

Climate Change In Your Own Backyard: What You Can Do

Multnomah County Office of Sustainability
Earth Month Presentation Series
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Outline

- Who is EMSWCD?
- Why prepare for climate change?
- Local impacts and mitigation/adaptation strategies
 - Soil
 - Water
 - Air
 - Plants
 - Wildlife
 - Human health
- Resources for more information and assistance

Who is EMSWCD?

(East Multnomah Soil & Water Conservation District)

- Unit of local government, like a Fire or Library District
- Non-regulatory
- Taxpayer-funded
- Program areas:
 - Urban Lands
 - Rural Lands
 - Grants
 - Land Conservation/Protection
 - Headwaters Farm Incubator Program
 - Finance & Operations



What does EMSWCD do?

- Information and Resources (aka “Technical Assistance”)
 - Most anything to do with land management and environmental sustainability
- Funding
 - On the ground projects with community benefit and equity focus
 - Local governments, non-profits, schools, churches, private landowners/managers
- Environmental Restoration
 - StreamCare, CLIP cost-share
- Land Protection
 - Significant natural areas, working farmland, etc.
- Education
 - Workshops, land access and training for beginning farmers

“We help people care for land and water”



Why prepare for the effects of climate change?



Reducing our impact is still important...

- Reduce and eliminate greenhouse gas (GHG) emissions where possible
 - Cars, boats, other vehicles
 - Landscaping and other equipment
 - Home energy sourcing and consumption
 - Purchasing, travel, and diet choices
- Practice carbon sequestration at home and other urban landscapes
 - Protect and build soil health
 - Build with sustainably sourced wood
- Advocate for adaptation and sustainability initiatives at work
- Advocate for climate-forward policies at the local, state, and federal level
- Support organizations working for environmental and community resiliency

...but changes are inevitable.

Local changes to expect:

- **Warmer temperatures** in all seasons: avg increase of 5F by 2050s and 8F by 2080s; greatest increase in summers. Hotter, drier, longer summers overall.
- **More unpredictable precipitation:** increased precipitation in winter and decreased in summer; greater variability overall.
- **Stressed native vegetation** and more aggressive invasive species
- **Increased risk and intensity of wildfire** in many parts of PNW, leading to worse air quality in summer
- **Impacts to human health:** heat waves, air quality, water- and insect-borne diseases, algae blooms, food access, mental health
- **Disproportionate impacts** to vulnerable, under-resourced, and marginalized communities and individuals

Climate Change Impacts on Soil

- Seasonally wet areas drying out sooner and staying dry longer
- Heat stress in top layers of soil, especially bare earth
- Gardens warming faster and drying out faster
- Greater risk of landslides

Protecting Soil

- Reduce the use of chemicals and pesticides on the landscape at home and at work (fewer chemicals = healthier soil)*
- Replace lawns with more drought-tolerant, deep-rooted native landscaping*
- Fertilize with compost and biochar*
- Minimize disturbance*
- Keep earth covered with vegetation or bark mulch (not stone or rubber)*

*Healthy soil also sequesters carbon!

- Greater risk of landslides
 - <https://www.oregongeology.org/Landslide/homeowners-landslide-guide.pdf>
 - Plant deep-rooted shrubs and trees on slopes
 - Direct drainage water **away** from slopes
 - Do not add or pile material at the top of slopes (such as dumping construction debris on or down a steep hill)
 - Consider retaining walls at the base of steep slopes

Impacts on Water Quality and Availability

- Reduced summer stream flow and water availability
- More wildfires = increased demand on public water supply
- Greater flooding in fall and winter months = more strain on Portland's stormwater system
- More dust, landslides, and flooding = dirtier water
- Greater variability and unpredictability in general

Protecting Water Quality and Availability

Reduce water use:

- Install water-efficient appliances and devices; repair leaks
- Reduce or eliminate landscape watering with drought-tolerant and native landscaping
- Irrigate efficiently (more on that later)

