



Salt Spring Island Watershed Protection Authority

Public Advisory Committee Regular Meeting
Draft Agenda

Date of Meeting: Tuesday, November 4, 2014 2:30pm – 4:00pm
Location: SSI Library Program Room
124 McPhillips Ave., Salt Spring Island

1. **CALL TO ORDER**
2. **APPROVAL OF AGENDA**
3. **BUSINESS ITEMS**
 - 3.1 **Introductions Activity (Coordinator)**
 - 3.2 **SSIWPA Committee Relationships**
 - 3.2.1 Who's Who? What is SSIWPA's Mission? (**Chair of SSIWPA**)
 - 3.2.2 Committee Structure and Relationships (**Coordinator**)
 - 3.3 **Terms of Reference** – Review, Set Ground Rules, PAC Chair
 - 3.4 **Workplan for PAC: Facilitated Discussion (Coordinator)**
 - 3.4.1 State of the Problem: History at SML & Cyanotoxins
 - 3.4.2 SDM Workshops - Role of PAC
 - 3.4.3 Homework for PAC?
4. **OTHER BUSINESS**
 - 4.1 **Questions and Comments from Public**
5. **NEXT MEETING**
6. **ADJOURNMENT**

By general consent, the meeting will adjourn at 4:00 p.m.



**SSIWPA Public Advisory Committee for St. Mary Lake Watershed
DRAFT Terms of Reference
Version 9. October 21, 2014**

Background

The Salt Spring Island Watershed Protection Authority (SSIWPA) was created in 2012 to provide a coordinated governmental and agency approach to watershed management and the protection of fresh water resources on Salt Spring Island. Previously named the St. Mary Lake Watershed Working Group, SSIWPA is comprised of government agencies (member agencies) with responsibility and authority for the use and management of water resources and the watersheds in the Salt Spring Island Local Trust Area. SSIWPA and its member agencies recognize the involvement and participation of residents, stakeholders, and community organizations as a vital component of watershed management on Salt Spring Island. These Terms of Reference may be modified by the SSIWPA Steering Committee.

Mission Statement of SSIWPA

To cooperate on the development and implementation of policies and initiatives for improved raw water quality and the long-term remediation, protection, sustainability and stewardship of Salt Spring Island watersheds.

Purpose

The purpose of the Public Advisory Committee is to advise SSIWPA Steering Committee (including all of its member agencies), as directed, from the perspective of local values, on the development of a Management Plan for St. Mary Lake Watershed. It is anticipated that the PAC may evolve (or be re-convened) to advise SSIWPA Steering Committee on St. Mary Lake Management Plan implementation steps.

Definitions

Value – relative worth, or importance. In this context, an opinion may also be considered a value. If that opinion is known to be shared among a representative segment of the population, it may be known as a “public value”.

Fact – something known to actually exist, or to have actually happened.

Guiding Principles and Responsibilities

The SSI Watershed Protection Authority Public Advisory Committee agrees to:

1. Receive, consider and respond to information and requests from the SSIWPA Steering Committee in open meetings of the PAC;
2. Discuss PAC topics, as directed by SSIWPA, from a broad range of societal values (*especially social or cultural values, environmental values, monetary values, and values about personal liberties that are impacted by watershed management*);
3. Use consensus decision-making;
4. Conduct PAC business using a respectful, and cooperative dialogue;
5. Operate in an open, transparent and accountable manner (meetings open to the public);
6. Aim to represent the most broad range of social and cultural values held by the local public citizenry regarding watershed health and management; and,
7. Abstain from interacting with the media on behalf of PAC or SSIWPA.
 - a. All media requests are to be directed to SSIWPA Coordinator, Islands Trust Planning Staff and/or Steering Committee Chair.
 - b. PAC members may speak to the media from their individual perspective, explicitly.

Committee Composition and Termination

The Public Advisory Committee to SSIWPA will be comprised of members who represent a cross section of economic, social and environmental perspectives about St. Mary Lake Watershed, including (but not limited to): watershed residents, watershed drinking water district ratepayers, recreational users of the watershed, fisheries, agriculture, and lakeside resort operators. The PAC membership will number no less than 6 and no more than 12 members. Participation in the PAC is voluntary.

