

Environmental Hazards and Threats Survey



Marion County
OREGON
Health & Human Services



Willamette University, Marion County Health & Human Services (MCHHS) and Polk County Health Services have partnered to understand Environmental Health Hazards and Threats (EHHTs) affect peoples' health.

EHHTs include events and situations such as:

- wildfire and wildfire smoke
- air quality
- infectious disease from mosquitoes and other vectors
- extreme storms
- extreme heat and heat waves
- storm and heat impacts on water quality and quantity extreme heat
- weather-related power outages

This survey will ask you about some of your experiences with these issues while living or working in Marion and Polk Counties.

If you choose to participate, this survey will take approximately 15 to 20 minutes. Your participation can help us to better understand the capacities, needs, and challenges of our climate and natural environment. It will ultimately help improve communication channels between organizations and vulnerable individuals and households.

You MUST live or work in Marion or Polk county AND be over 18 to be eligible to participate in this survey.

Details of Informed Consent

All answers will be anonymous with no email attached to the answers. There may be some discomfort in remembering challenging events. There are no additional anticipated risks to your participation.

In recognition of the time taken to complete the survey, you can enter into a raffle for one of two \$50 Amazon gift cards. Any contact information you enter for the raffle will be kept separate from your answers and removed after submission. This will keep your answers anonymous.

This survey has been approved by the Willamette University Institutional Review Board. If you have any questions, please direct them to:

Dr. Nicole Iroz-Elardo, Assistant Professor of Public Health
nirozelardo@willamette.edu | 503-370-6306

Dr. Melinda Butterworth, Associate Professor of Environmental Science
mkbutterworth@willamette.edu | 503-370-5752

Dr. Michael Lockard, Chair of Willamette University's Institutional Review Board
irbchair@willamette.edu | 503-370-6658

Your participation in this project is completely voluntary, and there is no penalty should you refuse to participate.

You may further withdraw from this project at any time without penalty.

Yes, I consent and want to begin this survey.

No, I do not consent (Please do not continue this survey)

1. How long have you lived in Marion and/or Polk county?

- < 1 year
- 1-2 years
- 3-4 years
- 5-10 years
- 10+ years
- I do not live in Marion and/or Polk county

2. If you do not live in Marion or Polk county, do you work and/or go to school in either Marion or Polk county?

- Yes
- No* (Remember, you must live or work in Marion or Polk County to be eligible for this survey)

3. How old are you?

- <18 (you are not eligible)
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+

4. Which of the following characteristics apply to you or someone in your household? (Select all that apply).

- Experiences an underlying medical condition (diabetes, cardiovascular disease, asthma/COPD, etc.)
- Experiences a physical disability / is physically disabled
- Experiences an intellectual disability / is intellectually disabled
- Experienced homelessness in the past year
- Works in a job that is outside or not in air conditioning at least 50% of the time
- Works as a frontline worker (firefighter, police, EMS, etc.)
- Lives in a flood zone
- Lives in a fire zone

5. What city do you live in?

(If you do not live in Marion or Polk County, answer this question about your work or school.)

Aurora	Idanha	Saint Paul
Aumsville	Independence	Salem
Brooks	Jefferson	Scotts Mills
Butteville	Keizer	Stayton/West Stayton
Detroit	Marin	Silverton
Donald	Mehama	Sublimity
Dallas	Monitor	Turner
Falls City	Monmouth	West Salem
Gates	Mount Angel	Woodburn
Gervais	Rickreall	
Grand Ronde	Saint Benedict	
Hubbard	Saint Louis	

Environmental Health Hazards and Threats Impact

For the next couple of sections of the survey, **we will be asking you about environmental health hazards and threats (EHHTs)**. Again, these are often weather events that disrupt daily life such as major storms and heatwaves. Other weather-related events such as longer, hot summers are also considered EHHTs. Some EHHTs are a bit more removed from weather such as harmful water algal blooms, droughts, wildfire, and the smoke that comes from the fires. All of these types of conditions are considered EHHTs.

6. On a scale of 1 to 5, with 1 being not at all and 5 being a great deal, indicate how you and your household were impacted by each of the following past events. If you did not experience these events, please leave it blank.

	1 (Not at all)	2	3	4	5 (Very)
Salem water crisis from harmful algal bloom (June 2018)					
Wildfire (Sept 2020)					
Wildfire smoke (Sept 2020)					
Ice Storm (Feb 2021)					
Heatwave (June 2021)					
Drought conditions (any time over the past 5 years)					

7. On a scale of 1 to 5, how concerned are you about the following environmental conditions and events impacting you or a member of your household in the next 5 years?

