

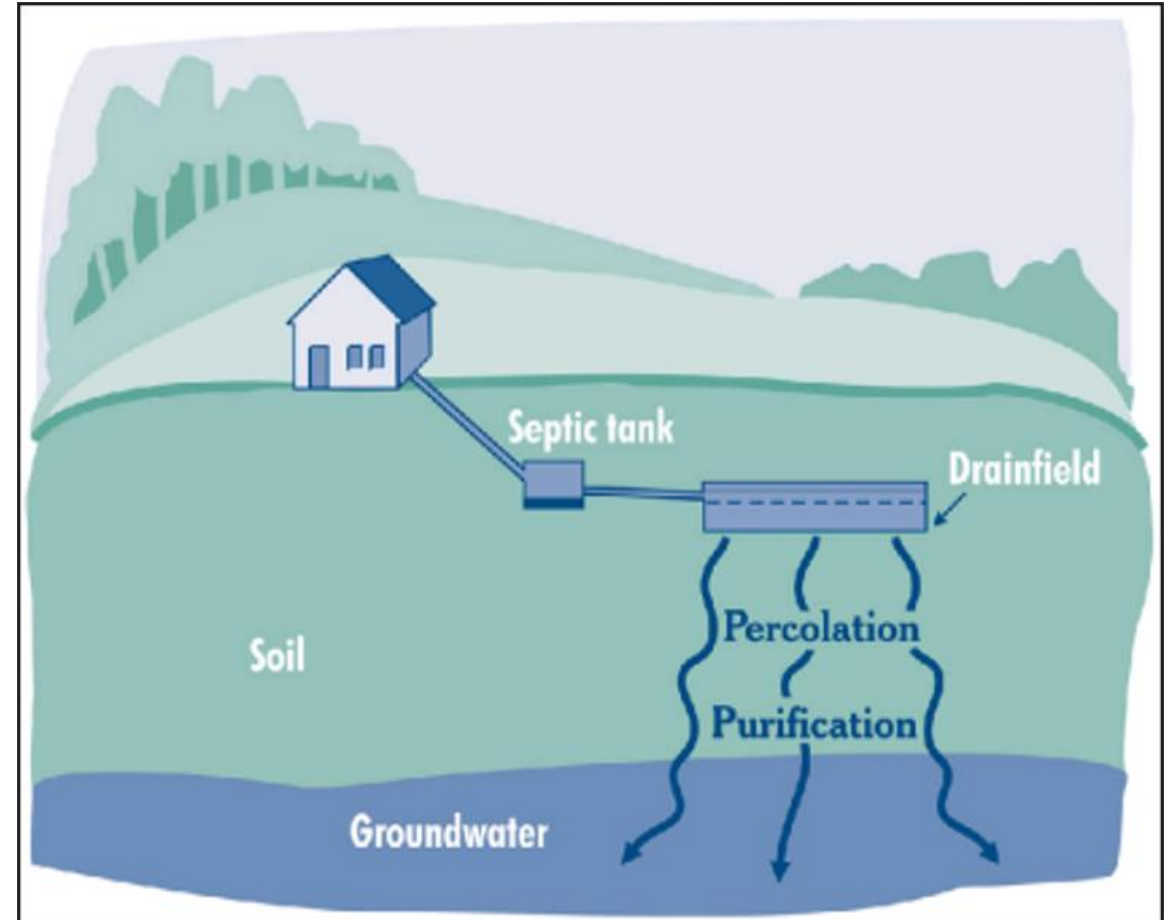
Spirit Lake: Property, Wastewater, and water Quality

