms for common resources.

<http://training.fws.gov/nctcweb/catalog/CourseDetail.aspx?CourseCodeLong=FWS-OUTUWSP09>

### **Every Kid in a Park Webinar - Online**

The Department of Interior offers three webinars in January 2016 covering the Every Kid in a Park initiative. Every Kid in a Park provides the nation's fourth graders and their families with free admission to federal lands and waters for a full year. Learn about upcoming activities, transportation funding opportunities, and more.

<http://www.neefusa.org/nature/land/every-kid-park-offering-webinar-january-2016>

### **Georgia Shorebirds Conservation Teacher Workshop - Georgia**

The Sapelo Island National Estuarine Research Reserve is hosting this teacher workshop February 12-14, 2016 on Sapelo Island, Georgia. The workshop is open to formal and informal educators of all grade levels. Participants will receive curriculum and resource materials. The deadline for registration is January 12, 2016.

<http://eeingeorgia.org/net/calendar/details.aspx?s=121901.0.0.4863&dateid=8562>

### **International Conference on Interpretation**

The theme of the 10th annual international conference to be held in Wellington, Aotearoa New Zealand, April 3-7 2016, is Tihei Mauri Ora (the story begins)

[http://www.interpnet.com/NAI/interp/Events/NAI\\_International\\_Conference/2016\\_New\\_Zealand/nai\\_events/NAI\\_International\\_Conference.aspx?hkey=4a2f8151-4b71-4995-a02b-e5ec8522534f](http://www.interpnet.com/NAI/interp/Events/NAI_International_Conference/2016_New_Zealand/nai_events/NAI_International_Conference.aspx?hkey=4a2f8151-4b71-4995-a02b-e5ec8522534f)

### **IUCN World Conservation Congress**

The 2016 IUCN World Conservation Congress: Planet at the Crossroads, will take place September 1-10, 2016 in Honolulu, Hawai'i. Earlybird discounted rates are available before May 31 2016, while IUCN Members and select constituencies, youth, and residents of Hawai'i are eligible for further discounts.

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

### **Making Sense of Climate Science Denial - Online**

This self-paced, free MOOC from the University of Queensland will teach students how to make sense of the science of climate change, and to respond to climate change denial.

<https://www.edx.org/course/making-sense-climate-science-denial-uqx-denial101x-0#.VRqZRfmUegZ>

### **Maritime Archaeology: Exploring and Discovering Shipwrecks - Online**

The next webinar in the National Marine Sanctuaries' Webinar Series, Maritime Archaeology: Exploring and Discovering Shipwrecks, will take place January 13, 2016. Discover how to integrate STEM and social studies as you explore the underwater world of shipwrecks and the tools of maritime archaeologists. Participants will receive free curriculum and resources. Be sure to check out upcoming webinars.

<http://sanctuaries.noaa.gov/education/teachers/webinar-series.html>

### **Marine Education Workshop - Florida**

Newfound Harbor Marine Institute offers this marine education workshop, April 29-May 1, 2016 on Big Pine Key, Florida. Subjects include Soft and Hard Corals, Mangrove Islands, Sponge and Sea Grass Beds, and more. The workshop includes labs, field trips, and more.

Contact the Marketing Department at [info@nhmi.org](mailto:info@nhmi.org)

### **NMEA Conference – Call for Proposals**

The theme for the 2016 NMEA conference, June 27-30, 2016 in Orlando, Florida, is Making Waves: Current Connections in Marine Science, The deadline for proposals is February 29, 2016.

[http://www.marine-ed.org/?NMEA\\_2016\\_Presenters](http://www.marine-ed.org/?NMEA_2016_Presenters)

### **Ocean Exploration Workshops – Various**

NOAA's Ocean Exploration Program and partners offer the Okeanos Explorer Education Materials Collection Professional Development Workshops for Educators. Participants will receive classroom-ready lessons, certificates of participation, and other resources. Contact the noted educator or check out the website for registration and more information.