Increase drought resilience and reduce flooding:

- Replace lawns with deeper-rooted native shrubs, trees, and groundcover
- Install private rain gardens & help maintain public facilities
- Oversize rain gardens when possible to accommodate greater intensity events
- Keep storm drains clear to reduce clogging

Clean stormwater run-off:

- Install pervious pavers for driveways, patios, walkways (cleans storm water of pollutants)
- Install green roofs
- Wash cars at car-wash facilities

Impacts on Air Quality

- Higher temperatures = increased air pollution (ground-level ozone), higher pollen counts, longer allergy season
- More frequent droughts = more dust in the air
- Burned areas expected to increase in Willamette Valley by 3-9x by 2100 = more particulate matter in the air for longer periods each summer



Protecting Air Quality

- Reduce the use of gas-powered machinery wherever possible:
 - Use electric tools when power tools are necessary
 - Adopt lower-maintenance approaches
 - Leave the leaves
 - Reconsider landscape aesthetics
 - Invest in electric vehicles and solar power at home and at work
 - Consider timing and frequency of gas-powered travel
 - Use public, electric, and human-powered transportation when possible
- Check for and respect burn bans
- Check for air quality advisories before having outdoor fires

Impacts on Plant Life

- Greater summer heat and water stress on both natural and human-made landscapes
- Northern adapted species and species at the southern end of their range will struggle to survive.
- Varied impacts on agricultural crops.
 - Some crops may benefit
 - Tree fruit may suffer without adequate winter chilling
 - Most crops will suffer from water stress and increased pest and disease pressure.
 - Alternative crops, varieties, and irrigation techniques will need to be considered.

Planting for Climate Change

- Choose native trees, shrubs, and groundcovers that are:
 - Drought tolerant
 - Less susceptible to known invasive species (ie, avoid ash trees)
 - Local to this area or **slightly** south (ie, southwest Oregon)
 - Remembering that local genetics are best adapted to local conditions
- Water efficiently, effectively, and only as needed:
 - For landscape plants, deeply and infrequently, *if at all*.
 - Consider cisterns, drip irrigation, soaker hoses, grey water systems, tree bags.
 - Irrigate food gardens based on soil moisture monitors and weekly watering number.
 - <https://www.regionalh2o.org/water-conservation/outdoor-water-conservation/weekly-watering-number>
- Varied impacts:
 - Look into which crops will benefit vs. those that won't
 - Most crops will suffer from water stress and increased pest and disease pressure.
 - Consider alternative crops, varieties, and irrigation techniques.

Impacts on Wildlife

- Warmer stream temperatures and declining flow will negatively impact salmon populations and aquatic life
- Greater invasion of non-native weeds likely, negatively affecting habitat quality for beneficial insects, birds, fish, mammals, etc.
- Heat, drought stress, and phenology changes will impact most wildlife in a variety of ways

How to Help Wildlife

- Support organizations and efforts working to protect and restore open space
- Help remove introduced species like English Ivy, blackberry, etc.
- Use locally sourced, naturally grown native plants for landscaping
- Choose pervious surfaces for hardscaping projects at home and at work (cools and cleans stormwater = healthier streams)
- Avoid and advocate against rubber mulches and artificial turf → often made of old tires → contain toxic chemicals → wash into streams when it rains
- Clean boots, boats, etc. before entering natural areas to avoid spreading invasive species

Impacts on Human Health

- Heat waves
- Flooding
- Poorer air quality
- Water- and insect-borne diseases
- Disproportionate impacts on under-resourced and marginalized communities



