

2020 SOUTHWEST IDAHO GROUND WATER QUALITY FORUM SUMMARY REPORT

Background

Ada County, Idaho Department of Environmental Quality (DEQ), the American Planning Association (APA) Idaho Chapter, and the United States Environmental Protection Agency (EPA) partnered to host a ground water quality forum to discuss ground water challenges, opportunities, and solutions in the Treasure Valley and throughout southwest Idaho. The forum was held on February 19, 2020 at the Barber Park Education and Event Center in Boise, Idaho and attracted federal, state, and local government employees; elected officials; water system and public works managers; university students and professors; business owners; and nonprofit organizations. 81 people registered and 77 attendees participated in the forum.

The Idaho Ground Water Quality Forum educated participants on the following topics: the health impacts of ground water contamination, the extent of the problem in our region, potential sources of contamination, the importance of source water protection, and actionable solutions to address contamination and protect source water. Summaries of the presentations, facilitated discussion, and potential action items for communities and organizations are included in this summary report. Copies of presentations are available on the Idaho DEQ site: <http://www.deq.idaho.gov/assistance-resources/conferences-trainings/2020-southwest-idaho-ground-water-quality-forum/>.

Presentation Summaries

Treasure Valley Ground Water Protection

Ground water is a key resource, supporting many aspects of Idaho's way of life. It replenishes streams and rivers and provides fresh water for irrigation, industry, and communities, and is the source of drinking water for 95% of Idahoans. In this presentation, Ed Hagan provided an overview of source water protection, ground water quality regulations, and contaminants commonly encountered in the Treasure Valley's ground water.

Treasure Valley Aquifer Model Project

Ground Water Model Development for the Treasure Valley

Sean Vincent presented on the development of a transient ground water flow model, legislatively mandated in 2016. The transient ground water flow model builds on previous Treasure Valley Hydrologic Project (TVHP) modeling efforts and enables the integration of hydrologic and hydrogeologic data. The model can be a useful tool for decision making by quantifying hydrologic impacts and answering "what if" water management questions. The model development is a collaboration between the Idaho Department of Water Resources (IDWR) and the United State Geological Survey (USGS).

Groundwater-flow model and hydrogeologic framework: Treasure Valley

In late 2016, the USGS, in partnership with IDWR embarked on a five-year project to construct a numerical groundwater-flow model of the Treasure Valley and surrounding area. Resource managers will use the model for water-supply planning and management. In this presentation, Dr. Jim Bartolino covered the technical and programmatic aspects of the groundwater-flow model, why it is being developed, partners involved in the work, and a timetable of the development process.

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Ground Water Quality Concerns

Addressing Nitrate through Priority Area Designations

Kathryn Elliot presented on the Idaho DEQ's Policy for Addressing Areas with Degraded Ground Water Quality, focusing on nitrate and establishing Nitrate Priority Areas. Topics included the sources of data used to identify and the tools used to spatially delineate the areas; the criteria used to determine how areas are prioritized; management or improvement strategies development; implementation of strategies; an evaluation of strategies; and priority re-designation. She discussed changes in priority within some specific areas over three ranking cycles in 2002, 2008, and 2014 as well as draft changes for the 2019 ranking cycle.

Ground Water Quality Concerns in Southwest Idaho

The IDWR has maintained the Statewide Ambient Ground Water Quality Monitoring Program (Statewide Program) since its inception in 1990; this annual data collection and analysis effort allows IDWR to characterize the ground water quality of the state's major aquifers, identify water quality trends, and write interpretive reports. In this presentation, Amy Steimke and Gus Womeldorph focused on the geographic distribution of particular contaminants (e.g. arsenic, nitrate, and uranium) in Southwest Idaho, how their concentrations have changed over time, and how the public can access the data. They also discussed recent research by Boise State University and IDWR related to high uranium concentrations in the Treasure Valley aquifer system.



Forum participants discuss ground water quality concerns during the facilitated session.

Health Effects from Exposure to Common Ground Water Contaminants in South West Idaho

The Idaho Department of Health and Welfare's Environmental Health Program covers education, outreach, and consultation on human exposure to environmental contaminants. In this presentation, Morgan Wilming described the short- and long-term adverse human health effects from exposure to contaminants commonly found in private well water in southwest Idaho and the Program's role in response to contaminant concerns and assessing health risks.

Urbanization and Implications for Water Quality

Water Quality and Urban Growth in the Treasure Valley: A Water Balance Perspective

In this presentation, Dr. Shawn Benner explored the basic water balance for the Treasure Valley and how the characteristic fluxes are linked to ground water issues like arsenic, uranium, and nitrate as well as surface water challenges like nutrients and sediment load. The presentation also proposed how this complex system may respond to the ongoing and future stressors of population growth, urbanization, and climate change.

