



ONE WATER ONE REGION

STRATEGIES AND ACTIONS TO
ACHIEVE A RESILIENT FUTURE

A citizen's document to Cowichan Valley
Regional District's Drinking Water and
Watershed Protection Program 2020 | 2030





PROCESS

DEVELOPING A STRATEGY

On October 20, 2018, voters across the Regional District supported the establishment of a "Drinking Water and Watershed Protection Service" with the following strategic benefits:

- better land management decisions based on water resources inventory and monitoring data;
- protection of water through monitoring, planning and prevention;
- stewardship and conservation tools and information for residents and businesses; and,
- strategic and proactive climate adaptation measures.

In March of 2019, the CVRD Board directed staff to develop a strategy to support implementation of the Drinking Water and Watershed Protection Program (the Program). A strategic public planning process commenced in mid-2019 with a Community and Technical Advisory Group made up of participants from across the region to provide input with the support of a consulting team made up of Econics and Compass Resource Management. The final report of the Advisory Group's input was received in February of 2020 . The results of that process are summarized in this document.

¹ *For the full consulting report see Econics and Compass final report here.
insert web address to come*



INTEGRATION

AND ALIGNMENT

This Strategy has not been developed in a vacuum; instead, it was informed by a number of relevant, parallel CVRD initiatives, some of which have been underway for a number of years. As implementation commences, this Strategy will strive to support and integrate with this current work. In many cases, it will help operationalize commitments made under these processes.

Watershed Planning Much work by CVRD and partners has already been completed to develop watershed plans and other important information products for several sub-regions already known to face supply constraints or other risks.

New Normal Cowichan and Climate Adaptation Strategy A multi-phased project is underway to act on climate adaptation.

Official Community Plans CVRD is harmonizing existing electoral area Official Community Plans into a single, regional plan and is also modernizing that plan to address trends such as population growth, an evolving economy and a changing climate. Other local municipal partners are also in the process of updating their OCP's.

Liquid Waste Management Plans In collaboration with the Province and other partners, these plans guide collection, treatment and disposal of sewage and protect the environment from polluted runoff.

Hydrometric Monitoring and Water Quality Monitoring Strategies In anticipation of this Strategy, work has already commenced on technical planning around hydrometric and water quality monitoring.

First Nations Communities Many First Nations are in the process of updating their Comprehensive Community Plans or Land Codes. Many of these communities also face the impacts of declining water resources, drinking water quality

Watershed Risk Assessment Framework A dynamic risk model was developed by the CVRD to look at multiple pressures and impacts across the region.

GOALS

GOALS | OBJECTIVES | PROGRAM AREAS | ACTIONS

The Cowichan Valley Regional District's Strategic Plan identifies and sets out the vision and mission of the organization. That plan identified the Protection of Water Resources as a key strategic focus area with a Goal of working in partnership with other stakeholders to better understand and protect the region's water resources and promote sustainable water use. This 2020 strategy and its supporting program move the region firmly on that path with a renewed goal and a clear action plan.

ONE GOAL

HEALTHY WATERSHEDS AND AQUIFERS

Recognizing that our personal wellbeing, our communities, our ecosystems and our water resources are all interconnected.

This goal recognizes the linkages between human needs and the needs of aquatic and terrestrial ecosystems. It also sees groundwater and surface as one, interconnected whole – One Water.

6 OBJECTIVES

- Safe source water for domestic supply;
- Resilient watersheds, aquifers and aquatic ecosystems;
- Protection of social and cultural values and enjoyment of recreational amenities and services derived from our watersheds;
- Preparedness for climate change effects on the region's water resources;
- Strong partnerships working together to ensure healthy watersheds; and,
- Efficient use of water.

3 PROGRAM AREAS

LEARN WATERSHED SCIENCE AND INFORMATION

Collect existing and new information, analyze to create new knowledge and science; create useful tools, analysis and supporting materials and products such as maps, reports and online information systems.

ACT WATERCENTRIC PLANNING

Use science and knowledge to inform policy, land use decisions, and operational activities that affect drinking water and watersheds.

SHARE AND COLLABORATE WATERSHED STEWARDSHIP AND OUTREACH

Work directly with the public and organizations to help residents understand the benefits of water stewardship and how they can contribute.

