Islands Trust

Freshwater Sustainability Strategy

DECEMBER 2021

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Prepared for Islands Trust

Prepared by Econics and Compass Resource Management

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Executive Summary

Islands Trust's mandate is to preserve and protect the unique amenities and environment of the Islands Trust Area. Among these unique amenities is freshwater, which has always been vulnerable. As development pressures continue, population grows, and the impacts of a changing climate intensify, freshwater vulnerabilities for communities, economies, Indigenous heritage, and ecological systems increase.

Freshwater sustainability needs to be a key lens through which Islands Trust land use decisions are made. To effectively facilitate this, it is imperative that the Islands Trust continues to support research, advocate for water literacy, and provide open public access to knowledge about freshwater.

This Freshwater Sustainability Strategy provides a foundation to address supply challenges and support climate change adaptation. It identifies actions for the Islands Trust to take over the next decade (2022 to 2032) to protect water resources over the longer term. It describes the context in which this work takes place, overarching goals, objectives, and programs, specific actions, and outlines an implementation plan. Importantly, because Islands Trust cannot accomplish this mission on its own, the strategy also identifies how it will work with key partners in other government agencies, First Nations, community groups, and island residents.

Supported by the BC Healthy Watersheds Initiative and endorsed by the Islands Trust Regional Planning Committee and Trust Council, development of this strategy began in late 2020. Strategy development was informed by input from an ad hoc Strategy Advisory Roundtable throughout the spring of 2021. This group consisted of 23 individuals representing community groups, government agencies, improvement districts, Indigenous Cultural Knowledge Holders, and members of the Trust Council and staff. A parallel process, led by Islands Trust, engaged Indigenous Cultural Knowledge Holders to share perspectives on the Indigenous ways of knowing and the cultural value of water.

Strategy Goals and Objectives

The strategy's overarching goals are as follows:

- Protect ecosystems and the overall health of watersheds and groundwater in the Islands Trust Area
- Collaborate with First Nations and Indigenous organizations to create understanding of cultural and spiritual values of water and how they interrelate to ecosystems and community well-being in decision making
- Preserve or enhance quantity and quality of drinking water sources for current and future Trust Area residents
- Enable British Columbians to enjoy the islands' water for recreation, aesthetic, and spiritual purposes

Supporting objectives are the means by which the goals will be met.

Strategy objectives are as follows:

- Understand and respect Indigenous ways of knowing and community knowledge about water resources; weave together different ways of understanding to improve water management
- Improve information and knowledge about the quality and quantity of water resources
- Use the best available information to protect watersheds and water resources in land use planning and development decisions
- Increase public awareness of water efficiency, stewardship of watersheds, groundwater, and drinking water resources
- Improve the coordination efforts among the various governments and agencies with authority over water resources
- Enable integrated decision-making that considers the cumulative effects of human activities and climate change impacts on the region's water resources

Freshwater Sustainability Programs

Freshwater sustainability programs are the mechanism that Islands Trust will use to organize and implement actions to realize the goals and objectives. The strategy is organized around four programs as listed below. The table on the following page summarizes the actions that fall under each program.

- Groundwater Sustainability Science Program (GWSS)
- Watershed Sustainability Science Program (WSS)
- Cultural Knowledge and Engagement Program (CKE)
- Freshwater Sustainability Reporting Program (FSR)

Successful implementation of program actions will require sustained partnerships and focussed advocacy to draw on the experience and resources of other agencies given the complex jurisdictional structure of water management in British Columbia.

Implementation

The implementation period for this strategy is 2022 to 2032. Progress towards the goals and objectives will be continuously reviewed on an annual basis, or before that, if required. through an adaptive management approach. The following actions should start or continue in 2022 as priorities:

- Develop an organizational plan for strategy implementation that identifies responsibilities of Regional Planning Committee, Trust Programs Committee, Trust Council and key staff, and identify options for enlisting a Freshwater Sustainability Strategy Coordinator
- Continue implementation of groundwater science programs including data inventory, groundwater recharge potential mapping, and groundwater availability assessments
- As new water availability and vulnerability information becomes available, integrate this into land use policies and regulations through minor and major updates to official community plans and land use bylaws
- Commence design and implementation of new land use planning tools
- Continue to identify sites of cultural and spiritual significance to First Nations through the Cultural Heritage Mapping Project
- Develop and commence implementation of the freshwater stewardship outreach plan; and,
- Publish the first 'state of freshwater report' by consolidating existing research and information

Staff will present updated program plans, including budgets, to the Islands Trust Regional Planning Committee, Trust Programs Committee, and Trust Council on at least an annual basis. Project charters will be presented as required to each local trust committee or island municipal council that make particular projects a priority, and to Trust Council Committees for federation-wide projects.

Summary Freshwater Sustainability Strategy Actions Organized by Programs

Groundwater Sustainability Planning Program (GWSS)	
GWSS 1	Improve data management to inform decision making
GWSS 2	Develop a coordinated long-term water monitoring program
GWSS 3	Continue groundwater data and information inventory
GWSS 4	Continue groundwater recharge potential mapping
GWSS 5	Continue groundwater availability assessments
GWSS 6	Establish groundwater regions as a focus for land use planning for all Islands
GWSS 7	Integrate water availability and vulnerability information into land use policies and regulations
GWSS 8	Implement appropriate planning and regulatory tools to protect vulnerable aquifers and sensitive aquatic ecosystems
GWSS 9	Improve the availability of water-related information to support development application reviews
GWSS 10	Customize water supply requirements for new development to local circumstances
Watershed Sustainability Science Program (WSS)	
WSS 1	Inventory and understand the status of watersheds and aquatic ecosystems
WSS 2	Continue to explore the potential for rainwater harvesting and other alternatives to supplement water supplies and promote this as conservation and resilience strategy
Cultural Knowledge and Engagement Program (CKE)	
CKE 1	Identify freshwater sites of cultural and spiritual significance to First Nations
CKE 2	Collaborate with First Nations and Indigenous organizations to increase community awareness of water-related cultural values, interests, and inherent rights
CKE 3	Develop and implement a freshwater stewardship outreach plan
CKE 4	Develop and implement water-focussed training for new Trustees and Trust staff
CKE 5	Use market research methods to understand and monitor change in attitudes and behaviours related to water
CKE 6	Support water purveyors' adoption of sustainable water management practices
Freshwater Sustainability Reporting Program (FSR)	
FSR 1	Publish 'state of freshwater' report for the Islands Trust
Collaboration and Advocacy with Other Agencies (CAOA)	
CAOA 1	Collaborate with First Nations and Indigenous organizations to develop understanding and integrate their participation, perspectives, and interests into water-related decision making by all agencies
CAOA 2	Work with the Provincial Government to employ appropriate regulatory instruments in areas with acute water challenges
CAOA 3	Work with partner regulatory agencies to harmonize approval processes and integrate Freshwater Sustainability Strategy goals and objectives into decisions
CAOA 4	Work with partner agencies to manage water use and quality impacts from existing users, particularly in areas experiencing supply constraints

1. Introduction

Islands Trust's mandate is to preserve and protect the unique amenities and environment of the Islands Trust Area. Among these unique amenities is freshwater, which is replenished only by seasonal rainfall. Island forests act as freshwater filters. Watershed ecosystems and aquifers filter and store precipitation from the rainy winter months for human need in the driest of days of summer. To ensure preservation of this precious resource, island residents, since time immemorial, have collectively protected sensitive ecosystems, riparian areas, and wetlands.

In 2019, Islands Trust Council declared a climate emergency and acknowledged that this contributes to unprecedented stresses on vulnerable local freshwater resources across the Islands Trust Area. As development pressures continue, population grows, and the impacts of a changing climate intensify, vulnerabilities of for communities, economies, Indigenous heritage, and ecological systems grow. Freshwater sustainability needs to be a key lens through which Islands Trust land use decisions are made. To effectively facilitate this, it is imperative that the Islands Trust continues to facilitate research, advocate for water literacy, and provide open public access to knowledge about freshwater.

This Freshwater Sustainability Strategy provides a foundation to address supply challenges and support climate change adaptation. It identifies actions for the Islands Trust to take over the next decade (2022 to 2032) to protect water resources over the longer term. It describes the context in which this work takes place, overarching goals, objectives, and programs, specific actions, and outlines an implementation plan. Programs and actions set out here will be operationalized through annual workplans, budgets, and program-specific implementation plans.

Importantly, because Islands Trust cannot accomplish this mission on its own, the strategy identifies how it will work with key partners in other government agencies, First Nations, community groups, and island residents.

This strategy has four main parts, as follows.

- Section 2 provides context, including an overview of the process used to develop the strategy, some Indigenous perspectives on water management shared through that process, historical background, an overview of water resources, and the role of partners in freshwater stewardship;
- Section 3 discusses strategy goals and objectives;
- Section 4 identifies strategy programs and actions; and,
- Sections 5 discusses implementation including early priorities, strategy resourcing, administration, governance, scheduling, and monitoring.

2.0 **Strategy Context**

This strategy applies to all freshwater (marine waters are out of scope) across the entirety of the Islands Trust Area. This includes the waters and islands of the Salish Sea between Vancouver Island and the British Columbia mainland (see Figure 1). The Islands Trust Area covers 5,200 square kilometres and includes 13 major islands and 450 smaller islands. It is home to over 30,000 residents, 10,000 non-resident property owners, and is within the traditional territory of 28,000 Coast Salish people.

Figure 1: Islands Trust Map

The Islands Trust Area is located within the treaty lands and territories of the BOKEĆEN, Cowichan Tribes, Kómoks, Lək̓ʷəŋən, Lyackson, MÁLEXEŁ, Qualicum, scəẃTaθən məsteyəxʷ, Scianew, səlilw̓ ətaʔɬ, SEMYOME, shíshálh, Sḵwx̱wú7mesh, Snaw-naw-as, Snuneymuxw, Spuneluxutth, ST̓ÁUTW̱, Stzuminus, ɬaʔəmen, toq qaymɩxʷ, Ts'uubaa-asatx, Wei Wai Kum, We Wai Kai, W̱JOŁEŁP, W̱SIḴEM, Xeláltxw, Xwémalhkwu/ ʔop qaymɩxʷ, and xʷməθkʷəy̓əm.

