

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

**SEPTEMBER 2016**

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 eeNEWS@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/welcome.html#exchange>.

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## **NOTABLE REFERENCES**

### **Adaptation Pathways 1.0**

The report, Adaptation Pathways 1.0: A Guide for Navigating Sea-Level Rise in the Built Environment, summarizes the 3rd Sea-Level Rise Summit organized by the Florida Center for Environmental Studies at Florida Atlantic University. The goal of the summit was to produce a first-generation roadmap for adaptation, by translating knowledge and ideas into action.

<http://www.ces.fau.edu/arctic-florida/pathways.php>

### **Climate Change Indicators in the United States**

This EPA report features observed trend data on 37 climate indicators, including U.S and global temperatures, ocean acidity, sea level, river flooding, droughts, and wildfires. It documents rising temperatures, shifting patterns of snow and rainfall, and increasing numbers of extreme climate events.

<https://www.epa.gov/climate-indicators>

### **Climate Literacy**

Climate Literacy: The Essential Principles of Climate Science is an interagency guide that provides a framework and essential principles for formal and informal education about climate change. It presents information to help individuals and communities to understand Earth's climate, impacts of climate change, and approaches for adapting and mitigating change. It is available as a free download in both English and Spanish, and in both high and low resolution.

<http://www.globalchange.gov/browse/educators>

### **Getting Started with the NGSS**

Getting Started with the Next Generation Science Standards, A primer and resource guide for afterschool educators, aims to help program providers understand how afterschool fits in to the NGSS.

[http://afterschoolalliance.org/documents/NGSSResourceGuide\\_FINAL\\_web.pdf](http://afterschoolalliance.org/documents/NGSSResourceGuide_FINAL_web.pdf)

## **REQUEST OF THE MONTH**

### **Environmental Impacts of Education**

As part of Anecdotes to Evidence, a multi-partner initiative led by NAAEE and Stanford University, a team of researchers is conducting a review of literature that examines directly measured environmental outcomes/indicators associated with the implementation of an education program. Please send examples or sources that demonstrate the links between education and environmental/conservation outcomes.

<https://naaee.org/eeopro/blog/seeking-sources-environmental-impacts>

## **REQUESTS**

### **Double Exposure**

Double Exposure creates photographic pairs to illustrate environmental change on the planet above and below the water line. Photojournalist David Arnold seeks older, high-resolution photographs of coral landscapes of specific places that he could find again, focusing on Hawaii and the West Pacific, including the Great Barrier Reef.

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

Contact David at [northwester@comcast.net](mailto:northwester@comcast.net)

### **EQulP Peer Review Panel: Science – Invitation to Apply**

The goal of the EQulP Peer Review Panel for Science is to identify high-quality lessons and units that are designed for the Next Generation Science Standards (NGSS). The selected lessons and units will be publicly shared online. They seek reviewers for the science panel. The deadline for application is September 23, 2016.

<http://www.nextgenscience.org/news/peerreviewpanel>

### **Museum and Science Center Frontline Staff Survey**

This survey from North Carolina State University will help to create a staff development model for future staff training for informal science education in zoos and aquariums.

[https://ncsu.qualtrics.com/jfe/form/SV\\_6znjh6yC5SPcLyJ](https://ncsu.qualtrics.com/jfe/form/SV_6znjh6yC5SPcLyJ)

### **Perceptions of Fisheries Management**

Dr Magnus Johnson from the University of Hull will present a talk to the International Commission for the Exploration of the Seas conference in September, 2016. The talk will highlight the increasing involvement of fisherfolk in gathering and analyzing their own data, both to assist management organizations to develop policy, and to challenge implementation of management measures that they believe to be poorly considered or detrimental to the fleets. If you are involved in or have knowledge of any specific fisheries, please complete this survey.

<https://hull.onlinesurveys.ac.uk/fisheries-co-management>

### **Professional Skills Survey**

Virginia Sea Grant and the Virginia Institute of Marine Sciences are conducting a survey about professional skills that would be important for graduates of marine sciences entering the workforce. Results of this survey will be used in developing professional development plans for masters and PhD students to prepare them for non-academic career paths in marine sciences. Please complete the survey before September 23, 2016.

[https://wmsurveys.qualtrics.com/jfe/form/SV\\_8wveFFCl8WFudqj](https://wmsurveys.qualtrics.com/jfe/form/SV_8wveFFCl8WFudqj)

### **Request for Articles**

For the Spring 2017 issue of Clearing Magazine, they seek personal perspectives, success stories, ways to integrate EE into the existing curriculum, best resources for teaching, and specific activities that educators have found to be effective in building environmental literacy in its many forms. The deadline for submission is February 15, 2017.

Contact [editor@clearingmagazine.org](mailto:editor@clearingmagazine.org)

<http://clearingmagazine.org/>

### **Seeking Information About Oiled Wildlife**

Cedre (Centre of Documentation, Research and Experimentation on Accidental Water Pollution) is collaborating with organizations from France's mainland, St Pierre and Miquelon, and Tahiti to write an oiled wildlife response manual. They are looking for wildlife rescue centers who would like to share their experiences and knowledge about this topic. The manual focuses particularly on sea birds, turtles, pinniped, and mustelidae who can be affected by these spills.

