

Session Name:

Q&A with Bruce Wilson, Mark Doneux, and Evan Christianson

Session Type: Q&A

Date: 15 Sep 2015 08:30AM – 21 Sep 2015 05:00PM

Description: Hydrologic History - Evolution of Green Infrastructure - Groundwater Basics

Users	Questions	Total Votes
128	47	357

(Custom) Randy Neprash • 15 Sep 09:16AM

Votes: 26

A portion of the water from stormwater infiltration goes to shallow groundwater and then surface waters. What portion goes to deep aquifers? Is it a significant volume?

Shown

Answered

Anonymous • 15 Sep 09:50AM

Votes: 24

Should the goal for surface water management in relation to groundwater preservation shift from capture/infiltration to reuse? Is this v.3.0?

Shown

Answered

Anonymous • 15 Sep 10:46AM

Votes: 20

So, after listening to Evan, can stormwater and green infrastructure even make a dent in our recharge needs?

Shown

Answered

Anonymous • 15 Sep 09:12AM

Votes: 18

What additional data and modelling are needed to develop infiltration targets (spatial and quantity) to mimic natural groundwater recharge in the metro region?

Shown

Answered

Comments (2)

(Custom) John Bilotta • 0 upvotes • 0 downvotes

The panel at the end of the day may be addressing this.

(Custom) John Bilotta • 0 upvotes • 0 downvotes

Is it safe to say we know more about groundwater withdrawal then we do about recharge?

(Custom) Randy Neprash • 15 Sep 09:45AM

Votes: 18

What is your general opinion of porous paving as a strategy? Are they effective in the long term?

Shown

Answered

Anonymous • 15 Sep 09:51AM

Votes: 18

What is the political climate like for green infrastructure support (at the city level)?

Shown

Answered

Anonymous • 15 Sep 10:21AM

Votes: 17

With 1200 BMPs installed in CRWD, what benefits have you actually measured in the water resources?

Shown

Answered

Anonymous • 15 Sep 09:35AM

Votes: 16

Cities were developed over 170 plus years, what is a realist goal for reinvesting in our cities to be more green and sustainable?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Cities like Minneapolis and St Paul are much more green than they look, density with a focus on walkable, green streets and water from the river is preferable to sprawl with groundwater pumping large lots and suburban BMPs. Dense urban areas provide a very low collective water footprint

Anonymous • 15 Sep 09:08AM

Votes: 15

Is there a limit to the carrying capacity of the Twin Cities area?

Shown

Answered

Anonymous • 15 Sep 09:58AM

Votes: 13

How effective is underground treatment versus above ground when you are removing organic soils and vegetation from the equation?

Shown

Answered

Anonymous • 15 Sep 10:37AM

Votes: 13

Evan mentioned potential contamination in the lowest bedrock aquifer. What are those contaminants and their source?

Shown

Answered

Anonymous • 15 Sep 09:07AM

Votes: 12

Are there any current metro regions in the world that truly embrace the concepts of green infrastructure?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Milwaukee has a very extensive plan for green infrastructure to deal with CSOs and improve the city. Also, Amsterdam is going about introducing green infrastructure for climate resilience.

Anonymous • 15 Sep 09:31AM

Votes: 11

Bruce. Please say more about the impacts of robotics and technology on stormwater management techniques and strategies.

Shown

Answered

(Custom) Lisa Goddard • 15 Sep 10:25AM

Votes: 11

Have there been studied of the long term maintenance needs of tree trenches? And especially in cold weather climates?

Shown

Answered

Anonymous • 15 Sep 09:35AM

Votes: 9

What role does changing our transportation habits have in storm water management? Can we substantially reduce impervious surface without altering our dependence on cars?

Shown

Answered

Anonymous • 15 Sep 10:11AM

Votes: 9

Mark - what is the long term vegetation management plan for rain gardens on boulevards? Wondering what will happen if homeowners don't replace desirable species?