If desired, each PAC member may name one Alternate to represent his/her on SSIWPA PAC, in the event of undue circumstances resulting in absence. Names and contact information for Alternates must be provided to SSIWPA for approval within 30 days of any member's first meeting on the PAC, and there will be no substitutions. The PAC member is responsible to "teach" their alternate about the issues and viewpoints they are representing.

Notwithstanding anything elsewhere contained within this Terms of Reference, the Salt Spring Island Watershed Protection Authority Steering Committee may at any time or from time to time, terminate the appointment of any member of the Public Advisory Committee appointed

pursuant to these Terms. This will include any Committee member who fails to attend three (3) consecutive meetings of the Committee without leave of the Committee, a Committee member who moves out of the Salt Spring Island Local Trust Area during their term of appointment, or any Committee member who fails to declare a conflict of interest prior to participation on any agenda item for which they may be in conflict, during a Committee meeting.

The SSIWPA Steering Committee reserves the right to select PAC candidates at any time in the process, to broaden the representation of public opinion, and to insure that the PAC demonstrates a range of knowledge of cultural or spiritual values that are relevant to watershed health or management.

Expected Outcomes and Completion Date

The expected outcome of this PAC is advice provided to SSIWPA, as directed, that will be integrated within a structured decision-making (SDM) watershed management planning process. The primary deliverable of the planning process is a final SDM workshop report, which SSIWPA will use to develop an updated, watershed management and sustainability plan for St. Mary Lake.

The expected term of service for PAC members is November 1, 2014 to June 30, 2014. It is anticipated that after that date, the PAC will evolve to include implementation of the resulting St. Mary Lake Watershed Management Plan, at which time SSIWPA will re-constitute the PAC, as required.

Decision-making process

The PAC provides advice to SSIWPA. No votes will be held to determine the group's position on issues or recommendations to SSIWPA. However, the PAC may choose to seek consensus on matters of discussion and for providing feedback to SSIWPA. Therefore, Consensus is a goal but not a requirement of the process.

Previous Version:

The SSI Watershed Protection Authority Public Advisory Committee will use consensus-based decision-making for advice it forwards to SSIWPA by means of official PAC meeting notes. Advice provided to SSIWPA by its PAC is to be related to topics as directed by SSIWPA. If a member of the committee agrees in principle but has minor objections, he/she may stand aside from a decision. If a member of the committee is in conflict of interest on a particular decision of the committee, he/she must express the conflict, and must stand aside from the PAC decision on that topic.

Leadership

The SSI Watershed Protection Authority Public Advisory Committee agrees to appoint a Chair for the duration of the committee (through June 30, 2014). The duties of the Chair include:

1. Receive training in being an effective Chairperson.
2. Assist PAC to set and record its own Ground Rules.
3. Liaise with the SSIWPA Coordinator to set agendas topics as directed by SSIWPA.
4. Ensure distribution of PAC meeting notes to SSIWPA (and consultants, as necessary) through the SSIWPA Coordinator.
5. Liaise with SSIWPA Coordinator and Islands Trust to effectively facilitate and coordinate the PAC.

Meetings

The SSI Watershed Protection Authority Public Advisory Committee agrees to conduct meetings in an open, transparent and accountable manner. Meetings of the PAC are open to the public.

Reporting and Communication

The SSI Watershed Protection Authority Public Advisory Committee is supported by a coordination function through Islands Trust.

The SSIWPA Coordinator (or alternate approved by Islands Trust) agrees to:

1. Record notes of PAC meetings and publish notes to PAC members by email as soon as possible after the PAC meeting.
2. Receive suggested changes to the PAC meeting notes by members of the PAC and update PAC meeting notes, accordingly.
3. Forward updated PAC meeting notes to SSIWPA (and any necessary consultants), ideally within 7 days of PAC meeting.

Recorded notes of PAC meetings will contain the following:

- a. The name of the Committee assembled, and the names of each member of the Committee who is present.
- b. The date of the meeting, hours, adjournment, and location.
- c. Amendments of any previous PAC notes.
- d. All of the main motions or proposals considered at the meeting, whether sustained and agreed as proposed, or amended, or withdrawn.
- e. Points of order or appeals (e.g. member standing aside and rationale).

