



Climate Change & Kids: Health Impacts, Communication Strategies, and Getting Kids Outside

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**None of the planners or speakers for this event
have any financial relationships to disclose.**

Learning Objectives:

- Describe three health effects of climate change on children in Maine
- Employ strategies for communicating with children about climate change
- Understand how outdoor education opportunities can impact children in the school setting
- Identify 3 community resources addressing climate change in Maine

Roadmap

- Health Effects of Climate Change on Children: Erin Flynn
 - Communication & Community Resources: Sarah Harlow
 - Outdoor & Environmental Education: Teddy Lyman
-
- Audience Q&A
-
- Snowball!

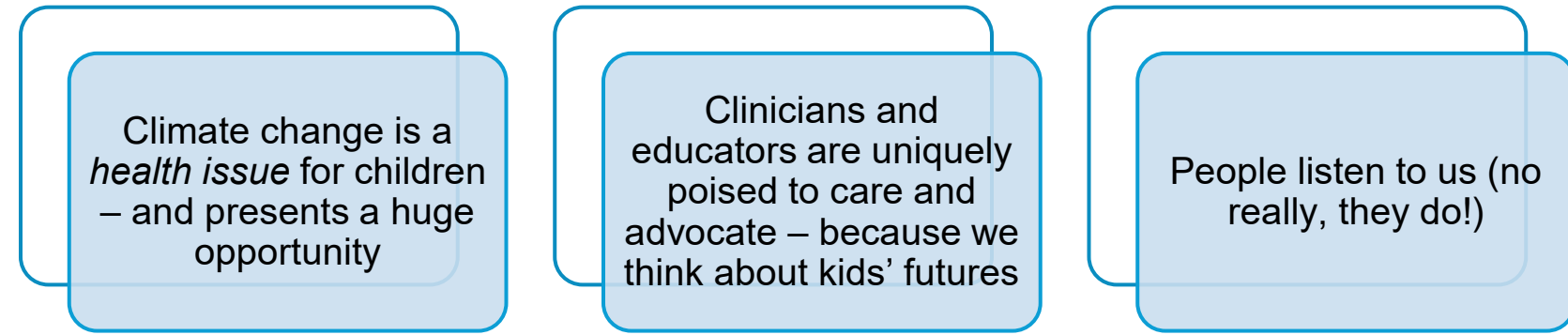


Climate Change & Child Health

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Why talk about climate change at the School Health Summit?



Climate change is a *health issue* for children – and presents a huge opportunity

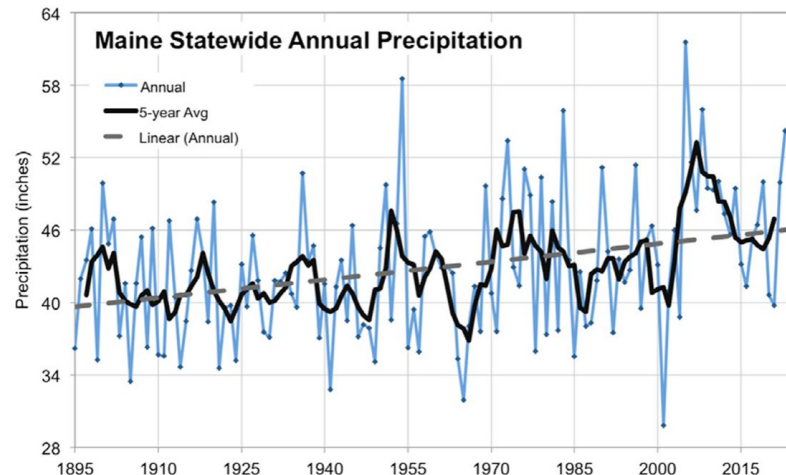
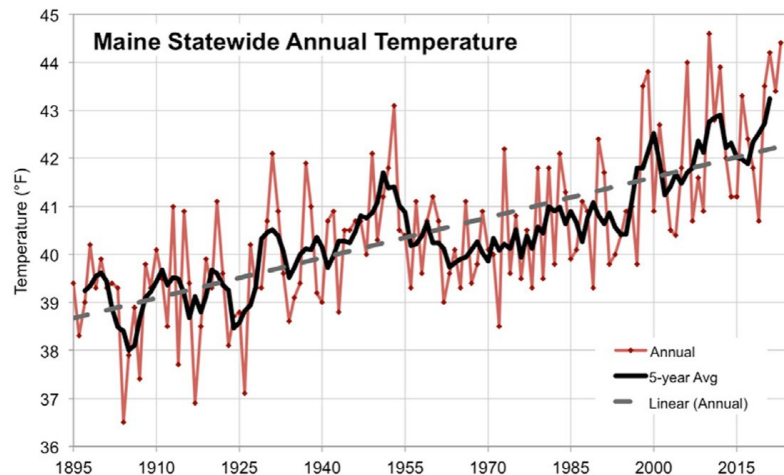
Clinicians and educators are uniquely poised to care and advocate – because we think about kids' futures

People listen to us (no really, they do!)

Setting the Stage: Climate Change in Maine

Maine is getting hotter and wetter, and experiencing more extremes

- Winter is warming fastest (5F compared to a century ago)
- Warm season for 2010-2023 is 2 weeks longer, and winter is 2 weeks shorter, compared to 1901-2000
- Interannual precipitation variability is increasing – dry periods are drier, wet periods are wetter
- More days of extreme heat
- Storms are more intense

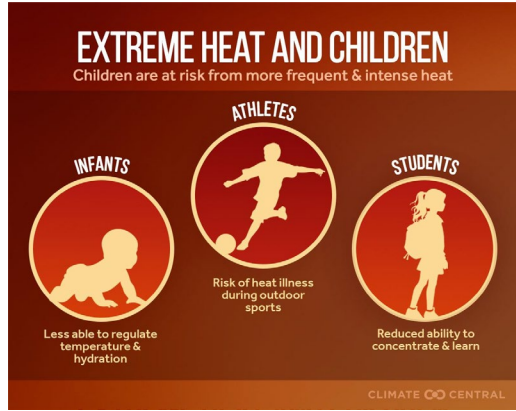


Climate
change
affects
many
aspects of
kids'
health.

- Heat-related illness
- Vector (tick, mosquito, etc)-borne diseases
- Food insecurity
- Respiratory illness
- Traumatic displacement
- Eco-anxiety
- Water safety and waterborne illnesses
- Foodborne illnesses
- Negative birth outcomes
- Learning and social-emotional development impacts
- ...

Kids are
uniquely
vulnerable
to the
effects of
climate
change.

- Higher exposure to air/food/water per kg
- Unique behavior and developmental stages
- Changing physiology
- Dependence on caregivers



1. Extreme Heat

- Heat-related illness
- Learning and school performance
 - ME, NH, VT are among the states with highest projected learning losses per child from high temps and low A/C coverage. (EPA 2023)
- Social-emotional: outdoor play, interaction with other kids
- Reduced efficacy of some medications

Times Record

Another heat wave means early release for some Midcoast students

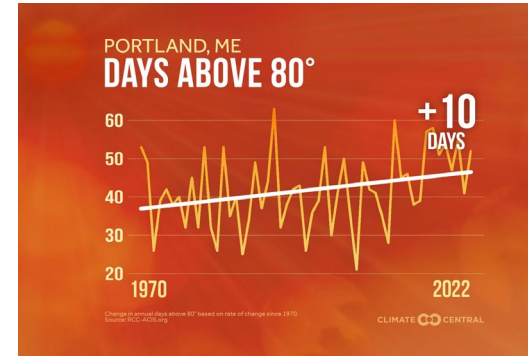
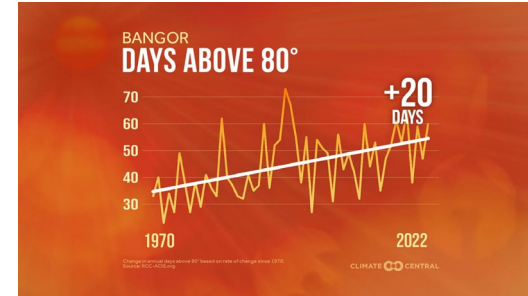
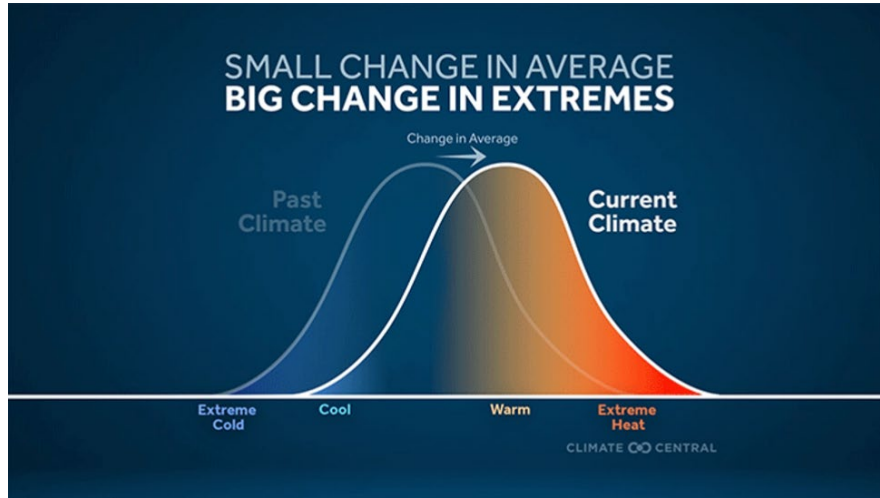
SAD 75 closed three elementary schools early Thursday afternoon due to extreme heat.