Shown

Anonymous • 15 Sep 09:09AM

Votes: 8

Does the CWP 10% impervious threshold still have relevance for stormwater managers?

Shown

Anonymous • 15 Sep 10:00AM

Votes: 8

Do we need to better examine the definition of GI verses LID and what practices we list under each. Misinterpretation? for example, pervious pavement. It's not a GI practice, it's a LID practice.

Shown

Comments (1)

Anonymous • 1 upvote • 0 downvotes

Why does the distinction between these terms even matter?

Anonymous • 15 Sep 10:10AM

Votes: 8

Considering what we know now of maint issues and long range effectiveness of permeable pavements, is that why maybe folks are shying away? And considering maint issues, how effective are these pavem

Shown

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

If bioretention only getting infiltration March and April, would we get significantly more infiltration with porous pavements?

Anonymous • 15 Sep 10:26AM

Votes: 8

How do we address nitrogen and chlorides?

Shown

Anonymous • 15 Sep 09:36AM

Votes: 7

How feasible and necessary is a regional wastewater infiltration system in the Twin Cities?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

We have a long list of pharmaceuticals that we are not adequately addressing prior to discharge to surface waters. Until these legacy pollutants are addressed large scale infiltration of waste water into groundwater should be restricted.

Anonymous • 15 Sep 09:31AM

Votes: 6

What IS the status of Mpls' final remaining CSOs?

Shown

(Linkedin) Jonathan • 15 Sep 09:36AM

Votes: 6

How did the creation of the Minneapolis Chain of Lakes influence local hydrology?

Shown

Anonymous • 15 Sep 10:32AM

Votes: 5

What is the feasibility of getting the treated waste water back into groundwater rather than discharged to river?

Shown

Anonymous • 15 Sep 10:35AM

Votes: 5

Infiltration solves some quantity issues, but is it still an option in areas with chloride pollution? What should designers keep in mind when balancing quantity and quality? What tools are there?

Shown

Anonymous • 15 Sep 09:39AM

Votes: 4

Who owns the former ford plant property? How might ownership determine the extent of green infrastructure implementation?

Shown

Anonymous • 15 Sep 09:53AM

Votes: 4

How has the introduction of watershed law in the mid-50's impacted the green infrastructure? This preceded the Met Council.

Shown

Anonymous • 15 Sep 10:45AM

Votes: 4

Are there any good reuse systems available for residential use to decrease reliance on treated groundwater to water lawns?

Shown

Anonymous • 15 Sep 11:05AM

Votes: 4

At our current usage rates of groundwater, when are we projected to run out of groundwater in the twin cities?

Shown

Anonymous • 15 Sep 09:43AM

Votes: 3

At inception in 1967 the Met Council had a quick positive impact on water infrastructure. Would refocusing the Met Council from it's recent focus on social re-engineering to Green Infrastructure help?

Shown

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Social re-engineering? Really

Anonymous • 15 Sep 09:54AM

Votes: 3

If surface water changes (ex ponds where wetlands were) resulted from increased impervious surfaces and runoff volumes, should we expect future changes as we disconnect and reduce impervious surfaces?

Shown

Anonymous • 15 Sep 11:03AM

Votes: 3

What us the impact of fracking on groundwater?

Shown

(Custom) John Bilotta • 15 Sep 11:13AM

Votes: 3

Bruce - you did a great job about summarizing past hydrologic changes. Can you say more about future hydrologic changes; expand on the mains points of Atlas 14 and what that means for future runoff.

Shown

Anonymous • 15 Sep 11:24AM

Votes: 3

Once an aquifer is depleted does it maintain the same capacity to hold groundwater if replenished (is there compaction/compression of the material)

Shown

Anonymous • 15 Sep 10:57AM

Votes: 2

What are the water quality issues with the Mt. Simon aquifer?

Shown

Answered

(Custom) Eric Mohring • 15 Sep 10:57AM

Votes: 2

I recently read that in many urban areas, in spite of impervious surface, recharge to groundwater is actually increased over the natural condition due to leakage from water supply and wastewater syste

Shown

Anonymous • 15 Sep 11:05AM

Votes: 2

How much groundwater capacity are we loosing through intense pumping? How do we know how healthy is this resource?

