

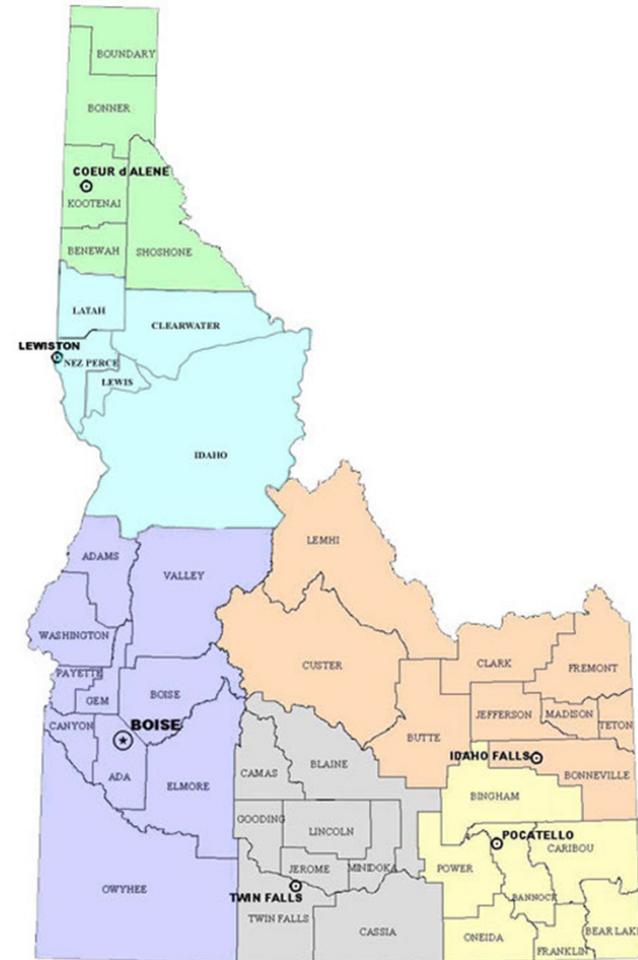


SOURCE WATER PROTECTION OVERVIEW

Amy Williams
Source Water Program Coordinator
Idaho Department of Environmental Quality

Who is DEQ?

- The Department of Environmental Quality's mission is to protect human health and the quality of Idaho's air, land, and water
- State Office
- 6 Regional Offices



DEQ Programs to Protect Drinking Water

Source Water Program:

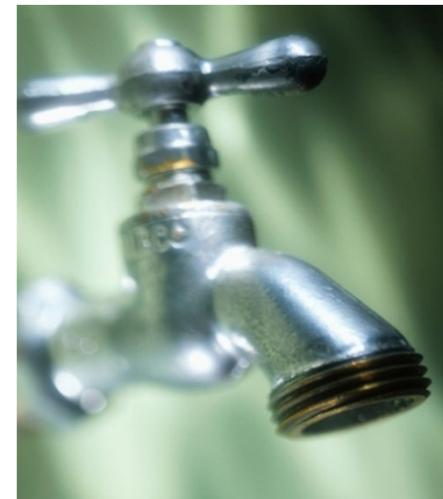
Protect drinking water at the source

- Coordinate state protection efforts
- Conduct Source Water Assessments



Drinking Water Program:

Protect drinking water at the tap



Source Water

Defined as “any aquifer, surface water body, or watercourse from which water is taken either periodically or continuously by a public water system for drinking or food processing purposes”

