

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
INFORMATION EXCHANGE FOR MARINE EDUCATORS

DECEMBER 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, 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>.

NOTABLE REFERENCES

Addressing Long-Term Ocean Problems with Short-Term Budgets and Mandates

Transitions of political power remind us that political time scales - and the changes in regulatory priorities that come with them - do not always match the time scales needed to conduct ecosystem based management effectively. The December 2016-January 2017 MEAM (Marine Ecosystems and Management) Newsletter discusses strategies and best practices that can help to sustain ocean conservation and management initiatives in the face of these changes.

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

Climate Change and Indigenous Peoples

The Forest Service's Pacific Northwest Research Station has published the report, Climate change and indigenous peoples: a synthesis of current impacts and experiences. It describes key frameworks that inform indigenous understandings of

climate change impacts and pathways for adaptation and mitigation; provides a synthesis of climate knowledge, science, and strategies that indigenous communities are exploring; and more.

<http://www.treesearch.fs.fed.us/pubs/53156>

Ocean Acidification in National Parks

The National Park Service Climate Change Response Program produces a quarterly newsletter that looks at scientific data and research projects related to climate change. The third quarter newsletter focuses on ocean acidification, with particular attention to the Pacific Northwest and Olympic National Park.

<https://www.nps.gov/subjects/climatechange/upload/2016-Q3-CCRP-Newsletter.pdf>

INITIATIVE OF THE YEAR

International Year of the Reef

2018 has been designated the 3rd International Year of the Reef (IYOR3), following a motion put forward by Palau at the ICRI (International Coral Reef Initiative) General Meeting. Plans are being made for setting up a coordinating committee, developing a website, and more.

Contact fstaub@icriforum.org

http://www.icriforum.org/sites/default/files/ICRIGM31_Reco_IYOR2018_0.pdf

FELLOWSHIPS OF THE MONTH

Fellowships

Be sure to check out these three fellowships through your local Sea Grant offices. The Coastal Management Fellows work for two years with state coastal zone programs on projects proposed by the states and selected by NOAA's Office for Coastal Management. NMFS-Sea Grant Fellows in Marine Resource Economics work on problems of public interest and relevance to the National Marine Fisheries Service under the guidance of mentors at participating NMFS Science Centers or Offices. NMFS-Sea Grant Fellowships in Population and Ecosystem Dynamics are for students interested in careers with a focus on modeling and managing systems of living marine resources. The deadlines for application are January 20 and 27, 2017. See the websites for complete details.

<http://seagrant.noaa.gov/FundingFellowships/NMFSSGFellowship/Application.aspx>

<https://coast.noaa.gov/fellowship/>

REQUESTS

Comment on Ocean Research Plan

The Subcommittee on Ocean Science and Technology, under the National Science and Technology Council, is requesting written input on its upcoming ten-year ocean research plan. The deadline for input is January 1, 2017.

<https://www.nsf.gov/geo/oce/orp/>

Reviewers Needed

Current, the journal of the National Marine Educators Association, is seeking peer reviewers to review manuscripts being considered for publication. Peer reviewers may be any professionals active in the areas of marine science education including

classroom teachers, university professors, informal educators, science communicators, and more. Reviewers are typically asked to review articles and provide feedback to authors once or twice a year.

Contact Meghan Marrero at mmarrero3@mercy.edu

GRANTS AND OPPORTUNITIES

Big Ocean Button Challenge

The XPRIZE Ocean Initiative is dedicated to ensuring our ocean is healthy, valued and understood. The Big Ocean Button Challenge is an app development competition to turn ocean data into needed products and services. The deadline for submission is March 31, 2017.

<http://www.xprize.org/oceaninitiative>

BioenergizeME Infographic Challenge

Participate in the U.S. Department of Energy's BioenergizeME Infographic Challenge. High school teams use technology to research, interpret, and then design an infographic that responds to one of five cross-curricular bioenergy topics. See the website for complete details. The deadline for submission is February 3, 2017.

<http://www.energy.gov/eere/bioenergy/infographic-challenge>

C-SPAN StudentCam Competition

C-SPAN's StudentCam Competition is a video documentary competition that encourages students to think about issues that affect communities and the nation. This year, students are asked to create a short (5-8 minute) video documentary on a topic related to the theme, Your Message to Washington. The deadline for submission is January 20, 2017.