Shown

Answered

Anonymous • 15 Sep 11:12AM

Votes: 2

Should we be taking municipalities off GW and draw more from our rivers that we are discharging our wastewater back into?

Shown

(Custom) Randy Neprash • 15 Sep 09:49AM

Votes: 1

What is the potential for iron-enhanced filters and SAFL Baffles? How can we fulfill that potential more quickly?

Shown

Anonymous • 15 Sep 10:04AM

Votes: 1

Why are we still building Surface parking lots? A underground or above ground ramp reduces the foot print cleans the run off, add a green roof and that's the perfect fix, not tanks under parking lots

Shown

Anonymous • 15 Sep 10:58AM

Votes: 1

Evan...what does Prairie du Chien groundwater model show 1995 to 2011?

Shown

Anonymous • 15 Sep 10:59AM

Votes: 1

Evan- Why did you use 1995 as a baseline year for recharge in the recharge model? Was it due to maximum growth in the 1990s?

Shown

Anonymous • 15 Sep 11:02AM

Evan, what is the time scale for infiltration to recharge, comparing the Anoka Sands and Carver County?

Votes: 1

Shown

Anonymous • 15 Sep 11:14AM

How should implementers of green infrastructure prioritize green infrastructure projects that aim to help maintain surface water flows and water levels? How do we figure out what should go where?

Votes: 1

Shown

Anonymous • 15 Sep 11:24AM

How much of our 316 million gallons/day of pumping is to treat groundwater contamination? Ways to put cleaned water back?

Votes: 1

Shown

Anonymous • 15 Sep 10:28AM

Evan- will you make your ppt available to us?

Votes: 0

Hidden

Anonymous • 15 Sep 11:32AM

The panelists talked a lot about hopes for robotics and other technical innovations. Is that approach able to solve our issues without paired attention to social science research (behavior change)?

Votes: 0

Shown

Session Name:

Q&A with Shirley Clark and John Gulliver

Session Type: Q&A

Date: 15 Sep 2015 08:30AM – 21 Sep 2015 05:00PM

Description: The Role of Green Infrastructure in Groundwater Protection

Users	Questions	Total Votes
102	32	312

(Custom) Randy Neprash • 15 Sep 08:46AM

Votes: 19

Should we be concerned about possible groundwater contamination from stormwater runoff from high-traffic-volume roads and parking lots going to underground BMPs with only sump manhole pretreatment?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Yes!! Sumps may be worse yet as they take out some of the organics that would hold the metals. Any of the suspended metals not captured in the sump can go right into the soil without having to filter through the sediment.

Anonymous • 15 Sep 01:13PM

Votes: 18

Should we more concerned about groundwater pollution from septic systems or from stormwater bioinfiltration systems?

Shown

Answered

(Custom) Randy Neprash • 15 Sep 08:53AM

Votes: 16

In your book on groundwater & stormwater with Bob Pitt, you discussed the weakness of BMPs with only "minimal pretreatment". What does the term "minimal pretreatment" mean?

Shown

Answered

(Custom) Randy Neprash • 15 Sep 09:03AM

Votes: 16

Should we think of adsorption of pollutants to soil as long-term storage with eventual release, instead of treatment or removal?

Shown

Answered

Anonymous • 15 Sep 09:58AM

Votes: 16

If underground treatment practices infiltrate water below the vadose zone, is it being adequately treated? Is it still green infrastructure?

Shown

Answered

(Custom) John Bilotta • 15 Sep 12:56PM

Votes: 16

In your opinion, are the GI practices we are designing/installing able to treat (trap) these increasingly complex, compound pollutants? Is there a complex pollutant current GI is missing the boat on?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Are any of these practices effective at reducing non-SSTS related bacteria pollution?

