

Hydrogeologist gives update on Camano's groundwater

By ISABELLA LOY Jul 24, 2023

Camano Island's groundwater and water supply has been a topic of much discussion for decades — in fact, it was the topic of the very first Camano Wildlife Habitat presentation back in 2003.

The topic comes up often as residents wonder what the state of their water supply is and what they can do to ensure they can enjoy island water for years to come.

These concerns came up again at the Camano Wildlife Habitat's presentation on July 19 with a packed house of more than 70 people gathering at the Island County Multipurpose Center to hear hydrogeologist Chris Kelley speak on the issue.

"One of the unique things about both Whidbey and Camano is we are on what's called a sole-source aquifer system," said Kelley, who holds a doctorate in Geology and works for Island County Public Health.

A sole-source aquifer means both islands have only one water source.

"On Camano ... everybody's on groundwater," Kelley said. The same is true for Whidbey Island, though Oak Harbor and the Naval Air Station get their water from the Anacortes water treatment plant. Anacortes gets its water from the Skagit River in Mount Vernon.

The aquifers on Whidbey and Camano fully run on and can only be recharged by the rain and snow that physically falls on the islands.

"If you drive over into, you know, Stanwood, Seattle, anywhere else in Washington — there's surface-water resources that they can tap into for drinking water," Kelley said. "We don't have that luxury."

Essential wells

Islanders get their water from wells drilled onto their property or a property nearby — some houses share an individual well and others live off of a community well shared by many.

Wells are split into three categories in Island County: Group A, B and C.

Group A wells are those with 15 or more connections, Group B wells are community wells with fewer than 15 connections and Group C wells are private wells serving one single-family residence, or two residences on the same property.

Each type of well is monitored and maintained differently, and in Island County, there are about 8,500 known wells. But there are more, Kelley said.

“Island County already has data on about 2,400 wells that Ecology doesn't even know about,” Kelley said.

These so-called “lost wells” are a result of the lack of tracking in the county before the 1970s. Wells built before that time period were not required to be registered.

“One of the first questions we ask is, ‘Hey, do you guys have a well here?’ And if they do, we say, ‘Great. All we want to know is where it's at, how deep it is and if you've ever collected a sample from it so that way we can add it to our system,’” Kelley said.



A graphic shows where on Island County seawater intrusion can pose a risk. Though green areas are less likely to have seawater intrusion, they are not immune.

Island County Public Health

This allows Island County to add the well data into its tracking system and can assist when trying to figure out what might be causing seawater intrusion — because taking a sip of water and tasting salt is a scene straight out of an islander’s nightmares.

“By collecting the information, we can then both get information out there quicker and also act faster,” Kelley said. “Once we know that this well is impacted, (we investigate) what other wells could be impacted. If the problem gets worse, how big of an area could it impact?”

Though the county is responsible for monitoring and managing Group B wells, the state monitors Group A wells. For both systems, though, Kelley said it’s all about water quality.

“You have to show you have the quality of water that meets for a potable water source, and you have the quantity to serve the community — the minimum quantity,” he said. “There is no maximum, and so that is definitely an issue.”

With no maximum water allowance, people or businesses on a Group A or B well could be using a massive amount of water without regulations.

Group C wells are a different issue, with no requirements for regulations or monitoring, though people can voluntarily track their water usage and test samples often. Group C wells are much less likely to use huge amounts of water and run into issues, though, since they only supply single- and two-residence properties.

Recharging the aquifers

Snow and rain falling on the islands recharge the aquifers, but it doesn’t happen instantaneously.

“We think of recharge in terms of months, so what rained over winter is finally reaching those aquifer systems come spring and summer,” Kelley said. “And then it slowly filters through, and so the general consensus is ... at the oldest, (drinking water) might be five to 10 years old.”

The easier the ground is for water to get through, the faster an aquifer will recharge. Some areas of the island, for example, are primarily gravel. These are easy for water to get through and considered high-recharge areas.



A graphic shows where on Camano Island recharge is high versus low. Though high-recharge areas allow more water in, they also pose a risk of contamination due to fast water flow.

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“When you have more of the (high-recharge) areas, you're getting more water in your aquifer, which is great, but that also means water is getting faster into your aquifers,” Kelley said.

With speed comes a risk of contamination. For example, a diesel or oil spill in a high-recharge area could allow chemicals to quickly contaminate the drinking water in that area.

“We need those higher permeability systems to let more recharge occur so that way we can keep the aquifers up and not risk depleting the aquifers,” Kelley said.

On the flip side, Kelley said the county has to be careful not to allow businesses that might be likely to have chemical spills to build on high-recharge areas, such as a boat yard or a manufacturing facility.

“Not only do we want to be concerned about what sort of development occurs but also what changes to the land surface,” he said. “If Camano looked like downtown Seattle, and we just paved over everything, well, that's not going to be so great in a couple of years when we realize that we now no longer have recharge.”

Droughts can also affect recharge. This year has been historically dry, and if future years continue that way, it could be bad news for Whidbey and Camano islands' groundwater supply.

“We don't have other sources of recharge other than precipitation to help recharge the aquifer. That's a big component,” Kelley said.

Conservation

To protect the aquifers, Island County is looking at including new regulations in its comprehensive plan.

The county also encourages conservation by all residents.

The Island County Water Conservation Guide recommends that anyone responsible for a well:

- Install individual and source meters
- Implement a meter reading and repair program
- Implement a rate structure that promotes water conservation
- Limit outdoor water use by limiting turf area and selecting low-water demand plants
- Limit indoor water use with water-saving toilets and showers
- Reduce water pressure to 45 psi
- Implement a public education program to increase customer awareness of the benefits of water conservation

“If you need to have a green lawn, it doesn’t need to be your entire half-acre,” Kelley said.