14 PRIORITY ACTION AREAS

Improve climate and water monitoring networks

- Improve data management systems
 - Characterize surface and groundwater quantity
 - Characterize surface and groundwater quality
 - Assess ecological health
 - Develop water budgets and other products
 - Update risk assessments
 - Ensure stable long term monitoring and reporting
-
- Develop and inform policy frameworks
 - Inform planning decision making
 - Inform operational decision making
-
- Education and communication
 - Support strategic partnerships
 - Support watershed restoration

4 GUIDING PRINCIPLES

PARTNERSHIP BASED we will achieve better results if we work with other organizations and local community groups committed to watershed stewardship and protection.

ACTION ORIENTED Program Areas identified in the Strategy focus on informing and improving future policy, planning and operational decisions specific to drinking water and watershed protection.

ADAPTIVE MANAGEMENT AND CONTINUOUS IMPROVEMENT Program Areas and initiatives may be revised and adapted in response to new information and changing conditions (e.g., climate change).

PERFORMANCE STANDARDS the Program will adhere to strict performance requirements in the design, execution and reporting of the work to ensure consistency and that quality standards are met, especially those related to water science and information acquisition.

PARTNERS

IN WATER MANAGEMENT

Responsibility for water stewardship is shared among a sizable number of agencies, companies and organizations of which CVRD is just one. We work together towards shared goals of protecting water quality, quantity and aquatic ecosystems. We can share costs, information and tools, thereby magnifying the impact of our individual efforts. Through these supportive working relationships, CVRD can also more effectively influence the planning and policies of other responsible agencies. Perhaps most importantly, we can draw upon the skills and expertise of external partners and community organizations during the implementation of the Strategy.



FEDERAL GOVERNMENT

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



PROVINCIAL GOVERNMENT

-
Ministry of Environment
& Climate Change
Strategy
.....
-
Ministry of
Transportation &
Infrastructure
.....
-
Ministry of Forests,
Lands, Natural Resource
Operations & Rural
Development
.....
-
Ministry of Agriculture
.....
-
Ministry of Health
.....

* This list is not intended to be comprehensive.



FIRST NATIONS

-
- Cowichan Tribes
-
- Ditidaht First Nation
-
- Halalt First Nation
-
- Lyackson First Nation
-
- Pacheedaht First Nation
-
- Pauquachin First Nation
-
- Penelakut Tribe
-
- Stz'uminus First Nation
-
- Ts'uubaa-asatx First Nation
-
- Malahat Nation



LOCAL GOVERNMENTS

-
- City of Duncan
-
- Town of Ladysmith
-
- Town of Lake Cowichan
-
- Municipality of North Cowichan
-



OTHER REGIONAL AGENCIES

-
- The Islands Trust (Thetis Island Local Trust Area)
-
- Regional District of Nanaimo
-
- Capital Regional District
-
- Island Health



NON-GOVERNMENT ENTITIES

-
- Improvement Districts and Private Water Utilities
-
- Environmental Non-Governmental Organizations
-
- Shawnigan Basin Society, Cowichan Watershed Board and others
-
- Coastal Water Suppliers Association
-
- Mosaic Forest Management
-
- Agricultural producers
-



PROGRAM AREA 1

WATERSHED SCIENCE AND INFORMATION

ACTION

Improve Climate and Water Monitoring Systems

Attaining sufficient, high quality, and statistically defensible data on water resources in the region is essential to success of the Program. Climate monitoring capacity (e.g., precipitation, temperature, etc.) will be developed in partnership with other key stakeholders to provide improved information to a scale and scope appropriate to inform regional planning.

With respect to surface water, this will focus on attaining better information on a range of metrics including water quality, levels and flow. With respect to groundwater, improving information on the region's 58 known aquifers is a key priority.

ACTION

Improve Data Management Systems

No matter how robust water resource monitoring might be, the efforts will be useless if results are not readily accessible for analysis, or if the data are questionable. CVRD will work with the Province and other agencies to improve systems for compiling, storing and accessing data collected through the Program.

Where provincial platforms are not available, robust internal data management systems will be created and managed by CVRD. It is also important that, while existing senior government data management systems will be utilized wherever practical, the main role of the Program Area is tailored to making data current and accessible for relevant recipients and audiences within the region.

