

# Gas Tax Funding

## Cowichan Basin Water Management Plan Implementation Projects

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### Report for Phase 1

5/1/2014

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## Summary

Gas Tax Funding (GTF) of \$150,000 was provided to support Phase 1 of a regionally significant and innovative three year project to implement the Cowichan Basin Water Management Plan (The Plan). Implementation, including necessary capacity building was supported and coordinated on behalf of the CVRD by the Cowichan Watershed Board.

The Plan was completed in early 2007 through a partnership of the Cowichan Valley Regional District (CVRD), Cowichan Tribes, the province, the federal government and the Pacific Salmon Foundation. In the absence of dedicated leadership and targeted funding, there was limited implementation of the Plan over the following three years. The CVRD and our local partners recognized the critical need to immediately address the range of integrated water and land use management issues outlined in the Plan including: drought, flood protection, water conservation, habitat and ecosystem services, public health etc.

In early 2010, the CVRD and Cowichan Tribes joined forces with the provincial and federal governments to establish the Cowichan Watershed Board. That Board was established to oversee implementation of the Plan. Since then the Board has worked to set a number of targets and priorities for implementing the plan and has been working with the Regional District and others to achieve the desired outcomes.

The recommendations included in the Plan are critical to the wellbeing of our region. Phase 1 projects began to address a number of the most critical recommendations requiring foundational information and immediate action. Sustainable water management in the CVRD is a long term project but Phase 1 projects undertaken with the support of Gas Tax have increased our capacity to manage water supply, manage and protect against flooding, conserve water, and improve land use practices. In addition it has helped us to build public knowledge and understanding of water issues which in turn has allowed residents to better understand and appreciate the importance of our watershed.

Specifically the projects contributed to:

- establishing foundational work essential to ensuring sustainable ecosystems services and sustainable water supplies;
- developing a foundation to promote wiser use of water resources;
- more holistic watershed based approaches to watershed management/protection that provide security for property owners and infrastructure investments that are in harmony with natural processes;
- enhanced cooperation at the local government level, i.e., among municipalities and electoral areas; and local stakeholders;
- enhanced cooperation between local government and Cowichan Tribes;

- enhanced public interest, understanding and sense of ownership related to the watershed and water-related issues;
- enhanced cooperation and collaboration with senior governments on watershed priorities;
- a stronger foundation information to support sectors of the economy requiring adequate and secure sources of high quality water in the region.

Because of the innovative nature of this initiative, its significant and broad applicability and strategic benefits for the rest of the province, the CVRD sought \$370,000 from the General Strategic Priorities Fund and Innovations Funds for Phase 2 projects. That funding was received and Phase 2 projects are currently underway building directly on the work undertaken in Phase 1.

## Background

### History of the Cowichan Basin Water Management Plan

The Cowichan is a 930 km<sup>2</sup> watershed on southeastern Vancouver Island that has long been renowned for its natural beauty and the resources it provides. The watershed is characterized by:

- magnificent fir and cedar forests;
- fisheries (the sport fishing was so incredible that accounts of fishing on the Cowichan River were regularly reported in 19<sup>th</sup> century London newspapers);
- abundant water bird populations;
- clean and tasty 'national award winning' drinking water from a bountiful aquifer;
- an economy that is in a transitional state from resource-based to creative;
- a vibrant First Nations cultural milieu.

For thousands of years the watershed has served as lifeblood to the Cowichan people (the largest First Nation in British Columbia). Today residents of the watershed and significant sectors of the local economy including Catalyst Paper's mill and our expanding agriculture and tourism industries are also highly dependent on the watershed and the water that it provides.

In 1996 the Cowichan River was recognized as one of BC's inaugural heritage rivers. A decade later the Cowichan was designated as a Canadian Heritage River joining two other BC rivers, the Fraser and Kickinghorse that boast national heritage status.

The Plan was borne out of the major summer drought crisis of 2003. That year river levels dropped so low that Chinook salmon had to be trucked to spawning grounds, lack of sewage dilution became a serious environmental concern almost resulting in charges being laid and the Catalyst Mill came within days of having to suspend operations. The local MLA arranged for provincial funding to support a collaborative planning process for the watershed. That funding was used to leverage other funds from five other partners including the Department of Fisheries and Oceans (DFO); the Cowichan Valley Regional District (CVRD), Cowichan Tribes, the BC

Salmon Foundation and Catalyst Paper. The background studies and documentation, planning process and the resultant Cowichan Basin Water Management Plan are estimated to have cost more than \$500,000.