Contact Caroline Faltot at [contact@cedre.fr](mailto:contact@cedre.fr)

<http://wwz.cedre.fr/en/>

## **GRANTS AND OPPORTUNITIES**

### **AmeriCorps State and National Grants**

AmeriCorps awards grants to organizations to implement programs that use AmeriCorps members to engage in evidence-based interventions to strengthen communities.

Funding areas include education, environmental stewardship, and more. The deadline for application is January 18, 2017.

<http://www.nationalservice.gov/build-your-capacity/grants/funding-opportunities/2017/ameri-corps-state-and-national-grants-fy-2017>

### **BIG Pitch Competition**

The Ocean Exchange hosts the BIG Pitch competition for undergraduate and graduate student innovations that improve economies, health, and the environment through sustainability. Eight finalists will be invited to present their ideas before 150 delegates from business, NGOs, academia, and government in Savannah, Georgia (expenses paid) on November 11, 2016. Note the quickly approaching September 30, 2016 deadline; a registration fee is required

<https://www.oceanexchange.org/register-solutions/big-pitch-competition-registration/>

### **California Whale Tail Grants**

The California Coastal Commission's Whale Tail Grants Program is accepting proposals for coastal and marine education projects. The program supports marine science education and projects encouraging people to value and take action to improve the health of California's marine and coastal environments. There is a special subcategory for projects addressing climate change and/or ocean acidification. Emphasis is on reaching underserved students or members of the public. The deadline for application is November 1, 2016.

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

### **Campus RainWorks Challenge**

The U.S. Environmental Protection Agency's Campus RainWorks Challenge encourages student teams on college and university campuses to develop innovative green infrastructure approaches to stormwater management. The deadline for registration is September 30, 2016.

<https://www.epa.gov/green-infrastructure/campus-rainworks-challenge-0>

### **Call for Science Project Papers in the Marine Sciences**

High school and undergraduates students who participated in a science or engineering fair in 2016 can submit a project abstract and technical paper describing the project for consideration of special awards to be presented jointly by the Education Committees of the American Salvage Association and the North American Marine Environmental Protection Association. The deadline for submission is October 1, 2016.

<http://www.americansalvage.org/science-fair/>

### **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 December 1, 2016.

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

### **Connecting Math to Other Subjects Areas Grants for High School Teachers**

This grant funds the creation of high school classroom materials or lessons connecting mathematics to other fields. See the website for eligibility and details. The deadline for application is November 4, 2016.

<http://www.nctm.org/Grants-and-Awards/grants/Connecting-Mathematics-to-Other-Subject-Areas-Grants-%289-12%29/>

### **Community-based Marine Debris Removal**

NOAA's Marine Debris Program provides funding to support locally-driven, marine debris prevention, assessment, and removal projects that will benefit coastal habitat, waterways, and NOAA trust resources. The deadline for application is October 14, 2016.

<http://www.grants.gov/web/grants/view-opportunity.html?oppld=287350>

### **Coral Adaptation Challenge**

The Coral Reef Alliance is seeking expert involvement in a project that is designed to synthesize this rapidly advancing area of research. The challenge is for individuals or groups to work with the alliance to answer the following question: What is the probability that reef-building corals can adapt to rising temperatures by the year 2100? The deadline for proposal is October 6, 2016.

[http://coral.org/adaptation\\_challenge/](http://coral.org/adaptation_challenge/)

### **CubeSat Launch Opportunity**

NASA has opened the next round of its CubeSat Launch Initiative in an effort to engage the growing community of space enthusiasts who can contribute to NASA's space exploration goals. The initiative gives students, teachers, and faculty a chance to get hands-on flight hardware development experience in the process of designing, building and operating small research satellites. The deadline for proposals is November 22, 2016.

[http://www.nasa.gov/directorates/heo/home/CubeSats\\_initiative](http://www.nasa.gov/directorates/heo/home/CubeSats_initiative)

### **DK Makerspace**

Enter for a chance to win one of fifty prizes, including a Makerspace Kit, gift card, and books. The deadline for entry is December 31, 2016.

<http://www.dk.com/us/win-makerspace/>

### **Domestic Coral Reef Conservation Grants**

The NOAA Coral Reef Conservation Program announces the Domestic (U.S.) Coral Reef Conservation Grants competition for FY17. The awards are intended to support coral reef conservation projects in shallow water coral reef ecosystems, including reefs at mesophotic depths, in American Samoa, the Commonwealth of the Northern Mariana Islands, Florida, Guam, Hawaii, Puerto Rico, the U.S. Virgin Islands, and coral-dominated banks in U.S. portions of the Gulf of Mexico. The deadline for submission is January 11, 2017.