	1 (not at all)	2	3	4	5 (Very)
Heat Waves					
Air Quality					
Drought					
Flooding					
Long, hot summers					
High levels of pollen					

8. On a scale of 1 to 5, how concerned are you about the following environmental conditions and events impacting you or a member of your household in the next 5 years?

	1 (not at all)	2	3	4	5 (Very)
Poor Water Quality					
Weather-related Power Outage					
Severe Winter Storms					
Vector Borne (mosquitoes, ticks) diseases					
Wildfire					
Wildfire Smoke					

The next two questions **ask about communication and how you seek and receive information.** Information can include any media (TV, radio, internet), organizational (community, faith-based, or government), or personal (friend, neighbor) resources you might seek in order to understand the issue or problem, find resources, or get help.

9. Have you previously signed up for the Marion and Polk County Emergency Alert System for text notifications of emergencies?

- Yes
- No
- I'm not sure

10. If an environmental event such as any we've been discussing occurred in the future, where or who would you turn to for information? (Circle all that apply).

- TV
- 211
- Radio
- Internet
- Social Media
- Phone/Text Alerts
- Friend
- Neighbor
- Community Organization
- Faith-Based Organization
- Local Government Source
- Other _____

Environmental Events

We would like to ask you 6-8 questions about one of these environmental events. **Please choose the one that impacted your household the most.**

11. Which one would you most like to discuss with us in additional detail?

(Choose one, and proceed to the related page number. If you would like to fill out information on multiple events, you are welcome to)

Salem Water harmful algal bloom (June 2018) **-proceed to pg. 7**

Wildfire (September 2020) **-proceed to pg. 9**

Wildfire Smoke (September 2020) **-proceed to pg. 12**

Heatwave (June 2021) **-proceed to pg. 14**

Ice Storm (February 2021) **-proceed to pg. 17**

Drought (any time in the past 5 years) **-proceed to pg. 19**

I want to tell you about another similar event not listed. **-proceed to pg. 21**

I did not experience any of these **-proceed to pg. 23**

Salem Water Harmful Algal Bloom

12a. In your view, how serious a problem was the 2018 harmful algal bloom for your household?

- Not a serious problem
- Slightly serious problem
- Moderately serious problem
- Very serious problem
- Extremely serious problem

12b. Did your household include any of these categories during the 2018 harmful algal bloom? (circle all that apply)

- Under 6 years old
- 65+ years old
- Pregnant or nursing
- Compromised immune system
- Experiencing dialysis
- Pets

12c. Did the harmful algal bloom directly or indirectly impact your health, or the health of anyone in your household?

- No
- Yes, Please explain how:

12d. How did you source water during this time? (circle all that apply)

- Purchased bottled water
- Relied on free water from community distribution stations
- Transported water from outside the affected area
- Other: _____

12e. What difficulties did this event present for you and your household? (Include logistics and costs associated with sourcing water)

Now we are going to ask you about information sources during the 2018 Harmful Algal Bloom. Information sources help you understand the issue and solve any household problems before, during, or after the event. This could include media, TV, radio, internet, social media, friend, neighbor, community, church, and/or government.

12f. When the algal bloom occurred and tap water became unsafe for certain groups, where did you first turn to for information?

12g. On a scale of 1 to 5, how easy was it to find the information?

1 (Difficult)	2	3	4	5 (Easy)

12h. On a scale of 1 to 5, how helpful was the information you found?

1 (Unhelpful)	2	3	4	5 (Helpful)

12i. If you didn't find the information you were looking for, where did you go for additional information?

GO TO page 23, unless you'd like to share your experience with another EHHT event

Wildfire

13a. In your view, how serious a problem was the wildfire that started around Labor Day of 2020 for your household?

Not a serious problem

Slightly serious problem

Moderately serious problem

Very serious problem

Extremely serious problem

13b. Did you lose property, livestock, or pets in wildfires during 2020?

Yes

No

Other: _____

13c. Did the wildfire directly or indirectly impact your health, or the health of anyone in your household?

No

Yes, Please explain how:

13d. What difficulties did this event present for you and your household?

In addition to a general description, please comment on details such as number of days of power loss; number of days evacuated; extent of loss of property in this section as well.

