Sustainable Water Strategy
ACTION PLAN 1.0

2010 Progress Report

MESSAGE FROM CHAIR AND VICE-CHAIR

The Sustainable Water Strategy was released in 2008 by the Okanagan Water Stewardship Council (with approval by the Okanagan Basin Water Board) after almost three years of planning, discussion, consultation, and writing. The Honourable Tom Siddon, who was the Chair of the Stewardship Council during this period, was the visionary and driving force behind the creation of the Strategy, and he saw clearly how important such a document was to the future of the Okanagan. The purpose of the Strategy was to identify the most-pressing issues facing water resources management in the region and to suggest how and where concrete action could be taken. It was intended to serve as a 'call to action' and to point us in the right direction without actually anticipating or prescribing how we might get there. There was always the realization that progress toward a more sustainable water future would depend critically on the engagement of all stakeholders, and it was anticipated that everyone would do what they were able, no matter how small the action.

It is now more than two years since the release of the Strategy, and many have wondered what actions have been taken and to what degree the Strategy is still relevant. This report provides a comprehensive update on what has transpired since 2008, and we are delighted to conclude that the Strategy is still very relevant. There is little doubt in our minds that we are on the right path. Collectively, we have made excellent progress on a range of action items, and there continues to be great optimism about what we can still achieve by way of ensuring a sustainable water future for the Okanagan. But more importantly—and something that Tom clearly understood—the Strategy and this report are not just simple lists with action items that can be checked off once completed. Rather, they are core components of a process of engagement, one that gives us all a sense of common purpose and has us working toward the same goals. In this context, it is no accident that the Okanagan is widely known as a very progressive region in terms of collaborative water resources management and that people elsewhere look to us for answers and a general sense of possibility.

As you take a few moments to look through this progress report, we hope you will be as impressed as we were by the range of activities that have been undertaken and by the successes we have enjoyed as a community. We hope you will also reflect back on the Strategy and ask yourself what you and your organization could do to help out (thanks to those that are already heavily involved!). And finally, we hope that you will begin to ponder the question of 'where to next?' The ongoing provincial Water Act Modernization process provides a splendid back-drop against which to realize our collective goals and to institute substantive changes that will take us farther down the path toward a sustainable water future. The Water Stewardship Council and the Okanagan Basin Water Board continue to work diligently to realize this goal.

Dr. Bernie Bauer
Chair, Okanagan Water Stewardship Council

Ted van der Gulik
Vice-Chair, Okanagan Water Stewardship Council

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INTRODUCTION AND SUMMARY OF PROGRESS

Water is one of the most precious natural assets in the Okanagan Basin. It is essential to the survival of plants and animals, the well-being of citizens, a health economy and the beauty of the natural landscapes.

In November 2008, the Okanagan Water Stewardship Council, a technical advisory body to the Okanagan Basin Water Board, released the Okanagan Sustainable Water Strategy: Action Plan 1.0. The Strategy provides a comprehensive guide to water management practices that will help the Okanagan region adapt to changing climate and rising water demand and work toward long-term water sustainability.

The Strategy brings together technical information about the basin and highlights the most important water management issues and how they connect to one another. It includes forty-five recommended actions designed to protect water at its source, share water in times of shortages, manage water demand, and identify the best structure for valley-wide governance.

This report outlines the progress made on the Strategy's 45 action items over the last two years. It highlights successes to date, identifies areas where more work needs to be done, discusses barriers to implementation, and suggests next steps. The page or pages in the Sustainable Water Strategy (SWS) that relate to the action is included for ease of reference between this document and the Strategy.

The actions are laid out in the order they appear in the Sustainable Water Strategy. Each action is colour-coded into one of three categories:

- EXCELLENT – BLUE
- GOOD – YELLOW
- FAIR – ORANGE
- NO PROGRESS – RED

The information contained in this report was gathered over three sessions with the Council and through additional email and phone requests, where required. Although the consultation was broad and included all levels of government, the agriculture sector, First Nations, and non-profit and industry associations, it is highly likely that additional work is being done in the Basin that we did not learn about and is therefore unaccounted for in this report. That said, the report provides an excellent overview of many activities that are underway and provides clear direction for what still needs to be accomplished.

A summary of the actions and their respective progress categories is included below.

EXCELLENT	GOOD	FAIR	NO PROGRESS
2-5 Bylaws and BMPs for Geothermal Energy	2-1 Managing Impacts of Livestock on Water	2-7 Stormwater Management Planning	2-11 Authorized Person under Sewerage System Regulation
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4-4 Information Network	3-8 Water Management Plans	4-7 Funding Water Management	
4-5 Water Research	3-10 Outdoor Water Use		
4-8 Community Engagement	3-11 Water Meters		
4-9 Reporting Tools	3-13 Affordable Water for Agriculture		
4-10 Continuous Improvement	3-14 Planning for Water Storage		
	4-2 Partnerships with Aboriginal Peoples		

PROTECTING OUR LAKES, RIVERS AND AQUIFERS

SOURCE WATER PROTECTION

Action 2-1 Managing Impacts of Livestock on Water

Manage livestock in watersheds through the installation of fencing at key locations and the provision of off-stream cattle watering stations.

Reference: SWS pages 23 and 24

Summary of Progress: GOOD

Many partners have been working together on this action and progress has been made in many areas of the Basin. Ongoing work is needed because of the large geographic area involved.

BACKGROUND:

Cattle grazing in watersheds can pose a significant risk to water quality. Cattle may eat and trample riparian vegetation, erode the streambank with their hooves, stir up the streambed and defecate in the water.

PROGRESS AND UPDATE:

- Several provincial agencies are working with ranchers on livestock management and water issues (including the ministries of Environment, Agriculture, and Forests, Mines and Lands and the Interior Health Authority).
- The BC Agriculture Council and other organizations submitted comments during the Water Act Modernization process regarding the need for changes to the current licensing system so that it will allow for offstream watering stations.
- The BC Agriculture Research and Development Corporation - Environmental Farm Plan continues to provide voluntary and confidential risk assessments for farms.
- The BC Cattlemen's Association and partners Farmland-Riparian Interface Stewardship Program continues to provide funding to provincial agricultural producers to prevent and mitigate agricultural impacts on streams and lakes.
- Various regional districts, municipalities and irrigation districts (including Lake Country, West Kelowna, North Okanagan and Central Okanagan) are working with ranchers to protect drinking water sources.
- The OBWB provided funding to support the following initiatives:
  - Greater Vernon Water Services: Duteau Creek Watershed Cattle Impact Reduction Plan
  - District of Summerland: Fencing of Thirsk Lake Reservoir
  - Regional District Central Okanagan: Joe Rich Creek Restoration Phase II
  - Black Mountain Irrigation District: Mission Creek Cattle Exclusion Fencing and Off-Stream Watering
  - Regional District North Okanagan – Greater Vernon Water Services: Bacterial Source Tracking, Kalamalka Lake Intake

BARRIERS TO MOVING FORWARD:

- Licensing: The *Water Act* requires a water licence for off-stream watering stations, but these are difficult or impossible to obtain for many of the streams that are fully allocated in the Okanagan. The Water Act Modernization will hopefully provide a solution to this issue.
- Funding and capacity: Fencing and ATV cattle guards are very expensive to install and maintain and a lot of area needs to be covered. Sufficient funding is not available to do all the areas that need it.
- Public attitude: People often leave gates open or cut fences to access areas for recreation.

NEXT STEPS:

Continue to support partnerships between cattle ranchers, local government and provincial government agencies. Continue to encourage the Ministry of Environment to accommodate offstream watering stations in the *Water Act*.

Action 2-2 Habitat Restoration

Work cooperatively to protect, restore and enhance riparian and wetland areas that have been impacted by human activities.

Reference: SWS page 23

Summary of Progress: GOOD

Many partners have been working together on habitat restoration and progress has been made in some areas of the Basin. Ongoing work is needed.

BACKGROUND:

Healthy ecosystems provide a range of services that are valued by humans, including water purification. The loss and fragmentation of wetlands and riparian areas has increased the risk of contamination for drinking water supplies and harmed aquatic ecosystems.

PROGRESS AND UPDATE:

- The following projects were funded through Environment Canada's EcoAction program:
  - Allan Brooks Nature Centre Society: BX Creek Wetland Enhancement and Interpretive Project
  - Okanagan Nation Alliance: Okanagan Riparian Enhancement Program
  - Naramata Centre Society: Naramata Creek Riparian Area South Bank Enhancement
- Conservation officers have been issuing tickets under the *Forest and Range Practices Act* for 'mud bogging' in wetlands and sensitive areas, providing educational brochures at road checks and to client groups and writing educational news stories.
- The OBWB provided funding to support the following initiatives:
  - Glenmore Ellison Improvement District: Upper Mill Creek Off Channel Watering Study
  - Mission Creek Restoration Working Group: Sediment Mitigation Strategies for Lower Mission Creek and Community Outreach and Communication Program
  - Regional District Okanagan Similkameen: Park Hill Restoration and Stewardship
  - Osoyoos Oxbows Restoration Society: Rewatering Winters and Quintal Oxbows
  - Mission Creek Channel Width Assessment
  - Oceola Fish and Game Club: Watershed Health Tracking System for Lake Country
  - Okanagan Region Wildlife Heritage Fund Society: Okanagan River and Osoyoos Lake Water Quality Assurance - Phase 1
  - Lake Country Environmental Society Osoyoos Lake Water Quality Society: Creating a Watershed Report Template
  - Regional District Central Okanagan: Joe Rich Watershed Improvements

BARRIERS TO MOVING FORWARD:

- Funding and capacity: Government agencies have limited staff and funding to address the damage to the environment.
- Public attitude: The attitudes of some members of the public do not seem to be changing. People continue to mud bog and damage wetlands and riparian areas.
- Lack of incident reporting: Many incidents are not being reported by the public, which limits the ability of provincial agencies to enforce the legislation.
- Real or perceived public health issue: Standing water (e.g., swamps and wetlands) provides a real or perceived health threat of West Nile Virus.
- BC Assessment Authority policy: BC Assessment Authority classifies farmed land as 'farm class' and significantly reduces annual land taxes. Land that is not farmed, for example an area that is being protected for habitat values, is valued at market value and taxed accordingly (if it is in the Agricultural Land Reserve that value is reduced by half).

NEXT STEPS:

Continue to support partnerships between non-profit organizations, and local and senior government agencies. The OBWB should continue to provide support grants for restoration work.

