UPPER DESCHUTES
WATERSHED COUNCIL

We're All Connected: *The Ripple Effect of Water*

In this interactive, role-based activity, students explore the many ways people, animals, and plants rely on freshwater. Each student takes on the role of a living thing or stakeholder connected to the Central Oregon watershed. Using rope to visually represent these shared connections, students experience how changes to the environment such as drought, pollution, or conservation efforts can ripple through the entire ecosystem and affect all who depend on water. This activity helps students understand why freshwater sources are threatened and encourages them to think critically about how individuals and communities can take informed, meaningful action to protect water.

MATERIALS

- Role cards (30)
- Scenario cards (12)
- Circle of rope or yarn

Oregon Department of Education Goals

The *We're All Connected* activity can help teachers meet Oregon Department of Education common curriculum goals and benchmarks for 3rd grade within the following areas:

Science Inquiry- Use interrelated processes to pose questions and investigate the physical and living world.

Earth and Space Science- Understand physical properties of the Earth and how those properties change.

Physical Science- Understand structures and properties of matter and changes that occur in the physical world.

Social Science- The study of the social sciences prepares students for responsible citizenship. It enables students to evaluate historical and contemporary issues, understand global relationships, and make connections between the past, present and future.

Science in Personal and Social Perspectives- Understand that science provides a basis for understanding and acting on personal and social issues.

GOALS AND OBJECTIVES

Students will be able to:

- Name one way they depend on clean water
- Identify how changes in the environment can impact living things
- Explain one solution to changes that impact water availability and/or health

BACKGROUND

No matter where you are in the world, every living thing depends upon water. In Central Oregon, we live in a very dry climate and receive only a small amount of precipitation during the summer months. In fact, over 90% of our water falls as snow during the winter! Therefore, during the hot, dry summer months, water is an exceptionally precious resource for our watershed and the animals that live in it during a time when it is also very important for growing crops. The biggest challenge facing our rivers and streams is that there is not enough water left instream to keep stream temperatures cool enough for fish and other aquatic species. Fortunately, many different stakeholder groups are working together to find creative solutions and ensure that water is shared among cities and irrigation districts while still meeting the instream needs of fish, frogs, and other aquatic life.

PRE-ACTIVITY

Preparation: Review each role card and scenario to gain a better understanding of how they are all connected. Note: All role cards are local to Central Oregon but can also be adapted to a more global view.

Discussion: Introduce students to the activity. Explain that they are going to learn that water is essential to everyone's survival. Rivers and streams aren't just for people to enjoy – they're also habitats that provide food and shelter to other living things. When changes happen in the environment, our rivers and streams can be impacted. Explain to students that they are each going to play a different part in the story of a river. They will see what happens when something changes in the environment and observe how they are impacted.

Questions:

- What do you use water for?
- Who else needs water?
- What might happen if there are changes to the environment that affect water?
- How do changes affect those that rely on water?

PROCEDURE (40-50 minutes)

1. Arrange students in a large circle.
2. Hand out a role card to each student.
3. Give students time to think about their role and how they depend on water.
    - Allow students to share their roles with the group. *(E.g. "I'm a beaver and I build dams that help create wetlands and habitat for other wildlife")*
4. Discuss how roles relate to one another.
    - *E.g. Osprey relies on fish for food. Fish need riparian plants for shade and to prevent erosion. Fish need macroinvertebrates for food. Macroinvertebrates need clean water.*
5. Connect the students with the circle of rope/yarn.
    - Begin with one student holding the rope and saying who they are and who they are connected to. After they say who they are connected to, ask them to pass the rope to those connections.
    - *E.g. "I'm a fisher and I am connected to fish". The fish then picks up the rope. "I'm a fish and I'm connected to plants and the river". Plants and the river then pick up the rope.*
6. Continue until everyone is holding the rope and the whole group is connected. Have students hold the rope taught. There should not be any slack in the rope.
7. Discuss with students that the rope represents how an ecosystem is interconnected through water. When changes happen within our environment that affect water, everyone is impacted. Explain that you will be reading scenario cards that will inflict a change on the water, and they will work together to determine who is affected and why.
8. Read a scenario hard aloud. Ask who is affected by this scenario.
    - For a "negative" scenario:
        - Those who are affected should gently tug on the rope. (If students have a hard time tugging gently, you can ask them to instead let go of the rope).