Resources

The SSI Watershed Protection Authority Public Advisory Committee is supported by a coordination function through Islands Trust. Islands Trust will provide PAC meeting recorder support through an alternate to the SSIWPA Coordinator, should that be required. PAC members are responsible to provide their own agendas (hard copy, or electronic), and to prepare notes and materials in advance of meetings using their own resources. Please review the role of the SSIWPA Coordinator here: <http://ssiwatersheds.ca/2014/06/ssiwpa-coordinator-re-appointed/>. Participation by PAC members is voluntary.

Code of Conduct

All participants in the process will:

- Support a fair, transparent and collaborative process;
- Treat others with courtesy and respect, let opposing views co-exist;
- Listen attentively with an aim to understand;
- Be concise in making a point;
- Speak in terms of interests instead of positions (Note: **Interests** are defined as the needs, wants and concerns that are connected to an issue. **Positions** are defined as a predetermined solution to a problem without consideration for the interests of others);
- Avoid disruption of meetings (e.g., cell phones, caucusing at the table, etc.);
- Use the “parking lot” for issues that fall outside the meeting agendas;
- Aim to achieve consensus on issues being addressed – participants will make every effort to resolve issues at the table and will avoid seeking alternative decisions outside this process.

Selection Criteria for PAC Membership

The Public Advisory Committee to SSIWPA aims to represent a cross section of economic, social and environmental perspectives about St. Mary Lake Watershed.

Proponents who nominate themselves to participate in the SSIWPA St. Mary Lake Public Advisory Committee may be selected by the Steering Committee if they fulfill the following selection criteria:

1. Has demonstrated a personal or professional connection to St. Mary lake
 - ie. as a resident/property owner in the watershed;
 - or, as a regular recreational user of St. Mary Lake;
 - or, as a rate-payer in one of the St. Mary Lake drinking water Districts;
 - or, as an elected executive representative of a non-governmental organization that has activities/interests pertaining to St. Mary Lake watershed, on Salt Spring Island.
2. Has knowledge of the issues and community interests at stake.
3. Represents one of the public interest groups within the cross section that is not yet represented on the PAC; providing little overlap and a wider range of perspectives

3. Time commitment: Agrees to volunteer their time and expertise, and is generally able to attend the following:
 - PAC Meeting November 4, 2014
 - An estimated 2 to 6 PAC Meetings scheduled at mutually-agreeable times between November 2014 and June, 2015 at the request of SSIWPA
 - SDM Workshops (dates and involvement of PAC subject to confirmation and SSIWPA approval at Kickoff): late January 2015, March 2015, April or May 2015.

Who is not eligible?

As representatives of the general public, government agency staff and elected officials are not eligible for membership on the SSIWPA PAC.

Scope and Geographical Areas

The St. Mary Lake watershed forms the main focus of SSIWPA, during the period 2014-2015. Details of the St. Mary Lake Watershed are attached in schedule A. As the SSIWPA resources allow, SSIWPA will take on integrated watershed management in other Salt Spring Island watersheds, on the basis of need. New membership criteria will be published if and when SSIWPA invites a public advisory committee for other watersheds on SSI.

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Schedule A

St. Mary Lake

A freshwater lake of 16 hectares in size, St. Mary Lake is managed by the North Salt Spring Waterworks District as the main drinking water resource on Salt Spring Island. Because of its importance for drinking, it has become the first watershed in focus for the newly-formed SSIWPA.

The lake has a relatively small watershed, in relation to its size. It is relatively shallow, in relation to other lakes of similar surface area. It was studied in the late 1970s, and confirmed to be “eutrophic”, which means that it has nutrient levels that exceed its natural state. Excess of phosphorus, and sometimes nitrogen, may contribute to several physical, chemical and biological effects in lakes, including the prevalence of algal and cyanobacterial blooms.

Algal blooms are directly related to the amount of nutrients dissolved and available in the water column. In St. Mary Lake, the amount of nutrients and the form that the nutrient (such as phosphorus) takes at any given time, varies from year to year, and from season to season.

The 1979-2013 records of the amount of phosphorus in the lake show significant variability, but over the long term, total phosphorus in the lake balances around a common value or equilibrium condition. This means that the total amount of phosphorus (in all of its chemical and organic forms), is not rising over time, even though it may have highs and lows that fluctuate inconsistently with season, climate and other factors. These changes in the nutrient content of the water body (and other factors) have an effect on algal production in the lake.

