



An Chomhairle Oidhreachta
The Heritage Council



Module 1: Water Matters

Unit 1: Water Resources and Water Protection





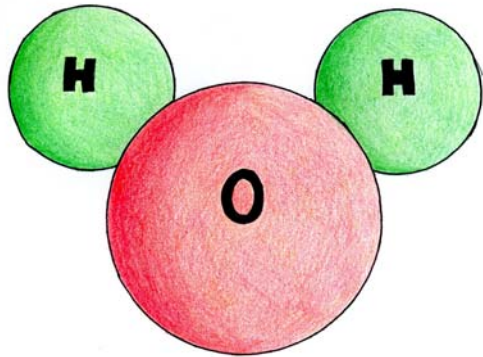
Objective of this presentation

- To demonstrate that the water in our tap and the waters in our rivers, lakes and wells are part of the same cycle
- To give participants an understanding of the importance of water protection



What is water?

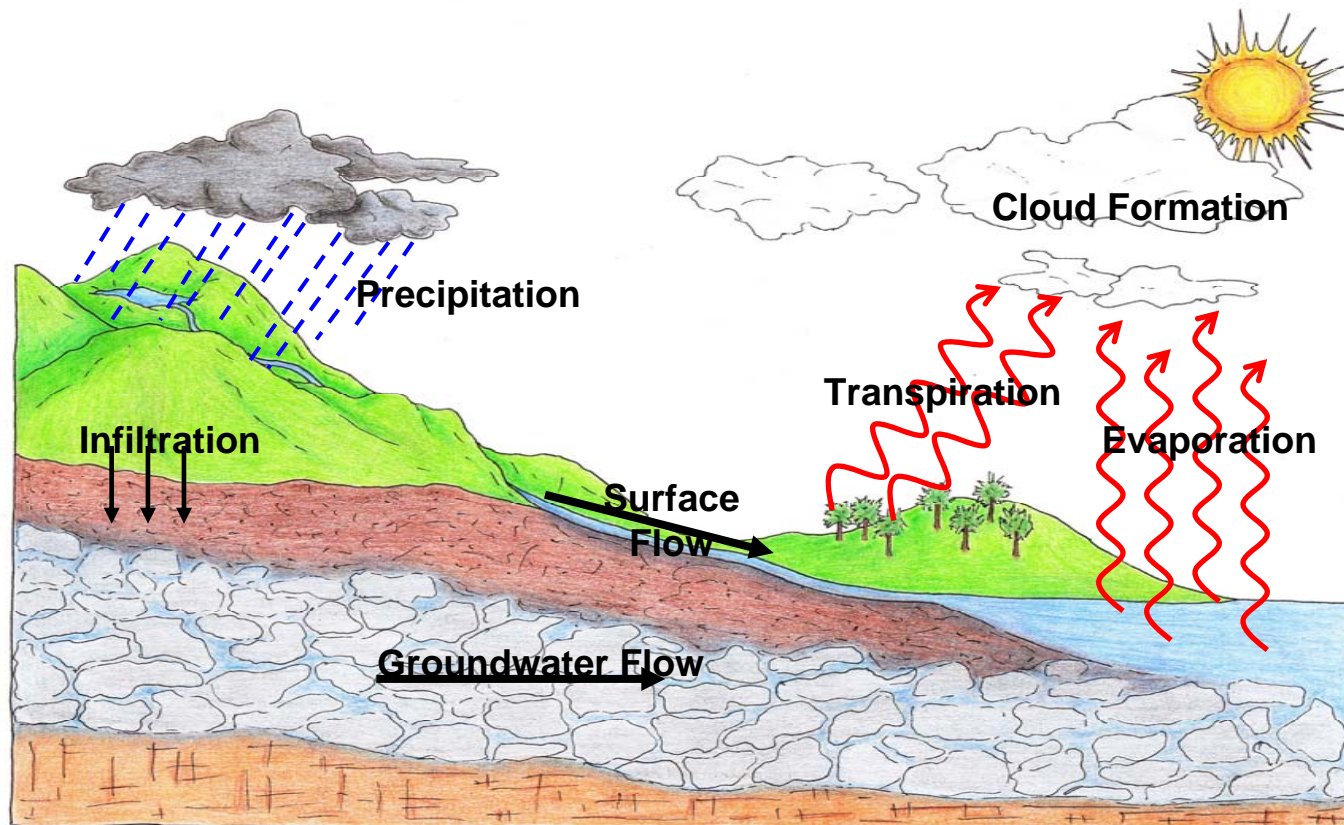
- The chemical name for water is H_2O .
- One molecule of water consists of two hydrogen atoms bonded to a single oxygen atom.
- Billions of water molecules join together to form rivers and lakes.