Posted
September 7, 2023

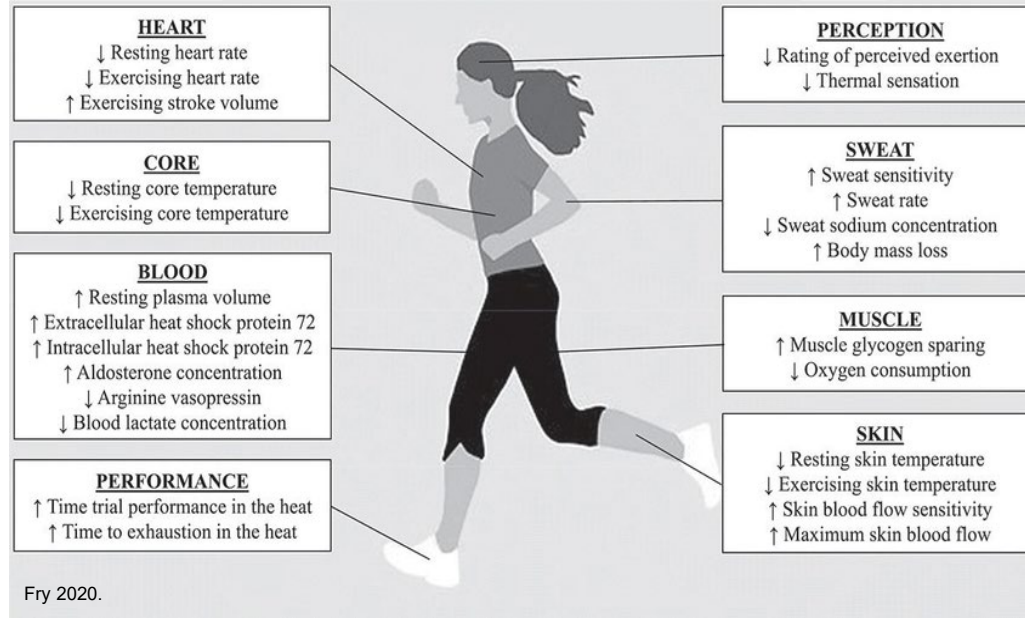
Updated
September 7, 2023

 **Maria Skillings**
Times Record

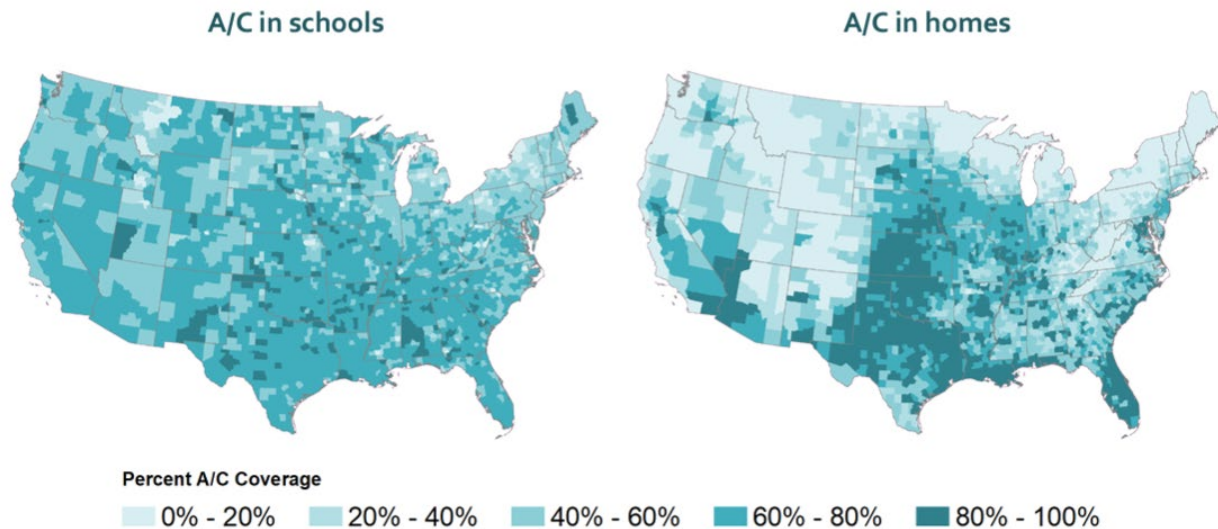
Extreme Heat... in *Maine*?



Physiologic Acclimatization



Infrastructure



Notes: The top map shows average daily maximum temperatures (°F) at the county level during state-specific school calendar years in the baseline considered across this analysis (1986-2005). The middle and bottom maps show the current coverage of A/C at the county level, assembled from various sources described in Appendix B.

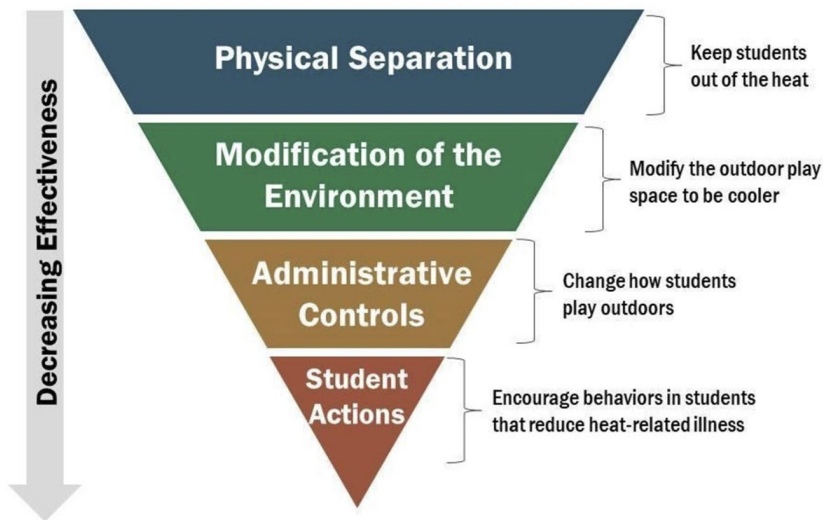
Readiness: Keeping Students Safe

HeatReady Schools

Action Area	Recommendation	Score	Goal (timeline)	
1. School Policy	1a. Our school has formal guidelines for heat-related actions taken within the school. ¹			
	1b. Our school has a plan for communicating effectively with parents about heat in a way that's accessible to many parental needs.			
	2a. Our school plants vegetative barriers on the school grounds (bushes, trees, dense planting) to protect students from heat. ²			
	2b. Our students have access to a reusable water bottle for.			
	3a. To prepare for the heat season, our school requires all active members at the school to take a free annual heat training (example: teachers, students, and parents). ³			
	3b. Our school collaborates with the public health department			
	4g. Our school explains heat preparedness plans in school board and PTA meetings before and during warm season.			
	4h. Our school changes the time and intensity of gym classes and sports practice when it's dangerously hot. ^{4,13}			
	4i. Our school gets outside resources for providing cooling supplies (ice packs, ice vests, water bottles, electric fans, cool towels, etc.) to their nurse(s) to help students in need. ¹⁴			
	4j. Our school includes monitoring heat illness instances in their current health tracking system(s) through classroom teachers, recess and sports coaches, librarians, etc. ¹⁵			
2. Environment	4k. Our school includes monitoring heat illness instances in their current health tracking system(s) through classroom teachers, recess and sports coaches, librarians, etc. ¹⁵			
	5a. Our school encourages parents to include the child's susceptibility to heat illness as a factor in the student's health information. ¹⁶			
	5b. Our school ensures that students/staff have access to heat relief area(s)/protective gear (example: trees, shade sails, or personal umbrellas) during long wait times outdoors in the walking and carbus loading areas.			
	5c. Our school is connected to a network of other schools that shares best practices and guidance on heat readiness. ^{14,17}			
	5d. Our school is involved in community cooling efforts for.			