One of the main concerns with St. Mary Lake is the occurrence of cyanobacteria (which were previously called blue-green algae). They have been observed in recent years in such severity that they impact water treatment and safety for consumption and recreation in the lake. For example, a toxin-producing species of cyanobacteria was prevalent in a bloom that lasted from early 2011 to the late summer 2013. This was the longest recorded bloom on the lake, and during that timeframe many residents and visitors were negatively affected. (Note: Cyanobacteria are a natural resident organism in lakes, and only certain species are toxic, and the conditions for producing toxins have not yet been established in the scientific literature. “Bloom” simply means growth and presence, sometimes in more than one physical form, such as mats on the surface, clouds within the top meters, or pellets floating in the water several meters below the surface.)

Many factors come into play for managing and controlling nutrient loading of this lake, and algal blooms; such as, a relatively slow flushing rate (approx. 5 years), water renewal time, oxygen demand and levels of oxygen in the lower portion (called the hypolimnion) during the late spring and summer when the lake is stratified, the rate and quantity of nutrients entering the lake from outside sources such as over-land runoff (nutrients are attached to sediments), streams and

seasonal creeks, groundwater seepage (including septic contributions), rainfall, and atmospheric deposition of nutrients.

The PAC will assist SSIWPA, as directed, by giving advice on specific questions relating to the many complex factors and possible solutions or changes that could be implemented for the St. Mary Lake Watershed, from the perspective of local cultural values.

(End)

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**Orientation Package for SSIWPA Public Advisory Committee
September 2014**

This package was created by SSIWPA to welcome and orient its Public Advisory Committee members in autumn of 2014.

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St Mary Lake Watershed – The Issues and The History

St. Mary Lake as a drinking water and recreational resource is often compromised by the prevalence of algal and cyanobacterial blooms. Toxins produced by algal and cyanobacterial blooms (for example, microcystins) are a health threat and can lead to lake closures and health advisories restricting any drinking, swimming or consumption of products of the fishery. Poor lake water quality can impact a number of community goals related to public and environmental health and economic sustainability.

The St. Mary Lake Watershed is a 508 hectare multi-use area in the north part of Salt Spring Island. St. Mary Lake holds 25x more water than another lake on the island and is currently the source of domestic water for many of the island's residents, businesses, and institutions. St. Mary Lake is by far the largest lake on Salt Spring Island (with a surface area of 182 hectares) and St. Mary and Maxwell Lakes are the deepest lakes on the island (16 m). While approximately 20% of the watershed (110 hectares) on the western side of the drainage basin is owned and protected by the Salt Spring Island Water Preservation Society, it is estimated that 70% of the watershed has been modified by human use and is privately owned. There are over 200 residences in the watershed and 82 shoreline lots abutting the lake. Land uses within the watershed include residential, agricultural, institutional, and commercial accommodation. The lake has a limited number of public access points and is used for several recreational purposes, including swimming, fishing, and boating.

After a multi-year residence time, water exits the lake via Duck Creek. Prior to 2006, Duck Creek ran dry as the lake level declined. However, in order for North Salt Spring Waterworks District (NSSWD) to increase their licensed withdrawal from St Mary Lake, Ministry of Forests, Lands and Natural Resource Management (MFLNRO) required an increase in the storage capacity of the lake. This was accomplished in 2006 through the construction of a weir at the outflow of the lake. However, lake levels are now LOWER than they were before the creation of the weir due to beaver activities that typically kept lake levels higher than they are now. As a condition of their water license, NSSWD is also required to manage flows in Duck Creek to ensure that the minimum flow needed to support fish and fish habitat is maintained at all times. To meet that requirement, construction of a fish ladder that allows control of flow as well as two-way passage of juvenile and adult fish was completed. NSSWD is responsible for operation and maintenance of both the weir and fish ladder.