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

Celebrate Urban Birds Mini-grants

Celebrate Urban Birds Mini-grants help fund creative bird-related neighborhood events. The deadline for application is December 31, 2016.

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

Climate Science Centers Recompetition

The U.S. Geological Survey is requesting applications to host Climate Science Centers in the Northwest and Southeast. The deadline for proposal is January 12, 2017.

<https://nccwsc.usgs.gov/csc-recompetition>

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, 2017.

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

Community College Innovation Challenge

The National Science Foundation's Community College Innovation Challenge seeks teams to propose innovative STEM-based solutions for real-world problems. Teams

must include three to five community college students, a faculty mentor, and a community or industry partner. The challenges includes Energy and Environment. The deadline for submission is February 15, 2017.

https://www.nsf.gov/news/special_reports/communitycollege/index.jsp

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, 2017.

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

Emerging Filmmakers Competition

The Gray's Reef Film Festival will be held in February 2017 in Savannah, Georgia, with the theme of Wonders of the Ocean. Student films are now being accepted for the Emerging Filmmakers Competition, and a call for poster art is underway as well. The deadline for submission is December 9, 2016.

http://graysreef.noaa.gov/news/features/2017/film_festival_2017/pdfs/emerging_filmmakers_form_2017.pdf

Euan P. McFarlane Environmental Leadership Award

The Euan P. McFarlane Award provides recognition for persons demonstrating initiative, resourcefulness, and leadership in promoting conservation and enhancement of the environment in the insular Caribbean, with priority given to the smaller islands of the eastern Caribbean.. The deadline for nomination is December 15, 2016.

<http://stthomassource.com/content/community/organizations/2016/11/23/cfvi-seeking-nominations-euan-p-mcfarlane-environmental-a>

Fund for Teachers Professional Development Grants

The Fund for Teachers Grant awards preK-12 teachers with funds to support professional development activities during the summer. Check the website for complete details. The deadline for application is January 31, 2017.

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

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, 2017.

http://ccrm.vims.edu/education/garden_club/index.html

Hollings Undergraduate Scholarship Program

NOAA's Ernest F. Hollings scholarship program provides undergraduates with awards that include academic assistance for full-time study; a 10-week, full-time internship position during the summer at a NOAA or partner facility; and, if reappointed, academic assistance during a second academic year. The internship provides hands-on, multi-disciplinary educational training experience involving students in NOAA-related scientific, research, technological, policy, management, and education activities. The deadline for application is January 31, 2017.

<http://www.noaa.gov/office-education/hollings-scholarship>

International Schools Essay Competition and Debate

The Trust for Sustainable Living invites students ages 7-17 to write open letters to the newly-elected UN Secretary General, outlining their ideas for practical climate action. The deadline for entry is December 15, 2016.

<http://www.livingrainforest.org/explore/schools-debate/>

Marine Art Contest

Students are encouraged to create artistic interpretations of local species of the Gulf of Maine. The five divisions in the contest are by three grade ranges, scientific illustration, and computer graphics. Plenty of time to do your best work – the deadline for entry is April 29, 2017.

<http://ma-marine-ed.org/mmeevents/marine-art-contest/>

NSTA Teacher Awards

The National Science Teachers Association sponsors numerous awards for educators. Check the website for complete details of all the awards. The deadline for application for most is December 15, 2016.

<http://www.nsta.org/about/awards.aspx>

Pacific Northwest B-WET Funding

The NOAA Pacific Northwest Bay Watershed Education and Training (B-WET) Program is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. Funded projects provide meaningful watershed educational experiences for students, related professional development for teachers, and help to support regional education and environmental priorities in the watersheds of the Pacific Northwest. The deadline for application is January 4, 2017.

<http://www.grants.gov/web/grants/search-grants.html?keywords=NOAA-NOS-ONMS-2017-2005088>

Schools Sustainability Challenge

Teachers are invited to submit short videos showcasing their schools' best sustainability projects for The Trust for Sustainable Living's Schools Sustainability Challenge. The deadline for entry is December 15, 2016.