Milltown Lake/Muckno Mill Lough Co Monaghan



The Hydrological (Water) Cycle



Graphic by Gillian Cullen, DKIT



Why is the Hydrological or Water Cycle important?

- To appreciate the importance of source water protection, it helps to understand the ways that water is collected and travels
- The amount of water on the planet has been roughly constant since Earth was formed



What is *source water*?



- **Source water** is untreated water from streams, lakes, rivers or underground aquifers that people use to supply private wells and public drinking water systems
- **Source water** comes from one of two sources: *surface water* or *groundwater*



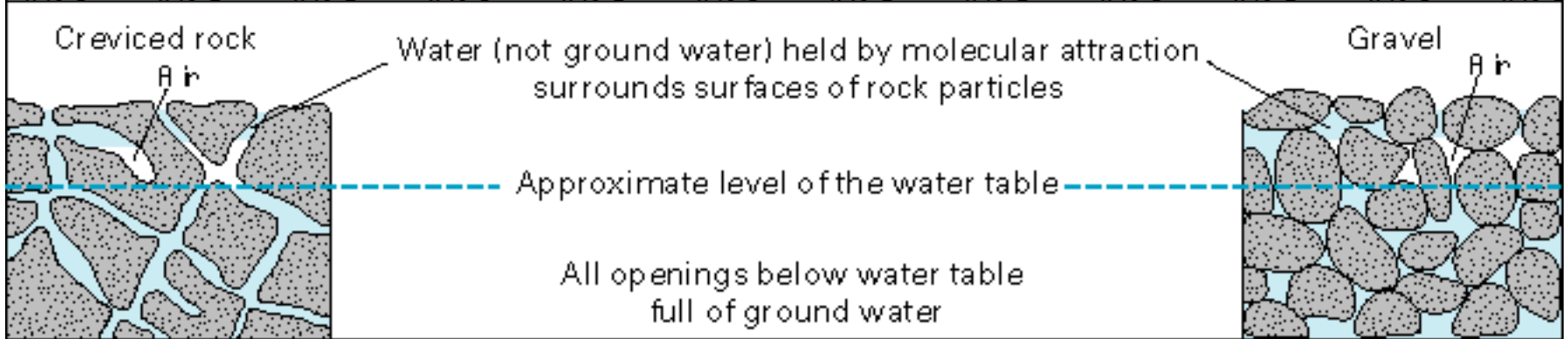
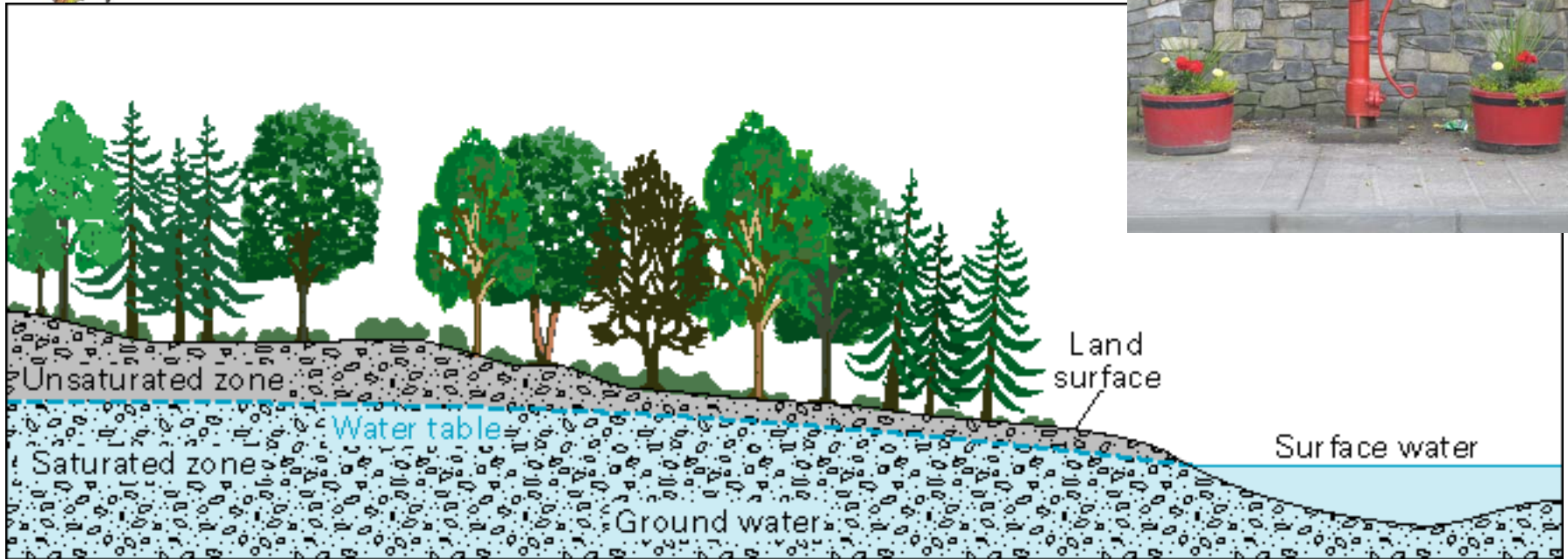
What is *surface water*?