Action 2-3 Source Water Assessments

Undertake individual source water assessments and prepare joint source water assessments where feasible in order to develop a regional (basin-wide) source protection strategy.

Reference: SWS page 26

Summary of Progress: GOOD

Many individual source water assessments plans have been completed. The development of a regional (basin-wide) protection strategy is in the discussion stage.

BACKGROUND:

Interior Health Authority conditions of permit state that all water systems servicing a population of over 500 must have a source protection plan. Consideration is being given to undertaking "joint assessments" by water purveyors that use the same source (e.g., suppliers with deep water intakes on Okanagan Lake). This coordinated effort would be fundamental to realizing a regional (Basin-wide) source protection strategy.

PROGRESS AND UPDATE:

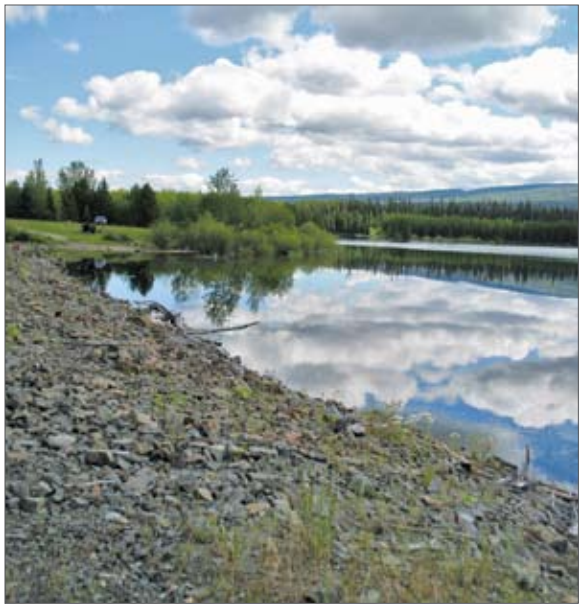
- Source water protection assessments have been completed by many water purveyors (or are in progress), including the following (with funding from OBWB): Westbank Irrigation District, Lakeview Irrigation District, Glenmore Ellison Improvement District, South East Kelowna Irrigation District, District of Lake Country, City of Armstrong, Okanagan Falls Irrigation District, City of Kelowna, and District of Peachland.
- Discussions between Interior Health, the OBWB, water suppliers, local government and regional government regarding a basin approach for source assessments are underway. No process for funding has been decided upon.

BARRIERS TO MOVING FORWARD:

- Delegation of authority: Water suppliers do not have authority over land use on Crown land in their source watersheds but are given the responsibility and are held accountable for providing potable water to their customers.
- Funding and capacity: There is a lack of funding to complete the source assessments and a lack of capacity at many water utilities to complete the plans and for the province to participate in the planning process.

NEXT STEPS:

Continue working with Interior Health to coordinate assessments of common lake intakes. Continue to work with the province to resolve the issues of jurisdictional authority, and source protection plan implementation.



Connie Kruger – Grizzly Dam

Action 2-4 Well Protection Plans

a. Implement steps 1 to 3 of the provincial *Well Protection Toolkit.*
b. Implement steps 4 to 6 of the provincial *Well Protection Toolkit.*

Reference: SWS page 28

Summary of Progress: GOOD

Steps 1 to 3 of the toolkit have been implemented by most utilities that rely on groundwater. Steps 4 to 6 have yet to be implemented by any Okanagan utilities.

BACKGROUND:

In 2000, the Province of BC, Environment Canada, and the BC Groundwater Association jointly published the Well Protection Toolkit. The toolkit is a six step approach on how a community can develop and put into place a protection plan to prevent well water contamination. Steps 1 to 3 focus on forming the planning team, defining the well protection area and identifying potential contaminants. Steps 4 to 6 focus on developing management strategies and contingency plans, monitoring results and evaluating the plan.

PROGRESS AND UPDATE:

- Well protection plans have been completed by several water purveyors (or are in progress) since 2008, including the Okanagan Falls Irrigation District, Peachland, Kelowna Joint Water Committee, and Greater Vernon Water (for Silver Star and Whitevale).

BARRIERS TO MOVING FORWARD:

- Revision of toolkit: The toolkit is currently be revised by the Ministry of Environment. It is unclear what is being revised and when the new version will be available.
- Funding and capacity: There is a lack of funding to complete the assessments and a lack of staff capacity at many water utilities and at the provincial level.

NEXT STEPS:

Ensure all water utilities that rely on groundwater develop a source assessment and protection plan using the Well Protection Toolkit.

Action 2-5 Bylaws and Best Management Practices for Geothermal Energy

Create bylaws and best management practices for geothermal energy and implement a pilot project in the Kelowna Joint Water Committee service area, followed by an Okanagan program to appropriate local governments.

Reference: SWS pages 29 and 30

Summary of Progress: EXCELLENT

The Kelowna Joint Water Committee is working on creating a database for collecting borehole and well log information from test pits, groundwater wells, and geothermal wells.

BACKGROUND:

Geothermal heating and cooling has enormous environmental benefits but several unknowns exist with regard to the risks and impacts of the technology on drinking water aquifers. Potential risks include contamination with the leaking of closed loop systems; increased biological and chemical activity in the aquifer due to higher temperatures; the pincushion effect of introducing many boreholes (and potential points of contamination) into an aquifer; and the lack of centralized tracking, monitoring and ongoing reporting of the condition of the aquifer.

PROGRESS AND UPDATE:

- The Kelowna Joint Water Committee provided the City of Kelowna with technical background, potential additional protection areas and comments/recommendations for changes to the draft Official Community Plan (OCP) Environmental Development Permit (DP) Guidelines.
- The City has made changes to the draft OCP Environmental DP Guidelines language to include most of the recommendations.
- The City is also updating their mapping to include the one-year time of travel zone information and additional buffer zones as submitted by the Kelowna Joint Water Committee.

BARRIERS TO MOVING FORWARD:

- Difficulty in the assignment of responsibility: Geothermal activity is monitored through the Building Permit process, which is under the jurisdiction of local government (municipalities). Groundwater regulation is managed provincially. This topic area falls between the authorities of both levels of government. A meeting to secure commitment between the two levels of government is required.
- Funding: Funding is needed to help support this initiative because it is currently a burden to the local government but not fully under their jurisdiction. Funding will also be needed to populate the database of geothermal activity for existing installations, especially as the database is extended to other areas of the Okanagan.

NEXT STEPS:

Continue to work with the City of Kelowna to update policy to include the requirement for borehole information. Move forward with education and outreach to promote action in other communities.

LAND USE AND WATER RESOURCES

Action 2-6 Water in Community Design

Consider water in community design by promoting development that is high-density and uses existing infrastructure.

Reference: SWS pages 32 and 33

Summary of Progress: GOOD

Okanagan municipalities and regional districts are making progress on this action. There is much community discussion about increasing high-density development, and densification is visibly occurring in most Okanagan urban areas. Water supply and quality policies are included in official community plans and regional growth strategies.

BACKGROUND:

One of the most important things a community can do to protect water is to determine areas where it wants growth to occur and areas it wants to preserve. When such areas are clearly defined, development is encouraged on land with less ecological value, such as previously developed areas and vacant properties, and areas such as wetlands, marshes, and riparian corridors are preserved or otherwise removed from the pool of "developable land."

PROGRESS AND UPDATE:

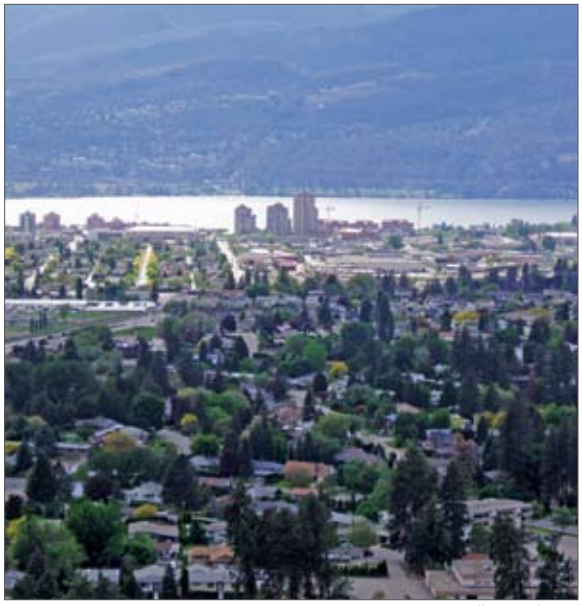
- Okanagan communities increasingly seek assurances about water supply and quality prior to development.
- Regional growth strategies (RGS) have been completed for the Central Okanagan and Okanagan-Similkameen regional districts. The Central Okanagan RGS is currently under active revision and updating. The Regional District of North Okanagan is currently developing a regional growth strategy. The RGSs include goals that address the protection of water quantity and quality.
- Official community plans have been developed for each municipality and regional district and contain land use policies that control the location and type of development to occur in the community and specify that assurances about the water supply be provided before development occurs.

BARRIERS TO MOVING FORWARD:

- Lack of knowledge: Education and outreach is required to ensure politicians, developers and the community understand the benefits of water-centric planning.
- Zoning: Current zoning in some Okanagan communities does not support water-centric planning.

NEXT STEPS:

Continue to encourage Okanagan local governments to support water-centric planning in their communities.



Dan Millar – Kelowna

Action 2-7 Stormwater Management Planning

Prepare new or modify existing stormwater management plans such that they are consistent with the *Provincial Stormwater Planning: A Guidebook for British Columbia.* Use the Water Balance Model to support integrated stormwater management options.

Reference: SWS pages 33 and 34

Summary of Progress: FAIR

Several Okanagan local governments are working to integrate stormwater and rainwater management planning with new or amended Liquid Waste Management Plans. Although several Vancouver Island and Lower Mainland communities are actively using the Water Balance Model, no communities in the Okanagan Basin are using it.

BACKGROUND:

In 2002, the "Stormwater Planning: A Guidebook for British Columbia" was prepared by several provincial agencies and local governments to provide a comprehensive understanding of the issues and framework for implementing an integrated approach to stormwater management. The Water Balance Model was launched in 2003 as an extension to the guidebook. The Water Balance Model is a practical web-based modeling tool that evaluates the feasibility, affordability, and effectiveness of site level stormwater management solutions under different land use, soil and climate conditions.

