**Handbook for LTER Education**

Second Edition - 2017

1. **Purpose of Handbook** = provide general guidance and background information on the LTER and the Education and Outreach Committee (EOC) to allow those working with the committee to be the most effective.
2. **Mission of LTER Sites** = ongoing research at LTER sites must test ecological theories and significantly advance understanding of the long-term dynamics of populations, communities and ecosystems. It often integrates multiple disciplines and, through cross-site interactions, examines patterns or processes over broad spatial scales. Recognizing that the value of long-term data extends beyond use at any individual site, NSF requires that data collected by all LTER sites be made broadly accessible.
3. **LTER Sites – as of 2017**

 Abbrev. Full Name Location

 AND [Andrews Forest](https://andrewsforest.oregonstate.edu/) Blue River, Oregon

 ARC [Arctic](http://arc-lter.ecosystems.mbl.edu/) Brooks Range, North Slope, Alaska

 BES [Baltimore Ecosystem Study](http://www.beslter.org/) Baltimore, Maryland

 BLE [Beaufort Lagoon Ecosystem](https://lternet.edu/node/84426) Kaktovik Lagoon, Alaska

 BON [Bonanza Creek](http://www.lter.uaf.edu/) Fairbanks, Alaska

 CCE [California Current Ecosystem](http://cce.lternet.edu/) La Jolla, California

 CDR [Cedar Creek](https://www.cedarcreek.umn.edu/) East Bethel, Minnesota

 CAP [Central Arizona – Phoenix](https://sustainability.asu.edu/caplter/) Phoenix, Arizona

 CWT [Coweeta](https://www.srs.fs.usda.gov/coweeta/) Otto, North Carolina

 FCE [Florida Coastal Everglades](http://fcelter.fiu.edu/) Miami, Florida

 GCE [Georgia Coastal Ecosystems](https://gce-lter.marsci.uga.edu/) Sapelo Island, Georgia

 HFR [Harvard Forest](http://harvardforest.fas.harvard.edu/research/LTER) Petersham, Massachusetts

 HBR [Hubbard Brook](http://www.hubbardbrook.org/) Lincoln, New Hampshire

 JRN [Jornada Basin](https://jornada.nmsu.edu/lter) Las Cruces, New Mexico

 KBS [Kellogg Biological Station](https://lter.kbs.msu.edu/) Hickory Corners, Michigan

 KNZ [Konza Biological Station](http://lter.konza.ksu.edu/) Manhattan, Kansas

 LUQ [Luquillo](http://luq.lternet.edu/) Luquillo, Puerto Rico

 MCM [McMurdo Dry Valleys](https://lternet.edu/sites/mcm)\* McMurdo Ice Shelf, Antarctica

 MCR [Moorea Coral Reef](http://mcr.lternet.edu/) Island of Moorea, French Polynesia

 NWT [Niwot Ridge](http://niwot.colorado.edu/) Boulder, Colorado

 NTL [North Temperate Lakes](https://lter.limnology.wisc.edu/) Madison, Wisconsin

 NES [Northeast U.S. Shelf](https://lternet.edu/node/84413)\* Middle Atlantic – Gulf of Maine

 NGS [Northern Gulf of Alaska](https://lternet.edu/node/84415)\* Gulf of Alaska, Alaska

 PAL [Palmer Antarctica](http://pal.lternet.edu/) Western Antarctic Peninsula

 PIE [Plum Island](http://pie-lter.ecosystems.mbl.edu/) Plum Island Sound, Massachusetts

 SBC [Santa Barbara Coastal](http://sbc.lternet.edu/)  Santa Barbara, California

 SEV [Sevilleta](http://sev.lternet.edu/) La Joya, New Mexico

 VCR [Virginia Coast Reserve](https://www.vcrlter.virginia.edu/home2/) Cape Charles, Virginia

 NCO [Network Communication Office](https://www.nceas.ucsb.edu/lter-network-communications-office) Santa Barbara, California