<http://www.livingrainforest.org/explore/schools-sustainability-challenge/>

SchoolsNEXT Design Competition

This annual competition challenges middle school students to design schools that will enhance learning, conserve resources, be environmentally responsive, and engage the surrounding community. The deadline for registration is December 31, 2016.

<http://www.cefpi.org/websites/main/index.php?p=161>

Science Without Borders Challenge

Khaled bin Sultan Living Oceans Foundation's Science without Borders® Challenge is an international art competition that engages students ages 11-19, to promote the need to preserve, protect, and restore the world's oceans and aquatic resources. The theme for the 2016 challenge is Reef SuperSpecies. The deadline for entry is April 24, 2017.

<http://www.livingoceansfoundation.org/education/science-without-borders-challenge/>

Shell Science Teaching Award

The Shell Science Teaching Award recognizes K–12 science teachers in the United States and Canada who have had a positive impact on their students, school, and

community through exemplary classroom science teaching. One of many NSTA awards, the deadline for application is January 6, 2017. Be sure to check out the Shell Urban Science Educators Development Award and others.

<http://www.nsta.org/about/awards.aspx>

USDA Northwest Climate Hub Call for Proposals

The USDA Northwest Climate Hub hosts a request for proposals to support their mission to serve farms, forests, and rangelands in a changing climate. Hurry - the deadline for letters of intent is December 5, 2016.

<https://www.agclimate.net/2016/11/03/request-for-proposals-from-the-usda-northwest-climate-hub/>

Walmart Foundation Community Grant Programs

The Walmart Foundation supports charitable organizations through its Community Grant 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, 2016.

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

Witnessing Change Video Competition

This competition from the Climate Cost Project gives high school and college students an opportunity to document local impacts of climate change. In addition to the video contest, the Climate Cost Project provides interdisciplinary educational materials on the economics of climate change, including a specialized climate change economics game and an environmental economics chapter.

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

World of 7 Billion Video Contest

The World of 7 Billion video contest challenges students to create a short (60 seconds or less) video illustrating the connection between a world population of seven billion and one of the three challenges of the contest – climate change, ocean health, and rapid urbanization. The deadline for submission is February 23, 2017.

<https://naaee.org/eeopro/opportunities/world-7-billion-video-contest>

FELLOWSHIPS, INTERNSHIPS, AND TEMPORARY OPPORTUNITIES

Alaska Sea Grant State Fellowship

The state fellowship program provides an opportunity for graduate students interested in marine resources and policy decision-making in Alaska. The program is a paid twelve-month fellowship that provides on-the-job experience in Alaska. . The deadline for application is February 24, 2017.

<https://seagrants.uaf.edu/research/state-fellowship/fellows-information.php>

Marine Education Internship

The Smithsonian Exhibit at the St. Lucie County Aquarium in Fort Pierce, Florida is located on the Indian River Lagoon, a diverse estuary near the Atlantic Ocean. Hurry - the deadline for application to this paid internship is December 9, 2016.

Contact Cristin Krasco at KrascoC@si.edu

Maritime Adventure Camp Internship

SUNY's Maritime's Adventure Camp in Throggs Neck, New York offers a paid internship as an integral part of their program for students in grades 5-9. See the website for details.

<https://maritime.interviewexchange.com/jobofferdetails.jsp;jsessionid=C8230B523C69DA25C78490905263B5EA?JOBID=79175>

NASA Earth and Space Science Fellowship 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 2017-2018 academic year. See the document for complete details. The deadline for application is February 1, 2017.

<https://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solld={1A7F0A8C-1126-EA39-6584-10DBD500C8AC}&path=open>

National Coral Reef Management Fellowship - Northern Marianas

The National Coral Reef Management Fellowship Program is recruiting for a one-year Coral Reef Management Fellowship position in the Commonwealth of the Northern Mariana Islands, beginning in January 2017. Hurry - the deadline for application is December 9, 2016.

<https://www.nsujobs.com/applicants/jsp/shared/frameset/Frameset.jsp?time=1480261369685>

Science Communication Fellowship

This fellowship program from the Ocean Exploration Trust immerses formal and nonformal educators in the Nautilus Corps of Exploration and empowers them to bring ocean exploration to a global audience. The deadline for application is January 13, 2017.