    - The tug should spread and others in the circle should feel it.
    - If letting go, ask others if they felt the impact of others dropping the rope.
- For a "positive" scenario:
    - Students should loosen the tension in the rope to show "relief" and slowly walk around in a circle holding the rope.
    - *Optional: Students can chant "we're all connected!". Or, they can say their role and action: "I'm a _____, and now I can _____!". (E.g. "I'm a tree and now I can grow!", "I'm a kayaker and now I can kayak!").*

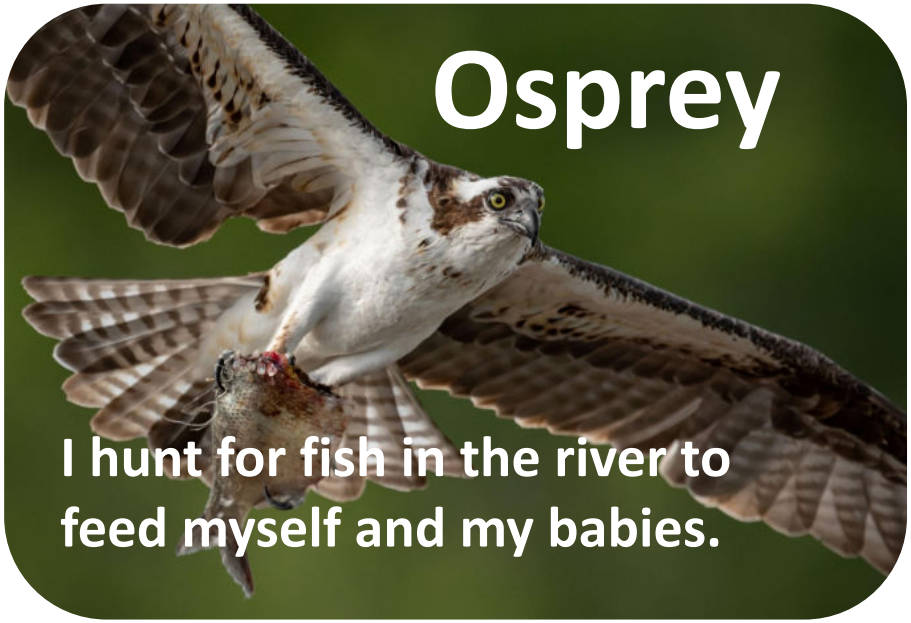
9. Repeat with another scenario and observe which students feel the change.
10. Continue until you read through all scenarios, or students fully understand the impacts of environmental changes and how they affect all organisms in an ecosystem.

DISCUSSION

Ask students what they noticed during each scenario. Questions to consider:

- How are we all connected by water?
- Who was impacted when the environment changed?
- Did you feel a tug even if you weren't directly mentioned?
- What is something we can do to keep our rivers and streams healthy for everyone?


Rain Drop
I fall from the sky to help refill rivers, streams, and groundwater.


Osprey
I hunt for fish in the river to feed myself and my babies.


Farmer
I use water from the Deschutes River to irrigate my crops. I help feed the community.


Fisher
I catch fish in rivers and streams for fun and food.


Beaver
I build dams that help create wetlands and habitat for other wildlife.