Shortridge et al. 2022

Controlling Environmental Heat as a Hazard at Schools



Readiness: Keeping athletes safe

- Highest risk heat illness in first 2 weeks of team practices
- Graded workout intensity
- Morning/evening workouts
- Water/rest breaks, loose light clothing
- Teach coaches and kids the signs of heat illness



Cat. 1	Cat. 2	Cat. 3	Activity guidelines
<76.1°F	<79.8°F	<82.1°F	Normal activities – Provide at least three separate rest breaks each hour with a minimum duration of 3 minutes each during workout.
76.2-81°F	79.9-84.6°F	82.2-87°F	Use discretion for intense or prolonged exercise; provide at least three separate rest periods each hour with a minimum duration of 4 minutes each.
81.1-84.1°F	84.7-87.7°F	87.1-90°F	Maximum practice time: 2 hours. For football, restrict players to helmet, shoulder pads and shorts during practice. For all sports, provide at least four separate rest breaks each hour with a minimum duration of 4 minutes each.
84.2-86.1°F	87.8-89.7°F	90.1-91.9°F	Maximum practice time: 1 hour. For football, no protective equipment during practice, and no conditioning activities. For all sports, provide at least 20 minutes of rest breaks distributed through the practice.
>86.2°F	>89.8°F	>92°F	No outdoor workouts. Delay practice until a cooler wet bulb globe temperature is reached.



Climate Desk

As temperatures rise, Maine schools need solutions for shoulder seasons

Maine Public | By [Molly Enking](#)
Published September 26, 2025 at 6:00 PM EDT

“I was exhausted, I was grumpy, out of breath. Friends of mine were going down to the nurse because [they] felt sick to their stomach...or they had headaches”

June 15, 2025:

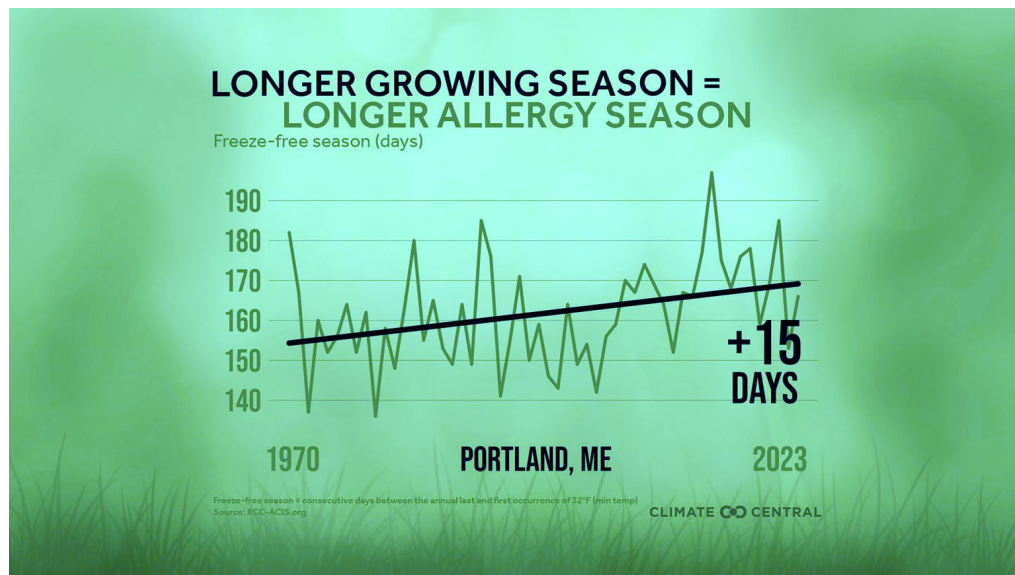
Be it enacted by the People of the State of Maine as follows:

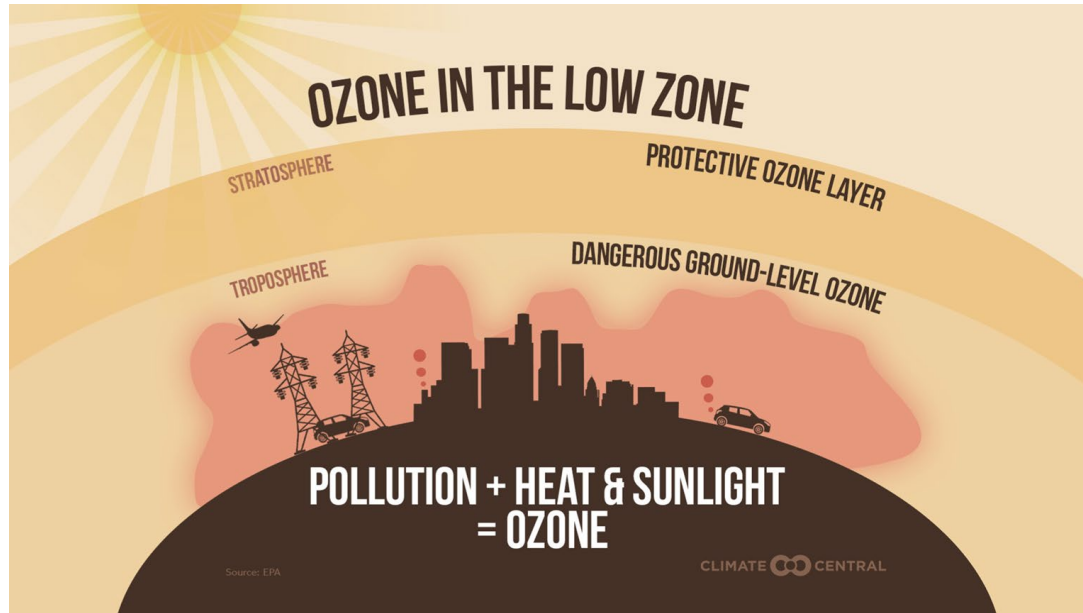
Sec. 1. 20-A MRSA §1001, sub-§23 is enacted to read:

23. Temperature standards for school buildings. A school board shall adopt and implement a written policy establishing standards for minimum temperatures and maximum temperatures for school buildings. The policy must be posted on the school board's school administrative unit's publicly accessible website. A school board shall seek guidance from the department prior to adopting and implementing the written policy.

2. Allergies & Asthma

- Allergens are more numerous, more allergenic
- Allergy season is longer
- Allergens are stronger
- Pollutants make immune response to allergens more intense
- Pollen can heighten the risk of viral infection
- Pollen can transport viruses





Climate change itself
worsens air quality
☐ worsens asthma

Ozone exposure associated with increased asthma exacerbations, increased ED visits, increased risk of developing asthma

> **SMOKE** FRI 10:00 PM

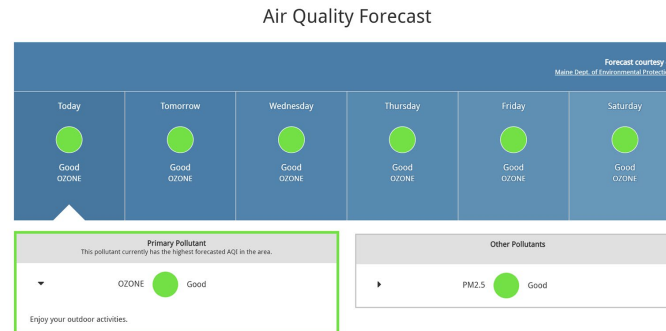
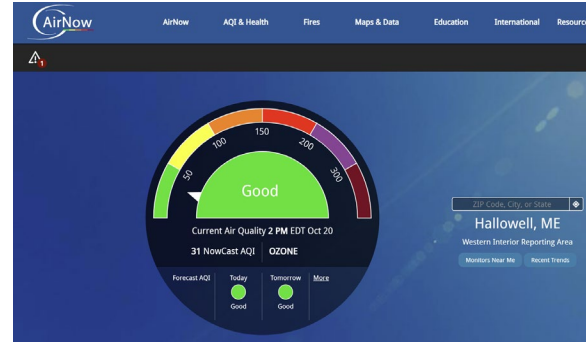
**WEATHER
AUTHORITY**

THINNER THICKER



Helping kids with asthma & allergies

- Address the Sx, not the season
- Educate families about exposure
- Make indoor air cleaner
- Cut carbon pollution



3. Mental Health

Climate-related disasters

- Trauma of event
- Displacement
- School disruption
- Economic insecurity

Pollution

- Exposure to PM 2.5 associated with increased psych ED visits in children (Brokamp 2019)