<http://www.oceanexplorationtrust.org/communication-fellowship>

CONFERENCES, WORKSHOPS, AND PROFESSIONAL DEVELOPMENT

American Meteorological Society Annual Meeting

The AMS Annual Meeting, January 22-26, 2017 in Seattle, Washington, will focus on obtaining science-driven observations to support weather prediction, situational awareness, societal impacts, and many other factors informed by meteorology.

<https://annual.ametsoc.org/2017/>

Deep Sea Coral Webinars - Online

The NOAA Deep Sea Coral Research and Technology Program is sponsoring a webinar series to highlight research, exploration, and management of deep sea corals and sponges found in U.S. waters.

<https://www.openchannels.org/news/news/upcoming-webinars-noaa-deep-sea-coral-research-and-technology-program>

Earth Expeditions and Global Field Master's Program - Various

Miami University's Project Dragonfly and partners offer Earth Expeditions graduate courses and the Global Field Program master's degree, many with an emphasis on

marine science and education. Sites for 2017 include Australia, the Galapagos, and many more. The deadline for application is January 28, 2017.

<http://earthexpeditions.miamioh.edu/marine>

FedGIS – Washington, D.C.

The 2017 Esri Federal GIS (FedGIS) Conference, February 13-14, 2017 in Washington, D.C., will bring together government leaders, elected officials, GIS professionals, and tech experts. Explore ways people are using geospatial technology to accomplish their mission and meet the world's challenges. DevSummit DC takes place the following day. Registration is complimentary for all federal government employees. The deadline for map submission is December 15, 2016.

<http://www.esri.com/events/federal>

Georgia Shorebirds Conservation Teacher Workshop - Georgia

The Sapelo Island National Estuarine Research Reserve is hosting this teacher workshop January 13-15, 2017 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 December 30, 2016.

Contact Georgia Graves at georgiabeachwalk@bellsouth.net

Gulf of Mexico Exploration Teacher Workshops – Texas and Florida

Join the DEPEND Consortium (Deep Pelagic Nekton Dynamics of the Gulf of Mexico) for teacher workshops, January 21, 2017 in Galveston, Texas and February 20, 2017 in Dania Beach, Florida. DEPEND research projects include deep sea biodiversity, animal adaptations, and more. Participants will receive take-home lessons, resources, and an application to participate in a research cruise.

<http://outreach.deependconsortium.org/index.php/education/2017-application>

International Congress for Conservation Biology

The call for abstracts for the 2017 International Congress for Conservation Biology, July 23-27, 2017 in Cartagena, Colombia is open. The deadline for submission is December 7, 2016.

<http://conbio.org/mini-sites/iccb-2017/>

Leaders in Global Development - Online

This Massive Open Online Course (MOOC) from the University of Queensland, January 10, 2017 for eight weeks, will help participants to learn key leadership skills, concepts, and theories needed to be a successful leader in development and determine their leadership style within different development contexts.

<https://www.edx.org/course/leaders-global-development-uqx-lgdm1x>

Leveraging Public-Private Funding for Trails - Online

American Trails and the National Park Service offer the free webinar, Powerful Partnerships: Lessons Learned on Leveraging Public-Private Funding for Trails, December 8, 2016, covering funding strategies for water and land trails, and reviewing two case studies of Ocean Watch articles, public-private partnerships.

<http://www.americantrails.org/resources/funding/Webinar-Innovative-Funding-Strategies.html>

Marine Education Workshop - Florida

The Newfound Harbor Marine Institute will offer its annual Marine Education Workshop, April 7-9, 2017 on Big Pine Key, Florida. The workshop offers the opportunity to study a variety of marine science concepts within the sub-tropical program sites including soft and hard coral communities, mangrove islands, and more. Registration is first come, first served.

<http://www.nhmi.org/tchwshp.htm>

Monarch Curriculum Webinar - Online

This webinar, December 8, 2016 from the U.S. Fish and Wildlife Service, is free and open to all. The goal of the webinar is for participants to learn about various monarch resources and curriculum.