2.1 Strategy Development Process

Supported by the BC Healthy Watersheds Initiative and endorsed by the Islands Trust Regional Planning Committee and Trust Council, development of this strategy began in 2020. Islands Trust was assisted by a consulting team from two firms, Econics and Compass Resource Management. Key inputs to the project included:

- a literature review of documentation related to water sustainability, policy, and governance in the Islands Trust Area
- interviews with select internal and external individuals and agencies familiar with water management challenges;
  two virtual workshops with about a dozen Islands Trust staff members each
- informal meetings with numerous Trust staff members; and,
- a special session with Trust Council's Regional Planning Committee, attended by a majority of Trustees, in May 2021

Strategy development was informed by input from an ad hoc Strategy Advisory Roundtable throughout the spring of 2021. This group consisted of 23 individuals representing community groups, government agencies, improvement districts, Indigenous Cultural Knowledge Holders, and members of the Trust Council and staff. Roundtable members are listed in the acknowledgements section at the end of this document.

A parallel process, led by Islands Trust, engaged Indigenous Cultural Knowledge Holders to share perspectives on the cultural value of water.

2.2 Indigenous Perspectives on Freshwater Sustainability

It is critical to understand Indigenous perspectives and ways of knowing when planning for the Islands Trust Area. The land and waters of the region have been home to Indigenous Peoples since time immemorial. The Islands Trust Area is situated within the treaty and territorial lands and waters of many First Nations, who occupied and utilized the area of the Islands Trust for countless generations and have collective inherent rights to hunt, gather, and fish.

To understand Indigenous perspectives, the Islands Trust asked five Indigenous Cultural Knowledge Holders (recognized in the acknowledgements section at the end of this document) to share teachings about the connection between water and the well-being of the environment, people, and community. Cultural Knowledge Holders generously contributed their time and knowledge to help non-Indigenous participants and the strategy authors better understand the role of water in Indigenous oral history, protocol, ceremony, and culture. They participated in the Strategy Advisory Roundtable, conducted several internal workshops with Trust staff, and hosted a special session with Roundtable members to share Indigenous ways of knowing and learning about water.

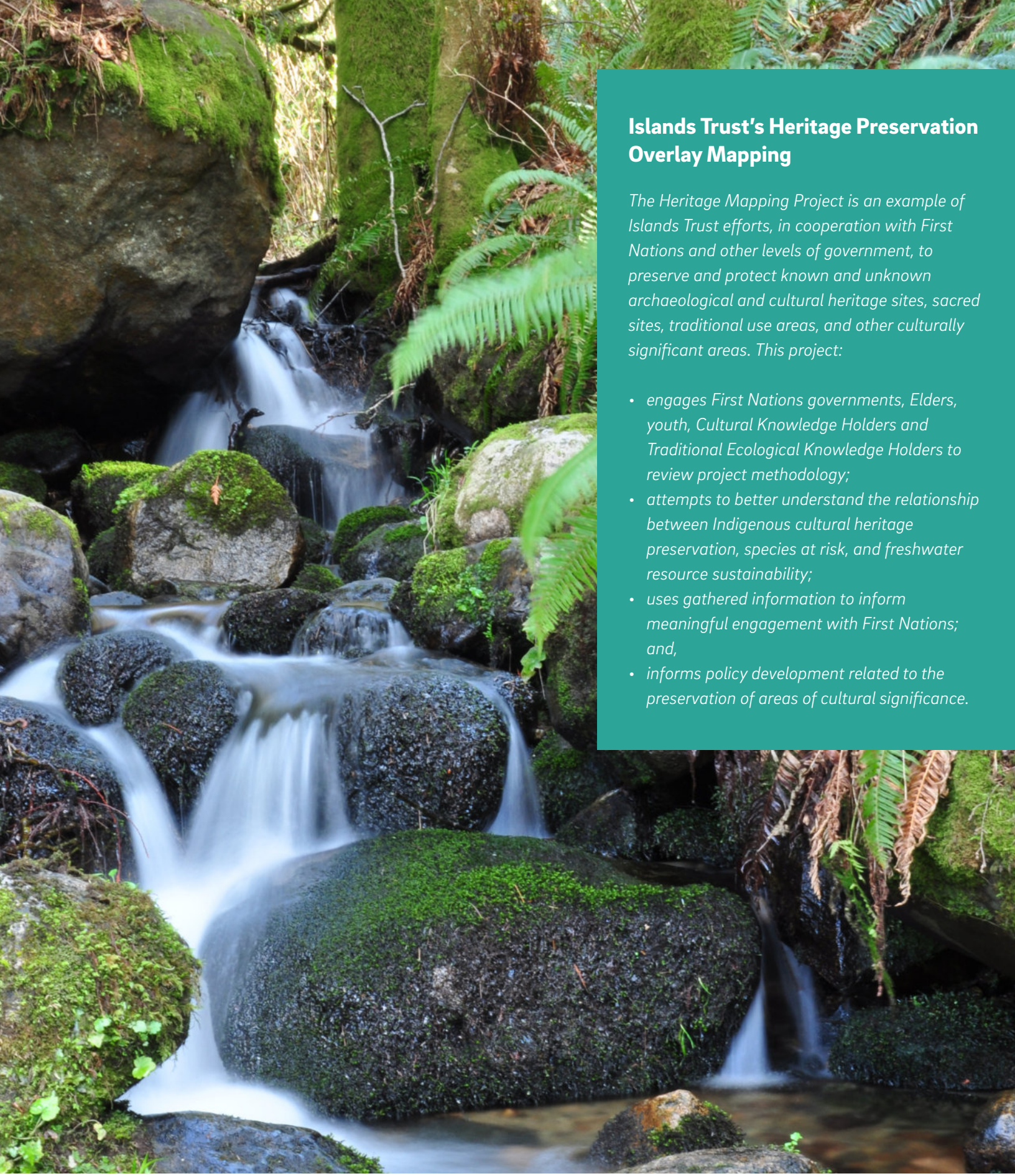
Figure 2: Cultural Knowledge Holders Perspectives on Freshwater Stewardship

The Cultural Knowledge Holders shared that, for Coast Salish Peoples, water is integral to understanding oneself and one's place. Teachings about it are passed down by Elders, who learned from their own Elders. They taught that water allows for spiritual healing, provides energy and balance to people and ecosystems, and, in the words of one participant, allows us to live in a good and kind and gentle way. The image in Figure 2 captures some of these teachings.

Freshwater is subject to Indigenous Rights and title and Islands Trust recognizes this jurisdiction. Injustices and discrimination can and have occurred when First Nations people are prevented from exercising inherent rights to access these places for cultural purposes, in the Trust Area and beyond.

Many of the actions under this strategy are intended to contribute to Islands Trust's commitment to reconciliation and to establishing and maintaining mutually respectful relationships between First Nations people and the Islands Trust. Specific actions include a commitment to identify freshwater sites of cultural and spiritual significance and to use planning tools such as covenants and development permit areas to protect these places. Islands Trust commits to collaborate with First Nations to develop understanding and integrate their participation, perspectives, and interests into water-related decision making. The Trust will collaborate with First Nations and Indigenous organizations to increase community awareness of water-related cultural values, interests, and inherent rights.

Islands Trust Council recognizes that reconciliation is fundamental to building meaningful relationships now and into the future. Its future work to ensure freshwater sustainability provides an opportunity to demonstrate this commitment and to celebrate the richness of Coast Salish history, knowledge, and culture.



Islands Trust's Heritage Preservation Overlay Mapping

The Heritage Mapping Project is an example of Islands Trust efforts, in cooperation with First Nations and other levels of government, to preserve and protect known and unknown archaeological and cultural heritage sites, sacred sites, traditional use areas, and other culturally significant areas. This project:

- *engages First Nations governments, Elders, youth, Cultural Knowledge Holders and Traditional Ecological Knowledge Holders to review project methodology;*
- *attempts to better understand the relationship between Indigenous cultural heritage preservation, species at risk, and freshwater resource sustainability;*
- *uses gathered information to inform meaningful engagement with First Nations; and,*
- *informs policy development related to the preservation of areas of cultural significance.*

2.3 Islands Trust's History with Freshwater Sustainability

The Freshwater Sustainability Strategy builds on decades of work to protect the water resources in the Islands Trust Area. The following timeline illustrates some of the events leading up to this strategy.