Water withdrawals are regulated and allocated by the MFLNRO through the issuance of water licenses. NSSWD and the Highland and Fernwood Water Districts (local service areas of the CRD) all hold water licenses on St. Mary Lake for waterworks purposes. In the past 30 years, NSSWD, CRD and MOE have all done water quality monitoring in St Mary Lake. However, NSSWD is the only agency that currently monitors water quality and lake levels. To date, actions by the agencies to reduce algal blooms and improve water quality have met with limited success. There has never been a multi-stakeholder governance process overseeing lake remedial actions or lake management planning. There has also been jurisdictional confusion and inconsistent public perception and support.

In 2008, in response to some of the challenges presented by efforts to remediate water quality in St. Mary Lake, a St. Mary Lake Watershed Management Plan was generated by a working group comprised of local citizens and water quality scientists (St. Mary Lake Steering Committee, 2008). The primary recommendation in the Management Plan is that improvement in lake water quality and quantity will likely require a

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coordinated, whole watershed approach to remediation and management. Implementation of the St. Mary Lake Watershed management plan has not occurred.

The SSIWPA (created early 2013) resolved in October 2014 to strike a Technical Advisory Committee (TAC) to assess the scientific merit of the specific recommendations in the St. Mary Lake Watershed Management Plan.

One example of historical remedial action with inconsistent success is installation of hypolimnetic aerators: in 1986 – 1990 (by MOE), and again new models in 2009-2013 (by NSSWD). In 1986, the rationale for hypolimnetic aeration was enhancement of fish habitat by keeping cool bottom waters oxygenated. In 2009, the rationale for installation of a larger and more sophisticated system of hypolimnetic aeration was to decrease algal biomass by reducing the recycling of nutrients from sediments back to over-lying waters.

A 2014 analysis of CRD and NSSWD data by the SSIWPA TAC demonstrated that the aerators reduced the phosphorus content of the hypolimnion during some years but not all; therefore, the potential for decreasing phosphorus release from sediments to improve overall water quality has not been convincingly demonstrated. More importantly, the presence of aerators has not reduced cyanobacterial and algal blooms, nor improved overall water quality. The most recent bloom of toxin-producing algae began in 2011 and did not settle until fall of 2013 despite summer aeration of the hypolimnion in 2011 and 2012. The aerators were turned off during the summer of 2013 and were not turned on in 2014.

SSIWPA's TAC has performed a scientific review of St. Mary Lake data collected over the past 30 years, including the research of Rick Nordin, Colin McKean and John Wiens (Ministry of Environment Report 64.080302, 1983; available at <http://ssiwatersheds.ca/technical-and-other/>) and the 2008 overview of remediation strategies by Ken Ashley (a report submitted to Ministry of Environment).

A series of Working Papers is underway that will describe TAC's review and peer-assessment of the research conducted to date on St. Mary Lake. The first of these is a Septic Load Estimate by SSIWPA TAC, available at: <http://ssiwatersheds.ca/ssiwpa-reports/>). As other TAC Working Papers become available, they will be distributed to PAC. SSIWPA (through TAC) is currently conducting research at St. Mary Lake to fill information gaps and provide answers to outstanding questions identified determined by the review – please see the TAC Field Study Proposal St. Mary Lake 2014, here: <http://ssiwatersheds.ca/ssiwpa-reports/>. TAC reports on progress at monthly SSIWPA meetings, and will report fully to SSIWPA on the outcomes of the ongoing research program, including the TAC recommended hierarchy of options for management planning that emerge as a result of interpreting results of the research program.

Real Estate Foundation of BC Grant to Islands Trust for SSIWPA:

A Public Brief

Project Title: Salt Spring Island Watershed Protection Authority

“Structured Decision Making Process for St. Mary Lake Watershed Strategic Management Plan”

Timeline: May, 2014 - Mar 31, 2015 (subject to shift)

Project Description:

Funds from Real Estate Foundation of British Columbia were awarded to carry out a multi-stakeholder Structured-Decision Making process (SDM) coordinated through Salt Spring Island Watershed Protection Authority (SSIWPA). The goal of the project is to involve the St. Mary Lake users and stakeholders in the process of evaluating the efficacy and feasibility of a range of remediation options that might lead to improved lake water quality over the long term. St. Mary Lake is somewhat nutrient-enriched and in the past, there have been chronic occurrences of cyanotoxins in this, an essential drinking water resource for the island.