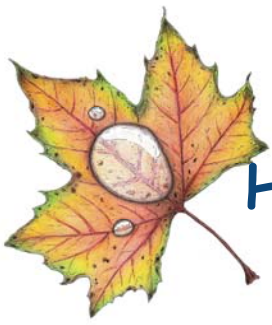


- *Surface water* includes lakes, rivers, streams, and oceans
- Approximately 70% of Irish drinking water originates from surface waters
- In Co. Monaghan 75% of communal drinking water comes from surface waters



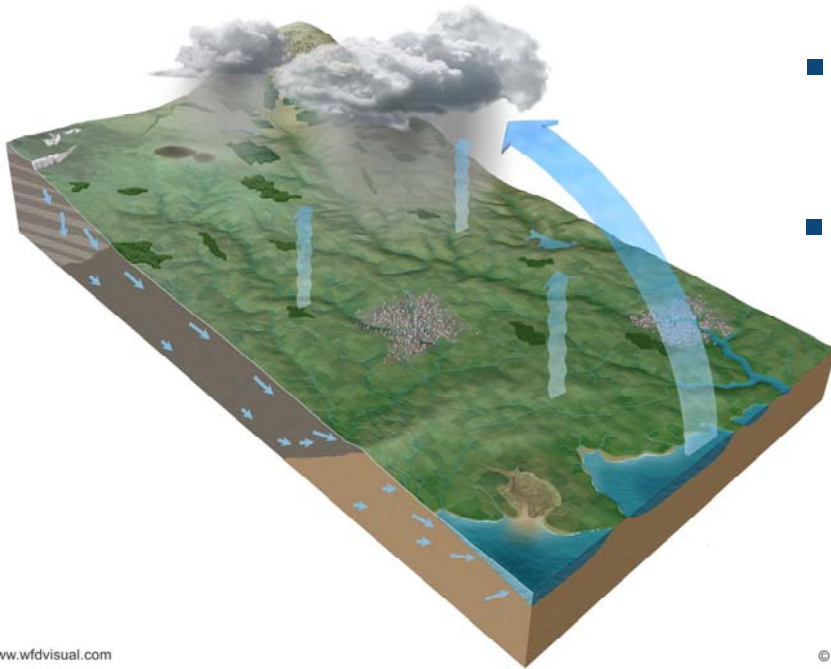
What is *groundwater*?