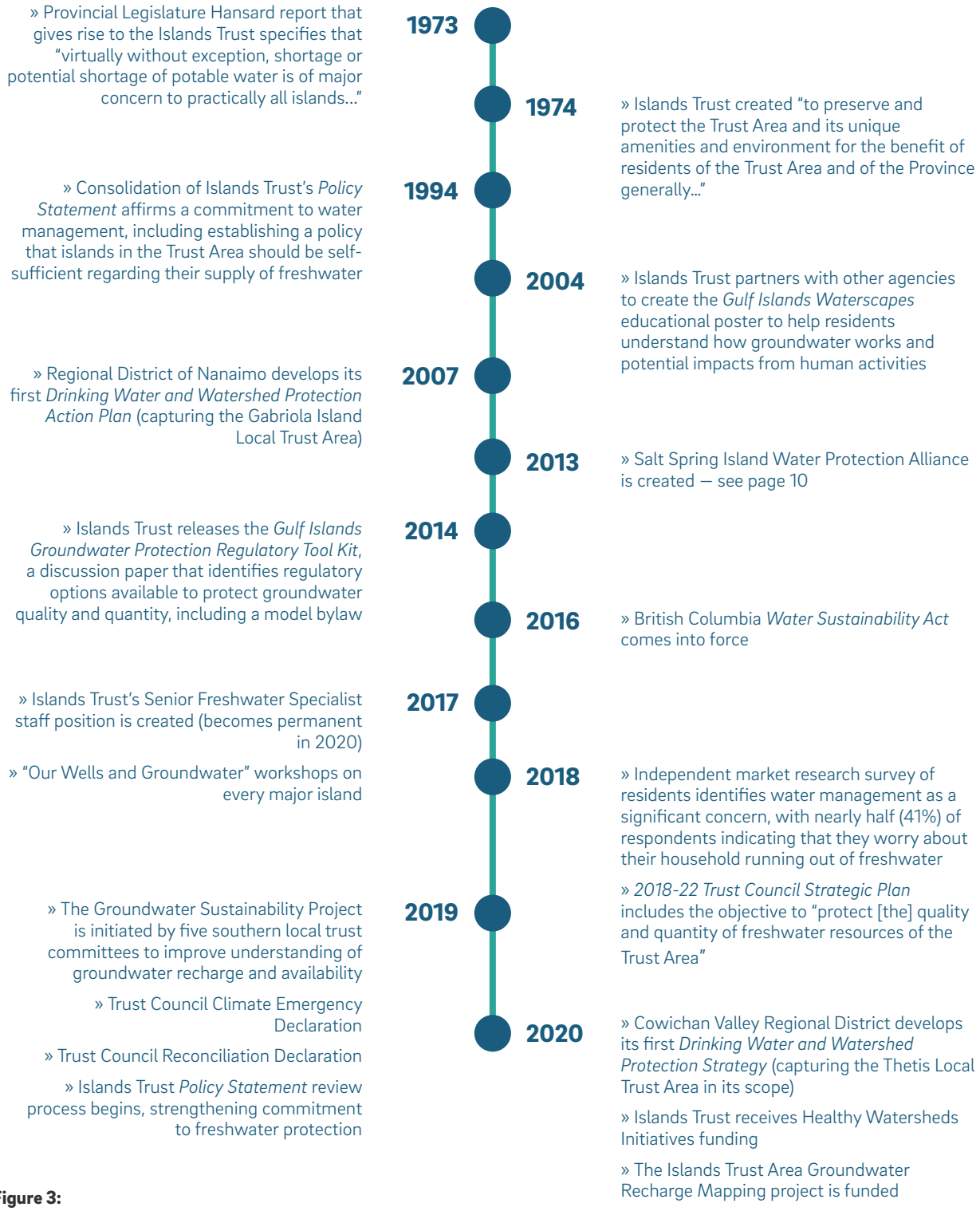


Figure 3:

Timeline of Gulf Islands Water Management Activities

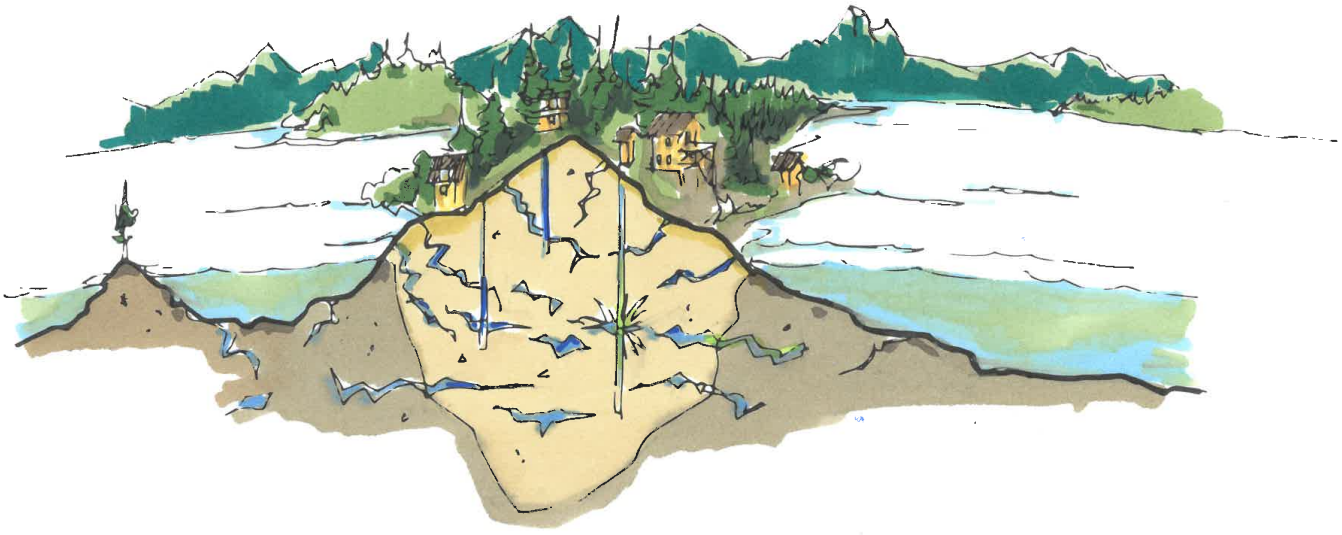
2.4 Freshwater Resources in the Islands Trust Area

Freshwater resources in the Islands Trust vary from island to island. Some islands have large lakes; others do not. Most streams are ephemeral, meaning they flow only parts of the year. Most islands are very dry for part of the year. Almost no rain falls in the summer, and seasonal droughts are increasing in intensity and duration, consistent with climate change projections.

Groundwater in the Islands Trust Area is mainly recharged in the rainy season, through delicate freshwater networks in limited fractured rock basins or small sand and gravel deposits. Groundwater is essential for ecosystem health and overall hydrological function of watersheds. In many places, this scarce resource is vulnerable to threats such as contamination from pollution caused by human activities, overuse, and saltwater intrusion, especially during the summer when demand is high and recharge is low.

Saltwater intrusion involves movement of ocean water or saline groundwater into freshwater aquifers, which can lead to groundwater quality degradation. While this occurs naturally in certain vulnerable coastal areas, groundwater pumping has increased intrusion in some parts of the Islands Trust Area, such as East Point of Saturna Island. Sea level rise and storm surge amplified by climate change contributes to this problem, which is likely to worsen in the years to come.

Many island residents depend on groundwater for their drinking source. The majority of people rely on domestic wells, making groundwater mainly a privately managed public resource. There are over 11,000 registered wells across the Islands Trust Area, the great majority of which supply single family households. Since well registration by drillers to the provincial GWELLS database was not mandatory prior to 2016 (and is still only recommended for domestic wells) there are likely to be more than this number.



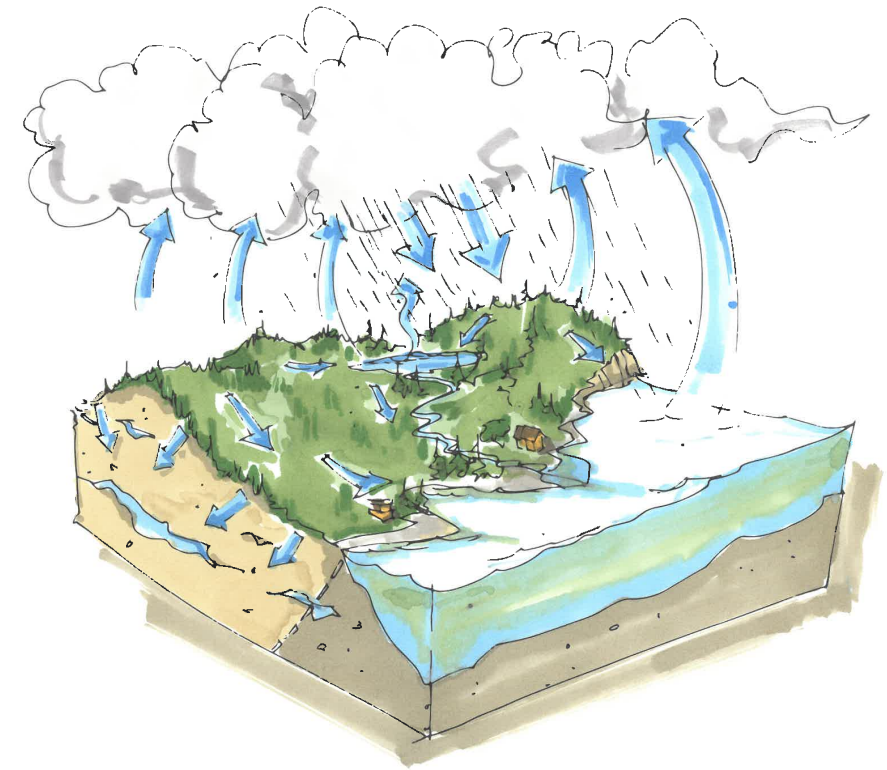
Art by Phil Testemale

Risks from contamination to both private and community water supplies come from septic systems, agricultural activities, stormwater flows, accidental spills, and other sources of pollution.

There are over 250 community water systems. Some are small, with only a few connected houses, but there are larger systems operated by regional districts, regulated private utilities, and improvement districts (incorporated public bodies governed by a board of elected trustees). The largest community system - North Salt Spring Waterworks District - serves over 5,500 year-round residents from water sourced from St. Mary and Maxwell Lakes. Community water systems face supply challenges because they need to balance the demands of current users with the potential of new users to connect to these systems. Outdoor irrigation restrictions are common in the summer and are elevated to outright watering bans during drought years.

Ensuring there is sufficient freshwater on the islands to sustain natural ecosystem processes and for human use is key element of freshwater sustainability. Protection of surface water ecosystems and aquatic habitat values relies upon an understanding of the interactions and hydraulic connection between surface and groundwater. Identifying and monitoring environmental flow in streams, wetlands, and lakes assists with determining the vulnerability of freshwater networks to over-use for human needs.

Focussed and collaborative action is needed to ensure freshwater availability in the face of increasing demand and decreasing supply. With the intensifying vulnerability of freshwater supply islanders are increasingly concerned. Nearly half (41%) of respondents to a 2018 survey of Islands Trust residents indicated that they worry about their household running out of fresh water. This underscores the need for Islands Trust, along with other levels of government, water purveyors, First Nations, and residents to work together to protect it and build resilience.



Art by Phil Testemale

Salt Spring Island Watershed Protection Alliance

The Salt Spring Island Watershed Protection Alliance (SSIWPA) was formed in June 2013 as a forum for coordinated freshwater management through integrated planning, policy development, and implementation. It was created by Islands Trust (under Council Bylaw 154), which provides (under the Salt Spring Local Trust Committee) additional authority to coordinate regional activities among agencies. It receives funding under a special property tax requisition, which supports water-related operations that are not included within general operations of the Local Trust Committee. Other agencies contribute additional funding and resources for SSWIPA projects.

Initial membership included six agencies - BC Ministry of Environment, Capital Regional District's (CRD) Integrated Watersheds Program, Islands Trust, Island Health, North Salt Spring Waterworks District, and the CRD's Fernwood-Highland Water Commission. It has since grown to include over 15 provincial, regional, or local agencies and community organizations, all of which share responsibility for water management on Salt Spring Island.