ACTION

Characterize the Health of the Region's Watersheds and Identify Risks

Characterization of the region's watersheds involves understanding both the resiliency of ecosystems and their effectiveness in providing ecological services to communities. For example, with the former - resilient aquatic ecosystems - better information will help identify where active management actions could be undertaken to protect biological diversity. With the latter - effective ecological services - understanding the sources of drinking water allows us to implement actions to better protect those resources, such as preserving critical groundwater recharge zones, riparian areas or establishing wellhead protection zones.

Characterization efforts will be organized under two interrelated themes in order to develop an understanding of the health and function of the region's watersheds and our impacts on them.

CHARACTERIZE WATER QUANTITY

CVRD will progressively develop better understanding of groundwater and surface water availability for communities, drinking water systems and ecosystem function.

CHARACTERIZE WATER QUALITY

CVRD will identify priority waterways and aquifers where water quality problems are occurring that may threaten aquatic ecosystem health, ecosystem services and particularly drinking water.

ASSESS ECOLOGICAL HEALTH

Ecological Health will be assessed using key ecological parameters such as Benthic Invertebrate (CABIN) Assessments in parallel with provincial and other regional monitoring efforts. This action area will be developed in later stages of the programs maturity and as resources allow,

Risk assessment

Using a risk-based approach, effort will initially focus on priority watersheds (i.e., those facing known water supply constraints or under significant development pressure). This will be informed by an assessment of the state of current knowledge. The objective is to identify which subregions and watersheds require additional data collection versus ones where there is already enough information to support land use decisions with reasonable confidence.

² Also referred to as natural capital, green infrastructure or natural assets.

ACTION

Develop Water Budgets and other supporting information

Results of the monitoring and characterization work will provide preliminary indications of which watersheds and aquifers are undergoing stress. The ultimate goal is to inform land use planning in the face of growth, changing land use activities and changing hydrology (i.e., climate change).

Water budgets are one critical tool to assess a watershed's ability to provide water to the community and the environment over time. A water budget is an accounting of the volume of water that flows in, the volume which is extracted and what flows out. It should account for all uses - both natural and human and gives us a clear indication of our natural limits.

Once budgets or thresholds are set, partners can work together to determine which agencies should take action before they are triggered or exceeded, and what action is required. It will not always be easy to prescribe upfront the most appropriate solution for a particular watershed. In some cases, it will be necessary to establish a multi-jurisdictional process to determine the best path forward (e.g., watershed management planning, regional growth planning or different infrastructure approaches).

ACTION

Stable, Long Term Monitoring and Reporting

You do not manage what you do not measure. Long term monitoring as well as more focused localized effects monitoring is a critical component of the Program and will be used to establish targets, monitor changes and evaluate the success of planning or policy instruments. As the Program evolves and the results of monitoring begin to be apparent, the Program will use an adaptive management approach to guide the long term structure of this Action area.

Reporting of results and trends is a critical component to ensure that the information can be used in an effective and timely manner to drive policy changes and planning strategies. If you don't measure, you don't monitor, and if you don't monitor you do not know if your actions are effective. This Action is a fundamental component of the Program.

The degree of effort that will be required to do this effectively should not be discounted. As well, it is recognized that considerations such as the intended audiences for this reporting, the objectives, the frequency, preferred formats of data and reports, and the level of detail are all important implementation issues that should be addressed regularly. Nevertheless, the intent is that monitoring results will show changes in watershed health over time and indications of the effectiveness of the Program and land use decision making in the region generally.



PROGRAM AREA 2

WATERCENTRIC PLANNING

ACTION

Develop Coordinated Policy Frameworks

Planning of all kinds, particularly land use and resource planning, is key to protecting watersheds and drinking water. The Program will develop a multi stakeholder coordinated planning framework that allows and supports the alignment of multiple levels of government to coordinate water planning policies and programs. This will be accomplished by discussions with the provincial government, local First Nations communities as well as the proposed Technical Advisory Committee. The Program will also support policy and operational work of other agencies as they relate to the CVRD.

ACTION

Inform Planning and Decision Making

Use continuously improving knowledge about availability, quality, risk, and sustainability best practices to support planning decisions. Land use planning mechanisms used by CVRD and its partners include Regional Growth Strategies, Official Community Plans, Comprehensive Community Plans, and development permitting for Electoral Areas, among others. The Program will also support other CVRD planning efforts such as environmental planning, liquid waste master planning and bulk water supply planning.