Heat

- Increased aggressive behaviors (Briker 2025)
- Poor sleep

Witnessing Environmental Impacts

- Climate anxiety
- Solastalgia



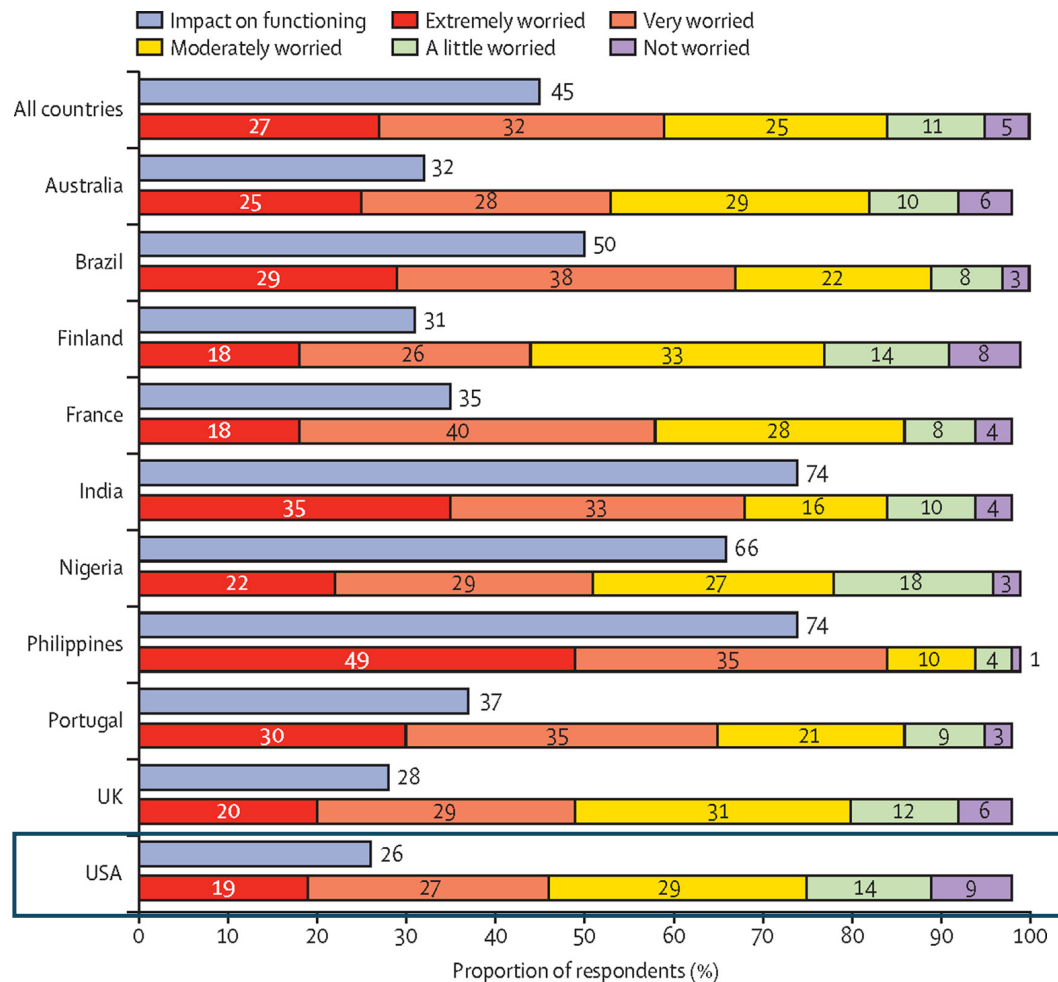


Figure 1. Worry about climate change and impact on functioning

The graph shows the proportion of the sample reporting a negative impact on functioning from their feelings about climate change and various levels of worry about climate change. Data are shown for the whole sample (n=10 000) and by country (n=1000 per country)

Helping kids with the mental health effects of climate change



Post-disaster mental health support, rapid reunification, and restoration of safety



Supportive adults who model resilience



Healthy risk-taking



Ongoing mental health screening and treatment



Green space access



Developmentally appropriate communication



Individual action!

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Climate change and Substance misuse Prevention – Communication strategies

- Presented by:
- Sarah Harlow, MA, PS-C



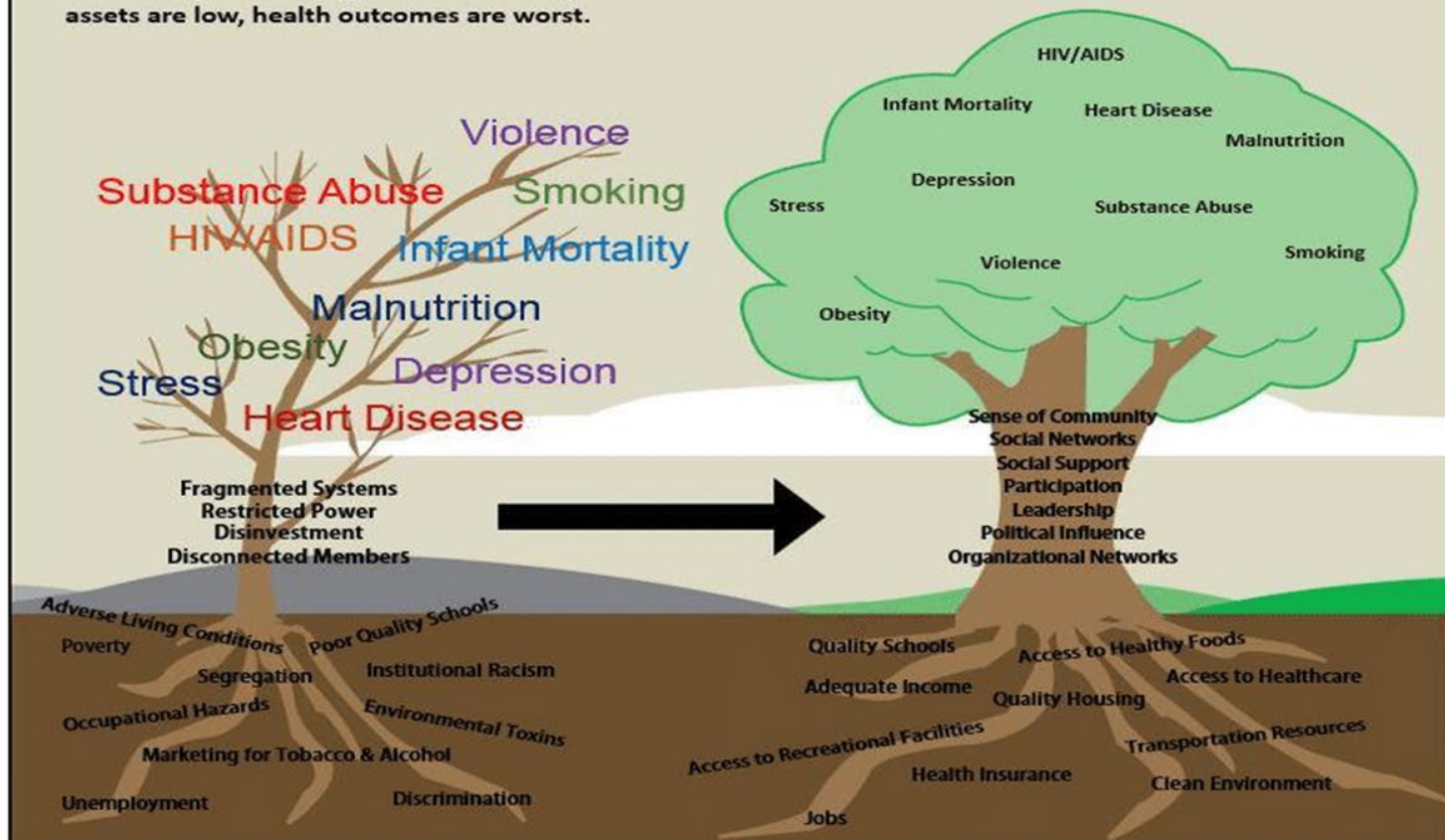
Why talk about Climate Change and Substance misuse Prevention?

- A gap in our conversations
- It's a pressing need changing the way our communities look and function
- It's on the minds of a majority of young people
- There are specific implications for New England

Our environments cultivate our communities and our communities nurture our health.

When inequities are high and community assets are low, health outcomes are worst.

When inequities are low and community assets are high, health outcomes are best.



Affects on Youth, Families,
Communities, and Society
from a Prevention Perspective



Youth Data

According to a 2021 Poll, 91% of Females and 80% of males between the ages of 13 and 29 said they believed **climate change would impact their personal future in some negative way.**

83% of white respondents 90% of black respondents, and 96% of Asian respondents believed Climate change would affect their personal future in some negative way - highlighting **existing health disparities**

A 2019 study shows that millennial and younger are more likely than previous generations to **support climate activities**- 62% compared to 49% Gen x and Boomer.