Since its formation, SSIWPA partners have contributed to the following:

- *The St. Mary Lake Integrated Watershed Management Plan;*
- *Coordinated technical review of water availability and climate change in lake systems;*
- *Research and technical reviews on issues such as water availability, drought and climate change impacts, lake nutrient-loading models, and groundwater recharge modelling;*
- *Groundwater, lake level, and stream flow monitoring programs;*
- *Aquifer analysis, groundwater budgets, and recharge mapping;*
- *Surveys of small water systems' consumption and production data;*
- *Publishing the Non-Potable Rainwater Harvesting Best Practices Guide for residents; and,*
- *Public education about water resources and conservation including water fairs, rainwater harvesting tours, event booths, open houses,webinars, and workshops.*

SSIWPA remains a forum for dialogue between agencies. It has advanced public awareness about water issues on the islands and fosters innovative policy development, cross-agency information sharing, and better data management.

2.5 Partners in Freshwater Stewardship

Islands Trust can only deliver the commitments set out in this strategy by working together with partners. Its jurisdiction is limited to the powers vested in it under the *Islands Trust Act* and the *Local Government Act*. The Trust must work cooperatively with others to undertake its work. Indeed, the Islands Trust's object specifies that it will achieve its mandate 'in cooperation with municipalities, regional districts, improvement districts, First Nations, other persons and organizations and the government of British Columbia.' Moreover, Islands Trust is firmly committed to working collaboratively with First Nations on planning and decision making.

This situation is not unique to Islands Trust. Elsewhere in British Columbia, responsibility for water management is shared among a sizable number of agencies, private companies, organizations, and individuals. Table 1, below, lists just some of the organizations involved in water management in the Islands Trust Area. The table on the following page provides a high-level overview of how responsibilities are divided. This jurisdictional arrangement offers the opportunity to share resources, information, tools, and expertise. By working together, effort is magnified, greater efficiency can be achieved for residents, and energy and expertise can be leveraged.

Islands Trust serves a unique and important role within this arrangement as the governance body that was established to preserve and protect the unique amenities and the environment in the Islands Trust Area. In this role, it can identify regional priorities, articulate and support local needs, coordinate across different orders of government, and manage joint work. It can also inspire other agencies to undertake research, fund and collaborate on projects which will improve scientific understanding, strengthen governance, and educate residents.

This strategy was developed collaboratively with representatives from many of these organizations through the Strategy Advisory Roundtable. Continuing to work with these and other partners, in many different capacities, is a foundational and integral element of how it will be successfully implemented.

Islands Trust's Partners in Water Management

First Nations

BOḰEĆEN (Pauquachin) First Nation
Cowichan Tribes
Halalt First Nation
Homalco First Nation
K'ómoks (Comox) First Nation
Klahoose First Nation
Lake Cowichan First Nation
Lekwungen (Songhees) Nation
Lyackson First Nation
MÁLEXEŁ (Malahat) Nation
Penelakut Tribe
Qualicum First Nation
Scia'new (Beecher Bay) First Nation
SEMYOME (Semiahmoo) First Nation
shíshálh (Sechelt) First Nation
Sḵwx̱wú7mesh (Squamish) Nation
Snaw-naw-as (Nanoose) First Nation
Snuneymuxw (Nanaimo) First Nation
ST̓ÁUTW̱ (Tsawout) First Nation
Stz'uminus (Chemainus) First Nation
SXIMEŁEŁ (Esquimalt) Nation
T'Sou-ke (Sooke) First Nation
Tla'amin (Sliammon) First Nation
Tsleil-Waututh/Səl̓ílwətaʔ/Selilwitulh (BurrardInlet) First Nation
Tsawwassen First Nation
We Wai Kai (Cape Mudge) First Nation
Wei Wai Kum (Campbell River) First Nation
W̱JOŁEŁP (Tsartlip) First Nation
W̱SIḴEM (Tseycum) First Nation
xʷməθkʷəy̓əm Musqueam Indian Band

Federal Government

Fisheries and Oceans Canada
Natural Resources Canada
Geological Survey of Canada
Water Survey of Canada

Provincial Government

Ministry of Agriculture, Food and Fisheries
Ministry of Environment and Climate Change Strategy
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
Ministry of Health
Ministry of Transportation and Infrastructure

Regional Districts

Capital Regional District
Comox Valley Regional District
Cowichan Valley Regional District
Metro Vancouver
qathet Regional District
Sunshine Coast Regional District
Regional District of Nanaimo

Other Local and Regional Authorities

Island Health
Vancouver Coast Health
Bowen Island Municipality

Non-Government Entities

Improvement districts
Other water purveyors
Community and stewardship groups

Industry/Other

Hydrogeologist and hydrologist sector
Water service sector (well drilling, pump installation and water treatment)
Agricultural sector
Education sector

Planning sector

Development sector
Irrigation and landscaping sector

** Note: This list is not intended to be comprehensive*

	Water Service Provision	Drinking Water Regulation	Land Use Planning and Regulation	Building Permit Approvals	Water Knowledge and Science	Water Allocation and Licensing	Pollutant Discharge	Parks and Recreation	Roads and Drainage	Agriculture	Fisheries and Wildlife
Islands Trust			X		X						X
First Nations Governments	X		X		X		X			X	X
Federal - Fisheries and Oceans Canada					X						X
Federal - Natural Resources Canada					X						
Federal - Geological Survey of Canada					X						
Federal - Water Survey of Canada					X						
BC Ministry of Environment and Climate Change Strategy		X			X	X	X	X			X
BC Ministry of Transportation and Infrastructure			X						X		
BC Ministry of FLNR		X			X	X	X				X
BC Ministry of Agriculture					X					X	
BC Ministry of Health		X			X						
BC Environmental Assessment Office	X		X		X						
Regional districts	X		X	X	X			X			
Island Health/Vancouver Coastal Health		X			X		X				
Bowen Island Municipality	X		X		X			X	X		
Improvement districts and other water purveyors	X				X						
Community and stewardship groups					X						
Private sector	X		X		X					X	X
Residents	X				X		X			X	X

FLNR: BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development

3.0 **Strategy Goals and Objectives**

This section outlines the overarching goals and objectives for the strategy. These were developed collaboratively with the Strategy Advisory Roundtable.

3.1 Strategy Goals

The strategy's overarching goals — the results it aims to achieve — are as follows:

- Protect ecosystems and the overall health of watersheds and groundwater in the Islands Trust Area
- Collaborate with First Nations and Indigenous organizations to create understanding of cultural and spiritual values about water and how they interrelate to ecosystems and community well-being in decision making
- Preserve or enhance quantity and quality of drinking water sources for current and future Trust Area residents
- Enable British Columbians to enjoy the islands' water for recreation, aesthetic, and spiritual purposes

3.2 Strategy Objectives

Supporting objectives are the means by which the goals will be met. Strategy objectives are as follows:

- Understand and respect Indigenous ways of knowing and community knowledge about water resources; weave together different ways of understanding to improve water management
- Improve information and knowledge about the quality and quantity of water resources
- Use the best available information to protect watersheds and water resources in land use planning and development decisions
- Increase public awareness of water efficiency, stewardship of watersheds, groundwater, and drinking water resources
- Improve coordination of effort among the various governments and agencies with authority over water resources
- Enable integrated decision-making that considers the cumulative effects of human activities and climate change impacts on the region's water resources

4.0 **Freshwater Sustainability Programs**

Freshwater sustainability programs are the mechanisms that Islands Trust will use to organize and implement actions to realize the goals and objectives set out on page 18. Supporting existing projects and introducing new ones under well defined programs is consistent with Islands Trust regular business practices.

The strategy is organized around four programs as follows:

- Groundwater Sustainability Science Program (GWSS)
- Watershed Sustainability Science Program (WSS)
- Cultural Knowledge and Engagement Program (CKE)
- Freshwater Sustainability Reporting Program (FSR)

Figure 4: Freshwater Sustainability Strategy Flow Diagram

Each program will require dedicated financial and staff resources, endorsed through Islands Trust's standard project charter process, to support related projects. Projects under each program may be overseen by Trust Council, Regional Planning Committee, or individual local trust committees/island municipal councils, but will be coordinated to support attainment of overall strategy goals.

In addition, while not a specific program, a number of actions are organized under the theme "collaboration and advocacy with other agencies" given the importance of working with delivery partners.

The rest of this section presents the strategy actions, organized under programs, as summarized in the table on the following page.

Summary Freshwater Sustainability Strategy Actions Organized by Programs

Groundwater Sustainability Planning Program (GWSS)	
GWSS 1	Improve data management to inform decision making
GWSS 2	Develop a coordinated long-term water monitoring program
GWSS 3	Continue groundwater data and information inventory
GWSS 4	Continue groundwater recharge potential mapping
GWSS 5	Continue groundwater availability assessments
GWSS 6	Establish groundwater regions as a focus for land use planning for all Islands
GWSS 7	Integrate water availability and vulnerability information into land use policies and regulations
GWSS 8	Implement appropriate planning and regulatory tools to protect vulnerable aquifers and sensitive aquatic ecosystems
GWSS 9	Improve the availability of water-related information to support development application reviews
GWSS 10	Customize water supply requirements for new development to local circumstances
Watershed Sustainability Science Program (WSS)	
WSS 1	Inventory and understand the status of watersheds and aquatic ecosystems
WSS 2	Continue to explore the potential for rainwater harvesting and other alternatives to supplement water supplies and promote this as conservation and resilience strategy
Cultural Knowledge and Engagement Program (CKE)	
CKE 1	Identify freshwater sites of cultural and spiritual significance to First Nations
CKE 2	Collaborate with First Nations and Indigenous organizations to increase community awareness of water-related cultural values, interests, and inherent rights
CKE 3	Develop and implement a freshwater stewardship outreach plan
CKE 4	Develop and implement water-focussed training for new Trustees and Trust staff
CKE 5	Use market research methods to understand and monitor change in attitudes and behaviours related to water
CKE 6	Support water purveyors' adoption of sustainable water management practices
Freshwater Sustainability Reporting Program (FSR)	
FSR 1	Publish 'state of freshwater' report for the Islands Trust
Collaboration and Advocacy with Other Agencies (CAOA)	
CAOA 1	Collaborate with First Nations and Indigenous organizations to develop understanding and integrate their participation, perspectives, and interests into water-related decision making by all agencies
CAOA 2	Work with the Provincial Government to employ appropriate regulatory instruments in areas with acute water challenges
CAOA 3	Work with partner regulatory agencies to harmonize approval processes and integrate Freshwater Sustainability Strategy goals and objectives into decisions
CAOA 4	Work with partner agencies to manage water use and quality impacts from existing users, particularly in areas experiencing supply constraints

4.1 Groundwater Sustainability Science Program (GWSS)

Most islanders rely on groundwater wells for their drinking supply. Access to reliable and current data about groundwater is essential to understanding its status and the risks to drinking water and ecosystems.

