

NISE Net Online Workshop

Increasing Community Resilience to Extreme Weather & Environmental Hazards - The Citizen Science, Civics, & Resilient Communities (CSCRC) Project

February 15, 2022



Today's Presenters:

Sara Benson, Museum of Science, Boston

Katie Baur, Museum of Science, Boston

Mirka Zapletal, McAuliffe-Shepard Discovery Center, Concord, NH

Allison Brody, Explora, Albuquerque, NM

Caroline Nickerson, SciStarter



Welcome!

As we wait to get started with today's discussion, please:

Introduce yourself! Type your name, institution, and location into the [Chat Box](#)

Questions? Feel free to type your questions into the [Chat Box](#) at any time throughout the webinar or use the raise your hand function in the participants list and we'll unmute your microphone.

Today's discussion will be recorded and shared on nisenet.org at: nisenet.org/events/online-workshop



Future Online Workshops

2pm-3pm Eastern / 11am-12pm Pacific

Tuesday, March 1, 2022

Working with STEM Experts

Tuesday, April 5, 2022

Communicating Climate Change
to Diverse Audiences

Tuesday, May 3, 2022

Earth & Space Roundup of NISE
Network Resources

Tuesday, June 15, 2022

Reconnect and Re-engage with the
NISE Network

Learn more at nisenet.org/events



Earth Day Resources

- Collections of Public Engagement and Professional Resources
- At-Home Friendly Experiences
- Hands-on Activities
- Resources for Planning Programs and Events
- Posters/Images
- Finding STEM Experts



nisenet.org/earthday



Citizen Science, Civics, and Resilient Communities

Sara Benson

Museum of Science, Boston



Our Strategy: Science-to-Civics

In 2018, NOAA awarded the Museum of Science and its partners a 3-year grant to work with science centers across the U.S. **to engage diverse communities** in projects connecting community science and deliberation to **build community engagement** and **inform local resilience planning** regarding four hazards:

- Extreme Heat
- Sea Level Rise
- Extreme Precipitation
- Drought

The Science-to-Civics Process:

Agenda Setting

Selection of Locally Relevant Citizen Science Project

Participant Recruitment for Citizen Science Activities

Introduce Hazard & Resilience Planning Context

Participant Training

Data Collection by Citizen Volunteers

Decision-Making

Convene Public Forum with Diverse Public Audience

Presentation/discussion of citizen-collected data

Public deliberation using hazard module

Policy-Forming

Discussion of locally focused resilience planning question

Formulate Action Plans and Recommendations

Call to Action/Sustained Engagement

Agenda Setting: Citizen Science

Citizen science is collaborative research done by everyday people, anytime, anywhere, to help answer questions scientists can't answer alone.

Citizen science volunteers are recruited in partnership with civic and community partners, especially those serving vulnerable communities.

SciStarter.org/NOAA



Decision Making: Public Forums

Forums engage participants in **deliberative, inclusive conversations** about climate hazards.

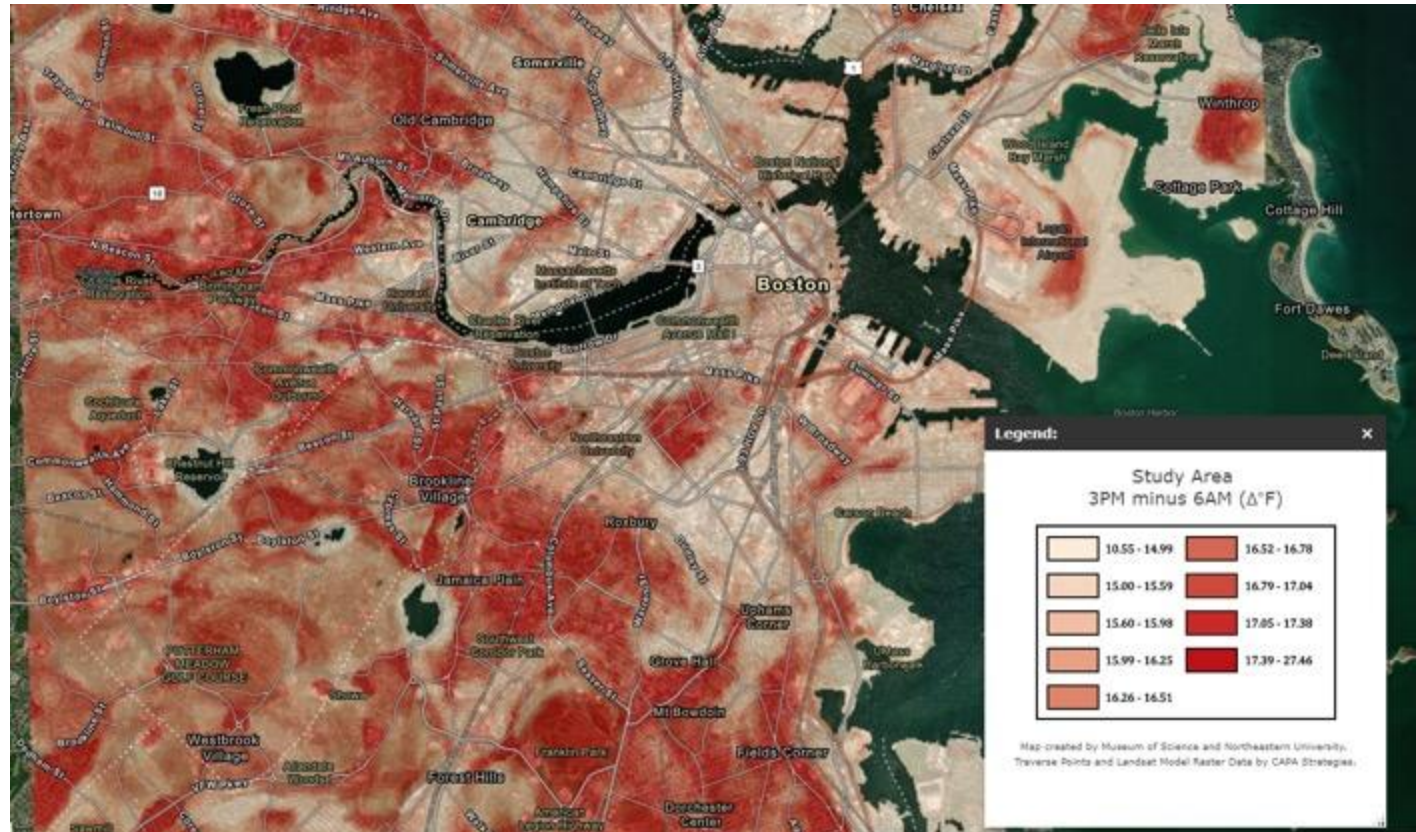


Policy Forming: Resilience Planning & Decision Making

Local climate resilience planners participate in forums to hear diverse community perspectives.

Data is disseminated post-forum

Citizen science data informs locally-focused resilience planning and connects to future citizen science campaigns.



