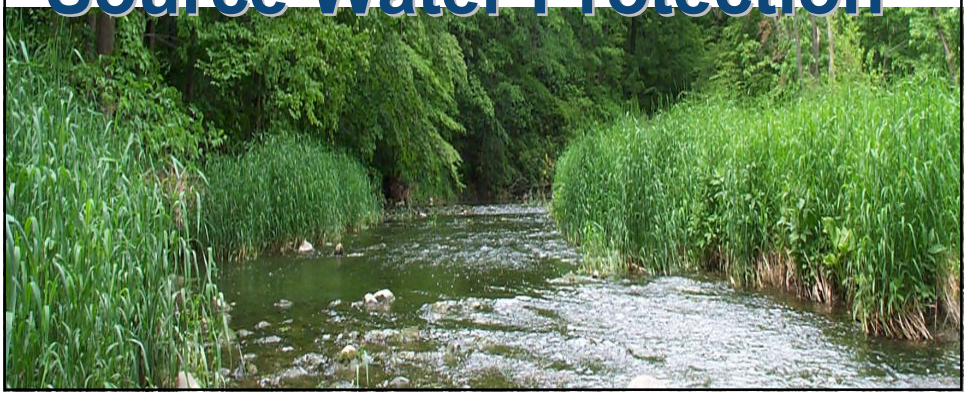
SOURCE WATER PROTECTION

Water Stewardship

An Introduction to Source Water Protection



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Outline

- What is Source Water?
- What is Source Water Protection?
- Source Water Protection in Manitoba
- Linkages to the IWMP Process

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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*.

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What is Source Water Protection?

- Source water protection is simply protecting water surface sources such as lakes, rivers, streams and groundwater sources from contamination.
- Source water protection is focused on protecting raw water quality – before it enters the intake for a treatment plant

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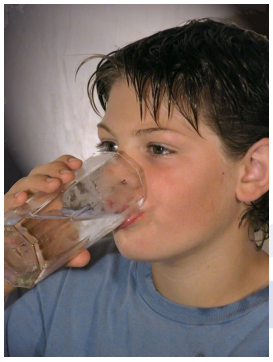
Why is it Important to Protect Source Water?



- In recent years, outbreaks of waterborne diseases in Walkerton, Ontario and North Battleford, Saskatchewan, have revealed how easily water can become contaminated and how damaging the consequences can be.
- Source water protection works to ensure a clean and safe environment is available for future generations.
- Protecting water at the source is an important way to ensure the health of **humans**, **ecosystems** and **economics**.

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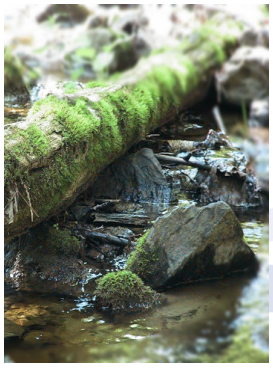
Legislative Requirement for Source Water Protection

- From the Water Protection Act 16(1)

A watershed management plan must

(a) Identify issues relating to the protection, conservation or restoration of water, aquatic ecosystems and **drinking water sources in the watershed**;



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What is the Multi-barrier Approach?

- Source water protection is just one of many barriers used in a **multi-barrier** approach to ensuring safe drinking water, as recommended by the Walkerton Inquiry.

  Today, we use a combination of approaches to ensure we have safe water and these include:

  1. Source water protection.
  2. Up-to-date water treatment systems.
  3. Reliable distribution systems (pipes & towers).
  4. Professional training for water managers.
  5. Careful and regular testing of our water supplies.

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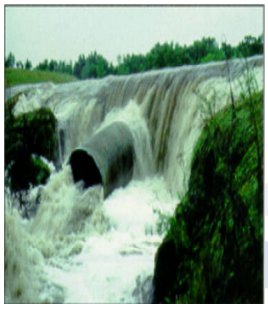
Limitations



- Source water availability (quantity)
- Groundwater sustainability
- Infrastructure integrity
- Design or evaluation of the treatment process
- Maintenance of the distribution system

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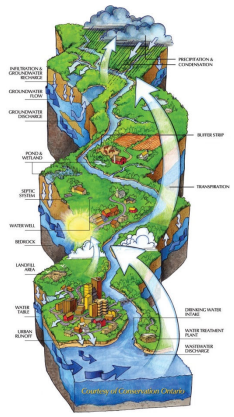
Source Water Protection in Manitoba



- Rates the potential for the raw water supply at the intake location to affect human health, due to either poor water quality, spills, or general land use practices
- Categorizes the susceptibility of public water systems as either low, moderate, or high