The following is a link to the Plan which was completed in early 2007.

<http://www.cowichanwatershedboard.ca/sites/default/files/CowichanBasinWaterManagementPlan-March2007.pdf>

The Plan includes 6 goals 23 objectives and 89 recommended actions related to water conservation, water supply, habitat, flood management, communications and watershed governance. During the three years that followed little progress was made on the implementation of the Plan's recommendations. In 2009 a core group of representatives of the CVRD, Cowichan Tribes, Catalyst Paper, DFO, the Province and Living Rivers recognized that one key recommendation needed to be implemented if life was to be breathed into the Plan. That recommendation was the establishment of a Watershed Advisory Council or Board that would be accountable and responsible for guiding the implementation of the Plan.

### The Cowichan Watershed Board (CWB)

In December 2009 the CVRD passed a motion to establish the CWB. The new Board first met in early 2010. Its composition was as follows:

- Three appointees from CVRD directors
  - Mayor Rob Hutchins, Ladysmith, **Co-chair**
  - Lori Iannidinardo, Director, Area D
  - Klaus Kuhn, Director, Area I
- Two appointees from Cowichan Tribes Chief and Councilors
  - Chief Lydia Hwitsum, **Co-chair**
  - Darin George, Councilor
- Four appointee named jointly by Cowichan Tribes and the CVRD
  - The Honourable David Anderson
  - Mayor Ross Forrest, Lake Cowichan
  - Dr. Bruce Fraser
  - Tim Kulchyski
- One member recommend by the Department of Fisheries and Oceans
  - Don Radford
- Two members recommended by the Ministry of Environment
  - Dr. Lorna Medd
  - David Slade

The CWB has no regulatory authority of its own; rather, the CWB makes recommendations and provides advice. It reviewed the Plan and recommended that the parties get started with implementation focusing on specific fundamental initiatives to ensure a sustainable water supply for all users of the life sustaining ecosystem services that what watershed provides.

The CWB also expanded the Plan's original 6 goals or topics to include three other related topics to ensure a comprehensive Plan. The 9 topics are:

- water supply,
- demand management (water conservation),
- ecosystem services and biodiversity,
- flood protection/management,
- public education,
- governance and funding,
- public health
- First Nations issues, and
- sustainable economic development.

Five of the original goals are addressed by Phase 1 projects; these are summarized under three topics and project rationales follow.

## **Phase 1 Topics/Rationale**

### Water Supply

Over the past 25 years the water supply of the Cowichan River, on which people of the lower watershed and surrounding areas have come to depend, can no longer be counted on. Climate change has resulted in a shift in the abundance of water and summer droughts have shifted from being occasional to frequent. A study completed in early 2010 by Allan Chapman (then with MOE), found an average 36% decline in inflows into Cowichan Lake since the mid 1980's. About half is related to reduced spring and summer rainfall; the remainder appears to be related to reduced winter snow accumulation and land use practices.

Flows in the Cowichan River in summer are regulated by Catalyst Paper's weir at the western end of Cowichan Lake based on a rule curve established by MOE as part of Catalyst's water license. The weir was established to ensure an adequate supply of water for Catalyst to operate its mill and the rule curve attempts to ensure Catalyst's summer and early fall supply plus supplies for other users including drinking water, fisheries, sewage dilution, irrigation and recreation are maintained at sustainable levels. Unfortunately since the mid-1980s, maintenance of the required summer minimum base flow of 7 cubic metres per second has become less and less possible. Frequently summer flows have to be dropped below 7cms. Further more the duration that flows must be maintained at levels below 7cms has become longer. Occurrences have averaged 48 days after 1985 versus an average of 18 days before 1985. Linked to the surface water supply issue there appears to a seasonal impact on aquifers within the watershed in the lower part of the watershed. Understanding the interrelationships between ground and surface water is absolutely critical.

### Water Conservation

Although the watershed water supply issues cannot be offset solely through conservation, water use figures clearly show there are significant opportunities to reduce demand and thus 'save'

water. Furthermore those individuals who would potentially be impacted by measures required to enhance supply rightly argue that it is “unethical” for beneficiaries of increased supply to impose negative impacts on others if they are not making best efforts to conserve water. At a workshop hosted by the CVRD’s Environment Commission purveyors identified education and economic disincentives and incentives as the water conservation tools available within the region. Initiatives related to metering/pricing are planned in the watershed however, there were major knowledge gaps and there is a major need for more action by water purveyors and an effective education program that links water conservation and watershed thinking.