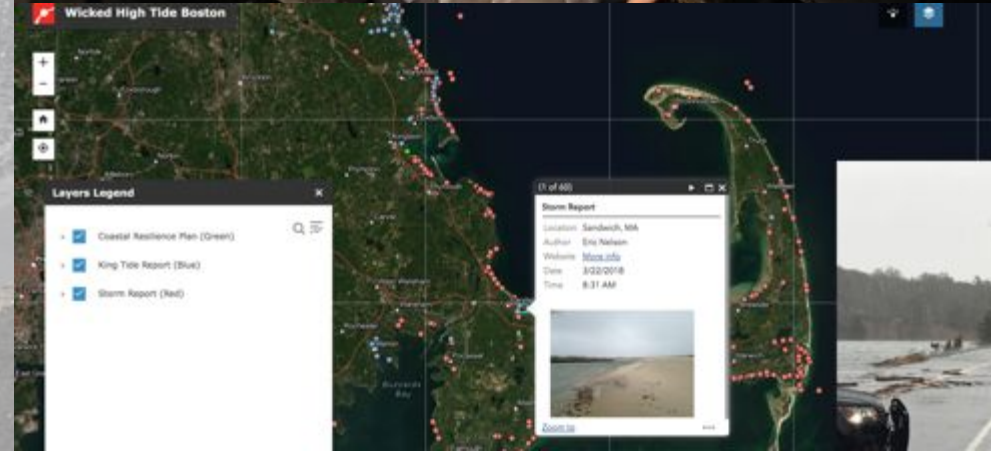
Wicked Hot Boston Extreme Heat 2019



Thompson

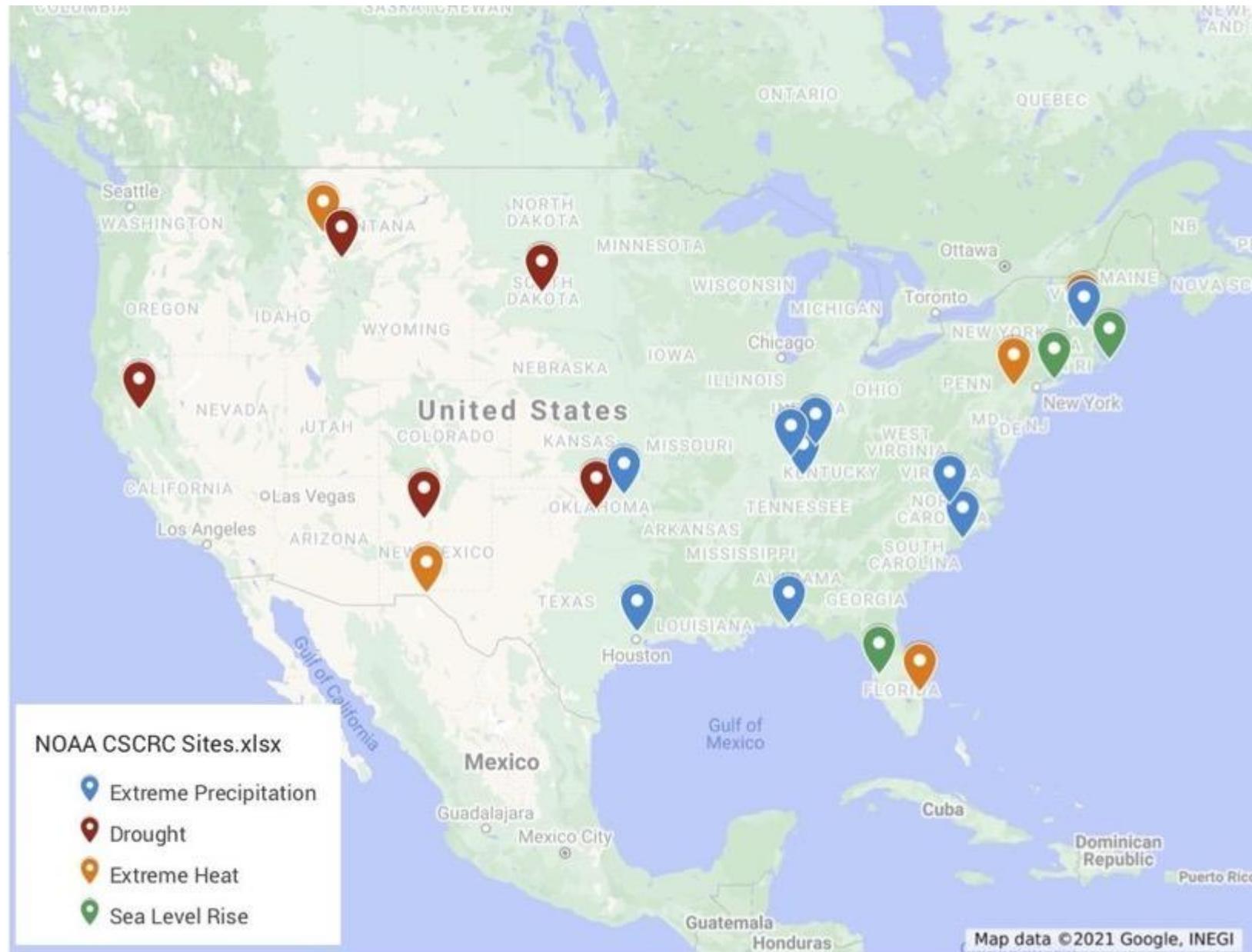
Wicked High Tides

Sea Level Rise
2020



2021 – Project expands

- 22 science centers and museums across the country were chosen to implement this work in their communities
- Project had to pivot due to COVID-19



Citizen Science Project Ideas

Drought



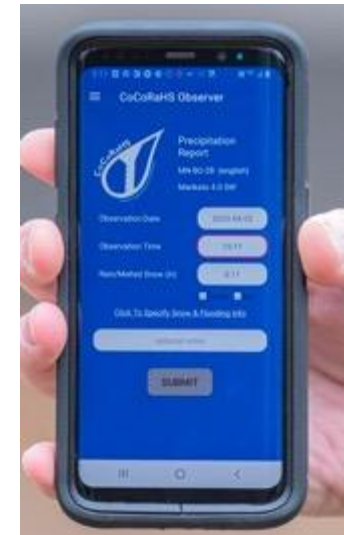
Sea Level Rise



Extreme Heat



Extreme
Precipitation



Full list of all citizen science projects here: <https://SciStarter.org/affiliates>

Online National Forums - Over 200 participants!



Jessica Khaya, US Bureau of Reclamation



Jeremy Hoffman, Science Museum of Virginia



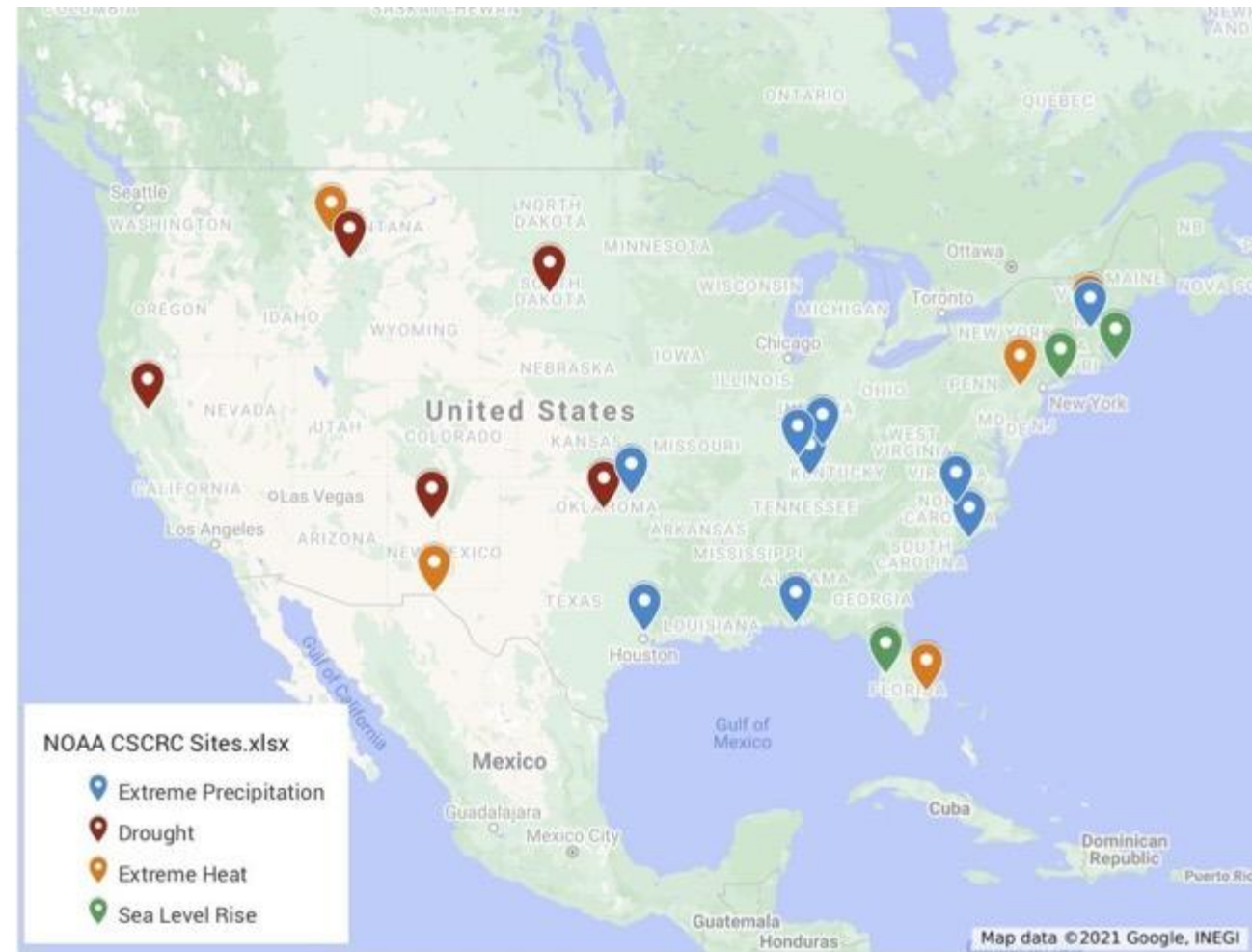
Gayle Bowness, Gulf of Maine Research Institute



