For an accessible version of this presentation, please email education@noaa.gov

Building connections between NOAA and environmental educators

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NAAEE - October 13, 2022

NOAA EDUCATION

Who are we? Bekkah Lampe

- Joined NOAA Office of Education (Silver Spring, MD) in 2018
    - Outreach and Education Coordinator
- Formal education in biology
    - Bachelor's in Biology – University of Maryland, Baltimore County
    - Master's in Ecology, Evolution, & Marine Bio – UC Santa Barbara
- Prior to NOAA: informal educator for 10+ years

Who are we? Kayla do Couto

- Joined NOAA Office of Education (Silver Spring, MD) in 2018
  - Social Media Manager, Communication Specialist
- Formal education in marine science and communications
  - Bachelor's in Marine Science – Coastal Carolina University
  - Master's in Strategic Communications – University of Maryland Global Campus
- Background in marine science and informal education
  - I've worked at aquariums, museums, and science summer camps

Who are you?

- Have you heard of NOAA before this conference?
- Have you ever worked with NOAA before? (grantee, site visit, used resources, used data, etc.)
- What kind of organization or institution do you work for?
- Where are you based?

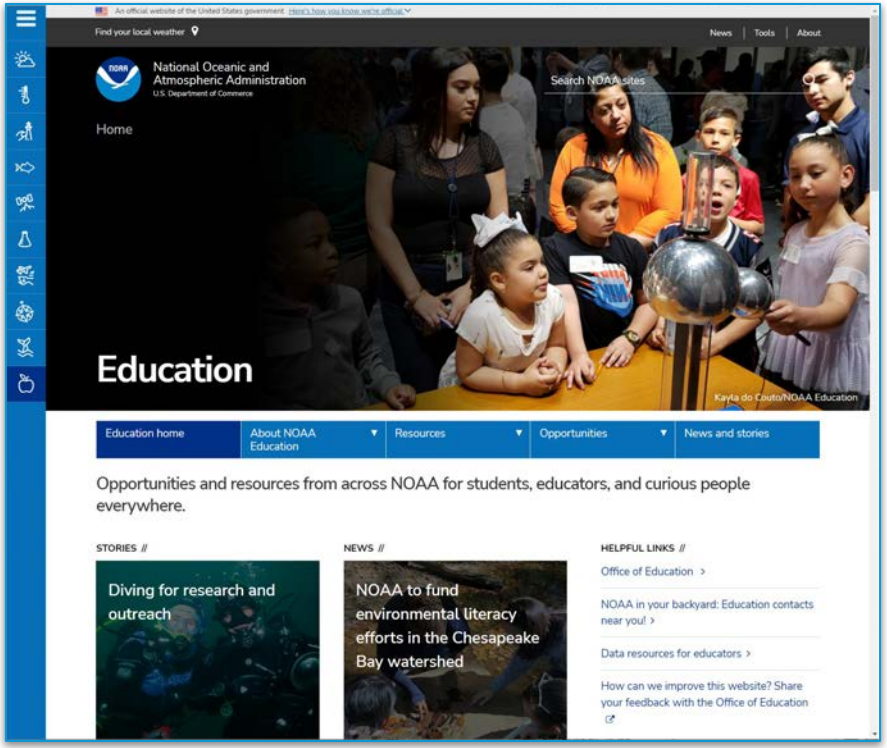
What is NOAA?

- National Oceanic and Atmospheric Administration (NOAA)
- Mission: **Science, Service, Stewardship**
- Focus areas:
  - Protecting life and property from weather
  - Protecting fisheries and marine life
  - Studying and exploring the planet
  - Collecting and sharing Earth science data
  - Modeling climate data
  - Mapping our waters
  - Conserving natural resources
  - Protecting the ocean, the Great Lakes, and our coasts
  - Educating people on NOAA's unique science, places, products, and services