© Gary Na
Oregon Spotted Frog
I'm a rare frog that needs clean, shallow water with plants to hide in. I'm sensitive to pollution and water changes

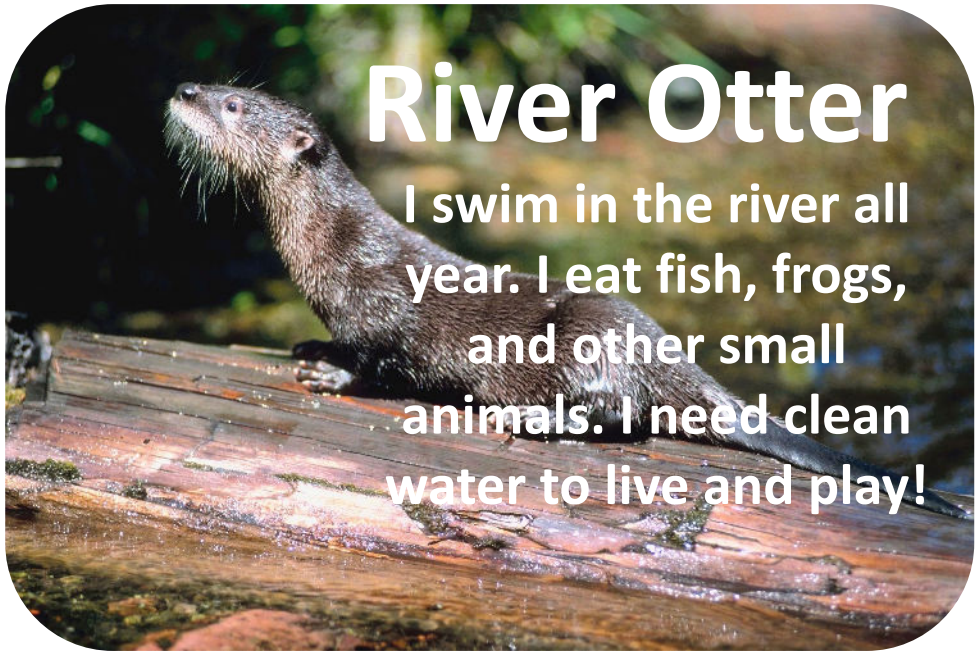

Woods' Rose
I grow near streambanks. I help hold soil in place and feed pollinators like bees.


Redband Trout
I need cold, clean water to survive. I eat bugs like mayflies. Birds and bears eat me.

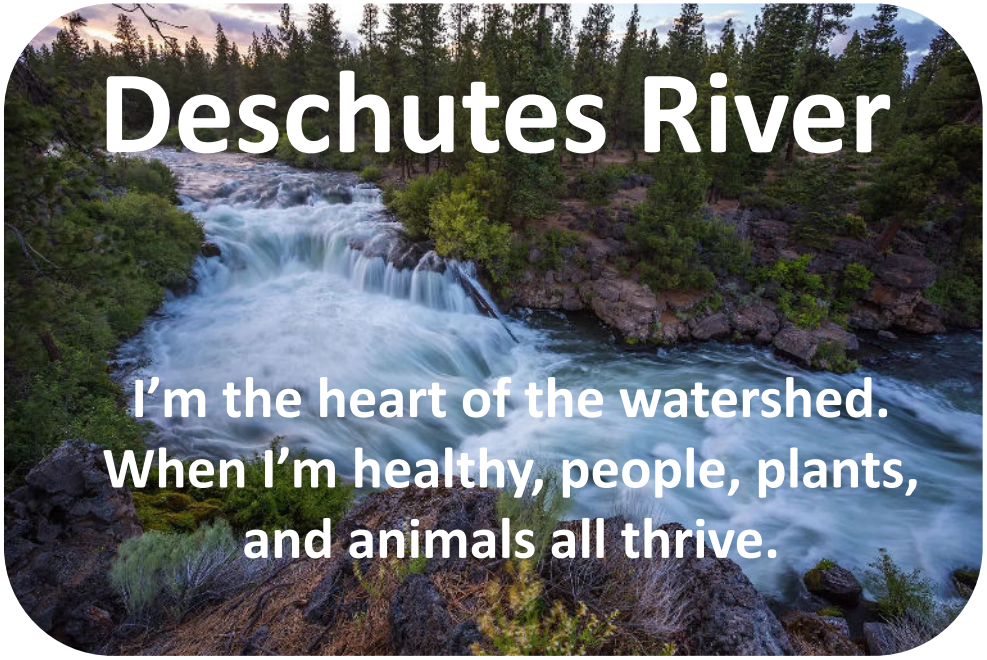

Mayfly
(macroinvertebrate)
I need clean, cold water to survive. I provide food for fish and frogs.