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How Land Use Assessment Has Aided Policy-Based Decisions in the Central Valley, CA A Central Valley Grower Group's Effort to Protect Ground Water Quality

Dr. John Dickey presented on lessons learned from a California regulatory program, the Southern San Joaquin Valley Management Practices Evaluation Program (MPEP), as implemented in the Central Valley. The presentation covered a study of grower practice adoption, how the MPEP leads to better nitrogen recovery into crops, trends in nitrogen and water management, and tools available for growers.

Health District Perspectives - Challenges & Successes

These presentations by Idaho's health districts discussed the challenges they face related to ground water quality, source water protection, and development and their solutions in response to these challenges. Solutions range from community outreach and education to nutrient-pathogen evaluations and minimum lot sizes for development. The discussion included case studies of areas with ground water contamination and the role of the health district in educating the community and helping to protect public health.

Land Development in Relation to Ground Water Quality in Public Health District Four

Rob Howarth presented on the ground water protection history of Central District Health, including the requirement of nutrient-pathogen studies and the development of the Nutrient Pathogen Program. Nutrient-pathogen studies determine the appropriate number of on-site wastewater treatment systems for a given parcel of land. They also direct the placement of on-site wastewater treatment systems in a way that will not significantly degrade the quality of ground water or surface water resources.

One-Acre Policy in District Five

Cassandra Lemmons presented on the one-acre policy and its application and effectiveness within South Central District Health. The one-acre policy was established in 1977 to promote and protect the health of the public by controlling the density of subsurface sewer systems.



Dr. John Freemuth addresses forum participants and panelists during the facilitated session.

Southwest District Health Ground Water Quality Problems in Canyon and Washington Counties

Jami Delmore presented on the ground water quality problems Southwest District Health has seen as a result of development decisions from the 1990's which allowed for $\frac{3}{4}$ -acre lots with private wells and septic systems built in an area with lava rock. The district has seen many challenges with ground water quality in subdivisions in the area which are likely tied to the high density of septic systems and insufficient treatment prior to reaching the lava rock substrate. It is also challenging and costly to provide city services to the subdivisions due to the lava rock substrate and the entire community would need to be supportive to see any change. Development has slowed in the area due to significant ground water challenges and since 2016, the district has recommended people test their wells twice a year and use UV filtration.

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Source Water Protection Using Well Construction Rules

Well Construction Standards for Ground Water Protection

Kyle Radek and Tom Neace discussed the well design lessons learned by the City of Meridian in designing wells to protect water quality. Their presentation covered the benefits of test wells, the problem with Drill and Drive wells, IDWR's administration of different procedures since 2016, and next steps for addressing unsealed wells in the Treasure Valley Aquifer System.

Local Authorities/Opportunities

A Prototype Source Water Protection Program Integrating with a County or City Zoning Ordinance

Idaho's Local Land Use Planning Act (LLUPA) vests in Idaho's counties and cities the authority to plan for future growth and development, while recognizing that environmental factors can play an important role in determining success. With this context, Jerry Mason presented on the comprehensive planning policies, land use, and health and safety ordinances as well as procedures for putting them in place to protect source water. Recognizing that water resources do not follow jurisdictional boundaries, this presentation also examined mechanisms to aid in intergovernmental cooperation including use of joint powers or other intergovernmental agreements to aid in implementation of local source water protection strategies.

Kootenai County Aquifer Protection District

Leslie Duncan presented on the regulatory setting, history, purpose, and function of the valuable and successful Kootenai County Aquifer Protection District. The Aquifer Protection District was approved by voters and established by the Board of Commissioners in 2007 to protect the ground water quality in the Rathdrum Prairie Aquifer. The program has 100% compliance, and scientific evidence has verified the improvement of the aquifer following the adoption of a 5-acre rule. In the last couple years, the Kootenai County Aquifer Protection District has formed a group to identify the best projects to provide education and other services in support of their mission.

Facilitated Session

The Southwest Idaho Ground Water Quality Forum included an interactive session facilitated by Dr. John Freemuth. The session provided an opportunity for participants to use Slido, a meeting polling application, to submit their responses to prompts for real-time discussion. The system collected participant responses and organized them in order of popularity of each response. These responses were displayed in a word map for participants, speakers, and panelists to view. Once all responses were collected, Dr. Freemuth asked expert panel members to provide their insights and recommendations about how they have or would address a given concern or barrier. Panel members consisted of the speakers who participated in the afternoon session "Solutions and Opportunities." Panelists were asked to provide their insights in advance of table discussions to help provide a starting point for those breakout group discussions. Groups were given some time to discuss additional ideas amongst themselves and then report back to the group. Additional information about the Slido results, input from panelists, and facilitated discussions are included below.