NOAA Education

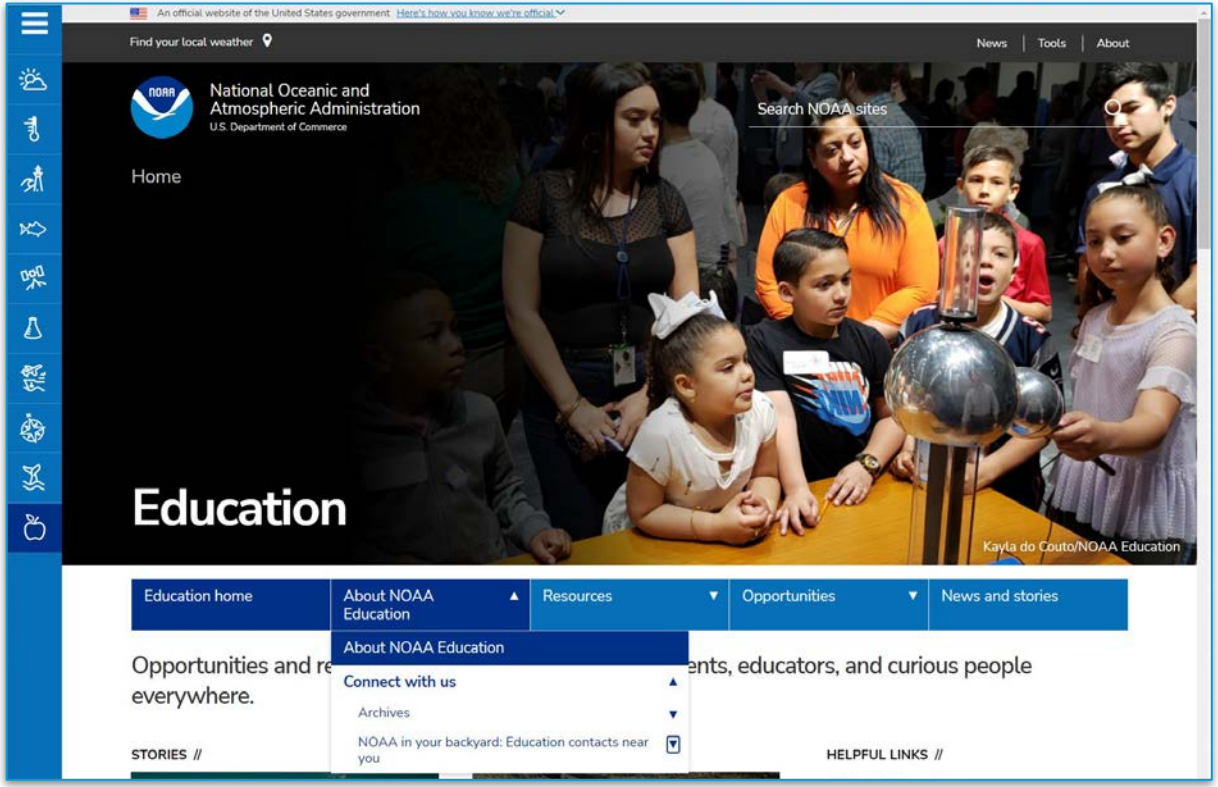
NOAA EDUCATION

NOAA education portal: noaa.gov/education



Opportunities and resources from across NOAA for students, educators, and curious people everywhere.

Connect with NOAA



Pinned Tweet

NOAA Education ✓
@NOAAeducation

Heading back to school? Our new tool makes it easier than ever to include @NOAA resources in your classroom! Explore our education database and find our #BackToSchoolNOAA favorites: noaa.gov/education/back...

#BackToSchool2022 @NOAAResearch @NOAASatellites @NWS @noaaocean

noaa.gov
Go back to school with NOAA
With a new school year just around the corner, teachers and educators are gearing up to create lesson plans and find engaging activities for their students...

2:16 PM · Aug 17, 2022 · Twitter Web App

NOAA i

noaa.go yard

NOAA in you

Get connected to NOA
your area.

NOAA in your backyard: Southwest

Educational opportunities and staff in Arizona, Nevada, New Mexico, Utah, and southern California

Share:

NOAA in Your State & Territory

State by state listings of NOAA facilities and programs

A summary of NOAA facilities, staff, programs, or activities based in, or focused on, your state or territory.

- Arizona
- California
- Nevada
- New Mexico
- Utah

National Weather Service

School visits • Forecast office tours • Student and educator resources

The National Weather Service provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas.

- To find your local Weather Forecast Office (WFO), visit the National Weather Service local contact page and click on your state. There will be a name, email address, and phone number for the WFO that serves your area.
- Visit weather.gov and enter your zip code to find your local WFO.

National Estuarine Research Reserve System

Field trips • Professional development • Educator resources

The National Estuarine Research Reserves System protects more than 1.3 million coastal and estuarine acres in 29 reserves located in 23 states and Puerto Rico for purposes of long-term research, environmental monitoring, education and stewardship.

