

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

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| 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 |

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| | | 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

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| 1 Steering committee tasks | | |
| 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 | |

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| 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 | |
| 2 Coordinator tasks | | |
| 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 | |

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| 2.8 | Coordinate the development of written materials and public outreach | |
| 3 TWG tasks | | |
| 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 new 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 |

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| 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 |
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| 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.) |
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| 3.3 | Assess technical cost/benefit ratio for SSI Water Budget & watershed management planning and actions | |
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| 3.4 | Advise SC on policy and legislation from technical/scientific perspective | |
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| 4 CEWG tasks | | |
| 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: | |

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| 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"> • rainwater • grey water • wastewater reuse • desalination • others |
| 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

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- Comprehensive rainwater harvesting report for SSI

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

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

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.)

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.)

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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.

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. |
| May, 2017 | <ul style="list-style-type: none">- removed from deliverables: 'enhanced bylaw enforcement'- created "outcomes"- added deliverables from adopted "Workplan Master 2017" |