Phone: 1-877-788-7289

Participant Passcode: 83331950#

<http://nctc.adobeconnect.com/monarchwebinar/>

Monthly Webinar Series: Bringing New Ideas and Innovation to the Field of EE

NAAEE hosts this free monthly webinar series on eePRO as part of NAAEE and Cornell University's EECapacity initiative. The webinars are on topics of interest to environmental education professionals in both formal and nonformal settings. The initial webinar of 2017 is Climate Change Adaptation & Resiliency, January 24, 2017.

<https://naaee.org/eeepro/learning/monthly-webinar-series>

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.

- February, 18, 2017 with the Dauphin Island Sea Lab on Dauphin Island, Alabama. The deadline for registration is January 27, 2017. Contact Sara Johnson at sejohnson@disl.org
- February, 25, 2017 with the Oregon Museum of Science and Industry in Portland, Oregon. The deadline for registration is February 3, 2017. Contact Nate Lesiuk at nlesiuk@omsi.edu
- March 25, 2017 with the University of South Florida College of Marine Science in St. Petersburg, Florida. The deadline for registration is March 3, 2017. Contact Teresa Greely at greely@marine.usf.edu
- April 8, 2017 with the New England Aquarium in Boston, Massachusetts. The deadline for registration is March 17, 2017. Contact Christine Chirch-Cassidy at trc@neaq.org

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

Picking Up STEAM: Using Models and Data to Understand Clouds - Online

Practice STEAM through the use of inquiry-based science activities from NASA curriculum guides, December 6, 2016. This workshop will guide participants through inquiry-based learning activities related to clouds, phase change, light, water cycle, weather and climate, all using authentic data sets. Free registration is required.

<https://www.eiseverywhere.com/ehome/index.php?eventid=205303&>

Protected Species Observer - Florida

Marine Protected Species Consulting will hold a Protected Species Observer training February 25-26, 2017 in Juno Beach, Florida. The certification course covers the regulations for reducing seismic survey impacts to marine mammals and sea turtles, objectively documenting animal behavior, and how to visually locate and identify the animals.

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

Restore America's Estuaries and Coastal Society Summit

Restore America's Estuaries and The Coastal Society will bring together the coastal restoration and management communities for an integrated discussion to explore issues, solutions, and lessons learned, December 10-15, 2016, in New Orleans, Louisiana. The theme of the conference is Our Coasts, Our Future, Our Choice.

<https://www.estuaries.org/Summit>

Visualizing Change Training - Online

Visualizing Change is a 3-year grant funded by NOAA's Office of Education to help build capacity in the informal science education field to more effectively use global data sets to communicate about climate change, its impact on coastal zones and marine life, and how people are working to use scientific information to shape our world. The webinars, January 11 and 25, 2017, will take participants through ways to engage audiences using narratives with global data visuals, along with best practices based on targeted social and cognitive research.

<http://tinyurl.com/VisChangeTrainingWebinar>

EDUCATIONAL RESOURCES

Ambitious Science Teaching

The Ambitious Science Teaching website offers tools and ideas for K-12 science classrooms and serves as a social networking site for science educators. Ambitious Science Teaching is a pedagogical philosophy that emphasizes student-centered inquiry and learning and authentic assessments. The video gallery hosts videos of full lessons, including Ecosystem Dynamics for high school and more.

<http://ambitiousscienceteaching.org>

Battle of the Atlantic – Part 2

Archaeologists visited the maritime legacy of North Carolina's Outer Banks to explore the remains of a World War II convoy battlefield. The wrecks sit 40 miles offshore under 700 feet of water. Read about the expedition and the individual ships, view the site plans, and more.

<http://sanctuaries.noaa.gov/news/nov16/exploring-wwii-battle-of-the-atlantic-part-2.html>

Before the Flood – Online

This National Geographic film is now available for free (through your provider). Viewers are taken to five continents and the Arctic to witness climate change, to hear discussions with scientists, and more. For a free DVD to show on campus, contact Wendy Cohen. Be sure to check out the other full episodes available for free viewing.