- Tijuana River Reserve (CA) – Anne Marie Tipton, Education Coordinator: annemarie.tipton@parks.ca.gov
- Elkhorn Slough Reserve (CA) – Virginia Guhin, Education Coordinator: Virginia.Guhin@wildlife.ca.gov

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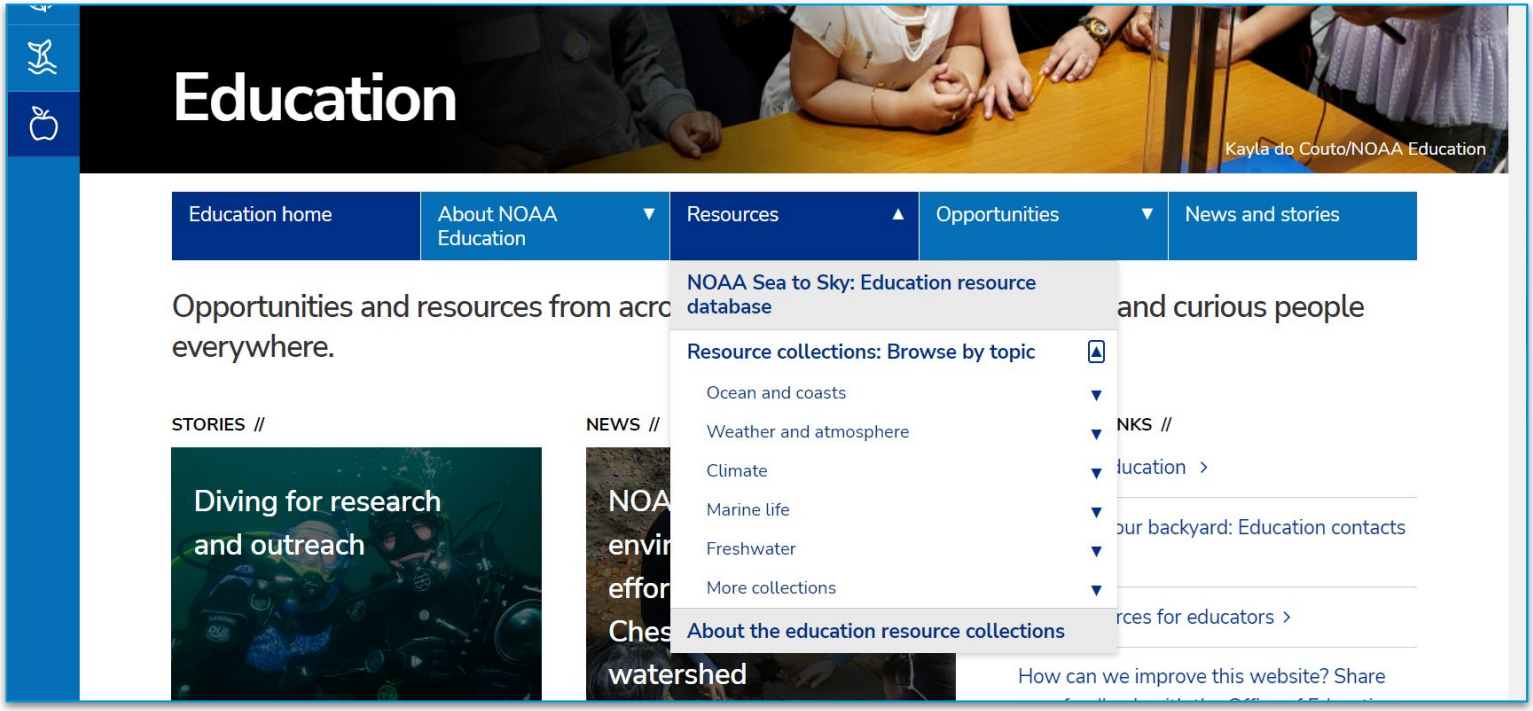
NOAA EDUCATION

