



File No.: SSI 6500-20
Watershed Management

DATE OF MEETING: August 16, 2018
TO: Salt Spring Island Local Trust Committee
FROM: Justine Starke, Island Planner
Local Planning Services
COPY: Salt Spring Island Watershed Protection Alliance
SUBJECT: SSIWPA Annual Report 2017

PURPOSE

The purpose of this report is to bring forward the Salt Spring Island Watershed Protection Alliance (SSIWPA) Annual Report for 2017 and provide a brief update on the work of SSIWPA for the Salt Spring Island Local Trust Committee (SSI LTC).

REPORT SUMMARY

The attached [2017 Salt Spring Island Watershed Protection Alliance \(SSIWPA\) Annual Report](#) was approved by the SSIWPA steering committee on June 25, 2018 and the final version was received by SSIWPA on July 20, 2018. The report summarizes the work of SSIWPA over the last year, provides financial statements and updates on the 2017 work plan. Note since 2017, a major focus of SSIWPA has been to restructure, refine and update the Integrated Freshwater Management Program work plan to ensure it is an effective and comprehensive guide for SSIWPA coordination. The updated work plan is still in the process of consideration and approval by the SSIWPA steering committee and will be brought forward to the Salt Spring Island Local Trust Committee once the process is complete.

BACKGROUND

The Salt Spring Island Local Trust Committee (LTC) has watershed management on Salt Spring Island as one of its top priorities. Islands Trust Council has delegated authority from the Islands Trust Act to the SSI LTC for coordination of the Salt Spring Island Watershed Protection Alliance. This allows a forum within which to engage a multi-jurisdictional approach to the sustainability and protection of freshwater resources on Salt Spring Island. The major focus of SSIWPA over the last year has been to update its [Terms of Reference \(ToR\)](#) and the [Terms of Reference of its Technical Working Group](#). Through this process SSIWPA changed its name from the Salt Spring Island Watershed Protection Authority to the Salt Spring Island Watershed Protection Alliance to make it clear that SSIWPA does not have actual authority but is a collaboration of agencies, each with individual authority conferred by Provincial legislation. The changes improve the clarity, purpose, and role SSIWPA and its Technical Working Group. Other major focuses of SSIWPA in 2018 include:

- Strategic planning to update the Integrated Water Management Program work plan. This involved a series of strategic planning workshops led by facilitator and hydrogeologist Mike Wei who has recently

retired from his position as the Head of Aquifer and Watershed Science at the *BC Ministry of Environment and Climate Change Strategy*.

- Continued coordination of member agency collaboration, including the *Salt Spring Island Groundwater Wells Inventory Survey* and the *Salt Spring Island Groundwater Wells Monitoring Project* (funded in part by LTC leadership in receiving a grant from the Real Estate Foundation of BC).

Detailed updates on this work will be provided to the SSI LTC once SSIWPA has considered and approved changes to the work plan.

Submitted By:	Justine Starke, Island Planner	July 27, 2018
Concurrence:	Stefan Cermak, Regional Planning Manager	July 27, 2017

ATTACHMENTS

1. Salt Spring Island Watershed Protection Alliance – 2017 Annual Report

The background of the cover is a close-up photograph of water splashing, with many small droplets and ripples. A large, semi-transparent blue wavy line, similar to the one in the logo, is overlaid on the water. A solid blue horizontal band is positioned across the middle of the page, containing the title text.