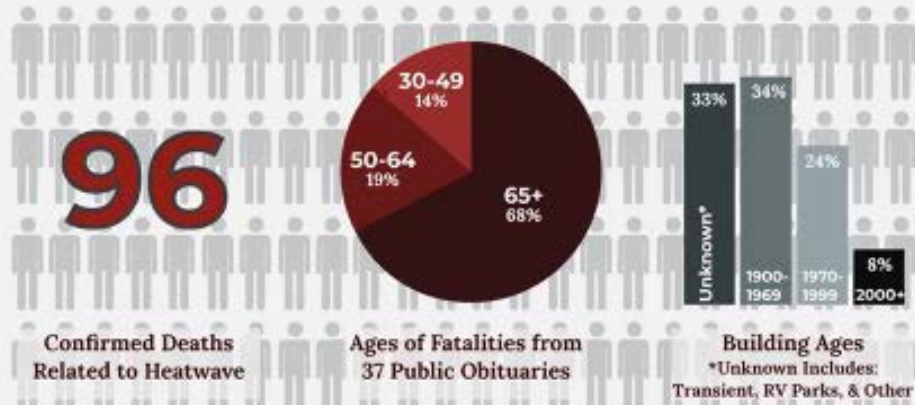
Question:

What recent natural disaster in Portland killed more people than the Vanport Flood (15 people) and Mt. St. Helens (57 people)?