- January 16, 2016 with the Texas State Aquarium in Corpus Christi, Texas. Why Do We Explore? Professional Development Workshop for Educators. The deadline for registration is December 28, 2015. Contact Kristin at [kevans@txstateaq.org](mailto:kevans@txstateaq.org)
- January 23, 2016 with the Science and Technology Education Center, Louisiana Tech University in Ruston, Louisiana. Why Do We Explore? Professional Development Workshop for Educators. The deadline for registration is January 4, 2016. Contact Tricia LeBlanc at [tbleblanc@AudubonInstitute.org](mailto:tbleblanc@AudubonInstitute.org)
- February 6, 2016 with the Birch Aquarium at Scripps Institution of Oceanography in San Diego, California. Why Do We Explore? Professional Development Workshop for Educators. The deadline for registration is January 15, 2016. Contact Audrey Evans at [eadrey@ucsd.edu](mailto:eadrey@ucsd.edu)
- February 20, 2016 with the Dauphin Island Sea Lab on Dauphin Island, Alabama. How Do We Explore? Professional Development Workshop for Educators. The deadline for registration is February 2, 2016. Contact Sara Johnson at [sejohnson@disl.org](mailto:sejohnson@disl.org)
- February 27, 2016 with the North Carolina Aquarium at Fort Fisher in Fort Fisher, North Carolina. How Do We Explore? Professional Development Workshop for Educators. The deadline for registration is February 8, 2016. Contact Jennifer Metzler-Fiorino at [jennifer.metzler-fiorino@ncaquariums.com](mailto:jennifer.metzler-fiorino@ncaquariums.com)
- March 12, 2016 with the Georgia Aquarium in Atlanta, Georgia. How Do We Explore? Professional Development Workshop for Educators. The deadline for registration is February 19, 2016. Contact Kim Morris-Zarneke at [kzarneke@georgiaaquarium.org](mailto:kzarneke@georgiaaquarium.org)
- March 19, 2016 with the National Aquarium in Baltimore, Maryland. How Do We Explore? Professional Development Workshop for Educators. The deadline for registration is February 29, 2016. Contact David Christopher at [dchristopher@aqua.org](mailto:dchristopher@aqua.org)
- March 19, 2016 with the South Carolina Aquarium in Charleston, South Carolina. How Do We Explore? Professional Development Workshop for Educators. The deadline for registration is February 29, 2016. Contact Jaime Thom at [jthom@scaquarium.org](mailto:jthom@scaquarium.org)

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

### **OneNOAA Science Seminars – Maryland and Online**

The OneNOAA Science Seminar Series is an integrated summary of NOAA-wide science and climate seminars. Many are available for distance viewing. Check out topics including Coral Reefs in a Changing Climate: Combining Indigenous Traditions and Western Science, Bering Strait Shipping: Sea Ice, Economics, and Governance, Marine Microbial Toxins and Nature's Pharmacy, and more, coming up in January 2016. <http://www.nodc.noaa.gov/seminars/>

### **Reconstructing Earth's Climate History Workshop - Texas**

The Consortium for Ocean Leadership and partners invite minority-serving institution faculty to attend the free MSI-REaCH Reconstructing Earth's Climate History workshop August 1-5, 2016 in College Station, Texas. In addition to the workshop, participants will receive mentoring, a stipend, and more.

<http://msi-reach.oceanleadership.org/>

### **Science of Oil Spills – Alabama and Michigan**

NOAA's Emergency Response Division will host a Science of Oil Spills class in Mobile, Alabama, March 28-April 1, 2016 and in Ann Arbor, Michigan, May 16-20, 2016. The deadlines for registration are January 22 and March 11, 2016, respectively. See the website for complete details.