**SSIWPA
Annual Report - 2017**

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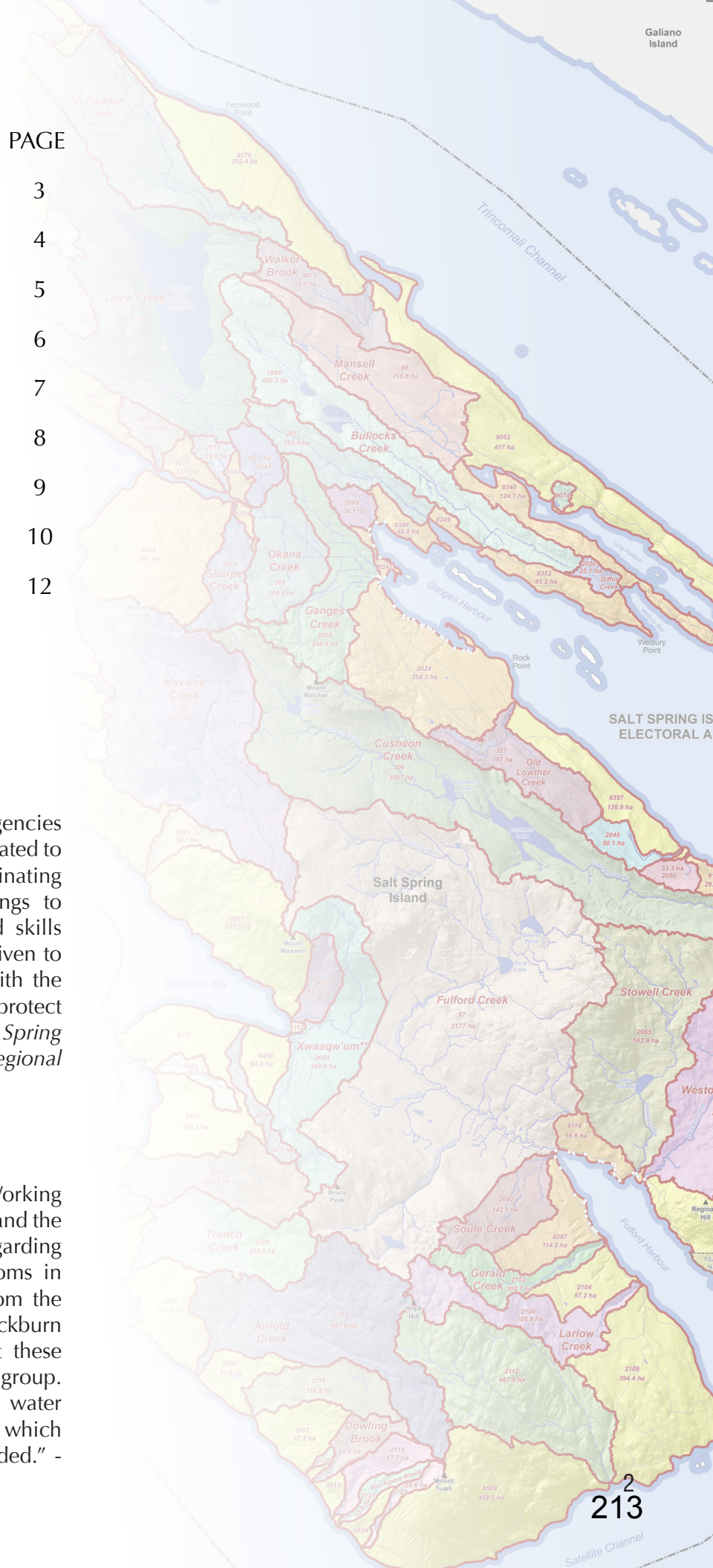
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“By including all the key ministries and agencies who have a key role on Salt Spring Island related to watershed protection; SSIWPA, as the coordinating body, has demonstrated the value it brings to our community. With the knowledge and skills gained, I would like to see consideration given to the formation of a formalized authority with the funding and the powers necessary to help protect and manage our precious watersheds.” - *Salt Spring Island Electoral Area Director, Capital Regional District*

“We are glad that the SSIWPA Technical Working Group is beginning work on Cusheon Lake and the watershed, we have particular concerns regarding raw water quality, the frequent algal blooms in the lake and potential leachate run off from the area of the Closed Landfill site and Blackburn Road transfer station and understand that these concerns will be addressed by the working group. In addition we are pleased to see that a water availability study will be undertaken, for which an automatic lake level gauge will be needed.” - *Beddis Water Service Area Commission*