Younger generations have **a stronger sense of efficacy** in than older generations, which can be encouraged through positive youth development. a 2019 poll showed 1 in 4 teens have participated in some kind of climate justice actions, like school walk outs or protesting.

A 2019 poll showed 57% of teens are afraid of climate change, 52% are angry, and 54% are **motivated**.



Changing environments affecting mental, physical, emotional, financial health



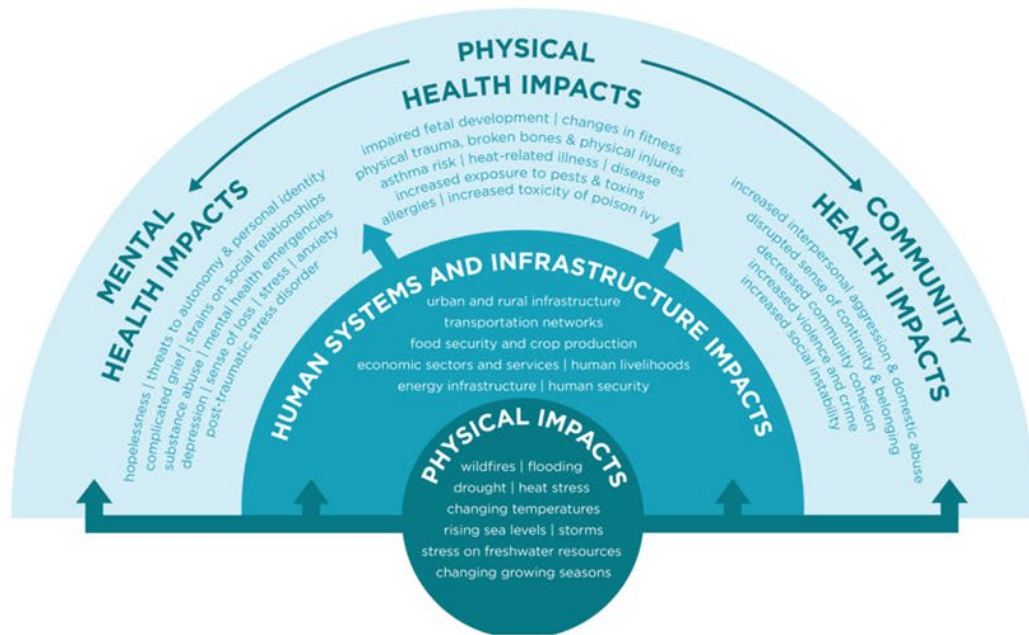
BEYOND STORMS & DROUGHTS:

The Psychological Impacts of Climate Change

JUNE 2014



ecoAmerica
start with people



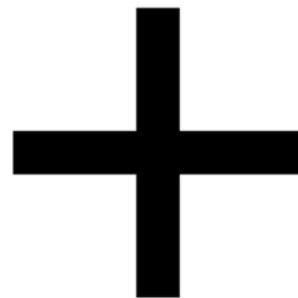
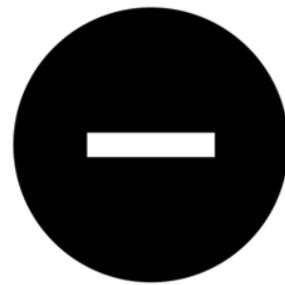
Risk & Protective Factors

Risk:

- Increase in mental health issues around disasters and prolonged climate change, including:
 - trauma and shock
 - Severe reactions such as PTSD Complicated grief
 - stress, anxiety, depression,
 - strains on social relationships.
- Awareness of the fact that while they have little responsibility in causing climate change, they will endure most of the impacts in their lifetimes

Protective:

When working with youth coalitions, consider a positive youth development approach by empowering young people to advocate for themselves, their community, or their geographical area's needs. Advocacy in mental health, climate change, or other environmental issues important to them. Fostering strong, positive connections to adults who do have answers to questions they may have around climate.



Considering the socio-ecological model

- **Individual:** Developing brain and future perspectives
- **Interpersonal:** Generational divides
- **Organizational:** infrastructure
- **Community:** social cohesion, continuity and sense of belonging, increase in interpersonal aggression
- **Public Policy/Societal:** Is prevention considered when making policy about climate?
- **Other ways?**



What can people who care
about the health of youth
and communities do?



What Can We Do?

Community Connections

- 1. Strengthen community and social networks
- 2. Inform and involve the community
- 3. Encourage residents to incorporate mental health into existing disaster preparation efforts
- 4. Develop trusted and action-focused warning systems.
- 5. Pay special attention to vulnerable populations.
- 6. Create a sense of safety, calm, hope, connectedness, and collective efficacy
- 7. Foster optimism
- 8. Shore up infrastructure to mediate psychological effects
- 9. Be sensitive to the needs of displaced people

Additional Resources for Responding to Psychological Needs After Disasters, including overviews of the steps emergency personnel and individuals alike can take to care for themselves and others:

<http://emergency.cdc.gov/mentalhealth/>
<http://www.ptsd.va.gov/professional/pages/effects-disastersmental-health.asp> <http://dmh.dc.gov/page/disaster-mental-health-services>



Adapted from BEYOND STORMS & DROUGHTS: The Psychological Impacts of Climate Change by the American Psychological Association

What Can We Do?

Family Connections

- Use recourses to help you have child-friendly answers to climate change, such as Climate Kids from NASA:
<https://climatekids.nasa.gov/climate-change-meaning/>
- Remember: It's okay if you can't answer all the questions your child might have – take it as an opportunity to discover the answers together.
- Give young people the tools to advocate for themselves, such as this toolkit for young climate activists:
<https://www.voicesofyouth.org/climate-toolkit>
- Listen to your children
- Focus on Solutions
- Listen to other youth voices who are advocating for climate justice together, such as:

<https://www.unicef.org/stories/young-climate-activists-demand-action-inspire-hope>

<https://www.un.org/en/climatechange/youth-in-action>



Adapted from Talking to your child about climate change
How to engage children on the issue with hope and positivity from
UNICEF.

What Can We Do?

Conversations with Youth

When a preventionist is working in communities, in schools, and with youth and families, conversations around the future are frequent.

- What do you want to do after high school?
- Will you have a family someday?
- Where do you see yourself in ten years?
- How can substance use now impact your future?

Preventionists can consider how prevention might look different as the world changes as a result of climate change. Does planning for a future with climate change look different to students? How can you guide conversations with a young person who has anxiety about their view of the future?



How else do you think you can be a part of the climate change conversation?



Planning and Resources



Strategic Planning

- To aid public health professionals in adapting to the health effects of a changing climate, CDC created the BRACE framework.
- **Understanding and addressing the health implications of climate change involves incorporating complex data into public health planning and response activities. This enables communities to effectively foresee, prepare for, and respond to an array of climate-sensitive health impacts.**
- The BRACE framework is a five-step process that helps health departments identify how climate change has and will affect human health. It enables health departments to undertake a systematic, evidence-based process to customize their planning and response to local climate and health risks and hazards.



to the health effects of a changing climate.

STEP 1

Forecasting climate Impacts and assessing vulnerabilities

- Define what “vulnerability” means for your jurisdiction
- Build and maintain meaningful community engagement
- Reflect on how JEDI affects the community

STEP 2

Projecting the disease burden

- Anticipate limitations of an entirely quantitative data approach
- Diversify your data to tell a more complete story
- Consider indirect and emerging health consequences of climate change for groups at a higher risk

STEP 3

Assessing public health interventions

- Conduct a racial equity impact assessment
- Work with community members to understand what adaptation efforts are already in place and identify resource gaps
- Offer public health resources in a variety of languages and with options for persons with hearing and visual impairments