Structured Decision-Making incorporates economic and ecological risk-assessment, research, and education about environmental planning decisions. It is well suited to decisions involving high stakes and intense public scrutiny and has been used successfully by resource managers including the BC Ministry of Environment, and the Canadian Federal Department of Fisheries and Oceans.

Previous work to restore and protect St Mary Lake water quality has been carried out by Salt Spring Water Preservation Society, the Salt Spring Island Water Council Society, and the St. Mary Lake Steering Committee. Building on this work, what is needed is equitable engagement of all stakeholders in the decision-making and planning, including those agencies with responsibility and authority to manage the use and protection of water resources on SSI.

This project proposes to use a relatively new environmental management process (SDM) to achieve a more effective process, and infrastructure for ongoing collaborative communication and decision-making in management of Salt Spring Islands’ seven watersheds. And, because of its innovative approach, the experiences gained during the application of SDM in this project may be useful to neighbouring groups (Cowichan Watershed Board, the Regional District of Nanaimo Drinking Water and Watershed Service, and lake communities in the Capital Regional District Stormwater, Harbour and Watersheds Program, the Shuswap Lake Integrated Planning Process and the Okanagan Water Board, to name a few).

The SDM approach should enable sustainable community-supported watershed planning, and management. Such an approach will include all agencies, government bodies, and non-governmental groups and other stakeholders. It will include built-in target-setting, evaluation and monitoring over the long term, as well as refinement through re-iteration of the SDM steps

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periodically, for each watershed. This project consists of 3 multi-stakeholder workshops; a public open house for input; actions and research by consultants with select stakeholders between meetings; inclusion of Technical Advisory Committee empirical data and scientific expertise; writing the Management Plan for this watershed; and, a final public event to release the completed Management Plan.

The use of SDM aims to address the paralysis of too many options, unfilled information gaps or ultimate acceptance of the “lowest common denominator idea”. SDM has shown improved rigor of decisions and their reliability over time; it engages groups in a transparent structured and well-documented dialogue, including experts and laypersons. The iterative process is unique in its capacity to be re-applied to the same environmental issue with different elected officials and stakeholders. This project has potential to create a model integrated watershed management process on Salt Spring Island, B.C., and elsewhere.

Workplan: (timelines not included as they may be subject to change)

Objectives**	Who?/Activities	Deliverables
<i>Kickoff meeting</i>	<i>SSIWPA, TAC, PAC, Consultant</i>	<i>Decision Charter for SDM</i>
Public Open House	Presentations, Facilitated Discussions	Review of SSIWPA actions & Workshop I results, 2015 workplan Receive public input
SDM: Workshop I	Multistakeholders* and SDM Consultant	Workshop I Report
SDM: Workshop II	Multistakeholders & Consultant	Workshop II Report
SDM: Workshop III	Multistakeholders & Consultant	Workshop III Report, and Final Report from Consultant
Management Plan	Plan writing (SSIWPA) Professional risk assessment	St Mary Lake Watershed Integrated Management Plan
Knowledge Transfer	Report writing Website chronicles News Releases Information Posts Presentations	SDM Case Study result from this project to: Funders, Trust Council, Local Trust Committee, SSIWPA agencies, Other Water Groups, Media/Civic
Community Celebration	At St Mary lake, w/ SDM consultant.	SML Management Plan release and communication with public.

* **Multi-stakeholders** = regulatory agencies, technical advisors, public representatives. The exact makeup of the workshop participants will be determined by SSIWPA Steering Committee in consultation with SDM consulting team. This will be clarified at *Kickoff meeting (this was not in original proposal, and has been added here as project includes a Kickoff)*. Note: There is likely to be

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additional public consultation before the Management Plan writing stage, and the final Plan release and celebration stage. ****Ongoing:** Technical Review (Water Quality and Nutrient Budget), Public Outreach

Collaborating Agencies:

Islands Trust, Justine Starke, Planner [*Stefan Cermak, Planner*]
Capital Regional District, Glen Harris, Department of Parks and Environmental Services, Senior Manager, Environmental Protection Division
Ministry of Environment, Deborah Epps, Section Head, Provincial Water Quality
Ministry of Health, David Fishwick, Provincial Drinking Water Manager
Island Health, Erwin Dyck, Supervisor, Health Protection - Drinking Water Safety
North Salt Spring Waterworks (NSSWD), Ron Stepaniuk, Water District Manager

