



# **Salt Spring Island Watershed Protection Authority**

## **Regular Meeting Draft Agenda**



**Location:** School District 64 portable, 112 Rainbow Rd., Salt Spring Island BC

**Acronyms:**

AGRI - Ministry of Agriculture

CEWG - SSIWPA Conservation and Efficiency Working Group

CRD - Capital Regional District

FLNRO - Ministry of Forests, Lands and Natural Resource Operations

NSSWD - North Salt Spring Waterworks District

MOE (ENV) - Ministry of Environment

SSIWPA - Salt Spring Island Watershed Protection Authority

TWG - SSIWPA Technical Working Group

**1. CALL TO ORDER**

**2. APPROVAL OF AGENDA**

**3. MINUTES**

3.1 Draft minutes of the April 21, 2017 steering committee regular meeting -  
*attached for approval*

**4. BUSINESS ITEMS**

**4.1 Chair's report** - G. Grams

**4.2 St. Mary Lake water quality update** – NSSWD Board Representative

**4.3 Cusheon Lake water quality update** – Beddis Water Commissioner

**4.4 Coordinator's report** – *attached*

**4.5 Technical Working Group update** – TWG Co-Chair

**4.6 Conservation and Efficiency Working Group update - CEWG Chair**

**4.7 Golder Phase 1 - IWM Workplan Task #7a - Update - P. Lapcevic**

**4.8 CRD Bylaw amendment No. 4178 re: extension of stormwater service on SSI - attached**

**4.9 Budget**

4.9.1 Budget Income Statement - Year End Report 2016-17

4.9.2 Budget Income Statement - 2017-18

4.9.3 Budget Categorization for IWM Workplan Tasks - Draft

**4.10 Scope of Work Memos for Approval**

4.10.1 IWM Task 5a "Wells Inventory -ph. 1" - *attached* (FLNRO, Coordinator)

4.10.2 IWM Task 5b "Well Monitoring Program" - *attached* (FLNRO, Coordinator)

**4.11 TWG Terms of Reference: Is update needed?**  
*- current version with draft comments, attached*

**4.12 SSIWPA Materials, Outreach products for approval**

4.11.1 IWM Project Charter Updated Version for approval - *attached*

4.11.2 Best Management Practices Draft v2. for approval - *attached*

4.11.3 IWM Workplan (public) Final - *attached*

**4.13 Correspondence**

4.13.1 Letter to Steering Committee from Lorrie Hunt in his capacity as Water Council Treasurer  
*- see attached*

**4.14 Events and Announcements**

4.14.1 Well Owner Workshop - Friday, June 30, 2017. Location and time TBA.

4.14.2 Islands Trust posts Senior Freshwater Specialist Position  
<https://search.employment.gov.bc.ca/cgi-bin/a/highlightjob.cgi?jobid=41319>  
*- also see attached Job Profile*

**5. OTHER BUSINESS**

5.1 Questions and Comments from Public

**6. UPCOMING MEETING**      Friday, June 16th, 2017 at 10:30 am  
   @ School District 112 Rainbow Rd.

**7. ADJOURNMENT**



# Salt Spring Island Watershed Protection Authority

Minutes of a Regular Meeting

**Date of Meeting:** Friday, April 21, 2017  
**Location:** CRD Portable, 143 Vesuvius Bay Road  
Salt Spring Island

**Members Present:** George Grams, Chair, Islands Trust Local Trustee  
Dale Green, Capital Regional District, Integrated Watershed (via telephone conferencing)  
Pat Lapcevic, Ministry of Forests, Lands and Natural Resource Operations (FLNRO)  
Derek Masselink, Ministry of Agriculture  
Wayne McIntyre, Deputy Chair, Capital Regional District (CRD) Director  
Ron Stepaniuk, District Manager, North Salt Spring Waterworks District (NSSWD)

**Regrets:** Doreen Hewitt, Beddis Water Service Area Commissioner  
Lorrie Hunt, Fernwood Water Service Area Commissioner  
Sandra Ungerson, Chair, SSIWPA Conservation and Efficiency Working Group

**Staff Present:** Shannon Cowan, Coordinator  
Justine Starke, Island Planner (North Pender Island)  
Sarah Shugar, Recorder

**Technical Working Group Liaison:** Don Hodgins, Co-chair, SSIWPA Technical Working Group

**Conservation Working Group:** Ian Peace, SSIWPA Conservation and Efficiency Working Group Member

**Media and Others Present:** 6 members of the public

These minutes follow the order of the agenda although the sequence may have varied.

## 1. CALL TO ORDER

Chair Grams called the meeting to order at 12:46 p.m.

## 2. APPROVAL OF AGENDA

The following additions to the agenda were presented for consideration:

- 4.6.2 CRD Stormwater Bylaw Amendment
- 4.11 Review of "Safe Yield Analysis for Surface Water Resources"

By general consent, the agenda was adopted as amended.

### 3. MINUTES

#### 3.1 Draft Minutes of the March 17, 2017 Salt Spring Island Watershed Protection Authority Regular Meeting

By general consent, the Salt Spring Island Watershed Protection Authority Minutes of March 17, 2017 were adopted.

### 4. BUSINESS ITEMS

#### 4.1 Chair's Report

Chair Grams reported the freshwater specialist job profile is complete, submitted to the public service agency for classification and it is estimated the contract would begin June 2017. The SSIWPA website has been updated.

#### 4.2 St. Mary Lake Water Quality Update – NSSWD Board Representative

Committee Member Stepaniuk reported the level of St. Mary Lake on April 18, 2017 was 40.875 metres. The toxin levels have been declining since September and trace amounts have been detected in raw water only. Maxwell Lake is level with the weir crest.

#### 4.3 Cusheon Lake Water Quality Update – Beddis Water Commissioner

Coordinator Cowan presented an update regarding the Cusheon Lake Watershed and the following highlights were presented:

- The lake level is 1.42 metres and this is fairly normal for this time of year.
- Precipitation received at Gulf Island Secondary School: March 2017: 131.8 mm and this is lower than 2015 reading of 254mm; Comparison for April - April 2015: 35.3 mm; April 2016- 29.7 mm; April 2017- 72.1 This is more than double what was received last year and there is still a week to go.
- Secchi disk was 4.5 m. and this indicates fairly clear lake water and is a similar reading to other years.
- In mid April 2017, the annual maintenance and flushing of the water distribution system was done.
- A dead beaver was delivered to the Ministry of Environment BC Wildlife veterinarian to find out why it died but it has not been dealt with yet.
- A "no the dogs" sign has been installed at Cusheon Lake. This is a sign similar to the sign at St. Mary Lake. Thank you to CRD staff.

It was also noted the septic field for the Horel Road mobile home park has been upgraded.

#### 4.4 Coordinator's Report

Coordinator Cowan presented the Coordinator's Report for the period of March 10, 2017 to April 13, 2017 and highlighted the following items:

- A meeting with Fiona MacRaid, Islands Trust Senior Intergovernmental Policy Advisor regarding the development of First Nations education and outreach plan to inform and include/invite First Nations communities through their technical staff about the work of SSIWPA;
- Communications regarding a Penelekut Shellfish Tenure in Booth Canal;
- It was noted the SSI Local Trust Committee agreed to a review of all conservation foreshore areas on Salt Spring Island including Booth Canal.

Director McIntyre reported the CRD Board hosted a session regarding First Nation Relationship building.

#### **4.5 Technical Working Group Report**

Technical Working Group Co-chair Hodgins presented the following report:

- Soil sampling program: the samples have been sent for testing and should be received soon;
- Groundwater: the TWG will review scope of work at their next meeting;
- Surface water:
  - The balance model has been applied to Maxwell Lake;
  - Have implemented the model for Cusheon Lake;
  - Requested information from the Ministry regarding how much water can be taken out of Cusheon Lake at any given period;
  - Have requested consumption data from the CRD;
  - Ready to proceed with contacting Opus and go to the next step in the scope of work;
  - Meeting at UVIC next week regarding climate change.

D. Hodgins reported he would be resigning from the North Salt Spring Waterworks District (NSSWD) Board at the next meeting of the NSSWD.

#### **4.6 Conservation and Efficiency Working Group Report**

##### **4.6.1 Conservation and Efficiency Working Group Report**

Conservation and Efficiency Working Group Member Peace reported the CEWG is working on a memorandum of understanding.

##### **4.6.2 CRD Storm Water Bylaw Amendment**

Director McIntyre reported the CRD Stormwater Bylaw is in the amendment process to be more adaptable to needs that may arise. The Bylaw amendment is expected to be complete within a few months.

#### **4.7 Outreach Materials for approval**

##### **4.7.1 Water Group Comparison Chart**

The draft Water Group Comparison Chart was presented. The materials would be distributed at the Earth Day activities and the Well Owners Workshop.

It was noted there would be revisions following the CRD Storm Water

Bylaw Amendment.

**By general consent**, the Salt Spring Island Watershed Protection Authority agreed to add “draft” and “date” and approved the draft Water Group Comparison Chart, as amended.

#### 4.7.2 IWM Workplan

Two versions of the draft IWM Workplan – Ground Water / Surface Water document were presented. There was discussion regarding whether SSIWPA should engage a graphic designer for communications materials.

**By general consent**, the Salt Spring Island Watershed Protection Authority requested the Coordinator to hire a graphic designer to revise the IWM workplan document.

#### 4.7.3 Best Management Practices Draft for discussion

The draft “Watershed Management Information Links to Policy, Regulations and Best Practices” document was circulated.

**By general consent**, the Salt Spring Island Watershed Protection Authority agreed Committee Members would forward comment to Coordinator Cowan by May 15, 2017 to be reviewed at the next meeting.

### 4.8 Events and Announcements

Earth Day Centennial Park - Sunday April 23, SSIWPA Booth: RRU-SSIWPA Rainwater Survey (contact: Shannon Cowan, Royal Road Student team).

Well Owner Workshop SSIWPA Booth (Islands Trust, contact: Shelley Miller) Friday June 30, 2017.

### 4.9 Review of “Safe Yield Analysis for Surface Water Resources”

The Review of “Safe Yield Analysis for Surface Water Resources” was presented.

**By general consent**, the Salt Spring Island Watershed Protection Authority agreed to forward the Review of “Safe Yield Analysis for Surface Water Resources” to the Technical Working Group for review and comment.

## 5. OTHER BUSINESS

### 5.1 Questions and Comments from Public

One member asked D. Hodgins how he applied the water balance model to Maxwell Lake. A summary would be available following the next TWG report.

One member asked (1) when the next TWG meeting is scheduled. The next

meeting of the TWG is scheduled Tuesday, April 25, 2017 at the School District Boardroom (2)

One member of the public suggested that there be a correlation between surface and ground water be included in the IWM workplan document and asked if the "Review of "Safe Yield Analysis for Surface Water Resources" will be available to the public? The "Review of "Safe Yield Analysis for Surface Water Resources" will be available on the SSIWPA website.

**6. CLOSED MEETING RESOLUTION**

At 1:45 p.m., it was **MOVED** and **SECONDED** that the Salt Spring Island Watershed Protection Authority closes this meeting to the public subject to Community Charter Section 90(1)(a) personal information about an identifiable individual who holds or is being considered for a position as an officer, employee or agent of the municipality or another position appointed by the municipality.

**CARRIED**

**7. OPEN MEETING RESOLUTION**

At 1:51 p.m. it was **MOVED** and **SECONDED** that the Salt Spring Island Watershed Protection Authority re-opens this meeting to the public subject to Section 89 of the Community Charter.

**CARRIED**

**8. RISE AND REPORT**

The Salt Spring Island Watershed Protection Authority agreed to appoint Rob Kline to the Conservation and Efficiency Working Group.

**9. NEXT MEETING**

The next regular meeting is scheduled for Friday, May 19, 2017, 10:30 a.m. to 12:30 p.m. at the School District 64 Boardroom Portable, 112 Rainbow Road.