 \* = web site under development – using the NCO general site

1. **EOC – contact and link to their education program at each site:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| AND | [Andrews Forest](https://andrewsforest.oregonstate.edu/outreach/education) | O'Connell, Kari | kari.oconnell@oregonstate.edu | (541) 737-6495 |
| ARC | [Arctic](http://arc-lter.ecosystems.mbl.edu/education-and-outreach) | Morrison, Amanda | amanda.j.morrison@colostate.edu | (970) 491-3552 |
| BES | [Baltimore Ecosystem Study](http://www.beslter.org/frame5-stuff.html) | Berkowitz, Alan | berkowitza@caryinstitute.org | (845) 677-7600 x 311 |
| BES | [Baltimore Ecosystem Study](http://www.beslter.org/frame5-stuff.html) | Caplan, Bess | caplanb@caryinstitute.org | (410) 455-1863 x125 |
| BLE | Beaufort Lagoon Ecosystem |  |  |  |
| BON | [Bonanza Creek](http://www.lter.uaf.edu/outreach) | Sparrow, Elena | ebsparrow@alaska.edu | (907) 474-7699 |
| BON | [Bonanza Creek](http://www.lter.uaf.edu/outreach) | Conway, Alix | alix.conway@usask.ca |  |
| CCE | [California Current Ecosys](http://cce.lternet.edu/outreach). | Cain Layman, Charina | ccain@ucsd.edu | (858) 833-5331 |
| CCE | [California Current Ecosys.](http://cce.lternet.edu/outreach) | Paulenich, Cari | cpaulenich@ucsd.edu | (858) 822-1810 |
| CAP | [Central Arizona - Phoenix](https://sustainability.asu.edu/caplter/education/) | Herrmann, Lisa | lisa.herrmann@asu.edu | (480) 965-6046 |
| CDR | [Cedar Creek Ecosystem](https://www.cedarcreek.umn.edu/educationoutreach)  | Potter, Caitlin | caitlin@umn.edu | (612) 301-2602 |
| CWT | [Coweeta](https://coweeta.uga.edu/lterschoolyard)  | Love, Jason | jplove@uga.edu | (828) 524-2128 |
| FCE | [Florida Coastal Everglades](http://fcelter.fiu.edu/education_outreach/) | Oehm, Nick | oehmn@fiu.edu | (305) 348-1592 |
| GCE | [Georgia Coastal Ecosystems](http://gce-lter.marsci.uga.edu/public/education/outreach.htm) | Alber, Merryl | malber@uga.edu | (706) 542-5966 |
| HBR | [Hubbard Brook](http://hubbardbrook.org/students/forstudents.shtml) | Garlick, Sarah | sarahgarlick@gmail.com | (603) 986-0686 |
| HFR | [Harvard Forest](http://harvardforest.fas.harvard.edu/education-opportunities) | Hart, Clarisse | hart3@fas.harvard.edu | (978) 756-6157 |
| HFR | [Harvard Forest](http://harvardforest.fas.harvard.edu/education-opportunities) | Snow, Pam | psnow@fas.harvard.edu | (978) 756-6146 |
| JRN | [Jornada Basin](https://jornada.nmsu.edu/lter/education) | Bestelmeyer, Stephanie | stephanie@asombro.org | (575) 524-3334 |
| KBS | [Kellogg Biological Station](http://www.kbs.msu.edu/education/) | Haas, Kara | karahaas@kbs.msu.edu | (269) 671-2360 |
| KNZ | [Konza Prairie](http://keep.konza.k-state.edu/)  | Haukos, Jill | konzaed@ksu.edu | (785) 587-0381 |
| LUQ | [Luquillo](http://luq.lternet.edu/outreach-and-education) | McGee, Steven | mcgee@lponline.net | (708) 710-5963 |
| LUQ | [Luquillo](http://luq.lternet.edu/outreach-and-education) | Baez Rodriguez, Noelia | nbaez@ites.upr.edu | (787) 764-0000 |
| MCM | [McMurdo Dry Valleys](https://www.mcmlter.org/education-and-outreach) | Howkins, Adrian | adrian.howkins@colostate.edu | (970) 491-6418 |
| MCR | [Moorea Coral Reef](http://mcr.lternet.edu/education) | Brooks, Andrew | brooks@msi.ucsb.edu | (805) 893-7670 |
| NCO | [Network Communications Office](https://nco.lternet.edu/) | Downs, Marty | downs@nceas.ucsb.edu | (805) 893-7549 |
| NCO | [Network Communications Office](https://nco.lternet.edu/) | Norlin, Sam |  norlin@nceas.ucsb.edu |  |
| NWT | [Niwot Range](http://niwot.colorado.edu/outreach) | Rose, Alex | alexandra.rose@colorado.edu | (303) 492-6058 |
| NTL | [North Temperate Lakes](https://lter.limnology.wisc.edu/education) | Bohanan, Robert | rbohanan@wisc.edu | (608) 265-2125 |
| NES | [Northeast U.S. Shelf](http://sites.lternet.edu/site/?site=nes) | Brickley, Annette | abrickley@oceanexplorium.org | (508) 994-5400 |
| NGA | [Northern Gulf of Alaska](http://sites.lternet.edu/site/?site=nga) | Sigman, Marilyn  | Marilyn.sigman@alaska.edu | (907) 274-9612 |
| PAL | [Palmer Antarctica](http://pal.lternet.edu/education) | McDonnell, Janice | mcdonnel@marine.rutgers.edu | (848) 932-3285 |
| PIE | [Plum Island Ecosystems](http://pie-lter.ecosystems.mbl.edu/content/education-outreach) | Duff, Liz | lduff@massaudubon.org | (978) 927-1122 |
| SBC | [Santa Barbara Coastal](http://sbc.lternet.edu/education/) | Simon, Scott | scott.simon@ucsb.edu | (805) 893-8765 |
| SEV | [Sevilleta](http://sev.lternet.edu/sev-schoolyard-program) | Eichhorst, Kim | kimde@unm.edu | (505) 277-0758 |
| VCR | [Virginia Coast Reserve](https://www.vcrlter.virginia.edu/home2/?page_id=279) |   |  | (757) 678-6489 |

