

Drinking Water Source Protection

Tools and Resources

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N.H. Drinking Water-An Overview

- ~45% use Private Wells
- ~55% on Public Water Suppliers
- Different Categories of PWS':
 - Community
 - Transient
 - Non-Community Non-Transient
- PWS's = Monitored/Regulated
- Private Wells = Not Regulated



Who Supplies Public Water?

Community Water Systems

- ≥ 25 Individuals, year-round
- Municipal Govt., Co-Ops/Mobile Home Communities, Condo/HOA's, Private Utilities
- Sampling requirements and frequency based on system size and source:
 - Bacteria
 - Lead & Copper
 - Chemicals & Radiologicals
 - Disinfection Byproducts
- Emergency Response Plans (6 yrs)
- Consumer Confidence Reports (annually)



Who Supplies Public Water?

Non-Community Non-Transient Water Systems

- ≥ 25 Individuals, at least 6 months per year.
- Schools, Day Cares, Commercial & Industrial Properties.
- Same sampling requirements as Community Systems.
 - Frequency based on system specific factors.



Who Supplies Public Water?

Transient Water Systems

- ≥ 25 Individuals for at least 60 days per year.
- Hotels, restaurants, campgrounds, convenience stores, recreation areas.
- Often seasonal.
- Less frequent monitoring requirements than Community systems.
 - Bacteria and chemical monitoring



PWS Responsibilities

- Obtain approval from state for system designs & changes, and new sources
- Monitor & report water quality
 - Annual consumer confidence reports
- Certified operator
- Sanitary surveys (3 yrs for Community and NCNT; 5 for Transient)
- Emergency plan (Community systems)
- Not required but recommended
 - Source protection (Required for new sources)
 - Financial plan, asset management

PWS Monitoring Requirements

	Community	NTNC	Transient
Volatile Organics	Most sample every 3 years under “Chemical Monitoring Waiver.” Otherwise, annually		
Synthetic Organics			
Inorganics	Every 3 years		
Radionuclides	Depends on existing levels		
Nitrate	Annually		
Nitrite	Every 3 years		
Disinfection byproducts	Quarterly to every 3 years		
Bacteria	Monthly	Quarterly	Quarterly
Lead and copper	Every 6 months to 3 years		

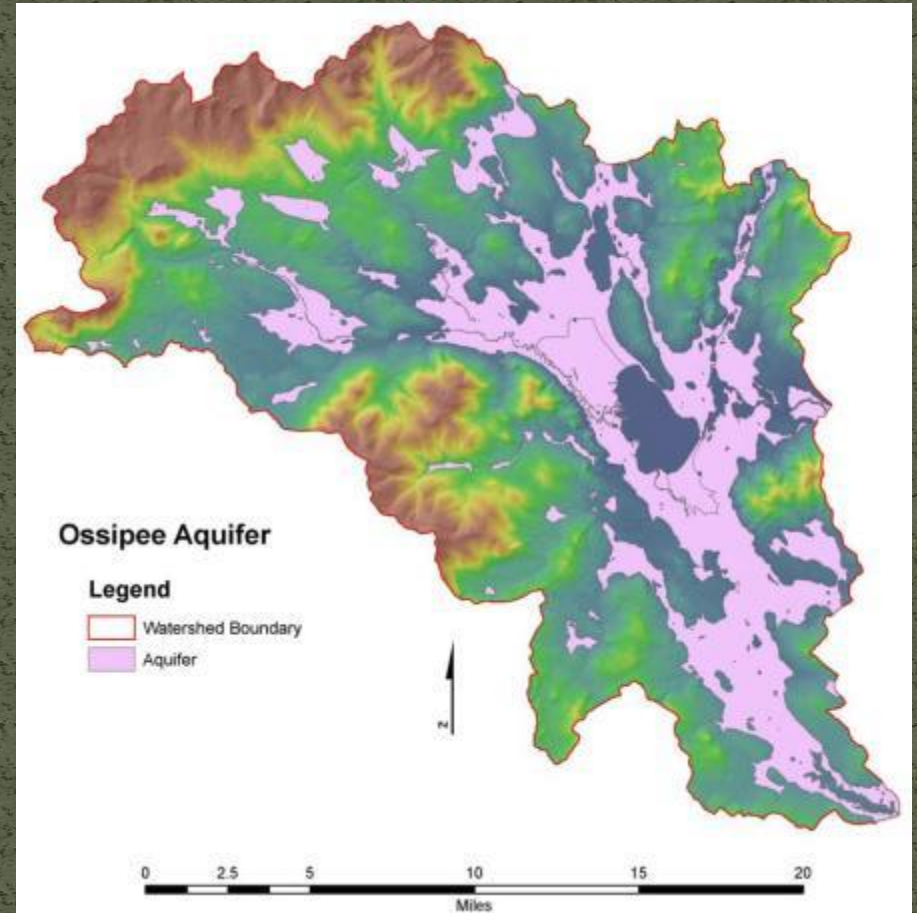
- For some contaminants frequency is dependent on detect history, and population served.
- Sampling schedule can be specific to each individual water system.