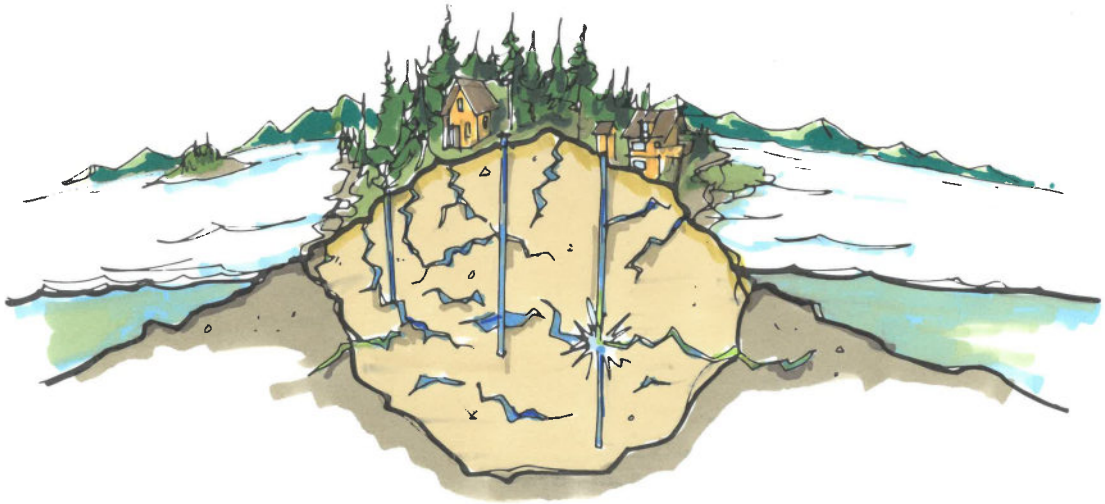
The Groundwater Sustainability Science Program (GWSS), undertakes primary research and mapping to improve information and knowledge about water quantity and quality and to better understand groundwater vulnerability. This will be supplemented, when possible, with knowledge shared by Cultural Knowledge Holders.

By estimating the balance between groundwater recharge and human and ecological demand, as well as the impacts of climate and other factors, availability assessments will provide better information to facilitate improved protection through Islands Trust's land use planning activities and development decisions. Planning tools include covenants, development permit areas, zoning, density bonusing, and subdivision servicing regulations. Decisions, authorizations, approvals, and planning by other responsible agencies will be better informed.

Research from this program will guide communications and engagement to help islanders better understand risks to groundwater and the things they can do to protect it.

Current Activities

- Islands Trust Volunteer Observation Well Network (pilot stage on Salt Spring Island)
- Islands Trust Aquifer Conceptualization Project (2017-21 in Northern Gulf Islands; 2018-21 in Southern Gulf Islands)
- Islands Trust Groundwater Recharge Mapping Project (2018-22, all islands)
- Islands Trust Groundwater Availability Assessment Project (2019-22 in Southern Gulf Islands)
- Islands Trust Saltwater Intrusion Risk Mapping Project (2019-22, all islands)
- Galliano Groundwater Sustainability Planning Implementation Project
- North Pender Groundwater Sustainability Planning Implementation Project



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Actions

GWSS 1. Improve data management to inform decision-making

Robust plans and systems to attain, collect, maintain, and access necessary data and information are critical to success. Islands Trust will work with the Provincial Government and other agencies to improve systems for uploading, storing, analyzing, and accessing data. Wherever feasible, publicly accessible, open, provincial systems will be used. Islands Trust will develop data interpretation tools and dashboards to more easily present information to residents, planners, and Trustees.

GWSS 2. Develop a coordinated long-term water monitoring program

Water monitoring must be continuous and coordinated with other agencies that have existing programs and regulatory structures. Islands Trust will collate data pertaining to water quality, quantity, and aquatic ecosystems. This will require expanding the Trust's role in coordinating these activities among water purveyors, regional districts, health authorities, First Nations, Provincial agencies, and community groups. In select cases, this will require direct involvement in on-the-ground monitoring. Islands Trust may also engage local stewardship groups and residents to participate in data collection.

GWSS 3. Groundwater data and information inventory

This action, already well underway, entails gathering and inventorying existing groundwater datasets and identifying gaps. This is foundational to many other actions in the strategy that use scientific information to inform decision making and influence resident behaviour.

GWSS 4. Groundwater recharge potential mapping

Understanding the potential of rainwater recharge is necessary to determine how much groundwater is available for environmental and human needs. By developing and running models customized to local conditions, this action (already well underway) spatially identifies intrinsic recharge potential on an island-by-island basis.

GWSS 5. Groundwater availability assessments

Islands Trust will continue to estimate how much groundwater is available to support new uses or demands. This is determined through groundwater budget assessments that consider recharge potential, climate-related data, estimated human consumption, and hydrological modelling. Results will be presented in publicly available water budget dashboards.

GWSS 6. Establish groundwater regions as a focus for land use planning for all islands

Based on characteristics such as drainage areas, bedrock geology, mapped aquifers, structural geology, and the distribution and characteristics of water wells, groundwater regions are natural water management units for water allocation and planning. Groundwater regions have already been defined for the Southern Gulf Islands. Additional ones on other populated islands will be delineated in the coming years. They should be established as a primary management unit for planning purposes. Links should be made between these regions and protected area networks.

GWSS 7. Integrate water availability and vulnerability information into land use policies and regulations

As Official Community Plans and local land use bylaws are updated across the Islands Trust Area, new information about water availability and vulnerability will be incorporated to reduce risks related to unsustainable resource use and deterioration of water quality. Depending on the local water circumstances, this may entail reconfiguring zoning, so density is situated in areas with sufficient water availability and lower risk.

Planning-related Regulatory Instruments that Could Advance Freshwater Sustainability Strategy Objectives

Covenants enabled under S. 219 of the Land Title Act can be used in conjunction with rezoning applications to reduce the direct impacts of development on Indigenous culturally sensitive areas as well as vulnerable and valuable water features (e.g., riparian areas and those with high groundwater vulnerability or low recharge potential). Covenants can be used to secure commitments from property owners for things such as the use of stormwater management features like permeable pavers or green infrastructure, or for monitoring and reporting of private well levels. Interagency discussion is encouraged regarding covenant subjects, duration, and appropriate use.

Development permit area (DPA) regulations can be established under S. 488 of the Local Government Act to enable an elevated level of protection for sensitive areas (e.g., vulnerable groundwater areas) or to promote water conservation. While covenants are used only in conjunction with rezoning applications, DPAs would additionally apply to applications for renovations, alterations, construction of accessory buildings, and to subdivisions, which are adjudicated by the Ministry of Transportation and Infrastructure.

Zoning regulates what, where and how much of, activities may occur on specific parcels of land. Zoning can limit site coverage, including placing maximums on square footage covered by buildings and limiting impermeable surface. Zoning can limit density thereby limiting the demand on groundwater supply. Zoning can also be used to increase setbacks from watercourses.

Density bonusing enables provision of additional density in exchange for a community amenity and could be used to encourage lot clustering focused on preserving important aspects of the watershed.

Subdivision servicing regulations can establish standards for the subdivision of land that maximize infiltration of water and minimize impervious surfaces. They can also be used to evaluate the sustainability of new groundwater withdrawal from a specific aquifer. They can require each proposed lot to have a reliable source of potable water and specify potable water quality and quantity standards.

Incorporating impervious surface limits into the servicing requirements contained in land use bylaws could advance water quality objectives related to improving groundwater recharge for both rezoning and subdivision applications.

GWSS 8. Implement appropriate planning and regulatory tools to protect vulnerable aquifers and sensitive aquatic ecosystems

Restrictive covenants, development permit areas, zoning, and subdivision servicing requirements all have potential to improve protection of vulnerable watersheds, aquifers, and sensitive ecosystems. See page 21 for examples of regulatory tools that could advance strategy objectives. Selection of appropriate instruments for a local trust area/island municipality are based on the following considerations:

- The nature and gravity of the water management challenges;
- Indigenous cultural heritage values;
- The availability of reliable data and information to support application of the tools;
- The past experiences of local trust committees/island municipal councils and Islands Trust staff with various regulatory instruments;
- Capacity to implement, monitor, and enforce the selected approaches;
- The level of administrative effort required relative to potential benefits;
- Political commitment; and,
- Community values and expectations.

GWSS 9. Improve the availability of water-related information to support development application reviews

Some local trust areas/island municipalities use development application information bylaws to guide applicants and to determine what evidence is required to support applications. A review of existing bylaws will ensure sufficient information is provided by applicants about water availability and the likely impacts of proposed developments. These bylaws should be aligned with requirements for proof-of-water set out in land use bylaws, and the information required for any other regulatory tools (e.g., development permit areas).

GWSS 10. Customize water supply requirements for new development to local circumstances

Incorporating proof-of-water requirements into land use bylaws for subdivision and rezoning applications provides an opportunity to customize requirements to the unique characteristics of each local trust area/island municipality. It can also improve integration of water management considerations into subdivision applications administered by the Ministry of Transportation and Infrastructure. Some land use bylaws in the Islands Trust Area already include proof-of-water provisions. However, these may not account for the latest information or climate change. Islands Trust will review all proof-of-water requirements currently in use, incorporate new requirements into land use bylaws for areas that do not currently have them, and develop parallel requirements for rezoning applications.