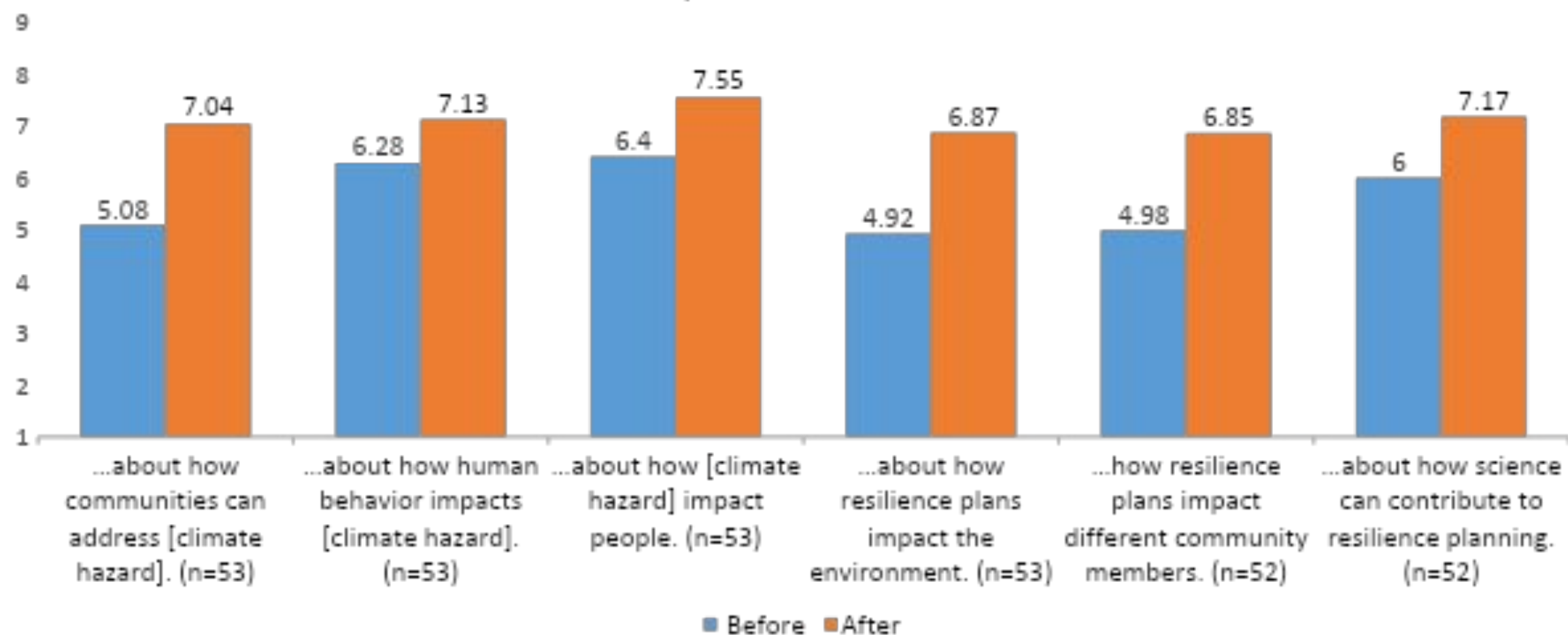
Julia Kumari Drapkin, ISeeChange

Survey data

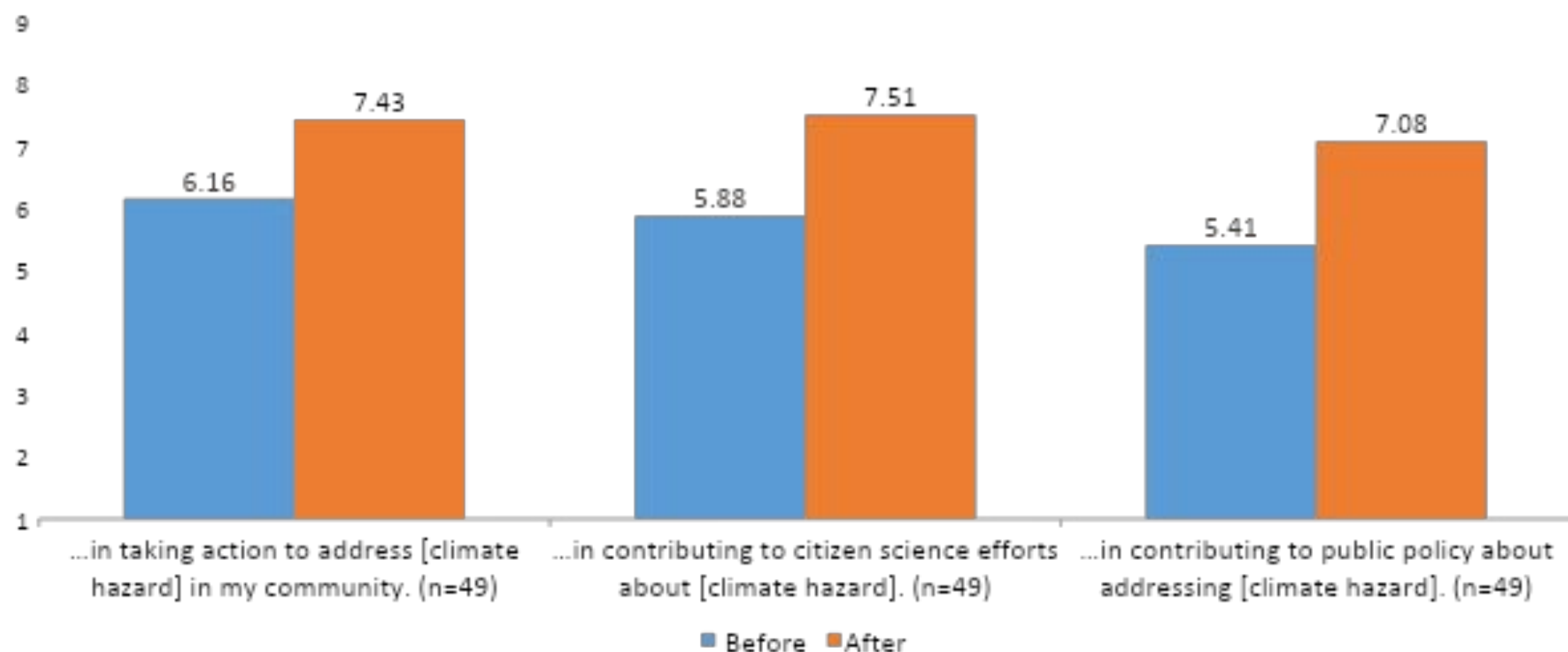
- We asked participants to rate on a scale of 1-9 their knowledge, confidence, and interest before and after the forum and citizen science
- There was a statistically significant increase for each



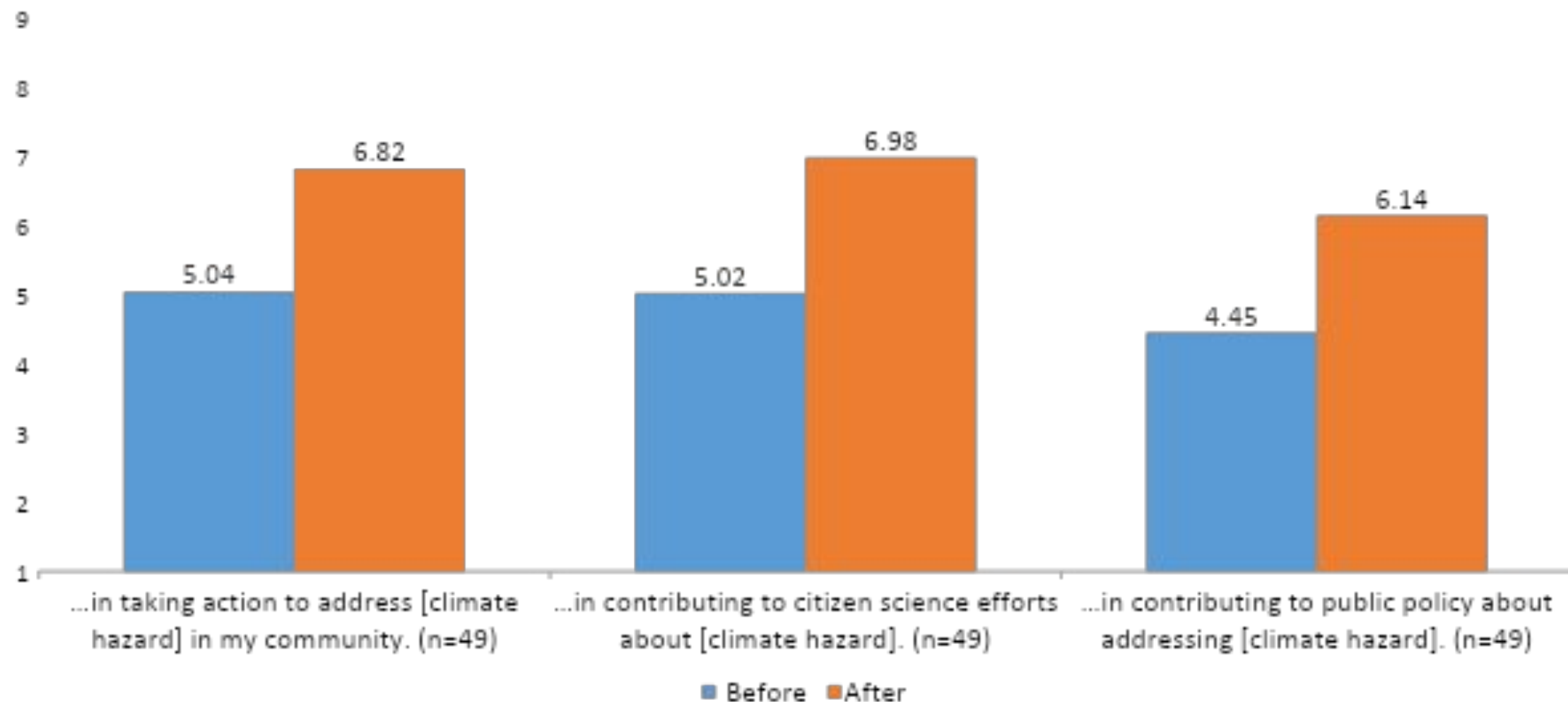
On a scale of 1-9, indicate how much you knew about the following topics BEFORE this forum and how much you know now AFTER the forum