<http://www.grants.gov/web/grants/search-grants.html?keywords=11.482>

### **Educating for Sustainable and Resilient Communities – Virginia and Maryland**

The Chincoteague Bay Field Station is now accepting applications for small grants to support coastal restoration and education initiatives on the Eastern Shore of Virginia and Maryland. The deadline for application is September 30, 2016.

<http://www.cbfieldstation.org/living-shore.html>

### **Faces of Biology Photo Contest**

The American Institute of Biological Sciences is hosting the Faces of Biology Photo Contest for those 18 years old or older. Photographs must depict a person engaging in biological research, in any setting. The deadline for entry is September 30, 2016.

<http://www.aibs.org/public-programs/photocontest.html>

### **GBIF Call for Proposals**

The Global Biodiversity Information Facility invites the submission of proposals for funding from the Caribbean and the Pacific under the Biodiversity Information for Development Programme. The deadline for submission of initial concept notes is November 10, 2016.

<http://www.gbif.org/newsroom/news/bid-caribbean-pacific-call-for-proposals>

### **Georgia-Pacific Innovation Grant**

Through the Kids in Need Foundation, the Georgia-Pacific Innovation Grant funds projects that make creative use of common teaching aids, approach curriculum from an imaginative angle, or tie nontraditional concepts together for the purpose of illustrating commonalities. Innovation and merit account for 40% of the evaluation. The deadline for application is September 30, 2016.

<https://kidsinneedfoundation.submittable.com/submit/63030>

### **Hands on the Land Mini-Grants**

Grants are available to new or existing Hands on the Land sites to fund place-based environmental education and STEM programming aligned with national K-12 education standards. The deadline for application is October 13, 2016.

<http://www.handsontheland.org/blog/374-funding-opportunity-hands-on-the-land-mini-grants.html>

### **Innovation Access Program**

Digital Harbor Foundation's Innovative Access Program is offering a free 3D printer and accompanying training to an educator in every state. The deadline for entry is October 1, 2016.

<http://www.digitalharbor.org/whatwedo/projects/innovation-access-program/>

### **Karma for Cara Foundation Micro-Grants**

The Karma for Cara Foundation encourages kids 18 and under to apply for micro-grants to complete service projects in their communities. The deadlines for application are October 1, January 1, April 1, and July 1.

<http://karmaforcara.org/get-involved/apply-for-a-microgrant/>

### **National Wetlands Awards**

The National Wetlands Awards recognize individuals who have demonstrated extraordinary effort, innovation, and excellence in the area of wetlands preservation. The education and outreach award is presented to a teacher, nonprofit staffer, state/local government employee, or reporter involved in hands-on wetland education. Be sure to check out the other categories. The deadline for nomination is November 21, 2016.

<http://www.elinwa.org/nominations>

### **NatureTech.Solutions**

NatureTech.Solutions is a new grant program to promote conservation and to improve environmental stewardship in the small islands of the Eastern Caribbean. The grant will be given for a completed technology or an application that will improve decision making about natural and cultural resources management in the small islands of the region, not to develop a proposed technology. The adaptation must be defined and performed by local residents. See the website for complete details.

<https://naturetech.solutions/>

### **Performance Partnership Pilots**

Performance Partnership Pilots enable pilot sites to test innovative, outcome-focused strategies to achieve significant improvements in educational, employment, and other key outcomes for disconnected youth using new flexibility to blend existing federal funds and to seek waivers of associated program requirements. The deadline for application is October 31, 2016.

<https://www.federalregister.gov/documents/2016/08/15/2016-19294/applications-for-new-awards-performance-partnership-pilots#h-4>

### **Prudential Spirit of Community Awards**

The Prudential Spirit of Community Awards honor young people in grades 5-12 for outstanding volunteer service to their communities. The deadline for application is November 8, 2016.

<http://spirit.prudential.com/view/page/soc>

### **Shell Science Lab Challenge**

NSTA and Shell support the Shell Science Lab Challenge, a competition for middle and high school teachers that awards laboratory resources and other prizes to school districts nationwide. The deadline for submission is January 23, 2017.

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

### **STEM Education Innovation Challenge Grant**

The Maine STEM Collaborative, with financial support from the Maine Space Grant Consortium, announces the inaugural STEM Education Innovation Challenge Grant Competition, coinciding with the biannual Maine STEM Summit. The goal of this competition is to provide K-12 educators the opportunity to try out highly innovative ideas in STEM teaching and learning, stimulating an innovation culture within Maine's K-12 community that does not think out of the box, but thinks there is no box, and empowers educators to try fast, learn quickly, fail small, and evolve rapidly. See the website for complete details. The deadline for application is October 14, 2016.

<http://www.msgc.org/educators/k12/stem-education-innovation-challenge-grant-competition/>

### **Toshiba/NSTA ExploraVision Competition**

The Toshiba/NSTA ExploraVision science competition encourages K-12 students to imagine what technology might be like in the future. The competition also helps teacher sponsors meet many of the National Science Education Standards while letting students experience scientific process and discovery. The project deadline is February 6, 2017.