### **Ecosystem Services: Land Use Management Practices and Riparian Ecosystems**

Linked closely to water supply/conservation issues are issues of land use management practices on private lands in the watershed and erosion and riparian management along the shoreline of Cowichan Lake. These are viewed by many including professional hydrologists as contributing to water supply, water quality and flood management problems.

Private land owners including residents and forest companies in the watershed maintain that they are operating within provincial legislation; however, they have an obligation to the people of the region to help maintain habitats and address issues such as erosion which was identified by lakeshore property owners and is a serious problem associated with flooding and a potential problem associated with enhanced water storage in the Cowichan Lake. Given the reality of climate change and the disturbing findings of Allan Chapman, it is also essential that land use practices e.g. forestry demonstrate the realities of climate change and anticipated impacts on the region if we continue with ‘business as usual’ practices. It is considered important that we establish a factual foundation regarding riparian habitats/erosion and develop approaches to address habitat and erosion issues. It is also important to engage land owners in discussions regarding how they intend to change/develop new practices and in the case of forestry accommodate climate change and ensure the sustainable water management in the watershed.

### Other Issues

During the course of Phase 1 and continuing with Phase 2 of this project, with senior governments’ diminished capacity to manage water and water resources, local governance has emerged as a critical issue. With the support of UBCM Gas Tax Funding and our partners the CVRD has been developing foundational biophysical knowledge that is the cornerstone of effective watershed management and governance. Progress made through Phase 1 and 2 of this project put the CVRD in a position to work with the Polis Project, Brock University, the University of Victoria, and the Canadian Water Network to co-host the Watersheds 2014 Forum on collaborative watershed governance in January 2014. In addition the CVRD is pursuing a study to identify optimal approaches to watershed governance at the whole of regional district scale.

## **Phase 1 Projects**

The projects supported by the \$150,000 of Regionally Significant Project Funding are outlined in the table below. Included are project costs and associated links to final reports and other products.

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
Water Supply	<b>Climate Change Down Scaling</b>	BC Conservation Foundation (BCCF) (Craig Whitman)	\$508.75 (mainly BCCF funded)	<p>Localized and updated climate change Information to form basis of updating water budget model and determining strategy relation to raising the weir and other possible measures to enhance water supply. Because of the delay in approval of Gas Tax Funding this project was initiated by the BCCF and our role was limited to reviewing the study assessing the methods and ensuring that it was based on the most up to date climate data. The downscaled climate information was determined to be consistent with the information that had been used in the climate modelling for the Cowichan Water Basin Management Plan (Plan).</p> <p><a href="http://www.cowichanwatershedboard.ca/sites/default/files/CowichanClimateChangeAssessment-Sutherland-KWL-22Jul2011.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/CowichanClimateChangeAssessment-Sutherland-KWL-22Jul2011.pdf</a></p>	<p>Provides foundational information (capacity) required to make key decisions regarding future water supplies in the watershed. This is extremely important.</p> <p>The Plan contains key recommendations for securing a sustainable water supply in the Cowichan River which is the direct source of water for a number of our residents, the primary source of water for the Catalyst mill in Crofton (a major employer in the region).</p> <p>In addition the Cowichan River feeds the aquifer in the lower Cowichan Valley with is the drinking water source for Duncan, North Cowichan and the surrounding area.</p>