PROGRESS AND UPDATE:

- Ministry of Environment is asking local governments to link stormwater/rainwater management plans to new or amended Liquid Waste Management Plans. Local governments are becoming more active in this area.
- The Convening for Action in British Columbia team released "Beyond the Guidebook 2010: Implementing a New Culture for Urban Watershed Protection and Restoration in British Columbia in June 2010.
- The OBWB and the BCWWA co-hosted the From Rain to Resource workshop in Kelowna in October 2010. The objective of this workshop was to move municipal governments beyond conventional stormwater management, and inspire them to use rainwater as an integrated resource.
- The City of Vernon is currently updating its Liquid Waste Management Plan.

BARRIERS TO MOVING FORWARD:

- Lack of knowledge: The Water Balance Model is being used by several communities in the Lower Mainland and on Vancouver Island but it is not being used by any communities in the Okanagan. The Convening for Action team has not actively presented to communities in the Okanagan.
- Leadership: Local governments need to be leaders in order to have the development community take the right steps.
- Funding: There is a lack of funding for preparation and implementation of stormwater management plans.

NEXT STEPS:

Continue to encourage Okanagan communities to use the Water Balance Model. The OBWB should investigate the appropriateness of extending the Sewerage Facilities Grants program, which provides infrastructure funding for wastewater treatment, to other infrastructure upgrades, including rainwater and stormwater management systems, to further protect the quality of Okanagan valley lakes. As with the existing grant program, OBWB funds would help leverage senior government infrastructure monies.

Action 2-8 Model Bylaws

Using best practice model bylaws (such as the *Green Bylaws Toolkit* and the *Develop with Care* document) enact or amend land use policies and tools to protect water and the surrounding land (i.e., riparian areas, wetlands, floodplains, etc.).

Reference: SWS pages 34 and 35

Summary of Progress: GOOD

Progress is being made towards this action in the form of regional growth strategies, official community plan and zoning bylaw updates, and planning toolkits.

BACKGROUND:

There are a range of policies and tools that can be used by local governments to encourage water-centric community design and development practices that minimize impervious surfaces.

PROGRESS AND UPDATE:

- See Action 2-6 for progress made on regional growth strategies and official community plans.
- The Groundwater Bylaws Toolkit was released by the OBWB in 2009 (see Action 2-9).
- The OBWB is currently working on developing a Topsoil Bylaws Toolkit for local governments.
- Riparian Area Regulation activities by local governments may also be contributing to this action.

BARRIERS TO MOVING FORWARD:

- Buy-in: There are challenges in getting buy-in from local government councils to make changes in land-use bylaws.
- Private land: It is challenging to implement best management practices on private land. Public support is needed.
- Lack of knowledge: Education and outreach is required to ensure local governments understand the planning tools that are available to them and to help them choose the best options for their communities.

NEXT STEPS:

Support local governments in the enactment or amendment of policies to support sustainable water management.

Action 2-9 Groundwater Protection Bylaws

Develop and harmonize groundwater protection bylaws. Develop a *Groundwater Bylaws Toolkit* as a companion document to the *Green Bylaws Toolkit.*

Reference: SWS page 35

Summary of Progress: EXCELLENT

The Groundwater Bylaws Toolkit is complete and in the hands of Okanagan local governments.

BACKGROUND:

The Groundwater Bylaws Toolkit helps local governments protect the quality and quantity of groundwater within their own geographic and legislative jurisdictions. It presents the basic principles of groundwater science, outlines the local government jurisdiction for managing groundwater, and provides practical land use management tools for communities to protect groundwater.

PROGRESS AND UPDATE:

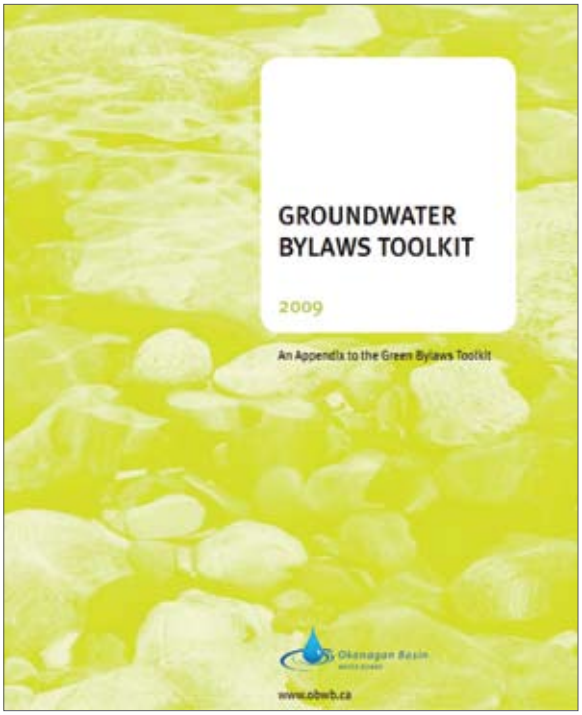
- The Groundwater Bylaws Toolkit was developed by the OBWB in 2009 with financial support from the Gas Tax Innovation Fund and the BC Government Infrastructure Fund. It is currently in the hands of local government.

BARRIERS TO MOVING FORWARD:

- Lack of knowledge: There is currently a lack of knowledge among local government staff and elected leaders about toolkit.
- Resistance to change: There is often a resistance to policy change, especially in groundwater well-dependent rural communities.
- Lack of capacity: Many local governments do not have the capacity to change or adopt bylaws until they need to respond to a crisis.
- Jurisdictional authority: Persistent confusion about jurisdictional authority for approving subdivisions on groundwater exists.

NEXT STEPS:

Expand outreach and support to local government staff to use and adopt the Toolkit. Consider expanding Toolkit section on subdivision approvals.



Groundwater Bylaws Toolkit

WASTEWATER MANAGEMENT

Action 2-10 Sewerage System Applications

Provide technical direction and policy for how to handle sewerage system applications in the sensitive lakeshore and stream areas throughout the Okanagan Basin. Forward the policy statement to municipalities and regional districts to encourage the application of environmental checks for new installations.

Reference: SWS page 37 and 38

Summary of Progress: EXCELLENT

The Province is currently working on this action. The Water Stewardship Council is waiting to see if the mapping and regulatory efforts are sufficient in meeting this action.

BACKGROUND:

The previous Sewage Disposal Regulation, BC Reg. 411/85, contained phosphorus protective provisions linked to mapping of soil absorption types in relation to lakefront distance setback for onsite sewage disposal. These provisions no longer exist in the newer Sewerage System Regulation, effective May 31, 2005.

PROGRESS AND UPDATE:

- The province is undertaking a large mapping and regulatory effort to determine where septic tanks should not be located.
- Provincial regulations have been written to protect foreshore and provide sensitivity setbacks for septic tanks.

BARRIERS TO MOVING FORWARD:

- Lack of resources: Provincial agencies are struggling with budget cuts and lack of human resources.

NEXT STEPS:

Continue to monitor this issue to ensure the provincial government is providing environmental checks regarding the installation of sewerage systems in sensitive areas.

Debbie Gibson - Oyama Lake

Action 2-11 Authorized Person under Sewerage System Regulation

Lobby the Province to add some form of accountability and liability requirement to the Authorized Person in the Sewerage System Regulation.

Reference: SWS pages 37 and 38

Summary of Progress: NO PROGRESS

There has been no change to the Sewerage System Regulation with respect to the practice of using certified installers.

BACKGROUND:

The new Sewerage System Regulation approaches onsite sewage disposal in an entirely different way than that of previous decades. Issues with the current regulation include: a registered practitioner or professional (i.e., "Authorized Person") is in control of the process and there is no long-term liability or accountability requirements set for that person; there is a lack of certified practitioners, leading to increased demand for their services and rising costs; and there is no preliminary external check of the thoroughness of design by the certified practitioner, particularly with respect to the issues of public safety, proximity to drinking water wells or watercourses above where drinking water may be obtained.

PROGRESS AND UPDATE:

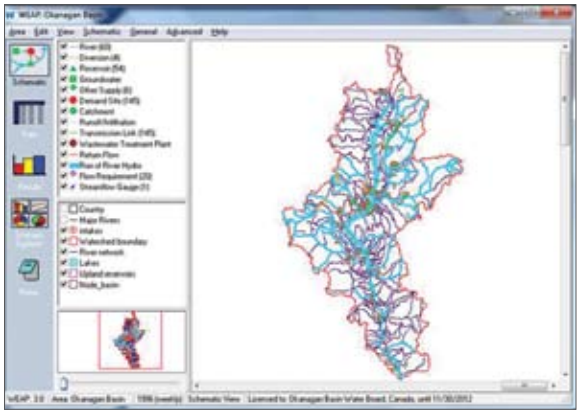
- There has been no progress on this action.

BARRIERS TO MOVING FORWARD:

- Provincial jurisdiction: This issue is under provincial jurisdiction so it is difficult for the Okanagan Water Stewardship Council to influence progress.

NEXT STEPS:

Continue to monitor this issue to ensure the provincial government is providing environmental checks regarding the installation of sewerage systems in sensitive areas.



Action 2-12 Endocrine Disruptors in Wastewater Discharges

Support research on the presence, absence, identification, and effects of EDCs and PPCPs in wastewater discharges.

Reference: SWS page 39

Summary of Progress: EXCELLENT

A study is being completed by researchers at UBC Okanagan. Preliminary results indicate that concentrations of EDCs are low but detectable, and vary in concentration between treatment facilities. Sampling and analysis of wastewater discharge is ongoing.

BACKGROUND:

Endocrine disrupting compounds and pharmaceuticals and personal care products include birth control pills, bisphenol A, DDT, anti-depressants, painkillers and a host of other compounds. Current wastewater treatment systems were not designed to remove these residues. As information is released through national media, questions have been raised about our exposure risk in the Okanagan.

