Goals, objectives, actions	Salmon sustainability	Water supply	Water quality	Estuarine health	Riparian health	Watershed IQ	Water use	Not adequately covered by existing Targets	Comments
Goal 1. Maximize efficiency of water use.							✔		
Objective 1a. Initiate improvements to water infrastructure.							✔		
1a-1. Minimize leaks in major water distribution systems by developing and implementing a comprehensive leak detection and system maintenance program.							✔		
1a-2. Install water meters on new water connections and retrofit existing connections.							✔		
1a-3. Ensure provincial and federal grants for infrastructure are contingent on water metering.							✔		
1a-4. Work with the Ministry of Environment to require metering of water used under existing and future surface water licences and water extracted from existing and future wells.							✔		
1a-5. Provide incentives (e.g., tax credits, rebates) for replacement of existing plumbing fixtures with water efficient technology.							✔		
1a-6. Install water-saving plumbing fixtures (e.g., shower heads, toilets, faucets) in all new construction.							✔		
Objective 1b. Improve management of water demand in all sectors.							✔		
1b-1. Create a consistent volume-based pricing structure throughout the Basin, and request that the Ministry of Environment apply similar mechanisms.							✔		
1b-2. Implement a conservation based sewer charge (i.e., link sewage treatment costs to water consumption).							✔		
1b-3. Implement a comprehensive demand management program in the Cowichan Basin that includes the following measures:							✔		
1b-3a. Ensure that residents, businesses, and industry employ water conservation measures (e.g., xeriscaping, water audits).							✔		
1b-3b. Promote the use of rainwater harvesting techniques (e.g., rain barrels, cisterns, dugouts, retention ponds) and greywater reuse.							✔		
1b-3c. Educate residents, business, industry, and decision makers about demand management.							✔		
1b-3d. Promote efficient agricultural water use techniques, such as drip irrigation instead of spray irrigation.							✔		
1b-4. Conduct independent water audits of Catalyst Paper's Crofton mill to investigate opportunities to enhance existing conservation measures.							✔		
1b-5. Request that the Ministry of Environment Water Stewardship Division implement the following actions:							✔		
1b-5a. Adopt legislation requiring the licensing of wells and the reporting of volumes used.							✔		
1b-5b. For new or amended water licences, attach terms and conditions that require water conservation and reporting of volumes used.							✔		
1b-5c. Amend provincial legislation and guidelines governing water licences to allow licences to be issued for instream conservation without requiring diversion, works, or human use.							✔		
1b-5d. Seek opportunities to cancel unused consumptive water licences and do not re-allocate these volumes to other licensees.							✔		

Goals, objectives, actions	Salmon sustainability	Water supply	Water quality	Estuarine health	Riparian health	Watershed IQ	Water use	Not adequately covered by existing Targets	Comments
1b-5e. Reserve unrecorded water in streams for the use of the Crown, for the purpose of conservation and downstream supply.							✔		
Objective 1c. Ensure local governments and institutions are leaders in water conservation.							✔		
1c-1. Incorporate comprehensive water conservation strategies in Official Community Plans and other land use and development plans and policies.							✔		
1c-2. Ensure that local governments lead by example by using water conservation measures, such as xeriscaping and low-flow fixtures, to decrease water use by municipal and institutional operations.							✔		
1c-3. Develop and implement 'green building' policies (e.g., using LEED standards) that include water conservation and water reuse in the construction and retrofitting of public buildings and facilities.							✔		
1c-4. Adopt a program of regular water use efficiency audits for publicly-owned buildings and infrastructure.							✔		
Objective 1d. Promote land use that increases water use efficiency.							✔		
1d-1. Prepare and amend land use and community plans to promote land uses and development patterns that maximize water efficiency and protect Cowichan Basin water resources.							✔		
1d-2. Revise municipal and regional policies, regulations, and land use plans to include Low Impact Development and Smart Growth design principles.							✔		
1d-3. Develop and implement 'green building' policies (e.g., using LEED standards) that include water conservation and water reuse. Begin with institutional and commercial buildings (Action 1c-3) and eventually include all building types.							✔		
Goal 2. Manage water supply to meet human needs and minimize impacts of low water levels.		✔							