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
	<b>Ground Water and Surface Water Interaction and Water Budget</b>	MFLNR (Pat Lapcevic) through MOU managed by CWB	\$34,051.25	<p>Reviewed well records, takings and trends for groundwater in the lower portion of the watershed and supported assessments of interrelationships between groundwater and surface water.</p> <p>Based on findings installed monitoring instrumentation in wells in selected areas within the watershed in fall of 2011.</p> <p>Project progress reports/presentations include:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.cowichanwatershedboard.ca/sites/default/files/GroundwaterProgressReport-Ormond-Lapcevic-FLNRO-13Oct2011.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/GroundwaterProgressReport-Ormond-Lapcevic-FLNRO-13Oct2011.pdf</a></li> <li>• <a href="http://www.cowichanwatershedboard.ca/sites/default/files/GroundwaterStudyUpdate-Lapcevic-et-al-03Nov2011.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/GroundwaterStudyUpdate-Lapcevic-et-al-03Nov2011.pdf</a></li> </ul> <p>The final report is quite large and may require some time to download. It is at:</p> <ul style="list-style-type: none"> <li>• <a href="http://cowichanwatershedboard.ca/sites/default/files/DRAFT-GroundwaterInTheCowichanWatershed-Phase1-Lapcevic-Gellein-Ormond-FLNRO.pdf">http://cowichanwatershedboard.ca/sites/default/files/DRAFT-GroundwaterInTheCowichanWatershed-Phase1-Lapcevic-Gellein-Ormond-FLNRO.pdf</a></li> </ul>	<p>Determine groundwater trends and possible conservation targets as well as impacts of aquifer levels on summer river levels and vice versa.</p> <p>This study provided foundational information for developing a Water Budget (Phase 2 project that is now well underway) to identify the location, extent and capacity of water resources based on future climate impacts. This information will make an important contribution to guiding water sustainability within the watershed.</p> <p>In the long term we anticipate that it will help guide future licensing/ permitting of water takings as well as growth that is based on better knowledge of available water. Combined with other foundational information it will also either confirm the recommendation to raise the weir at Lake Cowichan by 30 centimeters or provide a basis for selecting another option that will ensure sustainable summer flows in the Cowichan River for downstream uses.</p>

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
	<b>Lake Bathymetry</b>	CWB (Rodger Hunter) through contract with NW Hydraulics; MOU with DFO, Hydrologic Service	\$18,678.44	<p>The purpose of this project was to obtain underwater topographic mapping of Cowichan Lake. That information will be utilized in Phase 2 to assess the impacts of drawdowns that are recommended in the Plan for times of drought.</p> <p>We had anticipated that the BCCF would partner with us on this project at Cowichan Lake however because of the delay in Gas Tax funding the BCCF had funded components of two other collaborative projects on its own. We also learned that original cost estimate for the project was too low. To make best use of the available funding we considered assessing the bathymetry of near shore (littoral areas) in selected areas of the lake. A trial survey conducted by Northwest Hydraulics using transects was found to be too limited and not cost effective  <a href="http://www.cowichanwatershedboard.ca/sites/default/files/LakeBathymetrySampleSite-NorthwestHydraulic-03Oct2011.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/LakeBathymetrySampleSite-NorthwestHydraulic-03Oct2011.pdf</a></p> <p>Since the Cowichan is internationally important for its salmon we asked Department of Fisheries and Oceans to approach its sister agency the Canadian Hydrologic Survey (CHS) that does state of the art bathymetric mapping to take on the project . CHS agreed to conduct the survey and spent one month in the field collecting the bathymetric information –processing it as they proceeded. Accuracy is reported to be within 3 cm. This level of information is exists for one other lake in BC. CHS offer estimated that the private sector would have charged of up to \$135,000 for the project.</p>	<p>Provides foundational information (capacity) required to assess bio-physical impacts of potential lake drawdowns below the weir’s sill during years of drought if they are required.</p> <p>That information will be required by regulatory agencies prior to any approval to install pumps (a recommendation of the Plan). This was identified as the only feasible solution for ensuring water supply in the river flows in times of severe drought a definite risk given current trends and climate change projections. Without such a contingency plan such a drought would be catastrophic.</p> <p>An eventual anticipated benefit is a detailed bathymetric chart of Cowichan Lake. Interestingly he local RCMP informed us that a detailed mapping for the lake would assist them in rescue/body recovery situations because Worksafe BC limits their dive to certain depths.</p>

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
	<b>Lake LiDAR simulation</b>	CVRD – (Rob (Grant) and CWB (Rodger Hunter)	\$48,638.26	<p>During the development of the Plan a number of lakeshore property owner express concern about the potential impacts of increased summer water levels that would result from raising the weir at Lake Cowichan by 30 cm. It was known that at least some private property would be inundated for longer during most summers if the weir was raised.</p> <p>The CVRD had previously commissioned LiDAR data covering the shoreline of Cowichan Lake. This Phase 1 project was intended to develop the methodology and demonstration products whereby LiDAR derived elevation data, cadastral information (specifically property boundaries) and air photo imagery would be combined to show the impacts of incremental lake levels on selected properties at Cowichan Lake. Compute analysis was supported by a number of site visits to points of known property boundary locations with a survey grade UTM coordinate recorder provided by Vancouver Island University to ensure accuracy of mapped information.</p> <p>These resultant maps were intended to serve as effective communication tool for discussing the impacts of increased water levels with lakeshore property owners.</p> <p>The maps show a series of lines depicting the lake level when it is at the top of the weir 162.37 m elevation, the full supply level if the weir was raised by 30 cm (162.67 m), mean high water (164.0) and the 1:200 year flood level (167.33).  <a href="http://www.cowichanwatershedboard.ca/sites/default/files/CowichanLakeWaterLevels.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/CowichanLakeWaterLevels.pdf</a></p>	<p>This project provided initial map products for initiating fact informed discussions with property owners whose properties would and would not be affected by incremental water levels. They have already proven to be an invaluable tool for explaining the impacts of increase water levels to selected property owners and members of the public to increase understanding of increased water levels as well as other issues such as risks of flooding.</p> <p>Through Phase 2 of the project the number of properties mapped has been expanded and information can be summarized provide an estimate of the number of properties that would be affected and the extent of the effects.</p> <p>An unintended benefit is that maps are also proving extremely useful for major riparian restoration initiative at Cowichan Lake that is being spearheaded by a local stewardship group the Cowichan Lake and “River Stewards.</p> <p>The information is currently being used at an Environmental Appeal Board hearing to discuss the relationship between water levels and property boundaries.</p>