**10. ADJOURNMENT**

**By general consent** the meeting adjourned at 1:52 p.m.

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George Grams, Chair

**CERTIFIED CORRECT:**

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Sarah Shugar, Recorder



## **Coordinator's Report**

**For the period: April 1 – May 12, 2017**

### **Meeting Admin:**

- Created agenda for steering committee meeting April 21, 2017 and attachments
- Created and circulated agenda for TWG quarterly meeting April 25, 2017
- Created and circulated agenda for CEWG quarterly meeting May 2, 2017-05-04
- Coordinated Golder presentation April 21 meeting planning and logistics
- Coordinated project meetings for TWG GW group and CEWG-RRU team (April 18, 19), respectively
- Adopted steering committee minutes for March 17, 2017 online, signed and filed at Trust
- Adopted TWG quarterly minutes for February 28, 2017 online and circulated
- Adopted CEWG quarterly minutes for March 7, 2017 online and circulated
- Facilitated and recorded TWG meeting April 25, 2017-05-04
- Draft minutes TWG April 25, 2017 created and circulated
- Facilitated and recorded CEWG meeting May 2, 2017-05-04
- Draft minutes CEWG May 2, 2017 created and circulated
- Booked June, July and August meeting venues

### **Project Management/Facilitation:**

- SSIWPA

### ***Integrated Water Management Program***



- community well data project - terms of use agreement template 3 versions with review by FLNRO
- Workplan Task 4c, 5c community well data collection outreach begun with water districts - 092616 Item 7.4 [8 in process, 1 completed to date]
- Co-creating, editing, tracking working group member actions for both TWG and CEWG Scope of Work Task memos to agree and forward task breakdown and budget requests to Steering Committee [in process]
- Co-creating, editing, tracking Stream Flow citizen science project for May 2017 with TWG members and FLNRO Fish and Wildlife staff [in process]

### ***Budget***

- Assisted with development of Task area budget proposals for TWG-GW tasks 5a, 5b
- Tracking approved IWM Workplan task budget requests and revenue balance
- Correspondence with Trust Accounting Staff re: 2016 fiscal year end accounting, and 2017-18 invoicing changes for SSIWPA
- Correspondence with Trust Accounting Staff re: 2017-18 budget categories and grants
- Created draft working budget for IWM program costs for Steering Cttee in May

### ***Conservation and Efficiency Working Group Projects Coordination***

- RRU project (Royal Roads) weekly correspondence; meetings with Coordinator and Member Ungerson on Apr 18 and Apr 21; assisted with maps and criteria for selection of “water-stressed” case studies, project cost reimbursement, planning and executing 2 trips to SSI [second trip May 29-30 in process]
- assisted with access to research articles and documents from library sources
- correspondence between meetings with members re: actions
- assistance with new informal meeting schedule, venue details

### ***Technical Working Group Projects Coordination***

- document creation and edits for “data terms of use” and “data sharing” agreement templates (review by Sylvia Barroso received for Community Well Data Collection Task 4c and 5c)

- liaised with RDN Drinking Water and Watersheds Program Coordinator re: well monitoring program, data collection and well owner workshop
- liaised with TWG GW subcommittee and assist with writing proposals for workplan subtasks 5a, 5b
- assisted with access to research articles and documents from library sources, document printing and delivery liaison
- created letter of thanks to previous TAC member for sharing entire research library for Cusheon Watershed, delivered originals and letter to his home
- forwarded invitation to Blackburn Project (Squires and Bodaly) presentation to be held June 1, 2017 (SSIWPA, TWG, CEWG)
- conducted IWM workplan Task 4c,5c Small Groundwater District Data Collection Interviews (3 of 9 complete at time of agenda)

### ***Outreach and Educational Event Planning and Coordination***

- Graphical workplan product for public (feedback and versions Cowan and Grams, feedback from steering in April)
- Printing of Comparison Chart final and Workplan product draft versions
- Managed logistics and equipment for RRU-SSIWPA booth at April 23 Earth Day, attended event
- stayed current on e-news from regional and provincial and national water networks (e.g. POLIS project, Partnership for Water Sustainability in BC, Canadian Freshwater Alliance etc.)
- assisted with receipt of constituency funding from Minister Stone
- First Nations Outreach calls (in process)
- participated in webinar about Kootenay Partnership (First Nation T'unaxa and Nelson local gov) April 6<sup>th</sup>
- RRU-SSIWPA project Rainwater Survey publicity assistance
- correspondence with Trust Staff, FLNRO, SSIWPA, working groups, Water Districts, and public re "Well Owner Workshops"– ongoing (Date is June 30<sup>th</sup> for SSI)
- created several drafts of "Best Management Practices" SSIWPA product; defined audience; receive steering feedback by May 15 for suggested additions and next version development [in process]
- ordered new SSIWPA business cards and hats for working group members
- ordered and finalized graphic design for Public IWM Workplan (see this agenda)

- ordered brochure refills from CRD on rainwater, and other topics (in kind sharing of resources)

***Watermark newsletter***

- April edition text and images - created and sent
- Sent special e-blast about Apr 11 water webinar of interest to Steering members and general public
- May edition (in process at time of writing)

***Website:***

- Checking for accuracy, completeness, recent ver. for library2 doc library (library2.ssiwatersheds.ca)
- Assisting with re-development of new main SSIWPA site (new pages, new content) due to hacked main site
- Uploading previous agendas and minutes to library2 site (ongoing)

**Agenda item CRD Bylaw Amendment no. 4178**

**Staff Report  
(April 19, 2017)**

**Report**

<http://crd.ca.legistar.com/gateway.aspx?M=F&ID=3507b9ce-dcc8-48ef-a75c-337408a2525c.pdf>

The report outlines the rationale for proposed extension of stormwater service by CRD, on Salt Spring Island. The report and appendices go to the Board for final approval the week of May 8, 2017.

**Appendix A - outlines the previous service bylaw**

<http://crd.ca.legistar.com/gateway.aspx?M=F&ID=0066bd9d-3028-4833-8cc1-c1cffcca1dab.pdf>

**Appendix B - outlines the proposed bylaw amendment for the new service**

<http://crd.ca.legistar.com/gateway.aspx?M=F&ID=7904d2bd-1f0d-40e9-a59c-5d75e29c925a.pdf>

Dale Green, B.Sc., PChem  
Program Manager, Integrated Watershed Management  
Parks & Environmental Services - Capital Regional District

**SALT SPRING ISLAND LOCAL TRUST COMMITTEE  
WATERSHED PROTECTION AUTHORITY  
FOR REVENUE/EXPENDITURES RECOGNIZED TO March 31, 2017**

<b>REVENUE</b>	<b>YTD ACTUALS</b>	<b>BUDGET</b>	<b>BALANCE REMAINING</b>	<b>% OF BUDGET SPENT YTD</b>
SSI LTA Special Property Tax Requisition	\$ 110,500.00	110,500.00	0.00	100%
Vancouver Foundation - Philip and Muriel Berman Foundation - (\$2500 to Technical advisory committee of SSIWPA	2,500.00	2,500.00	0.00	100%
<b>Total Revenue</b>	<b>\$ 113,000.00</b>	<b>\$ 113,000.00</b>	<b>\$ -</b>	<b>100%</b>
<b>EXPENSES</b>				
SSIWPA Coordination	85,005.35	85,000.00	-5.35	100%
Meeting cost (3 committees, minute taking, room rental)	3,047.86	5,500.00	2,452.14	55%
Community Events and Communications	3,340.80	8,000.00	4,659.20	42%
Administration Levy	12,000.00	12,000.00	0.00	100%
Technical Advisory Committee - expenditure of Vancouver Foundation grant funds	2,500.00	2,500.00	0.00	100%
<b>Total Expenses</b>	<b>\$ 105,894.01</b>	<b>\$ 113,000.00</b>	<b>\$ 7,105.99</b>	<b>94%</b>
<b>Total Surplus (Deficit) to date</b>	<b>\$ 7,105.99</b>	<b>\$ -</b>		

SSIWPA Income Statement for 2017-18

<b>SALT SPRING ISLAND LOCAL TRUST COMMITTEE</b>						
<b>WATERSHED PROTECTION AUTHORITY</b>						
<b>FOR REVENUE/EXPENDITURES RECOGNIZED (as at May 16, 2017)</b>						
<b>REVENUE</b>			<b>YTD ACTUALS</b>	<b>BUDGET</b>	<b>BALANCE REMAINING</b>	<b>% OF BUDGET SPENT YTD</b>
		SSI LTA Special Property Tax Requisition		98,500.00	98,500.00	0%
		Unspent funds from 2016/17 Special Property Tax Requisition		7,105.99		
		Province of BC grant- Integrated Water Management Program		15,000.00	15,000.00	0%
		REFBC grant - Integrated Water Management Program - Well Monitoring (Submission of grant request expected in Sept/17 )		30,000.00	30,000.00	0%
		<b>Total Revenue</b>	<b>\$ -</b>	<b>\$ 150,605.99</b>	<b>\$ 143,500.00</b>	<b>0%</b>
<b>EXPENSES</b>						
		SSIWPA Coordination		85,000.00	85,000.00	0%
		Meeting cost (3 committees, minute taking, room rental)		5,500.00	5,500.00	0%
		Community Events and Communications		8,000.00	8,000.00	0%
		Unspent funds from 2014/15 Special Property Tax Requisition		7,105.99		
		Integrated Water Management Program (Province of BC Grant)		15,000.00	15,000.00	0%
		Integrated Water Management Program (Well Monitoring, REFBC Grant)		30,000.00	30,000.00	0%
		<b>Total Expenses</b>	<b>\$ -</b>	<b>\$ 150,605.99</b>	<b>\$ 143,500.00</b>	<b>0%</b>
		<b>Total Surplus (Deficit) to date</b>	<b>\$ -</b>	<b>\$ -</b>		

<b>IWM Workplan Task*</b>	<b>In Kind</b>	<b>Cash</b>	<b>Cash Source - Budget Category</b>	<b>Budget Year</b>
2 - labour (all in kind)	11,250.00		not applicable	
2 - computer		350.00	Community Events and Communications	16-17
2 - travel		350.00	Constituency Grant** (Study Area 5)	17-18
4a, 4b - labour (cash, in kind)	29,440.00	4,050.00	Cash from Local Trust Committee (Opus)	17-18
4a, 4b - travel		350.00	Constituency Grant (Study Area 2)	17-18
4a, 4b - data		200.00	Constituency Grant (Study Area 2)	17-18
4c, 5c - labour (all in kind)	5,427.00		not applicable	
6 - AGRI (LTC matching cash)		2,000.00	Cash from Local Trust Committee to AGR	16-17
8a (Royal Roads project)		702.80	Community Events and Communications	17-18
5a - labour (cash and in kind)	5,460.00	12,000.00	Constituency Grant (Study Area 3)	17-18
5a - travel (on and off island)		2,000.00	Constituency Grant (Study Area 3)	17-18
5b - labour (datalogger install)		1,800.00	REFBC Grant	17-18
5b - labour (well inspect, data)	13,280.00	7,560.00	REFBC Grant	17-18
5b - equipment		9,000.00	REFBC Grant	17-18
<b>Total</b>	<b>64,857.00</b>	<b>40,362.80</b>	<b>Total Constituency Grant</b>	<b>14,900.00</b>
			<b>Total REFBC Grant Cash Request</b>	<b>9,180.00</b>
*Task # in Scope of Work descriptions			<b>Total Matching Cash Needed - from SSIWPA members for REFBC grant</b>	<b>9,180.00</b>
**5 Study Areas in Constituency Grant application - see attached				

## **Constituency Grant to SSIWPA Received April, 2017 by Islands Trust for SSIWPA Accounts**

### **Task Areas that are feasible for Grant Expenditures:**

The following specific studies are essential to the success of the IWMP and will need to be commissioned by the engagement of qualified environmental consultants:

1. an analysis of watershed hydrology particularly relating to drought
  2. conditions so that water levels, precipitation and stream flows are fully understood;
  3. to establish renewable water supply limits for surface water sources;
  4. to undertake well/groundwater utilization analysis to establish sustainable supply limits for groundwater sources;
  1. to undertake an assessment of appropriate technologies, potential incentives and measures that would allow the development and implementation of policies that will maximize conservation measures and promote efficient resource use;
- water resource assessment - adapting to/mitigating climate change impacts.



## MEMORANDUM

To: SSIWPA, Steering Committee  
Date: April 24, 2017  
Subject: Work scope for Objective 1: safe supply from groundwater – Wells Inventory  
Project: SSIWPA TWG, Task 5a Work Plan  
Submitted by: SSIWPA Contact: Shannon Cowan; TWG Lead – Sylvia Barroso

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**Purpose:** To improve the inventory and verify the status of use of wells on Salt Spring Island, including within areas of known data gaps identified via mapping of existing information.