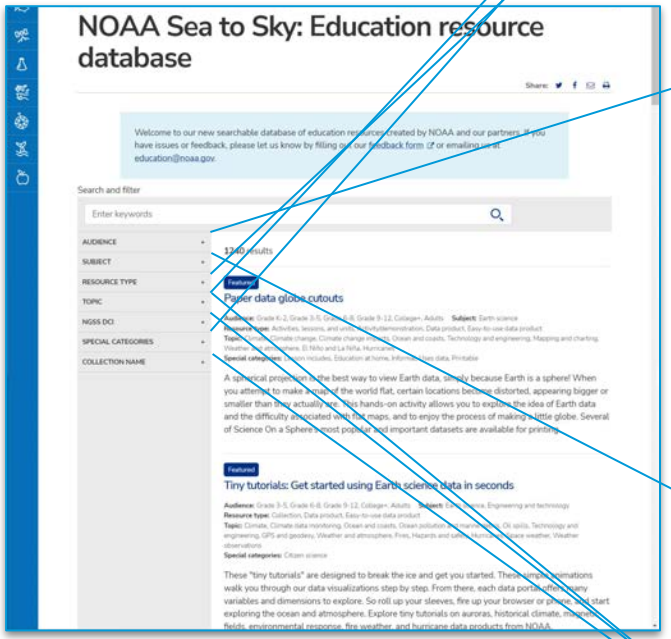
NOAA education resources

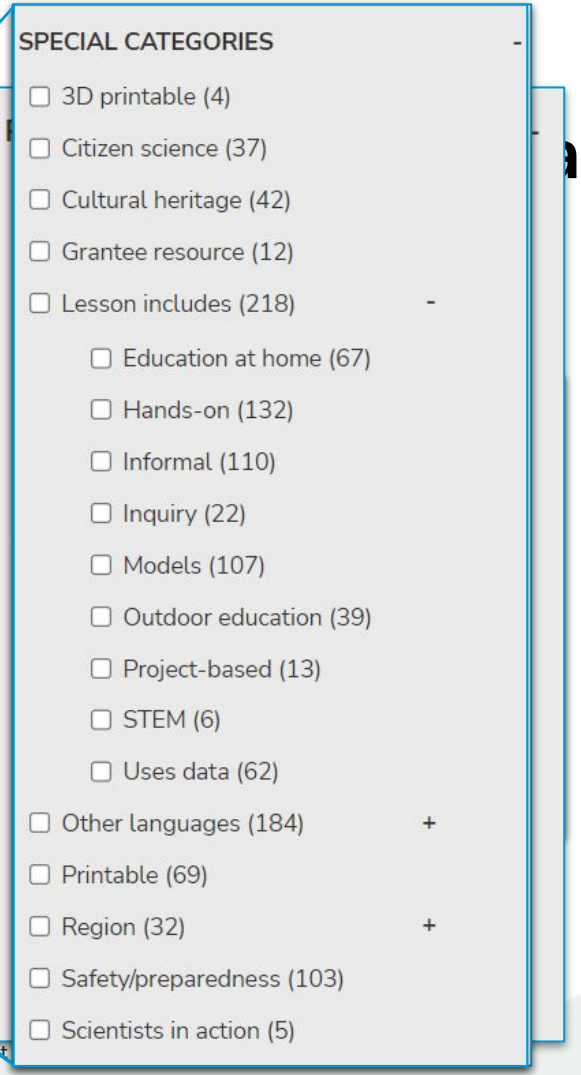


NOAA EDUCATION

NOAA Sea to Sky: Educat abase

noaa.gov/education/resou

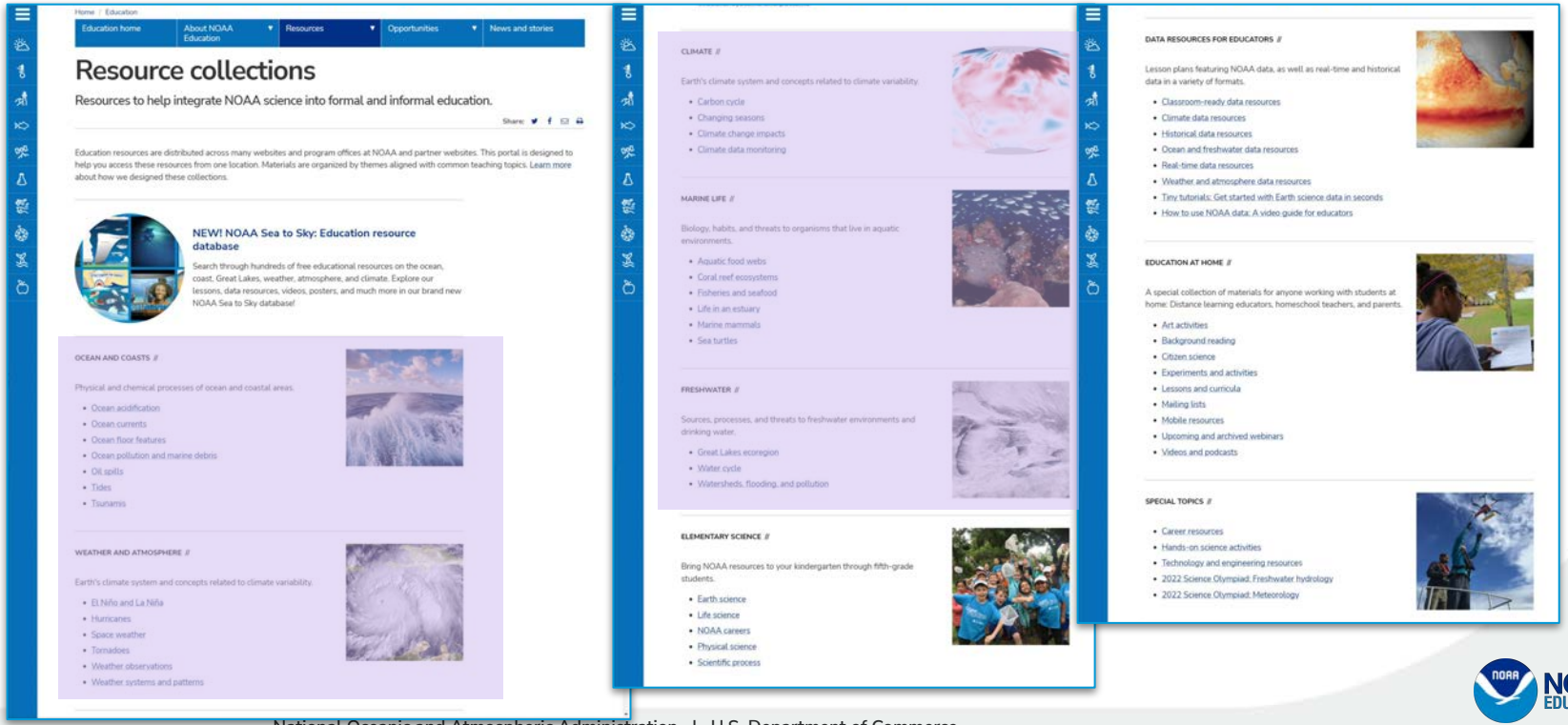




NOAA EDUCATION

NOAA education resource collections (browse)

noaa.gov/education/resource-collections



NOAA EDUCATION

Topical resource collection example

Climate change impacts

Focus areas: Education **Topics:** climate literacy , climate impacts , education

Share:

Though we often think about human-induced climate change as something that will happen in the future, it is an ongoing process. Ecosystems and communities in the United States and around the world are being impacted today.

A collage of typical climate and weather-related events: floods, heatwaves, drought, hurricanes, wildfires and loss of glacial ice. (NOAA)

Global temperatures rose about 1.98°F (1.1°C) from 1901 to 2020, but climate change refers to more than an increase in temperature. It also includes sea level rise, changes in weather patterns like drought and flooding, and much more. Things that we depend upon and value — water, energy, transportation, wildlife, agriculture, ecosystems, and human health — are experiencing the effects of a changing climate.

SEA TO SKY: EDUCATION RESOURCE DATABASE //

NEW! Find even more resources on clim change impacts in our searchable resou database.

LESSON PLANS & ACTIVITIES //

- Climate Resilience in Your Community activity book (ES, MS, HS) ›
- Data in the Classroom (MS/HS) ›
- HEART Force: Colorado environmental hazards collection
- Sea level rise learning module (MS/HS)
- Hands-on climate science activities (MS
- Earth science lessons and activities (MS HS) ›

MULTIMEDIA //

