Salt Spring Island Water Preservation Society

November 2016 NEWSLETTER

WPS Sponsored Tackling Drought Event

On August 18th, the WPS-sponsored event "Tackling Drought" drew approximately 130 people, occupying almost every chair in the Gospel Chapel. The second year of summer drought must have caught people's interest! Before the presentation, attendees enjoyed desserts, visited demonstrations on rainwater collection, and were entertained by Craig Paterson who played flutes and a Zimbabwean thumb piano that mimicked running water and raindrops.

Then, five speakers gave presentations and answered questions that were provided to them in advance.

Don Hodgins, co-chair of Salt Spring Island Watershed Protection Authority Technical Working Group, gave an overview about the water supply from St. Mary Lake. The audience gasped when he stated that 65% of the amount of water that is available from St. Mary Lake for human use is lost to evaporation. Human use is less than one third, and the remainder must be released into Duck Creek year-round for fish protection.

Next Ron Stepaniuk, Manager of North Salt Spring Waterworks District, explained that the District would like to have more storage. The District has 300 lots within its service area that are not yet served and may someday want water. The District is therefore proposing to raise the weir on St. Mary Lake by 30 cm from the present height of 40.7 m above sea level to a new height of 41 m. But it is unclear if or when this can be done. Other alternatives to provide more water have high environmental and/or cost barriers. Conservation efforts have been successful and will need to continue.

Peter Clarke, Windsor Plywood Rainwater Collection Specialist, talked about rainwater collection. A painted metal roof is best, unless you have a glass roof; asphalt shingles will contribute chemicals to collected water.

John Sprague, who has served on the CRD commission that oversees the Ganges Sewage Treatment Plant, praised the liquid (called effluent) that comes from this plant as an unrecognized "jewel" and the "best on the coast." He explained that the effluent far exceeds government standards for major pollutants. Our community spends a lot of money to clean up this water but then discards it 5 km offshore, into the harbour beyond the second Sister Island.

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Can Rainwater Collection Solve Our Water Shortage Problem?

It has been suggested that we can accommodate more growth on Salt Spring through the use of rainwater collection. Within the last 2 years, the North Salt Spring Waterworks District has almost reached the limits of its summer water supply and has limited the number of new connections. Therefore, we thought it would be interesting to examine the costs and considerations around installing a rainwater collection system that could meet 100% of a family's needs for water.

Because in a dry year between 0.9 and 1.5 inches of rain falls per month during June, July and August, the challenge is to design a system that can store enough water to supply a household throughout the dry summer. We interviewed Matt Nowell of Gulf Islands Rainwater Harvesting + Irrigation who provided WPS with the following information. All figures are estimates and entail assumptions that will be discussed.

An average two-person family needs about 3,000 gallons a month, or 9,000 gallons of storage for 3 months. That is for indoor use only. An average above-ground tank holds 3,000 gallons of water; however, there may be as much as 80–100 gallons at the base of the tank that cannot be accessed if the base fitting is used. This allows room for any sediment to settle at the base. It is important not to stir this up when the tanks are being filled and usually calming inlets are used to combat this.

How much rain a particular roof will gather is determined by its size, type and exposure. For our sample family, we are assuming a roof of at least 2,000 square feet. One-half gallon of water can be gathered per square foot of roof per inch of rain. Salt Spring averages about 40 inches of rain a year. From this roof size, a family would collect on average 40,000 gallons in a year. The majority will be collected between the months of October and March, which will account for 32,000 gallons. The remaining 8,000 gallons would be between April and September.

Let's discuss costs. An average 3,000 gallon above-ground, vertical plastic tank costs between $2,000 and $2400 and varies between manufacturers. Using an estimate of $2,250 per tank, three tanks will cost $6,750. The building code requires a tank with more than 4 feet of water to have an engineered footing or concrete base to stand on. The engineer designs the footing and checks it at various stages to make sure it is constructed as in his plan. The cost for engineering the footing and installing a single tank can run upwards of $1,000 and is dependant on site access and terrain.