Our Water Comes From:

- Surface Water
 - Lakes
 - Rivers
 - Typically used by larger municipal systems
- Groundwater
 - Stratified Drift Aquifers
 - Bedrock Aquifers
 - Smaller systems, or as a back-up for larger systems
 - Private wells

Ossipee Watershed is Located Over the Largest Stratified Drift Aquifer in New Hampshire

- Layers of sand and gravel
- Deposited by glaciers
- Recharge quickly
- Store enormous quantities of water
- Vulnerable to contamination



Ossipee Watershed Covers 14 NH Communities

- ~33,400 People
- ~71% Rely on private residential wells (23,800)
- ~29% Rely on PWS's for daily domestic drinking water (9,600)
- Population can vary seasonally.
 - PWS's likely serve many more individuals during busy months.



Water Suppliers in the Ossipee Region

- 53 Community PWS'
 - 7 Municipally owned (Village Districts or Towns)
 - Remainder includes Condo Associations, Apartments, HOA's, Mobile Home Communities, and Privately Owned Systems.
- 23 NCNT Systems
 - Mostly Schools
- ~200 Transient Systems
 - Campgrounds and restaurants.
- All rely on groundwater.

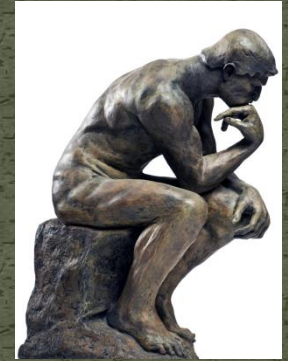
Drinking Water Sources Can Be Vulnerable....

- Vehicle service & repair
- General service & repair
- Metalworking
- Manufacturing
- USTs and ASTs
- Waste & scrap processing
- Transportation corridors
- Large septic systems
- Laboratories & health care
- Agricultural chemicals
- Salt storage
- Snow dumps
- Stormwater infiltration
- Cleaning services
- Food processing
- Fueling & maintenance of earth moving equipment
- Concrete, asphalt, tar manufacturing
- Cemeteries
- Hazardous waste facilities

Furthermore....

- Treatment can be expensive.
- New sources may be unavailable or prohibitively expensive.
- Emerging contaminants may present unknown risks.





So, How Do We Keep Our Water Clean?