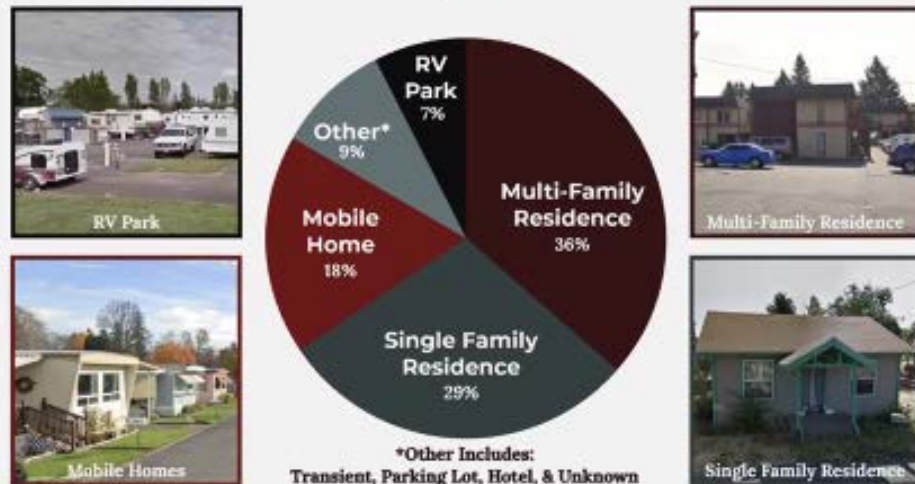
Historic Heat Wave: Initial Assessment

2021 Oregon Heatwave Death Toll

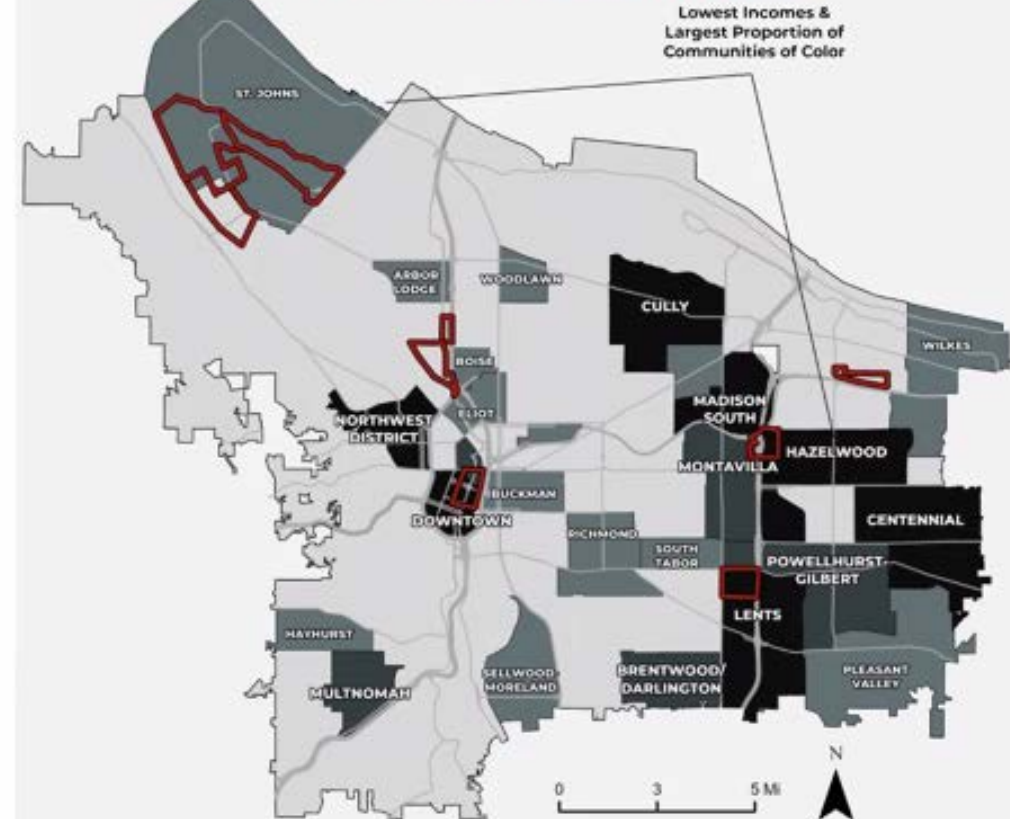
Confirmed Hyperthermia Deaths between June 24th to July 13th