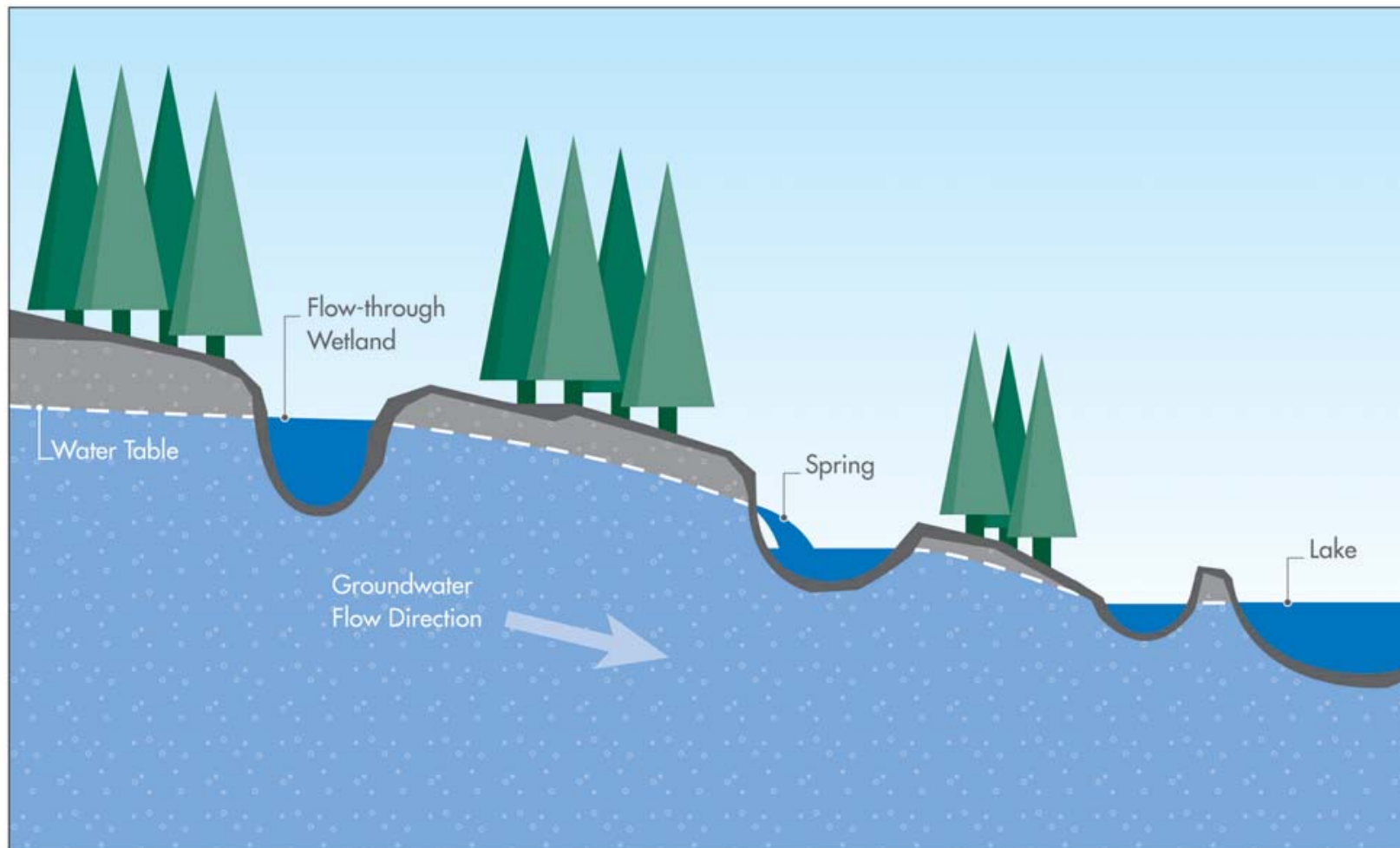
How are *surface water* and *groundwater* connected?

- Surface water and groundwater are interconnected
- *Surface water* is simply an extension of *groundwater*
- One cannot be affected in isolation from the other





How does *groundwater* travel?



Graphic courtesy of Pollution Probe: The Source Water Protection Primer



The importance of protecting all water bodies

- Ensuring a clean and safe environment for future generations.
- Ensuring health of ecosystems
- Providing basis for economy

For drinking water sources, the case for protection is compelling:

- to prevent waterborne diseases
- to minimise the extent and cost of treatment



Human health and water protection

- Threats to human health as a result of drinking water contamination occur in developed countries
- Preventing contaminants from entering water sources is an effective way to ensure clean drinking water and prevent human disease
- Source water protection is of particular concern for consumers served by untreated or inadequately treated supplies



Ecosystem health



Algal Bloom and Fish Kill

Dead fish

- Every ecosystem on Earth depends on water
- Where water quality or quantity is degraded, there is an adverse impact on ecosystems
- Eutrophication is Ireland's most significant water quality problem



Economic health and water protection

- Many industries depend on a good supply of water in terms of both quantity and quality.
- Tourism relies on clean water
- Preventing contamination at source reduces the cost of treating water
- Changes in lake levels and river flows can have dramatic impacts on navigation, power generation, manufacturing and trade

Discussion/Exercise

A scenic view of a rocky coastline with blue water and a clear sky. The foreground shows dark, jagged rocks on the left and right, with the sea in between. The sky is a deep blue with some light, wispy clouds. In the distance, a small white lighthouse is visible on the horizon.

"..the water in Ireland is so good and so plentiful that we take it for granted ..we fail to see that our water is a precious resource that needs to be safeguarded so that future generations can benefit from the same plentiful clean water that we enjoy today." (The Heritage Council)