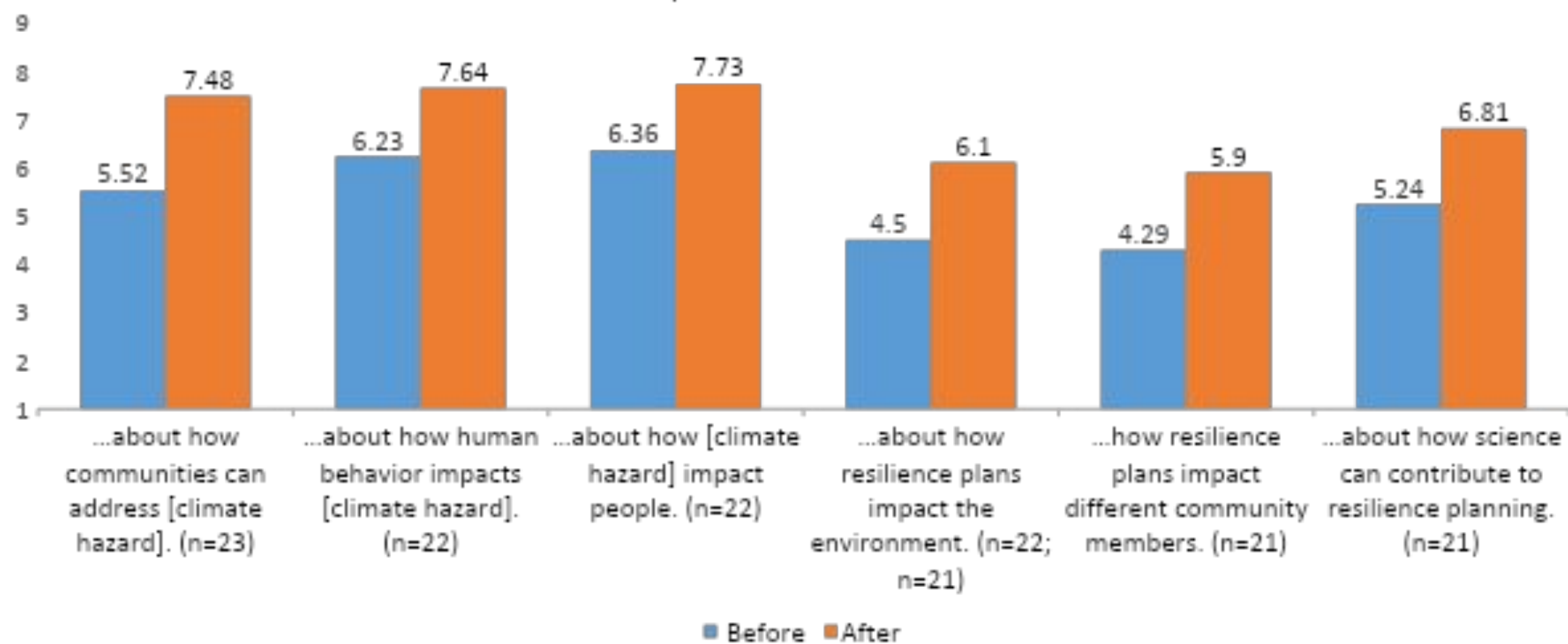
On a scale of 1-9, please rate your interest in resilient activities BEFORE the forum, and
AFTER the forum



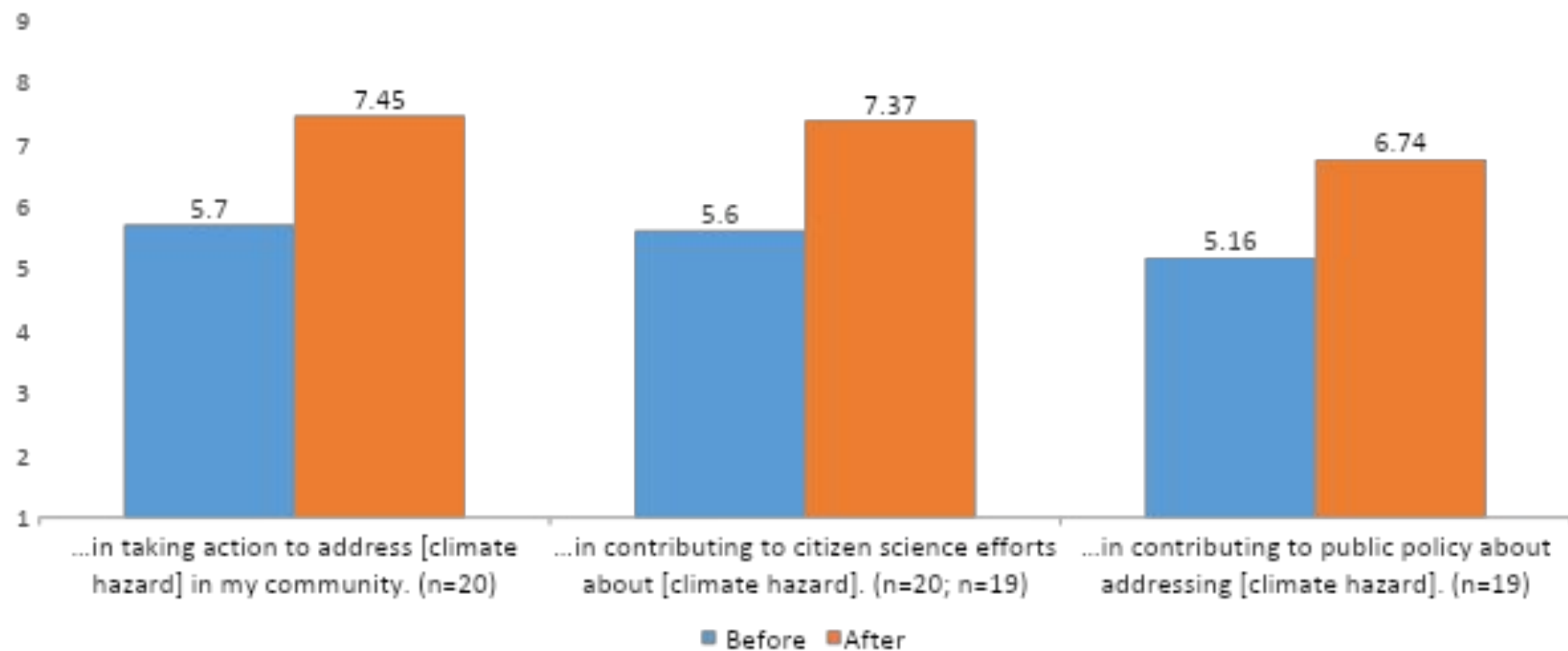
On a scale of 1-9, please rate your confidence in resilient activities BEFORE the forum, and AFTER the forum.



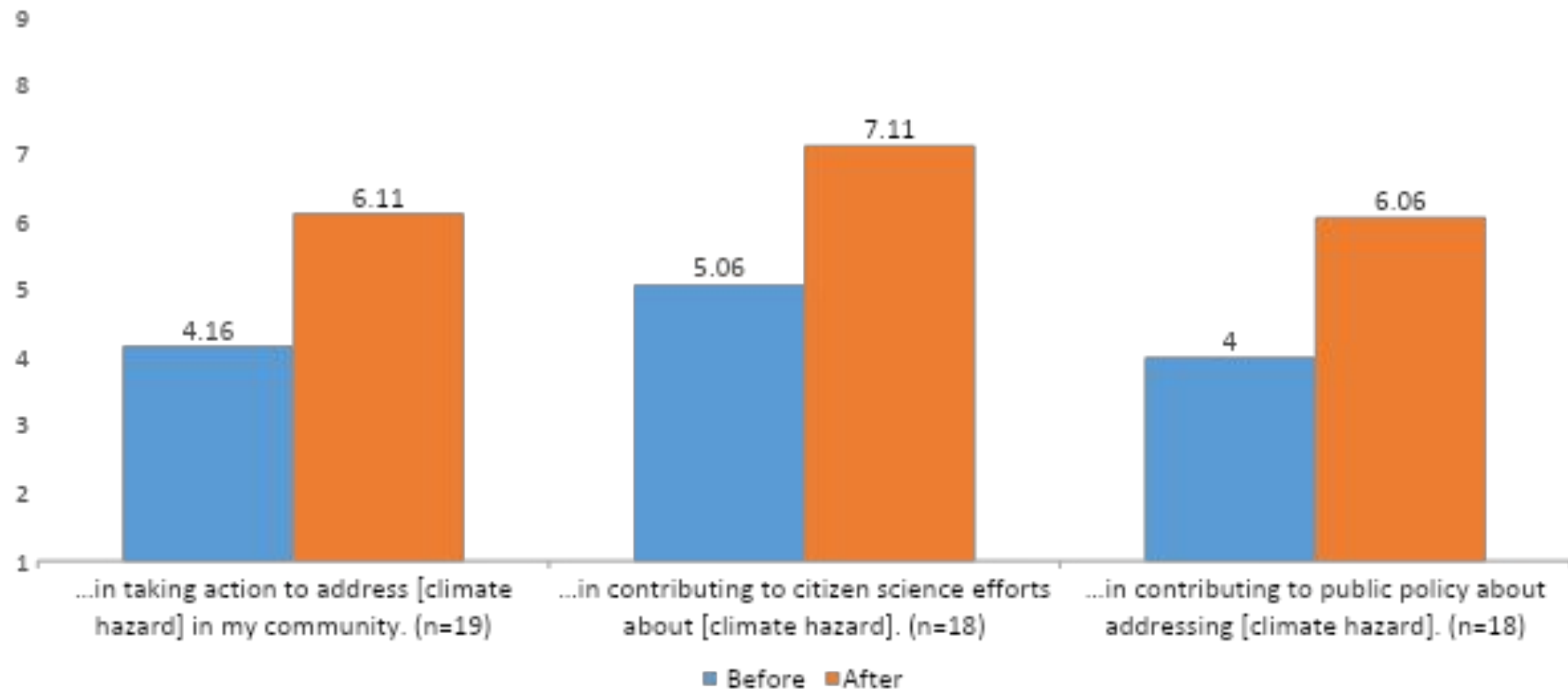
On a scale of 1-9, indicate how much you knew about the following topics BEFORE this citizen science and how much you know now AFTER the citizen science...