- Ocean Today: Climate Alive! (video seri
- Arctic report card 2020 (video) ›

A complex issue

The impacts of climate change on different sectors of society are interrelated. Drought can harm food production and human health. Flooding can lead to disease spread and damages to ecosystems and infrastructure. Human health issues can increase mortality, impact food availability, and limit worker productivity. Climate change impacts are seen throughout every aspect of the world we live in. However, climate change impacts are uneven across the country and the world — even within a single community, climate change impacts can differ between neighborhoods or individuals. Long-standing socioeconomic inequities can make underserved groups, who often have the highest exposure to hazards and the fewest resources to respond, more vulnerable.

The projections of a climate change-impacted future are not inevitable. Many of the problems and solutions are known to us now, and ongoing research continues to provide new ones. Experts believe there is still time to avoid the most negative of outcomes by limiting warming and reducing emissions to zero as quickly as possible. Reducing our emissions of greenhouse gases will require investment in new technology and infrastructure, which will spur job growth. Additionally, lowering emissions will lessen harmful impacts to human health, saving countless lives and billions of dollars in health-related expenses.

Despite pandemic shutdowns, carbon dioxide and methane surged in 2020

Levels of the two most important anthropogenic greenhouse gases, carbon dioxide and methane, continued their unrelenting rise in 2020 despite the economic slowdown caused by the coronavirus pandemic response.