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

### **Young Writers Contest**

The Young Writers Contest encourages young people, ages 10-18, to express themselves and their thoughts through writing and literacy skills. Winners will be selected based on originality, creativity, audience appeal, and writing skill. The winners will have their books published by BookLogix. The deadline for entry is December 31, 2016.

<http://booklogix.com/young-writers-contest>

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

### **Aquarium on Wheels Work Study Program - Maryland**

The Aquarium on Wheels program is an afterschool, high school work-study program at the National Aquarium for Baltimore City or County high school students. The deadline for application is September 28, 2016.

<http://www.aqua.org/learn/student-programs/aquarium-on-wheels>

### **Einstein Fellowship**

The Albert Einstein Distinguished Educator Fellowship is a paid fellowship for K-12 math, science, and technology teachers. Einstein Fellows spend a school year in Washington, D.C. serving in a federal agency or on Capitol Hill. The deadline for application is November 17, 2016.

<http://science.energy.gov/wdts/einstein/>

### **Elasmobranch Society's Diversity in Marine Science Initiative**

The American Elasmobranch Society is accepting applications for the Young Professional Recruitment Fund diversity initiative. The deadline for application is November 15, 2016.

<http://www.southernfriedscience.com/applications-now-open-for-the-elasmobranch-societys-diversity-in-marine-science-initiative/>

### **Fulbright Distinguished Awards in Teaching Program**

The Fulbright Distinguished Awards in Teaching Program provides funding for highly accomplished U.S. primary and secondary level teachers to take part in an intensive professional development program abroad. The deadline for application is December 1, 2016.

<http://fulbrightteacherexchange.org/applicants/getting-started/us-applicants>

### **Knowles Science Teaching Foundation Fellowships**

The five-year Knowles Science Teaching Foundation Fellowships are available in the areas of biology, mathematics, and physical sciences to individuals who demonstrate exceptional content knowledge in the area they intend to teach, a commitment to teaching high school in U.S. schools, professional ability, and the potential for leadership. The deadline for application is November 27, 2016.

<http://www.kstf.org/fellowships/>

### **MPA Federal Advisory Committee**

NOAA is seeking nominations to fill ten vacancies on the MPA Federal Advisory Committee for 2017-2020. The committee advises the Departments of Commerce and the Interior on the development and implementation of a national system of marine protected areas to connect and strengthen the nation's MPA programs. In particular, nominations for representatives of ocean industries, commercial and recreational fishing, Tribal and/or Pacific Islanders, State coastal or ocean agencies, natural and social science, cultural resource management, non-consumptive uses, and conservation interests are sought. The deadline for nomination is October 7, 2016.

<http://marineprotectedareas.noaa.gov/fac/>

### **PolarTREC Teacher Research Experiences**

PolarTREC (Teachers and Researchers Exploring and Collaborating) is currently accepting applications from teachers for teacher research experiences. Teachers are



invited to submit an application to participate in field research learning experiences during the 2017 (usually Arctic) or 2017-18 (usually Antarctic) field seasons. The deadline for application is October 10, 2016.

<https://www.polartrec.com/teachers/application>

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

### **ASLO 2017 Aquatic Sciences Meeting**

The theme of the 2017 meeting of the Association for the Sciences of Limnology and Oceanography, February 26-March 3, 2017 in Honolulu, Hawai'i, is Mountains to the Sea. The meeting will address water issues and promote scientific exchange across the freshwater to marine continuum, and will also embrace the Hawaiian cultural perspective linking land, water, and peoples. The deadline for abstract submission is October 14, 2016.

<https://www.sgmeet.com/aslo/honolulu2017/default.asp>

### **Bring the Ocean into Your Classroom - Online**

Bring the Ocean into Your Classroom with National Marine Sanctuaries, September 21, 2016. Learn about marine protected areas, free STEM educational resources to increase ocean literacy with your students, and more. Hurry – note the date.

<https://attendee.gotowebinar.com/register/5391920732998151683>

### **CERF Webinars**

The Coastal and Estuarine Research Federation will host a series of webinars free to members starting in October 2016. The first, Introduction to Science Videography, is a two-part series that will explore the history of science communication, introduce the idea of why video is increasingly becoming such an effective communication platform, and teach the methodology of creating a science video. (Click under Upcoming Events on the website)

<http://www.erf.org/index.php>

### **Citizen Science Association Conference**

The 2017 annual conference of the Citizen Science Association, May 17-20, 2017 in Saint Paul, Minnesota, will discuss successes and challenges in designing, implementing, sustaining, and evaluating projects. The deadline for submission is October 10, 2016.

<https://naaee.org/eeepro/learning/workshops-training/citizen-science-association-2017>

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

The Sapelo Island National Estuarine Research Reserve is hosting this teacher workshop December 4-6, 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 November 1, 2016.

Contact Georgia Graves at [georgiabeachwalk@bellsouth.net](mailto:georgiabeachwalk@bellsouth.net)

### **GLOBE Training for Eco-Schools - Online**

National Wildlife Federation's Eco-Schools USA is a collaborating partner of the GLOBE Program, and together they are working to engage Eco-Schools in the GLOBE Program. They offer free online training, September 6-October 31, 2016, for educators to

understand how to integrate GLOBE as a part of the 7-Step Framework and to become GLOBE trained. The course is self-paced within the specified dates.