At a regional scale, water management plans are a promising option for promoting the goals of this Strategy. Plans may be developed for specific watersheds on a priority basis according to risks to ecological, public health and community values, recognizing that such planning can be resource intensive.

ACTION

Inform Planning and Decision Making

Use continuously improving knowledge about availability, quality, risk, and sustainability best practices to support planning decisions. Land use planning mechanisms used by CVRD and its partners include Regional Growth Strategies, Official Community Plans, Comprehensive Community Plans, and development permitting for Electoral Areas, among others. The Program will also support other CVRD planning efforts such as environmental planning, liquid waste master planning and bulk water supply planning.

At a regional scale, water management plans are a promising option for promoting the goals of this Strategy. Plans may be developed for specific watersheds on a priority basis according to risks to ecological, public health and community values, recognizing that such planning can be resource intensive.

ACTION

Inform Operational Decision Making

In addition to supporting land use and other strategic planning, the Program will also assist other CVRD operational areas by providing information, public outreach and other support.

PROGRAM AREA 3

WATERSHED STEWARDSHIP AND OUTREACH

This Program Area will promote awareness of watershed and aquifer protection by providing easily accessible, compelling and useful information to the public and partners.

Education and Communication

Broad scale communication efforts of this kind can be very resource intensive. However, investment in this area is expected to be relatively modest, particularly during the earliest days of implementation. This is necessary to ensure that there are sufficient resources for other critical projects under the science and planning themes. However, it is recognized that outreach effort may be scaled up in the future as the character of watersheds and aquifers is better understood and as the Program matures.

Strategic Partnerships

To build on successful existing programs, create synergies and avoid duplication, the Program will coordinate this work with local governments, water service providers and other regional districts. Partnerships with local environmental and stewardship groups are a critical ingredient to the success of this Program, building on past shared achievements with public engagement and advocacy.

Watershed Restoration

Supporting watershed restoration work is not likely to be a major focus of the Program because of the significant financial costs and other challenges. However, CVRD may provide basic support to restoration activities of other organizations such as stewardship groups in targeted locations where the water science Program Area has indicated that restoration is an appropriate solution and likely to improve overall watershed health . In the more distant future, the Program may evolve to provide more support for such activities (i.e., a more involved funding role) based on a partnership model, risk-based approach and assuming necessary resources are available.

³ For example, this may include providing letters of support for grant applications, playing a coordinating function across groups, providing information, or potentially providing seed money to leverage additional funding.



IMPLEMENTATION

AND GOVERNANCE

This Strategy will be implemented through multiple partnership models. CVRD will act as a convener to facilitate partnerships, liaise and work with local municipalities, manage and administer contracts and grant applications, and provide quality assurance and control to ensure goals and objectives are met. Professional staff supporting the Program will also provide technical support to meet the Program's objectives.

Partners and representatives from other organizations involved in water management in the region will continue to guide further development and delivery of the Strategy through a Technical Advisory Committee. The Committee will provide advice related to priorities and workplans for the upcoming year as well as on topics such as monitoring, study findings, and the performance and outputs of the Program.

EARLY PRIORITIES

All of the Actions in this Strategy are important, but some require more urgent attention, particularly those necessary to initiate the water science Program Area. These include tasks that will identify gaps in the existing knowledge base, establish data management protocols and install monitoring infrastructure.

How effort will be deployed in the early days of implementation will be dictated by external factors such as our existing knowledge about which watersheds and aquifers are under stress and evolving knowledge about likely climate change impacts. Other drivers include budget limitations and whether partnership opportunities present themselves.

The table on the next page sets out an anticipated, high level implementation schedule for the Strategy's Program Areas and Actions.