Objective 2a. Store sufficient spring runoff to support human use and sustain river flows during summer and fall.		✔							
2a-1. Increase the weir height by 30 cm and install pumps below the zero storage elevation to pump water from the Cowichan Lake to Cowichan River when required.		✔							
2a-2. Recommend that new licences for substantial withdrawals of surface water provide equivalent licensed storage.		✔							
Objective 2b. Actively manage spring and summer water levels to minimize the potential for lakeside properties to be adversely affected.		✔							
2b-1. Revise the weir operation rule curve to include an upper and lower bound of managed water levels in the lake (a rule "band"), as described in Objective 3a.		✔							
2b-2. Operate the weir to store spring and summers inflows to the lake, within rule band limits.		✔							
2b-3. Store only sufficient water in Cowichan Lake needed to maintain ecological protection and support human use in the Cowichan Basin.		✔							

Goals, objectives, actions	Salmon sustainability	Water supply	Water quality	Estuarine health	Riparian health	Watershed IQ	Water use	Not adequately covered by existing Targets	Comments
2b-4. During the process of applying for a new water licence for the weir, assess impacts of water storage levels on lakeshore properties and implement appropriate compensation procedures and processes, as in Figure 7.		✔							
Objective 2c. Ensure that water storage decisions account for the potential effects of climate change.		✔							
2c-1. Periodically assess the water management program in light of climate data and levels of demand.		✔							
Objective 2d. Protect surface and ground water resources from contamination that could reduce supply.		✔	✔						
2d-1. Implement Best Management Practices (BMPs) for stormwater management and protection of ground water resources in the Cowichan Basin.			✔						
2d-2. Investigate and implement strategies to avoid or minimize the release of treated effluent directly to the Cowichan River (e.g., by applying it to forest of farm land), particularly during the summer.			✔						
2d-3. Maintain a minimum flow of 7 m3/sec from June 15 until the end of the weir operating season, increasing to 8.5 m3/sec by 2031, to protect the quality of Cowichan River water.		✔	✔						
2d-4. Using incentives and enforcement of regulations, relocate septic fields susceptible to flooding to avoid contamination of lakes, streams, and the Cowichan River.			✔						
2d-5. Install community sewage treatment facilities in Youbou, Honeymoon Bay, Mesachie Lake, Bear Lake, and other lakeside and riverside settlements.			✔						
2d-6. Install sufficient boat sewage pumpouts on Cowichan Lake to serve current and future boating requirements.			✔						
2d-7. Enact and enforce regulations to protect ground water resources (e.g., road runoff, commercial, and agriculture operations).			✔						
2d-8. Design and implement pesticide reduction programs, including education and incentives, for homeowners, farmers, and golf courses.			✔						
2d-9. Identify and remediate areas of upland and riverbank erosion.			✔						
Objective 2e. Manage land and resources to avoid adverse effects on Basin hydrology (quantity and timing of runoff).		✔	✔	✔					Possible new target.
2e-1. Minimize effects of land cover changes on Basin hydrology by ensuring land management meets or exceeds enacted regulations and bylaws.								✔	Monitoring issue but no land access…
2e-2. Using forestry, land cover, hydrology, and climate change research, identify potential improvements in watershed management and, if appropriate, recommend amendments to provincial regulation and local bylaws.								✔	High level action; do we want to be more active? Water sustainability plan fits here
2e-3. Engage forest companies, the Ministry of Agriculture and Lands, the Ministry of Forests and Range, and other interests in collaborative development of land and resource use practices that protect the hydrology and water quality of the Cowichan Basin.		Partial	Partial	Partial					FLNRO, Water Stewardship v

Goals, objectives, actions	Salmon sustainability	Water supply	Water quality	Estuarine health	Riparian health	Watershed IQ	Water use	Not adequately covered by existing Targets	Comments
2e-4. Engage the community in developing and implementing land cover policies and other watershed management practices that protect the Basin's hydrology.								✔	This could include OCP plann
Goal 3. Ensure sufficient water is available to sustain aquatic and riparian ecosystems throughout the year.	✔	✔			✔				
Objective 3a. Meet the recommended fish conservation flows year round in the Cowichan River.	✔	✔							
3a-1. Maintain a spring flow of 20 to 30 m3/sec from April 1 to May 1 and 15 to 30 m3/sec from May 2 to June 15.	✔	✔							