**Reason:** For use in overall IWM work plan (merging with Tasks 4c, 4d and development of a hydrogeologic (GIS-based) database and quantification of sustainable water yield for the island).

**Scope of Work:** The project will be jointly managed by the project lead and the SSIWPA Coordinator. Field work, data gathering and processing will involve a contracted staff person under supervision of the project lead and Coordinator. The project leads and/or contractor will report out to the TWG subcommittee at regular intervals and a final report will be submitted to the Steering Committee.

- 1) Mapping exercise to identify well data gaps.
  - a. Identification of land parcels that do not currently have a well mapped/registered within the Provincial WELLS database, that are likely to utilize a groundwater source. This includes cadastral lots outside of water service areas, that are non-vacant (based on BC Assessment data) and that do not have either a well or a water licence point of diversion (POD). The current estimated number of lots that meet these criteria is 1124.
  - b. Identification of land parcels where more information on the status of use of mapped/registered wells could be obtained. This would include, for example, land parcels located within serviced areas that have a mapped/registered well in the WELLS database. These would be the locations to seek additional information from the property owners, to verify if there may be wells that are:
    - i. currently not in use and that could possibly be used as monitoring locations to expand the local groundwater monitoring network (task 5b);
    - ii. currently in use to augment supplies provided from water systems, and therefore of interest to to gather more information on groundwater use at the location;
    - iii. presently unused and unusable, and therefore the wells may require deactivation or decommissioning in order to help ensure protection of the aquifer source.
- 2) Develop a “Well Inventory Survey” project. The project could be undertaken in two phases. The first phase would be to improve knowledge of wells in areas identified as potentially utilizing a groundwater well that is not currently registered in the WELLS database (item a) above). The second phase would be to improve understanding of the location and status of use of wells within areas serviced by a water system (item b) above).

The objectives of the project would be to:

- i. Improve understanding of the location and status of use of wells within areas identified as data gaps through the data mapping exercise, and from the initial results of the (Phase 1) Salt Spring Island aquifer mapping study. Note: This is not intended to be for quantification of groundwater use, for example, in domestic wells;
- ii. Add to the number of registered wells in the WELLS database for Salt Spring Island;

- iii. Provide information to well owners regarding well head and aquifer protection;
  - iv. Identify locations of unused wells or other wells that could be suitable for inclusion in an expanded groundwater monitoring network.
- 3) Complete the proposed work plan as follows:
- Identify areas of data gaps via mapping exercise;
  - Compile budget and determine funds available for hiring of a student/intern. Identify and apply for sources of funding;
  - Hire intern or student to undertake well inventory survey. Resource materials including forms for data collection, notes/talking points, resources for outreach and dissemination to well owners, will be developed and identified by the project manager(s) and provided to the individual during the initial training phase. The SSIWPA Coordinator will be the local contact for day to day supervision and support. Training and oversight of the individual will be completed by staff from Ministry of Forests, Lands and Natural Resource Operations (FLNRO) groundwater protection officer and regional hydrogeologist with respect to completion of site visits and Ministry of Environment (ENV) with respect to standards for well data collection, cross-referencing and well data entry; The student or intern will ideally be based on Salt Spring Island and be involved within a hydrogeology, geography or engineering, undergraduate level, educational program (e.g. Camosun College, Royal Roads, University of Victoria, Vancouver Island University, University of British Columbia, etc.);
  - Contact well and property owners within areas of known data gaps. This could include door-to-door inquiries, dropping off fact sheets on the project, mailouts, posters and information disseminated in the community, including possibly via advertising within the local newspaper and at local events such as the Well Owner Workshop (June 30, 2017);
  - Complete site visits to properties where well owners agree to participate in the survey program. Phase 1 field component to be completed from May – September 2017. Data entry component could be completed by October 2017. The Phase 2 field component and data entry could possibly be undertaken in summer 2018;
  - Compile information collected within the well inventory program including well inspection forms, well construction records, site photos, etc.;
  - Complete data entry to WELLS. Data could include correction of well locations, entry of new well records, and changes to status of use of a well. It will not include changes to well owner name which typically remains as the original owner name within the WELLS database. Referrals will be made, as appropriate, to the FLNRO groundwater protection officer if there is a compliance concern or violation of the *Water Sustainability Act*, Groundwater Protection Regulation identified at an individual well or property. Collection and protection of private information is governed under the *Freedom of Information and Protection of Privacy Act*;
  - Compile statistics and summary of work completed during well survey. This could include progress report to TWG and Steering Committee during critical project stages, to link with other work plan task areas such as monitoring program development, and to help guide next steps.
- 4) Prepare revised maps, utilizing data layers modified as a result of the well inventory program. (WELLS layer is publicly available and downloadable for use from GeoBC and could be combined with other data sources to develop the hydrogeologic database).

**Deliverables:**

	Date	Description	Responsibility
1	May 2017	Map and statistical summary describing known well inventory from WELLS database and combined with other data sources to highlight groundwater data gaps (e.g. number of wells in specific service areas and locations).	FLNRO (work plan lead)
2	October 2017	Entry of data to WELLS database. WELLS layer will be utilized as a source of primary data for SSI hydrogeologic database utilized in SSIWPA projects and programs, such as development of the sustainable yield model	Student/intern
3	October 2017	Report by student and TWG outlining survey results including number of sites visited, outcome of well inspections, and data entry completed during Phase 1. The report could also identify or list wells that may be evaluated for inclusion within a monitoring network (task 5b).	Student/intern
4	October 2017	Revised well inventory map (using similar methodology to deliverable 1).	FLNRO
5	December 2017	Objectives work plan for Phase 2 data collection	TWG

**Resources required: (see table on next page)**

**TWG Task Manager:** Sylvia Barroso, 250-751-3265 [sylvia.barroso@gov.bc.ca](mailto:sylvia.barroso@gov.bc.ca)

**Time frame:** May 2017 – December 2017

Costs for Resources Task 5a							
	Agency	Individual	Item	hours	\$/hr	Cash Cost	In Kind Cost
Labour (In kind)	FLNRO	S. Barroso	Project supervision, some travel	24	\$ 80.00		\$ 2,120.00
Labour (in kind)	FLNRO	R. Lalla	GIS support	10	\$ 60.00		\$ 600.00
Labour (In kind)	FLNRO	B. Robinson	Training (fieldwork)	30	\$ 60.00		\$ 1,800.00
Labour (in kind)	Islands Trust	S. Cowan (Coord)	Coordination, student local supervisor	36	\$ 48.00		\$ 1,728.00
Labour (cash)	?	Student	Data collection, well inspection service	480	\$ 25.00	\$ 12,000.00	
Equipment							200
Computer		own computer				\$ -	
Data requirements	FLNRO	E. McGinnis		10	\$ 60.00		600
Expenses			Student on-island travel			\$ 1,500.00	
			Student off-island travel			\$ 500.00	
Grant opps	BC Summer Work Experience Program		Too late for 2017 but perhaps for phase 2			\$ -	
	Canada Federal Work Experience Program		Too late for 2017 but perhaps for phase 2				
	First Nations and Inuit Summer Work Expe		Too late for 2017 but perhaps for phase 2				
<b>Total Cost</b>						<b>\$ 14,000.00</b>	<b>\$ 7,048.00</b>

**MEMORANDUM**

To: SSIWPA, Steering Committee  
Date: April 24, 2017  
Subject: Work scope for Objective 1: safe supply from groundwater – Groundwater monitoring program pilot  
Project: SSIWPA TWG, Work Plan Task 5b  
Submitted by: SSIWPA Contact: Shannon Cowan; TWG Lead – Sylvia Barroso

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**Purpose:** To improve understanding of groundwater conditions within different aquifers on Salt Spring Island by expanding the groundwater monitoring network. The project will involve a pilot to establish monitoring in 4 to 8 new sites that will add to the long-term record of groundwater conditions presently provided by monitoring of three active Provincial Observation wells.

**Reason:** For use in overall IWM work plan (merging with Tasks 4c, 4d and development of a hydrogeologic (GIS) database.

**Scope of Work:** The groundwater monitoring program expansion project will be managed by a contracted staff person under supervision of the project lead and Coordinator. The contractor or project leads will report out to the TWG subcommittee at regular intervals and a final report will be submitted to the Steering Committee.

1. Write grant application for BC Real Estate Foundation (deadline for first draft June 15, 2017). (During the planning phases, potential project partners will be approached including Ministry of Forests, Lands and Natural Resource Operations (FLNRO), SSIWPA, Islands Trust, CRD or others.) (*Coordinator and Project Lead*);
2. A monitoring project manager/technician will be hired to undertake the logistical aspects of the pilot monitoring program. The pilot project duration will be approximately 1 year after which the program will be re-evaluated. The project manager will work under supervision of the SSIWPA Coordinator and project lead. The primary tasks will include:
  - a. Determining priority areas for groundwater monitoring. These could include areas identified within aquifer mapping and water budget program (tasks 7a and 7b), and previous studies, such as SFU hydrogeology of SSI (Laroque, Allen and Kirste, 2015) and saltwater intrusion risk assessment (Klassen, Allen and Kirste, 2015), taking into account locations of active Provincial Groundwater Observation Well Network wells, and existing monitoring associated with community water systems (identified within task 4a survey of community water systems).The priority areas would include locations in both recharge and discharge zones, and areas of varying well density in order to develop an understanding of the effects of groundwater development on aquifer conditions (water levels or quality).
  - b. The new monitoring locations will be established initially through use of existing well sites identified through the well inventory program (task 5a).In future, funding applications may be prepared to establish purpose built dedicated monitoring wells in priority areas (i.e. phase 2).
  - c. Evaluate list of potential monitoring sites will be evaluated for suitability for addition to the monitoring network using an established set of criteria including location, accessibility, well lithology, yield and capacity, and physical condition, reason for not being in use, ownership, etc. A short-list of pilot areas for monitoring will be created.
  - d. Writing and establishing agreements with private well owners to utilize the wells for monitoring

- e. Purchasing suitable monitoring equipment: pressure transducers that measure water depth (pressure) and temperature. A subset of locations in coastal areas could involve monitoring using conductivity-temperature-depth transducers to understand saltwater intrusion impacts.
  - f. Working with contractors to prepare wells for equipment installation. Wells that are in use with an active pump will require installation of a conduit in the well into which monitoring equipment will be able to be installed. Installation of equipment within inactive wells without a pump may not require a monitoring conduit reducing initial setup costs.
  - g. Install equipment in the wells, revisit the sites within the initial monitoring period to verify that the equipment is working, and quarterly thereafter to download the data. Training may be provided by FLNRO staff (observation well technician and regional hydrogeologist).
  - h. Process and interpret the data and report out to well owners and to SSIWPA on a quarterly to bi-annual basis.
3. Progress report to Steering Committee after 6 months of data collection – *Program manager with Project Lead, Groundwater Committee*
  4. Develop “Derived” data to account for trends in primary data (hydrographs) at each available monitoring well. Share derived data with Islands Trust GIS and FLNRO (by TWG under Barroso lead supervision). – *Lead, Groundwater Committee*

**Deliverables:**

**Deliverables:**

	Date	Description	Responsible
1	June 2017	Grant application for financial support. Submit September 1, 2017 for grant competition.	FLNRO (work plan leads) and Coordinator
2	October- November 2017	Determine priority areas for 4-6 well monitoring sites and list of potential monitoring locations from 5a well inventory.	Project manager/technician with project leads
3	January- March 2018	Establishment of agreements with well owners and equipment installation at 4-6 sites.	Project manager
4	September 2017	TWG report on data interpretation and summary for initial monitoring period	FLNRO
5	December 2017	Recommendations for project continuation or expansion (Phase 2).	TWG

**Resources required:**

Draft budget under development.

