



Climate Conversations

Dealing with Droughts & Dryness

St Mark's Creation Care Ministry

August 2024

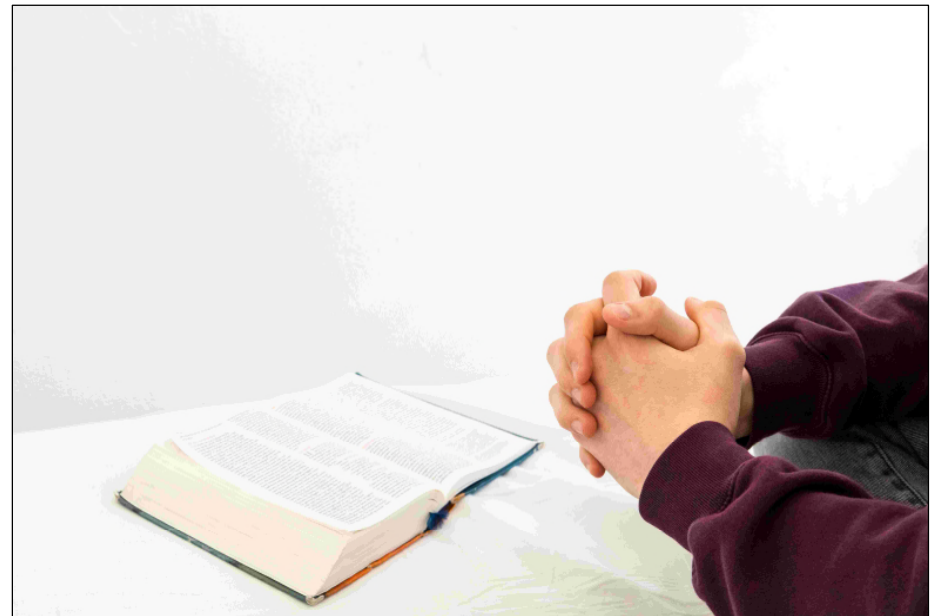


Agenda

- **Land Acknowledgement:** Saint Mark's Cathedral acknowledges that we gather on the traditional land of the first people of Seattle, the Duwamish People, who are still here, and we honor with gratitude the land itself and the life of all the Coast Salish tribes.
- Opening Prayer
- Framework
- Discussion
- Actions
- Sharing and Q&A
- Closing Prayer

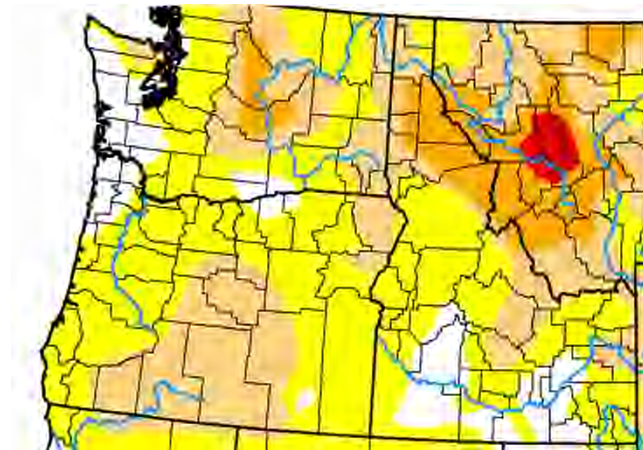
Opening Prayer

- All things look to you, O Lord,
To give them their food in due season;
look in mercy on your people, and hear
our prayer for those whose lives and
possessions are threatened or
destroyed by drought, flood and fire.
In your mercy restore your creation and
heal our land.
So, guide and bless your people,
that we may enjoy the fruits of the earth
and give you thanks with grateful hearts,
Through our Lord Jesus Christ. Amen



Seattle Area Weather

- A drought is declared in Washington state when there is less than 75% of normal water supply due to low snowpack and forecasts for an extended period of dry, warm weather
 - Precipitation falls as rain, less snow
- Washington issued [a statewide drought declaration](#) on April 16, 2024
 - Drought conditions are expected to worsen
- Parts of central Washington had temperatures 9-12° above normal
- Northwest Climate Hub region is expected to continue to warm, with high-elevation areas expected to warm faster than lower areas



July 18, 2024 -
<https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?west>