On a scale of 1-9, please rate your interest in resilient activities BEFORE the citizen science, and AFTER the citizen science



On a scale of 1-9, please rate your confidence in resilient activities BEFORE the citizen science, and AFTER the citizen science



Thank you!

Sara Benson

sbenson@mos.org

Museum of Science, Boston



Consortium for Science,
Policy & Outcomes
at Arizona State University



Museum of Science®

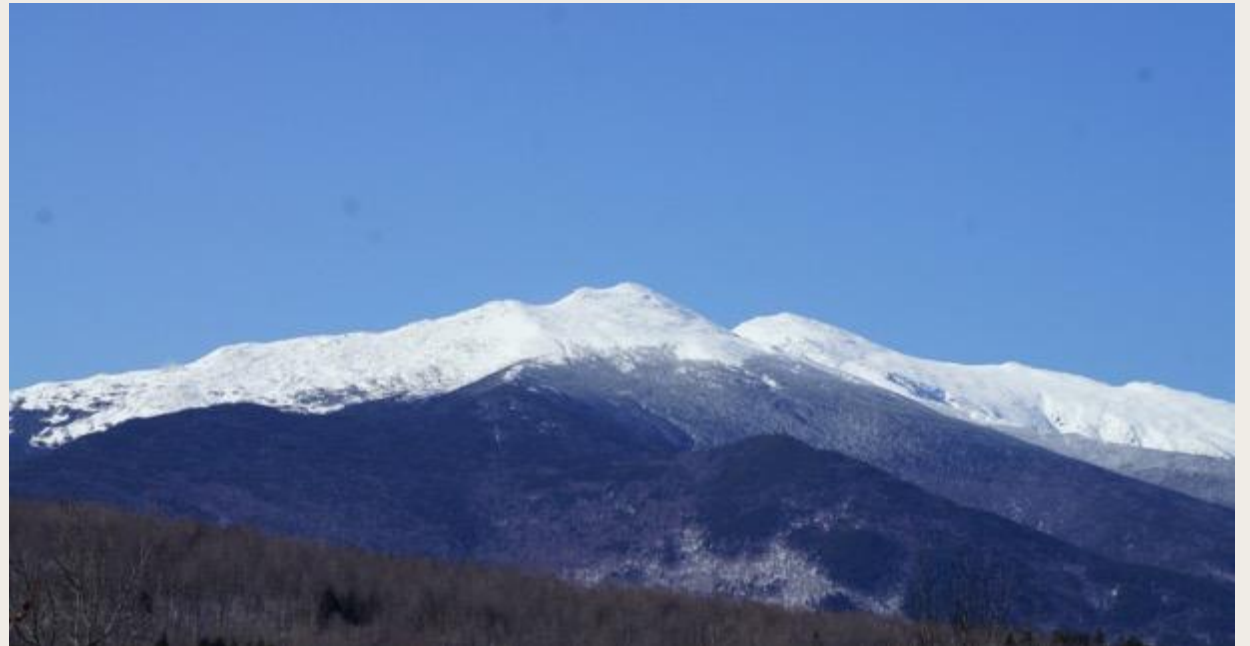


Northeastern University





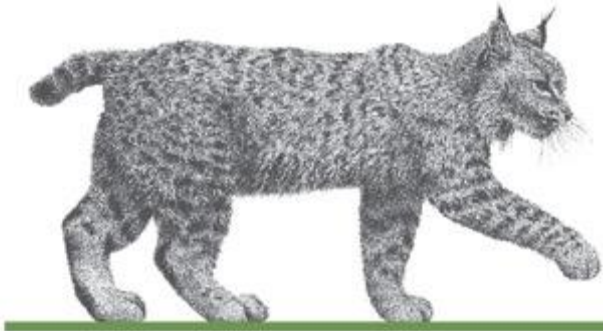
Extreme Heat in New Hampshire





Finding Local Partners

- Concord, NH Energy & Environment Advisory Committee
- NH League of Conservation Voters
- Harris Center for Conservation Education



HARRIS CENTER
FOR CONSERVATION EDUCATION



Getting the Conversation Going

- Stories of Climate Change
 - Online event
 - Kick off for data collection
 - Panel representing scientists, educators, policy advisors
- Conversation between attendees

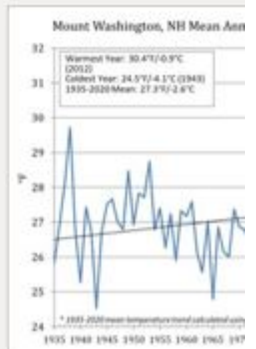


Community Science

We want you to pay attention to the heat!

- 2-3 times a week in June and July
- What is the temperature?
- Did you use a fan or A/C?
- Did the heat change your activities?

Every data point is important!



Data Collection: Simple Process, Simple Goals

- Community Scientists were asked to:
 - Collect data 2-3 times a week
 - Record temperature
 - Mention if A/C or fan used

The screenshot shows the SciStarter website interface. At the top, there's a navigation bar with 'log in', 'sign up', and a search bar. Below the header, the main content area features the 'NOAA + McAuliffe-Shepard Discovery Center' title. The text describes the center's mission to inspire learners and mentions the Citizen Science, Civics, and Resilient Communities project. It states that in 2021, the focus is on extreme heat and changing summer temperatures. A 'GET STARTED!' section on the left prompts users to create a SciStarter account with fields for Username and First Name. To the right, there's a call to action: 'Are you seeing changes in the weather? Are hotter temperatures impacting your activities? Share your data here!' with a link to 'Share your data here!'. Below this, there are two small images: a line graph showing temperature trends and a photo of a person's arm in a cooling vest.

The screenshot shows the ISeeChange website. The header includes the 'ISEE CHANGE' logo and navigation links: MAP, TOPICS, SIGHTINGS, STORIES, ABOUT, WORK WITH US, and a '+ ADD SIGHTING' button. The main visual is a circular graphic with four colored icons (yellow sun, green raindrops, red tree, blue snowflake) connected by arrows. Below this, the text reads: 'Our climate is changing—and so are we. Share your experiences and collect data to investigate our environment and help our communities change.' A prominent 'VIEW SIGHTINGS' button is centered. At the bottom, there are two sections: 'LATEST STORY' with the headline 'Five ways to garden while the climate' and 'LATEST SIGHTING' with the headline 'No rain for 2 weeks in May in Pensacola, is'. Social media download buttons for Google Play and the App Store are also visible.



Results

- Core group of contributors in central NH
- 100+ sightings that record temperature
- Opportunity to compare urban/rural and microclimate data
- (Connecting climate change to civic action)

Keeping Them Engaged

 71.81 °F ...see weather & 3 more details

71F this evening and comfortable today after several very hot and muggy days here. Torrential rains are predicted to fall overnight.

[Drought, Heat, Plants & Trees, Rain and Flooding, Skies & Air](#)



Mirka Zapletal • McAuliffe-Shepard Discovery Center • 2 months ago • [Edit](#)

The rain started in earnest for us Sunday morning- more than an inch by 7 am

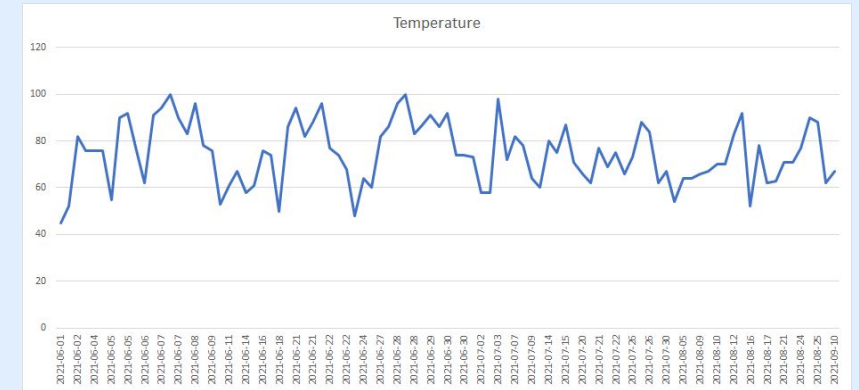


Donna DeCrescenzo • New Hampshire, US • 2 months ago

it woke me up at 12:30am when it was really coming down hard. Poor folks out in the western part of our state- dealing with buildings and homes flooded and roadways washed out in the aftermath.