Anonymous • 15 Sep 01:20PM

Votes: 16

What's the long term fate of chloride. Will we see it in groundwater for decades? Longer?

Shown

Answered

(Custom) John Bilotta • 15 Sep 01:35PM

Votes: 16

Both your presentations re-remind us of the importance of organic matter and compost. Do we need to be incorporating more into our GI practices; what additional research is needed on compost?

Shown

Answered

Anonymous • 15 Sep 01:48PM

Votes: 16

Porous pavement may reduce need for salts, but what about infiltrating more heavy metals from roads without treatment?

Shown

Answered

Anonymous • 15 Sep 01:07PM

Votes: 15

Shirley said developers don't want drawdown times of 72 hours, but as regulators we have requested closer to 24 hours drawdown to allow plants to thrive. Are we missing out on pollutant removal?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

48 hours is what regulators are looking for. This is for misquito control and plant life.

Anonymous • 15 Sep 12:38PM

Votes: 14

How are stormwater practices and research responding to the rise in nitrates in the aquifers? Are there current practices that are more prone to contributing to the problem?

Shown

Answered

Anonymous • 15 Sep 01:51PM

Votes: 13

Where is an example of a long term permeable asphalt project that has seen multiple cycles of freeze/thaw within the metro area? What additional maintenance is needed & what is the extra install cost?

Shown

Answered

Comments (2)

(Custom) Tina Carstens • 0 upvotes • 0 downvotes

RWMWD was installed in 2005. We do vacuum sweeping twice a year and it is still functioning well even with clogged areas in the drive lane.

(Custom) Anne Gelbmann • 0 upvotes • 0 downvotes

The city of Shoreview has multiple examples of permeable pavement. Contact mark malooley at the city for information on costs and maintenance.

(Custom) Dan Murphy • 15 Sep 12:58PM

Votes: 11

With what particle size range are PAHs typically associated with? Is there any research being done to cost effectively treat PAH contaminated soils?

Shown

Answered

Anonymous • 15 Sep 01:24PM

Votes: 11

Can Underground infiltration devices with no pretreatment actually be worse for ground water than doing nothing at all.

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Organic material is not used around the underground devices as it will lessen the infiltration rate.

Anonymous • 15 Sep 01:44PM

Votes: 10

Has the recent change to salting roads with brines instead of solid salt decreased the chloride loading?

Shown

Answered

Anonymous • 15 Sep 01:16PM

Votes: 9

How long does the high nutrient release last after new soil disturbance before back to preconstruction or start removing?

Shown

Answered

Anonymous • 15 Sep 01:52PM

Votes: 9

Permeable pavement is great but the idea that we should be able to drive anywhere at anytime is the underlying problem pushing chloride use. How do we move the discussion to changing behaviors.

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

\$2.00 a gallon Gas Tax or an impact fee on gas based on the impacts driving has on the environment. Much like a carbon tax

(Custom) Forrest • 15 Sep 01:55PM

Votes: 9

Could the natural accumulation of organic material within an underground system be beneficial and provide additional pollutant removal?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Cleaning the underground devices could negatively impact groundwater

(Custom) John Bilotta • 15 Sep 12:59PM

Votes: 8

Kinetics- in your opinion, are we designing/implementing GI practices that will retain Stormwater for sufficient amount of time to treat,bind,filter pollutants? (Pollutants beyond total phosphorus)

Shown

Answered

Anonymous • 15 Sep 12:40PM

Votes: 7

Can you discuss the benefits of a light imprint philosophy vs a LID when it comes to Groundwater protection

Shown

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

A walkable connected community is your best way of reducing salt use, the problem is the need to drive not slippery roads.

Anonymous • 15 Sep 01:14PM

Votes: 7

Shirley, you focused a lot on the mitigation of inorganic contaminants. How does amending the soil with organic matter affect the mitigation of organic contaminants?

Shown

Anonymous • 15 Sep 01:52PM

Votes: 7

What can be done about private parking lots w/ gutters where fear of lawyers overrides common sense. Our parking lot looks like it's concrete in the winter instead of asphalt like it is.