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There were several suggestions for future educational opportunities. Some participants noted that in many cases, coordinating with and tying into strategies that nearby organizations employ would be more effective than trying to devise an entirely new strategy. Another suggested opportunity would be to educate realtors to address growth and educate people moving to Idaho about testing their wells. Increasing inter-agency coordination is also important for consistent messaging, which could be spread by tapping into existing social media networks. Building local partnerships will also increase local trust and goodwill; partnering with Idaho Rural Water Association (IRWA) or Rural Community Assistance Corporation (RCAC) could increase the availability of non-regulatory educational materials and increase options to reach private well owners.

Growth

Projected population growth in Idaho was another major ground water quality concern discussed at the forum. Many of the major successes related to population growth came from partnering with stakeholders, like regulatory planning and zoning administrators. Partnering can look like attending their regular meetings and joining the conversation about the issues they're facing in their community and across the county. Such partnerships enable information sharing across communities. Another success came from meeting with city planners and focusing in on Nitrate Priority Areas where the community can concentrate on common problems and build realistic solutions. When a group can't recognize a common problem, they can't focus on a solution and assigning roles and responsibilities to resolve it. When a group comes together to focus on a problem everyone is key in resolving, even if they have a small role in some cases, they can get a lot done. If people focus on making sure nothing impacts them directly, it starts to fall apart and arguments take over.

There were some barriers to promoting strategies that protect water quality from the effects of population growth. The Aquifer Protection District model has been successful where implemented but state law doesn't allow for an Aquifer Protection District to be established unless they have a federally designated sole source aquifer so the legislature only applies to one area in the state. Opportunities to manage concerns that stem from population growth may include promoting the expansion of the aquifer protection district model; improving access to facilitation and education in communities to improve understanding and coalition building towards solutions; and to educate industry professionals, planners, permit approvers, realtors, and citizens about their resources and the impacts of irresponsible growth on the quality of water and life in their communities.

Apathy

Developing strategies, particularly educational ones, to reach those apathetic towards ground water quality was also a concern for many attendees. One of the health districts shared that while they did succeed in promoting a better understanding of how ground water degradation could affect the population, they still could not motivate enough people in the community to take action and get the city services to their new development areas. One barrier to reaching those apathetic is that for many people, ground water does not appear to be an immediate concern. If they had not suffered from degraded water quality, and if they did not want to consider future risks, it was impossible to bring them to action. One approach that has had some success was using messaging that the problem could be theirs within the next year. Resorting to particularly extreme anecdotes is another potential way to break through to those with myopic views. There are thus opportunities to design messaging to be personalized and to elicit strong emotional responses.

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Legislature and Politics

Another pair of related limitations that came up during the forum were the legislature and political reality in Idaho. Forum participants went so far as to advise against going to the legislature for support unless absolutely necessary. While there have been some legislative successes, it often takes years and a Republican champion to get any legislation passed. This highlights a key barrier; legislation is often severely hamstrung on its way through the legislature. As mentioned previously, the legislation setting up Aquifer Protection Districts was hamstrung leaving committee, and only applies to one aquifer, a third of the aquifers it was originally designed to protect. Still, there are opportunities to implement new legislation based on the precedent set by other states, legislation like mandatory testing whenever a real estate transaction involves a private well.

Action Items

Below is a summary of action items discussed during the facilitated discussion session related to addressing ground water concerns in Southwest Idaho.

Education/Outreach

To improve community understanding about the challenges and importance of protecting ground water quality, the following outreach and education actions could be considered:

- Target realtors for educational outreach related to water quality and development and population growth
- Increase inter-agency communication about messaging and outreach strategies
- Target children with novel educational opportunities in build enthusiasm
- Tap into existing social media and traditional networks to improve communications with different types of communities

Partnerships

Increasing and expanding the following partnerships could be a way to support ground water protection within and across communities:

- Increase coordination between government and nonprofit organizations the county commissioners
- Communities and organizations can partner with RCAC for funding and funding guidance
- Communities and organizations can partner with IRWA for event support and testing
- Communities and organizations can partner with local educational organizations

Regulation/Policy

To support improving the regulatory landscape to better support ground water protection, the following action could be considered:

- Support legislation such as to mandate testing on real estate transactions involving private wells

Funding

To improve awareness of and access to funding, the following actions could be considered:

- Have the Idaho Policy Institute at Boise State University work with the EPA's Water Finance Center to further populate funding information available to communities, organizations, and agencies in Idaho
- Provide additional guidance on how to gauge the applicability of funding sources to a particular project