Our changing climate

We see climate change affecting our planet from pole to pole. NOAA monitors global climate data and here are some of the changes NOAA has recorded. You can explore more at the Global Climate Dashboard.

- Global temperatures rose about 1.8°F (1°C) from 1901 to 2020.
- Sea level rise has accelerated from 1.7 mm/year throughout most of the twentieth century to 3.2 mm/year since 1993.
- Glaciers are shrinking: average thickness of 30 well-studied glaciers has decreased more than 60 feet since 1980.
- The area covered by sea ice in the Arctic at the end of summer has shrunk by about 40% since

The role of ice in the ocean (video) ›

- Climate change in Alaska (videos) ›
- Ocean acidification and shellfish farming (video) ›
- Understanding the marine heatwaves in the Pacific Northwest (60 minute webinar) ›
- Managing national marine sanctuaries in a changing ocean (60 minute webinar) ›
- Communicating climate change: Resources for making it stick (60 minute webinar) ›

DATA RESOURCES //

- The Climate Explorer: Climate data and projections
- U.S. Climate Resilience Toolkit ›
- Climate at a glance: Temperature, precipitation, and other weather data ›
- Drought data and projections
- Sea level trends ›
- Impacts on marine species distribution
- U.S. Drought Portal: maps, data and forecasts ›
- Snow and Ice Data for Google Earth
- Sea ice: interactive maps

BACKGROUND INFORMATION //

- National climate assessment ›
- U.S. climate resilience toolkit ›

NOAA citizen science

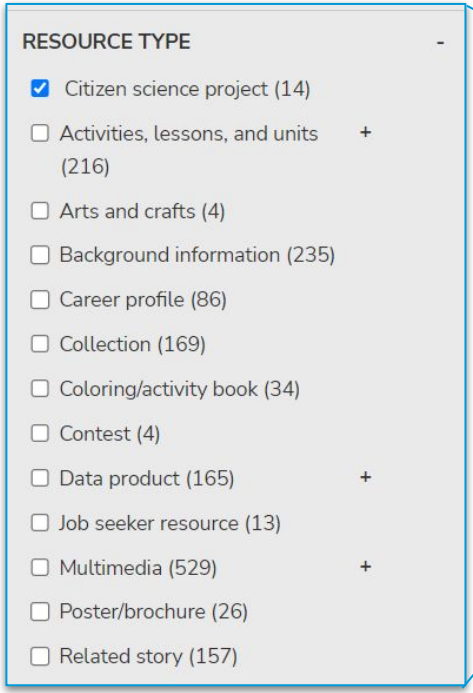
- As citizen scientists, your audiences can participate in the scientific process, addressing real-world problems
- They may:
  - Collect and analyze data
  - Formulate research questions
  - Conduct scientific experiments
  - Interpret results
  - Make new discoveries
  - Develop technologies and applications
  - Solve complex problems

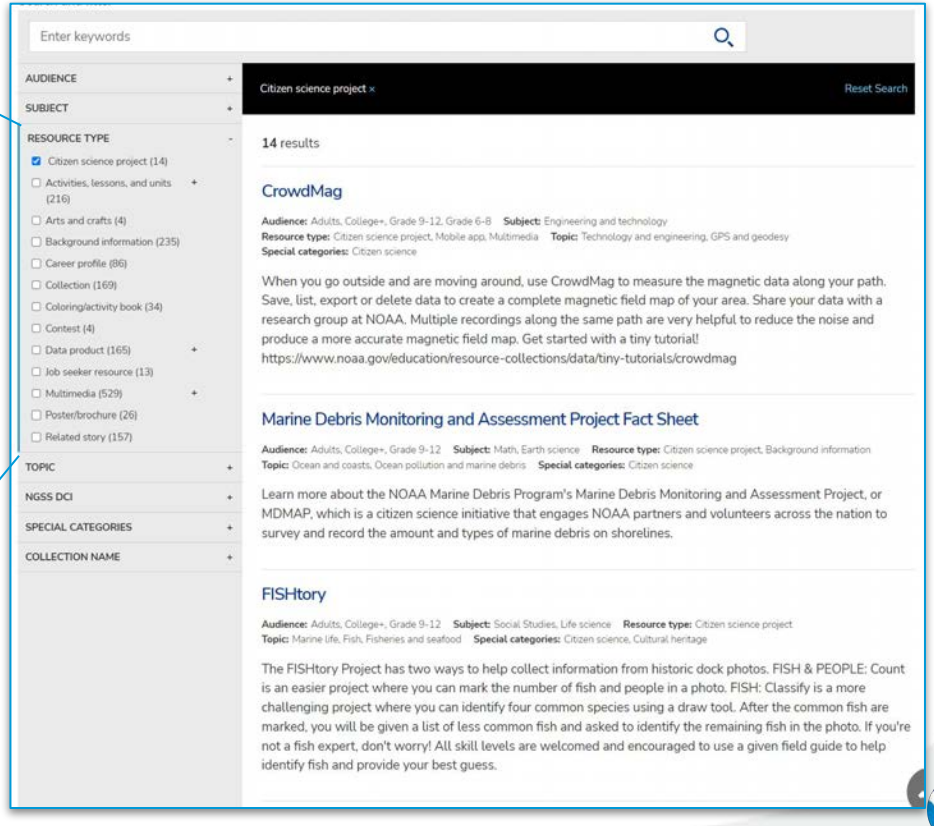
  Modified from https://www.citizenscience.gov/
- “Citizen science” = “community science” or “community-based science”