3a-2. Maintain a minimum flow of 7 m3/s from June 15 until the end of the operating season to sustain ecological function, increasing to 8.5 m3/sec by 2031 to compensate for the effects of increased demand and climate change.	✔	✔							
3a-3. In wet summers, increase the release to 9 m3/sec and, in dry summers, reduce flows to 4.5 m3/sec if necessary and as determined by the weir operation rule band.	✔	✔							
3a-4. Provide two pulses of water in the fall (last week in September and first week in October) of 16 m3/sec for 30 hours each, designed to aid migrating salmon.	✔	✔							
Objective 3b. Maintain, enhance, and restore aquatic and riparian habitats.	✔				✔				
3b-1. Identify, inventory, and map aquatic and riparian habitats and restoration opportunities.	✔				✔				
3b-2. Develop land use policies and development patterns that protect, maintain, and enhance healthy aquatic and riparian ecosystems.	✔				✔				
3b-3. Continue and expand habitat improvement projects, including spawning channel improvements and riparian restoration and replanting.	✔				✔				
3b-4. Adopt or amend tree protection bylaws to strictly regulate tree cutting and vegetation clearing in riparian areas.					✔				
3b-5. Protect riparian habitat from adverse effects of logging, industrial, commercial, and residential development through enforcement of local and provincial regulations.					✔				
3b-5a. Ensure consistent enforcement of Riparian Areas Regulation setbacks and associated controls on development adjacent to streams, wetlands, lakes, and rivers by all levels of government.					✔				
3b-5b. Enforce compliance with the riparian protection elements of the Private Managed Forest Land Act and Council Regulation.					✔				How can this be done with a
Goal 4. Reduce the impacts of high water levels, respecting the importance of winter floods to natural systems.		✔	✔					✔	
Objective 4a. Establish adequate setbacks from Cowichan Lake and River to reduce potential flooding risks.		✔						✔	
4a-1. Extend coverage of 200-year floodplain mapping to include all areas of the Basin.		✔						✔	
4a-2. Review current 200-year floodplain levels and update as required using state-of-the- art hydro-technical data and hydraulic analysis techniques.		✔						✔	

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4a-3. Continue to enforce bylaws that prohibit new development or deposit of fill below the 200-year flood level.		✔						✔	
4a-4. Flood proof at-risk structures where practical.		✔						✔	
Objective 4b. Increase the flood buffering capacity of floodplain and constricted channel areas.		✔						✔	
4b-1. Involve all municipalities and electoral areas in the preparation and implementation of a Flood and Drainage Management Plan (FDMP) for the Cowichan Basin to provide a coordinated approach to stormwater and flood management.		✔						✔	
4b-2. Maintain the capacity of the Cowichan River channel to accommodate flood flows where it is obstructed by gravel, debris, or structures.		✔						✔	
Objective 4c. Ensure drainage is adequate to allow tillage of farm fields in late spring.								✔	
4c-1. Develop and implement a drainage improvement and control system for the Somenos and Quamichan sub-basins as part of the FDMP.								✔	
4c-2. Promote crop selection in the Somenos and Quamichan sub-basins that is appropriate for their soil and hydrologic conditions.								✔	
Objective 4d. Maintain winter water levels that are high enough to protect organic soils.								✔	
4d-1. Maintain winter and spring inundation of low-lying areas of the Somenos and Quamichan sub-basins, to protect organic soils and to maintain ecological functions.								✔	
Objective 4e. Promote stormwater management that emphasizes infiltration and detention and minimizes impervious surfaces to avoid increases in peak flows.		✔						✔	
4e-1. Install appropriate stormwater management infrastructure based on Low Impact Development (reduced runoff, on-site infiltration) in new developments, and retrofit existing developments to reduce peak runoff consistent with the FDMP.		✔						✔	
4e-2. Adopt subdivision or development services bylaws and Official Community Plan policies based on Low Impact Development principles.		✔						✔	
Goal 5. Educate, engage, and empower citizens in water management.						✔			
Objective 5a. Foster basin thinking among all water users in the Cowichan Basin and ensure they understand and support water management initiatives.						✔			
5a-1. Develop and implement an on-going communications and outreach strategy to share information with the community through print and electronic media about the Basin and its valued water resources.						✔			Is the Communication Plan f