<http://response.restoration.noaa.gov/training-and-education/training/workshops/science-oil-spills-workshops.html>

### **Seminars on Science - Online**

Registration is open for Seminars on Science from the American Museum of Natural History. Courses are co-taught by an experienced classroom teacher and a research scientist. Upcoming courses include Climate Change, Earth: Inside and Out, The Ocean System, and more. Spring Session 1 runs January 25-March 6, 2016, with a deadline for registration of January 11, 2016; Spring Session 2 runs March 14-April 24, 2016 with a deadline for registration of February 29, 2016. A stipend may be available for those completing the climate change course. See the website for complete details.

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

### **Summer Teacher Institutes – Washington, D.C.**

The Library of Congress offers free, week-long Summer Institutes for K-12 educators in Washington, D.C. Education specialists facilitate sessions modeling strategies for using primary sources to engage students, build critical thinking skills, and construct knowledge.

- Open sessions (any subject area): June 27-July 1, July 11-15, July 18-22, and July 25-29, 2016
- Science focus: June 20-24, 2016

The deadline for application is February 29, 2016.

<http://www.loc.gov/teachers/professionaldevelopment/teacherinstitute/?rssloc=eanft>

### **The Arts: A Bridge Between Coral Reef Conservation Science and Policy – Hawai'i**

There are many different sessions accepting contributions for the upcoming ICERS conference, but do you think if you see another PowerPoint spouting the same old messages and buzzwords that your head might implode? Join this session with a difference. They are inviting proposals and abstracts on any aspect of how the arts can contribute to (or detract from) communication, understanding, and persuasion around the subject of coral reefs in the Anthropocene. Think and present outside the lectern.

<https://www.sgmeet.com/icrs2016/sessionschedule.asp?SessionID=84>

### **Trans-disciplinary Approaches to Addressing Wicked Problems - Online**

The goal of this course, starting February 1, 2016, is to create an online space where scholars and students gather to learn about multiple disciplines that shed light on how to improve environmental quality and change environmental behaviors. Each of the lectures, readings, discussions, and case studies will focus on the implications of a particular discipline for environmental education, as well as what environmental

education has to contribute to related disciplines and sectors. Learn about how environmental education, environmental governance, environmental psychology, environmental sociology and other disciplines can work together to address ‘wicked problems.’

<http://www.globalee.net/>

### **Tropical Coastal Ecosystems - Online**

This self-paced free MOOC edX course from the University of Queensland helps students develop the skills and knowledge needed to help preserve tropical coastal ecosystems.

<https://www.edx.org/course/tropical-coastal-ecosystems-uqx-tropic101x-1>

### **Tsunamis and Storm Surges: Introduction to Coastal Disasters - Online**

In this free MOOC from Waseda University, students learn about natural coastal disasters and how to help improve global disaster management. The six-week course starts January 18, 2016.

<https://www.edx.org/course/tsunamis-storm-surges-introduction-wasedax-cosdis101x>

## **EDUCATIONAL RESOURCES**

### **Ashcloud Apocalypse**

This free online activity offers students the opportunity to study disaster risk mapping by examining and mapping the risks from a mega volcanic eruption.

<http://gisevent.wix.com/gisday2015>

### **7 Generations**

Seven Generations—or 7G—environmental planning is the process of identifying, assessing, and developing solutions to environmental, health, and changing climate concerns, with a goal of improving both the health and welfare of people and the environment in the face of climate change. A manual, tools, and more, are available for downloading from the Alaska Native Tribal Health Consortium website.

<http://www.anthc.org/chs/ces/hve/7-generations.cfm>

### **BJ's Science Site**

This website from an Ontario teacher offers many quick links to useful resources. While the website hasn't been updated recently, the topics are relevant. Middle level teachers will find numerous science and math resources on topics such as Diversity of Living Things, Water Systems, and much more. Resources include labs, activities, games, links to webquests, and much more. Well worth exploring.

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

### **Blue Whale Recordings**

Listen (or feel) these recordings of the sound made by the Antarctic blue whale. Feel the untreated audio, then listen as it's boosted into our hearing range. Then listen to a symphony of whales at their natural range.