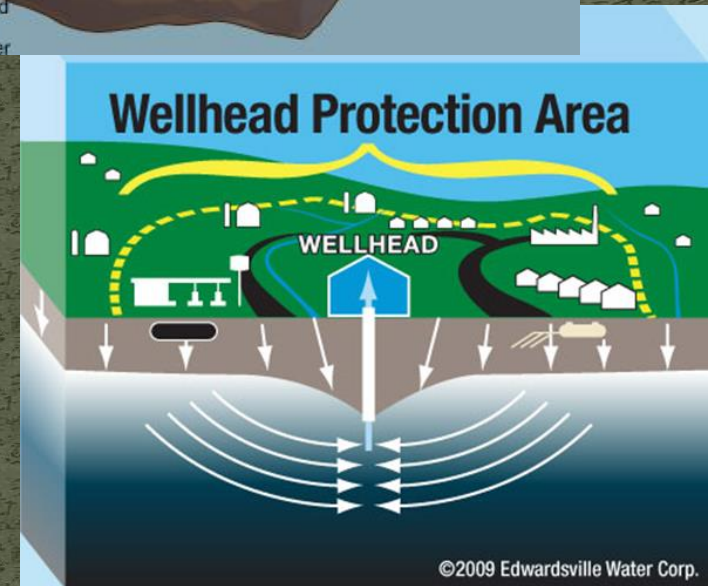
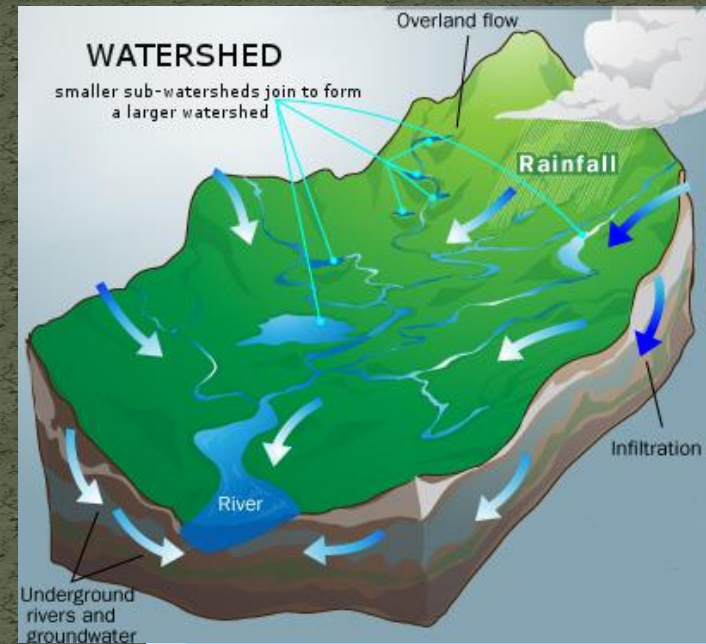
Source Protection: Not a New Idea

- Rules protecting drinking water sources date back to antiquity.
- 1854 Broad St. Cholera Outbreak.
- More Recent Events:
 - 2014 Elk River Disaster
 - 2014 Toledo, OH Cyanobacteria Bloom



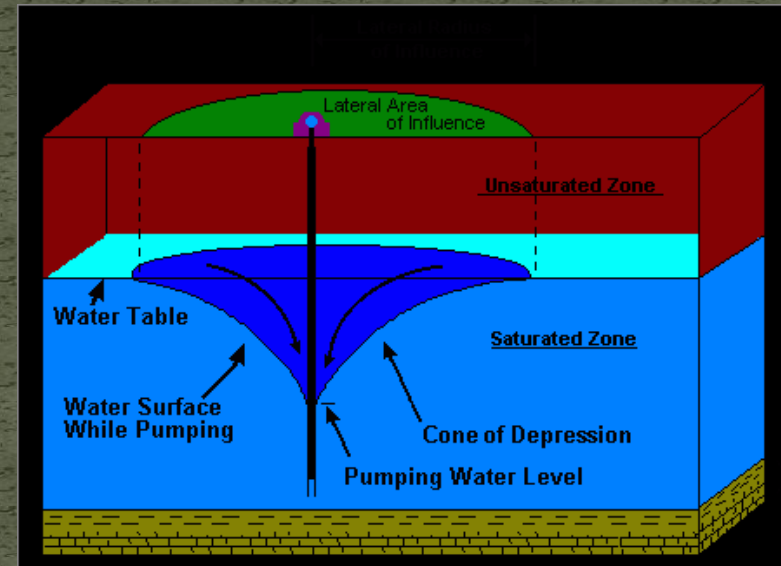
Know Where Your Water Comes From

- Surface Waters:
 - Watersheds
 - Drainage basin around a water body
- Groundwater:
 - Wellhead Protection Areas
 - Fixed radius or hydrogeological study
- Activities in these areas can affect drinking water quality.



Wellhead Protection Areas

- Size and shape depends on different factors:
 - Type of well
 - Yield
 - Type of water system
- Fixed Radius
 - Smaller systems
 - Bedrock wells
 - Radius dependent on well yield
- Variable
 - Delineated by a PG
 - Based on local hydrology
 - Usually for larger systems and gravel packed wells.