STEP 4

Developing and implementing a climate and health adaptation plan

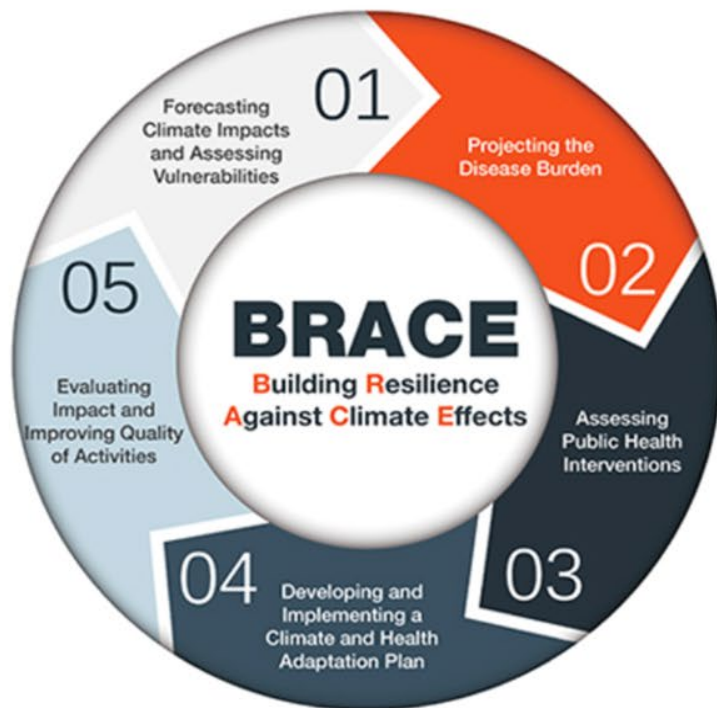
- Develop a logic model to visualize how the adaptation plan will reduce health disparities
- Engage non-health governmental partners
- Delegate adaptation planning and implementation leadership roles to local public leaders

STEP 5

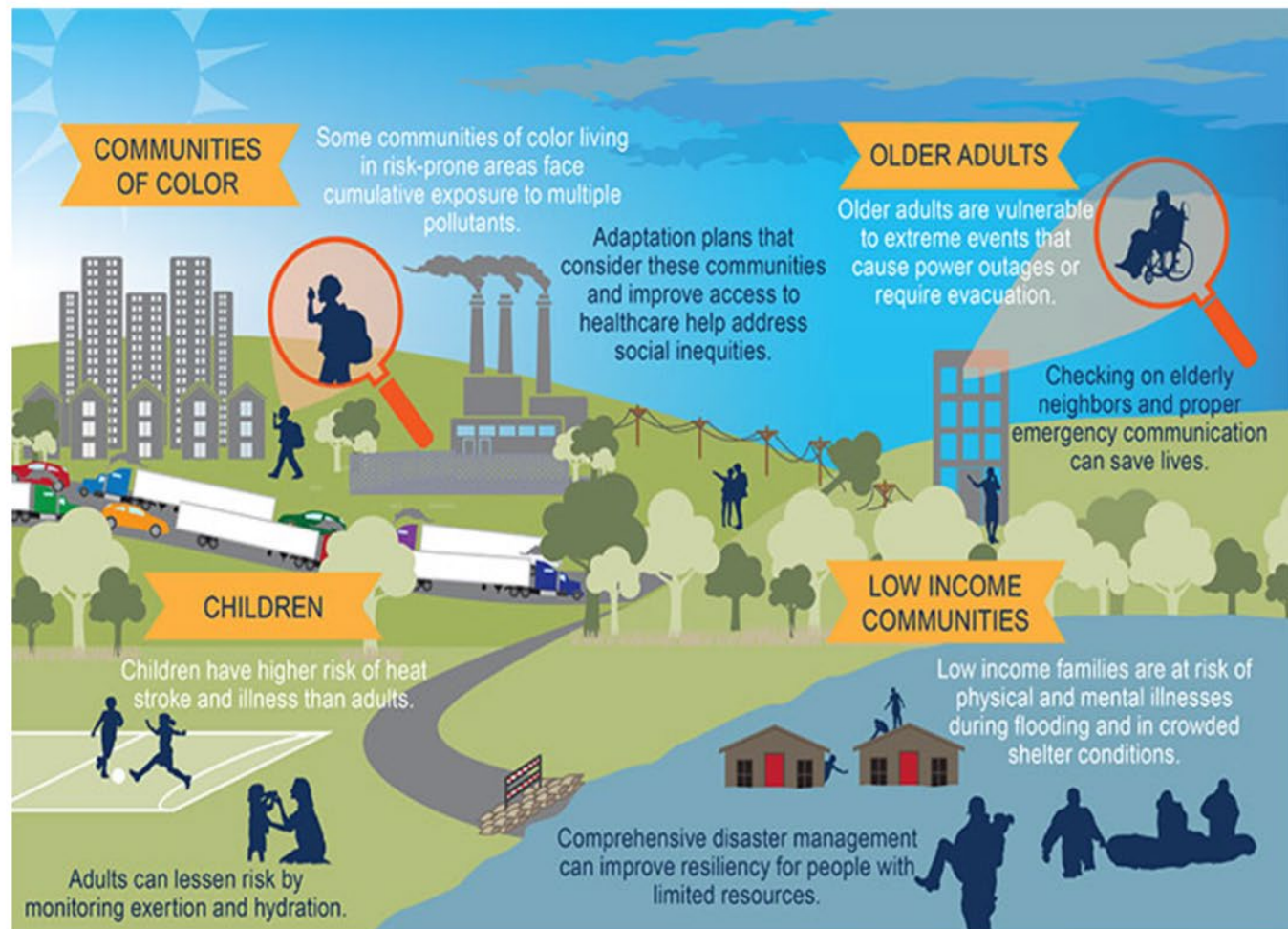
Evaluating impact and improving quality of activities

- Engage community partners in evaluation planning
- Incorporate equity into evaluation questions
- Track populations experiencing inequities

CDC and APHA BRACE Model



Keeping in
mind
vulnerable
populations in
Climate
Change and
Prevention
Planning



Sources

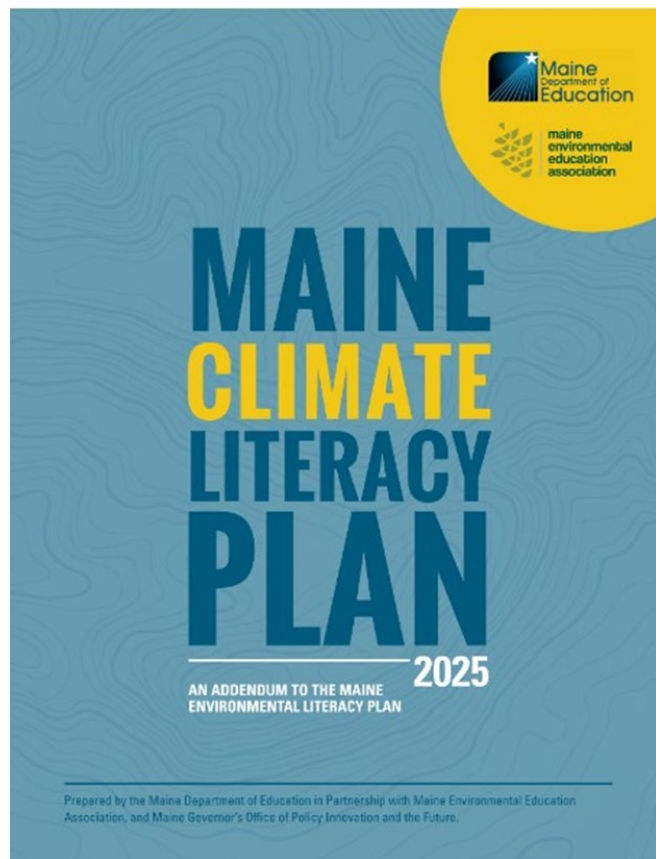
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<https://www.universityofcalifornia.edu/news/could-wildfires-ruin-our-wine>
<https://pubag.nal.usda.gov/download/26896/pdf>
<https://www.cdc.gov/climateandhealth/JEDI.htm>
<https://adaptationworkbook.org/explore-impacts>
<https://www.niacs.org/project/climate-change-resource-center>
<https://www.cdc.gov/climateandhealth/effects/Northeast.htm>
<https://www.flickr.com/photos/40969298@N05/15321646675>
<https://grandchallengesforsocialwork.org/wp-content/uploads/2015/12/WP5-with-cover.pdf>
<https://www.unicef.org/parenting/talking-your-child-about-climate-change>



Outdoor and Environmental Education at Maine DOE



Climate and Environmental Literacy



1

Raise Awareness About Climate-Change Impacts and Opportunities

- Launch a multifaceted, ongoing communications effort in 2021 based on the Climate Action Plan to raise public awareness and understanding about climate change in Maine, the state's climate-response actions, and climate-related programs and opportunities.



2

Increase Public Education Offerings Related to Climate and Energy

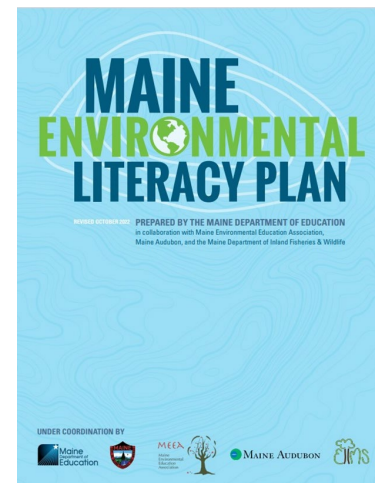
- Develop enhanced educational opportunities for climate science and clean-energy careers in Maine public schools to meet increasing interest from students and educators. Launch a process in 2021 to engage key stakeholders including students, older youth, educators, and state leaders in next steps.