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
<b>Water Conservation</b>	<b>Social marketing –Water Conservation</b>	CWB (Rodger Hunter)	\$29,423.84	<p>This project involved Phase 1 of a public communications (social marketing) initiative to encourage an enhanced understanding of the need for water conservation and ways to achieve it. Included were:</p> <ol style="list-style-type: none"> <li>1. A presentation to water purveyors on water conservation case studies (funding provided through the CVRD's Environment Commission) <a href="http://www.cowichanwatershedboard.ca/sites/default/files/CBWB-DM-Overview2-Stinchcombe-16Nov2010.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/CBWB-DM-Overview2-Stinchcombe-16Nov2010.pdf</a>,</li> <li>2. A public survey re understanding of water sources and water conservation, <a href="http://www.cowichanwatershedboard.ca/sites/default/files/WaterConservationHouseholdSurvey-preliminary-RodgerHunter-Oct2011.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/WaterConservationHouseholdSurvey-preliminary-RodgerHunter-Oct2011.pdf</a></li> <li>3. The survey identified a basic lack of water literacy e.g. 72% of the residents of Duncan do not know where there water comes from. We subsequently assessed domestic use for public sector water purveyors in the area and developed of a target (meet or beat Ladysmith's average per capita domestic water use) Ladysmith has been metered since 2002 and has relatively low domestic water use – 246 litres per capita well below the Canada and BC average. We also participated in communications initiatives to raise awareness of the watershed and water e.g. <a href="http://www.cowichanwatershedboard.ca/doc/resilience-cowichan-premiere-wed-feb-19-cowichan-theatre">http://www.cowichanwatershedboard.ca/doc/resilience-cowichan-premiere-wed-feb-19-cowichan-theatre</a>. About 650 people attended the debut and as a prelude to Phase 2 –the water conservation challenge..</li> <li>4. We also developed prepared presentations as a run up to the challenge and the Communications Plan that will be rolled out as Phase 2 beginning in May 2014. <a href="http://cowichanwatershedboard.ca/sites/default/files/Dome%20sticWaterConservationCommunicationsPlan-CWB-30Apr2014.doc">http://cowichanwatershedboard.ca/sites/default/files/Dome%20sticWaterConservationCommunicationsPlan-CWB-30Apr2014.doc</a></li> </ol>	<p>The comprehensive survey (560 door step interviews provided very valuable information regarding peoples' general knowledge about water. We learned that most of our residents have good attitude about water conservation but lack information. However, we also learned of many barriers to water conservation -the largest being lack of basic information about their watershed/water. We learned that many of our residents did not even know about watering restrictions or water conservation related rebate programs.</p> <p>Information gathered from purveyors on use and pricing will be used as part of our community water challenge that is to be rolled out in May 2014 (Phase 2). Purveyors and domestic users will be challenged to reduce per capita domestic water use to meet or beat Ladysmith's 246 litres per capital as per Communications Plan.</p> <p>During Phase 1 Lake Cowichan executed its plan to install meters and Duncan recently announced that it will be doing so.</p> <p>We anticipate that education and shifting behavior will be a long term project.</p> <p>If domestic users significantly reduce their co</p>