PROGRESS AND UPDATE:

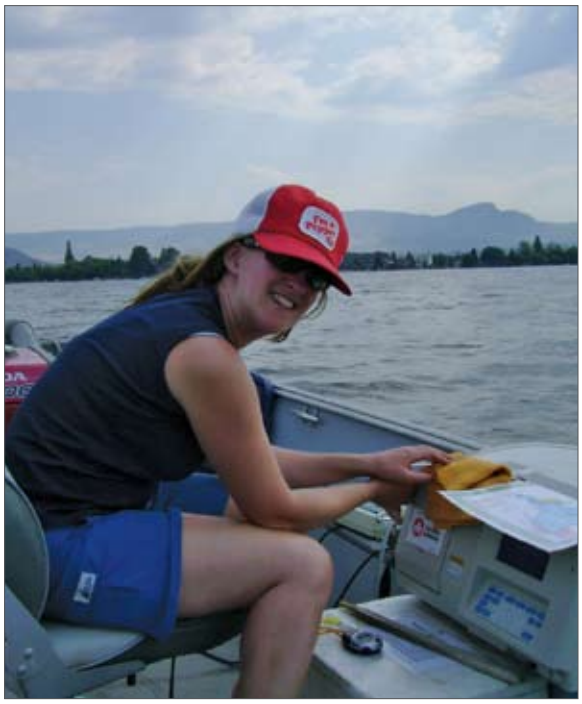
- The OBWB commissioned an Endocrine Disrupting Compounds Study with Dr. Jeff Curtis and Tricia Brett at UBC Okanagan. Curtis and Brett are sampling municipal wastewater to compare predicted and actual levels of four estrogen compounds: natural Estrone, Estradiol, and Estriol, and the synthetic Ethinylestradiol, which is used in almost all oral contraceptive pills.
- Preliminary results indicate that concentrations of Estrone are lower than expected in wastewater from Vernon and Penticton, and higher than expected in wastewater from Kelowna. Concentrations at the outfall are near the lowest detection levels, and are diluted by the volume of the receiving waters.

BARRIERS TO MOVING FORWARD:

- Cost: Sample analysis is very expensive.

NEXT STEPS:

Sampling and analysis of wastewater discharge is ongoing. More work is needed to determine whether levels of Endocrine disrupting compounds in the environment have an impact on fish or other organisms.



EDC

DATA COLLECTION, INTERPRETATION AND DISTRIBUTION

Action 2-13 Mapping

Complete Sensitive Habitat Inventory Mapping, Foreshore Inventory Mapping and Wetland Inventory Mapping basin-wide

Reference: SWS page 40

Summary of Progress: EXCELLENT

Extensive mapping has been completed for Okanagan lake shorelines, priority creeks and wetlands.

BACKGROUND:

Information and data on riparian, wetland, and aquatic ecosystems and water quality in the Basin is often limited in scope, availability, and comprehensiveness, making it difficult for resource managers to make informed decisions at a local level. There are several mapping and inventory tools available to aid in the development of land use policies and improve long-term environmental planning capabilities.

PROGRESS AND UPDATE:

- Foreshore Inventory Mapping has been completed for most of the valley lakes shoreline.
- Sensitive Habitat Inventory Mapping has been completed for most priority creeks in the Basin.
- Wetland Inventory Mapping has been completed for all wetlands in the City of Kelowna.

BARRIERS TO MOVING FORWARD:

- Funding and capacity: Conducting the mapping requires money to work with a consultant and local government staff time to work with results.

NEXT STEPS:

Continue working on this action until all foreshore, sensitive habitats and wetlands in the Okanagan are mapped. Support development of the Okanagan Conservation Partnership website, to make data readily available.

Action 2-14 Online Reporting

Create a streamlined online data reporting system for water quality and supplies.

Reference: SWS page 41

Summary of Progress: EXCELLENT

The Streamlined Water Use Reporting Tool is under development and will be launched in February 2011.

BACKGROUND:

Currently, data collected by water purveyors are sent to different ministries depending upon what the data are. This is inefficient for purveyors and also makes it difficult to see the big picture that the data could provide.

PROGRESS AND UPDATE:

- An online tool that allows large-volume water users in the Okanagan to report and track their water use has been developed by the OBWB. The Streamlined Water Use Reporting Tool will improve efficiency for both the water user and government agencies by standardizing data collection and organizing the information in a useable form. Water suppliers, the Ministry of Environment, and the Ministry of Community, Sport and Cultural Development contributed to the process.

BARRIERS TO MOVING FORWARD:

- Uptake by utilities: The success of the online tool will depend upon its use by the water utilities, and its integration with the provincial government systems. The ultimate goal is to have data entered monthly by all of the major utilities in the Basin, and to replace the current reporting and billing system established by the province.

NEXT STEPS:

The Streamlined Water Use Reporting Tool will be piloted in December 2010 and launched in February 2011. Training sessions will be provided to water utilities in February and March 2011.

SECURING OUR WATER SUPPLIES

WATER ALLOCATION

Action 3-1 Water for Ecosystems

Ensure sufficient water is available to support healthy ecosystems by establishing conservation flows, preserving environmental baseflows, and designating Environmental Water Reserves.

Reference: SWS pages 46 and 47

Summary of Progress: GOOD

Progress has been made in establishing what conservation flows should be, and preserving environmental base flows. No progress has been made towards designating Environmental Water Reserves.

BACKGROUND:

Water flow is naturally low in the Okanagan during the late summer and early fall and water withdrawals, which peak at this time of year, can significantly impact aquatic habitat. About 90 percent of all streams in the Okanagan are already at, or beyond, their licensed capacity for water withdrawal. In times of water shortages, conflicts often arise with the need for conservation flows. For many tributaries, the minimum flow required for ecological function has not been determined. Once conservation flows are determined, the next step will be to formally establish an Environmental Water Reserve for each major tributary.

PROGRESS AND UPDATE:

- Ministry of Environment is determining ecosystem flows on various waterbodies, including Mission, Trout, Trepanier, Peachland, and Penticton creeks, and have agreements with licences on provision of ecosystem flows.
- Ministry of Environment manages Okanagan River flows and lake levels to ensure that water supply and fish flows, are met.
- The Okanagan Water Supply and Demand study included an "instream flow needs analysis" that could be used to inform development of an Environmental Water Reserve. The report recommends optimal flow thresholds, and optimal spawning and rearing flows for salmonid species present at 36 tributary streams in the Basin.
- Investigations are under way by Fisheries and Oceans Canada on a new, more useable instream flow assessment method.
- The Regional District North Okanagan has a fish flow agreement with Fisheries and Oceans Canada for Duteau Creek.
- Water Use Plans have been completed for Trout Creek and Mission Creek. These agreements are voluntary and set out a framework for shared water resource with mutual benefits and mutual reductions in times of drought. They do not, however, set out the future requirements or costs for setting up the storage that is needed for year round optimal environmental flows.
- The OBWB provided funding to the Oceola Fish and Game Club to study surface/groundwater interaction of Middle Vernon Creek.

BARRIERS TO MOVING FORWARD:

- Onsite studies: Onsite studies are needed because the provincial standard desk methods establish optimum flows for fish, rather than "acceptable risk" flows that take into account the potential for water extraction or environmental variation.
- Cost: It is expensive to complete onsite studies.

NEXT STEPS:

Encourage changes to the *Water Act* to accommodate Environmental Water Reserves. Conduct site-specific technical studies on all priority creeks.

Action 3-2 Water for Agriculture

Establish an Agricultural Water Reserve that links agriculture water budget allocations to ALR and agricultural-zoned lands.

Reference: SWS page 48

Summary of Progress: GOOD

Progress has been made on the science needed to determine allocation. No progress has been made towards establishing the reserves. Revisions to the Water Act will be required to implement this action.

BACKGROUND:

The development of an Agricultural Water Reserve would build on the current licensing system to ensure the provision of appropriate water allocation to land that is viable to grow food for residents of the Okanagan and beyond.

PROGRESS AND UPDATE:

- The Agriculture Demand Model, developed as part of the Okanagan Water Supply and Demand study, provides the science required to determine allocation.
- Several organizations included this recommendation in their submissions to the Water Act Modernization process (including the OBWB and the BC Agriculture Council).
- In December 2010, the OBWB submitted a proposal to Agriculture and Agri-Food Canada for funding to study the feasibility of an Agricultural Water Reserve.

BARRIERS TO MOVING FORWARD:

- Waiting on release of modernized *Water Act:* The *Water Act* must be revised for this action to be implemented.
- Need for consultation: Consultation with the agriculture industry and other stakeholders must occur to determine the feasibility and scope of the reserve.

NEXT STEPS:

Consult with the agriculture industry and other stakeholders to determine the feasibility and scope of a reserve. Continue to support scientific studies that contribute to this action.

Oliver Irrigation Canal

Farmer's Market

Action 3-3 Irrigation Licensing

Extend the date on irrigation licenses to allow for irrigation late in the season (October) without increasing the allocation of water. Allow part-season licensing to maximise beneficial use of water.

Reference: SWS page 49

Summary of Progress: FAIR

Several industry submissions to the *Water Act* Modernization process addressed this issue.

BACKGROUND:

Amending the current licensing structure to allow for later-season and part-season irrigation could provide for better use of water by farmers. Currently, farmers have to irrigate in September when stream flows are low because their water licences state that the irrigation season ends on September 30. Allowing later season irrigation would contribute to the maintenance of conservation flows during low flow periods. Part-season licensing allows farmers to irrigate during the spring freshet (May to July) when surplus water is available and then shut down irrigation during low flows.

PROGRESS AND UPDATE:

- The BC Agriculture Council, the Cattlemen's Association and the OBWB's submission to the Water Act Modernization process advocated for this action.
- The grape sector is also lobbying for this change in policy.
- The Regional District North Okanagan usually accommodates an applicant when extension requests are made. It is not known whether other purveyors also do this.

BARRIERS TO MOVING FORWARD:

- Waiting on release of modernized *Water Act:* The *Water Act* must be revised for this action to be implemented.

NEXT STEPS:

Continue to monitor this issue and check on whether or not it is addressed in the modernized *Water Act*.

Action 3-4 Water for Domestic Use

Ensure that sufficient potable water is available for each community for domestic, industrial, commercial and institutional use.

Reference: SWS page 49

Summary of Progress: GOOD

Progress has been made on this action in the form of source protection and water use plans. The Okanagan Water Supply and Demand study estimates that potable drinking water needs are only a small fraction of human water use, and are relatively easy to meet in most areas.

BACKGROUND:

Just as water is set aside for the environment and agriculture, potable water must be available for domestic uses.

PROGRESS AND UPDATE:

- Source protection and water use plans are moving communities towards this action.
- Water Master Plans have been completed, or are underway, for several Okanagan communities, including Lake Country and Peachland.
- A water filtration plant has recently been built for the Greater Vernon Water district.
- The OBWB provided funding to support the following initiatives:
  - City of Kelowna: Mill Creek – Ellison Creek Diversion Analysis
  - District of Lake Country: Deep Okanagan Lake Biology Study
  - District of Lake Country: Assessment of Okanagan and Kalamalka Intakes
  - Kaleden Irrigation District: Assessing Impact of Cyanobacterial Blooms on Skaha Lake
  - District of Coldstream: Coldstream Creek Water Quality Enhancement
  - Okanagan Regional Goose Management Committee: Goose Management Plan
  - Okanagan Nation Alliance: Water Quality Assurance during Okanagan River Restoration Initiative – Phase 2

BARRIERS TO MOVING FORWARD:

- Cost: Treating water to Canadian Drinking Water standards can be very expensive in areas with few residents; especially areas that rely on surface flow from streams or where the aquifer is compromised.