Causes of Dry and Droughts

- Water generally evaporates more quickly at higher temperatures. Hotter weather can result in drier soils
 - Warming temperatures mean precipitation that once fell as snow will increasingly fall as rain, drying soils, worsening the water deficit and exacerbating heat waves
- A warmer atmosphere can disrupt precipitation by shifting storm tracks
- Reduced snowpack and quicker snowmelt from rising temperatures and changing precipitation patterns threaten to lower water supply



Impacts of Drought

- Economic
 - Farmers' crop yields, shipping, utility companies
- Environmental
 - Habitat destruction, wildlife impact, wildfire, soil quality
- Social
 - Health, safety, incomes, recreation, public safety
- Groundwater wells run dry, fields produce fewer crops, trees die in greater numbers
- Warmer summer temperatures and lower precipitation compound water supply challenges for reservoir managers, irrigators, public water systems and fisheries



A Framework for Adaptation

- The best way to prepare for a drought is to conserve water
 - Make conserving water a part of your daily life
- Educate people
 - Americans lowball their water use (per Harvard) by a factor of 2 - use Dropcountr
- Using less water helps during a drought and saves money



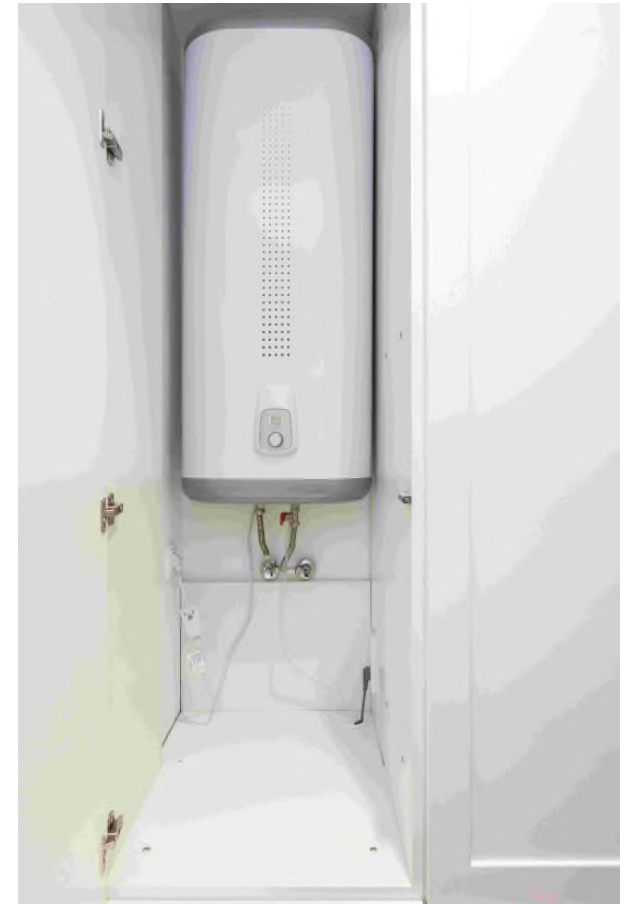
A Biblical Perspective

- Genesis 41: During the seven years of abundance the land produced plentifully. Joseph collected all the food produced in those seven years of abundance in Egypt and stored it in the cities... When the famine had spread over the whole country, Joseph opened all the storehouses...
- Jeremiah 17: Blessed is the man who trusts in the Lord, whose trust is the Lord. He is like a tree planted by water, that sends out its roots by the stream, and does not fear when heat comes, for its leaves remain green, and is not anxious in the year of drought, for it does not cease to bear fruit.
- Isaiah 58: The Lord will guide you continually and satisfy your desire in scorched places and make your bones strong; and you shall be like a watered garden, like a spring of water, whose waters do not fail.



Water Conservation

- Never pour water down the drain when there may be another use for it such as for plants or a garden
- Fix dripping faucets by replacing washers
- Check all plumbing for leaks and fix leaks
- Retrofit all household faucets by installing aerators with flow restrictors
- Install instant hot water heaters
- Insulate your water pipes to reduce heat loss and prevent them from breaking
- Choose water efficient appliances



Actions Inside the Home

- Over half of water use inside a home is in the bathroom
- Toilets are the main source of water use in a home, at nearly 30% of indoor water consumption.
 - High-efficiency toilets
- Turn off water while shaving or brushing teeth to save up to 4 gallons a minute.
- Taking showers for less than 5 minutes can save up to 1,000 gallons of water per month



