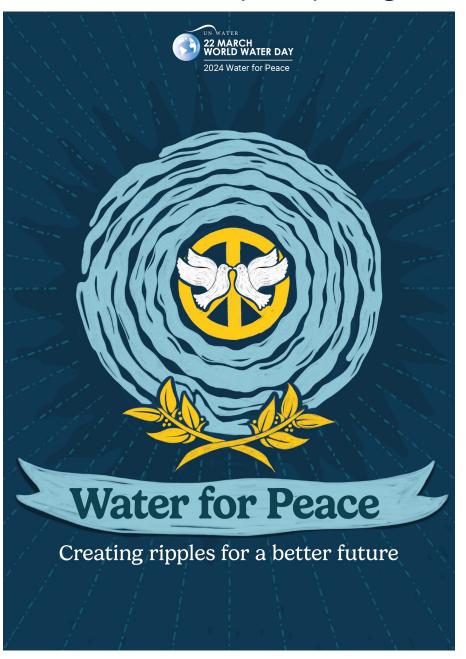


Create a peaceful water mandala to share with others.

World Water Day in Wyoming



What is World Water Day?

Every year, World Water Day (March 22nd) raises awareness and inspires action to tackle the water and sanitation crisis. It is a United Nations observance, coordinated by UN-Water and led by one or more UN-Water Members and Partners with a related mandate.

In 2024, the theme of World Water Day is 'Leveraging water for peace'. The World Water Day campaign is simply called 'Water for Peace.'

'Water for Peace' explained

Water can create peace or spark conflict.

When water is scarce or polluted, or when people have unequal or no access, tensions can rise between communities and countries.

More than 3 billion people worldwide depend on water that crosses national borders. Yet, out of 153 countries that share rivers, lakes and aquifers with their neighbors, only 24 countries report having cooperation agreements for all their shared water.¹

As climate change impacts increase, there is an urgent need, within and between countries, to unite around protecting and conserving our most precious resource.

As populations grow, water will become increasingly important in the fight against poverty and the deterioration of the environment.

Cooperation on water can build vital resilience to extreme weather events and help populations to mitigate and adapt to a changing climate.

Public health and prosperity, food and energy systems, economic productivity and environmental integrity all rely on a well-functioning and equitably managed water cycle.

This means that non-discrimination and equality in ensuring access to water and sanitation can have a positive ripple effect across society.

1 UN-Water (2021), Summary Progress Update 2021: SDG 6 — water and sanitation for all: https://www.unwater.org/publications/summary-progress-update-2021-sdg-6-water-and-sanitation-all

Closing Remarks:

As we conclude this gathering, we are reminded of the sacredness of water and our shared responsibility to protect it.

May the teachings we have heard today inspire us to be stewards of this precious resource, ensuring that all life can thrive now and for generations to come.

Grant us the wisdom to act with compassion and justice, recognizing the interconnectedness of all beings and our environment.

May our efforts be blessed with success, as we work together to safeguard the gift of water.



Diversion Dam, Wind River Reservation

Photo credit: Annemarie Delgado

Water of secret springs and ancient holy places, providing sources of healing and transformation

We give you thanks

Water of raindrops and snowflakes, caressing the land with needed moisture,

We give you thanks

Water of wells, springs and reservoirs, lifegiving dwellings of health and vitality **We give you thanks**

Water of clouds, vapors, mists and fog, numinous vessels of wetness and silent mystery

We give you thanks

Water of the human body, purifying, transporting, energizing, restoring **We give you thanks**.

Water! Water! Wonderful Water!

Peaceful cooperation around water can flow into peaceful cooperation in all sectors.

By working together to balance everyone's human rights and needs, water can be a stabilizing force and a catalyst for sustainable development.

Over time, there have been many more incidences of cooperation than conflict over water, but there is much more to do.

We must act upon the realization that water is not only a resource to be used and competed over – it is a human right, intrinsic to every aspect of life.

At the local and national level, different water users – particularly water and sanitation utilities, energy, food and industry – must cooperate through an integrated water resources management approach and promote a circular economy that fulfills people's human rights.

At the basin level, countries should develop agreements and set up institutions to peacefully manage water resources that cross international borders.