Regular communication with the public and stakeholders about the impacts of climate change and progress on climate strategies is critical to the implementation of the Maine Climate Action Plan. The state will develop a dashboard for key indicators and regular communications about climate council activities and provide clear, easy access to information about climate policies and programs.

Creative and diverse means of communication should also be employed to promote state climate programs, incentives, and opportunities. Partnerships with business groups, nonprofits, tribal governments, municipalities, and community groups will help spread key messages. Multiple forms of communication, consumer education, and ongoing efforts will be necessary to support the state's goals.

Communications should also include materials translated into multiple languages for diverse audiences, using infographics in addition to text. Additionally, partnerships with community groups and organizations known as trusted resources can help reach vulnerable populations.

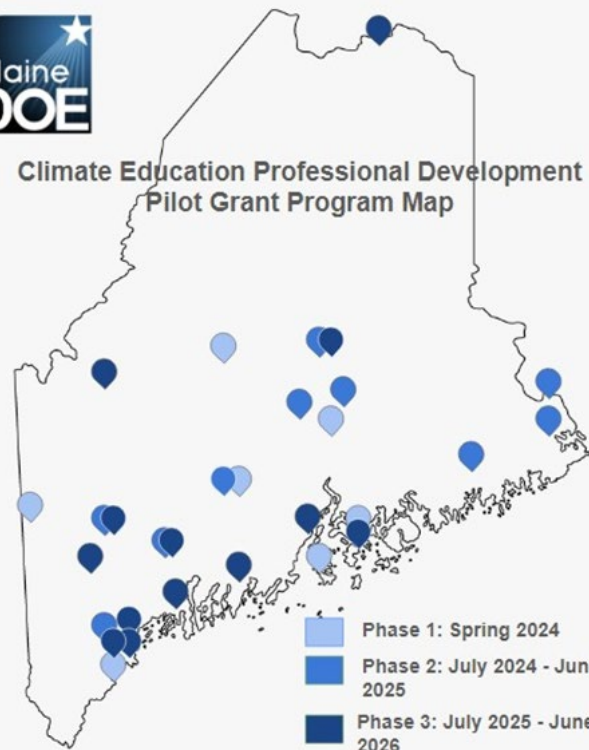
Many student and teacher groups advocated for expanding PK-12 educational programs about climate during the development of the Climate Action Plan. To address this interest and advance leadership among Maine's youth and students, Maine should consider directions for how schools could develop new offerings in STEAM (science, technology, engineering, arts, and math)-based climate education, and leverage new and existing partnerships with philanthropies, nonprofits, and youth-led organizations. The state should convene stakeholders in 2021 to consider next steps to implement increased climate and career education, including student and youth leaders, educators, and state education and workforce leaders.



Climate Education Professional Development Grant Program



Climate Education Professional Development
Pilot Grant Program Map





MAINE OUTDOOR LEARNING INITIATIVE



RETHINKING RESPONSIVE EDUCATION VENTURES



GREEN SCHOOLS INITIATIVE



MAINE OUTDOOR SCHOOL FOR ALL

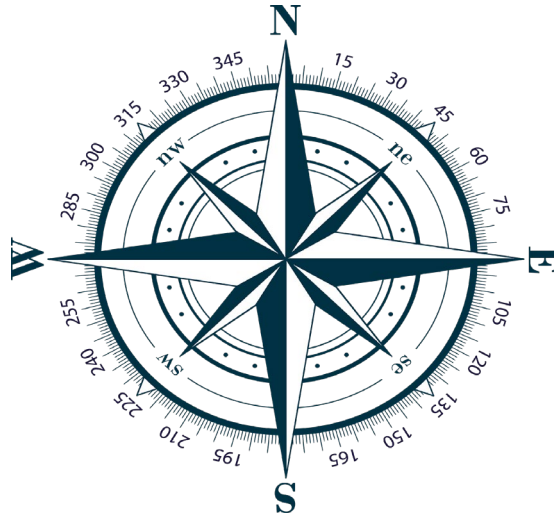


MEASURE WHAT MATTERS

Maine Green Schools Initiative

NORTH

Leadership for Climate Action



WEST

Climate Ready Career
Pathways

EAST

Clean Energy Systems and
Buildings

SOUTH

Climate Curriculum, Instruction, Assessment

By strengthening environmental education and outdoor learning, as an integral part of the early childhood, elementary, and secondary school experience, critical goals can be advanced.

Supporting educators and schools so that they can continue to improve the quality and reach of environmental education and outdoor learning for all students in Maine is a priority.





Research

[SustainableED - Sustainable Education Research Initiative | Annenberg Institute at Brown](#)

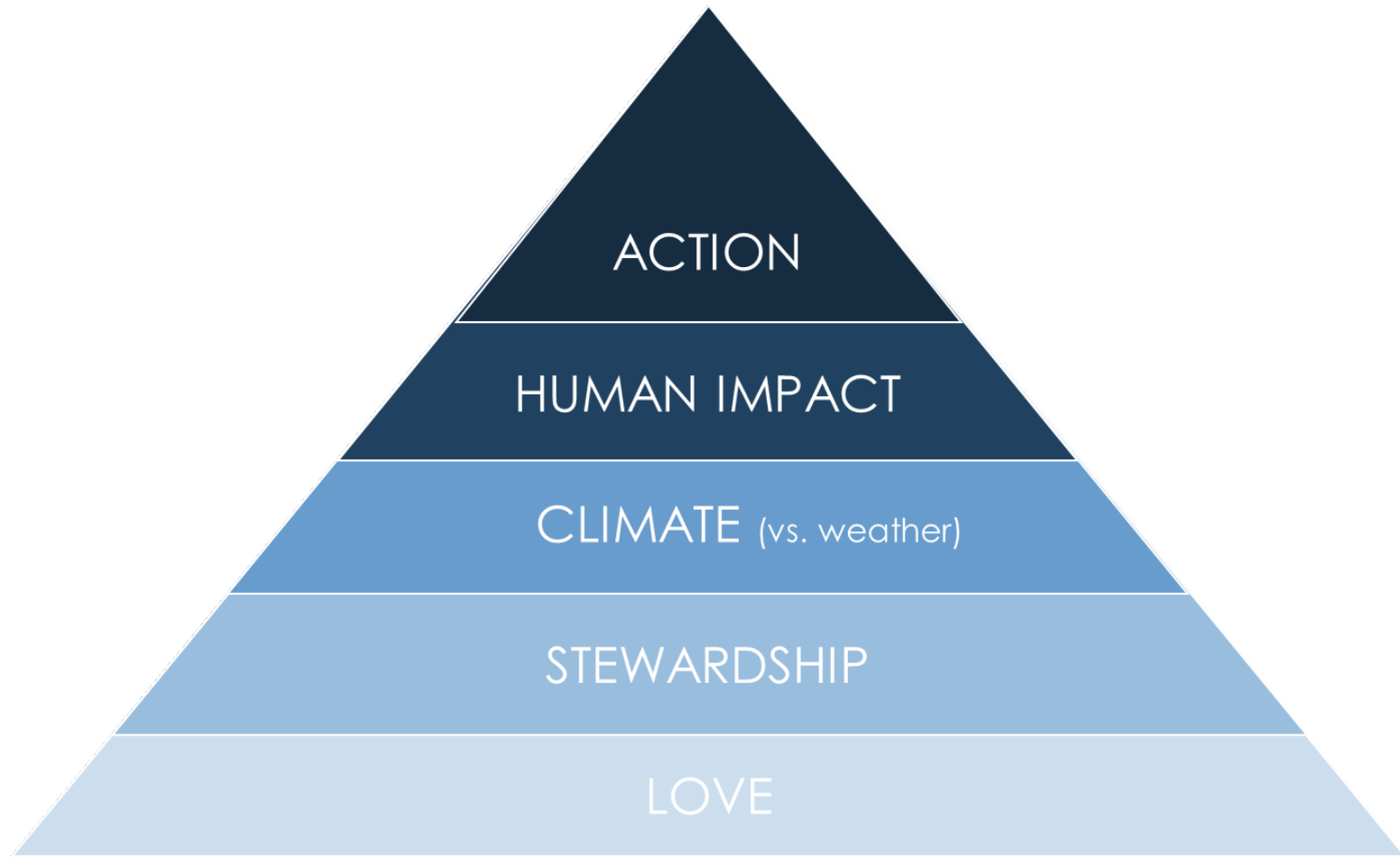
- 1. Major part of the nation's public infrastructure**
- 2. Disasters strain school facilities and finances.**
- 3. Environmental pressures negatively impact students' cognitive development, health, attendance, and achievement, and teachers' well-being.**
- 4. Limited knowledge about climate science or careers.**
- 5. Schools are trusted community hubs.**

[The Impact of Time Spent in Natural Outdoor Spaces on Children's Language, Communication and Social Skills: A Systematic Review Protocol - PMC](#)

<https://www.uwsp.edu/wp-content/uploads/2023/11/leaf-school-grounds-research.pdf>



“We only protect what we love, we only love what we understand, and we only understand what we are taught.” — **Jacques-Yves Cousteau**



Thinking About Taking Students Outside?