1. **EOC activities:**
2. **Educational program offerings:** different sites have different programs – most sites have some version of a SLTER
	1. K-12 Schoolyard Long-Term Ecological Research (SLTER) – this is a broad program designed to allow students to experience site-specific educational activities either directly at the LTER site or remotely in the classroom. There is a large of amount of variation of these programs at the LTER sites but many have versions of the following:
		* 1. Experiential activities (where kids participate in activities and collect data - similar to those of site researchers)
			2. Information education in the form of guided hikes and tours
			3. Teacher professional training/workshops
			4. Data collection and evaluation of data sets
			5. Access of remote digital libraries and Data Nuggets
			6. Participation in activities where students solve problems and interpret site-specific data = Data Jams
	2. Research Experiences for Undergrads (REU) – this is a program supported by the National Science Foundation that encourages undergraduate university students to participate in either new or on-going research. The EOC works to increase the impact of these experiences by allowing students to participate in cross-site experiences (between other LTER sites). This is a new and developing initiative for the EOC.
	3. Higher Education – The EOC recognizes the value inherent in each LTER site and acknowledge that college undergraduates and graduate students would both benefit from knowing more about each site. Under the best scenario, students would have the opportunity to visit each site. In the absence of extensive travel funds, the EOC is investigating the establishment of a distributed online course that would have each lecture presented by a representative from a different LTER site. This is an on-going project.
	4. Teachers’ Workshops/Professional Development – Many LTER education reps offer Teacher Workshops for area educators who are interested in incorporating LTER science into their curricula. They may utilize the activities found within the LTER Digital Library : <http://educationlibrary.lternet.edu>.
	5. Citizen Science – Many sites encourage the general public to participate in local scientific research, i.e. “Citizen Science”. This may involve them taking note of the dates of first arrival of local spring migrants or the dates of the first bloom of flowers. Formal scientific training is not required and their data is compiled into important comprehensive data sets.
	6. Science Outreach in the Community – LTER sites are frequent locations for local, regional, and national workshops and conferences. Educational tours and hikes are a common component of the site experiences that impact a large number of individuals from diverse backgrounds.
3. **Monthly Education and Outreach Committee ZOOM meetings** **– the first Wednesday of each month at 3:00 EST**