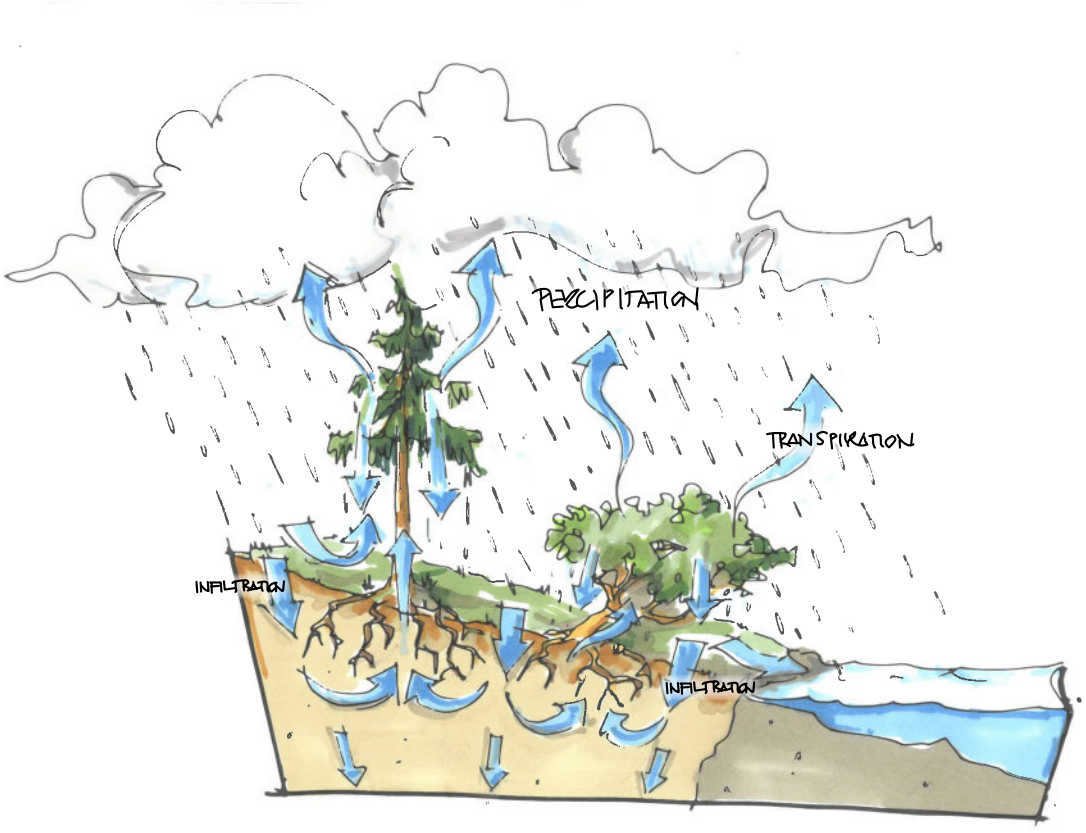
4.2 Watershed Sustainability Science Program (WSS)

The Watershed Sustainability Science Program (WSS) will improve understanding of water resources and features on the surface of the land, as well as the attributes of aquatic ecosystems. This will involve conventional scientific approaches as well use of Indigenous ways of knowing. This work will aid in anticipating and mitigating future ecosystem disturbances caused by climate change and development.

Rainwater is a resource that can and should be used to supplement potable water supplies and conserve otherwise limited sources. This program will advance understanding of potential impact rainwater harvesting and other alternatives can have on addressing islanders' water needs.

Several actions already discussed above under the Groundwater Sustainability Science Program overlap significantly with the Watershed Sustainability Science Program, as follows:

GWSS 1. Improve data management to inform decision making
GWSS 2. Develop a coordinated long-term water monitoring program
GWSS 7. Integrate water availability and vulnerability information into land use policies and regulations
GWSS 8. Implement appropriate planning tools to protect vulnerable aquifers and sensitive aquatic ecosystems
GWSS 9. Improve the availability of water-related information to support development application reviews
GWSS 10. Customize water supply requirements for new development to local circumstances



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Much like the Groundwater Sustainability Science Program, information products (reports, maps, etc.) developed under this program will inform Islands Trust's land use planning decisions and the planning and decisions of other agencies. This information can also be used to develop outreach and communications tools to support residents and visitors to reduce their water use and become effective watershed stewards.

Current Activities

- Hornby Island Healthy Watersheds Project (2021/22)
- Salt Spring Island Watershed Protection Alliance (on-going)
- Healthy Watersheds Resiliency Mapping (2020-22, select islands)

Actions

WSS 1. Inventory and understand the status of and impacts on watersheds and aquatic ecosystems

Similar to the approach used for groundwater, Islands Trust will work with partners to gather, inventory, and analyze the available data for surface water quality and quantity, as well as aquatic ecosystem attributes. This can include identifying the impacts of land clearing and logging on watershed health and freshwater sustainability. This longer-term undertaking will build understanding of the status of these resources. It will reveal where there are gaps that should be addressed through additional data collection and analysis.

To manage scope of work, a risk-based approach will be used to implement this action by focussing effort on priority watersheds facing known issues such as supply constraints, water quality deterioration, or significant development pressure. Climate change impacts and projections will be prominent considerations when assessing risks. Coordination with other agencies that collect, analyze, and distribute information about watersheds is critical for this action. This includes the Province, regional districts, water service providers, First Nations, and private companies.

WSS 2. Continue to explore the potential for rainwater harvesting and other alternatives to supplement water supplies and promote this as conservation and resilience strategy

Rainwater harvesting is already a common activity throughout the region, and some local trust areas have requirements to install rainwater harvesting infrastructure for new construction.

High seasonal variation in precipitation in the Islands Trust Area - especially prolonged summer drought conditions - can necessitate large (and therefore costly) storage infrastructure if one wants to rely on rainwater. Nevertheless, this will be an increasingly important strategy for residents due to limitations of existing supplies and because of climate change. Rainwater harvesting builds individual and community resilience to emergencies.

Any expansion of rainwater harvesting policy and bylaw requirements in the Island Trust Area will be guided by detailed analysis to ensure any new regulations will be worthwhile. This analysis can be used to identity and address regulatory and practical barriers, support amendments to proof-of-water requirements, and design education and outreach materials.

4.3 Cultural Knowledge and Engagement Program (CKE)

Under the Cultural Knowledge and Engagement Program (CKE), Islands Trust will share information, research, and Indigenous ways of knowing with communities, staff, and trustees. The goals are to foster stewardship, develop support for land use decisions, and encourage water conservation and watershed protection. This will require Islands Trust to increase its capacity to communicate with residents, businesses, visitors, and non-resident property owners.

This program prioritizes understanding and sharing Indigenous ways of knowing. Knowledge about both surface and groundwater has been passed down from generation to generation. It is rich and valuable evidence that can inform Island Trust's actions supporting the sustainability of freshwater in conjunction with science-based information. Understanding Indigenous values and perspectives can inform protection of spiritually significant sites and support access to these places for Indigenous communities.

Current Activities

- Indigenous perspectives on freshwater film (2021)
- Naut'sa maut Tribal Counci's Indigenous Youth values of water art contest (2021)
- Cultural Heritage Mapping Project (2021-2023)
- Update and distribution of water conservation brochure

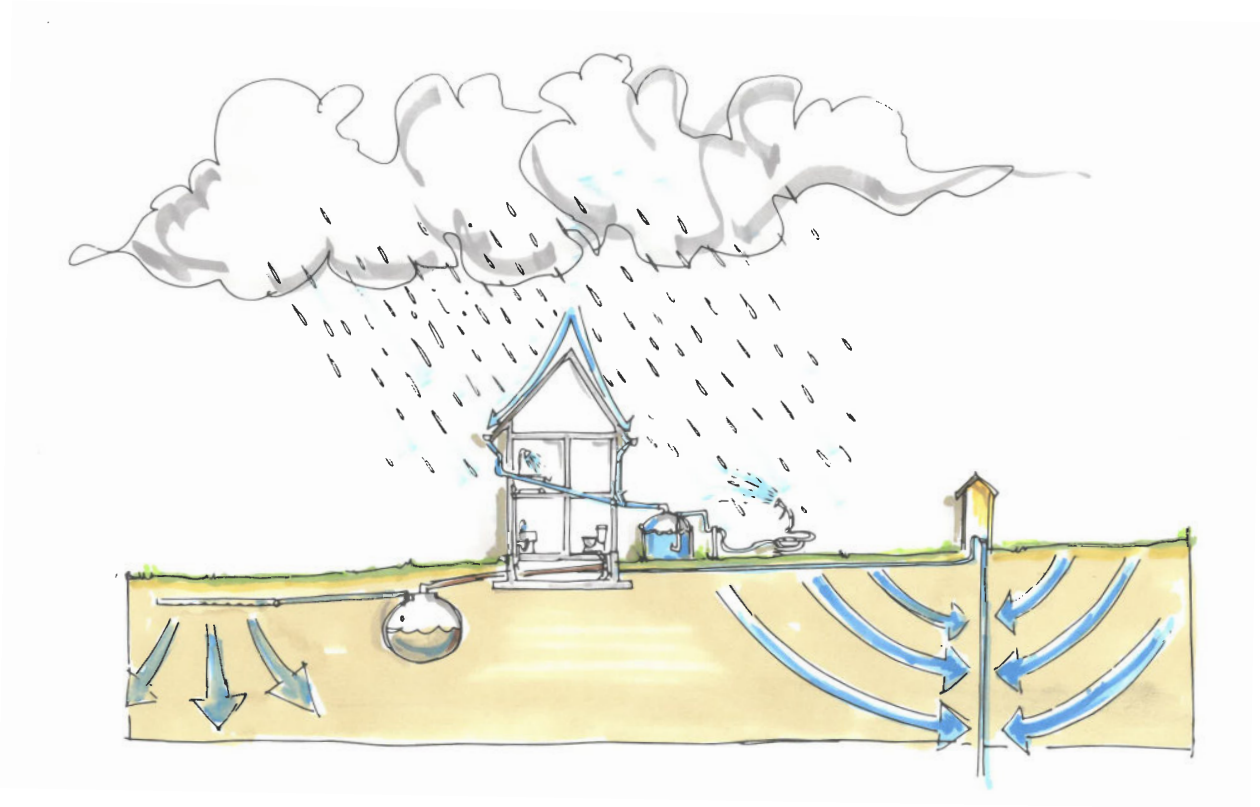
Actions

CKE 1. Identify freshwater sites of cultural and spiritual significance to First Nations

This action will be implemented through Islands Trust's Cultural Heritage Mapping Project, already underway, which may encompass other (non-Indigenous) cultural heritage. Cultural knowledge holders, First Nations governments, and Indigenous organizations will be asked to continue to support Islands Trust's data and information collection work, recognizing that different First Nations will have different perspectives on how or whether to participate. Work under this action will be based on a foundation of learning, respect, and collaboration. It will be based on commitment to address First Nations' concerns and interests, and acknowledgement that consent from all parties will be required due to possible sensitivity about how cultural information is shared.