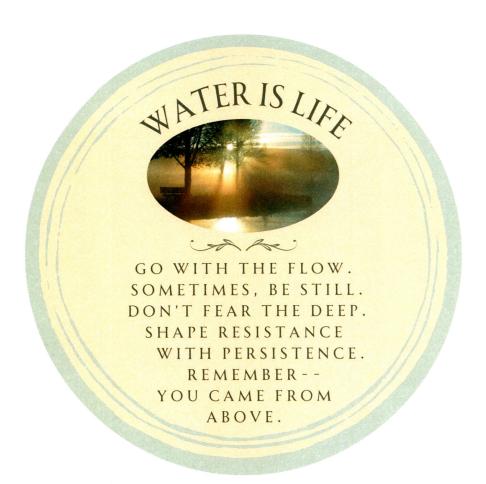
Cooperation on transboundary waters is essential for peace and prosperity. Governments should cooperate bilaterally, regionally or globally, for example through signing up to and implementing the United Nations Water Convention and Watercourses Convention.

We all have a part to play.

As individuals, we can use water more carefully, reducing stress on the environment and water infrastructure. We can also hold elected officials, companies, organizations and others to account for their obligations and promises on water.

In our working lives, we can also ensure that all our activities are done responsibly and protect water resources and ecosystems, according to the law.

We all need to unite around water and use water for peace, laying the foundations of a more stable and prosperous tomorrow.





A Litany of Water (By Samuel Tovend)

Water of the seas, vast and deep, regenerating essence of our planet's vigor,

We give you thanks

Water of the rivers, creeks, and flowing streams, strong carriers of life, steady currents of movement

We give you thanks

Water of aquifers and irrigation systems, soothing arid lands, nourishing hungry seeds **We give you thanks**

Water of human tears, cleansing drops of grief, dancing drops of joy
We give you thanks

Water of ritual cleansings and other faithfilled gifts of water, inviting humanity into the circle of community,

We give you thanks

Sikhi (Sri Guru Granth Sahib, Section 05 - Siree Raag - Part 047)

O mind, love the Lord, as the fish loves the water.

The more the water, the more the happiness, and the greater the peace of mind and body.

Without water, she cannot live, even for an instant.

First Nations (Wabinoquay Otsoquaykwhan, Anishinabe Nation)

Water isn't just for drinking or washing. Water has its own spirit. Water is alive. Water has memory.

Water knows how you treat it, water knows you.

You should get to know water too.

World Water Day in Wyoming

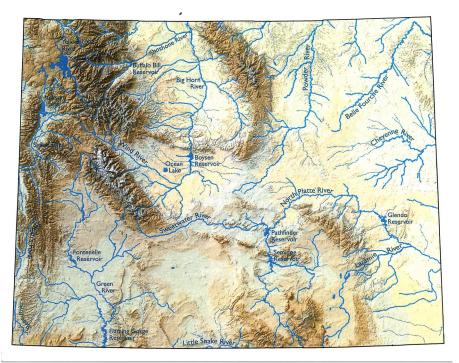
Wyoming Interfaith Network honors World Water Day by recognizing that **Water is Life**, not only for humans and animals, but, literally, for the earth itself. Through our efforts on World Water Day and throughout the year, we strive to promote the development of an integral water ethic. The way we relate to water through an integral water ethic extends concern to all beings in the cosmos. We believe, like Dr. Elizabeth McAnally, that "interreligious dialogue is necessary for an integral approach to water studies." The perspective we bring—that water is sacred—contributes greatly to the conversation and supports the United Nations General Assembly 2010 resolution recognizing "the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights."

In addition to the UN information presented on the previous two pages, we present in this booklet:

- Basic information necessary to understand water in Wyoming
- Reflections by Dr. Sal Palmer on the following books:
 - When the World Runs Dry: Earth's Water in Crisis by Nancy F. Castaldo
 - What You See in Clear Water: Indians, Whites, and a Battle Over Water in the American West by Geoffrey O'Gara
- Key Facts about Water
- What Can I Do? suggestions
- Resources
- World Water Day in Wyoming Interfaith Vigil prepared by Allen Doyle

Water holds the potential to guide us through crises. Cooperation on water paves the way for cooperation on all shared challenges.