<http://www.abc.net.au/radionational/programs/offtrack/antarctic-blue-whale-song-worlds-biggest-choir/6919222>

## **BYOGUIDES**

This website offers free coral and reef identification video training courses. Check out the videos and subscribe to the blog.

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

## **Changemaker's Guide to Storytelling**

Ashoka Changemakers offers eight steps to creating a "sticky" story, one that will draw attention and engage hearts and minds.

<https://www.changemakers.com/storytelling>

## **Clearing Magazine**

CLEARING, the Pacific Northwest Journal of Community-based Environmental Literacy Education, is a print and online publication that provides information that can be used in classroom or outdoor settings. It includes activities and lesson plans, curriculum resources, book and resource reviews, program profiles, opinions and perspectives, and more. Sign up for the free mailing list to get the latest stories every month. Check out the latest articles, including community mapping, arts and humanities in the sciences, and more.

<http://clearingmagazine.org/>

## **Confessions of a Marine Biologist**

The YouTube series "Confessions of a Marine Biologist" uses humor and storytelling of real, sometimes ridiculous, events from the field, meant to humanize science and show a diverse audience that science is vital, enthralling, and accessible to all.

<https://www.youtube.com/user/sciallorg>

## **Deep Coral Communities Curriculum**

NOAA's Office of National Marine Sanctuaries offers this curriculum on deep-sea coral communities. Students learn to identify the soft and hard corals, invertebrates, and fish found in these communities, and to investigate the biology of deep-sea corals.

<http://sanctuaries.noaa.gov/education/teachers/deep-coral-communities/>

## **Deep Sea Guide**

The Deep-Sea Guide, created by the Monterey Bay Aquarium Research Institute, provides access to the institute's database of millions of records of deep-sea animals, seafloor habitats, geological features, and research tools. Basic features include searching and browsing by name (both common and scientific), image, or taxonomic relationship, and more.

<http://dsg.mbari.org/dsg/home>

## **E-STEM Resources**

The Bay Area Environmental STEM Institute is a year-round professional development program for teachers of grades 4-12. The website links to a collection of education resources on climate change, sustainability, and the planet's geospheres. Check this out.

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

## **East Coast Lab: Life at the Boundary**

Life at the boundary of two tectonic plates is all about natural hazards—earthquakes, volcanoes, tsunamis, and coastal erosion—and so is East Coast Lab. This project, led by a collection of New Zealand's national and regional agencies and universities, offers



opportunities to participate in citizen research, monitor hazards in real time, and discover more about the hazards off the east coast of New Zealand's North Island. Sections focus on citizen science, learning, news, and more.

<http://www.eastcoastlab.org.nz/>

### **Every Kid in a Park**

The White House's Every Kid in a Park program invites 4th grade students in the U.S. and their families to visit U.S. national parks for free. The program aims to inspire students to become environmental stewards who want to preserve and protect national parks and other public lands. The website explains how to get a pass (for kids, parents, and 4th grade classes), download an educational activity, and more.

<https://www.everykidinapark.gov/>

### **Federal Crowdsourcing and Citizen Science Toolkit**

This toolkit includes tools for citizen science program planning, case studies of successful federal citizen science programs, and other resources.

<https://crowdsourcing-toolkit.sites.usa.gov/>

### **Fishinars**

Check out the 2016 lineup of REEF webinars that help teach the finer points of identifying fish and invertebrates underwater. Upcoming fishinars highlight mantas, fish of the Philippines' muck, and sharks with illustrator Ray Troll. Free registration is required. REEF members can access fishinars that they've missed through the archives.

<http://www.reef.org/fishinars>

### **Geology Cafe**

The Geology Cafe website focuses on the origin of rocks and geologic processes. Content focus is on introductory college level courses on geology and oceanography. Topical discussions, maps, and photography focus mostly on California geology, but also include information about other regions. Oceanography chapters include waves and currents, coasts, pelagic marine communities, and more.