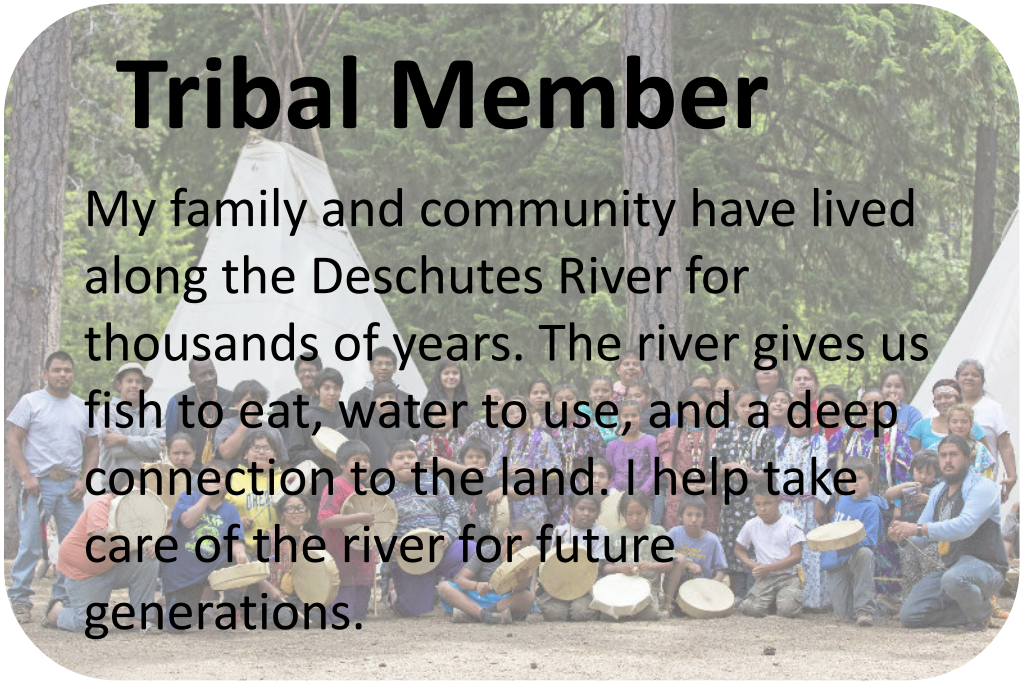

Park Ranger
I help protect the land and water where people camp, fish, and recreate.


Community Member
I rely on clean water from Bridge Creek for drinking, cooking, and cleaning.