- Regular replies to posts
- Participation in National Forum on Extreme Heat
- Direct requests and check-ins
- Bring it back to local data

Extreme Heat in New Hampshire: A look at the summer

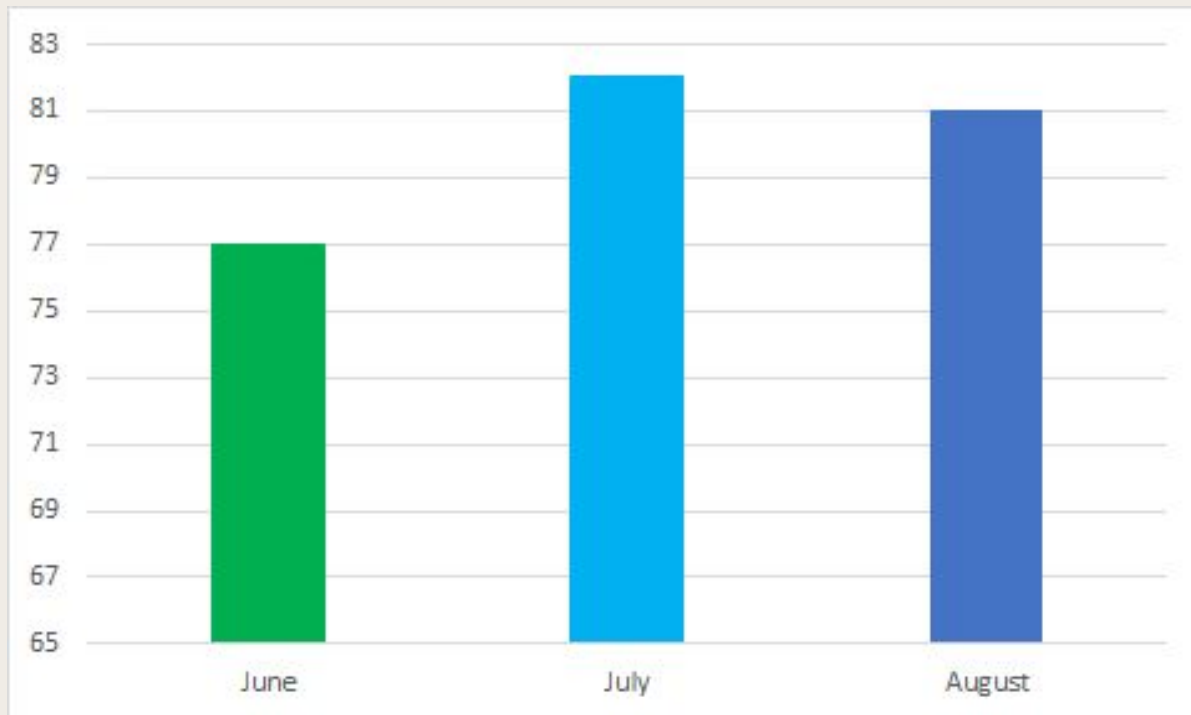


- Online event
- Compiled data
- Compared with historical averages
- Featured Mount Washington Observatory

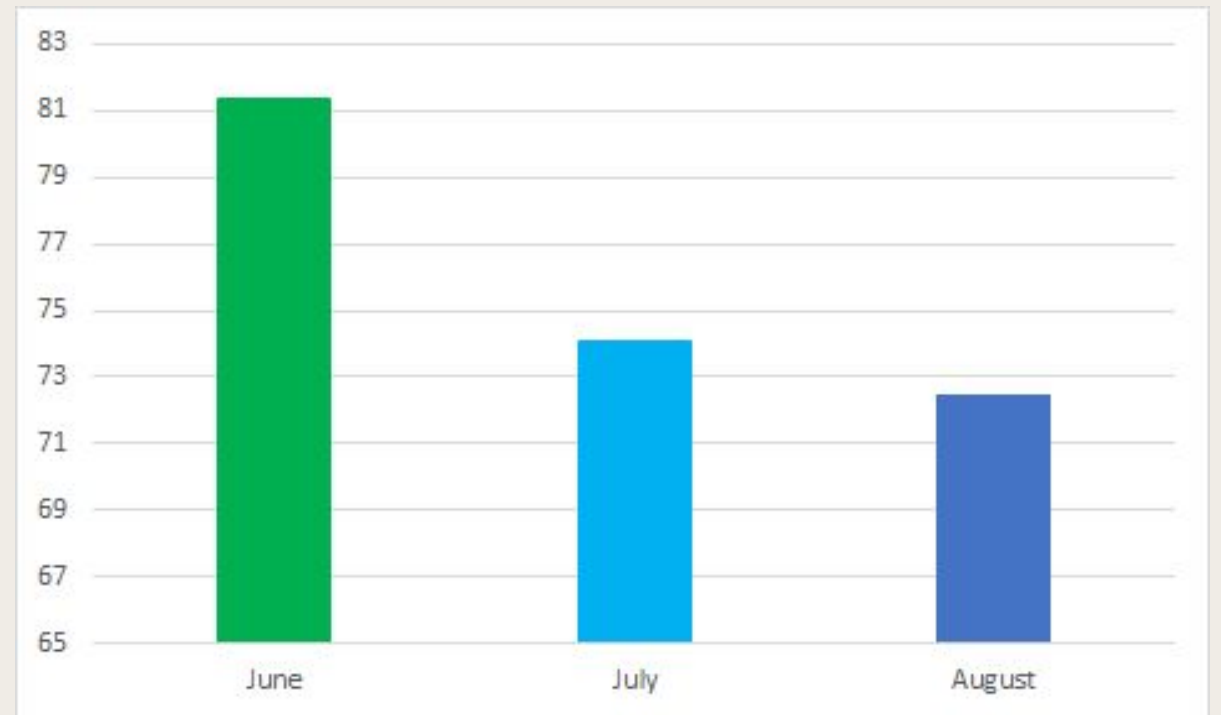


Monthly Averages

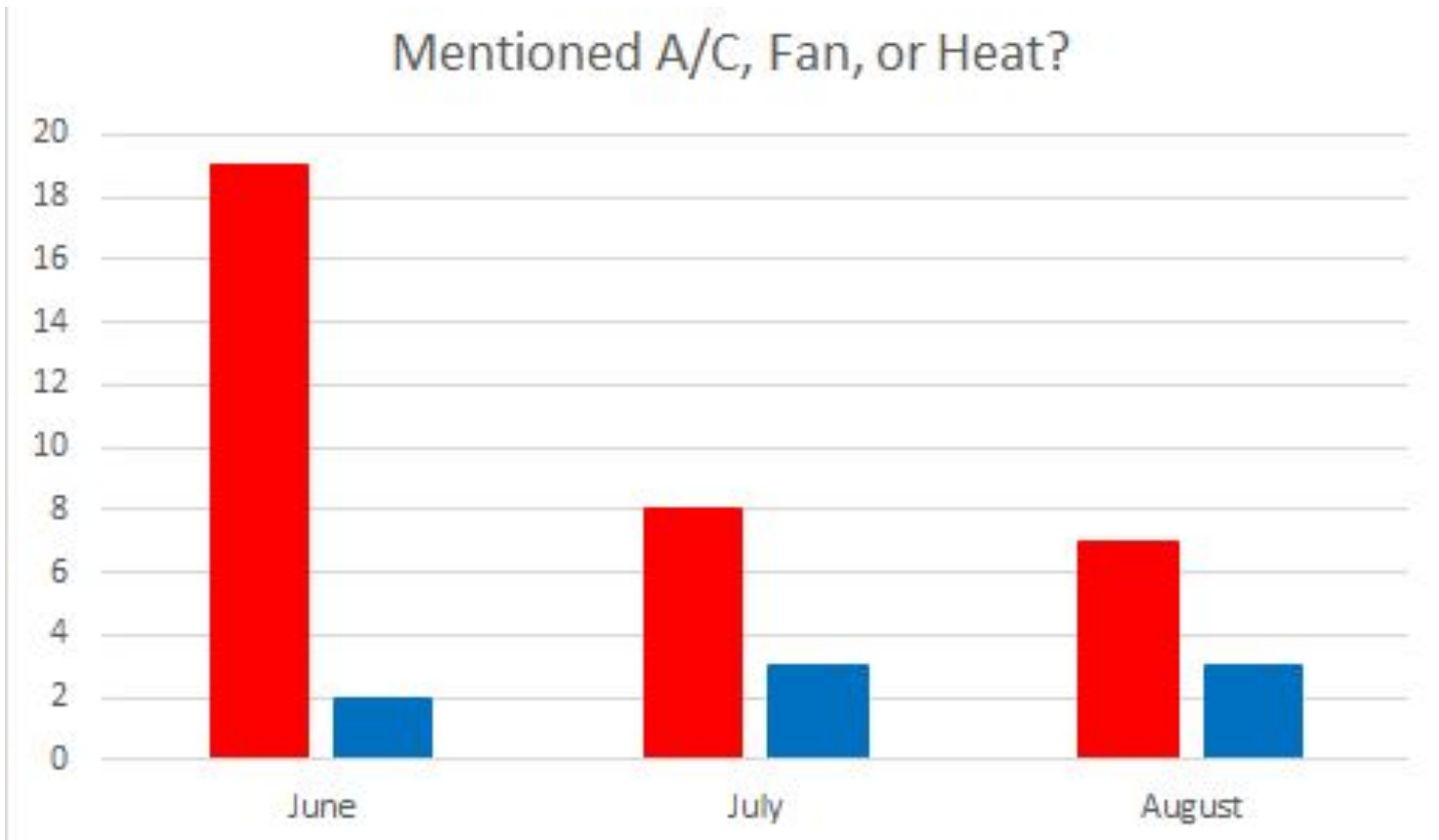
Historical Data



Our Data



Starting a New Baseline



- Most of the mentions were about needing fans or A/C or just how generally hot it felt (Red), but sometimes people remarked about the nice, cool weather (Blue)



Questions?

mzapletal@starhop.com

Citizen Science, Climate Change, and Resilient Communities

A Research-Based Workshop Series for Educators



- Participate in citizen science research.
- Meet local experts in climate change, drought, and sustainability.
- First 15 registrations receive a CoCoRaHS rain gauge (valued at \$48).
- Learn how to apply and incorporate these activities in your programming.
- Join a national forum to expand our body of knowledge around climate change.

Registration is free. For more information including registration and workshop dates, please visit the link below:

<https://bit.ly/CitizenSciPD>

Presented with support from the Environmental Literacy Program of NOAA



x studio



iexplora!