Contact Wendy Cohen at wendy@picturemotion.com

<http://channel.nationalgeographic.com/before-the-flood/videos/before-the-flood3/>

Climate Action School Resources

The Trust for Sustainable Living offers links to a variety of websites with resources about climate change. Check these out.

<http://www.livingrainforest.org/explore/schools-debate/schools-resources/>

Climate spirals

Effectively communicating climate change is a challenge. The animated climate spiral is a different way to show the historically observed changes which resonates with a broad audience. Check out these additional versions of arctic sea ice, atmospheric carbon dioxide, and more. This page will provide updated versions for several different aspects of the climate, so check back regularly.

<http://www.climate-lab-book.ac.uk/spirals/>

Collection of Climate and Energy Educational Resources

As a reminder, the CLEAN (Climate Literacy & Energy Awareness Network) Collection is a rigorously reviewed collection of educational resources aligned with the Climate Literacy and the Energy Literacy frameworks, and the Next Generation Science Standards. The review process engages scientists and educators in vetting each resource for scientific accuracy, pedagogic effectiveness, and useability. Be sure to return often to browse the collection.

http://cleanet.org/clean/educational_resources/index.html

Community Partner Program

Youth Service America's Community Partner Program is a coalition of organizations that share a vision of youth as leaders today and tomorrow. They are looking for like-minded organizations to join YSA's Community Partner Program. Members will receive resources, tools, best practices, and networking.

<http://ysa.org/about/partners/communitypartner/>

Effectively Engaging with Climate Skeptics

This activity is part of the On the Cutting Edge Peer Reviewed Teaching Activities collection.. Students select an argument of a climate skeptic, research it, and write up a mock dialog that portrays a back-and-forth discussion between the skeptic and a non-skeptic, while presenting a scientific argument that counters the false claim. Be sure to check out the rest of the materials from On the Cutting Edge.

<http://serc.carleton.edu/NAGTWorkshops/oceanography/activities/72558.html>

EO Kids: Fresh Water

NASA's Earth Observatory introduces a new publication – EO Kids – bringing science stories from Earth Observatory to a younger audience. The premier issue explores how NASA observes and measures fresh water from space. The downloadable publication offers hands-on activities, experiments, and more.

<http://earthobservatory.nasa.gov/eokids/>

Exploring Animal Behavior App

This free app from the Lincoln Park Zoo lets users step into the shoes of an animal behavior scientist by conducting their own investigation. It offers background information on the study of animal behavior, a default ethnogram, the ability to make user-defined ethnograms, and more.

<https://itunes.apple.com/us/app/observe-to-learn-exploring/id597484368?mt=8>

Extreme Event Game

The Extreme Event game for 12- to 48-players helps groups from communities to classrooms see how they'd fare in a disaster scenario. The quick-paced game is played on tablets or laptops and features an unfolding disaster in four phases—preparation, response, recovery, and adaptation. Three scenarios are currently available: hurricane, flood, and earthquake.

<https://www.koshland-science-museum.org/extreme-event/>

Federal Resources for P-12 Educators

This presentation, offered live November 1, 2016, discussed professional development opportunities, tools, and resources for use in your classrooms. The full archived presentation is available on YouTube. Be sure to respond to the survey after watching the video – responses help to identify future events. Speakers are from the Department of Energy, NOAA, and the Smithsonian.

<https://www.youtube.com/watch?v=g9zPtGtXVo0&feature=youtu.be>

Hands-on Activities for Teaching About EBM

The November, 2016 issue of the Marine Ecosystems and Management newsletter offers examples of hands-on activities for teaching about ecosystem services and ecosystem based management. The activities range from serious games to simple activities.

<https://meam.openchannels.org/news/meam/ebm-toolbox-hand-activities-teaching-about-ecosystem-services-and-ebm>

iNaturalist

iNaturalist is a citizen science app that allows people to take pictures of species and share them with an online base of other citizen scientists and naturalists for identification. Observations are put into data repositories and shared with scientists and resource managers.

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

Lessons Learned in Public Engagement

The Ocean Project hosts this website with a summary of lessons learned in public engagement from year three of the Innovative Solutions Grants + Program. Grantees from year three have completed their projects and submitted their final reports, with tips and lessons for other aquariums and zoos that share their interest in engaging visitors and advancing conservation.