13e. Did your home or business lose power due to wildfire or red flag conditions?

Yes

No

Other: _____

13f. Please indicate the highest level of evacuation warning your household experienced during the Labor Day 2020 Wildfire.



Level 1 “Be Ready”

Level 2 “Be Set”

Level 3 “Go NOW!”

None

I don’t remember

Other: _____

13g. Did you evacuate from your home at any point?

Yes, once my home was in a Level 1 “Be Ready” evacuation zone

Yes, once my home was in a Level 2 “Be Set” evacuation zone

Yes, once my home was in a Level 3 “Go NOW!” evacuation zone

No

Other: _____

Now we are going to **ask you about information sources during the Labor Day 2020 Wildfire.** Information sources help you understand the issue and solve any household problems before, during, or after the event. This could include media, TV, radio, internet, social media, friend, neighbor, community, church, and/or government.

13h. When the wildfire occurred, where did you first turn to for information?

13i. On a scale of 1 to 5, how easy was it to find the information?

1 (Difficult)	2	3	4	5 (Easy)

13j. On a scale of 1 to 5, how helpful was the information you found?

1 (Unhelpful)	2	3	4	5 (Helpful)

13k. If you didn't find the information you were looking for, where did you go for additional information?

GO TO page 23, unless you'd like to share your experience with another EHHT event

Wildfire Smoke

14a. In your view, how serious a problem was the smoke from the Labor Day 2020 Fires for your household?

- Not a serious problem
- Slightly serious problem
- Moderately serious problem
- Very serious problem
- Extremely serious problem

14b. In September 2020, did anyone in your household work outside?

- Yes, I worked outside
- Yes, someone else in my household worked outside
- Nobody in my household worked outside
- Other: _____

14c. In September 2020, did anyone in your household experience one of the following conditions:

	You	Another person in your household
Asthma		
COPD		
Another respiratory condition		
High blood pressure		
Another cardiovascular condition		

14d. Did the wildfire smoke directly or indirectly impact your health, or the health of anyone in your household?

- No
- Yes, Please explain how:

14e. What difficulties did this event present for you and your household?

Now we are going to **ask you about information you needed to protect you and your household from smoke during the wildfire.** Information sources help you understand the issue and solve any household problems before, during, or after the event. This could include media, TV, radio, internet, social media, friend, neighbor, community, church, and/or government.

14f. When the wildfire smoke started, where did you first turn to for information?

14g. On a scale of 1 to 5, how easy was it to find the information?

1 (Difficult)	2	3	4	5 (Easy)

14. On a scale of 1 to 5, how helpful was the information you found?

1 (Unhelpful)	2	3	4	5 (Helpful)

14i. If you didn't find the information you were looking for, where did you go for additional information? _____

GO TO page 23, unless you'd like to share your experience with another EHHT event

Heatwave

15a. In your view, how serious a problem was the heatwave (also known as the Pacific Northwest Heat Dome) in June 2021 for your household?

- Not a serious problem
- Slightly serious problem
- Moderately serious problem
- Very serious problem
- Extremely serious problem

15b. Did the heat dome directly or indirectly impact your health, or the health of anyone in your household?

No

Yes, Please explain how:

15c. What difficulties did this event present for you and your household?

15d. Did your house have air conditioning in June 2021?

- Yes, we had a window or portable unit
- Yes, we had a central air or ductless system in some but not all rooms
- Yes, we had a whole house system
- No, we did not have air conditioning
- Other: _____

15e. Did you and members of your household have daytime access to air conditioning in June 2021 (circle all that apply)

Yes, I worked or went to school somewhere with air conditioning

Yes, someone else in my household worked somewhere with air conditioning

Yes, the school or daycare my child(ren) attended had air conditioning

No, I was working outdoors without air conditioning

No, someone else in my household was working outdoors without air conditioning

No, I was working in a building without air conditioning

No, someone else in my household was working in a building without air conditioning

No, the school or daycare my child(ren) attend did not have air conditioning

Other: _____

15f. Does your current home have air conditioning?

Yes, we have a window or portable unit

Yes, we have central air or a ductless system in some but not all rooms

Yes, we have a whole house system

No, we do not have air conditioning

Other: _____

Now we are going to **ask you about information sources during the June 2022 Heatwave.** Information sources help you understand the issue and solve any household problems before, during, or after the event. This could include media, TV, radio, internet, social media, friend, neighbor, community, church, and/or government.

