

SSIWPA Steering Committee Membership

Member Name	Alternate	Representation on Committee	Water source type
Dale Green	Barri Rudolph	CRD Integrated Watersheds, Ex Officio	
Doreen Hewitt		Beddis Water District Representative	surface water
George Grams	Peter Grove	Islands Trustee	
Lorrie Hunt		Fernwood-Highland Representative	surface water
Stefan Cermak		Islands Trust Planning Staff, Ex Officio	
Wayne McIntyre	Darryl Martin	CRD	
Pat Lapcevic, M.Sc. P.Geol.		FLNRO	
Ron Stepaniuk, NSSWD?		NSSWD, Ex Officio?	

Proof of Concept of Soil P Movement from Septic Field Effluent through a Soil Sampling Approach

Investigators: Kevin Chipperfield and John Harris

Rationale: In the 2014-2016 St. Mary Lake monitoring program, septic tank effluent flow P was monitored by testing the water in shallow wells located near and down-slope of septic fields at three sites. The testing was able to capture effluent-P moving with shallow groundwater in the saturated zones. An unresolved question concerns possible P movement in the vadose zone (from the surface to 2m deep) during episodic periods of surface saturation (heavy winter rains). Another limitation of this study was the low number of sampling depths and wells to fully describe P movement both horizontally and vertically.

It is believed that a soil sampling approach may answer these questions and enhance understanding of P movement in near-lake septic fields. P movement is limited in non-calcareous (neutral to acidic) soils due to binding with Iron (Fe) and Aluminum (Al) which are in vast abundance. It is only when Fe and Al are unavailable (bound to P) can P move with soil pore water. Possibly, a few soil tests could determine if the effluent-P from a septic field is migrating beyond the drain field either horizontally in the vadose zone and/or vertically in the saturated zone and whether either pathway has the potential to reach the lake. An added benefit would be to give an estimate of the usable life of the field (based on Fe and Al concentration and availability).

Objectives:

1. To determine the Phosphorous Saturation Ratio (PSR: the ratio of Available P to Available Fe+Al) at a small number of locations and to determine if the PSR is a reliable predictor for significant P loss from the septic field into the lake.
2. If the PSR detects the P-plume, to assess the implications for St. Mary Lake and its applicability to Cusheon Lake as an investigative technique for septic P loading. (The motive is that soil sampling is a great deal less expensive than installing monitoring wells and the associated analytical chemistry costs.)

Study Design:

To soil sample one of the previously monitored sites around St. Mary Lake at 4 depths (0-30cm, 30-60cm, 60-90cm, and 90+ cm) in 6 spots and test for Available P, Fe and Al using the Mehlich3 extract, pH, nitrate, chloride and bromide. The Mehlich3 extract is an agricultural soil extract used to determine "Plant Available" nutrients - what the plant roots are able to utilize for metabolic processes. Nitrate, chloride and bromide are used as tracers for septic effluent. The results are to be compared to the previous study as a proof of concept.

For this study, there does not need to be water present in the soil. Sampling can be done anytime of the year and would be by hand auger (although would be easier in spring to fall). Any of the previously monitored sites would be good. A spot above the field and 5 spots between the field and the lake would be chosen using the previous data to most likely sample within and out of the effluent plume.

Costs and Labour

soil auger	supplied free by Kevin
labour (approximately 20 person hours)	supplied free by John and Kevin
supplies (bags, scoops, cold packs, styro shipper etc)	\$57
soil analysis for P, Fe, Al, pH, nitrate, chloride and bromide	\$87/sample x 24 samples = \$2088
shipping 24 soil samples to laboratory	\$145
contingency	\$250
<hr/>	
TOTAL	\$2,540

Letter received by SSIWPA Coordinator
By email
Dated June 16, 2016

Dear Shannon

Further to our conversation on Wednesday regarding Ron Stepaniuk as NSSWD's choice to sit on the SSIWPA Steering Committee; our Board met yesterday and confirmed Ron as our appointed candidate. While we understand SSIWPA's desire to have a sitting elected individual from NSSWD, its preference doesn't preclude an employee from the position.

The Board has complete faith in Ron's ability to represent NSSWD at SSIWPA. The main reasons for putting Ron forward as our representative are as follows:

- a) His knowledge of the current issues both in the broad sense and from an operational perspective.
- b) His ability to keep the Board informed of important information from SSIWPA.
- c) An absence at this time of a current elected Trustee to be available for meetings.

The Board feels that SSIWPA's role is important not only to ourselves, but to the island as well.

I am confident that Ron will prove to be an excellent representative for us on the Steering Committee.

Respectfully,

Marshall J Heinekey, MBA, ASCT
Chair, NSSWD Board of Trustees



*Salt Spring Island
Water Preservation Society*

P.O. Box 555, Ganges
Salt Spring Island, BC
V8K 2W3
ssiwps@gmail.com
www.ssiwaterpreservationsociety.ca

June 15, 2016

Salt Spring Island Watershed Protection Authority
c/o Shannon Cowan, Coordinator

Dear Authority Members:

The Salt Spring Island Water Preservation Society is dedicated to protecting drinking water resources on Salt Spring Island. Since the recent drought seems to be continuing, we feel a responsibility to help keep the community informed about what is happening now and what might lie in the future with regard to our island's water supplies.

We are sponsoring a community education event in mid-August about water supply planning in a drought prone era. We are inviting your organization to send a spokesperson to participate first in informal discussions with attendees and then to be on a panel to speak and answer questions.

The attached questions were created to get the discussion started and provide background for the audience. It would be up to your spokesperson to decide which questions to address. There will also be questions from the audience. After we know who will be on the panel, we will discuss with your speaker how much time they will need to speak. We will be inviting the following organizations and speakers:

North Salt Spring Waterworks District
SSI Watershed Protection Authority
SSI Local Trust Committee Trustees

A speaker to discuss re-using wastewater from the Ganges sewage treatment plant.
A rainwater collection system installer

We understand that you cannot commit until we have a date. But we are hoping that this letter will allow the request to be put to your governing board so we will know if you are interested. As soon as we have a date and location, we will let you know. Thank you very much for considering this request. Please respond to me at 250-537-1577 or ssiwps@gmail.com.

Sincerely yours,

Maxine Leichter
President, Salt Spring Island Water Preservation Society

Salt Spring Island Water Preservation Society
Questions for Panel at Drought Planning Event
August 2016

1) The proposed weir at the south end of St Mary Lake:

What are the barriers to raising the weir?

What are the benefits of raising the weir?

When is project completion anticipated?

After the weir is completed, will there be enough water to provide for currently planned residential and commercial development?

2) If a drought causes the water level in St Mary Lake to fall below the permitted level (40 m Above Sea Level) what are the likely outcomes?

Would the Province assess penalties and if so, what is expected?

3) Future water demand for NSSWD:

Compare methods used to estimate future demand; is it better to calculate assuming that all planned development will demand water or, is it ok to assume a fraction of planned development will not require water?

4) What additional water sources are available and what costs are involved to utilize them:

Conservation

Grey-water

Rainwater Collection Systems

Desalination