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MESSAGE FROM THE CHAIR

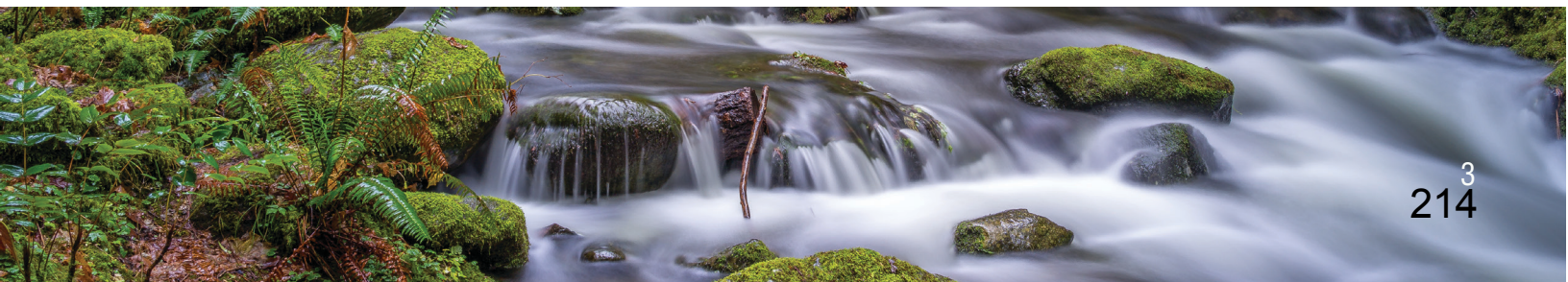
Although Salt Spring Island benefits from a healthy precipitation of over 36” per year, the dramatic distribution of delivery poses particular challenges for harvesting our water resources efficiently. Water is available in copious quantities in winter when our population is at its lowest and our per capita water usage declines. Conversely, in the summer when our population peaks and our water usage is boosted by outdoor activities, supplies are at their lowest.

Responsible ecological management demands that we base land use planning and infrastructure decisions using the precautionary principle. Not doing so has already led to issues with groundwater resources, such as saltwater intrusion and aquifer stress in a number of areas on Salt Spring. Once contaminated, remediation of groundwater resources can be more costly and in some cases, impossible to achieve. We could lose the benefits of that freshwater source in perpetuity. Impacts such as these make it essential that island agencies make evidence-based decisions where our surface or groundwater sources might be impacted.

SSIWPA member agencies work together to study water quality and quantity patterns across each drinking watershed and groundwater resource area on Salt Spring Island. A multi-year project - the [Integrated Freshwater Management Program](#) - was created in 2016 and launched in 2017 to ultimately result in a Water Sustainability Plan for Salt Spring Island.

The coordinated efforts of SSIWPA members and its volunteer working groups yielded many achievements in 2017, the first year of the Integrated Freshwater Management Program. Highlights included:

- the “Water Availability Analysis and Climate Change Assessment” for St. Mary Lake based on 2016-17 updated information by SSIWPA member, North Salt Spring Waterworks District;
- 80% of the work towards updated aquifer descriptions and previously un-documented groundwater budgets for the island by the provincial Ministries of Environment and Climate Change Strategy & Forests, Lands, Natural Resource Operations and Rural Development;
- the updated Agricultural Land Use Inventory and related [Agricultural Water Demand Model](#) by the Ministry of Agriculture;
- the bulk of a Water Conservation Technology Comparison Report by the Conservation and Efficiency Working Group, including [rainwater harvesting survey](#) results from Royal Roads University student partners;
- technical review of groundwater monitoring project development and a pilot soil nutrient watershed analysis study by the Technical Working Group, and project development, grant-writing and data collection efforts in many other related project areas.