**TWG Task Manager:** Sylvia Barroso, 250-751-3265 sylvia.barroso@gov.bc.ca

**Time frame:** May, 2017 – December 2018

Costs for Resources Task 5b							
Revenue							
Real Estate Foundation	Islands Trust		Freshwater Sustainability Grant			\$ 9,180.00	
Expenses							
	Agency	Individual	Item	hours	\$/hr	Cash Cost	In Kind Cost
Labour (In kind)	FLNRO	S. Barroso	Project supervision, some travel	120	\$ 80.00		\$ 9,800.00
Labour (in kind)	Islands Trust	M. Van Bakel	GIS data management	10	\$ 60.00		\$ 600.00
Labour (in kind)	Islands Trust	S. Cowan (Coor	Coordination, communications	60	\$ 48.00		\$ 2,880.00
Labour (cash)	Islands Trust	Trust Staff and	installation of dataloggers			\$ 1,800.00	
Labour (cash)	Islands Trust or CRD	Contractor	Data collection, well inspection service	216	\$ 35.00	\$ 7,560.00	
Equipment			Datalogger and cable (transducer) (6)			\$ 9,000.00	
Computer						n/a	
Data requirements	Islands Trust		Data Sharing agreement from FLNRO (primary) to Islands Trust (primary, derived for GIS database)			n/a	
<b>Total Cost</b>						<b>\$ 18,360.00</b>	<b>\$ 13,280.00</b>
<b>Per Well Cash Cost</b>						<b>\$ 3,060.00</b>	



## Salt Spring Island Watershed Protection Authority TECHNICAL WORKING GROUP TERMS OF REFERENCE

Adopted August 29, 2013  
 Amended March 3, 2014  
 Amended February 2, 2015  
 Amended September 14, 2015  
 Amended January 29, 2016

**Draft Proposed Amendments December 8, 2016**

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### Background

The Salt Spring Island Watershed Protection Authority (SSIWPA) was created in 2012 to provide a coordinated approach to watershed management and the protection of fresh water resources on Salt Spring Island. SSIWPA is comprised of agencies and government organizations with responsibility and authority for the use and management of the water and the watershed.

The Salt Spring Island Watershed Protection Authority identified the need for a Technical Working Group (TWG) to assist with the technical work of the SSIWPA, objectively assessing scientific research to date, identifying gaps in the information, and researching solutions. The SSIWPA is responsible for governing the process and making decisions about contracting, work planning, and milestones.

These Terms of Reference (ToR) outline the roles and responsibilities of the Technical Working Group for the Salt Spring Island Watershed Protection Authority.

Please refer to the Terms of Reference for the Salt Spring Island Watershed Protection Authority. The TWG ToR may be amended by the SSIWPA **Steering Committee (SC)** if required by changes to scope of work, membership, timeline, or other matters.

### Purpose

The purpose of the TWG is to provide balanced and science-based, technical advice to the SSIWPA, and through it, to its member agencies. The advice of the TAC is to be impartial and objective, drawing on collective expertise to identify watershed issues and to develop workable solutions that reflect the best available science, innovative technologies and consensus approaches.

### Mission

The TWG exists to provide science-based, technical advice about water and watershed science to the SSIWPA, and through it, to its member agencies. It aims to be a trusted source of scientific expertise and

[www.ssiwatersheds.ca](http://www.ssiwatersheds.ca)

c/o SSI Islands Trust ~ 1-500- Lower Ganges Road, Salt Spring Island V8K 2N8

Coordinator Shannon Cowan [ssiwpacoord@gmail.com](mailto:ssiwpacoord@gmail.com) 250-537-4847



knowledge on Salt Spring Island for sustainable watershed management and source water quality and quantity assessment. As directed by SSIWPA Steering Committee, may be called on to generate and analyze scientific data, and/or to peer review existing technical information.

## Objectives

The TWG's approach is to be science based. The following tasks are among its duties:

1. To assemble and collate existing information and data on causes of the deterioration of source water quality in general, and in Salt Spring Island's drinking water sources in particular.
2. To identify critical information gaps and fill them.
3. To assess priorities for watershed projects/programs.
4. To advise on the technical costs, benefits and timetables for water management/remediation projects.
5. To advise on stewardship practices to protect water quality, quantity and other interests, including seasonal flow or contamination issues.
6. To advise on technical aspects of existing or proposed water-related legislation and policies.
7. To integrate research that supports watershed management recommendations including:
  - a. Proposals to remediate surface water quality and address root causes of watershed ecosystem decline;
  - b. Assessing the needs of fisheries, wildlife and other environmental resources;
  - c. Helping to establish the ecological limits of surface water and ground water watersheds;
  - d. Emerging research on climate change impacts;
  - e. New technologies and approaches;
8. To assess the value of programs and other implementation tools that conserve or enhance water quality and supply.
9. To submit to SSIWPA as directed, position papers, briefing notes or verbal presentations.
10. To make its work and its recommendations available to SSIWPA and to the community by means of a digital online library, to be contained within the SSIWPA web site.
11. Changes to these Terms of Reference or to the TWG's scope of work, membership, timeline, or other matters may be made by SSIWPA as it considers appropriate.

## Scope and Geographical Areas

Initially, the work of the TWG will be to focus efforts on peer reviewing and updating the St. Mary Lake Watershed Management Plan, focusing on a robust assessment of actions that will serve to remediate the raw water and on the protection of the St. Mary Lake watershed. AS SSIWPA's focus is expanded to include other Salt Spring Island watersheds, the TWG's tasks will be adjusted accordingly. (Cusheon watershed focus begins September, 2015)

## Membership

SSIWPA TWG membership will be comprised of not more than **nine members** at any time. Membership will be determined by consensus of the SSIWPA, in consultation with each member organization.

Member appointed by SSIWPA will have experience or expertise in one or more of the following areas:

- Limnology
- Aquatic Biology

- Soil science
- Environmental Restoration
- Environmental Science
- Hydrology
- Chemistry
- Toxicology
- Watershed protection
- Water resources Engineering
- Civil Engineering
- Mathematics
- Environmental Engineering

Invitations will be extended, but not limited, to representatives from Environment Canada, Fisheries and Oceans Canada, Provincial Ministry of Environment, Ministry of Forest, Lands, and Natural Resource Operations, Capital Regional District, Vancouver Island Health Authority, North Salt Spring Waterworks District, Salt Spring Island resident experts, and academic institutions.

Four of the members shall be appointed to terms of twelve months and three of the members shall be appointed for terms of two years, as specified by SSIWPA at the time of appointment. Thereafter, membership is for a two-year term, with the possibility of renewal.

Members are to serve without remuneration.

## Chair

At the initial meeting of the TWG, and then every 3 to 6 months, as determined by general consensus of the TWG, a Chair of the committee will be elected. The chair may serve additional terms, up to a maximum of six consecutive years. The chair is to serve without remuneration.

The Role of the TWG Chair is to include:

1. Liaise with the SSIWPA Steering Committee Chair, Coordinator and TWG members to set agenda topics.
2. Ensure distribution of TWG meeting notes to TWG members through the SSIWPA Coordinator.
3. Liaise with SSIWPA Coordinator, SSIWPA Steering Committee, and Islands Trust to effectively facilitate and coordinate the TWG.
4. Provide TWG progress reports in SSIWPA meetings, with TWG approval of messaging content.

SSIWPA Coordinator will act as facilitator and recorder for formal TWG meetings, unless otherwise arranged and agreed to by both SSIWPA Steering Committee and TWG. TWG Chair and Coordinator may agree to work together to facilitate TWG meetings, to better allow the TWG Chair to participate in the discussions and technical proposals. The SSIWPA Coordinator assists TWG with its group process functions within and outside of TWG regular meetings, to the extent that coordination resources allow.

## Guidelines for Decision-making

Decision-making is by consensus. Consensus is defined as agreement by each member, and is achieved through an iterative process: a) proposal, b) clarification and discussion stage, c) proposal modification (with assistance by those suggesting change; as necessary), and finally, d) agreement by consensus, or withdrawal of proposal, by consensus.

There are two levels of Consensus, Full and Working:

Full consensus – all representatives agree and support the decision;

Working consensus – not all members support the decision, but all can agree to respect the decision. Those standing aside note their reasons for the record.

Where Consensus is not reached on the first go-round, issues/proposals may be tabled at subsequent meetings of the TWG, but no more than three times for a single proposal/issue. If Consensus cannot be achieved at the third tabling, a majority and a minority opinion statement will be recorded in writing in the meeting notes. Every effort will be made to explore, understand and accommodate the interests of dissenting viewpoints.

## Meetings

TWG will hold public meetings a minimum of four times per calendar year. TWG Chair will report monthly on TWG progress and current activities in SSIWPA monthly meetings, which are open to the public. Some or all of the TWG members may meet informally to discuss science and technical matters, but not to make decisions or recommendations to SSIWPA, as frequently as required, at a location mutually agreed to by TWG committee members.

## Notice of Meetings and Minutes

Notice of the date, time and location of all TWG meetings will be posted by the Coordinator to the TWG and SSIWPA Steering Committee Chair by email, and will be posted publicly on the SSIWPA website. Agendas and approved minutes will also be posted to the SSIWPA website under the TWG agendas and minutes page.

## Conduct

TWG members and observers will be expected to behave with due decorum. That is to say:

Meetings will be conducted with decorum, and generally follow Robert’s Rules of Order as interpreted by the Chair and/or Facilitator;

Communications at all meetings will be respectful, considerate, honest, and issue-focused;

All viewpoints will be encouraged, respected, and considered;

Participants will make every effort to resolve issues at the table, and will avoid seeking alternative decisions outside this process;

Participants should have a common understanding of the mandate of SSIWPA and the TWG, and demonstrate mutual respect to other participants.

## Funding

It is anticipated that the representative agencies of the SSIWPA will contribute funding for a SSIWPA Coordinator, to work with the TWG, as well as the SSIWPA. As appropriate, the representative agencies will also provide additional funding in support of agreed to initiatives and in-kind administrative support like meeting rooms, communications, and secretarial services.

Other funding will be pursued opportunistically and as required.

It is anticipated that some of the work cited under “Objectives” will be accomplished by contractors.

## Conflict of Interest

TWG members must take a precautionary approach to ensure that issues of potential or perceived conflict of interest are clearly identified as part of the process.

## Publication Protocol **(new draft version December 2016)**

1. Raw data (from SSIWPA member agencies, from collaborators, and/or from any SSIWPA-TWG monitoring programs ) will be shared amongst all TWG members as they become available, as and if requested.
2. Raw data (SSIWPA-generated) will be logged and stored in hardcopy form and/or electronic form by the Program Manager, or working group members and will be delivered to SSIWPA Steering Committee at the end of the project, in the form of a deliverable for the specific SSIWPA monitoring program.
3. Raw data (generated by SSIWPA member agency or collaborating group or individual) will be stored in hardcopy and/or electronic form by the working group members who have permission to use it, and by the SSIWPA Coordinator (as backup and future reference only). If appropriate, some raw data will be marked sensitive/confidential (e.g. data pertaining to water consumption that is directly related to identifiable individuals or businesses), for SSIWPA use only. It will not be shared with outside groups or individuals, and will be accessed only in reference to a specific SSIWPA project, program or use, as designated by a written memorandum of agreement with the data-generating agency.
4. Data analysis results and working spreadsheets for SSIWPA projects are to be shared amongst working group members at the sole discretion of the person who created them. Once distributed, data contained in such spreadsheets may then be used by the recipients for SSIWPA project-related interpretation, analysis or scientific purposes.
5. Reports dealing with interpretation of the data for SSIWPA project-related purposes will (ideally) be written to acceptable scientific standard and will be authored by the person(s) who create them. Authorship can be worked out on a case-by-case basis.
6. Selection of subject matter and scope of such reports will be determined by the person(s) who write(s) the report, but will generally follow direction by SSIWPA Steering Committee in approved SSIWPA working group project workplans.
7. Reports created under 5 & 6 above may be distributed to working group members for information and/or request for comment, at the discretion of the author. Subject to correction or editing, such reports may be forwarded to the SSIWPA steering committee and published on the SSIWPA website with permission of the author.
8. Reports requested by SSIWPA steering committee, by consultants working for SSIWPA, or required as a deliverable of a SSIWPA monitoring program, will be authored by the person(s) preparing them, or will be considered working group-authored (if collaborative and agreed by all working group authors). Authorship will be worked out on a case-by-case basis in advance of report preparation and/or publication.
9. Copyright for authored reports will remain with the author(s).
10. Any raw data shared with SSIWPA or its' working groups will not be shared publicly without prior consent and written permission from the agency that generated the data.

11. Published reports/ papers will acknowledge all contributions of data, financial support and expertise from others.
12. Scientific papers prepared under 5 & 6 above may be submitted for peer-reviewed publication without permission of SSIWPA, as long as all authors are in agreement. Such papers will acknowledge all contributions of data, financial support and expertise from others.