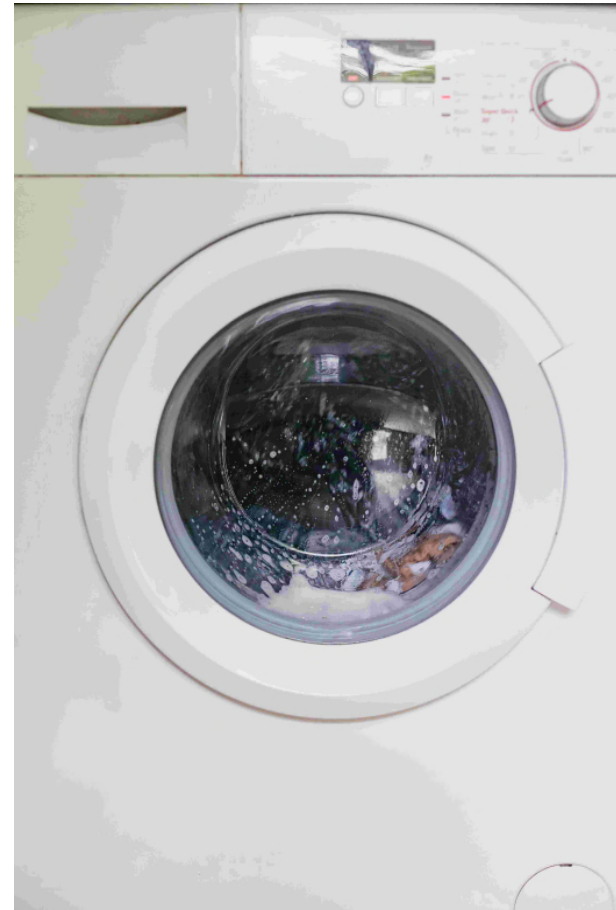
Kitchen

- Drink water from the fridge instead of letting a faucet run until the water is cool
- Operate dishwashers when they are fully loaded and use "light wash"
- Hand wash dishes by filling two containers, one with soapy water & one with rinse water
- Clean vegetables in a pan filled with water rather than running water from the tap.
- Avoid wasting water waiting for it to get hot
- Don't rinse dishes before placing them in the dishwasher
- Defrost food overnight or in a microwave instead of running water to thaw frozen food



Washing

- Wash full loads of laundry or use the appropriate water level or load size on their washing machine
- A high-efficiency washing machine saves 50% in laundry water
- Use pails of water to wash the car



Discussion & Breakout Session

Questions:

- What effects of drought or dryness have you observed?
- What actions have you taken to reduce water usage?
- What adaptations have you made for a changing water situation?



Actions in the Garden

- In summer or dry climates, outdoor water use can 70% of home usage
- Plant native or drought tolerant plants (xeriscaping)
- Use a hose timer or drip hoses to avoid over-watering
- Even drought-resistant vegetation will need plenty of water, so plant in the fall
- Apply mulch to conserve soil moisture and help it develop strong roots
- Once established, eliminate unnecessary weeds, shrubs & thickets
- Don't install ornamental water features



More Gardening

- Most of the year, lawns only need one inch of water per week
 - Or replace the lawn
- Check soil moisture levels - you don't need to water if the soil is still moist or if your grass springs back when you step on it
- If your lawn does require watering, do so early in the morning or later in the evening
- Water in short sessions rather than one long one, for your lawn to absorb moisture better
- Avoid leaving sprinklers or hoses unattended
 - A hose can pour out 600 gallons in a few hours



Community Solutions

- Many businesses have started recycling water that they use in manufacturing instead of letting water run down the drain
- Many cities use gray water (treated wastewater) to water golf courses & parks
- Laws often protect water supplies from chemicals used in businesses and farming,
 - Few laws protect water from chemicals people use in houses and cars and yards
- Educate policymakers and people about chemicals they use to clean their house, fertilize a lawn and run a car
- Store chemicals in places where they won't get spilled and follow directions for their use
- Only use what you need, when you need it