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

### **Global Warming Webquest**

In this Webquest activity from the Marian Koshland Science Museum, students assume a role of scientist, business leader, or policy maker. The students then collaborate as part of a climate action team and learn how society and the environment might be impacted by global warming. They explore the decision making process regarding issues of climate change, energy use, and available policy options.

<https://www.climate.gov/teaching/resources/global-warming-webquest>

### **Google Analytics**

This free service, Google Analytics, offers ways to evaluate a website's performance and boost its reach. Anyone with a Google account can access and use Google Analytics to track multiple sites, monitor social networks, and measure video.

<https://www.google.com/analytics/>

### **Habitable Planet**

The Habitable Planet from Annenberg Learner is a free multimedia course for high school teachers and adult learners interested in studying environmental science. The

website provides access to multimedia course content and activities. Topics include Earth's Changing Climate, Ecosystems, Human Population Dynamics, and more.

<https://www.learner.org/courses/envsci/>

### **Harvard Writing Project**

These freely available and downloadable writing guides from the Harvard Writing Project can be a valuable resource for high school and university educators working with students who need help with composition. Check out the Brief Guides to Writing in the Disciplines, Course-Specific Writing Guides, Disciplinary Writing Guides, and more. While not specific for marine educational disciplines, they can be of interest to this group of readers.

<http://writingproject.fas.harvard.edu/pages/writing-guides>

### **HazLib**

The Natural Hazards Library offers HazLib, an online library catalog. The website offers robust search options and easy navigation, along with access to full-text copies of certain documents, the ability to save, cite, and export search results, and more.

<http://hazlib.colorado.edu/>

### **Investigating El Niño**

This Data in the Classroom sequence of five classroom activities uses real data to investigate El Niño climate variability. Students access and manipulate data to better understand El Niño as an interaction of Earth systems.

[http://dataintheclassroom.noaa.gov/SitePages/el-nino/index#.VnX7Mb\\_D6p3](http://dataintheclassroom.noaa.gov/SitePages/el-nino/index#.VnX7Mb_D6p3)

### **Iris Nights – California and Online**

The Annenberg Space for Photography offers the 2015 Iris Nights lectures for the new exhibit LIFE: A Journey Through Time. These free talks by renowned photographers and ecologists are held in California and live streamed Thursday nights.

<https://www.annenbergphotospace.org/videos>

### **Just Right: Climate Science for Young Readers**

This iBook is available for free from the iTunes store. Just Right offers nine-to-twelve-year-olds a basic understanding of how the atmosphere, oceans, and land interact to support life and stabilize the climate, as seen from the perspective of children their own age.

<http://justrightclimate.org/>

### **Keep Wild Animals Wild**

The International Fund for Animal Welfare's Animal Action Education program, Keep Wild Animals Wild, is tailored to three instructional levels and meets learning objectives in language arts, geography, economics, and life science. The lessons, videos, and activities explore what makes wild animals wild; why wildlife trade threatens animals, ecosystems, and people; and how to keep wild animals wild.

<http://www.ifaw.org/united-states/our-work/education/keep-wild-animals-wild>

### **Kids Against Climate Change**

This website is for kids, to get elementary and middle school students talking about global warming and climate change, and what they can do about it. Topics include What Do Kids know; What Can Kids Do; Resources & Games; and more.

<http://kidsagainstclimatechange.com/about/>

### **Lightning Strikes Twice**

The short documentary film “Lightning Strikes Twice” is the real-life sequel to the current movie, “In the Heart of the Sea.” Based on the book of the same name, the movie “In the Heart of the Sea” tells the story of the true events that inspired Herman Melville’s novel “Moby-Dick.” The documentary tells what happened when the ill-fated captain set sail again.

[http://www.papahanaumokuakea.gov/news/lightning\\_strikes\\_twice.html](http://www.papahanaumokuakea.gov/news/lightning_strikes_twice.html)

### **Marine Photobank on Instagram**

Ocean conservation photos from the Marine Photobank can be in the palm of your hand through Instagram. All images featured on the Instagram feed are available for free download and use for non-commercial, educational purposes.