NEXT STEPS:

Ensure source protection plans are in place for all major watercourses in the Basin.

Action 3-5 Review of Water Licensing and Use

Conduct a review of water licensing and water uses for each large water supplier in the valley. Ensure the review considers present water demands, long-term water demands, irrigated areas, source capacity, source reliability, and instream flow needs.

Reference: SWS page 50

Summary of Progress: EXCELLENT

A quantitative review of water licences was conducted as part of the Okanagan Water Supply and Demand study. More detailed, qualitative analysis is needed.

BACKGROUND:

Most of the larger utilities in the Okanagan Basin are licensed for annual water volumes much greater than what they currently use or require. Many streams are thought to be over-allocated, and a review is needed to compare the licensed volume with the environmental and human demands.

PROGRESS AND UPDATE:

- A review of water licences was conducted by Dobson Engineering as part of the Okanagan Water Supply and Demand study. As yet, there has been little analysis as to the balance between licences and demand.

BARRIERS TO MOVING FORWARD:

- Complexity of Model: The Water Accounting Model developed for the Water Supply and Demand study is complex and difficult to use. The OBWB is establishing systems to make data and results more accessible for Ministry of Environment staff and others to undertake such a review.

NEXT STEPS:

Undertake a detailed, qualitative review of water licence allocations in Okanagan sub-basins.

Oliver

Okanagan Lake Orchard

Action 3-6 Drought Management Planning

Ensure all significant water purveyors prepare and implement Drought Management Plans based on the Provincial template, with triggers corresponding to mainstem lake conditions as well as upper reservoirs.

Reference: SWS page 51

Summary of Progress: GOOD

Several communities have drought management plans, but they do not necessarily follow the provincial template. Little progress has been made in establishing common drought stages on mainstem lakes or on basin-wide prioritization for water use during droughts.

BACKGROUND:

Drought management plans spell out trigger conditions for different drought stages and regulatory responses that might be imposed at each stage. In 2004, the Ministry of Environment published the Dealing with Drought Handbook (updated in 2009), which provides a common template for drought management plans. If all communities implemented plans based on this template, it would simplify efforts to develop common drought stages on mainstem lakes and Basin-wide prioritization for water use during droughts.

PROGRESS AND UPDATE:

- Drought planning has been a major focus of the Ministry of Environment in recent years. Many actions have been undertaken, including forming the Inter-Agency Drought Working Group, holding Drought Response Planning workshops, and releasing the British Columbia Drought Response Plan in June 2010.
- The OBWB is conducting a hydrologic connectivity study that will show how communities are connected through their water supplies and provide as base of science for coordinated drought planning.
- The OBWB is spearheading a signage project that will enable communities to show current drought levels.
- Several communities have drought plans in place, but an inventory of who has plans and what they look like has not been completed.
- The Regional District North Okanagan is currently developing a drought plan that is based on the provincial template.
- The OBWB held a drought planning workshop in July 2009.

BARRIERS TO MOVING FORWARD:

- Capacity: Provincial government capacity to conduct hydrometric monitoring has decreased with budget cuts.
- Monitoring: There are limitations on the hydrometric system.
- Jurisdictions: Jurisdictions that share watersheds are not communicating with each other in some cases.
- Wet weather: Drought planning tends to take a back seat when the weather "saves" us at the last minute.
- First in time, first in right: In the absence of a water use plan, this policy can limit the ability to allocate water effectively in times of drought.

NEXT STEPS:

The OBWB should conduct an inventory of drought management plans in the Basin to gain an understanding of where the efforts need to be directed.

Action 3-7 Water Use Planning

Prepare Water Use Plans for all major fish-bearing watercourses in the Basin in coordination with basin-scale Water Use Agreement that specifies responses of all communities to reservoir-level trigger points.

Reference: SWS pages 51 to 53

Summary of Progress: GOOD

Water use plans have been prepared or are in progress for several creeks in the Basin. No progress has been made on a basin-scale Water Use Agreement.

BACKGROUND:

Water use plans are formal agreements for how water will be shared between licensees while still providing adequate flows for fish and wildlife. The water use planning process may be a practical framework for Basin-scale water management planning. This would require two levels of plans: one for the Okanagan River to specify how much water must be delivered from each sub-basin to the mainstem system and individual plans for the Okanagan's major sub-basins.

PROGRESS AND UPDATE:

- Water use plans have been completed for Trout Creek and Mission Creek.
- A water use plan for Powers Creek is in progress.
- A water use planning process may be conducted for Fortune Creek.
- Groundwork has been conducted for a Middle Vernon Creek water use plan.

BARRIERS TO MOVING FORWARD:

- Need to be proactive: Unless there is an extreme need for a water use plan it is difficult for a water purveyor to proactively establish a planning process.
- Funding and capacity: There is limited capacity for the province to participate in the planning process and limited funding options for water purveyors to hire consultants to do water use plan.

NEXT STEPS:

Identify which streams have the greatest need for water use plans and support efforts for water use plan development on those streams.

WATER MANAGEMENT PLANS

Action 3-8 Water Management Plan

Prepare a comprehensive Water Management Plan for the Okanagan Basin that specifically addresses groundwater licensing and monitoring, source water protection, and Basin-wide drought management planning.

Reference: SWS pages 54 and 55

Summary of Progress: GOOD

Considerable progress has been made on collecting the technical information required to support the development of a water management plan but no progress has been made on the plan process itself.

BACKGROUND:

A water management plan is a comprehensive and integrated watershed plan intended to be a basis for provincial regulation on water quality, instream flow requirements and water supply, among other issues. The planning tool was introduced in 2004 under Part 4 of the *Water Act*.

PROGRESS AND UPDATE:

- The Water Supply and Demand study and other technical studies completed in the last few years will provide the foundation for an Okanagan Basin Water Management Plan.

BARRIERS TO MOVING FORWARD:

- Bureaucratic process: The water management planning process is cumbersome and bureaucratic.
- Cost: The planning process is very involved and costly.
- Uncertainty: The only water management plan that has been attempted under the Water Act was faced with serious issues.

NEXT STEPS:

Continue to conduct technical studies that will support the development of a water management plan if the OBWB decides to go that route in the future.

Shawn Fennell - Okanagan Lake

WATER CONSERVATION AND EFFICIENCY

Action 3-9 Regional Water Conservation Strategy

Develop a Regional Water Conservation Strategy that contains principles, policies and practices for adoption and implementation by local governments.

Reference: SWS pages 56 and 57

Summary of Progress: GOOD

No direct progress has been made on this action, but the OBWB has launched a valley-wide water conservation campaign: "Okanagan WaterWise." This campaign has helped build relationships and exchange information on water conservation among municipalities.

BACKGROUND:

Many communities have implemented water conservation programs in the Basin, but are work mostly independently of one another. Sharing knowledge and experience between communities is invaluable for improving water conservation in the Basin. A Regional Water Conservation Strategy would provide high-level principles and policies on water conservation and efficiency for adoption by the local governments in the Basin. It would also provide guidance on what socio-political, economic and structural or operational components should be considered by local governments when developing a conservation program.

PROGRESS AND UPDATE:

- No direct progress has been made on this action.
- The OBWB's Okanagan WaterWise program is helping to set the stage for a regional water conservation strategy by building relationships and facilitating information exchange among municipalities. At the core of the program is the message "One Valley. One Water." – reflecting the interconnectedness of our water resources and the need for everyone in the Basin to work together to protect it.

BARRIERS TO MOVING FORWARD:

- Duplication of efforts: The Columbia Basin Trust is working on a regional water conservation strategy for the Kootenays so the Council is waiting to see what this contains as there may be opportunities to use some of the CBT's work. The OBWB wants to avoid duplication of efforts.

NEXT STEPS:

Review the Columbia Basin Trust's plan when it is released. Continue using Okanagan WaterWise to build partnerships that will provide the foundation for a regional water conservation strategy.

Okanagan WaterWise screenshot

Action 3-10 Outdoor Water Use

Reduce outdoor water use by using Certified Irrigation Designers to install systems, implementing soils bylaws and landscape and irrigation standards, and improving irrigation scheduling.

Reference: SWS pages 57 to 60

Summary of Progress: GOOD

Several courses and certification programs are available but demand for Certified Irrigation Designers and other professionals must increase to drive enrolment. Several Okanagan communities and organizations are working towards improved soil and landscape management and more efficient outdoor irrigation.

BACKGROUND:

The greatest potential for domestic and agricultural water savings in the Basin is during the irrigation season of May through September, when water consumption in some communities is more than ten times greater than the off-season rate. Ensuring that irrigation systems are correctly designed, installed and maintained, selecting the most efficient systems possible, implementing soil bylaws and landscape standards, and improving irrigation scheduling are techniques that can be used to reduce outdoor water use.

PROGRESS AND UPDATE:

- The Irrigation Industry Association of BC (IIABC) provides numerous courses and certification programs for irrigation management.
- The IIABC has developed an irrigation scheduling calculator that uses real time climate data to determine an irrigation schedule for landscape and agricultural irrigation systems.
- The OBWB provided funding to the following initiatives:
  - City of Kelowna: Landscape and Irrigation Standards for Water Efficiency
  - Regional District Okanagan Similkameen: Irrigation Scheduling
  - West Bench Irrigation District: Large Lot Xeriscape Design
  - Okanagan Xeriscape Association: Bringing Xeriscape Knowledge and Action to the Okanagan
  - Okanagan Xeriscape Association: Fostering
  - New Social Norm for Low Water Landscaping in the Okanagan
  - City of Kelowna: Irrigation Systems Assessment and Strategy for Parks
  - West Bench Irrigation District: Large Lot Xeriscape Manual

BARRIERS TO MOVING FORWARD:

- Demand: Okanagan local governments need to ensure people (developers, residents, farmers, etc.) are using certified professionals to install irrigation systems.
- Lack of knowledge: Many residents and some farmers are not aware of the practices they can use to reduce the need for water for irrigation.

NEXT STEPS:

Investigate innovative communication tools and processes to change perceptions about landscape irrigation. Encourage Okanagan municipalities to support the Irrigation Industry Association of BC's initiatives by promoting or requiring certification of staff and industry that deal with irrigation.

Action 3-11 Water Meters

Install water meters on all points of diversion and connections in the Basin, and monitor water use.

