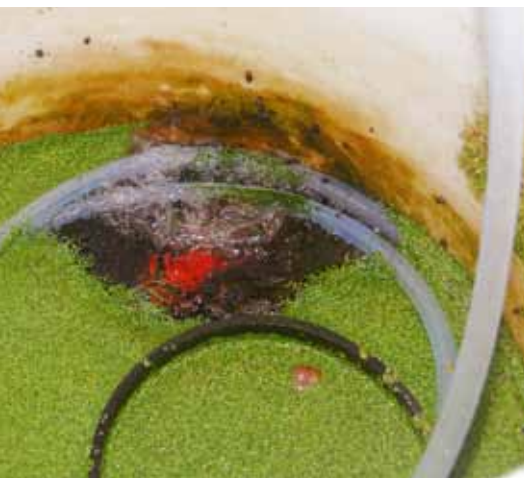




Jimmy Cook explains how the Nanoose Tertiary Treatment plant functions.
photo by Denise Hoskins

It's Only Wastewater if we Waste It

Smart Planning for Communities uncovers some of the alternative waste treatment expertise in non-urban communities on Vancouver Island during an informative tour



The BeauSoleil Solar Aquatics Water Reclamation System serves 46 mobile homes in Errington, BC.
photo by Denise Hoskins

At a rest stop on the dramatic Malahat highway a small group of professionals entered a publicly-owned restroom facility together. They refocused their attention from the rugged vistas outside to collectively peer at a simple toilet.

Sustainability Facilitator, Angela Evans pointed out that this particular toilet was, “waterless” and “had an insulated compost chamber located below the ‘throne’ where oxygen, a carbon rich material and bacteria composted the waste.”

They were at a bonus site visit en-route to the Smart Planning for Communities Sustainability and

THE TOUR BROUGHT TOGETHER 24 PROFESSIONALS TO PEER UNDER THE LID AT REFRESHINGLY SMART WAYS OF DEALING WITH WATER-BASED WASTE

Sewage Innovations tour. Guided by the intrepid Evans, the tour would bring together 24 professionals on a blustery spring day adventure where they peered under the lid at refreshingly smart ways of dealing with water-based waste.

A second detour to a rural home in Cedar showed the participants how the owner managed her composting toilet system; removing humus from the chamber a couple of times a year and returning its nutrients to non-food producing areas of her garden. They were seeing first hand how for practical or philosophical reasons, water is not used to flush human waste to ‘someplace else’ for treatment.

The small contingent met up with a larger group to board a tour bus in Nanaimo. The bus carried the group of utilities operators, planners, regulators and members of local and First Nations governments to several sites on Vancouver Island.

Next on the tour was the Snaw’Naw’As (Nanoose) reserve where Councilor Lawrence Mitchell welcomed the sewer tourists and invited them to look at the community’s five-year-old tertiary treatment plant.





The well-kept Nanoose station replaced the old failing septic systems with collection pipes, a pump station, the treatment facility and 2.2 km ocean outfall. *photo by Denise Hoskins*



Several tour participants enjoyed host, Jimmy Cook's sense of humour. *photo by Denise Hoskins*

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MAUREEN LEBOURDAIS,
Senior Manager, Smart Planning for Communities, Fraser Basin Council Cariboo Office
Williams Lake T: 250 392-1400
E: mlebourdais@fraserbasin.bc.ca

OCEAN READY

Snaw'Naw'As members Jimmy Cook and Trisha Pentell navigated the group through the compact and low-rise cedar buildings. They explained how the plant treated wastewater to some of the highest levels along the Coast. "This is a sewage plant?" someone commented to operators looking around at the clean odourless facility.

Before the plant was built there were health issues arising from sewage contaminating Nanoose Bay resulting in a shellfish harvesting ban. The well-kept station replaced the old failing septic systems with collection pipes, a pump station, the treatment facility and 2.2 km ocean outfall.

Construction of the Nanoose plant fixed a messy problem and eradicated many health risks stemming from the original system. Had the new treatment method not been installed, there would likely be an expansion of the shellfish gathering closure at some point in the future, affecting high value clam harvest areas fronting the reserve.

As they departed tour participant Helen Reid – Cowichan Tribes Referral Coordinator said, "We could look at whether we could do this in our bay – it's really inspiring."

BUS EXCHANGE

Back on the bus conversation flowed amongst the diverse group. They all shared an interest in sustainable systems and how to manage sewage in non-urban areas in a way that was affordable, healthy and protected the environment.

Angela provided education about the issues. "In rural communities and villages, conventional sewage treatment options have typically been seen as either septic systems (tanks and disposal fields) or hooking up to 'the big pipe' which leads to a centralized municipal system." she explained.