ABOUT SSIWPA

SSIWPA Steering Committee consists of representatives of agencies that have responsibility for water and/or watershed management, the delivery of potable drinking water, or the assurance of safe drinking water in the SSI Local Trust Area.

A New Name

The **Salt Spring Island Watershed Protection Alliance** changed its name in December 2017. It was previously known as the Salt Spring Island Watershed Protection Authority.



Member Agencies



Islands Trust (IT)
Capital Regional District (CRD)
Ministry of Forests, Lands, Natural Resource
Operations and Rural Development (FLNR)

Ministry of Agriculture (AGRI)
North Salt Spring Waterworks District (NSSWD)
Beddis Water Service Area Commission
Highland and Fernwood Water Service Areas
Commission

HOW SSIWPA WORKS

SSIWPA provides a framework for cooperative management of freshwater resources in the Salt Spring Island Local Trust Area. SSIWPA is advised by two Working Groups.



The Technical Working Group (TWG)

Provides technical advisory, as directed by Steering Committee; it consists of members-at-large who have local multidisciplinary expertise, working together with member agency staff.



The Conservation and Efficiency Working Group (CEWG)

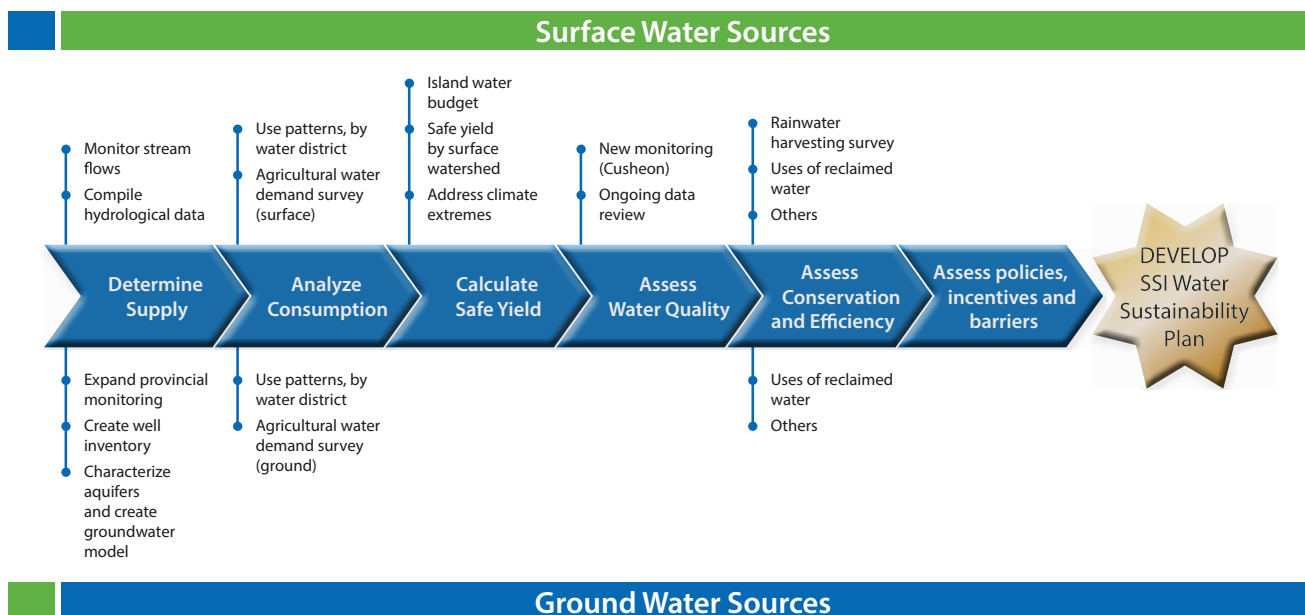
Provides advice to Steering Committee on the feasibility and accessibility of water conservation technologies and local applications.

The Steering Committee invites input from multi-stakeholder Public Advisory Committees for specific projects. SSIWPA Steering Committee and Working Group meetings are open to the public for observation.