CKE 2. Collaborate with First Nations and Indigenous organizations to increase community awareness of water-related cultural values, interests, and inherent rights

Taking guidance from The United Nations Declaration on the Rights of Indigenous Peoples, Islands Trust will collaborate with First Nations and Indigenous organizations to develop broader public understanding of Indigenous perspectives and First Nations interests related to water. This action has already been initiated with the participation of Indigenous Cultural Knowledge Holders in the development of this Freshwater Sustainability Strategy, who openly and generously shared water-related perspectives, experiences, and stories. The Islands Trust Reconciliation Action Plan provides detailed guidance for continuing this discussion so that Indigenous perspectives and interests can influence and strengthen water stewardship.



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CKE 3. Develop and implement a freshwater stewardship outreach plan

Developing a freshwater stewardship outreach plan will support successful implementation of this strategy by:

- increasing awareness of water management challenges in the Islands Trust Area;
- generating support for related policies, investments, and regulations;
- empowering residents and visitors to actively participate in sustainable water management (e.g., by conserving water, not engaging in activities that might contaminate water, or contributing to aquatic ecosystem stewardship efforts); and,
- employing community-based social marketing techniques to leverage the passion and expertise of residents and encourage peer-to-peer learning.

The outreach plan will consist of the following broad elements:

- Communications materials and tactics aimed at improving awareness of water challenges, constraints, Indigenous cultural heritage values, conservation, and stewardship;
- Materials tailored to new residents, visitors, and non-resident property owners; and,
- Tailored outreach resources and opportunities on specialized water topics (e.g., rainwater harvesting, water quality protection, water storage, composting toilets) such as workshops, webinars, information booths, print material and online tools.

Implementing this action will require coordination with regional districts that already offer outreach programs to island residents through drinking water and watershed protection services, such as the one already in place in Regional District of Nanaimo.

CKE 4. Develop and implement water-focussed training for new Trustees and Trust staff

To assume the leadership role the Islands Trust aspires to, deeper awareness and understanding of water challenges and water resource management principles is required across the organization. An orientation session will be held at the outset of each Trust Council term for Trustees and staff, combined with shorter annual refreshers and updates on Freshwater Sustainability Strategy progress. This will help stimulate the change management required in an organization that has historically focussed on land use management.

CKE 5. Use market research methods to understand and monitor change in attitudes and behaviours related to water

Following adoption of this strategy, a statistically reliable market research survey will be conducted to establish a baseline of how water is used and valued by Trust Area residents. The survey will ensure appropriate geographic representation for all islands and be structured to provide insight into differences in water-use behaviour and perceptions among individuals who use private wells versus those served by community water systems. Results will be used to inform messages for the freshwater stewardship outreach plan and help prioritize science- and planning-focussed actions elsewhere in the strategy.

CKE 6. Support water purveyors' adoption of sustainable water management practices

There are over 250 small water systems throughout the islands operated by a variety of water purveyors. These include systems operated by improvement districts, regional districts, private operators, and a municipal system on Bowen Island. Water purveyors have access to additional tools and levers to influence water use behaviour that Islands Trust does not have. This includes the ability to encourage conservation through water services pricing, to require or encourage restrictions on lawn and garden irrigation, or to provide direct incentives such as product rebates.

Small water purveyors can be challenged by increasingly stringent regulatory requirements and limited resources to renew critical infrastructure. Islands Trust will support them by convening a community of practice where they may not already be one established. Those that wish to take part will be able share information and support adoption of best practices. Examples of topics of common interest include source water protection, water use trends, water availability and licensing, pricing and financial management, and demand management programs.

4.4 Freshwater Sustainability Reporting Program (FSR)

Islands Trust's water protection efforts are currently challenged by a lack of regular monitoring and reporting mechanisms. The availability of accessible, island-specific information is essential for building community awareness, support, and engagement in stewardship.

The science and data-based actions set out in this strategy will increasingly shed light on the status of water resources in each local trust area/island municipality and the challenges for sustainable management. As this understanding progresses, the information will be translated into 'state of freshwater' reports.

Actions

FSR 1. Publish 'state of freshwater' report for the Islands Trust

Islands Trust will produce an informative and easy-to-understand 'state of freshwater sustainability' report by the end of every Trust Council term that includes sections on each local trust area/island municipality. This will inform Trust Council's strategic planning. It will assist with reviewing and updating programs and projects under this strategy. It will help with allocating budgets and with seeking external funding to support projects. Finally, it will facilitate public involvement and conservation.

This report will highlight information such as:

- descriptions of water resources on the islands (e.g., watersheds, aquifers)
- sources of potable and other domestic water used
- known water-related risks and challenges (e.g., poor water quality, low wells)
- local water monitoring activities, and
- water balance information (e.g., precipitation, recharge, sustainable rates of use)

4.5 Collaboration and Advocacy with Other Agencies (CAOA)

While collaboration and advocacy with other agencies is necessary for the majority of the actions listed above, there is need for additional focus on this in some areas. As the actions below highlight, achieving the goals in this strategy will require sustained partnerships and focussed advocacy to draw on the experience and resources of other agencies. This is a response to the complex jurisdictional structure of water management in British Columbia as discussed in section 2.5, above.

Actions

CAOA 1. Collaborate with First Nations and Indigenous organizations to develop understanding and integrate their participation, perspectives, and interests into water-related decision making by all agencies

As discussed in section 2.2, the Islands Trust is located within the treaty and territorial lands and waters of 15 different First Nations. These Nations have diverse history, perspectives, and interests. Building an understanding of that diversity, of Indigenous values and perspectives that relate to water, and of Nations' and Indigenous peoples' interests in freshwater resources is a significant undertaking. Efforts will be guided by the Islands Trust Reconciliation Action Plan. The Freshwater Sustainability Strategy presents opportunities to recognize and elevate Indigenous perspectives and First Nations interests in water and integrate this into Islands Trust's planning and processes.

CAOA 2. Work with the Provincial Government to employ appropriate regulatory instruments in areas with acute water challenges

The Provincial Government has the ability to trigger several regulatory instruments under existing legislation that may be effective for addressing specific and acute water challenges in the Islands Trust Area, noting that newer groundwater licensing provisions of the *Water Sustainability Act* are currently being implemented.

The most promising instruments for the Islands Trust include Water Objectives (enabled under s.43 of the *Water Sustainability Act*), Area-based Management Plans (provided for in s.89 of the *Environmental Management Act*) or Water Sustainability Plans and/or area-based regulations under the *Water Sustainability Act* (provided for in Part 3 and Part 6 respectively). Additional provincial regulatory tools may be considered in the future.

Through concerted engagement with the Ministry of Environment and Climate Change Strategy as well as the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Islands Trust will pursue a commitment from the Province to employ appropriate regulatory instruments to support strategy goals and objectives. This may include developing a Memorandum of Understanding to commit to a joint process of exploring options, participating in pilot projects, or working through Trust Council or the Technical Advisory Committee (discussed below in section 5.2) to garner public and political support.

Potential Provincial Regulatory Tools for the Islands Trust Area

Area-based regulations *under the Water Sustainability Act could be used to:*

- *reduce saltwater intrusion risks by requiring drilling authorizations or other regulatory restrictions for wells close to foreshore areas or areas with demonstrated vulnerability to saltwater intrusion,*
- *help manage groundwater use in areas with limited and vulnerable resources by requiring water licensing among all groundwater users, including domestic ones, or*
- *require increased monitoring and reporting of water use, including through metering.*

Water Objectives *could be used to establish water quality or quantity thresholds for a sensitive aquifer that must be taken into consideration by local, regional, and provincial agencies when making decisions governing land and resource use.*

CAOA 3. Work with partner regulatory agencies to harmonize approval processes and integrate Freshwater Sustainability Strategy goals and objectives into decisions

Landowners and developers in the Islands Trust Area work with several regulatory agencies to undertake changes in land use or pursue different development or renovation activities. The breakdown of roles and responsibilities can be unclear, confusing, and time-consuming to those seeking these services, especially when regulations conflict. This contributes to barriers to more affordable housing and creates a risk that water management considerations are divorced from land or other resource management decisions.

To mitigate these risks, Islands Trust will work with other regulatory agencies to review existing approval processes with the objectives of:

- identifying opportunities to harmonize approval processes,
- enhancing consideration of sustainable freshwater management in external review processes and decision making, and,
- removing regulatory barriers to the attainment of strategy goals and objectives.

CAOA 4. Work with partner agencies to manage water use and quality impacts from existing users, particularly in areas experiencing supply constraints

Many of the planning and regulatory actions identified above pertain specifically to new development (e.g., Actions GWSS 8, 9 and 10). This could imply that the goals of this strategy can be achieved only by managing the impact of new water users. However, some unregulated existing users can consume disproportionately large volumes or be the source of water quality problems. There is potential for this strategy to disproportionately impact new users and impede the realisation of community priorities such as affordable housing or other important community initiatives. Improvements in efficiency and stewardship practices among current water users is important to achieving equity and advancing community priorities.

Islands Trust's legislative authorities are limited to land use planning activities, many of which tend to focus on new users. However, other agencies have a number of tools at their disposal to manage water use among existing users. Water service providers can impose watering restrictions in community systems in times of shortage or they can help deliver conservation education programs. The Provincial Government can employ tools under the *Water Sustainability Act* or *Environmental Management Act* to curtail use or stop pollution. Regional districts can create watershed protection services that can deliver water conservation outreach to residents in their areas, as has already been done in Regional District of Nanaimo and Cowichan Valley Regional District.

Islands Trust will work with other agencies to address water use among existing users through education or by using existing or new regulatory tools, where appropriate, to achieve the strategy goals. This may include working with landowners, businesses, and other agencies to implement education programs geared toward reducing per capita consumption as discussed above under Action CKE 3. In areas with acute challenges, this may also require utilizing appropriate regulatory tools as discussed above under Action CAOA 2.


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5.0 **Implementation**

This section provides some implementation guidance for the programs and actions set out above. It is recognized that effort will also be driven by Trust Council direction and priorities as they evolve over the decade long horizon for this strategy.

Note that more detail is required in many areas before implementation can commence. Delivery will be organized under the four programs outlined above and comprehensive operational plans will be developed following Islands Trust standard program and project charter process.

5.1 Early Priorities

Actions have been prioritized according to the following considerations:

- Potential to improve water management or protection of water resources,
- Capacity of Islands Trust to execute the actions based on existing organizational structure and resources, anticipated funding requirements,
- Time required for successful execution, and
- Logical sequencing of activities where there are dependencies between them.

