GWMA Meeting Minutes October 18, 2018

Committee members present: Jerry Marguth, George Pugh, Mike Kessling, Rich Margerum, Dennis Boeger, and Bill Emminger

Updates in the GWMA:

Wym Matthews (ODA) shared the Fertilizer grant winners: 12 grant proposals were received; two proposals were funded ($70,000 in total).

(1) Nutrient management study for modern hazelnut culture – OSU Extension Aurora Station

(2) Study on drip irrigation and nutrient movement in the Lower Umatilla. Looking at shallow rooted crops like garlic and onion.

Cody Piscitelli – Trends in GWMA monitoring wells

Will be looking at 43 wells with data from 2006 to present. Average of all wells is 6.24 mg/L.

1. Will be looking at isotope ratios first and will omit wells that appear to be influenced by the Willamette River.
2. Will be looking to see if there is a trend across all wells over time using a Mann-Kendall test.
3. Will be overlaying different GIS layers to look at potential causes of the elevated nitrate concentrations. Possibilities include: crop type, crop leaching, septic systems, precipitation, soli type, well depth, influence of N-source and groundwater flow direction.

Paul Measeles (ODA) – suggested that Cody should also omit deep wells. Should focus on the shallow well data or else the results may be skewed. DEQ to provide Cody with well logs.

Seth Sadofsky (DEQ) – asked if the statistical techniques he is using control for high concentration wells driving the trend. Cody indicated this was something he was aware of and will be conscious of when making data interpretations.

Rich Margerum (Committee member) – Suggested that Cody will only be looking at a snapshot, and it may not show the whole picture (e.g. crop types may have changes, precipitation varies).

Alan Henning (EPA) – Asked if Cody was going to drill down into the details of the downward trend of nitrate since 2012.

Jerry Marguth (Committee member) – cautioned that all DEQ monitoring wells are fairly homogenous, but the domestic wells are varied.

Jana Compton (EPA) – Asked if they should only focus on DEQ wells.

Jen Morse (PSU) – suggested he should focus on the clustered wells that show similar patterns and look at the explanatory variables.

Wym Matthews (ODA) – suggested Cody look into the organic matter content of the soils since manure application can be "the gift that keeps on giving".

Paul Measeles (ODA) – Suggested that in order to eliminate septic contamination of groundwater, Cody should look at sucralose concentrations because it travels long distances and doesn't break down.

Bill Emminger - Benton County Health – Domestic Well Safety Program grant

- 23% of all Oregonians have wells for potable water
- Benton County was awarded a grant from OHA - provided free testing for arsenic, nitrate and coliforms to for 40 individuals.
- Focused effort on vulnerable populations
- Have tested 189 wells since 2014 with this grant (estimates there are about 10,000 wells in Benton County)
- Have only found 1 positive *E. coli* result out of 189 wells
- Testing is primarily just for homeowners. Renters may get their water tested with homeowner approval.

Chuck Scholz (City of Harrisburg) – asked why Benton County chose to focus on the underserved population rather than the overall population. From his experience, lack of knowledge about possible well contamination encompasses all demographics.

Bill Emminger (Benton County Health) – One of the grant requirements was to target underserved populations. Bill also indicated he was worried about legacy properties that have been passed on through families. Since well testing is a requirement of real estate transactions, they may have little to no knowledge of what their levels are.

Indicated that most properties that had elevated contaminants were just a single contaminant. Properties with two or more contaminants were very small.

Alan Henning (EPA) – asked what the follow up was for wells that exceeded MCLs.

Bill stated that it was purely a voluntary program. Benton County Health provides education materials, testing, well inspection, assessment of hazards in the immediate vicinity of the well and recommendations for remediation, but they do not have the capacity to do much follow up. In 2016, Benton Co. did follow up with some of the individuals from 2015 who had values above the MCL, and very few had done remediation. This was a very small sample size. Barriers to remediation where either the cost of remediation or the level of contamination was not high enough to cause concerns for the client. Bill recounted a story of a homeowner who rented out multiple properties near an orchard that had elevated levels of arsenic in their wells, and he put treatment into all of the properties.