Goals of the project



- Introduce educators to citizen science and equip them with the knowledge and skills to implement with their students
- Address resilience and climate change through a variety of strategies, including activities, discussions, Drought Forum, and local experts
- Apply and incorporate

Workshops

- 18 registrants; 11 participants
 - K-5 (6)
 - MS and HS (3)
 - Community College (2)
 - Museum (1)
- Virtual
- Incentives

Introductory Prompts



- What are some things you know about or associate with climate change?
- When you hear about climate change, how does the topic make you feel?
- To be honest: 7 billion people can't continue with our present lifestyle. How does the idea of being forced to change some things make you feel?

**Ice Age
coming**

**Big
companies
can give
people better
options.**

**the need
for green
energy**

**It's more
about
adaptation
than
intervention**

**Change in
animal
habitats**

**If it will
help...very
hopeful**

**Resilience
planning
is critical
now**

**...however,
what we are
experiencing
now is
extreme**

**Unpredictable
weather**

droughts

**We've already
passed the
tipping point**

**carbon
footprint**

**malnourished polar
bears; super
destructive wild
fires; the dying Rio
Grande; dismal
monsoon seasons**

**Hot, no water
or too much
water (rain)
Severe
weather**

**Frustration
with
politicians**

**The Earth goes
through natural
cycles of
heating/cooling**

**afraid
Very
afraid**

**We must
Act NOW**

**Melting Ice
Caps and the
world getting
warmer**

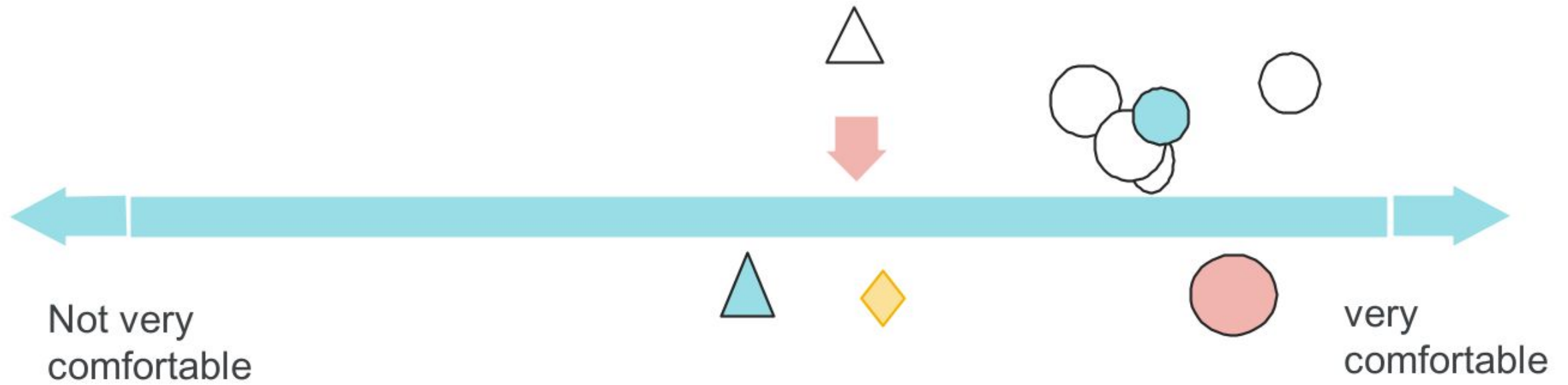
**excessive
heat**

**It feels
necessary, but
it must be
collective.**

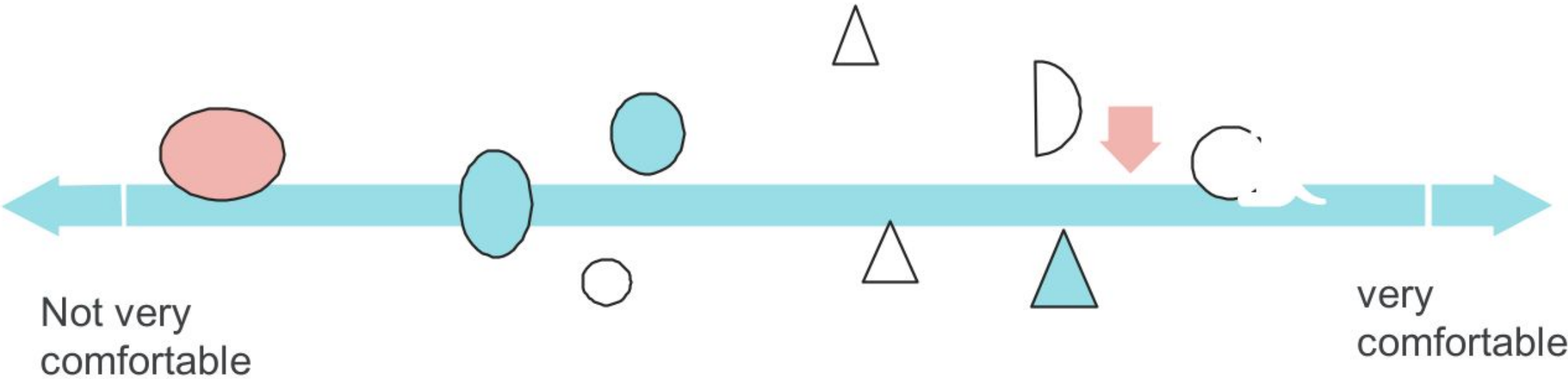
**human choice
vs.
convenience**

What are some things you know about or associate with climate change?

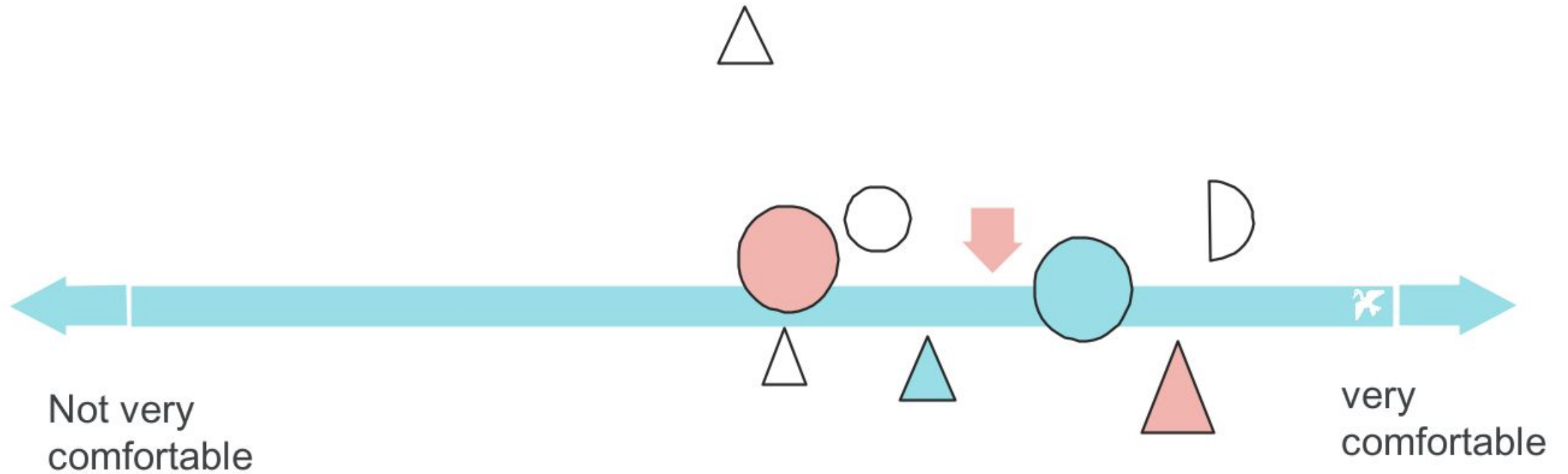
. . . finding and trusting information about climate change?



...talking about climate change with your students?



...making connections between climate change and your students' daily lives?



Experts

- How is the issue affecting *our* community? How are officials addressing the problem? What can we do?
 - City of Albuquerque Sustainability
 - Albuquerque Bernalillo County Water Authority
 - NGO



Citizen/Community/Neighborhood/Public Science

A **collaboration** between scientists and those of us who are curious, concerned, and **motivated to make a difference**.

It's how people can make an impact on issues they care about...and help **science**!

SciStarter connects citizen scientists to over 3,000 projects, events, and tools.

The screenshot shows the SciStarter website with a dark blue header. The header includes the SciStarter logo (Science we can do together.) on the left, a user profile 'chickerson' with a dropdown arrow and a 'Quick Navgate' button on the right, and a navigation menu with links: @Sci Scouts, Training, Dashboard, Project Finder, Events, Blog, and Partner Gateways. The main content area features a large hero image of a woman in a winter hat taking a photo of a tree. Overlaid on the left of this image is a green box with the text 'PEOPLE LIKE YOU ARE HELPING SCIENTISTS COLLECT DATA'. To the right of the hero image is a 'FIND A PROJECT' sidebar with search filters: 'by Keyword' (with a text input 'e.g., weather, dog...'), 'by Topic' (with a dropdown 'Select a topic'), and location filters 'Online only' and 'Near me' (with a toggle switch). Below these are buttons for 'Find a Project' and 'Advanced Search'. Under the hero image, a text line reads 'Find volunteer opportunities that match topics you're curious or concerned about. There's something for everyone!'. Below this is a 'Recommended for chickerson' section powered by AI, showing 'Similar to projects that you like' with three project cards: 'Monkey Health Explorer' (with a monkey image), 'Fire Ant Tracker' (with a red ant image), and 'Cedar Creek: Eyes on the Wild' (with a forest image). A 'see more recommendations' button is at the bottom. To the right of the recommendations is an 'Earn a Badge' section with a description: 'Learn citizen science basics, participate in projects and make the most of SciStarter in a self-guided, free training module.' and a badge icon. At the bottom, there are three informational boxes: 'What is Citizen Science?' (describing citizen science as enabling people from all walks of life to advance scientific research), 'Benefits for Volunteers' (describing finding projects that match interests and tracking contributions), and 'Manage a Project?' (describing how SciStarter can help find and retain volunteers). Each box has a 'Learn More' button.