All the actions set out in this strategy are important, but progress on water science and outreach components is of the highest priority. On some islands there may be evidence to indicate that an aquifer or watershed is already under threat. In these situations, support for policy and land use planning processes must be expedited to protect drinking supplies.

Based on this, the following actions should start or continue in 2022 as priorities:

- Develop an organizational plan for strategy implementation that identifies responsibilities of Regional Planning Committee, Trust Programs Committee, Trust Council and key staff, and identify options for enlisting a Freshwater Sustainability Strategy Coordinator;
- Continue implementation of groundwater science programs including data inventory, groundwater recharge potential mapping, and groundwater availability assessments (Actions GWSS 4,5 and 6);
- As new water availability and vulnerability information becomes available, integrate this into land use policies and regulations through minor and major updates to official community plans and land use bylaws (Action GWSS 7);

- Implement new land use planning tools through local trust area/island municipality groundwater implementation projects and projects of the Regional Planning Committee for the Regional Planning Team (Action GWSS 8);
- Continue to identify sites of cultural and spiritual significance to First Nations through the Cultural Heritage Mapping Project, already underway (Action CKE 1);
- Develop and commence implementation of the freshwater stewardship outreach plan (Action CKE 3) – note that this was identified as particularly important by the Strategy Advisory Roundtable; and,
- Publish the first 'state of freshwater report' for the Islands Trust by consolidating existing research and information — this will provide a baseline for identification of strategic priorities for the 2022 Trust Council Strategic Plan (Action FSR 1).

5.2 Organization and Governance

Successful strategy implementation will require engaging with existing organizational structures and systems and creating new ones.

Trust-Wide Commitment

Given that the sustainability of freshwater in all the Islands Trust Areas is central to ecosystem and community health, freshwater vulnerability must be considered in all Islands Trust policy and land use decisions at both the Trust-wide and local trust committee level.

Inter-departmental Freshwater Sustainability Strategy Implementation Team

An Inter-departmental Islands Trust Staff Freshwater Sustainability Strategy Implementation Team will be established to help plan and guide implementation of Islands Trust-led projects, and to establish an accountability structure. Membership of this team will be decided in early days of strategy execution.

Technical Advisory Committee

An inter-agency Technical Advisory Committee will also be established. This body will guide implementation by coordinating, planning, prioritizing, and evaluating actions. It will consist of representatives of agencies and organizations with direct influence over strategy outcomes, including technical and policy staff from provincial agencies, regional districts, water purveyors, and First Nations. Supporting the effective functioning of the Technical Advisory Committee is imperative to the success of this strategy.

Reporting

Staff will present updated program plans to the Regional Planning Committee, Trust Programs Committee, and Trust Council on at least an annual basis, including budgets. Project charters will be presented as required to local trust committees or island municipal councils that make particular projects a priority, and to Trust Council Committees for federation-wide projects (e.g., through Regional Planning Committee or Trust Programs Committee).

5.3 Strategy Resourcing

Successful implementation of all the actions in this strategy will require sustained financial and personnel resource commitments from the Islands Trust. Most importantly, in addition to the Senior Freshwater Specialist, a dedicated Freshwater Sustainability Strategy Coordinator is needed to facilitate implementation (this could be done on a contract or temporary assignment basis for the first year). A First Nations planning position working with the Senior Intergovernmental Policy Advisor to support deeper First Nations engagement on freshwater and other Islands Trust projects is critical. Without this support, implementation of strategy actions will be put at risk.

Local trust committees, Bowen Island Municipality, and Trust Council committees are encouraged to consider priority setting with a freshwater sustainability lens. In some cases, the work of existing staff may need to be re-allocated to enable the implementation of some of the actions in this strategy (e.g., developing policies and regulations informed by the groundwater data).

Other anticipated resourcing needs include contracted services for specialized skills like scientific analysis or market research, capital costs associated with technological products and supports, and varied expenses associated with public outreach (e.g., graphic design, printing, online communications platforms, signage, etc.).

Some strategy actions may be eligible for grant funding opportunities through programs such as the BC Real Estate Foundation, Habitat Conservation Trust Foundation, Green Municipal Fund, and EcoAction. However, core program funding will need to be secured through tax requisitions to meet implementation timelines and develop a sustainable program.

The table on the following page provides an indication of anticipated funding needs for each action. Budgets for programs will be developed as part of detailed implementation planning. The table also shows an anticipated, high level implementation schedule for strategy actions, current status, and delivery partners.

Freshwater Sustainability Strategy Implementation Schedule, 10-Year Budget Estimates, and Delivery Partners

Code	Action (Abbreviated Description)	Status	Delivery Partners	Budget** Estimate	Timeline 2021-2024	2025-2027	2028-2031
Groundwater Sustainability Planning Program (GWSS)							
GWSS 1	Improve data management to inform decision making	N	ENV, FLNR, RD	$$	■	■	
GWSS 2	Coordinated long-term water monitoring program	N	Numerous	$$$	■	■	■
GWSS 3	Continue groundwater data and information inventory	C	ENV, FLNR, RD, WSP	$$$	■		
GWSS 4	Continue groundwater recharge potential mapping	C	ENV, FLNR, RD	$$$	■		
GWSS 5	Continue groundwater availability assessments	C	ENV, FLNR, RD	$$$	■		
GWSS 6	Establish groundwater regions for land use planning	N	ENV,FLNR, FN	$	■	■	
GWSS 7	Integrate water availability and vulnerability information	C	ENV, FLNR, FN	$$$$	■	■	
GWSS 8	Implement appropriate planning and regulatory tools	C	FN	$$		■	■
GWSS 9	Support development application reviews	N	FN	$	■		
GWSS 10	Customize water supply requirements	N	FN, TRAN	$	■	■	
Watershed Sustainability Science Program (WSS)							
WSS 1	Inventory and understand watersheds and ecosystems	C	ENV, FLNR, RD, SG	$$$$		■	■
WSS 2	Explore the potential for rainwater harvesting	C	ENV, HLTH, HA, RD	$$	■	■	■
Cultural Knowledge and Engagement Program (CKE)							
CKE 1	Sites of cultural and spiritual significance to First Nations	C	FN, IO	$	■	■	
CKE 2	First Nations cultural values, interests, and inherent rights	C	FN, IO	$	■	■	■
CKE 3	Freshwater stewardship outreach plan	N	RD, WSP, SG, FN	$$$	■	■	■
CKE 4	Water-focussed training for Trustees and staff	N		$	■		
CKE 5	Market research on water-related behaviours and attitudes	N		$$	■		■
CKE 6	Support water purveyors	N	WSP, HA, FLNR	$$		■	■
Freshwater Sustainability Reporting Program (FSR)							
FSR 1	Publish 'state of freshwater' report for the Islands Trust	N		$$	■	■	■
Collaboration and Advocacy with Other Agencies (CAOA)							
CAOA 1	Collaborate with First Nations and Indigenous organizations	C	FN, IO	$	■	■	■
CAOA 2	Work with the Province to employ regulatory instruments	C	ENV, FLNR	$	■	■	
CAOA 3	Harmonize approvals and integrate goals and objectives	C	ENV, FLNR, RD, FN	$	■	■	
CAOA 4	Manage water use and quality impacts among existing users	N	ENV, FLNR, RD, WSP	$	■	■	■

ENV: BC Ministry of Environment and Climate Change Strategy; FLNR: BC Ministry of Forests, Lands, Natural Resource Operations, and Rural Development; FN: First Nations; HLTH: BC Ministry of Health; HA: Island Health/ Vancouver Coastal Health; IO: Indigenous Organizations; RD: Regional District; SG: Stewardship Groups; WSP: Water Service Providers; TRAN: BC Ministry of Transportation and Infrastructure

* Status: N = New; C= Continuing/Already Underway

** Includes staffing requirements. $ = <$10,000, $$ = $10,000 - $50,000, $$$ = $50,000 - $100,000, $$$$ = >$100,000

5.4 Progress Indicators

The following suite of indicators can be used to track general progress under each program. More specific, technical and/or outcome-focused performance indicators may be developed in the future for individual programs and projects. Examples include:

Groundwater Sustainability Science Program (GWSS) and Watershed Sustainability Science Program (WSS)

- Number of groundwater regions and aquifers with monitoring wells;
- Number of lake and streams included in active monitoring programs;
- Number of watersheds and aquifers characterized;
- Number of watersheds and aquifers with established water budgets or availability assessments;
- Number of local trust areas/island municipalities with development application information bylaws that include water-related information requirements;
- Number of local trust areas/island municipalities with revised policies and regulations addressing freshwater vulnerability;
- Number of local trust areas/island municipalities with groundwater region maps in their OCPs; and
- Number of water purveyors with monitoring programs and conservation strategies (including conservation-oriented pricing structures);

Cultural Knowledge and Engagement Program (CKE)

- Amount of content provided to Islands Trust area residents, property owners, visitors, staff, and Trustees (e.g., videos, web content, workshops, information brochures);
- Number of face-to-face and online events where cultural knowledge has been shared with staff, Trustees and the public;
- Public awareness of watershed protection benefits, measured through market research;
- Number of Islands Trust area residents, non-resident property owners, and visitors participating in water conservation and/or stewardship activities per year (measured based on both direct contact and access to online channels); and,
- Completion of mapping of freshwater sites of cultural and spiritual significance.

Freshwater Sustainability Reporting Program (FWR)

- Publication of 'state of freshwater' report.
- Annual report presented to the Regional Planning Committee, Trust Programs Committee and Trust Council.

5.5 Updating the Plan

The implementation period for this strategy is 2022 to 2032. At the end of this period, a comprehensive review will be conducted to assess results and develop plans for the next operational period. Progress towards the goals and objectives will be continuously reviewed on at least a bi-annual basis through an adaptive management approach. This means adapting implementation based on empirical evidence as well as the perspectives of program managers and partners in other organizations. Changes in direction may be required because of monitoring results, new information about climate change, evolving perspectives among interested and affected parties, or new priorities from Trust Council.

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Tsawaysia Guss
Harold Joe
Jodann Teo
Hereditary Chief Bill Williams (Squamish)
Lisa Wilcox

* Jeannine Georgeson, Tsawaysia Guss, Harold Joe, and Jodann Teo were also members of the Strategy Advisory Roundtable. Lisa Wilcox is also Islands Trust staff.

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