Wellhead Protection Areas

- Contributes water to public wells.
- Needs to be managed to prevent contamination.
- Few state restrictions:
 - Hazardous Waste Facilities
 - Landfills
- Protection up to municipality or water supplier.



And Know What's Going On There....

- Current land uses:
 - AST/UST
 - Commercial/Industrial
 - Unpermitted activities
- Historic land uses:
 - Former industrial sites
 - Landfills
 - Historic spills or releases
- Zoning



Assess and Evaluate

- Assess the risks presented by PCS’
- Prioritize risks to be addressed.
 - Proximity to water source
 - Type/quantity of contaminant
- Review existing protections.
 - Existing regulations
 - On-Going voluntary practices
- Identify the management tools at your disposal.



Every Journey Needs a Roadmap

- A Source/Wellhead Protection Plan can be a roadmap.
- Created through collaboration
 - Water suppliers
 - Land owners
 - Local boards and commissions
- Includes four components:
 - Delineation of SWPA's
 - Inventory of PCS's
 - Assessment of risks
 - Recommended management actions



Tools for Municipalities

- Regulations to enforce BMP's:
 - Site Plan Reviews
 - Stormwater
 - Subdivisions
 - Industrial BMP's
 - Health Codes
 - Septic Ordinances
- Groundwater Reclassification
- Aquifer/Wellhead Protection Ordinances



Tools For Water Suppliers

- Education and outreach.
- Inventorying PCS's.
- BMP Compliance inspections.
- Source/Wellhead Protection Planning
- Land conservation/ownership.



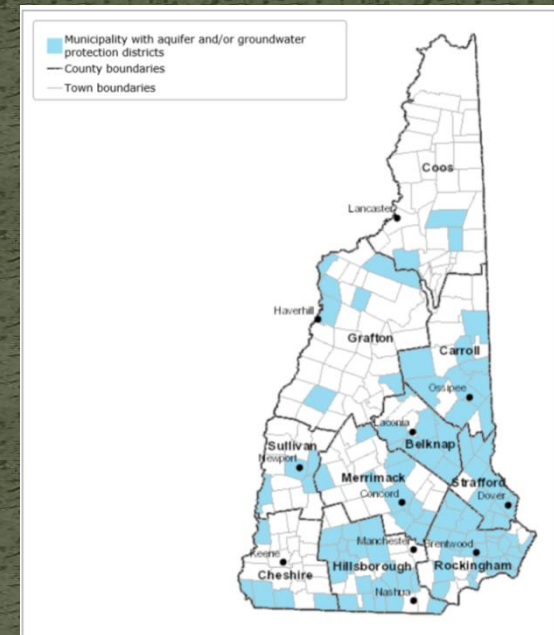
Education and Outreach as a Tool

- Encourage voluntary cooperation.
- Inform land owners of how they can protect drinking water.
 - BMP's
 - Septic maintenance
 - “Green” alternatives
 - Trainings
- “We’re in this together” approach.
- Schools and youth education.
- Community events.



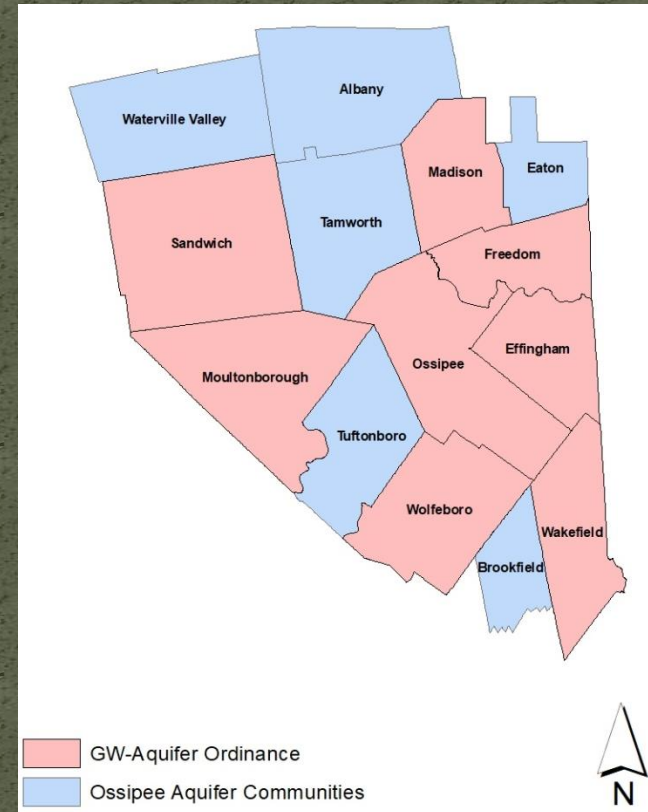
Drinking Water Protection At The Local Level