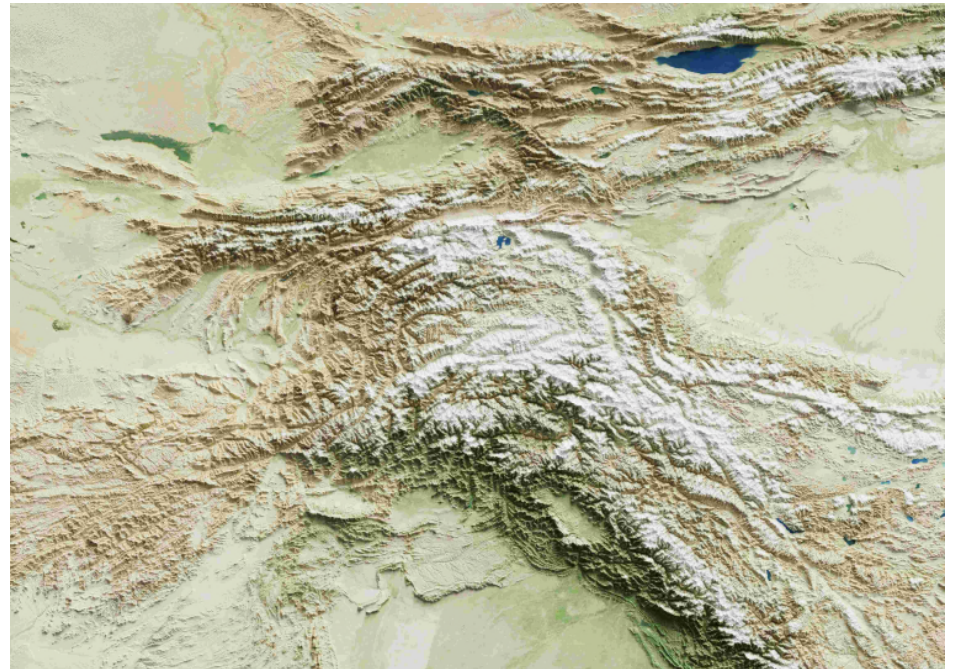
Seattle and Washington State

- Seattle Public Utilities has a [Water Shortage Contingency Plan](#) which provides guidelines to manage water in the event of a supply disruption
- Requests for water usage reduction
- Department of Ecology has \$4.5 million available in drought response grants
- UW used the most water in Seattle from September 2022 to August 2023 - 533 million gallons, equals 12,000 households
 - In 2024, UW plans to add water conservation in the Sustainability Action Plan



Innovative Solutions from Start-Ups

- [BioLiNE](#) develops products that enhance crops from seeding to harvest.
 - Bioactive liquids allow farmers to use them as seed treatment or mix with starter fertilizers to improve resistance of crops to drought and enhance crops in soils with high salinity and sodium
- [Hydrosat](#) predicts droughts using a geospatial analytics platform
- [o2 Company](#) developed a liquid mix of polymers and alcohol that can be poured onto water to stop it evaporating



Policy Solutions

- New sources of water – groundwater
- New infrastructure for storage and pipes
- Water recycling
 - Singapore: Water recycling / reuse, desalination, catchment and dams
- Modify land use
- Develop water conservation programs such as reducing water for electricity, using public outreach & education, and educating farmers on micro-irrigation
 - Top water users: 1) Electricity 2) Agriculture
- Emergency response & contingency plan



Follow FEMA

- Landscaping ordinances to dictate conserving and recycling potable water and using drought- tolerant plant species to help reduce water demand
- Stormwater management plans to support collecting, treating and even reusing water to help mitigate drought.
- Capital improvement plans that emphasize investment in efficient water systems that prevent loss of water during transmission
- Integrate drought mitigation into other community plans to ensure consistency, eliminate redundancies, prevent conflicting outcomes and support drought resilience



Sharing, Discussion and Q&A

Questions

- What water- and drought-related policies have you observed?
- What actions can you take to educate policymakers and other citizens?
- What can we do in our community to reduce the impact of droughts and less water?



Make a Difference

God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools.

- *John Muir*

When the well is dry,
we'll know the worth of
water - Benjamin
Franklin

Closing Prayer

Eternal God,

In wisdom and love you created our earth to sustain us and give us life.

We turn to you now in faith, hope and love, asking you to look with favor on our drought-stricken land, on our starving animals, on our failing crops.

Strengthen, sustain and give new heart to our farmers and to all who are affected by drought; be with those who support them.

In your loving providence, send abundant rain and restore our parched earth.

Through Jesus Christ your Son, Amen