Shown

Answered

Anonymous • 15 Sep 01:56PM

Votes: 6

Considering public perception about winter road conditions and the need for salt, what's the realistic expectation of replacing roadways in the next few decades?

Shown

Anonymous • 15 Sep 02:06PM

Votes: 6

Is there a chloride input threshold to strive for to ensure a functioning rain garden? Particularly when we are promoting gardens to capture large parking lot runoff?

Shown

Anonymous • 15 Sep 01:54PM

Votes: 5

Is there a push at the legislature to limit liability for private applicators, perhaps by using certified applicators? They are often a big over user.

Shown

Answered

Anonymous • 15 Sep 01:41PM

Votes: 4

It was noted that MCLs are exceeded less than 10 percent of the time for many things. How do the volumes compare for those exceedence events?

Shown

Anonymous • 15 Sep 02:07PM

Votes: 4

What is the typical phosphate concentration added to drinking water for keeping pipes clear? It's this a significant source with runoff from (over) irrigation?

Shown

Anonymous • 15 Sep 01:31PM

Votes: 3

How do we capture copper? What are copper sources?

Shown

(Custom) Lisa Goddard • 15 Sep 02:11PM

Votes: 3

What is the maximum percent of compost you recommend in an engineered soil mix? Is 20% too high if the rest is sand?

Shown

Anonymous • 15 Sep 01:38PM

Why do you think salt staying in soil rather than runoff when it is applied to impervious surfaces? Where is the soil interaction if not in lakes n streams?

Votes: 2

Shown

(Custom) Randy Neprash • 15 Sep 09:06AM

Should we think of the adsorption of pollutants to soil as long-term storage with eventual release, instead of treatment or removal?

Votes: 0

Blocked

Anonymous • 15 Sep 02:29PM

Rather than cleaning a underground device when it gets a certain level of sediment we should let the seed it sit until infiltration is compromised? Wow no pretreatment and no cleaning is better?Yikes!

Votes: 0

Blocked

Session Name:

Q&A with Statewide Perspectives Panel

Session Type: Q&A

Date: 15 Sep 2015 08:30AM – 21 Sep 2015 05:00PM

Description: Agency perspectives on groundwater and surface water management

Users	Questions	Total Votes
81	16	190

Anonymous • 15 Sep 02:46PM

Votes: 19

What is the role of watershed districts in groundwater management?

Shown

Answered

(Custom) John Bilotta • 15 Sep 03:17PM

Votes: 19

Do you (or your agency) have an example of a site or location where you have said "GI or infiltration absolutely doesn't belong here!" - and if so, why did you take that hard line?

Shown

Answered

Anonymous • 15 Sep 03:06PM

Votes: 17

Why is MDH so concerned about the locations of stormwater infiltration BMPs, but apparently not or much less concerned about septic system locations? SSTS can apparently be in DWSMAs, floodplains, etc

Shown

Answered

Anonymous • 15 Sep 03:16PM

Votes: 16

From the speakers so far, it seems that we are spending considerable resources promoting GI practices that are unproven. Is this concerning? Or do you view it as a necessary stage of GI development?

Shown

Answered

Comments (1)

Anonymous • 0 upvotes • 0 downvotes

Concerning that these are unproven.

Anonymous • 15 Sep 02:57PM

Votes: 15

How can we make groundwater "sexy" and engaging when talking to the general public?

Shown

Answered

Comments (3)

Anonymous • 2 upvotes • 0 downvotes

Groundwater, like country music can never be sexy.

Anonymous • 2 upvotes • 0 downvotes

Maybe an annual calendar of hydrogeologists?

Anonymous • 0 upvotes • 0 downvotes

Mike Trojan for "Mr. January", no matter what he says about his qualifications

Anonymous • 15 Sep 03:21PM

Votes: 14

Nitrate concentrations in gw exceed the MCL in widespread areas across the state. Do you think there will be a time when nitrogen applications to farm fields are subjected to regulatory scrutiny?