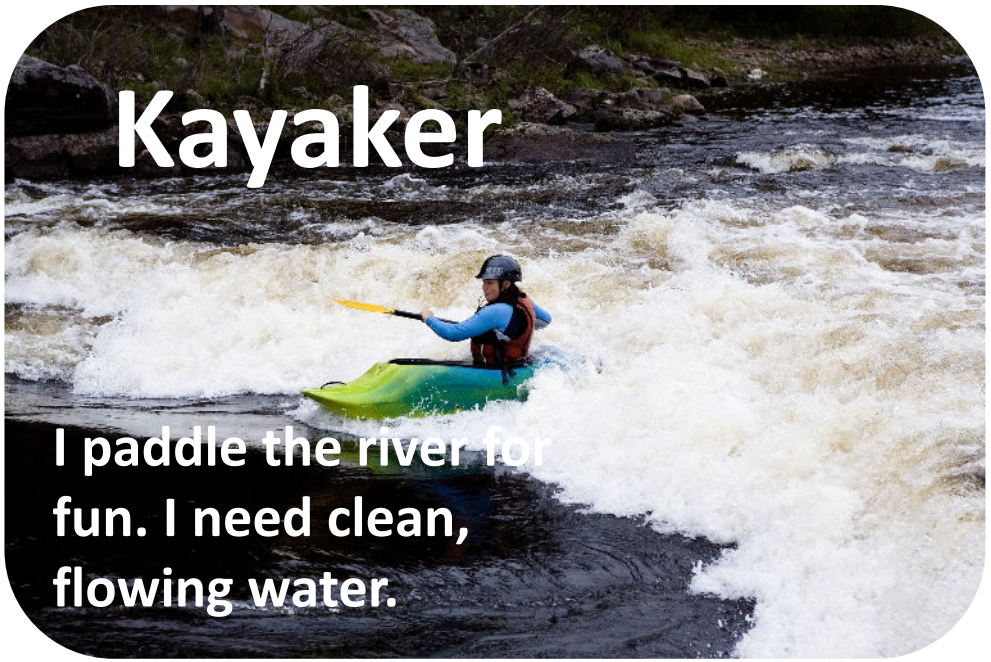

River Otter
I swim in the river all year. I eat fish, frogs, and other small animals. I need clean water to live and play!


Teacher
I teach students about the water. I bring them to the river for field trips.


Deschutes River
I'm the heart of the watershed. When I'm healthy, people, plants, and animals all thrive.


Tribal Member
My family and community have lived along the Deschutes River for thousands of years. The river gives us fish to eat, water to use, and a deep connection to the land. I help take care of the river for future generations.


Camper
I like to camp by the river and enjoy nature.

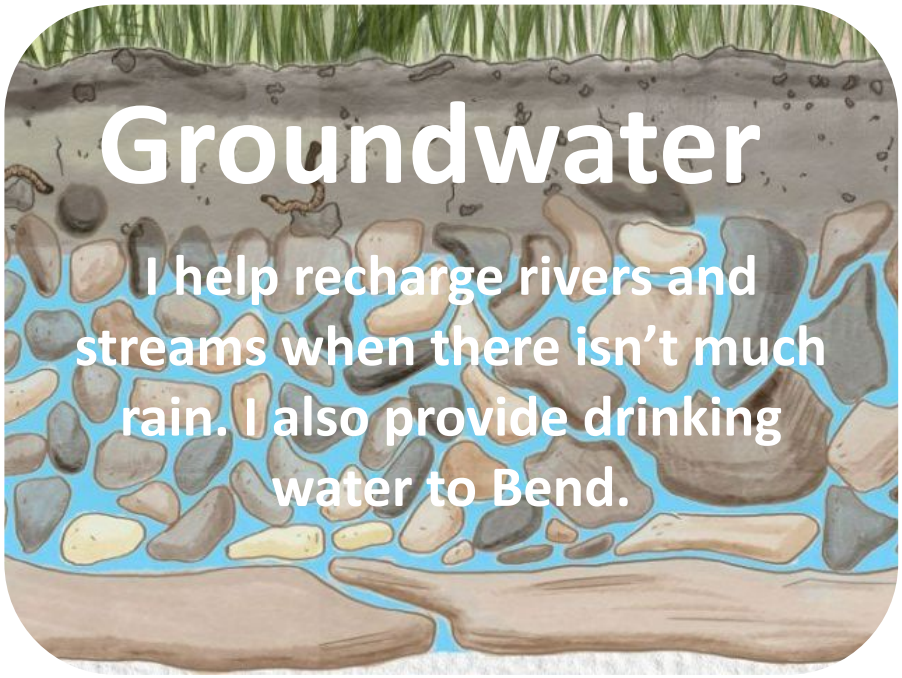

Kayaker
I paddle the river for fun. I need clean, flowing water.


Firefighter
I help keep people and forests safe by putting out wildfires. I need water from rivers, lakes, or fire hydrants.


Water Scientist
I study water to make sure it’s healthy for people and animals.


Black Bear
I need healthy streams and rivers for food and water. I eat fish, berries, and plants that grow near the river.


Cottonwood
I need lots of water to survive. My roots hold the soil in place, and my shade helps keep the river cool for fish. Birds and animals use me for food and shelter.