CHARACTERIZE WATERSHEDS AND IDENTIFY RISKS

ACTIONS	SAMPLE INITIATIVES
PHASE 1 IMMEDIATE & ONGOING	
Improve water and climate monitoring networks	<ul style="list-style-type: none"> • Develop and establish Hydrometric and climate monitoring network • Water quality monitoring strategy • Community well monitoring network
Improve data management systems	<ul style="list-style-type: none"> • Develop data management strategy • Develop supporting IT and database systems development
Characterize Watersheds and Identify Risks	<ul style="list-style-type: none"> • Undertake GIS analysis of watershed characteristics • Refine Risk Framework • Watershed Atlas refinement for public use
PHASE 2 MEDIUM TO LONG TERM	
Characterize water quality	<ul style="list-style-type: none"> • Groundwater mapping • Environmental flow needs assessments • Undertake surface and groundwater connectivity modelling wetland and riparian assessments- mapping surface and groundwater trend analysis
Characterize water quality	<ul style="list-style-type: none"> • Water quality mapping • Recharge area identification
Develop water budgets and knowledge products	<ul style="list-style-type: none"> • Watershed or aquifer based water budgets numeric and spatial • Develop data visualization tools • Develop specific watershed performance targets for priority watersheds
PHASE 3 LONG TERM	
Characterize Ecological Health	<ul style="list-style-type: none"> • Develop a Benthic tracking and assessment framework
Ongoing monitoring and reporting	<ul style="list-style-type: none"> • Regular public reports on watershed health

WATERCENTRIC PLANNING

ACTIONS	SAMPLE INITIATIVES
---------	--------------------

PHASE 2 MEDIUM TO LONG TERM

Policy	<ul style="list-style-type: none"> • Support ongoing relationship building and partnerships with First Nations Governments, staff and communities • Integrate TEK and process where possible into science and interpretation programs. • Support development of Water sustainability plans • Support interregional programs, and initiatives
Planning	<ul style="list-style-type: none"> • Updated subdivision and servicing requirements for water • Develop Watershed management plans • Provide water information to inform referrals to other organizations or to current planning • Provide regional water information to inform Emergency Planning and response • Develop regional rainwater management strategies • Develop linkages and data sharing processes with Liquid Waste management planning and monitoring programs • Integrate water information into long range planning
Operations	<ul style="list-style-type: none"> • Integrate water information into long range planning and asset management • Referral reviews • Input to CVRD operational plans and policy

WATERSHED STEWARDSHIP AND OUTREACH

ACTIONS	SAMPLE INITIATIVES
---------	--------------------

PHASE 1 IMMEDIATE & ONGOING

Strategic partnerships	<ul style="list-style-type: none"> • Coordination and participation of TAC and other key working groups • Board supported financial assistance • Volunteer programs • Community based science programs
------------------------	--

PHASE 2 MEDIUM TO LONG TERM

Education and communication	<ul style="list-style-type: none"> • Develop program communications and branding strategy • Develop community based social marketing program • Develop Multi media communications strategy • Youth engagement • Agricultural sector outreach • Water efficiency - changing consumption patterns to reduce waste • Develop well protection and septic savvy initiatives • Support small water system operators working group
Watershed restoration	<ul style="list-style-type: none"> • Stewardship or restoration Seed funding • Inter organizational support and leveraging of resources

SUCCESS

WHAT IT LOOKS LIKE

- data are collected long term to support strategic planning
- data are used to make strategic and operational decisions across the region;
- data quality and integrity are maintained.
- data sets are robust enough to provide early warning for adaptive management responses.
- long term data sets are established for each watershed that provide consistent baselines for sentinel sites
- tactical monitoring programs are effective at identifying localized issues
- long term data sets are integrated into other programs such as liquid waste management planning and monitoring, recreational use and biological programs such as fisheries monitoring
- sufficient information is available to develop water budgets and thresholds;
- critical or problem areas in the region from a water management perspective are clearly identified;
- water service providers have necessary data to make appropriate long term infrastructure plans.
- all new development has appropriate long term proof of water attached;
- agriculture and industry needs are quantified and included in strategic planning;
- water managers have good understanding of water supply and environmental flow needs;
- CVRD and other agency operational activities benefit from improved information;
- greater certainty for developers and other resource users;
- relevant information is developed to support land use policies and regulations;
- planners and other decision makers have enough information to make the best decisions;
- land use activities and infrastructure management are linked to water supply;
- spatial distribution of regional growth reflects watershed carrying capacities; and,
- climate change impacts on water resources are considered in long term planning.

PARTNERS

AND PROGRAM DELIVERY





**STRATEGIES AND ACTIONS TO
ACHIEVE A RESILIENT FUTURE**

A citizen's document to Cowichan Valley
Regional District's Drinking Water and
Watershed Protection Program 2020 | 2030