Wyoming River Systems



The **Green River** begins in the Fontenelle Reservoir and flows through canyon lands until it becomes the **Colorado River** (formerly named "The Grand".

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The **Snake River** flows out of Jackson Lake until it becomes the **Columbia River**.

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Rivers on the eastern side of the continental divide— **Powder, North Platte, Belle Fourche, Cheyenne, Laramie** all flow into the Missouri River.

Source: WYACT Presentation 2023

Hebrew Bible (Psalm 104:10-13)

You put gushing springs into dry riverbeds.
They flow between the mountains,
providing water for every wild animal—
the wild donkeys quench their thirst.

Overhead,

the birds in the sky make their home, chirping loudly in the trees.

From your lofty house, you water the mountains.

The earth is filled full by the fruit of what you've done.

Hinduism (Rig Veda, Mandala 10, Sukta 9)

Waters, you are the ones who bring us the life force. Help us to find nourishment so that we may look upon great joy. Let us share in the most delicious sap that you have, as if you were loving mothers.

Readings from various wisdom traditions:

After each reading, the reader will pour water symbolically onto the earth, followed by a moment of silence.

Buddhism (Thich Nhat Hahn)

Water flows from high in the mountains.
Water runs deep in the Earth.
Miraculously, water comes to us,
And sustains all life.

Islam (Quran 16:65)

And Allah sends down rain from the sky, giving life to the earth after its death. Surely in this is a sign for those who listen.

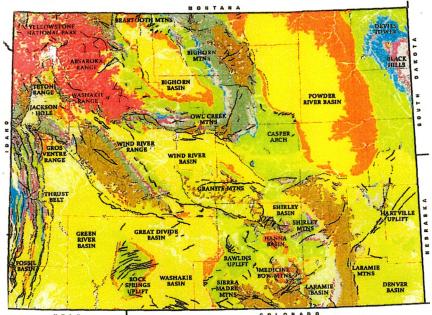
Daoism (Chapter 8, Dao De Jing)

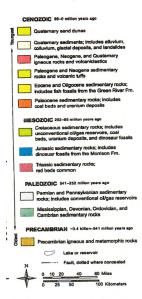
The highest efficacy is like water.

It is because water benefits everything yet vies to dwell in places loathed by the crowd that it comes to proper way-making









The major mountain ranges in Wyoming are the Wind River Range, the Big Horn Mountains, and the Laramie Mountains. In terms of time: The oldest is Precambrian—3.4 billion—541 million years ago (brown color). The youngest is Cenozoic—66 million years ago to current (yellow and orange colors).

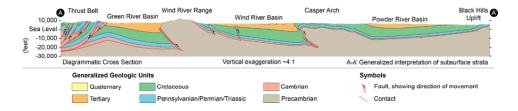
Aquifers occur because of the uplift of the mountains and the disposition of rocks. The folds are asymmetric; on one side they have been thrust upon the sedimentary rocks of a basin and on the other side the folds are tipped into an adjoining basin.

In general, using this map, the colors gray, purple, and blue indicate the presence of aquifers because of geology. A complication to the question of aquifers is that they are usually "bowl-shaped" so water can remain underground....or arise through fractures and springs.

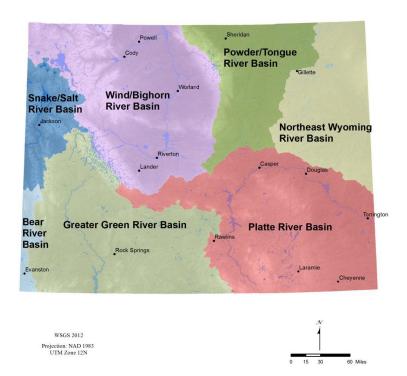
^{*} Notes from Dr. B. Ron Frost

Cross Section Depiction of Wyoming's Basins

The cross section depicted below shows the typical system of alternating Precambrian-cored uplifts, intervening sediment-filled basins, and associated faults that largely determine the occurrence, availability and quality of groundwater.