**Schedule A: Role of TWG 2013-15: St. Mary Lake Focus**

- In the short term, the TWG will be requested to assess the “Review of St. Mary Lake Restoration Options,” by Ken Ashley (2008) that was prepared for Deborah Epps (Ministry of Environment), and add consideration of any potentially viable solutions that may have been omitted. The TWG will be asked to undertake a cost-benefit analysis of each option, identifying and attempting to fill any information gaps that may exist.
- Subject to funding, assistance from consultants may be required to assist with analyzing data and information that is beyond the capacity of the TWG as a committee of volunteers.
- A major role for the TWG will be to participate in a structured decision-making process and evaluate the recommended options, with stakeholders, in a systematic and thorough way that builds consensus in the process. The final result will be a short list of peer reviewed, community generated actions that can be used to update the St. Mary Lake Watershed Management Plan and that the SSIWPA can seek to implement.
- Other tasks may be assigned as the process unfolds and water quality issues in St. Mary Lake are better understood.

**Schedule B: Role of TWG: 2015+: Cusheon Lake Focus**

- In the short term, review and assess technical papers and other resources regarding the Cusheon Lake Watershed. Reports include:
  - “Apparent sources of P affecting Cusheon Lake Salt Spring Island, BC, by J. Sprague (2007). Available at <http://ssiwatersheds.ca/technical-and-other/>;
  - “Cusheon Watershed Management Plan” by Cusheon Watershed Management Plan Steering Committee, (2007). Available at: <http://www.islandstrust.bc.ca/lrc/ss/pdf/sscusheonlkwatershedplan.pdf>
- Attendance **to** and consideration of scientific and community values/issues or concerns regarding the Cusheon watershed, as presented to the SSIWPA
- The TWG will be asked to undertake a cost-benefit analysis of each option, identifying and attempting to fill any information gaps that may exist.
- Subject to funding, assistance from consultants may be required to assist with analyzing data and information that is beyond the capacity of the TWG as a **group** of volunteers.
- Other tasks may be assigned as the process unfolds and water quality issues in Cusheon Lake are better understood.

*Schedule C: See documents attached.  
 Integrated Water Management Program Charter (adopted August 19, 2016) and,  
 TWG Workplan 2017 (to be approved January, 2017 by Steering Committee)*

Changes this version 7.0: New Publication Protocol drafted to address data-sharing collaborations for IWM program. Fourth para (Background section) – added “Steering Committee (SC)”  
 Schedule B - third bullet added “to”, sixth bullet changed committee to group,  
 Removed “the TWG will be requested to” in first line of Schedule B.



**Integrated Water Management Program**  
Purpose, Objectives & Tasks

**Program Background**

The Integrated Watershed Management Program was initiated by SSIWPA in recognition of a concern that freshwater sources on Salt Spring Island are stressed, and at or near the sustainable limits of their capacity.

Those concerns are mainly focused on the north end of the island where, for example, North Salt Spring Waterworks District (NSSWD), which supplies one of the most densely populated parts of the island including all of Ganges village, has introduced a moratorium on new water connections due to source capacity issues.

The IWM program addresses the need to:

- quantify the volume of freshwater available (in a renewable manner) for human use;
- measure and optimize the efficiency of potable water resource uses/demand;
- if necessary, adjust bylaws and regulations to limit further densification in areas where water quantity sensitivities exist to sustainable levels.

**Program Purpose**

The primary purpose of the Integrated Water Management Program is to ensure a sustainable supply of fresh water for human use, and to protect against over-demand and degradation of the resource and the natural systems that depend on it.

**Program Objectives**

1	Assess and determine renewable quantity of freshwater from:	surface sources
		groundwater
		precipitation
2	Assess and determine sustainable freshwater demand for human uses over time:	domestic
		agricultural
		industrial

**Integrated Water Management Program**  
Purpose, Objectives & Tasks



		recreational
3	Promote efficient water use and build supply capacity through research, testing and policy development for:	water conservation distribution efficiencies assessment of new potential water sources rainwater harvesting & grey water recycling incentivization measures
4	Apply a Risk Analysis Framework to Program findings, and develop an Integrated Water Management Plan for Salt Spring Island	
5	Assess the Integrated Water Management Plan for compatibility with the Official Community Plan (OCP), Land Use Bylaws and other local/regional legislation (and provide recommendations to local government, as required).	
6	Audit the IWM Program for compliance with the Water Sustainability Act and other relevant provincial legislation and, where appropriate, provide recommendations that reconcile any conflicts.	

**Program Tasks**

<b>1 Steering committee tasks</b>		
1.1	Coordinated development of an Integrated Water Management Program for the island	
1.1.1	Make decisions about project scope and priorities	
1.1.2	Coordinate and manage workplans for working groups	

**Integrated Water Management Program**  
Purpose, Objectives & Tasks



1.1.3	Fundraising (with member agencies, others)	
1.1.4	Communicate with provincial government re potential legislative obstacles	
1.1.5	Consider impacts of water consumption of increased agricultural activity	
1.1.6	Communicate with SSIWPA member agencies	
1.1.7	Policy review and development together with member agencies	
1.1.8	Manage and plan for strategic and process issues	
<b>2 Coordinator tasks</b>		
2.1	Administer and facilitate (Logistics, agendas, minutes, effective conversations and decision making)	
2.2	Assist in preparation of project workplans and budgets	
2.3	Assist in developing and evaluating proposals for external funding and QP service contracts (Islands Trust Policy 6.5 iv Grants Admin)	
2.4	Assist with oversight and communications with consultants for IWM-related projects, following guidelines and protocols of member agency entering into contract	
2.5	Monitor progress and facilitate inter-group and intra-group reporting	
2.6	Assist with writing of funding proposals	
2.7	Organize and facilitate public outreach and public consultation on IWM projects/program	



**Integrated Water Management Program**  
Purpose, Objectives & Tasks



2.8	Coordinate the development of written materials and public outreach	
<b>3 TWG tasks</b>		
3.1	SSI Water Budget (Supply and Demand)	
3.1.1		Quantify freshwater supply source volumes
3.1.1.1		Supply estimates for new and existing surface water sources
3.1.1.1.1		Ganges treatment plant output potential (agriculture, fire, other)
3.1.1.1.2		Modifications to surface water storage (diffuse runoff/ stream to lake input management)
3.1.1.2		Supply estimates for new & existing SSI groundwater sources (wells, aquifers, GIS)
3.1.1.2.1		Potential community <b>new</b> well developments (e.g. Maxwell aquifer, other)
3.1.1.3		Climate change impacts on supply estimates - plan for uncertainty
3.1.1.4		Identify critical info gaps or data inconsistencies in supply estimates
3.1.1.5		Quantify/estimate environmental impacts of supply source usage volumes/scenarios (ie. environmental flows for wildlife, etc.)
3.1.1.6		Peer review the work of CEWG on the state of technology wrt alternative supplies

**Integrated Water Management Program**  
Purpose, Objectives & Tasks



3.1.2		Quantify demand scenarios
3.1.2.1		Analyze field data and benchmark consumption (water systems, residential, agricultural/commercial, industrial)
3.1.2.2		Quantify total SSI consumption within a range
3.1.2.3		Determine implications/relationships between consumption scenarios and source management
<hr/>		
3.2	SSI Water Quality	
3.2.1		Provide technical review of water quality science to inform watershed management plan development and implementation (in some cases collect and analyze datasets)
3.2.2		Technical assessment of stewardship actions and best management practices (e.g. prevention of contamination, lower or eliminate nutrient loads, etc.)
<hr/>		
3.3	Assess technical cost/benefit ratio for SSI Water Budget & watershed management planning and actions	
<hr/>		
3.4	Advise SC on policy and legislation from technical/scientific perspective	
<hr/>		
<b>4 CEWG tasks</b>		
4.1	Assess existing delivery systems of freshwater against current best practices and available technology and provide recommendations and advice regarding feasibility, cost/benefit, environmental and social implications of implementing upgrades:	

**Integrated Water Management Program**  
Purpose, Objectives & Tasks



4.1.1		Audit water delivery and distribution systems, and recommend possible efficiencies
4.1.1.1		Assess and report on cost: benefits (\$, environmental, personal/societal, etc.) of implementing efficiencies in specific SSI water delivery systems.
4.1.2		Assess best practices and alternative technologies available for: <ul style="list-style-type: none"> <li>• rainwater</li> <li>• grey water</li> <li>• wastewater reuse</li> <li>• desalination</li> <li>• others</li> </ul>
4.1.2.1		Assess and report on cost: benefits (\$, environmental, personal/societal, etc.) of implementing alternative technologies in specific SSI areas.
4.1.3		explore incentives used in other localities to manage demand, increase conservation, etc. (i.e. subsidies, building code, zoning changes, tiered rates, etc.)
4.2	Advise SC about existing or new local or provincial legislation from conservation and efficiency perspective	

**Draft List of Program Deliverables:**

- Integrated Water Management Plan or Water Sustainability Plan (see new [Water Sustainability Act](#))
- Safe Yield Model, as applied to St. Mary, Maxwell and Cusheon watersheds (possibly others, and groundwater units)
- Groundwater monitoring program (expansion of current provincial program)
- Agricultural water demand report (updated 2017 Land Use Inventory)
- Updated aquifer mapping and groundwater “budget” report (2017-18)
- Comprehensive report on conservation technologies and methods, specific to existing demand types
- Comprehensive rainwater harvesting report for SSI

**Integrated Water Management Program**  
Purpose, Objectives & Tasks



**Outcomes:**

- Changes to Land Use Bylaws, implementation of additional bylaws to promote water use efficiency
- Changes to Demand/Consumption Practices
- Public Education
- A system for IWM Program Outcomes to be implemented by each SSIWPA Agency
- Publicly-accessible groundwater information records for Salt Spring Island

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**A1** Steering Committee -SC- Focus

- A1.1** integrated water governance
  - A1.1.1 formulate strategies and make decisions based on recommended actions (TWG and CEWG work)
  - A1.1.2 policy development
  - A1.1.3 coordinated management

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**A2** Conservation and Efficiency Working Group -CEWG- Focus

- A2.1** assess state of technology for conservation and efficiency by water consumers on SSI
- A2.2** assess state of technology for conservation and efficiency by water suppliers/delivery on SSI
- A2.3** supply-side capacity-building (Review and assess feasibility of alternative strategies for SSI source water supplies, and methods to make current supply sources more efficient. Work with TWG, who will assess technical cost: benefits of supply-side recommendations by CEWG.)

**Document Revisions**

Date	Revision
08 Aug 2016	Background added. Clauses 4.1 and 4.2 combined.  Added "in renewable manner" to background. CEWG: Added sub-tasks 4.1.1.1 and 4.1.2.1. Fixed typos, spelling. Added plain language summary to end of doc.

## **Integrated Water Management Program**

### Purpose, Objectives & Tasks



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### **A3** Technical Working Group -WG- Focus

- A3.1** supply side quantification (review of data on hydrology, hydrogeology; mapping and modelling)
- A3.2** supply side capacity-building (Review and assess technical cost: benefits of CEWG recommended supply conservation and efficiency strategies, as well as new supply alternative technologies. Work with CEWG prior to making recommendations to Steering Committee.)
- A3.3** raw water quality (review and assess data, provide technical recommendations)

### **Plain Language Summary**

SSIWPA Steering Committee will coordinate the IWM Program described here above. Steering Committee will be advised by two working groups: the Technical Working Group - TWG and Conservation and Efficiency Working Group - CEWG. The working groups will report to Steering Committee monthly, at the public SSIWPA meetings.

TWG will supervise technical studies that will quantify renewable SSI freshwater supplies (including climate change trends) and consumer demands (current and projected) through data collection, and/or modelling. The CEWG will assess conservation and efficiency technologies, legislation and commercially-available systems for their feasibility to serve as strategies that could be effective on SSI. CEWG and TWG will interface for data-sharing and review of recommendations through the SSIWPA Coordinator, and monthly SSIWPA Steering Committee meetings.