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

### **National Environmental Education Foundation Website**

The National Environmental Education Week (EE Week) is a program of the National Environmental Education Foundation. All materials have been migrated to the new website.

<http://www.neefusa.org/greening-stem-learning-center>

### **Our Ocean Space**

The World Ocean Observatory offers Our Ocean Space as a web-based network for the exchange of ocean related projects—art, audio-visual presentations, and other formats—created and uploaded by students and teachers to share with their counterparts worldwide. The intent is to link together young people through their understanding and interpretation of ocean systems. Check out all the links to great resources here.

<http://www.worldoceanobservatory.org/index.php?q=our-ocean-space>

### **Parks Online Resources for Teachers And Students Program**

PORTS (Parks Online Resources for Teachers And Students) is a free distance learning program that uses the power of interactive videoconferencing to help K-12 schools teach common core state standards in the context of California State Parks. Check out the units of study, including Tide Pools, Monarch Migration, and more.

<http://www.ports.parks.ca.gov/>

### **Protected Area Law and Governance**

The IUCN offers a set of free resources for teaching and training on protected area law and governance. Including seminar presentations, interactive exercises, and short videos, the resources are intended to support educators in a wide variety of settings. The training materials comprise 12 modules on different aspects of law and governance, and the modules can stand alone or work together in different combinations. Materials include text, videos, and more.

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

### **Racing Extinction Lesson Plans**

These interactive classroom lessons are designed to engage high school students on the importance of biodiversity on our planet. Each standards-aligned lesson features video clips from the film, Racing Extinction, along with an Educator Guide and other resources. Be sure to check out the virtual field trip archive.

<http://racingextinction.discoveryeducation.com/>

### **Resources Toolkit for New Teachers**

Edutopia offers this list of resources to help both new educators and more experienced teachers looking for assistance with classroom management, working with parents, lesson planning, and more. Resource categories include Lesson and Curriculum Planning, A Primer on Assessment, and more. Each category boasts at least 15 resources, and some include more than 40.

<http://www.edutopia.org/article/new-teacher-resources-toolkit>

### **ScienceBlogs**

This website of science-related blogs covers a myriad list of blogs and archives; covers topics from the environment, education, technology; and much more. Contributing bloggers are culled from different scientific disciplines and write about a range of topics that they find most interesting. Spend some time with the topics and the links to different blogs (through the drop-down Go to function).

<http://scienceblogs.com/>

### **Scientists in the Classroom**

The Scientists in the Classroom program from NCSE Teach is a platform for teachers and scientists to collaborate as partners to further science education. By connecting early career scientists with educators, the program hopes to both enrich middle and high school students' climate change and evolution education, and to give scientists a better understanding of the challenges faced when teaching these often socially contentious and misunderstood topics. Be sure to check out the resources page with sample activities.

<http://ncseteach.com/index.php/scientist-in-the-classroom/about/>

### **Skepticism 101**

Skepticism 101, the Skeptical Studies Curriculum Resource Center from Skeptic magazine, provides resources built to inspire a critical attitude toward the known and unknown phenomena of the universe. Visitors will find course syllabi, in-class exercises, PowerPoint presentations, and more on topics ranging from what science is to tips for constructing effective arguments.

<http://www.skeptic.com/skepticism-101>

### **SkyTruthing for Students**

SkyTruth is a nonprofit organization using remote sensing and digital mapping to create images that expose the landscape disruption and habitat degradation caused by mining, oil and gas drilling, deforestation, fishing, and other human activities. They offer two Google Earth learning module case studies of human impacts in the Gulf of Mexico for students.

<http://skytruth.org/schools/>

### **SMAP - Mud Matters**

NASA has launched SMAP, Soil Moisture Active Passive, a satellite to study water in the soil. This often overlooked repository of water can affect weather, climate, drought, and agriculture.