Wyoming's Aquifers are Grouped by River Basin



Source for both images and information: Hydrogeology of Wyoming, Wyoming State Geological Survey presentation by Karl Taboga, PG, July 21, 2021.

Opening Prayer:

Source of all life and sustainer of the universe, we come before you with humble hearts, recognizing the precious gift of water we have been bestowed with. Grant us the wisdom to be good stewards of this vital resource, to cherish and protect it for the well being of all living beings and future generations.

Help us to be mindful of our actions, to use water wisely and responsibly, and to work together to ensure its purity and abundance for all persons and critters. Guide us in our efforts to conserve water, to prevent pollution, and to promote equitable access to clean water for everyone. May we always remember that water is not just a resource to be used, but a sacred gift to be cherished and protected.

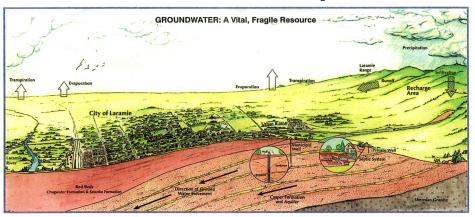
We offer this prayer in gratitude for the blessings of water and in commitment to being faithful stewards of this precious gift.

World Water Day 2024 Wyoming Interfaith Vigil



Sacred teachings across religions and indigenous traditions echo a profound truth: water is life, and its preservation is our shared responsibility. Wyoming Interfaith Network recognizes our unique role in this effort. As a network bridging diverse faith communities, our hope is to amplify the message of water stewardship, uniting people across beliefs to safeguard this vital resource for current and future generations.

Aquifers...Information From the Groundwater Up!



WHAT IS GROUNDWATER?

Water is constantly on the move, traveling through the earth's hydrological cycle, rising to form clouds, and falling again as rain or snow. Some is held temporarily as surface water, in wetlands, rivers, lakes, and oceans, while much of it infiltrates underground to become groundwater. Groundwater fills the cracks and spaces around the fragments of rock, sand, and gravel in the earth. It doesn't splash and pool like water in a river or a lake, it's more like water in a sponge. And like a sponge, the earth holds a surprising amount of water. Vast quantities of water used daily are drawn from underground. In fact, about 95% of the accessible fresh water on earth (not salt water) that isn't frozen in the polar ice caps is groundwater!

Gravity draws groundwater downward, but its flow direction and speed are affected by the materials it passes through. Usually it travels less than an inch per day but can move many feet per day and flows toward places at lower elevations where it discharges back to the surface. Underground areas where groundwater are found is referred to as the saturated zone. The upper surface of the saturated zone is called the water table. Above the water table, water passes through the soil, but the soil doesn't stay saturated.

As underground geological formation that holds a sufficient quantity of water to yield useable amounts to one or more wells is called an aquifer. Aquifers can vary in size and shape, hold different amounts of water, and can be shallow, moderately deep, or very deep below the earth's surface. They can be found in loose materials or in bedrock, and aquifers can also be interconnected and "leak" from one to another. Laramie's aquifer is known as the Casper Aquifer. Wells in the Casper Aquifer provide us with high-quality water we need daily for drinking, cooking, washing, recreation, irrigation, and running businesses and industries. Half our city's drinking water comes from groundwater, whereas almost 100% of the people in rural areas depend on groundwater. Therefore, the City of Laramie and Albany County are working to protect the quality of our drinking water within the Casper Aquifer.

Source: Gem City Spark, City of Laramie, Vol. 6 No. 2, June 2019

Reflections on Water

Sometimes, it's hard for us to imagine that we can survive a storm. Our fears and dreadful expectations get the best of us. It is then that we need a larger perspective, one that gives us hope. The grasses can bend but do not break. Cows recover from difficult labor. Birds simply hide until after the storm. To teach resilience, a local coach gave his runners this motto:

"What doesn't kill you makes you stronger."

Nature teaches not just sustainability but ways to recover even in the worst of circumstances. Julia Carson, an English teacher, received severe cancer treatments for three years, then lost her husband to a tragic accident. The strength of her spirit was taught by the river:



River of Life

As the current moves through the river so our lives change with the force of nature and of creation over which we have no control.