"There are problems with these systems, such as land use issues with siting constraints, sterilizing usable land, and contributing to sprawl. They can be costly to build and maintain. With septic systems, health problems can arise from surface leaks of bacteria and virus-laden effluent due to blocked pipes or clogged disposal fields. This can also pollute streams and marine waters, contaminate drinking water, and poison some sources of food."

The next tour stop was another opportunity to discover alternatives to conventional sewage treatment.



Kimron Rink, the BeauSoleil Solar Aquatics Water Reclamation System architect describes how the plants work as filters.
photo by Denise Hoskins

THERE ARE NO CHEMICALS AND IT IS A MUCH SLOWER PROCESS THAN A CONVENTIONAL PLANT BUT AFTER 14 YEARS, IT STILL MEETS PROVINCIAL TREATMENT STANDARDS

ORGANIC MATTERS

The bus parked outside a large greenhouse in the town of Errington where the troupe ducked through patches of rain to reach the translucent, oblong structure. Inside the air held a rich, moist earthy scent reminiscent of a tropical garden – which it was in some respects – as exotic plants grew vigorously along with duckweed and aquatic pond plants, herbs and flowers in cement containers and portly plastic tubs.

These were part of the BeauSoleil Solar Aquatics Water Reclamation System that serve 46 mobile homes nearby. The system replicates the natural cleansing abilities of wetland processes through several stages. There are no chemicals and it is a much slower process than a conventional plant but, after 14 years, it still meets Provincial treatment standards.

The system was built to replace failing septic fields in an area of high water table. One of the first things the designers did was work with BC Hydro to reduce water flows into the system. Installing low flush toilets, sink aerators and low flow showerheads reduced flows by a whopping 30% in three days enabling the plant to be right sized.

Kimron Rink, the system architect joined Angela to describe how the plants work as cleaners. “The root mass of the water hyacinth actually gathers up sewage, that’s the icky part of things, and allows the bacteria to work on it. The sewage acts as fertilizer and help the plants grow. It’s perfect food for them – they just love it.”

Tour participant Jodie Dong, a senior planner for the Province with a specialty knowledge of making resources out of waste commented, “I’ve never seen that before, it’s very new and different and they do it at a very low cost using plants to treat sewage in a small development – it’s eco friendly, low tech and low energy.” They could have lingered in the tropical warmth but there was one more intriguing site to visit.

FLOWER POWER

The final tour stop was in the community of Saltair where the group met with inventor and applied wetland scientist Curt Kerns outside two private homes. The homeowners had replaced failed septic fields with new systems.

The systems were a combination of three elements; a septic tank, a Nyadic secondary treatment aeration plant and Kerns’ invention: the Vegetative Tertiary Filter type III (VTF).

The VTF uses peat, hog fuel and plants that help create topsoil. Typically, primary treatment fields are on large, flat raised areas. Installers sternly warn against planting anything on these fields other than grass since tree roots interfere with the drainage pipes. In short, a raised septic field looks like a septic field and it’s embarrassingly difficult to hide the fact.

Curt Kerns discussing a newly installed VTF, as yet unplanted with vegetation (above). A planted up VTF in the front lawn of a single family home in Sheltair (below). Kerns describes how the system works. (right)
 photos by Denise Hoskins & Helen Reid



LANDSCAPED WITH PLANTS AND A COLOURFUL FLOWER-BED, THE DISPERSAL AREA WAS INDISTINGUISHABLE FROM A TYPICAL GARDEN

Kerns first developed the VTF as an alternative to unsightly sand mounds on challenging sites. Relying on the huge surface area of peat moss, VTF systems are designed to remove trace contaminants such as endocrine disrupting compounds, pharmaceuticals and personal care products, preventing them from entering the water table or surface waters.

The group was particularly fascinated with the dispersal area. Landscaped with plants and a colourful flowerbed, thanks to the talents of the homeowner, it was indistinguishable from a typical

garden. "It looks like any other small suburban front lawn," remarked one tour participant. "This solution would work really well on Reserve, it's an incredible solution for a major problem we have throughout the community," remarked another.

At the end of the day, the group still had questions but were equipped with information gained from experiential training "I learned something I didn't even know existed, and I was able to share that with people, marveled Cowichan Lake Councillor Jayne Ingram, "I now feel quite comfortable talking to the superintendent of Public Works about sewage treatment and what the options are."

Others agreed they would be delving more deeply into the possibilities for transferring the concepts to their own communities keeping in mind Evans' favourite quote, "It's only wastewater if we waste it." ■

WHAT TOUR PARTICIPANTS SAID

"I came home from the trip enthusiastic about sewage of all things. I came back feeling that taking small steps will make big changes in the long run. Learned a lot in a short few hours. I hope she does another one..."

*Councilor
 Jayne Ingram
 Cowichan Lake*

"It was one of the best tours I've ever been on."

*Helen Reid
 Cowichan
 Tribes*

"It's the only tour of that kind that I have done in British Columbia"

*Jodi Dong
 Province of
 British Columbia*



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