Additional variable costs are as follows: tank and pump installation; electrical supply; engineered footings (if required, low profile tanks can be used instead); a properly designed and installed filtration system prior to the storage tanks; and a properly designed/engineered filtration system to meet potable standards and the building code. Total additional costs would typically range between $5,000 and $15,000 for a total cost of between $11,750 and $21,675.

Several other factors could increase costs. This estimate is to supply water for only two people and does not account for visitors. Sloping terrain might drive up costs by requiring blasting; a more expensive footing and it might be more difficult to deliver tanks to the site. If tanks are located away from the building, a pump and chamber may be required to move water the roof to the storage tanks.
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Rainwater collection (Cont.)

The type of roof is important to maximise collection and reduce contaminants. Metal is best, but there will still be contaminants to watch for such as bird droppings and pollen. Typically during pollen season, the first rainfall should be completely diverted. The first flush of water after a dry period is used to flush dirt and debris out of the system.

Rainwater storage can be incorporated into the basement or in the garage. The design for this has to be done by an architect or builder and could require blasting to make space for the tanks. The cost for such an installation could be between $30,000 and $40,000.

To keep costs to a minimum, the key point is to estimate accurately how much water is needed. Some people use more water than others. It is advisable for a family considering such an installation to keep track of their water use for a few months before installation. Our hypothetical family could consider undertaking new water conservation strategies such as adding a composting toilet. If our family underestimates how much water they need, additional tanks can be added later if space permits.

For more information contact Matt Nowell of Gulf Islands Rainwater Harvesting + Irrigation at 250-538-7538 or matt@gulfislandsirrigation.com.

Tackling drought (Cont.)

In many other places in the world, water of similar quality is reused, and John believes that we should consider doing likewise. An audience member asked the panel about the phosphorus content of the effluent. John Sprague agreed that if effluent were to be piped to St. Mary Lake, the phosphorus would need to be removed or it would contribute to algae growth in the lake.

Lynne Magee, Regional Drinking Water Coordinator of Island Health, was asked under what circumstances Island Health would approve the use of this effluent. She stated that the treated effluent still has pharmaceuticals and body-care products that pose an environmental and health concern that would have to be addressed. Audience members shared lessons learned about conservation and pointed out that, at some point, we will exceed the carrying capacity of our island.

Lake Report

This fall, both St. Mary and Cusheon had blooms of cyanobacteria that can potentially produce toxins. The levels of water in both lakes were still falling in mid-October. On November 2, 2016, the North Salt Spring Water Works District was notified that cyanotoxins were detected in untreated water from St. Mary Lake, however, only at levels below the Canadian government guideline for treated water (1.5 parts per billion/micrograms per liter). As of November 6, no toxins were measured in the untreated water from Cusheon Lake. The Cusheon Lake Stewardship Committee warned those who get their water directly from the lake to take extra precautions with their potable water uses as long as toxin-producing bacteria are present.

Lawsuit Update

Thank you to everyone who gave so generously to our special appeal to pay for our response to the lawsuit filed against us by Channel Ridge Properties and Paradigm Mortgage. We raised most of the funds that were needed to respond in 2016.

We have been hopeful that the sale of the Channel Ridge lands would mean that the lawsuit would not progress further; but it isn't clear if that is the case. We will keep our membership informed on this matter.

OUR EXECUTIVE

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CONTACT US

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Request a Smile Card to donate through your purchases at Thrifty

VOLUNTEERS NEEDED

Memberships, donations, and volunteers of all ages are essential to the survival of our society. Volunteers would be appreciated to help with coordinating, writing articles for and setting up the newsletter, organizing educational events, broom cutting at the St. Mary Lake reserve, serving on the board of WPS and other activities as well. For information about volunteering please call Maxine at 537-1577 or email us at ssiwps@gmail.com

Memberships expire December 31st. Dues received in October, November or December are credited to the following year. Members will receive a renewal notice along with a tax receipt in January.

Membership dues are $15 for individuals
$30 for a family/couple.

Current members - mail membership fee to:
Box 555, Ganges PO, SSI, BC, V8K 2W3.

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