The swiftness which carries us through life is sometimes slowed by rare moments of peaceful contemplation.

As I reach the end of days everything in nature jumps out saying "Look at me, enjoy my creation, appreciate my uniqueness, hold this picture in your heart, for we are all given by the Creator for each of us."

Things to Remember



Resources

Wyoming Focus

Wyoming Water Association

https://www.wyomingwater.org/

Wyoming State Geological Survey

https://www.wsgs.wyo.gov/water/water.aspx

Wyoming Accepting Climate Transitions

https://wyact.wyoepscor.org/

Wyoming Water Development Office

https://wwdc.state.wy.us/wconsprog/WtrMgntConsDirectory.html

Albany County Clean Water Advocates

https://albanycountycleanwateradvocates.org/

Spiritually-focused

Waterspirit

https://www.waterspirit.org/

National/Global Focus

Eco-Justice Collaborative

https://ecojusticecollaborative.org/

United Nations and World Resources

https://www.un.org/en/observances/water-day/resources

Thank you to our Presenters!

Wyoming Interfaith Network-

Dr. Sally Palmer, Dr. Ron Frost, Dr. Mary Keller, the Rev. Warren Murphy, Allen Doyle, and the Rev. Annemarie Delgado

Hinckley Consulting-Dr. Bern Hinckley, Hydrologist

Wyoming Accepting Climate Transitions—

Dr. Anderson Ribeiro de Figueiredo

Children's Program - Sara Beaver Legler, Botanist

Sacred Waters: A Reflection on When the World Runs Dry

The actuality of the water crisis: As understood in Wyoming

By Dr. Sal Palmer

Causes of the water crisis include:

- 1. "More than a century of water management in the U.S. has also disrupted the natural flow and storage of water. The use of dams, pipes, and drilling has drawn water away from communities..." p. xx
- "Another factor is the population growth. The number of people on the earth increased from 1 billion (1800) to 8 billion (2020). Although our planet is 70% water, more than 60% is salt water....That means that 8 billion people compete for the remaining 4% of the Earth's water." p. xxi
- 3. "Climate change is another contributing factor. Warming temperatures cause drought around the planet, fresh water glaciers melt into the oceans, sea level rises, and rivers dry up. Severe weather wreaks havoc far and wide" p. xxi
- 4. "...much of the fresh water that remains is being polluted. Industrial, agricultural, and pharmaceutical waste is seeping into our water supply." p. xxi

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- Water management <u>in Wyoming</u> was based on times when water was plentiful.
- ◆ "Water shortage shows us that we shouldn't take our water supply for granted. It highlights the danger of having too many people or companies drawing from the same limited water source, depleting the ground water supply faster than it can be replenished." p. 108 In Wyoming, supplies of ground water were traditionally thought important only for wells. Now, it has become an urban problem (in part because surface water is becoming scarcer and more polluted.)
- "Climate change is only making the situation more difficult. Especially in areas that are already dry." p.108 In Wyoming, native trees, shrubs, and plants which had adapted to more arid conditions are suffering from insufficient water and are therefore susceptible to weeds and invasive species.
- Wyoming has long been the silent partner in providing access to water in spite of pollution from both industry and agriculture. The most notable problem is the effects of uranium tailings, left in the 1950s/60s. Fracking has made its mark as a source of pollution, as well as herbicides and pesticides.

#### What You See in Clear Water by Geoffrey O'Gara — Reflections

By Dr. Sal Palmer

O'Gara's research is based on valuing the Wind River for its own sake. His lyrical descriptions are based on direct experience and direct interviews. It is water that has "carved out" the beauty of the land:

Imagine a series of nested bowls, each one tilted slightly so that when it fills up it then pours into the bowl just below it....Trickles of ice melt from the beards of snow (gather) to larger bowls. The water falls until it empties into the Gulf of Mexico....No river begins in just one place, through explorers are always searching for the magical source....There was energy in these high places that renewed (us) for the concrete world....(The back country) was a gift (Marlowe) wished he could give to all the young people on the reservation—so many of them had never been in the wilderness that belonged to them....In their homes someone was always cooking for them, the television was talking to them, their teachers asked nothing of them except that they sit still.

Here it was different....