1. Have a plan.
2. Choose your outdoor spot wisely - nearby or close vicinity.
3. Check for students that have medical issues/special concerns?
4. Inform administration.
5. Prep students inside.
6. Plan for debriefing upon return to classroom.

[Educational Trip Leader Permit: Teachers & Educators](#)

[Wilderness First Aid Courses and Certifications with L.L.Bean](#)

Risk Management

Identify hazards, set boundaries that mitigate risk, and make the conservative choice.

Natural and Man-made Hazards

1. Weather
2. Trees
3. Fall areas (steep hills, cliffs, rocks)
4. Water (tidal zones, wet rocks).
5. Roads/Cars
6. Animals (bees, moose, bears, dogs).

Activities with Risk

(that can still be done safely)

1. Climbing trees
2. Exploring tidal pools
3. Hiking on trails
4. Observing phenology - animals
5. Getting outside in “bad” weather (snow, rain, cold, hot, thunderstorms)

Activity:
Community Mapping



Activity - Community Mapping

- Each Person Take Two pieces of paper
- Consider as a group the type of agencies, organizations, resources, business, and individuals who you might want to be aware of, meet, or partner with who would have some answers to climate change questions that you may not have. These may be organizations you can refer a student to, resources you could recommend, or places for others to get more information. Write down what your group comes up with ON BOTH PIECES OF PAPER. **Each person should have two pieces of paper with the same information/ideas on it.**

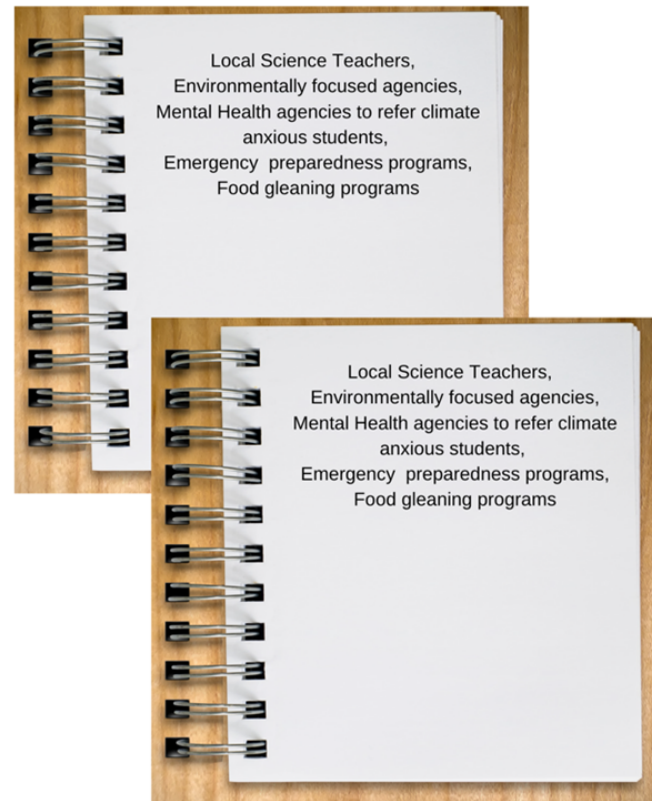
Examples include: Local Science Teachers, Environmentally focused agencies, Mental Health agencies to refer climate anxious students, Emergency preparedness programs, Food gleaning programs, etc.

- Once you have a list of contacts who may be helpful to you, if time allows, spend a few minutes finding exactly who those people are in your area.

Examples include: Mrs. Thompson who chairs the science department at East High School, Maine Climate Action NOW! (MCAN), Public Health Emergency Preparedness in Maine, Central Maine

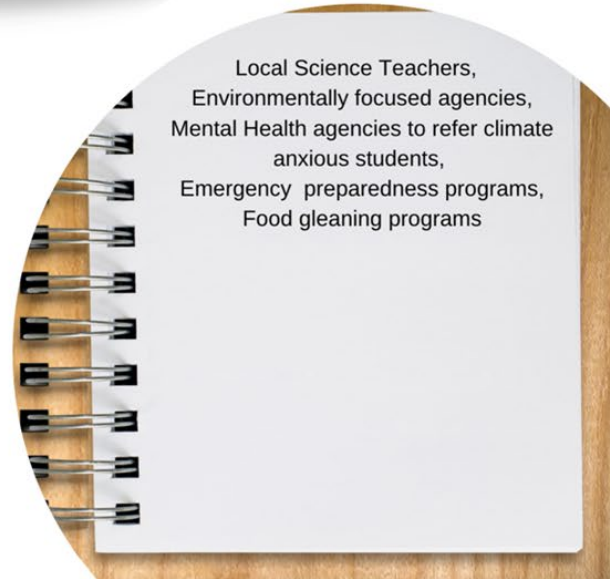
Gleaners, etc.

- Time: 2 minutes



Activity - Community Mapping

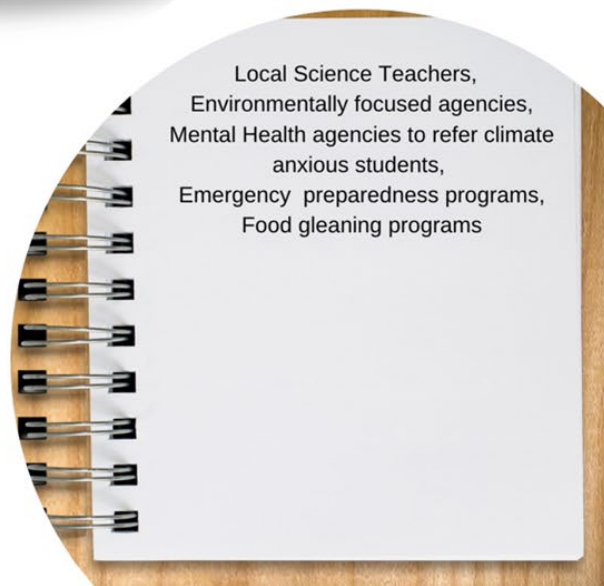
- Crumple ONE of your lists into a ball.
- KEEP one of your lists as is.



Activity - Community Mapping

- In the spirit of considering the environment, and the Maine environment that's right around the corner, throw your community map snow balls to your colleagues.
- **Once you throw it, pick another one up near you and keep it moving.**
- **SNOWBALL FIGHT!**

Time: 30 chaotic seconds



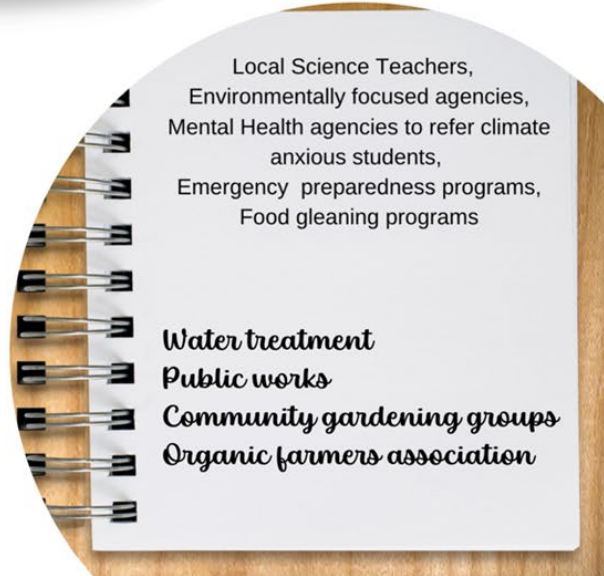
Activity - Community Mapping

STOP throwing things at people.

- You should now have a new piece of (crumpled) paper with someone else's ideas on it.
- On your clean, uncrumpled copy which you should still have, write down their suggestions under your own.
- Discuss with your group the new suggestions that you had not seen/discussed before. Does anything stand out that you missed? Add any suggestions you hear from people at your table to your uncrumpled copy.
- Keep your crowd sourced Community Map to refer to later.

- Time: 2 minutes

PS - RECYCLE your snow-paper!



THANK YOU!