Budget:

Total Income- \$96,625

REFBC \$20,000 Cash

SSI Local Trust Committee and Planning Staff \$31,320 Cash \$8356 In-Kind

CRD \$3500 Cash \$7489 In-Kind

Island Health \$ 4265 In-Kind

NSSWD \$500 Cash, \$4961 In-Kind

Ministry of Environment \$5386 In-Kind

Fernwood-Highlands Water Service Area Commission (CRD) \$4961 In-Kind

Ministry of Health \$5386 In-Kind

Total Projected Expenses- \$96,625

\$53,320 Cash

\$41,305 In-Kind

Cyanotoxins in Drinking Water - Public Brief

Cyanotoxins:

These are toxins produced by cyanobacteria (also known as blue-green algae). Cyanotoxins include many sub-groups with different chemical structures: microcystins and nodularins (cyclic peptides), anatoxins, saxitoxins, cylindrospermopsins, and lyngbyatoxins (alkaloids), aplysiatoxins (polyketides), and beta-methylamino-L-alanine (amino acid). Cyanobacterial species may produce some, none, or several of these in a given water body. Many cyanotoxins are toxic to human and animal nervous systems and livers, and cause skin irritations. The types of cyanotoxins that are typically produced in lakes depend on the species of cyanobacteria that are present and other environmental conditions. It is currently not possible to predict a cyanobacterial bloom, and whether it will result in production of cyanotoxins.

Drinking Water Guideline for Cyanotoxins:

Guidelines for Canadian Drinking Water Quality: 1.5 µg/L of Microcystin-LR (micrograms per liter)

http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2012-sum_guide-res_recom/index-eng.php

St Mary Lake and Cyanotoxins:

During the bloom of 2011-2013, the only types of toxin detected in St Mary Lake were Microcystin-LR and Microcystin-YR. Laboratory analysis can also detect Microcystin-RR, Microcystin-LA, Anatoxin A, Nodularin and Cylindrospermopsin. These toxins are present both inside the cyanobacterial cells and dissolved in the water column. They are not removed by conventional water treatment technologies such as filtration and disinfection and are not destroyed by boiling the water.

NSSWDs treatment process includes pressure sand filtration with pre and post filter chlorination. The Highland and Fernwood water systems share a new dissolved air floatation (DAF) treatment plant. The DAF process involves the use of a chemical coagulant to remove dissolved substances from the water, floatation and skimming of the waste products, mixed-media filtration and disinfection using both UV light and chlorine.

References:

Environmental Protection Agency. Cyanobacteria Harmful Algal Blooms. Available on the web:
<http://www.epa.gov/nandppolicy/links.html#hab>

Environmental Protection Agency. 2012. Cyanobacteria and Cyanotoxins: Information on Drinking Water Systems. Factsheet EPA – 810F11001. Available on the web:
http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/upload/cyanobacteria_factsheet.pdf

Guidelines for Canadian Drinking Water Quality. Health Canada. Available on the web:
http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2012-sum_guide-res_recom/index-eng.php

Effective Meeting Chairperson

An effective chairperson will:

- Demonstrate knowledge of the organization's work
- Outline the purpose of the meeting and remind members why they are there
- Stay calm, objective, approachable, tactful
- Show interest in all member viewpoints, make new members welcome
- Speak clearly and succinctly; practice active listening skills
- Encourage a diversity of viewpoints and no interruptions
- Encourage clarification of any misunderstandings or questions that arise
- Refocus discussions that may go off topic
- Encourage full discussion before moving to summary, and agreement stage
- Summarize, highlight common points, and lead group into next topic
- Strive for consensus
- Use his/her personal casting vote/viewpoint sparingly
- Plan for the future
- Start and finish meetings on time
- Ensure decisions are recorded
- Ensure records or notes are distributed as per agreement of the committee
- Stand down if necessary

An effective chairperson will not:

- Share his/her viewpoint first on an agenda topic
- Be the person who talks the most at meetings
- Allow one or two members to dominate
- Cut anyone out of discussions
- Allow meetings to become unproductive
- Force contributions from members or make people feel foolish or useless
- Use his or her temper

Excerpt from: <http://www.diycommitteeguide.org/article/characteristics-good-chairperson>