<http://www.nwf.org/Eco-Schools-USA/GLOBE/On-Line-Course-Information.aspx>

### **Gulf of Mexico Oil Spill and Ecosystem Science Conference**

The theme of the 2017 Gulf of Mexico Oil Spill and Ecosystem Science Conference, February 6-9, 2017 in New Orleans, Louisiana, is Ecosystem Approaches to Gulf Response and Restoration. Hurry - the deadline for abstract submission is September 26, 2016.

<http://www.cvent.com/events/2017-oil-spill-and-ecosystem-science-conference/event-summary-b167156e2ddd40e5a4d371b459058545.aspx?tw=25-5A-7D-C2-10-F6-D1-0B-ED-4B-B5-45-F9-67-C1-2A>

### **International Conference on Interpretation**

The theme of the International Conference on Interpretation, March 19-23, 2017 in San Jose del Cabo, Mexico, is Interpretation: Awakening Curiosity to Conserve and Protect. There will be concurrent sessions, off-site sessions, evening events, and pre- and post-conference trips. The deadline for submission is October 2, 2016.

[http://www.interpnet.com/NAI/interp/Events/NAI\\_International\\_Conference/nai\\_events/NAI\\_International\\_Conference.aspx](http://www.interpnet.com/NAI/interp/Events/NAI_International_Conference/nai_events/NAI_International_Conference.aspx)

### **International Trails Symposium – Call for Presentations**

The Call for Presentations is open for the 2017 American Trails International Trails Symposium, May 7-10, 2017 in Dayton, Ohio. The symposium's theme is Trails Take Flight: Connecting People, Places, and Possibilities. The deadline for submission is December 9, 2016.

<http://americantrails.org/ee/index.php/symposium/2017>

### **Marine Mammals in Coastal Georgia Teacher Workshop - Georgia**

Join experts in the marine mammal field for this teacher workshop, October 28, 2016 in Brunswick, Georgia. Topics will include current research, conservation and management strategies, and more, along with curriculum and classroom activities. The deadline for registration is October 1, 2016.

Contact Georgia Graves at [georgiabeachwalk@bellsouth.net](mailto:georgiabeachwalk@bellsouth.net)

### **NAAEE Annual Conference**

The North American Association for Environmental Education Annual Conference 2016, From Inspiration to Impact, will take place October 19-22, 2016 in Madison, Wisconsin, with the 13th Annual Research Symposium, October 18-19, 2016. Join environmental educators from North America and abroad, take advantage of the field experiences offered, and more.

<https://naaee.org/conference>

### **National Marine Sanctuaries Webinar Series - Online**

Join sanctuary educators for this webinar series covering marine protected areas and more. The webinars provide educators with educational and scientific expertise, resources, and training to support ocean and climate literacy in the classroom. Check out Rivers to Reefs: Understanding the Vital Connections Between Rivers and the Ocean, October 1, 2016. If you are unable to join the live webinars, they are archived for future viewing.

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

### **National Service-Learning Conference**

The theme of the 28th Annual National Service-Learning Conference, March 22-25, 2017 in Anaheim, California, is Dare to Dream. The deadline for workshop and showcase proposals is October 16., 2016

<https://attendesource.com/profile/form/index.cfm?PKformID=0x961607c50>

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

NOAA's Ocean Exploration Program and partners offer Exploring the Deep Ocean with NOAA 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.

- December 3, 2016 with the Aquarium of the Pacific in Long Beach, California. The deadline for registration is November 11, 2016. Contact Staci Wong at [swong@lbaop.org](mailto:swong@lbaop.org)
- December 3, 2016 with the South Carolina Aquarium in Charleston, South Carolina. The deadline for registration is November 11, 2016. Contact Jaime Thom at [jthom@scaquarium.org](mailto:jthom@scaquarium.org)

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

### **Ocean Literacy Summit - Maine**

The New England Ocean Science Education Collaborative will host the 2016 Ocean Literacy Summit, November 3-4, 2016 in Portland, Maine. The summit will focus on the research and education activities surrounding Ocean Literacy principle #3, the ocean is a major influence on weather and climate. An interactive Science and Education Fair will highlight hands-on activities and interpretive ideas on teaching ocean literacy.

<http://www.neosec.dreamhosters.com/previous-summits/2016-ocean-literacy-summit/>

### **Wicked Problems, Dynamic Solutions - Online**

UNEP and partners offer this free MOOC, Wicked Problems, Dynamic solutions: The Ecosystem Approach and Systems Thinking, September 12-October 28, 2016. The course applies systems thinking to gain a better understanding of how ecosystems function and helps participants identify potential solutions to a myriad of problems inspired in part by the complex dynamics of ecosystems themselves. While the course has already started, registration is still open.