<http://smap.jpl.nasa.gov/mission/why-it-matters/>

### **StoryCorps**

The StoryCorps app and StoryCorps.me were created as a global platform for listening, connecting, and sharing stories of the human experience. The free StoryCorps app walks users through an interview by providing all the necessary tools. Users receive help preparing questions, finding the right environment for your conversation, recording a high-quality interview on your mobile device, and more. The website is a home for the recordings and also provides interviewing and editing resources. Browse the archive for interesting interviews

<https://storycorps.me/>

### **Student Tools for Emergency Planning**

The Federal Emergency Management Agency offers the STEP program with a recently revamped curriculum. Teachers will find updated resources, lessons, and handouts to teach kids in grades 4-5 the basics of emergency planning, preparedness, and communication.

[http://www.fema.gov/media-library-data/1446646244445-e4c7811152d75912ab1bda6fb01d121b/FEMA\\_STEP\\_Curriculum\\_October2015\\_508\\_v2.pdf](http://www.fema.gov/media-library-data/1446646244445-e4c7811152d75912ab1bda6fb01d121b/FEMA_STEP_Curriculum_October2015_508_v2.pdf)

### **Technology Tools**

This Global Digital Citizen Foundation website highlights 50 education technology tools that every teacher should know about. Visitors will find tools for leveraging social media, tools for spicing up lessons; tools for lesson planning and student projects; and tools that help teachers stay connected, organized, and increase the ease of building multimedia lessons and learning tools. Each tool is accompanied by a short blurb that suggests possible uses. It's from July 2014, so more recent items are likely missing, but can still be a useful resource. For more recent posts, type "education technology tools" in the search line.

<https://globaldigitalcitizen.org/50-education-technology-tools-every-teacher-should-know-about>

### **Tribal Nations and Climate Change**

The U.S. Climate Resilience Toolkit offers this special section focusing on climate resilience tools and projects from Tribal Nations in the United States.

<https://toolkit.climate.gov/topics/tribal-nations>

## **INITIATIVES, JOURNALS, and MORE**

### **COSEE Network Membership Drive**

The U.S. National COSEE Network has evolved into one of the largest networks of ocean science research and education institutions, involving over 375 organizations. Federal funding for COSEE is ending, and the network has transitioned into an international, dues-based consortium with members across the globe. Membership will include free access to upcoming webinars, which will include ocean literacy efforts, professional development for graduate students, and strategies for cultural inclusiveness and diversity in ocean science education.

[http://myemail.constantcontact.com/Invitation-to-Join-COSEE.html?soid=1101349485708&aid=Bn\\_Lh4kG0BI](http://myemail.constantcontact.com/Invitation-to-Join-COSEE.html?soid=1101349485708&aid=Bn_Lh4kG0BI)

### **Market Your Catch**

California Sea Grant and partners have developed this website to help commercial fishermen sell their catch directly to the increasing number of customers seeking high quality, local seafood. Market Your Catch provides resources to help fishermen understand alternative marketing and determine if such a form of marketing could be of interest, drawing on lessons learned from fishermen across the nation.

<http://marketyourcatch.msi.ucsb.edu/>

### **Ocean Planning Community Listserv**

The Ocean Planning Community listserv is a new e-mail discussion group. It is meant to help practitioners share experience and good practices with one another: what worked, what didn't, what they have learned.

<https://www.openchannels.org/community/ocean-planning-community>

### **Quinault Indian Nation Plans for Village Relocation**

The homelands of the Quinault Indian Nation are located on the Pacific coast of Washington's Olympic Peninsula. The community faces a threat to its daily life from impacts due to climate change. Read about their plans for relocation.

<http://toolkit.climate.gov/taking-action/quinault-indian-nation-plans-village-relocation>

### **World Water Monitoring Challenge**

The World Water Monitoring Challenge™ is an international education and outreach program that builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local water bodies. Check out the guides and lesson plans. The challenge runs through December 31, 2015.

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