NOAA citizen science

- NOAA supports 60+ citizen science projects
- In 2019:
  - Over 550,000 participants
  - Over 16 million observations
  - Over 1.2 million volunteer hours
- Find projects at https://www.citizenscience.gov/ and select NOAA in the “View by Agency” field
- Suggested projects: noaa.gov/work-with-us/volunteer-opportunities-citizen-scientists

NOAA citizen science





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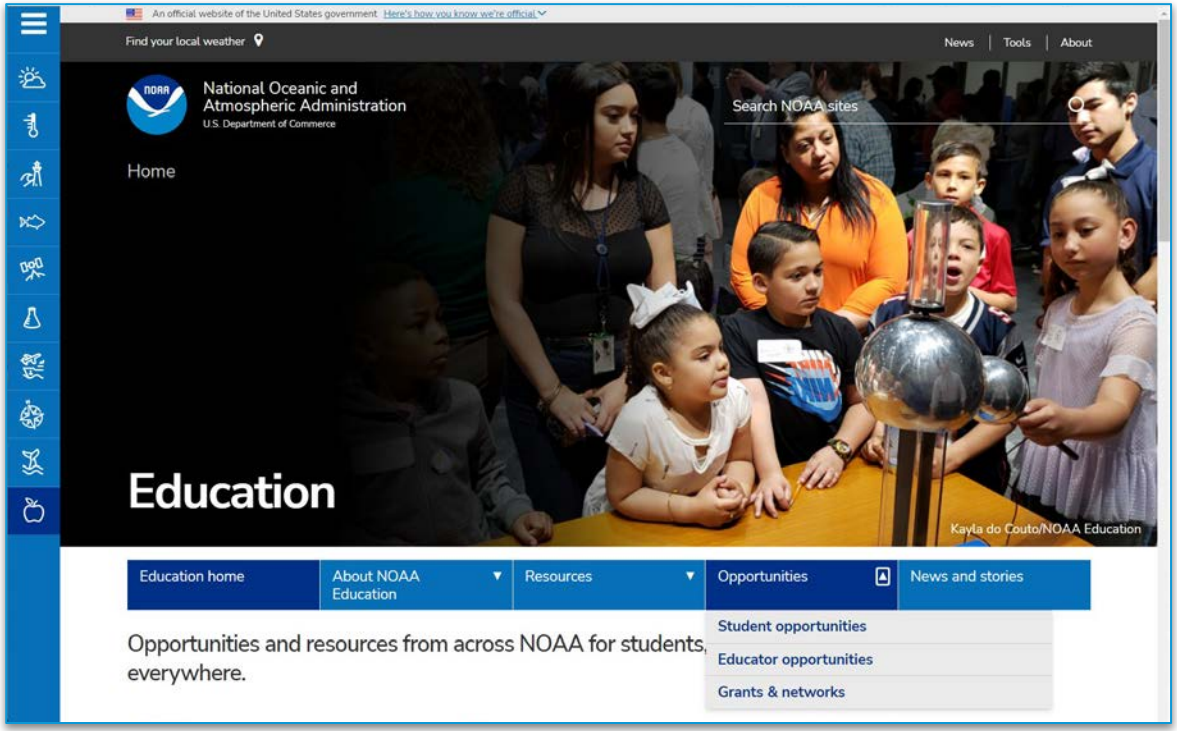
NOAA opportunities and grants