Idaho Source Water Assessment Plan

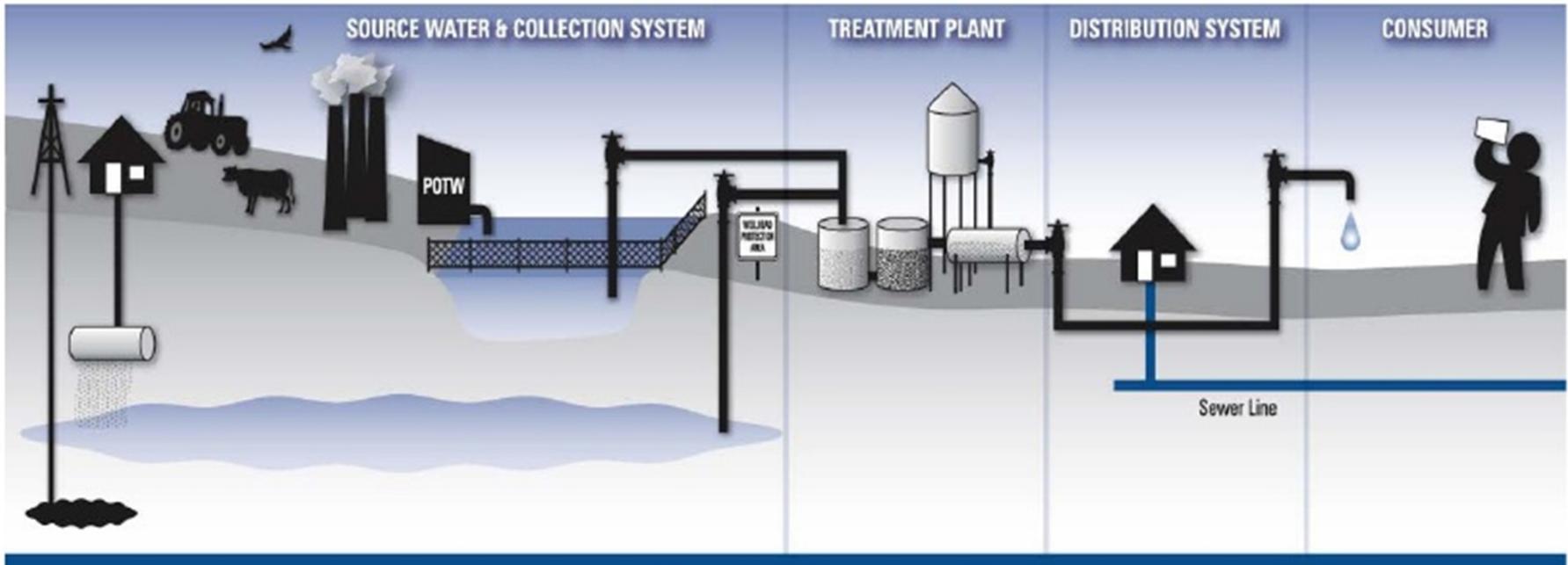


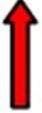
What if it becomes contaminated?

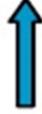


- <https://www.youtube.com/watch?v=b8dRDV268nA>

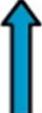
Safe Drinking Water Multiple Barrier Approach




SOURCE WATER PROTECTION
reduce contaminant threats


TREATMENT


**MONITORING
&
COMPLIANCE**


**COMMUNITY
INVOLVEMENT**

What *IS* Source Water Protection?

Voluntary or regulatory activities that reduces the risk of contaminants from entering a public water system supply.

Types of Protection Activities:

- Regulations and Permits
- Land conservation
- Education, Outreach and Public Programs
- Best Management Practices
- Planning

Costs and Benefits of Protection

Cost of Contamination:

- Treatment, clean-up and remediation
- Source replacement
- Additional regulations and monitoring requirements
- Loss of property values
- Health related costs
- Loss of public trust

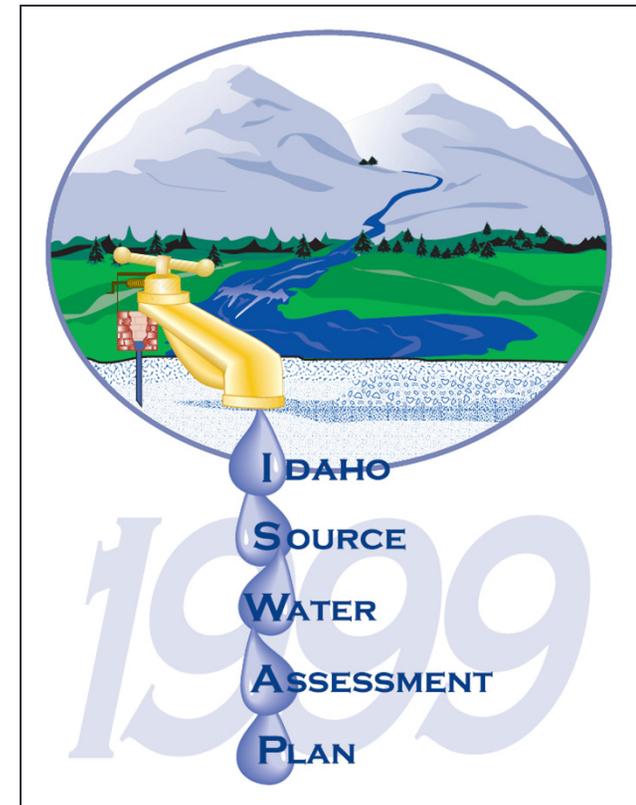
Benefits of Protection:

- Reduced health risks
- Reduced treatment costs
- Healthy ecosystems and recreational benefits
- Public and consumer confidence
- Economic benefits, increased property value

How do we know what to protect?

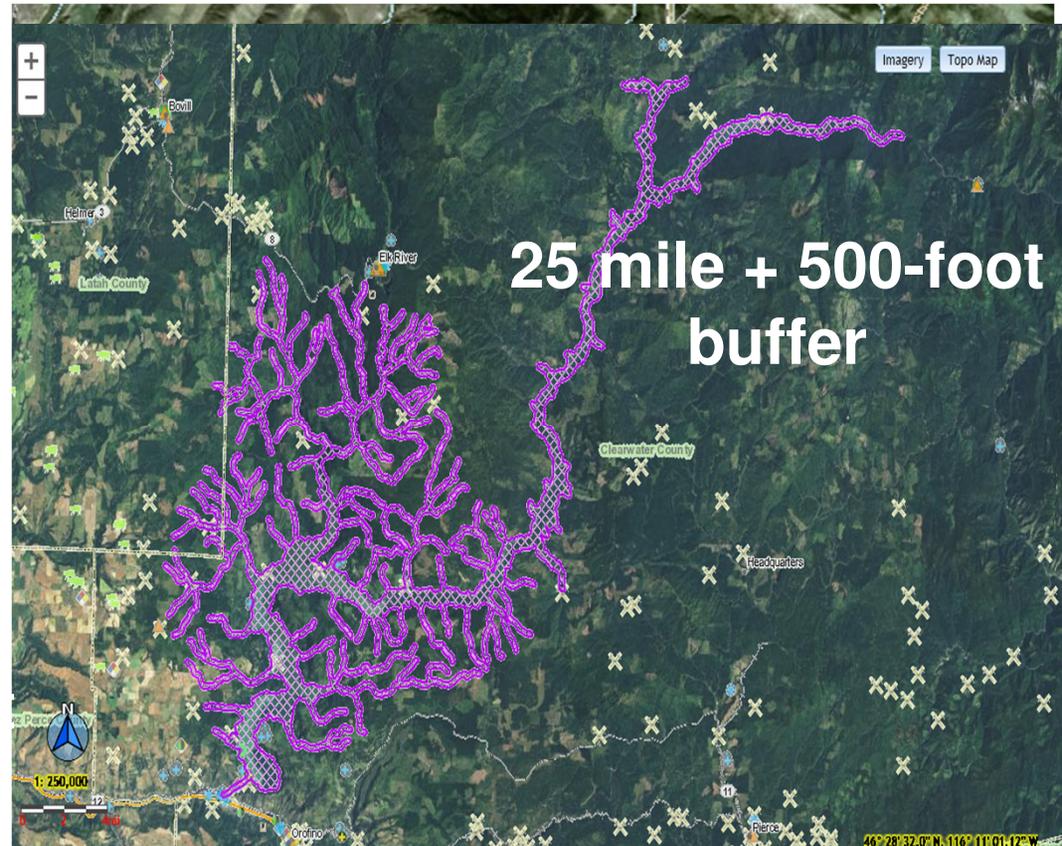
Source Water Assessments:

- **Delineation:** Maps area contributing water to the drinking water source
- **Potential Contaminant Inventory:** Identifies potential threats to the source
- **Susceptibility Analysis:** Ranks the susceptibility of the source to contamination



Surface Water Delineation Methods

- Watershed Boundary
- Stream Buffer



Potential Contaminant Identification

- Identify past practices and discharges
- Look for the major sources of potential contaminants
- Primary and Enhanced Inventories



Nutrients

- Most widespread contaminant (Nitrogen and Phosphorus)
- Overgrowth can lead to harmful algal blooms (Cyanobacteria)
- Can produce toxic chemicals that are harmful to public health.