5a-2. Promote, support, and develop partnerships with non- government organizations in the implementation of the Water Management Plan.						✔			
5a-3. Develop education initiatives to enable elementary and secondary school students to understand important water issues and stewardship initiatives in their community.						✔			
5a-4. Engage the Cowichan Tribes in water management in ways that ensure cultural values are reflected in decisions						✔			

Goals, objectives, actions	Salmon sustainability	Water supply	Water quality	Estuarine health	Riparian health	Watershed IQ	Water use	Not adequately covered by existing Targets	Comments
Objective 5b. Build trust among water users, managers, regulators, and residents through communication and involvement.	✔	✔	✔	✔	✔	✔	✔		All groups should be seeking
5b-1. Seek opportunities to involve volunteers and form partnerships with nongovernmental organizations as the Water Management Plan is implemented.	✔	✔	✔	✔	✔	✔	✔		
5b-2. Engage Basin residents, government agencies, and decision-makers in an open and continuing dialogue about water management.		✔	✔			✔	✔		
Objective 5c. Conduct regular monitoring of water related conditions in the Cowichan Basin and provide this information to the public.		✔	✔			✔	✔		
5c-1. Monitor and report on the volumes of water used annually, including wells, licences, and community sources.							✔		
5c-2. Require well monitoring and reporting as a condition of rural subdivision, rezoning, or building permit issuance.							✔		
5c-3. Implement state-of-the-art climatic and hydrologic (i.e., stream flow, lake level, aquifer) instrumentation and monitoring, and link to water management decisions in the Basin.		✔							
5c-4. Prepare annual reports on the status and effectiveness of Water Management Plan implementation, and make these reports available to the public.									Who does this?
Objective 5d. Conduct research to support knowledgeable decision-making and water management.			✔				✔		
5d-1. Collect and maintain data on aquifer capacity, aquifer recharge rate, ground water extraction, and the relationship of ground water pumping to base flow in the Cowichan River and other nearby streams, and make this information available to the public.			✔						
5d-2. Develop guidelines for use of ground water and management of aquifers.							✔		
5d-3. Study the use of water in Basin agriculture, to support measures that will increase the efficiency of irrigation and other water uses.							✔		
5d-4. Apply an adaptive approach to water management, by obtaining and reviewing research data on topics such as i) effectiveness of demand management; ii) climate change effects and responses; iii) land use / water relationships; iv) ecological effects of water use and management							✔	✔	Climate change
Goal 6. Establish clear, accountable, and responsive water management decision processes and governance structures.									
Objective 6a. Establish and fund a water management advisory council that represents Basin-wide interests, maintains on-going dialogue among stakeholders, and builds trust and ownership among the participants and the public.									N/A
6a-1. Establish a Cowichan Basin Water Advisory Council (CBWAC) to guide the implementation of the Water Management Plan and improve the quality of water management decisions in the Cowichan Basin.									N/A
6a-2. Actively encourage regulatory agencies to increasingly base their water management decisions on CBWAC recommendations.									N/A
6a-3. Create secure and stable funding sources to support water management activities of the CBWAC.									N/A

Goals, objectives, actions	Salmon sustainability	Water supply	Water quality	Estuarine health	Riparian health	Watershed IQ	Water use	Not adequately covered by existing Targets	Comments
6a-4. Designate a regional coordinator to oversee the development of the water management strategy and to help implement water reduction actions.									N/A
6a-5. Involve landowners, business, developers and other members of the public in Cowichan Basin water management decisions.									N/A
Objective 6b. Ensure decisions on restoration and research projects and funding continue to be guided by the Cowichan Stewardship Round Table.									N/A
6b-1. Provide ongoing support for the work of the Cowichan Stewardship Round Table, including referring research and restoration decisions to the Round Table, and providing financial and staff resources.									N/A
Objective 6c. Ensure the costs of water management facilities and operations are shared fairly among responsible and benefiting parties.									N/A
6c-1. Assess all water storage and demand management decisions on the basis of fair distribution of benefits and costs.									N/A
6c-2. Emphasize cost effectiveness in water management decisions in the Cowichan Basin.									N/A