- Municipalities are empowered to protect their water supplies:
 - RSA 674:2 Natural Resource Planning
 - RSA 674:16 Innovative Land-Use Controls
 - RSAs 31:39 & 147 Public Health, Safety and Welfare.
- 103 NH Communities have adopted GW protection ordinances
- 8 of 14 Ossipee Aquifer communities have an ordinance.



Local Ordinances to Protect Drinking Water

- Aquifer or wellhead protection ordinances.
 - Overlay districts
 - Standalone districts
- Model ordinance available from NHDES.
 - Overlay District
- Restrict or prohibit certain land uses
- Can require inspections of existing uses.



Groundwater Reclassification

- Protects resources which cross municipal boundaries.
- Initiated by a local entity.
 - Water Supplier
 - Municipality
- Authorizes local entities to manage PCS'.
 - Education and outreach
 - BMP Inspections
- Prohibits new high-risk land uses.
 - Landfills
 - Bulk petroleum storage

Groundwater Classifications	
<i>Class</i>	<i>Description</i>
GAA	Delineated Wellhead Protection Areas. Prohibits new and monitors existing high risk uses, e.g. landfills.
GA1	Groundwater of high value for present or future drinking water. No prohibitions.
GA2	Potentially high-yielding stratified drift aquifers. No active management.
GB	All groundwater not assigned to a higher class. No active management.

Groundwater Reclassification- 4 Step Process

- Step 1. Delineate Resource Area to Reclassify.
- Step 2: Inventory Threats in Resource Area.
- Step 3: Develop Management Plan To Manage “threats”.
- Step 4: Submit A Request To Reclassify Groundwater to DES.

- Seabrook (GAA)
- Eastman (GAA)
- Stratham (GA1)
- Salem (GAA,GA1)
- Jaffrey (GAA)
- Pembroke (GAA)
- Raymond (GAA,GA1)
- Plymouth (GAA)
- Durham (GAA,GA1)