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Find your local weather
Home / Education
Education home
Find information about
Show opportunities for
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Pre-Service Scie
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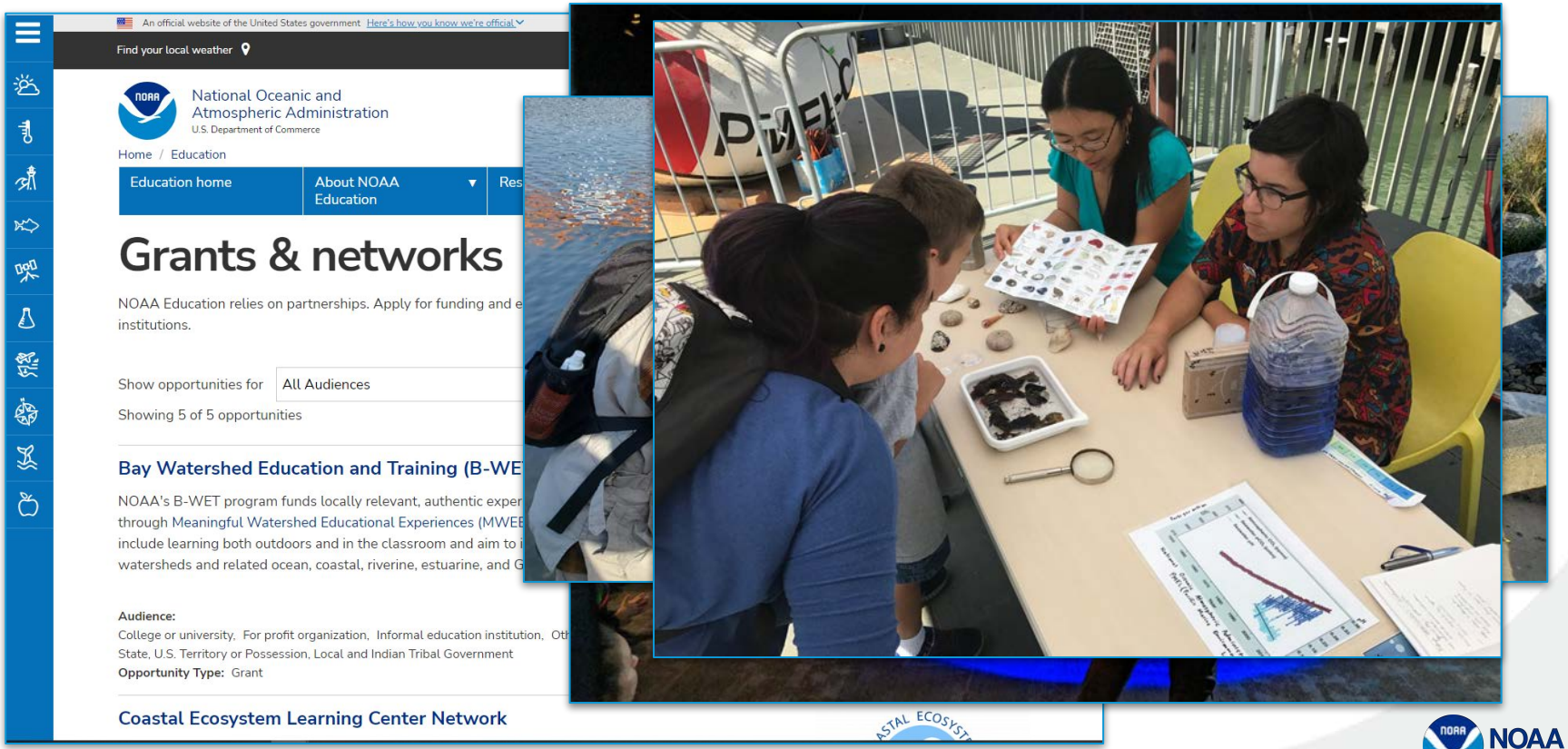
using authentic data. A
teaching and learning a
also improve their skills
instructional materials
Audience: College & univ
Opportunity Type: In per
DataStreme Atm
A 13-week distance-le
people using real-time
and 3 graduate credits
Audience: K-12 educator
Opportunity Type: In per
DataStreme Oce
A 13-week distance-learning course on the fluid Earth system emphasizing the atmospheric, ocean, and
hydrologic sciences using real-time data, text reading, activities, and online investigations. Course materials
AMS

NOAA grants and networks



Educators: Help NOAA help you!

Help NOAA identify the multimedia content that interests you for use with your students, audiences, and your own professional development.

Please take our 3-minute Multimedia Needs Assessment!

Thank you! Any questions?

Come see us in the exhibit hall at Booth #23!

Email us with any questions at education@noaa.gov

Find our slides at: noaa.gov/noaa-at-naaee