[Bylaws of the Education and Outreach Committee](https://drive.google.com/drive/u/0/folders/0B3xT0TaiQmt0NDdrbHRrdExubms)

EOC Co-Chairs:

 Jill Haukos KNZ

 Caitlin Potter CDR

Secretary:

 Jason Love CWT

Network Communication Office (NCO) who participate in monthly call:

 Marty Downs – Deputy Director

 Sam Norlin – Education Lead

* Chairs put out a call for agenda items the week prior to the meeting.
* If there is a guest speaker one person (whoever booked the speaker) takes responsibility for communicating with the guest to make sure they know the time and date of the call and that they successfully receive the call connection instructions. Guests are typically allocated 15-20 minutes towards the beginning of the call.
* The month’s agenda is sent out to the group 1-2 days prior to the call along with the minutes of the previous month’s call

Monthly Call:

* 1. Topics:
		1. Professional development or potential collaborations with partnering organizations/programs – guests give a 15-20 presentation on their program and ideas of how they can work with us.
		2. Updates from the Network Communications Office
		3. Updates from the LTER Executive Board
		4. Updates from standing working groups:
			1. Ecological Literacy/Data Nuggets/Data Jams
			2. Next Generation Science Standards
			3. Children’s Book Series
			4. Citizen Science
			5. Higher Education/REU
		5. Cross-site activities – development, updates, news
		6. Site updates and news
1. **Google Drive files**

The EOC maintains a common area for storage of information and reference documents at this address:

<https://drive.google.com/drive/u/0/folders/0Bx4ZmGq6PJSRVWFfWlFyMlhQeUk>

 Documents found in this folder:

 - Past EOC monthly minutes and agenda

 - List of EOC contacts and their contact information

 - EOC bylaws

- Various Powerpoint presentations given to highlight specific sites or the EOC as a whole

- Past information on the All Scientists Meeting and the Ecological Society of America meetings

1. **Cross-Site Activities**
	1. REU program – Alan Berkowitz
		1. [Notes from meeting on Google drive](https://docs.google.com/document/d/1YsxXC7OMn6Ox-hTa58ORQpQou5Oy0TeZmut9QUWlvmQ/edit)
	2. Data Jams – Stephen McGee & Stephanie Bestelmeyer
		1. Description
	3. Teacher Professional Development – Kara Haas
		1. [Notes from EOC Google drive](https://drive.google.com/drive/u/0/folders/0B0JwqBZasozCY1JXNVlTczczODA)
2. **[Children’s Book Series](http://astore.amazon.com/lte0d-20)**

Description: The National Science Foundation (NSF) has allocated funds for the production of a children’s book that is site-specific. The goal of the book is to bring science and the LTER program to the child’s level and to introduce them to the scientific concepts that are being explored at each of the LTER sites.