#### Changes this version:

- added red text for clarification
- removed from deliverables: enhanced bylaw enforcement, moved several to a new section titled "outcomes" because they were not deliverables per se
- added to deliverables from the deliverables list agreed in spreadsheet table in "Workplan Master 2017"

## Cover page for draft resource under development.

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Proposed Title:

**“Living with water: Watershed Management  
Information Links to  
Policy, Regulations  
and Best Practices on Salt Spring Island, B.C.”**

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Purpose:

This was developed at the request of Steering Committee, to fulfill on the established need for:

- a) Realtors to share up to date information with potential land purchasers.
  - b) A public resource that holds links and information published by each of the SSIWPA member agencies, in one place, to guide residents and visitors, property owners and business-owners in their search for information about water resource use, conservation and sustainable management, including development of alternative technologies (such as rainwater harvesting, composting toilets, water metering, and development of a community water system).
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Proposed Audience:

- a) Electronic format: on SSIWPA website, and linked to this page by each member agency website, if desired.
- b) **Brochure format** distributed (one time volume of hard copy material as a SSIWPA outreach expense, then link to electronic brochure provided annually (updated by SSIWPA coordinator) for reprinting. Recipients:
  - a) Individual realtors and realty agencies,
  - b) Tourist Info Centre,
  - c) Chamber of Commerce.
  - d) “welcome wagon” package
  - e) with property tax invoice?
  - f) CRD Parc offices, CRD Building Inspection offices
  - g) Islands Trust office

# Living With Water: Information Links to Policy, Regulations and Best Practices for Water Resource Stewardship on Salt Spring Island

This alphabetical index lists important resource links under headers for aspects of island living that are impacted by, and have impacts on freshwater resources. The document is updated approximately twice per calendar year by SSIWPA Coordinator. Please communicate any broken links or additional information to the SSIWPA Coordinator (ssiwpacoord@gmail.com). Thank you!

## Agriculture

### PROVINCIAL (AND FEDERAL) GOVERNMENT:

Environmental Farm Plan: <https://www.bcac.bc.ca/ardcorp/program/environmental-farm-plan-program>

Bylaws in Farming Areas - BC Ministry of Agriculture Guide for Bylaw Development

[http://www.alc.gov.bc.ca/assets/alc/assets/library/land-use-planning/guide\\_for\\_bylaw\\_development\\_in\\_farming\\_areas\\_2015.pdf](http://www.alc.gov.bc.ca/assets/alc/assets/library/land-use-planning/guide_for_bylaw_development_in_farming_areas_2015.pdf)

Irrigation Management Guide: <http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/water/irrigation/irrigation-management-guide>

Nutrient Management Reference Guide: [http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/agricultural-land-and-environment/soil-nutrients/nutrient-management/nutrient-managment-reference-guide/nutrientmgmt\\_refguide.pdf](http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/agricultural-land-and-environment/soil-nutrients/nutrient-management/nutrient-managment-reference-guide/nutrientmgmt_refguide.pdf)

Department of Fisheries and Oceans Canada: Watershed Stewardship Guide for Agriculture Brochure: <http://www.dfo-mpo.gc.ca/Library/216753.pdf>

#### **ADVOCACY, EDUCATION, ASSOCIATIONS AND OTHER:**

Agricultural Alliance on Salt Spring Island <http://plantofarm.org/>

Salt Spring Island Area Farm Plan 2008: <http://masselinkdesign.com/pdf/reports/SSI%20Area%20Farm%20Plan.pdf>

Keyline Water Management: [crkeyline.ca](http://crkeyline.ca)

Water and Livestock:

[http://www.cattlemen.bc.ca/docs/livestock\\_drinking\\_water\\_brochure.pdf](http://www.cattlemen.bc.ca/docs/livestock_drinking_water_brochure.pdf)

<http://www.cattlemen.bc.ca/docs/cattle%20grazing%20in%20watersheds.pdf>

## **Construction, Building and Real Estate**

Canadian Mortgage and Housing Corporation – information for property buyers, sellers and realtors, including inspection checklists: <http://www.rdn.bc.ca/cms/wpattachments/wpID3052atID5446.pdf>

#### **LOCAL GOVERNMENT:**

Islands Trust - Guide to Environmentally-Friendly Building and Renovating in the Gulf Islands - <http://islandstrust.bc.ca/media/189932/sgienvirbldgguidejul2011.pdf>

Islands Trust - Newcomer's Guide to the Islands: <http://islandstrust.bc.ca/media/96307/A%20Place%20In%20The%20Islands%20Complete%20and%20Final%20APITbookFIN.pdf>

Capital Regional District Potable Rainwater Systems for Domestic and Non-Domestic Use: <https://www.crd.bc.ca/docs/default-source/building-inspection-pdf/bylaw3780.pdf?sfvrsn=2>

The Salt Spring Island "Sustainability Checklist" : <http://www.islandstrust.bc.ca/media/341730/ssrptsustainabilitychecklist.pdf>

#### **PROVINCIAL GOVERNMENT:**

Develop with Care – Guidebook for Urban and Rural Land Development: <http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare/>



# Conservation

## LOCAL GOVERNMENT:

Water conservation tips for homeowners

<https://www.crd.bc.ca/education/water-conservation/at-home/outdoor-water-use>

Regional drinking water services:

<https://www.crd.bc.ca/service/drinking-water/water-conservation>

CRD Best Management Practices Guide to Water Conservation in the Public Sector - 2001: <https://www.crd.bc.ca/docs/default-source/water-pdf/best-management-practices-for-water-efficiency-for-public-agencies.pdf?sfvrsn=0>

Business water efficiency opportunity in Capital Regional District (not yet the islands)  
<http://www.crd.bc.ca/education/climate-action/at-work/food-services-water-energy-savings>

Conservation Planning for Communities in B.C.: a How To Guide:

[http://www.obwb.ca/water-conservation-guide-for-bc-now-available/#\\_blank](http://www.obwb.ca/water-conservation-guide-for-bc-now-available/#_blank)

## PROVINCIAL GOVERNMENT:

Conservation in BC Municipalities - a catalogue of what has been done; Drought Information Portal: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-conservation>

[Note: Hard and Soft measures identified in categories. Catalogue on Implemented Water Efficiency Measures by Region appears dated - 1999]

Living Water Smart

<http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-planning-strategies/living-water-smart>

Conservation Calculator Tool for Improvement Districts or Managers of Water Resources and Systems (several connections to supply source(s)): <http://waterconservationcalculator.ca/>

Water Planning and Strategies: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-planning-strategies>

## ADVOCACY, EDUCATION, ASSOCIATIONS AND OTHER:

Partnership for Water Sustainability in BC: [www.waterbucket.ca](http://www.waterbucket.ca)

- click on the “Water Balance Model” for a hydrologic simulation of your property. Supported by Natural Resources Canada.

## Greywater

### PROVINCIAL GOVERNMENT

Health Regulations and System Design Specifications: [www2.gov.bc.ca/assets/gov/environment/waste-management/sewage/provincial-composting-toilet-manual.pdf](http://www2.gov.bc.ca/assets/gov/environment/waste-management/sewage/provincial-composting-toilet-manual.pdf)

Very Light Greywater from showers, baths and hand basins (not kitchen or laundry) is approved for toilet flushing grey water use, in the home, as a separate collection system, treatment and reuse when designed by an accredited plumbing engineer.

Sewerage System Standards of Practice: <http://www2.gov.bc.ca/gov/content/environment/waste-management/sewage/onsite-sewage-systems/sewerage-system-standard-practice-manual>

## Groundwater

### LOCAL GOVERNMENT:

Land Use bylaws and Official Community Plans regulate land use with consideration of groundwater use, in some cases requiring permits. See Land Use and Community Planning below.

Toolkit Islands Trust: <http://www.islandstrust.bc.ca/media/259555/groundwater-toolkit.pdf>

### PROVINCIAL GOVERNMENT

Water programs (quality, quantity, licensing, surface, groundwater, conservation): <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water>

Groundwater Resource Materials Links Page: [http://www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater/brochures\\_forms.html](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/brochures_forms.html)

Provincial BC Well Index: [http://www.env.gov.bc.ca/wsd/data\\_searches/wells/](http://www.env.gov.bc.ca/wsd/data_searches/wells/)  
For assistance with well searches contact Front Counter BC Toll Free:  
1-877-855-3222

Provincial Observation Well Network: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/groundwater-wells/aquifers/groundwater-observation-well-network>

Ministry of Environment Groundwater Reference Library - reports, studies, tools : [http://www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater/library.html](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/library.html)

Ministry of Environment Ecological Reports Catalogue - archive of completed environment (e.g. water, wildlife) related studies for B.C.: <http://www.env.gov.bc.ca/ecocat/>

Model Well Regulation Bylaw – A guide for local governments: [http://www.cscd.gov.bc.ca/lgd/infra/library/Model\\_Well\\_Regulation\\_Bylaw\\_Guide.pdf](http://www.cscd.gov.bc.ca/lgd/infra/library/Model_Well_Regulation_Bylaw_Guide.pdf)

Well Protection Tool Kit for preparation of well protection plans: [http://www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater/wells/well\\_protection/wellprotect.html](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/wells/well_protection/wellprotect.html)

### *Groundwater Regulations and Legislation*

Water Sustainability Act Part 3 – Wells and Groundwater Protection: [http://www.bclaws.ca/civix/document/id/complete/statreg/14015#division\\_d0e7668](http://www.bclaws.ca/civix/document/id/complete/statreg/14015#division_d0e7668)

Groundwater Protection regulation: [http://www.bclaws.ca/civix/document/id/complete/statreg/39\\_2016](http://www.bclaws.ca/civix/document/id/complete/statreg/39_2016)

Groundwater Licensing Regulations: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/water-licences-approvals/new-requirements-for-groundwater-users>

B.C. Ministry of Health Drinking Water Programs – information on water supply system permitting and operation: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/drinking-water-quality>

Safe Water Supply: Groundwater in BC. <http://www2.gov.bc.ca/assets/gov/environment/air-land-water/safe-water-supply-vital-health.pdf>

### *Provincial Mapping Resources:*

B.C. Water Resources Atlas and iMap BC (GIS): <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-science-data/water-data-tools>

Guide to using intrinsic aquifer vulnerability mapping (vulnerability to contaminants): <http://www.cvr.d.bc.ca/DocumentCenter/Home/View/7838>

**(SEE NEXT)**

**ADVOCACY, EDUCATION, ASSOCIATIONS AND OTHER:**

<http://www.islandstrust.bc.ca/trust-council/advocacy/groundwater-regulation-advocacy.aspx> (resource links at bottom of page)

Toolkit by Okanagan Water Board: <http://www.obwb.ca/library/groundwater-bylaws-toolkit/>

B.C. Groundwater Assn. – information for industry and public: <http://www.bcgwa.org/index.htm>

**QUALIFIED PROFESSIONALS**

MoE Registry of Qualified Well Drillers: [http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/well\\_drillers\\_reg.pdf](http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/well_drillers_reg.pdf)

MoE Registry of Qualified Well Pump Installers: [http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/pump\\_install\\_reg.pdf](http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/pump_install_reg.pdf)

Groundwater Consultants in B.C. (Qualified Professionals): <https://www.apeg.bc.ca/Member-Directories/APEGBC-Membership-Directory>

## **Land Use and Community Planning**

**LOCAL GOVERNMENT**

Bylaw 434. Salt Spring Island Official Community Plan (2008). Objectives that relate to watershed management and land use planning: <http://islandstrust.bc.ca/islands/local-trust-areas/salt-spring/bylaws/salt-spring-island-official-community-plan-bylaw-no-434/>

- Watershed and Islet Residential Designation Section B.8.1. (e.g. B.8.1.1.2. To avoid an increase in development or activity within watershed catchments.)
- Objective C.3.2.1.3 “...to ensure that zoning changes do not result in such a level of development in North Salt Spring Waterworks District, such that water would not be available for firefighting, hospital and school expansion, and affordable housing.”
- Objective c.3.2.1.5 applies to regulation of the demand of “island water sources” (not only St Mary Lake) to ensure that agricultural activities can still obtain water.

Bylaw 434. Salt Spring Island Official Community Plan (2008). Volume 2. Part E.5. Page 34. Development Permit Area 5: Community Well Capture Zones, requiring a permit be issued prior to development in this water sensitive area. (Reference: Potter, R. P.Eng.

1996. "Gulf Islands Groundwater" for the Islands Trust.): <http://www.islandstrust.bc.ca/media/343777/ss-bl-355-2017-consolidation-2017-02-15.pdf>  
and,  
<http://www.islandstrust.bc.ca/media/341403/capture-zones-community-water-supply-wells.pdf>

Land Use Bylaw no. 355 Sections 4.4 - 4.6 inclusive on General Regulations for Setbacks from water bodies and wells.