Meeting information is available in the [calendar](#) on the SSIWPA website.



Integrated Freshwater Management Program Workplan

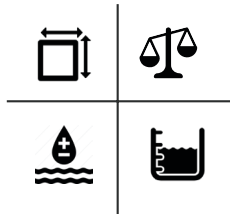


Draft: May 2017

INTEGRATED FRESHWATER MANAGEMENT PROGRAM (IFWM)

OBJECTIVES

- A coordinated multi-year effort in watershed and water resource sustainability planning.
- Member agencies conduct new and ongoing projects and monitoring.
- Collaboration ranges from shared project management and funding to independent agency project results shared with SSIWPA in collegial approach.
- Primary Program Goal: To ensure a sustainable supply of freshwater for human use, and to protect against over demand and degradation of the resource and the natural systems that depend on it.



- quantify available freshwater for human use island-wide
- consider both human and ecosystem needs
- improve potable water use efficiency
- monitor raw water quality

Projects in focus for SSIWPA's IFWM program in 2018 include: **Groundwater Wells Inventory Project**



Prior to the release of the BC Water Sustainability Act on February 29, 2016, domestic groundwater well registration was voluntary and hundreds of drilled wells on Salt Spring are not registered. Islands Trust is coordinating with Ministry of Environment and Ministry of Forests, Lands, Natural Resources, and Rural Development to improve the provincial wells registry.

As part of Salt Spring Island Groundwater Wells Inventory Project, Islands Trust collated over 150 professional groundwater reports from subdivision applications from the past 30 years discovering nearly 400 unregistered groundwater well records. These well records will be included in the provincial wells registry to improve the overall functionality of the registry and to inform groundwater resource management and watershed protection.

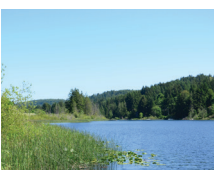
Groundwater Wells Monitoring Pilot Project



Groundwater supplies approximately half of the water needs for Salt Spring Island community and is an ecological component of our watersheds. Long-term monitoring of groundwater levels is integral for watershed protection and management of groundwater resources.

In addition to the three Provincial Groundwater Observation Network locations, the Salt Spring Island Groundwater Wells Monitoring Pilot Project will establish twelve automated groundwater monitoring locations across the island in volunteered domestic groundwater wells to measure hourly water table fluctuations and groundwater temperature changes. This year long pilot project is funded by a Real Estate Foundation of BC Freshwater Sustainability grant and SSIWPA agency contributions, and select wells may convert to long term monitoring sites.

Cusheon Lake Watershed Monitoring



To meet the program milestone of conducting a “Water Availability Analysis” for the Cusheon Lake watershed system, resources are being allocated during 2018 and early 2019 to install automated dataloggers to measure lake level, stream flow and temperature at Cusheon Lake and its main outflow. SSIWPA agency staff together with local volunteers will monitor and analyze data.

SSIWPA member agencies are also collaborating on a project to measure nutrient inputs to Cusheon Lake that may impact raw water quality, which will inform management recommendations for this watershed.

PROGRESS AND ACCOMPLISHMENTS

The following projects and areas of study were undertaken by SSIWPA member agencies and contribute to the coordinated achievement of SSIWPA's IFWM Program objectives.