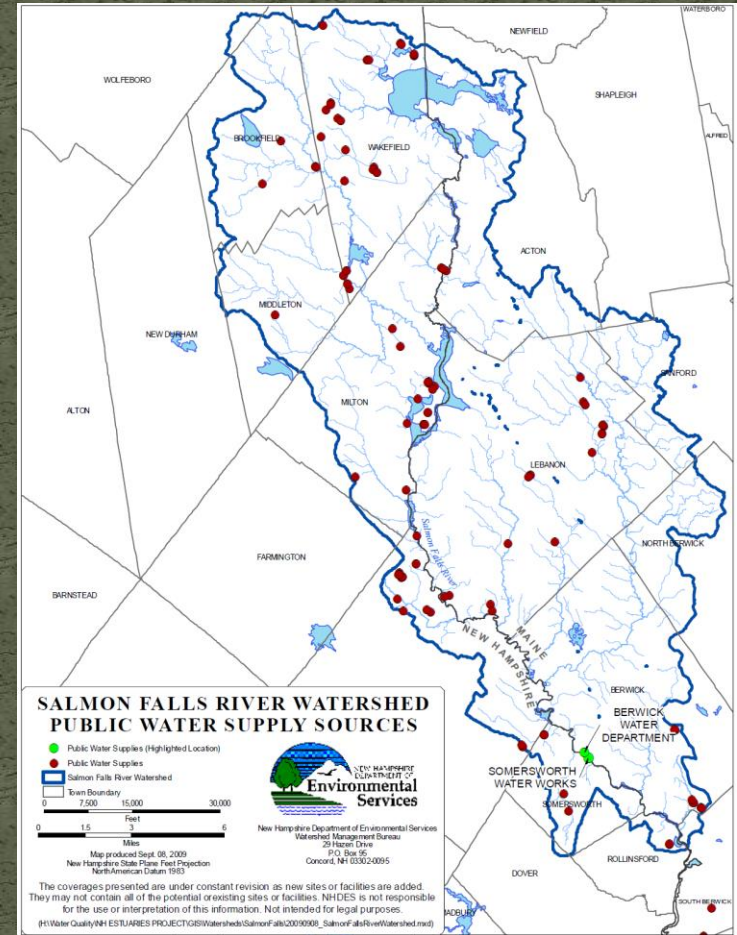
Collaboration as a Tool

- Watershed Collaboratives
 - Ad-Hoc Stakeholder Groups
 - Include many stakeholders
 - Central (local) organizer
- Focused on a Shared Resource
 - Crosses jurisdictional boundaries
- Raise Awareness
- Coordinate Activities
- Pool Resources
- Encourage Cooperation
- Saco/Salmon Falls



Collaboration as a Tool

- Salmon Falls Collaborative
 - Facilitator: PREP
 - Created Action Plan: 2011
 - Updated 2016
- Action Plan Priorities:
 - Land Conservation
 - Stormwater/LID
 - Local Land Use Regs
 - Identify and Address PCS'
 - Engage and Inspire
- 2012 EPA Water Prize



SFWC Accomplishments

- Goal #1: Land Conservation
 - Landowner outreach events
 - Identifying priority conservation lands
 - Working with NRCS/Land Trusts
- Goal #2: LID/Stormwater BMP's
 - LID Ordinances in Somersworth & Wakefield
 - Updated stormwater ordinance in Rollinsford
 - Field trips to show-off stormwater BMP's

SFWC Accomplishments

- Goal #3: Identify and Address PCS'
 - SWP's for both ME and NH
 - Wellhead protection plans for several towns
 - Joint emergency response exercises
- Goal #4: Engage and Inspire
 - Annual meeting and “success safari”
 - Bi-Monthly Newsletter
 - Action plan updates
 - Keep stakeholders engaged and informed!

Resources for Source Protection

Resources

- Resources are available to assist!
- Grants
- Technical Assistance
- Help isn't limited to just NHDES

Local Source Water Protection Grants

- Up to \$20,000 available
 - Municipalities
 - Regional planning commissions
 - Public water suppliers
 - Land trusts
 - Technical Assistance Providers
- Can fund a variety of projects
 - Security improvements
 - Planning projects
 - Land conservation transaction costs
 - PCS inventories
 - Education and outreach

Local Source Water Protection Grants

- Projects must help protect a specific water source.
 - Community or NCNT source
 - May protect multiple sources
- Projects must address an existing or future WQ threat.
- Local match is strongly encouraged.
 - Non-federal match
- Cannot be used to purchase property.
 - But may be used for certain transactional costs
- Applications due November 1st.

https://www.des.nh.gov/organization/divisions/water/dwgb/dwspp/lswp_grants.htm

LSWPG: Funded Examples

- **Salmon Falls River Emergency Response Exercise**
- Hands-on training for first responders.
- Simulated response to a chemical spill.
- SF River: Drinking water source for NH & ME.
- Tested unified command.
- Lead Partners: GSRWA/MRWA.
- June, 2018



LSWPG: Funded Examples

- Rochester & Dover Water Conservation Regulations
- Reviewed and updated local regulations.
 - Studied similar regulations from around NH & US
- Formed advisory committee.
 - Included city planners and engineers
- Revised regulations presented July, 2018
- Lead partner: SRPC