Land Use Bylaw no. 355 Subdivision Servicing Regulations require adequate amounts of potable water be proven at time of subdivision: <http://www.islandstrust.bc.ca/islands/local-trust-areas/salt-spring/bylaws/salt-spring-island-land-use-bylaw-no-3>

Riparian Areas Regulation. Bylaw 480. Amendment no. 2 adopted May 14, 2015 in the Salt Spring Island Official Community Plan Volume 2. <http://www.islandstrust.bc.ca/media/329646/ss-bl-ocp-434-volume-2-consolidated-version-july-2015.pdf>

Madrone Environmental Services Ltd. (2012) The Salt Spring Island Riparian Areas Regulations Peer Review – St Mary Lake and Cusheon Lake Watersheds (Prepared for Stefan Cermak, Islands Trust by Madrone Environmental Services Ltd.): [http://www.islandstrust.bc.ca/media/241698/Peer\\_Review\\_Final\\_Report\\_for\\_St\\_Mary\\_Lake\\_and\\_Cusheon\\_Lake\\_RAR\\_Assessment\\_Peer\\_Review\\_Salt\\_Spring\\_Island.pdf](http://www.islandstrust.bc.ca/media/241698/Peer_Review_Final_Report_for_St_Mary_Lake_and_Cusheon_Lake_RAR_Assessment_Peer_Review_Salt_Spring_Island.pdf)

Land Use Planning Tools: <http://islandstrust.bc.ca/trust-council/projects/water-resource-information-for-islanders/land-use-planning-tools/>

The Salt Spring Island "Sustainability Checklist" : <http://www.islandstrust.bc.ca/media/341730/ssrptsustainabilitychecklist.pdf>

#### **LOCAL GOVERNMENT MAPS AND DEVELOPMENT PERMIT AREAS:**

Map 1 in OCP Schedule A "Land and Shoreline Use Designations", available at: [http://www.islandstrust.bc.ca/media/328042/ocp\\_1.pdf](http://www.islandstrust.bc.ca/media/328042/ocp_1.pdf)

Map 21, Bylaw 434. Development Permit Area 4 Lakes, Streams and Wetlands: <http://www.islandstrust.bc.ca/media/341423/ssbylbaseocp0434map21.pdf>

Map 28. Bylaw 434. DPA7 Riparian Areas: [http://www.islandstrust.bc.ca/media/328027/ocp\\_28.pdf](http://www.islandstrust.bc.ca/media/328027/ocp_28.pdf)

#### **PROVINCIAL GOVERNMENT**

Water Planning: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-planning-strategies>

## **ADVOCACY, EDUCATION, ASSOCIATIONS AND OTHER:**

<http://islandstrust.bc.ca/trust-council/advocacy/groundwater-regulation-advocacy/>

## **Rainwater**

### **Rain Harvesting and Water-Wise Landscaping**

#### **LOCAL GOVERNMENT**

Capital Regional District. Benefits of rainwater harvesting:

<https://www.crd.bc.ca/education/water-conservation/at-home/outdoor-water-use/collecting-recycling-water/rainwater-harvesting>

Islands Trust - Guide to Environmentally-Friendly Building and Renovating in the Gulf Islands - <http://islandstrust.bc.ca/media/189932/sgienvirbldgguidejul2011.pdf>

Drainscapes video Cowichan Valley Regional District - <http://cvrd.waterbalance-express.ca/>

Rainwater Harvesting Best Practices Guidebook (Regional District of Nanaimo Green Building resources): <http://www.rdn.bc.ca/cms.asp?wpID=3098>

## **ADVOCACY, EDUCATION, ASSOCIATIONS AND OTHER:**

List of rain barrel suppliers in Greater Victoria.

<https://www.crd.bc.ca/docs/default-source/water-pdf/cisternsupplierslistapril09.pdf?sfvrsn=6>

## **Storm water and runoff**

Bylaw 2454 Salt Spring Island Stormwater Quality Management Extended Service Establishment No. 1, 1996: <https://www.crd.bc.ca/docs/default-source/crd-document-library/bylaws/liquidwasteseptagesewersourcecontrolandstormwater/2454---salt-spring-island-stormwater-quality-management-extended-service-establishment-no-1-1996B.pdf?sfvrsn=0>

Rainwater - Greywater Health Regulations and System Design Specifications:

[www2.gov.bc.ca/assets/gov/environment/waste-management/sewage/provincial-composting-toilet-manual.pdf](http://www2.gov.bc.ca/assets/gov/environment/waste-management/sewage/provincial-composting-toilet-manual.pdf)

## Septic

### LOCAL GOVERNMENT

Homeowner's Septic Information Webpage: <https://www.crd.bc.ca/service/sewers-wastewater-septic/septic-systems>

Resource page: <http://www.crd.bc.ca/service/sewers-wastewater-septic/septic-systems/septic-system-resources>

Land Use FAQs (Island Health): [http://www.viha.ca/mho/Land\\_Use\\_FAQS.htm](http://www.viha.ca/mho/Land_Use_FAQS.htm)

CRD weblink: [www.crd.bc.ca/septic](http://www.crd.bc.ca/septic)  
CRD septic information line at 250-360-3187  
CRD septic email inquiries [septic@crd.bc.ca](mailto:septic@crd.bc.ca).

Infosheet: [https://www.crd.bc.ca/docs/default-source/septic-pdf/septic-savvy/septic\\_infosheet.pdf?sfvrsn=2](https://www.crd.bc.ca/docs/default-source/septic-pdf/septic-savvy/septic_infosheet.pdf?sfvrsn=2)

Dos and Don'ts: <https://www.crd.bc.ca/docs/default-source/septic-pdf/septic-savvy/septicsavvybrochure-jan-2011.pdf?sfvrsn=2>

Drainfield Info Sheet: [https://www.crd.bc.ca/docs/default-source/septic-pdf/septic-savvy/septic\\_infosheet1\\_drainfield.pdf?sfvrsn=2](https://www.crd.bc.ca/docs/default-source/septic-pdf/septic-savvy/septic_infosheet1_drainfield.pdf?sfvrsn=2)

Garburators and In-Sink Garbage Disposals (organics):  
<http://www.askthebuilder.com/septic-tank-garbage-disposal/>

Maintenance Record Sheets - <https://www.crd.bc.ca/docs/default-source/septic-pdf/septic-savvy/septicsystemmaintenancelocationrecord.pdf?sfvrsn=2>

Septic and water conservation - <https://www.crd.bc.ca/docs/default-source/septic-pdf/septic-savvy/water-conservation.pdf?sfvrsn=2>

Sewerage and subdivision - [http://www.viha.ca/mho/Land\\_Use.htm](http://www.viha.ca/mho/Land_Use.htm)

Workshops - <https://www.crd.bc.ca/service/sewers-wastewater-septic/septic-systems/septic-savvy-workshops>

FAQs about Septic: <https://www.crd.bc.ca/docs/default-source/septic-pdf/septicsavvyonsitefaqtype1.pdf?sfvrsn=2>

How to find your septic tank: [http://www.env.gov.bc.ca/wsd/plan\\_protect\\_sustain/groundwater/septic\\_tank.pdf](http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/septic_tank.pdf)

Caring for your Onsite Septic System: [http://www.viha.ca/nr/rdonlyres/29102297-81e8-4f5e-8bfd-3b5286386c2f/0/caring\\_for\\_your\\_onsite\\_sewage\\_disposal\\_system\\_disposal.pdf](http://www.viha.ca/nr/rdonlyres/29102297-81e8-4f5e-8bfd-3b5286386c2f/0/caring_for_your_onsite_sewage_disposal_system_disposal.pdf)

What Health Regulations apply to Septic Systems?: <http://www2.gov.bc.ca/gov/topic.page?id=1B1F09DF74D24580BD6CC28AF4F30074>

Who can service Septic Systems?: <http://www2.gov.bc.ca/gov/content/environment/waste-management/sewage/onsite-sewage-systems/onsite-sewage-system-management#authorized-persons>

#### *CRD Septic Videos:*

How Septic Systems Work: <https://www.youtube.com/watch?v=1D6edKPsniM>

What can go wrong with your septic system?: <https://www.youtube.com/watch?v=sFcVH4H6Ge4>

Operating and Maintaining a Septic System: <https://www.youtube.com/watch?v=7egqnL0PIPs>

#### *Regulations:*

Management of Onsite Sewage Systems in the CRD. Bylaw 3478. 2007: <https://www.crd.bc.ca/about/document-library/Documents/bylaws/liquidwasteseptagesewersourcecontrolandstormwater>

Septic Bylaw 3479: <https://www.crd.bc.ca/docs/default-source/septic-pdf/onsite-sewage-systems-bylaw-crd-bylaw-no-3479.pdf?sfvrsn=6>

Septic Bylaw Information Page with FAQ: <https://www.crd.bc.ca/service/sewers-wastewater-septic/septic-systems/certifying-septic-maintenance>

### **PROVINCIAL GOVERNMENT**

Onsite Sewage System Management: <http://www2.gov.bc.ca/gov/content/environment/waste-management/sewage/onsite-sewage-systems/onsite-sewage-system-management>



Environmental Management Act. Municipal Wastewater Regulations.: [http://www.bclaws.ca/civix/document/id/complete/statreg/87\\_2012](http://www.bclaws.ca/civix/document/id/complete/statreg/87_2012)

**ADVOCACY, EDUCATION, ASSOCIATIONS AND OTHER:**

<http://tiredofdealingwithdrips.com/blog/will-garbage-disposal-work-septic-tank/>

## **Ecological Science and Stewardship**

### **Lakes, Streams and Water Quality**

#### **LOCAL GOVERNMENT**

*Please see Land Use Planning Section of this resource.*

Educational Resources and Stewardship Activities (K-7 curriculum): [www.crd.bc.ca/watersheds](http://www.crd.bc.ca/watersheds)

#### **PROVINCIAL GOVERNMENT**

##### *Licenses and Water Quantity*

Surface Water Licensing and Rights: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights>

Rules for water licensing and approvals: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/water-licences-approvals>

Potential diversion from a sensitive stream: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/sensitive-streams>

Wetlands: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-planning-strategies/wetlands-in-bc>

##### *Water Quality Guidelines*

Province of British Columbia Approved Water Quality Guidelines: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/water-quality-guidelines/approved-water-quality-guidelines>

Water Supply System Permitting and Regulation: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/drinking-water-quality>

BC Surface Water Treatment Objectives: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/drinking-water-quality/how-drinking-water-is-protected-in-bc>

Water Treatment Regulations: [http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/200\\_2003](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/200_2003)

B.C. Ministry of Health Publications – fact sheets on well testing and water quality concerns: <http://www.healthlinkbc.ca/healthfiles/hfile05b.stm>

Safe Water Supply: Groundwater in BC. <http://www2.gov.bc.ca/assets/gov/environment/air-land-water/safe-water-supply-vital-health.pdf>

Health Canada water quality resources: <http://www.hc-sc.gc.ca/ewh-semt/water-eau/index-eng.php>

## **SALT SPRING ISLAND WATERSHED SCIENCE**

Salt Spring Island Watershed Protection Authority Reports (Technical Working Group) - studies on stormwater, phosphorus lake inputs and budgets, phosphorus impacts on algal communities, drought analysis, water conservation and efficiency, safe yield modelling, and more....please click [here](#).

Squires. M. “A Guide - Recommendations for Lake Research”. February 2016: [http://www.northsaltspringwaterworks.ca/wordpress\\_water/wp-content/uploads/2016/02/A-Guide-to-St-Mary-Lake-Use-Misuse-Disuse-of-Aeration-What-is-Normal-Future-Research-Feb.-27-Squires-M.pdf](http://www.northsaltspringwaterworks.ca/wordpress_water/wp-content/uploads/2016/02/A-Guide-to-St-Mary-Lake-Use-Misuse-Disuse-of-Aeration-What-is-Normal-Future-Research-Feb.-27-Squires-M.pdf)

## **Habitat and Species Conservation**

### **LOCAL GOVERNMENT**

Green Shores for Homes: <http://www.islandstrust.bc.ca/trust-council/projects/green-shores-for-homes/>

Shoreline Stewardship Principles: <http://www.islandstrust.bc.ca/islands/island-ecosystems/caring-for-my-shoreline/>

## **PROVINCIAL GOVERNMENT**

BC Riparian Areas Regulation: <http://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/riparian-areas-regulation>

Riparian Areas Revegetation Guidebook: [http://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/fish-fish-habitat/riparian-areas-regulations/rar\\_reveg\\_guidebk\\_sept6\\_2012\\_final.pdf](http://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/fish-fish-habitat/riparian-areas-regulations/rar_reveg_guidebk_sept6_2012_final.pdf)

Fish Protection Act: [http://www.env.gov.bc.ca/habitat/fish\\_protection\\_act/act/documents/act-theact.html](http://www.env.gov.bc.ca/habitat/fish_protection_act/act/documents/act-theact.html)

### *Species At Risk and Biodiversity*

Biodiversity: <http://www.env.gov.bc.ca/wld/bio.htm>

Species at Risk Protection Strategies: <http://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/species-ecosystems-at-risk>

## **ADVOCACY, EDUCATION, ASSOCIATIONS AND OTHER:**

### *Fish and Invasive Species*

<http://www.gofishbc.com/Blog.aspx> (Learn about native/non-native fish species. Avoid illegal fish introductions.)