Groundwater
I help recharge rivers and streams when there isn't much rain. I also provide drinking water to Bend.

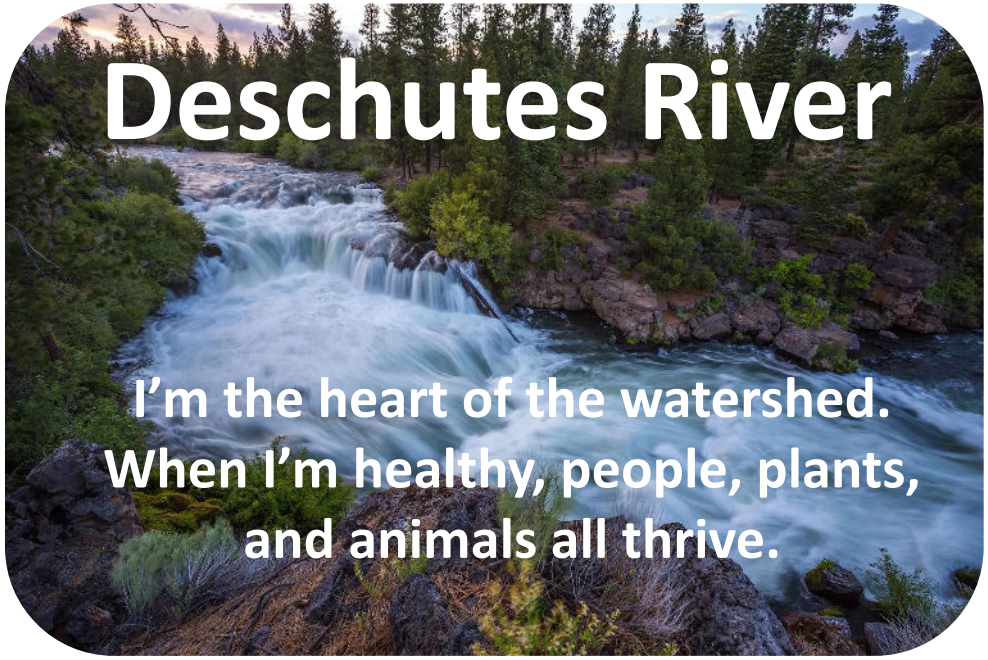

Rafting Company
I take people on fun rafting trips down the Deschutes River. I need enough flowing water for rafts to float and clean water so it's safe for everyone.


Ponderosa Pine
I don't need a lot of water, but I still depend on rain and snow. My shade helps other plants grow, and animals use me for food and shelter.

Rain Drop

I fall from the sky to help refill rivers, streams, and groundwater.

Deschutes River



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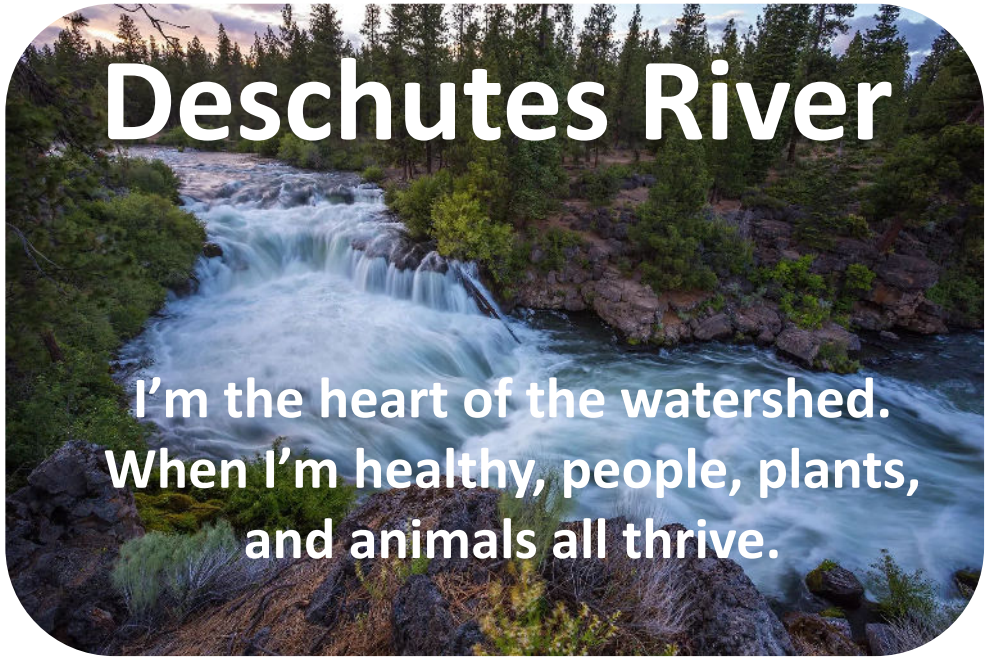
Deschutes River