<http://bit.ly/2fWOMcA>

Marina Convergent Margin Videoconferencing Opportunity

The next expedition of the *JOIDES Resolution*, December 15, 2016-February 7, 2017, Expedition 366: Marina Convergent Margin, will investigate geochemical, tectonic, and biological processes of an active subduction zone in the western Pacific. Sign up for a live ship-to-shore video interaction with the expedition scientists and crew; requests will be handled on a first come, first served basis.

<http://joidesresolution.org/>

<https://docs.google.com/a/noaa.gov/forms/d/e/1FAIpQLSf8NA50tEsrc5JSdwf1IzIkELNmXwqgeYPysGaiz9UF04J2EA/viewform>

Moana Educator's Guide and Activity Packet

Themed to the film, Moana, Disney offers a downloadable Educator's Guide and Activity Packet. The materials include background information about storytelling, ocean waves, wayfinding, and sea turtles, as well as lesson plans and activities that promote the protection of the ocean and ocean animals.

<http://movies.disney.com/moana>

NASA Ask a Scientist

NASA's Ask a Scientist page is broken into different areas of expertise, including geologist, space scientist, and more. Some offer answers to frequently asked questions, while some link directly to an ask-a-scientist link. Note that a couple of the links may not currently work.

<https://science.nasa.gov/ask-a-scientist>

Ocean Sustainability

InTeGrate (Interdisciplinary Teaching about Earth for a Sustainable Future) offers the Ocean Sustainability module on its website. This 2-to 3-week module introduces the importance of oceans, basic ocean processes, and impacts of human activity on ocean health. One of the primary goals of this module is for students to understand the role that humans play in altering marine systems and their inhabitants and to recognize the power we have as individuals and a society to work toward practices that will sustain the ocean. The module is part of a growing collection of classroom-tested modules and courses; be sure to check these out.

http://serc.carleton.edu/integrate/teaching_materials/modules_courses.html

Oceans International Educational Project

Oceans is an international educational project for students ages 12-16. The objective is to make the students realize, through their own observations, that the sea is not the same worldwide, and have them share their observations with other schools around the world using information and communication technologies. Materials are also available in Spanish and other languages. Enrollment for the three-month program is now open.

<http://sagulla.org/en/education/>

Okeanos Explorer Shakedown Cruise

From December 1-16, 2016, NOAA Ship Okeanos Explorer will start its field season with an at-sea "shakedown" in Hawai'i, when all of the ship's mission systems undergo rigorous tests to ensure everything performs properly. For NOAA, 2017 marks the third year of the Campaign to Address Pacific monument Science, Technology, and Ocean NEeds (CAPSTONE) field effort to collect scientific data in deepwater areas of U.S. marine protected areas in the central and western Pacific.

http://oceanexplorer.noaa.gov/okeanos/explorations/ex1608_1609/welcome.html

Pacific Meridional Mode

This web page from Climate.gov describes the Pacific Meridional Mode and how it affects weather patterns.

<https://www.climate.gov/news-features/blogs/enso/your-eight-minute-speed-date-pacific-meridional-mode>

Sailors for the Sea

Check out the Sailors for the Sea website. The Kids Environmental Lesson Plans (KELP) help students understand the ocean's influence on them and their influence on

the ocean. The lessons are designed to foster an understanding of the marine world through simple materials and minimal preparation. Topics include animals, sea chemistry, and more; note - free registration is required. The Green Boating Guide covers Boat Maintenance, Pollution Prevention, Eco-Friendly Products, and much more. Be sure to check out Ocean Watch (online articles about diverse subjects) and more.
<http://www.sailorsforthesea.org/programs/kelp>

Science in the Movies

Science in the Movies is a school assembly program that teaches physics and chemistry through stunt demonstrations.
<http://www.scienceinthemovies.com/>

Science Sessions Podcasts

The Proceedings of the National Academy of Sciences of the United States of America (PNAS) offers the podcast program, Science Sessions. Learn the behind-the-scenes story of work published in PNAS along with a broad range of scientific news about discoveries that affect the world around us.
<http://www.pnas.org/site/podcasts/podcasts.xhtml>