Jason Peppin, I Panhandle Health District
8/7/2026

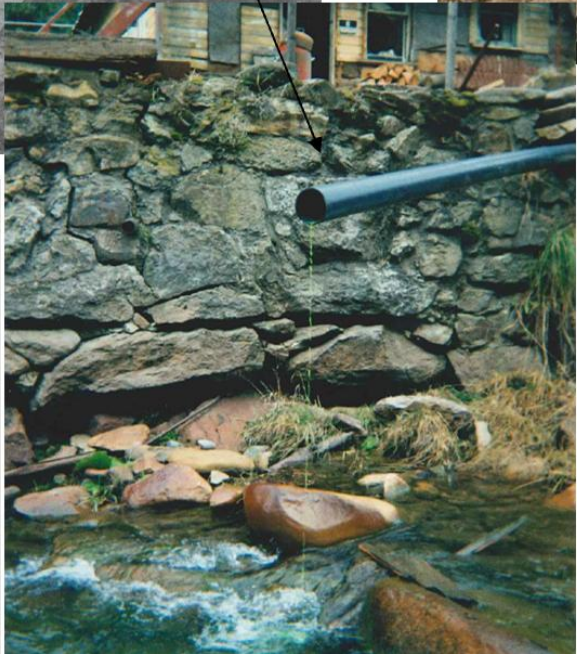
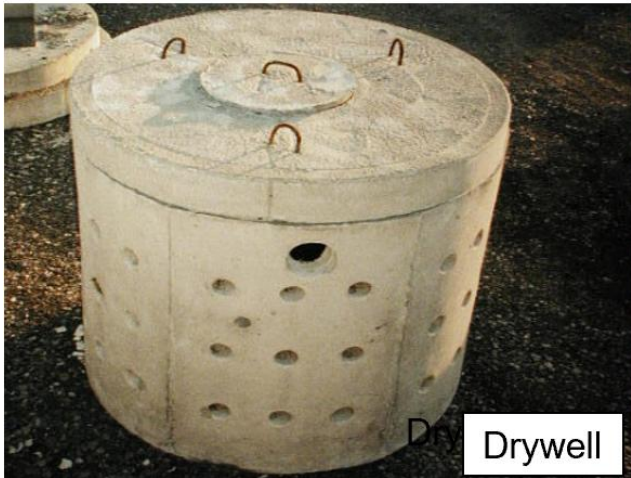
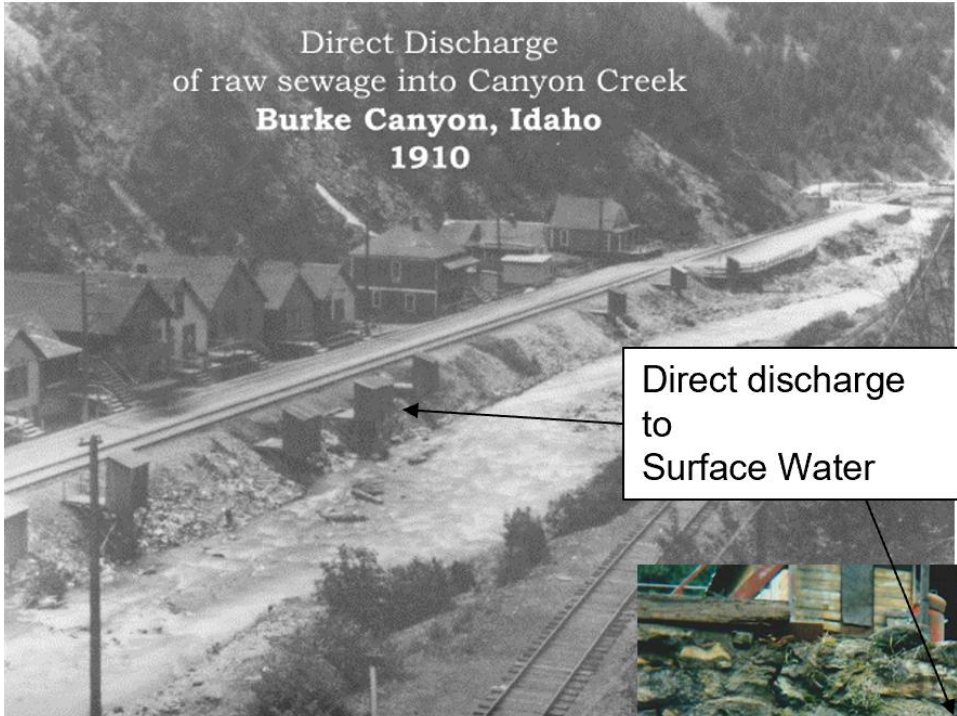


PHD Septic Program

- Onsite Septic systems use native soil conditions and biological processes to treat and remove contaminants in wastewater.
 - One of many sources of nutrients to surface water
- High percentage of waterfront parcels on Spirit Lake use septic systems for wastewater disposal
 - Many permitted before regulation of wastewater disposal or building codes
- Modern septic systems are designed to achieve both treatment and disposal, site specific design for a specific use.