O'Gara, p. 262

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Update: Direct experience of the land and its water has diminished because of urbanization, computerization, and modern conveniences. We buy fish in cans and vegetables in the supermarket and find it all too easy to forget the Source—the rain that falls, the sun that rises, the need to take each breath. O'Gara's lyrical description of the Wind River takes us back to a deeper understanding of the awesome powers of Creation:

Q God,

Thank You for the moments of light, when we don't have to ask anymore, when we feel Your power.

Thank You for moments of stillness, light that shines to us, streams that run through us, moments we know You are there.

The Gift of Life, S. Palmer, p. 7

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The major conflict in O'Gara's book is based on what is valued in the Winds. Is it the intrinsic value of the water as it nourishes life or do market values hold sway? After fourteen years of research, interviewing generations of folks who live off the water, O'Gara concludes:

# What Can I Do?

#### **Practical Tips**



Save water: Take shorter showers and don't let the tap run when brushing my teeth, doing dishes and preparing food.

Eat local: Buy local, seasonal food and look for products made with less water.





Drink mindfully: Use water filters rather than bottled water to drink.

Heat water mindfully: Fill the kettle only with the amount of water you need. The same goes for pots and sinks.





Break taboos: Talk about the critical connection between toilets and water.

Be curious: Find out where my water comes from and how it is shared, and visit a treatment plant to see how my waste is managed.





Make it equal: Share water-fetching between women and men, girls and boys.

Protect nature: Plant a tree or create a raingarden – use natural solutions to reduce the risk of flooding and store water.





Harvest rainwater: Capture some of the rain that falls on your roof by connecting a water barrel to a downpipe. This water can be used in the garden.

Mornings and Evenings: Water your gardens in the early morning or late evening to allow most of the water to be absorbed by the soil rather than evaporating in the midday.





Flush safe: Fix leaking water and waste pipes, empty full septic tanks and rivers, lakes, wetlands or beaches.

Stop polluting: Don't put food waste, oils, medicines and chemicals down my toilet or drains.



# **Key Facts About Water**

- ⇒ 2.2 billion people still live without safely managed drinking water, including 115 million people who drink surface water.
- ⇒ Roughly half of the world's population is experiencing severe water scarcity for at least part of the year. These numbers are expected to increase, exacerbated by climate change and population growth.
- ⇒ Only 0.5 per cent of water on Earth is useable and available freshwater – and climate change is dangerously affecting that supply. Over the past twenty years, terrestrial water storage – including soil moisture, snow and ice – has dropped at a rate of 1 cm per year, with major ramifications for water security.
- ⇒ Climate change, population growth and increasing water scarcity will put pressure on food supply as most of the freshwater used, about 72 per cent on average, is used for agriculture.
- ⇒ Water-related disasters have dominated the list of disasters over the past 50 years and account for 70 per cent of all deaths related to natural disasters.
- ⇒ Children under the age of 15 living in countries affected by protracted conflict are, on average, almost three times more likely to die from diarrhoeal diseases caused by a lack of safe water, sanitation and hygiene than by direct violence.
- ⇒ The benefits of investing in water and sanitation outweigh the costs, as it can improve health, productivity, environment, and social outcomes. Every US\$ 1 invested in water and sanitation yields a return of US\$ 4.3. In transboundary rivers and aquifers this is especially related to hydropower production, flood and drought management, water quality, and ecosystem conservation.

It's still not over....though it might not ever again capture the attention of headline writers in New York....The big issue—the tribe's ability to take charge of their substantial water right in the Wind River Basin and change the ways of the valley—lies quiet and the state engineer runs the river.

O'Gara, p. 244

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Update: Water rights in Wyoming continue to be a matter of decades-old legislation, argued by modern lawyers. Some of the regulations were put into place in the 19th century and some were quietly ratified by Wyoming State government agencies. The conflict between irrigation privilege and practical daily use continues as steadily as the waters continue to flow.

O God,

This is the hour of lead—when what we want seems so far from what we can do. We feel caught...Help us accept the boundaries of this world, but trust there is more. May our limits teach us wisdom, and lead us on...

to call You God. Palmer, p. 62

Another persistent theme is the science of clean water as the life-blood of the land.