MILESTONES

PROGRESS

	Agency Responsible	Progress as of May 2018
Water Availability and Climate Change Assessment		
St. Mary Lake	NSSWD	May 2018 - 100%
Maxell Lake	NSSWD	launched
Cusheon Lake	CRD	launched
Hydrometric data collection		
Maxwell Lake Watershed	NSSWD	
Cusheon and Fulford Creeks- permanent stations	FLNR	20%
Bullock, Cusheon, Fulford, Ganges, McFadden Creeks	FLNR	2017 data - 100%
Water Quality and Nutrient Monitoring		
St. Mary and Maxwell Lakes	NSSWD	ongoing
Cusheon Lake	CRD-Beddis	ongoing
Cusheon Lake - enhanced nutrient monitoring		launched
Soil Phosphorus Movement: proof of concept pilot study	TWG	90%
Agricultural Water Demand Model		
Island-wide	AGRI	100%
Aquifer Mapping and Groundwater Budget Project		
Island-wide	FLNR	90%
Supply and Utilization Data Compilation		
11 Community wells	FLNR	100%
All community lake systems	FLNR	100%
Groundwater Wells Inventory and Monitoring		
Inventory - island-wide, targeted	IT, FLNR	80%
Groundwater level well monitoring - island-wide, targeted area pilot	IT, FLNR	10%
Rainwater Harvesting Survey and Case Studies		
Island-wide	Royal Roads U	100%
Conservation Technologies Comparison Report		
Island-wide	CEWG	80%

COMMUNITY ENGAGEMENT

Climate data suggest :

"Recent very hot summers in northern hemispheric land areas will be the norm within 20 years."

Li, C., X. Zhang, F. Zwiers, Y. Fang and A. Micha. "Recent very hot summers in northern hemispheric land areas measured by wet bulb globe temperature will be the norm within 20 years", Earth's Future (2017)

"Winters over the last century have gotten approximately 20% wetter than they were."

Hodgins, D.O. "Drought analysis and implications for Salt Spring Island, B.C." (2015)

SSIWPA Outreach:

Fall Fair
Tuesday Market
"Planner in the Park"
Earth Day

2

WORKSHOPS

**Water Sustainability Act
Groundwater Licensing
Regulations** - for non-
domestic & agricultural
users

**Well Owner Workshop
Islands Trust**
Takeaways: well
registration forms, water
quality testing kits,
government policies and
regulations, SSIWPA info.

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Volunteer Stream Stewards

• weekly
6 measurements of
local streams

• hydrometric
and fish health
parameters

• [Data are publicly
available](#)

68

Rainwater Survey Respondents
[\(Royal Roads University report\)](#)
• case studies and local examples,
[Conservation and Efficiency Working
Group Report](#)

Rainwater Home Tour

10 host sites
visited by
approximately 300 people

10

SSIWPA
newsletters sent
to 218 readers

218

Coordinated data from 11 community
wells managers with SSIWPA projects.

FINANCIAL SUMMARY

SSIWPA's core funding of \$98,500 was provided by Saltspring Island taxpayers in the form of a special property tax requisition raised through the Islands Trust. SSIWPA also is grateful for a contribution of \$15,000 in grant funding from the Province of B.C. towards the coordination and carrying out of projects in the SSIWPA [Integrated Freshwater Management Program](#).

SSIWPA would like to acknowledge the contribution of \$9,180 from the Real Estate Foundation of B.C. to the Islands Trust for the 2018 project: SSI Groundwater Well Monitoring Pilot.

SSIWPA member agency representatives are grateful for:

- Islands Trust Council approval of the special tax requisition for 2017;
- Capital Regional District for contributing a portion of annual gas tax and stormwater program revenues to SSIWPA-coordinated projects;
- The invaluable contributions by volunteer members of the Technical Working Group, and the Conservation and Efficiency Working Group.

**SSIWPA PROGRAM INCOME STATEMENT
FOR THE PERIOD APRIL 1, 2017 - MARCH 31, 2018**

Revenue for SSIWPA Coordination	YTD Actuals	Budget
Islands Trust Special Property Tax 2017-18	\$ 98,500.00	98,500.00
Coordination Reserve	7,106.00	7,106.00
Matching Funds for Projects Coordinated by SSIWPA	YTD Actuals	Budget
Islands Trust SSI Local Trust Committee Watershed Management Fund	18,000.00	18,000.00
Capital Regional District	4,000.00	4,000.00
Ministry of Forests, Lands, Natural Resource Operations & Rural Devt.	32,000.00	32,000.00
Grant to SSIWPA from BC for Integrated Freshwater Mgmt. Program	15,000.00	15,000.00
Grant** to Islands Trust from Real Estate Foundation of BC for SSI Groundwater Wells Pilot	6,426.00	6,426.00
Total revenue	181,032.00	181,032.00