Reference: SWS page 60

Summary of Progress: GOOD

Most large water systems meter their connections. Little progress has been made on metering points of diversion.

BACKGROUND:

Meters make it possible to monitor how much water is being used and by whom and provide a method of collecting time series data that can identify trends in water consumption and factors contributing to these trends. Metering also enables utilities to establish water pricing levels that promote water conservation and provides a mechanism for fairly distributing the costs of providing water to individual users.

PROGRESS AND UPDATE:

- Most large water systems in the Okanagan Basin are now metered.
- The OBWB provided funding for the following programs:
  - RDCO Universal Metering Program
  - District of Lake Country Water Metering and Conservation Program
  - District of Summerland Universal Domestic Metering Project
  - Westbank Parks Irrigation Review and Metering Strategy
- Agriculture and Agri-Food Canada and the Ministry of Agriculture funded metering programs for agriculture.

BARRIERS TO MOVING FORWARD:

- Cost: There are substantial costs for meter installation and ongoing operational costs (e.g., maintenance, meter readings).
- Support: There is low support for metering in the agricultural community, because of concern about how the data will be used.

NEXT STEPS:

Advocate for senior government support for metering initiatives in the Okanagan Basin. Continue to promote water metering for all sectors.

Water Meter

Action 3-12 Pricing Assessment

Conduct a Basin-wide water domestic pricing assessment to determine an appropriate water rate for basic "lifeline" volumes and appropriate block rates for increasing metered use.

Reference: SWS pages 61 and 62

Summary of Progress: EXCELLENT

The OBWB has conducted a preliminary water pricing survey of Okanagan water utilities, and found substantial variation in pricing levels and policies. A number of detailed pricing studies are under consideration for the near future.

BACKGROUND:

Every resident in the Okanagan should have access to a basic "lifeline" volume of clean water for drinking and sanitation at a reasonable price. Geographic and infrastructure differences in the Basin mean that some water utilities must charge more for water than others. A water pricing study could help determine what the water rate for basic "lifeline" volumes should be.

PROGRESS AND UPDATE:

- The OBWB has conducted a preliminary water pricing survey, and other studies are proposed and under consideration. There is substantial interest by government and non-government policy analysts in improving water pricing policy. The Polis Project on Ecological Governance recently produced a review of municipal water pricing.

BARRIERS TO MOVING FORWARD:

- Large number and diversity of water purveyors: The Okanagan has approximately 100 different water purveyors, with extremely different infrastructure costs, water quality, and numbers of connections. With such variation, it is difficult to determine a common pricing formula.
- Lack of capacity: Many water purveyors lack capacity to do the economic analyses needed to create a sustainable system.
- Controversial issue: Water pricing is a politically volatile and divisive issue.

NEXT STEPS:

Move forward with detailed pricing studies and analyses, providing clear and consistent information to water purveyors and water users. Involve stakeholders from municipalities and agriculture to improve communication and reduce conflicts as policy is developed.

Action 3-13 Affordable Water for Agriculture

Where appropriate, maintain affordable agricultural water rates by splitting systems, increasing use of treated wastewater, implementing education and incentive programs, and other mechanisms.

Reference: SWSpages 62 and 63

Summary of Progress: GOOD

Several water suppliers have split systems or are planning to split their systems within the next five years.

BACKGROUND:

Many water systems in the Okanagan were designed to supply large volumes of water for irrigation purposes. Subsequently, residential connections have been added to these systems and treatment requirements have become more stringent. Splitting agricultural water from domestic water would enable purveyors to treat smaller volumes of water to residential standards, thus reducing the overall cost of treatment. Increasing the use of treated wastewater for irrigation can also contribute to affordable water for agriculture.

PROGRESS AND UPDATE:

- Southeast Kelowna, Black Mountain, Penticton, Oliver and Summerland will have split systems within the next five years.
- Other water systems are looking at splitting their systems as an option to reduce the infrastructure cost of operation and maintenance for filtration systems.
- Agriculture in the Regional District North Okanagan has its own rate and the strategic plan specifies that water for agriculture must be affordable.
- The City of Kelowna is currently conducting a Grey Water Recycling Study (with funding from the OBWB).

BARRIERS TO MOVING FORWARD:

- Cost: It is very expensive to split systems.
- Funding: It is difficult for water suppliers to find adequate funding to split systems because of provincial policies that improvement districts be self-financed.

NEXT STEPS:

Continue to support initiatives that provide affordable water for agriculture.

Karen Miller

WATER STORAGE

Action 3-14 Planning for Water Storage

Ensure water storage is identified as a strategic and critical component to water management in an Okanagan Water Management Plan and sub-basin Water Use Plans.

Reference: SWS pages 63 and 64

Summary of Progress: GOOD

Water use plans have been completed for two large sub-basins in the Okanagan: Trout Creek and Mission Creek. Source assessment processes are also underway in various watersheds. These plans and assessments are a good first step, but they do not set out the future requirements or costs for setting up storage that is needed for year round optimal environmental flows.

BACKGROUND:

One of the central water management problems in the Okanagan is lack of storage. Shoreline development along the valley lakes limits the ability to increase storage by raising reservoir levels. Drawing down the lake levels would also have an impact on infrastructure as well as habitat. Increased storage is an important priority for the Okanagan to increase our resilience to variation in precipitation, impacts of climate change and mountain pine beetle, and the increased demand from agriculture and population growth.

PROGRESS AND UPDATE:

- The Okanagan Water Supply and Demand study identified a need for upland storage.
- Various source assessment processes underway in the Basin are including upland storage in their discussions.
- Wateruse plans have been completed for Trout Creek and Mission Creek.

BARRIERS TO MOVING FORWARD:

- Safety concerns: The landslide in Oliver has led to concerns over storage safety.
- Funding: Developing upland storage is expensive.
- Lack of information: Future requirements and costs for setting up storage are unknown.

NEXT STEPS:

The cost and the value of storage must be established and communicated so that funding opportunities and longer term storage requirements are known to the stakeholders in each watershed.

Action 3-15 Storage Surcharge

Change water licence structure so in-stream licences without storage pay a surcharge, which goes in a watershed storage reserve fund.

Reference: SWS pages 64 and 65

Summary of Progress: NO PROGRESS

No progress has been made on this action. The current Water Act does not allow for the mechanisms required to support this fund.

BACKGROUND:

Most of the accessible and lower cost upstream storage sites have already been developed, resulting in higher costs for further development. A watershed storage reserve fund should be implemented to support the construction of upper watershed storage reservoirs. The fund could be administered by the OBWB and only licensees that have the opportunity for storage would pay into it. The water storage surcharge could be collected from one or both of the following areas: 1) funding from increased licence fees, and 2) funding from development projects.

PROGRESS AND UPDATE:

- No progress has been made on this action.

BARRIERS TO MOVING FORWARD:

- Regulation: The current Water Act does not allow for the mechanisms required to support this fund.
- Lack of information: The OBWB is doing a hydrologic connectivity study, on the potential interdependence of water supply areas, that might support this action, but there is currently not enough information to complete this action.

NEXT STEPS:

Action at the provincial level through the Water Act Modernization process is required to enable the collection of a water storage surcharge. The OBWB should lobby the province to consider these mechanisms and work with the water suppliers to identify a watershed to conduct a pilot.

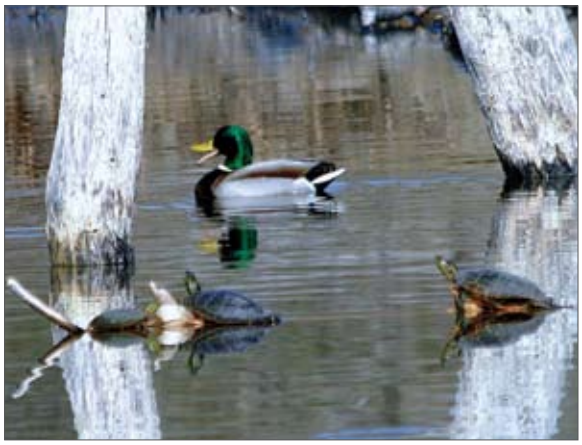
Action 3-16 Coordinated Water Storage

Implement policies that support coordinated water storage by utilities.

Reference: SWS page 65

Summary of Progress: FAIR

No direct progress has been made on this action, but the Water Supply Association of BC is currently drafting a policy paper that addresses coordinated water storage by utilities.



Debbie Gibson

BACKGROUND:

As more demand is placed on water sources there will be increased pressure to construct additional storage facilities. A policy of "coordinating water storage" should be implemented to reduce potential problems in the future that may result from competing interests. Coordinated water storage means that the management of reservoir storage of releases to a creek should be the responsibility of one party (a single operator) and not several independent licensees.

PROGRESS AND UPDATE:

- The Water Supply Association of BC is currently drafting a policy paper on water management that includes recommendations on coordinated storage for sub-basins and a single water storage operator per sub-basin.

BARRIERS TO MOVING FORWARD:

- Lack of action by the province: There has been no official action by the Ministry of Environment on this initiative.
- Lack of understanding: More information needs to be provided to the Council and the OBWB for them to understand the implications of this action and what is required for its implementation.

NEXT STEPS:

The Council will review the Water Supply Association of BC's policy paper when it is released and decide what action to take.

DATA COLLECTION, INTERPRETATION AND DISTRIBUTION

Action 3-17 Hydrometric and Climate Monitoring

Maintain and expand the network of hydrometric and climate stations operating in the Okanagan Basin, and establish a Board comprised of governments and data users to promote and manage the network.

Reference: SWS page 66

Summary of Progress: FAIR

Little progress has been made in establishing new hydrometric stations. The OBWB plans to establish a data repository for hydrometric monitoring data.

BACKGROUND:

Accurate, long-term, real-time hydrometric data is essential for water management and determining the quantity of water available at dams and reservoirs. With these data, water purveyors can determine the relationship between historical spring freshet volumes and snow pillow depth, and predict water levels for the upcoming storage season. The basic network of hydrometric stations in the Okanagan has been declining for several years.