“SciStarter is the Amazon of Citizen Science,” Carl Zimmer, Discover and The New York Times

For Participants

SciStarter.org/NOAA

Easily find and join local forums, events and projects.

Welcome! Click on a Science Center to get started.



**BOSTON,
MASSACHUSETTS**

Museum of Science, Boston



**DURHAM, NORTH
CAROLINA**

Museum of Life and Science



RICHMOND, VIRGINIA

Science Museum of Virginia

Your MicroSite on SciStarter:

Modular webpages to showcase your entire program: events, featured projects, blog posts, outcomes.

Be a Citizen Scientist!

CCMNH is part of the Citizen Science, Civics, and Resilient Communities project with support from NOAA. For this project we are focused on sea-level rise, and [we need your help!](#)

Being a citizen scientist is simple! Just take a walk on the museum's John Wing Trail, then snap a cell phone picture from one of the two picture posts along the beach. Follow the directions on the picture post to share your photo.

We will use these photos to document tides, storm damage, beach cleanups, and more. Coastal decision-makers, emergency managers, and others will use your photos to make better decisions.



Find a project

Choose a project from this page or search through thousands more options with our Project Finder.

[Find a Project](#)[Advanced search](#)

This project includes the MyCoast citizen science project. You can get started with the MyCoast citizen science project by clicking on the icon on this page.

Current Events and Projects



MY COAST

Investigate sea level rise by chronicling our changing coast.



ISEECHANGE

Share your experiences and collect data to investigate our environment and help our communities change.



Brewster Natural Resources Department installs a "Picture Post" on Wing Island. This allows Citizen Scientists to help document changes to the coastline.

Together, We Select and Curate Specific Citizen Science Projects



MYCOAST

Investigate sea level rise by chronicling our changing coast.



ISEECHANGE

Investigate how weather and climate change impact your life and community by sharing photos and stories.

SciStarter.org/NOAA

On-demand analytics



42,776

Landing Page Views
all-time



25,111

View Project Clicks
all-time



1,209

Clicks to Participate
all-time

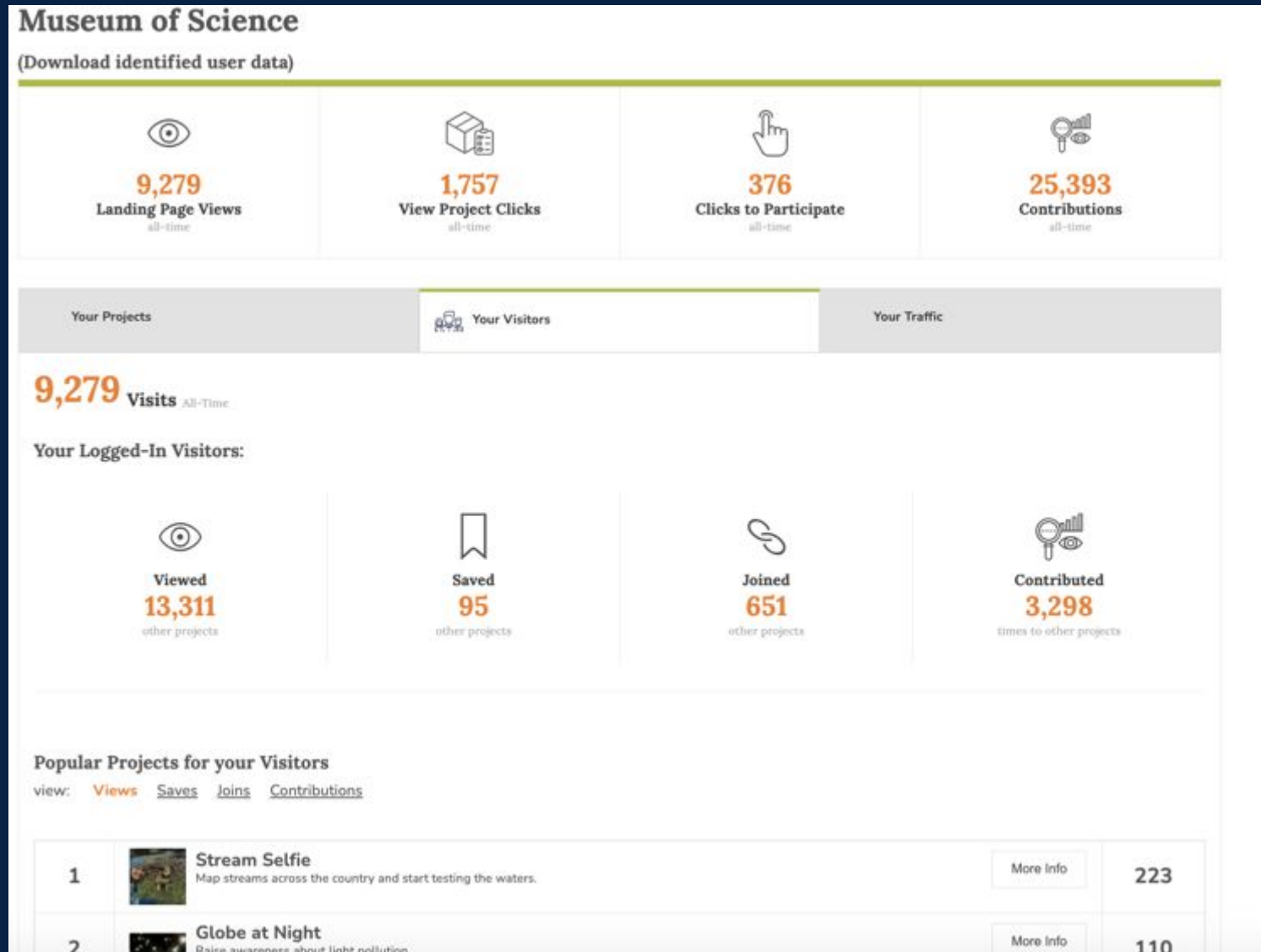


50,713

Contributions
all-time

SciStarter.org/NOAA-MOS

On-demand analytics



For Participants

Connect with community members, receive program updates, measure collective impact, participate in evaluations.



Wicked Hot Boston

In 2019, the Museum of Science, Boston (MOS) team and local citizen scientists addressed the extreme heat climate hazard.

Learn more:

Wicked Hot Boston blog series

[Part One](#) | [Part Two](#) | [Part Three](#)

Museum of Science, Boston [project website](#)

Promotions and Outreach:

Reaching people where they are

- DiscoverMagazine.com Blog
- SciStarter Blog
- Social Media
- Citizen Science Podcast

Organize and Promote Related Events



Learn more on the SciStarter Blog.



Learn more on the SciStarter Blog.



THE SCIENCES


Boston Could Become WICKED Hot. This is What They're Doing About it.

Over the past year, the people of Boston have banded together to address extreme temperatures in their city.



For Participants

Join the SciStarter Community



GET STARTED!
Create your SciStarter account

Username

What should we call you?

* Email

Email address

Zip Code

For finding projects in your area

* Password

Password

* Repeat password

Repeat password

☒ Sign up for our newsletter

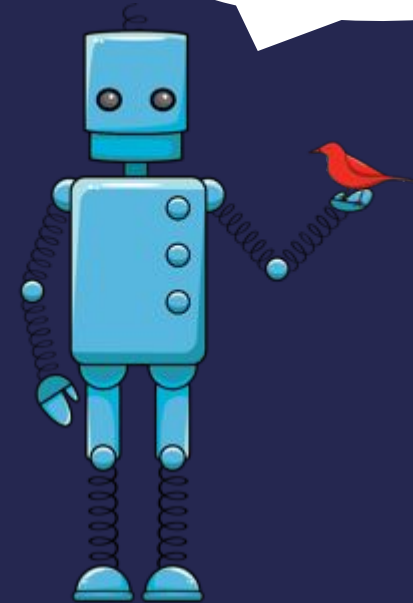
☒ Agree to our [Terms of Use](#)

A SciStarter account is not required, but it saves you time when submitting data, tracks your contributions, and connects you with relevant projects and the wider citizen science community.

Sign up

Log in

Make a SciStarter Account!



scistarter
People-powered science.

Use free SciStarter tools to spark and sustain engagement!

Find a SciStarter affiliate project for your community: SciStarter.org/Affiliates

Make a List to track community participation in SciStarter affiliate projects:
blog.scistarter.org/2020/07/new-beta-feature-from-scistarter-lists-makes-it-easy-to-organize-share-and-track-engagement-in-citizen-science-projects/

Use the People Finder to reach out to SciStarter users in your community:
SciStarter.org/People-Finder

Tell your story on the SciStarter Blog (Blog.SciStarter.org) or Podcast (SciStarter.org/Podcast).

Q & A

Get Involved

Learn more and access the
NISE Network's online digital resources
nisenet.org



Subscribe to the monthly newsletter
nisenet.org/newsletter

Follow NISE Net on social networking
nisenet.org/social



Next Online Workshop

**Working with Experts - If Only
There Was A Guide...
Now There Is!**

Tuesday, March 1, 2022
2pm-3pm Eastern /
11am-12pm Pacific



Learn more at nisenet.org/events



Thank You