<http://www.bcinvasives.ca/> (Manage wetlands and waterways. Avoid illegal plant, animal introductions.)

### *Educational Tools:*

<http://www.water.usgs.gov/edu/watercycle-kids-beg.html>

<http://www.crd.bc.ca/teacher>

### *Local Organizations:*

Island Stream and Salmon Enhancement Society: [salmonkathy@gmail.com](mailto:salmonkathy@gmail.com)

Salt Spring Island Conservancy: <http://saltspringconservancy.ca/>

General Wildlife and Ecological Conservation Links for Salt Spring Island: <http://saltspringconservancy.ca/get-involved/links/>

SSI Water Preservation Society: <http://www.ssiwaterpreservationsociety.ca/>

Cusheon Lake Stewardship Committee: <http://www.cusheonlakestewardship.com/home.htm>

Gulf Islands Centre for Ecological Learning: <http://www.gicel.ca/>

Big Trees on Salt Spring Island: <http://www.rdcraig.com/bigtrees/>

*Provincial, National, Others:*

Land Trust Alliance of BC: <http://ltabc.ca/>

British Columbia Lake Stewardship Society: <http://www.bclss.org/>

Nature Conservancy of Canada: <http://www.natureconservancy.ca/en/who-we-are/>

Living Lakes Canada: <http://www.livinglakes.ca/>

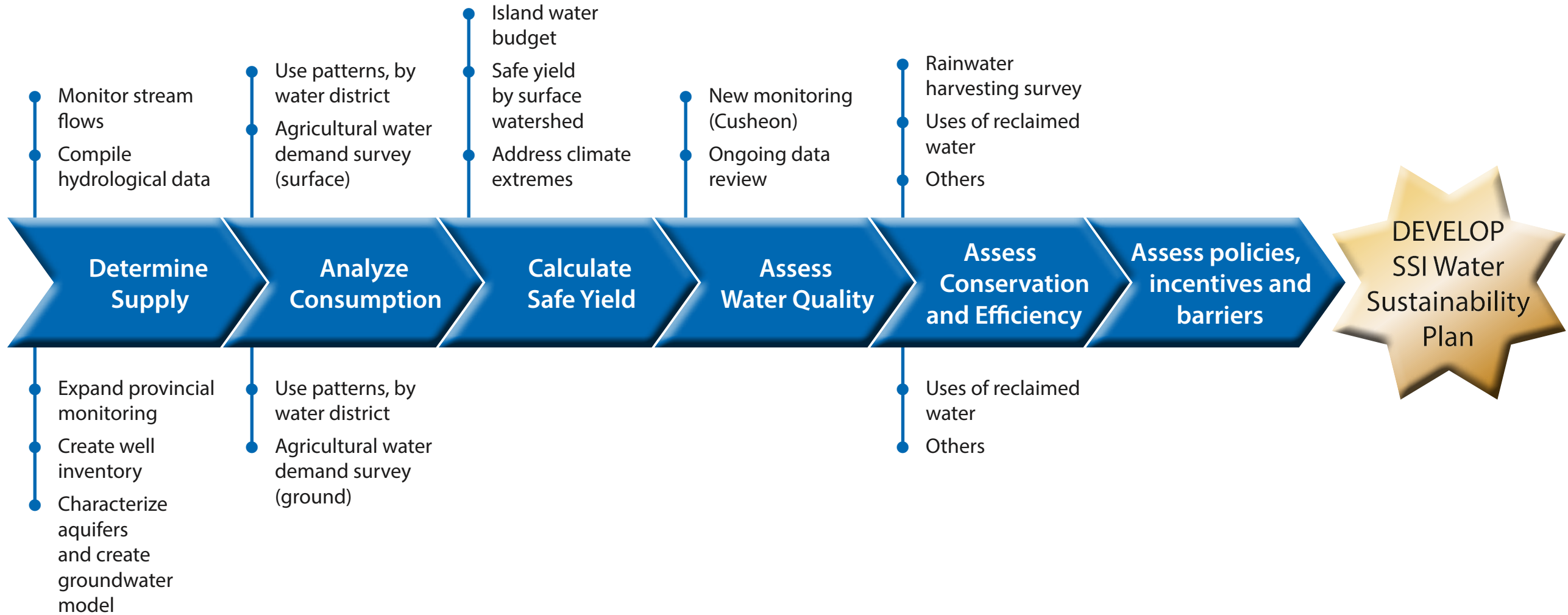
Canadian Wildlife Service: <https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=5f569149-1>

University of Utah Extension Service Best Practices for Stream Monitoring:  
[http://extension.usu.edu/waterquality/bmps/bmp\\_guidance](http://extension.usu.edu/waterquality/bmps/bmp_guidance)

United States National Forest System: [http://www.fs.fed.us/biology/resources/pubs/watershed/FS\\_National\\_Core\\_BMPs\\_April2012.pdf](http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf)

# Integrated Water Management Program Workplan

## Surface Water Sources



## Ground Water Sources

To: Salt Spring Island Watershed Protection Authority

Date: May 11, 2017

From: Lorrie Hunt, SSI Water Council Board Member, Treasurer

Received via email to SSIWPA coordinator

Hello Steering Committee Members,

I am writing to inform you that the Water Council Board has determined that it needs to finish operations and to come to full completion – the end of this particular type of Society on Salt Spring Island, at this time.

As you all know, I have been ill and in hospital in Victoria for several months. During that time, Regan Hunt with assistance from Garth Hendren (board member for Water Council (SSIWC)) was replacing me to administer the CRD Rainwater Harvesting Rebate Program.

When I returned to work for SSIWC as Treasurer, I found a shortfall in the SSIWC account. The shortfall in the SSIWC account, due to two outstanding and thus uncashed cheques, is \$745.59.

This oversight was caused by my absence due to illness for the previous four months. The outstanding cheques were related to the Rainwater Harvesting Rebate Program of 2017.

Would SSIWPA Steering Committee please consider providing some financial assistance to SSIWC in order to help cover the shortfall for the amount of \$745.59?

Thanks, Lorrie.



Islands Trust

**JOB PROFILE**

Position # 00115434

**TITLE: SENIOR FRESHWATER SPECIALIST****CLASSIFICATION:** LICENSED SCIENCE OFFICER 2 (OTHER)**MINISTRY:** ISLANDS TRUST,  
MIN OF COMMUNITY, SPORT & CULTURAL DEVELOPMENT**WORK UNIT:** LOCAL PLANNING SERVICES**SUPERVISOR TITLE:** DIRECTOR, LOCAL PLANNING SERVICES**SUPERVISOR POSITION #:** 00036528**JOB OVERVIEW**

This is a temporary leadership position that ensures a focus on excellence development of professional reports in the area of Freshwater ecosystems, including groundwater and hydrology. The focus will be on freshwater issues, and related outreach and engagement with government agencies. The Senior Freshwater Specialist provides senior advice to the elected officials for 13 local trust committees, the Executive Committee and Trust Council, the Chief Administrative Officer, Directors, Regional Planning Managers, Island Planners and other staff on a variety of freshwater issues and initiatives ensuring a high performance and informed approach. The position will require the Senior Freshwater Specialist to provide advice to elected officials, senior staff, planners and bylaw enforcement officers and assist in consultation with government agencies.

The position will report to the Director of Local Planning Services.

The Senior Freshwater Specialist takes the initiative to develop tools and methods, research and sophisticated knowledge of freshwater issues as follows:

**KEY ACCOUNTABILITIES**

- Conducts research and provides liaison with other government agencies, First Nations and non-profit organizations with interest or expertise in freshwater in the Trust Area to collect and develop reference materials, tools and systems to assist local trust committees when making land use planning decisions.
- Provide professional and expert leadership, guidance, education and orientation to local trust committees, Islands Trust senior staff and island planners on all matters related to freshwater including freshwater hydrology and ecosystems.
- Provides professional expert advice to senior management and Executive Committee on advocacy opportunities regarding freshwater regulation, management and education.
- Prepares and recommends strategies and priorities for local trust committees' consideration with respect to potential and emerging freshwater issues.
- Works with regional planning managers, planners and other staff to identify and respond to freshwater issues, including providing professional expert advice to local trust committees on advocacy to other agencies in support of official community plan policies.

Date: May 11, 2017

## JOB QUALIFICATIONS

### EDUCATION AND EXPERIENCE

- A degree in a related field (e.g. Physical geography, Earth Sciences, or Environmental Sciences) or equivalent as accepted by the appropriate professional association.
- Registration, or immediately eligible for registration, as a fully licensed professional with a professional association in British Columbia.
- Experience in watershed hydrology, geomorphology, engineering hydrology, resource management and planning, or experience in applied water resources, hydrology and/or fluvial geomorphology with specific experience in field and stream based assessments.
- Experience interpreting and analyzing maps and data related to resource and water management.
- Experience working cooperatively with agencies, other levels of government and the public.
- Experience coordinating or participating in complex integrated resource management plans.
- Experience conducting water investigations, including watershed and hydrology assessments and water monitoring.
- Experience producing technical reports.
- Specific experience in riparian ecosystem and habitat assessment methodology, and potential impacts that could occur from development proposals and activities.
- Specific experience in stream, river and lake hydraulics and assessment of impacts from development proposal and activities is preferred.

### KNOWLEDGE/SKILLS/ABILITIES

- Understanding of BC legislation on land use planning is preferred.
- Advanced knowledge of water resource management, water quality and water use.
- The ability to travel, including occasional overnight travel within British Columbia and possession and maintenance of a Class 5 BC Drivers' License are also required.
- Successful completion of security screening requirements of the BC Public Service, which may include a criminal records check, and/or Criminal Records Review Act (CRRRA) check, and/or enhanced security screening checks as required by the ministry.

### BEHAVIOURAL COMPETENCIES

**Conceptual Thinking** is the ability to identify patterns or connections between situations that are not obviously related, and to identify key or underlying issues in complex situations. It includes using creative, conceptual or inductive reasoning or thought processes that are not necessarily categorized by linear thinking. Engaging External Partners identifies and involves external stakeholders in order to foster long term partnerships.

**Planning, Organizing and Coordinating** involves proactively planning, establishing priorities and allocating resources. It is expressed by developing and implementing increasingly complex plans. It also involves monitoring and adjusting work to accomplish goals and deliver to the organization's mandate.

**Change Management** is the ability to support a change initiative that has been mandated within the organization. It involves helping the organization's members understand what the change means to them, and providing the ongoing guidance and support that will maintain enthusiasm and commitment to the change process. People with this competency willingly embrace and champion change. They take advantage of every opportunity to explain their vision of the future to others and gain their buy-in

Date: May 11, 2017



**Improving Operations** is the ability and motivation to apply one's knowledge and past experience for improving upon current modes of operation within the Ministry. This behaviour ranges from adapting widely used approaches to developing entirely new value-added solutions.

Expertise includes the motivation to expand and use technical knowledge or to distribute work-related knowledge to others.

**Customer/Client Development** involves the genuine intent to foster the learning or development of a diverse clientele. "Customers/clients" include the public, internal clients, colleagues, partners, co-workers, peers, branches, ministries/agencies and other government organizations.

**Teamwork and Co-operation** is the ability to work co-operatively within diverse teams, work groups and across the organization to achieve group and organizational goals. It includes the desire and ability to understand and respond effectively to other people from diverse backgrounds with diverse views

**Conflict Management** is the ability to develop working relationships that facilitate the prevention and/or resolution of conflicts within the organization.