PROGRESS AND UPDATE:

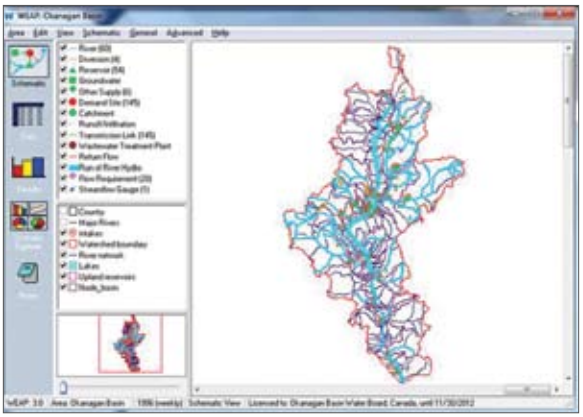
- Phase 2 of the Water Supply and Demand study identified a need for more stations.
- Some progress has been made through the Okanagan Nation Alliance in accessing funding for hydrometric stations in Inkameep and Vaseaux creeks.
- Environment Canada's Water Survey of Canada operates or cooperates in operating 33 hydrometric stations on the mainstem river and lakes and several tributaries of the Okanagan River.

BARRIERS TO MOVING FORWARD:

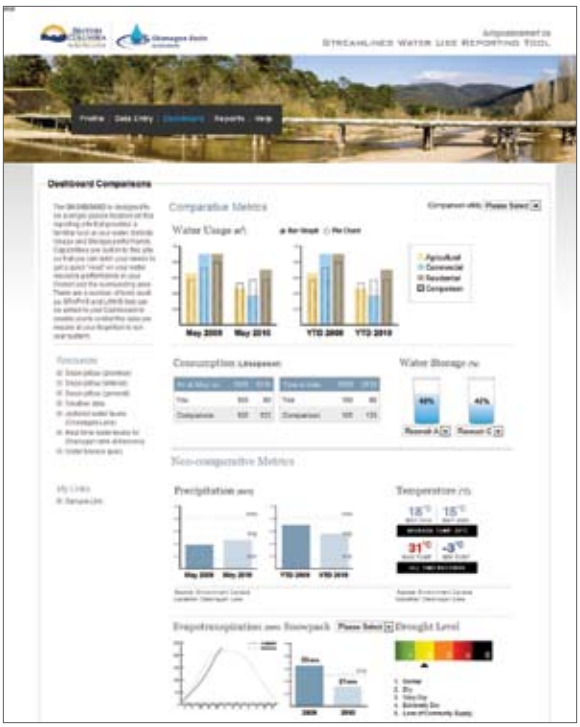
- Funding: There is a lack of funding for hydrometric and climate stations.
- Capacity: Provincial government capacity to conduct hydrometric monitoring has decreased with budget cuts.

NEXT STEPS:

Continue to lobby for new hydrometric monitoring stations. Develop a database for hydrometric monitoring data and information, and further support information management of water resources.



WEAP Model



SWURT

Action 3-18 Flow Recording

Install flow measurement recorders at all reservoir spillways.

Reference: SWS pages 66 and 67

Summary of Progress: FAIR

Little progress has been made on this action.

BACKGROUND:

Measuring release flows at spillways on upper watershed reservoirs will assist in determining water availability. This can be done for a reasonable cost using flow measurement recorders installed on the release structure.ears.

PROGRESS AND UPDATE:

- Little progress has been made on this action.
- Black Mountain Irrigation District has installed recorders at all reservoir spillways.
- This action has been written into the Capital Works plans for several water utilities, including Glenmore-Ellison, Lakeview, Westbank and Summerland.

BARRIERS TO MOVING FORWARD:

- Lack of understanding: The importance of flow measurement recorders is not well understood by utilities. The data collected fills a gap and the device is cheap to install. After several seasons of collecting data in the Black Mountain Irrigation District, for example, their knowledge of the upper subbasin capacity has increased substantially.

NEXT STEPS:

A champion is needed to encourage suppliers to install flow measurement recorders at all reservoir spillways. This data should eventually become part of the Streamlined Water Use Reporting Tool inputs for each utility because it could provide the province with a more accurate picture of the basin and subbasin flows in the watersheds.

Action 3-19 Evapotranspiration and Evaporation

Collect physical meteorological data on evapotranspiration and lake evaporation to validate model outcomes and derive accurate estimates of evaporative water loss.

Reference: SWS page 67

Summary of Progress: FAIR

Slow progress has been made on this action. Environment Canada is investigating the feasibility of establishing land-based monitoring towers to collect data to test lake evaporation models.

BACKGROUND:

Evapotranspiration and evaporation are the largest loss factors from the Okanagan Basin water budget, yet they are the least understood. Current knowledge has been gained through the use of models based on limited data. More data are required to verify and validate model outcomes.

PROGRESS AND UPDATE:

- The OBWB submitted proposals to NASA and Agriculture and Agri-Food Canada that include data collection on evaporation.
- Agriculture and Agri-Food Canada Pacific Agricultural Research Centre is conducting research on plant water use/requirements for perennial crops.
- Environment Canada is studying the feasibility of deploying monitoring stations to gather data to test lake evaporation models.

BARRIERS TO MOVING FORWARD:

- Lack of capacity: Environment Canada has not had the capacity to conduct an evaporation study in recent years.
- Cost: These studies are expensive to conduct and require specialized monitoring

NEXT STEPS:

Continue to encourage Environment Canada to conduct an evaporation study in the Basin.

Action 3-20 Groundwater Regulation and Monitoring

Develop a pilot project in partnership with the Province and local governments to improve groundwater regulations and requirements for groundwater monitoring.

Reference: SWS page 68

Summary of Progress: FAIR

There has been little progress towards establishing a pilot project. Various organizations submitted input that addressed this issue to Water Act Modernization process. The OBWB is currently working to establish partnerships between local governments and the Ministry of Environment to install groundwater monitoring wells in various locations in the Okanagan, and has developed a groundwater bylaws toolkit to improve local regulations.

BACKGROUND:

There is a high degree of uncertainty regarding groundwater conditions in most sub-basins in the Okanagan. The Province does not require licensing of groundwater extraction, has not historically keep records of well construction and abandonment, and does not require reporting of groundwater use.

PROGRESS AND UPDATE:

- Various organizations provided input to the Water Act Modernization consultation process that addressed the issue of lack of groundwater regulation and monitoring.
- Some communities in the basin are undertaking their own monitoring programs.
- The OBWB provided funding to the following initiatives:
  - Regional District Okanagan Similkameen: Aquifer Vulnerability Mapping Study
  - Larkins Waterworks District: Aquifer Monitoring Well
  - Central Okanagan Regional District: Preliminary Hydrogeological Assessment of Joe Rich
- The OBWB is spearheading a project that will foster partnerships between the Ministry of Environment and Okanagan municipalities to install and maintain groundwater monitoring wells.

BARRIERS TO MOVING FORWARD:

- Waiting on release of modernized *Water Act:* Revisions to the *Water Act* must be made for this action to be successfully implemented.
- Controversial and complex issue: There is controversy among residents, farmers, and government officials regarding licensing of groundwater. The issue is complex as it involves changes to regulation to implement.
- Lack of information: Scoping needs to be done to choose the right area for a pilot project in order to get the provincial government to support it.

NEXT STEPS:

Continue working with the Ministry of Environment and Okanagan municipalities to install monitoring wells. Identify which factors would be highest priority to work on if the Okanagan were chosen as a pilot area for groundwater regulation.

Groundwater well

WEAP model

Action 3-21 Regional Well/ Borehole Database

Develop a regional well/borehole database that includes basic subsurface information for wells and boreholes, and extraction flows and actual use records for all past, present, and future wells drilled in the Okanagan Basin.

Reference: SWS page 68 and 69

Summary of Progress: NO PROGRESS

No progress has been made towards developing a regional database.

BACKGROUND:

Under the Groundwater Protection Regulation only a subset of boreholes, wells, and basic well logs are required to be publicly reported and made available on the web based search tool managed by the Ministry of Environment. A Regional Well/ Borehole database for the Okanagan would enable the compilation of basic subsurface information for all wells and boreholes in the basin into a centralized and broadly accessible archive.

PROGRESS AND UPDATE:

- The City of Kelowna is trying to establish a database but it is costly to maintain. City staff has discussed mechanisms for collecting funds to support the data collection and input.
- The OBWB included this recommendation in their input to the Water Act Modernization process.

BARRIERS TO MOVING FORWARD:

- Lack of regulation: Bylaws would be needed by municipalities (e.g., City of Kelowna) to require well owners or well drillers to submit data and provide funds to support the database.
- Duplication of efforts: The Ministry of Environment has a wells database so rather than duplicating efforts and creating a brand new database it might be wiser to work together to enhance the current database.

NEXT STEPS:

Work with municipalities and the provincial government to expand the amount of groundwater information that is collected in the Okanagan Basin.

DELIVERING THE STRATEGY

COLLABORATION AND COMMUNICATION

Action 4-1 Collaboration through Partnerships

Support and foster collaboration through partnerships between local and senior governments, scientists, educational institutions, business community leaders, students, aboriginal peoples and local citizens.

Reference: SWS page 79

Summary of Progress: EXCELLENT

Significant progress has been made on this action by many organizations. Collaboration has become the primary way that projects are accomplished in the Basin. There are still risks of divisiveness during resource shortages.

BACKGROUND:

Collaboration is critical in the Okanagan Basin because of the multi-jurisdictional nature of water governance. This collaboration must extend beyond the borders of political jurisdictions to ensure physical watershed boundaries are taken into account when making decisions related to water resources.

PROGRESS AND UPDATE:

- Many organizations are directing considerable effort toward developing and fostering partnerships to deliver priority actions.
- In times of limited financial resources, collaboration is the only way projects can be accomplished.
- There are still risks of divisiveness during extreme shortages – such as droughts, but most resolution mechanisms emphasize consultation and partnerships.

BARRIERS TO MOVING FORWARD:

- Funding: Collaboration requires funds to allow joint projects.
- Capacity: There has been a reduced capacity in many organizations as far as human and financial resources are concerned.

NEXT STEPS:

Continue to support and foster collaboration. Seek out funding partnerships for water projects. Develop Memorandums of Understandings for collaborative planning.

Rain to Resource

Action 4-2 Partnerships with Aboriginal Peoples

Partner with aboriginal people in the development of Basin water management strategies.

Reference: SWS pages 79 and 80

Summary of Progress: GOOD

Slow but steady progress has been made in forming partnerships between non-aboriginal and aboriginal peoples in the Basin.

BACKGROUND:

Partnerships and active dialogue between non-aboriginal water managers and aboriginal peoples are essential for sustainable water management in the Basin. Local governments should seek innovative ways to assist with staff and capacity needs of the Okanagan Nation Alliance. Such support will accelerate resolution of outstanding questions about anticipated water demand on Okanagan band lands.

PROGRESS AND UPDATE:

- The Canadian Okanagan Basin Technical Working Group has aboriginal representatives that are actively involved in its work.