Historic Septic Systems designed for disposal and provided minimal treatment

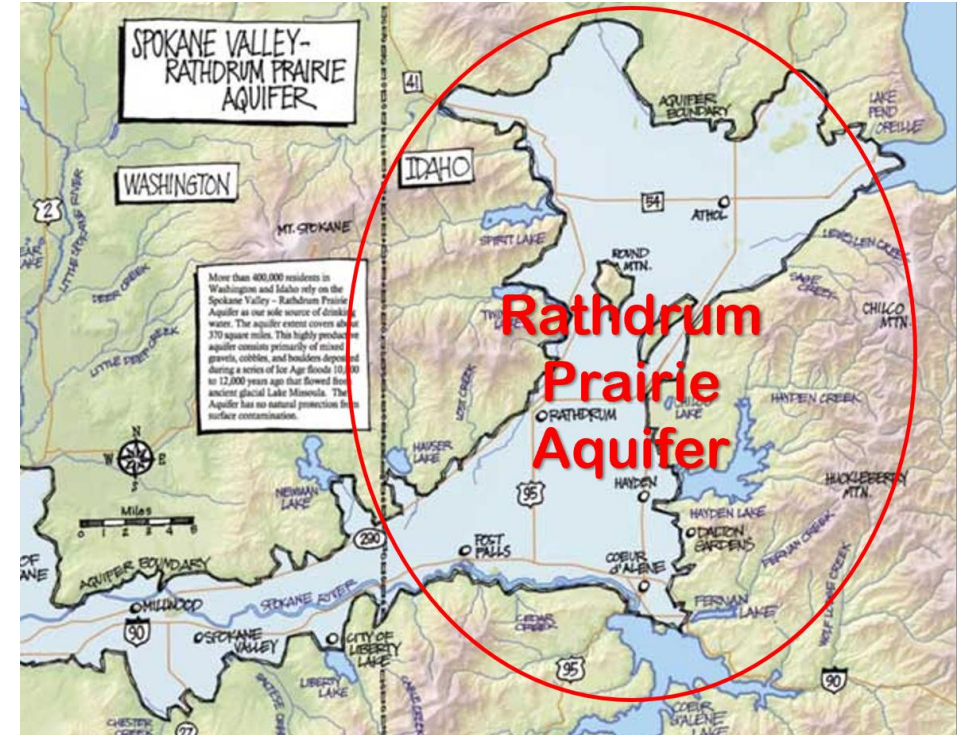


Septic permitting and remodeling

- Idaho Rules administered at the local level in collaboration with county and city building departments.
 - Residential systems sizing based on # of bedrooms
 - Commercial systems sizing based on proposed use
 - Sizing and surface Water Setbacks based on soil type
 - Site evaluation determines suitability and system requirements
 - Guides project planning and allows for informed real estate decisions
 - We are here to help: contact us early in the planning process
 - Systems installed prior to 1973 are vested for the original use (bedroom # for residential systems)
 - Replaced to best standards possible for the parcel (best-fit)
 - Best fit replacement systems provide significant increases over most legacy systems
 - Increase in bedrooms or use requires system brought up to current standards
 - Drainfield replacement area required
- For more information: <https://panhandlehealthdistrict.org/licensing-and-permitting/septic-permits-and-records/>

Kootenai County Aquifer Protection

- Sole drinking water source for over 600,000 Idaho and Washington residents
- Susceptible to contamination
- Septic density over the aquifer restricted in 1977 in response to elevated Nitrate concentrations in areas of high-density septic systems
 - Adopted as State of Idaho rules, now a Kootenai County Ordinance
- PHD Critical Materials Program regulates chemical storage and handling at businesses over aquifer
- PHD Aquifer Sampling Program monitors water quality
 - 50+ years of data to monitor trends & emerging concerns
- For more information:
 - Kootenai County Aquifer Protection District:
<https://www.kcgov.us/336/Aquifer-Protection-Board>
 - PHD Water Protection:
<https://panhandlehealthdistrict.org/licensing-and-permitting/water-protection/>



Harmful Algae Blooms (HABs)

- Caused by naturally occurring Cyanobacteria
- Blooms: Caused by rapid increase in Cyanobacteria #'s
 - High cell density
 - Visible accumulation
 - Toxins produced by Cyanobacteria
- Harmful Effects of HABs
 - Toxins: Can cause health problems by ingestion, inhalation, contact with water
 - Pets especially at risk
 - Cyanotoxins not removed by boiling or filtering water