<http://www.environmentacademy.org/courses/course-v1:UNEP+ENV001+2016/about>

## **EDUCATIONAL RESOURCES**

### **Adopt a Drifter Program**

NOAA's Adopt a Drifter Program provides teachers with an educational opportunity to infuse ocean observing system data into their curriculum. The website includes lesson plans, drifter tracking, and more.

<http://www.adp.noaa.gov/index.html>

### **ALEARN**

The mission of this website is to provide the people of Alabama with useful, timely, and interesting information about their state waters and the creatures that live in and on the water. This website provides support for ALabama Education in aquatic sciences,

Aquaculture, Recreational fisheries and Natural resource conservation. There are lesson plans, activities, videos, and more, many with a focus on fish and aquaculture.  
<http://www.aces.edu/dept/fisheries/education/lessonplans.php>

### **Awesome Oceans**

The German non-profit project WissensWerte offers an eight-minute, hand drawn, animated short-film called Awesome Oceans. It has a Creative Commons license and can be used and shared for free in any way. It is available on YouTube and as a free download.

<https://www.youtube.com/watch?v=UHYBH0Vn-2Y&feature=youtu.be>  
<http://edeos.org/en/portfolio/awesome-oceans/>

### **Bottle Biology**

This website offers ways recyclable containers can be used to learn and teach about science and the environment. The projects promote science as a tool that everyone can use to explore the world. These explorations can be integrated with history, art, music, and more.

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

### **Carbon, Climate, and Energy Resources**

This selection from the InTeGrate collection, Carbon, Climate, and Energy Resources, focuses on fostering a deeper understanding of the carbon cycle and what happens when it is perturbed. The six self-contained units help students develop critical thinking skills, explore the dynamics of Earth's carbon cycle through biogeochemistry and the perspective of deep time, and learn how carbon was sequestered to produce traditional and nontraditional fossil fuels

[http://serc.carleton.edu/integrate/teaching\\_materials/change\\_inthe\\_air/index.html](http://serc.carleton.edu/integrate/teaching_materials/change_inthe_air/index.html)

### **Changing Tides**

This manual from World Wildlife Fund, Changing Tides: Climate Adaptation Methodology for Protected Areas, offers an approach for developing climate adaptation measures in coastal and marine protected areas. The report combines ecosystem- and community-based approaches to adaptation, and uses a participatory approach to build consensus among stakeholders on actions to be taken. Case studies describe lessons learned from field-testing at six protected areas.

[http://wwf.panda.org/what\\_we\\_do/how\\_we\\_work/protected\\_areas/naturalsolutions/campa/](http://wwf.panda.org/what_we_do/how_we_work/protected_areas/naturalsolutions/campa/)

### **Climate Change in My Backyard**

With support from NASA and in collaboration with the National Ecological Observatory Network (NEON) and schools and teachers throughout Illinois, the Chicago Botanic Garden has developed the Climate Change in My Backyard curriculum series. The project targets grades 5 to 12. The curriculum series integrates student participation in Project BudBurst with NASA climate data, to teach about climate change and its consequences for our environment using an earth-systems science approach.

<http://www.chicagobotanic.org/nasa>

### **Climate Data Primer**

NOAA's Climate.gov offers the online Climate Data Primer for those ready to learn or review some of the basics of climate data. Short webpages address comparing climate and weather, measuring climate, visualizing climate data, and more.

<https://www.climate.gov/maps-data/primer/climate-data-primer>

### **Climate Explorer**

NOAA offers the updated Climate Explorer with downloadable maps, graphs, and data tables of observed and projected temperature, precipitation, and other climate-related variables dating back to 1950 and out to 2100.

<http://toolkit.climate.gov/climate-explorer2/>

### **Climate Modeling 101**

This website from the National Academy of Sciences is a multi-part introduction to how climate models work. The materials include videos and animations about understanding, constructing, and applying climate models.

<http://nas-sites.org/climate-change/climate-modeling/>

### **Contrail Education Project**

NASA offers the Contrail Education Project with information about contrail science, educational resources, and more.

<http://science-edu.larc.nasa.gov/contrail-edu/>

### **CPALMS**

CPALMS is an online toolbox of information, vetted resources, and interactive tools that helps educators effectively implement teaching standards. It is the State of Florida's official source for standards information and course descriptions. For those unfamiliar with the website, the Browse and Search Resources page might be the most helpful. Be sure to check out the MEAs – STEM Lessons, also.

<http://www.cpalms.org/Public/search/Resource#0>

### **Crescynt**

The Coral Reef Science & Cyberinfrastructure Network (CRESCYNT) is a multi-tiered and multidisciplinary network of coral reef researchers, ocean scientists, cyberinfrastructure specialists, and computer scientists. The structure of CRESCYNT is a network of networks, currently including 18 disciplinary nodes and 7 technological nodes. The weekly blog covers general tools useful across science disciplines, (e.g. data repositories, the Open Science Framework), and other tools specifically applied to coral reef research (e.g. species database aggregators, coral reef 3D image mapping software).