BARRIERS TO MOVING FORWARD:

- Capacity: First Nations organizations are stretched to the limits so it is difficult for them to attend meetings and provide input into water management processes.

- Reluctance: Some aboriginal groups are reluctant to enter into discussions that may affect title issues.

NEXT STEPS:

Continue to work on developing partnerships and supporting aboriginal groups in enhancing their capacity to participate in water management planning.

Action 4-3 Southern Interior Regional Drinking Water Team

Obtain local government representation on the Southern Interior Regional Drinking Water Team established under the Inter-agency Accountability and Coordination on Drinking Water Protection Memorandum of Understanding.

Reference: SWS page 83

Summary of Progress: EXCELLENT

The OBWB has been permitted to attend meetings of the Southern Interior Regional Drinking Water Quality Team.

BACKGROUND:

In October 2006, a process for agencies to communicate at a strategic level regarding jurisdiction about drinking water protection was formalized through a Memorandum of Understanding between several provincial ministries and health authorities. Allowing the OBWB to participate on the drinking water team would improve communication between the provincial ministries, local water purveyors and water managers.

PROGRESS AND UPDATE:

- The OBWB has been allowed to attend meetings of the Southern Interior Drinking Water Quality Team, but does not have formal membership as it is not a provincial agency.

BARRIERS TO MOVING FORWARD:

- No direct barriers to participation.

NEXT STEPS:

Continue to participate on the Southern Interior Regional Drinking Water Quality Team.

GOOD SCIENCE TO INFORM POLICY

Action 4-4 Information Network

Create a new service provided by the OBWB called the Okanagan Basin Information Network (OBIN) to support good water management and governance. Ensure the OBIN is sufficiently resourced with trained staff and secure funding.

Reference: SWS pages 85 and 86

Summary of Progress: EXCELLENT

Progress on this action has been slow but steady. The OBWB is in the process of establishing a number of linked databases with Okanagan water information.

BACKGROUND:

The information network would provide central access to existing and future information about water in the Okanagan. It would integrate and collaborate with existing data management programs. It would also to integrate the large water science data sets and modeling systems being created through the Okanagan Water Supply and Demand study. The network would be managed by the OBWB.

PROGRESS AND UPDATE:

- The OBWB has hired a contractor to develop a number of linked water information databases. These databases will complement other data sources such as Eco-Cat and the community mapping network website.
- The International Joint Commission is working on the Canada-US Hydrographic Data Harmonization under the International Watersheds Initiative, which will sew together fundamental hydrographic frameworks (e.g., basins, rivers, waterbodies).

BARRIERS TO MOVING FORWARD:

- Time and money: Creating and maintaining the database is slow and costly.

NEXT STEPS:

Keep working on the water databases and continue to form partnerships to ensure the database integrates other data sources in the Okanagan, the province, and those that are run by the Government of Canada.

Action 4-5 Water Research

Identify knowledge gaps and actively encourage collaborative projects and post-secondary programs focused on water research that fills those gaps.

Reference: SWS page 86

Summary of Progress: EXCELLENT

Many organizations in the Basin are working with senior government, First Nations, UBC Okanagan and Okanagan College on research projects to support sustainable water management.

BACKGROUND:

Government research institutions and post-secondary education programs support water sustainability in many ways. Different types of institutions specialize in different focus areas, and have different funding sources. The benefit of post-secondary programs is that they provide independent expertise on water issues, and attract and train the next generation of water resource professionals to the valley.

PROGRESS AND UPDATE:

- The Ministry of Environment, local governments, the OBWB, Agriculture and Agri-food Canada, Environment Canada and other organizations are collaborating with each other and with university institutions on a variety of strategic research projects.
- UBC Okanagan recently established a BC Regional Innovation Chair in Water Resources and Ecosystem Management to support Okanagan water research.

BARRIERS TO MOVING FORWARD:

- Communication: There is a need for greater communication between research groups to reduce redundancy and coordinate efforts. Often teams of researchers from different organizations can be complementary.
- Funding: There is always need for more research funding.

NEXT STEPS:

The OBWB provides a key communication and networking role, integrating the work of university and government research institutions. Research directions for the new Regional Innovation Chair in Water Resources will be guided by a special advisory team, and the OBWB should stay closely involved in this effort.

FUNDING FOR WATER SUSTAINABILITY

Action 4-6 Funding Water Governance

Undertake an economic analysis of appropriate funding mechanisms to support Okanagan water governance base funding.

Reference: SWS pages 87 and 88

Summary of Progress: FAIR

The OBWB has had preliminary discussions with the Ministry of Environment regarding funding mechanisms for water governance. More work is needed to identify the optimal mix of funding mechanisms for the Okanagan Basin.

BACKGROUND:

The OBWB uses local funds through property taxes; however those taxes only target a portion of the population. Tourists and renters are not included, which places an undue burden on long-time residents with large properties. There are a range of funding options that are commonly used in other regions and could be applied to the Basin, including volume-based water use fees, water licence rentals, recreational user fees, and sales taxes. Each option has strengths and weaknesses and operational costs.

PROGRESS AND UPDATE:

- The OBWB has had preliminary discussions with the Ministry of Environment regarding appropriate funding mechanisms, such as a portion of water license rents, to support water monitoring and other management expenses in the Okanagan.

BARRIERS TO MOVING FORWARD:

- Government policy: Consolidated revenue is a government policy so that makes it difficult to direct locally-collected revenues to local projects. Ministry staff cannot advocate for this.

NEXT STEPS:

Continue discussions with the Ministry of Environment to determine appropriate funding mechanisms to support water governance.

Mayor's Expo with WaterWise

Action 4-7 Funding Water Management

Create an Okanagan water fund. Develop external and internal partners to leverage funding opportunities. Link the distribution of funds to strategic Okanagan water management goals and objectives.

Reference: SWS page 88

Summary of Progress: NO PROGRESS

No progress has been made on this action.

BACKGROUND:

An Okanagan water fund would expand local capacity to undertake focused initiatives that support sustainable water management. Rather than relying solely on property taxes, the fund would be a landing pad for private donations and would match funds from senior government. The proposed Okanagan water fund aims to accelerate the development and uptake of water management tools, smart technologies, and best water use practices in the Okanagan.

PROGRESS AND UPDATE:

- No progress has been made on this action.

BARRIERS TO MOVING FORWARD:

- Lack of information: The OBWB needs to more clearly articulate what the funds would be used for, and how the program would be structured and managed.

NEXT STEPS:

Collect information to strengthen the case for this action.

COMMUNITY ENGAGEMENT

Action 4-8 Funding Water Governance

Develop a Basin-wide community engagement strategy highlighting water conservation and pollution prevention.

Reference: SWS pages 88 and 89

Summary of Progress: EXCELLENT

The OBWB's community engagement strategy, entitled "Okanagan WaterWise" was launched in 2009.

BACKGROUND:

Effective community engagement programs generally enhance the likelihood of success of water management initiatives by changing people's understanding, behaviours, and actions towards environmental sustainability, water conservation and healthy watershed. Informed citizens then support decision makers to create sustainable water policies.

PROGRESS AND UPDATE:

- The OBWB developed the Okanagan WaterWise program and is currently delivering initiatives under the program. Initiatives include a resource-rich and visually appealing website and Facebook profile, and a banner display showing the Okanagan's high rate of water consumption.

BARRIERS TO MOVING FORWARD:

- Uptake by local governments: Each local government has their own water conservation program and there is reluctance by some to be part of a Basin-wide program.
- Duplication of efforts and information: In order to be successful, the Okanagan WaterWise program should not duplicate efforts by local governments.

NEXT STEPS:

Continue to deliver initiatives under the Okanagan WaterWise program.

MONITORING, REVIEWING AND REPORTING ON THE STRATEGY

Action 4-9 Reporting Tools

Develop reporting tools that incorporate benchmarking and result-oriented focus to support the measuring, tracking, management, and accountability of water resources in the Okanagan.

Reference: SWS page 90

Summary of Progress: EXCELLENT

This report is the first in a series of progress reports that will be prepared as needed to monitor the implementation of the actions in the Strategy. The OBWB prepares an Annual Report that outlines their work on water management. The OBWB funds many projects through its small grants program that contribute to monitoring and reporting on water resources in the Okanagan.

BACKGROUND:

To fill knowledge gaps identified in the Strategy and to ensure that actions taken to manage water in the Basin are effective and efficient a monitoring program or "report card" should be developed.

PROGRESS AND UPDATE:

- It has been just over two years since the Strategy was released. This progress report provides a snapshot of what has been accomplished since then and by whom, what still needs to be accomplished, and what the next steps should be for each action.
- The OBWB Annual Report provides a description of the OBWB's governance structure, projects and initiatives, and budget.
- Many of the projects highlighted throughout this report have had reporting and monitoring components.

BARRIERS TO MOVING FORWARD:

- Funding and capacity: Researching and writing progress reports and Annual Reports takes considerable time and effort. Data collection and monitoring requires significant funding and human resources.

NEXT STEPS:

Continue to prepare progress reports every 2-5 years (timeline for reviews will be determined by OBWB staff and the Okanagan Water Stewardship Council). Update the Strategy (or components of it) and release Action Plan 2.0 when Action Plan 1.0 is deemed to be out-of-date (i.e., when most of the actions are completed or when significant new information or actions arise that should be included).

Action 4-10 Continuous Reassessment and Improvement

Recognize the importance of continuous reassessment and improvement of the Sustainable Water Strategy and use adaptive management to ensure the Strategy remains current.

Reference: SWS page 90

Summary of Progress: EXCELLENT

As part of this progress review, and at their monthly meetings, the Okanagan Water Stewardship Council discuss current water issues and learn about new projects and scientific studies that relate to water management in the Basin.

BACKGROUND:

The Strategy is meant to be a living document that will change with time to respond to arising issues and incorporate new knowledge and data.

PROGRESS AND UPDATE:

- The Okanagan Water Stewardship Council has used the Strategy as their guidebook over the past two years. In addition to working on the actions in the Strategy, the Council has also kept abreast of emerging issues, data, and opportunities through dialogue within the group and the exemplary work of OBWB staff.

BARRIERS TO MOVING FORWARD:

- Communication: Awareness of emerging issues, scientific studies, and water management initiatives requires effective communication between Council members, the Board of Directors, OBWB staff, and external water managers and stakeholders.

NEXT STEPS:

Continue the dialogue between members Council members, the Board of Directors, OBWB staff, and external water managers and stakeholders from all sectors.

Oliver