Geology and hydrology are closely linked, and water makes the science of rocks less dry and dusty. The link is easy and constant. Water is forever evaporating, falling, percolating, cascading over rock....The cycle becomes less simple when you add in some of the variables...the glaciers or the basin's underground recharge system...complicated by the Rockies unpredictable folding and faulting of geological strata. Then come the manmade variables, such as landfills and oil wells, and the radio-active residue at the nearby uranium mill. Finally, the rejuvenating circle of water leaks into squiggly tangents of numerous ditch diversions.

O'Gara, p. 76-66, 11, 215

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Update: Two decades of increased climate change, the loss of native species due to drought, and the wide-spread indifference to the value of clean water have made their mark on the soil, the agricultural systems, and the need for sustainability in the forces of Life itself.

Source: UN 2024 World Water Day Fact Sheet

O God,

We ask so much from each weary day—
Twenty-four hours is never enough.
We ask so much from each dwindling month—
How can the bills come due again?
We ask so much but seldom see

the gifts You have already given....That is enough.

Palmer, p. 146

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Another persistent theme is the legal battle over water. First is **Wyoming** water law, codified in the 19th century. This is best summarized by (the fact that) water rights are determined by chronology and use for agriculture. Related to that is the **problem of enforcement**. This is best summarized by understanding the vast geography of Wyoming, where remote locations can easily be used "outside the law" and by preferential treatment for those who have more access to the powerful agencies in Wyoming. Judges haven't always agreed, but the general standard for legal decisions gives priority of water rights to property holders:

"Water is the lifeblood of Wyoming," wrote Chief Justice Richard Macy...."Water is simply too precious to the well-being of society to permit water-right holders unfettered control over its use"....What that really meant...was that state procedures didn't have to be followed to determine the tribal water right; when it came to using the water, he wanted the state back in charge....

O'Gara, p. 241

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To the tribal members who know their history, it was a familiar scenario. The government fulfills it "trust" obligations to Indians in various ways, with welfare programs and housing grants and resource management. But tribes who depend too much on the federal government to defend and protect them will feel the other edge of the sword if they step on the wrong toes or act too independently. And the problem with the legal battles is enforcement:

"If one may mark the turn of the twentieth century by the mass expropriation of Indian lands, then the turn of the twenty-first century is the era when the Indian tribes risk the same fate for their water resources. Today some members of the court sound a warning that they are determined to complete the agenda initiated over one hundred years ago...."

O'Gara, p. 243

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Update: The many conflicts over water use do not address the continuing need for clean water in an ever-shrinking supply. The demands keep increasing yet the land-ethics do not match the need. As O'Gara quotes the shift from agriculture to "transplants" who moved onto "forty-acre ranchettes paid for by their telecommuting jobs," the gulf seems as wide as it did years ago. Simply stated:

The white man thinks he's go to possess material things....The Indians don't feel that way. Everything's got to belong to everybody.

O'Gara, p. 256-7

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So, the use of water as it nourishes wildlife and human life is not just measure in the work of Geoffrey O'Gara but on those who treasure water for its meaning for generations to come.

#### The Waters

We give thanks to all the Waters of the world for quenching our thirst and providing us with strength. Water is life. We know its power in many forms—waterfalls and rain, mists and streams, rivers and oceans. With one mind, we send greetings and thanks to the spirit of Water.

Now our minds are one.

Ohneka'shón:'a

Onen ehnón:we ientsitewakié:ra 'te ne ohneka'shón:'a tsi rawé:ren tsi enkahnekónionke ne tsi ionhontsiá:te. Ne ehnón:we nitewéhtha ne aionkwaha'taná:wen nó:nen enionkwania'táthen.
Nia'teka'shatstenhserá:ke tewaienté:ri—tsi ieiohnekén:shon, tsi iokennó:re's, tsi iaonhawí:ne's tánon' tsi kaniatarahrón:nion. Khénska tsi entewahwe'nón:ni ne onkwa'nikón:ra ne iorihwá:ke tsi entewátka'we ne kanonhweratónhtshera.

Éhtho niiohtónha'k ne onkwa'nikón:ra.