LSWPG: Funded Examples

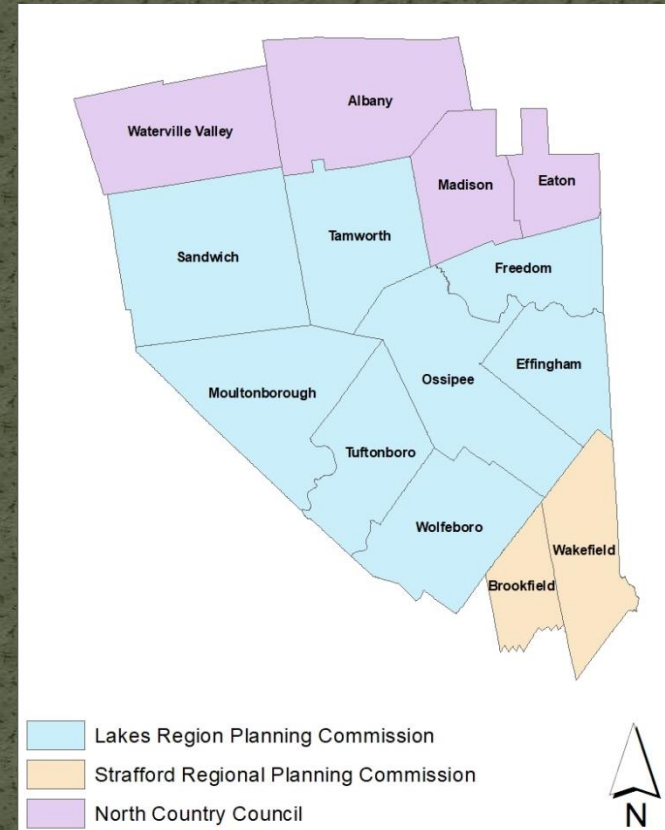
- **Other Planning Projects**
- MWW Spill Response Planning
 - Mapped storm drains
 - Developed spill response priority map
- Lakes Region Stormwater
 - Stormwater regulations reviewed and updated for Ashland and Meredith
- Upper Saco Valley Research and Outreach
 - Research on existing PCS
 - Assess current withdrawals
 - Review municipal protections
 - Outreach to communities

Technical Assistance- NHDES

- Model Groundwater Ordinance
 - Overlay zoning district
 - Restricts high-risk land uses
 - Establishes performance standards
 - Includes references and citations
- BMP Inspection Training
 - On-site or Virtual Training; compliance
- Education and Outreach Assistance
 - *Be Well Informed* (Private Well App)
 - Fact Sheets
 - Workshops and trainings
 - Household Hazardous Waste Days
- Support to Collaboratives
 - Salmon Falls
 - Saco

Technical Assistance- RPC's

- Regional Planning Commissions
- Can assist with planning projects
 - Reclassification
 - Zoning/Ordinances
 - Source protection planning
 - HHW Collection Days
- A “first stop” for communities
- LRPC
 - www.lakesrpc.org
 - 603-279-8171
- SRPC
 - www.trafford.org
 - 603-994-3500
- NCC
 - www.nccouncil.org
 - 603-444-6303



RPC's Example Projects

- 2016 Seabrook Groundwater Reclassification
 - Rockingham Planning Commission
 - Funded by LSWP Grant
 - Successfully reclassified WHPA's for two Seabrook Wells
 - Cooperation from neighboring towns
- 2017 Town of Fremont Revised Ordinance
 - Rockingham Planning Commission
 - Funded by LSWP Grant
 - Revised Aquifer Protection Ordinance
 - Provided technical assistance to town
- 2017 Rochester & Dover Water Conservation Regs.
 - Strafford Regional Planning Commission
 - Funded by LSWP Grant (See a pattern here?)
 - Updated existing regulations
 - Response to 2016 Drought

Technical Assistance

- Land trusts and conservation groups
 - Can assist with land conservation projects
- Non-Profit Technical Assistance providers
 - Can provide specialized expertise
 - Often industry specific
- GSRWA/NHWWA
 - Technical assistance to public water suppliers
- NHMA/NH Planners Association
 - Technical assistance for town planners/staff
- NHACC
 - A great “first stop” for Conservation Commissions
- Local Conservation Districts
 - Can provide technical data
 - Great for connecting with NRCS

Closing Thoughts...

- Drinking water resources are abundant, but vulnerable.
- Land use planning and conservation can help protect water resources.
- ...But nothing happens overnight
- ...And nothing gets accomplished alone
- Help is available!
 - Town staff
 - RPC's
 - NHDES
 - Non-Profits

Thank You!

“If you want to go fast-Go alone. If you want to go far-Go together.” –African Proverb

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