<https://crescyntblog.wordpress.com/>

### **Dinosaur Crater of Doom**

Sign your class up for live video events with scientists studying the Chicxulub Crater cores, the crater from the asteroid impact that caused the mass extinction 66 million years ago. The *JOIDES Resolution* expedition drilled into the crater and scientists are meeting in Bremen, German to study the crater cores. From September 20-October 4, 2016, children's author Kevin Kurtz will be joining the Chicxulub scientists as an outreach educator. Check out the core sample and other activities for kids, scientific articles, and much more.

<http://www.kevkurtz.com/dinosaur-crater-of-doom/>

<http://joidesresolution.org/node/4531>

### **Earth Temperature Timeline**

XKCD has developed a timeline of the earth's temperature since the last ice age. Scroll down through it to get a visual idea of where we fit in the timeline.

<http://www.explainxkcd.com/wiki/index.php/1732>

### **Flower Gardens National Marine Sanctuary Education**

Be sure to check out the various education resources available from Flower Garden Banks National Marine Sanctuary. Materials include downloadable lessons, multimedia, links to educational materials about coral, oil spills, and more.

<http://flowergarden.noaa.gov/education/education.html>

### **GLOBE Observer**

GLOBE Observer is an international citizen science initiative to understand the global environment. Citizen science observations help scientists track changes in clouds, water, plants, and other life in support of climate research. Scientists can also use the data to verify NASA satellite data.

<http://observer.globe.gov/>

### **IRF.ORG**

With the sunseting of the Island Resources Foundation, the website, IRF.ORG, will continue on with an extended version of the foundation's history and programmatic activities, along with other materials. The website will incorporate tools to allow users to access virtually documents from the Dr. Edward L. Towle Island Systems Environmental Collection, which currently includes over 10,000 documents and other materials highlighting conservation in the insular Caribbean, housed at the H. Lavity Stoutt Community College in Tortola.

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

### **Job Search Writing**

The Purdue Online Writing Lab offers this practical guide to assist with job search writing. The website is divided into four sections: Preparing an Application, Job Search Letters, Resumes and Vitas, and Video Resumes. Check out the model letters, a discussion on resume page length, and more.

<https://owl.english.purdue.edu/owl/section/6/>

### **Microplastics**

The University of Florida and Sea Grant host this microplastics website, with links to educational and outreach materials, along with ways to get involved. Be sure to check out the multimedia.

<http://stjohns.ifas.ufl.edu/sea/microplastics/index.html>

### **Migration Station**

The U.S. Fish & Wildlife Service offers fact sheets on migratory fish. Check out the American Paddlefish, Atlantic Sturgeon, and more.

<https://www.fws.gov/fisheries/fishmigration/station.html>

### **NASA-Funded Research Results**

This NASA website is a public access portal to fee-free NASA-funded research data. This increased public access is intended to accelerate the dissemination of fundamental research results to advance scientific knowledge and help ensure the nation's future prosperity.

<http://www.nasa.gov/open/researchaccess>

### **Ocean Biome Activity Kit**

This lesson plan from Explore Science and the Santa Barbara Zoo is a collection of short stories, crafts, experiments, and more. All content is organized and written for Pre-K and K, and all activities are aligned to NGSS at the kindergarten level. A free preview is available for free registration.

<https://www.teacherspayteachers.com/Store/Explore-Science>

### **Ocean First Education**

Ocean First Education offers a range of web-based multi-disciplinary, standards-aligned courses, including short courses, full courses, and an explorer series. While registration is required, the Ocean Literacy course and Coral explorer series are free.

<https://www.oceanfirsteducation.com/>

### **Ocean Worlds**

NASA offers the feature, Ocean Worlds: Water in the Solar System and Beyond.

<http://www.nasa.gov/specials/ocean-worlds/>

### **Panorama**

Panorama is a partnership initiative to document and promote examples of replicable solutions across a range of conservation and development topics. Panorama allows practitioners to share their stories and learn how others have tackled problems across the globe. Current portals include Marine and Coastal Solutions and Protected Areas. Check out this new initiative.

<http://panorama.solutions/en>

### **Precipitation Education**

This website, presented by NASA's Global Precipitation Measurement mission, provides students and educators with resources to learn about Earth's water cycle, weather and climate, and the technology and societal applications of studying them. Resources include lesson plans and educational activities, scientist interviews, and more.

<https://pmm.nasa.gov/education/>

### **Special Explorations for Teachers and Students - Florida**

The University of Florida's Center for Precollegiate Education and Training offers the Special Explorations for Teachers and Students, an opportunity for Florida teachers to bring their students on campus for a custom designed science experience. The center also provides the opportunity for teachers to rent science equipment not readily available in most science classrooms.

<https://www.cpet.ufl.edu/teachers/sets/>

### **Science Teaching Resources**

The National Museum of Natural History's Q?rius website offers packages of topic resources for middle school students and teachers. The standards-linked resources include webcasts, lessons, and more. Topics include Volcanoes and Plate Tectonics, Biodiversity of Ocean Invertebrates, Island Biodiversity - Past to Future, and more.