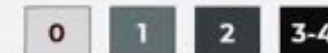
Residence Types of Victims



Portland Fatalities



2021 Deaths per Neighborhood:

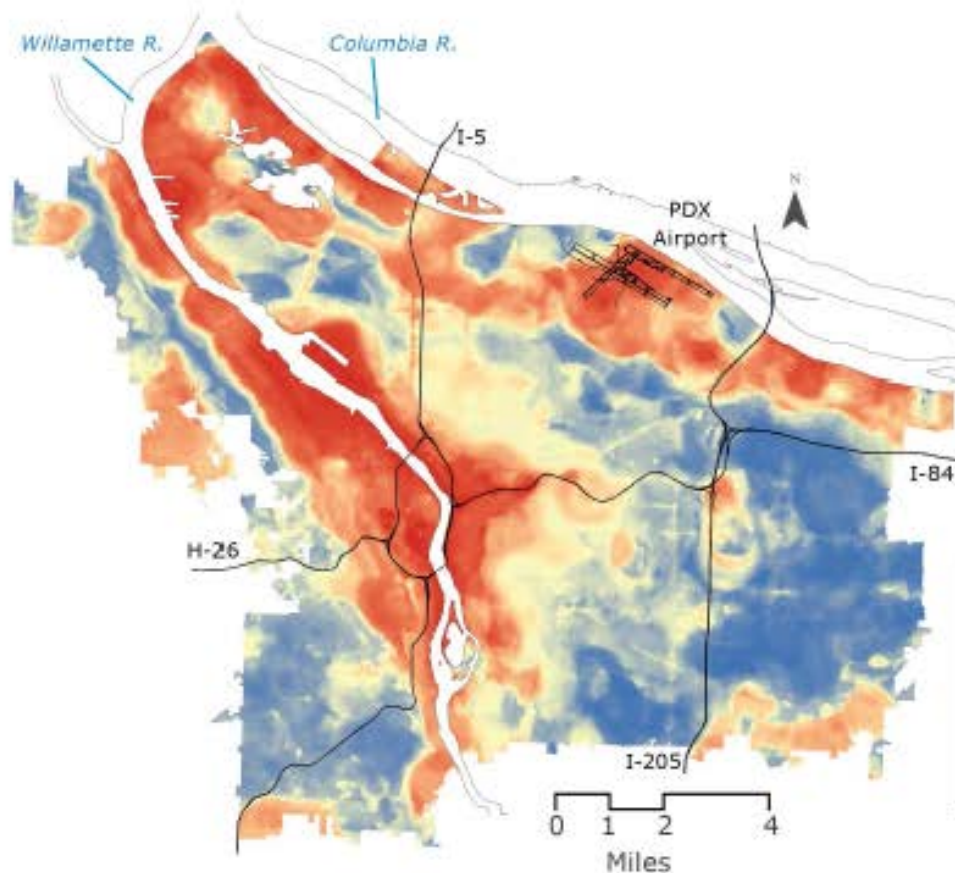


2016 Hottest Areas in August:

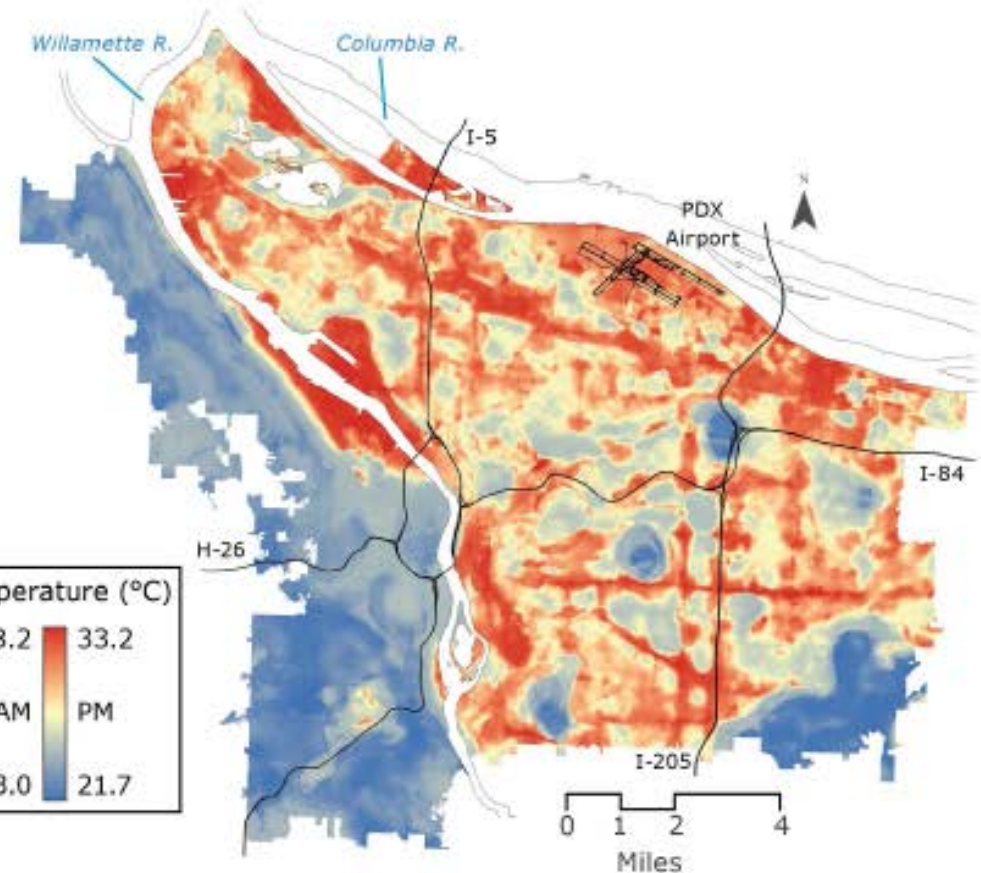


Urban heat island (the warming of the urban environment) morning/night comparison

**A. Urban Heat Islands in Portland, Oregon,
at 6 AM on August 25, 2014.**



**B. Urban Heat Islands in Portland, Oregon,
at 7 PM on August 25, 2014.**



Data Source: Sustaining Urban Places Research (SUPR) Lab, Portland State University, 2015

Voelkel J, Shandas V, Haggerty B. Developing High-Resolution Descriptions of Urban Heat Islands: A Public Health Imperative. *Prev Chronic Dis* 2016;13:160099.