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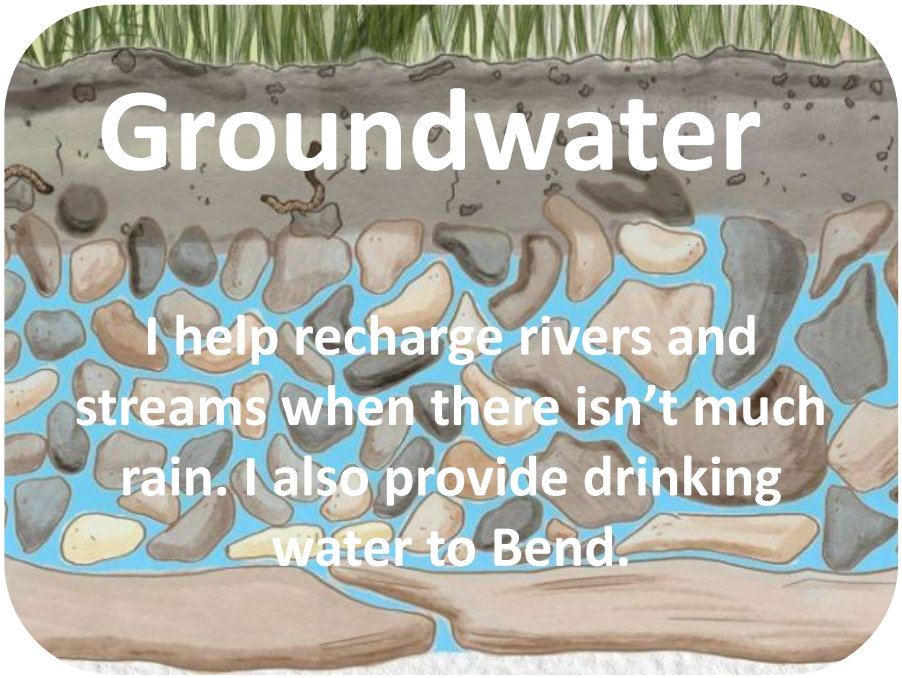
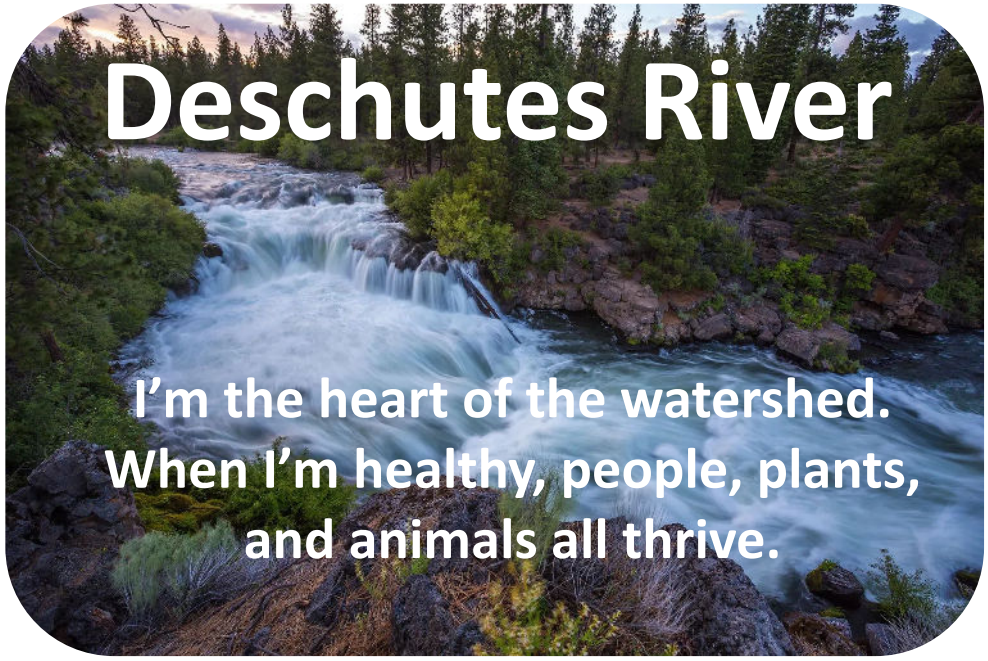
Kid Who Swims
I like to float, swim, and play in the water. I need clean, safe water to have fun!