15g. When the June 2021 Heatwave (Heat Dome) occurred, where did you FIRST turn to for information? _____

15h. On a scale of 1 to 5, how easy was it to find information?

1 (Difficult)	2	3	4	5 (Easy)

15i. On a scale of 1 to 5, how helpful was the information you found?

1 (Unhelpful)	2	3	4	5 (Helpful)

15j. If you didn't find the information you were looking for, where did you go for additional information?

GO TO page 23, unless you'd like to share your experience with another EHHT event

Ice Storm

16a. In your view, how serious a problem was the February 2021 Ice Storm for your household?

- Not a serious problem
- Slightly serious problem
- Moderately serious problem
- Very serious problem
- Extremely serious problem

16b. Did your household lose power during the ice storm?

- Yes
- No
- Other: _____

16c. Did the ice storm directly or indirectly impact your health, or the health of anyone in your household?

- No
- Yes, Please explain how:

16d. What difficulties did this event present for you and your household?

*If you lost power, please describe how long your household was without power and how this impacted other basic needs such as heat, cooking, and/or water.

Now we are going to ask you about **information sources during the Ice Storm in February 2021**. Information sources help you understand the issue and solve any household problems before, during, or after the event. This could include media, TV, radio, internet, social media, friend, neighbor, community, church, and/or government.

16e. When the ice storm occurred, where did you first turn to for information?

16f. On a scale of 1 to 5, how easy was it to find information?

1 (Difficult)	2	3	4	5 (Easy)

16g. On a scale of 1 to 5, how helpful was the information you found?

1 (Unhelpful)	2	3	4	5 (Helpful)

16h. If you didn't find the information you were looking for, where did you go for additional information?

Continue to page 23, unless you'd like to share your experience with another EHHT event

Drought

17a. In your view, how serious a problem have drought conditions any time over the past five years been for your household?

- Not a serious problem
- Slightly serious problem
- Moderately serious problem
- Very serious problem
- Extremely serious problem

17b. Does your household rely on well water?

- Yes
- No
- Other: _____

17c. Have drought conditions over the past 5 years either directly or indirectly impacted your health, or the health of anyone in your household?

- No
- Yes, Please explain how:

17d. What difficulties have drought conditions over the past five years presented for you or your household?

Now we are going to ask you about **information sources during drought events**. Information sources help you understand the issue and solve any household problems before, during, or after the event. This could include media, TV, radio, internet, social media, friend, neighbor, community, church, and/or government.

17e. Think about the time in the past 5 years when you felt most impacted by drought conditions.

Where did you first turn to for information?

17f. On a scale of 1 to 5, how easy was it to find the information you are looking for?

1 (Difficult)	2	3	4	5 (Easy)

17g. On a scale of 1 to 5, how helpful was the information you found?

1 (Unhelpful)	2	3	4	5 (Helpful)

17e. If you didn't find the information you were looking for, where did you go for additional information?

Continue to page 23, unless you'd like to share your experience with another EHHT event

Generic EHHT

You have suggested that you want to tell us about an environmental health hazard, threat, or condition that was not on the previous list. We want to hear about it! We also need you to define the condition and time frame you are telling us about.

18a. I want to tell you about the following environmental health hazard or threat topic that impacted me or my household:

- Water quality
- Water quantity
- Wildfire
- Wildfire smoke
- Air pollution
- Winter storm
- Heat wave
- Hot summer
- Drought
- Other:

18b. The timeframe that this environmental condition was a problem for my household was:

18c. Describe the environmental event / conditions that were difficult for you or your household:

18d. In your view, how serious a problem was this event or condition for your household?

- Not a serious problem
- Slightly serious problem
- Moderately serious problem
- Very serious problem
- Extremely serious problem

18e. What difficulties did this event or condition present for you and your household? Include logistics, costs, health challenges, or inconveniences associated with this condition.

Now we are going to ask you about **information sources during this event**. Information sources help you understand the issue and solve any household problems before, during, or after the event. This could include media, TV, radio, internet, social media, friend, neighbor, community, church, and/or government.

17e. When this event happened, Where did you first turn to for information?

17f. On a scale of 1 to 5, how easy was it to find the information you are looking for?

1 (Difficult)	2	3	4	5 (Easy)

17g. On a scale of 1 to 5, how helpful was the information you found?