Shown

Answered

(Custom) Elmo • 15 Sep 02:54PM

Votes: 13

Is it problem that so many agancies have a role in groundwater management?

Shown

Answered

Comments (3)

Anonymous • 0 upvotes • 0 downvotes

Yes

Anonymous • 3 upvotes • 0 downvotes

Water touches everything. Limiting agencies roles for groundwater within their area of responsibility (quantity, quality, public health, natural resources, etc.) is unrealistic. The key is good collaboration among agencies and that is happening.

Anonymous • 0 upvotes • 0 downvotes

As was mentioned, even when a state has one agency that houses all things water, they typically are organized by specific responsibilities - petroleum contamination clean up, well permitting, storm water permits, and so the challenge remains - building a culture that is actively aware and integrated with respect to all aspects of water management.

Anonymous • 15 Sep 02:59PM

Votes: 13

Mike- do you agree with John Gulliver that the Stormwater manual's recommendation for %compost in bioretention facilities is random?

Shown

Comments (1)

(Custom) Mike Trojan • 0 upvotes • 0 downvotes

I would not use the term "random", but I agree we need more information on this topic. The 2005 MN Stormwater Manual included two recommended bioretention media mixes, both with 15% or greater organic matter (OM) content. We recently added two mixes, both with 5% or less OM. The addition of these mixes reflects research showing that high OM mixes can leach P and N and that lower OM mixes can support plant growth in certain situations. But we need additional work on this, as mentioned at the forum. For example, are all composts the same (I'm certain they are not)? Should we be layering our media? Can we build a system with high OM that does not result in export of P (we have a couple examples of these in the Manual)? I assume

Anonymous • 15 Sep 03:21PM

Votes: 13

Somebody earlier today mentioned GRAPS that the MDH is leading? Please talk more about them. How will counties, watershed districts, etc. be involved?

Shown

Answered

(Custom) John Bilotta • 15 Sep 01:44PM

Votes: 12

What evidence do we have of road salt (chloride) in shallow verses deep aquifers in the Twin Cities? Statewide? Do we know it's from 'road salt' or are there other sources?

Shown

Comments (1)

(Custom) Mike Trojan • 0 upvotes • 0 downvotes

I recommend talking to Sharon Kroening from the MPCA's ambient groundwater program. I'm somewhat familiar with their findings thus far and data suggests chloride concentrations are increasing in shallow groundwater. There is insufficient data at this time to draw conclusions about deeper groundwater. A study by Walt Kelly in Chicago shows chloride concentrations in the deeper aquifer system have increased there. I also recommend taking a look at his work.

Anonymous • 15 Sep 03:17PM

Votes: 11

What are the most important factors to consider for stormwater reuse project planning?

Shown

Answered

(Custom) Elmo • 15 Sep 03:16PM

Votes: 10

How dependant is ground water management and protection on clean water legacy funds?

Shown

Answered

Anonymous • 15 Sep 03:19PM

Votes: 7

If rain gardens work well on treating or binding hydrocarbons and metals, would they be appropriate for gas stations?

Shown

Comments (1)

(Custom) Mike Trojan • 1 upvote • 0 downvotes

The Construction Stormwater permit specifically prohibits infiltration at vehicle fueling locations. Biofiltration, where we have an underdrain or possibly even a liner under the treatment system, are likely to be reasonable options when we are working with petroleum hydrocarbons. In addition to providing a mechanism for sorbing the organic chemicals, a bioretention system will promote biological degradation of many organic chemicals.

Anonymous • 15 Sep 03:06PM

Votes: 6

How far along is the springshed mapping coming? The public likes to use them, but I wonder. How safe are they? How sensitive are they to chlorides and nitrates?

Shown

Anonymous • 15 Sep 03:46PM

Votes: 5

What type of water is tile drainage? Which agency is overseeing it?

Shown

Anonymous • 15 Sep 03:19PM

Votes: 0

Scientific and Natural Areas. Not scenic

Blocked