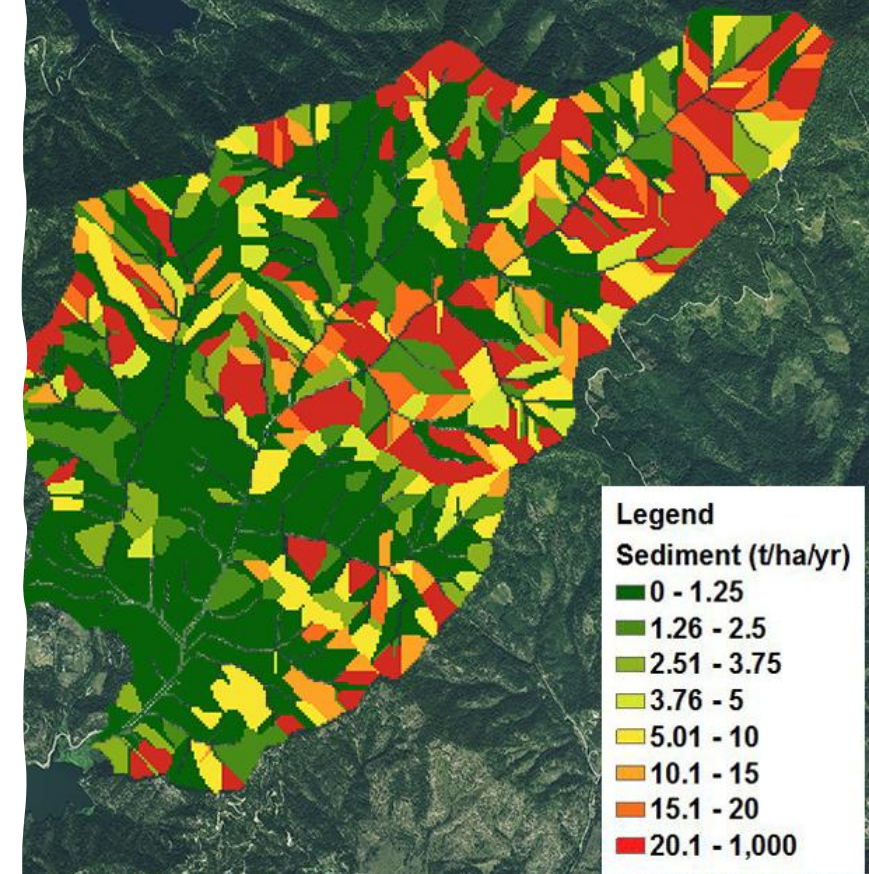




Regional examples of
HABs

Causes of HABs

- Increased Nutrient loading
 - Septic system discharge
 - Fertilizers
 - Excess runoff/erosion
 - Internal Phosphorous loading
- Increased temperatures
 - Cyanobacteria grow faster than algae in high temps
 - Cyanobacteria absorb light, release heat
 - Cyanobacteria can move in the water column
- Changes in precipitation
 - Increase in extreme precipitation events, especially if followed by periods of drought



Regional HABs Response

- Partnership between regional DEQ and PHD
 - Neither agency has funding, only region in Idaho with a regional response due to State of Idaho funding cuts
- DEQ: Investigate HABs reported by the public
 - Visual observations, sample collection for microscopy and toxin levels
 - Toxin testing requires external funding, no longer in DEQ budget
 - Regional DEQ staff are statewide HABs experts with 30+ years of experience studying HABs & correlating observations with toxin levels
- PHD: Issue Public Health Advisories in conjunction with DEQ based on risk analysis
 - Posting at public access points
 - Advisories placed on Idaho Recreational Waters website: <https://healthandwelfare.idaho.gov/health-wellness/environmental-health/idaho-recreational-waters>
 - For more information about HABs: <https://www.deq.idaho.gov/water-quality/surface-water/cyanobacteria-harmful-algal-blooms/>
 - To report a suspected HAB: email algae@deq.idaho.gov

Surface Water Intakes for drinking Water

- More residences in our area rely on private surface water intakes than any other region of Idaho
- Not regulated or monitored by any State of Idaho or regional agencies
- Clean looking water can contain bacteria, parasites, viruses, or other contaminants
- Treatment equipment must be designed for surface water and maintained consistently
- Annual routine testing is useful, but a single result does not guarantee future safety because surface-water conditions change
- A HAB creates a different risk: boiling does not remove cyanotoxins and can concentrate them
 - Safest to use and alternative cooking and drinking water source during active or suspected HAB

Questions?