Each site receives a shipment of books to give out to local schools, libraries, and students. Site education reps are encouraged to promote the availability of the book to their communities and school districts. Books typically retail for ~$15.95 and are available for sale here:

So far, eleven books representing nine LTER sites have been produced with three more coming soon:

**Books Published: Author(s) Site**

[And the Tide Comes In…](http://astore.amazon.com/lte0d-20/detail/0981770053)

[Exploring a Georgia Salt Marsh](http://astore.amazon.com/lte0d-20/detail/0981770053) Merryl Alber GCE

[Sea Secrets: Tiny Clues to a](http://astore.amazon.com/lte0d-20/detail/0977960390)

[Big Mystery](http://astore.amazon.com/lte0d-20/detail/0977960390) Mary Cerullo

 Beth Simmons PAL

[Seeking the Wolf Tree](http://astore.amazon.com/lte0d-20/detail/1630761451) Natalie Cleavitt HBR

[My Water Comes From](http://astore.amazon.com/lte0d-20/detail/B00UASF8WM)

[The Rocky Mountains](http://astore.amazon.com/lte0d-20/detail/B00UASF8WM) Tiffany Fourment NWT

[My Water Comes From](http://astore.amazon.com/lte0d-20/detail/B019096VZY)

[The San Juan Mountains](http://astore.amazon.com/lte0d-20/detail/B019096VZY) Tiffany Fourment NWT

 [The Autumn Calf](http://astore.amazon.com/lte0d-20/detail/1630762377) Jill Haukos KNZ

[One Night in the Everglades](http://astore.amazon.com/lte0d-20/detail/B01946RN8M) Laurel Larsen FCE

[Ricky’s Atlas](http://astore.amazon.com/lte0d-20/detail/0870718428)

* [Mapping a Land on Fire](http://astore.amazon.com/lte0d-20/detail/0870718428) Judith Li AND

[Ellie’s Log](http://astore.amazon.com/lte0d-20/detail/0870716964)

* [Exploring the Forest](http://astore.amazon.com/lte0d-20/detail/0870716964)

[Where the Great Tree Fell](http://astore.amazon.com/lte0d-20/detail/0870716964) Judith Li AND

[The Lost Seal](http://astore.amazon.com/lte0d-20/detail/B00V9QVHSI) Diane McKnight MCM

[Kupe and the Corals](http://astore.amazon.com/lte0d-20/detail/1589797531) Jacqueline

 Padilla-Gamioño MCR

**Books To Be Published: Author(s) Site**

One Day in the Desert Stephanie

 Bestelmeyer JRN

The Golden Forest Carol Blanchette SBC

Save Our Stream Colin Polsky and

 Jane Tucker PIE

1. **Science Education Journals:**

Here’s a list of science education journals (source: Dave Rudge – Western Michigan University):