Protecting Human Health

- Heat waves: Support urban greening to reduce the urban heat island effect
 - Green infrastructure (roofs, walls, rain gardens, bioswales)
 - Tree preservation, planting, and maintenance
 - Stream, river, and natural area restoration and access efforts
- Flooding
 - Support efforts to restore floodplains and natural areas along waterways
 - Support efforts to reduce impervious surfaces and increase infiltration (pervious paving, rain gardens)
- Poorer air quality
 - Check the Air Quality Index: <https://www.iqair.com/us/usa/oregon/portland>
 - Invest in air filters at home and work
 - Consider timing and frequency of outdoor recreation and gas-powered travel
- Disease:
 - Reduce chemical fertilizers and standing/stagnant water (mosquito breeding grounds)
 - Protect habitat for bats, birds, and beneficial insects (predators of pests and mosquitos)

Protecting Human Health

- Support organizations that assist marginalized and vulnerable individuals and communities:
 - Black, Latinx, Asian, Native American, African, immigrant, LGBTQ
 - Children and Elderly
 - Those with health challenges, or differently-abled
 - Non-English-speaking or those for whom English is a second language
 - Those who live and/or work outdoors, in heat islands, and in poor air quality
 - Unemployed and Houseless individuals/families
 - Those lacking transportation, insurance, air-conditioning, and other basic securities
- Support community-level climate-related assistance:
 - Cooling and warming centers
 - Weatherization, housing, assistance with energy and water efficiency, green roofs
 - Local public transportation improvements: general availability as well as pedestrian and bike safety

State-level resources for more information

- Oregon Climate Change Research Institute:
<https://blogs.oregonstate.edu/occri/>
 - Bi-annual Oregon Climate Assessments: most recent released January 2021:
<https://energyinfo.oregon.gov/blog/2021/1/14/occris-fifth-oregon-climate-assessment-highlights-the-latest-around-climate-change-in-our-state>
- OSU Climate Impacts Research Consortium: <https://pnwcirc.org/>
 - Climate toolbox: <https://climatetoolbox.org/>
- Supporting tribal resilience:
<https://blogs.oregonstate.edu/occri/projects/tribal-climate-adaptation-guidebook/>
- Citizen science: <https://www.climateprediction.net/>
- Future climate predictions for OR Counties (in process):
<https://blogs.oregonstate.edu/occri/projects/dlcd/>

Local resources for more information

- Multnomah County Department of Sustainability:
<https://www.multco.us/sustainability/climate-crisis>
 - MultCo Climate Action Plan & Summary:
<https://www.multco.us/sustainability/2015-climate-action-plan>
- Multnomah County Department of Health:
<https://www.multco.us/health/community-health/climate-and-health>
- *Portland Climate Change Preparation Strategy:
<https://www.portland.gov/sites/default/files/2019-07/risk-vulnerabilities-assessment-press.pdf>
- Portland Climate Action Plan (Summary):
https://www.portland.gov/sites/default/files/2019-07/cap-summary-june30-2015_web.pdf

EMSWCD Information and Assistance

- Workshops (both live and recorded):
 - <https://emswcd.org/workshops-and-events/upcoming-workshops/>
 - Naturescaping
 - Native Plants
 - Rain Gardens
 - Edible Gardening
 - And more!
- Grants for schools, non-profits, neighborhood associations, etc.:
 - <https://emswcd.org/grants-and-cost-share/apply/space/>
- Local Sources of Native Plants:
 - <https://emswcd.org/native-plants/local-sources/>
- Conservation Directory:
 - <https://emswcd.org/tools/conservation-directory/>
- Free technical assistance and advice for individuals and projects:
 - whitney@emswcd.org

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