<http://qrius.si.edu/teachers/online/science-teaching-resources>

### **Science of Wildfires**

The Jet Propulsion Laboratory offers Teachable Moments, where NASA/JPL education specialists share tips on how to engage students in STEM using the NASA science and mission news. Back-to-School Burn: The Science of Wildfires, discusses how scientists are studying wildfires, what they're learning, and more. Be sure to check out the links to two new lessons for students in grades 3-12 that have students use NASA data, algebra, and geometry to approximate burn areas, fire-spread rate, and fire intensity.

<http://www.jpl.nasa.gov/edu/news/column/teachable-moments/>

### **Squids4Kids**

Squids4Kids offers free science education materials based on the Humboldt squid. The website offers Teaching Materials about ecology, fisheries, neuroscience, climate, and more. When the squid are abundant, they are collected in conjunction with ongoing research or from sport fishermen who donate their excess catch, and frozen specimens may be available for educators.

<http://gillylab.stanford.edu/outreach.html>

### **Teachable Moments**

NASA/JPL education specialists share tips on how to engage students in science, technology, engineering and mathematics using the latest NASA science and mission news. Check out the Science of Wildfires, Earth's Rising Seas, and more.

<http://www.jpl.nasa.gov/edu/news/column/teachable-moments/>

### **Tonight's Sky**

The monthly Tonight's Sky stargazing guides keep viewers informed about constellations, deep sky objects, planets and events. Check this out at the beginning of each month.

[http://amazingspace.org/tonights\\_sky/](http://amazingspace.org/tonights_sky/).

### **Video of Coral Bleaching Behavior**

Queensland University of Technology coral researchers have captured the behavior of a coral as it's bleaching. Having placed a number of *Heliofungia actiniformis* corals and *Symbiodinium* algae in a controlled environment, the researchers were able to observe and record their response to rising temperatures.

<http://www.dailykos.com/story/2016/8/15/1560015/-The-first-video-of-coral-bleaching-behavior-Hot-ocean-water-continues-for-3rd-year-in-a-row>

### **Water as Habitat**

The Center for Ocean Sciences Education Excellence (COSEE) Florida and partners offer this collection of Water as Habitat learning modules. The high school level math modules supplement the video series focused on highlighting science research throughout Florida.

<http://www.coseeflorida.org/water-as-habitat.html>

### **Weird Animal Question of the Week**

National Geographic offers the Weird Animal Question of the Week blog. Each Saturday, they answer a posted question about the weird and wild animal world.

<http://news.nationalgeographic.com/weird-wild-qotw/>



### **Wildlife and Climate Change**

The World Wildlife Fund has created a series of interactive, self-paced online courses about wildlife and climate change. Topics include adaptation, wildlife and climate change, and more. The website offers downloadable climate change and wildlife resources for educators.

<http://wwfadapt.org/>

<http://www.worldwildlife.org/initiatives/wildlife-and-climate-change>

<https://www.worldwildlife.org/pages/wildlife-and-climate-change-educator-resources>

### **World Oceans Day**

The Ocean Project coordinates World Oceans Day, held every year on June 8. Read the 2016 report and prepare to join the celebration in 2017. To get involved for 2017, please contact Sam Mackiewicz at [SMackiewicz@theoceanproject.org](mailto:SMackiewicz@theoceanproject.org).

<http://www.worldoceansday.org/below-the-surface/world-oceans-day-2016-annual-report>

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

### **GotScience.org**

GotScience.org is a free digital magazine dedicated to making recent scientific research available. The articles summarize and analyze recent research studies and news events so that individuals understand the significance and limitations of these new studies. Each article includes links to original peer-reviewed journal studies. Subjects include Oceanography, Biology, Environment, and much more.

<http://www.gotscience.org>

### **MEAM**

The September 2016 issue of Marine Ecosystems and Management marks the one-year anniversary of the monthly, all-electronic newsletter. Articles include case studies from the Oceans Online Conference discussing Innovative uses of the internet for ocean planning and management, 3D Ocean Farming by GreenWave, and more. Check this out.

<https://meam.openchannels.org/meam>

### **National Estuaries Week**

National Estuaries Week is September 17-24, 2016 (going on now!). Every year, Restore America's Estuaries member organizations, NOAA, and others organize special events, including beach clean-ups, hikes, canoe and kayak trips, cruises, workshops, and more. Take advantage of volunteer opportunities and hands-on restoration in your nearby bay or estuary, participate in a guided walk or boat tour, or explore your estuary with family and friends. Check out events near you.

<https://www.estuaries.org/national-estuaries-week>

<http://oceanservice.noaa.gov/aa-updates/estuaries-week-092314.html>

### **World of Trail Magazine**

The World Trails Network's summer edition of their magazine is available for online viewing. Get the latest information on the 2016 World Trails Conference, guidebook writing, learn how countries around the globe are pursuing a larger trails network, and more. Check out the first edition, also.

<http://worldtrailsnetwork.org/online-magazine/>