* [The American Biology Teacher](http://www.nabt.org/websites/institution/index.php?p=26) (for links to past issues and submission guidelines move your cursor over the link on the left entitled "Publications");
* [The Canadian Journal of Science, Mathematics and Technology Education](http://www.periodicals.com/html/ihp_e.html?ec58973) with links to the contents of past issues and submission guidelines;
* [CBE-Life Sciences Education](http://www.lifescied.org/), (formerly called *Cell Biology Education*) is an online, quarterly journal owned and published by the American Society for Cell Biology (ASCB) in editorial partnership with the Genetics Society of America. The journal publishes original, peer-reviewed articles on research and evaluation related to life sciences education, as well as articles about evidence-based biology instruction at all levels;
* [The Chemical Educator](http://chemeducator.org/), another new journal with links to submission guidelines and suggestions for authors;
* [Constructivist Foundations](http://www.univie.ac.at/constructivism/journal/), a new e-journal of potential interest for science educators;
* [Cultural Studies of Science Education](http://www.springer.com/west/home/education?SGWID=4-40406-70-62177108-0), a new journal of interest for scholars interested in the intersection between cultural studies and science education;
* [The Cypriot Journal of Educational Sciences](http://www.world-education-center.org/index.php/cjes);
* [The Electronic Journal of Science Education](http://ejse.southwestern.edu/), with links to past issues and submission guidelines; send manuscripts to Michael Kamen (ejse@southwestern.edu);
* [Excellence in College Science Teaching](http://celt.miamioh.edu/ject/), a peer-reviewed journal published since 1990 by and for faculty at universities and two- and four-year colleges to increase student learning through effective teaching, interest in and enthusiasm for the profession of teaching, and communication among faculty about their classroom experiences;
* [Foundations of Chemistry](http://www.springer.com/philosophy/epistemology%2Band%2Bphilosophy%2Bof%2Bscience/journal/10698), a journal devoted to the history and philosophy of chemistry which from time to time includes articles devoted to pedagogical issues, with links to the contents of past issues and submission guidelines;
* [Interdisciplinary Journal of Problem-based Learning](http://docs.lib.purdue.edu/ijpbl/), a bi-annual, peer-reviewed, online periodical dedicated to the theory and the practice of problem-based learning (PBL);
* [International Journal of Biology Education](http://www.ijobed.com/), published since September 2011
* [International Journal of Environmental & Science Education](http://www.ijese.com/), now published free on-line;
* [International Journal of Math and Science Education](http://www.nsc.gov.tw/sci/edit/ijsme.htm), a new journal that will serve as an international forum for the contemporary call of integrating science and mathematics education;
* [International Journal for the Scholarship of Teaching & Learning](http://www.georgiasouthern.edu/ijsotl/issue_v2n1.htm);
* [International Journal of Science Education](http://www.tandf.co.uk/journals/tf/09500693.html), with links to information about contents and submission guidelines;
* [Journal for Activist Science and Technology Education](http://www.wepaste.org/journal.html) (JASTE). This open-source, community-reviewed journal will be published twice a year;
* [Journal of Astronomy and Earth Sciences Education (JAESE)](http://jaese.org/) (including the current issue and submission guidelines);
* [Journal of Cities and the Environment](http://www.catejournal.org/), a web based journal that has an education section that will focus on the sharing of educational research that contributes to our knowledge of how students understand the environment, their perceptions and beliefs regarding the environment, impact of environmental education programs/curricula on student outcomes, professional development models that support teachers in implementing environmentally focused programs in their schools;
* [The Journal of Geoscience Education](http://www.nagt.org/nagt/jge/index.html), the official publication of the National Association of Geoscience Teachers;
* [Journal of the Learning Sciences](http://www.tandf.co.uk/journals/authors/hlnsauth.asp);
* [The Journal of Science Teacher Education](http://link.springer.com/journal/10972) (the official journal of AETS), including abstracts of articles from recent issues, and submission guidelines;
* [Journal of Science Education and Technology](http://www.springerlink.com/content/102587);
* [Journal of Research in Science Teaching](http://www.interscience.wiley.com/jpages/0022-4308/) (the official journal of NARST) and its submission guidelines;
* [Problems of Education in the 21st Century](http://www.jbse.webinfo.lt/Problems_of_Education.htm), an international, non-periodical, peer reviewed scientific collection, issued by the SMC "Scientia Educologica";
* [Research in Science Education](http://www.springerlink.com/content/108230/), the official journal of the Australasian Science Education Research Association (ASERA) and its submission guidelines;
* [Research in Science and Technological Education](http://www.tandf.co.uk/journals/carfax/02635143.html), with links to information about contents and submission guidelines;
* [School Science Review](http://www.ase.org.uk/journals/school-science-review/) and its submission guidelines;
* [School Science and Mathematics](http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291949-8594), official journal of the School Science and Mathematics Association (SSMA) and its submission policies;
* [Science & Education](http://ihpst.net/journal), the official research journal of The International History, Philosophy, and Science Teaching Group ([IHPST](http://ihpst.clubexpress.com/content.aspx?page_id=0&club_id=360747&sl=415202924));
* [Science Education](http://www.interscience.wiley.com/jpages/0036-8326/) and its submission guidelines.
* [The Science Education Review](http://www.scienceeducationreview.com/)(SEC), a comprehensive review of the international science education literature, plus a wealth of readily-implemented classroom activities for the busy primary and high school teacher;
* [Science Education International](http://www.icaseonline.net/seiweb/), the official journal of International Council of Associations for Science Education (ICASE).
* [Science Education Review](http://www.icaseonline.net/seiweb/), a practitioner's journal for elementary and secondary science teachers. The site includes submission guidelines for contributors;
* [The Science Educator](http://www.nsela.org/), a peer-reviewed journal focusing primarily on K-16 STEM issues, with emphasis on research based studies having practical implications for the teaching of science, teacher preparation;
* [Science in School](http://www.scienceinschool.org/), a new journal devoted to practitioner's issues in the teaching and learning of science;
1. **Principal Investigators at each LTR Site:**