Paul Measeles (ODA) –suggested that since it was near an orchard, and had high levels of arsenic, then Benton Co. may also want to look at lead in the water since lead and arsenic were both components of historic pesticides used in orchards.

Chrissy Lucas (OSU Extension) – stated the orchard is a recent orchard and is too recent for lead arsenate to be a concern.

Rich Margerum (Committee member) – asked what opportunity do renters have, since renters are often part of the vulnerable population. The renter can either have the property owner call Benton County Health Department to participate in the program or pass on the contact information to them and they will contact the property owner. Are owners required to disclose well testing results – No they aren't. Asked what recourse renters have. Bill indicated that Benton Co. can recommend testing and provide a 10% off voucher for reduced cost testing. The Benton County Health Department received a 10% discount on testing services from Edge Analytical. The cost for arsenic ($20.00), nitrate ($45.00), and coliform ($30.00). OSU provided free nitrate testing. Without the discount, testing done by a certified drinking

water lab will typically be between $100.00 to $150.00 for the three contaminants. Testing for other contaminates such as pesticides, VOC's, petroleum products, etc will be at additional costs.

Priscilla Woolverton (DEQ) – stated that the cost of testing may be prohibitive. It can be very expensive. EDGE Analytical in Corvallis runs the suite of 3 (Arsenic, Nitrate and total coliforms) for $165. A "Peace of Mind" test is $285.

Jen Morse - Portland State University

- Looking at slow release versus conventional fertilizers and how much nitrogen is being converted to N_2O (harmful greenhouse gas)
- 4 sites with a tall fescue crop. Control group is conventional fertilizer application.
    - Conventional fertilizer application refers to what growers typically do.
    - Receive same amount of nitrogen in both conventional and slow-release
    - Lysimeters at 1 meter depth – measure both NO_3^- and NH_4^+
    - 4 gas flux chambers
    - Take measurements twice a month
    - Looking at groundwater, nitrogen emissions and seed yield

Mike Kessling (Committee member) – asked if there were significant differences in mineralizable nitrogen across fields.

Paul Measeles (ODA) – Asked if slow-release fertilizer dissolved into nitrate or is there some oxidation state in between. Wondered if it became bioavailable as soon as it was released during dissolution.

Mike Kessling responded that dissolution of urea was dependent on time, temperature and moisture and typically occurred over a 60 to 90-day period.

EPA Updates – Jana Compton:

PINE Project: In the process of modeling the water balance at pine study sites and calculating nitrogen budgets. In late spring of 2018, they completed farmer interviews; in the process of assessing and analyzing interview data.

Nitrogen budget in Calapooia and Willamette Basins

Calculated the total amount of fertilizers applied to the basin and found:

- 41% of nitrogen harvested by crops
- 19% exported in stream (number increased to ~ 29% in Willamette basin)

George Pugh (Committee member) – OSU has looked at what nitrogen is left in the soli and its contribution to wheat production

Jerry Marguth (Committee chair) – Suggested that it works well for wheat, but it doesn't translate to other crops.

Paul Measeles (ODA) – speculated that this might be able to be done for grass seed varieties using tissue sampling.

Jerry Marguth responded that there were vastly different varieties.

Paul Measeles ODA – Outreach to Grass Seed Growers

- Wants to start the conversation with grass seed growers about lysimeter study
- Asking for committee member volunteers to help disseminate information

George Pugh (Committee member) – thinks this would be worthwhile. Should start with the seed council. This doesn't pertain only to the GWMA but to grass seed growers statewide.

Mike Kessling (Committee member) – Suggested ODA and EPA get the information together, condense it and provide to GWMA participants to review content and messaging. Then ODA and EPA can start outreach.

Jana Compton (EPA) – Indicated that she would be drafting the lysimeter reports by the end of the year and would like to include the results of the soil sampling.

Timing for outreach would be early 2019.

The next GWMA meeting will be held on April 18, 2019.