Expenses for Coordination	YTD Actuals	Budget
Contractor	\$ 84,965.77	85,000.00
Meetings	2,743.04	3,500.00
Events, Communications	3814.99	4,500.00
Expenses for Projects Coordinated by SSIWPA (AGRI and Islands Trust)	YTD Actuals	Budget
Septic well decommission (TWG with CRD Funds)	3,000.00	3,000.00
Aquifer Mapping and Groundwater Budget Analysis (FLNR)	30,000.00	30,000.00
Wells Inventory (Islands Trust and FLNR)	5,500.00	5,500.00
Groundwater Monitoring Pilot (Islands Trust and FLNR)	15,500.00	18,500.00
Agricultural Water Demand Model (AGRI)	2,000.00	2,000.00
Total expenses	147,523.80	157,500.00
Total surplus (deficit) to date	33,508.20	

**Unspent coordination funds = \$14,082.19 \$7105.99 from 2016/17
and \$6976.20 from 2017/18**

** \$2,754 remainder of grant funding will be awarded at conclusion of final report (Spring 2019).



"The NSSWD recognizes that water governance on Salt Spring is complex and fragmented and is pleased to support the efforts of SSIWPA to create a space for islanders to collaborate on these issues that are so critical to our community."

- North Salt Spring Waterworks District

"SSIWPA's principal responsibility is to promote watershed protection and to enhance our ability to function as regulatory stewards of our freshwater resources and environment through successful coordination of governing agencies."

- W. Shulba, P. Geo., Islands Trust Senior Freshwater Specialist and SSIWPA Steering Committee Staff Advisor

LINKS

SSIWPA: <https://www.ssiwpa.org/>

Meeting calendar: <https://www.ssiwpa.org/meetings-and-events/>

[Integrated Freshwater Management Program](http://ow.ly/nMaN30j3FsS): <http://ow.ly/nMaN30j3FsS>

[Agricultural Water Demand Model](http://ow.ly/wz0330j3FzV): <http://ow.ly/wz0330j3FzV>

[Hydrometric Data Collection](http://ow.ly/dBeC30j3FDf): <http://ow.ly/dBeC30j3FDf>

[Rainwater Harvesting Survey and Case Studies](http://ow.ly/xnsZ30j3FH1): <http://ow.ly/xnsZ30j3FH1>

[Real Estate Foundation of B.C.](http://www.refbc.com): www.refbc.com

[Community Engagement Volunteer Stream Stewards](http://ow.ly/Um0S30j3FKg): <http://ow.ly/Um0S30j3FKg>

[Royal Roads University report](http://ow.ly/6fmA30j3FOD): <http://ow.ly/6fmA30j3FOD>

[Conservation and Efficiency Working Group report](http://ow.ly/3HSr30j3FRi): <http://ow.ly/3HSr30j3FRi>

[Hodgins quote on Community Engagement page](http://ow.ly/paBj30j3FU5):
<http://ow.ly/paBj30j3FU5>

[Li et al., 2017 onlinelibrary.wiley.com/doi/10.1002/2017EF000639/epdf](http://onlinelibrary.wiley.com/doi/10.1002/2017EF000639/epdf)

[Li, C., X. Zhang, F. Zwiers, Y. Fang and A. Micha. "Recent very hot summers in northern hemispheric land areas measured by wet bulb globe temperature will be the norm within 20 years". Earth's Future \(2017\) http://ow.ly/AIzI30j3FXR](http://ow.ly/AIzI30j3FXR)

Hotter summers and wetter winters call for a new level of water intelligence. SSIWPA supports individual change in water use behaviours and the evidence-based development of civic-scale solutions to a sustainable freshwater future on Salt Spring Island.