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 USDA ARS Jornada Exp. Range

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VCR Virginia Coastal Karen McGlathery

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 University of Virginia

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1. **Potential EOC Partners/Sources of Information:**
	* [CZO](http://criticalzone.org/national/) – Critical Zone Observatory
	* [Concord Consortium](https://concord.org/) – interactive, research-based resources for educators
	* [Children and Nature Network](http://www.childrenandnature.org/) - Richard Louv
	* [Data Nuggets](http://datanuggets.org/) – putting real data into the hands of kids
	* [Earth Force](https://earthforce.org/) – programming that supports educators addressing health, water, and sustainability
	* [Environmental Education Exchange](http://www.eeexchange.org/) – non-profit provides conservation and environmental education programs
	* [Globio](http://www.globio.info/) – a tool to assess past, present and future impacts on biodiversity
	* [Maine Data Literacy Initiative](http://participatoryscience.org/project/maine-data-literacy-project)
	* [National Audubon Society](http://www.audubon.org/conservation/audubon-adventures) – Audubon Adventures activities for kids grades 3 - 6
	* [National Environmental Education Foundation](https://www.neefusa.org/about-neef) – make the environment present in daily lives of Americans
	* [National Geographic Society](https://www.nationalgeographic.org/education/programs/environmental-literacy-guides/) – Environmental literacy guides for teachers
	* [National Wildlife Federation](https://www.nwf.org/What-We-Do/Kids-and-Nature/Policy/Environmental-Education.aspx) – tools to connect kids to nature
	* [NEON](http://www.neonscience.org/) – National Ecological Observatory Network
	* [New Knowledge Organization](http://www.newknowledge.org/) – Interdisciplinary social science think tank collaborating with change-makers
	* [NiMBIOS](https://qubeshub.org/) – National Institute for Mathematical and Biological Synthesis
	* [Oceans of Data Institute](http://oceansofdata.org/) – making data accessible
	* [Project Learning Tree](https://www.plt.org/) – environmental education ideas designed for educators
	* [QUBES](https://qubeshub.org/) – Quantitative Undergraduate Biology Education and Synthesis-
	* [SERC](http://serc.carleton.edu/index.html) – Science Education Resource Center at Carleton College
	* [InTeGrate](https://serc.carleton.edu/integrate/index.html) – Interdisciplinary Teaching about Earth for a Sustainable Future
	* [World Wildlife Fund](https://www.worldwildlife.org/initiatives/russell-e-train-education-for-nature) – Russell E. Train Education for Nature
2. **Acronyms:**
	* ASM = All Scientists Meeting
	* CSA = Citizen Science Association
	* CZO = Critical Zone
	* DEB = Division of Environmental Biology (at NSF)
	* DOE = Department of Energy
	* DOI = Department of Interior
	* DRK-12 = Discovery Research PreK-12 (NSF)
	* DUE = Division of Undergraduate Education (NSF)
	* ESA = Ecological Society of America
	* NAAEE = National Association for Environmental Education
	* NCO = Network Communications Office
	* NGSS = Next Generation Science Standards
	* NSF = National Science Foundation
	* EB = Executive Board of the LTER Network
	* LTER = Long-Term Ecological Research
	* RET = Research Experiences for Teachers
	* REU = Research Experiences for Undergrads
	* RFP = Requests for Proposals
	* SLTER = Schoolyard Long-Term Ecological Research
	* STEM = Science, Technology, Engineering, Mathematics
	* USFWS = U.S. Fish and Wildlife Service
3. **Potential Funding Sources:**