1 (Unhelpful)	2	3	4	5 (Helpful)

17e. If you didn't find the information you were looking for, where did you go for additional information?

Demographics

Some households and individuals may have characteristics that make it difficult to prepare for or survive an environmental health hazard and threat (EHHT). Again, sharing this information is voluntary but helps government agencies, social services, and community organizations better prepare for an environmental threat.

18. Are you...

Male

Female

Prefer Not to Say

19. Which of the following describes you? (Circle all that apply)

White

Hispanic, Latino, or Spanish Origin

Black

Asian

Native Hawaiian or Pacific Islander

American Indian, Eskimo, or Alaska

Native

Middle Eastern or North African

Prefer Not to Say

Other

20. What is your expected total annual income for your household?

\$0 - \$15,000

\$15,001 - \$30,000

\$30,001 - \$45,000

\$45,001 - \$60,000

\$60,001 - \$75,000

● \$75,001 - \$90,000

● \$90,001 - \$120,000

● \$120,000+

● Prefer not to say

21. How many children under the age of 18 live in your household?

0

1

2

3

4

5+

22. For the most part, do you have reliable and regular access to the internet?

Yes

No

We are asking you about place of immigration and language to help Marion and Polk County and county partners use inclusive languages in their communication strategies. These questions are optional and completely anonymous.

23. With respect to immigration from other nations, which generation do you most identify with?

Immigrant or foreign-born

First generation (you have at least one foreign-born parent)

Second generation (you have at least one foreign-born grandparent)

Third or higher generation

Not Sure

Prefer not to say

Other _____

24. What language(s) do you speak in your home? (circle all that apply)

English

Spanish

Russian

Other _____

25. In what language do you prefer to speak? _____

26. In what language do you prefer to read and write? _____

32. If you feel comfortable, please share your country of origin. We would love to know the region/pueblo/state, etc within your home country as well.

27. What is the highest level of school you have completed or the highest degree you have received?

- Less than high school diploma or GED
- Graduated high school / GED
- Some college without a degree
- Graduated college
- Graduated graduate school
- Informal education (apprenticeship, etc.)

28. In general, would you describe your political view as...

- Strongly conservative
 - Conservative
 - Slightly conservative
 - Moderate or middle of the road
 - Slightly liberal
 - Liberal
 - Strongly liberal
 - Not sure
 - Other
-

Religious Community - Communications

*The following questions ask you to describe your interaction with your religious community in terms of information. These questions are **completely voluntary** and will not be shared with anyone outside of the research team. Answering them may help us understand which religious organizations are ready to help with environmental health communications.*

29. Are you involved in a religious community?

- Yes
- No
- Prefer not to say

30. What type of regular communication do you receive from your religious community (newsletter, email, word of mouth, meetings, etc.)

31. Which church, synagogue, mosque, group etc. do you belong to in Marion/Polk County?

Zip Code and Geography

*Many of the environmental health hazards described previously have different impacts in different places. To better understand this, we are asking you to share some information about where you live. These questions are **completely voluntary** and will not be shared with anyone outside of the research team.*

33. What is the zip code for your house? (Feel free to pull up Google Maps to find your zip code) _____

34. What street do you live on? _____

35. What is the nearest major intersection to your house?

Thank you!

You have reached the end of the Survey!

Please mail return to:

Nicole Iroz-Elardo, Willamette University, 900 State St, Salem, OR 97301

You can also physically drop off at:

Marion County HHS, 3160 Center St. NE, Salem, OR 97301 | 8a-5p, M-F

Marion County HHS, 976 N Pacific Hwy, Woodburn, OR 97071 | 8a-5p, M-F

As a reminder, this survey is designed to be anonymous. However, **if you wish to participate in a follow-up interview, you may opt-in by entering your email or phone number here:**

To be entered into the drawing for one of two \$50 gift certificates, please enter your contact information: _____

This sheet will be removed immediately upon submission so that your answers will not be connected to your contact information in any way

Again, thank you so much for your time and sharing your experience!

If you have any additional questions or concerns, please feel free to contact:

Dr. Nicole Iroz-Elardo, Assistant Professor of Public Health

nirozelardo@willamette.edu | 503-370-6306

Dr. Melinda Butterworth, Associate Professor of Environmental Science

mkbutterworth@willamette.edu | 503-370-5752

Dr. Michael Lockard, Chair of Willamette University's Institutional Review Board

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POLK COUNTY
HEALTH SERVICES