Sources of Excess Nutrients

Agriculture:

Fertilizer runoff (nitrogen & phosphorus) and animal waste



Industry:

Chemical discharge and waste



Urban Life:

Sewage and waste runoff





Source Water Protection to Reduce Nutrient Pollution

- Ag BMPs
- Storm Water BMPs
- Forest Management Practices
- Septic maintenance

Examples.....

Phosphate Ban in Detergents & Fertilizers

Spokane law regulated phosphate in dish detergents (2008)

- Resulted in reduction of 10.7% in waste water
- Expanded statewide in 2010 along with 15 other states



Washington law prohibited sale of turf fertilizer containing phosphorous (2013)

Streambank Stabilization and Revegetation on Elk River, Idaho

1. Reestablish natural riparian area
2. Stabilize eroding creek banks
3. Educate the community on SWP



Resulted in an estimated load reduction of 1,207 tpy of sediment, 0.59 tpy of phosphorus and 1.11 tpy of nitrogen.

City of Boise Phosphorus Reduction

Dixie Drain Project

- 98% reduction in phosphorus required
- First of its kind in the US
- Removes 10 tons of phosphorus - 50% more than would have been removed at the treatment facility

<https://vimeo.com/205465513>



Land Acquisition

- Seattle Washington: Own 100% of Cedar River Watershed



- Sandpoint Idaho: Own 53% of Little Sand Creek Watershed

Tools to Protect Source

Assessment Tools:

- SWA Online

The screenshot displays the SWA Online web application interface. At the top, it shows the IDAHO Department of Environmental Quality logo and the title "Source Water Assessment and Protection". The main map area shows a topographic view of Washington County, Idaho, with various environmental features overlaid in different colors and symbols. A legend on the right side of the map lists the following categories and their corresponding symbols:

- Deep Injection Well (Black circle with a dot)
- Shallow Injection Well (Blue circle with a dot)
- NPDES Location (Blue star)
- RCRA Site (Yellow circle with a black dot)
- Drain Location (Red circle with a dot)
- Road Salt Location (Yellow triangle with a black dot)
- Mine Site (Yellow diamond with a black dot)
- TierII (formerly CAMEO) (Blue diamond with a black dot)
- Tunnels and Drains (Purple line)
- Railroad (Black line with cross-ticks)
- Transportation
 - Major Highways (Blue line)
 - Limited Access (Blue line with cross-ticks)
 - Highway Ramp (Orange line)
 - Highways (Yellow line)
 - Other (Grey line)
 - Secondary Roads (Grey line with cross-ticks)
- Phosphate Mine (Yellow square with a black dot)
- Water Reuse Area (Blue square with a black dot)
- Wastewater Lagoon (Blue square with a black dot)
- Landfill (Yellow square with a black dot)
- Pesticide Management Area (Yellow square with a black dot)
- Nitrate Priority Areas (2014) (Purple square with a black dot)
- Nitrate Priority Areas (2008) (Red square with a black dot)
- Agriculture Landuse
 - Agriculture, CRP or Fallow (Yellow square)
 - Agriculture, Undetermined (Purple square)
 - Disturbed (Pink square)
 - Dry Land Agriculture (Orange square)
 - Irrigated Agriculture (Green square)

At the bottom of the screenshot, there is a data table with the following columns: SRCID, PWS NO, PWS Name, Source Name, and AQUIFE. The table contains two rows of data:

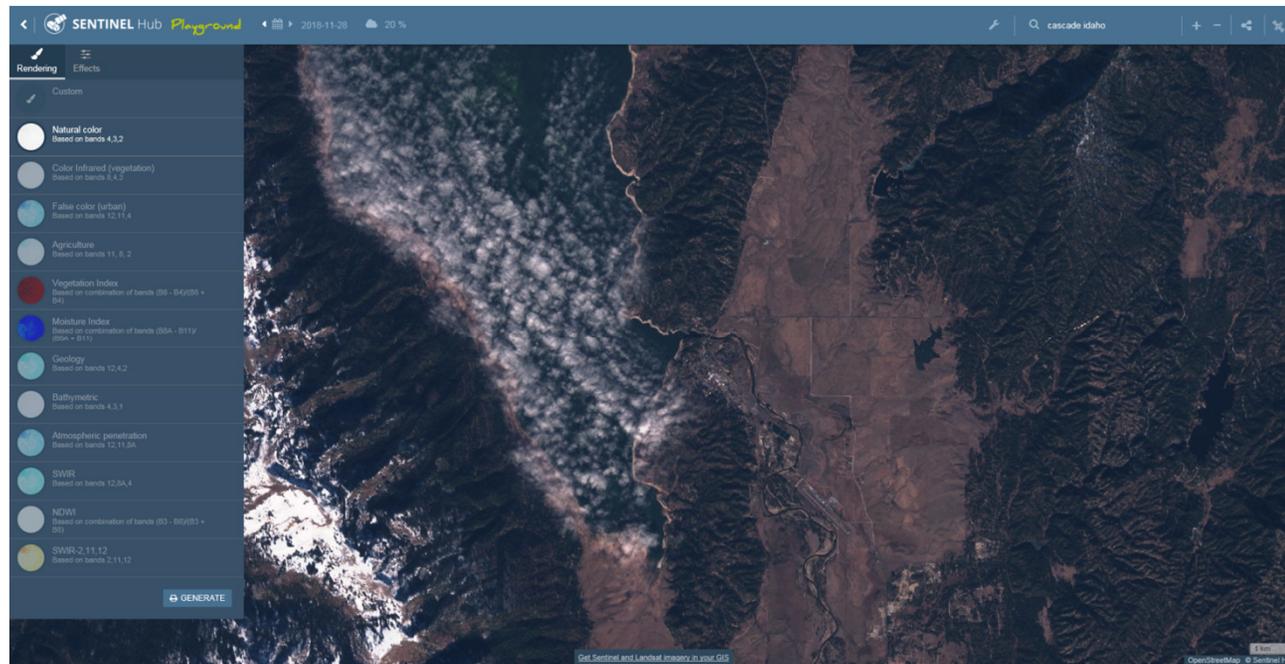
SRCID	PWS NO	PWS Name	Source Name	AQUIFE
E0006855	3440027	APPLETON PRODUCE FRESH FROZEN	WELL 1 FRESHPAC	Scott Creek
D0018534	3440027	APPLETON PRODUCE FRESH PACK PLANT	WELL #2	Scott Creek - Mann Creek