Foundations:

* + [S.D. Bechtel, Jr. Foundation](http://sdbjrfoundation.org/) - California
	+ [Blue Sky Funders Forum](https://blueskyfundersforum.org/)
	+ [Environmental Education Funders Collaborative](http://www.eefcfunders.org/)
	+ [Gray Family Foundation](http://grayff.org/) – Oregon
	+ [William and Flora Hewlett Foundation](http://www.hewlett.org/programs/environment/)
	+ [Kresge Foundation](http://kresge.org/programs/environment)
	+ [National Environmental Education Foundation](https://www.neefusa.org/grants)
	+ [David and Lucile Packard Foundation](https://www.packard.org/)
	+ [George B. Storer Foundation](http://storerfoundation.org/)
	+ [Pisces Foundation](http://piscesfoundation.org/our-focus/environmental-education/)

Government:

* [National Oceanic and Atmospheric Administration](http://www.noaa.gov/office-education/grants)
* [National Park Service](https://www.nps.gov/articles/2017-ed-grant-recipient.htm)
* [National Science Foundation](https://www.nsf.gov/div/index.jsp?div=DUE) – undergraduate education
* [National Science Foundation](https://nsf.gov/funding/pgm_summ.jsp?pims_id=500047&org=NSF&sel_org=NSF&from=fund) – discovery research pK-12
* [STEMfinity](https://www.stemfinity.com/STEM-Education-Grants) – web site with links to state grants for STEM, private foundations, federal grants – the works.
* [U.S. Department of Education](https://www.ed.gov/stem) – STEM grants
* [U.S. Environmental Protection Agency](https://www.epa.gov/education/environmental-education-ee-grants)

1. **Professional Organizations and Meetings of Interest:**

National groups and meetings:

* + [All Scientists Meeting (ASM)](https://lternet.edu/asm) – Held for scientists, educators, information managers, and students from all LTER sites – every 3 years. Next one in 2018.
	+ [Ecological Society of America (ESA)](http://www.esa.org/portland/) – the first or second week of August each year
	+ [Citizen Science Association (CSA)](http://citizenscience.org/) - May
	+ [North American Association for Environmental Education (NAAEE)](https://naaee.org/)
	+ [National Science Teachers Association](http://www.nsta.org/)
	+ [North American Association for Environmental Education](https://naaee.org/)

Regional groups and meetings:

* + [California Education and the Environment Initiative](http://www.californiaeei.org/)
	+ [Colorado Alliance for Environmental Education](https://www.caee.org/)
	+ [Delaware Association for Environmental Education](https://daeeonline.org/)
	+ [Kansas Association for Conservation and Environmental Education (KACEE)](http://www.kacee.org/)
	+ [Michigan Alliance for Environmental and Outdoor Education](http://www.maeoe.com/)
	+ [New England Environmental Education Alliance](http://www.neeea.org/)
	+ [Southeastern Environmental Education Alliance](http://southeastee.org/)
		- 1. [Environmental Education Association of Alabama (EEAA)](http://eeaa.us/)
			2. [League of Environmental Educators in Florida (LEEF)](http://leef-florida.org/net/content/go.aspx?s=47776.0.0.37432)
			3. [Environmental Education Alliance (EEA) of Georgia](http://www.eealliance.org/index.php?option=com_content&view=article&id=35&Itemid=82)
			4. [Kentucky Environmental Education Council](http://www.kaee.org/conference.html)
			5. [Mississippi Environmental Education Alliance (MEEA)](http://eeinmississippi.org/net/content/go.aspx?s=56664.0.112.37931)
			6. [Environmental Educators of North Carolina (EENC)](http://www.eenc.org/)
			7. [Environmental Education Association of South Carolina (EEASC)](http://www.eeasc.org/conference)
			8. [Tennessee Environmental Education Association](http://eeintennessee.org/core/item/page.aspx?s=46113.0.114.37935)