Socio-Environmental Immersion Program Lectures – Online

This free, downloadable video lecture series from the National Socio-Environmental Synthesis Center is the product of their Socio-Environmental Immersion Program workshops. Each lecture provides an overview of a discipline and its history, foundational theories, and methods; and describes linkages of the overall discipline to socio-environmental issues and research. Topics include environmental history, change in socio-environmental systems, anthropology, sociology, economics, and ecology.
<http://www.sesync.org/immersion-program-lectures-related-resources>

Sound in the Sea

The Discovery of Sound in the Sea (DOSITS) website continues to offer new resources on underwater acoustics. An inexpensive interactive iBook, Importance of Sound in the Sea, is available for iPad, iPhone, and osMac. A suite of short, educational includes Marine Mammal Hearing, Hearing in Marine Fishes, and more.
<http://www.dosits.org/resources/decisionmakersresources/>
<http://www.dosits.org/book/>

STEM Spark Newsletter

The STEM Spark Energy Education newsletter highlights a technology office with educational resources which include lesson activity guides, Energy 101 videos, and career maps as well as a calendar of education competitions, trainings, and internships. The newsletter builds on the Energy Literacy Framework. Past issues highlighted wind energy, solar energy, and more.
<http://energy.gov/eere/education/stem-spark-news>

Untamed Science

Untamed Science is a video series and blog for those interested in learning about living things and how they interact with one another. The website features videos about specific creatures (Tree of Life) as well as Biology topics in style ranging from serious to comical. Check out the blog and the Filmmaking sections.
<http://www.untamedscience.com/>

Video Teleconference to Antarctica

Classes in grades 5-9 can connect with scientists in Antarctica through video teleconference calls. The deadline for application is December 23, 2016.

https://rutgers.qualtrics.com/SE/?SID=SV_50yHNZm7E3YUz7D

Virtual Field Trip: ROV SuBastian in the Mariana Subduction System

EarthEcho will join Schmidt Ocean Institute's research vessel *Falkor* as scientists explore several new hydrothermal vents, November 29-December 21, 2016. Research Professor Bill Chadwick will explain how the research aims to confirm that different vent sites in the Mariana subduction system - specifically the arc and back-arc areas - have distinct ecosystems. Scientists will use the new 4,500 m capable ROV SuBastian to visually explore biodiversity and characterize the fluid chemistry and geology of these sites. The Virtual Field Trip will be tailored to middle grade (primarily science) classrooms, though all grade levels are welcome to participate. Be sure to check out the earlier cruises and stay tuned for future explorations.

<https://schmidtocean.org/cruises/>

https://docs.google.com/a/noaa.gov/forms/d/e/1FAIpQLSeUbh0tPAI3_tJbIjXlKKil_LG7YVwlsZUT5uiDeDQP8O8sPQ/viewform?c=0&w=1

WWF Adapt

WWF Adapt provides a range of learning tools that help conservation, development and humanitarian professionals better understand climate change adaptation, resilience-building and multi-hazard disaster risk reduction and their relationships to the natural environment. There are interactive courses, learning resources, and more.

<http://wwfadapt.org/>

INITIATIVES, JOURNALS, and MORE

The Global Registry

This article in the *Parks Journal* outlines the history and context of the development of the Global Registry of indigenous peoples and community conserved territories and areas, abbreviated as ICCAs. This registry was developed through a long-term consultation process and an international partnership.

http://parksjournal.com/wp-content/uploads/2016/11/PARKS-22.2-Corrigan-et-al-10.2305IUCN.CH_2016.PARKS-22-2CC.en_.pdf

SEVENSEAS

SEVENSEAS is a free monthly publication that promotes marine conservation through community engagement, online media, and eco-tourism. The magazine offers rich imagery and an underlying conservation message. The website also offers a weekly marine conservation jobs list with full-time positions, internships, and more.

<http://www.sevenseastravelmagazine.com/magazine>

SXSW Eco

Listen to the Ocean Science Radio podcast as the team headed to the annual green tech event; SXSW Eco. The team talks with keynote speakers, presenters, and others.

<https://soundcloud.com/ocean-science-radio/sxsw-eco>