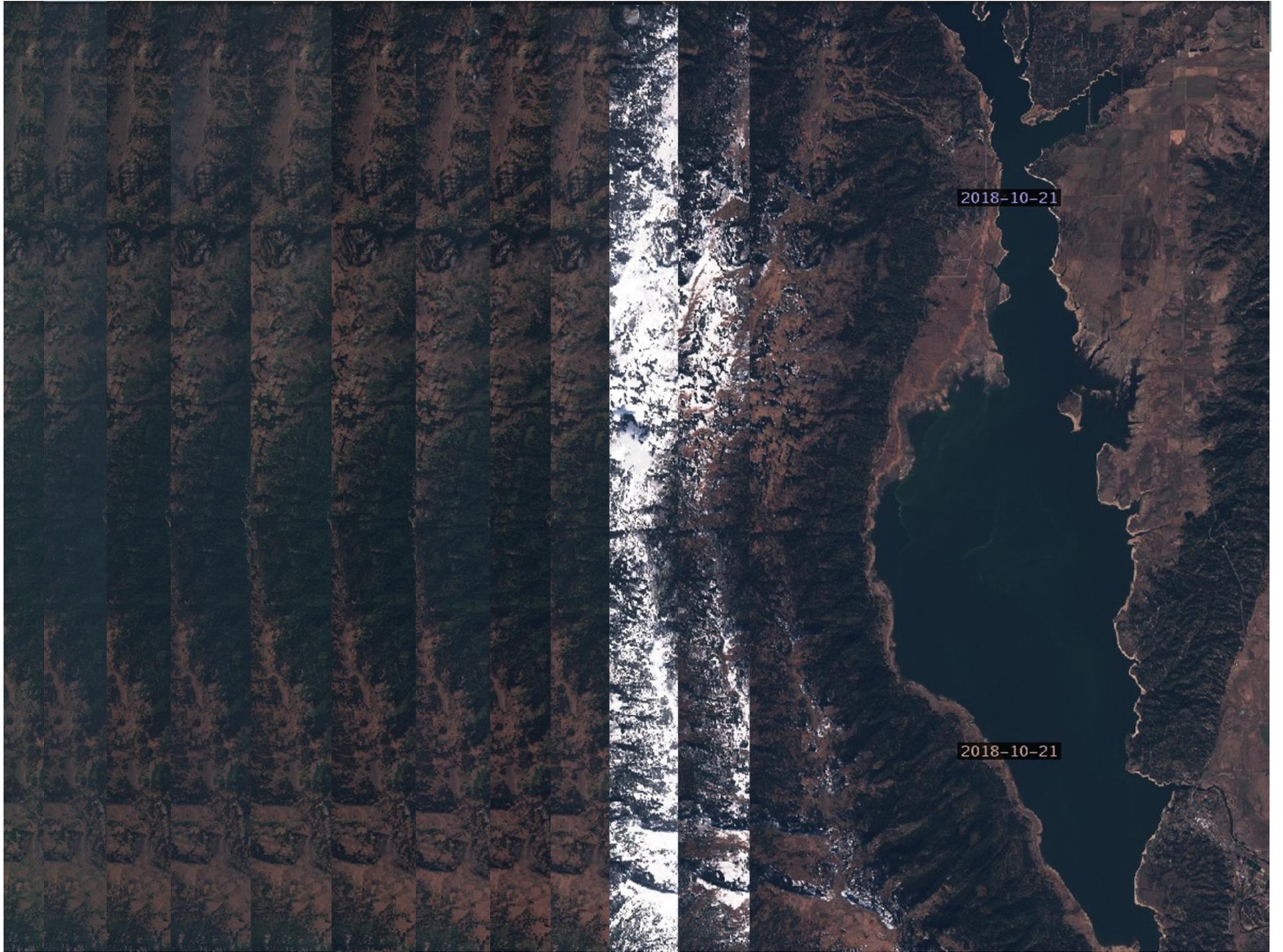
Tools to Protect Source Water

Assessment Tools:

- SWA Online
- Sentinel Hub Satellite Imagery

<https://apps.sentinel-hub.com/sentinel-playground>





Tools to Protect Source Water

Register Login

Home - Idaho Department ... Login Home - Idaho Department ... SWPP - Home Page

Search Share More >>

amy.williams@deq.idaho.gov Settings Log off

IDAHO Department of Environmental Quality
Source Water Protection Program

Home About Us

Source Water Protection Plans

Show All

+ Create New Protection Plan

Date	Description	Status	Action	Implementation Tracking
Created on 2016-11-13	Protection plan for City of Ammon	Draft	 	None
Submitted on 2016-11-13	Protection plan for ABERDEEN CITY OF	Submitted		None
Created on 2016-11-04	Protection plan for City of Aberdeen	Draft	 	None

Contingency Plans

+ Create New Contingency Plan

No contingency plans found.



Tools to Protect Source Water

Funding Resources:

DEQ Programs

- 319 Non Point Source Grant
- Brownfields Assessment Program
- SRF Grants and Loans
 - Source Water Protection
 - Septic program
 - Nonpoint source projects funding
- Source Water Protection Grants (coming soon)

Local Funding Sources

Taxes, Fees, and Special Districts

Examples:

- Central Arkansas Water, Arkansas: \$5.40-\$8.16 monthly Watershed Protection Fee.
- Raleigh, North Carolina: \$5.40 annual Watershed Protection Fee.
- Bellingham, Washington: \$5 (metered) and \$12 (non metered) monthly Watershed Rate.
- Aquifer Protection District, Kootenai County, Idaho

Summery

1. Source Water Protection is a critical component to ensuring safe drinking water
2. Use maps and resources to identify threats
3. Create a comprehensive source protection plan
4. Build strong partnerships and leverage resources to implement protection measures
5. Prepare for emergencies

QUESTIONS

Amy Williams

Amy.Williams@deq.idaho.gov

208-373-0115