Groundwater
I help recharge rivers and streams when there isn't much rain. I also provide drinking water to Bend.


Great Blue Heron
I wade in shallow parts of the river to catch fish, frogs, and insects. I need clean water and quiet places to hunt and nest.


Deschutes River
I'm the heart of the watershed. When I'm healthy, people, plants, and animals all thrive.

"No Rain for a Month"

Central Oregon goes through a hot, dry spell - 30 days without rain. Plants are thirsty, the soil dries out, and river levels drop.

Who's affected?

"Wildfire Near the River"

A wildfire scorches forests by the river. When it rains, ash and loose soil wash into the water, clouding the river.

Who's affected?

"Too Much Water Taken for Irrigation"

In summer, farms and ranches need lots of water. More and more is pulled from the Deschutes to water fields.

Who's affected?

"Invasive Weeds Take Over"

Plants like cheatgrass and mullein crowd out native shrubs. Without deep roots, soil washes away and the river heats up from lack of shade.

Who's affected?

"Pollution Spill"

After a summer thunderstorm, trash, oil, and chemicals from roads and parking lots wash into storm drains, which lead right to the river.

Who's affected?

"New Housing"

A big neighborhood is built near the Deschutes. More lawns, streets, and driveways mean more water use and more runoff.

Who's affected?

"A Healthy Snow Year"

Heavy snow falls in the mountains during winter. The snowpack melts slowly throughout spring and summer - just the way the river needs it.

Who's affected?

"A Floodplain is Reconnected"

Engineers and ecologists reshape an old creek channel so water can spread out and slow down during high flows. They add logs and plant native species.

Who's affected?

"Deschutes River Cleanup"

Volunteers of families, paddlers, and scuba divers spend a day pulling trash and invasive weeds from the riverbanks and underwater along the Deschutes.

Who's affected?

"Dams Block Fish Migration"

Old dams along the river make it hard for fish like salmon and steelhead to return upstream to spawn. Some dams don't have a way for fish to get around.

Who's affected?

"Pollution Spill"

After a summer thunderstorm, trash, oil, and chemicals from roads and parking lots wash into storm drains, which lead right to the river.

Who's affected?

"Native Vegetation Planted"

Volunteers plant native plants like willow, cottonwood, and woods' rose along a bare riverbank to help hold the soil and shade the water.

Who's affected?


The Dalles
LOWER
Deschutes River
Maupin
Warm Springs River
Warm Springs
Trout Creek
Madras
Lake Billy Chinook
Metolius River
Willow Creek
Crooked River
McKay Creek
Mill Creek
Whychus Creek
Prineville
Redmond
MIDDLE
Deschutes River
Ochoco Creek
Crooked River
Bend
Tumalo Creek
Deschutes River
UPPER
Fall River
LaPine
Little Deschutes River
DESCHUTES RIVER
CONSERVANCY