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
	<b>Agriculture Workshops</b>	CWB (Rodger Hunter) with MOA and contracted services	\$6403.17	With assistance of MOA/Ted van der Gulik hosted two agricultural sector workshops and provided manuals to participants. The workshops focused on changing approaches to crops, water systems and irrigation within the watershed and in adjoining areas.	<p>Continue to build awareness, understanding and promote action in the agricultural sector in order to achieve conservation/more sustainable use of water. There are major linkages between the CVRD 2009 Agricultural Plan and water. Water supply was a major theme in that Plan.</p> <p>Phase 2 of this project scheduled for the fall of 2014 is intended to build on the previous workshops.</p> <p>Some of the knowledge gained and relationships developed through this workshop assisted in the development of a Group Based Environmental Farm Plan (only the second one to be developed in BC) in which water quality and water supply were identified as significant issue that a group of 12 dairy producers in the area needed to address. We have requested access to unspent funding from that project to supplement our Phase 2 project.</p>

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
Ecosystem Services: Land Use Management Practices and Riparian Ecosystems	Climate change, and forestry management workshop	CWB (Rodger Hunter)	\$1,117.50	<p>As part of this project we held a meeting TimberWest the forest company that owns over 50% of the Cowichan watershed to discuss watershed and land use plans.</p> <p>We also contacted a number of professionals about giving us a reduced rate or volunteering time to participate in and experts workshop involving climate change, forest hydrology and forest management experts, and senior forest managers from forest companies operating in the watershed to discuss the implications of forest management practices on water and water resources in the watershed in the face of climate change.</p> <p>This has laid the groundwork for a workshop to be completed as part of (Phase 2).</p>	<p>A major benefit of this project was relationship building between CVRD Directors, Cowichan Tribes elected officials, a number of opinion leaders within the CVRD and TimberWest's senior management.</p> <p>There is growing concern about the impact and potential impacts of forest management practices employed by the private forest land owners on water resources within the watershed.</p> <p>The experts' workshop will be completed with Phase 2 funding. Savings in Phase 1 were applied to the innovative LiDAR project which cost more that we had estimated.</p>
	Flood Management Workshop	Not Applicable (NA)		<p>By the time the Gas Tax approval was received the CVRD and its partners had gained access to Emergency BC funding the \$5000 budget for this project was reallocated to cover under estimates in other projects.</p>	NA

Topic	Project	Lead/Management	Gas Tax Funding	Project Description/Products	Project Benefits
	<b>Erosion/Riparian Study</b>	BC Conservation Foundation (Craig Whitman) and CWB (Rodger Hunter)	\$11,183 (mainly funded by BCCF)	<p>Due to the delay in approval of Gas Tax Funding one of our partners in this project BCCF initiated an erosion inventory and mapping study of the shoreline riparian habitat and identify its causes including the impacts of increased water levels on its own. As a result through Gas Tax funding review the study to ensure that the methods were appropriate and the conclusion accurate and valid. We also commissioned a presentation by the consultant for a public meeting held at Lake Cowichan. <a href="http://www.cowichanwatershedboard.ca/sites/default/files/20110216_Cowichan_Lk_Erosion.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/20110216_Cowichan_Lk_Erosion.pdf</a>.</p> <p>This freed up funding to partner with DFO, a the Cowichan Lake and River Stewards and others CWB Partnered on workshop to set riparian protection and restoration priorities <a href="http://www.cowichanwatershedboard.ca/sites/default/files/CowichanLake-ShorelineWorkshop-Cortex-Apr2013.pdf">http://www.cowichanwatershedboard.ca/sites/default/files/CowichanLake-ShorelineWorkshop-Cortex-Apr2013.pdf</a>;</p> <p>Furthermore flowing from the workshop we were able to support the Cowichan Lake and River Stewards who accessed funding from a number of partners to develop pilot riparian restoration project that will help address erosion riparian areas and create good fish habitat. <a href="http://cowichanwatershedboard.ca/sites/default/files/SaywellPark-ShorelineRestoration-Report.pdf">http://cowichanwatershedboard.ca/sites/default/files/SaywellPark-ShorelineRestoration-Report.pdf</a></p>	<p>Provide foundational information (capacity) required to make key decisions regarding future water supplies in the watershed.</p> <p>Support foundational work to make shorelines more resilient to flooding and protect and enhance riparian/shoreline habitats.</p> <p>With the assistance of funding provided through Gas Tax and many other supporters the Cowichan Lake and River Stewards estimate that during the past year they have raised almost \$500,000 including in-kind contributions to restore shorelines, make them more resilient to flooding and enhance their value as habitat.</p>
	<b>Total Expenditure</b>		<b>\$150,000</b>		