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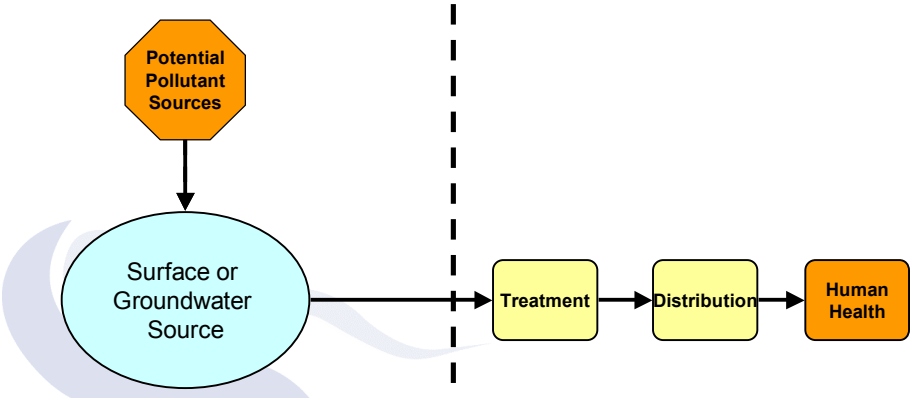

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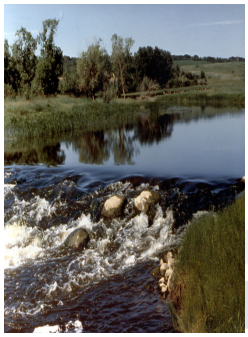
Source Water Delineation



Watershed/Capture Zone

- The overall area which contributes to the water source

Management Zone

- The critical land use management area where the greatest impact can be realized on intake raw water quality

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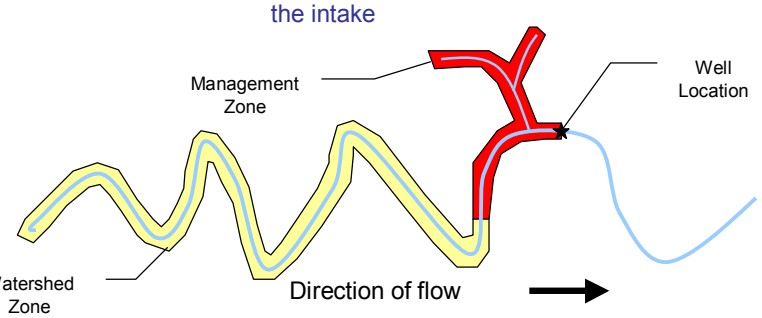
Source Water Delineation

Surface Water

- Watershed zone – all areas upstream of the source water intake
- Management zone – 1 day of travel time upstream of the intake



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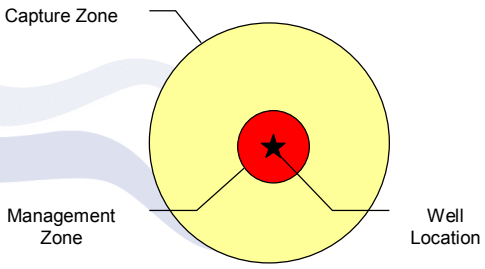
Source Water Delineation

Groundwater

- Zones defined by time of travel through the aquifer
- If time of travel data is unavailable – can use arbitrary radius around well or critical recharge areas



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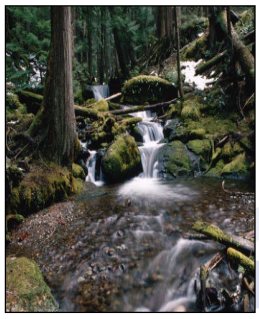
Source Water Susceptibility Rating



- Indicates the relative priority of a source water for subsequent protection measures
- Utilizes a checklist method to classify water sources as high, moderate, or low susceptibility
- Some indicators include: Land use/land cover, mines & quarries, landfills, lagoons, chemical/petro-chemical storage

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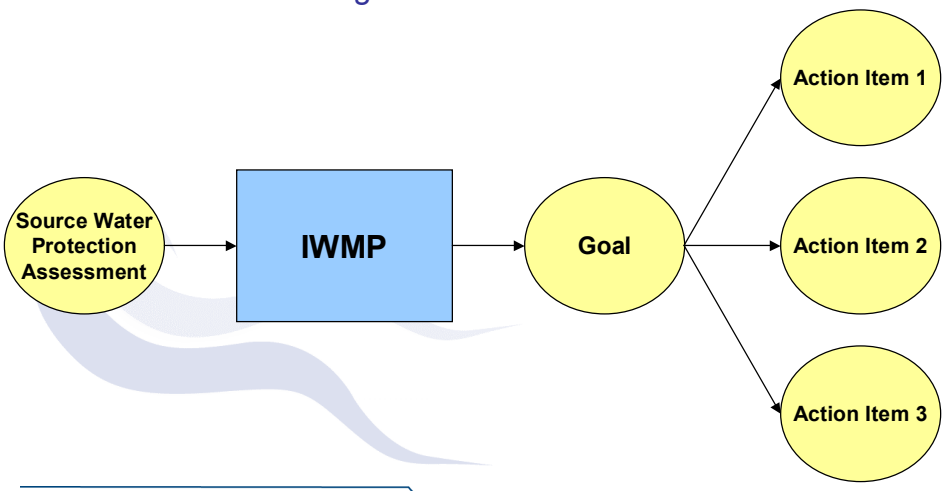
Linkages to IWMP Process



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